Socioeconomic Monitoring Guidelines for Coastal Managers in Southeast Asia:

SocMon SEA

March, 2003

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Copies of SocMon SEA as well as the GCRMN Socioeconomic Manual (2000) can be downloaded from the WCPA-Marine socioeconomic website: http://iucn.org/themes/wcpa/biome/marine/socioeconmanual.htm

And the Australian Institute of Marine Science website: http://www.aims.gov.au/pages/reflib/smcrm/mcrm-000.html

Hard copies can be requested from:

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Comments on SocMon and feedback on how it was used would be most appreciated. Please send to Kuperan and Leah.

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Interviews in Cilicap villages, Java, Indonesia - Leah Bunce
Pere Village, Manus, Papua New Guinea - Joshua Cinner
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Interviews in Cilicap villages, Java, Indonesia - Leah Bunce
Southeast Asia map
Ceremonial fish harvest in Ahus Island, Papua New Guinea - Joshua Cinner

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Interviews in Cilicap villages, Java, Indonesia - Leah Bunce
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Tubuseria Village, Central Province, Papua New Guinea - Joshua Cinner
Rai Lei Beach, Krabi, Thailand - Steve Morrison

TABLE OF CONTENTS

PREFACE		**1**
1. WHAT IS THIS ALL ABOUT?		**3**
1.1	Why SocMon?	3
1.2	What is SocMon?	3
1.3	How does SocMon work?	4
1.4	Who is SocMon for?	4
1.5	What are SocMon's limitations?	4
2. WHY SHOULD I DO THIS?		**5**
2.1	Identifying threats, problems, solutions and opportunities	5
2.2	Determining the importance, value and cultural significance of resources and their uses	5
2.3	Assessing positive and negative impacts of management measures	5
2.4	Assessing how the management body is doing (management effectiveness)	6
2.5	Building stakeholder participation and appropriate education and awareness programs	6
2.6	Verifying and documenting assumptions of socioeconomic conditions in the area, community dynamics and stakeholder perceptions	6
2.7	Establishing baseline household and community profile	6
3. WHAT'S INVOLVED?		**7**
3.1	Who should do the monitoring?	7
3.2	What's the process for doing the monitoring?	7
3.3	How do I collect the data?	8
3.4	Who should be interviewed?	10
3.5	How long should the monitoring take?	10
3.6	How much will the monitoring cost?	11
3.7	How often should the monitoring be done?	11
3.8	Where should the monitoring take place?	11
3.9	What is the audience for the results?	11
3.10	What else should I know?	12
4. WHAT DATA DO I COLLECT?		**13**
4.1	What are the indicators?	13
4.2	Which indicators do I use?	20
5. WHAT DO I DO WITH THESE DATA?		**21**
5.1	Analysis	21
5.2	Communication	21
APPENDIX A: THE INDICATORS		**25**
APPENDIX B: KEY INFORMANT INTERVIEW/SECONDARY SOURCE GUIDE		**63**
APPENDIX C: HOUSEHOLD INTERVIEW GUIDE		**67**
APPENDIX D: KEY INFORMANT INTERVIEW/SECONDARY SOURCE ANALYSIS SHEET		**71**
APPENDIX E: HOUSEHOLD INTERVIEW ANALYSIS SHEET		**75**

PREFACE

SocMon SEA and its companion, the *GCRMN Socioeconomic Manual for Coral Reef Management (GCRMN Manual)*, developed from a need for a greater understanding of the human dimension of coastal and marine resource management. The *GCRMN Manual* was released in 2000 at the 8th International Coral Reef Symposium in Bali. *SocMon SEA*, and the soon to be released *SocMon Caribbean*, were developed to compliment the *GCRMN Manual* by providing a simpler, more structured set of guidelines, which can then be tailored to site needs. The two documents are meant to be used together – *SocMon* for the priority indicators to assess, the questions to ask and the tables to analyze the data, and the *GCRMN Manual* for the details of how to do it.

SocMon SEA is the product of substantial collaboration among social scientists and coastal managers in the region. In particular the SocMon Southeast Asia Advisory Board, which is a balance of social scientists and coastal managers, provided significant project direction and technical input. The *SocMon* purposes of socioeconomic information, indicators and overall structure were brainstormed by the Board during a mini-workshop held in August 2002 in Iloilo, Philippines. Leah Bunce (NOAA/WCPA-marine) and Bob Pomeroy (University of Connecticut) then developed these ideas into this document. The Board includes: Kuperan Viswanathan (Chair, WorldFish Center), Elmer Ferrer (University of Philippines/ Community-Based Coastal Resource Management Center), Gregor Hodgson (ReefCheck), Becky Pestano-Smith (Coastal Resource Management Project, Philippines), Johnnes Tulungen (Proyek Pesisir, Indonesia), and Susan Siar (Southeast Asian Fisheries Development Center/Aquaculture Department).

The draft of *SocMon SEA* was critiqued by an extensive network of reviewers. Particular appreciation goes to the following people for their insightful comments: Renato Agbayani – Southeast Asian Ministers of Education Organization's Regional Center for Graduate Study and Research in Agriculture; Didi Baticados – Southeast Asian Fisheries Development Center/Aquaculture Department; Ratana Chuenpagdee, Virginia Institute of Marine Sciences; Josh Cinner, Wildlife Conservation Society; Gregor Hodgson, Reef Check; Danny Israel, Philippine Institute for Development Studies; Rezal Kusumaatmadja, Marine Aquarium Council; Kusairi Mohd Noh, Universiti Putra Malaysia; Richard Pollnac, University of Rhode Island; Sarah Preisler, Reef Check; Becky Smith, Coastal Resource Management Project (Philippines) of the Department of Environment and Natural Resources and the United States Agency for International Development; Jan Steffen, UNESCO; Vo Si Tuan, Institute of Oceanography, Vietnam; Sheila Vergara, WorldFish Center; and Tai Shzee Yew, Faculty of Economics and Management, Universiti Putra Malaysia. Special thanks also go to Steve Morrison and Elizabeth Ban of NOAA and Michael James and Sheri Beauregard of The DesignPond, who coordinated and conducted the proofing, layout and printing. Funding for *SocMon SEA* was provided by the U.S. National Oceanic and Atmospheric Administration and The Bureau of Oceans and International Environmental and Scientific Affairs of the U.S. Department of State.

SocMon Southeast Asia is part of a continuing regional program to enhance understanding of communities and their relationship to coastal and marine resources. Coordinated by the WorldFish Center, socioeconomic training workshops are planned throughout the region for coastal managers to learn how to use *SocMon*. These workshops will be followed by the development of socioeconomic monitoring programs at participant sites with the data feeding into the ReefBase database at WorldFish Center.

SECTION 1: WHAT IS THIS ALL ABOUT?

1.1 WHY SOCMON?

Coastal resource managers realize that coastal resources can no longer be managed from a biophysical focus alone. Community attitudes towards, and uses of, coastal resources have serious implications on the biophysical health of coastal marine systems. The management of coastal resources has equally serious implications for the socioeconomic health of the community. Socioeconomic information is critical for effective coastal management. For example:

SocMon *is a set of guidelines for establishing a socioeconomic monitoring program at a coastal management site in Southeast Asia.*

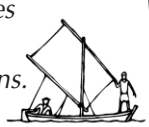
- A no-fishing area is proposed in part of a larger fishery to protect a spawning aggregation and threatened habitat. The fishing community is protesting the zoning for fear of losing their livelihoods. Systematically collected information on fishing patterns, number of fishers and fishers' perceptions can help managers accurately determine who will be affected and identify acceptable alternative livelihood options.
- Policy-makers and the public want to know, "Has the marine protected area been effective?" Information on changes in people's perceptions of compliance and enforcement of rules and regulations can indicate success or failure of management activities as well as the acceptability of the marine protected area.
- A major new education program is proposed for a coastal community. By understanding the means of communication in the community (e.g. billboards, television, newspaper), literacy and education levels of the various user groups and their perceptions of threats, the managers can tailor the program to use the most appropriate means of communication and ensure the messages are audience-appropriate.

It is critical to recognize the close link between how a community uses coastal resources and the socioeconomic context of the community. Socioeconomic information provides an understanding of the social, cultural, economic and political characteristics and conditions of individuals, households, groups, organizations and communities. It can help coastal managers identify potential problems and focus management priorities accordingly.

1.2 WHAT IS SOCMON?

SocMon is a set of guidelines for establishing a socioeconomic monitoring program at a coastal management site in Southeast Asia. The guidelines provide a prioritized list of socioeconomic indicators useful to coastal managers as well as the questions for data collection and the tables for data analysis. It is expected that the guidelines will be tailored to each site's needs. *SocMon* is a companion to the *GCRMN Socioeconomic Manual for Coral Reef Management (GCRMN Manual)*.

A socioeconomic monitoring program is a method for identifying, collecting and analyzing social, cultural, economic and political data of people, groups, communities and organizations.



SocMon is intended to:

- Provide a methodology for regularly collecting basic socioeconomic data useful for coastal management at the site level.
- Provide a basis for a regional system by which site-level data can feed into national, regional and international databases for comparison.

SocMon is also intended to provide insight to managers, many of whom come from biology backgrounds, into what "socioeconomics" means, how socioeconomic information can be useful to their management, and what socioeconomic data might be useful for management at their site.

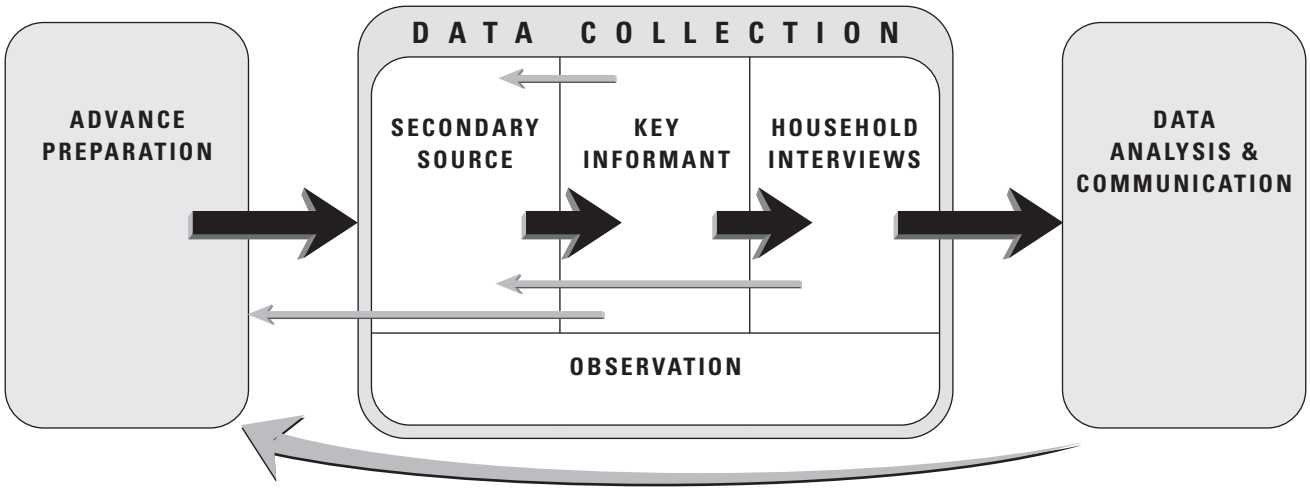
There are other existing socioeconomic programs in the region, which tend to be site-specific. The user of *SocMon* may have a socioeconomic monitoring program currently in use. Social scientists have been conducting socioeconomic research throughout Southeast Asia for decades. *SocMon* is intended to complement these programs by providing a simple, standardized set of guidelines for the region.

1.3 HOW DOES SOCMON WORK?

A socioeconomic monitoring program, as explained in this document, includes six key phases: 1) advance preparation, including identifying purposes of the socioeconomic monitoring, selecting the relevant indicators, defining the process to conduct the socioeconomic monitoring, identifying and consulting with stakeholders, and identifying the monitoring team; 2) data collection through secondary sources; 3) data collection through key informants; 4) data collection through household interviews; 5) data collection through observation; and 6) data analysis and communication. This is an iterative process, so the results of the phases will likely affect earlier decisions and may require repeating previous steps. This will require flexibility and adaptability.

The *SocMon* indicators (see *Section 4* and *Appendix A*) are presented based on the means of data collection: secondary sources, key informants and household interviews. They were divided this way to correlate with the two types of interview guides: one for secondary sources and key informants, the other for household interviews. The indicators are also categorized according to whether they are of primary or secondary importance to collect (see *Section 4.2.2*).

It is important to emphasize that *SocMon* is not a rigid set of guidelines. The user of *SocMon*, the socioeconomic monitoring team, is expected to select indicators and methods appropriate to its site's needs as discussed in *Section 4.2.*



1.4 WHO IS SOCMON FOR?

The target audience for *SocMon* is coastal managers, including the staff managing coastal areas, local government authorities, non-governmental organizations and local people (e.g. community organizations, fisheries associations). Secondary audiences include academics and international and regional organizations.

1.5 WHAT ARE SOCMON'S LIMITATIONS?

SocMon is a basic set of guidelines. It does not cover all the possible indicators for socioeconomic monitoring (e.g. it does not specifically discuss gender). It was designed to be a minimum set of prioritized indicators from which to work and was designed as a companion to the *GCRMN Manual*, which does provide detail on the full range of indicators possible for a socioeconomic assessment. It is therefore expected that the team will consult the *GCRMN Manual* (particularly *Appendix A: Socioeconomic Parameters)* if it decides to go beyond the indicators prioritized for *SocMon.*

SocMon also does not provide detail on how to collect data (e.g. how to conduct an interview). This information is provided in the *GCRMN Manual,* which includes comprehensive explanations of how to conduct socioeconomic data collection, including interviews, observations and secondary data collection (see *Chapter 3: Field Data Collection*). It is therefore suggested that the reader use both documents – *SocMon* for the priority indicators to assess, the questions to ask and the tables to analyze the data, and the *GCRMN Manual* for how to do it.

SECTION 2: WHY SHOULD I DO THIS?

Socioeconomic information can be used by coastal managers for a number of purposes. It is important for the coastal manager and socioeconomic monitoring team to determine the relevant purposes for their monitoring so that they can select the appropriate indicators for data collection. *Section 4*, where the indicators are introduced and the process of selecting indicators is discussed, includes a table noting which indicators are important to collect for each purpose.

These purposes are generic to the region. The coastal manager and monitoring team need to tailor these purposes to the needs at their site.

2.1 IDENTIFYING THREATS, PROBLEMS, SOLUTIONS AND OPPORTUNITIES

When collected as part of an ongoing monitoring program, rather than a one-time assessment, socioeconomic information can be used to identify trends and changes in community and household demographic and economic characteristics, coastal activities, and people's perceptions about coastal and community issues. These can be used to identify threats, problems, solutions and opportunities for coastal resource management. For example, an increase in in-migration of people to the area can indicate potential threats from increased fishing effort and land use development, such as cutting of mangroves.

2.2 DETERMINING THE IMPORTANCE, VALUE AND CULTURAL SIGNIFICANCE OF RESOURCES AND THEIR USES

Socioeconomic information can be used to demonstrate the importance and value of coastal resources and services, such as coral reefs and cultural traditions, to the general public, stakeholders groups and decision-makers, which can help generate greater support for coastal resource management programs. For example, an understanding of the value of coral reefs can be used to evaluate the benefits and costs of alternative development, management and conservation scenarios (e.g. a decision to allow diving in an area may be based on the expected occupations and income to the community from tourism activities).

"Stakeholder" refers to people who make direct use of the coastal resources as well as people whose actions may affect the coastal resources.

2.3 ASSESSING POSITIVE AND NEGATIVE IMPACTS OF MANAGEMENT MEASURES

Socioeconomic information can be used to determine the impacts of management decisions on the stakeholders, which can help improve policy decisions to minimize negative impacts and maximize positive impacts to stakeholders. For example, a policy to restrict a certain type of fishing gear may affect occupational structure in the community and the market value of fish. By documenting the changes in occupational structure and market value before and after the policy is implemented, the managers can better determine the effects of the policy. Similarly, managers can use socioeconomic information to predict the effects of alternative policies on the community. For example, by knowing the number of people fishing various areas, managers can predict how many fishers will be displaced by a proposed no-fishing zone.

2.4 ASSESSING HOW THE MANAGEMENT BODY IS DOING (MANAGEMENT EFFECTIVENESS)

Socioeconomic information can be used to measure the effectiveness of coastal resource management programs in achieving their goals and objectives. For example, if a goal of the coastal resource management program is to improve the participation of local stakeholders in the management process, in order for the management body to be judged effective, there should be improvements in people's perceptions of participation in coastal resource management decision-making.

Socioeconomic monitoring can allow for the improvement of coastal resource management through learning and adaptation and identifying specific issues influencing the success of the coastal resource management program in achieving its goals and objectives. For example, changes in people's perceptions of compliance and enforcement of rules and regulations, can indicate success or failure of the management activities and the possible need for a change in enforcement activities.

2.5 BUILDING STAKEHOLDER PARTICIPATION AND APPROPRIATE EDUCATION AND AWARENESS PROGRAMS

Socioeconomic information can be used to guide the incorporation of stakeholder group participation, concerns and interests into the management process. It can also be used to plan and direct education and awareness programs for coastal resource management. For example, the identification of community and stakeholder organizations in the area can assist coastal managers in ensuring that critical stakeholders have opportunities to participate in the coastal resource management process.

2.6 VERIFYING AND DOCUMENTING ASSUMPTIONS OF SOCIOECONOMIC CONDITIONS IN THE AREA, COMMUNITY DYNAMICS AND STAKEHOLDER PERCEPTIONS

Socioeconomic data collection and analysis are important to scientifically verify and document the community conditions. With any natural resource management program, there are often widely held perceptions of the local conditions. For example, it may be generally agreed that the health of the mangroves is in decline. Managers need scientific data to prove and document this perspective. Without scientific proof, the statement is only a theory. Verification and documentation of people's perspectives is equally important for socioeconomic conditions since they are easily biased by people's concerns and values. By having an objective, systematic study conducted, the manager can determine the true local socioeconomic conditions, including resource use, community dynamics and stakeholder perceptions.

2.7 ESTABLISHING BASELINE HOUSEHOLD AND COMMUNITY PROFILE

Socioeconomic information collected at the start of a coastal resource management program can help the manager understand the community and households, and establish baseline conditions for future comparison. This baseline information can be especially useful in adaptive management. As the goals and activities of the program change, the manager can compare current conditions with the baseline to identify causes of changes as well as effects of change. For example, if "support local traditions" was not one of the original goals of a coastal management program, then the status of local traditions may not have been monitored over time. However, by having a baseline set of information on local traditions, managers can refer to this initial set of information to assess how conditions have changed over time.

SECTION 3: WHAT'S INVOLVED?

3.1 WHO SHOULD DO THE MONITORING?

The socioeconomic monitoring can be undertaken by an individual, but ideally the socioeconomic monitoring will be conducted by a monitoring team led by someone from the coastal management staff (e.g. monitoring coordinator from marine protected area authority, education officer from environmental organization) with a background in one of the social sciences (i.e. sociology, anthropology, economics, political science, psychology, or geography). The involvement of a staff member in the socioeconomic monitoring is important for establishing long-term consistency and ensuring that the coastal management staff has access to the data for use in improving coastal management.

The team leader is responsible for planning the monitoring; collecting, analyzing and presenting the data; and ensuring the program continues over the long-term. The rest of the monitoring team assists with the data collection, particularly the interviews, analysis, report writing and presentations.

Ideally the team members will have a background in one of the social sciences. It would also be ideal if the team members were trained and experienced in conducting interviews in the area. Whether they have a social science background or not, it is important that the team members have good interpersonal skills, are motivated and analytical, and are interested in the project. Since most coastal management program staff have natural science degrees, *SocMon* was written assuming the team members have limited socioeconomic knowledge, but at least a high school level education.

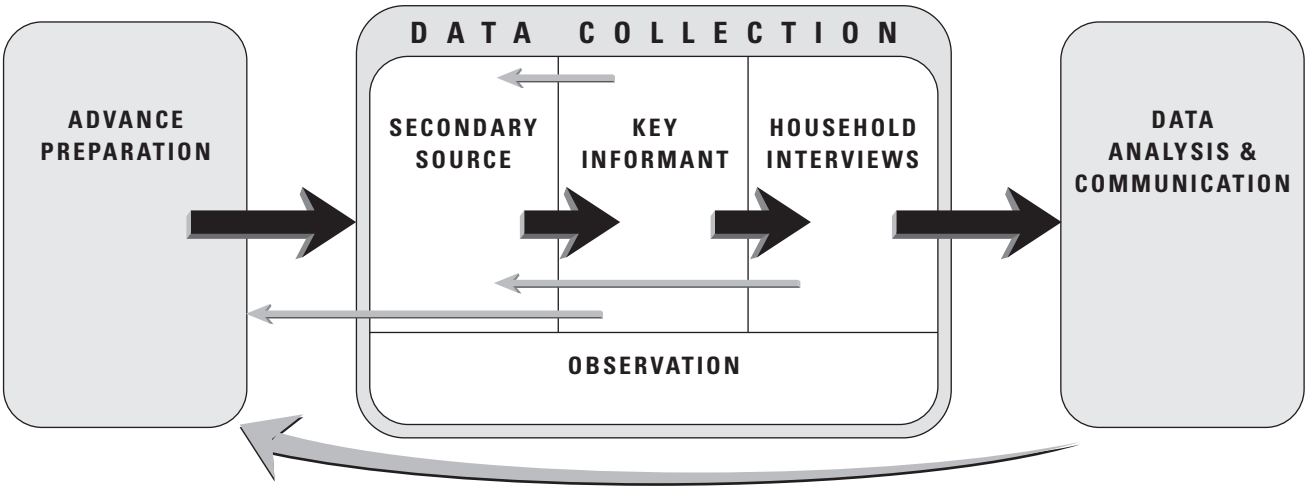
If the leader and/or members have limited socioeconomic expertise, it is particularly important that they review the *GCRMN Manual,* which provides a comprehensive review of how to conduct socioeconomic assessments. The *GCRMN Manual, Chapter 1: Prepatory Activities, Identify the assessment team*, also provides tips on developing the team.

If there isn't a trained social scientist on the team, the socioeconomic monitoring can still be conducted. There are resources, including the *GCRMN Manual,* available for skill development (also see *GCRMN Manual*, *References* for additional sources). Experts from academic or research institutions can be consulted for guidance. As stated above, motivation and interest are the most critical.

3.2 WHAT'S THE PROCESS FOR DOING THE MONITORING?

As noted in *Section 1.3*, there are generally six steps in conducting the socioeconomic monitoring, including:

1. Advance preparation, including identifying purposes of the socioeconomic monitoring, selecting the relevant indicators, defining the process to conduct the socioeconomic monitoring, identifying and consulting with stakeholders, and identifying the monitoring team (see *GCRMN Manual, Chapter 1: Preparatory Activities* and *Chapter 2: Reconnaissance and Planning*)
2. Data collection through secondary sources
3. Data collection through key informants
4. Data collection through household interviews
5. Data collection through observation
6. Data analysis and communication



This is an iterative process that needs to be repeated over time to update and add new data and information. It is also a process that must be flexible as the steps involved in the actual socioeconomic monitoring do not always follow this process directly and often need to be repeated. New information may create new requirements, so the team should review progress and change plans to fit the new conditions.

3.3 HOW DO I COLLECT THE DATA?

The indicators presented in *SocMon* are divided into four main methods of data collection:

1. secondary sources
2. key informant interviews
3. household interviews
4. observation

Generally, data should be collected from secondary sources first, followed by key informant interviews. Household interviews should then be conducted to obtain more specific data about individuals and households in the community. Observation is on-going while in the community. These methods are discussed in detail in the *GCRMN Manual, Chapter 3: Field Data Collection.*

The team should follow the following guiding principles throughout the data collection:

- *respect the stakeholders and community, such as work schedules, local customs, and religion*
- *recognize informant biases*
- *address gender issues (e.g. have women interview women)*
- *reach less accessible areas*
- *address language differences (e.g. have interpreters)*
- *take detailed notes*

These and other guiding principles for field data collection are more fully discussed in the GCRMN Manual, Chapter 3: Field Data Collection.

3.3.1 SECONDARY DATA

The monitoring team should start by conducting a thorough assessment of all relevant secondary data on the identified indicators. Secondary data are those that have already been collected, analyzed and published in various forms, including:

- official and unofficial documents
- statistical reports
- reports of previous assessments and surveys

- research reports
- documentation of previous or ongoing projects, including monitoring and evaluation reports
- maps
- aerial photographs and satellite images
- historical documents and accounts
- Web sites on the Internet

The assessment of secondary data involves compiling, evaluating and reviewing the data related to the indicators.

3.3.2 KEY INFORMANT INTERVIEWS

Key informants are individuals who, because of their position, experience and/or knowledge can provide insight and information into the larger population and/or a particular group. For example, the village chief can provide insight into the entire community, the president of the fishermen's association can provide insight into fishermen's activities and the minister of the local church can provide insight into Christians' perceptions in the community. Key informants can therefore provide common knowledge, shared knowledge and specialized knowledge. Because it is often not possible to speak with everyone in the study area, these individuals with experience and knowledge are often sought. They are often used when the team does not need to know the perspective at the individual level. For example, the team does not need to interview community members to determine whether there is a fisheries management plan; instead, the team can ask the Fisheries Office Director. Most of the indicators collected using key informants address basic facts (e.g. demographics of the community, existence of a formal management body). It is important to interview several key informants to gain a breadth of perspective. A rule of thumb to determine when enough key informants have been interviewed regarding a particular indicator is when the answers to the same questions become repetitive. For example, if the team is asking about the types of activities in the study area and the informants are all noting the same activities, then the team can stop interviewing about this indicator.

3.3.3 HOUSEHOLD INTERVIEWS

The *SocMon* household interviews involve questionnaires with highly structured, close-ended questions. The questionnaire has specific questions with limited answers (e.g. multiple choice, yes/no) resulting in quantitative data that can be analyzed statistically. Household interviews are important for understanding individuals' perspectives. For example, if the team wants to understand what people think about coastal management practices, then it needs to ask a spectrum of people. Most of the indicators studied through household interview address perceptions (e.g. non-market and non-use values, perceived community problems). The household interviews have the advantage that they do not need a highly trained person to administer the questionnaire, are relatively easy to administer, and require little time compared to key informant interviews. However, the household interviews have disadvantages in that it is difficult to determine if the informants are providing information they think the interviewer wants to hear and it is difficult to ask questions about sensitive issues such as income. The interviewers are also limited in the questions they can ask.

3.3.4 OBSERVATION

In some cases data can be collected through observation. Observations are qualitative descriptions of what the team member sees, and are obtained by attentively watching and recording the surroundings. For example, a team member may collect information on material style of life by observing a respondent's house and noting roof, wall, floor and window construction materials. Observation is a useful method because the team can learn first-hand information about complex activities, such as fishing patterns.

3.4 WHO SHOULD BE INTERVIEWED FOR THE HOUSEHOLD INTERVIEWS?

The monitoring team should develop its own sampling approach to determine who to interview for the household interviews. The *GCRMN Manual, Appendix B: Sampling Approaches* provides a comprehensive explanation of how to select the appropriate number of people to interview and how to identify the people to interview (both randomly and non-randomly). The team might also discuss plans for sampling and sample size with the statisticians at the central statistical office or nearby university.

An important decision is whether to interview a random or non-random sample of people. This decision will depend on whether the results need to be statistically representative of the community. If they do, then it is important to collect a statistically representative sample of people through random sampling (see the *GCRMN Manual, Appendix B: Sampling Approaches, page 233* for a sampling table). In cases where the team does not need a statistically representative sample of the population, then smaller sample sizes may be used. Although not statistically representative of the entire population, the results will provide a useful understanding of the population. In these cases, the following sample sizes are suggested:

Population	Sample Sizes
100	25
200	40
300	60
400	60
500	80
1000	100

Regardless of random or non-random sampling, it is important to sample from the different types of stakeholder groups to ensure the breadth of perspectives are assessed. The information collected from the secondary sources and key informant interviews can be useful for ensuring the breadth of people in the community are interviewed. The secondary and key informant data will include information on the different types of stakeholders in the community as well as distribution of basic demographics, including age, gender, education, ethnicity and religion. The team needs to interview people in approximately the same proportions from these groups. For example, if there are 30% Hindus, 40% Muslims and 30% Christians in a community, then the team needs to conduct interviews with approximately these same percentages of people.

3.5 HOW LONG SHOULD THE MONITORING TAKE?

The time it will take to conduct each socioeconomic assessment will vary depending on the situation, including the size of the community, skills and resources of the team, size of the team and number of indicators selected. The first time will generally take the longest, since the process is new and the list of indicators may be longer than those selected for future monitoring. Overall, it is generally estimated it will take between 3 and 6 weeks (17 to 30 actual working days) to conduct the monitoring as follows:

Preparatory activities: 3 - 5 days

Data collection through secondary sources: 3 - 5 days

Data collection through key informants: 3 - 5 days

Data collection through household interviews: 5 - 10 days

Data analysis, report writing, presentations and consultations: 3 - 5 days

These actual working days may be spread out over a longer period, as each activity may not follow directly after the other.

3.6 HOW MUCH WILL THE MONITORING COST?

The budget will also vary depending on site needs, existing resources and local costs. Generally it is expected that the budget items will include, but not be limited to:

- transportation to government offices for collection of secondary data
- salary for 3-4 interviewers
- pen, paper, notepads, other office supplies
- maps, nautical charts
- transportation to study area (car, boat)
- photocopying
- computer with basic word processing software
- optional: camera, binoculars, tape recorder, video camera, Geographic Position System

3.7 HOW OFTEN SHOULD THE MONITORING BE DONE?

Typically a socioeconomic monitoring program begins with a baseline socioeconomic assessment using the full range of indicators, which provides a foundation of data for future reference. The subsequent monitoring efforts may involve a shorter list of indicators than the baseline monitoring, as some indicators should be collected on a more frequent basis than others. *Tables 4.1* and *4.2* in *Section 4*, where the indicators are introduced, give suggested frequency of data collection for each indicator that ranges from a minimum of every 2 to 5 years. The team will need to determine the most appropriate frequency depending on the situation and data needs for its site. For example, in areas where there is a high rate of demographic and economic change, the data may need to be collected on a more frequent basis to assess trends, while in more stable communities, the data may not need to be collected as frequently.

3.8 WHERE SHOULD THE MONITORING TAKE PLACE?

The data collection will generally take place in two places:

- Outside of the community – the secondary source data is typically located in government, academic, research, non-government organization and other offices, which are usually outside of the community.
- Inside the community – the key informant interviews, household interviews and observation will be conducted in the community.

3.9 WHAT IS THE AUDIENCE FOR THE RESULTS?

Before undertaking the socioeconomic monitoring effort, it is important to identify the audience for the results. By understanding the target audience for the socioeconomic information, the process and results can be oriented in such a way as to effectively generate and communicate results.

In determining the audience, it is important to consider who will be affected by the results, both positively and negatively. Who is affected may depend upon the purposes of socioeconomic information as discussed in *Section 2*. For example, if the purpose of the monitoring is to assess the management body's performance, then the management body will be the audience as well as anyone else who is interested in its effectiveness, such as the agency overseeing the management body (e.g. National Parks Trust), the general public and particular stakeholder groups (e.g. fishermen, tourism operators).

It is also important to consider who can take action related to the results. For example, if the purpose is to build stakeholder participation, then the stakeholders are an important part of the audience.

Finally, it is important to consider who needs to be kept informed of coastal management activities and the related socioeconomic conditions. In some cases this may be the entire community, in other cases particular government agencies or advisory boards.

3.10 WHAT ELSE SHOULD I KNOW?

It is important to identify any development projects or studies that have been conducted recently that may have included a socioeconomic assessment. The process and resulting information should be reviewed as data for comparison and before starting *SocMon* data collection to prevent duplication. If there are any on-going activities in the area conducting a socioeconomic analysis, it is important to determine if the analysis is relevant to the *SocMon* monitoring and attempt to integrate or merge the activities. This is particularly important to minimize intrusion into communities. It is not uncommon for community members to get interview fatigue from being interviewed too much.

As noted in *Section 1*, this document is designed to be used in conjunction with the *GCRMN Manual.* It is particularly important to review *Chapter 1: Preparatory Activities* and *Chapter 2: Reconnaissance and Planning* before starting the data collection. *Chapter 3: Field Data Collection* is also critical for understanding how to conduct interviews.

SECTION 4: WHAT DATA DO I COLLECT?

4.1 WHAT ARE THE INDICATORS?

SocMon is focused on 60 socioeconomic indicators, which are presented according to the means of data collection: secondary sources/key informant interviews (*Table 4.1*) or household interviews (*Table 4.2*). *Appendix A* provides detailed information on each of the indicators, including what it is, how to collect it, how to analyze it, and how the resulting information can be useful to managers. For more extensive descriptions of these indicators and how to conduct interviews see the *GCRMN Manual, Appendix A: Socioeconomic Parameters* and *Chapter 3: Field Data Collection*, Semi-structured interviews.

To set the context for the data collection, the team first needs to develop an understanding of the study area (KS1), population (KS2), number of households (KS3), activities (KS14) *and* stakeholders (KS24). *These indicators may be more fully assessed during the interviews; however, in order to determine where to conduct the study and how many people to interview, these four indicators need to be at least preliminarily determined.*

A few of the indicators, such as age, gender and education, are collected through key informants/secondary sources as well as through household interviews. This is done to cross-check the results and also because the two sets of data complement each other. The key informant/ secondary source data provide community-level, aggregate information useful for assessing changes and trends over time; whereas, the household interview data provide more precise information on the various stakeholder groups. For example, the community-level information on occupation and demographics provides an overall understanding of the percentage of the community that is employed in each occupation and what percentage of the community is in which age group, level of education, etc. In contrast, household information on occupation and demographics can be used to determine the ethnicity of stakeholders, such as fishers and tour guides.

For the first assessment, the team may need to collect data on more indicators than for the subsequent monitoring. Typically a baseline assessment is conducted using a full range of indicators that provides a foundation of data for future reference. The subsequent monitoring may involve a shorter list of indicators than the baseline monitoring since some indicators should be collected more frequently than others. See Tables 4.1 *and* 4.2 *below as a reference for when to collect data on which indicators.*

Tables 4.1 and *4.2* list the indicators according to category and means of data collection. The tables note particularly useful aspects of each indicator, including the main means of data collection, minimal frequency of data collection and general importance of data collection. Observation is not specifically noted for any of the indicators because it is important for all of them. The monitoring team is expected to use observation as a cross-check on the data collected through the secondary sources, key informant interviews and household interviews.

TABLE 4.1 KEY INFORMANT/SECONDARY SOURCE INDICATORS

Key Informant Interviews/ Secondary Sources (KS)		Main means of data collection (secondary sources, key informants or both)	Minimal frequency of data collection (years)	General importance of data collection (high or medium)
Community-level demographics				
KS1.	Study area	Secondary sources	5	Medium
KS2.	Population	Secondary sources	5	High
KS3.	Number of households	Secondary sources	5	High
KS4.	Migration rate	Secondary sources	5	Medium
KS5.	Age	Secondary sources	5	Medium
KS6.	Gender	Secondary sources	5	Medium
KS7.	Education	Secondary sources	5	Medium
KS8.	Literacy	Secondary sources	5	Medium
KS9.	Ethnicity	Secondary sources	5	Medium
KS10.	Religion	Secondary sources	5	Medium
KS11.	Language	Secondary sources	5	Medium
KS12.	Occupation	Secondary sources	3	High
Community infrastructure				
KS13.	Community infrastructure	Secondary sources	5	Medium
Coastal and marine activities				
KS14.	Activities	Both	2	High
KS15.	Goods and services	Both	2	High
KS16.	Types of use	Both	2	High
KS17.	Value of goods and services	Both	2	High
KS18.	Goods and services market orientation	Both	2	High
KS19.	Use patterns	Both	2	High
KS20.	Levels of impact	Both	2	High
KS21.	Types of impact	Both	2	High
KS22.	Level of use by outsiders	Both	2	High
KS23.	Household use	Both	2	High
KS24.	Stakeholders	Secondary sources	5	Medium
Governance				
KS25.	Management body	Both	3	Medium
KS26.	Management plan	Both	3	Medium
KS27.	Enabling legislation	Both	3	Medium
KS28.	Resource allocations	Both	3	Medium
KS29.	Formal tenure and rules	Both	3	Medium
KS30.	Informal tenure and rules, customs and traditions	Both	3	Medium
KS31.	Stakeholder participation	Both	3	Medium
KS32.	Community and stakeholder organizations	Both	3	Medium

TABLE 4.2 HOUSEHOLD INTERVIEW INDICATORS

Household Interviews (H)		Minimal frequency of data collection in years	General importance of data collection (high or medium)
Household demographics			
H1.	Age	5	Medium
H2.	Gender	5	Medium
H3.	Ethnicity	5	Medium
H4.	Education	5	Medium
H5.	Religion	5	Medium
H6.	Language	5	Medium
H7.	Occupation	5	Medium
H8.	Household size	5	Medium
H9.	Household income	3	Medium
Coastal and marine activities			
H10.	Household activities	2	Medium
H11.	Household goods and services	2	Medium
H12.	Types of household uses	2	Medium
H13.	Household market orientation	2	Medium
H14.	Household uses	2	Medium
Attitudes and perceptions			
H15.	Non-market and non-use values	3	Medium
H16.	Perceptions of resource conditions	3	Medium
H17.	Perceived threats	3	Medium
H18.	Awareness of rules and regulations	3	Medium
H19.	Compliance	3	Medium
H20.	Enforcement	3	Medium
H21.	Participation in decision-making	3	Medium
H22.	Membership in stakeholder organizations	3	Medium
H23.	Perceived coastal management problems	3	Medium
H24.	Perceived coastal management solutions	3	Medium
H25.	Perceived community problems	3	Medium
H26.	Successes in coastal management	3	Medium
H27.	Challenges in coastal management	3	Medium
Material style of life			
H28.	Material style of life	3	Medium

TABLE 4.3 PURPOSES OF SOCIOECONOMIC MONITORING AND RELEVANT INDICATORS

	KEY INFORMANT INTERVIEWS/SECONDARY SOURCE INDICATORS												
	Community-level Demographics												*Community infrastructure*
	Study area	Population	Number of households	Migration rate	Age	Gender	Education	Ethnicity	Literacy	Religion	Language	Occupation	Community infrastructure
PURPOSES	**KS1**	**KS2**	**KS3**	**KS4**	**KS5**	**KS6**	**KS7**	**KS8**	**KS9**	**KS10**	**KS11**	**KS12**	**KS13**
Identifying threats, problems, solutions and opportunities													
Threats	●	●	●	●								●	●
Problems													●
Solutions and Opportunities													
Determining the importance, value and cultural significance of resources and their uses													
Importance/Value												●	
Cultural Significance													
Assessing positive and negative impacts of management measures													
Livelihood		●					●	●	●	●		●	●
Marketing and Production													
Food Security													
Attitudes and Perceptions													
Coastal Activities												●	
Governance													
Assessing how the management body is doing													
Management Effectiveness													
Building stakeholder participation and appropriate education and awareness programs													
Stakeholder Participation		●			●	●	●	●	●	●	●	●	
Awareness Program				●									●
Verifying and documenting assumptions of socioeconomic conditions in the area, community dynamics and stakeholder perceptions	●	●	●	●	●	●	●	●	●	●	●	●	●
Establishing baseline household and community profile	●	●	●	●	●	●	●	●	●	●	●	●	●

TABLE 4.3 PURPOSES OF SOCIOECONOMIC MONITORING AND RELEVANT INDICATORS *(CONTINUED)*

KEY INFORMANT INTERVIEWS/SECONDARY SOURCE INDICATORS																			
Coastal and marine activities												***Governance***							
Activities	*Goods and services*	*Types of use*	*Value of goods and services*	*Goods and services market orientation*	*Use patterns*	*Levels of impact*	*Types of impact*	*Level of use by outsiders*	*Household use*	*Stakeholders*		*Management body*	*Management plan*	*Enabling legislation*	*Resource allocations*	*Formal tenure and rules*	*Informal tenure and rules, customs and traditions*	*Stakeholder participation*	*Community and stakeholder organizations*
KS14	KS15	KS16	KS17	KS18	KS19	KS20	KS21	KS22	KS23	KS24		KS25	KS26	KS27	KS28	KS29	KS30	KS31	KS32
●	●	●			●	●	●												
					●			●											
				●	●			●	●									●	
																	●		
●	●	●	●						●										
	●	●	●	●															
	●	●	●	●					●										
●	●	●			●														
												●	●	●	●	●	●		
●	●	●			●	●	●											●	●
		●						●		●								●	●
●	●	●				●	●	●											
●	●	●	●	●	●	●	●	●	●	●		●	●	●	●			●	●
●	●	●	●	●	●	●	●	●	●	●		●	●	●	●			●	●

TABLE 4.3 PURPOSES OF SOCIOECONOMIC MONITORING AND RELEVANT INDICATORS *(CONTINUED)*

	HOUSEHOLD INTERVIEW INDICATORS													
	Household demographics									*Coastal and marine activities*				
	Age	*Gender*	*Ethnicity*	*Education*	*Religion*	*Language*	*Occupation*	*Household size*	*Household income*	*Household activities*	*Household goods and services*	*Types of household uses*	*Household market orientation*	*Household uses*
PURPOSES	**H1**	**H2**	**H3**	**H4**	**H5**	**H6**	**H7**	**H8**	**H9**	**H10**	**H11**	**H12**	**H13**	**H14**
Identifying threats, problems, solutions and opportunities														
Threats										●	●	●		
Problems							●							
Solutions and Opportunities								●						
Determining the importance, value and cultural significance of resources and their uses														
Importance/Value							●		●				●	
Cultural Significance														
Assessing positive and negative impacts of management measures														
Livelihood			●	●	●		●			●	●	●	●	●
Marketing and Production											●	●	●	●
Food Security											●	●	●	●
Attitudes and Perceptions														
Coastal Activities							●			●	●	●		
Governance														
Assessing how the management body is doing														
Management Effectiveness										●	●	●		
Building stakeholder participation and appropriate education and awareness programs														
Stakeholder Participation	●	●	●	●	●	●	●					●		
Awareness Program										●	●	●		
Verifying and documenting assumptions of socioeconomic conditions in the area, community dynamics and stakeholder perceptions	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Establishing baseline household and community profile	●	●	●	●	●	●	●	●	●	●	●	●	●	●

TABLE 4.3 PURPOSES OF SOCIOECONOMIC MONITORING AND RELEVANT INDICATORS *(CONTINUED)*

HOUSEHOLD INTERVIEW INDICATORS													
Attitudes and perceptions													*Material style of life*
Non-market and non-use values	*Perceptions of resource conditions*	*Perceived threats*	*Awareness of rules and regulations*	*Compliance*	*Enforcement*	*Participation in decision-making*	*Membership in stakeholder organizations*	*Perceived coastal management problems*	*Perceived coastal management solutions*	*Perceived community problems*	*Successes in coastal management*	*Challenges in coastal management*	*Material style of life*
H15	H16	H17	H18	H19	H20	H21	H22	H23	H24	H25	H26	H27	H28
	●	●											
				●	●			●	●	●			
									●		●	●	
●						●	●						
													●
●	●	●	●	●	●			●	●	●	●	●	
		●											
					●								
											●	●	
		●	●	●		●	●				●	●	
●	●	●	●										
●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●

4.2 WHICH INDICATORS DO I USE?

If it is not possible to assess all of the indicators in *SocMon*, then it is recommended that the monitoring team prioritize indicators based on the following considerations:

4.2.1 PURPOSES OF THE SOCIOECONOMIC INFORMATION

Most important, the team needs to clarify why the data is being collected, and specifically how it will be used once collected. For example, if the team is most concerned about identifying threats, then it might focus on the indicators listed for identifying threats. *Section 2* discusses the various purposes of collecting socioeconomic information. The indicators prioritized for data collection in *SocMon* were selected because they address these purposes. *Table 4.3* notes which indicators are relevant to which purposes so that the team can easily identify which indicators are relevant to its needs. A discussion of how the indicators can be used to understand each of these purposes is provided in the *How Managers Can Use This Information* section of each indicator in *Appendix A*.

4.2.2 GENERAL IMPORTANCE OF DATA COLLECTION

In some cases the purposes of the socioeconomic monitoring may not be clear and available time and resources may not allow the team to assess all the indicators. For these situations, the indicators were categorized according to what are generally considered to be the most important indicators to collect (high importance) and second most important to collect (medium importance) (see *Tables 4.1* and *4.2*). The high importance indicators were selected based on 1) usefulness to management (frequency in *Table 4.3)*, 2) ease of data collection, and 3) likelihood of providing new information. Because household interviews are much more time-consuming than key informants and secondary sources, only the key informants/secondary source indicators were considered for high importance level of data collection.

4.2.3 SITE-SPECIFIC CONDITIONS

Perhaps most important, the team needs to select indicators based on local issues of importance in the study area. For example, if waste management is an important issue, then the team may want to prioritize community infrastructure and add more questions specific to waste disposal practices.

The team also needs to consider expected future changes in management and in the community. For example, if tourism is increasing, then the team may want to add more questions related to the tourism industry and its impacts.

SECTION 5: WHAT DO I DO WITH THESE DATA?

5.1 ANALYSIS

The data analysis is typically conducted as a team. Throughout the data collection the team should meet several times to review and validate the data, discuss and refine key learning, interpret the results, validate the key learning and plan communication of results. As a result, much of the data analysis, particularly of qualitative data, should be completed during the field data collection. The final analysis at the end of the data collection will be to review and finalize the field analyses.

Key learning refers to issues identified or lessons learned by the team that are essential to the purposes of the monitoring or are needed to understand the socioeconomic context of the stakeholders. See GCRMN Manual, Chapter 4: Final Data Analysis *for more information on key learning and basic principles for analysis.*

There are several critical steps the team should conduct together for the data analysis:

1. Compile all the data by gathering all the completed secondary sources and key informant interview guides and household interview guides *(Appendices B &C).*

2. Prepare the data by transferring the collected secondary source, key informant interview and household interview data to the analysis sheets *(Appendices D & E).*

3. Interpret the data by reviewing the results from the analysis sheets to identify and organize information related to the originally identified purposes of the socioeconomic monitoring (see *Section 2*). The team should select the data relevant to the purposes of the monitoring (see *Table 4.3* in *Section 4* to determine which indicator data are useful for analyzing which purpose). These data then need to be reviewed, correlated and contrasted to identify emerging patterns and trends. These patterns and trends become key learning. The results are then compiled to identify data that support the key learning. For example, if the purpose of the monitoring is to identify socioeconomic impacts of a no-fishing regulation, then two of the indicators of interest are *occupation (K12)* and *activities (K14)*. For the analysis, there may be trends in changes in occupations and activities as people shift from fishing to other occupations and activities. If there are shifts out of fishing, a key learning may be that the regulation has had an impact on fishing activities as demonstrated by people leaving fishing as an occupation. The results on occupation and activities would support this key learning. By reviewing, correlating and contrasting these different pieces of data, it is possible to identify changes in each of the indicators. For each indicator there is a discussion of how to analyze and use the information in the *How to analyze the data* and *How the information can useful to managers sections* in *Appendix A.*

4. Agree on key learning by agreeing on the most important key learning to highlight, and selecting the information to support the key learning

5. Validate the findings by discussing the key learning with stakeholders as part of communication discussed below. Any noticeable differences should be checked with original sources.

5.2 COMMUNICATION

The most important aspect of the entire monitoring process is to communicate the results related to the purposes back to the audience. This involves discussing the findings with the audience, seeking feedback and validation, and seeking appropriate decisions and actions to make use of the results. This communication process is critical to adaptive coastal management, which uses the information to improve the way management will be done in the future. For example, if the purpose of the socioeconomic monitoring is to understand the value and importance of coral reefs, then the results regarding people's perceptions of non-market and non-use values can be used to understand value and importance. If the results show that more and more people have positive perceptions of the value of protecting coral reefs, then this demonstrates a high value of coral reefs. This information can then be used by the manager to demonstrate to the public and to policy-makers the importance of putting resources into protecting the coral reefs.

As discussed in *Section 3.9*, the audience may range from stakeholders to community members to policy-makers and coastal resource managers. From an ethical standpoint, it is highly recommended that the results of the socioeconomic monitoring be reported back to the community even if they are not the target audience. This is done as a courtesy to the community members who provided their time for the interviews. This will also help ensure good relations for future work with the community. Interview fatigue is a serious concern in any socioeconomic monitoring effort and the more people are involved in the process and have access to the results the greater people's willingness to participate in subsequent monitoring activities. It is therefore important to discuss with community members how the results will be used and how they will affect management.

When determining which results to highlight and share with the audiences, the team needs to consider what it expects each audience to do with the results presented to them, including actions it expects them to take. It also needs to consider the critical pieces of information that each target audience will be looking for from the results.

The results of the socioeconomic monitoring can be communicated to the various audiences through both one-way and two-way communication mechanisms. One-way communication mechanisms include:

- written material (report, papers)
- visual material (posters, pictures)
- oral presentations
- mass media (newspapers, magazines, radio, television)
- Web sites

Two-way communication mechanisms include:

- group discussion
- one-on-one discussion
- physical and electronic bulletin boards
- remote communications (telephone, video phone, Web camera)
- e-mail

Two-way communication mechanisms have the benefit of bringing the audience into the monitoring process by allowing them to provide feedback on the findings. If they have a mechanism for being involved, then they are more likely to support and take action related to the results.

When deciding which mechanisms to use, the team should consider the following questions:

- What is their preferred method of receiving information? This may be closely related to their educational level and technological capacity. The literacy rate is important to consider as well as whether they prefer to read information, listen to a radio or watch television. Are they computer literate? Do they use the Internet regularly? Do they gather together periodically at meetings or conferences? If so, when?
- Do they prefer technical or academic prose to that of a more casual, conversational style? Where and how are spoken communications typically conducted? What language is used?

If the results are going to be communicated in a written form, a report is presented for the target audience. The report can take several forms depending upon the audience for the report. Some end-users, such as senior policy-makers or decision-makers, may have little interest in a general description of the area and communities studied, but may be interested in issues, problems and potential solutions. Other end-users, such as researchers, development agencies planning to work in the area and coastal resource managers, may want detailed descriptions of all socioeconomic conditions and factors relating to coastal resource stakeholders.

Typically, the report will include:

Executive Summary – a summary discussion of issues, problems, opportunities and solutions identified in the monitoring.

Introduction – a discussion of the major and specific purposes of the socioeconomic monitoring (related to the different uses of socioeconomic information presented above) and some background on the biological, physical, social, economic and political characteristics of the area.

Methods – a discussion on the sampling methods, the data collection methods, and the qualitative and quantitative data analysis methods used.

Results – a presentation of the main results from the monitoring effort including tables, diagrams, correlations between indicators and a narrative discussion. The specific results that may be presented for each variable are noted in the analysis sections for each variable in *Appendix A* and in the *Analysis Sheets* in *Appendices D* and *E*.

Discussion – a discussion on key learnings and implications from the results organized around the original identified purposes of the monitoring.

Recommendations – recommended management actions and potential solutions to be undertaken as a result of the monitoring.

APPENDIX A: THE INDICATORS

Section 4 provided a brief listing of the *SocMon* indicators. This appendix describes each indicator, including:

What it is - description of the indicator.

How to collect the data - description of how to collect the data (e.g. type of key informants, sources of secondary data) and relevant interview questions that are all compiled in *Appendix B* and *Appendix C*. In some cases a section, *Additional data collection*, is provided suggesting additional information that may be useful to collect.

How to analyze the data - explanation of what to do with the data, including comparisons to make with other data and the tables or narrative text to prepare, which are compiled in *Appendix D* and *Appendix E*. In most indicators a section, *Additional analysis*, is provided noting analysis that can be done beyond what is included in the *Appendices D & E* analysis sheets.

This appendix describes the full set of indicators that may be monitored. From this set the monitoring team needs to select the indicators appropriate for its purposes and site conditions as discussed in Section 4.

Appendix B *and* Appendix C *include the questions noted for each indicator in the following sections.* Appendix D *and* Appendix E *include the data analysis tables for the calculations described in the following sections.*

How the information can be useful to managers - discussion of how the information can be useful relating back to the purposes noted in the previous section, *Section 2*.

The indicators are presented in two sections according to their means of data collection: secondary sources/key informant interviews and household interviews. In each section the indicators (e.g. age, gender, education, literacy, religion, ethnicity) are presented in groups because they have closely related meanings, means of data collection, analyses and/or uses. Refer to *Tables 4.1* and *4.2* in *Section 4* for lists of all the indicators.

SECONDARY SOURCES/KEY INFORMANT INTERVIEW INDICATORS (KS)

COMMUNITY-LEVEL DEMOGRAPHICS

KS1. Study Area

What it is

The study area refers to the location of the coastal and marine resources and the stakeholders where the study is being conducted. The boundaries of the study area are determined by the physical location of the resources and by where the stakeholders live and work. The study area will therefore often encompass a coastal area and the adjacent water catchment area. The stakeholders may be highly mobile and spread far wider than the area that is managed. There may be one or several communities in the defined study area that include all important stakeholders. See the *GCRMN Manual, Chapter 1: Predatory Activities, Identify study area and study sites* for further discussion.

How to collect the data

Information on the study area is usually obtained from maps of the area and discussions with key informants, such as the village chief or town mayor. As noted in the *Key Informant Interview/Secondary Source Interview Guide (Appendix B)*, it is important to answer the question: What are the boundaries of the study area? The area needs to be noted on a map.

Additional data collection: It may also be useful to use symbols and colors to identify sites and coastal and marine resources of importance, particularly in the community (e.g. fish market, village center).

How to analyze the data

Synthesize the information from the key informants and maps onto a single map, which will be used throughout the monitoring and presented along with the results. The boundaries of the study area, based on the coastal and marine resources and the location of the stakeholders, should be identified on the map. Sites of importance may also be noted. The resulting map needs to be included with the *Key Informant/Secondary Source Analysis Sheet (Appendix D).*

How the information can be useful to managers

Clearly identifying the study area is important to identifying use patterns and potential threats to the resources. By noting the areas on a map, the managers can see the geographical features that are included in the area, such as watersheds, agricultural areas and high-density residential developments.

From the perspective of the socioeconomic monitoring program, it is critical to define the community area, since this study area is the focus of monitoring over time. In order to be able to make comparisons over time, the monitoring teams must be clear on the communities within the boundaries of the study.

KS2 & KS3. Population, & Number of Households

What it is

The population is the total number of people residing in the study area. The number of households is the number of occupied houses in the study area, regardless of the number of families residing in the houses.

How to collect the data

Data on population and household number are usually obtained from national, regional and/or local census statistics, which may be available from the census bureau, town council and/or community library. It is important to cross-check these data with key informants, such as the village chief or town mayor. As noted in the *Key Informant Interview/Secondary Source Interview Guide*, the critical questions to address are:

How many people live in the study area? _____

How many households are in the study area? _____

How to analyze the data

Synthesize the data from the secondary sources and key informants to determine the population size and number of households and note them on the *Key Informant Interview/Secondary Source Analysis Sheet.*

Additional analysis: Subtract the results from previous years to calculate changes over time. Compare changes in population and households and number of households over time with changes in resource conditions and the data from *levels and types of impact (KS20 and KS21)* to see if population changes are correlated to conditions and impacts.

How the information can be useful to managers
Understanding the study area population levels and number of households is important to understanding threats. Population levels provide a general sense of the level of pressure on the natural resources. Higher populations generally place greater pressure on the resources. The information on changes over time can also be useful in determining if these pressures are increasing, decreasing or staying the same. Comparisons with resource conditions and levels of use help determine how much increases in population are influencing resource conditions.

From the perspective of the socioeconomic monitoring program, population and number of households are important in determining the sample of households to interview. It is therefore important to collect this information from the key informant interviews before starting the household interviews.

KS4. Migration Rate

What it is
Migration rate refers to the percentage change in population size as a result of people moving into or out of the study area in the past year. For example, if there were 1000 people in a village in 1999 and 500 moved into the study area by 2000, then the migration rate would be 500/1000 = 50%.

How to collect the data
Migration data are usually available from national, regional and/or local census statistics, which may be available from the census bureau, town council and/or community library. It is important to cross-check these data with key informants, such as the village chief or town mayor. As noted in the *Key Informant Interview/Secondary Source Interview Guide,* the critical question to address is:

What was the net increase or decrease in people moving into and out of the study area in the last year? _____
(note + or – to reflect moving in or out)

How to analyze the data
Synthesize the data from the secondary sources and key informants to determine the migration rate and note on the *Key Informant Interview/Secondary Source Analysis Sheet.*

Additional analysis: Subtract the results from previous years to calculate changes over time. Compare changes in migration rates over time with changes in resource conditions and the *levels and types of impact (KS20 and KS21)* to see if migration rates are correlated to conditions and impacts.

How the information can be useful to managers
Migration rates are also useful for understanding threats. As people move into an area, pressures on the resources increase. The comparison with resource conditions and levels of impacts is particularly useful to see if the newcomers are associated with changing conditions and impacts.

Migration rates are also important for interacting with stakeholders, particularly for developing awareness programs. Immigrants can be expected to have less awareness of the coastal resources and management programs than long-term residents. A coastal management program with a high migration rate into the community may want to develop programs tailored to this growing population with a limited base understanding and appreciation of their environment. For example, the manager may want to have community meetings with traditional resource users and immigrants to introduce the newcomers to existing tenure systems. Furthermore, it the manager knows what activities the immigrants are involved in, he or she can target those activities. For example, if there is a large number of new hotel operators coming in and clearing mangroves with little understanding of the coastal ecology, then the manager may want to develop an educational video about the importance of marine resources as tourist attractions and the impacts of hotel practices on these valuable resources.

KS5-11. Age, Gender, Education, Literacy, Ethnicity, Religion, Language

What it is

Age, gender, education, literacy, ethnicity and religion are basic demographic indicators. Education is measured by the average number of years of formal schooling completed by study area members over 16 years old. Literacy is measured by the percentage of study area members able to read and write. Age is measured by the percent of study area members in different age categories. Gender is measured by the percentages of the population that are male and female. Ethnicity and religion are measured by the percent of study area members that have the various ethnic and religious affiliations, respectively.

How to collect the data

Basic demographic information on the study area is typically available from secondary sources, such as government census departments, town offices and community centers. It is important to cross-check these data with key informants, such as the village chief or town mayor.

The data collection should focus around determining the percent of the people in the study area that are in various categories of age, gender, education, religious affiliation and ethnic affiliation. As noted in the *Key Informant Interview/Secondary Source Interview Guide,* the key questions to address are:

What percent of the people in the study area are currently age: 0-18 _____; 19-30 _____; 31-50 _____; over 50 _____

What percentage of the population is male? _____ female? _____

What is the average number of years of education for people over 16 years old in the study area? _____

What percentage of the population is literate (can read and write)?_____

What is the ethnic make-up of the study area (percent of each major ethnic group in the study area): (write-in) _____, (write-in) _____, (write-in) _____

What is the religious make-up of the study area (percent of each major religious group in the study area):
(write-in) _____, (write-in)_____, (write-in) _____

What are the major languages spoken in the study area (percent of each major language in the study area):
(write-in) _____, (write-in) _____, (write-in) _____

How to analyze the data: Synthesize the data from the secondary sources and key informants to determine the percentage of people in each of the categories and note in the *Key Informant Interview/Secondary Source Analysis Sheet.* An example for age follows:

Percent of community age: 0-18 23% , 19-30 41% , 31-50 16% , over 51 20%

Additional analysis: Three pie charts may be prepared to visually illustrate the age and religious and ethnic distribution in the study area. Subtract the results from previous years to calculate changes over time. A short narrative may be prepared describing the demographic make-up of the study area and how it has changed over time.

Similar data are collected as part of the household interviews. Comparison between results allows for a check on the accuracy of the data. If there are differences between results, then it may be useful to consult with the key informants to identify the cause of the discrepancy. Otherwise a full census survey (interviews of all households, not just a sample) should be conducted to accurately understand the study area demographics.

How the information can be useful to managers

All of these indicators are important for developing stakeholder participation in management. Education, literacy and age can be predictors of receptivity to new ideas. Generally, as age increases, openness to new ideas (e.g. establishment of a no-take area) decreases. And as education levels increase, open-mindedness increases. For example, older fishermen may not be as willing to change occupations, but a young fisherman may be willing to go through extensive training for a new career. By understanding these indicators, managers gain a sense of likelihood of awareness, support and compliance with management measures.

Ethnicity and religion are also important to gaining stakeholder participation. Both of these indicators are important aspects of social structure and frequently related to group membership, loyalty and other aspects of social behavior. Similarity often leads to a greater willingness to work together. By understanding ethnic and religious affiliation, managers can better understand how the stakeholders behave and therefore how to interact with them. A relatively homogenous, or similar, community will likely be more capable of working together than an area with divergent ethnic and religious interests.

This information can also be useful in determining entry points to groups. For example, if religious affiliation is strong, then the religious services or meetings may be a means of reaching people and religious leaders may be appropriate representatives of the community members. Ethnicity and religion can also provide insight into people's perceptions and values of the resources, although this requires an understanding of their religious and ethnic beliefs.

Depending on the culture, gender can also be a strong indicator of participation since in some cultures women are not actively engaged in politics and management. It may be more difficult in these cases to actively involve them in management.

Education, literacy, and religious and ethnic affiliations are important to understanding impacts of management on livelihood and well being over time. Increases in education levels associated with a particular management strategy indicate a positive impact. Severe reductions in the population percent of particular ethnic groups may indicate that a management strategy is having an inequitable impact on that group. The difficulty in these interpretations is making the correlation to management strategies amidst all the other policies and programs that may be causing these changes.

Age is useful for predicting future pressures on the resources. A very young population, which is common in many Asian nations, indicates there will be more pressure on the resources in the coming years.

Also, from the perspective of the socioeconomic monitoring program, the information on distribution of age, gender, education, ethnicity, religion and occupational structure will be useful for ensuring the breadth of people in the study area are interviewed. For example, if there are 30% Hindus, 40% Muslims and 40% Christians, then the team needs to ensure interviews are conducted with approximately the same percent from each group. It is important to collect this information from the key informant interviews before starting the household interviews. See *Section 3. 6* for a discussion of selecting respondents.

KS12. Occupation

What it is

Occupation refers to an activity that provides livelihood, such as income, food or other means of sustenance. The primary occupation is the main source of livelihood, whereas the secondary occupation is the second most important source of livelihood.

How to collect the data

Data on occupation may be available through secondary sources, such as census statistics, fisheries records and community development plans. However, it may not be presented to the level of occupation that is useful to the manager. For example, "tourism" may be noted as an occupation; yet, the manager may want to know the percent of watersports operators and hotel workers separately. It is therefore important to interview key informants, such as the village chief, town mayor and other community leaders and representatives of various sectors (e.g. fisheries associations, hotel associations). The information needs to be included in the *Key Informant/ Secondary Source Interview Guide* table as illustrated.

Additional data collection: The team may also want to ask about tertiary occupations, which can be useful for determining the percent of the community involved in the activity, but not dependent on it for their primary or secondary source of livelihood.

How to analyze the data

Synthesize the data from the secondary sources and key informants to determine the percentage of the working population in each of the categories and the number of people primarily engaged in each occupation as their primary occupation. Note this information on the *Key Informant Interview/Secondary Source Analysis Sheet* as in the following example.

Major occupations in community	Percent of working population conducting this occupation as primary occupation	Number of people conducting this occupation as primary occupation	Percent of working population conducting this occupation as secondary occupation
1. *Fishers*	60%	600	20%
2. *Watersports operators*	10%	100	0%
3. *Aquaculture workers*	20%	200	5%
4. *Hotel workers*	5%	50	0%
5. *Farmers*	5%	50	10%

Additional analysis: Subtract the results from previous years to calculate changes over time. Compare these results with changes in resource conditions, *types of use (KS16), levels* and *types of impact (KS20* and *KS21)* and *perceived threats (H17)* to see if there is a correlation. A short narrative may be prepared describing the major occupations, their importance given the percent and number of people engaged in each of them, and how this has changed over time.

Similar data are collected as part of the household interviews. Comparison between results allows for a check on the accuracy of the data. If there is a large difference between results, then a full census survey may be necessary. Note that the household interview data are based on the entire population (not just the working population), which includes those unemployed. To accurately compare, the household percentages will need to be recalculated based only on the people listed as working (i.e. not the people who noted "student", "unemployed", etc., as their occupation).

How the information can be useful to managers

Occupational structure is one of the most useful sources of information regarding threats. It provides an understanding of the number of people engaged in coastal activities, many of which are potential threats to the resources. The changes over time and comparisons with *levels of impact (KS20)* and resource conditions can be particularly insightful regarding threats. For example, if more and more people are seen to be shifting into fishing as their primary occupation over time, then over-fishing may be a growing concern. Comparisons with resource conditions should indicate a decline in number of fish as the number of people fishing increases. Comparisons with *types of use (KS16)* and *levels* and *types of impact (KS20* and *KS21)* can also be useful in seeing how those activities are likely to be increasing. Comparison with perceived threats is useful for seeing how the community perceives these increases–whether they are seen as impacting the resources. If the number of fishermen is increasing, but resource conditions are good, the types of uses are relatively benign, and the community does not consider fishing a medium or high level of impact, then fishing may not be a threat.

Occupational structure is also useful for determining the importance of marine resources. The greater the percentage of people using the resources, the greater the dependency, and therefore the more important the resources. Increases in number and/or percent of people working in coastal-related activities over time indicate the importance is also increasing. The distribution of people in various occupations also indicates the level of community economic stability, which is also important for understanding the importance of the resources. If the majority of people depend on fishing, then the community will be severely impacted by a collapse in the fishing industry.

Finally, occupational structure is also important for determining the effects of management strategies on community livelihoods. For example, managers can see whether occupations shift after alternative livelihood training is conducted, or they can see if the establishment of a no-fishing area coincides with a shift out of fishing and into other occupations.

KS13. Community Infrastructure

What it is

Community infrastructure is a general measure of the local community development and wealth. It is a description of the level of community services (e.g. hospital, school) and infrastructure (e.g. roads, utilities), which can include information essential to determining sources of man-made impacts on coastal resources (e.g. sewage treatment).

How to collect the data

This information is collected by interviewing key informants, such as the village chief, the mayor, or town engineer; reviewing secondary data from town records, particularly the community development office; and walking through the community, observing and inventorying community infrastructure.

It is important to determine whether the following items exist in the study area:

> schools, resident doctors, resident nurses, hospitals, medical clinics, electricity, telephone, internet access, radios, televisions, newspapers, sewage treatment plant, ice plant, hard top road access, water supply to homes, banking services, guesthouses/hotels/inns, restaurants

In some cases this list may need to be modified to more accurately reflect indicators of community development within the study area. It is important to include the range of infrastructure in the region. For example, if televisions are already prevalent in the region, but satellite receivers are only beginning to appear, then it may be more appropriate to include satellite receivers in the list. Accurate scale construction is needed to make meaningful comparisons between communities and over time, such as pre- and post-marine protected area establishment.

How to analyze the data

Compile the information from observations, key informant interviews and secondary sources into a list of infrastructure that exists in the study area and note it on the *Key Informant Interview/Secondary Source Analysis Sheet.*

Additional analysis: Compare these lists over time. A short narrative based on this list may be prepared describing the infrastructure in the study area and how it has changed over time.

How the information can be useful to managers

Community infrastructure is useful for determining the wealth in the study area, as measured through the level of community development, and overall impacts of management on communities in the study area. By monitoring the existence of the listed items, the manager can see if community wealth and well being are increasing, decreasing or staying the same. The difficulty is tying these changes to coastal management initiatives. In some cases these are closely linked; for example, if a management program has provided water access or sewage treatment to a community. In other areas coastal managers have no responsibility for infrastructure in the community.

The information on the availability of banking services, ice for fishermen and hard top roads can be useful for identifying the ability of fishermen to build their businesses. At the same time, information on sewage treatment provides insight as to whether raw sewage may be affecting coastal water quality. Information on guesthouses/hotels/inns and restaurants is useful for determining the general level of tourism in the area.

Finally, the information on the existence of telephones, Internet access, radios, televisions and newspapers is useful for developing education and outreach programs in the community. Awareness campaigns can be tailored to the most prevalent medium.

COASTAL AND MARINE ACTIVITIES

KS14. Activities

What it is

Coastal and marine activities is the identification of the uses of coastal and marine resources in the study area. These may include activities directly or indirectly using or affecting the coastal and marine resources. These may include, for example: fishing, tourism, aquaculture, marine transportation, agriculture, coral mining, sand mining, dredging, oil-gas development, military bases, mangrove clearing, forest clearing, industry and conservation.

Coastal and Marine Activities
Fisheries
Tourism
Aqua-culture

How to collect the data

Data on coastal and marine activities is obtained by interviewing local key informants, such as the mayor, businessmen, fishers and tour guides to identify the coastal and marine activities in the area. Observation is also used to identify the use activities in the area. A list is compiled of coastal and marine activities and noted in the *Key Informant Interview/Secondary Source Interview Guide* as illustrated.

Since some coastal and marine activities may be seasonal, take place at odd hours or take place out of sight of land, it is important to use a multi-method approach including observation at various times and to interview a range of key informants to ensure that the range of coastal and marine activities are identified.

Additional data collection: The coastal and marine activities can be identified on the study area map. For example, hotel areas can be identified in one color and diving areas in another color. The data can be placed on the map in a general or a very specific manner.

How to analyze the data

Synthesize the data from the various key informants and observation into the table in the *Key Informant Interview/Secondary Source Analysis Sheet* as shown.

Additional analysis: A short narrative may be prepared describing the major coastal and marine activities in the study area.

How the information can be useful to managers

The identification of coastal and marine activities is important for the manager to have an understanding of the various uses of coastal and marine resources and the potential for conflict in the area. For example, a major port in the area where there are large movements of ships and potential discharges of waste may potentially conflict with the tourism sector.

KS15. Goods and Services

What it is

Coastal and marine goods and services are the specific products produced from the identified coastal and marine activities. These include extractive goods such as lobster, mangrove wood, coral products and sand; and non-extractive services such as diving, snorkeling, glass bottom tours, mangrove tours and recreational fishing.

How to collect the data

Data on coastal and marine goods and services is obtained by interviewing key informants from the relevant activities (e.g. long-time fishers, president of the hotel association, long-time dive boat operators, tour leaders) as well as other key informants knowledgeable about the activities (e.g. government officials). It is also important to observe coastal activities and their physical evidence for further information and as a check on the information obtained from the interviews.

For each coastal and marine activity, the key informant is asked to identify the coastal and marine goods and services produced. For example, for tourism these might include hotels and diving. A list of goods and services is compiled for each activity and noted in the *Key Informant Interview/ Secondary Source Interview Guide* as illustrated.

Coastal and Marine Activities	Coastal and Marine Goods and Services
Fisheries	Lobster
	Grouper
Tourism	Hotel
	Diving
Aqua-culture	Oyster

Since some coastal and marine goods and services may be seasonal, take place at odd hours or take place out of sight of land, it is important to use a multi-method approach, including observation at various times and interviewing a range of key informants to ensure that the range of coastal and marine goods and services are identified.

How to analyze the data
Synthesize the data from the various key informants and observations into one table in the *Key Informant Interview/Secondary Source Analysis Sheet* as shown.

Additional analysis: A short narrative based on the above table may be prepared describing the coastal and marine goods and services produced in the study area.

How the information can be useful to managers
Information on coastal and marine goods and services is useful for determining the overall impacts of management on communities in the study area, particularly marketing and production. As a result of management measures, there may be a shifting in the coastal and marine goods and services produced in the area with positive and negative impacts on resource users. For example, if a marine protected area actively promotes tourism in the area, then it would be expected that the value of diving would increase and the market orientation would expand.

KS16. Types of Use

What it is
Types of use identifies the specific method or development being employed (e.g. traps, nets, guest houses, scuba diving) for each coastal and marine good and service.

How to collect the data
Data on types of uses is obtained by interviewing key informants who are representatives of the various stakeholder groups (e.g. president of the fishermen's association, manager of the oldest sand mining operation). In addition, it is important to cross-check this information by observation–walking around the community, particularly where the various activities take place.

Coastal and Marine Activities	Coastal and Marine Goods and Services	Types of Use (primary)
Fisheries	Lobster	Trap
	Grouper	Handline
Tourism	Hotel	Guest houses (1–7 rooms)
	Diving	SCUBA
Aqua-culture	Oyster	Line

The key question to address is what types of uses are occurring for each good and service. For example, for fish goods (e.g. grouper, lobster), the responses may include traps, nets, line, spearfishing or gleaning. For hotel services under tourism activities, the responses may range from guests houses (1-7 rooms) to inns (5-50 rooms) to hotels/resorts (>50 rooms). For aquaculture, the responses may include pond, line or cage. For marine transportation, responses may include port development, shipping and recreational boating. These are only examples. The team will need to develop categories of potential responses according to its area. For example, if there are only large hotels, then the team may decide to categorize responses for hotels according to whether they are all-inclusive. The resulting information is noted in the *Key Informant Interview/Secondary Source Interview Guide* table as illustrated.

Additional data collection: For each of these types of uses, the team may want to ask the level of use on a scale of one to ten, where one is limited use and ten is maximum use. These rankings could then be compared over time to see if levels have increased, decreased or stayed the same.

For the fisheries data, the team may want to add another column to further identify the type of fisheries based on the following categories:

Large-scale – powered, high-investment, machine-made equipment, electronics, division of hired labor, products found worldwide, operating in distant waters.

Industrial – powered, high-investment, machine-made equipment, electronics, division of hired labor, products found worldwide, operating in national exclusive economic zone.

Small-scale– small boat, small engine, partly or wholly machine made equipment that is operator assembled, full- or part-time labor, mechanized and manual gear, national and local markets, operating in nearshore coastal waters.

Artisanal - small boat, small engine, partly or wholly machine made equipment which is operator assembled, full- or part-time labor, mechanized and manual gear, local markets, operating in nearshore coastal waters.

Subsistence – lone operators, family or community group, part-time labor, small boat, unpowered, non-mechanized, operator-assembled fishing gear, primarily for home consumption, operating in coastal waters.

How to analyze the data

Synthesize the data from the key informant interviews and observations to compile a list of types of use taking place in the study area. Note this information in the *Key Informant Interview/ Secondary Source Analysis Sheet* as shown.

Additional analysis: Compare the results over time to determine shifts in types of uses. Compare changes in types of uses with changes in resource conditions and the *levels* and *types of impact (KS20* and *KS21)* to see if the types of uses are correlated to conditions and impacts.

How the information can be useful to managers

Information on the types of uses is particularly useful for identifying threats, such as bomb fishing or mangrove clearing, to the coastal and marine resources. By monitoring this information over time, the manager can also see what impact management has had on these types of uses. For example, if the coastal management program initiated a mangrove replanting campaign, yet mangrove clearing continues to be listed as a type of use, then this indicates that the campaign is not preventing continued mangrove clearing. This information also helps to determine the effectiveness of coastal management programs.

Understanding what types of uses are taking place in the study area is also critical to developing stakeholder participation and awareness programs in coastal management. The managers need to know how people interact with the resources in order to work with them and communicate with them regarding threats to the resources.

KS17. Value of Goods and Services

What it is

The value of coastal and marine goods and services is the monetary value for each product in the market.

How to collect the data

Data on the value of coastal and marine goods and services is obtained by interviewing local key informants such as fishers, buyers, hotel operators, and dive operators. They are asked to put a value (high, medium, or low) on the product of each coastal and marine good and service. For example, a value of high may be placed on lobster if it has high demand and high monetary value in both the local and international markets. A value of medium may be placed on hotel development if it is composed of only a few guest houses. A value of low may be placed on a cleared mangrove area that does not support much bird life and therefore has low potential for ecotourism. The value of goods and services (high, medium, and low) will need to be specifically defined by the team for each study area. The information is noted in the *Key Informant Interview/Secondary Source Interview Guide* table as illustrated.

Coastal and Marine Activities	Coastal and Marine Goods and Services	Value of Goods and Services
Fisheries	Lobster	High
	Grouper	High
Tourism	Hotel	Medium
	Diving	Low
Aqua-culture	Oyster	Medium

How to analyze the data

Synthesize the data from the various key informants into the table in the *Key Informant Interview/Secondary Source Analysis Sheet* as shown.

Additional analysis: A short narrative may be prepared describing the value of the coastal and marine goods and services.

How the information can be useful to managers
The value of coastal and marine goods and services is useful for determining the overall impacts of management on communities in the study area, including livelihood, marketing, production and food security. For example, if the management authority begins promoting products from an aquaculture cooperative the authority initiated, then it would be expected that the value of these products would increase as demand increased.

The value of coastal and marine goods and services is also useful in demonstrating the importance of managing the area for sustainable use. For example, if scuba diving brings in a large number of international visitors with a high value due to demand for rooms, restaurants and dive operators, the coastal manager has justification for putting management efforts into ensuring the sustainability of coral reefs and fisheries in the study area. In contrast, if the coral reefs have been bombed and have a low value for diving, the manager may have a more difficult time justifying the importance of the reefs for diving.

The value of coastal and marine goods and services is also useful in determining which resources are under greatest harvesting pressure and may therefore need particular attention by managers. The value is a measure of the product's relative importance. Since prices influence human behavior, harvesting pressure is likely to be strongest on the most valuable products. A higher value fish, for example, will demand greater attention and fishing effort than a lower value fish and therefore may require particular attention from the coastal manager.

The value of coastal and marine goods and services is also useful in understanding the level of household income and the well being of the household. If, for example, product values shift from 'high' to 'low', then a decline in income and well being would be expected.

KS18. Goods and Services Market Orientation

What it is
Coastal and marine goods and services market orientation is the identification of the market in which each product is primarily sold.

Coastal and Marine Activities	Coastal and Marine Goods and Services	Goods and Services Market Orientation (primary)
Fisheries	Lobster	International
	Grouper	Regional
Tourism	Hotel	International
	Diving	International
Aqua-culture	Oyster	Local

How to collect the data
Data on coastal and marine goods and services market orientation are obtained by interviewing local key informants such as fishers, buyers, hotel operators and dive operators. These key informants can be used to obtain information on the primary market for each coastal and marine good and service.

The key informants are asked to identify the primary market in which each good or service is sold (international, national, regional, or local). The resulting information is noted in the *Key Informant Interview/Secondary Source Interview Guide* table as illustrated.

Additional data collection: Alternatively, the key informant is asked to list all markets for each good or service and to rank them in order of importance of each market. This is useful for understanding the full range of markets.

How to analyze the data
Synthesize the data from the various key informants into the table in the *Key Informant Interview/Secondary Source Analysis Sheet* as shown.

Additional analysis: A short narrative based on the above table may be prepared describing the market for each of the goods or services. A flowchart may be prepared showing the flow of each good or service from source to market.

How the information can be useful to managers
Coastal and marine goods and services market orientation is useful for determining the overall impacts of management on communities in the study area, particularly livelihood, marketing, production and food security. For example, since the livelihood and income of people in the study area is linked to markets, the fish market orientation is important to determine

where goods and services produced in the area are sold. This indicator allows for an analysis of changes over time in the market channels for major coastal and marine goods and services. It shows the relationship of local producers and traders with various markets, such as linkages with international markets, which may affect harvesting practices.

Market orientation can also be useful as an indication of how much pressure may be put on the resource. For example, fishers may put high fishing effort on a high valued fish for international markets. It can also give an indication over time of shifts in markets for marine and coastal goods and services. The impact of management measures can be assessed through changes in markets. For example, management measures may result in higher value fish being available in the area, which may be marketed in regional or national markets.

KS19. Use Patterns

What it is

Use patterns refers to the location of coastal and marine activities.

How to collect the data

Data on use patterns are collected first from secondary sources, including village and town offices, which may have maps noting the location of various activities in the area (e.g. a zoning map that notes farming areas, a fisheries study that documents fishing areas). Next, key informant interviews are conducted with representatives of the various activities (e.g. president of the hotel association). Finally observations are used to identify and verify use patterns.

Information is collected on the location of each activity according to the good or service and noted in the *Key Informant Interview/Secondary Source Interview Guide* table as illustrated.

Coastal and Marine Activities	Coastal and Marine Goods and Services	Types of Use (primary)	Use Patterns
Fisheries	Lobster	Trap	bay
	Grouper	Handline	reefs
Tourism	Hotel	Guest houses (1–7 rooms)	coast
	Diving	SCUBA	reefs
Aqua-culture	Oyster	Line	bay

Additional data collection: The team can record the locations of the various activities on the base map, which will provide much more information on locations than simply noting "bays" or "reefs".

How to analyze the data

Synthesize the data from the secondary sources and key informants to determine the locations of the activities, which need to be recorded on the table in the *Key Informant Interview/Secondary Source Analysis Sheet* as shown.

Additional data analysis: The data can also be presented on the base map that also notes the study area. By comparing the locations of the various activities, the team can identify areas of overlap and therefore potential conflict. Compare the locations over time to see how use patterns are shifting. A brief narrative may be prepared describing the activities, their location and how they have changed over time.

How the information can be useful to managers

Similar to *types of use (KS16)*, information on use patterns is useful for identifying threats to the coastal and marine resources. By understanding the locations of activities, the manager can better determine the impact. For example, if hotel development is occurring near a coral reef, there is potential for impacts from sediment run-off and sewage release. The size of the area also is an indicator of the level of impact. This is particularly useful since the information from *types of uses* provides an understanding of the activities taking place, but not how much.

By monitoring this information over time, the manager can also see the impact management has had on these activities. For example, if the coastal management program initiated a mangrove replanting campaign and mangrove clearing continues to be listed as an activity, the manager can look at the size of the area being cleared and see if it has increased, decreased or stayed the same from previous years. If it has declined, then the program may have had some positive effect. This information also helps to determine the effectiveness of coastal management programs.

Finally, by mapping the use patterns, managers can better understand problems, particularly conflicts over access to resources and overlapping uses among stakeholder groups. This can help determine if measures, such as zoning of activities, are appropriate for an area.

KS20 & KS21. Levels and Types of Impact

What it is

Levels and types of impacts are measures of the perceptions of the general public and types of impact of coastal and marine activities on coastal and marine resources. This is not a scientific assessment of levels and types of impacts, but rather a documentation of what people think.

How to collect the data

The data are collected by interviewing key informants, such as village officials, longstanding members in the community and others who represent the general views of the community.

The key informants are asked to identify using a scale of high/medium/low/none the level of impact of each coastal and marine activity according to its goods and services. While they will need to be adapted for each study area, high could mean severe and irreversible impacts on the resources, such as cutting and filling mangrove areas; medium could mean moderate impacts on the resources, such as cutting mangrove areas; low could mean minor impacts on the resources, such as a small percentage of mangrove area being disturbed; and none could mean no impact. The primary types of impacts are then briefly noted. For example, if hotel development is causing pollution, then "pollution" would be noted. The resulting information is noted in the *Key Informant Interview/Secondary Source Interview Guide* table as illustrated.

Additional data collection: The types of impacts can be described in greater detail to identify direct and indirect impacts. For example, sewage outflow is a direct impact on water quality, and up-stream agriculture causes sedimentation during the rainy season.

Coastal and Marine Activities	Coastal and Marine Goods and Services	Types of Use (primary)	Level of Impact	Types of Impact (primary)
Fisheries	Lobster	Trap	L	Overfishing
	Grouper	Handline	L	Overfishing
Tourism	Hotel	Guest houses (1–7 rooms)	H	Pollution
	Diving	SCUBA	H	Anchor damage
Aqua-culture	Oyster	Line	M	Nutrient loading

How to analyze data

The data are synthesized to determine the general level of impacts and types of impacts and entered into the table in the *Key Informant Interview/Secondary Source Analysis Sheet* as shown.

Additional analysis: The results are compared with results from previous years to identify shifts in types and levels of impacts. The changes are compared with resource conditions to determine if there is a correlation.

Similar data are collected as part of the household interviews where people are asked what they think are the top five major threats to coastal resources. Comparison between results allows for a check on the accuracy of the data. The activities identified by the individuals should be noted as "high" in the table completed by the key informants. If there is a large difference between results, then the key informants should be consulted to clarify. A full census survey may be necessary to accurately determine perceptions.

How the information can be useful to managers

Similar to *types of use (KS16)* and *use patterns (KS19)*, information on levels and types of impacts is useful for identifying threats to the coastal resources. Community members, particularly people who directly use the resources, are often the most knowledgeable about what is affecting the resources they use on a regular basis. This information can be critical for identifying activities in need of scientific study. For example, community members may note oil and gas development as high impact because they have seen a few substantial spills. This impact may be missed by scientific studies only conducted once a year.

By monitoring this information over time, the manager can also see the impact management has had on these activities and therefore how effective management has been. For example, if the coastal management program initiated a program to reduce the use of pesticides and other chemicals in upland agricultural areas, yet this continues to be identified as a type of impact, then this suggests that the program may not have been effective.

Finally, this information is critical for developing awareness programs and seeking stakeholder participation. If community members do not consider there to be impacts on the coastal resources, then it will be difficult to engage them in coastal management. If community members consider only one or two activities to be impacting the resources, yet scientific research shows there are several other impacts, then an awareness program may need to be initiated to increase understanding of the full breadth of activities impacting the resources.

KS22. Level of Use by Outsiders

What it is

Level of use by outsiders refers to the amount of outsiders using the coastal resources relative to the amount of local users from the study area. For example, if there are 1000 foreign fishermen and only 10 local fishermen, then the level of use by outsiders is high. Outsiders are people who do not live in the study area. They may be from a neighboring village or another country.

How to collect the data

This information is obtained by conducting interviews with key informants, such as village chiefs and town officials, as well as representatives from the various stakeholder groups.

The key informants are asked what the current level of use by outsiders for each coastal and marine activity is using a scale of high, medium and low. The scale will need to be defined for each study area, but high could mean a great deal of use by outsiders, such as the majority of fishing in the study area is conducted by outsiders; medium could mean moderate use by outsiders, such as a few international tourists, and low could mean minor use by outsiders, such as one guest house out of twenty in the study area is owned by a foreigner. The responses are noted in the *Key Informant Interview/Secondary Source Interview Guide* table as illustrated.

Additional data collection: The key informants may be asked to identify from where the outsiders originate.

Coastal and Marine Activities	Coastal and Marine Goods and Services	Types of Use (primary)	Level of Use by Outsiders
Fisheries	Lobster	Trap	L
	Grouper	Handline	L
Tourism	Hotel	Guest houses (1-7 rooms)	H
	Diving	SCUBA	H
Aqua-culture	Oyster	Line	M

How to analyze the data

Synthesize the data from the key informants to determine the level of use by outsiders for each activity and enter into the table in the *Key Informant Interview/Secondary Source Analysis Sheet* as shown.

Additional data analysis: Compare these levels over time. A short narrative may be prepared summarizing the extent of use by outsiders and how that has changed over time.

How the information can be useful to managers

Information on levels of use by outsiders is useful for developing stakeholder participation and awareness programs. Non-residents are often overlooked because they are not immediately visible. By understanding the relative numbers of people coming from other areas, managers can determine the importance of building relationships with people from outside the community. If the manager knows where the outsiders are coming from, he/she can target those areas. In cases where there are users coming from overseas (e.g. foreign fishing vessels), the manager may decide to work through customs and immigration offices. In other cases it may be a matter of expanding education and outreach programs to neighboring communities.

Outside use is also important to understand coastal management problems. For example, increasing numbers of foreigners can often be a source of conflict in a community.

This information can also be useful for determining the value and importance of the resources. If people outside the study area are using the resources, then this shows that the resources are important to a larger area than just the immediate community. This can be important for informing politicians and the public about the need for additional resources for coastal management.

KS23. Household Use

What it is

Household use of coastal and marine goods and services is a measure of how households in the study area utilize coastal and marine goods and services for consumption, leisure and sale.

How to collect the data

Data on household use of coastal and marine goods and services is obtained by interviewing key informants, such as community officials and business people. The key informants are asked to identify and rank the general household use of each good or service. They are asked if they use the resource for their own consumption, leisure or sale. "Own consumption" means use in the household, such as fish for food; "leisure" means for recreation; and "sale" means selling to obtain money or to barter for other goods. The responses are recorded in the *Key Informant Interview/Secondary Source Interview Guide* table as illustrated.

Coastal and Marine Activities	Coastal and Marine Goods and Services	Household Use (primary)
Fisheries	Lobster	Sale
	Grouper	Own
Tourism	Hotel	Sale
	Diving	Sale
Aqua-culture	Oyster	Sale

How to analyze the data

Synthesize the data from the various key informants into the table in the *Key Informant Interview/Secondary Source Analysis Sheet* as shown.

Additional analysis: Similar data are collected as part of the household interviews. Comparison between results allows for a check on the accuracy of the data. If there are differences between results, then it may be useful to consult with the key informants to identify the cause of the discrepancy. Otherwise a full census survey (interviews of all households, not just a sample) should be conducted to accurately understand the study area demographics.

How the information can be useful to managers

Information on how households use coastal and marine goods and services provides insight into household dependence on resources for food and income. It is therefore important for understanding issues of food security in the household. This information can be useful for understanding how management measures may impact upon the livelihood of resource users and the food security of households. For example, if households primarily consume their catch, then a restriction on fishing can be expected to affect food availability and therefore impact food security of the household.

KS24. Stakeholders

What it is

Stakeholders are individuals, groups or organizations of people who are interested, involved or affected (positively and negatively) by coastal resource management. These stakeholders may or may not actually live within or adjacent to the site, but are people who have an in interest in or influence on coastal resource management. See *GCRMN Manual, Chapter 1: Preparatory Activities, Identify the reef stakeholders* for further discussion.

How to collect the data

Key informants (e.g. government officials, elected officials, fishers, business leaders) in the area are interviewed to identify the three main stakeholder groups for each coastal activity (e.g. fishing, aquaculture, tourism). The coastal activities are identified as part of the indicator, *activities (KS14)* and noted in the *Key Informant Interview/Secondary Source Interview Guide* table as illustrated.

Coastal Activity*	Stakeholder Group 1	Stakeholder Group 2	Stakeholder Group 3
Fishing	Fishermen at East Landing Site	Fishermen at West Landing Site	Fishermen at North Landing Site
Aquaculture	Aquaculture owners, managers & staff		
Tourism	Hotel owners, managers and staff	Watersports operators	Tourists
**develop list according to activities identified in Activities (KS14)*			

How to analyze the data
Synthesize the data from the key informants into the table in the *Key Informant Interview/Secondary Source Analysis Sheet* as shown.

Additional analysis: A short narrative may be prepared which identifies the stakeholder groups involved in each coastal activity.

How the information can be useful to managers
Coastal resource managers have come to realize that the active participation of coastal resource stakeholders in planning and management can improve success of coastal resource management. If local people are involved in coastal resource management and feel an ownership over it, they are more likely to support coastal resource management. An understanding of stakeholders will allow the manager to better identify individuals that may be impacted by management measures and to address these impacts with these stakeholders.

Stakeholders are also identified to determine which ones should be the focus of the monitoring.

GOVERNANCE

KS25. Management Body

What it is
A management body is an institution that governs how coastal resource management is undertaken and ensures that there is a transparent process for planning, establishing and enforcing rules and regulations. Management bodies may be government, non-government or community organizations and may operate at the international, national, state/provincial or local level. There may be multiple management bodies in the study area for different coastal activities such as coastal zone management, fisheries, aquaculture, mangroves, tourism, marine transportation and residential development.

How to collect the data
Information on management bodies may be obtained by reading the management plans for the various activities. This information may also be obtained by interviewing key informants who are knowledgeable about coastal resource management or coastal activities (e.g. government agency representatives, elected officials, representatives of non-governmental organizations). It is important to confirm the existence and name of each management body for each coastal activity by identifying and interviewing a person responsible for the management body's operation. The information on whether a management body exists (yes/no) and the name of the management body is recorded in the *Key Informant Interview/Secondary Source Interview Guide* table as shown.

How to analyze the data
Synthesize the data from the management plans, key informants and responsible persons into the table in the *Key Informant Interview/Secondary Source Analysis Sheet* as illustrated.

Additional analysis: A narrative may be prepared noting the name of the management body(s) for each coastal activity.

Coastal Activity*	Management Body(s) (Yes/No) & Name
Fisheries	Y
Tourism	Y
Aquaculture	N
**develop list according to activities identified in Activities (KS14)*	

How the information can be useful to managers
Information on management bodies is useful for determining the overall impacts of management on communities, particularly on governance. The identification of a legally mandated decision-making authority for coastal activities will allow the manager to better understand the range of management activities taking place in the area, coordinate with the other management bodies, be more transparent in the management process and be more effective in terms of management. Also, the identification of management bodies will provide those with concerns about the impacts of management measures authorities with which to consult.

KS26. Management Plan

What it is

The management plan sets out the strategic directions for the coastal resources management program. The management plan is a document that states the overall management program goals and objectives, the institutional structure of the management system and a portfolio of management measures.

How to collect the data

Information on management plans can be obtained through interviews with key informants from the relevant national, regional and local government agencies with authority and responsibility for coastal resource management. There may be several management plans in existence for the study area depending on the coastal activities, including an integrated coastal zone management plan, a fisheries management plan, a coastal development plan, a mangrove management plan and/or a tourism development plan. It may be useful to request a copy of the relevant management plans to help determine what activities are addressed.

Coastal Activity*	Management Plan (Yes/No)
Fisheries	Y
Tourism	Y
Aquaculture	N
*develop list according to activities identified in Activities (KS14)	

For each coastal activity, identify whether (yes or no) a management plan exists and note it in the *Key Informant Interview/Secondary Source Interview Guide* table as illustrated.

How to analyze the data

Synthesize the data from the various key informants and secondary sources and record into the table in the *Key Informant Interview/Secondary Source Analysis Sheet* as shown.

Additional analysis: A short narrative may be prepared describing the plan for each coastal activity. It may also be useful to compare the changes in the existence of management plans over time with changes in use patterns and resource conditions to determine if there is a correlation.

How the information can be useful to managers

Knowing whether management plans exist for various activities is useful for determining the overall impacts of management on the study area, particularly on governance. The existence and adoption of a management plan informs managers that coastal resource management is guided by goals and objectives to achieve certain outcomes (for example, conservation and protection), that there is a basic strategy to achieve these goals and objectives and that the overall plan has a legal mandate for implementation.

The analysis comparing the existence of a management plan and other governance indicators (e.g. formal rules and tenures) with resource use patterns and resource conditions is useful for determining whether these governance measures are influencing behavior and the health of the resources.

KS27. Enabling Legislation

What it is

Enabling legislation is the formal legislation in place from government to provide coastal resources management with a sound legal foundation so that the plan, management structures, rules and regulations, and enforcement procedures can be recognized, explained, respected and enforced. For example, a national fisheries law or code is considered to be enabling legislation since it defines how fisheries will be used and managed in the country.

How to collect the data

Information on enabling legislation is obtained by interviewing key informants from relevant national, regional and local government agencies with authority and responsibility for coastal resource management. During the interviews it may be useful to request copies of the published legal documents of pertinent enabling legislation to help determine the enabling legislation that is in place.

Enabling legislation may exist at international, national, state/provincial, and local levels. The form and extent of enabling legislation for coastal resources management will vary widely by country. The legal arrangements may depend upon many elements, including the form of government, available finances, public administrative structures, level of government, state of centralization/decentralization, lines of jurisdiction and decision-making, and types of coastal resources and activities.

The interviews and document reviews are conducted to determine the existence (yes or no) of enabling legislation to support the management plan for each coastal activity. This information is recorded in the *Key Informant Interview/Secondary Source Interview Guide* table as illustrated.

How to analyze the data

Synthesize the data from the various key informants and secondary sources into the table in the *Key Informant Interview/Secondary Source Analysis Sheet* as shown.

Coastal Activity (develop list according to activities identified in Activities[KS14])	Enabling Legislation (Yes/No)
Fisheries	Y
Tourism	N
Aquaculture	N

Additional analysis: A short narrative may be prepared describing the enabling legislation for each coastal activity. Compare the changes in the existence of enabling legislation over time with changes in use patterns and resource conditions to determine if there is a correlation.

How the information can be useful to managers

Enabling legislation is useful for determining the overall impacts of management on communities in the study area, particularly on governance. An understanding of the enabling legislation is useful to ensure that the management plan and strategies are supported by adequate legislation for their successful implementation. An understanding of the enabling legislation will ensure that any management measures undertaken are supported in the law. Concerns over impacts of the management measures can be related back to the management plan and enabling legislation.

The analysis comparing the existence of enabling legislation and other governance indicators (e.g. formal rules and tenures) with resource use patterns and resource conditions is useful for determining whether these governance measures are influencing behavior and the health of the resources.

KS28. Resource Allocations

What it is

Resource allocations refers to the human and financial resources that carry out the activities of the management plan.

How to collect the data

Information on resource allocations can be collected by interviewing the manager or director of each management body in the study area. The manager or director is requested to present the organization chart which should identify staff allocations by program or activity. The number of staff (full-time, part-time, volunteer) assigned to each program or activity is identified. Where no organization chart exists, one can be developed with the manager or director by first identifying each of the programs or activities of the management body and then identifying the staff members. The manager or director is also asked for the overall budget for the management body and for implementation of the management plan. The responses are noted in the *Key Informant Interview/Secondary Source Interview Guide* table as illustrated.

Additional data collection: Additional information may be collected on individual line item budget allocations for different management activities. Information may also be obtained on technical and equipment allocations for various management activities.

Coastal Activity*	Number of Staff	Budget
Fisheries	5	1,000
Tourism	25	25,000
Aquaculture	0	0
*develop list according to activities identified in Activities (KS14)		

How to analyze the data
Synthesize the data from the various key informants and secondary sources into the table in the *Key Informant Interview/Secondary Source Analysis Sheet* as shown.

Additional analysis: A narrative may be prepared on the current staff allocations and budget for coastal management.

How the information can be useful to managers
Understanding resource allocations is useful for determining the overall impacts of management on communities in the study area, particularly on governance. For example, an understanding of the staff allocations to undertake each program or activity is useful in order to understand the importance of the various activities and also for estimating the number and frequency of certain activities, such as enforcement patrols.

KS29. Formal Tenure and Rules

What it is
Formal tenure is concerned with use rights with respect to coastal activities. Formal tenure is considered to be a *de jure* use right, that is, legally written into law. For example, a formal tenure arrangement is the right given to a fisher to access an area to fish.

Formal rules are legally written into law and define specifically what acts are required, permitted and forbidden by stakeholders and government agencies concerning the use of coastal resources. Rules establish how use rights are to be exercised. For example, for those fishers with a formal tenure use right to access an area to fish, a formal rule is that they may only use handlines to fish in the area.

For this indicator the focus is on formal operational rules and regulations which directly affect day-to-day decisions made by resource users concerning when, where and how to use coastal resources. These rules and regulations are specific to a coastal activity and will be established by an agency with legal responsibility for managing that coastal activity.

How to collect the data
Formal legislation concerning tenure can be identified from secondary information such as written legislation at the national, regional or local levels. This legislation is written and legally published by the government. These include the national fisheries code or law, environmental laws concerning extraction of mangroves, laws concerning coral use and extraction, and laws concerning coastal residential development. Additional information can be obtained from key informant interviews with government officials in relevant agencies with responsibility for managing each coastal activity.

Coastal Activity*	Formal Tenure Arrangement (Yes/No)	Relevant Rules and Regulations (Yes/No)
Fisheries	Y	Y
Tourism	N	N
Aquaculture	Y	N
develop list according to activities identified in Activities (KS14)		

Formal rules and regulations can be identified from secondary information such as written legislation at the national, regional or local levels. This legislation is written and legally published by the relevant government agency. Additional information can be obtained from key informant interviews with government officials in relevant agencies with responsibility for managing each coastal activity.

The formal legislation concerning tenure and the formal rules for coastal activities should be obtained at national, regional and local government levels. For each coastal activity, identify (yes or no) if there exists a formal tenure arrangement(s) and a formal rule(s) at the community level. This information is noted in the *Key Informant Interview/Secondary Source Interview Guide* table as illustrated.

How to analyze the data
Synthesize the data from the various key informants and secondary sources into the table in the *Key Informant Interview/Secondary Source Analysis Sheet* as shown.

Additional analysis: A short narrative may be prepared describing the formal tenure arrangements and rules for each of the coastal activities. Compare the changes in the existence of management plans over time with changes in use patterns and resource conditions to determine if there is a correlation.

How the information can be useful to managers

Formal tenure is useful for determining the overall impacts of management on communities, particularly on governance. The formal tenure over coastal resources ranges from full ownership and control over the uses and allocation of coastal resources by certain groups, such as a fisher organization, to no legal use rights at all. For the manager, it is critical to understand this information so that management arrangements can be equitably and efficiently designed and implemented, and the impacts understood and addressed. It is necessary to understand the existence, nature and strength of formal tenure that local stakeholders, including the management authority, have over coastal resources in the area so that management structures can operate effectively.

Formal rules are also useful for determining the overall impacts of management on communities, particularly on governance. This indicator is useful to determine the existing levels of control over human activities in the coastal area and the extent to which people are likely to accept additional rules governing use of coastal activities and be impacted by the formal rules. Resource users may violate rules if they are not well understood or if the rules don't make sense to them.

The analysis comparing the existence of formal tenure arrangements and rules with resource use patterns and resource conditions is useful for determining whether these governance measures are influencing behavior and the health of the resources.

KS30. Informal Tenure and Rules, Customs and Traditions

What it is

In many coastal communities, a dual system of coastal resource management exists. An informal management system, devised and implemented by a community of resource users, often coexists with a formal government management system. These informal systems may be complex or simple, easily observed or carefully protected.

Customs and traditions for coastal resource use and management are practices handed down through generations that reflect the ethnic, clan, kin, class or gender make-up of the community. They may include, for example, the identification of a senior fisher to direct fishing activities, the saying of prayer before fishing, a conflict management mechanism or a decision-making arrangement.

Informal tenure and rules refer to the unwritten, informal (customary and traditional) practices through which people gain use rights, and define specifically which acts are required, permitted and forbidden by resource users with respect to coastal activities. Informal tenure is often referred to as *de facto* (customary and traditional practices) use rights.

How to collect the data

Information on informal tenure and rules for each coastal activity (as appropriate) can be obtained by a combination of key informant interviews and observation. The most relevant people for key informants include senior fishers, senior community members and government officials. Key informants are asked to briefly describe the customs/traditions, informal tenure and rules for each coastal activity as noted in the *Key Informant Interview/Secondary Source Interview Guide* table below. Observation is also essential because information obtained through interviews may only reflect ideal, not real, behavior. Resource users can be observed as they carry out the informal tenure and rules to determine if they are being implemented as described.

Coastal Activity*	Customs and Traditions	Informal Tenure Arrangements	Informal Rules
**develop list according to activities identified in Activities (KS14)*			

When collecting information on informal governance, it should be noted that it may take more time to fully understand these arrangements. This may involve spending additional time with community members to actually learn in detail about these systems.

How to analyze the data
Synthesize the data from the key informants into the table in the *Key Informant Interview/Secondary Source Analysis Sheet.*

Additional analysis: A short narrative may be prepared describing the informal tenure and rules and the customs and traditions related to coastal resource use and management for each of the coastal activities.

How the information can be useful to managers
Customs and traditions for coastal use and management and informal tenure and rules are useful for determining the overall impacts of management on communities and for understanding the cultural significance of resources and their uses. An understanding of informal tenure and rules is important since resource users may feel that the informal tenure and rules are more legitimate to them than formal use rights and rules, and thus disregard laws and legislated restrictions. An understanding of informal tenure and rules will allow the manager to develop a management program that respects customs and traditions and builds on these arrangements, while also including legislated measures. This may be more acceptable to resource users and lead to higher levels of compliance. By understanding these customs and traditions, the manager can recognize and integrate them in the management program so as to minimize or have no impact on social and cultural practices in the community.

KS31. Stakeholder Participation

What it is
Stakeholder participation is a measure of the amount of involvement of stakeholders in making coastal management decisions.

How to collect the data
Stakeholder participation can be obtained through key informant interviews with community officials, leaders of community and stakeholder organizations, and coastal management staff. As noted in the *Key Informant Interview/Secondary Source Interview Guide* table shown, key informants are asked if stakeholders are involved in making coastal management decisions (yes or no).

Additional data collection: Stakeholder participation can also be obtained through observation of coastal management meetings to see if the stakeholders attend the meetings and express their opinions, and determine if their opinions are considered by the management body.

Stakeholder Group*	Stakeholder Participation (Yes/No)

**develop list according to stakeholder groups identified in Stakeholders (KS24)*

How to analyze the data
Synthesize the data from the key informants and observations into the table in the *Key Informant Interview/Secondary Source Analysis Sheet.*

Additional data analysis: A narrative may be prepared which describes the level and types of stakeholder participation in coastal management decision-making.

How the information can be useful to managers
The active participation of stakeholders in coastal management decision-making can improve the success of coastal management activities. If stakeholders are more involved in coastal management decision-making and feel ownership over the process, they are more likely to support coastal management activities. Stakeholders are important because they can support and sustain coastal management.

KS32. Community and Stakeholder Organizations

What it is

Community and stakeholder organizations are means for representing resource users and stakeholders in coastal resource management and for influencing the direction of decision-making and management.

How to collect the data

Information on community and stakeholder organizations is obtained from secondary sources and from interviews with key informants. Key informants may include officials from the coastal resource management agency offices, other relevant government officials, community leaders, members of other associations in the community, senior fishers, representatives of religious organizations and representatives of non-governmental organizations.

As noted in the *Key Informant Interview/Secondary Source Interview Guide* table, for each organization information is collected on whether the organization is formally or informally authorized and on the organization's main functions. Key informants are asked whether the organization influences coastal management issues, community issues, both coastal management and community issues, or has no influence.

Community Organization	Formal or Informal	Main Functions	Influence (on coastal management; community issues; both; none)

How to analyze the data

Synthesize the data from the key informants and secondary sources into the table in the *Key Informant Interview/Secondary Source Analysis Sheet*.

Additional analysis: A short narrative may be prepared identifying the number of community and stakeholder organizations, whether they are formal or informal, and function/responsibilities.

How the information can be useful to managers

An understanding of community and stakeholder organizations can assist managers in improving participation and representation of stakeholders in management and decision-making. The results need to be interpreted against the background of the level of community or collective action in the country or area. An understanding of organizations will allow the manager to identify different groups that may be impacted by management measures and to address these impacts with the organizations.

HOUSEHOLD DEMOGRAPHICS

H1-8. Age, Gender, Ethnicity, Education, Religion, Language, Occupation, Household Size

What it is

As described in the *Key Informant/Secondary Source Indicators,* age, gender, ethnicity, education, religion, language, occupation and household size are basic demographic indicators. Age is measured by the percent of community members in different age categories. Gender is measured by the percent of the population that is male and the percent that is female. Education is measured by the number of years of formal schooling completed by community members over 16 years old. Ethnicity and religion are measured by the percent of community members that have the various ethnic and religious affiliations, respectively. Language is measured by the percent of community members that speak various languages as their primary language. Primary occupation is measured by the number of people who consider each occupation their primary occupation. Secondary occupation is measured by the number of people who consider each occupation their secondary occupation. Household size is the average number of people in a house in the community.

How to collect the data

Information on these demographic indicators is collected by asking about all the members in the household. In this way, the team collects information on the range of demographic characteristics of members of the household.

The team asks the respondent to complete the following table as noted in the *Household Interview Guide (Appendix C).* Each household member is noted in the first column and the relevant information provided to the right:

Household Members*	Age	Gender	Education Level Completed (only ask if >16 yr)	Religion	Ethnicity	Language	Primary Occupation	Secondary Occupation
**identify all living in house by name or role (e.g. grandmother)*								

How to analyze the data

Occupation analysis

For the occupation analysis, first identify all the occupations noted during the interviews and list them in the table in the *Household Interview Analysis Sheet (Appendix E)* (see example). For simplicity, group all the occupations that have less than 5% of the population together under "Miscellaneous."

Next calculate the total number of people from all the household tables who listed this occupation as their primary occupation. Then calculate the percentage of people who are employed in each occupation as their primary occupation by dividing the number of people noted for each occupation by the total number of people in all the households as noted in the *Household Interview Analysis Sheet* and illustrated in the table.

Conduct the same calculations for the secondary occupations by first calculating the total number of people from all the households who noted each occupation was their secondary occupation. Then calculate the percentage of people from the households who noted each occupation was their secondary occupation by dividing the number of secondary people for each occupation by the total number of people in all the households interviewed as illustrated in the table. Also note that the total percentage of household members with secondary occupations is less than 100%. This is because not all household members have a second occupation. In the example below, 80% have secondary occupations, 20% do not.

Finally, add the percentages from the primary and secondary occupations for each occupation to determine the total percent of community members dependent on each occupation as illustrated in the table. Note that the total adds up to more than 100%. This is because the total percent includes primary and secondary occupations of household members. They are therefore counted twice if they have a second occupation.

Occupation	PRIMARY		SECONDARY		Total percent of community members dependent on this occupation (primary and secondary)
	Number of household members listed as primary occupation	Percent household members that listed as primary occupation	Number listed as secondary occupation	Percent household members that listed each occupation as secondary	
Fishing	65	32.5%	50	25%	57.5%
Hotel development	50	25%	20	10%	35%
Aquaculture	30	15%	60	30%	45%
Misc.* (coral mining, farming)	5	2.5%	30	15%	17.5%
No occupation**	50	25%	0	0%	25%
TOTAL	200	100%	160	80%	180%

* *record together all occupations that were noted for <5% of the household members*
** *for example, unemployed, students, retired*

Additional analysis: Compare these results with the data from the *Key Informant/Secondary Source Occupation (KS12)*, which asks the percent of population conducting this occupation as primary occupation and secondary occupation. If there are significant differences, then consult with the key informants to determine the cause. If the difference cannot be explained, then it may be necessary to interview all the households to accurately determine occupational structure. Note that the key informant/secondary source data are based on the *working* population and therefore do not include people who are students, retired or otherwise not working. To accurately compare, the household percentages will need to be recalculated based only on the people listed as working (i.e. not including the people who noted "student", "unemployed", etc., as their occupation).

Compare changes in the number of people in each occupation over time with data on changes in *types of use (KS16), levels of impact (KS20)*, and resource conditions over time to identify any correlations.

Also, calculate changes in occupational structure over time. Take the current year's percentages and numbers and subtract the previous year's to see if there is an increase, decrease or no change.

Demographic analysis: For each primary occupation, calculate the percent of people in each age category, education category, ethnic category, religious category and gender category and note these percentages in the *Household Interview Analysis Sheet* (see example below for age and education table).

PERCENT RESPONSES							
Primary Occupation	Age 0-15	Age 16-25	Age 26-45	Age over 45	< 6 years schooling	< 6-9 years schooling	>9 years schooling
Fishing	6%	20%	39%	35%	10%	60%	30%
Hotel development	0%	45%	30%	25%	5%	30%	65%

Additional analysis: Compare these demographic data for all the occupations together with the *Key Informant/Secondary Source Interviews, age, gender, education, literacy, ethnicity, religion* and *language (KS5-11)* data. If there are significant differences, then consult with the key informants to determine the cause. If the difference cannot be explained, then it may be necessary to interview all the households to accurately determine community demographics. In addition, a short narrative may be prepared describing the characteristics of each occupational group.

Household size: Calculate average household size by adding up the number of people in each household and dividing by the number of households.

How the information can be useful to managers
In comparison to the demographic data provided from the key informants/ secondary sources, the data from the household interviews is analyzed specific to each occupation. This provides the manager an understanding of the type of person employed in the different occupations that can help him/her tailor management programs. For example, if the manager knows most of the aquaculture owners are illiterate and most of the hotel owners are highly educated, then he/she may develop education programs based on visual imagery for the aquaculture owners and an education program based on scientific references for the hotel owners.

H9. Household Income

What it is
Household income refers to the main sources of income for a household. This information is collected in addition to occupational structure to identify any sources of income that are not associated with an occupation, such as remittance from abroad.

How to collect the data
As noted in the *Household Interview Guide,* data on household incomes are obtained by asking each respondent:

What is your household's most important source of income? _____

What is your household's second most important source of income? _____

Note that the collection of this data could be sensitive to some individuals as it is personal. The team needs to carefully consider their study area and community members to determine if it is appropriate to ask *this question*.

How to analyze the data
Synthesize the data from all the household interviews. For each occupation, calculate the percent of respondents that noted it was their household's primary source of income and the percent of respondents that noted it was their household's secondary source of income, and note these percents in the *Household Interview Analysis Sheet.*

Additional analysis: Compare these results with the data on *occupation (KS12* and *H7)* to verify the same occupations are of critical importance. Note that there may be differences due to sources of income that are not occupations (e.g. remittance). Monitor these results over time to identify changes in the importance of the various occupations.

How the information can be useful to managers
Information on primary and secondary sources of incomes is useful for determining the importance of the resources to the community. For example, if over 80% of the community considers fishing a primary or secondary source of income, then this demonstrates a high community dependence on fishing and consequently on the marine resources.

COASTAL AND MARINE ACTIVITIES

H10. Household Activities

What it is

Household coastal and marine activities is the identification of the household uses of coastal and marine resources in the study area.

Coastal and Marine Activities
1 *Fishing*
2 *Tourism*

How to collect the data

The respondent is asked to identify all uses of coastal and marine resources by household members. This information is noted in the *Household Interview Guide* table as illustrated.

How to analyze the data

The data from all the household surveys are sorted and ranked according to the most important activities by all the households. The activity reported most by all the households should be listed first, followed by the second most often reported activity, etc. This information is noted in the *Household Interview Analysis Sheet* as shown.

Additional analysis: A narrative may be prepared describing the different coastal and marine activities of households in the community.

How the information can be useful to managers

The identification of household coastal and marine activities is important for the manager to have an understanding of the various uses of coastal and marine resources in the area and the dependence of households on certain activities.

H11. Household Goods and Services

What it is

Coastal and marine goods and services are the specific products produced from the household coastal and marine activities. These include extractive goods such as fish, mangrove wood, coral products, and sand; and non-extractive services such as tourism/ recreation activities and aquaculture.

How to collect the data

The respondent is asked to identify all goods and services produced from each coastal and marine activity of the household. This information is noted in the *Household Interview Guide* table as illustrated.

Coastal and Marine Activities	Coastal and Marine Goods and Services
1 *Fishing*	*Grouper*
	Octopus
	Shrimp
2 *Tourism*	*Hotel development*
	Diving
	Recreational fishing

How to analyze the data

The data from all the household surveys are sorted and ranked according to the most important coastal and marine goods and services from each activity for the households. The good or service reported most often by the households should be listed first, followed by the second most often reported good or service, etc. This information is noted in the *Household Interview Analysis Sheet* as shown.

Additional analysis: A narrative may be prepared describing the household coastal and marine goods and services in the community.

How the information can be useful to managers

Information on household coastal and marine goods and services is useful for determining the overall impacts of management, particularly marketing and production on households in the study area. As a result of management measures, there may be a shifting in the coastal and marine goods and services produced in the area, with positive and negative impacts on the household. For example, if a marine protected area actively promotes tourism in the area, then it would be expected that the value of diving would increase and more household members would shift to diving operations.

H12. Types of Household Uses

What it is:
Types of household uses identify the specific method or development being employed (e.g. traps, nets, guest houses, scuba diving) for each coastal and marine good and service (see *types of use (KS16)* for more information).

How to collect the data
The respondent is asked to identify the specific method or development being used for each coastal and marine good and service. This information is noted in the *Household Interview Guide* table as illustrated.

Coastal and Marine Activities	Coastal and Marine Goods and Services	Types of Household Uses
1 Fishing	Grouper	Trap, Line, Cyanide
	Octopus	Trawl, Line
	Shrimp	Trawl
2 Tourism	Hotel development	Guesthouses All-inclusives
	Diving	Scuba
	Recreational fishing	25 people boats

How to analyze the data
The data from all the household surveys are sorted and ranked according to the most important coastal and marine goods and services from each activity for the households. The good or service reported most often by the households should be listed first, followed by the second most often reported good or service, etc. This information is noted in the *Household Interview Analysis Sheet* as shown.

Additional analysis: A narrative may be prepared describing the household coastal and marine goods and services in the community.

How the information can be useful to managers
Information on the types of uses is particularly useful for identifying threats, such as bomb fishing or mangrove clearing, to the coastal and marine resources. By monitoring this information over time, the manager can also see what impact management has had on these types of uses. For example, if the coastal management program initiated a mangrove replanting campaign, yet mangrove clearing continues to be listed as a type of use, then this indicates that the campaign is not preventing continued mangrove clearing. This information also helps to determine the effectiveness of coastal management programs.

Understanding what types of uses are taking place in the study area is also critical to developing stakeholder participation and awareness programs in coastal management. The managers need to know how people are tied to the resources in order to work with them and communicate with them regarding threats to the resources.

H13. Household Market Orientation

What it is
Household market orientation is the identification of the market in which each coastal and marine product produced by the household is primarily sold. This household information can be used to determine market orientation of the entire community.

How to collect the data
For each coastal and marine good or service, the respondent is asked to note the primary market in which it is sold (international, national, regional or local). The responses are noted in the *Household Interview Guide* table as illustrated.

Coastal and Marine Activities	Coastal and Marine Goods and Services	Types of Household Uses	Household Market Orientation
1 Fishing	Grouper	Trap, Line, Cyanide	Regional
	Octopus	Trawl, Line	Local
	Shrimp	Trawl	Regional
2 Tourism	Hotel development	Guesthouses All-inclusives	International
	Diving	Scuba	National
	Recreational fishing	25 people boats	Local

How to analyze the data

Synthesize the data from all the household surveys. List the goods and services and calculate the percentage of respondents who noted each good or service sold in international, national, regional or local markets. This information is noted in the *Household Interview Analysis Sheet* as shown.

Coastal and Marine Goods and Services	% Noted International Market	% Noted National Market	% Noted Regional Market	% Noted Local Market
Grouper	0%	30%	40%	30%
Octopus	0%	15%	35%	50%
Shrimp	20%	20%	35%	35%
Hotel development	60%	35%	3%	2%
Diving	50%	40%	8%	2%
Recreational fishing	10%	10%	30%	50%

Additional analysis: A narrative may be prepared describing the different markets in which the goods and services are sold.

How the information can be useful to managers

Market orientation is useful for determining the overall impacts of management on communities, particularly marketing, production and food security. For example, investments in community infrastructure, such as roads to major cities, can result in greater access to national, regional and international markets.

Since the livelihood and income of people in the community are linked to markets, the fish market orientation is important as it provides for an understanding of where aquatic products produced in the area are sold. This indicator allows for an analysis of changes over time in the markets for major aquatic products. It shows the relationship of local producers and traders with various markets, for example, linkages with international markets, which may affect harvesting practices.

Market orientation can also be useful as an indication of how much pressure may be put on the resource. For example, fishers may put high fishing effort on a high valued fish for international markets. It can also give an indication over time of shifts in markets for aquatic products. The impact of management measures can be assessed through changes in markets. For example, management measures may result in higher value fish being available in the area that may be marketed in regional or national markets.

H14. Household Uses

What it is

Household use of coastal and marine goods and services is a measure of how households in the study area utilize coastal and marine goods and services for consumption, leisure and sale. This indicator is most relevant to extractive activities (e.g. fishing, aquaculture).

How to collect the data

Each respondent is asked to identify the primary household use for each good or service — own consumption, leisure or sale — which is noted in the *Household Interview Guide* table as illustrated.

Coastal and Marine Activities	Coastal and Marine Goods and Services	Household Uses
1 Fishing	Grouper	Own consumption
	Octopus	Sale
	Shrimp	Sale
2 Tourism	Hotel development	Sale
	Diving	Sale
	Recreational fishing	Sale

How to analyze the data

Synthesize the data from all the household surveys. Similar to the household market orientation indicator, list the goods and services and calculate the number and percentage of respondents who noted each good or service used for own consumption, leisure or sale. This information is noted in the *Household Interview Analysis Sheet*.

Additional analysis: A narrative may be prepared describing the different household uses of the coastal and marine goods and services by the community.

How the information can be useful to managers

Information on households' use of coastal and marine goods and services provides insight into household dependence on coastal and marine resources for food and income. It is therefore important for understanding issues of food security in the household. This information can be useful for understanding how management measures may impact upon the livelihood of resource users and the food security of households. For example, if households primarily consume their catch, then a restriction on fishing can be expected to affect food availability and therefore impact food security of the household.

ATTITUDES AND PERCEPTIONS

H15. Non-market and Non-use Values

What it is

Non-market and non-use values of the coastal resources are measures of how people think about the value of coastal resources that are not traded in the market (non-market) and the value of the resources to the portion of society that does not use the resources (non-use). Non-market value is the value of resources (e.g. fish) and services (e.g. diving) that are not traded in any market. These include direct uses, such as divers who have traveled to dive by private means; and indirect uses, such as biological support functions in the form of nutrients, fish habitat and coastline protection from storm surge. Non-use values are not associated with any use and include option value (the value of knowing that the resource is available should one decide to use it at some future time), bequest value (the value of knowing that the resource will be available to future generations), and existence value (the value of knowing that the resource exists in a certain condition).

How to collect it

The concepts of non-market and non-use values are largely abstract and theoretical. Ideally, an economist should conduct the assessment of these indicators since the economic methods used are complex. Recognizing that in most areas economists are not readily available, *SocMon* suggests an approach of measuring people's perceptions based on scale.

This approach uses a series of questions that focus on people's perceptions of indirect non-market values (i.e. biological support functions) and the non-use values related to bequest and existence values of the resources. These could include statements about beauty, about looking after the sea for their children's children, about "enjoying time on the water", and about other non-extractive goods and services that a healthy coastal environment can provide.

Following are suggested statements, which need to be tailored to the resources and activities at each site. Each respondent is asked to indicate the degree to which they agree or disagree with a series of statements. Respondents are asked if they: agree strongly (5), agree (4), don't agree or disagree (3), disagree (2), or disagree strongly (1) with each statement.

_____ **a)** The reefs are important for protecting land from storm waves. (indirect non-market value)

_____ **b)** In the long-run, fishing would be better if we cleared the coral. (indirect non-market value)

_____ **c)** Unless mangroves are protected we will not have any fish to catch. (indirect non-market value)

_____ **d)** Coral reefs are only important if you fish or dive. (existence non-use value)

_____ **e)** I want future generations to enjoy the mangroves and coral reefs. (bequest non-use value)

_____ **f)** Fishing should be restricted in certain areas even if no one ever fishes in those areas just to allow the fish and coral to grow. (existence value)

_____ **g)** We should restrict development in some coastal areas so that future generations will be able to have natural environments. (bequest value)

_____ **h)** Seagrass beds have no value to people. (existence value)

Note that the statements are written such that agreement with some indicates an accurate or positive belief, while agreement with others indicates the opposite. This was done to control for responses where the respondent either agrees or disagrees with everything. Statements are randomly arranged with respect to this type of polarity.

Additional data collection: Open-ended questions, such as: If coral reefs disappeared, how would it matter to you? If the fisheries disappeared, how would it matter to you? If the entire beach front were to be developed, how would it matter to you? can be asked to gain a fuller understanding of the importance of the resources and their uses.

How to analyze the data

Synthesize the data from all the household interviews. For each question, calculate the percent of respondents for each level of agreement and note the percent in the *Household Interview Analysis Sheet.* To determine whether respondents attribute a non-market or non-use value to the resources, consider to what extent they agreed with the statements. Statements a, c, e, f and g are positively stated. If respondents agreed with these statements, they value the resources. Statements b, d and h are negatively stated. If respondents agreed with these statements, they do not value the resources.

Additional analysis: The levels of agreement (e.g. agree strongly and agree) may be combined to simplify the interpretation. For example, if 23% of respondents *strongly agreed* with statement a and 34% of respondents agreed with statement a, then these could be combined to say, "over fifty percent of respondents agreed that reefs are important for protecting land from storm waves". This is easier to understand than listing the percentages for each category.

It may also be useful to prepare a brief narrative explaining to what extent people value the resources. Compare results over time to see if people's perceptions have changed.

How the information can be useful to managers

Information on non-use and non-market values is useful for understanding how people value the coastal resources. Often valuations focus exclusively on values related to the market, such as employment levels, incomes and net profits. By also understanding perceptions of non-use and non-market values, the manager gains a more complete picture of the total value of the resources. This is useful for demonstrating the importance of the resources and their protection to policy-makers and the general public, gauging public support for management, and demonstrating that marine resources are more than products to be bought and sold.

These perceptions are also useful for developing awareness programs because managers can see how much people think of resources as providing goods and services beyond what can be bought and sold. Monitoring this information over time can therefore be used to see how management programs impact people's attitudes and perceptions.

H16. Perceptions of Resource Conditions

What it is
Perceptions of resource conditions measure what people think about the condition of the coastal resources.

How to collect the data
Data on perceptions of resource conditions are obtained by asking each respondent:

How would you describe current conditions of each of the following resources using the scale of very good (5), good (4), not good or bad (3), bad (2) to very bad (1) (edit list of resources to reflect site resources): Mangroves _____ Coral reefs _____ Fresh water (rivers) _____ Upland forests _____

How to analyze the data
Synthesize the data from all the household interviews. For each resource calculate the percent responses for each level of the scale and note in the *Household Interview Analysis Sheet.*

	PERCENT RESPONDENTS THAT DESCRIBED RESOURCE CONDITIONS AS:				
RESOURCES*	Very good (5)	Good (4)	Neither good nor bad (3)	Bad (2)	Very bad (1)
mangroves	*3%*	*10%*	*30%*	*34%*	*23%*
coral reefs	*5%*	*12%*	*34%*	*30%*	*23%*
fresh water	*2%*	*15%*	*62%*	*15%*	*6%*
upland forests	*40%*	*30%*	*20%*	*8%*	*2%*
**edit list of resources to local site*					

Additional analysis: Some of the categories may be combined to simplify the interpretation. For example, if 23% of respondents said the mangroves are in very bad condition and 34% said they are in bad condition, then these could be combined to say, "over fifty percent of respondents noted the mangroves were in bad or very bad condition." This is easier to understand than listing the percentages for each category. In addition, a short narrative may be prepared describing how people perceive the resource conditions. Monitor these results over time to identify changes in people's understanding of resource conditions. Compare these results with scientific studies of resource conditions to determine the accuracy of people's understanding of resource conditions.

How the information can be useful to managers
Information on perceptions of resource conditions is useful for identifying threats to the coastal resources. By understanding which resources are in poor condition, managers can better identify the major threats to the resources since most threats are linked to particular resources. For example, if mangroves, seagrass and coral reefs are noted to be in worse condition than upland forests and fresh water, then sea-based activities, such as fishing and boating, may be a greater threat than terrestrial activities.

This information is also critical for developing awareness programs and seeking stakeholder participation. If community members do not consider the resources to be at risk, then it will be difficult to engage them in coastal management. If community members consider the resources to be in good condition, yet scientific research shows they are deteriorating, then an awareness program may need to be initiated to increase understanding of resource conditions.

By monitoring this information over time, the manager can see the impact management has had on people's attitudes and perceptions. For example, if the coastal management program initiated an awareness campaign on the poor health of the coastal ecosystem, yet respondents continue to report good health, then this suggests that the program has not been effective.

People's perceptions of the resource conditions are also useful for developing biophysical research and monitoring programs. Community members, particularly people who directly use the resources, are often the most knowledgeable about resource conditions. This information can help guide a scientific agenda, particularly in areas where scientific data is lacking.

H17. Perceived Threats

What it is
Perceived threats measures what people think are the major threats to the coastal resources.

How to collect the data
Data on perceived threats are obtained by asking each respondent:

What are the top 5 major threats to the health of coastal resources?

1. _____ 2. _____ 3. _____ 4. _____ 5. _____

How to analyze the data
Synthesize the data from all the household interviews. List the major threats. Calculate the percent of respondents who noted each threat as illustrated in this list and note in the *Household Interview Analysis Sheet* as follows.

Identified threats	**Percent noted this threat**
Sewage waste	53%
Over-fishing	30%
Anchor damage	26%

**Note that the responses do not add up to 100% because respondents may list up to five threats.*

Additional analysis: Combine threats where appropriate. For example, if some people said "anchor damage" and others said "boating practices," then the "anchor damage" responses could be included under "boating practices" since they are a subset. Monitor these results over time to determine how perceived threats change.

Compare these results with the data from the *Key Informant/Secondary Source* data on *levels of impact (KS20).* The threats listed above should also be listed as "high" in the levels of impact results. If there are significant differences, then consult with the key informants to determine the cause. If the difference cannot be explained, then it may be necessary to interview all the households to accurately determine perceived threats. A short narrative may be prepared describing what people perceive to be the major threats from both sets of data.

Compare these results with scientific studies of threats to resource conditions to determine the accuracy of people's understanding of threats.

How the information can be useful to managers
Information on perceived threats is useful for identifying threats to the coastal resources. Community members, particularly people who directly use the resources, are often the most knowledgeable about threats to the resources. This information can help guide a scientific agenda, particularly in areas where scientific data is lacking, by identifying priority activities on which to focus.

By monitoring this information over time, the manager can see the impact management has had on coastal activities. For example, if the management program prohibited fishing, yet people continue to perceive fishing as a threat, then this suggests that the program has not been effective. Further scientific study should help determine if this is accurate.

Finally, this information is critical for developing awareness programs and seeking stakeholder participation. If community members do not consider there to be impacts on the coastal resources, then it will be difficult to engage them in coastal management. If community members consider only one or two activities to be impacting the resources, yet scientific research shows there are several other impacts, then an awareness program may need to be initiated to increase understanding of the full breadth of activities impacting the resources.

H18. Awareness of Rules and Regulations

What it is
Awareness of rules and regulations measures people's knowledge that rules and regulations on coastal resources exist.

How to collect the data
Data on awareness of rules and regulations are obtained by asking each respondent:

Are there rules and regulations related to (yes or no) (develop list of activities to reflect *activities (KS14):* fishing _____ mangrove use _____ aquaculture _____ hotel development _____ residential development _____ watersports _____ marine transportation _____

In order to determine awareness, the team must be aware itself of existing rules and regulations. This can be determined by asking the manager. Circle the resources that have rules and regulations for comparison with responses.

How to analyze the data
Synthesize the data from all the household interviews. Calculate the percent of respondents who noted there were rules and regulations for each activity and note this in the *Household Interview Analysis Sheet.*

Additional analysis: Compare the percentages with whether they were circled. The circled activities (have rules and regulations) should have high awareness compared to the other activities. Activities that have high awareness, yet are not regulated indicate misunderstandings by the public. Activities that are circled and have low awareness indicate the public does not realize there are rules and regulations on these activities. A short narrative may be prepared discussing the existing rules and regulations, compliance and enforcement drawing from the results of the next two indicators.

How the information can be useful to managers
This information is critical for developing awareness programs and seeking stakeholder participation. If community members are not even aware regulations and rules exist, it will difficult to engage them in coastal management. Understanding the community's level of understanding of rules and regulations is important for developing awareness programs. Education is the foundation for compliance. It is therefore important for managers to identify which rules and regulations are unfamiliar to the community so that the awareness program can target these rules and regulations. Monitoring the community's awareness of rules and regulations is therefore important for determining the impacts of coastal management on attitudes and perceptions.

H19. Compliance

What it is
Compliance measures to what extent people are perceived to be complying with regulations.

How to collect the data
Data on compliance are obtained by asking each respondent:

On a scale of 1 to 5 (1=no compliance, 5=full compliance), to what extent do people comply with coastal management rules and regulations? _____

Additional Data : Respondents can be asked which activities or rules people are complying with.

How to analyze the data
Synthesize the data from all the household interviews. Calculate the percent of respondents for each scale of perceived compliance and note in the *Household Interview Analysis Sheet.*

Additional analysis: Some of the categories may be combined to simplify the interpretation. For example, if 23% of respondents said there is full compliance and 42% said there is some compliance, then these could be combined to say, "65% of respondents felt there is some to full compliance." This is easier to understand than listing the percentages for each category. Compare these results over time to determine if compliance is increasing, decreasing or staying the same. A short narrative may be prepared discussing compliance, enforcement and the regulations and rules in existence from the previous and next indicators.

How the information can be useful to managers
Information on compliance is useful for understanding stakeholder participation and identifying coastal management problems. Lack of compliance is not only detrimental to the resources, but to gaining stakeholder support. If it is widely perceived that people are not complying with regulations, then it will be difficult to gain anyone's trust, support, participation or compliance.

By monitoring this information over time, the manager can see the impact management has had on people's attitudes and perceptions. If compliance begins to increase, then this should be reflected in people's perceptions of compliance. If this is not the case, then the manager may need to communicate the changes in compliance more effectively to the public (e.g. report decline in number of violations in park newsletter).

H20. Enforcement

What it is
Enforcement is measured by people's perceptions of how much the rules and regulations are enforced. This is similar to compliance, except compliance addresses people's behavior (i.e. are people adhering to the rules). Enforcement addresses management activities, such as patrolling, imposing fines and confiscating illegal gear.

How to collect the data
Data on enforcement are obtained by asking each respondent:

On a scale of 1 to 5 (1=no enforcement, 5=full enforcement), to what extent are the rules and regulations enforced? _____

Additional data collection: Respondents can be asked: What one thing can the management body do to improve enforcement? The respondents can also be asked: To what extent are the rules and regulations enforced for each coastal and marine activity?

How to analyze the data
Synthesize the data from all the household interviews. Calculate the percent of respondents for each scale of perceived enforcement and note them in the *Household Interview Analysis Sheet.*

Additional analysis: Some of the categories may be combined to simplify the interpretation as discussed for compliance. Compare these results over time to determine if enforcement is increasing, decreasing or staying the same. A short narrative may be prepared discussing enforcement, compliance and the regulations and rules in existence from the previous two indicators.

How the information can be useful to managers
Information on enforcement is important for understanding coastal management problems. Lack of enforcement is not only detrimental to the resources, but to gaining stakeholder support. Similar to compliance, if it is widely perceived that regulations are not being enforced, then it will be difficult to gain anyone's trust, support, participation or compliance. Also, by monitoring this information over time, the manager can see the impact management has had on governance since enforcement is a key component.

H21. Participation in Decision-making

What it is
Participation in decision-making measures how active people are in coastal management, particularly decision-making.

How to collect the data
Data on participation in decision-making are obtained by asking each respondent:

On a scale of 1 to 5 (1=no participation, 5=fully active participation), to what extent do you participate in coastal management decision-making? _____

Additional data collection: Respondents can be asked: Can you participate in decision-making? and Do you participate in decision-making? These questions are asked to determine if respondents feel that they can and do participate in decision-making.

How to analyze the data
Synthesize the data from all the household interviews. Calculate the percent of respondents for each scale of perceived participation and note in the *Household Interview Analysis Sheet.*

Additional analysis: Compare these results over time to determine if participation is increasing, decreasing or staying the same. Compare these results with data on people's *perceptions of resource conditions and threats (H16* and *H17*) and *awareness of rules and regulations (H18)* to see if there is a correlation. For example, if people are not aware of rules and regulations and consider the resources with minimal threats, then they may not have an incentive to participate in management. A short narrative may be prepared discussing participation, how it has changed over time and how it is linked to people's perceptions.

How the information can be useful to managers
By monitoring participation over time, the manager can see how effective the program has been in engaging stakeholders in management, often an objective of management.

The level of stakeholder participation is useful to understanding the importance of the coastal resources to the public. The more people value the resources, the more likely they are to participate in management. There are other reasons as well, such as a crisis situation (e.g. oil spill), but generally the level of stakeholder participation can be used to demonstrate the importance of the resources.

H22. Membership in Stakeholder Organizations

What it is
Membership in resource use stakeholder organizations refers to both formal membership and informal membership. The stakeholder organizations include direct users (e.g. fishermen's cooperative, diving club) as well as people whose activities impact the resources (e.g. foresters association, hotel association), and people who do not use or impact the resources, but have a stake in management (e.g. environmental organizations).

How to collect the data
Data on membership in stakeholder organizations are obtained by asking each respondent:

Is anyone from your household a member of a stakeholder organization? _____

Which organization(s)? _____

How to analyze the data
Synthesize the data from all the household interviews. Calculate the percent of respondents who are members of at least one organization. Then list the noted organizations and calculate the percent of respondents who noted they were a member of each organization. Note this information in the *Household Interview Analysis Sheet.*

Percent noted membership in at least one organization: _____

Noted organizations for membership	**% respondents noted organization**
Fishermen Cooperative	67%
Watersports Association	32%
Tourism Association	10%
Aquaculture Business Owners Group	25%

Additional analysis: Compare the results over time to see how membership shifts. Compare the membership percentages of the various stakeholder organizations to the *occupation (KS12)* percentages to see if there is a correlation (e.g. if 90% of the community members are fishermen, then is there an equally high membership percentage for the fishermen's association?). A short narrative may be prepared describing membership, how it is related to occupational structure and how it has changed over time.

How the information can be useful to managers
If the noted organizations are involved in coastal management, then membership can be a useful indicator of stakeholder participation in management. For example, if the fishermen's association is responsible for closing certain areas to fishing, then a high membership indicates high participation in coastal management.

The comparison between membership and occupational structure is useful for determining if particular organizations have disproportionally high membership. The occupations employing the most people would be expected to have the highest levels of membership. Differences from this expectation may indicate that the issues an unexpectedly high-membership group deals with are of great importance, or the organization is considered highly effective. If an occupation with small employment has a high level of membership it may be because people not employed in the occupation are interested in the occupation (e.g. as a community shifts out of fishing into tourism, people may continue to be members of the fishermen's cooperative out of interest). It may be useful to talk with key informants to explain the results.

The shifts in membership over time may also be useful in identifying changes in priorities and interests. For example, growing membership in environmental organizations may reflect increasing community interest in conservation. Again, it may be useful to consult with the key informants to explain the results.

H23-25. Perceived Coastal Management Problems, Perceived Coastal Management Solutions, Perceived Community Problems

What it is
Perceived coastal management problems, perceived solutions and perceived community problems essentially assess what people think the problems are facing the community and coastal management and how to solve them.

How to collect the data
Data on these indicators are obtained by asking each respondent:

Aside from threats, what do you see as the two major problems facing coastal management in the community?

1._____ **2.** _____

What do you see as solutions to these problems? **1.** _____ **2.** _____

What are the two major problems facing the community? **1.**_____ **2.** _____

Additional data collection: Respondents can be asked to explain the identified problems and solutions.

How to analyze the data
Synthesize the data from all the household interviews. List the major problems facing the community. Calculate the percent of respondents who noted each problem. Group the problems into categories as appropriate, particularly specific problems. For example, if 4% of respondents noted conflicts between the fishermen in village X and Y, and 12% noted conflicts between fishermen in general, then these may be combined for simplicity. Note this information in the *Household Interview Analysis Sheet.*

Go through the same process for perceived coastal management solutions and perceived community problems.

Additional analysis: Compare the results over time to see how concerns change in the community. A short narrative may be prepared describing people's perceptions of problems and solutions and how these have changed over time.

How the information can be useful to managers
Information on people's perceptions of coastal management problems and solutions and community problems is particularly useful for understanding what people think needs to be addressed by the coastal managers, which may help managers identify management priorities. The information on community problems can help managers understand the larger issues facing the community (e.g. poor nutrition, lack of electricity) with which the management program may or may not be able to assist.

H26 & H27. Successes and Challenges in Coastal Management

What it is
Similar to the previous indicators, successes and challenges in coastal management assess what people think has and has not worked well for coastal management in the community.

How to collect the data
Data on successes and challenges in coastal management are obtained by asking each respondent:

What two things do you think have worked well for coastal management in the community? 1. _____

2. _____

What two things do you think have not worked well for coastal management in the community? 1. _____

2. _____

Additional data collection: Ask the respondent to explain each of their responses to the above questions.

How to analyze the data
Synthesize the data from all the household interviews. List the things that have worked well as noted by respondents. Calculate the percent of respondents who noted each thing. Group the things into categories as appropriate. Go through the same process for challenges in coastal management. Note this information in the *Household Interview Analysis Sheet.*

Additional analysis: Compare the results over time to see how successes and challenges have changed. A short narrative may be prepared describing how people view coastal management over time.

How the information can be useful to managers
Information on successes and challenges in coastal management provides insight into the opportunities and solutions facing coastal management. It is also useful for understanding people's attitudes and perceptions regarding coastal management, and may help explain their willingness to participate in management. If the coastal management program is perceived as having worked well, then people are more likely to want to work with the program. This information can also be insightful for determining the effectiveness of the program.

MATERIAL STYLE OF LIFE

H28. Material Style of Life

What it is
Material style of life is an indicator of the relative social status of a community and is often used as an indicator of wealth. It can involve assessing house construction materials (e.g. roof, walls), household furnishings (e.g. rugs, wallpaper) and home electronics (e.g. satellite, TV, radio).

How to collect the data
Data on material style of life are most easily collected by observation of respondents' house materials. In cases where something is not clear, ask the respondent. For each house the following information is recorded:

type of roof: tile _____ tin_____wood_____ thatch _____

type of outside structural walls: tiled _____ brick/concrete _____ wood_____thatch/bamboo_____

windows: glass_____wooden_____open_____ none _____

floors: tile_____ wooden _____cement_____ thatch/bamboo_____ dirt_____

This is a simplified list of house construction material. In some cases this list may need to be modified to more accurately reflect gradients of wealth within the study area. For example, in one area "wooden" may be considered the poorest type of floors in which case the list may need to be restructured to:

floors: carpeted_____ tile_____ finished wooden_____ unfinished wooden_____

Accurate scale construction is needed to make meaningful comparisons between communities and over time.

Additional data collection: To learn more about the relative social status and wealth in the community, respondents may be asked about their ownership of other household assets. This list can include such items as television, radio, refrigerator, furniture, and other assets.

How to analyze the data

Synthesize the data from all the household interviews. Calculate the percent of houses that had each of the categories of house materials and note in the *Household Interview Analysis Sheet.*

How the information can be useful to managers

Information on material style of life over time is useful to understand the economic status and relative wealth of communities and is especially useful in areas where it is difficult to obtain accurate income data. This is important to monitor to determine the impacts of management on livelihood over time. If the coastal management program is having a positive impact, then the percentages on the resulting material style of life indicators should shift should toward the higher level items (e.g. from thatch to wood roofing). It is particularly useful in determining extent of equity of monetary benefits through the community. If the management program has an equitable impact, then the team should observe a shift throughout the community and across all stakeholder groups, not just among a few individuals.

APPENDIX B: KEY INFORMANT INTERVIEW/SECONDARY SOURCE GUIDE

COMMUNITY-LEVEL DEMOGRAPHICS

When respondents do not have an answer to a question, note the response as "don't know".

KS1. Study Area What are the boundaries of the study area? Note on base map.

KS2. Population: How many people live in the study area? _____

KS3. Number of households : How many households are in the study area? _____

KS4. Migration rate: What was the net increase or decrease in people moving into and out of the study area in the last year?_____

(note + or – to reflect moving in or out)

KS5. Age: What percent of the people in the study area are currently: _____0-18; _____19-30; _____31-50; _____ over 50 ?

KS6. Gender: What percentage of the population is male? _____ female? _____

KS7. Education: What is the average number of years of education of people over 16 years old in the study area? _____

KS8. Literacy: What percentage of population is literate (can read and write)? _____

KS9. Ethnicity: What is the ethnic make-up of the study area (percent of each major ethnic group in the study area):
(write-in) _____; (write-in) _____; (write-in) _____

KS10. Religion: What is the religious make-up of the study area (percent of each major religious group in the study area):
(write-in) _____; (write-in) _____; (write-in) _____

KS11. Language: What are the major languages spoken in the study area (percent of each major language in the study area):
(write-in) _____; (write-in) _____; (write-in) _____

KS12. Occupation: Complete the fllowing table

Major occupations in community	Percent of working population conducting this occupation as primary occupation	Number of people conducting this occupation as primary occupation	Percent of working population conducting this occupation as secondary occupation
1.			
2.			
3.			
4.			
5.			

COMMUNITY INFRASTRUCTURE

KS13. Community Infrastructure: Circle which services exist in the study area:

schools, resident doctors, resident nurses, hospitals, medical clinics, electricity, telephone, internet access, radios, televisions, newspapers, sewage treatment plant, ice plant, hard top road access, water supply to homes, banking/credit union services, rotating credit associations, guesthouses/hotels/inns, restaurants

COASTAL AND MARINE ACTIVITIES

KS14–23. Activities, Goods and Services, Types of Use, Value of Goods and Services, Goods and Services Market Orientation, Use Patterns, Levels of Impact, Types of Impact, Level of Use by Outsiders, Household Use:

Complete the following table (see *Appendix A* for examples of how to complete the table):

Coastal and Marine Activities	Coastal and Marine Goods and Services	Types of Use (primary)	Value of Goods and Services	Goods and Services Market Orientation (primary)	Use Patterns	Level of Impact	Types of Impact (primary)	Level of Use by Outsiders	House-hold Use (primary)

KS24. Stakeholders:

Complete the following table:

Coastal Activity*	Stakeholder Group 1	Stakeholder Group 2	Stakeholder Group 3

**develop list according to activities identified in Activities (KS14)*

GOVERNANCE

KS25–29. Management Body, Management Plan, Enabling Legislation, Resource Allocations, Formal Tenure and Rules:

Complete the following table (see *Appendix A, KS25-29* for examples of how to complete the table):

Coastal Activity*	Management Body(s) (Yes/No) & Name	Management Plan (Yes/No)	Enabling Legislation (Yes/No)	Number of Staff	Budget	Formal Tenure Arrangements (Yes/No)	Relevant Rules and Regulations (Yes/No)
**develop list according to activities identified in Activities (KS14)*							

KS30. Informal Tenure and Rules, Customs and Traditions:

Complete the following table:

Coastal Activity*	Customs and Traditions	Informal Tenure Arrangements	Informal Rules
**develop list according to activities identified in Activities (KS14)*			

KS31: Stakeholder Participation:

Complete the following table:

Stakeholder Group*	Stakeholder Participation (Yes/No)
**develop list according to stakeholder groups identified in* Stakeholders (KS24)	

KS32: Stakeholder and Community Organizations:

Complete the following table:

Community Organization	Formal or Informal	Main Functions	Influence (on coastal management; community issues; both; none)

APPENDIX C: HOUSEHOLD INTERVIEW GUIDE

HOUSEHOLD DEMOGRAPHICS

When respondents do not have an answer to a question, note the response as "don't know".

H1-8. Age, Gender, Ethnicity, Education, Religion, Language, Occupation, Household Size:

Household Members*	Age	Gender	Education Level Completed (only ask if >16 yr)	Religion	Ethnicity	Language	Primary Occupation	Secondary Occupation
**identify all living in house by name or role (e.g. grandmother)*								

H9. Household Income:

What is your household's most important source of income? _____

What is your household's second most important source of income? _____

COASTAL AND MARINE ACTIVITIES

H10–14: Household Activities, Household Goods and Services, Types of Household Uses, Household Market Orientation, Household Uses:

(see *Appendix A, H10-14* for examples of how to complete the table)

Coastal and Marine Activities	Coastal and Marine Goods and Services	Types of Household Uses	Household Market Orientation	Household Uses
1				
2				
3				

ATTITUDES AND PERCEPTIONS

H15. Non-market and Non-use Values:

Indicate degree of agreement with the following statements using the scale: agree strongly (5); agree (4); neither agree nor disagree (3); disagree (2); disagree strongly (1).

_____ **a)** The reefs are important for protecting land from storm waves. (indirect non-market value)

_____ **b)** In the long-run fishing would be better if we cleared the coral. (indirect non-market value)

_____ **c)** Unless mangroves are protected we will not have any fish to catch. (indirect non-market value)

_____ **d)** Coral reefs are only important if you fish or dive. (existence non-use value)

_____ **e)** I want future generations to enjoy the mangroves and coral reefs. (bequest non-use value)

_____ **f)** Fishing should be restricted in certain areas even if no one ever fishes in those areas just to allow the fish and coral to grow. (existence value)

_____ **g)** We should restrict development in some coastal areas so that future generations will be able to have natural environments. (bequest value)

_____ **h)** Seagrass beds have no value to people. (existence value)

H16. Perceptions of Resource Conditions:

How would you describe current coastal resource conditions on a scale from very good (5), good (4), not good not bad (3), bad (2) to very bad (1) (edit list of resources to reflect site resources):
Mangroves _____; Coral reefs _____; Fresh water _____; Upland forests _____

H17. Perceived Threats: What are the top 5 major threats to the health of coastal resources?

1. _____; 2. _____; 3. _____; 4. _____; 5._____

H18. Awareness of Rules and Regulations:

Are there rules and regulations related to (yes or no) (develop list of activities according to *activities [KS14]*): fishing _____; mangrove use; _____; aquaculture _____; hotel development; _____; residential development _____; watersports _____; marine transportation _____

H19. Compliance:

On a scale of 1 to 5 (1=no compliance, 5=full compliance), to what extent do people comply with coastal management rules and regulations? _____

H20. Enforcement:

On a scale of 1 to 5 (1=no enforcement, 5=full enforcement), to what extent are the rules and regulations enforced? _____

H21. Participation in Decision-making:

On a scale of 1 to 5 (1=no participation, 5=fully active participation), to what extent do you participate in coastal management decision-making? _____

H22. Membership in Stakeholder Organizations:

Is someone from your household a member of a stakeholder organization? _____

Which organization? _____

H23. Perceived Coastal Management Problems:

Aside from threats, what do you see as the two major problems facing coastal management in the community?

1. _____; 2. _____

H24. Perceived Coastal Management Solutions:

What do you see as solutions to these problems? 1. _____; 2. _____

H25. Perceived Community Problems:

What are the two major problems facing the community? 1. _____; 2. _____

H26. Successes in Coastal Management:

What two things do you think have worked well for coastal management in the community?

1. _____; 2. _____

H27. Challenges in Ccoastal Management:

What two things do you think have not worked well for coastal management in the community?

1. _____; 2. _____

MATERIAL STYLE OF LIFE

H28. Material Style of Life:

For each house note:

type of roof: tile _____ tin_____wood_____ thatch_____

type of outside structural walls: tiled _____ brick/concrete_____ wood_____thatch/bamboo _____

windows: glass_____ wooden_____open_____ none _____

floors: tile_____wooden _____ cement _____ thatch/bamboo_____dirt_____

APPENDIX D: KEY INFORMANT INTERVIEW/SECONDARY SOURCE ANALYSIS SHEET

COMMUNITY-LEVEL DEMOGRAPHICS

When doing the calculations for a question, do not include "don't know" responses in the calculations. In other words, the calculations should only be based on the actual responses to the question.

KS1. Study Area:

Base map with resource, stakeholder and political boundariesof the study area.

KS2. Population: Total population in study area: _____

KS3. Number of Households: Total number of households in study area: _____

KS4. Migration Rate:

Net increase or decrease of people moving into or out of the study area over the last year: _____ (note + or – to reflect moving in or out)

KS5. Age:

(see *Appendix A, KS5* for an example of how to complete the table):

Percent of community age: 0-18 _____; 19-30 _____; 31-50 _____; over 50 _____

KS6. Gender: Percent of community: female _____; male _____

KS7. Education: Average number of years of education of >16 year olds: _____

KS8. Literacy: Percent of population that is literate: _____

KS9: Ethnicity: Percent of population by ethnic make-up: (write-in ethnicity) _____; (write-in ethnicity) _____

KS10. Religion: Percent of community: (write-in religion) _____; (write-in religion) _____;

KS11. Language: Percent of population by language: (write-in language) _____; (write-in language) _____

KS12. Occupation:

(see *Appendix A, KS12* for an example of how to complete the table)

Major occupations in community	Percent of working population conducting this occupation as primary occupation	Number of people conducting this occupation as primary occupation	Percent of working population conducting this occupation as secondary occupation
1.			
2.			
3.			
4.			
5.			

COMMUNITY INFRASTRUCTURE

KS13. Community Infrastructure:

Community infrastructure that exists in the study area:

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

COASTAL AND MARINE ACTIVITIES

KS14-23. Activities, Goods and Services, Types of Use, Value of Goods and Services, Goods and Services Market Orientation, Use Patterns, Levels of Impact, Types of Impact, Levels of Use by Outsiders, Household Use:

(see *Appendix A, KS14-23* for examples of how to complete the table)

Coastal and Marine Activities	Coastal and Marine Goods and Services	Types of Use (primary)	Value of Goods and Services	Goods and Services Market Orientation (primary)	Use Patterns	Level of Impact	Types of Impact (primary)	Level of Use by Outsiders	Household Use (primary)

KS24. Stakeholders:

(see *Appendix A, KS24* for an example of how to complete the table)

Coastal Activity*	Stakeholder Group 1	Stakeholder Group 2	Stakeholder Group 3
**develop list according to activities identified in Activities (KS14)*			

KS25–29. Management Body, Management Plan, Enabling Legislation, Resource Allocations, Formal Tenure and Rules:

(see *Appendix A, KS25-29* for examples of how to complete the table)

Coastal Activity*	Management Body(s) (Yes/No) & Name	Management Plan (Yes/No)	Enabling Legislation (Yes/No)	Number of Staff	Budget	Formal Tenure Arrangements (Yes/No)	Relevant Rules and Regulations (Yes/No)
**develop list according to activities identified in Activities (KS14)*							

KS30: Informal Tenure and Rules, Customs and Traditions:

Coastal Activity*	Customs and Traditions	Informal Tenure Arrangements	Informal Rules
**develop list according to activities identified in Activities (KS14)*			

KS31: Stakeholder Participation:

Stakeholder Group*	Stakeholder Participation (Yes/No)
**develop list according to stakeholder groups identified in Stakeholders (KS24)*	

KS32: Stakeholder and Community Organizations:

Community Organization	Formal or Informal	Main Functions	Influence (on coastal management; community issues; both; none)

APPENDIX E: HOUSEHOLD INTERVIEWS ANALYSIS SHEET

HOUSEHOLD DEMOGRAPHICS

When doing the calculations for a question, do not include "don't know" responses in the calculations. In other words, the calculation should only be based on the actual responses to the question.

H1-8. Age, Gender, Ethnicity, Education, Religion, Language, Occupation, Household Size:

Occupation

(see *Appendix A, H7* for an example of how to complete the table)

Occupation (edit list of occupations according to responses)	PRIMARY		SECONDARY		Total percent of community members dependent on this occupation (primary and secondary)
	Number of household members listed as primary occupation	Percent household members that listed as primary occupation	Number listed as secondary occupation	Percent household members that listed each occupation as secondary	
	A	(A/I) x 100%	Q	(Q/I) x 100%	(A+Q)/I x 100%
	B	(B/I) x 100%	R	(R/I) x 100%	(B+R)/I x 100%
	C	(C/I) x 100%	S	(S/I) x 100%	(C+S)/I x 100%
	D	(D/I) x 100%	T	(T/I) x 100%	(D+T)/I x 100%
	E	(E/I) x 100%	U	(U/I) x 100%	(E+U)/I x 100%
	F	(F/I) x 100%	V	(V/I) x 100%	(F+V)/I x 100%
Misc.*	G	(G/I) x 100%	W	(W/I) x 100%	(G+W)/I x 100%
No occupation (e.g. students, retired, unemployed)	H	(H/I) x 100%	X	(X/I) x 100%	(H+Y)/I x 100%
TOTAL	I	100%	Y **	***	****

* *record together all occupations that were noted for <5% of the household members*
** *not necessarily = I because not all respondents have secondary occupations*
*** *not necessarily = 100% because not all respondents have secondary occupations*
**** *greater than 100% because primary and secondary occupations combined*

Occupation by Age and Education

(see *Appendix A, KS1* for an example of how to complete the table)

P E R C E N T R E S P O N S E S							
Primary Occupation	**Age 0-15**	**Age 16-25**	**Age 26-45**	**Age over 45**	**< 6 years schooling**	**< 6-9 years schooling**	**>9 years schooling**

Occupation by Gender and Religion

P E R C E N T R E S P O N S E S							
Primary Occupation	**Female**	**Male**	**Religion fill-in: _____**	**Religion fill-in: _____**	**Religion fill-in: _____**	**Religion fill-in: _____**	**Religion fill-in: _____**

Occupation by Ethnic Group

Primary Occupation	P E R C E N T R E S P O N S E S			
	Ethnic Group fill-in: _____	**Ethnic Group fill-in: _____**	**Ethnic Group fill-in: _____**	**Ethnic Group fill-in: _____**

H8. Household Size: Average household size: _____

H9. Household Income:

Occupation	Percent noted as primary source	Percent noted as secondary source

COASTAL AND MARINE ACTIVITIES

H10-12. Household Activities, Household Goods and Services, Types of Household Uses:

(see *Appendix A, H10-12* for examples of how to complete the table)

Coastal and Marine Activities	Coastal and Marine Goods and Services	Types of Household Uses
1.		
2.		
3.		
4.		

H13. Household Market Orientation:

(see *Appendix A, H13* for an example of how to complete the table)

Coastal and Marine Goods and Services	% Noted International Market	% Noted National Market	% Noted Regional Market	% Noted Local Market

H14. Household Uses:

Coastal and Marine Goods and Services	% Household Consumption	% Sold	% Leisure

H15. Non-market and Non-use Values:

Value Statements	PERCENT RESPONSES				
	1=disagree strongly	2=disagree	3= neither	4 = agree	5= agree strongly
The reefs are important for protecting land from storm waves.					
In the long-run fishing would be better if we cleared the coral.					
Unless mangroves are protected we will not have any fish to catch.					
Coral reefs are only important if you fish or dive.					
I want future generations to enjoy the mangroves and coral reefs.					
Fishing should be restricted in certain areas even if no one ever fishes in those areas just to allow the fish and coral to grow.					
We should restrict development in some coastal areas so that future generations will be able to have natural environments.					
Seagrass beds have no value to people.					

H16. Perceptions of Resource Conditions:

(see *Appendix A, H16* for an example of how to complete the table)

RESOURCES*	PERCENT RESPONSES THAT DESCRIBE RESOURCE CONDITIONS AS:				
	Very good (5)	Good (4)	Neither good nor bad (3)	Bad (2)	Very bad (1)
mangroves					
coral reefs					
fresh water					
upland forests					
** edit list of resources to local site*					

H17. Perceived Threats:

(see *Appendix A, H17* for an example)

Identified threats **Percent noted this threat**

_____ _____

_____ _____

_____ _____

H18. Awareness of Rules and Regulations:

Percent awareness of rules and regulations related to (develop list of activities according to *activities [KS14]*):

fishing _____

mangrove use _____

aquaculture _____

hotel development _____

residential development _____

watersports _____

marine transportation _____

H19-21. Compliance, Enforcement, Participation in Decision-making:

Percent respondents perceived each scale of compliance with coastal management rules and regulations:

	PERCENT RESPONSES				
	5 (full compliance/ enforcement/ participation)	4	3	2	1 (no compliance/ enforcement/ participation)
Compliance					
Enforcement					
Participation					

H22. Membership in Stakeholder Organizations:

(see *Appendix A, H22* for an example of how to complete the table) Household Members*

Percent noted membership in at least one organization: _____

Noted organizations for membership	% respondents noted organization

H23. Perceived Coastal Management Problems:

Major problems facing coastal management in the community	Percent noted this problem

H24. Perceived Coastal Management Solutions:

Solutions to problems	Percent noted this solution

H25. Perceived Community Problems:

Major problems facing community	Percent noted this problem

H26. Successes in Coastal Management:

Things that have worked well for coastal management in the community	**Percent noted these things**
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

H27. Challenges in Coastal Management:

Things that have NOT worked well for coastal management in the community	**Percent noted these things**
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

MATERIAL STYLE OF LIFE

H28. Material Style of Life:

Percent of houses that have:

type of roof: tile _____ tin_____wood_____ thatch_____

type of outside structural walls: tiled _____ brick/concrete_____ wood_____thatch/bamboo _____

windows: glass_____ wooden_____open_____ none _____

floors: tile_____wooden _____ cement _____ thatch/bamboo_____dirt_____