



Solving the Mystery of Marine Protected Area Performance: Monitoring social impacts

Field Manual

Version 1.0

September 2012

SUGGESTED CITATION:

Glew, L., M.B. Mascia and F. Pakiding (2012). Solving the Mystery of MPA Performance: monitoring social impacts. Field Manual (version 1.0). World Wildlife Fund and Universitas Negeri Papua, Washington D.C. and Manokwari, Indonesia.

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Acknowledgments

We would like to thank the following individuals and organizations for their contributions:

Universitas Negeri Papua field team: Yori Turu Toja, Albertus Girikallo, Tommy Pattiasina, Sanadi Abrauw, Joiner Ainus, Gerald Baransano, Hero Dirgantara, Yanuarius Dumutu, Stella Hay, Frengky Krey, Novi Lowoluntu, Amelius Mansawan, Beci Nakoh, Alosius Numberi, Rustam Patahuddin, Matheos Rayar, Yanes Rumere, Kesia Salosso, Meki Sanyar, Jams Sawaki, Imam Subekki, Nathaniel Sumpe, Martunas Tahoba, Herlin Trirbo, Luki Wanggai, Daan Wenggi, Silvia Yarangga.

Duke University: Xavier Basurto.

International Forestry Resources and Institutions (IFRI) Research Program: Arun Agrawal, Rachel Kornak and Lauren Persha.

OneReef: Heidi Gjersten

Universitas Negeri Papua: Merlyn N. Lekitoo Suriel Mofu, Sri Hartini, Roni Bawole, and Paulus Boli.

World Wildlife Fund US Conservation Science Program: Helen Fox, Kelly Haisfield.

We thank Conservation International Raja Ampat and Kaimana Team, The Nature Conservancy Raja Ampat Team and the WWF-Indonesia Teluk Cenderawasih team.

We thank the community and staff of KKLD Kaimana; the community and staff of KKLD Kofiau dan Pulau Boo; the community and staff of KKLD Misool Selatan Timur; the community and staff of KKLD Selat Dampier; the community and staff of Balai Besar Taman Nasional Teluk Cenderawasih; the community and staff of KKLD Teluk Mayalibit.

We thank the communities of Sub-District Fakfak Timur, Sub-District Karas, Sub-District Kepulauan Semiblan, Sub-District Mayamuk, Sub-District Meos-Mansar, Sub-District Misool, Sub-District Misool Timur, Sub-District Napan, Sub-District Orkeri, Sub-District Waigeo, Sub-District Waigeo Selatan Sub-District Waigeo Timur, Sub-District Waigeo Utara and Sub-District Warwarbomi

We gratefully acknowledge the support of the Bupati of Raja Ampat District, the Fishery and Marine Affairs Division of Raja Ampat District, the Sub-district and Village Chiefs of Raja Ampat District; Bupati of Kaimana District, the Fishery and Marine Affairs Division of Kaimana District, the Sub-district and Village Chiefs of Kaimana; the Bupati of Teluk Wondama District, the Fishery and Marine Affairs Division of Teluk Wondama District, the Sub-district and Village Chiefs of Teluk Wondama District; the Bupati of Nabire District, the Fishery and Marine Affairs Division of Nabire District, the Sub-district and Village Chiefs of Nabire District; the Bupati of Fakfak District, the Fishery and Marine Affairs Division of Fakfak District, the Sub-district and Village Chiefs of Fakfak District; the Bupati of Biak Numfor District, the Fishery and Marine Affairs Division of Biak Numfor District, the Sub-district and Village Chiefs of Biak Numfor District.

We gratefully acknowledge the financial support provided by The Walton Family Foundation, The David and Lucille Packard Foundation, The Crown Family, The Coral Triangle Support Partnership, and The United States Agency for International Development.

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List of Acronyms

ATE	Average treatment effect
ATT	Average effect of treatment on the treated
eQQ	Empirical quantile-quantile plots
eCDF	Empirical cumulative distribution function
M&E	Monitoring and evaluation
MPA	Marine Protected Area
UNIPA	Universitas Negeri Papua
WWF	World Wildlife Fund

1. Introduction and Rationale

1.1 Overview

Marine protected areas (MPAs) are an integral component of local, national, and international strategies for fisheries management and biodiversity conservation (Halpern et al. 2008; Fox et al. 2012a). Though the ecological benefits of MPAs are well studied and generally accepted (e.g., Halpern et al. 2009), MPA contributions to poverty alleviation and sustainable development remain the focus of a highly contentious policy debate. Advocates tout MPAs as a win-win strategy for conservation and poverty alleviation (Russ et al. 2004; Leisher et al. 2007), while skeptics argue that MPAs place the welfare of fish above the well-being of impoverished fishing communities (e.g., Christie 2004). In fact, evidence suggests that both perspectives may have merit (Mascia et al. 2010; Wamukota et al. 2012). Under certain conditions, MPAs can provide both biodiversity and social benefits (Russ et al. 2004; Leisher et al. 2007), while in other settings tradeoffs exist between biodiversity conservation and social welfare (Christie 2004). Because scientists have not yet developed a convincing explanation for these variations in social and biological performance, decision-makers set marine resource policy in ignorance (Agrawal & Redford 2006), not knowing whether their choices will benefit people, the environment, or both.

Debates and controversy abound regarding the impact of MPAs on fisheries-dependent communities, but actual data on the social impacts of MPAs are extremely rare and, when available, often lack precision (Mascia & Claus 2009; Mascia et al. 2010). These limited data suggest that MPAs provide social benefits in some cases (e.g. Russ et al. 2004) and impose social costs in others (Walmsley & White 2003; Christie 2004) without a convincing explanation for these variations. Regrettably, MPA monitoring efforts to date have neglected to collect data regarding conservation processes, systems, and social impacts (Mascia et al. 2010; Wamukota et al. 2012), making it impossible to make connections between MPA *interventions* and *outcomes*. As a result, at the exact moment that advocates are espousing the putative social benefits of conservation (Sachs et al. 2009) and critics are highlighting its alleged costs (Dowie 2009), the conservation community keeps “shooting in the dark” as it tries to design interventions that benefit both people and nature (Agrawal & Redford 2006).

A partnership of conservation scholars, practitioners and policy-makers, led by WWF and the State University of Papua (UNIPA), has developed simple yet rigorous monitoring systems for documenting and explaining the variation in MPA performance, under real-world operating constraints in West Papua, Indonesia. Drawing on best practice from a diverse range of disciplines, these methods enable conservation scholars to document the impact of interventions across social domains, describe variation in impacts between social groups (e.g. fishers vs. non-fishers), and generate policy-relevant insights by linking impacts to interventions. The methodology described in this field manual has been implemented across an emerging MPA network in the Bird’s Head Seascape of Indonesia, after an initial pilot phase in 2010. This document is intended to be a reference manual for MPA managers and researchers, providing guidance on how to implement the methods developed in the Bird’s Head Seascape in other contexts.

1.2 Marine protected areas: theory and practice

MPAs are defined as "any area of intertidal or sub-tidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment," (Kelleher et al. 1995) are an integral component of biodiversity conservation and fisheries management (Halpern et al. 2008). The number and spatial extent of MPAs is growing rapidly, the majority remain concentrated in inter-tidal or coastal waters in close proximity to fishing-dependent communities (Spalding et al. 2008).

The impact of MPAs on coastal communities is subject to a widespread policy debate. Quantitative evidence is limited, with the majority of studies focusing on direct economic or food security impacts. Evidence suggests MPA establishment increases food security for some local fishers, with other subgroups experiencing a decline in catch per unit effort (Mascia et al. 2010). The impact of MPA establishment on other social domains is less well documented, with little evidence of the linkages between MPAs and health, community organization and income (Gjertsen 2005; Mascia et al. 2010; Fox et al. 2012a). In some cases, MPAs are reported to generate negative social impacts arising from inequitable distribution of benefits (Walmsley & White 2003).

The considerable variation in the social performance of MPAs has generated debate amongst scholars, but as yet, no convincing explanation for the impacts observed. Contextual factors (e.g. market access, biophysical factors), have been linked to MPA placement (Fox et al. 2012b), type (Cinner 2005), and increasingly, ecological and social performance (Cinner et al. 2009; Brewer et al. 2012). In marine and analogous common pool resource systems, governance systems (e.g., decision-making arrangements, conflict resolution mechanisms) correlate with ecological and social impacts. Emerging evidence suggests that the social impacts of an MPA may be shaped by the nature of the intervention itself. Recent work suggests effective MPAs are governed by systems that have clearly defined rules consistent with underlying marine tenure (Fiske 1992; Mascia 2004), and include active participation of resource users in decision-making and management (Gutierrez et al. 2011)

1.3 Research Objectives

The methods outlined in this field manual are designed to document and explain the social impacts of MPAs, allowing decision-makers to design and manage MPAs to deliver social benefits. Our social impact evaluation methodology focuses on two critical knowledge gaps:

1. What are the social impacts of marine protected areas?

a) How do these impacts vary across domains of social well-being?

b) How do these impacts vary within and among social groups?

2. How does MPA governance shape social impacts?

- a) *How do decision-making arrangements influence social impacts?*
- b) *How do resource use rights influence social impacts?*
- c) *How do monitoring and enforcement systems influence social impacts?*
- d) *How do conflict resolution mechanisms influence social impacts?*

The objectives outlined above are components of a broader WWF-led initiative to understand how to design and manage MPAs that deliver both ecological and social benefits. This wider initiative aims to document and explain the variation in, and synergies and trade-offs among, the ecological and social impacts of MPAs.

1.4 Background to the initiative

To “solve the mystery of MPA performance”, WWF launched a collaboration in 2010, in the Bird’s Head Seascape of Papua Barat, Indonesia. Together with four partnering organizations (Universitas Negeri Papua, World Wildlife Fund Indonesia, The Nature Conservancy, Conservation International), WWF is monitoring the social impact of MPAs, extending existing monitoring efforts to allow an interdisciplinary analysis of MPA governance, social impacts, and ecological impacts. In June 2010, WWF hosted a workshop in Bali to discuss the need for social impact monitoring of the Bird’s Head Seascape MPAs. At this meeting, participants agreed that monitoring the social impact of the emerging MPA network in the seascape was an important gap in the existing monitoring portfolio. Based on this decision, WWF-US and UNIPA developed social monitoring protocols to document the social impacts of MPAs in the Bird’s Head. Following initial scoping visits to four MPAs (Abun KKLD, Selat Dampier KKLD, Taman Nasional Teluk Cenderawasih and Teluk Mayalibit KKLD), WWF-US and UNIPA developed the protocols outlined in this field manual to document household well-being and marine resource governance. Following a successful pilot in two MPAs (Taman Nasional Teluk Cenderawasih and Teluk Mayalibit KKLD) in late 2010 by the UNIPA team, the Bird’s Head Seascape partners agreed to expand the social monitoring efforts across the seascape.

UNIPA conducted baseline data collection led by UNIPA was conducted in 2011 and early 2012. A rolling program of repeat data collection at two year intervals began in 2012, with UNIPA teams returning to Taman Nasional Teluk Cenderawasih and Teluk Mayalibit.

The partnership received additional funding from CTSP, USAID and others, to document Bird’s Head Seascape methodology, to build capacity for social monitoring in the Coral Triangle and elsewhere.

1.5 Structure of the field manual

This field manual is designed to provide step-by-step guidance on the implementation of the WWF-UNIPA methodology for monitoring the social impacts of MPAs. Section 2 introduces a conceptual framework designed to enable researchers to systematically analyze MPA performance. It describes how mixed methods (household surveys, focus groups and key informant interviews) generate fine-scale data on the social impacts with a theory-based characterization of MPA governance. Section 3 provides a brief introduction to the principles of impact evaluation and how they may be applied to identify *when* and *how* to evaluate the social impacts of an intervention. It details a two-stage process for controlling for common biases which may confound estimates of impact. This process is designed to generate a robust framework for evaluating the impacts of conservation in data-poor contexts. Section 4 provides detailed guidance on the development, intent, and implementation of household surveys to document social impacts. Section 5 focuses on the use of focus groups and key informant interviews to describe variation in MPA governance.

2. Solving the Mystery of MPA Performance

Considerable policy debate surrounds the establishment of MPAs. Advocates argue that MPAs are a win-win strategy, benefitting both ecosystem health and social wellbeing (e.g., Leisher et al. 2007), while skeptics claim that MPAs place the welfare of fish above that of fisheries-dependent communities (e.g. Christie 2004). Evidence suggests that under certain conditions MPAs deliver both ecological and social benefits (Russ et al. 2004; Leisher et al. 2007), while under others, trade-offs exist between biodiversity conservation goals and social wellbeing (Christie 2004). Evidence for the ecological impact of MPAs suggests that, in general, 'no-take' reserves increase fish populations and biomass (Lester et al. 2009), which spill-over into surrounding waters (Halpern et al. 2009). The social impacts of MPAs are less well understood, with considerable variation in reported impacts across social domains (e.g., economic well-being, health; Gjertsen 2005; Mascia et al. 2010) as well as within and among social groups (e.g., fishers vs. non-fishers, Mascia et al. 2010), with the underlying causes of these differences poorly understood (Fox et al. 2012a). The lack of a convincing explanation for the variation in MPA performance forces policy-makers to 'shoot-in-the-dark' (Agrawal & Redford 2006), with little clear information on how their decisions will affect marine resources or the local communities dependent upon them.

Multiple frameworks for analyzing MPA performance have been developed, with different areas of emphasis and use of existing social and ecological theory. Three types of framework can be identified based on their theoretical origins in (a) fisheries science, (b) program evaluation and (c) integrated coastal management. Fisheries models focus on the biological dynamics, and ecological functioning of MPAs (e.g., Ward et al. 2001), but pay little attention to behavioral changes amongst resource users, or the social impacts of MPAs. Frameworks developed from performance measurement, such as results chains and logical frameworks, articulate the impacts of MPA establishment on resource use patterns and ecological processes (e.g., Hastings & Botsford 2003), but fail to consider impacts on social well-being. Frameworks drawn from integrated coastal management develop correlative models between MPA attributes and social or ecological outcomes (e.g., Pomeroy et al. 2004; Pollnac et al. 2010) but lack explicit consideration of the social and ecological processes underlying these attributes.

Research on MPAs and analogous natural resource governance regimes suggests that the characteristics of an intervention (e.g., decision-making arrangements, rules governing resource use, monitoring and enforcement and conflict resolution) may shape its ecological and social outcomes (e.g., Persha et al. 2011) For example, the right of resource users to participate in the design and modification of rules governing resource use is correlated with intervention performance, - environmental and social-, in MPAs (Christie & White 1997; Mascia 2000; Pollnac et al. 2001; Mascia 2003) and elsewhere (Ostrom 1990; Cudney-Bueno & Basurto 2009; Persha et al. 2011). In this study, we draw upon this emerging evidence base to develop an alternative model of MPA performance. We integrate existing common pool resource governance theory (Ostrom 1990) into existing MPA frameworks to provide a new social-ecological model for documenting and understanding the impacts. This model provides an interdisciplinary, theory-based framework for explaining variation in the social and biological performance of MPAs.

2.1 Conceptual model

We integrate existing theoretical frameworks drawn from the common pool resource governance literature (Ostrom 1990), to develop an interdisciplinary framework for explaining the social and ecological impacts of an MPA through the characteristics of the intervention and the context in which it occurs. We combine these theoretical frameworks with the policy orientation of program evaluation and the holistic perspective of integrated coastal management, to develop a balanced, synthetic model of MPA performance (Figure 2.1)

We recognize four endogenous components of an MPA system (ecological condition, human well-being, resource use patterns, governance) that enable us to characterize both the nature of an intervention and its impacts. Additionally, we identify additional contextual factors, operating across larger scales than individual MPAs that may shape both an MPA and its impacts. We outline these components and their interactions in sections 2.1.1 to 2.1.5, and introduce the methods which operationalize each of these components in section 2.2.

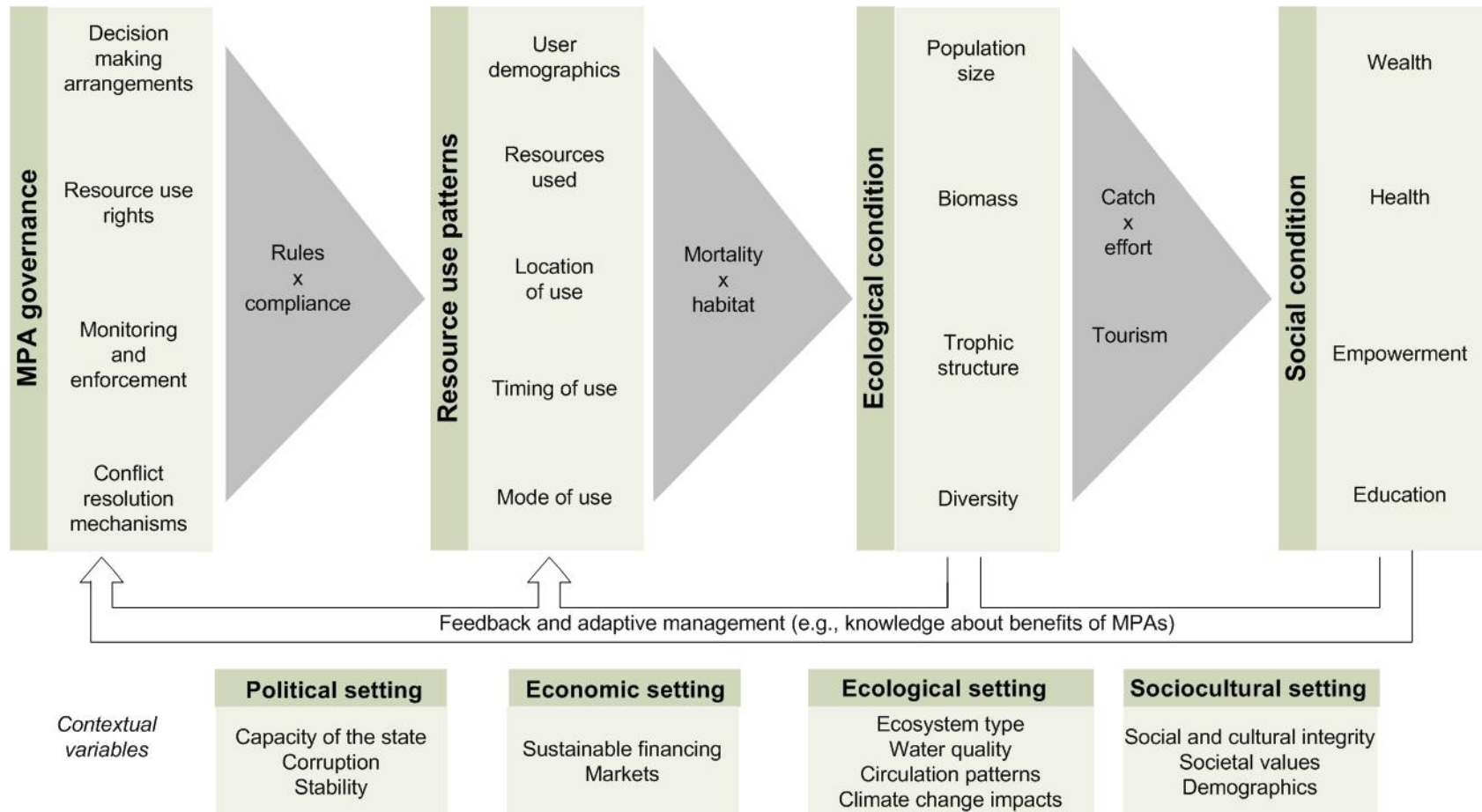
2.1.1 Human well-being

Discussions on the social impacts of MPAs (e.g., Mascia et al. 2010) have centered metrics of social wellbeing widely identified in poverty frameworks (e.g., Human Development Index; United Nations Development Programme 1990), human development goals (e.g., Millennium Development Goals; UN Millennium Project 2005) and discussions on the linkages between biodiversity conservation and wellbeing (e.g., Millennium Ecosystems Assessment 2005, Stephanson & Mascia 2009). Our conceptual framework focuses on five domains of social wellbeing¹:

- Economic well-being: the resources people use to meet basic consumption and materials needs and access other sources of wellbeing (Sen 1999).
- Health: the state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity (World Health Organization 1946)
- Political Empowerment: people's ability to participate in the decision-making processes that effect their lives (United Nations Development Programme et al. 2005)
- Education: the structures, systems and practices –both formal and informal – used to transfer knowledge and skills in a society (Stephanson & Mascia 2009).
- Culture: encompasses art, ways of living together, value systems, traditions and beliefs (UNESCO, 2001).

¹ The text in this section is adapted from Stephanson & Mascia (2009)

Figure 2.1 Analytic framework illustrating hypothesized relationships between MPA governance and performance. For example, we hypothesize that participatory decision-making arrangements and equitable resource use rights (aspects of governance) enhance MPA legitimacy and user compliance rates, which lead to reduced fishing mortality, enhanced fish populations, and positive conservation and social outcomes. The feedback loops, indirect effects, and contextual variables shown here also shape the relationship between MPA governance and performance.



2.1.2 Ecological condition

Over the past decade, a substantial body of literature has accumulated, focused on documenting the ecological impact of marine protected areas in general and 'no-take' marine reserves in particular. In early assessments of MPA impact, scholars concentrated on population size and biomass (e.g., Williamson et al. 2004). Over time, these population-focused metrics have been supplemented with assessments of community-level impacts (e.g., diversity; Lester et al. 2009), as well as ecosystem structure and function (e.g., dispersal, trophic structure; see Lester et al. 2009).

2.1.3 Resource use

Resource use patterns are the consumptive and non-consumptive patterns of resource access, use, and appropriation by humans. Resource use patterns are defined by attributes in five domains: resources used; demographic attributes of the users; location of use; timing of use; and mode of use (Schlager et al. 1994). Resource use patterns may vary in any one or all of these domains; these differences may lead to significant differences in the biological and/or social impacts of a MPA.

2.1.4 Governance²

A MPAs is, essentially, a system of governance that explicitly or implicitly defines *who* may do *what*—and *where*, *when*, and *how* they may do it—with respect to a specific, spatially-bounded portion of the marine environment. The four principal elements of MPA governance – decision-making arrangements, resource use rules, monitoring and enforcement systems, and conflict resolution mechanisms – directly and indirectly shape human resource use patterns and, ultimately, the biological and social performance of MPAs (Mascia 2004; Ostrom 2005; Cudney-Bueno & Basurto 2009). Each of these four elements may have both formal and informal components derived from diverse sources, including legal statutes, policy statements, judicial decisions, organizational practices, social norms, and cultural traditions.

a) Decision-making arrangements

MPA decision-making arrangements specify the rights of individuals or groups to make choices regarding other aspects of MPA design and management. These rules determine, for example, who may participate in making decisions and who may not (e.g., government officials, resource users), how decision makers are selected for their positions (e.g., elected or appointed), and how decisions are made (e.g., consensus or majority vote). At each stage, subtle differences in the rules that govern MPA decision making may have significant impacts upon MPA design, implementation, and evaluation.

b) Resource use rules

Resource use rules—including laws, regulations, formal and informal policies, codes of conduct, and social norms—specify the rights of individuals or groups to access and appropriate

² This section is adapted from, and builds upon Mascia, M.B., (2004). Social Dimensions of Marine Reserves, in *Marine Reserves: A Guide to Science, Design, and Use*. Eds C. Dahlgren, J. Sobel, pp. 164-186. Island Press, Washington, DC. and Pomeroy, R., M.B. Mascia and R. Pollnac, (2006). *Marine protected areas: the social dimension*. United Nations Food and Agriculture Association, Rome.

resources. These rights may be held by individuals, groups, organizations, or the state, and are often shared among these actors. By specifying who may and who may not engage in particular forms of resource use, MPA rules effectively allocate marine resources to a subset of individuals (communities, user groups, social classes, etc.). The distributive equity of MPA rules directly shapes MPA social impacts by structuring access to the wealth associated with marine resource extraction (Mascia 2000).

c) Monitoring and enforcement systems

MPA monitoring systems track changes in the state of MPA-associated social and environmental systems. MPA monitoring systems vary in what they measure and who does the measuring, as well as where, when, and how measurements are made. Enforcement systems attempt to increase compliance with rules governing resource use by monitoring user behavior and punishing those engaged in prohibited activities. By increasing the severity and likelihood of sanctions and, thus, raising the opportunity cost of noncompliance, enforcement systems act directly upon resource users to foster adherence with established rules.

d) Conflict resolution mechanisms

Conflict resolution mechanisms are formal and informal processes for resolving disputes that permit information exchange, clarification of resource use rights, and adjudication of disputes related to decision making, resource use, monitoring, and enforcement. Readily accessible and low-cost conflict resolution mechanisms enhance regime performance directly by mitigating social conflict and thereby minimizing resource overexploitation and dissipation of MPA benefits (Ostrom 1990).

2.1.5 Context

The social and ecological conditions, resource use patterns and governance of an MPA are also shaped by exogenous contextual factors, linked to the political, economic, ecological and social systems in which they occur (Brewer et al. 2012). Differences in social (e.g., societal values, demographics) and ecological (e.g., biophysical conditions, climate change) systems may influence the impacts of an MPA (e.g. Cinner 2005; Cinner et al. 2009) while political (e.g. corruption, capacity) and economic (e.g., markets, sustainable finance) factors may shape MPA governance.

2.2 Linking interventions to impacts

The conceptual framework outlined in section 2.1, provides researchers with a model for both capturing and explaining the variation in the social and ecological performance of MPAs. It enables us to generate insights on how to design and manage MPAs to deliver both ecological and social benefits.

This field manual describes the methods developed by researchers at WWF and UNIPA for characterizing two components of this conceptual framework, (a) the social impacts of MPAs, and (b)

the nature of marine resource governance. We apply this conceptual framework within a quasi-experimental impact evaluation, enabling us to make clear causal inferences about how an MPA affects coastal communities. We use mixed methods, integrating household surveys documenting social wellbeing with focus groups and key informant interviews to characterize marine resource governance. We introduce quasi-experimental methods in section 3, and provide detailed guidance on household surveys and governance methodologies in sections 4 and 5 respectively.

The methods described in this field manual are the product of a joint initiative, led by scholars from WWF-US and UNIPA. WWF staff provide technical support to the UNIPA field teams that implement these methods in the Bird's Head Seascape.

The social wellbeing and marine resource governance methodologies described in this field manual are modules within a wider initiative, 'Solving the Mystery of MPA Performance' led by WWF-US to document and explain variation in MPA impacts. This initiative builds upon, and expands existing efforts by Conservation International, The Nature Conservancy and WWF-ID to monitor coral reef health (Wilson & Green 2009) and patterns of marine resource use (e.g., Mous et al. 2005).

3. Research Design

The social and ecological impacts of conservation interventions are subject to increasing interest by conservation scholars, practitioners and policy-makers (Sutherland et al. 2004). Since the mid-1990s, myriad monitoring and evaluation (M&E) approaches have been developed, varying in their intent, methods, and application. In the marine realm, monitoring efforts have focused on the development and implementation of score-card approaches to assess MPA performance (e.g., Pomeroy et al. 2005). The rapid proliferation of M&E approaches has led to widespread confusion about the intent, defining characteristics and application of methods to monitor MPAs (Mascia et al. *in press*). Here, we focus on impact evaluation, a subset of M&E, which allows researchers to quantify cause-and-effect relationships between an intervention and its impacts (Rosenbaum 2010).

This section provides a brief introduction to the concepts and practical implementation of impact evaluation frameworks and describes the methods implemented in this study. Technical terms, highlighted in bold type, are defined in the Glossary. More information on the concepts covered in this section can be found in the references listed in section 3.9

3.1 Introduction to impact evaluation

Impact evaluation ‘measures the intended and unintended consequences of conservation interventions, with particular emphasis upon long-term impacts on ecological and social conditions’ (Robinson). Impact evaluation is designed to provide robust evidence of the changes in a variable of interest that may be attributed to a particular intervention (Rosenbaum 2010; Gertler et al. 2011).

The focus on causal inference (i.e. linking particular impacts to an intervention) differentiates impact evaluation from other forms of monitoring and evaluation (M&E). Conservation practitioners use ambient monitoring to describe the status of ambient social or ecological conditions. Management assessment tracks the management inputs of a conservation investment. Performance measurement assesses progress toward intended management objective while systematic review synthesizes the evidence for a particular policy, program or activity (for a review of conservation M&E see Mascia et al. *in press*).

Impact evaluation provides evidence on if, and how, an intervention affects variables of interest, allowing conservation scholars to test the theory of change that underlies a particular intervention (Rosenbaum 2010; Gertler et al. 2011). In effect, impact evaluation transforms conservation interventions into real-time policy experiments, in which social and ecological theories may be tested (Ferraro & Pattanayak 2006).

Central to impact evaluation is the counterfactual, an estimation of what would have happened to a variable of interest in the absence of an intervention (Rosenbaum 2010). The counterfactual acts as a reference, enabling researchers to isolate the impact of an intervention (e.g., an MPA) from other

potential causal mechanisms. Identifying a valid counterfactual is critical to ensuring the internal validity of an impact evaluation (Rosenbaum 2010).

In this study, we apply the principles of impact evaluation to understand the social impacts of MPAs, and how those impacts are shaped by MPA governance.

3.2 Causal inference

In impact evaluation, causal inference is based on the Neyman-Rubin model (Rosenbaum 2010; Sekhon 2009), which describes the conditions under which changes in a variable of interest may be attributed to a particular intervention. Under this model, the impact of a particular intervention (also known in impact evaluation terminology as a ‘treatment’) can be defined as the difference between the outcome for those receiving the ‘treatment’ (e.g., participating in a conservation intervention) and those in a control group (Caliendo & Kopeinig 2008).

$$\text{Impact} = \text{Outcome (treated)} - \text{Outcome (untreated)}$$

Equation 3.1

An outcome is defined as the change in a variable of interest over the period of the intervention (Rosenbaum 2010). For example, an outcome might be the percentage increase in household income in the period since MPA establishment.

Outcomes are always expressed as the change in a variable of interest over time, making the Neyman-Rubin model equivalent to the Before-After-Control-Impact (BACI) framework. Under this model, measurements are taken prior to (pre-test; baseline), and after (post-test) an intervention, in both treated and untreated units (Gertler et al. 2011). In this study, we adopt a BACI framework to document the social impacts of MPAs.

BACI designs allow the impacts of an intervention to be isolated from two common biases, that have confounded many previous attempts to estimate the impact of conservation interventions (Ferraro & Pattanayak 2006):

1. Selection bias

Conservation interventions are seldom randomized across a landscape or seascape. Biodiversity (Olson & Dinerstein 1998), human activity (Gardner et al. 2010) and the opportunities for conservation action (Balmford et al. 2003) are all distributed unevenly across the globe, varying with social and ecological conditions. As a result, conservation interventions tend to be clustered in places with high biodiversity,

subject to high threat, or where opportunities for conservation exist (Ferraro & Pattanayak 2006; Joppa & Pfaff 2009). Terrestrial protected areas, for example, tend to be located on marginal land, where steep slopes, high elevation or harsh climates limit agricultural productivity (Joppa & Pfaff 2009). Consequently, the probability of conservation interventions being established is not equally distributed, and is dependent on the characteristics of the landscape (Joppa & Pfaff 2009; Joppa & Pfaff 2010). This effect, which is known as endogenous selection bias, may distort the estimated impacts of an intervention unless the research design adequately control for these non-random factors (Rosenbaum 2010). Methods for mitigating selection bias include randomization of treatment (in a randomized controlled trial), and the use of statistical matching techniques to identify a control group with similar characteristics to an intervention (in quasi-experiments; Rosenbaum 2010).

Inside-outside comparisons, which adopt spatial differences as a proxy for temporal change ('space-for-time substitution'), are vulnerable to selection biases (Gertler et al. 2011). Researchers using this approach must make causal inference based on the assumption that there is no systematic difference between participants in a conservation intervention, and non-participants (Rosenbaum 2010; Gertler et al. 2011). The documented biases in the placement of conservation interventions means that this assumption is seldom valid.

2. Concurrent changes

Socio-ecological systems are dynamic, with multiple factors affecting a variable of interest at any one time (Cumming et al. 2006). For example, the rate of school enrollment in a settlement may be influenced by government policy, economic conditions, climatic shocks, MPAs and development interventions. To isolate the impact of any one of these factors, it is necessary to control for other concurrent changes, which might influence a child's ability to attend school. Longitudinal (before-after) designs, which measure outcomes only in the treated group, cannot isolate the impact of a particular intervention from other concurrent changes, and, therefore, preclude causal inference (Rosenbaum 2010; Gertler et al. 2011). The inclusion of controls in BACI designs allows researchers to rule out other alternative explanations for the outcomes detected in the treated group (Rosenbaum 2010).

Our approach adopts a BACI design to control for both selection bias in the placement of MPAs and concurrent changes unrelated to MPA establishment.

3.3 Site Selection

Quasi-experimental impact evaluation is not appropriate in all situations (Ferraro & Pattanayak 2006). Impact evaluation is time-consuming and relatively costly compared to other forms of M&E (Ferraro & Pattanayak 2006). Quasi-experiments require the existence of a control group, with similar characteristics to the places or people participating in the intervention (Gertler et al. 2011). For some types of conservation interventions (e.g. global treaties) or certain locations (e.g., unique assemblages), the construction of a matched control group may not be possible.

Impact evaluation may be appropriate under the following conditions:

- Demand:

Evidence on the impact of the intervention has the potential to generate substantive policy insights. Interventions where robust evidence may meet a policy need are likely to be novel, strategic, scalable or contested.

- Support

Sufficient financial and political support exists for an impact evaluation to be conducted.

- Opportunity

The intervention occurs in a context where evaluation is feasible. The intervention may be replicated, have clear, testable objectives or an identifiable, robust control group.

WWF-US and UNIPA developed this monitoring system to document the social impacts of MPAs in Papua Barat, Indonesia, a strategic conservation investment in the Coral Triangle with the highest coral reef biodiversity on record. Local communities are heavily reliant on marine resources for food and income. Papuan communities are highly impoverished, with >40% of households living on less than \$1/day (Gibson et al. 1991). Marine resources in the region are under growing pressure from a range of threats including fishing, and infrastructure development (Mangubhai et al. 2012). A total of 9 marine protected areas have been established in the Bird's Head Seascape (Mangubhai et al. 2012) with six identified by scoping studies as having a potential control group against which to measure the impacts of MPA establishment. The Bird's Head Seascape provides an opportunity to conduct a robust, replicated evaluation of the social impacts of MPAs in a region of high conservation priority, generating insights on how to design MPAs for social and ecological benefits.

3.4 Research designs for causal inference

Impact evaluation research can take one of two forms; experiments and observational studies (Rosenbaum 2010). In experiments (often known as randomized controlled trials)³, the researcher has control over which units (e.g., households) are subject to a particular intervention (e.g., an MPA) and those assigned to an untreated 'control' group (a process known as treatment assignment, Rosenbaum 2010). In contrast, observation studies occur in situations where the researcher cannot

³ Randomized controlled trials (RCTs) are widely used for impact evaluation in medicine and public health initiatives, where it is feasible for the researcher to randomize an intervention (e.g., a novel medical procedure) across a population (e.g., patients in a hospital). Randomization gives every unit in a defined population an equal probability of being assigned to either the treatment or control group (Rosenbaum 2010). When conducted over a sufficiently large population, randomization removes any systematic differences between individuals who receive treatment and those who do not. In the absence of systematic differences between treatment and control groups, any difference in outcomes can be attributed to the intervention (Rosenbaum 2010). Randomized controlled trials are rare in the evaluation of conservation interventions, as it is seldom feasible or ethical to randomize efforts to conserve biodiversity (Ferraro & Pattanayak 2006).

determine which units are assigned to a particular treatment group. Observational studies can be further divided into non-experimental case-studies⁴, which typically do not allow for quantitative causal inference⁵, and quasi-experiments, which do (Gertler et al. 2011). This study adopts a quasi-experimental framework to make causal inferences about the social impacts of MPAs.

3.5 Quasi-experimental methods

Quasi-experiments allow researchers to transform the implementation of conservation interventions into 'policy experiments', enabling causal inferences to be made between an intervention and its impacts under real-world conditions and in situations where randomization of an intervention is impractical or unethical (Ferraro & Pattanayak 2006). Quasi-experiments mimic randomized controlled trials by (a) identifying observable biases that led to the establishment of a conservation intervention in a particular place or affect its outcomes, and (b) adopting those same biases as criteria for identifying suitable controls (Rosenbaum 2010)⁶. For example, the terrestrial protected area network is biased toward marginal land, distant from major markets (Joppa & Pfaff 2009). Quasi-experimental approaches enable researchers to reduce the systematic differences between conserved and non-conserved places, which would otherwise preclude any attempt to make causal inference between an intervention and its impacts (Caliendo & Kopeinig 2008; Gertler et al. 2011). Quasi-experiments are commonly used to evaluate the impact of social policy and development interventions (Ravallion 2007), and have recently been applied to evaluate the impact of conservation interventions, (e.g. terrestrial protected areas on biodiversity and poverty; Andam et al. 2010).

3.5.1 Assumptions

For the Neyman-Rubin causal model to hold under quasi-experimental conditions, two assumptions must be met.

Assumption 1: Unconfoundedness

⁴ Case-study approaches (i.e., in-depth studies of conditions before and after an intervention in a limited number of sites), are widely used to evaluate the impact of conservation interventions. Case studies adopt qualitative or quantitative methods, but the lack of control prevents quantitative causal inference linking an intervention to its impacts (Gertler et al., 2011).

⁵ Case-studies are, however, a valuable tool for impact evaluation, enabling in-depth, qualitative assessments of an intervention and its impacts. The research designs described here have differing strengths and limitations with regard to inference, and researchers should adopt a design appropriate to their needs.

⁶ Note: The untreated group in a quasi-experiment is can be more accurately described as a 'comparison' group. For the sake of simplicity, we use the term 'control' here to mean the matched comparison group in a quasi-experiment.

Participation in, and outcomes of, an intervention do not depend on unobserved characteristics. Any systematic differences in outcomes between treated and untreated groups arise from the intervention alone (Caliendo & Kopeinig 2008). Put simply, this assumption requires that all the variables that might affect who participates in a conservation intervention and the magnitude or direction of its outcomes are included when identifying a control group.

Assumption 2: Overlap

Units with similar observable characteristics have a similar probability of being assigned to either the treated or untreated groups (Caliendo & Kopeinig 2008).

3.5.2 Controlling for observable bias

Quasi-experimental methods require researchers to identify, and control for, the factor or suite of factors that affect participation in, and the outcomes of a conservation intervention. These factors, which are always measured prior to the establishment of the intervention, are known as covariates (Rosenbaum 2010). Identifying the appropriate suite of covariates to control for observable bias in the placement of conservation interventions is not a straight-forward task, varying between interventions. For example, a quasi-experiment to evaluate the impact of a protected area on the deforestation rates might control for distance to roads, elevation and agricultural potential, all factors identified as predictors of deforestation in the literature (e.g., Andam et al. 2008). Researchers may combine conceptual models of an intervention with expert knowledge to identify appropriate covariates (Rosenbaum 2010; Caliendo & Kopeinig 2008).

Quasi-experimental methods can be divided into three broad classes; regression discontinuity⁷, instrumental variables⁸, and matching (Gertler et al. 2011). As both regression discontinuity and instrumental variables have limited application to the evaluation of conservation interventions, we focus on the matching methods adopted in this study. Matching uses statistical techniques to construct an artificial control group (Rosenbaum & Rubin 1983). Researchers adopting matching methods first identify the suite of covariates that affect participation and outcomes (Caliendo & Kopeinig 2008). Once the covariate set has been identified, the untreated units with greatest similarity to each treated unit is selected to form a control group (Rosenbaum & Rubin 1983; Caliendo & Kopeinig 2008). Matching methods can be applied to any type of intervention, where (Gertler et al. 2011):

- the factors which affect participation and outcomes can be identified

7. Regression discontinuity may be used to evaluate interventions where participation is decided by ranking potential participants using a continuous scoring system. This approach is common in the evaluation of micro-credit schemes, where the decision to provide an individual with credit is based upon their credit score (Gertler et al 2011).

8. An instrumental variable is a randomized incentive to encourage participation in an intervention that does not affect the outcome of that intervention (Rosenbaum 2010).

- there are some units, which meet the criteria for participation, but which remain untreated.

In this study, therefore, we must (a) understand the criteria/reasoning behind MPA establishment in a particular location, and (b) be able to identify places that meet those criteria but which remain outside an MPA.

To understand the social impacts of MPAs, we match households resident in MPAs with similar households living outside MPA boundaries. As household-level social data are limited or inaccessible for much of the Bird's Head Seascape, we adopt a two-stage matching procedure. This method uses a coarse-matching procedure to identify settlements outside MPA boundaries with a high probability of containing similar households to those resident in MPAs. Coarse matching combines secondary data with expert judgment to narrow the search radius for control households. Targeted primary data collection in MPAs and pool of 'coarsely matched' candidate control households provides the data required for statistical matching procedures, enabling individual MPA households to be matched to non-MPA counterparts with similar observable characteristics. This method allows data-intensive quasi-experimental methodologies to be applied cost-effectively in data-poor contexts.

3.5.3 Interaction Effects

A conservation intervention may affect the surrounding, non-conserved landscape (Ewers & Rodrigues 2008), positively (known as 'spillover') or negatively (known as 'leakage'). For example, an MPA may increase fish biomass in the waters immediately surrounding a no-take zone (i.e., spillover; Halpern et al. 2009) or displace fishing activity to its boundary (i.e., leakage; Kellner et al. 2007). Where these interaction effects 'contaminate' the matched control group the estimated impact of an intervention may be biased (Rosenbaum 2010; Gertler et al. 2011). Interaction effects are poorly documented and their magnitude or direction is seldom known (Ewers & Rodrigues 2008). When identifying a control group, 'no-match' spatial buffers may be placed around an intervention to reduce the likelihood of interaction effects contaminating a control group. Buffer distances are frequently arbitrary, rather than based on empirical assessments of the ecological and social processes that underlie interactions between conservation interventions and their surroundings (e.g., Andam et al. 2008). More recently, researchers have begun to model the ecological processes that underlie interaction effects. Robalino & Pfaff (2012), for example, employ spatial statistics (autocorrelation coefficients) to document the likely scale of interaction effects in relation to deforestation.

Marine resource use in Papua is territorial, with communities having rights to fish within a defined area (Mangubhai et al. 2012). In many cases, newly established MPAs align with the existing boundaries of customary marine tenure areas. As local fishers have limited rights to harvest resources from neighboring regions and are typically small-scale artisanal fishers, leakage between MPAs and controls arising from the displacement of fishers is likely to be limited. Instead, local fishing effort is likely to be reallocated within a single marine tenure area or MPA. In both MPA and control settlements, we use focus groups to document the spatial extent of local fishing grounds, and the important user groups in those areas, allowing us to identify any potentially confounding interaction effects between fishers in MPAs and controls.

MPAs in the Bird's Head Seascope are designed to reinforce the management rights of local fishers and limit the rights of non-locals to extract resources. MPA establishment may displace non-local commercial fishing operations to non-MPA areas, generating leakage. This form of leakage, if substantial, will be detectable in patterns of resource use across the Bird's Head Seascope (which is monitored by NGOs) as well as focus group discussion data on the level of marine resource conflict, and the identity of important user groups.

3.6 Matching methods

Identifying a matched control group for an intervention is a two-stage process (Caliendo & Kopeinig 2008). The first step is designed to reduce the number of observed covariates that affect participation and outcomes to a single 'index of similarity' (Rosenbaum 2010). The second step applies a decision rule to determine which untreated units will be matched to each treated unit (Rosenbaum 2010).

In cases with small numbers of observed covariates and treated/untreated units, matching can be done by hand. For the majority of cases, however, researchers employ a dimension reduction technique to generate a similarity index. Multiple dimension reduction techniques have been developed to achieve the first step of the matching process, including the regression-based propensity score (Rosenbaum & Rubin 1985), and metrics based on multivariate similarity matrices, such as Mahalanobis metric matching (Rubin 1980)⁹.

The second stage in the matching process applies a decision rule to determine which untreated units have sufficiently similar observed characteristics to a treated unit. Examples of decision rules include matching each treated unit to:

- Exact matches only ('exact matching')
- A fixed or variable number of the closest matches ('nearest-neighbor matching'; e.g., Caliendo & Kopeinig 2008),
- All untreated units within a specified distance or range ('caliper', 'radius' or 'stratified' matching; e.g., Rosenbaum & Rubin 1984; Dehejia & Wahba 2002)
- A set of untreated units defined by complex non-parametric weighting procedures ('kernel' or 'local linear' matching; e.g., Heckman et al. 1997)
- All untreated units, weighted according to their similarity ('full matching'; Rosenbaum 1991)

In this study, we identify an appropriate matching methodology on a case-by-case basis, adopting the combination of similarity metric and matching algorithm that achieves maximum covariate balance for each MPA and its controls. In the subsequent sections, we outline our methods for coarse and household-to-household matching.

⁹ For a detailed review of these approaches see Caliendo & Kopeinig (2008) and Rosenbaum (2002).

3.6.1 Coarse matching

Coarse matching is a screening process, based upon available secondary data and expert judgment that defines the 'universe' of non-MPA settlements in which households with similar observable characteristics to those participating in an MPA are likely to be resident. In effect, coarse-matching is used to restrict the search-radius for suitable control households. It is an iterative process, which enables researchers to target primary data collection efforts at the baseline, whilst recognizing the real-world budgetary and logistical constraints.

Coarse matching should not be used as a surrogate for data-driven matching (i.e. household-to-household matching), as it is unlikely to sufficiently reduce observable bias between MPA and non-MPA households to enable researchers make causal inferences about the impacts of an MPA.

Our approach employs coarse settlement-to-settlement matching, based on four proxy variables for the multiple mechanisms that hypothesized to causally affect participation in and outcomes of MPA establishment in Papua:

1. Distance to market

The proximity of a settlement to a market, defined as the place that the majority of households in the settlement go to sell all their goods (e.g. fish catch), is a proxy for multiple factors which causally affect MPA participation and outcomes. Distance to market is a well-documented bias in the placement of terrestrial protected areas, with regions in close proximity to major population centers less likely to be designated for conservation (Joppa & Pfaff 2009). Economic development, which is concentrated close to population centers is linked to the condition of coral reef communities, with significant declines in fish biomass in regions at intermediate stages of economic development (Cinner et al. 2009). Market access also structures fishing activity, influencing both fishing pressure and the gear choice by fishers (Brewer et al. 2012). Evidence from the Solomon Islands suggests proximity to market correlates with depleted fish assemblages and biomass (Brewer et al. 2012), both frequently used as outcome metrics to assess the ecological impact of MPAs. Recent evidence suggests that distance to market may influence the type of MPA established in an area, and its governance structure (Cinner 2005; Cinner et al. 2009).

In our coarse matching procedure, we compute the distance between each settlement in a region of interest and local markets identified by local experts. We compute the Euclidean distance between each settlement and its nearest market with the Spatial Analyst toolbox in ArcGIS (version 10.0; ESRI, 2010). The mountainous terrain of Papua Barat largely precludes the use of road transportation. Consequently, we calculate the distance to market using distance by sea. We do not take marine currents or seafaring conditions into account in our calculations, but instead compute market access as the straight line distance by sea between each settlement and the nearest market settlement.

2. Major livelihood

The dependence of communities on marine resources may be a significant mediator of the social impacts of MPAs (Mascia et al. 2010; Pollnac et al. 2010; Smith et al. 2010). Households with high dependence on marine resources are more likely to be impacted by the reallocation of resource rights linked to MPA establishment (Mascia et al. 2010).

We collate secondary source data on dominant livelihood activities in each settlement, supplemented by expert knowledge where information is lacking. Each settlement is assigned one livelihood category (subsistence fishing; commercial fishing; aquaculture and mariculture; marine tourism; extraction of non-renewable marine resources; mixed marine occupations; farming; harvesting forest resources; other wage labor; mixed fishing and farming). Where possible, each MPA settlement is matched to a control settlement assigned the same categorization. In cases where no exact livelihood matches exist, we match using a coarser categorization (marine occupations/terrestrial occupations/mixed marine and terrestrial occupations).

3. Political jurisdiction.

In this study, we focus on legally designated MPAs, defined as ‘any area of intertidal or sub-tidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment’ (Kelleher 1999). Political jurisdiction may affect the likelihood of MPA establishment (Fox et al. 2012b) and management capacity may vary across jurisdictions.

The Bird’s Head Seascape MPAs are locally-designated by regency (*Kabupaten*) authorities. To control for variations between political jurisdictions, we classified non-MPA settlements, according to the administrative level at which they shared political jurisdiction with MPA settlements. Settlements in the same district (*Distrik*) as MPA settlements were scored higher than those in the same regency (*Kabupaten*), or province (*Provinsi*). We do not extend our search for controls beyond national borders.

4. Social structure

Social structure influences the probability of collective action and self-governance (Ostrom 1990), as well as the characteristics of governance (Ostrom 1990). Groups with a greater degree of divisibility may adopt different strategies for collective action than more homogenous groups (Taylor 1987). Social structure may also shape the type of MPA established, with decentralized structures more likely to emerge where the probability of local collective action is high (Taylor 1987). There is evidence that social cohesion correlates strongly with effective fisheries management (Gutierrez et al. 2011). Marine resource governance in Papua is territorial, with defined local groups possessing customary tenure to marine resources (Cinner 2005; Cinner et al. 2012). Social structure, through its role in mediating collective action, may influence the strength of these customary systems.

In our coarse-scale matching process, we adopt the ethnic composition of a settlement as a proxy for social structure, categorizing each settlement as occupied by either one clan or many clans. We combine secondary data and expert knowledge to classify each settlement using this typology.

In this study, coarse matching is an iterative process. Secondary data on the distance to market, political jurisdiction, social structure and livelihood are collated for settlements in the region of interest. In Papua, we frequently define the region of interest using regency or provincial administrative boundaries. For larger MPAs or those which spanned political jurisdictions, we defined the region of interest through discussions with local experts. We circulated the collated secondary data to local experts for verification, and triangulation with other sources. Where necessary, we use expert knowledge to supplement incomplete, outdated or inaccurate secondary data.

In the Bird's Head Seascape MPAs, the pool of candidate control settlements was too small to warrant the use of statistical matching procedures. We matched MPA settlements to non-MPA control settlements manually and assess the covariate balance with standard quantitative procedures (outlined in section 3.7). In other contexts, it may be appropriate to adopt statistical matching procedures to generate coarse matches between MPA and non-MPA settlements.

The number of coarsely-matched control settlements selected for targeted primary data collection depends upon MPA size and geographic location, with fewer controls typically identified for smaller MPAs or those in remote regions. Logistical and financial constraints may also influence the size of the coarsely-matched control sample.

The coarse matching procedure enables researchers to identify non-MPA settlements with broadly similar characteristics to MPA settlements. By screening out dissimilar settlements, we are able to target household level data collection efforts on those non-MPA settlements most likely to contain households with similar observable characteristics to MPA households. Household-level data collected during baseline surveys in both MPAs and coarsely matched controls provides the necessary covariates for the second phase of matching, which enables causal inferences to be made about the social impact of MPAs.

3.6.2 Household-to-household matching

In this study, the aim of household-to-household matching is to identify appropriate control households from the candidate pool of households resident in coarsely matched control settlements. This second phase of matching is conducted after baseline data collection in MPAs and coarsely matched controls. The methods for conducting the household surveys used to inform *post-hoc* household-to-household matching are outlined in section 4.

Matching procedures should minimize observable bias between households resident in MPAs and non-MPA households, enabling causal inferences to be made under the Neyman-Rubin model. In other words, matching ensures that the only systematic differences in outcomes between treated and control households is the establishment of the MPA. We control for observable bias with a series of proxy variables for the multiple mechanisms that hypothesized to causally affect participation in and outcomes of MPA establishment in Papua:

1. Distance to market

The proximity of a settlement to a market, defined as the place that the majority of households in the settlement go to sell all their goods (e.g. fish catch), is a proxy for multiple factors which causally affect MPA participation and outcomes. Distance to market is a well-documented bias in the placement of terrestrial protected areas, with regions in close proximity to major population centers less likely to be designated for conservation (Joppa & Pfaff 2009). Economic development, which is concentrated close to population centers, is linked to the condition of coral reef communities, with significant declines in fish biomass in regions at intermediate stages of economic development (Cinner et al. 2009). Market access also structures fishing activity, influencing both fishing pressure and the gear choice by fishers (Brewer et al. 2012). Evidence from the Solomon Islands suggests proximity to market correlates with depleted fish assemblages and biomass (Brewer et al. 2012), both frequently used as outcome metrics to assess the ecological impact of MPAs.

In our household-to-household matching procedure, we measure market access as the time taken (hours) for a household to travel to a market. Data are gathered during surveys of households resident in MPAs and their coarsely matched control settlements (see section 4). For each settlement, the respondents are asked to report travel time to the main market for that settlement (identified by local officials, e.g., the *kepala desa* or *kepala adat*). Households which fail to report travel time to the specified market are assigned the mean travel time for that settlement.

2. Dependence on fishing

The dependence of communities on marine resources may be a significant mediator of the social impacts of MPAs (Mascia et al. 2010; Pollnac et al. 2010). Households with high dependence on marine resources are more likely to be impacted by the reallocation of resource rights linked to MPA establishment (Mascia et al. 2010).

In the second stage of our matching procedure, we use data collected during household surveys (see section 4) to classify households according to their dependence on marine resources. Sampled household heads or their representatives are asked to identify the primary, secondary and third most important ways that the household's needs are met. The household instrument recognizes 7 livelihood categories, ranging from fishing to wage labor. For the purposes of generating household-to-household matches, we reclassify these data into an index of marine resource dependence. We classify households as: highly dependent on marine resources (i.e., fishing as primary means of supporting a household); moderately marine resource dependent (i.e. fishing as a means to supplement other livelihood activities); with low marine resource dependence (i.e. non-fisher households).

3. Social status of household

The social impacts of conservation interventions, including MPAs, vary within and among social groups (Mascia 2004; Mascia & Claus 2009; Glew 2012). The impacts of a conservation intervention may vary with gender, age, residency, income and education level of a household (Fox et al. 2012a). Evidence from the literature suggests that, in general, conservation interventions have greater net positive impacts on households headed by older males (Glew 2012) and wealthier households (Jumbe & Angelsen 2006; Glew 2012).

We control for the age, gender and education level of household heads, using demographic data collected in household surveys of MPAs and their coarsely matched control settlements. We include the highest level of education (no formal education/primary education/secondary education/tertiary or higher education) completed by a household head in our covariate set.

To control for social status and power within the community, we classify households as either members of the numerically dominant clan in a settlement or as belonging to a minority group (based on the paternal ethnicity of the respondent). We hypothesize that members of the dominant group are likely to wield greater social or political power within the settlement. We do not attempt to condense the many clan groupings into larger coalitions, but rather classify the largest single group as the 'dominant' social group in the settlement.

We measure residency as the number of years a household head has been continuously and permanently resident in a settlement. A minority of respondents in more isolated settlements are unable to report their age or the number of years that their household has been resident in a settlement. It is likely that these households represent a distinct subgroup in a settlement, representing households headed by either elderly individuals or those with limited education. To identify matches for these households, we construct a binary dummy variable, which identifies those households headed by individuals whose age is unknown and who cannot report how long their household has been resident in a settlement.

We conduct household-to-household matching in R (version 2.15.1; R Core Team 2012) using the 'Matching' package (version 4.8-0; Sekhon 2007). Matching is an iterative process, with the covariate balance achieved by different dimension reduction and matching algorithms assessed on a site-by-site basis. We document covariate balance (see section 3.7) for each model iteration. The trial-and-error process of constructing matched control groups moves from a simple default model, with each MPA matched to one 'nearest neighbor control using Mahalanobis metric matching, to the progressively more complex. We construct models using regression-based methods (e.g., propensity scores), multivariate distances (e.g., Mahalanobis metric matching) or a combination of the two (e.g., Mahalanobis metric matching with a propensity score caliper). Because matching is conducted for each MPA and its coarsely-matched controls individually, model specifications vary between sites.

In this study, we always use matching with replacement, meaning that a single non-MPA household can be matched to multiple MPA households. Replacement reduces the sensitivity of the match quality

to the order in which households are matched, increasing average match quality (i.e., the similarity between each MPA household and its controls) and reducing bias (Smith & Todd 2005).

We assess the covariate balance achieved by various matching algorithms, including exact, nearest neighbor and genetic matching approaches. In all six Bird's Head Seascape MPAs, we implement nearest neighbor matching, with either a fixed number of nearest neighbor matches or variable nearest-neighbor approach bounded by a caliper (i.e., a decision rule defining the limit of acceptable similarity; Rosenbaum 2010). Where we implement matching to a fixed number of nearest neighbor control households, we break ties between control households (i.e., multiple households exist with the same similarity score) randomly.

All covariates were subject to equal weights in the matching process. We enforce an exact match on major livelihood (i.e., fishing as primary means of supporting a household/ fishing as a means to supplement other livelihood activities/ non-fisher households), hypothesizing that resource dependence is likely to be an important mediator of the magnitude and direction of MPA impact on individual households. For some sites in Papua, a caliper defined by the propensity score (equivalent to 1.5 times the standard deviation of the propensity score) substantially improved covariate balance.

We document the number of MPA households left unmatched by matching procedures, as well as the number of candidate control households that are outside the region of common support. Wherever possible, we aim to match all MPA households to at least one control household. Where we cannot find suitable matches for MPA households, we assess whether systematic differences exist between matched and unmatched MPA households.

3.7 Covariate balance

The aim of matching and other quasi-experimental methods is to reduce systematic differences between treated and untreated units that arise from non-random participation in an intervention (Gertler et al. 2011). The level of similarity between the observed characteristics of treated and control groups, is known as covariate balance. Covariate balance is a property of treated and control groups, when viewed as two whole groups (Rosenbaum 2010), not a property of individual matched pairs of treated unit to untreated unit(s). Quasi-experimental methods, including matching, aim to reduce the systematic differences as far as is practicable, (i.e. to achieve the highest levels of covariate balance; Caliendo & Kopeinig 2008). Where substantial imbalances remain between the observed characteristics of treated and untreated units, we have less ability to isolate the causal effect of an intervention, and cannot exclude alternative explanations for observed outcomes (Sekhon 2009).

Covariate balance is assessed by examining a series of descriptive statistics both prior to and after matching (Caliendo & Kopeinig 2008). Checks on the balance achieved by matching procedures are informal, and there are few hard-and-fast rules about what constitutes sufficient balance for causal inference (Rosenbaum 2010). Mean and maximum differences between empirical quantile-quantile (eQQ) plots and empirical cumulative distributions functions (eCDF) are useful metrics for assessing

balance, and comparing balance across covariates respectively (Rosenbaum 2010; Imai et al. 2008)¹⁰. Standardized bias (Rosenbaum & Rubin 1985) is also a commonly used metric, with post-matching standardized bias values of below 5% generally regarded as sufficient levels of covariate balance (Caliendo & Kopeinig 2008). Balance on observed covariates does not imply that systematic differences on unobserved covariates have also been removed (Rosenbaum 2009). Where substantial covariate imbalance remains, alternative matching models should be evaluated or statistical methods to lessen model dependence considered (e.g., post-hoc parametric adjustment, Abadie & Imbens 2006)

In this study, we assess covariate balance for each site (i.e. an MPA and its coarsely or finely matched controls) individually. We compute balance statistics in R (version 2.15.1; R Core Team 2012) with the 'Matching' package (version 4.8-0; Sekhon 2007). We conduct quantitative assessments of the covariate balance achieved by both coarse matching and household-to-household matching procedures. For household-to-household matching, we select the matching procedure that minimizes covariate imbalance. For coarse-matching we aim to maximize the likelihood of collecting baseline data in settlements containing similar households to those participating in an MPA. In practice, this may mean selecting a sub-optimal set of control settlements (i.e. a matching solution that does not minimize covariate imbalance) in order to capture the likely range of conditions in an MPA.

For continuous variables, we calculate standardized mean differences, variance ratios¹¹ as well as mean and maximum differences in eQQ and eCDF plots for both unmatched and matched groups. Parameters derived from the eQQ plots enable us to examine covariate balance in their native units (e.g., kilometers for distance to market, or years of residency) and assess whether remaining imbalances are substantively (rather than just statistically) meaningful. eCDF functions enable us to assess the relative balance across observed covariates. Standardized mean difference is calculated as:

$$d = \frac{100 (\bar{x}_{treatment} - \bar{x}_{control})}{\sqrt{\frac{s_{treatment}^2 + s_{control}^2}{2}}}$$

Equation 3.2

Where \bar{x} is the mean, and s is the standard deviation.

For categorical covariates, parameters derived from eQQ and eCDF plots are not meaningful. For these covariates, balance is assessed using a modified version of standardized difference based on proportions (Rosenbaum & Rubin 1985). All multinomial categorical variables are converted into a series of binary variables. Standardized proportional difference is calculated as:

¹⁰ Statistical significance testing should not be used to assess covariate balance, because (a) bias reduction before and after matching is not clear (Caliendo & Kopeinig 2008) and (b) covariate balance needs to be demonstrated across the entire distribution, rather than by a measure of central tendency (Imai et al., 2007).

¹¹ The ratio of the variance observed in treated and untreated units. Ideally, the variance ratio should be 1.0, (i.e., treated and untreated units have equal variances).

$$d = \frac{100 (P_{treatment} - P_{control})}{\sqrt{\frac{P_{treatment}(1 - P_{treatment}) + P_{control}(1 - P_{control})}{2}}}$$

Equation 3.3

Where P is the proportion of households in a category.

There is no clear ‘stopping rule’ for matching procedures as the intent is to minimize covariate imbalance. (Imai et al. 2008) In practice, scholars suggest a standardized difference of less than 5% represents sufficient covariate balance upon which to base causal inference in the majority of cases (Caliendo & Kopeinig 2008). In this study, we combine rules of thumb from impact evaluation literature with a functional approach using theory and local expert judgment to inform our assessment of whether sufficient covariate balance is achieved.

We document site-level covariate balance achieved by both coarse and household-to-household matching with numerical (Table 3.1) and graphical summaries (Figure 3.1).

3.8 Sensitivity to hidden bias

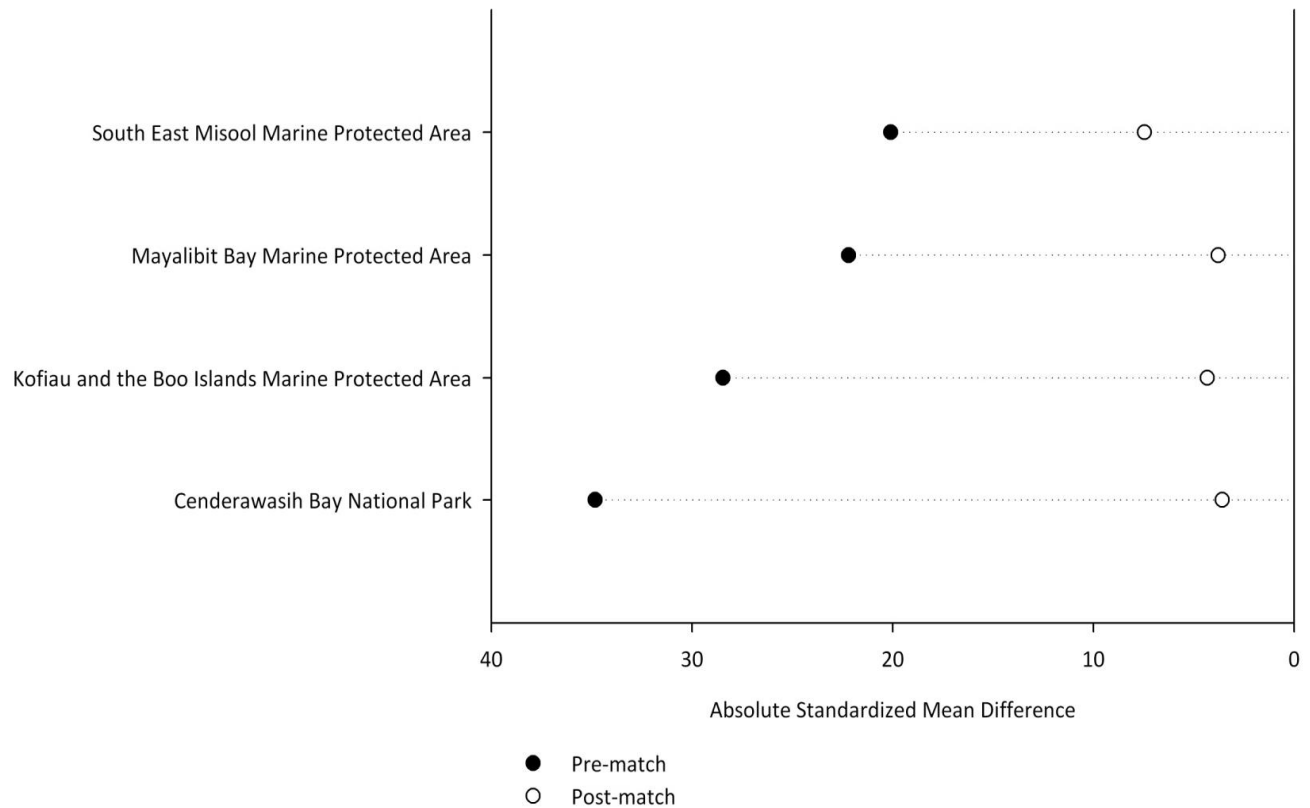
Hidden bias (also known as unobserved bias) arises when a covariate not included in the matching procedure correlates with both participation in the intervention and its outcomes, masking the effect of the intervention (Rosenbaum 2010). Unfortunately, there is no empirical method of detecting and quantifying the magnitude or direction of hidden bias (Rosenbaum 2010). Instead, it is necessary to assess how vulnerable each impact estimate might be to hidden biases of varying magnitude. Rosenbaum’s sensitivity bounds allow researchers to conduct a ‘thought experiment’, identifying how robust a statistically significant impact estimate is to hidden bias (Rosenbaum 2010).

In this study, we calculate Rosenbaum’s sensitivity bounds (γ) in R (version 2.15.1; R Core Team 2012) with the ‘rbounds’ package (version 0.9; Keele 2010). We compute sensitivity bounds for each treatment effect, with a default upper bound on the sensitivity parameter (γ) of 4, and a γ increment of 0.2. Using these starting parameters, we calculate the sensitivity of each treatment effect to the potential presence of a hidden bias, affecting the odds of participation by up to a factor of 4. Treatment effects robust to values of γ significantly greater than 1.0, are considered insensitive to potential hidden bias (Rosenbaum 2010).

Table 3.1 Example covariate balance between households resident in Kofiau and the Boo Islands Marine Protected Area (Kofiau and the Boo Islands Kawasan Konservasi Laut Daerah) and control households in the Bird's Head Seascape of Papua Barat, Indonesia achieved by household-to-household matching techniques.

Covariate	Status	Treatment mean	Control mean	Std. mean diff	Mean eQQ diff.	Max eQQ diff.
Distance to market	Unmatched	13.4	13.0	60.0	3.7	12.0
	Matched	9.8	12.7	3.7	1.7	8.0
High dependence on fishing	Unmatched	0.1	0.1	-27.2	-	-
	Matched	0.0	0.0	0.0	-	-
Medium dependence on fishing	Unmatched	0.8	0.7	38.1	-	-
	Matched	0.9	0.9	0.0	-	-
Low dependence on fishing	Unmatched	0.1	0.2	-25.0	-	-
	Matched	0.2	0.2	0.0	-	-
Age of household head	Unmatched	38.9	38.4	-1.0	2.6	26.0
	Matched	39.0	39.3	-5.3	2.1	26.0
Gender of household head (% female)	Unmatched	1.0	1.1	-46.1	-	-
	Matched	1.0	1.0	6.0	-	-
% household heads receiving primary education	Unmatched	0.6	0.5	21.3	-	-
	Matched	0.6	0.4	25.0	-	-
% household heads receiving junior secondary education	Unmatched	0.2	0.3	-29.0	-	-
	Matched	0.2	0.4	-57.3	-	-
% household heads receiving senior secondary education	Unmatched	0.1	0.1	-4.3	-	-
	Matched	0.1	0.1	9.8	-	-
% household heads receiving further or higher education	Unmatched	0.1	0.1	1.9	-	-
	Matched	0.1	0.0	16.2	-	-
Paternal ethnicity (% dominant clan)	Unmatched	0.8	0.6	51.3	-	-
	Matched	0.8	0.8	-3.1	-	-
Residency	Unmatched	30.6	17.1	68.1	14.6	36.0
	Matched	29.8	28.8	4.9	5.8	15.0
Household size	Unmatched	5.6	5.7	-6.2	0.3	3.0
	Matched	5.8	5.5	4.3	0.3	6.0
Years unknown	Unmatched	0.1	0.1	-9.1	-	-
	Matched	0.1	0.1	11.4	-	-

Figure 3.1 Mean covariate balance between households resident in four marine protected areas and control households in the Bird's Head Seascape of Tanah Papua, Indonesia achieved by household-to-household matching techniques. Mean covariate balance measured by the absolute standardized mean difference between treatment and control households averaged across all observed covariates. A mean standardized difference of zero indicates that mean covariate values in treatment and control households are identical.



3.9 Further reading

Caliendo, M. & S Kopeinig (2008) Some practical guidance for the implementation of propensity score matching. *Journal of Economic Surveys* 22 (1): 31-72.

Gertler, P.J., S. Martinez, P. Premand, L.B. Rawlings & C.M.J. Vermeersch (2011) *Impact evaluation in practice*. The World Bank, Washington, D.C.

Mascia, M.B., S. Pailler, M. Thieme, A. Rowe, M. Bottrill, F. Danielsen, J. Geldmann, R. Naidoo & N. Burgess (*in press*) Commonalities and complementarities among approaches to conservation monitoring and evaluation. *Conservation Biology*

Rosenbaum, P.R. & D.B. Rubin (1983) The central role of the propensity score in observational studies for causal effects. *Biometrika* 70 (1): 41-55.

Rosenbaum, P.R. (2010) *Design of observational studies*. Springer, New York.

Sekhon, J.S. (2009) Opiates for the matches: matching methods for causal inference. *Annual Review of Political Science* 12: 487-508.

4. Social impacts of marine protected areas

4.1 Rationale

In this study, we use household surveys in a quasi-experimental framework to quantify the social impacts of MPAs, across social domains and between social groups. We conduct household surveys in a representative, random sample of households resident in an MPA and coarsely-matched control settlements, enabling us to understand the impacts of an MPA across the households resident within its boundaries. The household survey instrument is designed to collect robust, quantitative data on a broad range of social wellbeing metrics across five domains:

- Economic wellbeing
- Health
- Political empowerment
- Education
- Culture

We use demographic data, as well as information on household marine resource dependence to delineate social groups, and enable us to document variation in the impact of MPAs across social groups.

In this section, we describe the development of the instrument (section 4.2), and provide detailed guidance on its implementation in a site (sections 4.3-5.5).

4.2 Indicator development

The household survey instrument is intended to elicit robust, quantitative data across a broad suite of well-being indicators. The instrument focuses on five domains of social wellbeing widely identified in poverty frameworks (e.g., Human Development Index; United Nations Development Programme 1990), human development goals (e.g., Millennium Development Goals; UN Millennium Project 2005) and discussions on the linkages between biodiversity conservation and wellbeing (e.g., Millennium Ecosystems Assessment 2005; Agrawal & Redford 2006; Sachs et al. 2009; Mascia et al. 2010)

The five domains which we focus upon are:

- Economic well-being: the resources people use to meet basic consumption and materials needs and access other sources of wellbeing (Sen 1999).
- Health: the state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity (World Health Organization 1946)

- Political Empowerment: people's ability to participate in the decision-making processes that effect their lives (United Nations Development Programme et al. 2005)
- Education: the structures, systems and practices –both formal and informal – used to transfer knowledge and skills in a society (Stephanson & Mascia 2009).
- Culture: encompasses art, ways of living together, value systems, traditions and beliefs (UNESCO, 2001).

Within each of these domains, the instrument builds upon the existing theoretical frameworks and disciplinary expertise. We draw upon previously validated instruments and peer-reviewed studies, including the United States Department of Agriculture Food Security Scale (Bickel et al. 2000), and peer-reviewed metrics of place attachment (Gosling & Williams 2010) and resource rights (Mascia & Claus, 2008 Mascia & Claus 2009). We reviewed the literature on the social impacts of marine protected areas, formulating hypothesized causal pathways linking MPA establishment to each of the dimensions of well-being included on the household survey instrument (see table 4.1).

The instrument is designed to be modular, with a core set of indicators that may be supplemented by additional questions where greater depth on a particular construct is required. Wherever possible, the core instrument should not be modified, to generate comparable data across sites. The development of comparable data on the social impacts of MPAs across multiple sites will enable researchers to generate policy-relevant insights on the performance of MPAs across geographies and scales. All questions on version 2.3 of the household survey instrument are core indicators, except the child food security scale (question numbers 46-49).

WWF-US and UNIPA developed the core indicator set in 2010, and piloted in two MPAs (Teluk Cenderawasih National Park and Teluk Mayalibit Marine Protected Area) and their coarsely-matched control settlements in the Bird's Head Seascape of Tanah Papua, Indonesia. We revised the instrument based on the pilot in 2011, when the monitoring program scaled up to cover a total of six MPAs in the Bird's Head (version 2.0). Additional minor revisions were made in 2012 (version 2.3).

Table 4.1 Indicators of social well-being included on the household survey instrument

Domain	Indicator	Mechanism	Question No. †
Economic well-being	Primary source of livelihood	By restricting rules and use rights, MPAs may restructure incentives for certain forms of marine resource use, and lead to occupational shifts.	20a
	Household assets	MPA management may reshape household income and, thus, purchasing and consumption patterns.	31
	Cooking fuel	MPA management may reshape household income and, thus consumption patterns.	32
Health	Food security	MPA management may reallocate use rights to participating fishers and increasing fish biomass, increasing catch and reducing the risk of food insecurity.	38-45
	Morbidity	MPAs may reduce the disease burden through improved food security and income.	33
	Mortality	MPAs may reduce the disease burden through improved food security and income.	34-37
Political empowerment	Resource rights	MPA establishment may restructure resource rights, empowering or disempowering users depending on the MPA and pre-existing rights structures.	50-54
	Community organization	MPA establishment may enhance participation in marine resource management organizations as individuals join together to support or oppose an MPA.	56-57
	Political engagement	MPA establishment may increase engagement in local and national political processes.	58-59
Education	School enrollment	Enrollment may increase as families have greater wealth either directly (e.g. employment) or indirectly (e.g., increased fish catch) linked to MPA establishment.	15
	School enrollment gender ratio	Gender gap likely to narrow as families have greater wealth either directly (e.g. employment) or indirectly (e.g., increased fish catch) linked to MPA establishment.	15
	Environmental knowledge and awareness	Knowledge and awareness of threats to the marine environment and potential solutions likely to increase as a result of MPA establishment.	60-63
Culture	Social conflict	MPA establishment may decrease or increase conflict over marine resource use and management.	55
	Place attachment	MPA may either alienate individuals from the marine environment or strengthen their ties to it.	64-69

† Household survey instrument version 2.3

4.3 Instrument

The household survey instrument is a series of constrained choice and open-ended questions designed to elicit information on household wellbeing. The instrument (Appendix 4.1) contains instructions to enumerators, questions for respondents and responses boxes, and where appropriate, response codes (Appendix 4.2). The instrument is accompanied by a protocol (Appendix 4.3) that provides a detailed description of the instrument and step-by-step guidance on how to conduct surveys in a settlement.

The household is the unit of measurement for the survey. We define a household as a group of people who share one kitchen. Household surveys should be conducted with the head of the household, defined as the individual provides the main source of income for the family and has the right to make decisions about the household. Where the household head is unavailable for interview, we seek information from an appropriate representative. The majority of questions on the instrument are designed to elicit information on the household *as a whole*. A small number of questions ask for information about the individual respondent, rather than their household; these questions are clearly identified on the instrument and in the instructions to enumerators.

We developed the instrument and accompanying protocols in English and Bahasa Indonesia. If researchers plan to conduct surveys in other languages, the instrument should be translated by a native speaker of the survey translated with an English back-translation to verify accuracy.

4.4 Sampling procedures

Our social impact methodology seeks to build a robust evidence base on the social impact of MPAs to inform conservation policy and practice. It is important, therefore, that the evidence is reliable, accurate and representative. We adopt best practice in sampling design, identifying the sample size necessary to detect an effect of a particular size with power analysis and ensuring that the survey effort obtains adequate coverage of social and geographic groups within a site (see section 4.4.2).

This section outlines the procedures for identifying the appropriate sample size to document social impacts of a specific magnitude at a given site. We define a 'site' as an MPA and its coarsely matched control settlements. Here, we assume that the boundaries of the marine protected area are known and that an appropriate control group has been identified with the coarse matching procedure outlined in section 3.6.2. Procedures for selecting a random sample of households upon arriving in a settlement, after developing a sampling plan, are outlined in the household survey protocol (Appendix 4.3)

4.4.1 Basic principles of sampling

A well-designed sampling strategy should be representative of subgroups, geographic and social, within the population and have sufficient precision to detect the specified effect, whilst recognizing the financial or logistical constraints of a survey team (United Nations 2005).

Here we define basic terms in the sampling process, and their meaning in the WWF-UNIPA social impact monitoring methodology.

- *Population*: all of the units to which one wishes to generalize survey results (Dillman et al. 2009). In this study, the population is all households resident/participating in an MPA and its coarsely matched controls (i.e, a site).
- *Sampling frame*: the list from which a sample is to be drawn in order to represent the survey population (Dillman et al. 2009). In this study, sampling frames are developed at two levels; the site and the settlement. At the site level, the sampling frame is a list of all settlements and their populations within an MPA and its coarsely matched controls. At the settlement level, the sampling frame is a list of all households resident in that settlement (see Appendix 4.4 for further details).
- *Sample*: all units of the population that are drawn for inclusion in the survey (Dillman et al. 2009). For the household instrument, the sample is all of the households in an MPA and its coarsely matched controls drawn for inclusion in the survey.

4.4.2 Sampling design: step-by-step guidance

1. Site-level sampling frame.

We use data from the most recent census combined with information on MPA boundaries to develop a site level sampling frame, i.e., a list of settlements within an MPA and its coarsely matched control settlements and their populations (number of households, or number of individuals divided by average household size).

2. Power analysis

To ensure that our monitoring efforts can detect substantive changes (+/- 10% of baseline value) in social wellbeing and ensure cost-effective allocation of effort, we use power analysis to calculate the minimum sample required to detect an effect of a particular size in the population of interest (Cohen 1988).

Power analysis allows researchers to calculate the minimum sample size (n) required to detect a specified effect, based on the population size (N), the estimated variance in a population (P) the precision required (α), and the z-score associated with the confidence level (z) using the following formula (Cohen 1988):

$$n = \frac{P(1-P)}{\frac{\alpha^2}{z^2} + \left(\frac{P(1-P)}{N}\right)}$$

Equation 4.1

In this study, we employ a standard set of parameter values in power analysis (Table 4.2), to ensure consistent statistical power across sites, wherever possible.

Table 4.2 Parameter values for power analysis

Parameter	Standard value(s)
Precision	α Precision may vary across sites, depending on population and available budget. Where possible, we adopt a precision of 0.05 (i.e, 5%). The minimum precision for this study is 0.1 (i.e.10%)
Population Variance	P This parameter represents the expected degree of variability in a population, expressed as a decimal. We use the most conservative value of 0.5.
Z-score associated with a confidence interval	Z We use a standard value of 1.96 (equivalent to a 95% confidence interval)

Where the calculated sample size exceeds 10% of the total population at a site, we apply a finite population correction (Cohen 1988).

In small MPAs or coarsely-matched control groups, it may be necessary to impose a minimum sample size rule, to ensure variation within and among groups can be analyzed. For any given MPA or coarsely matched control group, the minimum sample size is 110 households. Where the sample size computed in power analysis does not meet this criterion, we adopt an arbitrary sample size of 110 households, or conduct a census. For a site (an MPA and its coarsely matched controls), the minimum sample size is, therefore, 220.

3. Sampling strategy: stratified random or cluster sampling

This study uses one of two sampling designs, stratified random or cluster sampling, depending on population size, the spatial extent of the MPA, and logistical constraints.

A stratified random sample divides a population into 'strata' or groups, to ensure that each group achieves representation within the sample. A cluster sample divides a population into groups, based on a particular characteristic of interest, often geographic location, and samples in some but not all of these clusters. Cluster sampling is thus a way to gain a representative sample, in a large site where settlements are distant from each other. Clustering can affect the reliability, precision and variance detected in a sample. Consequently, it is necessary to include a correction for the effects of adopting cluster sampling. This is known as the design effect (or 'deff'). The design effect cannot be directly computed prior to a survey. Instead a default multiplier of 1.5 -2.0 is applied to the required sample size computed via power analysis, to account for the effects of clustering (United Nations 2005).

In smaller sites, this study uses a stratified random sample of all settlements within the MPA and its coarsely-matched control, with sample size in each settlement proportional to population.

In larger sites, where budget or logistical constraints preclude a stratified random sample, we implement cluster sampling, with local administrative districts (*Distrik* in Bahasa Indonesia) forming each cluster. The number of clusters sampled in each site is determined by the available budget, with a greater number of clusters preferred. A design effect multiplier of 2.0 is applied to the sample size computed via power analysis to account for the effects of clustering.

In the majority of sites, it is necessary to apply a decision-rule to identify the optimal sampling strategy. In this study, we always adopt the sampling design which allows us to detect reliably detect 10% change relative to baseline in our variables of interest with the smallest required sample size (after taking design effects and the finite population correction into account).

4. Calculate the sample size required in each settlement

After identifying the required sample size and optimum sampling strategy, it is necessary to identify how many households to sample in each settlement. Irrespective of whether a site is subject to stratified random or cluster sampling, the target sample size in a settlement is proportional to its population. This is known as proportionate sampling (United Nations 2005).

Proportionate sampling is a self-weighting design, in which the households in each sampled settlement have an equal probability of being included in the survey. Proportionate sampling simplifies the complexity of data analysis (United Nations 2005; Dillman et al. 2009).

The sample size for each settlement (n_s) is given by:

$$n_s = \left(\frac{N_s}{N} \right) \times n$$

Equation 4.2

Where:

N = number of households in an MPA/control

N_s = number of households in settlement

n = required sample size for MPA/control

5. Oversamples and minimum settlement sample size

In this study, we apply two further decisions rules to calculate final required sample sizes in a settlement.

The first of these rules is designed to account for inaccuracies in the sampling frame, while the second is designed to ensure an absolute minimum sample size is achieved in each settlement.

- Oversample rule:

For each settlement, add either 10% or 2 households, whichever is greater, to the required settlement sample size (n_s) computed in equation 2.0.

- Absolute minimum sample size

The minimum sample size in any settlement is 10 households. If the sample size in a settlement is less than 10 households after applying the oversample rule, the sample is automatically increased to 10 households. If there are fewer than 10 households in a settlement, all households are surveyed.

We document the sampling frame used in our sampling procedures (Appendix 4.4) and the interview response rate (Appendix 4.5)

4.5 Field work logistics and planning

4.5.1 Field team

In this study, the field team is comprised of recent graduates and faculty members of a university within the Bird's Head Seascape, the State University of Papua (UNIPA). At each site, the field team is composed of five members, four enumerators tasked with implementing the household surveys, and a field coordinator. Additional technical support is provided, as needed, by the UNIPA study director and a data manager.

Here, we describe the skills, roles and responsibilities of field team for the implementation of household surveys in a site. Team members have additional roles and responsibilities when conducting focus groups and key informant interviews on marine resource governance (see section 5.0)

Enumerators are responsible for conducting household surveys in settlement. Under supervision from senior field team members, enumerators generate a random sample of households to interview in each settlement, request the participation of individual households and conduct surveys with participating households. Enumerators operate in pairs, with each enumerator alternating between posing questions to respondents, and recording their responses. In this study, enumerators are recent science graduates, from a range of disciplines, from the local university. Many do not have field experience prior to this study. All enumerators are required to attend a five-day training session, which focuses on scientific survey methods and skills (see section 4.5.2).

Field coordinators have day-to-day responsibility for the field team's activities in a site. In Papua, field coordinators are junior faculty members of UNIPA, with experience of managing research teams. Field coordinators are responsible for introducing a field monitoring effort to local officials (the *kepala desa* or the *kepala adat*), leading the in-settlement sampling process, coordinating the movements of the team, and arranging transportation between settlements. In the Bird's Head Seascape MPAs, field coordinators do not remain in the field continuously during data collection, due to other University commitments.

During the periods in which a field coordinator is not accompanying the field team, an experienced member of the enumerator team, assumes day-to-day responsibility for the team. This 'senior enumerator' may have conducted previous rounds of monitoring, or have other experience of scientific surveying. In settlements where the field coordinator is absent, the senior enumerator is responsible for introducing the monitoring effort to local officials (the *kepala desa* or the *kepala adat*), leading the in-settlement sampling process, coordinating the movements of the team, and other day-to-day logistics.

To reduce the potential for strategic responses by surveyed household heads, field teams operate independently from, but with the consent of the organizations responsible managing marine resources (e.g. government, or non-governmental organizations). In some contexts, it may be appropriate to consider the gender composition of the field team, particularly in regions where strong cultural norms may influence the willingness of household heads to respond to certain types of questions posed by an enumerator.

4.5.2. Field team training

Training is intended to provide field team with the necessary conceptual background, and practical skills to conduct WWF-UNIPA social monitoring. Field team training occurs immediately prior to data collection in each site. Training is held over 5 days, including a day-long field test (Table 4.3) and is led by the study director, with technical support from WWF-US. Where possible, training should be held in the native language of the field team/the language used for the survey.

4.5.3 Planning

Enumerators operate in pairs with a full enumerator team (two pairs of enumerators) able to conduct approximately 10 interviews per day (i.e., five interviews per enumerator pair, each lasting approximately 45 minutes). To prevent local residents from feeling uncomfortable at the swiftness of data collection, field teams should not attempt to conduct more than 10 interviews per day. Field teams should plan to spend at least one day in each settlement, even where settlements are very small. In this study, the size of the field team remains constant, even in larger sites, as individual settlements can be both small and isolated. In this context, a large field team may appear intimidating for local residents, and transporting large field teams between settlements may pose logistical difficulties.

When planning the movement of a field team through a site, a useful rule of thumb to calculate the length of time required in each settlement and across a site, is to divide the required settlement sample size by 10 (i.e., total number of interviews per settlement/maximum number of interviews conducted per day). In the Bird's Head Seascape, we allow one full day for travelling between settlements in a site. Interviews are not conducted on travel days.

In Papua, we have found it useful for the field team to request assistance from local officials to find appropriate accommodation in a settlement. In many cases, the field team stays with a local family, or in rented accommodation. Field teams carry sufficient supplies (food, equipment, etc.) so that they do not place undue burden on local resources.

4.5.4 Budget

The costs of implementing this methodology fall into four categories, fixed costs associated with hiring and training a field team ('fixed costs'), costs which vary by site ('site level variable costs'), costs which vary depending on the number of settlements in a site ('settlement level variable costs'), and those which vary according to the population size ('per day variable costs').

Fixed costs remain the same, independent of the number of sites being surveyed at any one time. All other costs vary across sites, and with the number of sites being monitored. In Papua, settlement level variable costs exceed per day costs, due to the high price of fuel. In practice, this means sampling designs that minimize the number of settlements sampled (i.e., cluster sampling) are more cost-effective than reducing precision (α) in cases where financial resources are limited. In contexts where personnel costs are higher than transport costs, the inverse is likely to be true.

Table 4.3 Example training agenda and session topics

Day	Session	Session length	Content	Participants
1	1. Social impact monitoring overview	2 hours	<ul style="list-style-type: none"> • What are marine protected areas? • Policy debates surrounding marine protected areas • WWF-UNIPA monitoring study objectives • Geographic scope of monitoring • History and development of WWF-UNIPA monitoring • Overview of quasi-experimental monitoring approach • Overview of social wellbeing domains/indicators • Overview of MPA governance • Policy relevance at local, regional, national and international scales 	Field team
	2. Marine Protected Areas: an introduction	2 hours	<ul style="list-style-type: none"> • Introduction to coral reefs (biodiversity and human use) • MPAs as a tool for conserving marine biodiversity • Types of MPAs • How MPAs work • Policy debate surrounding ecological and social impacts of MPAs • Evidence for the ecological and social impacts of MPAs • WWF-UNIPA monitoring research objectives 	Field team
	3. WWF-UNIPA monitoring goals and approach	2 hours	<ul style="list-style-type: none"> • Quasi-experiments • Measuring social well-being: methods • Social wellbeing indicators • Measuring marine governance: methods • Governance indicators • Field team roles and responsibilities 	
2	4. An introduction to household surveys	1 hour	<ul style="list-style-type: none"> • Rationale for household surveys • Household survey method. • Sampling • Identifying household heads and requesting interviews • Informed consent and confidentiality • Types of questions on the household survey instrument • Coding responses to questions • Blind response codes 	Field team

Day	Session	Session length	Content	Participants
	5. WWF-UNIPA household survey instrument	4 hours	Informal question-by-question walk-through of household survey instrument. Session should cover basic principles of conducting interviews, recording data, and trouble-shooting. The household survey instrument protocol (Appendix 5.5) can act as a guide to discussions.	Field team
3	6. WWF-UNIPA focus group instrument	4 hours	Informal question-by-question walk-through of focus group instrument. Session should cover basic principles of conducting focus groups, strategies for facilitation, recording data, and trouble-shooting. The focus group instrument protocol (Appendix 5.5) can act as a guide to discussions.	Field team
	7 WWF-UNIPA key informant interview instrument	3 hours	Informal question-by-question walk-through of the key informant interview instrument. Session should cover basic principles of conducting semi-structured interviews, recording data, and trouble-shooting. The key informant interview protocol (Appendix 5.5) can act as a guide to discussions.	Field coordinators
4	8. Field test	5 hours	A field test should be conducted by the field team. Enumerators should follow the household survey protocol and practice interviewing respondents. Each enumerator should have the opportunity to act as an enumerator and as a note-taker.	Field team
5	9. An introduction to data management	2 hours	<ul style="list-style-type: none"> • What is data management? • Basic principles of data management systems • Relational data in spreadsheets and databases • Household survey database • Introduction to data entry in the household survey database • Managing the data entry process • Backing up data. • Quality control procedures 	Field team
	10. Data entry practice session	2 hours	Practical session for enumerators to familiarize themselves with the UNIPA household survey database. Each enumerator should enter at least one record collected during the field test into a practice version of the database.	Enumerators
	11. Feedback from field test	2 hours	The study director and field coordinators provide feedback to field team on field test. The review should cover any questions on household survey instrument that enumerators need additional guidance upon as well as conduct in the field.	Field team

Table 4.4 provides a detailed breakdown of individual expenses, which fall under each cost category, and Table 4.5 outlines the cost range for monitoring the social impacts of marine protected areas across the Bird's Head Seascape. Estimates do not include the cost of technical support from WWF-US staff. In general, costs tend to increase in larger, and more remote MPAs.

Table 4.4. Budget categories for monitoring the social impact of MPAs.

Category	Cost type
Fixed costs	Field partner overheads
	Study director salary
	Field team training
Site-level variable costs	Transport to/from local hub
	Transport between local hub and site
	Equipment
Settlement-level variable costs	Transport between sampled settlements
Per day variable costs	Accommodation for the field team
	Field team subsistence
	Local field assistant salaries
	Survey reproduction costs
	Enumerator salaries
	Field coordinator salaries
	Remittance for households (e.g., tea, betel nut)
	Insurance

Table 4.5 Example budget for monitoring the social impacts of MPAs. Data represent the actual costs (rounded to nearest USD10) incurred collecting baseline data in six MPAs and coarsely matched control settlements between 2010 and 2012. Costs were incurred in Indonesian Rupiahs and converted to US dollars in August 2012. Estimates do not include the cost of technical support from WWF-US staff

Category	Cost (US Dollars)		
	Mean	Minimum	Maximum
Fixed costs (per site)	4,750.00	2,340.00	6,550.00
Site level variable cost (per site)	2,030.00	1,280.00	3,670.00
Settlement level variable costs (per settlement)	80.00	20.00	100.00
Per day variable costs (per day)	160.00	120.00	170.00

4.5.5 Permissions and stakeholder engagement

It is important to communicate the purpose, methods and outputs of monitoring efforts. In Papua, we communicate the purpose of the monitoring to a various stakeholders including government officials (Provincial, Regency and District) and NGO staff. Prior to data collection, letters seeking the assistance of local officials and information sheets are circulated (Appendix 4.6). Where necessary, the field team obtains permits for entering National Parks.

Upon arrival in a settlement, the field coordinator or senior enumerator explains the purpose of the monitoring to local officials (see Appendix 4.3 for detailed instructions) and, where necessary requests assistance in arranging a focus group.

Households are provided with information about the purpose of the survey prior to a formal interview request (see Appendix 4.7).

Upon returning to a settlement for a repeat survey, the field team circulates a summary reports describing the social conditions in each settlement from the previous round of data collection (see Appendix 4.8 for an example report). Summary reports documenting conditions at the district (*distrik*) and site level are circulated to relevant stakeholders.

4.5 Conducting household surveys

Appendix 4.3 provides detailed guidance on the implementation of household surveys in a settlement. Here, we briefly outline the steps a field team should follow upon arrival into a settlement. The field team, led by the field coordinator (or senior enumerator if the field coordinator is absent) should:

- Explain the purpose of the monitoring to local officials, and request their assistance in generating a sample frame, and arranging a focus group.
- Generate a random sample of households in a settlement. The sample size in each settlement is determined by power analysis (see section 4.4.2)
- Seek the informed consent of households randomly selected for interview
- Conduct household interviews at a time convenient to the household head or their representative.
- Use the household survey form to document the interview (Appendix 5.1). Appendix 4.2 and 4.9 list the appropriate response and identification codes for enumerators to use when recording information.
- Check household surveys for completeness at the end of each day.

In this survey, we do not pay households for their participation. In some cases, it may be appropriate to provide participating households with a small token of appreciation for their time. In Papua, the field team provides betel nut, pens or tea as a token to participating households.

4.5.5 Informed consent and confidentiality

Participation in the household survey is voluntary and it is important to gain a respondent's informed consent prior to interview. Informed consent can be defined as the voluntary agreement of a respondent to participate in a survey, after information has been provided about that survey (Dillman et al. 2009).

In this study, we obtain verbal informed consent from household heads or their representatives. Enumerators read aloud an information sheet to the potential respondent, which explains the purpose of the survey and the confidentiality of the data gathered (Appendix 4.7).

Data gathered from individual households in this survey are confidential, meaning that information which could identify individual respondents is not disclosed. Field team training sessions include specific guidance on both how to obtain informed consent and maintain confidentiality. In this study, we follow best practice ethical guidelines (National Academy of Sciences 1995; American Anthropological Association 1998) that govern research conduct.

5. Marine protected area governance

5.1 Rationale

Growing evidence from the common pool resource literature suggests governance (e.g., an MPA's decision-making arrangements, resource use rules, monitoring and enforcement systems, and conflict resolution mechanism), shapes the ecological and social outcomes of interventions in marine and analogous resource systems (e.g., Mascia et al. 2010; Persha et al. 2011).

In this study, we build on the work of the International Forest Resources and Institutions (IFRI) network, to develop consistent, flexible methods to operationalize common pool resource theory, and capture fine-scale variation in governance regimes. Following Ostrom's (1990) principles for effective common pool resource institutions, we focus on:

- Decisionmaking arrangements for marine resource management
- Rules governing marine resources
- Monitoring and enforcement
- Conflict resolution

To do this, we adopt a mixed methods quasi-experimental approach, using focus group discussions and semi-structured interviews with key informants to characterize marine resource governance in MPAs and control settlements. We use focus groups to document the collective knowledge of marine resource governance among local residents in MPAs and controls, focusing on how decisions are made within the MPA, and the rules governing marine resources. We document the extent to which local users participate in decisionmaking and monitoring and enforcement activities related to marine resources.

Collective knowledge from focus groups is complemented with a series of in-depth interviews with key informants, drawn from local user groups, marine resource managers and other stakeholders. In this study, focus groups collect data on collective decision-making, monitoring and enforcement and conflict resolution mechanisms. Each of the instruments is modified to the local context, asking participants about resources, users and conditions occurring within a particular geography.

In this section, we describe the development of the focus group and key informant instruments (section 5.2) and provide detailed guidance on their implementation in a site (section 5.3). We consider appropriate quality control procedures and data management in section 6.

5.2 Indicator development

The focus group and key informant interview instruments (Appendices 5.1 and 5.2, respectively) are designed to operationalize Ostrom's design principles for effective common pool resource institutions (Ostrom 1990). These are:

1. *Clearly defined boundaries.*
Individuals or households with rights to withdraw resource units from the CPR, and the boundaries of the CPR itself are clearly defined.
2. *Congruence.*
 - (a) The distribution of benefits from appropriation rules is roughly proportionate to the costs imposed by provision rules.
 - (b) Appropriate rules restricting time, place, technology, and/or quantity of resource units are related to local conditions.
3. *Collective choice arrangements.*
Most individuals affected by operational rules can participate in modifying operational rules.
4. *Monitoring.*
Monitors, who actively audit CPR conditions and appropriate behavior are accountable to the appropriators and/or are the appropriators themselves.
5. *Graduated sanctions.*
Appropriators who violate operational rules are likely to receive graduated sanctions (depending on the seriousness and the context of the offence) from other appropriators, from officials accountable to appropriators, or both.
6. *Conflict resolution.*
Appropriators and their officials have rapid access to low-cost, local arenas to resolve conflict among appropriators, or between appropriators and officials.
7. *Minimal recognition of rights to organize.*
The rights of appropriators to devise their own institutions are not challenged by external governmental authorities.
8. *Nestedness.*
Appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organized in multiple layers of nested enterprises.

(adapted from Ostrom 1990 : 90)

The focus group and key informant interview instruments developed in this study, build upon the IFRI frameworks to characterize marine resource governance¹². Table 5.1 outlines the quantitative metrics we use to describe each of Ostrom's principles and identifies the items on both the focus group and key informant instruments which deal with these concepts. We complement these quantitative indicators with qualitative data on the history and context of an MPA, decision-making arrangements, monitoring and enforcement and conflict resolution. These open-ended questions are designed to elicit detailed responses, enabling us to triangulate the quantitative profile of marine resource governance, and understand the rich contextual detail of governance in each MPA and their coarsely matched control settlements.

The governance instruments were developed by WWF and UNIPA in 2010, and piloted in two MPAs (Teluk Cenderawasih National Park and Teluk Mayalibit Marine Protected Area) and their coarsely-matched control settlements in the Bird's Head Seascape of Tanah Papua, Indonesia. The instruments were revised based on the pilot in 2011, when the monitoring program scaled up to cover a total of six MPAs in the Bird's Head (version 2.0). Additional minor revisions were made to the focus group instrument in 2012 (version 2.1).

5.3 Marine resource governance instruments

In this study we use focus groups and key informant interviews to characterize marine resource governance in the Bird's Head Seascape under different management regimes (MPA vs. non-MPA).

A focus group is a facilitated discussion among a group of people about a specific topic that explores collective understanding and divergent perspectives within a group (Bernard 1995). In this study, we conduct focus groups to document the collective understanding of marine resource governance in a specific geographic area. Focus groups, facilitated by senior members of the UNIPA field team, elicit information on the boundaries and characteristics (e.g., important species, habitats and user groups) of a marine resource governance unit (an MPA, or usual fishing grounds) and how it is managed. The focus group instrument (Appendix 5.1) gathers information using a range of techniques including constrained choice and open-ended questions as well as participatory mapping and ranking exercises.

We conduct semi-structured interviews with key informants to capture specialist knowledge about the subtleties of marine resource governance in the Bird's Head Seascape. Key informants are individuals with specialist knowledge about a particular topic that they are willing to share (Bernard 1995). A key informant is defined by their knowledge and their willingness to share their knowledge, not their social status, wealth or political power (Bernard 1995). In this study, a key informant is someone who has specific, detailed knowledge about how marine resources are used and managed in the marine protected area (MPA) or usual fishing grounds (for coarsely-matched control settlements).

¹² For more information on the IFRI framework, see <http://www.sitemaker.umich.edu/ifri/home>

Table 5.1 Governance indicators on the focus group (FGD) and key informant interview (KII) instruments. Adapted from Ostrom (1990)

Design Principle	Attribute	Dimension	Question	Metric
1. Clearly defined boundaries.	1a. Users		[FGD-12]	Proportion of users who know the external boundaries of the CPR.
			[FGD-13]	Proportion of users who know the internal boundaries of the CPR.
	1b. Resource	i. Context-dependent rules: species	[KII-5]	Proportion of important species subject to specific appropriation rule.
		ii. Context-dependent rules: habitats	[KII-5]	Proportion of important habitats subject to specific appropriation rule.
		iii. Context-dependent rules: users	[KII-6]	Proportion of important users subject to specific appropriation rule.
	2. Congruence	2a. Proportionality		[FGD-27] [FGD-28]
2b. Congruence of rules with local conditions			[KII-7]	Rules vary over time based on ecological condition
			[KII-8]	Rules vary over time based on social condition
3. Collective choice arrangements	3a. Participation in decision-making	i. Establishment	[FGD-14]	Proportion of users actively participating in the decision to establish MPA
		ii. Boundary demarcation	[FGD-15]	Proportion of users actively participating MPA boundary demarcation decision
		iii. Management organization	[FGD-16]	Proportion of users actively participating in design of management organization
		iv. Appropriation rules	[FGD-17]	Proportion of users actively participating in setting appropriation rules.
4. Monitoring	4a. Active monitoring	i. Ecological conditions of CPR.	[FGD-18]	Frequency the condition of marine resources is monitored.
		ii. Social conditions of CPR.	[FGD-19]	Frequency the well-being of people who depend on marine resources is monitored.
		iii. Appropriate behavior (compliance)	[FGD-20]	Frequency compliance with appropriation rules is monitored.
	4b. Accountable monitoring	i. Sanctions for failure to monitor ecological conditions	[KII-22]	Number of sanctions for failing to monitor ecological conditions
		i. Sanctions for failure to monitor social conditions	[KII-23]	Number of sanctions for failing to monitor social conditions
		i. Sanctions for failure to monitor compliance with appropriation rules	[KII-24]	Number of sanctions for failing to monitor compliance with appropriation rules

Design Principle	Attribute	Dimension	Question	Metric
		i. Sanctions for failure to enforce appropriation rules	[KII-25]	Number of sanctions for failing to enforce appropriation rules
5. Graduated sanctions	5a. Probability of sanction	i. Graduated sanction	[FGD-21]	Number of sanctions employed to enforce compliance with appropriation rules
			[FGD-21 A,B]	Verbal sanction
			[FGD-21 C-E]	Monetary sanction
			[FGD-21 F]	Physical sanction
		ii. Probability of sanction	[KII-18]	Probability of sanction
	5b. Context dependent sanction	i. Characteristics of offence	[KII-19, A-D]	Sanction influenced by characteristics of offence
			ii. Characteristics of offender	[KII-19, E-G]
	5c. Accountability to users	i. Users determine sanction	[KII-22]	Proportion of sanctions levied by appropriators
[FGD-22]				
	ii. Accountable officials determine sanction	[KII-25]	Number of sanctions employed to hold monitors accountable.	
5d. Incentives		[KII-20]	Number of incentives to encourage compliance with appropriation rules.	
6. Conflict resolution	6a. Rapid		[FGD-24A]	Mean time required to resolve conflict between users (days)
			[FGD-24B]	Mean time required to resolve conflict between users and officials (days)
	6b. Low-cost		[FGD-25A]	Mean cost incurred to resolve conflict between users (US dollar equivalent)
			[FGD-25B]	Mean cost incurred to resolve conflict between users and officials (US dollar equivalent)
	6c. Accessible		[FGD-26A]	Mean distance travelled to resolve conflict between users (minutes)
			[FGD-26B]	Mean distance travelled to resolve conflict between users and officials (minutes)
	7. Minimal recognition of rights to organize		[KII-14]	Proportion of users whose right to self-organize is minimally recognized by Government.
			[KII-15]	Extent to which appropriator rules are incorporated into national government practices.
8. Nestedness		[KII-2]	Proportion of management zones subject to cross-scale co-ordination.	

Key informant interviews allow us to explore sensitive aspects of marine resource governance, including monitoring and enforcement as well as specialist knowledge (e.g., the organizational structure of management); information not easily obtained in a focus group setting. The key informant interview instrument (Appendix 5.2) contains constrained choice and opened-ended items, to enable us to generate quantitative, comparable data as well as qualitative items to provide contextual detail.

In this study, the focus group and key informant interview instruments are linked, with information generated by focus groups (e.g., lists of important species, habitats, users) used to ask key informants contextually appropriate questions (see Appendix 5.3 for detailed guidance).

Both of the marine resource governance instruments in this study (Appendices 5.1 and 5.2) contain instructions to the field team, questions, and responses boxes, and where appropriate, response codes. Each instrument is accompanied by a protocol (Appendices 5.3 and 5.4) that provides a detailed description of the instrument and step-by-step guidance on how to conduct focus groups and key informant interviews in a settlement. Codebooks for each instrument are also provided in Appendices 5.5 and 5.6)

For both governance instruments, the unit of interest is location-dependent. For focus groups and key informant interviews conducted in an MPA, it is the MPA that is the governance unit of interest. In coarsely matched control settlements, we ask about the settlement's 'usual fishing ground', defined as the area most commonly fished by households in that settlement. In Papua, 'usual fishing grounds' often correspond to the boundaries of traditional marine tenure units.

The instrument and accompanying protocols were developed in English and Bahasa Indonesia. If researchers plan to conduct surveys in other languages, the instrument should be translated by a native speaker of the survey translated with an English back-translation to verify accuracy.

5.4 Sampling

Our approach to characterizing marine resource governance uses non-probability, purposive sampling methods. These sampling methods target data collection efforts toward individuals with specific knowledge about marine resources in those settlements where it is available (Bernard 1995). Purposive sampling allows us to target those individuals with particular knowledge about marine resources. It is important to remember, however, that purposive sampling does not allow us to generalize information from the sample to the population as whole (Bernard 1995).

Our sampling approach is also opportunistic, contingent on the presence of qualified member of the field team. In this study, only senior members of the UNIPA field team (i.e., the study director or field coordinators) conduct focus groups and key informant interviews. As these senior field staff are not continuously present during data collection, the sampling coverage at each monitoring round is less comprehensive than the household survey.

In Papua, the pool of individuals knowledgeable about marine resources may be small in any given site. To prevent survey fatigue, we do not conduct repeat focus groups and key informant interviews on the same 2 year sampling interval as household surveys. Instead, we conduct repeat governance monitoring every four years in any given settlement.

As governance sampling coverage seldom comprehensive at each monitoring round, field coordinators use the round of household surveys conducted at 2 years post-establishment to maximize focus group and key informant coverage. For example, consider a MPA with 10 settlements. At the time baseline household surveys were conducted, field coordinators conducted focus groups and key informant interviews in settlements 1-5. When the field team returns to the survey the MPA after 2 years (t_2), field coordinators conduct focus groups and key informant interviews in settlements 6-10. During the third round of monitoring, four years after MPA establishment (t_4), field coordinators return to settlements 1-5 to collect governance data.

5.4.1. Sampling procedures for focus groups

As the purpose of this study is to understand marine resource governance and community livelihoods, field coordinators identify local residents who are particularly knowledgeable about the status, use, and management of local marine resources as potential focus group participants.

Ideally, we conduct focus groups in every settlement where household surveys are being conducted. In practice, the number of focus groups will be determined by the availability of the field coordinator to facilitate the discussions and the availability of participants. As a guide, focus groups should be held in a minimum of three and preferably at least five settlements in both MPA and control sites.

If possible, participants should reflect the full range of people who use the MPA or usual fishing grounds (in control settlements), including fishers and non-fishers of all social backgrounds (e.g., wealth, ethnicity, gender, education, political status). Most important, however, is that participants are particularly knowledgeable about the status, use, and management of local marine resources.

A focus group will usually contain between 6-12 participants, but these numbers can vary based on local conditions. A focus group with fewer than 6 participants may lack the full range of local perspectives; a focus group with more than 12 participants may be difficult to facilitate, and participants may be frustrated because they rarely have the opportunity to speak.

Further guidance on the identification of focus group participants is given in Appendix 5.4.

5.4.2. Sampling procedures for key informant interviews

In this study, we define a key informant as an individual someone who has specific, detailed knowledge about how marine resources are used and managed in the marine protected area (MPA) or usual fishing ground (for coarsely matched control settlements). Importantly, a key informant is someone who is also willing to share their information in a formal interview. We identify potential key informants through multiple, iterative sampling methods including: consulting knowledgeable local residents (e.g. local

officials); identifying 'stand-out' participants in focus groups; and asking existing key informants to recommend other potential interviewees. We draw our sample of key informants from members of specific local groups (including fishers and non-fishers), local leaders and officials, academic or technical professionals who work in marine environments and government officials.

In this study, we do not adopt an arbitrary sample size for key informant at each site. However, it is still important to ensure that the sample is large enough to represent the variation at a site. Field coordinators use several 'rules of thumb' to calibrate sample size:

- At least 10-15 key informants per site (site= MPA + control).
- 2-3 key informants per focus group (at least one, and less than five).

Field coordinators also assess the information elicited from key informants. If each interview is generating substantial new insights, field coordinators conduct more key informant interviews. If interviews are giving consistent information from a diverse range of respondents, it is likely that the existing sample of key informants is sufficient to represent the variation at the site.

Further guidance on the identification of key informants, and sampling procedures is given in Appendix 5.3.

5.5 Field work logistics and planning

5.5.1 Field team

In this study, the field team is comprised of recent graduates and faculty members of a university within the Bird's Head Seascape, the State University of Papua (UNIPA). At each site, the field team is composed of five members: four enumerators (tasked with implementing the household surveys), and a field coordinator. Additional technical support is provided, as needed, by the UNIPA study director and a data manager. Only senior members of the field team conduct focus groups or governance surveys. Enumerators may assist field coordinators to document focus group discussions, or help with logistics.

To reduce the potential for strategic responses by surveyed household heads, field teams operate with independently from, but with the consent of the organizations responsible managing marine resources (e.g. government, or non-governmental organizations). In some contexts, it may be appropriate to consider the gender composition of the field team, particularly in regions where strong cultural norms may influence the willingness of household heads to respond to certain types of questions posed by an enumerator.

5.5.2. Field team training

Training is intended to provide field team with the necessary conceptual background, and practical skills to conduct WWF-UNIPA social monitoring. Field team training occurs immediately prior to data collection in each site. Training is held over 5 days, including a day-long field test (Table 4.3) and is led

by the study director, with technical support from WWF-US. Where possible, training should be held in the native language of the field team/the language used for the survey.

5.5.3 Fieldwork planning and budget

In this study, focus groups and key informant interviews are conducted at the same time as surveys to monitor household wellbeing (see section 4.0). As the additional costs of conducting focus groups and key informants is small compared to the overall costs of monitoring, we develop budgets and develop fieldwork schedules based on the requirements of the household survey protocol. We outline the logistics and costs of the household survey effort in sections 4.5.3 and 4.5.4 respectively.

5.5.5 Permissions and stakeholder engagement

It is important to communicate the purpose, methods and outputs of monitoring efforts. In Papua, we communicate the purpose of the monitoring to a various stakeholders including government officials (Provincial, Regency and District) and NGO staff. Prior to data collection, letters seeking the assistance of local officials and information sheets are circulated (Appendix 4.6). Where necessary, the field team obtains permits for entering National Parks.

Upon arrival in a settlement, the field coordinator or senior enumerator explains the purpose of the monitoring to local officials (see Appendix 5.4 for detailed instructions) and, where necessary requests assistance in arranging a focus group.

Focus groups participants and key informants are provided with information about the purpose of the study prior to a being asking to formally consent to participate (see Appendices 5.4 and 5.3).

Upon returning to a settlement for a repeat survey, the field team circulates a summary reports describing the social conditions in each settlement from the previous round of data collection (see Appendix 4.8 for an example report). Summary reports documenting conditions at the district (*distrik*) and site level are circulated to relevant stakeholders.

5.5 Conducting focus groups and key informant interviews

Appendices 5.3 and 5.4 provide detailed guidance on the implementation of focus groups and key informant interview to characterize marine resource governance. Here, we briefly outline the steps a field coordinator should follow upon arrival into a settlement:

- Explain the purpose of the monitoring to local officials, and request their assistance in arranging a focus group.
- Seek the informed consent of households focus group participants
- Conduct focus groups at a time convenient to participants

- Use the focus group form (Appendix 5.1) and map templates to document the discussion.
- Check the completeness of the focus group form and associated materials (e.g., annotated maps, photographs, digital recordings) at the end of each day of data collection

When conducting key informant interviews, field coordinators should:

- Generate lists of potential key informants by consulting local residents, identifying stand-out focus group participants, and asking each key informant for other potential interviewees at the end of an interview.
- Seek the informed consent of key informants prior to interview.
- Conduct semi-structured interviews at a time convenient to the key informant.
- Use the key informant interview form (Appendix 5.2) to document the interview.
- Check the completeness of the key informant interview form and associated materials (e.g., digital recordings) at the end of each day of data collection

In this survey, we do not pay individuals for their participation. In some cases, it may be appropriate to provide participating households with a small token of appreciation for their time.

5.6.1 Informed consent and confidentiality

Participation in both focus groups and key informant interviews is voluntary and it is important to gain informed consent of study participants prior to interview. Informed consent can be defined as the voluntary agreement of a respondent to participate in a survey, after information has been provided about that survey (Dillman et al. 2009).

In this study, we obtain verbal informed consent from focus group participants and key informants. In focus groups, the facilitator explains the purpose of the discussion to potential participants prior to commencing formal discussions (see Appendix 5.4). Any individuals who choose not to participate in the focus group may leave before the formal discussion begins. The consent of key informants is obtained by the field coordinator or study director prior to interview. A formal letter explaining the purpose of the monitoring and requesting participation is sent to potential key informants. Interviewers provide this information again at the beginning of the interview, and obtain formal consent (see Appendix 5.3).

Data gathered from participants (focus group discussants and key informants) in our monitoring efforts are confidential, meaning that information which could identify individual respondents is not disclosed. Field team training sessions include specific guidance on both how to obtain informed consent and maintain confidentiality. In this study, we follow best practice ethical guidelines (National Academy of Sciences 1995; American Anthropological Association 1998), that govern research conduct.

7. Quality Control and Data Management

7.1 Quality Control

Quality control is 'any method or procedure for collection, processing or analyzing survey data that is aimed at maintaining or enhancing their reliability or validity' (Üstun et al. 2005). It is an iterative process that occurs at all stages of implementation, from design to the dissemination of information to policy-makers and stakeholders (Üstun et al. 2005).

In this study, we undertake quality assessment and quality control measures at all stages of the monitoring process. We adopt best practices in impact evaluation research design, adopt peer-reviewed and validated metrics of governance and social wellbeing (e.g., Bickel et al. 2000) and design our instruments and protocols to maximize data reliability (e.g., Dillman et al. 2009).

7.1.3 Eliciting reliable information

We provide detailed instructions to enumerators and field coordinators on how to elicit and record information from participants. These instructions are included on the instruments and protocols supplied to field teams, as well as forming the basis of our training sessions.

7.1.4 Recording information

Information gathered from household survey respondents, focus group participants and key informants is recorded by a note-taker at the time of interview. In both household surveys and focus groups, the interviewer or facilitator is assisted by a second member of the field team, acting as a note-taker. This enables interviewers to focus on eliciting information, and ensures detailed records are made of discussions. In key informant interviews, the interviewer may use a digital voice recorder to supplement notes made at the time of interview.

We use constrained choice items extensively on all three instruments (i.e., household survey, focus group and key informant) in our study. Codes are provided on the instrument and in an independent codebook (see for example, Appendix 4.2). Constrained choice response categories are designed to be exhaustive and mutually exclusive, to reduce non-response bias or incorrect coding. We include an notes column on all three instruments for note-takers to provide additional or clarifying information.

At the end of each day of data collection, senior field team members (i.e., field coordinators or senior enumerator) checks the completeness and accuracy of data records collected that day. Individual pairs of enumerators also check their data is recorded accurately and legibly. We maintain log-books, documenting daily activities during data collection. Log-books record the number of interviews conducted by the field team each day as well as any issues pertinent to the monitoring effort.

7.1.4 Data entry

Household survey data are entered into an Access Database, immediately after the field team returns from data collection. Wherever possible, a member of the interview team (i.e., the interviewer or the note-taker) enters the data pertaining to a particular household. The data management system is designed to flag obvious errors at the time of data entry (e.g., the use of invalid codes, violations of survey internal consistency). We incentivize participation in the data entry process by making data entry payments contingent on the number of surveys entered.

7.1.5 Quality control procedures

We conduct extensive quality control checks, adhering to standard practices in monitoring and evaluation. In this study, we use automated procedures in a relational database to flag:

- Incomplete records
- Duplicate records
- Invalid response codes
- Contradictory flow through prescribed skip patterns
- Internal consistency (e.g., logical responses to individual items)
- Outliers

Any records identified by these quality control processes are verified by a fluent speaker of Bahasa Indonesia against the paper records made by the field team at the time of survey or interview.

We conduct extensive quality control checks on a random 10% sub-sample of the records entered by each field team member. Sub-sampled records are re-entered by a second, independent data coder ('double-blind' data entry), and the accuracy of data entry assessed. Where repeated errors are identified, we provide additional training on specific items or to individual enumerators as necessary.

We document non-response rates for the survey as a whole with the sampling deviation index, and for individual items using un-weighted response rates and item responses rates. For those items with high non-response rates (>5% of respondents), we check for underlying biases between respondents and non-respondents.

7.1.6 Information dissemination

We strive to make all survey documentation and information publicly available, except where disclosure may violate the confidentiality of individual respondents. Where we detect quality control issues (e.g. high non-response bias, incomplete records), we make a case-by-case decision on whether to publish individual item results. We do not impute missing values.

7.2 Data Management

Data are stored securely and handled to minimize the risk of disclosure. In this study, we store data on secure servers, with password protection and limited access rights. Data systems are protected from unauthorized access and security procedures in place to reduce risk from malicious software (B-U).

We protect individually-identifiable data and clearly identify the variables that pose a disclosure risk if shared (Appendices 4.2, 5.5 and 5.6). We do not conduct analyses that would allow identification of individual respondents.

8. Glossary

Average treatment effect on the population (ATE)

Difference in outcome values after participation and non-participation in a particular intervention. It includes both the effect on participants and non-participants (Caliendo & Kopeinig 2008).

Average treatment effect on the treated (ATT)

'The difference between outcome values with and without treatment for those who actually participated in treatment' (Caliendo & Kopeinig, 2008: 34). For example, it is the relative difference between the food security of households participating in a marine protected area since its establishment when compared to non-participating households over the same time period. As ATT focuses on the impact upon participants, it is the impact estimate of interest in this study.

Baseline

Conditions observed prior to the establishment of a conservation intervention (also known as pre-intervention survey; ex-ante survey).

Before-After-Control-Impact

Also known as *Before-After-Control-Intervention, BACI*. A research design which allows for causal inference about the impact of an intervention. This design allows for difference-in-difference estimates of an intervention's impact to be made. Before-After-Control-Impact (BACI) designs involve data collection pre- and post- intervention (Before-After) in both participating and non-participating units (Control-Impact). See also: *Difference-in-Difference*.

Caliper

A value or rule used in statistical matching procedures to specify the maximum 'distance' between each treated unit and suitable untreated units (Caliendo & Kopeinig 2008). An example caliper might be 1.5 times the standard deviation of the covariate distribution.

Causal Inference

The process of understanding the cause-and-effect relationships between an intervention and its impacts (Gertler et al. 2011).

Common Support

The subset of covariate values observed in both treated and untreated units (Dehejia & Wahba 2002). A covariate might have a possible values ranging from 0.0 to 1.0. Values of this covariate in the treated group range between 0.4 and 0.8. Values in the control group range between 0.3 and 0.7. In this case, the subset of covariate values observed in both treated and untreated units is 0.4 to 0.7. This is the region of common support.

Counterfactual

An estimate of what the outcome would have been for an intervention's participant in the absence of that intervention (Gertler et al. 2011). For example, the food security status of a household participating in a marine protected area had the marine protected area not been established. The counterfactual cannot be directly observed and instead, is estimated through the use of comparison groups (Sekhon 2009; Gertler et al. 2011).

Covariate

A variable hypothesized to affect either participation in, or outcomes of, an intervention, measured prior to the establishment of an intervention (i.e. treatment assignment; Rosenbaum 2010).

Covariate balance

Similarity between observed covariate values between treated and control groups (Rosenbaum 2010). Comparing the covariate balance achieved by various bias reduction techniques can be used to identify the most efficient matching procedure (i.e. the procedure which leads to greatest similarity between treated and control groups).

Difference-in-difference

Difference-in-difference ('DD') designs estimate the impact of an intervention as the relative difference between the change in an outcome variable for participants since intervention establishment, compared to the same metric for non-participants over the equivalent time period (Gertler et al. 2011). It is also known as 'double difference' as the impact estimate includes a measure of both the change in a variable of interest over time (pre-intervention; post-

intervention) and the difference between participants and non-participants (Gertler et al. 2011). By taking account of changes occurring over time, and pre-existing differences between treated and control groups, difference-in-difference estimates of an intervention's impact are robust to selection bias and concurrent change.

Endogenous selection bias

See selection bias.

External validity

The extent to which the findings of a particular impact evaluation may be generalized to a broader population of interest (Gertler et al. 2011).

Hidden bias

Any form of selection bias which is not accounted for in the matching process (Rosenbaum 2010).

Impact evaluation

Impact evaluation measures the intended and unintended consequences of conservation interventions, with particular emphasis upon long-term impacts on ecological and social conditions (Mascia et al. *in press*).

Internal validity

The extent to which the changes detected in an outcome variable are caused by, and not simply correlated with, an intervention (Gertler et al. 2011). In impact evaluation, internal validity is usually linked to whether the control group provides an accurate measure of the counterfactual (Rosenbaum 2010). Compare with: *External validity*

Intervention

A project, program or policy of interest. See also: *Treatment*

Mahalanobis metric matching

A statistical matching procedure based on the calculation of Mahalanobis distances between each treated unit and the pool of candidate controls (Rubin 1980).

Marine protected area

"Any area of intertidal or sub-tidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment," (Kelleher 1999). Marine protected areas may place restrictions on the types of activities (e.g., fishing, tourism, extraction of non-renewable marine resources) which can take place within their boundaries, as well as who can (and cannot) lawfully extract resources. Some marine protected areas are classified as 'no-take' reserves, in which the extraction of resources is prohibited, while others allow certain forms of resource extraction.

Matching

A suite of statistical techniques used to construct an artificial control group (Gertler et al. 2011). Each treated unit (e.g. households participating in an MPA), is matched to one or more untreated units with similar characteristics. Matching statistics identify which untreated unit(s) is most similar to each treated unit.

Matching with replacement

A type of matching, in which each untreated unit may form the control group for more than one treated unit (Caliendo & Kopeinig 2008).

Observable bias

Factors that correlate with participation in an intervention, and which may causally affect the outcome variable of interest, even in the absence of that intervention (Rosenbaum 2010). Unless adequately addressed, observable bias can lead to inaccurate or incorrect estimates of an intervention's impact.

Outcome

A variable measured after treatment (Rosenbaum 2010).

Power

The probability that a statistical test will reject the null hypothesis when the null hypothesis is false (i.e., the probability of not committing a Type II error; Cohen 1988). The statistical power

of a test is linked to sample size, as well as other properties of the population of interest (Cohen 1988). See also: *Power analysis*

Power analysis

A calculation that can be used to identify the minimum sample size needed to detect an effect of a particular size (Cohen 1988).

Propensity score

A regression-based matching technique. The propensity score is the conditional probability of assignment to treatment given the observed covariates (Rosenbaum 2010).

Quasi-experiment

Quasi-experiments are a set of evaluation research designs, most commonly used when participation in an intervention is non-random, that allow causal inferences to be made about the impact of an intervention (Gertler et al. 2011). Quasi-experimental approaches attempt to control for observable bias through one of a suite of statistical techniques, including matching, instrumental variables and regression discontinuity.

Reference focus group

The focus group data sheet used to modify the key informant interview instrument to ensure questions posed to each key informant are locally relevant. For detailed guidance on reference focus groups and criteria for identifying the appropriate data sheet, see section 3.1 of Appendix 5.3 Key Informant Interview Protocol.

Sample

All units (e.g., household) from a population of interest (e.g. settlement) selected for inclusion in a survey.

Sampling

The standard set of procedures applied to identify which units from a population of interest will be included in a survey (Dillman et al. 2009). Sampling procedures may vary between methods (e.g., focus groups versus household surveys), research questions, but remain consistent for a specific method.

Sampling frame

A comprehensive list of all the units (e.g., households) in a population of interest (e.g., a settlement), from which a sample will be drawn (Dillman et al. 2009).

Selection bias

A type of observable bias which occurs when participation in an intervention is non-random and the probability of participation in a particular intervention correlates with the outcomes of an intervention (Rosenbaum 2010). For example, the protected areas are more likely to be located at high elevations, on steep slopes and distant from human population centers (Joppa & Pfaff 2009). These same factors also lessen the probability that a parcel of land will be converted to agriculture. Consequently, an impact evaluation considering the impact of protected areas on agricultural conversion that did not consider elevation, slope or distance to market when selecting a comparison group, may be subject to bias. Selection bias arises from systematic differences between those who participate in an intervention, and those who do not (Gertler et al. 2011).

Site

A marine protected area and its coarsely matched control settlements.

Spillover

Spillover occurs when an intervention has impacts beyond its defined boundary (Ewers & Rodrigues 2008). The boundary may be geographic (e.g., a protected area) or based on eligibility criteria (e.g., a household's income). Marine protected areas, for example, may increase the abundance and biomass of fish in immediately adjacent, but unprotected waters. Spillover may be positive (e.g., increased fish biomass; Halpern et al. 2009) or negative, leakage effects (e.g., displacement of fishers to unprotected waters, known as 'fishing the line'; Kellner et al. 2007). Where spillover (positive or negative) affects the untreated, control group in an impact evaluation, the estimate of an intervention's impact can be distorted.

Theory of Change

An articulation and frequently graphical illustration of the assumed logical, causal relationships between intervention (project, program, policy) inputs, activities, outputs, and outcomes (Mascia et al. *in press*).

Treatment

A project, program or policy of interest (Gertler et al. 2011). See also: *Intervention*

Treatment assignment

The set of rules, criteria or processes that define whether each unit is subject to treatment or not (Caliendo & Kopeinig 2008).

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Appendices

Appendix 4.1 Household Survey Instrument



Social impacts of marine protected areas Household survey v 2.3 (August 2012)

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SUGGESTED CITATION FOR HOUSEHOLD SURVEY INSTRUMENT:

Mascia, M.B., Pakiding, F. and Glew, L. (2012) Social impacts of marine protected areas: household survey. Version 2.3 World Wildlife Fund & Universitas Negeri Papua, Washington D.C., United States and Manokwari, Indonesia.

Section 2. Household Characteristics

Notes

Before we ask you questions about your economic well-being, health, and education, we would like to know more about the members of your household.

In particular, we would like to make a complete list of all the people who normally live and eat their meals together in this dwelling. First can you please tell us the names of all the members of your immediate family who normally live and eat their meals together in this dwelling, as well as their age and relationship to you. This includes [you/the head of the household], [your/his/her wife or wives/husband(s)], and [your/ his/her] children (in order of age).

Please include usual members, who are away visiting, in the hospital, at boarding schools or university, etc. Also include visitors who have lived in the household for 6 months or more.

Start by writing the name of the head of the household in the first box for 15a. Record the name of the spouse(s) of the head of the household immediately below the head of the household. In age order (oldest first), write down the names of all the children in the household.

Write down the sex, age, and relationship to the head of the household for each person.

Please give me the names of any other persons related to [you/the head of the household] or to [your/his/her wife/husband], together with their families, who normally live and eat their meals here.

List the names of all other people living in the household who are directly related to the household head (e.g., brother/sister/mother/ father).

What is their age and their relationship to [you/head of the household]?

Write their sex, age, and relationship to the head of the household.

Are there other persons not now present but who normally live and eat their meals here? For example, any person studying somewhere else or who is on vacation or who is visiting other people.

List the names of anyone else living in the household who is not related to the family (e.g., tenants, workers). Check that there are no individuals who are normally resident in the household who are away on vacation or studying at school/university.

Write their sex, age, and relationship to the head of the household

15b. Record the relationship between the household member and the head of household. Record the respondent's answer in the box, choosing the appropriate code from the list on page 3.

15c. Record the age of each member of the household in years.

NOTE: When recording the age of a household member, round up to the age at the next birthday. For example, infants less than one year old should be recorded as age 1.

15d. Record the gender of the household member.

15e. Record the highest grade of schooling completed.

15f. Record whether each member of the household is currently enrolled in school.

If necessary, specify the appropriate "blind response" code in the box. [997] = Do not know; [998] = Not applicable; [999] = Refuse

NOTE: Write down the full meaning of all abbreviations used in Question 15 in the Notes column.

15. Household Information. Answer questions 15a-f for each member of the household. After completing questions 15a-f, move to Question 16. After completing questions 16-32, return to this page to answer questions 33a-c.

Notes

Personal ID number	a) Name of household member	b) Relation to household head*	c) Age	d) Sex [1] Male [2] Female	e) What is the highest grade of school [you/he/she] has completed?	f) Is [Name] currently enrolled in school? [0] No [1] Yes	33 a). Has [Name] had any illness or injury during the past 4 weeks? [0] No [1] Yes	b) [If yes to Question 33a] how many days during the past four weeks did [you/he/she] suffer from this illness or injury?	c) How many days during the past four weeks were [you/he/she] unable to carry out [your/his/her] usual activities because of this?
1		Head of Household	years					days	days
2			years					days	days
3			years					days	days
4			years					days	days
5			years					days	days
6			years					days	days
7			years					days	days
8			years					days	days
9			years					days	days
10			years					days	days
11			years					days	days
12			years					days	days
13			years					days	days
14			years					days	days
15			years					days	days
16			years					days	days
17			years					days	days
18			years					days	days
19			years					days	days
20			years					days	days

*[1]=Spouse; [2]=Child; [3]=Mother/Father in law; [4]=Grandchild; [5]=Parent; [6]=Son/Daughter in law; [7]=Brother/Sister; [8]=Brother/Sister in law; [9]=Uncle/Aunt; [10]=Nephew/Niece; [11]=Step/Foster child; [12]=Other family member; [13]=Not related; [996]=Other (specify)

Notes

16. How many years have you lived in [NAME of population center]?

Record the number of years in the box. If necessary, specify the appropriate "blind response" code in the box. [997]= Do not know; [998] = Not applicable; [999] = Refuse

Years

17. How long does it usually take you to travel to [NAME of primary market]?

Use the name of the market provided by the head of the village.

Record the travel time in the box. If necessary, specify the appropriate "blind response" code in the box. [997]= Do not know; [998] = Not applicable; [999] = Refuse

Hours

18. What is the ethnicity of... ?

Record the respondent's answers in the boxes. If necessary, specify the appropriate "blind response" code in the box. [997]= Do not know; [998] = Not applicable; [999] = Refuse

- a) ...your Father?
- b) ...your Mother?

19. What is your religion?

Record the respondent's answer in the box, choosing the appropriate code from the list below. If necessary, specify the appropriate "blind response" code in the box.

- | | |
|--|-----------------------------|
| | [1] Christian |
| | [2] Muslim |
| | [3] Hindu |
| | [4] Buddhist |
| | [5] Jewish |
| | [6] Traditional beliefs |
| | [7] Atheist |
| | [996] Other (specify) _____ |
- [997] = Do not know; [998] = Not applicable; [999] = Refuse

20. Livelihoods & occupations.

Notes

For questions 20a-c, record the respondent's answer in the box, choosing the appropriate code from the list below. If necessary, specify the appropriate "blind response" code in the box. Write the exact response in the Notes section.

a. *What is the primary way in which members of this household meet their needs?*

- [1] Farming (growing crops and/or raising livestock);
 [2] Harvesting forest products (timber, charcoal, non-timber forest products)
 [3] Fishing (capture of fish, crustaceans and other marine resources for sale or consumption)
 [4] Aquaculture (fish, shrimp, seaweed, etc; includes grow out pens/raising small captured fish for sale at larger size)
 [5] Extraction of non-renewable marine resources (includes coral mining, sand mining, harvest of live coral, etc).
 [6] Marine tourism (includes scuba, snorkel, glass-bottom boats, sailing, water-skiing, jet skis, etc)
 [7] Other wage labor (e.g. teacher, medical professionals, forestry or mining concession worker)
 [996] Other (specify) _____
 [997] = Do not know, [998] = Not applicable, [999] = Refuse

b. *What is the second most important way in which members of this household meet their needs?*

- [1] Farming (growing crops and/or raising livestock);
 [2] Harvesting forest products (timber, charcoal, non-timber forest products)
 [3] Fishing (capture of fish, crustaceans and other marine resources for sale or consumption)
 [4] Aquaculture (fish, shrimp, seaweed, etc; includes grow out pens/raising small captured fish for sale at larger size)
 [5] Extraction of non-renewable marine resources (includes coral mining, sand mining, harvest of live coral, etc).
 [6] Marine tourism (includes scuba, snorkel, glass-bottom boats, sailing, water-skiing, jet skis, etc)
 [7] Other wage labor (e.g. teacher, medical professionals, forestry or mining concession worker)
 [996] Other (specify) _____
 [997] = Do not know, [998] = Not applicable, [999] = Refuse

c. *What is the third most important way in which members of this household meet their needs?*

- [1] Farming (growing crops and/or raising livestock);
 [2] Harvesting forest products (timber, charcoal, non-timber forest products)
 [3] Fishing (capture of fish, crustaceans and other marine resources for sale or consumption)
 [4] Aquaculture (fish, shrimp, seaweed, etc; includes grow out pens/raising small captured fish for sale at larger size)
 [5] Extraction of non-renewable marine resources (includes coral mining, sand mining, harvest of live coral, etc).
 [6] Marine tourism (includes scuba, snorkel, glass-bottom boats, sailing, water-skiing, jet skis, etc)
 [7] Other wage labor (e.g. teacher, medical professionals, forestry or mining concession worker)
 [996] Other (specify) _____
 [997] = Do not know; [998] = Not applicable; [999] = Refuse

Section 3. Fishing Characteristics

Notes

If the respondent answered "Fishing" to questions 20a, b, or c, → (Ask Q.21 - 28)

If the respondent did not answer "Fishing" to questions 20a-c, → (Enter '994' for Q21-28. Skip to Q. 29).

For questions 21-28, record the respondent's answer in the box, choosing the appropriate code from the list. If necessary, specify the appropriate "blind response" code in the box.

"Fishing" includes the capture of fish, crustaceans and other marine resources. It includes the capture of fish using any technique, and includes gleaning.

Now I would like to ask you a few questions about fishing over the last 6 months.

21. *In the last 6 months, how often did someone in your household go fishing?*

- [1] *Once or never*
 [2] *A few times*
 [3] *A few times per month*
 [4] *A few times per week*
 [5] *More than a few times per week*
 [997] = Do not know; [998] = Not applicable; [999] = Refuse

22. *In the last 6 months, how often did your household sell at least some of its catch?*

- [1] *Once or never*
 [2] *A few times*
 [3] *A few times per month*
 [4] *A few times per week*
 [5] *More than a few times per week*
 [997] = Do not know; [998] = Not applicable; [999] = Refuse

23. *In the last 6 months, how much of the cash income in your household came from fishing?*

- [1] *None*
 [2] *Some*
 [3] *About half*
 [4] *Most*
 [5] *All*
 [997] = Do not know; [998] = Not applicable; [999] = Refuse

24. *In the last 6 months, how often did your household eat fish?*

- [1] *Once or never*
 [2] *A few times*
 [3] *A few times per month*
 [4] *A few times per week*
 [5] *More than a few times per week*
 [997] = Do not know; [998] = Not applicable; [999] = Refuse

25. In the last 6 months, how much of the protein consumed by your household came from fish?

- [1] None
 - [2] Some
 - [3] About half
 - [4] Most
 - [5] All
- [997] = Do not know; [998] = Not applicable; [999] = Refuse

Notes

26. In the last 6 months, what fishing technique have you personally used most often?

- [1] Fishing by hand or handheld gear (e.g., gleaning, hand line, spear gun)
 - [2] Fishing with stationary net (e.g., traps, gill net, trammel net)
 - [3] Fishing with mobile net (e.g., trawl, purse seine, beach seine)
 - [4] Fishing with stationary line (e.g., long line)
 - [5] Fishing with mobile line (e.g., trolling)
 - [6] Fishing with explosives or chemicals (e.g., bomb, cyanide, poison)
 - [996] Other (specify) _____
- [997] = Do not know; [998] = Not applicable; [999] = Refuse

27. a) In the last 12 months, during the less productive fishing seasons, how many days did you personally go fishing?

Days

January

b) In the last 12 months, during the less productive fishing season, how much was your average daily catch?

February

Specify the units of measurement (e.g., kilogram, pound, basket, etc.). Kilograms are preferred.

March

Amount Units

April

c) In the last 12 months, on average, how much did you personally earn in a day during the less productive fishing season?

Rupiah

May

28. a) In the last 12 months, during the more productive fishing seasons, how many days did you personally go fishing?

Days

June

b) In the last 12 months, during the more productive fishing season, how much was your average daily catch?

July

Specify the units of measurement (e.g., kilogram, pound, basket, etc.). Kilograms are preferred.

August

Amount Units

September

c) In the last 12 months, on a typical day during the more productive fishing season, how much did you personally earn in a day?

Rupiah

October

November

December

Section 4. Economic Well-being

Notes

I would like to ask you a few questions about your economic well-being.

A. Household Assets

29. *How has the economic status of your household changed over the past 12 months?*

Record the respondent's answer in the box, choosing the appropriate code from the list. If necessary, specify the appropriate "blind response" code in the box. [997 = Do Not Know; 998 = Not Applicable; 999 = Refuse]

- | | |
|--|------------------------------------|
| | [1] <i>Much worse</i> |
| | [2] <i>Slightly worse</i> |
| | [3] <i>Neither better or worse</i> |
| | [4] <i>Slightly better</i> |
| | [5] <i>Much better</i> |

30. *Why?*

Record the respondent's answer in the box.

31. *Please indicate the number of the following items that are owned by the household:*

Household head answers for entire household. Only list goods in working order and actually owned by the household.

Item	Number of units owned by household		
a) <i>Radio/Stereo/CD player/ DVD player</i>			
b) <i>TV</i>			
c) <i>Satellite dish</i>			
d) <i>Phone (mobile or landline)</i>			
e) <i>Generator</i>			
f) <i>Boat without a motor</i>			
g) <i>Boat with outboard motor</i>			
h) <i>Boat with inboard motor</i>			
i) <i>Bicycle</i>			
j) <i>Motorcycle</i>			
k) <i>Car/Truck</i>			

32. *What is the main fuel that your household uses for cooking?*

Notes

Record the respondent's answer in the box, choosing the appropriate code from the list.

- | | | |
|--|-------|---|
| | [1] | Electricity or gas |
| | [2] | Oil or kerosene |
| | [3] | Wood |
| | [4] | Charcoal |
| | [5] | Small sticks and scrap wood |
| | [6] | Weeds, leaves, dung |
| | [996] | Other (specify) _____ |
| | [997] | = Do not know; [998] = Not applicable; [999] = Refuse |

Section 5. Health

Thank you very much. I would now like to ask a few questions about health.

Turn to page 3 (Household Information) and ask Questions 33a-c. Record the respondent's answers in the boxes provided on page 3.

33. Illness and injury

- a. *Has [Name] had any illness or injury during the past 4 weeks?* → Page 3.
- b. *How many days during the past 4 weeks did [you/he/she] suffer from this illness or injury?* Page 3.
- c. *How many days during the past 4 weeks were [you/he/she] unable to carry out [your/his/her] usual activities because of this?* → Page 3.

After completing Questions 33a, 33b, and 33c on page 3, turn to page 10 and continue the survey by asking Question 34.

Notes

34. Have any household members died in the past 12 months?

Record the respondent's answer in the box, choosing the appropriate code from the list. If necessary, specify the appropriate "blind response" code in the box.

	[0] No → (Record '994' for Q.35. Skip to Q.36)
	[1] Yes _____
	[999] Refuse → (Record '994' for Q.35. Skip to Q.36)

35. Household deaths. ←

Record the name, gender, age at death, and date of death for any household members who died in the past 12 months.

a) Name?	b) Gender [1] Male [2] Female	c) Age at death	d) Date of death (dd/mm/yyyy)
		years	
		years	
		years	
		years	
		years	

36. Has any member of the household given birth in the past 12 months?

	[0] No → (Record '994' for Q.37. Skip to Q.38)
	[1] Yes _____
	[999] Refuse → (Record '994' for Q.37. Skip to Q.38)

37. Household births ←

List the name of any babies born to a member of the household in the past 12 months. Record whether the baby is still alive.

If a baby has died, probe gently to learn when the baby died. Record the date of death in the appropriate box.

a) Name?	b) Is the baby still alive? [0] No; [1] Yes; [999] Refuse	c) Date of death (dd/mm/yyyy)

Section 6. Food Security

Notes

These next questions are about the food eaten in your household in the last 12 months and whether you had the food you need. I'm going to read you a series of statements that people have made about their food situation.

Please tell me whether the statement was *OFTEN*, *SOMETIMES*, or *NEVER* true for [you/you and the other members of your household] in the last 12 months.

38. "[I/We] were worry that we might not have enough food for everyone in the household"
Was that often, sometimes, or never true for [you/your household] in the last 12 months?

- [1] Often
 - [2] Sometimes
 - [3] Never
- [997] = Do not know; [998] = Not applicable; [999] = Refuse

39. "[My/our] food just didn't last, and we were not able to get more."
Was that often, sometimes, or never true for [you/your household] in the last 12 months?

- [1] Often
 - [2] Sometimes
 - [3] Never
- [997] = Do not know; [998] = Not applicable; [999] = Refuse

40. "[I/we] couldn't eat balanced meals."
Was that often, sometimes, or never true for [you/your household] in the last 12 months?

A "balanced" meal is one that contains multiple types of food (e.g., carbohydrate, protein and vegetables).

- [1] Often
 - [2] Sometimes
 - [3] Never
- [997] = Do not know; [998] = Not applicable; [999] = Refuse

41. In the last 12 months, did [you/you or other adults in your household] ever reduce the size of your meals or skip meals because there wasn't enough food to eat?

- [0] No → (Record '994' for Q.42. Skip to Q. 43)
 - [1] Yes
- [999] = Refuse → (Record '994' for Q.42. Skip to Q.43)

42. [Ask only if Q.41 =YES. For all other responses, enter code '994' in the answer box for Q.42, and go to Q.43]

How often did this happen - almost every month, some months but not every month, or in only one or two months?

- [1] Almost every month
 - [2] Some months but not every month
 - [3] Only one or two months per year
- [997] = Do not know; [998] = Not applicable; [999] = Refuse

Notes

43. *In the last 12 months, did you ever eat less than you felt you should because there wasn't enough food?*

- [0] No
 - [1] Yes
- [997] = Do not know; [998] =Not applicable; [999] = Refuse

44. *In the last 12 months, were you ever hungry but didn't eat because there wasn't enough food?*

- [0] No
 - [1] Yes
- [997] = Do not know; [998] =Not applicable; [999] = Refuse

45. *In the last 12 months, did you ever reduce the size of a child's meal because there wasn't enough food?*

- [0] No
 - [1] Yes
- [997] = Do not know; [998] =Not applicable; [999] = Refuse

46. *"[I/We] relied on a few kinds of low-cost food to feed our child(ren)"
Was that often, sometimes, or never true for [you/your household] in the last 12 months?*

- [1] Often
 - [2] Sometimes
 - [3] Never
- [997] = Do not know; [998] =Not applicable; [999] = Refuse

47. *"In the past 12 months, children skipped meals because there was not enough food"*

- [0] No → (Record '994' for Q48. Skip to Q.49)
 - [1] Yes
- [997] = Do not know; [998] =Not applicable; [999] = Refuse →
(Record '994' for Q48. Skip to Q.49)

48. [Ask only if Q.47 =YES. For all other responses, enter code '994' in the answer box for Q.48, and go to Q.49]

How often did this happen -almost every month, some months but not every month, or in only 1 or 2 months?

- [1] Almost every month
 - [2] Some months but not every month
 - [3] Only one or two months per year
- [997] = Do not know; [998] =Not applicable; [999] = Refuse

49. *"Children did not eat for a whole day because there was not enough food"
Was that often, sometimes, or never true for your household in the last 12 months?*

- [1] Often
 - [2] Sometimes
 - [3] Never
- [997] = Do not know; [998] =Not applicable; [999] = Refuse

Section 7. Political Empowerment

Notes

A. Marine Tenure

Thank you for the very helpful information about health. I would now like to ask you some questions about your involvement in the management of marine resources and other community activities.

First, I would now like to ask you a few questions about your personal involvement in the use and management of marine resources.

NOTE for questions 49-53: if at treatment site, ask only about the MPA. If at comparison site, ask only about the usual fishing grounds.

Record the respondent's answer in the box, choosing the appropriate code from the list. If necessary, specify the appropriate "blind response" code in the box.

In the past 12 months, have you personally ...

50. *Entered [name of MPA/your usual fishing grounds]?*

- [0] No
 [1] Yes
 [997] = Do not know; [998] = Not applicable; [999] = Refuse

51. *Harvested fish or extracted other marine resources from [name of MPA/your usual fishing grounds]?*

- [0] No
 [1] Yes
 [997] = Do not know; [998] = Not applicable; [999] = Refuse

52. *Made decisions about managing marine resources in [name of MPA/your usual fishing grounds]?*

"Managing" includes setting and marking boundaries; making rules about how, when, and where people can harvest marine resources; assigning responsibilities for protecting or improving marine resources; monitoring whether people obey the rules, and issuing penalties when people break the rules.

- [0] No
 [1] Yes
 [997] = Do not know; [998] = Not applicable; [999] = Refuse

53. *Made decisions about who can and cannot enter [name of MPA/your usual fishing grounds]?*

- [0] No
 [1] Yes
 [997] = Do not know; [998] = Not applicable; [999] = Refuse

54. *Sold or leased the right to harvest fish or other marine resources in [name of MPA/your usual fishing grounds]?*

- [0] No
 [1] Yes
 [997] = Do not know; [998] = Not applicable; [999] = Refuse

Notes

55. *During the last 12 months, how has the level of social conflict over marine resources changed in [name of MPA/your usual fishing grounds]?*

If at treatment site, ask about MPA. If at comparison site, ask about usual fishing grounds.

Record the respondent's answer in the box, choosing the appropriate code from the list. If necessary, specify the appropriate "blind response" code in the box.

- [1] Greatly increased
 - [2] Increased
 - [3] Has neither increased nor decreased
 - [4] Decreased
 - [5] Greatly decreased
- [997]= Do not know; [998] = Not applicable; [999] = Refuse

B. Community Organization

56. *Are you currently a member of any groups that help to manage local marine resources? These can be either formal organizations or informal groups.*

Group activities may include meetings, establishing rules, marking boundaries, patrolling and other ways of enforcing rules, social or environmental monitoring, installing mooring buoys, environmental clean up or rehabilitation activities, etc.

If the respondent reports a value in Q56(f), give details of that contribution in the Notes section.

- [0] No → (Record '994' for Q.55 b-f; Skip to Q.57)
 - [1] Yes →
- [997]= Do not know; [998] = Not applicable; [999] = Refuse →
(Record '994' for Q.55 b-f; Skip to Q.57)

← Parts b-f

b) What is the name of this group?	c) What is your position in the group? [1] Member. [2] Official. [996]=Other, specify	d) Have you attended any group meetings over past 12 months? [0] No [1] Yes	e) How many days (full working days) have you spent on group activities over the past 12 months?	f) What level of cash or nonmonetary contributions to the group have you made over past 12 months? (Rupiah)
			days	Rph
			days	Rph
			days	Rph
			days	Rph
			days	Rph

Notes

57. Are you currently a member of any other local groups? These can be either formal organizations or informal groups.

Other groups include religious or church groups, education groups, sports groups, etc.. If the respondent reports a value in Q57(f), give details of that contribution in the Notes section.

[0] No → (Record '994' for Q.57 b-f; Skip to Q.58)
 [1] Yes
 [997]= Do not know; [998] = Not applicable; [999] = Ref →
 (Record '994' for Q.57 b-f; Skip to Q.58)

←
 Parts b-f.

b) What is the name of this group?	c) What is your position in the group? [1] Member, [2] Official, [996]=Other, specify	d) Have you attended any group meetings over past 12 months? [0] No [1] Yes	e) How many days (full working days) have you spent on group activities over the past 12 months?	f) What level of cash or nonmonetary contributions to the group have you made over past 12 months? (Rupiah)
			days	Rph
			days	Rph
			days	Rph
			days	Rph
			days	Rph

C. Political Engagement

I have a couple of quick questions about voting, and then I would like to talk with you about education.

58. Did you vote in the most recent district election?

[0] No
 [1] Yes
 [997]= Do not know; [998] = Not applicable; [999] = Refuse

59. Did you vote in the most recent national election?

[0] No
 [1] Yes
 [997]= Do not know; [998] = Not applicable; [999] = Refuse

Section 8. Education

Notes

Now I would like to ask you a few questions about the local marine environment

60. *What are the threats to the health of the local marine environment?*

a) List all the threats given by a respondent in the box.

-	-
-	-
-	-
-	-

b) Count the number of threats listed in Question 60a. Write the total in the box below.

 Total

61. *What are the threats to the health of the marine environment in other places?*

a) List all the threats given by a respondent in the box.

-	-
-	-
-	-
-	-

b) Count the number of threats listed in Question 61a. Write the total in the box below.

 Total

62. *What actions can people take to ensure the health of the local marine environment?*

a) List all the actions given by a respondent in the box.

-	-
-	-
-	-
-	-

b) Count the number of actions listed in Question 62a. Write the total in the box below.

 Total

63. *What actions can people take to ensure the health of the marine environment in other places?*

a) List all the actions given by a respondent in the box.

-	-
-	-
-	-
-	-

b) Count the number of actions listed in Question 63a. Write the total in the box below.

 Total

Section 9. Culture

Notes

Lastly, I would like to learn more about your relationship to [name of MPA/your usual fishing grounds].

I am going to read a series of statements. Please indicate to what extent you agree with each of the following statements. There is no right or wrong answer.

NOTE for questions 63 – 68: If at treatment site, ask only about the MPA. If at a comparison site, ask only about the usual fishing grounds.

Record the respondent's answer in the box, choosing the appropriate code from the list. If necessary, specify the appropriate "blind response" code in the box.

64. "I am happiest when I'm in [name of MPA/my usual fishing grounds]."

[1] Strongly disagree

[2] Disagree

[3] Neither agree nor disagree

[4] Agree

[5] Strongly agree

[997]= Do not know; [998] = Not applicable; [999] = Refuse

65. "[Name of MPA/my usual fishing grounds] [is/are] my favorite place to be."

[1] Strongly disagree

[2] Disagree

[3] Neither agree nor disagree

[4] Agree

[5] Strongly agree

[997]= Do not know; [998] = Not applicable; [999] = Refuse

66. "I really miss [name of MPA/my usual fishing grounds] when I'm away too long."

[1] Strongly disagree

[2] Disagree

[3] Neither agree nor disagree

[4] Agree

[5] Strongly agree

[997]= Do not know; [998] = Not applicable; [999] = Refuse

67. "[Name of MPA/my usual fishing grounds] [is/are] the best place to do the things I enjoy."

[1] Strongly disagree

[2] Disagree

[3] Neither agree nor disagree

[4] Agree

[5] Strongly agree

[997]= Do not know; [998] = Not applicable; [999] = Refuse

68. "I wouldn't want to fish anywhere other than [name of MPA/my usual fishing grounds]."

[1] Strongly disagree

[2] Disagree

[3] Neither agree nor disagree

[4] Agree

[5] Strongly agree

[997]= Do not know; [998] = Not applicable; [999] = Refuse

69. "I feel I can be myself when I'm in [name of MPA/my usual fishing grounds]."

[1] Strongly disagree

[2] Disagree

[3] Neither agree nor disagree

[4] Agree

[5] Strongly agree

[997]= Do not know; [998] = Not applicable; [999] = Refuse

Wonderful. Thank you very much for taking the time to speak with us today. We greatly appreciate the opportunity to learn from you. Before we go, there are two more things we would like to know...

70. Is there anything else we should know that we haven't already discussed?

71. If we come back next year to ask same questions, would you be willing to participate in this type of interview?

Thank you again for your time. If you have any questions, please ask us or contact Dr. Fitry Pakiding at UNIPA (mobile#)

Notes

Appendix 4.2 Household Survey Instrument Codebook

*Question number in instrument version 2.3; † Confidential data (removed from public release dataset).

Variable Name	#*	Question Wording	Restrict†	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
CountryID	1	Country Name Nama Negara	N	Nominal	Identification Identifikasi	Refer to field identification codes		[995]	Missing data Tidak ada data	-
MPAID	2	Site Nama Lokasi	N	Nominal	Identification Identifikasi	Refer to field identification codes		[995]	Missing data Tidak ada data	-
SettlementID	3	Population Centre Nama Kampung	N	Nominal	Identification Identifikasi	Refer to field identification codes		[995]	Missing data Tidak ada data	-
KKCode	4	Household Code Kode Rumah Tangga	N	Nominal	Identification Identifikasi	Refer to field identification codes		[995]	Missing data Tidak ada data	-
PrimaryRespondent	5	Primary Respondent Name Nama Responden Utama	Y	String	Identification Identifikasi	-	-	[995]	Missing data Tidak ada data	-
SecondaryRespondent	6	Secondary Respondent Name Nama Responden Kedua	Y	String	Identification Identifikasi	-	-	[995]	Missing data Tidak ada data	-
PrimaryInterviewer	7	Primary Interviewer Nama Pewawancara	N	Nominal	Identification Identifikasi	Refer to field identification codes		[995]	Missing data Tidak ada data	-
Notetaker	8	Note-taker Name Nama Notulen	N	Nominal	Identification Identifikasi	Refer to field identification codes		[995]	Missing data Tidak ada data	"Secondary Interviewer" (v.1.0) "Pewawancara Kedua"
FieldCoordinator	9	Field Co-ordinator name Nama Koordinator Lapang	N	Nominal	Identification Identifikasi	Refer to field identification codes		[995]	Missing data Tidak ada data	-
Latitude	10a	Household location (GPS): Latitude Lokasi GPS Rumah Tangga: Lintang	Y	Continuous [DD:MM:SS]	Identification Identifikasi	-	-	[995]	Missing data Tidak ada data	
								[999]	Refused Menolak	
Longitude	10b	Household location (GPS): Longitude Lokasi GPS Rumah Tangga: Bujur	Y	Continuous [DD:MM:SS]	Identification Identifikasi	-	-	[995]	Missing data Tidak ada data	
								[999]	Refused Menolak	

Appendix 4.2

Variable Name	#*	Question Wording	Restrictt	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
InterviewDate	11	Date of interview <u>Tanggal Wawancara</u>	N	Date <u>Tanggal</u> [DD/MM/YYYY] <u>[Tgl/Bulan/Tahun]</u>	Identification <u>Identifikasi</u>	-	-	[995]	Missing data <u>Tidak ada data</u>	
InterviewStart	12	Start time of interview <u>Waktu mulai wawancara</u>	N	Time <u>Waktu</u> [HH:MM] <u>[Jam:Menit]</u>	Identification <u>Identifikasi</u>	-	-	[995]	Missing data <u>Tidak ada data</u>	
InterviewEnd	13	End time of interview <u>Waktu selesai wawancara</u>	N	Time <u>Waktu</u> [HH:MM] <u>[Jam:Menit]</u>	Identification <u>Identifikasi</u>	-	-	[995]	Missing data <u>Tidak ada data</u>	
SurveyVersion Number	14	Survey version number <u>Nomor Versi Survei</u>	N	Nominal	Identification <u>Identifikasi</u>	[1.0]	Pilot Version 1.0 (2010/2011)	[995]	Missing data <u>Tidak ada data</u>	
						[2.0]	Version 2.0 (2011/2012)			
HHMname	15a	Name of household member <u>Nama anggota keluarga</u>	Y	String	Household Characteristics <u>Karakteristik Rumah Tangga</u>	-	-	[995]	Missing data <u>Tidak ada data</u>	-
HHHead	15b	Relationship to household head <u>Hubungan dengan kepala keluarga</u>	N	Nominal	Household Characteristics <u>Karakteristik Rumah Tangga</u>	[0]	Household head <u>Kepala keluarga</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Spouse <u>Pasangan (Suami/Istri)</u>	[996]	Other <u>Lainnya</u>	
						[2]	Child <u>Anak</u>	[997]	Do Not Know <u>Tidak tahu</u>	
						[3]	Mother or father in-law <u>Ibu/Ayah Mertua</u>	[998]	Not Applicable <u>Tidak sesuai</u>	
						[4]	Grandchild <u>Cucu</u>	[999]	Refused <u>Menolak</u>	
						[5]	Parent <u>Orang Tua</u>			
						[6]	Son/ daughter in-law			

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Variable Name	#*	Question Wording	Restrictt	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
						[7]	Anak Mantu Brother/Sister			
						[8]	Saudara laki-laki/perempuan Brother/Sister in-law			
						[9]	Ipar Uncle/Aunt			
						[10]	Paman/Bibi (Om/Tante) Nephew/Niece			
						[11]	Keponakan Step/foster child			
						[12]	Anak Tiri/Anak Angkat Other relation			
						[13]	Keularga Lainnya Not related			
							Tidak ada Hubungan Kekerbatan			
HHMAge	15c	Age Umur	N	Continuous [Years] [Tahun]	Household Characteristics Karakteristik Rumah Tangga	-	-	[995] Missing data Tidak ada data	-	
								[997] Do Not Know Tidak tahu		
								[998] Not Applicable Tidak sesuai		
								[999] Refused Menolak		
HHMGender	15d	Sex Jenis Kelamin	N	Nominal	Household Characteristics Karakteristik Rumah Tangga	[1]	Male Laki-laki	[995] Missing data Tidak ada data	-	
						[2]	Female Perempuan	[999] Refused Menolak		
HHMEducation	15e	What is the highest education grade that [he/she] has completed? Apa tingkat pendidikan terakhir yang [anda/dia] selesaikan?	N	Ordinal [Likert]	Education Pendidikan	Post-coded		[995] Missing data Tidak ada data	-	
								[997] Do Not Know Tidak tahu		
								[998] Not Applicable Tidak sesuai		

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Variable Name	#*	Question Wording	Restrictf	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
								[999]	Refused <u>Menolak</u>	
Enrol	15f	Is [name of household member] currently enrolled in school? <u>Apakah [Nama] terdaftar di sekolah saat ini?</u>	N	Nominal	Education <u>Pendidikan</u>	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
Residency	16	How many years have you lived in [Name of population center]? <u>Sudah berapa tahun anda tinggal di [Nama Kampung]?</u>	N	Continuous [Years] <u>[Tahun]</u>	Household Characteristics <u>Karakteristik Rumah Tangga</u>	-	-	[995]	Missing data <u>Tidak ada data</u>	-
								[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
DistMarket	17	How long does it usually take you to travel to [name of primary market]? <u>Berapa lama waktu yang anda butuhkan untuk bepergian ke [sebutkan nama pasat utama]?</u>	N	Continuous [Hours] <u>[Jam]</u>	Distance to market <u>Akses pasar</u>	-	-	[995]	Missing data <u>Tidak ada data</u>	New question in v2.0
								[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
PatEthnic	18a	What is the ethnicity of your father? <u>Sebutkan suku dari Bapak anda?</u>	N	String	Household Characteristics <u>Karakteristik Rumah Tangga</u>	Post-coded		[995]	Missing data <u>Tidak ada data</u>	What is your ethnicity? (v1.0) <u>Sebutkan suku dari orang tua Bpk/Ibu/Sdr</u>
								[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

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Variable Name	#*	Question Wording	Restrictf	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
MatEthnic	18b	What is the ethnicity of your mother? <u>Sebutkan suku dari Ibu anda?</u>	N	String	Household Characteristics <u>Karakteristik Rumah Tangga</u>	Post-coded		[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	What is your ethnicity? (v1.0) <u>Sebutkan suku dari orang tua Bpk/Ibu/Sdr</u>	
Religion	19	What is your religion? <u>Sebutkan kepercayaan anda?</u>	N	Nominal	Household Characteristics <u>Karakteristik Rumah Tangga</u>	[1] Christian <u>Kristen</u> [2] Muslim <u>Islam</u> [3] Hindu <u>Hindu</u> [4] Buddhist <u>Budha</u> [5] Jewish <u>Yahudi</u> [6] Traditional Beliefs <u>Kepercayaan Tradisional</u> [7] Atheist <u>Atheis</u>	[995] Missing data <u>Tidak ada data</u> [996] Other <u>Lainnya (sebutkan)</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-		

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Variable Name	#*	Question Wording	Restrictt	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
PrimaryOcc	20a	<p>What is the primary way in which members of this household meet their needs?</p> <p><u>Apakah cara utama yang dilakukan oleh anggota keluarga untuk memenuhi kebutuhan mereka?</u></p>	N	Nominal	Household Characteristics <u>Karakteristik Rumah Tangga</u>	[1]	Farming (growing crops and/or raising livestock) <u>Bertani (budidaya tanaman dan atau beternak)</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[2]	Harvesting forest products (e.g. timber, charcoal, non-timber forest products) <u>Mengambil hasil hutan (contoh: kayu, arang, hasil hutan non-kayu)</u>	[996]	Other <u>Lainnya (sebutkan)</u>	
						[3]	Fishing (capture of fish, crustaceans, and other marine resources for sale or consumption) <u>Melaut (termasuk menangkap ikan: crustacean, dan hasil laut lainnya baik untuk dijual maupun untuk dikonsumsi sendiri)</u>	[997]	Do Not Know <u>Tidak tahu</u>	
						[4]	Aquaculture (fish, shrimp, seaweed, etc; includes grow-out pens/raising small captured fish for sale at larger size) <u>Melakukan budidaya perikanan (Ikan, udang, rumput laut, dll;</u>	[998]	Not Applicable <u>Tidak sesuai</u>	

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Variable Name	#*	Question Wording	Restrictf	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
						[5]	<u>termasuk usaha penggemukan ikan</u> Extraction of non-renewable marine resources (includes coral mining, sand mining, and harvest of live coral, etc.) <u>Mengekstraksi sumberdaya laut tak terbarukan (contoh: tambang karang, tambang pasir, terumbu karang, dll).</u>	[999]	Refused <u>Menolak</u>	
						[6]	Marine tourism (includes scuba, snorkel, glass-bottom boats, sailing, water-skiing, jet skis, etc) <u>Pariwisata laut (skuba, snorkel, glass-bottom boats, kapal layar, ski-air, jet ski, dll)</u>			
						[7]	Other wage labor (e.g. teacher, medical professionals, forestry or mining concession worker) <u>Pekerjaan yang menghasilkan upah lainnya (contoh: guru,</u>			

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Variable Name	#*	Question Wording	Restrictt	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
							<u>tenaga kesehatan, pekerja di sektor kehutanan atau pertambangan)</u>			
SecondaryOcc	20b	<p>What is the second most important way in which members of this household meet their needs?</p> <p><u>Apa cara kedua yang dilakukan oleh anggota keluarga untuk memenuhi kebutuhan mereka?</u></p>	N	Nominal	Household Characteristics <u>Karakteristik Rumah Tangga</u>	[1]	Farming (growing crops and/or raising livestock) <u>Bertani (budidaya tanaman dan atau beternak)</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[2]	Harvesting forest products (e.g. timber, charcoal, non-timber forest products) <u>Mengambil hasil hutan (contoh: kayu, arang, hasil hutan non-kayu)</u>	[996]	Other <u>Lainnya (sebutkan)</u>	
						[3]	Fishing (capture of fish, crustaceans, and other marine resources for sale or consumption) <u>Melaut (termasuk menangkap ikan; crustacean, dan hasil laut lainnya baik untuk dijual maupun untuk dikonsumsi sendiri)</u>	[997]	Do Not Know <u>Tidak tahu</u>	
						[4]	Aquaculture (fish, shrimp, seaweed, etc; includes grow-out pens/raising small captured fish for sale at larger size)	[998]	Not Applicable <u>Tidak sesuai</u>	

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Variable Name	#*	Question Wording	Restrictf	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
						[5]	<p><u>Melakukan budidaya perikanan (Ikan, udang, rumput laut, dll; termasuk usaha penggemukan ikan)</u></p> <p>Extraction of non-renewable marine resources (includes coral mining, sand mining, and harvest of live coral, etc.)</p>	[999]	<p>Refused</p> <p><u>Menolak</u></p>	
						[6]	<p><u>Mengekstraksi sumberdaya laut tak terbarukan (contoh: tambang karang, tambang pasir, terumbu karang, dll).</u></p> <p>Marine tourism (includes scuba, snorkel, glass-bottom boats, sailing, water-skiing, jet skis, etc)</p>			
						[7]	<p><u>Pariwisata laut (skuba, snorkel, glass-bottom boats, kapal layar, ski-air, jet ski, dll)</u></p> <p>Other wage labor (e.g. teacher, medical professionals, forestry or mining concession</p>			

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Variable Name	#*	Question Wording	Restrictf	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
							worker) <u>Pekerjaan yang menghasilkan upah lainnya (contoh: guru, tenaga kesehatan, pekerja di sektor kehutanan atau pertambangan)</u>			
TeritaryOcc	20c	What is the third most important way in which members of this household meet their needs? <u>Apa cara ketiga yang dilakukan oleh anggota keluarga untuk memenuhi kebutuhan mereka?</u>	N	Nominal	Household Characteristics <u>Karakteristik Rumah Tangga</u>	[1]	Farming (growing crops and/or raising livestock) <u>Bertani (budidaya tanaman dan atau beternak)</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[2]	Harvesting forest products (e.g. timber, charcoal, non-timber forest products) <u>Mengambil hasil hutan (contoh: kayu, arang, hasil hutan non-kayu)</u>	[996]	Other <u>Lainnya (sebutkan)</u>	
						[3]	Fishing (capture of fish, crustaceans, and other marine resources for sale or consumption) <u>Melaut (termasuk menangkap ikan: crustacean, dan hasil laut lainnya baik untuk dijual maupun untuk dikonsumsi sendiri)</u>	[997]	Do Not Know <u>Tidak tahu</u>	
						[4]	Aquaculture (fish, shrimp, seaweed, etc; includes	[998]	Not Applicable <u>Tidak sesuai</u>	

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Variable Name	#*	Question Wording	Restrictf	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
						[5]	grow-out pens/raising small captured fish for sale at larger size) <u>Melakukan budidaya perikanan (Ikan,udang, rumput laut, dll; termasuk usaha penggemukan ikan)</u> Extraction of non-renewable marine resources (includes coral mining, sand mining, and harvest of live coral, etc.) <u>Mengekstraksi sumberdaya laut tak terbarukan (contoh: tambang karang, tambang pasir, terumbu karang, dll).</u>	[999]	Refused <u>Menolak</u>	
						[6]	Marine tourism (includes scuba, snorkel, glass-bottom boats, sailing, water-skiing, jet skis, etc) <u>Pariwisata laut (skuba, snorkel, glass-bottom boats, kapal layar, ski-air, jet ski, dll)</u>			
						[7]	Other wage labor (e.g.			

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Variable Name	#*	Question Wording	Restrictf	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
							teacher, medical professionals, forestry or mining concession worker) <u>Pekerjaan yang menghasilkan upah lainnya (contoh: guru, tenaga kesehatan, pekerja di sektor kehutanan atau pertambangan)</u>			
FreqFish	21	In the last 6 months, how often did someone in your household go fishing? <u>Dalam 6 bulan terakhir, seberapa sering seseorang dalam rumah tangga anda bergi melaut?</u>	N	Ordinal [Likert]	Fishing characteristics <u>Karakteristik Kegiatan Mencari Ikan</u>	[1]	Once in six months or never <u>Lebih dari beberapa kali dalam satu minggu</u>	[995]	Missing data <u>Tidak ada data</u>	New question in v.2.0
						[2]	A few times per six months <u>Beberapa kali dalam satu minggu</u>	[997]	Do Not Know <u>Tidak tahu</u>	
						[3]	A few times per month <u>Beberapa kali dalam satu bulan</u>	[998]	Not Applicable <u>Tidak sesuai</u>	
						[4]	A few times per week <u>Beberapa kali</u>	[999]	Refused <u>Menolak</u>	
						[5]	More than a few times per week <u>Satu kali atau tidak pernah</u>			

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Variable Name	#*	Question Wording	Restrict	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
FreqSale	22	<p>In the last 6 months, how often did your household sell at least some of its catch?</p> <p><u>Dalam 6 bulan terakhir, seberapa sering rumah tangga anda menjual paling tidak sebagian dari hasil tangkapannya?</u></p>			<p>Fishing characteristics</p> <p><u>Karakteristik Kegiatan Mencari Ikan</u></p>	[1]	Once in six months or never	[995]	Missing data	<p>“In the last six months, how often did you sell your catch?” (v1.0)</p>
							<u>Lebih dari beberapa kali dalam satu minggu</u>		<u>Tidak ada data</u>	
						[2]	A few times per six months	[997]	Do Not Know	
							<u>Beberapa kali dalam satu minggu</u>		<u>Tidak tahu</u>	
						[3]	A few times per month	[998]	Not Applicable	
	<u>Beberapa kali dalam satu bulan</u>		<u>Tidak sesuai</u>							
	[4]	A few times per week	[999]	Refused			<u>Menolak</u>			
	[5]	More than a few times per week					<u>Satu kali atau tidak pernah</u>			
IncomeFish	23	<p>In the last 6 months, how much of the case income in your household came from fishing?</p> <p><u>Dalam 6 bulan terakhir, berapa banyak penghasilan rumah tangga anda berasal dari kegiatan melaut?</u></p>	N	Ordinal	<p>Fishing characteristics</p> <p><u>Karakteristik Kegiatan Mencari Ikan</u></p>	[1]	None	[995]	Missing data	<p>“In the past six months, what percentage of your household income comes from fishing?” (v1.0)</p>
							<u>Tidak ada</u>		<u>Tidak ada data</u>	
						[2]	Some	[997]	Do Not Know	
							<u>Sebagian kecil</u>		<u>Tidak tahu</u>	
						[3]	About half	[998]	Not Applicable	
	<u>Sekitar setengah</u>		<u>Tidak sesuai</u>							
	[4]	Most	[999]	Refused			<u>Menolak</u>			
	[5]	All					<u>Sebagian besar</u>			
		<u>Semuanya</u>								

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Variable Name	#*	Question Wording	Restrict	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
EatFish	24	In the last six months, how often did your household eat fish? <u>Dalam 6 bulan terakhir, seberapa sering rumah tangga anda mengonsumsi ikan atau hasil laut lainnya?</u>	N	Ordinal	Fishing characteristics <u>Karakteristik Kegiatan Mencari Ikan</u>	[1]	Once in six months or never <u>Lebih dari beberapa kali dalam satu minggu</u>	[995]	Missing data <u>Tidak ada data</u>	"In the last 6 months, how often did you eat fish" (v1.0)
						[2]	A few times per six months <u>Beberapa kali dalam satu minggu</u>	[997]	Do Not Know <u>Tidak tahu</u>	
						[3]	A few times per month <u>Beberapa kali dalam satu bulan</u>	[998]	Not Applicable <u>Tidak sesuai</u>	
						[4]	A few times per week <u>Beberapa kali</u>	[999]	Refused <u>Menolak</u>	
						[5]	More than a few times per week <u>Satu kali atau tidak pernah</u>			
ProteinFish	25	In the last 6 months, how much of the protein consumed by your household came from fish? <u>Dalam 6 bulan terakhir, berapa banyak konsumsi protein (lauk) yang berasal dari ikan atau hasil laut lainnya?</u>	N	Ordinal	Fishing characteristics <u>Karakteristik Kegiatan Mencari Ikan</u>	[1]	None <u>Tidak ada</u>	[995]	Missing data <u>Tidak ada data</u>	"In the last 6 months, what percentage of your household protein consumption came from fishing?" (v1.0)
						[2]	Some <u>Sebagian kecil</u>	[997]	Do Not Know <u>Tidak tahu</u>	
						[3]	About half <u>Sekitar setengah</u>	[998]	Not Applicable <u>Tidak sesuai</u>	
						[4]	Most <u>Sebagian besar</u>	[999]	Refused <u>Menolak</u>	
						[5]	All <u>Semuanya</u>			

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Variable Name	#*	Question Wording	Restrictt	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
FishTechnique	26	Over the last 6 months, what fishing technique have you personally used most often? <u>Dalam 6 bulan terakhir, teknik pancing apa yang paling sering digunakan untuk mencari ikan?</u>	N	Nominal	Fishing characteristics <u>Karakteristik Kegiatan Mencari Ikan</u>	[1]	Fishing by hand or handheld gear (e.g., gleaning, hand line, spear gun) <u>Alat tangkap sederhana (sebagai contoh: mengambil ikan dengan tangan, pancing, dan panah ikan)</u>	[995]	Missing data <u>Tidak ada data</u>	
						[2]	Fishing with stationary net (e.g., traps, gill net, trammel net) <u>Alat tangkap pasif (sebagai contoh: perangkap, jaring insang, trammel net)</u>	[996]	Other <u>Lainnya (sebutkan)</u>	
						[3]	Fishing with mobile net (e.g., trawl, purse seine, beach seine) <u>Alat tangkap aktif (sebagai contoh: pukot harimau, pukot cincin, dan pukot pantai)</u>	[997]	Do Not Know <u>Tidak tahu</u>	
						[4]	Fishing with stationary line (e.g., long line) <u>Alat tangkappancing pasif (sebagai contoh: long line)</u>	[998]	Not Applicable <u>Tidak sesuai</u>	
						[5]	Fishing with mobile line (e.g., trolling) <u>Alat tangkap</u>	[999]	Refused <u>Menolak</u>	

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Variable Name	#*	Question Wording	Restrict	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
						[6]	<u>pancing aktif</u> (sebagai contoh: <u>trolling</u>) Fishing with explosives or chemicals (e.g., bomb, cyanide, poison) <u>Menangkap ikan dengan bahan peledak atau bahan beracun</u> (sebagai contoh: <u>bom, sianida, racun</u>)			
LPDayFish	27a	In the last 12 months, during the less productive fishing seasons, how many days did you personally go fishing? <u>Dalam 12 bulan terakhir, selama musim yang tidak terlalu baik untuk melaut, berapa hari Bpk/Sdr pergi melaut?</u>	N	Continuous [Days] <u>[Hari]</u>	Fishing characteristics <u>Karakteristik Kegiatan Mencari Ikan</u>	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	New question (v2.0)	
LPHarvest	27b	In the last 12 months, on average, how much did you personally harvest in a day during the less productive fishing seasons? <u>Dalam 12 bulan terakhir, selama musim yang tidak terlalu baik untuk melaut, berapa banyak rata-rata hasil tangkapan Bpk/Sdr per hari?</u>	N	Continuous [Respondent specifies units]	Fishing characteristics <u>Karakteristik Kegiatan Mencari Ikan</u>	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	"On the worst fishing days, how many fish do you personally catch per day?" (v.1.0)	

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Variable Name	#*	Question Wording	Restrictt	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
LPFishIncome	27c	In the last 12 months, on average, how much did you personally earn in a day during the less productive fishing seasons? <u>Dalam 12 bulan terakhir, berapa rata-rata penghasilan Bpk/Saudara per hari selama musim yang tidak terlalu baik untuk melaut?</u>	N	Continuous [Rupiah] <u>[Rupiah]</u>	Fishing characteristics <u>Karakteristik Kegiatan Mencari Ikan</u>	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	“On the worst fishing days, how much do you personally earn per day?” (v.1.0)	
MPDayFish	28a	In the last 12 months, during the more productive fishing seasons, how many days did you personally go fishing? <u>Dalam 12 bulan terakhir, selama musim yang baik untuk melaut, berapa hari Bpk/Sdr pergi melaut?</u>	N	Continuous [Days] <u>[Hari]</u>	Fishing characteristics <u>Karakteristik Kegiatan Mencari Ikan</u>	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	New question (v. 2.0)	
MPDayHarvest	28b	In the last 12 months, on average, how much did you personally harvest in a day during the more productive fishing seasons? <u>Dalam 12 bulan terakhir, selama musim yang baik untuk melaut, berapa banyak rata-rata hasil tangkapan Bpk/Sdr per hari?</u>	N	Continuous [Respondent specifies units]	Fishing characteristics <u>Karakteristik Kegiatan Mencari Ikan</u>	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	“On the best fishing days, how many fish do you personally catch per day?” (v.1.0)	

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Variable Name	#*	Question Wording	Restrict	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
MPPFishIncome	28c	In the last 12 months, on average, how much did you personally earn in a day during the more productive fishing seasons? <u>Dalam 12 bulan terakhir, berapa rata-rata penghasilan Bpk/Saudara per hari selama musim yang baik untuk melaut?</u>	N	Continuous [Rupiah] <u>[Rupiah]</u>	Fishing characteristics <u>Karakteristik Kegiatan Mencari Ikan</u>	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	"On the best fishing days, how much do you personally earn per day?" (v.1.0)	
EconomicStatus	29	How has the economic status of your household changed over the past 12 months? <u>Bagaimana perubahan ekonomi rumah tangga Bpk/Ibu/Sdr berubah selama 12 bulan terakhir?</u>	N	Ordinal	Economic status <u>Kesejahteraan Rumah Tangga</u>	[1] Much worse <u>Menjadi sangat buruk</u> [2] Slightly worse <u>Menjadi sedikit lebih buruk</u> [3] Neither better or worse <u>Tidak berubah</u> [4] Slightly better <u>Menjadi sedikit lebih baik</u> [5] Much better <u>Menjadi sangat baik</u>	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-		
EconStatusReason	30	Why? <u>Mengapa</u>	N	String	Economic status <u>Kesejahteraan Rumah Tangga</u>	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
Radio	31a	Radio/Stereo/CD player/DVD player <u>Radio/Stereo/CD player/DVD player</u>	N	Continuous	Household assets <u>Aset Rumah Tangga</u>	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	Q31 (i) in v2.0	

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Variable Name	#*	Question Wording	Restrictt	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
TV	31b	TV TV	N	Continuous	Household assets Aset Rumah Tangga	-	-	[995]	Missing data Tidak ada data	Q31 (h) in v2.0
								[997]	Do Not Know Tidak tahu	
								[998]	Not Applicable Tidak sesuai	
								[999]	Refused Menolak	
SatDish	31c	Satellite dish Parabola	N	Continuous	Household assets Aset Rumah Tangga	-	-	[995]	Missing data Tidak ada data	Q31 (j) in v2.0
								[997]	Do Not Know Tidak tahu	
								[998]	Not Applicable Tidak sesuai	
								[999]	Refused Menolak	
Phone	31d	Phone (mobile and landline) Telefon genggam dan Telefon Rumah	N	Continuous	Household assets Aset Rumah Tangga	-	-	[995]	Missing data Tidak ada data	Q31 (g) in v2.0
								[997]	Do Not Know Tidak tahu	
								[998]	Not Applicable Tidak sesuai	
								[999]	Refused Menolak	
Generator	31e	Generator Generator	N	Continuous	Household assets Aset Rumah Tangga	-	-	[995]	Missing data Tidak ada data	Q31 (k) in v2.0
								[997]	Do Not Know Tidak tahu	
								[998]	Not Applicable Tidak sesuai	
								[999]	Refused Menolak	
BoatNoMotor	31f	Boat without a motor Perahu dayung	N	Continuous	Household assets Aset Rumah Tangga	-	-	[995]	Missing data Tidak ada data	Q31 (d) in v2.0
								[997]	Do Not Know Tidak tahu	
								[998]	Not Applicable Tidak sesuai	
								[999]	Refused Menolak	

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Variable Name	#*	Question Wording	Restrictt	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
BoatOutboard	31g	Boat with outboard motor <u>Perahu motor tempel</u>	N	Continuous	Household assets <u>Aset Rumah Tangga</u>	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	Q31 (e) in v2.0	
BoatInboard	31h	Boat with inboard motor <u>Perahu motor</u>	N	Continuous	Household assets <u>Aset Rumah Tangga</u>	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	Q31 (f) in v2.0	
Bicycle	31i	Bicycle <u>Sepeda</u>	N	Continuous	Household assets <u>Aset Rumah Tangga</u>	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	Q31 (b) in v2.0	
Motorcycle	31j	Motorcycle <u>Sepeda motor</u>	N	Continuous	Household assets <u>Aset Rumah Tangga</u>	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	Q31 (c) in v2.0	
Car	31k	Car/truck <u>Mobil/Truk</u>	N	Continuous	Household assets <u>Aset Rumah Tangga</u>	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	Q31 (a) in v2.0	

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Variable Name	#*	Question Wording	Restrictt	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
Fuel	32	What is the main fuel that your household uses for cooking? <u>Apa bahan bakar utama yang digunakan untuk memasak?</u>	N	Nominal	Economic status <u>Kesejahteraan Rumah Tangga</u>	[1]	Electricity or gas <u>Listrik/gas</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[2]	Oil or kerosene <u>Minyak/Minyak Tanah</u>	[996]	Other <u>Lainnya (sebutkan)</u>	
						[3]	Wood <u>Kayu</u>	[997]	Do Not Know <u>Tidak tahu</u>	
						[4]	Charcoal <u>Arang</u>	[998]	Not Applicable <u>Tidak sesuai</u>	
						[5]	Small sticks or scrap wood <u>Kayu Ranting atau Serpihan Kayu</u>	[999]	Refused <u>Menolak</u>	
						[6]	Weeds, leaves or dung <u>Serasah, Daun, Biogas</u>			
Illness	33a	Has [name] had any illness or injury during the past 4 weeks? <u>Selama 4 minggu terakhir, apakah [Nama] menderita suatu penyakit atau luka?</u>	N	Nominal	Health <u>Kesehatan</u>	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	"Have you or any member of your household had any illness or injury during the past 4 weeks?" (v.1.0)
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
DaysIll	33b	How many days during the past 4 weeks did [you/he/she] suffer from this illness or injury? <u>Berapa hari selama 4 minggu terakhir ini [anda/dia] menderita akibat penyakit atau luka tersebut?</u>	N	Continuous [Days] <u>[Hari]</u>	Health <u>Kesehatan</u>	-	-	[994]	Skipped question	"For how many days during the past 4 weeks did [you/he/she] suffer from this illness/injury" (v.1.0)
								[995]	Missing data <u>Tidak ada data</u>	
								[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

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Variable Name	#*	Question Wording	Restrictf	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
DaysAffected	33c	How many days during the past 4 weeks were [you/he/she] unable to carry out [your/his/her] usual activities because of this? <u>Berapa hari selama 4 minggu terakhir ini [anda/dia] tidak dapat melakukan tugas [anda/-nya] yang biasa dilakukan karena penyakit atau luka tersebut?</u>	N	Continuous [Days] <u>[Hari]</u>	Health <u>Kesehatan</u>	-	-	[994] Skipped question [995] Missing data [997] Do Not Know [998] Not Applicable [999] Refused	unable to carry out [your/his/her] usual activities because of this?" (v.1.0)	
Deaths	34	Have any household members died in the past 12 months? <u>Apakah ada anggota rumah tangga yang meninggal dalam jangkawaktu 12 buln terakhir?</u>	N	Nominal	Mortality <u>Kemiatan</u>	[0]	No <u>Tidak</u>	[995] Missing data [999] Refused	-	
DeathName	35a	Name <u>Nama</u>	Y	String	Mortality <u>Kemiatan</u>	-	-	[994] Skipped question [995] Missing data [997] Do Not Know [998] Not Applicable [999] Refused		
DeathGender	35b	Gender <u>Jenis kelamin</u>	N	Nominal	Mortality <u>Kemiatan</u>	[1]	Male <u>Laki-laki</u>	[994] Skipped question [995] Missing data [997] Do Not Know [998] Not Applicable [999] Refused		
						[2]	Female <u>Perempuan</u>			

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Variable Name	#*	Question Wording	Restrictt	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
DeathAge	35c	Age at death <u>Umur pada saat meninggal</u>	N	Continuous [Year] <u>[Tahun]</u>	Mortality <u>Kemiatan</u>	-	-	[994] [995] [997] [998] [999]	Skipped question Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	New question in v.2.0
DateDeath	35d	Date of death <u>Tanggal Kematian</u>	N	Continuous [DD/MM/YYYY] <u>[Tgl/Bulan/Tahun]</u>	Mortality <u>Kemiatan</u>	-	-	[994] [995] [997] [998] [999]	Skipped question Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	
Birth	36	Have any household members given birth in the past 12 months? <u>Apakah ada anggota rumah tangga yang meninggal dalam jangka waktu 12 bulan terakhir?</u>	N	Nominal	Birth Rate <u>Angka Kelahiran</u>	[0] [1]	No <u>Tidak</u> Yes <u>Ya</u>	[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	-
InfantName	37a	Name <u>Nama</u>	Y	String	Birth Rate <u>Angka Kelahiran</u>	-	-	[994] [995] [997] [998] [999]	Skipped question Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	-

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Variable Name	#*	Question Wording	Restrict	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
InfantSurvival	37b	Is the baby still alive? <u>Apakah bayi tersebut masih hidup?</u>	N	Nominal	Infant Mortality <u>Kemiatan bayi</u>	[0] [1]	No <u>Tidak</u> Yes <u>Ya</u>	[994] [995] [997] [998] [999]	Skipped question Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	-
InfantDeath	37c	Date of death <u>Tanggal Kematian</u>	N	Continuous [DD/MM/YYYY] <u>[Tgl/Bulan/Tahun]</u>	Infant Mortality <u>Kemiatan bayi</u>	-	-	[994] [995] [997] [998] [999]	Skipped question Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	-
WorryFood	38	"[I/We] were worry that we might not have enough food for everyone in the household" Was that often, sometimes, or never true for [you/your household] in the last 12 months? <u>"[Saya/Kami] khawatir bahwa persediaan makanan di keluarga kami tidak cukup untuk setiap orang dalam rumah tangga kami". Apakah pernyataan tersebut sering, kadang-kadang, atau tidak pernah benar untuk keluarga Bpk/Ibu/Sdr dalam 12 bulan terakhir ini?</u>	N	Ordinal	Food Security <u>Ketahanan Pangan</u>	[1] [2] [3]	Often <u>Sering</u> Sometimes <u>Kadang-kadang</u> Never <u>Tidak pernah</u>	[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	-

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Variable Name	#*	Question Wording	Restrict	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
FoodLast	39	"[My/our] food just didn't last, and we were not able to get more." Was that often, sometimes, or never true for [you/your household] in the last 12 months? <u>"Cadangan makanan [Saya/Kami] tidak cukup, dan kami tidak mampu untuk mendapatkan makanan yang lebih". Apakah pernyataan tersebut sering, kadang-kadang, atau tidak pernah benar untuk keluarga Bpk/Ibu/Sdr dalam 12 bulan terakhir ini?</u>	N	Ordinal	Food Security <u>Ketahanan Pangan</u>	[1] [2] [3]	Often <u>Sering</u> Sometimes <u>Kadang-kadang</u> Never <u>Tidak pernah</u>	[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	-
BalancedDiet	40	"[I/we] couldn't eat balanced meals." Was that often, sometimes, or never true for [you/your household] in the last 12 months? <u>"[Saya/kami] tidak dapat makanan yang seimbang".Apakah pernyataan tersebut sering, kadang-kadang, atau tidak pernah benar untuk keluarga Bpk/Ibu/Sdr dalam 12 bulan terakhir ini?</u>	N	Ordinal	Food Security <u>Ketahanan Pangan</u>	[1] [2] [3]	Often <u>Sering</u> Sometimes <u>Kadang-kadang</u> Never <u>Tidak pernah</u>	[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	-

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Variable Name	#*	Question Wording	Restrictt	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
AdultSkip	41	In the last 12 months, did [you/you or other adults in your household] ever reduce the size of your meals or skip meals because there wasn't enough food to eat? <u>Dalam kurun waktu 12 bulan terakhir, apakah [anda/anda dan/atau orang dewasa lainnya dalam rumah tangga ini] pernah mengurangi porsi makanan atau tidak makan karena tidak ada cukup makanan untuk dimakan?</u>	N	Nominal	Food Security <u>Ketahanan Pangan</u>	[0] [1]	No <u>Tidak</u> Yes <u>Ya</u>	[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	-
FreqAdultSkip	42	How often did this happen - almost every month, some months but not every month, or in only one or two months? <u>Berapa sering kejadian ini terjadi- hampir setiap bulan, dalam beberapa bulan tetapi tidak setiap bulan, atau hanya satu atau dua bulan setahun?</u>	N	Ordinal	Food Security <u>Ketahanan Pangan</u>	[1] [2] [3]	Often <u>Sering</u> Sometimes <u>Kadang-kadang</u> Never <u>Tidak pernah</u>	[994] [995] [997] [998] [999]	Skipped question Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	-
EatLess	43	In the last 12 months did you ever eat less than you felt you should because there wasn't enough food? <u>Dalam kurun waktu 12 bulan terakhir, apakah anda pernah makan kurang dari yang seharusnya karena tidak ada cukup makanan?</u>	N	Nominal	Food Security <u>Ketahanan Pangan</u>	[0] [1]	No <u>Tidak</u> Yes <u>Ya</u>	[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	-

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Variable Name	#*	Question Wording	Restrictf	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
AdultHungry	44	In the last 12 months, were you ever hungry but didn't eat because there wasn't enough food? <u>Dalam kurun waktu 12 bulan terakhir, apakah anda pernah lapar dan tidak makan karena tidak ada cukup makanan untuk dimakan?</u>	N	Nominal	Food Security <u>Ketahanan Pangan</u>	[0] [1]	No <u>Tidak</u> Yes <u>Ya</u>	[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	-
ChildPortion	45	In the last 12 months, did you ever reduce the size of a child's meal because there wasn't enough food? <u>Dalam kurun waktu 12 bulan terakhir, apakah anda pernah mengurangi jumlah makanan yang dikonsumsi oleh anak-anak karena tidak ada cukup makanan?</u>	N	Nominal	Food Security <u>Ketahanan Pangan</u>	[0] [1]	No <u>Tidak</u> Yes <u>Ya</u>	[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	-
LowCostFood	46	"[I/We] relied on a few kinds of low-cost food to feed our child(ren)" Was that often, sometimes, or never true for [you/your household] in the last 12 months? <u>"[Saya/Kami] bergantung pada makanan yang murah untuk makanan anak-anak kami". Apakah hal tersebut sering, kadang-kadang, atau tidak pernah benar untuk keluarga Bpk/Ibu/Sdr dalam kurun waktu 12 bulan terakhir ini?</u>	N	Ordinal	Food Security <u>Ketahanan Pangan</u>	[1] [2] [3]	Often <u>Sering</u> Sometimes <u>Kadang-kadang</u> Never <u>Tidak pernah</u>	[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	New question in v.2.0

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Variable Name	#*	Question Wording	Restrict	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
ChildSkip	47	"In the past 12 months, children skipped meals because there was not enough food" <u>"Dalam kurun waktu 12 bulan terakhir, anak-anak tidak makan (pagi atau siang atau malam) karena tidak ada cukup makanan"</u>	N	Nominal	Food Security <u>Ketahanan Pangan</u>	[0] [1]	No Tidak Yes Ya	[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	New question in v.2.0
FreqChildSkip	48	How often did this happen - almost every month, some months but not every month, or in only one or two months? <u>Berapa sering kejadian ini terjadi – hampir setiap bulan, dalam beberapa bulan tetapi tidak setiap bulan, atau hanya satu atau dua bulan setahun?</u>	N	Ordinal	Food Security <u>Ketahanan Pangan</u>	[1] [2] [3]	Often <u>Sering</u> Sometimes <u>Kadang-kadang</u> Never <u>Tidak pernah</u>	[994] [995] [997] [998] [999]	Skipped question Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	New question in v.2.0
ChildNoFood	49	"Children did not eat for a whole day because there was not enough food" Was that often, sometimes, or never true for your household in the last 12 months? <u>"Anak-anak tidak makan sepanjang hari karena tidak ada cukup makanan"</u> <u>Apakah hal tersebut sering, kadang-kadang, atau tidak pernah terjadi dalam rumah tangga Bpk/Ibu/Sdr dalam kurun waktu 12 bulan terakhir ini?</u>	N	Ordinal	Food Security <u>Ketahanan Pangan</u>	[1] [2] [3]	Often <u>Sering</u> Sometimes <u>Kadang-kadang</u> Never <u>Tidak pernah</u>	[994] [995] [997] [998] [999]	Skipped question Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	New question in v.2.0

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Variable Name	#*	Question Wording	Restrictt	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
Enter	50	In the past 12 months, have you personally entered [name of MPA/name of usual fishing grounds]? <u>Dalam kurun waktu 12 bulan terakhir, apakah anda memasuki daerah [nama DPL/DPI]?</u>	N	Nominal	Marine Tenure <u>Hak Terhadap Sumberdaya</u>	[0] [1]	No Yes <u>Tidak</u> <u>Ya</u>	[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	In version 1.0, "usual fishing grounds" termed "local waters"
Harvest	51	In the past 12 months, have you personally harvested fish or extracted other marine resources in [name of MPA/name of usual fishing grounds]? <u>Dalam kurun waktu 12 bulan terakhir, apakah anda mengambil ikan atau sumberdaya lainnya di daerah [nama DPL/DPI]?</u>	N	Nominal	Marine Tenure <u>Hak Terhadap Sumberdaya</u>	[0] [1]	No Yes <u>Tidak</u> <u>Ya</u>	[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	In version 1.0, "usual fishing grounds" termed "local waters"
Manage	52	In the past 12 months, have you personally made decisions about managing resources in [name of MPA/name of usual fishing grounds]? <u>Dalam kurun waktu 12 bulan terakhir, apakah anda membuat keputusan tentang pengelolaan sumberdaya perairan daerah [nama DPL/DPI]?</u>	N	Nominal	Marine Tenure <u>Hak Terhadap Sumberdaya</u>	[0] [1]	No Yes <u>Tidak</u> <u>Ya</u>	[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	In version 1.0, "usual fishing grounds" termed "local waters"

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Variable Name	#*	Question Wording	Restrictt	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
Exclude	53	In the past 12 months, have you personally made decisions about who can and cannot enter [name of MPA/name of usual fishing grounds]? <u>Dalam kurun waktu 12 bulan terakhir, apakah anda membuat keputusan tentang siapa yang dapat atau tidak dapat memasuki [nama DPL/DPI]?</u>	N	Nominal	Marine Tenure <u>Hak Terhadap Sumberdaya</u>	[0] [1]	No Tidak Ya	[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	In version 1.0, "usual fishing grounds" termed "local waters"
Transfer	54	In the past 12 months, have you personally sold or leased the right to harvest fish or other marine resources in [name of MPA/name of usual fishing grounds]? <u>Dalam kurun waktu 12 bulan terakhir, apakah anda menjual atau menyewakan hak terhadap pengamilan ikan atau sumberdaya lainnya pada daerah [nama DPL/DPI]?</u>	N	Nominal	Marine Tenure <u>Hak Terhadap Sumberdaya</u>	[0] [1]	No Tidak Ya	[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	In version 1.0, "usual fishing grounds" termed "local waters"
SocialConflict	55	During the last 12 months, how has the level of social conflict over marine resources changed in [name of MPA/your usual fishing grounds]? <u>Selama kurun waktu 12 bulan terakhir, bagaimana tingkat konflik sosial mengenai sumberdaya laut berubah di [nama DPL/DPI]?</u>	N	Ordinal	Marine Tenure <u>Hak Terhadap Sumberdaya</u>	[1] [2] [3] [4] [5]	Greatly increased <u>Sangat meningkat</u> Increased <u>Meningkat</u> Has neither increased nor decreased <u>Tidak ada perubahan</u> Decreased <u>Menurun</u> Greatly decreased <u>Sangat menurun</u>	[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	"During the last 12 months, how has the level of social conflict over marine resources changed?" (v.1.0)

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Variable Name	#*	Question Wording	Restrictt	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
MarineGroup	56a	Are you currently a member of any groups that help to manage local marine resources? These can be either formal organizations or informal groups. <u>Apakah anda saat ini menjadi anggota dari salah satu kelompok lokal yang membantu pengelolaan sumberdaya laut? Keanggotaan ini berlaku pada organisasi formal maupun kelompok informal.</u>	N	Nominal	Community Organization <u>Organisasi</u> <u>Kemasyarakatan</u>	[0] [1]	No <u>Tidak</u> Yes <u>Ya</u>	[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	
MarineName	56b	What is the name of this group? <u>Apakah nama dari kelompok ini?</u>	N	Nominal	Community Organization <u>Organisasi</u> <u>Kemasyarakatan</u>	-	-	[994] [995] [997] [998] [999]	Skipped question Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	-
MarineRole	56c	What is your position in the group? <u>Apakah kedudukan anda dalam organisasi ini?</u>	N	Nominal	Community Organization <u>Organisasi</u> <u>Kemasyarakatan</u>	[1] [2]	Member <u>Anggota</u> Official <u>Pengurus</u>	[994] [995] [996] [997] [998] [999]	Skipped question Missing data <u>Tidak ada data</u> Other <u>Lainnya</u> <u>(sebutkan)</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	-

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Variable Name	#*	Question Wording	Restrictt	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
MarineMeet	56d	Have you attended any group meetings in the last 12 months? <u>Apakah anda menghadiri pertemuan/rapat yang diadakan kelompok ini selama kurun waktu 12 bulan terakhir?</u>	N	Nominal	Community Organization <u>Organisasi</u> <u>Kemasyarakatan</u>	[0]	No <u>Tidak</u>	[994]	Skipped question	-
						[1]	Yes <u>Ya</u>	[995]	Missing data <u>Tidak ada data</u>	
								[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
MarineDays	56e	How many days (full working days) have you spent on group activities in the last 12 months? <u>Berapa hari (hari kerja penuh) yang digunakan untuk aktifitas dalam kelompok ini selama kurun waktu 12 bulan terakhir?</u>	N	Continuous [Days] <u>[Hari]</u>	Community Organization <u>Organisasi</u> <u>Kemasyarakatan</u>	-	-	[994]	Skipped question	-
								[995]	Missing data <u>Tidak ada data</u>	
								[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
MarineContrib	56f	What level of cash or non-monetary contributions have you made in the last 12 months? <u>Berapa banyak uang atau barang yang dibayarkan/dikontribusikan kepada kelompok tersebut selam kurun waktu 12 bulan terakhir?</u>	N	Continuous [Rupiah] <u>[Rupiah]</u>	Community Organization <u>Organisasi</u> <u>Kemasyarakatan</u>	-	-	[994]	Skipped question	"What level of cash or contributions have you made in the last 12 months?" (v.1.0)
								[995]	Missing data <u>Tidak ada data</u>	
								[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

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Variable Name	#*	Question Wording	Restrictf	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
NMGroup	57a	Are you currently a member of any other local groups? These can be either formal organizations or informal groups. <u>Apakah saat ini anda menjadi anggota dari salah satu kelompok lokal lainnya?</u> <u>Keanggotaan ini berlaku pada organisasi formal maupun kelompok informal.</u>	N	Nominal	Community Organization <u>Organisasi</u> <u>Kemasyarakatan</u>	[0] [1]	No <u>Tidak</u> Yes <u>Ya</u>	[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	-
NMName	57b	What is the name of this group? <u>Apakah nama dari kelompok ini?</u>	N	Nominal	Community Organization <u>Organisasi</u> <u>Kemasyarakatan</u>	-	-	[994] [995] [997] [998] [999]	Skipped question Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	-
NMRole	57c	What is your position in the group? <u>Apakah kedudukan anda dalam organisasi ini?</u>	N	Nominal	Community Organization <u>Organisasi</u> <u>Kemasyarakatan</u>	[1] [2]	Member <u>Anggota</u> Official <u>Pengurus</u>	[994] [995] [996] [997] [998] [999]	Skipped question Missing data <u>Tidak ada data</u> Other <u>Lainnya (sebutkan)</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	-

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Variable Name	#*	Question Wording	Restrictt	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
NMMeet	57d	Have you attended any group meetings in the last 12 months? <u>Apakah anda menghadiri pertemuan/rapat yang diadakan kelompok ini selama kurun waktu 12 bulan terakhir?</u>	N	Nominal	Community Organization <u>Organisasi</u> <u>Kemasyarakatan</u>	[0] [1]	No <u>Tidak</u> Yes <u>Ya</u>	[994] [995] [997] [998] [999]	Skipped question Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	-
NMDays	57e	How many days (full working days) have you spent on group activities in the last 12 months? <u>Berapa hari (hari kerja penuh) yang digunakan untuk aktifitas dalam kelompok ini selama kurun waktu 12 bulan terakhir?</u>	N	Continuous [Days] <u>[Hari]</u>	Community Organization <u>Organisasi</u> <u>Kemasyarakatan</u>	-	-	[994] [995] [997] [998] [999]	Skipped question Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	-
NMContrib	57f	What level of cash or non-monetary contributions have you made in the last 12 months? <u>Berapa banyak uang atau barang yang dibayarkan/dikontribusikan kepada kelompok tersebut selam kurun waktu 12 bulan terakhir?</u>	N	Continuous [Rupiah] <u>[Rupiah]</u>	Community Organization <u>Organisasi</u> <u>Kemasyarakatan</u>	-	-	[994] [995] [997] [998] [999]	Skipped question Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	"What level of cash or contributions have you made in the last 12 months?" (v.1.0)
VoteLocal	58	Did you vote in the most recent district election? <u>Apakah anda menggunakan hak pilih saudara dalam pemilihan kepala daerah tingkat Kabupaten?</u>	N	Nominal	Political engagement <u>Keterlibatan dalam politik</u>	[0] [1]	No <u>Tidak</u> Yes <u>Ya</u>	[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	-

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Variable Name	#*	Question Wording	Restrict	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
VoteNational	59	Did you vote in the most recent national election? <u>Apakah anda menggunakan hak pilih saudara dalam pemilihan tingkat nasional yang terbaru?</u>	N	Nominal	Political engagement <u>Keterlibatan dalam politik</u>	[0] [1]	No Tidak Yes Ya	[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	-
LocalThreat	60a	What are the threats to the health of the local marine environment? <u>Apa saja ancaman bagi keberadaan dari lingkungan laut lokal yang baik?</u>	N	String	Environmental education <u>Pendidikan</u>	Post-coded.		[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	
NLocalThreat	60b	Number of threats to local marine environment identified in 60a <u>Hitunglah jumlah ancaman yang terdaftar pada Pertanyaan no. 60a. Tuliskan total jawaban pada kotak yang tersedia di bawah ini.</u>	N	Continuous	Environmental education <u>Pendidikan</u>	-		[995]	Missing data <u>Tidak ada data</u>	
OtherThreat	61a	What are the threats to the health of the marine environment in other places? <u>Apa saja ancaman bagi keberadaan lingkungan laut lokal di tempat-tempat lainnya?</u>	N	String	Environmental education <u>Pendidikan</u>	Post-coded.		[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	
NOtherThreat	61b	Number of threats to local marine environment identified in 61a <u>Hitunglah jumlah ancaman yang terdaftar pada Pertanyaan no. 61a. Tuliskan total jawaban pada kotak yang tersedia di bawah ini.</u>	N	Continuous	Environmental education <u>Pendidikan</u>	-		[995]	Missing data <u>Tidak ada data</u>	-

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Variable Name	#*	Question Wording	Restrictf	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
LocalAction	62a	What actions can people take to ensure the health of the local marine environment? <u>Langkah-langkah apa saja yang dapat dilakukan orang untuk menjaga keberadaan lingkungan laut lokal yang baik?</u>	N	String	Environmental education <u>Pendidikan</u>	Post-coded.		[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>		
NLocalAction	62b	Number of actions identified in 62a <u>Hitunglah jumlah ancaman yang terdaftar pada Pertanyaan no. 62a. Tuliskan total jawaban pada kotak yang tersedia di bawah ini.</u>	N	Continuous	Environmental education <u>Pendidikan</u>	-		[995] Missing data <u>Tidak ada data</u>		
OtherAction	63a	What actions can people take to ensure the health of the marine environment in other places? <u>Langkah-langkah apa saja yang dapat dilakukan orang untuk menjaga keberadaan lingkungan laut di tempat lain yang baik?</u>	N	String	Environmental education <u>Pendidikan</u>	Post-coded.		[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>		
NOtherAction	63b	Number of actions identified in 63a <u>Hitunglah jumlah ancaman yang terdaftar pada Pertanyaan no. 63a. Tuliskan total jawaban pada kotak yang tersedia di bawah ini.</u>	N	Continuous	Environmental education <u>Pendidikan</u>	-	-	[995] Missing data <u>Tidak ada data</u>	-	

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Variable Name	#*	Question Wording	Restrict	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
HappyMPA	64	"I am happiest when I'm in [name of MPA/my usual fishing grounds]." "Saya merasa paling senang/bahagia ketika saya ada di [nama DPA/DPI]."	N	Ordinal	Place attachment <u>Budaya</u>	[1]	Strongly disagree <u>Sangat tidak setuju</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[2]	Disagree <u>Tidak setuju</u>	[997]	Do Not Know <u>Tidak tahu</u>	
						[3]	Neither agree nor disagree <u>Netral</u>	[998]	Not Applicable <u>Tidak sesuai</u>	
						[4]	Agree <u>Setuju</u>	[999]	Refused <u>Menolak</u>	
						[5]	Strongly agree <u>Sangat setuju</u>			
FavouritePlace	65	" [Name of MPA/my usual fishing grounds] [is/are] my favorite place to be." " [Nama DPL/DPI] adalah tempat yang paling saya sukai untuk berkunjung."	N	Ordinal	Place attachment <u>Budaya</u>	[1]	Strongly disagree <u>Sangat tidak setuju</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[2]	Disagree <u>Tidak setuju</u>	[997]	Do Not Know <u>Tidak tahu</u>	
						[3]	Neither agree nor disagree <u>Netral</u>	[998]	Not Applicable <u>Tidak sesuai</u>	
						[4]	Agree <u>Setuju</u>	[999]	Refused <u>Menolak</u>	
						[5]	Strongly agree <u>Sangat setuju</u>			
MissMPA	66	"I really miss [name of MPA/my usual fishing grounds] when I'm away too long." "Saya sangat rindu pada daerah [nama DPL/DPI] jika saya bepergian dalam waktu yang lama."	N	Ordinal	Place attachment <u>Budaya</u>	[1]	Strongly disagree <u>Sangat tidak setuju</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[2]	Disagree <u>Tidak setuju</u>	[997]	Do Not Know <u>Tidak tahu</u>	
						[3]	Neither agree nor disagree <u>Netral</u>	[998]	Not Applicable <u>Tidak sesuai</u>	
						[4]	Agree <u>Setuju</u>	[999]	Refused <u>Menolak</u>	
						[5]	Strongly agree <u>Sangat setuju</u>			

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Variable Name	#*	Question Wording	Restrictt	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
BestPlace	67	"[Name of MPA/my usual fishing grounds] [is/are] the best place to do the things I enjoy." "[Nama DPL/DPI] adalah tempat paling baik untuk melakukan hal-hal yang saya sukai".	N	Ordinal	Place attachment <u>Budaya</u>	[1] [2] [3] [4] [5]	Strongly disagree <u>Sangat tidak setuju</u> Disagree <u>Tidak setuju</u> Neither agree nor disagree <u>Netral</u> Agree <u>Setuju</u> Strongly agree <u>Sangat setuju</u>	[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	-
FishMPA	68	"I wouldn't want to fish anywhere other than [name of MPA/my usual fishing grounds]." "Saya tidak mau memancing di daerah lain selain di daerah [nama DPL/DPI]."	N	Ordinal	Place attachment <u>Budaya</u>	[1] [2] [3] [4] [5]	Strongly disagree <u>Sangat tidak setuju</u> Disagree <u>Tidak setuju</u> Neither agree nor disagree <u>Netral</u> Agree <u>Setuju</u> Strongly agree <u>Sangat setuju</u>	[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	-
BeMyself	69	"I feel I can be myself when I'm in [name of MPA/my usual fishing grounds]." "Saya merasa saya bisa menjadi diri saya ketika saya berada di [nama DPL/DPI]."	N	Ordinal	Place attachment <u>Budaya</u>	[1] [2] [3] [4] [5]	Strongly disagree <u>Sangat tidak setuju</u> Disagree <u>Tidak setuju</u> Neither agree nor disagree <u>Netral</u> Agree <u>Setuju</u> Strongly agree <u>Sangat setuju</u>	[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	-

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Variable Name	#*	Question Wording	Restrictf	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
AnyOther	70	Is there anything else we should know that we haven't already discussed? <u>Apakah ada hal lain yang sebaiknya kami ketahui tetapi belum kami diskusikan dengan Bpk/Ibu/Saudara?</u>	N	String		-		[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
Willing	71	If we come back next year to ask the same questions, would you be willing to participate in this type of interview? <u>Jika kami kembali tahun depan untuk mewawancarai Bpk/Ibu/Sdr tentang hal-hal yang sama yang kami tanyakan sekarang, apakah Bpk/Ibu/Sdr bersedia untuk diwawancarai kembali?</u>	N	String		Post-code		[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>		

Appendix 4.3 Protocol for conducting household surveys

(Version 1.0 September 2012)

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A. Introduction

This protocol provides step-by-step instructions for completing a series of household surveys in a settlement as part of the marine resource governance and community livelihoods monitoring program. These steps should be followed, as far as possible, in the order in which they are given. If the field team needs to change the order of the steps outlined here, or how the activities outlined in each site, the advice of the program director (or if unavailable, a field coordinator) should be sought *prior to deviating from this protocol*.

This protocol also provides:

- Background information about household surveys
- Detailed guidance regarding specific household survey questions.

B. Important information about surveys

The household survey instrument is designed to gather consistent information about a specific set of topics from a household. Because interviewing all households in a community, or a site would be very time consuming and expensive, a random sample of households is drawn based on the number of people living in a particular place. By randomizing the sample, information gathered from surveyed households can be generalized to the wider population. When conducting surveys, it is very important that information is gathered consistently. Field teams must follow the same sampling procedure in each place, and ask the same questions using the same language, in the same order to every household surveyed.

This protocol acts as a guide, helping to ensure that the survey is conducted consistently in each settlement. Enumerators should familiarize themselves with the protocol prior to going into the field, and carry a copy during data collection. Any questions about the protocol, conducting interviews, or completing the survey forms should be addressed to the program director or a field coordinator. If both the program director and the field coordinator are unavailable, enumerators should speak to the senior enumerator for the field site in which they are working.

C. Step-by-step instructions

1. Arriving into a settlement

Upon arrival in a new settlement where interviews will be conducted, the field coordinator (or senior enumerator, if field coordinator is absent) should:

Appendix 4.3

- a) Ask to speak to the *kepala desa* so that the purpose of the research can be explained to them, and the team introduced.
- b) Explain the purpose of the monitoring to the *kepala desa*, what the data will be used for, and explain how the data will be collected (see Appendix 4.6 Monitoring Information sheet).
- c) Ask for the help of the *kepala desa* in creating a list of all the households in the settlement.
- d) Ask the *kepala desa* to give the name of the primary market for people living in that settlement, and record it on the settlement sampling form. The 'primary market' for a settlement is defined as the place that the majority of households in the settlement go to sell all their goods (e.g. fish catch).
- e) A GPS location of the centre of the settlement will also need to be taken, and recorded on the settlement sampling form. The field coordinator will be responsible for ensuring this is done correctly.

If a field coordinator is present, they should:

- f) Ask for the help of the *kepala desa* identifying 10-12 participants for the focus group, based on the criteria outlined in the focus group protocol.
- g) Arrange a time and place for the focus group.

If the *kepala desa* is not available, the field coordinator should consult with another senior official within the population center (e.g., *sekretaris kampung/desa*).

If the field team are conducting a repeat survey, the field coordinator should give the appropriate settlement profile to the *kepala desa* (see Appendix 4.8: Settlement profile template).

2. Generating a list of households: the sampling frame

In order to generate a random sample of households to be interviewed, enumerators first need to make a list of all the households (defined as a group of people who share one kitchen) living in the settlement. This list of households is called the "sampling frame".

- a) The field coordinator/senior enumerator will ask the *kepala desa* if he has an up-to-date and complete list of households living in that settlement.
- b) If a complete list is not available, or it is out-of-date, the field coordinator should ask for the help of the *kepala desa* in creating a list. This can be done by:
 - i) Making a list of all the households in the settlement, using the name of the head of the household on the list (Appendix 4.4 Settlement Sampling Frame).

- ii) Asking the *kepala desa* to draw a map, marking all the households in the settlement, and making a note of every head of household on the map.

It is important that the field team have a complete and up-to-date list of households, so that the sample is random. An incomplete list will introduce bias into the data.

3. Drawing a random sample

The field team will have a specific number of households to survey in each settlement. The number of households depends upon the population of the settlement and the total population of all the settlements in each site. In each settlement, the field team will be given a number of households will need to be interviewed¹³. It is important to interview the correct number of households in each settlement.

3.1 To generate a random sample:

- a) Give each household in the sampling frame (i.e., the complete list of all households), a unique number.
- b) Write the number for each household on a separate small piece of paper. All pieces of paper should be the same size and color.
- c) Fold each piece of paper so that the number written upon it cannot be seen.
- d) Place all of the pieces of paper in a hat or similar container.
- e) Mix the pieces of paper well, so that the last pieces of paper are not all at the top and the first pieces are not all at the bottom.
- f) Remove the numbered pieces of paper from the hat one-by-one, recording the number written on each on to the sampling form for that settlement. It does not matter who removes the pieces of paper from the hat, as long as they do so without looking into the hat.
- g) Continue drawing numbers from the hat, until you have reached the required sample for that settlement.
- h) Keep the numbered pieces of paper which have not been selected in a safe place. They will be needed if a household has to be replaced.
- i) Record the names and identification numbers of households to be interviewed on the settlement sampling form (Appendix 4.5 Settlement Sampling Form). An example of a completed settlement sampling form is shown in Figure 1.

¹³ This number is calculated using "power analysis", (a calculation which is used to identify how big a sample needs to be, in order to be able to detect a particular-sized effect).

Figure 1. Example of a completed settlement sampling form

Version 1.0 August 2012

Settlement Sampling Form

Site name : Teluk Mayalibit KKLD
 Settlement name: : Araway
 Settlement code : 001
 Name of primary market : Sorong
 Field Coordinator name : Yori Toru Teja
 Senior Enumerator name : Martunas Tahoba
 Date (dd/mm/yyyy) : 10/10/2011

} Identification information

Required sample size : 7 ← Number of households to survey in settlement

Number of households interviewed :

Household identification number from sampling frame

Sample number	Household ID	Name of household head	Interview status (tick one)			Replacement household ID	GPS location of household	
			Interview completed	Household not located	Refused interview		Latitude	Longitude
1	22	Roni Dimlol						
2	42	Maria Gaman						
3	51	Paul Mambor						
4	50	Thobias Ramar						
5	05	Yusuf Wandaw						

3.2 To replace a household in the sample:

Households which refuse to participate in the research or which cannot be located by the survey team, will need to be replaced, so that the correct number of households is interviewed in each settlement and site. At the end of each day, the enumerators should check if they need to randomly select substitute households. If a household needs to be replaced (i.e., the head of the household or their representative cannot be located, or refuses to participate):

- a) Record which households are being replaced on the settlement sampling form and mark the reason for replacement (i.e., a household could not be located or refused to be interviewed).
- b) Place all of the numbered pieces of paper representing households which have not already been selected at random, in a hat or similar container.
- c) Mix the pieces of paper well, so that the last pieces of paper are not all at the top and the first pieces are not all at the bottom.
- d) Remove the numbered pieces of paper from the hat one-by-one. It does not matter who removes the pieces of paper from the hat, as long as they do so without looking into the hat.
- e) Record the number written on each on to the sampling form for that settlement. It is important to record on the form that the households being selected are substitute households. The household which they have been selected to replace should also be noted.
- f) Continue drawing numbers from the hat, until you have replaced the households which could not be interviewed that day.
- g) Record the replacement households on the settlement sampling form (Figure 2).
- h) The field coordinator will assign these households to the appropriate enumerator teams, based on the planned route for each team.

Figure 2. Recording interview status and replacement households

Settlement Sampling Form

Site name : Teluk Mayalibit KKLD

Settlement name: : Araway

Settlement code : 001

Name of primary market : Sorong

Field Coordinator name : Yori Toru Toja

Senior Enumerator name : Martunas Tahoba

Date (dd/mm/yyyy) : 10/10/2011

Required sample size : 7

Number of households interviewed :

1. Record the status of each interview in the appropriate column

Sample number	Household ID	Name of household head	Interview status (tick one)			Replacement household ID	GPS location of household	
			Interview completed	Household not located	Refused interview		Latitude	Longitude
1	22	Roni Dimlol	X					
2	42	Maria Gaman	X					
3	51	Paul Mambor	X					
4	50	Thobias Ramar	X					
5	05	Yusuf Wandaaw		X		13		
8	13	Charles Sawaki	X					

2. For households which cannot be interviewed, record the reason for non-participation

4. Record the household ID of the household used to replace the non-participant household

3. Follow the procedure described in section 3.2 to replace each non-participant household. Place the details of the replacement household(s) on the settlement sampling form.

4. Arranging an interview

Once a list of households to be interviewed has been randomly generated, the enumerators will be responsible for conducting interviews with each of the selected households. Interviews must be conducted in teams of two, with one enumerator responsible for asking the questions on the survey to the head of the household and the second enumerator is responsible for taking notes. Enumerators should alternate roles, with the interviewer for one day becoming the note-taker on the following day. The field coordinator/senior enumerator will assign enumerators to a team, and determine the role for each enumerator.

4.1 Approaching a household to request an interview

Each pair of enumerators will be assigned households to interview by the field coordinator or senior enumerator in their team. Before beginning the survey, it is important to identify who to speak to in a household and ask permission to interview them.

4.2 Who do I speak to in a household?

The survey is designed to be answered by the head of the household. We define the head of the household as the person who has the right to make decisions on behalf of all the people living in that household. Typically, the head of the household is also the person who provides the main source of income for that household.

- a) Enumerators should always ask to speak to the head of the household.
- b) If the head of the household is not available, the enumerator should ask when would be suitable for them to return to interview the household head.
- c) The enumerators should return at the stated time and ask to interview the household head again.
- d) *After the second visit to the target household:* If it is not possible to interview the head of the household, enumerators should ask if anyone in the household is able to be interviewed on their behalf. It is important that this person lives in the household (i.e. does not come from another household), is an adult, and is able to answer questions about the household as a whole.
- e) *After the second visit to the target household:* If the household head is not available, and there is no suitable representative to speak on their behalf:
 - i. Make a note on the settlement sampling form (Appendix 4.5 Settlement Sampling Form) that the household could not be located.
 - ii. Move to the next household on their interview list for that day.
 - iii. At the end of the day, follow the procedure outlined in section 3.2, to replace the household in the sample.

5. Obtaining informed consent

Once the household head or an appropriate representative for the household head has been identified, it is important to explain the purpose of the interview to them, and ask their permission to begin asking

the questions on the survey. This is called informed consent. Enumerators should ensure that the respondent understands the reason for the survey, and how the data will be used prior to asking them to agree to the interview. Enumerators should assure the respondent of the total confidentiality of their data.

Enumerators should also explain that the respondent can stop the interview at any time and refuse to answer any of the questions without the need for explanation. It is also important to stress that there are no right, wrong, or expected answers to the survey, but that we are simply interested to learn out about their household.

If the head of the household or their representative refuses to participate in the survey:

- a) Politely thank the head of the household for their time.
- b) Record the refusal on the settlement sampling form.
- c) At the end of the day, follow the procedure outlined in section 3.2, to replace the household in the sample.

6. Conducting the interview

During the interview, one enumerator (“the interviewer”) will be responsible for asking questions to the head of the household. The second enumerator (“the note-taker”) will be responsible for recording the information given in the interview on the household survey form, and prompting the interviewer if a question is missed. The note-taker will also need to complete “Section 1: Identification” on the household survey form. Both enumerators are responsible for ensuring that the household survey form is completed accurately.

6.1 *Interviewing best practices*

- Ask to interview the household head or their representative in a quiet place, where they are able to give the interview their full attention.
- Other members of the household can be present during the interview, if they wish, but the interviewers should politely encourage the respondent -and only the respondent- to provide responses.
- During the interview, both enumerators should give the respondent their full attention (for example, mobile phones should be switched off during an interview).
- Avoid rephrasing questions, as it may bias the respondent’s answer.
- If a respondent requires a prompt to understand the question being asked, think very carefully about how to provide information without leading the respondent to a particular answer.
- Remember, there are no right or wrong answers to a question.
- The body language and verbal cues of enumerators can lead people into a response.
- It is important that the questions are asked in the order in which they are written on the survey sheet, to ensure responses are consistent and to avoid inadvertently missing a question.
- Some survey questions ask specifically about the respondent and other questions ask about the entire household. When speaking with the respondent, be sure to specify when you want

individual information and when you want *household* information. Questions which ask for individual information are identified on the survey by the use of the word 'personally' in the question. For example, question 26 asks for individual information, 'In the last 6 months, what fishing technique have you *personally* used most often?'

- When asking for *individual* information, the respondent should talk about himself/herself – even if he/she is not the head of household.
- When asking for household information, the respondent should speak on behalf of the household, even if he/she is not the head of the household.

7. Completing the household survey form

The form should be completed at the time of the interview, with the respondent's response to each question recorded by the note-taker at the time it is given. It is the responsibility of both enumerators to ensure the information recorded on the form is accurate and complete.

7.1 How to use the household survey form

The information given by each household is recorded on a new household survey form. The survey form contains the questions to be asked, spaces to record the respondent's response, and instructions to enumerators. These different types of information are distinguished by different text formats (Box 1).

During the interview, the note-taker should use pencil to record the information given by the head of the household or their representative. At the end of each day, both enumerators in the team should check the information recorded on the form, and re-write the responses clearly in pen. It is important that information is recorded on the form clearly, so that it can be entered into an electronic database after data collection is complete.

Box 1. Types of formats used on the household survey form.

Information which should be read to the respondent is given in italic type. This includes the questions, some information for the respondent, and in some cases, the list of possible answers a respondent may give.

Instructions to enumerators are underlined. These instructions are to help the enumerator ask questions, prompt the respondent appropriately if necessary, and record information correctly. Any underlined text should not be read to the respondent.

Bold type is used for section headings and transitions from one topic to another.

For some questions, it is necessary for the interviewer to 'fill in the blank' in a question to make it appropriate for that interview. An example of this is where the survey asks for specific information about the settlement the household lives in. Here, interviewers will need to use the appropriate information to fill in the blank. Instances where interviewers need to 'fill in the blank' are denoted by [bracketed text in bold type].

7.2 Identification Information

Each household survey is identified by a series of codes, which identify where and when the survey was conducted, who was interviewed, and which enumerators conducted the interview. Enumerators will be given a list of identification codes to use on the form by the study director or the field coordinator.

- Three codes need to be recorded on every page of the survey form. These are the country code, the site code, and the household code.
- The country code and the site code are provided in Appendix 4.9 Identification Codes
- The household code is the number given to the household when it is listed in the sampling frame (i.e., it is the number which identifies the household during the sampling procedure described in section 3).

Using these codes ensures that all information can be traced back to a particular interview.

7.3 Types of questions in the household survey

a) Open-ended questions

There are a limited number of open response questions on the survey (Box 2). For these questions, note-takers should make a comprehensive record of the respondent's answer in the box provided. Additional information can be added to the notes column adjacent to the question, where appropriate.

Box 2. Example of open-ended question

<p>70. <i>Is there anything else we should know that we haven't already discussed?</i></p> <div style="border: 1px solid black; height: 100px; width: 100%;"></div>	
--	--

b) Short-answer questions

Short-answer questions encourage a respondent to make a brief, direct response. Short-answer questions are most commonly used when asking simple, direct questions (Box 3). Enumerators should record the respondent's answer in the box provided. Additional information can be added to the notes column adjacent to the question, where appropriate.

Box 3. Example of a short answer question

18. What is the ethnicity of... ?

Answer box

a) ...your Father?
b) ...your Mother?

c) Constrained choice questions

The majority of questions on the survey form are constrained choice questions, which means there are only a limited number of valid options for a respondent to choose from (Box 4). This type of question is used where we want to categorize the responses into pre-defined groups. Typically, each of the common responses to a question is made into a pre-defined response category, and is given a code. This code is shown in square brackets [], next to each response. To record the information given by a respondent, the note-taker should write the appropriate code clearly in the answer box provided for that question. Any additional information should be placed in the notes column to the right of the question.

Box 4. Example of a constrained choice question

19. What is your religion?

Record the respondent's answer in the box, choosing the appropriate code from the list below. If necessary, specify the appropriate "blind response" code in the box.

[1]	Christian
[2]	Muslim
[3]	Hindu
[4]	Buddhist
[5]	Jewish
[6]	Traditional beliefs
[7]	Atheist
[996]	Other (specify) _____

[997] = Don't know; [998] = Not applicable; [999] = Refuse

7.4 Valid Response Codes

For each constrained choice question on the survey, a series of response categories are listed, together with an appropriate code (Box 5), which the note-taker will use to record the response on the form.

Box 5. Constrained choice questions: valid response codes

19. What is your religion?

Answer box

[1] Christian
[2] Muslim
[3] Hindu
[4] Buddhist
[5] Jewish
[6] Traditional beliefs
[7] Atheist

Response codes

Response categories

7.5 Blind Response Codes

In addition to the valid response categories, there are a set of 'blind response' codes available to enumerators throughout the survey. These blind codes are not spoken aloud by the interviewer or presented as response options to the respondent, but are recorded by the note-taker if the respondent volunteers them.

There is a standard set of blind response codes available for the note-taker to record a respondent's response. Each has a different meaning and enumerators should understand which code is appropriate in each context (see Figure 1):

a) 'Other'

Code: [996]

"Other" is used where the answer given by a respondent does not fit into one of the pre-defined response categories given on the survey for a constrained choice question. Typically, 'Other' is used where a respondent is both willing and able to answer the question but their response does not fit neatly into one of the pre-defined categories listed on the survey form. "Other" is not relevant for all questions on the household survey form, but it is given as an option to the note-taker where the list of valid response categories is not exhaustive (i.e., for questions where only the common responses have been assigned codes in advance, see Table 1).

When recording "Other", the note-taker should place the code '996' in the answer box for that question (Box 6). In addition, the answer given by the respondent should be specified (written) in the space provided next to "Other".

Box 6. How to record a response coded as “Other”

19. What is your religion?

Record the respondent's answer in the box, choosing the appropriate code from the list below. If necessary, specify the appropriate "blind response" code in the box.

[1] Christian
 [2] Muslim
 [3] Hindu
 [4] Buddhist
 [5] Jewish
 [6] Traditional beliefs
 [7] Atheist
 [996] Other (specify) _____
 [997] = Don't know: [998] = Not applicable: [999] = Refuse

Space to 'specify' answer

Answer box: Record code '996' here

Table 1. Questions for which “Other” is an available blind response category.

Number	Question
15b.	Relation to household head
19.	What is your religion?
20 a-c	What is the [primary/secondary/tertiary] way in which members of this household meet their needs?
26	In the past 12 months, what fishing technique have you personally used most often?
32	What is the main fuel that your household uses for cooking?

b) 'Do not know'

Code: [997]

“Do not know” is used where the respondent is willing to answer the question, but does not have the necessary information to be able to answer. “Do not know” is available as a blind response for the majority of questions on the household survey form. When recording “Do Not Know”, the note-taker should place the code ‘997’ in the answer box for that question.

c) 'Not applicable'

Code: [998]

‘Not applicable’ is used where the question is not relevant to the respondent. In the majority of cases, ‘Not applicable’ is the appropriate response where the question makes an assumption which does not hold for the respondent. For example, a question might ask how many years a child has been in school. For households with children, this is a valid question. For childless households, the assumption that there are children in the household is broken. The question is not relevant to the household (i.e., it is not applicable). Even where an interviewer suspects the answer given by a

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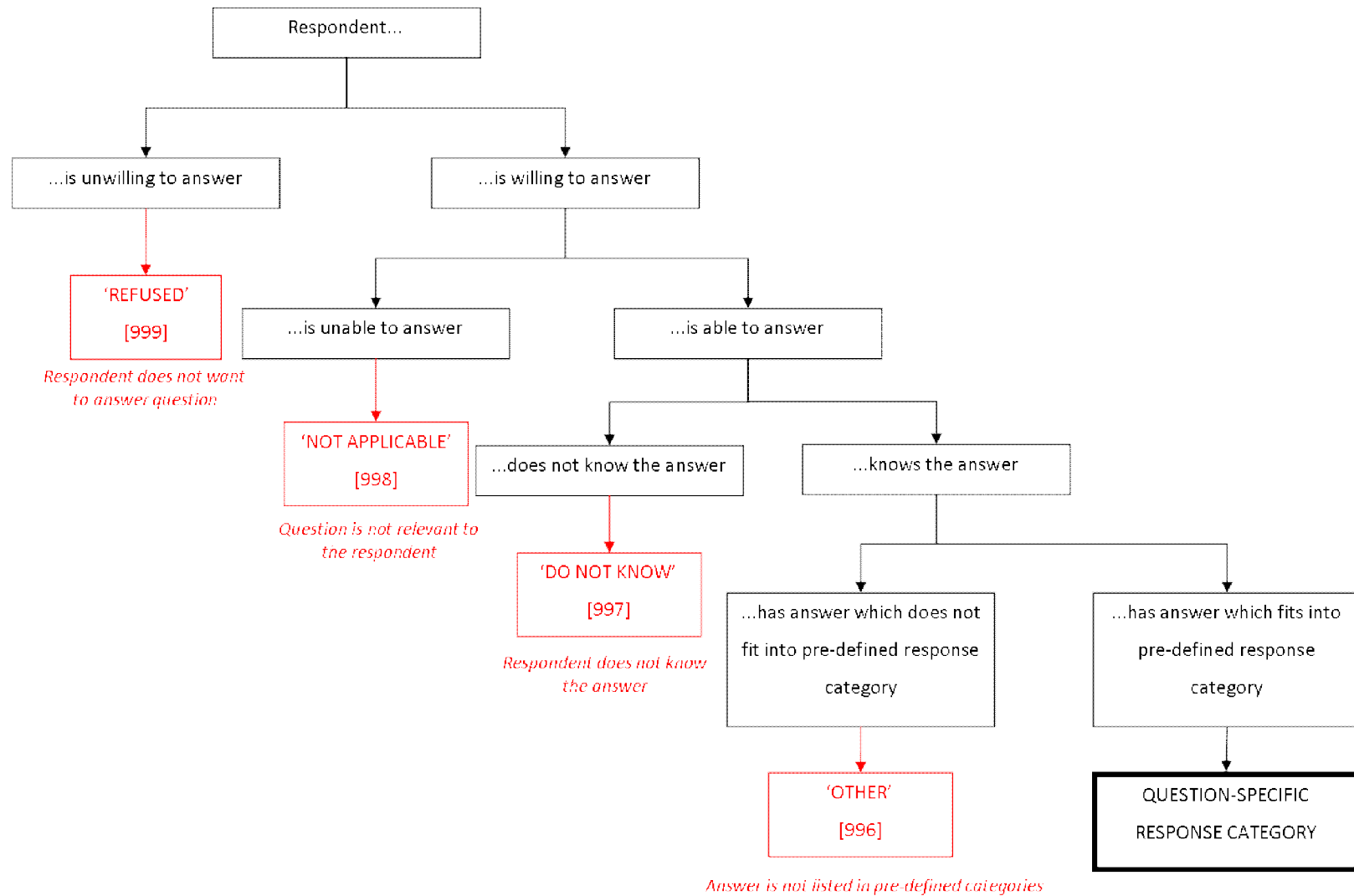
respondent will be coded as “Not applicable” by the note-taker, the question must still be asked. When recording “Not applicable”, the note-taker should place the code ‘998’ in the answer box for that question.

d) ‘Refused’

Code: [999]

A respondent may not be willing to answer a specific question on the survey. As explained in section 5, a respondent may refuse to answer any question on the survey if they wish. Where a respondent is unwilling to answer a question, the appropriate blind response category is ‘Refused’. Put simply, this means the question was asked, and the respondent did not give an answer. When recording “Refused”, the note-taker should place the code ‘999’ in the answer box for that question.

Figure 1. Blind codes flow diagram (modified from Dillman et al., 2009)



7.6 Contingent questions

The majority of questions in the household survey must be posed to all respondents. Some, however, are asked only if the respondent gives a certain response to a previous question (i.e., the question is 'contingent' on a previous response). There are clear instructions on the household survey form about which questions depend upon on a previous response (Table 2) and how to record the necessary information.

Table 2. Contingent questions

Question number	Contingent upon...	Question
21	20	In the last 6 months, how often did someone in your household go fishing?
22	20	In the last 6 months, how often did your household sell at least some of its catch?
23	20	In the last 6 months, how much of the cash income in your household came from fishing?
24	20	In the last 6 months, how often did your household eat fish?
25	20	In the last 6 months, how much of the protein consumed by your household came from fish?
26	20	In the last 6 months, what fishing technique have you personally used most often?
27	20	In the last 12 months, during the less productive fishing seasons, how many days did you personally go fishing?
28	20	In the last 12 months, during the more productive fishing seasons, how many days did you personally go fishing?
35	34	Household deaths.
37	36	Household births.
42	41	How often did this happen - almost every month, some months but not every month, or in only 1 or 2 months?
48	47	How often did this happen -almost every month, some months but not every month, or in only 1 or 2 months?
56b-f	56a	b) What is the name of this group? c) What is your position in the group? d) Have you attended any group meetings over past 12 months? e) How many days (full working days) have you spent on group activities over the past 12 months? f) What level of cash or nonmonetary contributions to the group have you made over past 12 months?
57b-f	57a	b) What is the name of this group? c) What is your position in the group? d) Have you attended any group meetings over past 12 months? e) How many days (full working days) have you spent on group activities over the past 12 months? f) What level of cash or nonmonetary contributions to the group have you made over past 12 months?

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For these questions only, an additional 'blind' response code becomes available. The note-taker should record the skipped question code ('994') into the answer box for any question that was not asked in a particular interview because the instructions on the survey directed the interviewer to skip it (Box 7). This code is not a valid response for any other question on the survey. All questions should be posed to each respondent unless directed by the survey form, or the respondent requests that interview is terminated.

Box 7. Example of a contingent question

47. <i>"In the past 12 months, children skipped meals because there was not enough food"</i>	
<input type="checkbox"/>	[0] No → [Record '994' for Q48. Skip to Q.49]
<input type="checkbox"/>	[1] Yes
[997] = Do not know; [998] = Not applicable; [999] = Refuse → [Record '994' for Q48. Skip to Q.49]	
48. [Ask only if Q.47 = YES. For all other responses, enter code '994' in the answer box for Q.48, and go to Q.49]	
<i>How often did this happen -almost every month, some months but not every month, or</i>	

7.7 Answers from household members other than the head of the household or their representative

If answers are provided by other members of the household, these should be recorded BUT the note-taker should also place an asterisk (*) next to any answer that was not provided by the head of the household or their representative. As much as possible, the interviewer should politely encourage the respondent – and only the respondent – to answer survey questions.

7.8 Making additional notes

A notes column is provided adjacent to every question on the survey. This space may be used to record any additional information which is relevant to the interview. When making notes related to a specific question, remember to write the question number in the notes column with the additional information being recorded

8. Closing the interview

At the end of the survey, there are two questions that give the respondent the opportunity to provide any additional information and indicate whether they would be willing to be interviewed again. These questions can be very useful in helping to provide additional context for a respondent's responses as well as making a respondent feel that their opinion is valued. Asking them whether they would

participate in a similar survey in the future helps us to understand the level of survey fatigue in the community.

After asking these final questions, enumerators should thank the respondent for taking part in the interview and sharing their information as well as remind respondents that their responses are confidential, and that no information which could identify them will be made public. Enumerators should explain what will happen to their data and how they can find out more information or ask questions about the research.

An example of how to close an interview is given below:

“Thank you very much for your time. The information you have given us is very useful and will help us to understand local livelihoods and management of marine resources, and how those change over time. We are interviewing many households in this region. After we have finished collecting data, we will use it to understand how livelihoods are changing over time. This information will be useful, informing policy both here in Papua Barat and elsewhere. No information which could identify you or your family will be made public. If you have any questions or comments about the research, you can ask the field coordinator [Name of field coordinator] or the study director [Name of study director].”

Before leaving the household, the interviewer is responsible for checking that the form has been completed (i.e. there are answers written for all of the required questions) and that the answers are clearly legible.

9. After the interview

9.1 Confidentiality

The data collected in this monitoring study are confidential. It is very important that the information gathered from individual households remains confidential. Failure to do so could make households less willing to participate in this and other monitoring projects in future. There are several key things to remember about confidentiality:

- Enumerators should feel comfortable discussing the monitoring and its purpose with community members.
- It is acceptable to discuss the types of questions being asked, the reason for the survey and how households are selected with anyone who is interested.
- When discussing the monitoring, remember that to maintain confidentiality the field team cannot discuss the responses given by an individual respondent, or give away any information which could identify a respondent, even if the person requesting the information is in a position of authority.
- Politely explain the reason that this information cannot be disclosed (i.e., the data are confidential) and refer them to the study director for more information.

9.2 Checking the responses

At the end of every day of data collection, the field team should check the data they collected that day. Check that a response has been entered for every question, and that all responses are clearly legible. Responses should be sufficiently clear to allow someone else to read the form and understand what is written. Enumerators should also check that the identification codes have been written on every page of the survey form. Once the information has been checked, the responses should be recorded in pen on the form.

9.3 Storing completed survey forms

Maintaining confidentiality also extends to how the completed survey forms are stored. Completed surveys should be stored in a secure, safe and dry place.

D. Trouble-shooting

Enumerators with questions about any aspect of this protocol should seek advice from to the field coordinator or the study director.

E. Question-specific guidance

There are some questions on the protocol which require some additional guidance.

Question Number	Topic	Guidance
10.	GPS location of household	<p>A GPS location should be taken for every household interviewed. The GPS unit should be set to acquire a fix using latitude and longitude. The reading should display the fix in the following format:</p> <p>N 38°51.338 W 094°47.923</p> <p>Copy this format exactly on to the survey form. The preceded by an 'N' or an 'S' should be written in the latitude box. The numbers preceded by an 'E' or a 'W' should be written in the longitude box.</p> <p>The example reading above would be recorded on the household survey form as:</p> <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <p>10. Household location (GPS) Latitude <u> N 38°51.338 </u></p> <p>Longitude <u> W 094°47.923 </u></p> </div> <p>A GPS does not acquire an accurate fix immediately. Switch it on whilst standing still and allow the reading to 'settle' (i.e., the numbers will stop moving). This will usually happen once the GPS has identified three or more satellites from which to take a reading. To allow the fix to 'settle', wait for the GPS to display the message 'Ready to Navigate' on the screen.</p>
15.	Household information	<p>This question involves making a list of all the people who normally live in the household and then asking a series of questions about those people. For the purposes of this survey, a household is defined as '<i>a group of people who share one kitchen</i>'.</p> <p>In Q15a. it is necessary to make a list of all the people in the household. <i>This list should include all of the people who normally live and eat their meals in the house.</i> To make the list:</p>

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Question Number	Topic	Guidance
		<ol style="list-style-type: none"> 1. Start by writing the name of the head of the household in the first box. 2. Record the name of the spouse(s) of the head of the household immediately below the head of the household. 3. In age order (oldest first), write down the names of all the children in the household. 4. List all other people living in the household who are directly related to the household head (e.g., brother/sister/mother/ father). 5. List all extended family members living in the household (e.g., in-law relations; cousins; aunts; uncles) 6. List anyone else living in the household who is not related to the family (e.g., tenants, workers) 7. Check that there are no individuals who are normally resident in the household who are away on vacation or studying at school/university. <p>Once you have a complete list, ask the Q.15 parts b-f, for each member of the household in turn.</p> <p>Q15b. State the relationship to the household head. There are codes given below the table which should be used.</p> <p>Q15c. Give the age of the individual. <i>Always round up the age to the nearest year.</i> For example, an infant of three months should be recorded as 1 year.</p> <p>Q15d. Record the gender of the household member</p> <p>Q15e. Ask for the last grade in school that the household member completed. Often people will use an acronym to describe the grade in the answer space. If you choose use an acronym, it is very important that the acronym is written out in full in the notes section at the time of interview.</p> <p>Q15.f Ask if the household member is currently enrolled in school.</p>
16.	How many years have you lived in [NAME of population center]?	<p>Enumerators should modify this question with the name of the settlement currently being surveyed. For example, when sampling in the settlement Araway, this question becomes: 'How many years have you lived in Araway?</p> <p>Enumerators should record the maximum number of years the respondent/head of the household has been permanently and continuously resident in a settlement. In cases where a household has been resident in a settlement on multiple occasions, the enumerator should record the number of years since the respondent/head of household last moved permanently to the settlement.</p>

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Question Number	Topic	Guidance
		Where respondents/heads of household relocate to fishing camps on a seasonal or a temporary basis, the enumerator should record the number of years a household has been primarily resident in the settlement currently being surveyed.
17.	How long does it usually take you to travel to [NAME of primary market]?	<p>Enumerators should modify this question with the name of the primary market identified by the <i>kepala desa</i> using the procedure outlined in section 'C.1 Arriving into a settlement'. <i>The same primary market should be used for all households in a settlement.</i></p> <p>For example if the kepala desa identifies 'Sorong' as the primary market for a settlement, this question becomes: "How long does it usually take you to travel to Sorong?"</p>
18.	What is the ethnicity of... a)...your Father? b)...your Mother?	For adopted respondents who may not know the ethnicity of their biological parents, enumerators should record [997] 'Do not know'.
20	What is the [primary/second most important/third] most important way in which members of this household meet their needs?	This question is designed to find out the main ways a household supports itself. The survey uses the term 'meet their needs', to include both subsistence and commercial ways of making a living.
25	In the last 6 months, how much of the protein consumed by your household came from fish?	'Protein' includes meat, fish, eggs and milk.
26.	In the last 6 months, what fishing technique have you personally used most often?	<p>This question refers to the fishing technique used most often in the last six months by the <i>respondent</i> (Questions 21-25 refer to household level fishing activity).</p> <p>Examples of the different gear types in each response category are given in Annex 1.</p> <p>Respondents may talk about using a 'poisonous tuber' in response to this question. The appropriate category for the poisonous tuber depends on how they use it. If the respondent uses the poison from the tuber on the tip of a spear, or other hand-held fishing gear, code the response as [1] 'Fishing by hand or hand-held</p>

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Question Number	Topic	Guidance
		gear'. This is the appropriate code because the poison is being used discriminately, (i.e., it only affects the fish targeted by the hand-held gear). If the respondent uses the poison from the tuber, to kill many fish indiscriminately (i.e. releasing it directly into the water), code the response as [6] 'Fishing with explosives or chemicals'.
27	<p>a) In the last 12 months, during the less productive fishing seasons, how many days did you personally go out fishing?</p> <p>b) On the less productive fishing days how much do you personally harvest/day?</p> <p>c) On the less productive fishing days, how much do you personally earn/day?</p>	<p>Questions 27-28 quantify the level of fishing activity in a household. Question 27, asks about the less productive fishing season, while question 28 asks about the more productive one.</p> <p>a) Ask the respondent how many days (per week/per month) the household goes out fishing (which includes any method of capturing fish including gleaning).</p> <p>If the respondent gives a range of values, record the average value in the answer box, and place the range given together with the appropriate question number in the answer box.</p> <p>b) Ask the respondent to estimate the amount harvested per day. The survey does not specify a particular unit of measurement as fishers many use non-standard ways to describe their catch. If a respondent is able to give an answer in kilograms, record their response. If the respondent cannot use kilograms, find out if they can give an estimate in any other standard unit of measurement (e.g., pounds, baskets). If not, simply record their response.</p>
28	<p>a) In the last 12 months, during the more productive fishing seasons, how many days did you personally go out fishing?</p> <p>b) On the more productive fishing days how much do you personally harvest/day?</p> <p>c) On the more productive fishing days, how much do you personally earn/day?</p>	<p>If the respondent gives a range of values, record the average value in the answer box, and place the range given together with the appropriate question number in the notes column. For example, if the respondent's answer is "5 to 10 kg/day", record the average in the box (e.g., 7.5 kg) and the full range (e.g., 5-10 kg) in the Notes column.</p> <p>c) Ask the respondent how much money they earn per day from fishing during either the less productive or more productive fishing season as appropriate. If a fisher does not earn any money from fishing on average, record an amount of 0 Rupiah. A note-taker should never code a response of zero as 'Not applicable' [998].</p> <p>If the respondent gives a range of values, record the average value in the answer box, and place the range</p>

Appendix 4.3

Question Number	Topic	Guidance
		<p>given together with the appropriate question number in the notes column. For example, if the respondent's answer is "1,000 to 2,000 Rph/day", record the average in the box (e.g., 1,500 Rph) and the full range (e.g., 1,000 to 2,000 Rph/day) in the Notes column.</p> <p>When recording amounts in Rupiah, use commas "," to as the thousands separator. For example: 1,000 Rupiah is the correct way to record one thousand Rupiah 10,000 Rupiah is the correct way to record ten thousand Rupiah 100,000 Rupiah is the correct way to record one hundred thousand Rupiah 1,000,000 Rupiah is the correct way to record one million Rupiah 10,000,000 Rupiah is the correct way to record ten million Rupiah</p>
29	How has the economic status of your household changed over the past 12 months?	The interviewer will read the five valid response categories (i.e., 'Much worse', 'Slightly worse', 'Neither better nor worse', 'Slightly better', 'Much better') to the respondent. We are interested to know about the general trend in the economic status of the household. The response 'Neither better nor worse' means that on average, the economic status of the household has stayed about the same. It does not necessarily mean that no changes have taken place. Instead, it means that on balance, the overall status of the household is about the same.
30	<p>Please indicate the number of the following items that are owned by the household:</p> <ul style="list-style-type: none"> a) Radio/Stereo/CD player/ DVD player b) TV c) Satellite dish d) Phone (mobile or landline) e) Generator f) Boat without a motor g) Boat with outboard motor h) Boat with inboard motor i) Bicycle j) Motorcycle k) Car/Truck 	Items are listed in approximate price order. Enumerators should ask about all items in every household, even where a household does not own low cost items.

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Question Number	Topic	Guidance
32	What is the main fuel that your household uses for cooking?	If a respondent reports that they use coconut husks as the main fuel for the household, record it as 'Other'. Write code '996' in the answer box, and write 'coconut husks' in the space provided next to the 'Other' category.
33b-c	<p>b) How many days in during the past four weeks did [you/he/she] suffer from this illness or injury?</p> <p>c) How many days during the past four weeks were [you/he/she] unable to carry out [your/his/her] usual activities because of this?</p>	<p>These questions ask information about the number of days in the past four weeks. Answers should be given in days. Remember, the number of days in four weeks is 28, so no answer should exceed this amount.</p> <p>If a respondent has suffered from a long-term illness for more than four weeks, record "28 days" as the answer to question 33b.</p> <p>If the respondent has been unable to carry out their usual activities for more than four weeks, record "28 days" as the answer to question 33c.</p>
34	Have any household members died in the past 12 months?	<p>If no-one in the household has died in the past 12 months, the note-taker should record the response as 'No', by writing [0] in the answer box. Do not use 'Not applicable'. Remember, 'not applicable' means the assumption of the question has been broken. For this question, it is highly unlikely that 'Not applicable' is the appropriate response code.</p> <p>If a respondent does not wish to answer this sensitive question, record '999' (Refuse) in the answer box.</p>
35c.	Age at death	<p>If a respondent reports that a member of the household died within the past 12 months, record the age at death of the individual who died. Ages should be rounded up to the nearest year.</p> <p>For example, if a baby died aged three months, record 1 year in the answer box. If an adult died aged 50 years and 4 months, record 51 years in the answer box.</p> <p>If a respondent cannot recall the exact date of death, enumerators should record the date of death to the nearest month, reporting the day of death as the first day of the month.</p> <p>For example, if a respondent reports a household member died during June 2010, but cannot recall the exact date, enumerators should record the date of death as the 1st June 2010.</p>

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Question Number	Topic	Guidance
36	Has any member of the household given birth in the past 12 months?	<p>If no-one in the household has given birth in the past 12 months, the note-taker should record the response as 'No', by writing [0] in the answer box. This rule applies to all-male households. Do not use 'Not applicable'. Remember, 'not applicable' means the assumption of the question has been broken.</p> <p>If a respondent does not wish to answer this sensitive question, record '999' (Refuse) in the answer box.</p> <p>If a respondent cannot recall the exact date of death, enumerators should record the date of death to the nearest month, reporting the day of death as the first day of the month.</p> <p>For example, if a respondent reports a household member died during June 2010, but cannot recall the exact date, enumerators should record the date of death as the 1st June 2010.</p>
38	"[I/We] were worry that we might not have enough food for everyone in the household" Was that often, sometimes, or never true for [you/your household] in the last 12 months?	<p>The exact wording of these questions depends on the number of people in the household. Places where the interviewer will need to 'fill in the blanks' are denoted by bracketed text in bold type.</p> <p>For single-person households, the interviewer should use the singular version of the question (i.e., fill in the blanks to be 'I', 'My' and 'You' as appropriate).</p>
39	"[My/our] food just didn't last, and we were not able to get more." Was that often, sometimes, or never true for [you/your household] in the last 12 months?	<p>For multiple-person households, the interviewer should use the plural version of the questions (i.e., fill in the blanks with 'We', 'Our' and 'Your household' as appropriate).</p>
40	"[I/we] couldn't eat balanced meals." Was that often, sometimes, or never true for [you/your household] in the last 12 months?	
45-49	45. In the last 12 months, did you ever reduce the size of a child's meal because there wasn't enough	<p>A 'child' is an individual resident in the household who is less than 18 years old, unless this individual is the household head or their spouse. Any individual 18 years or older is considered an adult on this survey.</p>

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Question Number	Topic	Guidance
	<p>food?</p> <p>46. "[I/We] relied on a few kinds of low-cost food to feed our child(ren)" Was that often, sometimes, or never true for [you/your household] in the last 12 months?</p> <p>47. "In the past 12 months, children skipped meals because there was not enough food"</p> <p>48. How often did this happen - almost every month, some months but not every month, or in only 1 or 2 months?</p> <p>49. "Children did not eat for a whole day because there was not enough food" Was that often, sometimes, or never true for your household in the last 12 months?</p>	<p>For childless households (i.e., no individuals resident in the household are less than 18 years old) , enumerators should continue to ask these questions, but record [998] 'Not applicable' as appropriate.</p>
46	<p>"[I/We] relied on a few kinds of low-cost food to feed our child(ren)" Was that often, sometimes, or never true for [you/your household] in the last 12 months?</p>	<p>This question is designed to find out if children within a household are receiving meals, whose content is determined by the cost of the food, rather than its nutritional content.</p> <p>A 'low-cost' food item is one which is inexpensive, such as dried noodles, or plain rice. 'A few kinds' simply means that a small number of such inexpensive food items form the majority of the child's diet.</p>
50-55	<p>In the past 12 months, have you personally ...</p> <p>50. Entered [name of MPA/your usual fishing grounds]?</p>	<p>For MPA sites, use the full name of the MPA (e.g., "Teluk Mayalibit KKLD", not "Teluk Mayalibit"). For comparison settlements, use the full name given by the community to their local fishing grounds. It is important that the name used remains consistent from question to question.</p>

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Question Number	Topic	Guidance
	<p>51. Harvested or extracted other marine resource from [name of MPA/your usual fishing grounds]?</p> <p>52. Made decisions about managing marine resources in [name of MPA/your usual fishing grounds]?</p> <p>53. Made decisions about who can and cannot enter [name of MPA/your usual fishing grounds]?</p> <p>54. Sold or leased the right to harvest fish or other marine resources in [name of MPA/your usual fishing grounds]?</p>	<p>For example in Teluk Mayalibt KKLD, question 50 should be phrased as ‘In the past 12 months, have you personally entered Teluk Mayalibit KKLD?’</p> <p>In a comparison settlement, question 50, for example should be phrased as ‘In the past 12 months, have you personally entered your usual fishing grounds?’</p> <p>The ‘usual fishing ground’ is the place a respondent goes fishing most often. For non-fisher respondents in comparison settlements, enumerators should use the term ‘this settlement’s usual fishing grounds’.</p> <p>For non-fisher households in comparison settlements, Question 50, for example becomes: In the past 12 months, have you personally entered this settlement’s usual fishing grounds?</p> <p>In some cases, respondents may report that ‘group’ decisions were taken about the management of marine resources, or who can and cannot enter the MPA/usual fishing grounds. The enumerator should allow the respondent to decide whether they participated in the decision-making process sufficiently to record an affirmative response.</p>
56 e-f	<p>e) How many full days have you spent working on group activities over the past 12 months?</p> <p>f) What level of cash or non-monetary contributions have you made to the group over the past 12 months?</p>	<p>e) If the respondent gives a range of values, record the average value in the answer box, and place the range given together with the appropriate question number in the answer box.</p> <p>f) When participating in a group, an individual can make both monetary and non-monetary contributions. A non-monetary contribution is anything of value given to assist in the group’s aims and activities. It may include (but is not limited to):</p> <ul style="list-style-type: none"> • Goods, supplies • Donation of goods, services or time below the market value for those items. <p>The respondent should estimate the market value of any non-monetary contributions. The note-taker should add together both the monetary and non-monetary contributions and record the total amount in Rupiah in the box.</p> <p>When recording amounts in Rupiah, use commas “,” to as the thousands separator. For example:</p> <p style="padding-left: 40px;">1,000 Rupiah is the correct way to record one thousand Rupiah</p> <p style="padding-left: 40px;">10,000 Rupiah is the correct way to record ten thousand Rupiah</p> <p style="padding-left: 40px;">100,000 Rupiah is the correct way to record one hundred thousand Rupiah</p> <p style="padding-left: 40px;">1,000,000 Rupiah is the correct way to record one million Rupiah</p>

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Question Number	Topic	Guidance
		<p>10,000,000 Rupiah is the correct way to record ten million Rupiah</p> <p>If the respondent gives a range of values, record the average value in the answer box, and place the range given together with the appropriate question number in the notes column. For example, if the respondent's answer is "1,000 to 2,000 Rph/day", record the average in the box (e.g., 1,500 Rph) and the full range (e.g., 1,000 to 2,000 Rph/day) in the Notes column</p>
57 e-f	<p>e) How many full days have you spent working on group activities over the past 12 months?</p> <p>f) What level of cash or non-monetary contributions have you made to the group over the past 12 months?</p>	<p>e) If the respondent gives a range of values, record the average value in the answer box, and place the range given together with the appropriate question number in the answer box.</p> <p>f) When participating in a group, an individual can make both monetary and non-monetary contributions. A non-monetary contribution is anything of value given to assist in the group's aims and activities. It may include (but is not limited to):</p> <ul style="list-style-type: none"> • Goods, supplies • Donation of goods, services or time below the market value for those items. <p>The respondent should estimate the market value of any non-monetary contributions. The note-taker should add together both the monetary and non-monetary contributions and record the total amount in Rupiah in the box.</p> <p>When recording amounts in Rupiah, use commas "," to as the thousands separator. For example:</p> <p>1,000 Rupiah is the correct way to record one thousand Rupiah 10,000 Rupiah is the correct way to record ten thousand Rupiah 100,000 Rupiah is the correct way to record one hundred thousand Rupiah 1,000,000 Rupiah is the correct way to record one million Rupiah 10,000,000 Rupiah is the correct way to record ten million Rupiah</p> <p>If the respondent gives a range of values, record the average value in the answer box, and place the range given together with the appropriate question number in the notes column. For example, if the respondent's answer is "1,000 to 2,000 Rph/day", record the average in the box (e.g., 1,500 Rph) and the full range (e.g., 1,000 to 2,000 Rph/day) in the Notes column.</p>

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Question Number	Topic	Guidance
60-63	<p>60. What are the threats to the health of the local marine environment?</p> <p>61. What are the threats to the health of the marine environment in other places?</p> <p>62. What actions can people take to ensure the health of the local marine environment?</p> <p>63. What actions can people take to ensure the health of the marine environment in other places?</p>	<p>This series of questions is designed to find out how much people know about the marine environment, and how it can be conserved.</p> <p>For each Q57-58, ask the respondent to list all the threats to the marine environment that [he/she] knows of. Note-takers should record the threats identified and write down the total in the box. There is no limit on the number of threats which can be identified by the respondent. If there is not enough space in the answer box provided for the question, continue recording their list in the notes section. Remember to add the question number so that the notes can be identified when entering data. Write each threat or action on a new line within the answer box.</p> <p>Questions 59-60 ask for the same information about steps to conserve the marine environment. Again, the survey asks enumerators to record all of the steps that a respondent can identify, not a fixed number. As with Q57-58, if there is not enough space in the answer box provided for the question; continue recording their list in the notes section. Remember to add the question number so that the notes can be identified when entering data.</p>
64-69	<p>64. <i>"I am happiest when I'm in [name of MPA/my usual fishing grounds]."</i></p> <p>65. <i>" [Name of MPA/my usual fishing grounds] [is/are] my favorite place to be."</i></p> <p>66. <i>"I really miss [name of MPA/my usual fishing grounds] when I'm away too long."</i></p> <p>67. <i>"[Name of MPA/my usual fishing grounds] [is/are] the best place to do the things I enjoy."</i></p> <p>68. <i>"I wouldn't want to fish anywhere other than [name</i></p>	<p>For MPA sites, use the full name of the MPA (e.g., "Teluk Mayalibit KKLD", not "Teluk Mayalibit"). For comparison settlements, use the full name given by the community to their local fishing grounds. It is important that the name used remains consistent from question to question.</p> <p>The 'usual fishing ground' is the place a respondent goes fishing most often. For non-fisher respondents in comparison settlements, enumerators should use the term 'this settlement's usual fishing grounds'.</p>

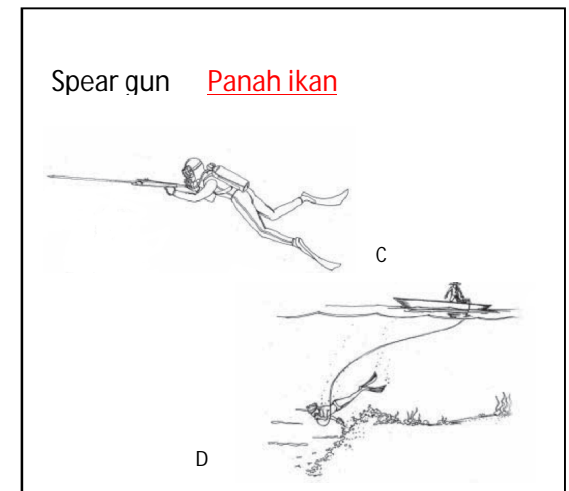
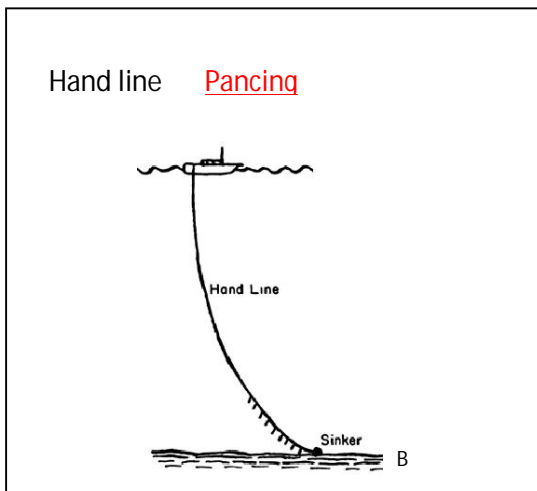
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Question Number	Topic	Guidance
	<p>of MPA/my usual fishing grounds].</p> <p>69. <i>"I feel I can be myself when I'm in [name of MPA/my usual fishing grounds]."</i></p>	

Annex 1. Pictorial guide to fishing technique classification

Question 26 asks respondents; " In the past 6 months, what fishing technique have you personally used most often?" Enumerators are required to code the response to this question into one of six gear type categories. Examples of the types of gear in each category are given below. Enumerators should be familiar with each of these gear types prior to conducting household surveys.

[1] Fishing by hand or hand-held gear [\[1\] Alat tangkap sederhana](#)



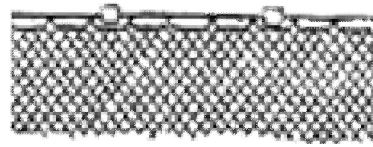
[2] Fishing with a stationary net [\[2\] Alat tangkap pasif](#)

Traps [Perangkap](#)



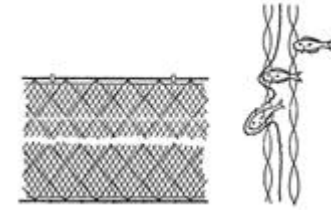
E

Gill nets [Jaring insang](#)



F

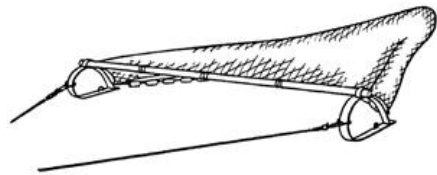
Trammel nets [Trammel net](#)



G

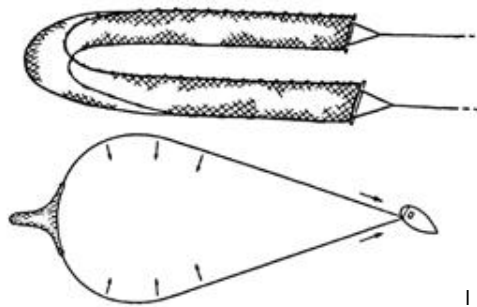
[3] Fishing with mobile net [\[3\] Alat tangkap aktif](#)

Trawl [Pukat harimu](#)



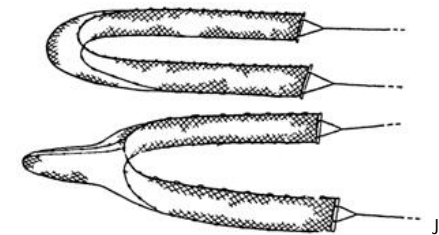
H

Purse seine [Pukat cincin](#)



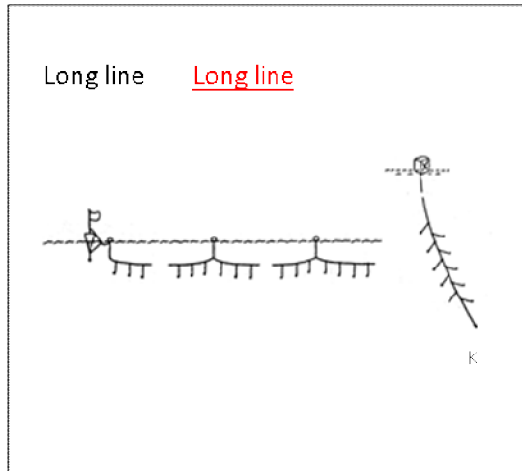
I

Beach seine [Pukat pantai](#)

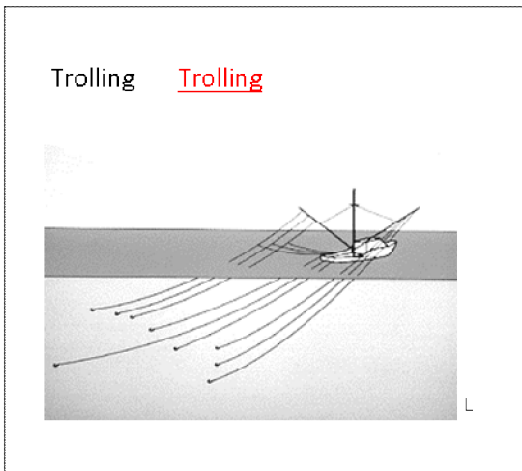


J

[4] Fishing with a stationary line [\[4\] Alat tangkap pancing pasif](#)

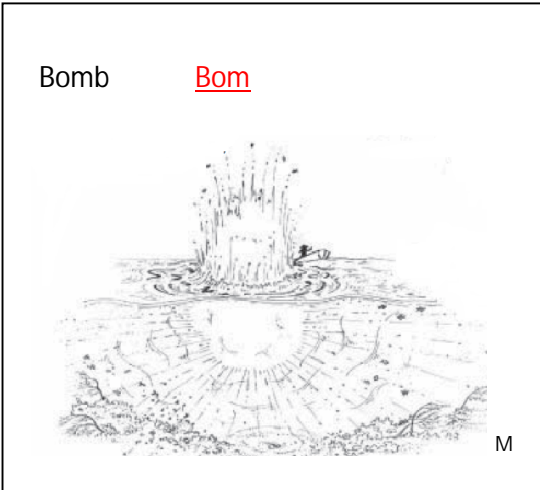


[5] Fishing with mobile line [\[5\] Alat tangkap pancing aktif](#)



[6] Fishing with explosives or chemicals

[6] Menangkap ikan dengan bahan peledak atau bahan beracun



A: © Meg Gawler/WWF-Canon; B: Scofield (1947) Drift and set line fishing gear in California. Scripps Institutions of Oceanography Library. <http://scilib.ucsd.edu/sio/>; C: FAO. © 2001-2012. Fishing Gear types. Grappling and wounding gears. Technology Fact Sheets. In: *FAO Fisheries and Aquaculture Department* [online]. Rome. Updated 13 September 2001. [Cited 14 August 2012]. <http://www.fao.org/fishery/geartype/110/en>; D: White, A.T., P.M. ALino and T. Meneses. 2006. Creating and managing marine protected areas in the Philippines. Fishers Improved for Sustainable Harvest Project, Coastal Conservation and Education Foundation, Inc. and University of the Philippines Marine Science Institute, Cebu City, Philippines. 83p.; E: FAO. © 2001-2012. Fishing Gear types. Traps. Technology Fact Sheets. In: *FAO Fisheries and Aquaculture Department* [online]. Rome. Updated 13 September 2001. [Cited 15 August 2012]. <http://www.fao.org/fishery/geartype/108/en>; F: FAO. © 2001-2012. Fishing Gear types. Gillnets and entangling nets. Technology Fact Sheets. In: *FAO Fisheries and Aquaculture Department* [online]. Rome. Updated 13 September 2001. [Cited 15 August 2012]. <http://www.fao.org/fishery/geartype/107/en>; G: FAO. © 2001-2012. Fishing Gear types. Trammel nets. Technology Fact Sheets. In: *FAO Fisheries and Aquaculture Department* [online]. Rome. Updated 13 September 2001. [Cited 14 August 2012]. <http://www.fao.org/fishery/geartype/223/en>; H: FAO. © 2001-2012. Fishing Gear types. Bottom trawls. Technology Fact Sheets. In: *FAO Fisheries and Aquaculture Department* [online]. Rome. Updated 13 September 2001. [Cited 14 August 2012]. <http://www.fao.org/fishery/geartype/205/en>; I: FAO. © 2001-2012. Fishing Gear types. Seine nets. Technology Fact Sheets. In: *FAO Fisheries and Aquaculture Department* [online]. Rome. Updated 13 September 2001. [Cited 14 August 2012]. <http://www.fao.org/fishery/geartype/102/en>; J: FAO. © 2001-2012. Fishing Gear types. Beach seines. Technology Fact Sheets. In: *FAO Fisheries and Aquaculture Department* [online]. Rome. Updated 13 September 2001. [Cited 14 August 2012]. <http://www.fao.org/fishery/geartype/202/en>; K: FAO. © 2001-2012. Fishing Gear types. Hooks and lines. Technology Fact Sheets. In: *FAO Fisheries and Aquaculture Department* [online]. Rome. Updated 13 September 2001. [Cited 15 August 2012]. <http://www.fao.org/fishery/geartype/109/en>; L: FAO. © 2001-2012. Fishing Gear types. Trolling lines. Technology Fact Sheets. In: *FAO Fisheries and Aquaculture Department* [online]. Rome. Updated 13 September 2001. [Cited 14 August 2012]. <http://www.fao.org/fishery/geartype/235/en>; M: White, A.T., P.M. ALino and T. Meneses. 2006. Creating and managing marine protected areas in the Philippines. Fishers Improved for Sustainable Harvest Project, Coastal Conservation and Education Foundation, Inc. and University of the Philippines Marine Science Institute, Cebu City, Philippines. 83p.; N: © Jürgen Freund /WWF-Canon.

Appendix 4.4 Sampling Frame

Site Name:

Settlement Name:

Date:

Source:

No.	Name of Household Head	Multiple family dwelling	
		Number of other families resident in single dwelling	Name of other families resident in single dwelling

Appendix 4.5 Settlement Sampling Form

Site name:

Settlement name:

Settlement code:

Field Coordinator name:

Senior Enumerator name:

Date (dd/mm/yyyy):

Required sample size:

Number of households interviewed:

Sample number	Household ID	Name of household head	Interview status (tick one)			Replacement household ID	GPS location of household	
			Interview completed	Household not located	Refused interview		Latitude	Longitude

Appendix 4.5

Sample number	Household ID	Name of household head	Interview status (tick one)			Replacement household ID	GPS location of household	
			Interview completed	Household not located	Refused interview		Latitude	Longitude

Appendix 4.6 Example project information sheet



Learning from Papua: A Study of Coastal Livelihoods and Marine Resource Management

Marine protected areas (MPAs) are an integral component of local, national, and international strategies for fisheries management and biodiversity conservation, but the contribution of MPAs to poverty alleviation and sustainable development remains the focus of a highly contentious policy debate. Advocates tout MPAs as a win-win strategy for conservation and poverty alleviation, while opponents argue that MPAs place the welfare of fish above the well-being of impoverished fishing communities. In fact, evidence suggests that both perspectives may have merit. Under certain conditions, MPAs can provide both biodiversity and social benefits, while in other settings tradeoffs exist between biodiversity conservation and social welfare. Because scientists have not yet developed a convincing explanation for these variations in social and biological performance, decision-makers set marine resource policy in ignorance, not knowing whether their choices will benefit people, the environment, or both.

To explore the linkages between MPAs and social well-being, UNIPA – in collaboration with WWF-US – is conducting a long-term monitoring study in the Bird's Head Seascape (BHS) in West Papua, Indonesia to:

- Develop methodologies for collecting data on social well-being and marine resource governance; and
- Document changes in social well-being and marine resource governance over time.

In the future, through continued monitoring across the Bird's Head Seascape, we hope to identify key elements of MPA design and management that foster positive biological and social outcomes. This work will inform science-based policy reforms and ecosystem-based management. Understanding the relationship between MPAs and social well-being is vital, because community and governmental decision-makers can shape marine resource governance to achieve desired policy outcomes.

For further information, please contact:

Dr. Fitryanti Pakiding
Universitats Negeri Papua
Amban, Manokwari
Papua Barat 98314, Indonesia

Dr. Michael B. Mascia
World Wildlife Fund – USA
1250 24th St. NW
Washington, DC 20037 USA

Appendix 4.7 Example household informed consent narrative



Learning from Papua: Coastal livelihoods and marine resource management study.

The State University of Papua (UNIPA) is conducting a study to learn about the livelihoods of coastal communities and the management of marine resources in Papua. As part of this study, we would like to interview the head of the household or his/her representative to ask some questions about this household. There are no right or wrong answers to our questions; the purpose of this study is to understand and learn from your experience.

Participation in this study is voluntary. Respondents can refuse to answer any of the questions in this study and may choose to terminate the interview at any time. The information provided by respondents is confidential, and only the researchers involved in this study will have access to information which could identify individual respondents.

We would like to request your participation in this study. Do you wish participate in this study?

If respondent consents to the interview: Thank you for agreeing to participate in this study. Do you have time for an interview now? Do you have any questions you wish to ask before I begin the interview?

If you have any questions about this study in the future, please contact the study director, Dr. Fitryanti Pakiding at the State University of Papua, Amban, Manokwari, Papua Barat, Indonesia.

Appendix 4.8 Example settlement profile template



Coastal livelihoods and marine resource governance in Papua Barat

Settlement Profile: [SETTLEMENT NAME]

UNIPA is monitoring changes in livelihoods and marine resource governance to provide insights for local, regional, and national government, as well as other stakeholders. The monitoring began as a pilot in 2010, with data collected in Raja Ampat and other regencies. Since the pilot, data collection has been extended to include other areas in Papua Barat and Papua Provinces. This report summarizes the data collected in [SETTLEMENT NAME] in [MONITORING YEAR].

Demographic characteristics

As part of this monitoring program, members of the UNIPA field team interviewed a random sample of [SAMPLE SIZE] of the [TOTAL SETTLEMENT POPULATION] households in [SETTLEMENT NAME]. Households were defined as a group of people who share one kitchen. Households in [SETTLEMENT NAME] contained an average of [NUMBER OF INDIVIDUALS IN HOUSEHOLD] individuals.

(Delete as applicable) The majority of household heads in the sample were male [PERCENTAGE MALE HHH], and had an average age of [MEAN AGE HOUSEHOLD HEAD] years. *OR* All household heads in the sample were male, and had an average age of [MEAN AGE HOUSEHOLD HEAD] years. *AND* Household heads had been resident in the settlement for [AVERAGE RESIDENCY YEARS] years. The majority of respondents ([DOMINANT ETHNIC GROUP PERCENTAGE]%) described themselves as [DOMINANT ETHNIC GROUP].

Table 1. Demographic characteristics of households in [SETTLEMENT NAME]

	Mean	Minimum	Maximum
Household size (individuals)			
Residency (years)			
Age of household head (years)			

[PERCENTAGE FEMALES]% of the individuals in surveyed households were female, with [PERCENTAGE MALES]% males. [PERCENTAGE CHILDREN]% of household members were children, under the age of 18. Table 2 shows the average percentage of household members within a specific age range in [SETTLEMENT NAME].

Table 2. Age composition of households in [SETTLEMENT NAME].

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	Age (years)									
	0-4	5-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Mean percentage of household members										

Table 3. Gender composition of households in [SETTLEMENT NAME]

	Adults		Children		
	Male	Female	Male	Female	Female
Mean percentage of household members					

(Delete as applicable) The majority of households surveyed in [SETTLEMENT NAME] described themselves as [DOMINANT RELIGION], with a minority of households describing themselves as [MINOR RELIGION]. OR All households surveyed in [SETTLEMENT NAME] described themselves as [DOMINANT RELIGION].

Table 4. Religious affiliation of households in [SETTLEMENT NAME]

	Percentage (%) of household heads
Christian	
Muslim	
Other	

Education

(Delete as applicable) The majority ([PERCENTAGE NO FORMAL EDUCATION]%) of heads of household surveyed in [SETTLEMENT NAME] had received no formal education. Of those who reported attending school, most had completed [MODE EDUCATION LEVEL] ([PERCENTAGE]%), with a small number completing [OTHER EDUCATION LEVEL1] or [OTHER EDUCATION LEVEL 2]. OR The majority ([PERCENTAGE FORMAL EDUCATION]%) of heads of household surveyed in [SETTLEMENT NAME] had received formal education. Most household heads reported completing [MODE EDUCATION LEVEL], with a minority completing [OTHER EDUCATION LEVEL1] or [OTHER EDUCATION LEVEL 2].

Table 5. Education level of household heads in [SETTLEMENT NAME]

Education level	Percentage (%) of household heads
No formal education	
Primary education	
Middle school	
High school	
Further or higher education	

Occupation

[MODE OCCUPATION] was the primary livelihoods for most households in [SETTLEMENT NAME]. Smaller numbers of households relied on [2 OCCUPATION] and [3 OCCUPATION].

Table 6. Occupations of households in [SETTLEMENT NAME]

Occupation	Percentage (%) of households		
	Primary occupation	Secondary occupation	Tertiary occupation
Farming			
Harvesting forest products			
Fishing			
Aquaculture			
Extracting non-renewable marine resources			
Marine tourism			
Other wage labor			
Other			

UNIPA will provide a summary of the data collected in [CURRENT MONITORING YEAR] to settlement, district and provincial government officials by the end of [REPEAT SURVEY YEAR]. For further information please contact: [STUDY DIRECTOR] at [CONTACT DETAILS].

Appendix 4.9 Identification Codes

*Country Code*¹⁴

Code	Country Name
004	Afghanistan
248	Åland Islands
008	Albania
012	Algeria
016	American Samoa
020	Andorra
024	Angola
660	Anguilla
028	Antigua and Barbuda
032	Argentina
051	Armenia
533	Aruba
036	Australia
040	Austria
031	Azerbaijan
044	Bahamas
048	Bahrain
050	Bangladesh
052	Barbados
112	Belarus
056	Belgium
084	Belize
204	Benin
060	Bermuda
064	Bhutan
068	Bolivia (Plurinational State of)
535	Bonaire, Saint Eustatius and Saba
070	Bosnia and Herzegovina
072	Botswana
076	Brazil
092	British Virgin Islands
096	Brunei Darussalam
100	Bulgaria
854	Burkina Faso
108	Burundi

¹⁴ Source: United Nations Statistics Division (2011) Countries or areas, codes and abbreviations (<http://unstats.un.org/unsd/methods/m49/m49alpha.htm>)

Code	Country Name
116	Cambodia
120	Cameroon
124	Canada
132	Cape Verde
136	Cayman Islands
140	Central African Republic
148	Chad
830	Channel Islands
152	Chile
156	China
344	China, Hong Kong Special Administrative Region
446	China, Macao Special Administrative Region
170	Colombia
174	Comoros
178	Congo
184	Cook Islands
188	Costa Rica
384	Côte d'Ivoire
191	Croatia
192	Cuba
531	Curaçao
196	Cyprus
203	Czech Republic
408	Democratic People's Republic of Korea
180	Democratic Republic of the Congo
208	Denmark
262	Djibouti
212	Dominica
214	Dominican Republic
218	Ecuador
818	Egypt
222	El Salvador
226	Equatorial Guinea
232	Eritrea
233	Estonia
231	Ethiopia
234	Faeroe Islands
238	Falkland Islands (Malvinas)
242	Fiji
246	Finland
250	France
254	French Guiana
258	French Polynesia
266	Gabon
270	Gambia
268	Georgia
276	Germany
288	Ghana

Appendix 4.9

Code	Country Name	Code	Country Name
292	Gibraltar	478	Mauritania
300	Greece	480	Mauritius
304	Greenland	175	Mayotte
308	Grenada	484	Mexico
312	Guadeloupe	583	Micronesia (Federated States of)
316	Guam	492	Monaco
320	Guatemala	496	Mongolia
831	Guernsey	499	Montenegro
324	Guinea	500	Montserrat
624	Guinea-Bissau	504	Morocco
328	Guyana	508	Mozambique
332	Haiti	104	Myanmar
336	Holy See	516	Namibia
340	Honduras	520	Nauru
348	Hungary	524	Nepal
352	Iceland	528	Netherlands
356	India	540	New Caledonia
360	Indonesia	554	New Zealand
364	Iran (Islamic Republic of)	558	Nicaragua
368	Iraq	562	Niger
372	Ireland	566	Nigeria
833	Isle of Man	570	Niue
376	Israel	574	Norfolk Island
380	Italy	580	Northern Mariana Islands
388	Jamaica	578	Norway
392	Japan	275	Occupied Palestinian Territory
832	Jersey	512	Oman
400	Jordan	586	Pakistan
398	Kazakhstan	585	Palau
404	Kenya	591	Panama
296	Kiribati	598	Papua New Guinea
414	Kuwait	600	Paraguay
417	Kyrgyzstan	604	Peru
418	Lao People's Democratic Republic	608	Philippines
428	Latvia	612	Pitcairn
422	Lebanon	616	Poland
426	Lesotho	620	Portugal
430	Liberia	630	Puerto Rico
434	Libya	634	Qatar
438	Liechtenstein	410	Republic of Korea
440	Lithuania	498	Republic of Moldova
442	Luxembourg	638	Réunion
450	Madagascar	642	Romania
454	Malawi	643	Russian Federation
458	Malaysia	646	Rwanda
462	Maldives	652	Saint-Barthélemy
466	Mali	654	Saint Helena
470	Malta	659	Saint Kitts and Nevis
584	Marshall Islands	662	Saint Lucia
474	Martinique	663	Saint-Martin (French part)

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Code	Country Name	Code	Country Name
666	Saint Pierre and Miquelon	768	Togo
670	Saint Vincent and the Grenadines	772	Tokelau
882	Samoa	776	Tonga
674	San Marino	780	Trinidad and Tobago
678	Sao Tome and Principe	788	Tunisia
680	Sark	792	Turkey
682	Saudi Arabia	795	Turkmenistan
686	Senegal	796	Turks and Caicos Islands
688	Serbia	798	Tuvalu
690	Seychelles	800	Uganda
694	Sierra Leone	804	Ukraine
702	Singapore	784	United Arab Emirates
534	Sint Maarten (Dutch part)	826	United Kingdom of Great Britain and Northern Ireland
703	Slovakia	834	United Republic of Tanzania
705	Slovenia	840	United States of America
090	Solomon Islands	850	United States Virgin Islands
706	Somalia	858	Uruguay
710	South Africa	860	Uzbekistan
728	South Sudan	548	Vanuatu
724	Spain	862	Venezuela (Bolivarian Republic of)
144	Sri Lanka	704	Viet Nam
729	Sudan	876	Wallis and Futuna Islands
740	Suriname	732	Western Sahara
744	Svalbard and Jan Mayen Islands	887	Yemen
748	Swaziland	894	Zambia
752	Sweden	716	Zimbabwe
756	Switzerland		
760	Syrian Arab Republic		
762	Tajikistan		
764	Thailand		
807	The former Yugoslav Republic of Macedonia		
626	Timor-Leste		

Appendix 4.9

Site Codes

Code	Site Name	Country Code
1	Teluk Mayalibit Marine Protected Area	360
2	Teluk Cenderawasih National Park	360
3	Kaimana Marine Protected Area	360
4	Kofiau dan Pulau Boo Marine Protected Area	360
5	Selat Dampier Marine Protected Area	360
6	Misool Selatan Timur Marine Protected Area	360

<i>Settlement Codes</i>				Code	Settlement Name	Treatment	Site Code
1	Araway	MPA	1	53	Kareyepop	MPA	6
2	Beo	MPA	1	54	Lilinta	MPA	6
3	Go	MPA	1	55	Magei	MPA	6
4	Kabilol	MPA	1	56	Tomolol	MPA	6
5	Kalikoto	MPA	1	57	Usaha Jaya	MPA	6
6	Lopintol	MPA	1	58	Yellu	MPA	6
7	Mumes	MPA	1	59	Aduwei	Control	6
8	Waifoi	MPA	1	60	Atkari	Control	6
9	Warsamdin	MPA	1	61	Folley	Control	6
10	Wenook/Waremak	MPA	1	62	Lenmalas	Control	6
11	Yensner	MPA	1	63	Salafen	Control	6
12	Kabui	Control	1	64	Solal	Control	6
13	Kapidiri	Control	1	65	Waigama	Control	6
14	Waiyai	Control	1	66	Mnier	Control	5
15	Bawei	MPA	2	67	Puper	Control	5
16	Goni	MPA	2	68	Urbinasopen	Control	5
17	Masipawa	Control	2	69	Kurkapa	MPA	5
18	Masyarah	Control	2	70	Arborek	MPA	5
20	Napan	Control	2	71	Sawinggrai	MPA	5
21	Napan Yaur	MPA	2	72	Sauandarek	MPA	5
22	Noridwar	MPA	2	73	Wamega	MPA	5
23	Pakreki	Control	2	74	Solol	MPA	5
24	Rawar	Control	2	75	Wailebet	MPA	5
25	Waprak/Saref	MPA	2	76	Arefi	MPA	5
26	Saribi	Control	2	77	Yensawai	MPA	5
27	Syeiwar	MPA	2	78	Yenbeser	MPA	5
28	Supmander	Control	2	79	Saprokren	MPA	5
29	Wansra/Wansa	Control	2	80	Saonek	MPA	5
30	Weinami	Control	2	81	Adijaya	MPA	3
31	Weititindau	MPA	2	82	Kambala	MPA	3
32	Yariyari	MPA	2	83	Yarona	MPA	3
33	Yembepon	Control	2	84	Hia	MPA	3
34	Yembikiri II	MPA	2	85	Lumira	MPA	3
35	Yenbeba	Control	2	86	Lobo	MPA	3
36	Yeretuar	MPA	2	87	Namatota	MPA	3
37	Yomakan	MPA	2	88	Mai Mai	MPA	3
38	Yomber	MPA	2	89	Murano	MPA	3
39	Balal/Dibalal	MPA	4	90	Marsi	MPA	3
40	Deer	MPA	4	91	Tanggaromi	MPA	3
41	Mikiran	MPA	4	92	Siawatan	MPA	3
42	Tolobi	MPA	4	93	Bamana	MPA	3
43	Pulau Tikus	Control	4	94	Rururmo	MPA	3
44	Satukurano	Control	4	95	Kamaka	MPA	3
45	Wejim Barat	Control	4	96	Weri	Control	3
46	Wejim Timur	Control	4	97	Wambar	Control	3
47	Biga	MPA	6	98	Sanggram	Control	3
48	Dabatan	MPA	6	99	Tubirwasak	Control	3
49	Fanfalap	MPA	6	100	Antalisa	Control	3
50	Gamta	MPA	6	101	Malakuli	Control	3
51	Harapan Jaya	MPA	6	102	Yeflo	Control	5
52	Kapatcol	MPA	6	103	Arar	Control	5
				104	Ambuni	MPA	2
				105	Dunser	MPA	2
				106	Nanimori	MPA	2

Appendix 4.9

Code	Settlement Name	Treatment	Site Code
107	Rasiei	MPA	2
108	Sasirei	MPA	2
109	Torey	MPA	2

Code	Settlement Name	Treatment	Site Code
110	Iseren	MPA	2
111	Senebuay	MPA	2
112	Yemberkiri I	MPA	2

Field Team Codes

Field Team Code	Name
001	Fitryanti Pakiding
002	Tommy Pattiasina
003	Yori Toru Toja
004	Yanuaris Dumutu
005	Stella Hay
006	Beci Nakoh
007	Rustam Patahuddin
008	Kesy Salosso
009	Imam Subekki
010	Nathaniel Sumpe
011	Martunas Tahoba
012	Alberth Allo
013	Sanadi Abrauw
014	Novi Lowoluntu
015	Amelius Mansawan
016	Alosius Numberi
017	Matheos Rayar
018	Yanes Rumere
019	Herlin Trirbo
020	Silvia Yarangga
021	Hero Digantara
022	Frengky Krey
023	Meky Sanyar
024	Daan Wenggi
025	Joiner Ainusi
026	Jams Sawaki
027	Gerald Baransano
028	Edgar Krey
029	Irman Rumengan
030	Melvin Rumaropen

Appendix 5.1 Focus Group Instrument



Social impacts of marine protected areas Focus Group Instrument v 2.1 (September 2012)

Michael B. Mascia†, Fitry Pakiding‡ and Louise Glew†.

†World Wildlife Fund US, Washington, D.C., USA.

‡Universitas Negeri Papua, Manokwari, Indonesia.

For further information please contact: Louise.Glew@wwfus.org

SUGGESTED CITATION FOR FOCUS GROUP INSTRUMENT:

Mascia, M.B., Pakiding, F. and Glew, L. (2012) Social impacts of marine protected areas: focus group instrument. Version 2.1. World Wildlife Fund & Universitas Negeri Papua, Washington D.C., United States and Manokwari, Indonesia.

MPA Name _____ Population Centre Name _____ Focus Group Code _____

Notes

Focus Group Instrument

Version 2.1

Identification

Country Name _____

MPA Name _____

Population Center Name _____

Focus Group (FGD) Code _____

Facilitator Name _____

Note-taker Name _____

Date of Interview (DD/MM/YYYY) _____

Start time of interview (Hour:Min) _____

End time of interview (Hour:Min) _____

Number of focus group participants Male Female Total

Focus Group instrument version number _____ 2.1 _____

Instructions for field team

In this document, instructions to the field team are underlined. Statements to be read aloud to participants are in *italics*. Transitions from one topic to another are indicated by bold type. Instances where the facilitator must “fill in the blank” are indicated in [bold brackets].

In some cases, the facilitator will need to “fill in the blanks” based on location. These questions include the phrase “[name of the MPA/name of usual fishing grounds].”

- a. If the focus group is being held in an MPA “treatment” settlement, ask ONLY about the MPA. Use the full name of the MPA (e.g., “Teluk Mayalibit KKLD”).
- b. If the focus group is being held in a “comparison” non-MPA settlement, ask ONLY about the usual fishing grounds. Use the full name of the usual fishing grounds (e.g., “the coral garden north of our village”).

The focus group discussion (FGD) should be held in a place where every participant can express their opinion freely. The location should minimize the likelihood that non-participants will interrupt or influence the discussion.

In the FGD, the field coordinator will facilitate the discussion. The field coordinator should use the questions contained in this instrument. One enumerator will assist the field coordinator by recording the discussion on this form.

Before starting the focus group, the facilitator/field coordinator should:

1. Explain the purpose of this study to participants.
2. Ask for the assistance of participants in the focus group.
3. Assure participants of the total confidentiality of the data. Participants will never be identified with their responses, and the data will only be used for the purpose stated.
4. Assure participants that their participation and responses are entirely voluntary. Participants may refuse to answer any question, and may stop at any time. They may also decline to participate in the focus group.
5. Emphasize to participants that there are no right or wrong answers, and that we want to learn from their experience.
6. Formally receive the consent of participants to participate in the focus group.

When conducting the focus group, please record the participants’ answers based upon established response formats:

- For constrained choice questions, place a cross [X] in the appropriate box.
- For all questions, [997] “Do not know;” [998] “Not applicable”; and [999] “Refuse” are acceptable “blind responses”. These responses are not presented to participants, but they are recorded if participants volunteer them as answers.
- If participants volunteer extra information, record it in the notes column.
- In this study, “local government” refers to ‘kampung’, ‘distrik’, and ‘kabupaten’ levels.
- For questions 18, 19, 20, and 22, responses of “Never” should be recorded as “≤ One time/yr.”

After the focus group discussion, the field coordinator should check the information recorded by the note-taker. The field coordinator must ensure that the data forms are correct and complete.

Section 1. Geography – human geography and biogeography.

Good [morning/afternoon]. Thank you for coming. In this discussion, we would learn from you about the marine resources in this area. We would like to ask you some questions about the local area, who uses marine resources here, the rules governing use of these marine resources, how decisions are made about these marine resources, and how rules are enforced.

To start off, I would like to ask you a few questions about the local marine environment, and who uses it.

1. a) *What is the name of your usual fishing grounds?*
- b) *For the most common type of fishing boat, with no stops along the way, how far in time (minutes) is [name of population center] from your usual fishing grounds?*
- c) *How far in distance (kilometers)?*
- d) *How big are your usual fishing grounds (km²)?*

Show the laminated map to participants. Ask participants to identify their “usual fishing grounds” and trace rough boundary on the laminated map. In areas with marine tenure, “usual fishing ground” is likely under local tenure.

Identify only one “usual fishing ground” for each community.

If participants indicate that they often fish in more than one location, ask them to identify the fishing grounds “most commonly used”.

If more than one area is used with the same frequency, randomly select one of these fishing grounds at random from among the “most commonly used.”

For parts c-e, if participants give a range of values, record the average value below. Include the full range in the Notes column

Take a digital photo of the map(s) drawn/annotated in question 1. On each map, provide the MPA name, population center name, focus group code, and question number.

a.	Name of usual fishing grounds	
b.	Type of boat	
c.	Travel time to fishing grounds	min
d.	Distance to fishing grounds	km
e.	Size of fishing grounds	km ²

2. *What is the name of the nearest no-fishing area? For the most common type of fishing boat, with no stops along the way, how far in time (minutes) and distance (kilometers) is [name of population center] from the nearest no-fishing area? How big is the nearest no-fishing area (km²)?*

Show the laminated map to participants. Ask participants to identify nearest no-fishing area. If boundaries of no-fishing area are not demarcated on map, ask participants to trace rough boundary on the laminated map. "No-fishing area" include any marine areas where harvesting of all marine resources is prohibited.

If participants indicate that there is more than one "nearest no-fishing area," ask them to identify the no-fishing area "most commonly used."

If more than one no-fishing area is used with the same frequency, randomly select one of these no-fishing areas from among the "most commonly used."

For parts c-e, if participants give a range of values, record the average value below. Include the full range in the Notes column.

Take a digital photo of the map(s) drawn/annotated in question 2. On each map, provide the MPA code, population center code, focus group code, and question number.

- a. Name of no-fishing area
- b. Type of boat
- c. Travel time to no-fishing area min
- d. Distance to no-fishing area km
- e. Size of no-fishing area km²

3. *For the most common type of fishing boat, with no stops along the way, how far in time (minutes) and distance (kilometers) is [name of population center] from [name of MPA]? How big is [name of MPA] (km²)?*

Show the laminated map to participants. If boundaries of [name of MPA] are not demarcated on map, ask participants to trace rough boundary on the laminated map.

Ask ONLY about the MPA. Use the full name of the MPA (e.g., "Teluk Mayalibit KKLD") listed on the Identification page (page 1).

For parts c-e, if participants give a range of values, record the average value below. Include the full range in the Notes column.

Take a digital photo of the map(s) drawn in question 2. On each map, provide the MPA name, population center name, focus group code, and question number.

- a. Name of MPA
- b. Type of boat
- c. Travel time to MPA min
- d. Distance to MPA km
- e. Size of MPA km²

4. *What are the most important habitats in [name of MPA/name of usual fishing ground]?*

For treatment settlements, ask only about MPA. For comparison settlements, ask about only usual fishing ground. If more than 5 are identified, ask participants to identify the 5 most important habitats.

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____

5. *What are the most important species in [name of MPA/name of usual fishing ground]?*
For treatment settlements, ask only about the MPA. For comparison settlements, ask only about the usual fishing ground. If more than 5 are identified, ask participants to identify the 5 most important species.

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____

6. Defining "user groups". Groups of users may be either formal or informal.

a. *How do people use [name of MPA /name of usual fishing ground]?*

List general ways in which people use the MPA or usual fishing ground. For example, fishing, tourism, mining, recreation, religious ceremonies, etc.

For treatment settlements, ask only about MPA. For comparison settlements, ask only about usual fishing grounds.

b. *What specific gears or techniques are used for each type of activity?*

For each general way of using the MPA (treatment) or usual fishing grounds (comparison) identified in (a), list the techniques or types of gear employed.

c. *Who uses each of these specific gears and techniques?*

For each combination of use and gear/technique identified in (b), list where users of the MPA (treatment) or usual fishing grounds (comparison) live.

d. *Who uses the [name of MPA/name of usual fishing grounds] the most?*

In other words: of the groups listed in (c), who is most active in [name of MPA/name of usual fishing grounds]?

From the list in (c), focus group participants should identify the ten most important distinct groups of users (i.e., people from a specific place who use a specific gear) in the MPA (for treatment settlements) or usual fishing grounds (for comparison settlements). For example: gill net fishermen from village X, bomb fishermen from village Y, scuba-diving tourists from foreign countries.

MPA Name_____ Population Centre Name_____ Focus Group Code_____

6.

a. What type of activity?

b. What specific technique/gear?

c. People from where?

Notes

6d.

User group	What type of activity?	What specific technique/gear?	From where?
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
5	_____	_____	_____
6	_____	_____	_____
7	_____	_____	_____
8	_____	_____	_____
9	_____	_____	_____
10	_____	_____	_____

7. *Tell me about the history of [name of MPA/name of usual fishing ground]. How has management of marine resources changed over time in this place? Why?*

If treatment settlement, ask only about MPA. If comparison settlement, ask only about usual fishing ground.

Probe to learn more, if appropriate.

Section 2. Rules governing marine resources

Thanks very much for the background information. This is very helpful.

I have a few questions about what people can – and cannot – do inside the [name of MPA/name of usual fishing ground].

8. *Can you please tell me, what are the rules governing use of marine resources in [name of MPA/ name of usual fishing grounds]?*

List the specific rules that govern use of marine resources. For treatment settlements, ask only about MPA. For comparison settlements, ask only about usual fishing ground.

NOTE: We are interested in both formal and informal rules, including rules that are written and unwritten. PROBE to learn about informal and unwritten rules.

Formal and informal rules designate who is permitted or prohibited from doing what, where, when, and how.

As people start talking, make a chart like this to capture the discussion. The rules should be recorded exactly as they are explained by participants.

Rule Number	Rule: Who? What? Where? When? How?
1.	
2.	
3.	
4.	
5.	

6.	
7.	
8.	
9.	
10	
11	
12	
13	
14	
15	

Notes

9. *Where are the boundaries of [name of MPA/name of usual fishing grounds]?*

On a map, have participants draw the internal and external boundaries of the MPA (treatment) or usual fishing grounds (comparison). Internal boundaries may separate management zones, marine tenure areas, or other management systems.

If drawn on paper, rather than the laminated map, the note-taker should copy the details of the map onto the laminated version.

After the focus group discussion, take a digital photo of the laminated map(s) drawn in question 7. On each map, provide the MPA name, population center name, focus group code, and question number.

10. *Where are the boundaries marked?*

On a map, have participants indicate where the internal and external boundaries of the MPA (treatment) or usual fishing grounds (comparison) are marked in some way. Estimate the percentage of internal and external boundaries that are marked.

Internal boundary % External boundary %

After the focus group discussion, take a digital photo of the map(s) drawn in question 8. On each map, provide the MPA name, population center name, focus group code, and question number.

11. *How are the rules and boundaries of [name of MPA/name of usual fishing grounds] made clear to individuals who use marine resources within [name of MPA/name of usual fishing grounds]?*

If at treatment settlement, ask only about the MPA. If at comparison settlement, ask only about usual fishing grounds. Check one answer for each method of clarifying rules and boundaries.

If necessary, specify the appropriate "blind response" code in the box. [997] = Do not know; [998] = Not applicable; [999] = Refuse

a *Aligned with local landmarks*

Yes No Blind code (specify) _____

b *Demarcated with boundary markers* (sticks, buoys, etc.)

Yes No Blind code (specify) _____

c *Communicated via signs*

Yes No Blind code (specify) _____

d *Announced via government notice* (gazette, federal register, etc.)

Yes No Blind code (specify) _____

e *Communicated via written outreach* (pamphlets, newspaper announcements, email, etc.)

Yes No Blind code (specify) _____

f *Communicated through audio outreach* (radio announcements, commercials, information programs, etc.)

Yes No Blind code (specify) _____

g *Communicated through video outreach* (TV announcements, movies, commercials, information programs, etc.)

Yes No Blind code (specify) _____

h *Spread through word of mouth* (neighbor to neighbor, etc.)

Yes No Blind code (specify) _____

i *Communicated through other forms of outreach* (town meetings, door to door engagement, PRIDE campaigns, etc.)

Yes No Blind code (specify) _____

j *Other (specify)* _____

Yes No Blind code (specify) _____

12. In each group of users, how many people know the external boundaries of [name of MPA/name of usual fishing grounds]?

The groups of users listed here should match those identified in question 6d. Make sure the user groups are listed in the correct order.

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about usual fishing grounds.

Select one box for each group of users. If necessary, select the "blind response" box and specify the appropriate code. [997] = Do not know; [998] = Not applicable; [999] = Refuse

- a User group 1 (specify) _____
 None Some About half Most All Blind _____
- b User group 2 (specify) _____
 None Some About half Most All Blind _____
- c User group 3 (specify) _____
 None Some About half Most All Blind _____
- d User group 4 (specify) _____
 None Some About half Most All Blind _____
- e User group 5 (specify) _____
 None Some About half Most All Blind _____
- f User group 6 (specify) _____
 None Some About half Most All Blind _____
- g User group 7 (specify) _____
 None Some About half Most All Blind _____
- h User group 8 (specify) _____
 None Some About half Most All Blind _____
- i User group 9 (specify) _____
 None Some About half Most All Blind _____
- J User group 10 (specify) _____
 None Some About half Most All Blind _____

13. In each group of users, how many people know the internal boundaries of [name of MPA/name of usual fishing grounds]?

The groups of users listed here should match those identified in question 6d. Make sure the user groups are listed in the correct order.

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about usual fishing grounds.

Select one box for each group of users. If necessary, select the "blind response" box and specify the appropriate code. [997] = Do not know; [998] = Not applicable; [999] = Refuse

- a User group 1 (specify) _____
 None Some About half Most All Blind _____
- b User group 2 (specify) _____
 None Some About half Most All Blind _____
- c User group 3 (specify) _____
 None Some About half Most All Blind _____
- d User group 4 (specify) _____
 None Some About half Most All Blind _____
- e User group 5 (specify) _____
 None Some About half Most All Blind _____
- f User group 6 (specify) _____
 None Some About half Most All Blind _____
- g User group 7 (specify) _____
 None Some About half Most All Blind _____
- h User group 8 (specify) _____
 None Some About half Most All Blind _____
- i User group 9 (specify) _____
 None Some About half Most All Blind _____
- J User group 10 (specify) _____
 None Some About half Most All Blind _____

Section 3. Decision-making arrangements.

Notes

14. If at comparison settlement, enter SKIP code [994] and move to question 16.
Who actively participated in or is actively participating in making the decision to establish [name of MPA]?

The groups of users listed here should match the users identified in question 6d. Select one box per stakeholder group. If necessary, select the "blind response" box and specify the appropriate code. [997] = Do not know; [998] = Not applicable; [999] = Refuse

- a *Local Government*
 Yes No Blind code (specify) _____
- b *Provincial Government*
 Yes No Blind code (specify) _____
- c *National Government*
 Yes No Blind code (specify) _____
- d *Local non-governmental organization*
 Yes No Blind code (specify) _____
- e *Provincial non-governmental organization*
 Yes No Blind code (specify) _____
- f *National non-governmental organization*
 Yes No Blind code (specify) _____
- g *Foreign non-governmental organization*
 Yes No Blind code (specify) _____
- h User group 1 (specify) _____
 Yes No Blind code (specify) _____
- i User group 2 (specify) _____
 Yes No Blind code (specify) _____
- j User group 3 (specify) _____
 Yes No Blind code (specify) _____
- k User group 4 (specify) _____
 Yes No Blind code (specify) _____
- l User group 5 (specify) _____
 Yes No Blind code (specify) _____
- m User group 6 (specify) _____
 Yes No Blind code (specify) _____
- n User group 7 (specify) _____
 Yes No Blind code (specify) _____
- o User group 8 (specify) _____
 Yes No Blind code (specify) _____
- p User group 9 (specify) _____
 Yes No Blind code (specify) _____
- q User group 10 (specify) _____
 Yes No Blind code (specify) _____
- r Other (specify) _____
 Yes No Blind code (specify) _____

15. If at comparison settlement, enter SKIP code [994] and move to question 16.

Who actively participated in or is actively participating in deciding upon the boundaries of [MPA name]?

Notes

The groups of users listed here should match the users identified in question 6d.

Select one box per stakeholder group. If necessary, select the "blind response" box and specify the appropriate code. [997] = Do not know; [998] = Not applicable; [999] = Refuse

- a Local Government
 Yes No Blind code (specify) _____
- b Provincial Government
 Yes No Blind code (specify) _____
- c National Government
 Yes No Blind code (specify) _____
- d Local non-governmental organization
 Yes No Blind code (specify) _____
- e Provincial non-governmental organization
 Yes No Blind code (specify) _____
- f National non-governmental organization
 Yes No Blind code (specify) _____
- g Foreign non-governmental organization
 Yes No Blind code (specify) _____
- h User group 1 (specify) _____
 Yes No Blind code (specify) _____
- i User group 2 (specify) _____
 Yes No Blind code (specify) _____
- j User group 3 (specify) _____
 Yes No Blind code (specify) _____
- k User group 4 (specify) _____
 Yes No Blind code (specify) _____
- l User group 5 (specify) _____
 Yes No Blind code (specify) _____
- m User group 6 (specify) _____
 Yes No Blind code (specify) _____
- n User group 7 (specify) _____
 Yes No Blind code (specify) _____
- o User group 8 (specify) _____
 Yes No Blind code (specify) _____
- p User group 9 (specify) _____
 Yes No Blind code (specify) _____
- q User group 10 (specify) _____
 Yes No Blind code (specify) _____
- r Other (specify) _____
 Yes No Blind code (specify) _____

16. Who actively participated in or is actively participating in designing the organization that manages [name of MPA/name of usual fishing ground]?

The management organization may be formal or informal.

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the usual fishing grounds. The groups of users listed here should match the users from question 6d. Select one box per stakeholder group. If necessary, select the "blind response" box and specify the appropriate code. [997] = Do not know; [998] = Not applicable; [999] = Refuse

- a *Local Government*
 Yes No Blind code (specify) _____
- b *Provincial Government*
 Yes No Blind code (specify) _____
- c *National Government*
 Yes No Blind code (specify) _____
- d *Local non-governmental organization*
 Yes No Blind code (specify) _____
- e *Provincial non-governmental organization*
 Yes No Blind code (specify) _____
- f *National non-governmental organization*
 Yes No Blind code (specify) _____
- g *Foreign non-governmental organization*
 Yes No Blind code (specify) _____
- h User group 1 (specify) _____
 Yes No Blind code (specify) _____
- i User group 2 (specify) _____
 Yes No Blind code (specify) _____
- j User group 3 (specify) _____
 Yes No Blind code (specify) _____
- k User group 4 (specify) _____
 Yes No Blind code (specify) _____
- l User group 5 (specify) _____
 Yes No Blind code (specify) _____
- m User group 6 (specify) _____
 Yes No Blind code (specify) _____
- n User group 7 (specify) _____
 Yes No Blind code (specify) _____
- o User group 8 (specify) _____
 Yes No Blind code (specify) _____
- p User group 9 (specify) _____
 Yes No Blind code (specify) _____
- q User group 10 (specify) _____
 Yes No Blind code (specify) _____
- r Other (specify) _____
 Yes No Blind code (specify) _____

17. *Who actively participated in or is actively participating in making rules governing [name of MPA/name of usual fishing ground]?*

Notes

If at treatment settlement, ask only about MPA. If at comparison settlement, ask only about usual fishing grounds. The groups of users listed here should match the users from question 6d.

Select one box per stakeholder group. If necessary, select the "blind response" box and specify the appropriate code. [997] = Do not know; [998] = Not applicable; [999] = Refuse

- a *Local Government*
 Yes No Blind code (specify) _____
- b *Provincial Government*
 Yes No Blind code (specify) _____
- c *National Government*
 Yes No Blind code (specify) _____
- d *Local non-governmental organization*
 Yes No Blind code (specify) _____
- e *Provincial non-governmental organization*
 Yes No Blind code (specify) _____
- f *National non-governmental organization*
 Yes No Blind code (specify) _____
- g *Foreign non-governmental organization*
 Yes No Blind code (specify) _____
- h User group 1 (specify) _____
 Yes No Blind code (specify) _____
- i User group 2 (specify) _____
 Yes No Blind code (specify) _____
- j User group 3 (specify) _____
 Yes No Blind code (specify) _____
- k User group 4 (specify) _____
 Yes No Blind code (specify) _____
- l User group 5 (specify) _____
 Yes No Blind code (specify) _____
- m User group 6 (specify) _____
 Yes No Blind code (specify) _____
- n User group 7 (specify) _____
 Yes No Blind code (specify) _____
- o User group 8 (specify) _____
 Yes No Blind code (specify) _____
- p User group 9 (specify) _____
 Yes No Blind code (specify) _____
- q User group 10 (specify) _____
 Yes No Blind code (specify) _____
- r Other (specify) _____
 Yes No Blind code (specify) _____

Section 4. Monitoring and enforcement.

Now I'd like to ask you some questions about how the condition and use of marine resources in [name of MPA/name of usual fishing grounds] is monitored and how rules are enforced.

18. How frequently does each of the following groups monitor the condition of marine resources in [name of MPA/name of usual fishing ground]?

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the usual fishing grounds. The groups of users listed here should match the users from question 6d.

Select one box per stakeholder group. If necessary, select the "blind response" box and specify the appropriate code. [997] = Do not know; [998] = Not applicable; [999] = Refuse

a	Local Government	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
b	Provincial Government	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
c	National Government	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
d	Local non-governmental organization	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
e	Provincial non-governmental organization	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
f	National non-governmental organization	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
g	Foreign non-governmental organization	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
h	User group 1 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
i	User group 2 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
j	User group 3 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
k	User group 4 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
l	User group 5 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
m	User group 6 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
n	User group 7 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
o	User group 8 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
p	User group 9 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
q	User group 10 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
r	Other (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____

19. How frequently does each of the following groups monitor the well-being of people who depend upon marine resources in [name of MPA/name of usual fishing ground]?

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the usual fishing grounds. The groups of users listed here should match the users from question 6d.

Select one box per stakeholder group. If necessary, select the "blind response" box and specify the appropriate code. [997] = Do not know; [998] = Not applicable; [999] = Refuse

a	Local Government	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
b	Provincial Government	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
c	National Government	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
d	Local non-governmental organization	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
e	Provincial non-governmental organization	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
f	National non-governmental organization	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
g	Foreign non-governmental organization	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
h	User group 1 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
i	User group 2 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
j	User group 3 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
k	User group 4 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
l	User group 5 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
m	User group 6 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
n	User group 7 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
o	User group 8 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
p	User group 9 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
q	User group 10 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
r	Other (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____

20. How frequently does each of the following groups monitor the compliance of resource users with the rules governing marine resource use in [name of MPA/name of usual fishing ground]?

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the usual fishing grounds. The groups of users listed here should match the users from question 6d.

Select one box per stakeholder group. If necessary, select the "blind response" box and specify the appropriate code. [997] = Do not know; [998] = Not applicable; [999] = Refuse

a	Local Government	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
b	Provincial Government	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
c	National Government	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
d	Local non-governmental organization	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
e	Provincial non-governmental organization	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
f	National non-governmental organization	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
g	Foreign non-governmental organization	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
h	User group 1 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
i	User group 2 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
j	User group 3 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
k	User group 4 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
l	User group 5 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
m	User group 6 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
n	User group 7 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
o	User group 8 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
p	User group 9 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
q	User group 10 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
r	Other (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____

21. *What penalties exist to encourage compliance with the rules governing marine resource use in [name of MPA/name of usual fishing ground] ?*

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the usual fishing grounds. The groups of users listed here should match the users from question 6d.

Select one box for each type of penalty. If necessary, select the "blind response" box and specify the appropriate code. [997] = Do not know; [998] = Not applicable; [999] = Refuse

- a *Verbal warnings*
 Yes No Blind code (specify) _____
- b *Written warnings*
 Yes No Blind code (specify) _____
- c *Loss of access to marine resources*
 Yes No Blind code (specify) _____
- d *Confiscation of equipment*
 Yes No Blind code (specify) _____
- e *Fines*
 Yes No Blind code (specify) _____
- f. *Incarceration*
 Yes No Blind code (specify) _____
- g. *Other (specify) _____*
 Yes No Blind code (specify) _____

22. How frequently does each of the following groups hand out penalties when people break the rules governing use of marine resources in [name of MPA/name of usual fishing ground]?

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the usual fishing grounds. The groups of users listed here should match the users from question 6d.

Select one box per stakeholder group. If necessary, select the "blind response" box and specify the appropriate code. [997] = Do not know; [998] = Not applicable; [999] = Refuse

a	Local Government	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
b	Provincial Government	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
c	National Government	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
d	Local non-governmental organization	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
e	Provincial non-governmental organization	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
f	National non-governmental organization	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
g	Foreign non-governmental organization	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
h	User group 1 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
i	User group 2 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
j	User group 3 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
k	User group 4 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
l	User group 5 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
m	User group 6 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
n	User group 7 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
o	User group 8 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
p	User group 9 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
q	User group 10 (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____
r	Other (specify) _____	<input type="checkbox"/> ≤ one time/yr	<input type="checkbox"/> A few times/yr	<input type="checkbox"/> A few times/month	<input type="checkbox"/> A few times/week	<input type="checkbox"/> ≥ Once a day	<input type="checkbox"/> Blind code (specify) _____

Section 5. Conflict resolution.

Notes

Now, I'd like to discuss how conflicts are resolved.

23. *How are conflicts over marine resources in [name of MPA/name of usual fishing ground] resolved among resource users? between users and government authorities?*

If at a treatment settlement, ask only about the MPA. If at comparison settlement, ask about the usual fishing grounds.

Open ended question. Probe, if appropriate.

24. *How long does it usually take to resolve conflicts over marine resources in [name of MPA/name of usual fishing grounds]?*

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask about the usual fishing grounds.

If participants give a range of values for questions 22a or 22b, record the average in the box.

a. *Among users?* days

b. *Between users and officials?* days

MPA Name_____ Population Centre Name_____ Focus Group Code_____

25. *How much does it usually cost to resolve conflicts over marine resources in [name of MPA/name of usual fishing grounds]?*

Notes

In other words, is there a fee, travel cost, etc. to participate in conflict resolution processes?

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the usual fishing grounds.

If participants give a range of values for questions 23a or 23b, record the average in the box.

a. *Among users?* Rp

b. *Between users and officials?* Rp

26. *How far must individuals usually travel to resolve conflicts over marine resources in [name of MPA/name of usual fishing grounds]?*

If at treatment settlement, ask only about the MPA. If at comparison settlement, ask only about the usual fishing grounds.

Travel time in minutes. If participants give a range of values in for questions 24a and 24b, record the average in the box.

a. *Among users?* min

b. *Between users and officials?* min

Section 6. Impacts/performance.

Lastly, I would like to learn more about ways in which [name of MPA/name of usual fishing grounds] affects local livelihoods.

27. *Who makes the greatest contributions to, or sacrifices for, the [name of MPA/name of usual fishing ground]?*

This includes both direct contributions (e.g., cash) and lost opportunities (e.g., access to marine resources). The user group who makes the largest contribution/sacrifice should be given rank [1].

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the usual fishing grounds. The groups of user listed here should match the users in question 6d.

- a. User group 1 (specify) _____ Rank ____
- b. User group 2 (specify) _____ Rank ____
- c. User group 3 (specify) _____ Rank ____
- d. User group 4 (specify) _____ Rank ____
- e. User group 5 (specify) _____ Rank ____
- f. User group 6 (specify) _____ Rank ____
- g. User group 7 (specify) _____ Rank ____
- h. User group 8 (specify) _____ Rank ____
- i. User group 9 (specify) _____ Rank ____
- j. User group 10 (specify) _____ Rank ____

28. *Who benefits most from the [name of MPA/name of usual fishing ground]?*

This includes both direct benefits (e.g., cash) and indirect opportunities (e.g., access to marine resources). The user group who receives the largest combined benefits should be given rank [1].

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the usual fishing grounds. The groups of user listed here should match the users in question 6d.

- a. User group 1 (specify) _____ Rank ____
- b. User group 2 (specify) _____ Rank ____
- c. User group 3 (specify) _____ Rank ____
- d. User group 4 (specify) _____ Rank ____
- e. User group 5 (specify) _____ Rank ____
- f. User group 6 (specify) _____ Rank ____
- g. User group 7 (specify) _____ Rank ____
- h. User group 8 (specify) _____ Rank ____
- i. User group 9 (specify) _____ Rank ____
- j. User group 10 (specify) _____ Rank ____

Thank you all very much for your time. This is very helpful. We have learned a lot. Before we go, is there...

29. *Anything else we should know?*

30. *Anyone else we should talk with?*

31. *Any documents or other sources of information that might be useful?*

Thank again you for your time. We appreciate the opportunity to learn from your experiences.

Appendix 5.2 Key Informant Interview Instrument



Social impacts of marine protected areas Key Informant Interview Instrument v 2.0 (September 2011)

Michael B. Mascia†, Fitry Pakiding‡ and Louise Glew†.

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SUGGESTED CITATION FOR KEY INFORMANT INTERVIEW INSTRUMENT:

Mascia, M.B., Pakiding, F. and Glew, L. (2011) Social impacts of marine protected areas: key informant interview instrument. World Wildlife Fund & Universitas Negeri Papua, Washington D.C., United States and Manokwari, Indonesia.

Key Informant Interview Instrument

Version 2.0

Identification

Country Name _____

MPA Name _____

Population Centre Name _____

Key Informant Identification Code _____

Key Informant Role _____

Reference Focus Group (FGD) Code _____

Interviewer Name _____

Note-taker Name _____

Date of Interview (DD/MM/YYYY) _____

Start time of interview (Hour:Min) _____

End time of interview (Hour:Min) _____

Key Informant instrument version number _____

Instructions for field team

In this document, instructions to the field team are underlined. Statements to be read aloud to participants are in *italics*. Transitions from one topic to another are indicated by bold type. Instances where the facilitator must “fill in the blank” are indicated in [bold brackets].

In some cases, the facilitator will need to “fill in the blanks” based on location. These questions include the phrase “[name of the MPA/name of usual fishing grounds].”

- c. If the interview is in an MPA “treatment” settlement, ask ONLY about the MPA. Use the full name of the MPA (e.g., “Teluk Mayalibit KKLD”).
- d. If the focus group is in a “comparison” non-MPA settlement, ask ONLY about the usual fishing grounds. Use the full name of the usual fishing grounds (e.g., “the northern coral garden”).

Before starting the key informant interview (KII), the interviewer should:

7. Copy the list of habitats, species, and users from the “reference focus group” to the key informant interview instrument. (To determine the “reference focus group” for each key informant interview, please review the protocol for Key Informant Interviews.)
 - a. For Question 6 in the key informant interview, list the habitats and species from Focus Group questions 4 and 5.
 - b. For questions 7, 15, and 16 in the key informant interview, copy the list of users from Focus Group question 6d.
8. Explain the purpose of this study to participants.
9. Ask for the assistance of the key informant in the interview
10. Assure the key informant of the total confidentiality of the data. Key informants will never be identified with their responses, and the data will only be used for the purpose stated.
11. Assure participants that their participation and responses are entirely voluntary. They may refuse to answer any question, and may stop the interview at any time. They may also decline to participate in the interview.
12. Emphasize to participants that there are no right or wrong answers, and that we want to learn from their experience.
13. Obtain formal consent from the key informant. If consent is provided, continue with the interview. If consent is not provided, end the interview & proceed to the next informant.

When conducting the interview, please record the participants’ answers based upon established response categories.

- For all constrained choice questions, place a cross [X] in the appropriate box.
- Throughout the interview, acceptable “blind” responses are: [997] Do not know; [998] Not applicable; and [999] Refuse. In other words, they are not presented as response options but are marked if volunteered. If the participant volunteers additional information, please record it in the Notes column.
- In this study, “local government” refers to kampung, distrik, and kabupaten level government.

Request permission from the key informant before using a digital voice recorder.

After ending the interview, check the data sheet to ensure all the information is accurate and complete.

Section 1. Background

Notes

Good [morning/afternoon]. Thank you for your willingness to participate in this study. In this discussion, I would like to learn from you about the use and management of marine resource in this area. I would like learn about the use of marine resources in the local area, the rules that govern use of marine resource, how decisions are made about these marine resources, and how these rules are enforced.

7. Now that we are through with the formalities, can you please tell me about the history of [name of MPA/name of usual fishing grounds] and your involvement with it? How did you first get involved? What was management of marine resources like in [name of MPA/name of usual fishing grounds] when you first got involved and how changed over time? Why has it changed?

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the "usual fishing grounds" specified in the reference focus group.

Open ended response. Probe for additional details, if appropriate.

Section 2. Congruence of rules with local conditions

I would like to know more about the rules governing use of marine resources in [name of MPA/usual fishing grounds], particularly how the [name of MPA/name of usual fishing ground] is "zoned."

For the purposes of this study, a management "zone" is a specific place or geographic area with a specific set of rules. This may include both formal and informal zones, whose boundaries are written or unwritten. Examples of zones include: legally-designated no-fishing areas, *sasi* areas, village marine tenure areas, tourism zones, etc.

The interviewer should always record at least ONE type of zone. If the rules governing the use of marine resources within the MPA or "usual fishing grounds" are the same across the entire MPA/usual fishing ground, this is considered ONE type of zone, with a quantity of ONE. If there are different rules in different parts of the MPA/usual fishing ground, then there are MULTIPLE types of zones; there may be one or more examples of each type of zone.

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the "usual fishing grounds" specified in the reference focus group.

If necessary, specify the appropriate "blind response" code in the box. [997] = Do not know; [998] = Not applicable; [999] = Refuse

8. *Can you please tell me...*

- a. *What types of formal and informal management zones exist within the [name of MPA/name of usual fishing grounds]?*
- b. *How many examples are there of each type of zone within the [name of MPA/name of usual fishing grounds]?*
- c. *For each type of zone, is there a formal or informal organization that helps to manage ONLY this type of management zone?*
- d. *For each organization listed in 2c, to what extent does this zone-specific organization coordinate its activities with an organization that manages all of [name of MPA/name of usual fishing grounds]? Do they never coordinate, rarely coordinate, sometimes coordinate, usually coordinate, or always coordinate?*

a. <i>Type of zone?</i>	b. <i>Quantity</i>	c. <i>Organization?</i> [0] = No [1] = Yes	d. <i>[If yes to Question 2c] Cross-scale coordination?</i> [1] = Never; [2] = Rarely [3] = Sometimes [4] = Usually; [5] = Always

3 If the total number of zones listed in Question 2b = ONE, then enter SKIP [994] and go to Question 5.

Are the boundaries of these management zones related to ecological differences from place to place within [name of MPA/name of usual fishing ground]?

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the "usual fishing grounds" specified in the reference focus group.

If necessary, specify the appropriate "blind response" code. [997] = Do not know; [998] = Not applicable; [999] = Refuse.

Yes No Blind code (specify) _____

4 If the total number of zones listed in Question 2b = ONE, then enter SKIP [994] and go to Question 5.

Are the boundaries of these management zones related to social differences from place to place within [name of MPA/name of usual fishing grounds]?

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the "usual fishing grounds" specified in the reference focus group.

If necessary, specify the appropriate "blind response" code. [997] = Do not know; [998] = Not applicable; [999] = Refuse.

Yes No Blind code (specify) _____

I would now like to ask you about the rules governing use of important species and habitats in the [name of MPA/name of usual fishing ground]. I am interested in formal and informal rules that both restrict use and those which provide permission for use.

5. For each of the following species and habitats, are there special rules governing human uses? For example, is there a rule that applies to this species or habitat and nothing else?

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the "usual fishing grounds" specified in the reference focus group.

If necessary, specify the appropriate "blind response" code. [997] = Do not know; [998] = Not applicable; [999] = Refuse.

NOTE: List of species and habitats should be copied from questions 4 and 5 in the "reference focus group" for this key informant interview. See protocol for key informant interviews to determine the "reference focus group."

a) i) Species 1 _____
 Yes No Blind code (specify) _____
 If Yes, specify rule _____

ii) Species 2 _____
 Yes No Blind code (specify) _____
 If Yes, specify rule _____

iii) Species 3 _____
 Yes No Blind code (specify) _____
 If Yes, specify rule _____

iv) Species 4 _____
 Yes No Blind code (specify) _____
 If Yes, specify rule _____

v) Species 5 _____
 Yes No Blind code (specify) _____
 If Yes, specify rule _____

b) i) Habitat 1 _____
 Yes No Blind code (specify) _____
 If Yes, specify rule _____

ii) Habitat 2 _____
 Yes No Blind code (specify) _____
 If Yes, specify rule _____

iii) Habitat 3 _____
 Yes No Blind code (specify) _____
 If Yes, specify rule _____

iv) Habitat 4 _____
 Yes No Blind code (specify) _____
 If Yes, specify rule _____

iv) Habitat 5 _____
 Yes No Blind code (specify) _____
 If Yes, specify rule _____

I would now like to ask you about the rules governing the behavior of each of the following important groups of individuals in [name of MPA/name of usual fishing ground].

6. *In particular, are there special rules governing the behavior of these each user groups inside the [name of MPA/name of usual fishing grounds]? For example, are there rules that apply to these groups and nobody else?*

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the "usual fishing grounds" specified in the reference focus group.

If necessary, specify the appropriate "blind response" code in the box. [997] = Do not know; [998] = Not applicable; [999] = Refuse

NOTE: list of user groups should be copied from the answer to question 6d in the "reference focus group" for this key informant interview. See protocol for key informant interviews to determine the "reference focus group."

- A User group 1 _____
 Yes No Blind code (specify) _____
 If Yes, specify rule _____
- B User group 2 _____
 Yes No Blind code (specify) _____
 If Yes, specify rule _____
- C User group 3 _____
 Yes No Blind code (specify) _____
 If Yes, specify rule _____
- D User group 4 _____
 Yes No Blind code (specify) _____
 If Yes, specify rule _____
- E User group 5 _____
 Yes No Blind code (specify) _____
 If Yes, specify rule _____
- F User group 6 _____
 Yes No Blind code (specify) _____
 If Yes, specify rule _____
- G User group 7 _____
 Yes No Blind code (specify) _____
 If Yes, specify rule _____
- H User group 8 _____
 Yes No Blind code (specify) _____
 If Yes, specify rule _____
- I User group 9 _____
 Yes No Blind code (specify) _____
 If Yes, specify rule _____
- J User group 10 _____
 Yes No Blind code (specify) _____
 If Yes, specify rule _____

7. *Do the rules use of governing marine resources in [name of MPA/name of usual fishing grounds] change based on changes in ecological conditions in and around [name of MPA/name of usual fishing grounds] over time?*

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the "usual fishing grounds" specified in the reference focus group.

"Ecological conditions" include any and all aspects of ecological context (e.g., animal population size, habitat quality, newly discovered or harvested species, animal behavior, disease outbreaks, etc).

Check one box. If necessary, specify the appropriate "blind response" code in the box. [997] = Do not know; [998] = Not applicable; [999] = Refuse

- Never
- Rarely
- Sometimes
- Usually
- Always
- Blind code (specify) _____

8. *Do the rules governing marine resources use in [name of MPA/name of usual fishing grounds] change based on changes in social conditions in and around [name of MPA/name of usual fishing grounds] over time?*

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the "usual fishing grounds" specified in the reference focus group.

"Social conditions" includes any and all aspects of social context: human population size, number of users or groups of users, economic well-being or health of local communities, new fishing technologies or market opportunities, etc.

Check one box. If necessary, specify the appropriate "blind response" code in the box. [997] = Do not know; [998] = Not applicable; [999] = Refuse

- Never
- Rarely
- Sometimes
- Usually
- Always
- Blind code (specify) _____

Section 3. Boundaries

Notes

9. *How are the rules and boundaries of [name of MPA/name of usual fishing grounds] made clear to individuals who use marine resources within [name of MPA/name of usual fishing grounds]?*

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the "usual fishing grounds" specified in the reference focus group.

Open ended response. Probe for details, if appropriate.

10. *To what extent do individuals who use marine resources within [name of MPA/name of usual fishing grounds] know the rules and boundaries of [name of MPA/name of usual fishing grounds]?*

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the "usual fishing grounds" specified in the reference focus group.

Open ended response. Probe for details, if appropriate.

Section 4. Resource use rights

Notes

11. *To what extent do the rules governing [name of MPA/name of usual fishing grounds] differ in practice from the way that they are written on paper?*

We are interested to know if rules are implemented or practiced in a manner that is different from the way that the rules are formally described or legally designated.

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the "usual fishing grounds" specified in the reference focus group.

Open ended response. Probe for details, if appropriate.

12. *Are there any unwritten or informal rules that govern the use of marine resources in [name of MPA/name of usual fishing grounds]? [PROBE: What are they?]*

Though most rules are written down after a conscious decision, we want to document and understand unwritten rules (i.e., not written down) and informal rules (i.e., rules that did not emerge from a conscious choice or decision).

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the "usual fishing grounds" specified in the reference focus group.

Open ended response. Probe for details, if appropriate.

Section 5. Decision-making arrangements

13. *Who actively participated in or is actively participating in making the rules governing [name of MPA/name of fishing ground]?*

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the "usual fishing grounds" specified in the reference focus group.

Open ended response. Probe for details, if appropriate.

Thanks. This is very helpful. I would now like to ask you a couple of questions about the relationship between the government and the users of marine resources in [name of MPA/name of usual fishing ground].

Section 6. Rights to self-organize

14. *First, for each of the following groups, to what extent does the national government oppose or support the rights of users to develop their own rules governing resources within [name of MPA/name of usual fishing grounds]?*

Please choose one of these possible answers: strongly oppose, oppose, neither oppose nor support, support, strongly support

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the "usual fishing grounds" specified in the reference focus group.

If necessary, specify the appropriate "blind response" code in the box. [997] = Do not know; [998] = Not applicable; [999] = Refuse

A	User group 1 (specify) _____	<input type="checkbox"/>	Blind code (specify) _____
	Strongly oppose Oppose Neither oppose nor support		Support Strongly support
B	User group 2 (specify) _____	<input type="checkbox"/>	Blind code (specify) _____
	Strongly oppose Oppose Neither oppose nor support		Support Strongly support
C	User group 3 (specify) _____	<input type="checkbox"/>	Blind code (specify) _____
	Strongly oppose Oppose Neither oppose nor support		Support Strongly support
D	User group 4 (specify) _____	<input type="checkbox"/>	Blind code (specify) _____
	Strongly oppose Oppose Neither oppose nor support		Support Strongly support
E	User group 5 (specify) _____		Blind code (specify) _____
	Strongly oppose Oppose Neither oppose nor support		Support Strongly support
F	User group 6 (specify) _____		Blind code (specify) _____
	Strongly oppose Oppose Neither oppose nor support		Support Strongly support
G	User group 7 (specify) _____		Blind code (specify) _____
	Strongly oppose Oppose Neither oppose nor support		Support Strongly support
H	User group 8 (specify) _____		Blind code (specify) _____
	Strongly oppose Oppose Neither oppose nor support		Support Strongly support
I	User group 9 (specify) _____		Blind code (specify) _____
	Strongly oppose Oppose Neither oppose nor support		Support Strongly support
J	User group 10 (specify) _____		Blind code (specify) _____
	Strongly oppose Oppose Neither oppose nor support		Support Strongly support

15. For each of these groups of users, to what extent are their written and unwritten rules about use of marine resources included in national government practices in [name of MPA/name of usual fishing ground] ?

Please choose one of these possible answers: not included, partially included, fully included.

Check one box for each user group listed. If necessary, check the "blind response" box and specify the appropriate code. [997] = Do not know; [998] = Not Applicable; [999] = Refuse

NOTE: Respondents may have a difficult time with this question. [998] "Not applicable" is an appropriate response on those occasions where users have not developed rules about marine resource use.

- A User group 1 (specify) _____
 Not included Partially included Fully included Blind code (specify) _____
- B User group 2 (specify) _____
 Not included Partially included Fully included Blind code (specify) _____
- C User group 3 (specify) _____
 Not included Partially included Fully included Blind code (specify) _____
- D User group 4 (specify) _____
 Not included Partially included Fully included Blind code (specify) _____
- E User group 5 (specify) _____
 Not included Partially included Fully included Blind code (specify) _____
- F User group 6 (specify) _____
 Not included Partially included Fully included Blind code (specify) _____
- G User group 7 (specify) _____
 Not included Partially included Fully included Blind code (specify) _____
- H User group 8 (specify) _____
 Not included Partially included Fully included Blind code (specify) _____
- I User group 9 (specify) _____
 Not included Partially included Fully included Blind code (specify) _____
- J User group 10 (specify) _____
 Not included Partially included Fully included Blind code (specify) _____

Section 7. Monitoring and Enforcement

16. *How are the rules governing [name of MPA/name of usual fishing grounds] monitored and enforced?*

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the "usual fishing grounds" specified in the reference focus group.

Open ended response. Probe for details, if appropriate.

Who monitors and enforces? What actions do they take? Where? When?

17. *What penalties exist to encourage compliance with the regulations governing marine resource use within the [name of the MPA/usual fishing ground]?*

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the "usual fishing grounds" specified in the reference focus group.

If necessary, specify the appropriate "blind response" code. [997] = Do not know; [998] = Not applicable; [999] = Refuse

- a *Verbal warnings*
 Yes No Blind code (specify) _____
- b *Written warnings*
 Yes No Blind code (specify) _____
- c *Loss of access to marine resources*
 Yes No Blind code (specify) _____
- d *Confiscation of equipment*
 Yes No Blind code (specify) _____
- e *Fines*
 Yes No Blind code (specify) _____
- f *Incarceration*
 Yes No Blind code (specify) _____
- g *Other (specify) _____*
 Yes No Blind code (specify) _____

18. *If caught breaking rules in [name of MPA/name of usual fishing grounds], how often do rule-breakers receive one of these penalties?*

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the "usual fishing grounds" specified in the reference focus group.

Check one box.

- Never
- Rarely
- Sometimes
- Usually
- Always
- Blind code (specify) _____

19. *What factors influence the choice of penalty?*

Check one box for each category.

If necessary, check the "blind code" box and specify the appropriate code. [997]: Do not know; [998]: Not applicable; [999]: Refuse

- a *The number of previous offenses.*
 Yes No Blind code (specify) _____
- b *Ecological impact of the offense.*
 Yes No Blind code (specify) _____
- c *Economic impacts of the offense*
 Yes No Blind code (specify) _____
- d *Social impacts of the offense*
 Yes No Blind code (specify) _____
- e *Wealth of the rule breaker*
 Yes No Blind code (specify) _____
- f *Political power of the rule breaker*
 Yes No Blind code (specify) _____
- g *Social status of the rule breaker*
 Yes No Blind code (specify) _____
- h *Other (specify) _____*
 Yes No Blind code (specify) _____

20. *What incentives are provided to encourage compliance with the rules governing marine resource use?*

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the "usual fishing grounds" specified in the reference focus group.

Check one box for each category. If necessary, specify the appropriate "blind response" code in the box. [997] = Do not know; [998] = Not applicable; [999] = Refuse

a *Environmental education.*

Yes No Blind code (specify) _____

b *Skills training.*

Yes No Blind code (specify) _____

c *Exchange of equipment (e.g., fishing gear)*

Yes No Blind code (specify) _____

d *Purchase of equipment (e.g., fishing gear)*

Yes No Blind code (specify) _____

e *Loans*

Yes No Blind code (specify) _____

f *Direct payments*

Yes No Blind code (specify) _____

g *Employment*

Yes No Blind code (specify) _____

g *Other (specify)* _____

Yes No Blind code (specify) _____

21. *I'm curious who "monitors the monitors" in [name of MPA/name of usual fishing grounds]. What happens if the people responsible for monitoring and enforcement don't do their job properly? Are there penalties?*

Specifically, what happens if monitors do not effectively monitor ecological conditions? Are there...

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the "usual fishing grounds" specified in the reference focus group.

Check one box for each category. If necessary, specify the appropriate "blind response" code in the box. [997] = Do not know; [998] = Not applicable; [999] = Refuse

- a *Verbal warnings?*
 Yes No Blind code (specify) _____
- b *Written warnings?*
 Yes No Blind code (specify) _____
- c *Loss of access to marine resources?*
 Yes No Blind code (specify) _____
- c *Loss of position as "monitor"?*
 Yes No Blind code (specify) _____
- d *Confiscation of equipment?*
 Yes No Blind code (specify) _____
- e *Fines?*
 Yes No Blind code (specify) _____
- f *Incarceration?*
 Yes No Blind code (specify) _____
- g *Other? (specify) _____*
 Yes No Blind code (specify) _____

22. *What happens if the monitors do not effectively monitor social conditions? Are there...*

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the "usual fishing grounds" specified in the reference focus group.

Check one box for each category. If necessary, specify the appropriate "blind response" code in the box. [997] = Do not know; [998] = Not applicable; [999] = Refuse

- a *Verbal warnings?*
 Yes No Blind code (specify) _____
- b *Written warnings?*
 Yes No Blind code (specify) _____
- c *Loss of access to marine resources?*
 Yes No Blind code (specify) _____
- c *Loss of position as "monitor"?*
 Yes No Blind code (specify) _____
- d *Confiscation of equipment?*
 Yes No Blind code (specify) _____
- e *Fines?*
 Yes No Blind code (specify) _____
- f *Incarceration?*
 Yes No Blind code (specify) _____
- g *Other? (specify)* _____
 Yes No Blind code (specify) _____

23. *What happens if the monitors do not actively monitor the compliance of individuals who use marine resources in [name of MPA/name of usual fishing grounds]? For the monitors, are there...*

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the "usual fishing grounds" specified in the reference focus group.

Check one box for each category. If necessary, specify the appropriate "blind response" code in the box. [997] = Do not know; [998] = Not applicable; [999] = Refuse

- a *Verbal warnings?*
 Yes No Blind code (specify) _____
- b *Written warnings?*
 Yes No Blind code (specify) _____
- c *Loss of access to marine resources?*
 Yes No Blind code (specify) _____
- c *Loss of position as "monitor"?*
 Yes No Blind code (specify) _____
- d *Confiscation of equipment?*
 Yes No Blind code (specify) _____
- e *Fines?*
 Yes No Blind code (specify) _____
- f *Incarceration?*
 Yes No Blind code (specify) _____
- g *Other? (specify)* _____
 Yes No Blind code (specify) _____

24. *And, lastly, what happens if the monitors do not penalize people when those individuals break the rules governing use of marine resources in [name of MPA/name of usual fishing grounds]? For the monitors, are there...*

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the "usual fishing grounds" specified in the reference focus group.

Check one box for each category. If necessary, specify the appropriate "blind response" code in the box. [997] = Do not know; [998] = Not applicable; [999] = Refuse

- a *Verbal warnings?*
 Yes No Blind code (specify) _____
- b *Written warnings?*
 Yes No Blind code (specify) _____
- c *Loss of access to marine resources?*
 Yes No Blind code (specify) _____
- c *Loss of position as "monitor"?*
 Yes No Blind code (specify) _____
- d *Confiscation of equipment?*
 Yes No Blind code (specify) _____
- e *Fines?*
 Yes No Blind code (specify) _____
- f *Incarceration?*
 Yes No Blind code (specify) _____
- g *Other? (specify)* _____
 Yes No Blind code (specify) _____

Section 8. Conflict Resolution

Notes

25. *How are conflicts about marine resources in [name of MPA/name of usual fishing grounds] resolved among users, and between users and government officials?*

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the "usual fishing grounds" specified in the reference focus group.

Note: we are primarily interested in the PROCESS by which conflicts are resolved. For example, who does what to resolve conflicts? When and where? We are less interested in knowing the outcome of the process.

Open ended response. Probe for details, if appropriate.

Section 9. Impacts

Lastly, I would like to ask you about the ecological and social impacts of [MANAGEMENT IN name of usual fishing ground/name of MPA].

26. *What have been the ecological impacts of [MANAGEMENT IN name of usual fishing ground/name of MPA]?*

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the impacts of "MANAGEMENT IN" the usual fishing grounds.

Open ended response. Probe to explore both positive and negative impacts, if appropriate.

Notes

27. *What have been the social impacts of [MANAGEMENT IN name of usual fishing ground/name of MPA]?*

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the impacts of "MANAGEMENT IN" the usual fishing grounds.

Open ended response. Probe to explore both positive and negative impacts, if appropriate.

28. *Who makes the greatest contributions to or sacrifices for the [name of MPA/name of usual fishing grounds]? Which groups of users and communities?*

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the "usual fishing grounds" specified in the reference focus group.

NOTE: We are primarily interested in current and past contributions (money, labor, etc.), as well as current and past sacrifices (loss of access to marine resources, costly changes in fishing practices, etc.). We are less interested in future contributions or sacrifices.

Open ended. Probe for additional details, if appropriate.

29. Who *benefits most from the* [name of MPA/name of usual fishing grounds]? *Which groups of users and communities?*

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the "usual fishing grounds" specified in the reference focus group.

NOTE: We are primarily interested in current and past benefits (money, access to marine resources, etc.). We are less interested in future benefits.

Open ended response. Probe for details, if appropriate.

Now conclude interview.

That is very interesting. That is all the questions that I have. Thank you very much for your time. Before I go...

Notes

30. *Is there anything else I should know about [name of MPA/name of usual fishing ground]?*

If at a treatment settlement, ask only about the MPA. If at a comparison settlement, ask only about the "usual fishing grounds" specified in the reference focus group.

31. *Is there anyone else I should talk with about [name of MPA/name of usual fishing grounds]?*

32. *Are there any documents or sources of information that I should read about [name of MPA/name of usual fishing grounds]?*

Thank you again for your time. I greatly appreciate the opportunity to learn from you. If you have any questions about this study, I will be here until [date]. After that time, you can contact the study director, Dr. Fitry Pakiding, at UNIPA at [mobile number].

Appendix 5.3 Key informant interview protocol

(Version 1.0, September 2012)

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A. Introduction

This protocol provides step-by-step instructions for completing a key informant interview as part of the marine resource governance and community livelihoods monitoring program. These steps should be followed, as far as possible, in the order in which they are given. If field coordinators need to change the order of steps outlined here, he/she should seek the advice of the study director *prior to deviating from the protocol*.

This protocol also provides:

1. Useful background information about key informant interviews.
2. Detailed guidance regarding specific key informant interview questions.

B. Important information about key informant interviews

A key informant interview is used to explore a particular set of topics in detail, with someone who has extensive knowledge about those topics. In this study, we are interested in how marine resources are managed. While many people in a community have some knowledge of this based on their own personal experience, relatively few have a detailed understanding of marine resource governance. Key informant interviews enable us to gather information about marine resource governance which the wider community might not have, or might not want to share. This means that key informant interviews can provide information we did not expect, and provide insights which are not generated by other methods. For this reason, we do not use random sampling for key informant interviews. Instead, we use several different purposive methods to identify the people in a community who might be able to act as key informants.

C. Step-by-step guidance

1. Identifying a key informant

There are multiple ways to identify a key informant. In this study, several methods are combined to develop lists of potential key informants in each settlement. Generating a list of key informants is iterative; it changes over time, as the field coordinator's knowledge of the site improves.

1.1 Characteristics of key informants

A key informant is defined by their knowledge and their willingness to share their knowledge, not their social status, wealth or political power.

In this study, a key informant is someone who has specific, detailed knowledge about how marine resources are used and managed in the marine protected area (MPA) or usual fishing ground (for control settlements). Importantly, a key informant is someone who is also willing to share their information in a formal interview. This is what makes them different from an 'expert' who might have specialist information, but who does not want to share it.

A key informant might be a:

- Member of a specific local group (user or non-user)
- Local leader (e.g., *kepala adat*, *kepala kampung*)
- Academic or technical professional
- Government official

A key informant does not necessarily live in the community.

1.2 Methods for identifying key informants

There are multiple ways to identify key informants. It is common to use multiple methods, and 'triangulate' the lists of people with each other. It is likely the list will change over time, as the field coordinator's knowledge of the local context increases. Key informant interviews and the identification of potential informants will be conducted by the field coordinator or study director. In this study, enumerators do not conduct key informant interviews. If enumerators meet someone who they think is a potential key informant, they should inform the field coordinator or study director.

There are several steps involved in generating a list of key informants:

1. Identify major stakeholder groups.

The major stakeholder groups in this study include:

- Member of a specific local group (user or non-user)
- Local leader (e.g., *kepala adat*, *kepala kampung*)
- Academic or technical professional
- Government official

The list can be modified or made more detailed depending on the context of each site.

2. For each stakeholder group, generate a list of possible names by:
 - a) Consulting knowledgeable people (e.g., teacher, minister, *kepala desa*, etc.) about possible key informants.
 - b) Identifying 'stand-out' participants in the focus group. A 'stand-out' participant is someone who clearly has specialist knowledge about marine resource management and who seems happy to share it. Not every focus group will have a 'stand-out' participant.
 - c) Asking existing key informants to recommend other potential interviewees. At the end of each key informant interview, there is a question which asks people to identify others who they think we should talk to.
3. Select key informants from each major stakeholder group.

In each group, look for names that appear repeatedly. These are likely to be good key informants.

1.3 How many key informants are enough?

Unlike the household surveys, there is no required sample size for key informant interviews at each site. However, it is still important to ensure that the sample is large enough to represent the variation at a site. Several rules of thumb may be used to judge how many key informants should be interviewed at each site:

1. Aim for at least 10-15 key informants per site (site= MPA + control).
2. Aim for 2-3 key informants per focus group (at least one, and less than five).
3. Look at the information provided by key informants. If each interview is generating substantial new insights, more key informants are needed. If interviews are giving consistent information from a diverse range of respondents, it is likely that the existing sample of key informants is sufficient to represent the variation at the site.

1.4 Representative key informants

It is very important that the group of key informants for a site is diverse. If key informants are drawn from one place, group, or role, it is likely that the information provided will be biased. When identifying key informants, it is important to identify people from different backgrounds, who come from different stakeholder groups (local users, government) and subgroups (e.g., net fishers; trawlers). Key informants should also come from different settlements, so that the range of different opinions and perspectives about marine resources in the area are represented.

2. Requesting an interview

The field coordinator or study director will contact the potential key informant, explaining the purpose of the interview. They should also explain why the key informant was selected (i.e., because they have extensive knowledge about the management of marine resources). The field coordinator should ask the key informant to participate in an interview and asked to name a suitable time, date and location for the interview. If the key informant requests a copy of the questions prior to the interview, the program director or field coordinator will send them a list of topics the interview will cover.

3. Before the interview

The key informant interview instrument uses information gathered in a focus group to make the questions appropriate for a particular key informant. It is necessary to transfer this information across from the relevant focus group before the interview begins.

3.1 Identifying a reference focus group

Each key informant interview will use information from a specific focus group (referred to as the 'reference focus group' for the remainder of this document), to modify a series of context-specific questions on the key informant interview instrument. It is important that the correct 'reference focus group' is used for each key informant (see Figure 1).

There are two methods for identifying the reference focus group, depending on whether the key informant is resident at a monitoring site (e.g., a local Government official or local fisher), or if they are a non-local stakeholder (e.g., a national or provincial government official)

a) Key informants resident at a monitoring site (i.e., those who live in an MPA or control settlement):

If the key informant lives in a settlement where a focus group has been conducted, the field coordinator should use the focus group conducted in that settlement as the reference focus group. If the key informant lives in a settlement where no focus group has been conducted, the field coordinator should use the information gathered from nearest (i.e., closest geographical distance) focus group as the reference focus group.

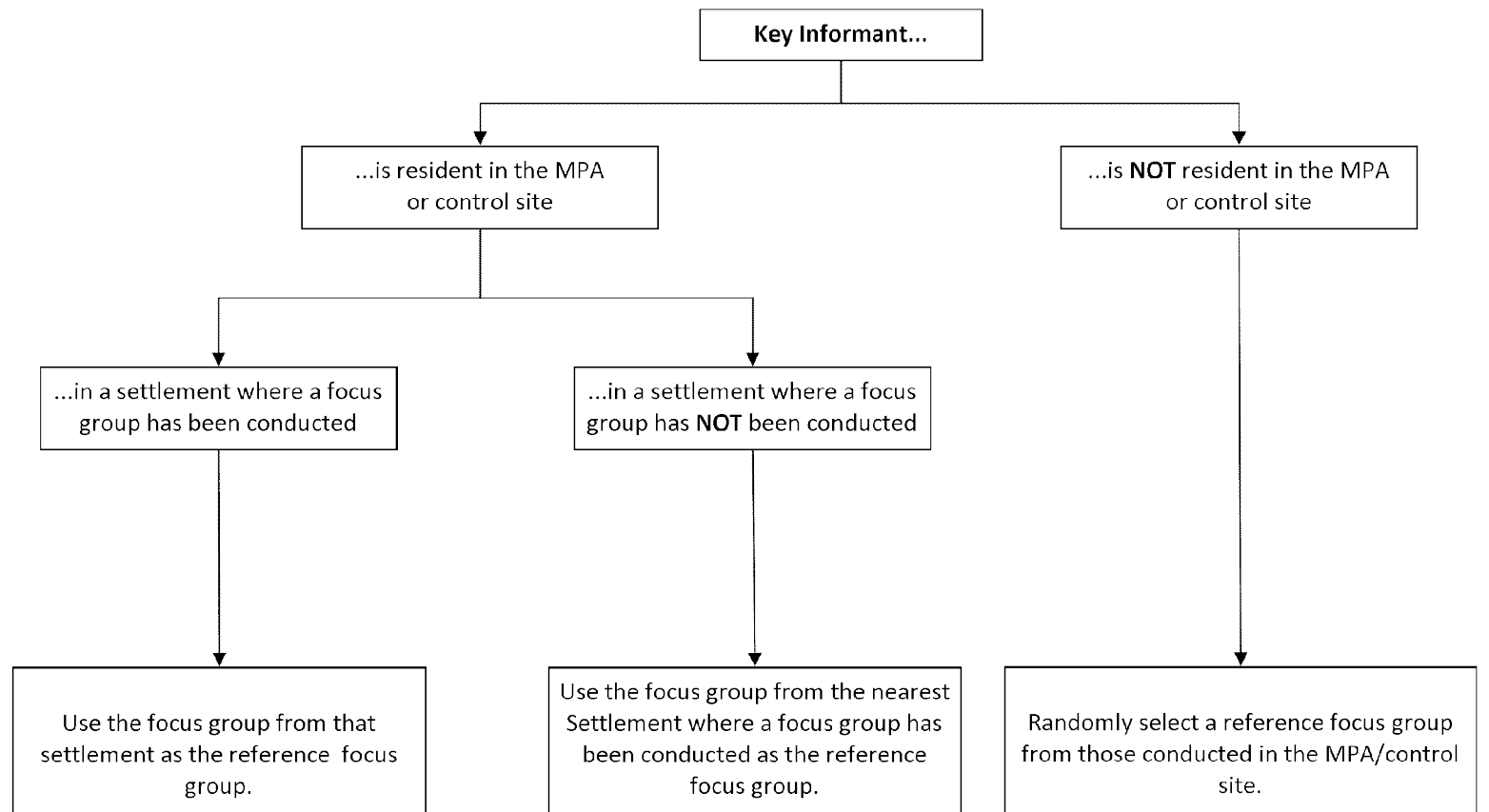
b) Key informants who are not resident at a monitoring site:

Randomly select a focus group to act as the reference focus group. Check that the list of important habitats, species and user-groups are complete for that focus group. If not, randomly select another.

3.2 Transferring information from the reference focus group

Transfer relevant information from the 'reference focus group' onto the key informant interview form (see Table 1).

Figure 1. Decision tree for selecting the reference focus group for key informant interviews.



Check that the list of important habitats, species and user-groups are complete for the selected focus group. If not, use the focus group from the nearest settlement with complete information on species, habitats and user-groups.

Check that the list of important habitats, species and user-groups are complete for the selected focus group. If not, use the focus group from the next nearest settlement with complete information on species, habitats and user-groups.

Check that the list of important habitats, species and user-groups are complete for that focus group. If not, randomly select another.

Table 1. Information to transfer to the key informant interview (KII) form from the reference focus group (FGD)

Key informant interview question	Focus group question	Information to transfer
Reference focus group code	FGD Code	Write the FGD code from the reference focus group on the key informant interview form in the space provided.
6. For each of the following species and habitats, are there special rules governing human uses?	Q4. What are the most important habitats in [name of MPA/name of usual fishing ground]? AND Q5. What are the most important species in [name of MPA/name of usual fishing ground]?	Write the names of the important species and habitats listed in focus group questions 4 and 5, in the space provided for key informant interview question 5: e.g., i) Species # <u> *WRITE NAME FROM FOCUS GROUP HERE* </u> ii) Habitat # <u> *WRITE NAME FROM FOCUS GROUP HERE* </u>
6. In particular, are there special rules governing the behavior of each of these user groups inside the [name of MPA/name of usual fishing grounds]?	6d. Who are the most important groups of users?	Write the the names of the important users identified in focus group Q6d in the space provided for key informant interview question 6: e.g., a) User group 1 <u> *WRITE NAME FROM FOCUS GROUP HERE* </u>
14. First, for each of the following groups, to what extent does the national government oppose or support the rights of users to develop their own rules governing resources within [name of MPA/name of usual fishing grounds]?	6d. Who are the most important groups of users?	Write the names of the important users identified in focus group Q6d in the space provided for key informant interview question 14. e.g., a) User group 1 <u> *WRITE NAME FROM FOCUS GROUP HERE* </u>
15. Next, for each of these groups, to what extent are their written and unwritten rules about use of marine resources included in national government practices in [name of MPA/usual fishing ground]?	6d. Who are the most important groups of users?	Write the names of the important users identified in focus group Q6d in the space provided for key informant interview question 15. e.g., a) User group 1 <u> *WRITE NAME FROM FOCUS GROUP HERE* </u>

4. Opening a key informant interview

The field coordinator (or study director) will conduct the key informant interviews, one-to-one with each informant.

At the beginning of the key informant interview, the interviewer will:

- a) Greet the key informant
- b) Introduce themselves
- c) Explain the purpose of the monitoring.
'This study seeks to understand local livelihoods, and how local marine resources are used and managed. We want to learn about these things from community members, so that we can share your experiences and insights with people elsewhere in Papua and around the world.'
- d) Explain what topics will be covered and how the data will be used.
'The interview will cover a series of topics related to marine resource use, and how resources are managed, for example: who uses marine resources, the rules which govern the use of these marine resources, how decisions are made about these marine resources, and how rules are enforced.'
- e) Give an estimate of how long the interview will take.
- f) Stress that there are no right or wrong answers.
- g) Indicate why the informant was selected for interview.
- h) Explain that the data are confidential. The data provided by key informants are confidential. Any information which might identify individual key informants or their responses will be stored securely and will not be published.
- i) Ask the key informant if they agree to participate in the interview: This must be done after the purpose of the interview has been explained, so that the key informant can give their informed consent. A key informant may decide that they do not wish to participate in the interview and they may choose not to answer any of the questions during the interview.
- j) Ask for permission to take notes or make a digital recording of the interview.

5. Conducting a key informant interview

5.1. Facilitating a key informant interview

A key informant interview is usually less structured than a household survey. Key informants should feel as though they are having a detailed conversation with the interviewer, rather than being asked a series of questions.

- The interviewer should guide the conversation, using the questions laid out in the key informant interview instrument.
- Despite the conversational tone of a key informant interview, it remains very important to avoid emotional or inflammatory language when posing questions.

- The interviewer should be aware of their body language and be careful not to influence key informants using verbal or non-verbal forms of communication. There are no ‘right’ or ‘wrong’ answers, but the interviewer’s body language may accidentally encourage biased responses and discourage honesty. Body language may also prompt key informants to lengthen or shorten their answers.
- Probe for further information when necessary.
- Take detailed notes at the time of interview, and use a digital voice recorder as a back-up. This will enable the interviewer to focus on the questions and responses, rather than on attempting to make verbatim notes.

5.2 Types of questions

The key informant interview instrument includes several different several types of questions: open-ended, short answer, multiple choice and rank order.

a) Open-ended questions.

Open-ended questions permit the key informant to answer in any manner that they choose. These questions are designed to explore a topic in detail, and to allow key informants to talk about a topic using their own language. The key informant interview instrument uses open-ended questions extensively, to understand the context of marine resource use and how marine resources are managed (see Table 2).

The interviewer should ‘probe’ (i.e., ask targeted follow-up questions) to explore these questions in detail.

The interviewer should record key informant’s answers using the key informant’s own words. The interviewer should record answers as the key informant is speaking. After the interview, the interviewer should listen to the digital voice recording and supplement the original notes with additional details.

Table 2. Open-ended questions on the key informant interview instrument

Number	Question
1	<i>Can you please tell about the history of [name of MPA/usual fishing ground] and your involvement with it? How did you first get involved? What was the management of marine resources like in [name of MPA/usual fishing ground] when you first got involved and how has it changed over time? Why has it changed?</i>
9	<i>How are the rules and boundaries of [name of MPA/name of usual fishing grounds] made clear to individuals who use marine resources within [name of MPA/name of usual fishing grounds] ?</i>
10	<i>To what extent do individuals who use marine resources within [name of MPA/name of usual fishing grounds] know the rules and boundaries of [name</i>

Number	Question
	of MPA/name of usual fishing grounds] ?
11	<i>To what extent do the rules governing [name of MPA/name of usual fishing grounds] differ in practice from the way that they are written on paper?</i>
12	<i>Are there any unwritten or informal rules that govern the use of marine resources in [name of MPA/name of usual fishing grounds] ?</i>
13	<i>Who actively participated in or is actively participating in making the rules governing [name of MPA/name of fishing ground]?</i>
16	<i>How are the rules governing [name of MPA/name of usual fishing grounds] monitored and enforced?</i>
25	<i>How are conflicts about marine resources in [name of MPA/name of usual fishing grounds] resolved among users, and between users and government officials?</i>
26	<i>What have been the ecological impacts of [MANAGEMENT IN name of usual fishing ground/name of MPA] ?</i>
27	<i>What have been the social impacts of [MANAGEMENT IN name of usual fishing ground/name of MPA]?</i>
28	<i>Who makes the greatest contributions to or sacrifices for the [name of MPA/name of usual fishing grounds]? Which groups of users and communities?</i>
29	<i>Who benefits most from the [name of MPA/name of usual fishing grounds] ? Which groups of users and communities?</i>
30	<i>Is there anything else I should know about [name of MPA/name of usual fishing ground] ?</i>
31	<i>Is there anyone else I should talk with about [name of MPA/name of usual fishing grounds] ?</i>
32	<i>Are there any documents or sources of information that I should read about [name of MPA/name of usual fishing grounds] ?</i>

b) *Short answer questions.*

Short answer questions require a key informant to provide a short, simple, direct response to a question. In the key informant interview, we use this technique in several places (see Table 3). The interviewer does NOT provide the key informant with a choice of possible answers. In some cases, the interviewer is required to assign a code to the key informant's reply. In these cases, the interviewer must listen to key informant's reply and choose among the pre-coded responses that are listed on the key informant interview form.

Table 3. Short answer questions on the key informant interview instrument.

Number	Question
2a	<i>What types of formal or informal management zones exist within [name of MPA/name of usual fishing ground]?</i>
2b	<i>How many examples are there of each type of zone within [name of MPA/name of usual fishing ground]?</i>

c) *Constrained choice questions.*

Many of the questions on the key informant interview are constrained choice questions (Table 4), meaning that there are only a limited number of valid responses for a key informant to choose. This type of question is used when we want to categorize responses into pre-defined groups. On the key informant interview instrument, all constrained choice questions require key informants to choose one response from the series of possible responses listed on the instrument for that question. The choices include simple 'yes/no' answers and 5-point scales ('strongly disagree/disagree/neither disagree nor agree/agree/strongly agree'). In most cases, the interviewer provides the range of possible responses to the key informants. To record the information given by a key informant, the interviewer should write the appropriate code clearly in the answer box provided for that question. Any additional information should be placed in the notes column to the right of the question.

Table 4. Constrained choice questions on the key informant interview instrument.

Number	Question
2c	<i>For each type of zone, is there a formal or informal organization that helps to manage ONLY this type of zone?</i>
2d	<i>To what extent does this zone specific organization coordinate its activities with an organization that manages all of [name of MPA/name of usual fishing ground]?</i>
3	<i>Are the boundaries of these management zones related to ecological differences from place to place within [name of MPA/name of usual fishing ground]?</i>

Number	Question
4	<i>Are the boundaries of these management zones related to social differences from place to place within [name of MPA/name of usual fishing grounds]?</i>
5	<i>For each of the following species and habitats, are there special rules governing human uses? For example, is there a rule that applies to this species or habitat and nothing else?</i>
6	<i>In particular, are there special rules governing the behavior of these each user groups inside the [name of MPA/name of usual fishing grounds]? For example, are there rules that apply to these groups and nobody else?</i>
7	<i>Do the rules use of governing marine resources in [name of MPA/name of usual fishing grounds] change based on changes in ecological conditions in and around [name of MPA/name of usual fishing grounds] over time?</i>
8	<i>Do the rules governing marine resources use in [name of MPA/name of usual fishing grounds] change based on changes in social conditions in and around [name of MPA/name of usual fishing grounds] over time?</i>
14	<i>First, for each of the following groups, to what extent does the national government oppose or support the rights of users to develop their own rules governing resources within [name of MPA/name of usual fishing grounds]?</i>
15	<i>For each of these groups of users, to what extent are their written and unwritten rules about use of marine resources included in national government practices in [name of MPA/name of usual fishing ground]?</i>
17	<i>What penalties exist to encourage compliance with the regulations governing marine resource use within the [name of the MPA/usual fishing ground]?</i>
18	<i>If caught breaking rules in [name of MPA/name of usual fishing grounds], how often do rule-breakers receive one of these penalties?</i>
19	<i>What factors influence the choice of penalty?</i>
20	<i>What incentives are provided to encourage compliance with the rules governing marine resource use?</i>
21	<i>I'm curious who "monitors the monitors" in [name of MPA/name of usual fishing grounds]. What happens if the people responsible for monitoring and enforcement don't do their job properly? Are there penalties?</i>
22	<i>What happens if the monitors do not effectively monitor social conditions?</i>
23	<i>What happens if the monitors do not actively monitor the compliance of individuals who use marine resources in [name of MPA/name of usual fishing grounds]?</i>

Number	Question
24	<i>And, lastly, what happens if the monitors do not penalize people when those individuals break the rules governing use of marine resources in [name of MPA/name of usual fishing grounds]?</i>

6. Completing the key informant interview form

6.1 Basics of the key informant interview form

The information given by each participant is recorded on a new key informant interview form. The form contains the questions to be asked, spaces to record key informants' responses, and instructions to interviewer. These different types of information are distinguished by different text formats (Box 1).

The key informant's responses are recorded by the interviewer at the time they are given. If a digital voice recorder is used, additional details may be added later. When using a digital voice recorder, it is important to still make sufficient written notes at the time of interview, in case the recording is unclear or corrupted. It is the responsibility of the interviewer to ensure the information recorded on the form is accurate and complete.

6.2 Identification Information

Each completed form is identified by a series of codes, which identify where the key informant interview was conducted and interviewer who conducted the interview. Three codes need to be recorded on every page of the form. These are:

- Country code
- Site code
- KII code

There are standard codes for the country and site. These codes can be obtained from the study director, and are also provided in Appendix 4.9. KII codes are assigned by the field coordinator. Each key informant interview should be numbered, in the order that they occur for each site (the first interview, should be assigned KII code number 1; the second assigned number 2; etc.). Continue adding to the list for any key informant interviews that take place in control settlements in the site.

In addition, the interviewer will need to record the FGD code of the reference focus group used to populate the lists of important species, habitats and user groups.

Box 1. Types of formats used on the key informant interview form.

Information which should be read to key informants is given in italic type. This includes the questions, some information for the key informants, and, in some cases, the list of possible answers key informants may give.

Instructions the field coordinator/enumerator are underlined. These instructions are to help the field coordinator ask questions, prompt the key informants appropriately if necessary, and to help the enumerator record information correctly. Underlined text should not be read to key informants.

Bold type is used for section headings and transitions from one topic to another.

For some questions, it is necessary for the field coordinator to 'fill in the blank' in a question to make it appropriate for that interview. Instances where enumerators need to 'fill in the blank' are denoted by [bracketed text in bold type]. For example, throughout the survey, the field coordinator will need to modify questions based on whether the key informant interview is being held in an MPA or a control site. This is indicated by '[name of the MPA/name of usual fishing grounds]'. For MPA sites, use the full name of the MPA (e.g., 'Teluk Mayalibit KKLD', not 'Teluk Mayalibit'). For control sites, use the full name given by the community to their local fishing grounds. It is important that the name used remains consistent from question to question in the discussion.

6.3 Recording responses

Many of the questions on the key informant interview instrument are constrained choice. For each constrained choice, there are multiple answer boxes, each corresponding to a specific answer. Put a cross [X] in the relevant box to record the key informant's response.

For open-ended questions, interviewers should make a comprehensive record of the key informant's answer in the box provided. Additional information can be added to the notes column adjacent to the question, where appropriate.

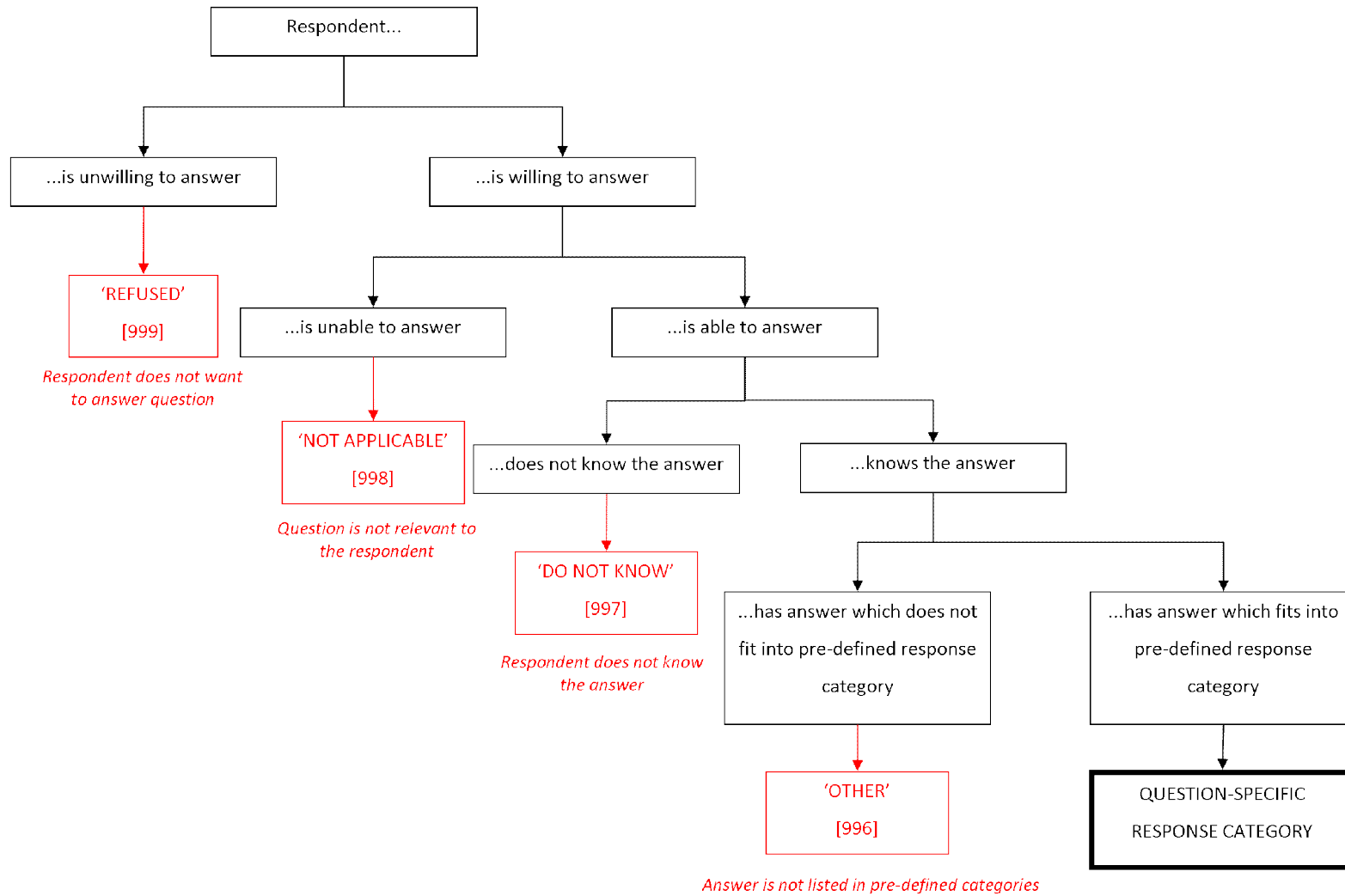
6.4 Blind Response Codes

In addition to the valid response categories, there are a set of 'blind response' codes available to note-takers throughout the key informant interview instrument. These blind codes are not spoken aloud by the interviewer presented as response options to the key informant, but are recorded by the note-taker if the key informant volunteers them.

There is a standard set of blind response codes in this study, which are used to record key informant's responses. Each code has a different meaning, so the field team should understand which code is appropriate in each context (see Figure 2):

Appendix 5.3

Figure 2. Blind codes decision tree (modified from Dillman et al., 2009).



Appendix 5.3

a) 'Other'

Code: [996]

'Other' is used where the answer given by a respondent does not fit into one of the pre-defined response categories given on the instrument for a constrained choice question. Typically, 'Other' is used where a respondent is both willing and able to answer the question, but their response does not fit neatly into one of the pre-defined categories listed on the instrument. 'Other' is NOT an appropriate response on the key informant interview form. This is because all the constrained choice questions have exhaustive lists of response categories which the note-taker must use to categorize the key informant's response.

b) 'Do not know'

Code: [997]

'Do not know' is used where a key informant is willing to answer the question, but does not have the necessary information to be able to answer. 'Do not know' is available as a blind response for the majority of questions in the key informant interview. When recording 'Do not know', the interviewer should place a cross [X] in the blind response code box provided and specify the code '997' in space provided (see Box 2).

c) 'Not applicable'

Code: [998]

'Not applicable' is used where the question is not relevant to the key informant. In the majority of cases, 'Not applicable' is the appropriate response where the question makes an assumption which does not hold for the key informant. Even where an interviewer suspects the answer given by the key informant will be coded as 'Not applicable', the question must still be asked. When recording 'Not applicable', the interviewer should place a cross [X] in the blind response code box provided and specify the code '998' in space provided (see Box 2).

d) 'Refused'

Code: [999]

Key informants may not be willing to answer a specific question asked during the interview. Key informants may refuse to answer any question during the interview, if they wish. Where key informants are unwilling to answer a question, the appropriate blind response category is 'Refused'. Put simply, this means that the question was asked, and key informant did not want give an answer. When recording 'Refused', the interviewer should place a cross [X] in the blind response code box provided and specify the code '999' in space provided (Box 2).

Box 2. How to record blind responses on the key informant interview form

<p><i>I would now like to ask you about the rules governing the behavior of each of the following important groups of individuals in [name of MPA/name of usual fishing ground].</i></p> <p>6. <i>In particular, are there special rules governing the behavior of these each user groups inside the [name of MPA/name of usual fishing grounds]? For example, are there rules that apply to these groups and nobody else?</i></p> <p><u>If at a treatment site, ask only about the MPA. If at a control site, ask only about the "usual fishing grounds" specified in the reference focus group.</u></p> <p><u>If necessary, specify the appropriate "blind response" code in the box. [997] = Don't know; [998] = Not applicable; [999] = Refuse</u></p> <p><u>NOTE: list of user groups should be copied from the answer to question 6d in the "reference focus group" for this key informant interview. See protocol for key informant interviews to determine the "reference focus group."</u></p> <p>A User group 1 _____</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Blind code (specify) _____</p> <p style="color: red; margin-left: 100px;">Place a cross [X] in the box</p> <p style="color: red; margin-left: 300px;">Write the appropriate code in the space provided.</p>	<p>Notes</p>
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6.5 Contingent questions

The specific wording of the questions in the key informant interviews depends whether upon (a) the key informant interview is related to MPA or control settlements, and (b) the information transferred from the reference focus group.

a) Questions contingent on location: MPA and control settlements

In the key informant interview, we are gathering information about the management of marine resources in a specific place. Because the management of marine resources can vary from place to place, it is very important to use the correct name for the specific place/marine resources we are interested in. For the majority of questions, the interviewer is required to 'fill in the blank' with the appropriate name or phrase depending on whether the subject of the key informant interview is an MPA or control settlement. On the key informant interview form, the places where it necessary to 'fill in the blank' are marked as '[name of MPA/name of usual fishing grounds]'

- When conducting key informant interviews relating to treatment settlements, the interviewer will always ask about management of marine resources in the MPA. The interviewer will use the full name of the MPA each time to fill in the blank. For example, when conducting an interview in Teluk Mayalibit KKLD, the interviewer should ask about 'Teluk Mayalibit KKLD', not 'Teluk Mayalibit'. A list of full MPA names to be used in key informant interviews can be found in Appendix 4.9

- When conducting interviews in control settlements, the interviewer will always ask about the management of marine resources in the usual fishing grounds of that settlement. This information is asked at the beginning of the reference focus group in focus group question 1.a. The interviewer will use the name or phrase provided by key informants in the reference focus group whenever they are prompted to 'fill in the blank'.

b) User-group, species, and habitat-specific questions

To ensure that questions posed to the key informant are contextually appropriate, many of the questions on the key informant interview instrument draw upon information gathered in the reference focus group. This includes information on important user-groups, species and habitats.

- Habitat specific questions should use the list of habitats compiled in the reference focus group (Focus Group Question 4). The names of the habitats should be filled in prior to the interview (see section C.3.2).
- Species specific questions should use the list of species compiled in the reference focus group (Focus Group Question 5) . The names of the species should be filled in prior to the interview (see section C.3.2).
- User-group specific questions should use the list of users compiled in the reference focus group (Focus Group Question 6d). The names of the habitats should be filled in prior to the interview (see section C.3.2).

6.6 Making additional notes

A notes column is provided adjacent to every question on the form. This space should be used to record any additional information which is relevant to the interview.

7. Closing the key informant interview

At the end of the interview, there are a series of questions which give the key informant the opportunity to provide any additional information and help to identify other important sources of information. After asking these final questions, remember to thank the key informant for sharing their knowledge with us. The interviewer should remind the key informant that their responses are confidential, and that no information which could identify them will be made public.

After thanking the key informant, the interviewer should record the end time of the interview on the form.

8. After the key informant interview

8.1 Confidentiality

It is very important that the information gathered during the interview remains confidential. Failure to do so could make key informants less willing to participate in this and other monitoring projects in future. The information provided by key informants is sensitive, and breaching confidentiality may expose the key informant to risk/harm. It is acceptable to discuss the types of questions being asked and the purpose of the monitoring. To maintain confidentiality, the field team cannot discuss the answers given by an individual, or give away any information which could identify the key informant, - even if the person asking for it is in a position of authority. Politely explain the reason that this information cannot be released and refer them to the study director for more information.

Maintaining confidentiality also extends to how we store the key informant data sheets. These should be stored in a secure, safe and dry place. Completed data sheets should not be shown to anyone who is not part of the monitoring team.

8.2 Checking the responses

After the interview, the interviewer should check the data collected that day. Make sure:

- A response has been entered for every question.
- For all contingent questions, ensure information is recorded for the correct number of user groups, species, and habitats.
- All responses are written clearly. Responses should be sufficiently clear that someone else can read the form, and understand what is written.
- Identification codes have been written on every page of the data sheet.
- Responses written in pencil have been checked and copied in pen.
- The responses recorded for open-ended questions are accurate and contains sufficient detail.
- The start and end time of the key informant interview have been recorded correctly.

D. Question-specific guidance

There are some questions on the protocol which require some additional guidance.

Number	Question	Instructions
1	<i>Can you please tell me about the history of [name of MPA/name of usual fishing grounds] and your involvement with it? How did you first get involved? What was management of marine resources like in [name of MPA/name of usual fishing grounds] when you first got involved and how changed over time? Why has it changed?</i>	<p>This question is an opportunity for key informants to provide general background information. We are particularly interested to know how marine resources were managed in the past and if management has changed over time. If changes have taken place, it is useful to understand why those changes occurred. We also want to know how the key informant is involved in marine resource management.</p> <p>'Management' includes the setting of boundaries, making rules, monitoring (informally or formally) the condition of marine resources, local people or the compliance with rules, as well as the enforcement of rules.</p>
2	<p>a) <i>What types of formal and informal management zones exist within the [name of MPA/name of usual fishing grounds]?</i></p> <p>b) <i>How many examples are there of each type of zone within the [name of MPA/name of usual fishing grounds]?</i></p> <p>c) <i>For each type of zone, is there a formal or informal organization that helps to manage ONLY this type of management zone?</i></p> <p>d) <i>For each organization listed in 2c, to what extent does this zone-specific organization coordinate its activities with an organization</i></p>	<p>This question is about how different zones within the MPA/usual fishing grounds are managed.</p> <p>A management 'zone' is a specific place or geographic area with a specific set of rules.</p> <p>This may include both formal and informal zones, written or unwritten. Examples of zones include: legally-designated no-fishing areas, <i>sasi</i> areas, village marine tenure areas, tourism zones, etc.</p> <p>a) Asks about the different types of zones within the MPA/usual fishing grounds. Legally-designated no-fishing areas, <i>sasi</i> areas, village marine tenure areas, tourism zones are all types of zones.</p> <p>b) Asks how many of each type of zone occur within the MPA/usual fishing grounds. For example, a single MPA may have two no-fishing areas and one tourism zone. Record the number of each type of zone which exist in the MPA in the space next to the relevant zone.</p> <p>c) In part c., we want to know about who is managing the zone. Is there a</p>

Number	Question	Instructions
	<p><i>that manages all of [name of MPA/name of usual fishing grounds]? Do they Never coordinate, Rarely coordinate, Sometimes coordinate, Usually coordinate, or Always coordinate?</i></p>	<p>management body (informal or formal) which manages <u>only</u> this type of zone? For example, a tourism zone might be managed by a commercial tourism operator, which works only in the tourism zone. In this case, the answer to part c., is yes. In another example, a no-fishing area is managed by the National Government. If the National Government also manages any of the other zones in the MPA, the answer for the no-fishing zone in part c., is No.</p> <p>d) For those zones which have a zone-specific management body (i.e., Q2c =YES), question 2.d, asks how often does the management body coordinate their activities, policies and regulations with other organizations (formal or informal) involved in the management of the MPA or usual fishing grounds.</p> <p>The interviewer should always record at least one type of zone. If the rules governing the use of resources within the MPA or usual fishing ground are the same across the entire MPA/usual fishing ground, this is considered ONE type of zone.</p> <p>If there are different rules in different parts of the MPA/usual fishing ground, then there are MULTIPLE types of zones; there may be one or more examples of each type of zone, (i.e., there might be two 'no-fishing' zones, or three different areas subject to sasí).</p>
5	<p><i>I would now like to ask you about the rules governing use of important species and habitats in the [name of MPA/name of usual fishing ground]. I am interested in rules that both restrict use and that provide permission for use.</i></p> <p><i>For each of the following species and habitats, are there special rules governing human uses? For example, is there a rule that applies to this species or habitat and nothing else?</i></p>	<p>This question is designed to find out if there are rules about the exploitation of the species and habitats that focus group participants identified as important.</p> <p>As explained in Table 1, before the interview, the important species and habitats identified in the reference focus group should be transferred into the appropriate spaces for Question 5. Guidance on how to identify the appropriate reference focus group can be found in section C.3.1</p> <p>For example:</p> <p>A species-specific rule is: 'No fishing for whales anywhere within the MPA'. A habitat-specific rule is: 'No fishing in the sea-grass beds between June and October'.</p>

Appendix 5.4

Number	Question	Instructions
6	<p><i>I would now like to ask you about the rules governing the behavior of each of the following important groups of individuals in [name of MPA/name of usual fishing ground].</i></p> <p><i>In particular, are there special rules governing the behavior of these each user groups inside the [name of MPA/name of usual fishing grounds]? For example, are there rules that apply to these groups and nobody else?</i></p>	<p>This question is designed to find out if there are rules about the behavior of specific user groups.</p> <p>As explained in Table 1, before the interview, the important user groups identified in the reference focus group should be transferred into the appropriate spaces for Question 6.</p> <p>Guidance on how to identify the appropriate reference focus group can be found in section C.3.1</p> <p>For example:</p> <p>A user-specific rule is: 'Commercial fishermen from the United States are not allowed to use bombs in the MPA'</p>
10	<p><i>To what extent do individuals who use marine resources within [name of MPA/name of usual fishing grounds] know the rules & boundaries of [name of MPA/name of usual fishing grounds]?</i></p>	<p>Here, we want to understand if the rules and boundaries of the MPA (in treatment settlements) or the usual fishing grounds (in controls) are understood by local users. Do local users know where the boundaries are, for both the outside edge of the MPA and the zones inside the MPA? Do local users know what the rules are for each zone?</p>
11	<p><i>To what extent do the rules governing [name of MPA/name of usual fishing grounds] differ in practice from the way that they are written on paper?</i></p>	<p>We are interested to know if rules are implemented or practiced in a manner that is different from the way rules are formally described or legally designated. For example, the legally-designated speed limit on a road might be 55 kilometers per hour (kph), but – in practice- the speed limit might be 65 kph because the police do not fine drivers who are travelling at less than 65kph. Similarly, a reef might be designated 'no-fishing' but –in practice- MPA rangers may permit residents to fish in this area for subsistence use.</p>
12	<p><i>Are there any unwritten or informal rules that govern the use of marine resources in [name of MPA/name of usual fishing grounds]?</i></p>	<p>Formal rules are the product of a conscious decision or choice that led to the establishment of that particular rule. This formal rule might be written (e.g., legislation, management plan etc,) or unwritten (<i>sasi</i> decree).</p>

Appendix 5.4

Number	Question	Instructions
		<p>Informal rules involved no conscious decision and may emerge spontaneously through repeated interactions over time. For example, the boundaries of fishing areas for each community might have evolved informally over time. The current boundaries reflect repeated interactions, and communities may avoid conflict by sticking to these informal rules about where they can (and cannot) fish.</p>
14	<p><i>First, for each of the following groups, to what extent does the national government oppose or support the rights of users to develop their own rules governing resources within [name of MPA/name of usual fishing grounds]?</i></p>	<p>In this question, we want to understand whether the national government permits users to solve problems by themselves by establishing their own rules. In some countries, the government encourages resource users to establish their own rules. In other countries, the government hinders efforts by users to establish their own rules.</p> <p>Government support/opposition may vary depending upon the user group, so we ask about each group of users one-by-one. We want to know if the government supports or opposes the right of these user groups to establish rules governing marine resource use.</p> <p>'Neither opposes nor supports' is different from 'Do not know'. 'Neither opposes nor supports' means that the respondent knows that the government is indifferent, neutral or mixed in its opposition or support. 'Do not know' means that the respondent is unaware or ignorant of how the government thinks or acts.</p>
15	<p><i>For each of these groups, to what extent are their written and unwritten rules about use of marine resources included in national government practices in [name of MPA/usual fishing ground]?</i></p>	<p>A user group may have its own set of rules which govern how its members use a resource. These rules might be written or unwritten. This question is trying to understand if these 'user-group rules' are reflected in the rules and practices followed by the national government.</p> <p>Does the government have a similar rule to the users' own rules? Did the government establish this rule as a result of users' decisions?</p> <p>Do the government rules and users' rules say the same thing, or are the different rules in conflict with each other?</p>

Appendix 5.4

Number	Question	Instructions
		<p>For example, if user group 1 has informally banned use of nets less than 1 cm diameter among its members, has the government also made a regulation in the MPA/usual fishing ground to ban nets less than 1 cm in diameter?</p>
20	<p><i>What incentives are provided to encourage compliance with the rules governing marine resource use?</i></p>	<p>'Environmental education' is defined as activities designed to raise awareness and understanding of environmental issues.</p> <p>'Skills training' is defined as activities that provide technical skills to enhance livelihoods or household income.</p> <p>'Exchange of equipment' means that illegal fishing gear, etc., is exchanged for legal or more sustainable fishing gear.</p> <p>'Purchase of equipment' means that either illegal equipment is purchased from fishermen, or that legal equipment is purchased for fishermen.</p> <p>'Loans' include both monetary and non-monetary loans (e.g., fuel).</p> <p>'Direct payments' includes both monetary and non-monetary payments.</p>
25	<p><i>How are conflicts about marine resources in [name of MPA/name of usual fishing grounds] resolved among users and between users and government officials?</i></p>	<p>The word 'conflict' is used to describe any and all types of disagreements, arguments or tensions over any aspect of marine resource use, management, monitoring or enforcement.</p> <p>Some conflicts over marine resources may remain unresolved. If so, it is useful to understand how people have tried to resolve these conflicts.</p>
27	<p><i>What have been the ecological impacts of management in [name of usual fishing ground/name of MPA]?</i></p>	<p>Ecological impacts include any and all changes (both positive and negative) to the characteristics of the species, habitats or ecosystem function. Ecological impacts could include: animal population size, biomass, density, habitat quality, newly discovered or harvested species, animal behavior, disease outbreaks.</p> <p>If the key informant only lists positive impacts, probe gently to find out if any negative</p>

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Number	Question	Instructions
		<p>impacts have occurred.</p> <p>If the key informant only lists negative impacts, probe gently to find out if any positive impacts have occurred.</p>
29	<p><i>Who makes the greatest contributions to or sacrifices for the [name of MPA/name of usual fishing grounds]? Which groups of users and communities?</i></p>	<p>In this question, we want to learn about the ‘costs’ associated with the MPA/usual fishing grounds. We want to learn who pays these ‘costs’. Which groups of users? Which settlements? Which demographic groups?</p> <p>There are two types of costs: direct costs and indirect costs.</p> <p>We learn about direct costs by asking about ‘contributions’ to the MPA. These contributions may be (a) cash payments (e.g., licenses, access fees, contributions to management); (b) labor investments (e.g., patrolling, environmental clean-up, etc); or (c) in-kind contributions (e.g., donating boat fuel, food during a planning meeting, etc.).</p> <p>We learn about indirect costs by asking about ‘sacrifices’ associated with the MPA. These sacrifices may be considered ‘lost opportunities’ – opportunities that existed without the MPA/usual fishing grounds, but do not exist under the current management system. These sacrifices may include loss of access to marine resources, inability to use certain fishing gears (once legal, now illegal), and other lost opportunities.</p> <p><u>NOTE: We are primarily interested in current and past ‘costs’. We are less interested in future ‘costs.’</u></p>
30	<p><i>Who benefits most from the [name of MPA/name of usual fishing grounds]? Which groups of users and communities?</i></p>	<p>In this question, we want to learn about the benefits associated with the MPA/usual fishing grounds. We want to learn who captures these benefits. Which groups of users? Which settlements? Which demographic groups?</p> <p>There are two types of benefits: direct benefits and indirect benefits.</p> <p>Direct benefits may include (a) cash payments; and (b) in-kind contributions (e.g., boat</p>

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Number	Question	Instructions
		<p>fuel, food, etc.). Indirect benefits may include (a) preferential access to marine resources; and (b) other new opportunities (e.g., employment, gear, credit, etc.).</p> <p>Indirect benefits may be considered 'new opportunities' – opportunities that did not exist without the MPA/usual fishing grounds, but do exist under the current management system.</p> <p><u>NOTE: We are primarily interested in current and past benefits. We are less interested in future benefits.</u></p>

Appendix 5.4 Protocol for conducting focus groups

(Version 1.0, September 2012)

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A. Introduction

This protocol provides step-by-step instructions for completing a focus group as part of the marine resource governance and community livelihoods monitoring program. These steps should be followed, as far as possible, in the order in which they are given. If field coordinators need to change the order of steps outlined here, you should seek the advice of the study director *prior to deviating from the protocol*.

This protocol also provides:

- Background information about focus groups
- Detailed guidance regarding specific focus group questions.

B. Important information about focus groups

A focus group is a facilitated discussion among a group of people about a specific topic. Focus groups are used to:

- Explore collective understanding and divergent perspectives within a group, rather than to collect information about individual knowledge or opinions.
- Provide the opportunity for structured discussion. The ability for participants to interact and discuss a subject may increase the accuracy, precision, and validity of certain types of data, (e.g., compared to a series of one-to-one interviews).
- Assess the validity of data gathered using other monitoring methods.
- Rapidly collect high quality information about a particular topic.
- Identify good key informants (see Appendix 5.3 Key Informant Interview Protocol)

Rather than use a random sample of individuals, focus group use a purposive sample to target particularly knowledgeable individuals, (i.e., those who have an understanding of the subject beyond their own personal experience). In this case, we are interested in focus group participants who are particularly knowledgeable about marine resources and marine resource governance.

In this study, only field coordinators facilitate focus groups. Enumerators assist the field coordinator by (a) recording information on the focus group form, (b) assisting with logistics, and (c) taking notes and (d) drawing maps, as necessary.

The field coordinator should hold one focus group in each of the settlements that he or she visits as part of this study. Focus groups should be held in both marine protected area (MPA) and control settlements.

C. Step-by-step instructions

1. Introduce the study & focus group

Upon arrival in a new settlement where data will be collected, the field coordinator (or senior enumerator, if field coordinator is absent) should:

- a) Ask to speak to the *kepala desa* so that the purpose of the research can be explained to them, and the team introduced.
- b) Explain the purpose of the monitoring to the *kepala desa*, what the data will be used for, and explain how the data will be collected (see Appendix 4.6 Monitoring Information sheet).
- c) Ask for the help of the *kepala desa* in creating a list of all the households in the settlement.
- d) Ask the *kepala desa* to give the name of the primary market for people living in that settlement, and record it on the settlement sampling form. The 'primary market' for a settlement is defined as the place that the majority of households in the settlement go to sell all their goods (e.g. fish catch).
- e) A GPS location of the centre of the settlement will also need to be taken, and recorded on the settlement sampling form. The field coordinator will be responsible for ensuring this is done correctly.

If a field coordinator is present, they should:

- a) Ask for the help of the *kepala desa* identifying 10-12 participants for the focus group, based on the criteria outlined in section C.2 of this protocol.
- b) Arrange a time and place for the focus group.

If the *kepala desa* is not available, the field coordinator or senior enumerator should consult with another senior official within the settlement (e.g., *sekretaris kampung/desa*).

If the field team is conducting a repeat survey, the field coordinator or senior enumerator should give the appropriate settlement profile to the *kepala desa* (see Appendix 4.8: Settlement profile template).

2. Identify focus group participants

The purpose of this study is to understand marine resource governance and community livelihoods, so field coordinators should identify local residents who are particularly knowledgeable about the status, use, and management of local marine resources as potential focus group participants.

If the settlement is inside the boundary of an MPA, participants should know about the MPA. If the settlement is a control site, participants should know about the settlement's usual fishing grounds.

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Ideally, a focus group should occur in every settlement where household surveys are being conducted. In practice, the number of focus groups will be determined by the availability of the field coordinator to facilitate the discussions (enumerators should not attempt to facilitate focus groups), and the availability of participants. As a guide, focus groups should be held in a minimum of three and preferably at least five settlements in both MPA and control sites.

If possible, participants should reflect the full range of people who use the MPA or usual fishing grounds (in control settlements), including fishers and non-fishers of all social backgrounds (e.g., wealth, ethnicity, gender, education, political status). Most important, however, is that participants are particularly knowledgeable about the status, use, and management of local marine resources.

A focus group will usually contain between 6-12 participants, but these numbers can vary based on local conditions. A focus group with fewer than 6 participants may lack the full range of local perspectives; a focus group with more than 12 participants may be difficult to facilitate, and participants may be frustrated because they rarely have the opportunity to speak.

3. Arranging a focus group

Once a list of potential focus group participants has been identified, the field coordinator should work with the *kepala desa* or other senior village official to:

- Contact individuals on the list of potential participants to request their involvement;
- Arrange a time and a location for the focus group.

The focus group should be held in a setting where every participant can express their opinion freely. The location should minimize the likelihood that non-participants will interrupt or influence the discussion.

The location should also:

- Protect against sun or rain, if necessary.
- Make it easy to keep notes that everyone can see (e.g., chalkboard, surface to hang & write on large piece of paper, etc.).

If possible, the focus group should take place at the beginning of data collection in a settlement. Focus groups provide the field coordinator with an opportunity to explain the purpose of the monitoring study to community members, to introduce the monitoring team, and to describe the other methods of data collection that the monitoring team will use in the village.

4. Preparing for a focus group

Prior to each focus group, the facilitator should be sure that she/he has the required supplies:

- Large sheets of white paper

- Fat-tipped marker pens
- A set of laminated maps for each MPA or control site
- Snacks for participants (cookies, betel nut, etc.)
- Digital voice recorder

Enumerators may assist with these logistics.

5. Introducing a focus group

The field coordinator will facilitate the focus group, with the assistance of two enumerators. One enumerator, called the 'note-taker' for the remainder of this document, will record the discussion on a blank copy of the focus group instrument as the discussion is taking place. The other enumerator will help with logistics and may also assist by taking additional notes or annotating the printed maps.

The *kepala desa* or another local official should open the focus group, if possible. He/she should greet everyone, introduce the monitoring team, and briefly describe the study and the purpose of the focus group.

After the *kepala desa* speaks, the field coordinator should:

- a) Greet the participants
- b) Introduce themselves, and their monitoring team. The *kepala desa* has probably already introduced the team by name, but it may be appropriate to say a few additional words of introduction (e.g., where team members are from, their department at the university, etc.).
- c) Explain the purpose of the monitoring to participants. For example, *'This study seeks to understand local livelihoods, and how local marine resources are used and managed. We want to learn about these things from community members, so that we can share your experiences and insights with people elsewhere in Papua and around the world.'*
- d) Explain what topics will be covered and how the data will be used. For example, *'The focus group will discuss a series of topics related to marine resource use, and how resources are managed, for example: what are the local marine resources, who uses these marine resources, the rules which govern use of these marine resources, how decisions are made about these marine resources, and how rules are enforced.'*
- e) Emphasize that there are no 'right' or 'wrong' answers. We only want to learn from the participants.
- f) Explain that the data are confidential. The monitoring team will take notes about the discussion. These notes (i.e., completed data sheets) are only shared with the monitoring team. We do not record the names of focus group participants. Any other information which might identify individual participants and their responses will be stored securely.
- g) Ask participants if they agree to participate in the focus group. This must be done after the purpose of the focus group has been explained, so that participants can give their informed consent. A participant may decide that they do not wish to participate in the focus group. If a

participant does so, thank them for their time, and if possible, politely ask them to move away from where the focus group will be held.

- h) Request permission to record the discussion. Recording a focus group can help the note-taker ensure that all data are entered accurately on the focus group form. Before recording, it is essential to request permission. Do not use a digital voice recorder without formally receiving permission from participants.
- i) Begin following the script provided in the focus group instrument (Appendix 5.1)

6. Facilitating a focus group

6.1 Interacting with participants

The facilitator is provided with a script to guide the focus group (see Appendix 5.1 Focus Group Instrument). When facilitating the focus group, the facilitator may deviate slightly from the script. The order of questions should remain the same and all questions should be asked and answered, but it is not necessary to use the exact wording provided in the script. More importantly, participants must understand questions and feel comfortable providing accurate answers to these questions. Questions in the script are neutral and non-threatening. If the facilitator deviates from the script, he/she must still ask neutral and non-threatening questions.

In this study, the focus group should be less structured than the household survey. The focus group should feel like a detailed 'conversation' with the field coordinator, rather than a formal 'interview.' Starting with easy and interactive topics helps focus group participants to relax and 'warm up.'

The focus group instrument (Appendix 5.1) starts with easy, interactive questions about local geography and marine resources (Questions 1-5).

It is important to ensure a non-judgmental atmosphere, in which all opinions can be heard. There are no 'right' or 'wrong' answers. If there are differences of opinion, it is important to record the opinion of the minority in a note on the focus group form. When doing this, it is important to provide the appropriate question number with the notes.

Focus groups often contain a mix of participants. Some participants may be very talkative; others may only speak occasionally. The field coordinator should ensure that the quieter participants are given an opportunity to speak. This may involve prompting the quieter individuals for their opinion or politely encouraging more talkative participants to allow others to speak.

Despite the conversational tone of a focus group, it remains very important to avoid emotional or inflammatory language when posing questions.

The facilitator and note-takers should be aware of their body language and be careful not to influence participants using verbal or non-verbal forms of communication. There are no 'right' or 'wrong' answers, but the facilitator's body language may accidentally encourage biased responses and discourage honesty. Body language may also prompt participants to lengthen or shorten their answers.

6.2 Types of questions

The focus group instrument includes several different several types of questions: open-ended, short answer, multiple choice, rank order, and participatory mapping.

- a) *Open-ended questions.* Open-ended questions permit the participants to answer in any manner that they choose. These questions (see Table 1) are designed to explore a topic in detail, and to allow participants to talk about a topic using their own language.

The facilitator should 'probe' (i.e., ask targeted follow-up questions) to explore these questions in detail.

The note-taker should record participants' answers using the participants' own words. The note-taker should record answers as the participants are speaking. After the focus group, the facilitator and note-taker should listen to the digital voice recording and supplement the original notes with additional details.

Table 1. Open-ended questions on the focus group instrument

Number	Question
7	<i>Tell me about the history of [name of MPA/name of usual fishing ground]. How has the management of marine resources changed over time in this place? Why?</i>
23	<i>How are conflicts over marine resources in [name of MPA/name of usual fishing ground] resolved among resource users? Between users and government authorities?</i>
29	<i>Is there anything else we should know?</i>
30	<i>Is there anyone else we should talk with?</i>
31	<i>Are there any documents or other sources of information that might be useful?</i>

- b) *Short answer questions.* Short answer questions require participants to provide a short, simple, direct response to a question. In the focus group, we use this technique in several places (time, distance, area, species, habitats, user groups, etc; see Table 2). The facilitator does NOT provide the participants with a choice of possible answers. In some cases, the note-taker is required to assign a code to the participant's reply. In these cases, the note-taker must listen to the participants' reply and choose among the pre-coded responses that are listed on the data sheet.

Table 2. Short answer questions on the focus group instrument

Number	Question
1	<p>a) <i>What is the name of your usual fishing grounds?</i></p> <p>b) <i>For the most common type of fishing boat, with no stops along the way, how far in time (minutes) is [name of population center] from your usual fishing grounds?</i></p> <p>c) <i>How far in distance (kilometers)?</i></p> <p>d) <i>How big are your usual fishing grounds (km²)?</i></p>
2	<p>a) <i>What is the name of your nearest no-fishing area?</i></p> <p>b) <i>For the most common type of fishing boat, with no stops along the way, how far in time (minutes) is [name of population center] from your nearest no-fishing area?</i></p> <p>c) <i>How far in distance (kilometers)?</i></p> <p>d) <i>How big is your nearest no-fishing area (km²)?</i></p>
3	<p>a) <u>MPA Name</u></p> <p>b) <i>For the most common type of fishing boat, with no stops along the way, how far in time (minutes) is [name of population center] from [name of MPA]?</i></p> <p>c) <i>How far in distance (kilometers)?</i></p> <p>d) <i>How big is [name of MPA] (km²)?</i></p>
4	<i>What are the most important habitats in [name of MPA/ name of usual fishing ground]?</i>
5	<i>What are the most important species in [name of MPA/ name of usual fishing ground]?</i>
6	<p>a) <i>How do people use [name of MPA/ name of usual fishing ground]?</i></p> <p>b) <i>What specific gears or techniques are used for each type of activity?</i></p> <p>c) <i>Who uses each of these specific gears and techniques?</i></p> <p>d) <i>Who uses [name of MPA/ name of usual fishing ground] the most?</i></p>
8	<i>Can you please tell me, what are the rules governing the use of marine resources in [name of MPA/ name of usual fishing ground]?</i>
24	<i>How long does it usually take to resolve conflicts over marine resources in [name of MPA/ name of usual fishing ground]?</i>
25	<i>How much does it usually cost to resolve conflicts over marine resources in [name of MPA/ name of usual fishing ground]?</i>
26	<i>How far must individuals usually travel to resolve conflicts over marine resources in [name of MPA/ name of usual fishing ground]?</i>

c) *Constrained choice questions.*

Many of questions on the focus group instrument are constrained choice questions (see Table 3), meaning that there are only a limited number of valid options for a respondent to choose. This type of question is used where we want to categorize the responses into pre-defined groups. On

the focus group instrument, the majority of constrained choice questions require participants to choose one response, from the series of possible responses listed on the instrument for that question. The choices include simple 'yes/no' answers and 5-point scales ('strongly disagree/disagree/neither disagree nor agree/agree/strongly agree'). For multiple choice questions, the facilitator provides the range of possible responses to the participants. To record the information given by respondents, the note-taker should write the appropriate code clearly in the answer box provided for that question. Any additional information should be placed in the notes column to the right of the question.

- d) *Rank order questions.* Ranking questions require participants to put a set of responses in order, based on criteria described in the question (see Table 4). For example, the facilitator could ask a focus group to rank a set of villages from richest to poorest. If participants struggle to order the response items, the facilitator will provide a framework that helps participants to think through these questions and order the responses.

Table 4. Rank order questions on the focus group instrument

Number	Question
27	<i>Who makes the greatest contribution to, or sacrifices for, [name of MPA/name of usual fishing ground]?</i>
28	<i>Who benefits most from [name of MPA/name of usual fishing ground]?</i>

- e) *Participatory mapping.* Participatory mapping is a data collection technique that requires focus group participants to provide information by annotating maps. The focus group instrument uses participatory mapping extensively (see Table 5). For example, participants are asked to draw the internal and external boundaries of the MPA or usual fishing grounds (in control settlements). Laminated, geo-referenced maps will be produced at a fixed resolution for each site. Facilitators should ask participants to draw directly on these maps. The enumerators assisting the facilitator should ensure each map is clearly marked with the necessary identification codes.

Table 5. Participatory mapping questions on the focus group instrument

Number	Question
9	<i>Where are the boundaries of [name of MPA/name of usual fishing ground]?</i>
10	<i>Where are the boundaries marked?</i>

7. Completing the focus group form

The form should be completed in pencil at the time of the focus group. The note-taker should record participants' responses as they are provided. The second enumerator should record the discussion on large pieces of paper or a chalkboard so that participants can track the discussion.

After the focus group, the note-taker and facilitator should review the information recorded on the data sheet to ensure that it is accurate and complete. After verifying or correcting the information, the data should be recorded on the form in pen for permanent recordkeeping.

7.1 How to use the focus group form

The information given by focus group participants is recorded on a blank copy of the focus group form. The focus group form contains the questions to be asked, spaces to record participants' responses, and instructions for facilitators and note-takers. Different types of information are distinguished by different text formats (Box 1).

7.2 Identification Information

Each completed form is identified by a series of codes, which identify where the focus group was conducted and the team that conducted the interview. Three codes need to be recorded on every page of the focus group form. These are:

- Country code
- Site code
- FGD code

There are standard codes for the country and site. These codes can be obtained from the study director, and are also provided in Appendix 4.9. FGD codes are assigned by the field coordinator. Each focus group should be numbered, in the order that they occur for each MPA (the first focus group should be assigned FGD code number 1; the second assigned number 2; etc.). Continue adding to the list for any focus groups that take place in control settlements linked to that MPA.

7.3 Recording Responses

Many of the questions on the focus group instrument are constrained choice responses. For each constrained choice question, there are multiple answer boxes, each corresponding to a specific answer. Put a cross [X] in the relevant box to record the participants' response.

For open-ended questions, the note-taker should make a comprehensive record of participants' responses in the box provided. Additional information can be added to the notes column adjacent to the question, where appropriate.

Box 1. Types of formats used on the focus group form.

Information which should be read to participants is given in italic type. This includes the questions, some information for the participants, and in some cases, the list of possible answers participants may give.

Instructions the field coordinator/enumerator are underlined. These instructions are to help the field coordinator ask questions, prompt the participants appropriately, if necessary, and to help the enumerator record information correctly. Underlined text should not be read to participants.

Bold type is used for section headings and transitions from one topic to another.

For some questions, it is necessary for the field coordinator to 'fill in the blank' in a question to make it appropriate for that interview. Instances where enumerators need to 'fill in the blank' are denoted by [bracketed text in bold type]. For example, throughout the focus group instrument, the field coordinator will need to modify questions based on whether the focus group is being held in an MPA or a control settlement. This is indicated by '[name of the MPA/name of usual fishing grounds]'. For MPA sites, use the full name of the MPA (e.g., 'Teluk Mayalibit KKL'D', not 'Teluk Mayalibit'). For control settlements, use the full name given by the community to their local fishing grounds. It is important that the name used remains consistent from question to question in the discussion.

7.4 Blind Response Codes

In addition to the valid response categories, there are a set of 'blind response' codes available to note-takers throughout the focus group instrument. These blind codes are not spoken aloud by the facilitator or presented as response options to the participants, but are recorded by the note-taker if the participants volunteer them.

There is a standard set of blind response codes in this study, which are used to record participants' responses. Each code has a different meaning, so the field team should understand which code is appropriate in each context (see Figure 1).

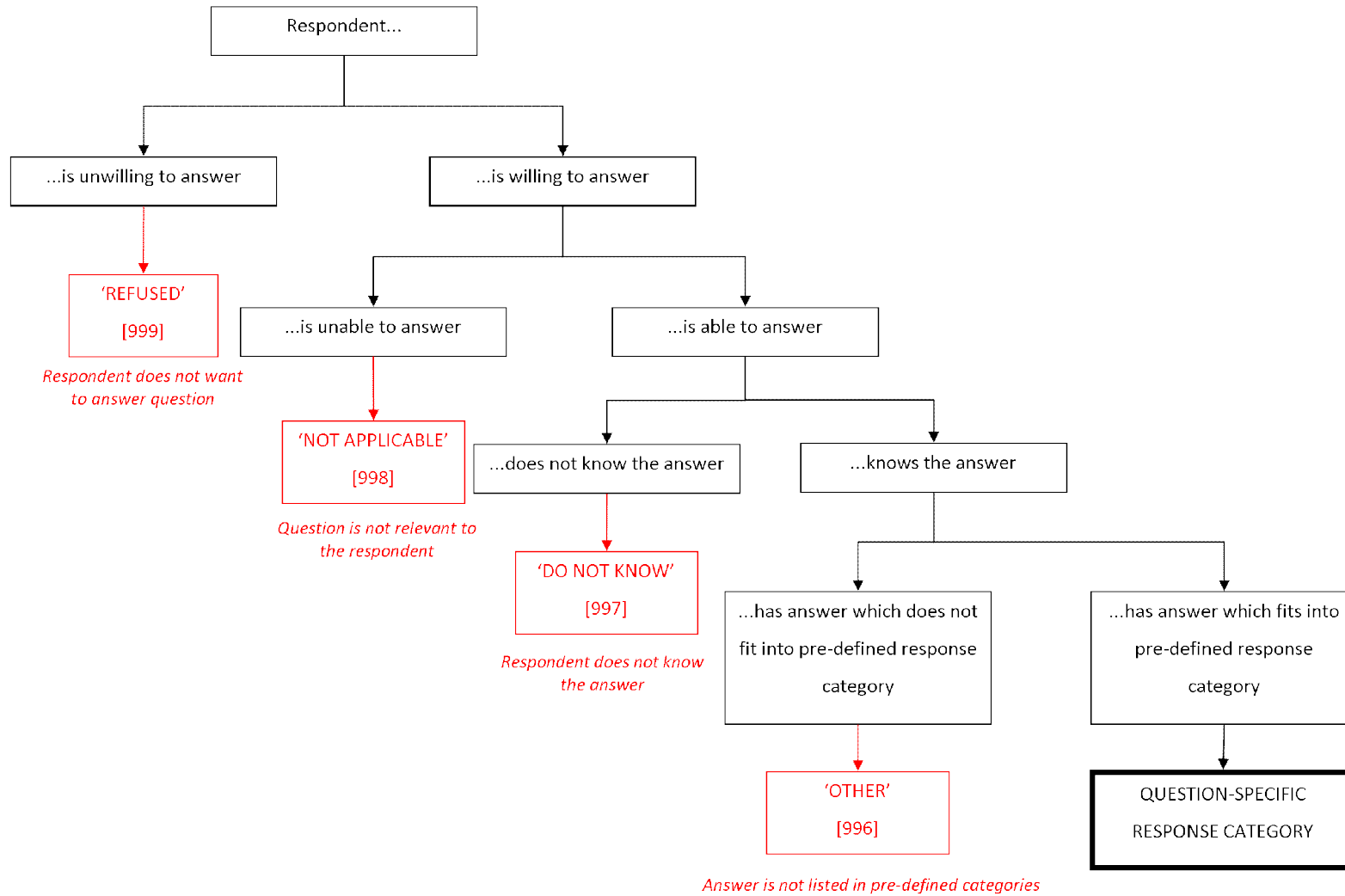
a) 'Other'

Code: [996]

'Other' is used where the answer given by a respondent does not fit into one of the pre-defined response categories given on the instrument for a constrained choice question. Typically, 'Other' is used where a respondent is both willing and able to answer the question, but their response does not fit neatly into one of the pre-defined categories listed on the instrument. 'Other' is NOT an appropriate response on the focus group form. This is because all the constrained choice questions have exhaustive lists of response categories for the note-taker to record the participants' response.

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Figure 1. Blind codes decision tree (modified from Dillman et al., 2009)



b) 'Do not know'

Code: [997]

'Do not know' is used where participants are willing to answer the question, but do not have the necessary information to be able to answer. 'Do not know' is available as a blind response for most questions on the focus group form. When recording 'Do not know', the note-taker should place a cross [X] in the blind response code box provided and specify the code '997' in space provided, (see Box 2).

c) 'Not applicable'

Code: [998]

'Not applicable' is used where the question is not relevant to the participants. In most cases, 'Not applicable' is the appropriate response where the question makes an assumption which does not hold for participants. Even where an facilitator suspects the answer given by participants will be coded as 'Not applicable', the question must still be asked. When recording 'Not applicable', the note-taker should place a cross [X] in the blind response code box provided and specify the code '998' in space provided (see Box 2).

d) 'Refused'

Code: [999]

Participants may not be willing to answer a specific question asked during the focus group. Participants may refuse to answer any question during the focus group if they wish. Where participants are unwilling to answer a question, the appropriate blind response category is 'Refused'. Put simply, this means the question was asked, and participants did not want give an answer. When recording 'Refused', the note-taker should place a cross [X] in the blind response code box provided and specify the code '999' in space provided (Box 2).

Box 2. How to record blind responses on the focus group form

<u>Section 3. Decision-making arrangements.</u>	Notes
<p>12. <u>If at control site, enter SKIP code [994] and move to question 14.</u> <i>Who actively participated in or is actively participating in making the decision to establish [name of MPA]?</i></p> <p><u>The groups of users listed here should match the users identified in question 6d.</u></p> <p><u>Select one box per stakeholder group. If necessary, select the "blind response" box and specify the appropriate code. [997] = Don't know; [998] = Not applicable; [999] = Refuse</u></p> <p><input type="checkbox"/> <i>Local Government</i></p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Blind code (specify) _____</p>	

Place a cross [X] in the box

Write the appropriate code in the space provided.

Additional notes providing context on the blind response can be recorded in the notes column adjacent to each question. When making additional notes, the note-taker should provide the question number and any relevant information.

7.5 Contingent questions

The specific wording of many questions in the focus group depend on the location of the focus group (MPA or control settlements) or the information provided by participants in response to earlier questions.

- a) Questions contingent on location: MPA and control settlements.

In the focus group, we are trying to gather information about the management of marine resources in a specific place. Because the management of marine resources can vary from place to place, it is very important to use the correct name for the specific place/ marine resources we are interested in. For the majority of questions, the facilitator is required to 'fill in the blank' with the appropriate name or phrase depending on whether the focus group is being held in an MPA or a control settlement. On the focus group form, these places where it necessary to 'fill in the blank' are marked as '[name of MPA/name of usual fishing grounds]'

- When conducting focus groups in MPA settlements, the facilitator will always ask about management of marine resources in the MPA. The facilitator will use the full name of the MPA each time to fill in the blank. For example, when conducting focus groups in Teluk Mayalibit KKLD, the facilitator should ask about 'Teluk Mayalibit KKLD', not 'Teluk Mayalibit'. A list of full MPA names to be used in the focus groups can be found in Appendix 4.9.
- When conducting focus groups in control settlements, the facilitator will always ask about the management of marine resources in the usual fishing grounds of that settlement. This

information is asked at the beginning of the focus group in Question 1.a. The facilitator will use the name or phrase provided by participants in response to Question 1.a whenever they are prompted to 'fill in the blank'.

b) Questions relevant to MPA focus groups only

Almost every question must be asked in all focus groups. Questions 14 and 15, however, are asked only if the focus group is taking place in an MPA settlement. There are clear instructions on the focus group instrument about which questions asked only in MPA settlements and how to record the necessary information (Table 6)

Table 6. Contingent questions

Number	Question
14	<i>Who is actively participated or is actively participating in making the decision to establish [name of MPA]?</i>
15	<i>Who is actively participated or is actively participating in deciding the boundaries of [name of MPA]?</i>

For Questions 14 and 15 only, an additional 'blind' response code becomes available. 'Skipped question' (code '994') should be entered into the blind code box for any question which has not been asked because the instructions on the focus group instrument directed the enumerator to skip it. This code is not a valid response for any other questions.

All questions should be posed to participants unless directed by the focus group instrument.

c) User-group specific questions

Questions in the later sections of the focus group instrument require information on important user groups to be transferred from Question 6d. In Question 6d, a list of up to ten important user groups is generated by participants. In many subsequent questions, the facilitator will ask questions about these specific user groups. The facilitator should make a note of the user groups identified in question 6d, and use this information to ask the user-group-specific questions. The user groups should be listed in the same order each time user-group-specific questions are asked. Questions 12-20, 22 and 27-28 require information on user-groups identified in Question 6d (Table 6).

In Question 6d, participants are asked to list the most important user groups in the MPA or their usual fishing grounds (control settlements). In some cases, participants may provide fewer than ten user

Table 6. User group specific questions

Question number	Contingent upon	Question
12	6.d	<i>In each group of users, how many people know the external boundaries of [name of MPA/name of usual fishing grounds]?</i>
13	6.d	<i>In each group of users, how many people know the internal boundaries of [name of MPA/name of usual fishing grounds]?</i>
14	6.d	<i>Who actively participated in or is actively participating in making the decision to establish [name of MPA]?</i>
15	6.d	<i>Who actively participated in or is actively participating in deciding upon the boundaries of [name of MPA]?</i>
16	6.d	<i>Who actively participated in or is actively participating in designing the organization that manages [name of MPA/name of usual fishing ground]?</i>
17	6.d	<i>Who actively participated in or is actively participating in making rules governing [name of MPA/name of usual fishing ground]?</i>
18	6.d	<i>How frequently does each of the following groups monitor the condition of marine resources in [name of MPA/name of usual fishing ground]?</i>
19	6.d	<i>How frequently does each of the following groups monitor the well-being of people who depend upon marine resources in [name of MPA/name of usual fishing ground]?</i>
20	6.d	<i>How frequently does each of the following groups monitor the compliance of resource users with the rules governing marine resource use in [name of MPA/name of usual fishing ground]?</i>
22	6.d	<i>How frequently does each of the following groups hand out penalties when people break the rules governing use of marine resources in [name of MPA/name of usual fishing ground]?</i>
27	6.d	<i>Who makes the greatest contributions to or sacrifices for the [name of MPA/name of usual fishing ground]?</i>
28	6.d	<i>Who benefits most from the [name of MPA/name of usual fishing ground]?</i>

groups, particularly in small or isolated places where marine resources might be used in relatively few ways. Where this happens, the facilitator will only need to ask the user group specific questions for the number of groups identified, not the ten groups as directed on the focus group instrument. For those parts of questions not asked because fewer than ten user groups were identified, the note-taker should place a cross [X] in the blind code box, and write the code '998' (Not applicable) in the space provided.

For example, if a focus group identifies eight user groups in question 6d, all subsequent user-group-specific questions, the facilitator will ask about each of the eight groups. In the space provided for groups 9 and 10, the note-taker should place a cross [X] in the blind code box, and write the code '998' (Not applicable) in the space provided.

For all user-group-specific questions, the facilitator should ask about each group in the order that they were listed by participants in Question 6d.

7.6 Making additional notes

A notes column is provided adjacent to every question on the form. This space may be used to record any additional information which is relevant to the interview.

8. Ending the focus group

At the end of the focus group, there are a series of questions that give the participants the opportunity to provide additional information and help to identify other important sources of information. After asking these final questions, the facilitator should thank the participants for taking part in the focus group and for sharing their knowledge with us. The field coordinator should remind participants that their responses are confidential, and that no information which could identify them will be made public.

At the end of the focus group, the note-taker should record the number of participants, as well as the end time of the discussion.

9. After the focus group

9.1 Confidentiality

It is very important that the information gathered during the focus group remains confidential. Failure to do so could make participants less willing to participate in this and other monitoring projects in future. It is acceptable to discuss the types of questions being asked, the reason for the study, and how participants are selected. To maintain confidentiality, the field team cannot discuss the answers given by an individual focus group, or give away any information which could identify a participant -even if the person asking for this information is in a position of authority. Politely explain the reason that this information cannot be released and refer any further questions on this issue to the study director.

Maintaining confidentiality also extends to how we store the completed focus group data sheets. Completed data sheets should be stored in a secure, safe and dry place.

9.2 *Checking the responses*

After the focus group, the team should check the data collected that day. Make sure:

- A response has been entered for every question.
- For all contingent questions (see section C.7.5), ensure information is recorded for the correct number of user groups, important species and important habitats.
- All responses are written clearly. Responses should be sufficiently clear that someone else can read the form, and understand what is written.
- Identification codes have been written on every page of the data sheet.
- Responses have been checked and copied in pen.
- The responses recorded for open-ended questions are accurate and contain sufficient detail.
- The laminated map annotated during the focus group has been identified using the appropriate codes (i.e., the Country Code, Site Code, and FGD Code have been written in the space provided) and a digital photograph of the map has been taken.
- The start and end time of the focus group have been recorded correctly.

D. Question-specific guidance

There are some questions on the protocol which require some additional guidance.

Number	Question	Instructions
1	<p>a) <i>What is the name of your usual fishing grounds?</i></p> <p>b) <i>For the most common type of fishing boat, with no stops along the way, how far in time (minutes) is [name of population center] from your usual fishing grounds?</i></p> <p>c) <i>How far in distance (kilometers)?</i></p> <p>d) <i>How big are your usual fishing grounds?</i></p>	<p>If participants identify more than one 'usual fishing ground', ask them to provide information on the most commonly used.</p> <p>If two 'usual fishing grounds' are used equally by participants, the facilitator should pick one at random and ask participants to give information about the selected usual fishing ground.</p>
2	<p><i>What is the name of the nearest no-fishing area? For the most common type of fishing boat, with no stops along the way, how far in time (minutes) and distance (kilometers) is [name of population center] from the nearest no-fishing area? How big is the nearest no-fishing area (km²)?</i></p>	<p>If participants identify more than one 'nearest no-fishing area', ask participants to provide information on the most commonly used.</p> <p>If two 'nearest no-fishing areas' are used equally by participants, the facilitator should pick one at random and ask participants to give information about the selected no-fishing area.</p>

Number	Question	Instructions
5	<i>What are the most important species in [name of MPA/name of usual fishing ground]?</i>	<p>This question is one of a series, which help us to understand the ecological context of the MPA or usual fishing grounds.</p> <p>We want to know the five most important species in the MPA or usual fishing grounds. For example, an important species might be one that is caught by commercial or subsistence fishers, or it might be a species whose presence attracts tourists. The criteria which define 'importance' come from the community, not the monitoring team.</p> <p>If possible, where a local name for a species is given by participants, facilitators should probe to find out the commercial name, if it is known.</p> <p>NOTE: It is not necessary to provide an exact species identification. Record the response on the form with the same level of specificity that the community give. For example, if the participants identify 'yellow-fin tuna' as an important species, the note-taker should record 'yellow-fin tuna' on the form. If the participants identify only 'tuna', the note-taker should record 'tuna' on the form.</p>
6	<p>a) <i>How do people use [name of MPA /name of usual fishing ground]?</i></p> <p>b) <i>What specific gears or techniques are used for each type of activity?</i></p> <p>c) <i>Who uses each of these specific gears and techniques?</i></p> <p>d) <i>Who uses the [name of MPA/name of usual fishing grounds] the most?</i></p>	<p>The aim of Question 6, is to generate a list of the ten most important user groups (User group = same people, shared activity/activities, shared gear) in an MPA or the usual fishing grounds (for control settlements). To help the participants understand the question, it is split into four steps.</p> <p>a) In part a, the facilitator should ask the participants for a list of general activities that people do in the MPA or the usual fishing grounds (for control settlements). These could be as general as 'fishing' or 'tourism'. While the facilitator probes to ensure all activities that occur in the MPA or usual fishing grounds have been listed, the second enumerator should list the activities named on a large piece of paper or chalkboard for participants to see. The note-taker should record the activities listed in the space provided on the focus group instrument. Put simply, Question 6a asks about <i>what</i> people do in the MPA/usual fishing grounds.</p>

Number	Question	Instructions
		<p>b) Now that a list of general activities has been drawn up, the facilitator will ask about the techniques used in each of these activities. For example, for the general activity of fishing, different gears may be used. Put simply, Question 6b asks about <i>how</i> people do the activities identified in Question 6a, in the MPA/usual fishing grounds. The facilitator will probe to ensure all specific gear types or techniques that occur in the MPA/usual fishing grounds for each activity identified in part a, have been listed. The second enumerator should list the activities named on a large piece of paper or chalkboard for participants to see. The note-taker should record the specific gear types and techniques listed in the space provided on the focus group form.</p> <p>c) We now have a list of general activities, and the specific techniques used. The next step toward listing important user groups is listing <i>who</i> uses each of the techniques for each of the activities identified. Again, the facilitator will probe to ensure the list is complete and the enumerators should record the information for both participants to see and on the focus group form. Examples of <i>who</i> uses a particular technique might be, 'people from place X' or 'foreign tourists'. The note-taker should record <i>who</i> conducts each activity in the space provided for Question 6c on the focus group form.</p> <p>d) Now that a complete list of all the activities, techniques and people who use the marine resources in the MPA or the usual fishing grounds (for control settlements) has been made, the facilitator should ask participants to identify the ten groups who use the MPA/usual fishing grounds the most. Up to ten groups should be recorded by the note-taker in the space provided for Question 6d and will form the basis of many following questions. It is important to remember that the goal of Question 6 is to identify the most important user groups: i.e., <i>unique</i> groups of people who use the MPA/usual fishing grounds in the same way(s).</p> <p><i>User group = same people, shared activity/activities, shared gear(s).</i></p> <p>When completing Question 6d, check to make sure that the <i>each</i> group of people listed is unique/distinct. This will allow us to understand how <i>each</i> group of people is involved in MPA management (FGD Q12-20, 22; KII Q6, 14-15), and how <i>each</i> group</p>

Number	Question	Instructions															
		<p>of people is affected by MPA management (FGD Q 27-28).</p> <p>If two or more groups listed in Question 6d are the <i>same people</i>, then merge these groups into one <i>distinct</i> user group. (If MOST of the people are the same, then MERGE; if HALF or LESS THAN HALF of the people are the same, then KEEP SEPARATE as distinct user groups.)</p> <p>Continue adding groups to the list in Question 6d, until there are up to 10 <i>distinct</i> user groups.</p> <p><i>For example:</i></p> <table border="0"> <thead> <tr> <th>6a. type of activity</th> <th>b. gear?</th> <th>c. from where?</th> </tr> </thead> <tbody> <tr> <td>Grouper fishing</td> <td>trap</td> <td>Araway</td> </tr> <tr> <td>Snapper fishing</td> <td>line</td> <td>Araway</td> </tr> <tr> <td>Shark fishing</td> <td>spear</td> <td>Araway</td> </tr> <tr> <td>Ecotourism</td> <td>scuba</td> <td>Sorong</td> </tr> </tbody> </table> <p>If one group of people from Araway fishes for groupers, a DIFFERENT group of people from Araway fishes for snappers, and a third DIFFERENT group of people from Araway fishes for sharks, then these are THREE user groups (different people).</p> <p>But... If the SAME people from Araway fish for both snappers and groupers, then MERGE into 1 user group (e.g., 'mixed-gear reef fishermen from Araway').</p> <p>If some people from Araway fish for sharks and other (DIFFERENT) people from Araway fish for reef fish, then KEEP DIFFERENT as two distinct user groups (e.g., 'mixed-gear reef fishermen from Araway', 'spearfishing shark fishermen from Araway').</p> <p>'Scuba diving ecotourism operators from Sorong' are another unique user group – different from 'mixed-gear reef fishermen from Araway' and 'spearfishing shark fishermen from Araway'.</p>	6a. type of activity	b. gear?	c. from where?	Grouper fishing	trap	Araway	Snapper fishing	line	Araway	Shark fishing	spear	Araway	Ecotourism	scuba	Sorong
6a. type of activity	b. gear?	c. from where?															
Grouper fishing	trap	Araway															
Snapper fishing	line	Araway															
Shark fishing	spear	Araway															
Ecotourism	scuba	Sorong															

Number	Question	Instructions
		<p>If fewer than ten groups are identified after Questions 6a-c, all user groups identified should be written down in the space provided for Question 6d.</p>
7	<p><i>Tell me about the history of [name of MPA/name of usual fishing ground]. How has management of marine resources changed over time in this place? Why?</i></p>	<p>This question is an opportunity for participants to tell us about the background of marine resources in their area. We are particularly interested to know how marine resources were managed in the past and if management has changed over time. If changes have taken place, it is useful for us to understand why those changes occurred.</p> <p>'Management' includes how decisions about made about the setting of boundaries, making rules, monitoring (informally or formally) the condition of marine resources, local people or the compliance with rules, as well as the enforcement of rules and conflict resolution.</p>
9	<p><i>Where are the boundaries of [name of MPA/name of usual fishing grounds]?</i></p>	<p>Q9 and Q10 are used to find out where the boundaries of the MPA or usual fishing grounds are. The aim with this question is to understand if boundaries are made clearly defined.</p>
10	<p><i>Where are the boundaries marked?</i></p>	<p>We do this by asking the participants to draw the boundaries on a map. Participants may find understanding what we mean by internal and external boundaries difficult, so it is important to explain these concepts carefully. Below is a list of steps the facilitator can follow, to help the participants provide the information required.</p> <ol style="list-style-type: none"> 1. Explain that we are interested to know the boundaries of the MPA/usual fishing grounds, and to do this we need to draw a map. 2. Show the participants the laminated map for that site. Show them what the different symbols and colors mean. Allow participants to orientate themselves on the map. 3. Once participants are familiar with the map, explain that we would like them to draw the boundaries of the MPA or the usual fishing grounds (in control settlements). Explain that we would like participants to draw on the laminated map if they feel comfortable doing so, or they can draw their own map on plain paper

Number	Question	Instructions
		<p>and annotate that. If participants choose to draw and annotate their own map, the note-taker will need to copy the boundaries drawn on paper onto the laminated map.</p> <ol style="list-style-type: none"> 4. Ask them to draw the external boundary of the MPA or the usual fishing grounds (in control settlements). <i>An external boundary is the outer-limit of the MPA/usual fishing grounds.</i> 5. Having identified the external boundary, ask the participants if there are any internal boundaries within the MPA or usual fishing grounds. <i>Fishing grounds and MPAs may be sub-divided into zones which have different rules and/or different management regimes. The boundary between these types of zones is an 'internal' boundary.</i> 6. The participants have now provided the information to answer Q9. Take a digital photograph of the laminated map with the boundaries marked on it (This step can be completed at the end of the day). Make sure the different types of boundaries are marked clearly and the colour coding/symbols used explained. 7. We now want to find out where the boundaries (internal and external) are marked (i.e, made clear to users or others). Types of markers are listed in Q.9. You may use this list as a 'prompt' to participants if they need help understanding this. 8. Ask the participants to draw on the map where boundaries are marked. Ensure the boundaries are labeled clearly. If the participants are using a hand-drawn map, the note-taker should copy the information on to the laminated map carefully. 9. The participants have now provided the information to answer Q.10 Write the necessary identification codes on the map and take a digital photograph of it. (This step can be completed at the end of the day) <p>Participants may not know the boundaries of an MPA or usual fishing grounds (in control settlements), or where they are marked. If participants do not know, the note-taker should record this on the focus group form. Participants should not feel pressured to provide an answer.</p>
14	<i>Who actively participated in or is actively</i>	This question seeks to know who was/is involved in deciding where the MPA is located,

Number	Question	Instructions
	<i>participating in deciding upon the location and boundaries of [MPA name]?</i>	<p>and where its boundaries are.</p> <p>We ask this question for local and national government, various types of NGOs, and the user groups identified as important in Question 6d</p> <p>'Active participation' means that the user group or other stakeholder able to provide an opinion about where the MPA is located <u>and</u> that opinion was taken into account by the other groups involved in the process.</p>
16	<i>Who actively participated in or is actively participating in designing the administrative body or organization that manages [name of MPA/name of usual fishing ground]?</i>	<p>This question seeks to know who was/is involved in designing the administrative body that manages marine resources in either the MPA or the usual fishing ground (for control settlements).</p> <p>The 'administrative body or organization' is the group which has the authority to carry out management activities (such as making rules, monitoring conditions and use, and enforcing the rules) on behalf of all stakeholders in the area. In this question, we want to know which groups decided/decides how that administrative body works and who is involved in it. Put simply, we want to know 'who decided who gets to manage?'</p> <p>We ask this question for local and national government, various types of NGOs, and the user groups identified as important in Q.6d</p> <p>'Active participation' means that the user group or other stakeholder able to provide an opinion about where the MPA is located <u>and</u> that opinion was taken into account by the other groups involved in the process</p>
17	<i>Who actively participated in or is actively participating in making rules governing the [name of MPA/name of usual fishing ground]?</i>	<p>The MPA or the usual fishing grounds (in control settlements) may have rules which tell users what they can do, where, when and how. In this question, we want to know how decided what those rules are.</p> <p>We ask this question for local and national government, various types of NGOs, and the user groups identified as important in Q.6d</p>

Number	Question	Instructions
		<p>'Active participation' means that the user group or other stakeholder able to provide an opinion about where the MPA is located <u>and</u> that opinion was taken into account by the other groups involved in the process</p>
18	<p><i>How frequently does each of the following groups monitor the condition of marine resources in [name of MPA/name of usual fishing ground]?</i></p>	<p>This question is used to find out how often people (users or other stakeholders) monitor how the marine resources are doing in the MPA or the usual fishing grounds (in control settlements). This monitoring can be formal, informal, or a combination of both.</p> <p>'Monitoring the condition of marine resources' includes any activity which records (formally or informally) the status of ecological systems (e.g., animal population size, habitat quality, newly discovered or harvested species, animal behavior, disease outbreaks, etc).</p> <p>If participants find this question difficult, drawing a table on a large piece of paper, which lists user groups and the response levels may help.</p>
19	<p><i>How frequently does each of the following groups monitor the well-being of people who depend upon marine resources in [name of MPA/name of usual fishing ground]?</i></p>	<p>This question is used to find out how often people (users or other stakeholders) monitor how the people who depend on marine resources are doing in the MPA or the usual fishing grounds (in control settlements). This monitoring can be formal, informal, or a combination of both. Monitoring the 'well-being' of local people includes any activity which records (formally or informally) the health, happiness and prosperity of local people.</p> <p>If participants find this question difficult, drawing a table on a large piece of paper, which lists user groups and the response levels may help.</p>
23	<p><i>How are conflict over marine resources in [name of MPA/usual fishing grounds] resolved among resource users? Between users and government authorities?</i></p>	<p>The word 'conflict' is used to describe any and all types of disagreements, arguments or tensions over any aspect of marine resource use, management, monitoring, or enforcement.</p> <p>If participants respond to this question by stating that no conflict is occurring, the facilitator should probe for more information by asking about examples of previous conflicts, or talking about the situation in other settlements. There are two ways a</p>

Number	Question	Instructions
		<p>facilitator can probe for more information</p> <p><i>1. Ask about the history of conflict:</i> The facilitator should ask if any conflicts have occurred in the past. If participants can describe past conflicts, the facilitator should use these conflicts as an example, to prompt discussion about current conflict, and how such conflict would be resolved.</p> <p><i>3. Give an example from other focus group discussions:</i> If participants cannot describe previous conflicts and do not respond to a hypothetical example, the facilitator can draw on an example from a neighboring settlement where a focus group has been conducted. This information should be shared, without compromising the confidentiality of the previous focus group participants. The facilitator could describe, in neutral terms, that he/she has heard that other settlements in <i>Tanah Papua</i> have experienced a particular type of conflict between users. After describing the example conflict, the facilitator should ask if similar situations have occurred in the MPA or usual fishing grounds (for control settlements). The facilitator should use these conflicts as an example, to prompt discussion about current conflict that may be occurring in a settlement, and how such conflict would be resolved.</p>
24	<p><i>How long does it usually take to resolve conflicts over marine resources in [name of MPA/name of usual fishing grounds]?</i></p> <p>a) <i>Among users</i> b) <i>Between users and officials</i></p>	<p>This question is used to find out how easy or hard it is to resolve conflicts over marine resources in either the MPA or the usual fishing grounds in control settlements.</p> <p>The word 'conflict' is used to describe any and all types of disagreements, arguments or tensions over any aspect of marine resource use, management, monitoring or enforcement.</p> <p>Part a) focuses on 'conflicts' between users. This may be between different types of fishers, fishers and non-fishers, fishers from different settlements or social/economic backgrounds.</p> <p>Part b) focuses on 'conflicts' between users and officials (i.e. those with some formal management authority over the marine resource). This may come in many forms.</p>

Number	Question	Instructions
		<p>We want to know how long it takes for such disagreements to be resolved, as this gives us an indication of how difficult it is to come to an agreement after a conflict has occurred. The time taken might involve travelling to meetings; attending meetings or similar.</p> <p>If participants respond to this question by stating that no conflict is occurring, the facilitator should probe for more information by asking about examples of previous conflicts, or talking about the situation in other settlements. There are two ways a facilitator can probe for more information</p> <p><i>1. Ask about the history of conflict:</i> The facilitator should ask if any conflicts have occurred in the past. If participants can describe past conflicts, the facilitator should use these conflicts as an example, to prompt discussion about current conflict, and how such conflict would be resolved.</p> <p><i>3. Give an example from other focus group discussions:</i> If participants cannot describe previous conflicts and do not respond to a hypothetical example, the facilitator can draw on an example from a neighboring settlement where a focus group has been conducted. This information should be shared, without compromising the confidentiality of the previous focus group participants. The facilitator could describe, in neutral terms, that he/she has heard that other settlements in <i>Tanah Papua</i> have experienced a particular type of conflict between users. After describing the example conflict, the facilitator should ask if similar situations have occurred in the MPA or usual fishing grounds (for control settlements). The facilitator should use these conflicts as an example, to prompt discussion about current conflict that may be occurring in a settlement, and how such conflict would be resolved.</p>
25	<p><i>How much does it usually cost to resolve conflicts over marine resources in [name of MPA/name of usual fishing grounds]?</i></p> <p>a) <i>Among users</i> b) <i>Between users and officials</i></p>	<p>This question is used to find out how easy or hard it is to resolve conflicts over marine resources in either the MPA or the usual fishing grounds in control settlements.</p> <p>The word 'conflict' is used to describe any and all types of disagreements, arguments or tensions over any aspect of marine resource use, management, monitoring or enforcement.</p>

Number	Question	Instructions
		<p>Part a) focuses on 'conflicts' between users. This may be between different types of fishers, fishers and non-fishers, fishers from different settlements or social/economic backgrounds.</p> <p>Part b) focuses on 'conflicts' between users and officials (i.e. those with some formal management authority over the marine resource). This may come in many forms.</p> <p>We want to know much it costs for such disagreements to be resolved, as this gives us an indication of how difficult it is to come to an agreement after a conflict has occurred. The time taken might involve travelling to meetings or paying the costs of reaching a place where conflicts can be resolved.</p> <p>If participants respond to this question by stating that no conflict is occurring, the facilitator should probe for more information by asking about examples of previous conflicts, or talking about the situation in other settlements. There are two ways a facilitator can probe for more information</p> <p><i>1. Ask about the history of conflict:</i> The facilitator should ask if any conflicts have occurred in the past. If participants can describe past conflicts, the facilitator should use these conflicts as an example, to prompt discussion about current conflict, and how such conflict would be resolved.</p> <p><i>3. Give an example from other focus group discussions:</i> If participants cannot describe previous conflicts and do not respond to a hypothetical example, the facilitator can draw on an example from a neighboring settlement where a focus group has been conducted. This information should be shared, without compromising the confidentiality of the previous focus group participants. The facilitator could describe, in neutral terms, that he/she has heard that other settlements in <i>Tanah Papua</i> have experienced a particular type of conflict between users. After describing the example conflict, the facilitator should ask if similar situations have occurred in the MPA or usual fishing grounds (for control settlements). The</p>

Number	Question	Instructions
		<p>facilitator should use these conflicts as an example, to prompt discussion about current conflict that may be occurring in a settlement, and how such conflict would be resolved.</p>
27	<p><i>Who makes the greatest contributions to or sacrifices for the [name of MPA/name of usual fishing ground]?</i></p>	<p>Participants may find ranking questions difficult. If this happens, the facilitator should break the question down into easy steps. For example:</p> <ol style="list-style-type: none"> 1. Ask participants to list the type of contributions/sacrifices that people make for the MPA/usual fishing grounds. An enumerator should write the list on a large piece of paper for participants to see. 2. Once a comprehensive list has been drawn up, ask participants to identify, which of the user groups listed in Question 6d makes each type of contribution or sacrifice. Annotate the list made to reflect participants' responses. 3. Ask participants to think about the contributions/sacrifices made by each group. Which is biggest? Ask participants to identify the group that makes the biggest contribution/sacrifice. Write this down on the focus group form, and move down through the ranking, asking for which group makes the next biggest contribution/sacrifice.
28	<p><i>Who benefits most from the [name of MPA/name of usual fishing ground]?</i></p>	<p>Participants may find ranking questions difficult. If this happens, the facilitator should break the question down into easy steps. For example:</p> <ol style="list-style-type: none"> 1. Ask participants to list the type of benefits that people receive from the MPA/usual fishing grounds. An enumerator should write the list on a large piece of paper for participants to see. 2. Once a comprehensive list has been drawn up, ask participants to identify which of the user groups listed in question 6d receives each type of benefit. Annotate the list made to reflect participants' responses. 3. Ask participants to think about the benefits received by each group. Which group receives the most? Ask participants to identify the group that receives the largest benefit benefits. Write this down on the focus group form, and move down through the ranking, asking for which group receives the next largest benefit.

Appendix 5.5 Focus Group Instrument Codebook

*Question number in instrument version 2.1; † Confidential data (removed from public release dataset).

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
CountryID		Country Name <u>Nama Negara</u>	N	Nominal	Identification <u>Identifikasi</u>	Refer to field identification codes	[995]	Missing data <u>Tidak ada data</u>	-	
MPAID		Site <u>Nama Lokasi</u>	N	Nominal	Identification <u>Identifikasi</u>	Refer to field identification codes	[995]	Missing data <u>Tidak ada data</u>	-	
SettlementID		Population Centre <u>Nama Kampung</u>	N	Nominal	Identification <u>Identifikasi</u>	Refer to field identification codes	[995]	Missing data <u>Tidak ada data</u>	-	
FGDCode		FGD Code <u>Kode FGD</u>	N	Nominal	Identification <u>Identifikasi</u>	Refer to field identification codes	[995]	Missing data <u>Tidak ada data</u>	-	
Facilitator		Facilitator name <u>Nama Fasilitator</u>	N	Nominal	Identification <u>Identifikasi</u>	Refer to field identification codes	[995]	Missing data <u>Tidak ada data</u>	New question in v2.0	
Notetaker		Note-taker Name <u>Nama Notulen</u>	N	Nominal	Identification <u>Identifikasi</u>	Refer to field identification codes	[995]	Missing data <u>Tidak ada data</u>	New question in v2.0	
InterviewDate		Date of interview <u>Tanggal Wawancara</u>	N	Date <u>Tanggal</u> [DD/MM/YYYY] <u>[Tgl/Bulan/Tahun]</u>	Identification <u>Identifikasi</u>	- -	[995]	Missing data <u>Tidak ada data</u>	New question in v2.0	
InterviewStart		Start time of interview <u>Waktu mulai wawancara</u>	N	Time <u>Waktu</u> [HH:MM] <u>[Jam:Menit]</u>	Identification <u>Identifikasi</u>	- -	[995]	Missing data <u>Tidak ada data</u>	New question in v2.0	
InterviewEnd		End time of interview <u>Waktu selesai wawancara</u>	N	Time <u>Waktu</u> [HH:MM] <u>[Jam:Menit]</u>	Identification <u>Identifikasi</u>	- -	[995]	Missing data <u>Tidak ada data</u>	New question in v2.0	
FemaleFGD		Number of female focus group participants <u>Jumlah Peserta FGD: Perempuan</u>	N	Continuous	Identification <u>Identifikasi</u>		[995]	Missing data <u>Tidak ada data</u>	New question in v2.0	
MaleFGD		Number of focus group participants <u>Jumlah Peserta FGD: Laki-laki</u>	N	Continuous	Identification <u>Identifikasi</u>		[995]	Missing data <u>Tidak ada data</u>	New question in v2.0	

Appendix 5.5

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
Totalparticipants		Number of focus group participants <u>Jumlah Peserta FGD</u>	N	Continuous	Identification <u>Identifikasi</u>			[995] Missing data <u>Tidak ada data</u>		New question in v2.0
FGDVersionNumber		FGD instrument version number <u>Nomor Versi FGD</u>	N	Nominal	Identification <u>Identifikasi</u>	[1.0] Pilot Version 1.0 (2010/2011) [2.0] Version 2.0 (2011/2012)		[995] Missing data <u>Tidak ada data</u>		New question in v2.0
NameUsualFish	1a	Name of usual fishing grounds <u>Nama sari daerah penang kapan ikan</u>	N	String	Design Principle 1. Clearly defined boundaries	- -		[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>		-
UsualFishBoat	1b	Type of boat <u>Jenis Perahu</u>	N	String	Design Principle 1. Clearly defined boundaries	- -		[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>		-
TimeFishGrounds	1c	Travel time to fishing grounds <u>Jangka waktu yang diperlukan untuk mencapai daerah penangkapan ikan</u>	N	Continuous [Minutes] <u>[Menit]</u>	Design Principle 1. Clearly defined boundaries	- -		[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>		-

Appendix 5.5

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
DistFishGrounds	1d	Distance to usual fishing grounds <u>Jarak menuju daerah penangkapan ikan</u>	N	Continuous [Kilometers] <u>[Kilometers]</u>	Design Principle 1. Clearly defined boundaries	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
SizeFishGrounds	1e	Size of fishing grounds <u>Luas daerah penangkapan ikan</u>	N	Continuous [Square Kilometers] <u>[Square Kilometers]</u>	Design Principle 1. Clearly defined boundaries	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
NameNoFish	2a	Name of no-fishing area <u>Nama sari daerah no-fishing</u>	N	String	Design Principle 1. Clearly defined boundaries	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
NoFishBoat	2b	Type of boat <u>Jenis Perahu</u>	N	String	Design Principle 1. Clearly defined boundaries	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	

Appendix 5.5

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
TimeNoFish	2c	Travel time to no-fishing area <u>Jangka waktu yang diperlukan untuk mencapai daerah no-fishing</u>	N	Continuous [Minutes] <u>[Menit]</u>	Design Principle 1. Clearly defined boundaries	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
DistNoFish	2d	Distance to no-fishing area <u>Jarak menuju daerah no-fishing</u>	N	Continuous [Kilometers] <u>[Kilometers]</u>	Design Principle 1. Clearly defined boundaries	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
SizeNoFish	2e	Size of no-fishing area <u>Luas daerah no-fishing</u>	N	Continuous [Square Kilometers] <u>[Square Kilometers]</u>	Design Principle 1. Clearly defined boundaries	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
NameMPA	3a	Name of MPA <u>Nama sari daerah DPL</u>	N	String	Design Principle 1. Clearly defined boundaries	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	

Appendix 5.5

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
MPABoat	3b	Type of boat <u>Jenis Perahu</u>	N	String	Design Principle 1. Clearly defined boundaries	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
TimeMPA	3c	Travel time to MPA <u>Jangka waktu yang diperlukan untuk mencapai daerah DPL</u>	N	Continuous [Minutes] <u>[Menit]</u>	Design Principle 1. Clearly defined boundaries	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
DistMPA	3d	Distance to MPA <u>Jarak menuju daerah DPL</u>	N	Continuous [Kilometers] <u>[Kilometers]</u>	Design Principle 1. Clearly defined boundaries	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
SizeMPA	3e	Size of MPA <u>Luas daerah DPL</u>	N	Continuous [Square Kilometers] <u>[Square Kilometers]</u>	Design Principle 1. Clearly defined boundaries	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	

Appendix 5.5

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
Habitat	4	<p>What are the most important habitats in [name of MPA/ name of usual fishing grounds]?</p> <p><u>Jenis habitat apa yang paling penting di daerah [nama DPL/nama DPI] ?</u></p>	N	String	Design Principle 2b. Congruence of rules with local conditions	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
Species	5	<p>What are the most important species in [name of MPA/name of usual fishing ground]?</p> <p><u>Spesies apa yang paling penting di daerah [nama DPL>Nama DPI]?</u></p>	N	String	Design Principle 2b. Congruence of rules with local conditions	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
UserActivity	6a	<p>How do people use [name of MPA/name of usual fishing ground]?</p> <p><u>Bagaimana orang-orang menggunakan [nama DPL/nama DPI]?</u></p>	N	String	Design Principle 1. Clearly defined boundaries	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
UserGear	6b	<p>What specific gears or techniques are used for each type of activity?</p> <p><u>Peralatan atau teknik spesifik apa yang digunakan untuk setiap jenis aktivitas?</u></p>	N	String	Design Principle 1. Clearly defined boundaries	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	

Appendix 5.5

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
UserWho	6c	Who uses each of these specific gears and techniques? <u>Siapa yang menggunakan peralatan atau teknik spesifik tersebut?</u>	N	String	Design Principle 1. Clearly defined boundaries	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
UserGroups	6d	Who uses the [name of MPA/name of usual fishing grounds] the most? <u>Siapa yang paling sering/banyak menggunakan [nama DPL/nama DPI]?</u>	N	String	Design Principle 1. Clearly defined boundaries	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
HistoryMPA	7	Tell me about the history of [name of MPA/name of usual fishing ground]. How has management of marine resources changed over time in this place? Why? <u>Ceritakanlah tentang sejarah dari [nama DPL/nama DPI]. Bagaimana pengelolaan dari sumberdaya laut di daerah ini berubah sepanjang waktu? Mengapa?</u>	N	String	Design Principle 1. Clearly defined boundaries	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	

Appendix 5.5

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
Rules	8	Can you please tell me, what are the rules governing the use of marine resources in [name of MPA/name of usual fishing ground]? <u>Dapatkah Bpk/Ibu/Sdr memberitahukan kepada saya peraturan-peraturan apa saja yang berlaku dalam mengelola sumberdaya laut [nama DPL/nama DPI]?</u>	N	String	Design Principle 2b. Congruence of rules with local conditions	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
Boundary	9	Where are the boundaries of [name of MPA/name of usual fishing grounds]? <u>Di mana batas daerah [nama DPL/nama DPI]?</u>	N	String	Design Principle 1. Clearly defined boundaries	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
IntBndMarked	10a	Where are the internal boundaries marked? <u>Dimana batas tersebut diberi tanda?</u>	N	String	Design Principle 1. Clearly defined boundaries	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
ExtBndMarked	10b	Where are the external boundaries marked? <u>Dimana batas tersebut diberi tanda?</u>	N	String	Design Principle 1. Clearly defined boundaries	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	

Appendix 5.5

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
BndLandmark	11a	<p>How are the rules and boundaries of [name of MPA/name of usual fishing grounds] made clear to individuals who use marine resources within [name of MPA/name of usual fishing grounds]? Are they aligned with local landmarks?</p> <p><u>Bagaimana peraturan dan batas [Nama DPL/Nama DPI] ini dibuat jelas bagi orang-orang yang menggunakan/memanfaatkan sumberdaya laut di sekitar [Nama DPL/Nama DPI]? Segaris dengan batas tanah/laut tradisional?</u></p>	N	Nominal	Design Principle 1. Clearly defined boundaries	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
BndMarkers	11b	<p>How are the rules and boundaries of [name of MPA/name of usual fishing grounds] made clear to individuals who use marine resources within [name of MPA/name of usual fishing grounds]? Demarcated with boundary markers?</p> <p><u>Bagaimana peraturan dan batas [Nama DPL/Nama DPI] ini dibuat jelas bagi orang-orang yang menggunakan/memanfaatkan sumberdaya laut di sekitar [Nama DPL/Nama DPI]? Ditandai dengan tanda pembatas (panjang kayu, tanda yang mengapung, dll)?</u></p>	N	Nominal	Design Principle 1. Clearly defined boundaries	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

Appendix 5.5

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
BndSigns	11c	How are the rules and boundaries of [name of MPA/name of usual fishing grounds] made clear to individuals who use marine resources within [name of MPA/name of usual fishing grounds]? Communicated via signs? <u>Bagaimana peraturan dan batas [Nama DPL>Nama DPI] ini dibuat jelas bagi orang-orang yang menggunakan/memanfaatkan sumberdaya laut di sekitar [Nama DPL>Nama DPI]? Dikomunikasikan dengan tanda-tanda khusus?</u>	N	Nominal	Design Principle 1. Clearly defined boundaries	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
BndGov	11d	How are the rules and boundaries of [name of MPA/name of usual fishing grounds] made clear to individuals who use marine resources within [name of MPA/name of usual fishing grounds]? Announced via government notice? <u>Bagaimana peraturan dan batas [Nama DPL>Nama DPI] ini dibuat jelas bagi orang-orang yang menggunakan/memanfaatkan sumberdaya laut di sekitar [Nama DPL>Nama DPI]? Diumumkan melalui pemerintah (peraturan pemerintah, terdaftar pada pemerintah daerah, dll)?</u>	N	Nominal	Design Principle 1. Clearly defined boundaries	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

Appendix 5.5

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
BndWritten	11e	<p>How are the rules and boundaries of [name of MPA/name of usual fishing grounds] made clear to individuals who use marine resources within [name of MPA/name of usual fishing grounds]? Communicated via written outreach?</p> <p><u>Bagaimana peraturan dan batas [Nama DPL/Nama DPI] ini dibuat jelas bagi orang-orang yang menggunakan/memanfaatkan sumberdaya laut di sekitar [Nama DPL/Nama DPI]? Dikomunikasikan melalui pemberitahuan tertulis (pamflet, pengumuman melalui surat kabar, dll)?</u></p>	N	Nominal	Design Principle 1. Clearly defined boundaries	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
BndAudio	11f	<p>How are the rules and boundaries of [name of MPA/name of usual fishing grounds] made clear to individuals who use marine resources within [name of MPA/name of usual fishing grounds]? Communicated via audio outreach?</p> <p><u>Bagaimana peraturan dan batas [Nama DPL/Nama DPI] ini dibuat jelas bagi orang-orang yang menggunakan/memanfaatkan sumberdaya laut di sekitar [Nama DPL/Nama DPI]? Dikomunikasikan melalui siaran audio (radio)?</u></p>	N	Nominal	Design Principle 1. Clearly defined boundaries	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

Appendix 5.5

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
BndVideo	11g	How are the rules and boundaries of [name of MPA/name of usual fishing grounds] made clear to individuals who use marine resources within [name of MPA/name of usual fishing grounds]? Communicated via video outreach? <u>Bagaimana peraturan dan batas [Nama DPL>Nama DPI] ini dibuat jelas bagi orang-orang yang menggunakan/memanfaatkan sumberdaya laut di sekitar [Nama DPL>Nama DPI]? Komunikasi melalui media video (pengumuman TV, iklan, program informasi,dll.)?</u>	N	Nominal	Design Principle 1. Clearly defined boundaries	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
BndWord	11h	How are the rules and boundaries of [name of MPA/name of usual fishing grounds] made clear to individuals who use marine resources within [name of MPA/name of usual fishing grounds]? Spread through word of mouth? <u>Bagaimana peraturan dan batas [Nama DPL>Nama DPI] ini dibuat jelas bagi orang-orang yang menggunakan/memanfaatkan sumberdaya laut di sekitar [Nama DPL>Nama DPI]? Disebarkan dari mulut ke mulut (tetangga ke tetangga, dll.)?</u>	N	Nominal	Design Principle 1. Clearly defined boundaries	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

Appendix 5.5

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
BndOtherOutreach	11i	<p>How are the rules and boundaries of [name of MPA/name of usual fishing grounds] made clear to individuals who use marine resources within [name of MPA/name of usual fishing grounds]? Communicated via other outreach?</p> <p><u>Bagaimana peraturan dan batas [Nama DPL/Nama DPI] ini dibuat jelas bagi orang-orang yang menggunakan/memanfaatkan sumberdaya laut di sekitar [Nama DPL/Nama DPI]? Dikomunikasikan melalui bentuk komunikasi lainnya (seperti pemberitahuan dari rumah ke rumah, atau melalui kampanye atau slogan-slogan tertentu, dan lain-lain)?</u></p>	N	Nominal	Design Principle 1. Clearly defined boundaries	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
BndOther	11j	<p>How are the rules and boundaries of [name of MPA/name of usual fishing grounds] made clear to individuals who use marine resources within [name of MPA/name of usual fishing grounds]? Communicated via other means?</p> <p><u>Bagaimana peraturan dan batas [Nama DPL/Nama DPI] ini dibuat jelas bagi orang-orang yang menggunakan/memanfaatkan sumberdaya laut di sekitar [Nama DPL/Nama DPI]? Lainnya (sebutkan)?</u></p>	N	Nominal	Design Principle 1. Clearly defined boundaries	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

Appendix 5.5

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
UserExtBnd	12	In each group of users, how many people know the external boundaries of [name of MPA/name of usual fishing grounds]? <u>Dalam setiap kelompok pengguna, berapa banyak orang yang mengetahui batas eksternal dari [nama DPL/nama DPI]?</u>	N	Ordinal	Design Principle 1. Clearly defined boundaries	[1] [2] [3] [4] [5]	None <u>Tidak ada</u> Some <u>Beberapa</u> About half <u>Kira-kira Sebangah</u> Most <u>Sebagian besar</u> All <u>Semua</u>	[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	-
UserIntBnd	13	In each group of users, how many people know the internal boundaries of [name of MPA/name of usual fishing grounds]? <u>Dalam setiap kelompok pengguna, berapa banyak orang yang mengenahui batas internal dari [nama DPL/nama DPI]?</u>	N	Ordinal	Design Principle 1. Clearly defined boundaries	[1] [2] [3] [4] [5]	None <u>Tidak ada</u> Some <u>Beberapa</u> About half <u>Kira-kira Sebangah</u> Most <u>Sebagian besar</u> All <u>Semua</u>	[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	-
ParticipateEstablish	14	Who actively participated or is actively participating in making the decision to establish [name of MPA]? <u>Siapa yang secara aktif (telah dan masih) berpartisipasi dalam proses penetapan peraturan di daerah [nama DPL]?</u>	N	Nominal	Design Principle 3. Collective choice arrangements	[0] [1]	No <u>Tidak</u> Yes <u>Ya</u>	[995] [997] [998] [999]	Missing data <u>Tidak ada data</u> Do Not Know <u>Tidak tahu</u> Not Applicable <u>Tidak sesuai</u> Refused <u>Menolak</u>	-

Appendix 5.5

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
ParticipateBnd	15	Who actively participated or is actively participating in deciding upon the boundaries of [name of MPA]? <u>Siapakah yang secara aktif (telah dan masih) berpartisipasi dalam penentuan batas dari daerah [Nama DPL]?</u>	N	Nominal	Design Principle 3. Collective choice arrangements	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
ParticipateOrg	16	Who actively participated or is actively participating in designing the organization that manages [name of MPA/ name of usual fishing grounds]? <u>Siapa yang secara aktif (telah dan masih) merancang organisasi yang mengelola [nama DPL/nama DPI]?</u>	N	Nominal	Design Principle 3. Collective choice arrangements	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
ParticipateRules	17	Who actively participated or is actively participating in making the rules governing [name of MPA/name of usual fishing ground]? <u>Siapa yang secara aktif (telah dan masih) berpartisipasi dalam pembuatan peraturan yang mengatur pengelolaan di [nama DPL/nama DPI]?</u>	N	Nominal	Design Principle 3. Collective choice arrangements	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

Appendix 5.5

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
EcoMonFreq	18	<p>How frequently does each of the following groups monitor the condition of marine resources in [name of MPA/name of usual fishing grounds]?</p> <p><u>Seberapa sering setiap kelompok di bawah ini memonitor kondisi sumberdaya laut di [nama DPL/nama DPI]?</u></p>	N	Ordinal	Design Principle 4. Monitoring	[1]	Less than one time per year <u>< Satu kali /tahun</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[2]	A few times per year <u>Beberapa kali/tahun</u>	[997]	Do Not Know <u>Tidak tahu</u>	
						[3]	A few times per month <u>Beberapa kali/bulan</u>	[998]	Not Applicable <u>Tidak sesuai</u>	
						[4]	A few times per week <u>Beberapa kali/minggu</u>	[999]	Refused <u>Menolak</u>	
						[5]	More than once per day <u>>Satu kali sehari</u>			

Appendix 5.5

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
SocMonFreq	19	<p>How frequently does each of the following groups monitor the well-being of people who depend upon marine resources in [name of MPA/name of usual fishing ground]?</p> <p><u>Seberapa sering setiap kelompok di bawah ini memonitor tingkat kesejahteraan masyarakat yang menggantungkan hidupnya pada sumberdaya laut di [nama DPL/nama DPI]?</u></p>	N	Ordinal	Design Principle 4. Monitoring	[1]	Less than one time per year <u>< Satu kali /tahun</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[2]	A few times per year <u>Beberapa kali/tahun</u>	[997]	Do Not Know <u>Tidak tahu</u>	
						[3]	A few times per month <u>Beberapa kali/bulan</u>	[998]	Not Applicable <u>Tidak sesuai</u>	
						[4]	A few times per week <u>Beberapa kali/minggu</u>	[999]	Refused <u>Menolak</u>	
						[5]	More than once per day <u>>Satu kali sehari</u>			

Appendix 5.5

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
CompMonFreq	20	<p>How frequently does each of the following groups monitor the compliance of resources users with the rules governing marine resource use in [name of MPA/name of usual fishing ground]?</p> <p><u>Seberapa sering setiap kelompok di bawah ini memonitor kepatuhan pengguna sumberdaya laut terhadap peraturan yang mengatur penggunaan sumberdaya laut di [nama DPL/nama DPI]?</u></p>	N	Ordinal	Design Principle 4. Monitoring	[1]	Less than one time per year <u>< Satu kali /tahun</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[2]	A few times per year <u>Beberapa kali/tahun</u>	[997]	Do Not Know <u>Tidak tahu</u>	
						[3]	A few times per month <u>Beberapa kali/bulan</u>	[998]	Not Applicable <u>Tidak sesuai</u>	
						[4]	A few times per week <u>Beberapa kali/minggu</u>	[999]	Refused <u>Menolak</u>	
						[5]	More than once per day <u>>Satu kali sehari</u>			
PenVerbal	21a	<p>What penalties exist to encourage compliance with the rules governing marine resource use in [name of MPA/name of usual fishing ground]? Are there verbal warnings?</p> <p><u>Apa sanksi yang ada untuk mendorong kepatuhan terhadap peraturan yang mengatur penggunaan sumberdaya laut di dalam wilayah [nama DPL/Nama DPI] ? Peringatan lisan?</u></p>	N	Nominal	Design Principle 5. Graduated sanctions	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

Appendix 5.5

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
PenWritten	21b	<p>What penalties exist to encourage compliance with the rules governing marine resource use in [name of MPA/name of usual fishing ground]? Are there written warnings?</p> <p><u>Apa sanksi yang ada untuk mendorong kepatuhan terhadap peraturan yang mengatur penggunaan sumberdaya laut di dalam wilayah [nama DPL>Nama DPI] ? Peringatan tulisan?</u></p>	N	Nominal	Design Principle 5. Graduated sanctions	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
PenAccess	21c	<p>What penalties exist to encourage compliance with the rules governing marine resource use in [name of MPA/name of usual fishing ground]? Is there loss of access to marine resources?</p> <p><u>Apa sanksi yang ada untuk mendorong kepatuhan terhadap peraturan yang mengatur penggunaan sumberdaya laut di dalam wilayah [nama DPL>Nama DPI] ? Kehilangan akses terhadap sumberdaya laut?</u></p>	N	Nominal	Design Principle 5. Graduated sanctions	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

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Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
PenEquipment	21d	<p>What penalties exist to encourage compliance with the rules governing marine resource use in [name of MPA/name of usual fishing ground]? Is there confiscation of equipment?</p> <p><u>Apa sanksi yang ada untuk mendorong kepatuhan terhadap peraturan yang mengatur penggunaan sumberdaya laut di dalam wilayah [nama DPL>Nama DPI]? Penyitaan peralatan?</u></p>	N	Nominal	Design Principle 5. Graduated sanctions	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
PenFines	21e	<p>What penalties exist to encourage compliance with the rules governing marine resource use in [name of MPA/name of usual fishing ground]? Are there fines?</p> <p><u>Apa sanksi yang ada untuk mendorong kepatuhan terhadap peraturan yang mengatur penggunaan sumberdaya laut di dalam wilayah [nama DPL>Nama DPI]? Denda?</u></p>	N	Nominal	Design Principle 5. Graduated sanctions	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

Appendix 5.5

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
PenIncarceration	21f	<p>What penalties exist to encourage compliance with the rules governing marine resource use in [name of MPA/name of usual fishing ground]? Is there incarceration?</p> <p><u>Apa sanksi yang ada untuk mendorong kepatuhan terhadap peraturan yang mengatur penggunaan sumberdaya laut di dalam wilayah [nama DPL>Nama DPI]? Penahan dalam penjara?</u></p>	N	Nominal	Design Principle 5. Graduated sanctions	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
PenOther	21g	<p>What penalties exist to encourage compliance with the rules governing marine resource use in [name of MPA/name of usual fishing ground]? Are there other sanctions?</p> <p><u>Apa sanksi yang ada untuk mendorong kepatuhan terhadap peraturan yang mengatur penggunaan sumberdaya laut di dalam wilayah [nama DPL>Nama DPI]? Lainnya?</u></p>	N	Nominal	Design Principle 5. Graduated sanctions	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

Appendix 5.5

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
PenFreq	22	How frequently does each of the following groups hand out penalties when people break the rules governing the use of marine resources in [name of MPA/name of usual fishing grounds]? <u>Seberapa sering setiap kelompok di bawah ini memberikan sanksi ketika orang melanggar peraturan yang mengatur [nama DPL/nama DPI]?</u>	N	Ordinal	Design Principle 5. Graduated sanctions	[1]	Less than one time per year <u>< Satu kali /tahun</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[2]	A few times per year <u>Beberapa kali/tahun</u>	[997]	Do Not Know <u>Tidak tahu</u>	
						[3]	A few times per month <u>Beberapa kali/bulan</u>	[998]	Not Applicable <u>Tidak sesuai</u>	
						[4]	A few times per week <u>Beberapa kali/minggu</u>	[999]	Refused <u>Menolak</u>	
						[5]	More than once per day <u>>Satu kali sehari</u>			
Conflict	23	How are conflicts over marine resources in [name of MPA/name of usual fishing ground] resolved among resource users? Between users and government authorities? <u>Bagaimana konflik tentang sumberdaya laut di [nama DPL/nama DPI] diselesaikan antara pengguna sumberdaya? Antara pengguna dan petugas pemerintah?</u>	N	String	Design Principle 6. Conflict resolution	-	-	[995]	Missing data <u>Tidak ada data</u>	-
								[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

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Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
ConflictTimeUser	24a	How long does it usually take to resolve conflicts over marine resources in [name of MPA/name of usual fishing grounds]? Among users? <u>Biasanya, berapa lama waktu yang diperlukan untuk menyelesaikan konflik atas sumberdaya laut di [nama DPL>Nama DPI] ? Diantara pengguna?</u>	N	Continuous [days] [hari]	Design Principle 6. Conflict resolution	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
ConflictTimeOfficial	24b	How long does it usually take to resolve conflicts over marine resources in [name of MPA/name of usual fishing grounds]? Between users and officials? <u>Biasanya, berapa lama waktu yang diperlukan untuk menyelesaikan konflik atas sumberdaya laut di [nama DPL>Nama DPI] ? Diantara pengguna dan petugas?</u>	N	Continuous [days] [hari]	Design Principle 6. Conflict resolution	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
ConflictCostUser	25a	How much does it usually cost to resolve conflicts over marine resources in [name of MPA/name of usual fishing grounds]? Among users? <u>Biasanya, berapa banyak biaya yang diperlukan untuk menyelesaikan konflik mengenai sumberdaya laut di [nama DPL/nama DPI]? Antara pengguna?</u>	N	Continuous [Rph] [Rph]	Design Principle 6. Conflict resolution	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	

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Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
ConflictCostOfficial	25b	How much does it usually cost to resolve conflicts over marine resources in [name of MPA/name of usual fishing grounds]? Between users and officials? <u>Biasanya, berapa banyak biaya yang diperlukan untuk menyelesaikan konflik mengenai sumberdaya laut di [nama DPL/nama DPI]? Antara pengguna dan petugas?</u>	N	Continuous [Rph] [Rph]	Design Principle 6. Conflict resolution	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
ConflictTravelUser	26a	How far must individuals usually travel to resolve conflicts over marine resources in [name of MPA/name of usual fishing grounds]? Among users? <u>Berapa jauh seseorang biasanya melakukan perjalanan untuk menyelesaikan konflik mengenai sumberdaya laut di [nama DPL/nama DPI]? Antara pengguna?</u>	N	Continuous [min] [menit]	Design Principle 6. Conflict resolution	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
ConflictTravelOfficial	26b	How far must individuals usually travel to resolve conflicts over marine resources in [name of MPA/name of usual fishing grounds]? Between users and officials? <u>Berapa jauh seseorang biasanya melakukan perjalanan untuk menyelesaikan konflik mengenai sumberdaya laut di [nama DPL/nama DPI]? Antara pengguna dan petugas?</u>	N	Continuous [min] [menit]	Design Principle 6. Conflict resolution	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	

Appendix 5.5

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
UserContribution	27	Who makes the greatest contribution to, or sacrifices for, the [name of MPA/name of usual fishing grounds]? <u>Siapa yang memberikan kontribusi atau pengorbanan terbesar untuk menciptakan kondisi lingkungan yang baik pada [nama DPL/nama DPI]?</u>	N	Ordinal (Rank)	Design Principle 2. Congruence	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
UserBenefit	28	Who benefits most from the [name of MPA/name of usual fishing grounds]? <u>Siapa yang menerima manfaat paling besar dari [nama DPL/nama DPI]?</u>	N	Ordinal (Rank)	Design Principle 2. Congruence	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
AnyOther	29	Is there anything else we should know? <u>Sebelum diskusi ini ditutup, apakah ada hal-hal lain yang perlu kami ketahui?</u>	N	String	Additional information	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	

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Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
AnyPeople	30	Is there anyone else we should talk with? <u>Sebelum diskusi ini ditutup, apakah ada orang lain yang harus kami temui untuk memperoleh informasi?</u>	N	String	Additional information	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
AnyDocuments	29	Are there any documents or other sources of information that might be useful? <u>Sebelum diskusi ini ditutup, apakah ada dokumen atau sumber informasi lainnya yang mungkin bermanfaat?</u>	N	String	Additional information	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	

Appendix 5.6 Key Informant Interview Instrument Codebook

*Question number in instrument version 2.1; † Confidential data (removed from public release dataset).

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
CountryID		Country Name <u>Nama Negara</u>	N	Nominal	Identification <u>Identifikasi</u>	Refer to field identification codes		[995]	Missing data <u>Tidak ada data</u>	-
MPAID		Site <u>Nama Lokasi</u>	N	Nominal	Identification <u>Identifikasi</u>	Refer to field identification codes		[995]	Missing data <u>Tidak ada data</u>	-
SettlementID		Population Centre <u>Nama Kampung</u>	N	Nominal	Identification <u>Identifikasi</u>	Refer to field identification codes		[995]	Missing data <u>Tidak ada data</u>	-
KIICode		Key Informant Identification Code <u>Kode KII</u>	N	Nominal	Identification <u>Identifikasi</u>	Refer to field identification codes		[995]	Missing data <u>Tidak ada data</u>	-
KIIRole		Key Informant Role	Y	String	Identification <u>Identifikasi</u>			[995]	Missing data <u>Tidak ada data</u>	New question in v2.0
RefFGD		Reference Focus Group Code	N	Nominal	Identification <u>Identifikasi</u>	Refer to field identification codes		[995]	Missing data <u>Tidak ada data</u>	New question in v2.0
Interviewer		Interviewer Name <u>Nama Pewawancara</u>	N	Nominal	Identification <u>Identifikasi</u>	Refer to field identification codes		[995]	Missing data <u>Tidak ada data</u>	New question in v2.0
Notetaker		Note-taker Name <u>Nama Notulen</u>	N	Nominal	Identification <u>Identifikasi</u>	Refer to field identification codes		[995]	Missing data <u>Tidak ada data</u>	New question in v2.0
InterviewDate		Date of interview <u>Tanggal Wawancara</u>	N	Date <u>Tanggal</u> [DD/MM/YYYY] <u>[Tgl/Bulan/ Tahun]</u>	Identification <u>Identifikasi</u>	-	-	[995]	Missing data <u>Tidak ada data</u>	New question in v2.0
InterviewStart		Start time of interview <u>Waktu mulai wawancara</u>	N	Time <u>Waktu</u> [HH:MM] <u>[Jam:Menit]</u>	Identification <u>Identifikasi</u>	-	-	[995]	Missing data <u>Tidak ada data</u>	New question in v2.0
InterviewEnd		End time of interview <u>Waktu selesai wawancara</u>	N	Time <u>Waktu</u> [HH:MM] <u>[Jam:Menit]</u>	Identification <u>Identifikasi</u>	-	-	[995]	Missing data <u>Tidak ada data</u>	New question in v2.0

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Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
KIIVersionNumber		KII instrument version number <u>omor Versi KII</u>	N	Nominal	Identification <u>Identifikasi</u>	[1.0]	Pilot Version 1.0 (2010/2011)	[995]	Missing data <u>Tidak ada data</u>	New question in v2.0
HistoryMPA	1	Can you please tell me about the history of [name of MPA/name of usual fishing grounds] and your involvement with it? How did you first get involved? What was management of marine resources like in [name of MPA/name of usual fishing grounds] when you first got involved and how changed over time? Why has it changed? <u>Sekarang setelah kita selesai dengan formalitas pembukaan, dapatkah Bpk/Ibu menceritakan sejarah dari [nama DPL/nama DPI] dan bagaimana keterlibatan Bpk/Ibu dengan daerah tersebut? Bagaimana mulanya Bpk/Ibu terlibat? Bagaimana wujud pengelolaan sumberdaya laut di [nama DPL/nama DPI] saat mulai Bpk/Ibu terlibat dan bagaimana perubahan terjadi sepanjang waktu? Mengapa perubahan tersebut terjadi?</u>	Y	String	Context	-	-	[995]	Missing data <u>Tidak ada data</u>	-
ZoneType	2a	What types of formal and informal management zones exist within the [name of MPA/name of usual fishing grounds]? <u>Apa saja jenis dari zona terkelola baik formal maupun informal yang ada di dalam wilayah [nama DPL/nama DPI]?</u>	N	String	Design Principle 8. Nestedness	-	-	[995]	Missing data <u>Tidak ada data</u>	How many management zones are there in the [MPA/traditional fishing ground]?
ZoneQuantity	2b	How many examples are there of each type of zone within the [name of MPA/name of usual fishing grounds]? <u>Berapa contoh dari setiap jenis zona yang ada di dalam wilayah [nama DPL/nama DPI]?</u>	N	String	Design Principle 8. Nestedness	-	-	[995]	Missing data <u>Tidak ada data</u>	MODIFIED

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Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
ZoneManage	2c	<p>For each type of zone, is there a formal or informal organization that helps to manage ONLY this type of management zone?</p> <p><u>Untuk setiap jenis zona, apakah ada organisasi formal maupun informal yang membantu mengelola HANYA untuk jenis zona tersebut?</u></p>	N	Nominal	Design Principle 8. Nestedness	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	To what extent is there a dedicated management bodies for each management zone?
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
ZoneCoord	2d	<p>For each organization listed in 2c, to what extent does this zone-specific organization coordinate its activities with an organization that manages all of [name of MPA/name of usual fishing grounds]? Do they never coordinate, rarely coordinate, sometimes coordinate, usually coordinate, or always coordinate?</p> <p><u>Untuk setiap organisasi yang terdaftar pada 2c, sejauh mana organisasi yang khusus untuk zona tersebut mengkoordinasikan aktifitasnya dengan organisasi yang mengelola keseluruhan wilayah [nama DPL/nama DPI]? Apakah mereka tidak pernah berkoordinasi, jarang berkoordinasi, kadang-kadang berkoordinasi, biasanya berkoordinasi, atau selalu berkoordinasi?</u></p>	N	Ordinal	Design Principle 8. Nestedness	[1]	Never <u>Tidak pernah</u>	[995]	Missing data <u>Tidak ada data</u>	To what extent is there a dedicated management bodies for each management zone?
						[2]	Rarely <u>Jarang</u>	[997]	Do Not Know <u>Tidak tahu</u>	
						[3]	Sometimes <u>Kadang-kadang</u>	[998]	Not Applicable <u>Tidak sesuai</u>	
						[4]	Usually <u>Biasanya</u>	[999]	Refused <u>Menolak</u>	
						[5]	Always <u>Selalu</u>			
ZoneEco	3	<p>Are the boundaries of these management zones related to ecological differences from place to place within [name of MPA/name of usual fishing ground]? <u>Apakah tapal batas dari setiap zona terkelola didasarkan pada perbedaan ekologi dari satu tempat dengan tempat lainnya di dalam wilayah [nama DPL/nama DPI]?</u></p>	N	Nominal	Design Principle 8. Nestedness	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

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Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
ZoneSoc	4	<p>Are the boundaries of these management zones related to social differences from place to place within [name of MPA/name of usual fishing ground]?</p> <p><u>Apakah tapal batas dari setiap zona dikelola didasarkan pada perbedaan sosial dari satu tempat ke tempat lainnya di dalam wilayah [nama DPL/nama DPI]?</u></p>	N	Nominal	Design Principle 8. Nestedness	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
SppHabRules	5	<p>For each of the following species and habitats, are there special rules governing human uses? For example, is there a rule that applies to this species or habitat and nothing else?</p> <p><u>Untuk setiap spesies dan habitat berikut, apakah ada peraturan khusus yang mengatur pemanfaatannya oleh manusia? Sebagai contoh, apakah ada peraturan yang berlaku untuk spesies atau habitat tertentu dan tidak berlaku bagi yang lainnya?</u></p>	N	Nominal	Design Principle 2. Congruence	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
UserRules	6	<p>Are there special rules governing the behavior of these each user groups inside the [name of MPA/name of usual fishing grounds]? For example, are there rules that apply to these groups and nobody else?</p> <p><u>Apakah ada peraturan yang secara khusus mengatur perilaku dari setiap kelompok pengguna di dalam wilayah [nama DPL/nama DPI]? Sebagai contoh, apakah ada peraturan yang secara khusus berlaku untuk kelompok tertentu dan tidak pada kelompok lainnya?]</u></p>	N	Nominal	Design Principle 2. Congruence	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

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Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
RuleChangeEco	7	<p>Do the rules use of governing marine resources in [name of MPA/name of usual fishing grounds] change based on changes in ecological conditions in and around [name of MPA/name of usual fishing grounds] over time?</p> <p><u>Apakah peraturan yang mengatur pemanfaatan sumberdaya laut di [nama DPL/nama DPI] berubah sepanjang waktu berdasarkan perubahan kondisi ekologis di dalam dan sekitar wilayah [nama DPL/nama DPI] ?</u></p>	N	Ordinal	Design Principle 2. Congruence	[1]	Never <u>Tidak pernah</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[2]	Rarely <u>Hampir tidak pernah</u>	[997]	Do Not Know <u>Tidak tahu</u>	
						[3]	Sometimes <u>Kadang-kadang</u>	[998]	Not Applicable <u>Tidak sesuai</u>	
						[4]	Usually <u>Bisanya</u>	[999]	Refused <u>Menolak</u>	
						[5]	Always <u>Selalu</u>			
RuleChangeSoc	8	<p>Do the rules use of governing marine resources in [name of MPA/name of usual fishing grounds] change based on changes in social conditions in and around [name of MPA/name of usual fishing grounds] over time?</p> <p><u>Apakah peraturan yang mengatur pemanfaatan sumberdaya laut di [nama DPL/nama DPI] berubah sepanjang waktu berdasarkan perubahan kondisi sosial di dalam dan sekitar wilayah [nama DPL/nama DPI]?</u></p>	N	Ordinal	Design Principle 2. Congruence	[1]	Never <u>Tidak pernah</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[2]	Rarely <u>Hampir tidak pernah</u>	[997]	Do Not Know <u>Tidak tahu</u>	
						[3]	Sometimes <u>Kadang-kadang</u>	[998]	Not Applicable <u>Tidak sesuai</u>	
						[4]	Usually <u>Bisanya</u>	[999]	Refused <u>Menolak</u>	
						[5]	Always <u>Selalu</u>			
ClearBnd	9	<p>How are the rules and boundaries of [name of MPA/name of usual fishing grounds] made clear to individuals who use marine resources within [name of MPA/name of usual fishing grounds]?</p> <p><u>Bagaimana peraturan dan tapal batas dari [nama DPL/nama DPI] dibuat jelas untuk orang-orang yang memanfaatkan sumberdaya laut di dalam [nama DPL/nama DPI]?</u></p>	N	String	Design Principle 1. Clear boundaries	-	-	[995]	Missing data <u>Tidak ada data</u>	-
								[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

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Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
RulesKnown	10	To what extent do individuals who use marine resources within [name of MPA/name of usual fishing grounds] know the rules and boundaries of [name of MPA/name of usual fishing grounds]? <u>Sampai sejauh mana orang-orang yang memanfaatkan sumberdaya laut di dalam [name DPL/nama DPI] mengetahui peraturan dan tapal batas dari [nama DPL/nama DPI]?</u>	N	String	Design Principle 1. Clear boundaries	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
RulesDeFacto	11	To what extent do the rules governing [name of MPA/name of usual fishing grounds] differ in practice from the way that they are written on paper? <u>Sampai sejauh mana peraturan-peraturan yang mengatur [nama DPL/nama DPI] berbeda dalam pelaksanaannya daripada apa yang tertulis di atas kertas?</u>	N	String	Design Principle 1. Clear boundaries	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
RulesInformal	12	Are there any unwritten or informal rules that govern the use of marine resources in [name of MPA/name of usual fishing grounds]? <u>Apakah ada peraturan-peraturan yang tidak tertulis atau peraturan informal yang mengatur pemanfaatan sumberdaya laut di [nama DPL/nama DPI]? [Selidiki: Apa saja peraturan-peraturan tersebut?]</u>	N	String	Design Principle 1. Clear boundaries	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	

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Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications		
						Code	Value	Code	Value			
ParticipateRules	13	<p>Who actively participated in or is actively participating in making the rules governing [name of MPA/name of fishing ground]?</p> <p><u>Siapa saja yang secara aktif berpartisipasi (baik sekarang maupun di masa lampau) dalam membuat peraturan-peraturan yang mengatur pengelolaan [nama DPL/nama DPI]?</u></p>	N	String	Design Principle 3. Collective choice arrangements	-	-	[995] Missing data <u>Tidak ada data</u>	[997] Do Not Know <u>Tidak tahu</u>	[998] Not Applicable <u>Tidak sesuai</u>	[999] Refused <u>Menolak</u>	-
GovtRules	14	<p>For each of the following groups, to what extent does the national government oppose or support the rights of users to develop their own rules governing resources within [name of MPA/name of usual fishing grounds]?</p> <p><u>Yang pertama, untuk setiap kelompok pengguna di bawah ini, sampai sejauh mana pemerintah nasional menentang atau mendukung hak-hak kelompok pengguna untuk mengembangkan/membuat peraturan mereka sendiri untuk mengatur penggunaan sumberdaya laut di daerah [nama DPL/nama DPI]?</u></p>	N	Ordinal	Design Principle 7. Minimal recognition of rights to self organize	[1]	Strongly oppose <u>Sangat menentang</u>	[995] Missing data <u>Tidak ada data</u>	[997] Do Not Know <u>Tidak tahu</u>	[998] Not Applicable <u>Tidak sesuai</u>	[999] Refused <u>Menolak</u>	-
						[2]	Oppose <u>Menentang</u>					
						[3]	Neither oppose nor support <u>Tidak menantang maupun mendukung</u>					
						[4]	Support <u>Mendukung</u>					
						[5]	Strongly support <u>Sangat mendukung</u>					

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Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
RulesIncorp	15	<p>For each of these groups of users, to what extent are their written and unwritten rules about use of marine resources included in national government practices in [name of MPA/name of usual fishing ground]?</p> <p><u>Untuk setiap kelompok pengguna di bawah ini, sampai sejauh mana peraturan-peraturan tertulis dan tidak tertulis mereka mengenai pemanfaatan sumberdaya laut dimasukkan ke dalam praktek-praktek yang diterapkan oleh pemerintah nasional di wilayah [nama DPL/nama DPI]?</u></p>	N	Ordinal	Design Principle 7. Minimal recognition of rights to self organize	[1]	Not included <u>Tidak dimasukkan</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[2]	Partially included <u>Dimasukkan sebagian</u>	[997]	Do Not Know <u>Tidak tahu</u>	
						[3]	Fully included <u>Dimasukkan semua</u>	[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
RuleEnforced	16	<p>How are the rules governing [name of MPA/name of usual fishing grounds] monitored and enforced?</p> <p><u>Bagaimana peraturan yang mengatur [nama DPL/nama DPI] dimonitor dan ditegakkan?</u></p>	N	Strng	Design Principle 4. Monitoring and Enforcement	-	-	[995]	Missing data <u>Tidak ada data</u>	-
								[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
PenVerbal	17a	<p>What penalties exist to encourage compliance with the regulations governing marine resource use within the [name of the MPA/usual fishing ground]? Verbal warnings?</p> <p><u>Hukuman/sangsi apa saja yang tersedia/ada untuk mendorong kepatuhan pada peraturan yang mengatur penggunaan sumberdaya laut di dalam wilayah [nama DPL/Nama DPI]? Peringatan Lisan?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

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Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
PenWritten	17b	<p>What penalties exist to encourage compliance with the regulations governing marine resource use within the [name of the MPA/usual fishing ground]? Written warnings?</p> <p><u>Hukuman/sangsi apa saja yang tersedia/ada untuk mendorong kepatuhan pada peraturan yang mengatur penggunaan sumberdaya laut di dalam wilayah [nama DPL>Nama DPI]? Peringatan tertulis?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
PenAccess	17c	<p>What penalties exist to encourage compliance with the regulations governing marine resource use within the [name of the MPA/usual fishing ground]? Loss of access to marine resources?</p> <p><u>Hukuman/sangsi apa saja yang tersedia/ada untuk mendorong kepatuhan pada peraturan yang mengatur penggunaan sumberdaya laut di dalam wilayah [nama DPL>Nama DPI]? Kehilangan akses untuk memanfaatkan sumberdaya laut?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

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Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
PenConfiscation	17d	<p>What penalties exist to encourage compliance with the regulations governing marine resource use within the [name of the MPA/usual fishing ground]? Confiscation of equipment?</p> <p><u>Hukuman/sangsi apa saja yang tersedia/ada untuk mendorong kepatuhan pada peraturan yang mengatur penggunaan sumberdaya laut di dalam wilayah [nama DPL>Nama DPI]? Penyitaan Peralatan?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
PenFines	17e	<p>What penalties exist to encourage compliance with the regulations governing marine resource use within the [name of the MPA/usual fishing ground]? Fines?</p> <p><u>Hukuman/sangsi apa saja yang tersedia/ada untuk mendorong kepatuhan pada peraturan yang mengatur penggunaan sumberdaya laut di dalam wilayah [nama DPL>Nama DPI]? Denda?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
PenIncarceration	17f	<p>What penalties exist to encourage compliance with the regulations governing marine resource use within the [name of the MPA/usual fishing ground]? Incarceration?</p> <p><u>Hukuman/sangsi apa saja yang tersedia/ada untuk mendorong kepatuhan pada peraturan yang mengatur penggunaan sumberdaya laut di dalam wilayah [nama DPL>Nama DPI]? Penahanan dalam Penjara?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

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Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
PenOther	17g	<p>What penalties exist to encourage compliance with the regulations governing marine resource use within the [name of the MPA/usual fishing ground]? Other?</p> <p><u>Hukuman/sanksi apa saja yang tersedia/ada untuk mendorong kepatuhan pada peraturan yang mengatur penggunaan sumberdaya laut di dalam wilayah [nama DPL>Nama DPI]? Lainnya (sebutkan)?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
FreqPen	18	<p>If caught breaking rules in [name of MPA/name of usual fishing grounds], how often do rule-breakers receive one of these penalties?</p> <p><u>Jika tertangkap melakukan pelanggaran di wilayah [nama DPL/nama DPI], seberapa sering orang yang melakukan pelanggaran dihukum/diberi sanksi dengan salah satu sanksi tersebut?</u></p>	N	Ordinal	Design Principle 4. Monitoring and Enforcement	[1]	Never <u>Tidak pernah</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[2]	Rarely <u>Hampir tidak pernah</u>	[997]	Do Not Know <u>Tidak tahu</u>	
						[3]	Sometimes <u>Kadang-kadang</u>	[998]	Not Applicable <u>Tidak sesuai</u>	
						[4]	Usually <u>Biasanya</u>	[999]	Refused <u>Menolak</u>	
						[5]	Always <u>Selalu</u>			
FactorPrevious	19a	<p>What factors influence the choice of penalty? The number of previous offenses?</p> <p><u>Faktor-faktor apa saja yang mempengaruhi pemilihan sanksi/hukuman yang diberikan? Jumlah pelanggaran yang telah dilakukan sebelumnya.</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

Appendix 5.6

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
FactorEcollmpact	19b	<p>What factors influence the choice of penalty? The ecological impact of the offense?</p> <p><u>Faktor-faktor apa saja yang mempengaruhi pemilihan sangsi/hukuman yang diberikan? Dampak ekologi dari pelanggaran yang dilakukan?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
FactorEconlmpact	19c	<p>What factors influence the choice of penalty? The economic impact of the offense?</p> <p><u>Faktor-faktor apa saja yang mempengaruhi pemilihan sangsi/hukuman yang diberikan? Dampak ekonomi dari pelanggaran yang dilakukan?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
FactorSocImpact	19d	<p>What factors influence the choice of penalty? The social impacts of the offense?</p> <p><u>Faktor-faktor apa saja yang mempengaruhi pemilihan sangsi/hukuman yang diberikan? Dampak sosial dari pelanggaran yang dilakukan?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
FactorWealth	19e	<p>What factors influence the choice of penalty? The wealth of the rule breaker?</p> <p><u>Faktor-faktor apa saja yang mempengaruhi pemilihan sangsi/hukuman yang diberikan? Kekayaan dari pelaku pelanggaran?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

Appendix 5.6

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
FactorPower	19f	<p>What factors influence the choice of penalty? The political power of the rule breaker?</p> <p><u>Faktor-faktor apa saja yang mempengaruhi pemilihan sangsi/hukuman yang diberikan? Kekuatan politik yang dimiliki pelaku pelanggaran?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
FactorSocial	19g	<p>What factors influence the choice of penalty? The social status of the rule breaker?</p> <p><u>Faktor-faktor apa saja yang mempengaruhi pemilihan sangsi/hukuman yang diberikan? Status sosial dari pelaku pelanggaran?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
FactorOther	19h	<p>What factors influence the choice of penalty? Other?</p> <p><u>Faktor-faktor apa saja yang mempengaruhi pemilihan sangsi/hukuman yang diberikan? Lainnya?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
IncenEnvEd	20a	<p>What incentives are provided to encourage compliance with the rules governing marine resource use? Environmental education?</p> <p><u>Insentif apa yang disediakan/tersedia untuk mendorong kepatuhan terhadap peraturan yang mengatur pemanfaatan sumberdaya laut? Pendidikan-lingkungan.</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

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Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
IncenSkills	20b	<p>What incentives are provided to encourage compliance with the rules governing marine resource use? Skills?</p> <p><u>Inentif apa yang disediakan/tersedia untuk mendorong kepatuhan terhadap peraturan yang mengatur pemanfaatan sumberdaya laut? Pelatihan Keterampilan.</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
IncenExchange	20c	<p>What incentives are provided to encourage compliance with the rules governing marine resource use? Exchange of equipment?</p> <p><u>Inentif apa yang disediakan/tersedia untuk mendorong kepatuhan terhadap peraturan yang mengatur pemanfaatan sumberdaya laut? Pertukaran peralatan (sebagai contoh: alat pancing).</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
IncenPurchase	20d	<p>What incentives are provided to encourage compliance with the rules governing marine resource use? Purchase of equipment?</p> <p><u>Inentif apa yang disediakan/tersedia untuk mendorong kepatuhan terhadap peraturan yang mengatur pemanfaatan sumberdaya laut? Pembelian peralatan (sebagai contoh: alat pancing).</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
IncenLoans	20e	<p>What incentives are provided to encourage compliance with the rules governing marine resource use? Loans?</p> <p><u>Inentif apa yang disediakan/tersedia untuk mendorong kepatuhan terhadap peraturan yang mengatur pemanfaatan sumberdaya laut? Pinjaman uang</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

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Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
IncenPay	20f	<p>What incentives are provided to encourage compliance with the rules governing marine resource use? Direct payments?</p> <p><u>Inentif apa yang disediakan/tersedia untuk mendorong kepatuhan terhadap peraturan yang mengatur pemanfaatan sumberdaya laut? Pembayaran langsung</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
IncenEmploy	20g	<p>What incentives are provided to encourage compliance with the rules governing marine resource use? Employment?</p> <p><u>Inentif apa yang disediakan/tersedia untuk mendorong kepatuhan terhadap peraturan yang mengatur pemanfaatan sumberdaya laut? Perekrutan sebagai tenaga kerja</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
IncenOther	20h	<p>What incentives are provided to encourage compliance with the rules governing marine resource use? Other?</p> <p><u>Inentif apa yang disediakan/tersedia untuk mendorong kepatuhan terhadap peraturan yang mengatur pemanfaatan sumberdaya laut? Lainnya</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
EcoPenVerbal	21a	<p>What happens if monitors do not effectively monitor ecological conditions? Are there verbal warnings?</p> <p><u>Secara khusus, apa yang terjadi jika pemonitor tidak secara efektif memonitor kondisi ekologi daerah laut? Apakah ada Peringatan Lisan?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

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Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
EcoPenWrit ten	21b	What happens if monitors do not effectively monitor ecological conditions? Are there written warnings? <u>Secara khusus, apa yang terjadi jika pemonitor tidak secara efektif memonitor kondisi ekologi daerah laut? Apakah ada Peringatan tertulis</u>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
EcoPenAcces s	21c	What happens if monitors do not effectively monitor ecological conditions? Is there loss of access to marine resources? <u>Secara khusus, apa yang terjadi jika pemonitor tidak secara efektif memonitor kondisi ekologi daerah laut? Apakah ada kehilangan akses untuk memanfaatkan sumberdaya laut?</u>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
EcoPenPosito n	21d	What happens if monitors do not effectively monitor ecological conditions? Is there loss of position as a 'monitor'? <u>Secara khusus, apa yang terjadi jika pemonitor tidak secara efektif memonitor kondisi ekologi daerah laut? Apakah ada Kehilangan posisi sebagai "pemonitor"</u>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
EcoPenConfis cation	21e	What happens if monitors do not effectively monitor ecological conditions? Is there confiscation of equipment? <u>Secara khusus, apa yang terjadi jika pemonitor tidak secara efektif memonitor kondisi ekologi daerah laut? Apakah ada Penyitaan Peralatan</u>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

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Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
EcoPenFines	21f	<p>What happens if monitors do not effectively monitor ecological conditions? Are there fines?</p> <p><u>Secara khusus, apa yang terjadi jika pemonitor tidak secara efektif memonitor kondisi ekologi daerah laut? Apakah ada Denda</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
EcoPenIncarceration	21g	<p>What happens if monitors do not effectively monitor ecological conditions? Is there incarceration?</p> <p><u>Secara khusus, apa yang terjadi jika pemonitor tidak secara efektif memonitor kondisi ekologi daerah laut? Apakah ada Penahanan dalam Penjara?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
EcoPenOther	21h	<p>What happens if monitors do not effectively monitor ecological conditions? Other?</p> <p><u>Secara khusus, apa yang terjadi jika pemonitor tidak secara efektif memonitor kondisi ekologi daerah laut? Apakah ada lainnya?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
SocPenVerbal	22a	<p>What happens if monitors do not effectively monitor social conditions? Are there verbal warnings?</p> <p><u>Apa yang terjadi jika pemonitor tidak secara efektif memonitor kondisi sosial daerah laut? Apakah ada Peringatan Lisan?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

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Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
SocPenWritten	22b	What happens if monitors do not effectively monitor social conditions? Are there written warnings? <u>Apa yang terjadi jika pemonitor tidak secara efektif memonitor kondisi sosial daerah laut? Apakah ada Peringatan tertulis?</u>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
SocPenAccess	22c	What happens if monitors do not effectively monitor social conditions? Is there loss of access to marine resources? <u>Apa yang terjadi jika pemonitor tidak secara efektif memonitor kondisi sosial daerah laut? Apakah ada kehilangan akses untuk memanfaatkan sumberdaya laut?</u>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
SocPenPosition	22d	What happens if monitors do not effectively monitor social conditions? Is there loss of position as a 'monitor'? <u>Apa yang terjadi jika pemonitor tidak secara efektif memonitor kondisi sosial daerah laut? Apakah ada Kehilangan posisi sebagai "pemonitor"?</u>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
SocPenConfiscation	22e	What happens if monitors do not effectively monitor social conditions? Is there confiscation of equipment? <u>Apa yang terjadi jika pemonitor tidak secara efektif memonitor kondisi sosial daerah laut? Apakah ada Penyitaan Peralatan?</u>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

Appendix 5.6

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
SocPenFines	22f	<p>What happens if monitors do not effectively monitor social conditions? Are there fines?</p> <p><u>Apa yang terjadi jika pemonitor tidak secara efektif memonitor kondisi sosial daerah laut? Apakah ada Denda?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
SocPenIncarceration	22g	<p>What happens if monitors do not effectively monitor social conditions? Is there incarceration?</p> <p><u>Apa yang terjadi jika pemonitor tidak secara efektif memonitor kondisi sosial daerah laut? Apakah ada Penahanan dalam Penjara?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
SocPenOther	22h	<p>What happens if monitors do not effectively monitor social conditions? Other?</p> <p><u>Apa yang terjadi jika pemonitor tidak secara efektif memonitor kondisi sosial daerah laut? Apakah ada lainnya?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
CompPenVerbal	23a	<p>What happens if monitors do not actively monitor the compliance of individuals who use marine resources in [name of MPA/name of usual fishing grounds]? For the monitors, are there verbal warnings?</p> <p><u>Apa yang terjadi jika pemonitor tidak secara aktif memonitor kepatuhan orang-orang yang memanfaatkan sumberdaya laut pada [nama DPL /nama DPI]? Apakah ada Peringatan Lisan?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

Appendix 5.6

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
CompPenWritten	23b	<p>What happens if monitors do not actively monitor the compliance of individuals who use marine resources in [name of MPA/name of usual fishing grounds]? For the monitors, are there written warnings?</p> <p><u>Apa yang terjadi jika pemonitor tidak secara aktif memonitor kepatuhan orang-orang yang memanfaatkan sumberdaya laut pada [nama DPL /nama DPI]? Apakah ada Peringatan tertulis?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
CompPenAccess	23c	<p>What happens if monitors do not actively monitor the compliance of individuals who use marine resources in [name of MPA/name of usual fishing grounds]? For the monitors, is there loss of access to marine resources?</p> <p><u>Apa yang terjadi jika pemonitor tidak secara aktif memonitor kepatuhan orang-orang yang memanfaatkan sumberdaya laut pada [nama DPL /nama DPI]? Apakah ada kehilangan akses untuk memanfaatkan sumberdaya laut?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
CompPenPosition	23d	<p>What happens if monitors do not actively monitor the compliance of individuals who use marine resources in [name of MPA/name of usual fishing grounds]? For the monitors, is there loss of position as a 'monitor'?</p> <p><u>Apa yang terjadi jika pemonitor tidak secara aktif memonitor kepatuhan orang-orang yang memanfaatkan sumberdaya laut pada [nama DPL /nama DPI]? Apakah ada Kehilangan posisi sebagai "pemonitor"?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

Appendix 5.6

Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
CompPenConfiscation	23e	<p>What happens if monitors do not actively monitor the compliance of individuals who use marine resources in [name of MPA/name of usual fishing grounds]? For the monitors, is there confiscation of equipment?</p> <p><u>Apa yang terjadi jika pemonitor tidak secara aktif memonitor kepatuhan orang-orang yang memanfaatkan sumberdaya laut pada [nama DPL /nama DPI]? Apakah ada Penyitaan Peralatan?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
CompPenFines	23f	<p>What happens if monitors do not actively monitor the compliance of individuals who use marine resources in [name of MPA/name of usual fishing grounds]? For the monitors, are there fines?</p> <p><u>Apa yang terjadi jika pemonitor tidak secara aktif memonitor kepatuhan orang-orang yang memanfaatkan sumberdaya laut pada [nama DPL /nama DPI]? Apakah ada Denda?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
CompPenIncarceration	23g	<p>What happens if monitors do not actively monitor the compliance of individuals who use marine resources in [name of MPA/name of usual fishing grounds]? For the monitors, is there incarceration?</p> <p><u>Apa yang terjadi jika pemonitor tidak secara aktif memonitor kepatuhan orang-orang yang memanfaatkan sumberdaya laut pada [nama DPL /nama DPI]? Apakah ada Penahanan dalam Penjara?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

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Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
CompPenOther	23h	<p>What happens if monitors do not actively monitor the compliance of individuals who use marine resources in [name of MPA/name of usual fishing grounds]? Other?</p> <p><u>Apa yang terjadi jika pemonitor tidak secara aktif memonitor kepatuhan orang-orang yang memanfaatkan sumberdaya laut pada [nama DPL /nama DPI]? Apakah anda lainnya?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
RulePenVerbal	24a	<p>What happens if monitors do not penalize people when those individuals break the rules governing use of marine resources in [name of MPA/name of usual fishing grounds]? For the monitors, are there verbal warnings?</p> <p><u>Dan, yang terakhir, apa yang terjadi jika pemonitor tidak memberikan sanksi kepada orang-orang yang melanggar peraturan yang mengatur pemanfaatan sumberdaya di [Nama DPL/DPI]? Apakah ada Peringatan Lisan?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
RulePenWritten	24b	<p>What happens if monitors do not penalize people when those individuals break the rules governing use of marine resources in [name of MPA/name of usual fishing grounds]? For the monitors, are there written warnings?</p> <p><u>Dan, yang terakhir, apa yang terjadi jika pemonitor tidak memberikan sanksi kepada orang-orang yang melanggar peraturan yang mengatur pemanfaatan sumberdaya di [Nama DPL/DPI]? Apakah ada Peringatan tertulis?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

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Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
RulePenAccess	24c	<p>What happens if monitors do not penalize people when those individuals break the rules governing use of marine resources in [name of MPA/name of usual fishing grounds]? For the monitors, is there loss of access to marine resources?</p> <p><u>Dan, yang terakhir, apa yang terjadi jika pemonitor tidak memberikan sanksi kepada orang-orang yang melanggar peraturan yang mengatur pemanfaatan sumberdaya di [Nama DPL/DPII]? Apakah ada kehilangan akses untuk memanfaatkan sumberdaya laut?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
RulePenPosition	24d	<p>What happens if monitors do not penalize people when those individuals break the rules governing use of marine resources in [name of MPA/name of usual fishing grounds]? For the monitors, is there loss of position as a 'monitor'?</p> <p><u>Dan, yang terakhir, apa yang terjadi jika pemonitor tidak memberikan sanksi kepada orang-orang yang melanggar peraturan yang mengatur pemanfaatan sumberdaya di [Nama DPL/DPII]? Apakah ada Kehilangan posisi sebagai "pemonitor"?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

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Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
RulePenConfiscation	24e	<p>What happens if monitors do not penalize people when those individuals break the rules governing use of marine resources in [name of MPA/name of usual fishing grounds]? For the monitors, is there confiscation of equipment?</p> <p><u>Dan, yang terakhir, apa yang terjadi jika pemonitor tidak memberikan sanksi kepada orang-orang yang melanggar peraturan yang mengatur pemanfaatan sumberdaya di [Nama DPL/DPII]? Apakah ada Penyitaan Peralatan?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
RulePenFines	24f	<p>What happens if monitors do not penalize people when those individuals break the rules governing use of marine resources in [name of MPA/name of usual fishing grounds]? For the monitors, are there fines?</p> <p><u>Dan, yang terakhir, apa yang terjadi jika pemonitor tidak memberikan sanksi kepada orang-orang yang melanggar peraturan yang mengatur pemanfaatan sumberdaya di [Nama DPL/DPII]? Apakah ada Denda?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

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Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
RulePenIncarceration	24g	<p>What happens if monitors do not penalize people when those individuals break the rules governing use of marine resources in [name of MPA/name of usual fishing grounds]? For the monitors, is there incarceration?</p> <p><u>Dan, yang terakhir, apa yang terjadi jika pemonitor tidak memberikan sanksi kepada orang-orang yang melanggar peraturan yang mengatur pemanfaatan sumberdaya di [Nama DPL/DPI]? Apakah ada Penahanan dalam Penjara?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
RulePenOther	24h	<p>What happens if monitors do not penalize people when those individuals break the rules governing use of marine resources in [name of MPA/name of usual fishing grounds]? Other?</p> <p><u>Dan, yang terakhir, apa yang terjadi jika pemonitor tidak memberikan sanksi kepada orang-orang yang melanggar peraturan yang mengatur pemanfaatan sumberdaya di [Nama DPL/DPI]? Lainnya?</u></p>	N	Nominal	Design Principle 4. Monitoring and Enforcement	[0]	No <u>Tidak</u>	[995]	Missing data <u>Tidak ada data</u>	-
						[1]	Yes <u>Ya</u>	[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	
ConflictRes	25	<p>How are conflicts about marine resources in [name of MPA/name of usual fishing grounds] resolved among users, and between users and government officials?</p> <p><u>Bagaimana konflik mengenai pemanfaatan sumberdaya laut di [nama DPL/nama DPI] diselesaikan antara pengguna, dan antara pengguna dengan petugas pemerintah?</u></p>	N	String	Design Principle 6. Conflict Resolution	-	-	[995]	Missing data <u>Tidak ada data</u>	-
								[997]	Do Not Know <u>Tidak tahu</u>	
								[998]	Not Applicable <u>Tidak sesuai</u>	
								[999]	Refused <u>Menolak</u>	

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Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
Ecolmpact	26	<p>What have been the ecological impacts of [MANAGEMENT IN name of usual fishing ground/name of MPA]?</p> <p><u>Hal apa saja yang merupakan dampak ekologi dari [pengelolaan laut di nama DPI/nama DPL]?</u></p>	N	String	-	-	-	<p>[995] Missing data <u>Tidak ada data</u></p> <p>[997] Do Not Know <u>Tidak tahu</u></p> <p>[998] Not Applicable <u>Tidak sesuai</u></p> <p>[999] Refused <u>Menolak</u></p>	-	
SocImpact	27	<p>What have been the social impacts of [MANAGEMENT IN name of usual fishing ground/name of MPA]?</p> <p><u>Hal apa saja yang merupakan dampak sosial dari [pengelolaan laut di nama DPI/nama DPL]?</u></p>	N	String	-	-	-	<p>[995] Missing data <u>Tidak ada data</u></p> <p>[997] Do Not Know <u>Tidak tahu</u></p> <p>[998] Not Applicable <u>Tidak sesuai</u></p> <p>[999] Refused <u>Menolak</u></p>	-	
WhoContributes	28	<p>Who makes the greatest contributions to or sacrifices for the [name of MPA/name of usual fishing grounds]? Which groups of users and communities?</p> <p><u>Siapa saja yang memberikan kontribusi atau pengorbanan terbesar bagi keberlangsungan [nama DPL/nama DPI]? Kelompok pengguna atau kelompok masyarakat yang mana saja?</u></p>	N	String	-	-	-	<p>[995] Missing data <u>Tidak ada data</u></p> <p>[997] Do Not Know <u>Tidak tahu</u></p> <p>[998] Not Applicable <u>Tidak sesuai</u></p> <p>[999] Refused <u>Menolak</u></p>	-	
WhoBenefits	29	<p>Who benefits most from the [name of MPA/name of usual fishing grounds]? Which groups of users and communities?</p> <p><u>Siapa yang menerima manfaat terbesar dari keberadaan [nama DPL/nama DPI]? Kelompok pengguna atau kelompok masyarakat yang mana?</u></p>	N	String	-	-	-	<p>[995] Missing data <u>Tidak ada data</u></p> <p>[997] Do Not Know <u>Tidak tahu</u></p> <p>[998] Not Applicable <u>Tidak sesuai</u></p> <p>[999] Refused <u>Menolak</u></p>	-	

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Variable Name	#*	Question Wording	Restrict †	Variable Type	Rationale	Valid Codes		Blind Response Codes		Modifications
						Code	Value	Code	Value	
OtherInfo	30	Is there anything else I should know about [name of MPA/name of usual fishing ground]? <u>Apakah ada hal-hal yang lain yang harus saya ketahui tentang [nama DPL/nama DPI]?</u>	N	String	-	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
OtherInformant	31	Is there anyone else I should talk with about [name of MPA/name of usual fishing grounds]? <u>Apakah ada orang lain yang harus saya temui untuk berbicara mengenai [nama DPL/nama DPI]?</u>	N	String	-	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	
OtherDoc	32	Are there any documents or sources of information that I should read about [name of MPA/name of usual fishing grounds]? <u>Apakah ada dokumen atau sumber informasi lainnya yang harus saya baca mengenai [nama DPL/nama DPI]?</u>	N	String	-	-	-	[995] Missing data <u>Tidak ada data</u> [997] Do Not Know <u>Tidak tahu</u> [998] Not Applicable <u>Tidak sesuai</u> [999] Refused <u>Menolak</u>	-	

This document was authored by World Wildlife Fund (US) and Universitas Negeri Papua.



Financial support received from:



In-kind support received from:



SUGGESTED CITATION

Glew, L., M.B. Mascia and F. Pakiding (2012). Solving the Mystery of MPA Performance: monitoring social impacts. Field Manual (version 1.0). World Wildlife Fund and Universitas Negeri Papua, Washington D.C. and Manokwari, Papua Barat.

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