

# fish610.9 Applying the EAFM

Haley Frater

March 6, 2017

**Copyright** This work is licensed under the Creative Commons Attribution-ShareAlike License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-sa/1.0/> or send a letter to Creative Commons, 559 Nathan Abbott Way, Stanford, California 94305, USA.

# Contents

<b>1</b>	<b>Developing an EAFM Management Plan</b>	<b>4</b>
1.1	Learning Objectives . . . . .	4
1.1.1	Details . . . . .	4
1.2	The 3 Stages and 5 Steps in Implementing an EAFM Plan . .	4
1.2.1	Details . . . . .	4
1.3	Laying the Groundwork . . . . .	5
1.3.1	Details . . . . .	5
1.4	Define the Scope of the FMU . . . . .	8
1.4.1	Details . . . . .	8
1.5	Identify and Prioritize Issues and Goals . . . . .	11
1.5.1	Details . . . . .	11
1.6	Development of Management Objectives . . . . .	15
1.6.1	Details . . . . .	15
1.7	Create Management Actions . . . . .	18
1.7.1	Details . . . . .	18
1.8	Writing an EAFM Management Plan . . . . .	21
1.8.1	Details . . . . .	21
<b>2</b>	<b>Implementing an EAFM Management Plan</b>	<b>25</b>
2.1	Learning Objectives . . . . .	25
2.1.1	Details . . . . .	25
2.2	Formalizing an EAFM Plan . . . . .	25
2.2.1	Details . . . . .	25
2.3	Implementation Work Plan . . . . .	26
2.3.1	Details . . . . .	26
2.4	Communication Strategy . . . . .	27
2.4.1	Details . . . . .	27
<b>3</b>	<b>Evaluating an EAFM Management Plan</b>	<b>28</b>
3.1	Learning Objectives . . . . .	28
3.1.1	Details . . . . .	28
3.2	Monitoring and Evaluating an EAFM Plan . . . . .	28
3.2.1	Details . . . . .	29
3.3	Adapting an EAFM Plan . . . . .	30
3.3.1	Details . . . . .	30
3.4	Short-Term Reviews . . . . .	31

3.4.1	Details . . . . .	31
3.5	Long-Term Reviews . . . . .	32
3.5.1	Details . . . . .	32

# 1 Developing an EAFM Management Plan

## 1.1 Learning Objectives

### 1.1.1 Details

#### Learning Objectives 1

- Explain the development process for an EAFM management plan
- Be able to link management actions to management objectives for a given fisheries management unit and be able to prioritize the management objectives

## 1.2 The 3 Stages and 5 Steps in Implementing an EAFM Plan

- The stages to implementing an EAFM plan
- The steps to implementing an EAFM plan

### 1.2.1 Details

The implementation of an EAFM plan can be broken down into 3 stages (plan, do, and check) and 5 steps:

- Define the scope and fisheries management unit for which the plan applies
- Identify and prioritize issues and goals
- Write the management plan
- Implement the plan
- Monitor, evaluate, and adapt the plan

### Stage 1: Planning

The planning stage involves determining management objectives, actions, and success indicators. To accomplish this, stakeholder workshops are used to

determine management needs and measures of success. During this process, three of the five steps are to be completed: 1) defining the scope and fisheries management unit, 2) identifying and prioritizing issues and goals, and then finally 3) writing the management plan.

## **Stage 2: Doing**

Once the management plan is written, the next step is to implement the management actions. Thus, the second stage is "doing". During the doing stage, the management plan which was written during the planning phase, is implemented by the management facilities.

## **Stage 3: Checking**

The third stage in implementing an EAFM management plan is "checking". During the checking stage: monitoring, evaluating, and adapting the plan is completed. As part of this process, management evaluates the effectiveness of the management actions by comparing data to the success indicators determined during the planning stage. If management is not obtaining its desired outcomes then adjustments are made following an adaptive management framework.

### **1.3 Laying the Groundwork**

- |   |
|---|
| <ul style="list-style-type: none"><li>• What the 8 startup steps are</li><li>• Who initiates them</li><li>• Who follows them up</li></ul> |
|---|

#### **1.3.1 Details**

Prior to the planning stage a foundation needs to be laid. This foundation is created through the startup process. The startup process consists of 8 steps. Facilitation of this process is initially undertaken by the promoting agency but is eventually taken over by the EAFM team/facilitators. This process, however, should not be initiated until proper stakeholder support has been obtained.

## 8 Steps

### *Task 1: Identify the EAFM team/facilitators*

The purpose of an EAFM team is to facilitate the planning process. Thus, the members of this team will organize and conduct stakeholder workshops and be the main communication hub. Team members are typically determined by the promoting agency which is usually the fishery management agency.

### *Task 2: Identify the broad area to be managed*

The next step is to get a general idea of the area to be covered by the developed management plan. Note, that the area determined here is NOT the FMU (fisheries management unit). Rather, this area is used to figure out stakeholders and should roughly be based off of jurisdictional boundaries.

### *Task 3: Develop startup work plan*

To ensure a smooth and effective planning process a startup work plan needs to be developed. The plan should outline the activities to be undertaken during the preparation phase, the sequence of activities, and individual responsibilities. The plan should also detail who is responsible for each activity, a timetable for activity completion, and identification of necessary activity funding. The work plan should also identify the broad goals of the planning process, a budget, and next steps. Within the plan, ways to address cultural and societal norms should also be addressed.

### *Task 4: EAFM introduction*

During this step, initial contact is made by the EAFM team to impacted community members and prospective agency partners. The purpose of these conversations is to formally introduce EAFM, answer pertinent questions, create a rapport with potential partners, identify partners, organize workshops, collect baseline data, and meet with policy makers.

### *Task 5: Coordinate with other agencies and levels of government*

The cross-disciplinary nature of ecosystem management requires that different sectors and agencies work together to effectively manage the fishery. Thus, during this step the EAFM team works to engage government entities at all levels to ensure a harmonious melding of management objectives and policy. Working with agencies and the government from an early stage also

helps to promote the sharing of resources and knowledge as well as creates a unified public front.

*Task 6: Identify stakeholders and organizations*

Stakeholders are individuals with a vested interest in the fishery (i.e. they may be apart of the fishery, impacted by the fishery, or impact the fishery). The relationship between a stakeholder and the fishery can be direct or indirect and positive or negative. In other words, stakeholders are people affected by the management decisions, concerned about the decisions, or dependent on the fish or the area which is fished.

When determining which stakeholders to include in the process, it is important to initially consider all individuals that may be impacted. Often times, however, it is not feasible to include representation from all impacted groups. Thus, Staples et al. [2014] recommends considering the importance and influence of each potential stakeholder. Those individuals with the most impact and highest influence should be considered first while those of the least importance, influence be considered last.

*Task 7: Establish a group of key stakeholders*

Once key stakeholders have been identified the next step is to determine a stakeholder group. A stakeholder group is a small number of stakeholders representing a diverse background (community and management) who will work together to complete the EAFM process after the initial startup is complete. The stakeholder group will be responsible for:

- facilitating EAFM discussions
- facilitating community organization
- educating stakeholders on EAFM
- identifying problems, issues, and stakeholder engagement opportunities
- assisting with decision making
- identifying potential stakeholders
- distributing information

*Task 8: Determine the legal basis for EAFM*

In some places a legal mandate may be in place to support EAFM while in others no mandate may be present. In either case, the EAFM planning process may proceed, however, it is important to understand from the beginning the legislative hurdles which may be present. It is also important to understand which government agencies/regulating bodies need to be included at which stages. Understanding this from an early stage can alleviate a lot of headaches.

## Further Reading

This slide was adopted from Module 8 of Staples et al. [2014]. However, they went into more detail than what was presented here.

### 1.4 Define the Scope of the FMU

- Definition of fisheries management unit (FMU)
- Examples of potential fisheries management units
- What makes an ideal fisheries management unit
- What a vision is and its role
- Important information on the FMU to include within an EAFM management plan

#### 1.4.1 Details

The first step of stage 1 is to determine the scope and fisheries management unit (FMU). During this process one is ultimately determining what will be covered by the EAFM management plan.

## FMU Definition and Examples

### Definition 1: Fisheries Management Unit (FMU)

The area, ecosystem and fishery, that is the management focus for a

management plan.

Fisheries management units can be a type of fishery or a geographic area. More specifically, an FMU can be defined based on species, gear type used, geographic area, or from any combination thereof.

Ideally the selected FMU will relate to some ecological boundary, cover the entire geographic range of the main stock, and include all gear types used in the main stocks fishery.

## **FMU Vision**

Once the management unit is selected the next step is determine a vision for the area.

### **Definition 2: FMU Vision**

An aspiration for what the area will look if the management is successful.

When considering the FMU's vision it is important to consider existing policies and legislation (at all governmental levels) as they may affect the probability of obtaining the vision. Also, remember that visions are broader in context than goals and objectives. Thus, the developed vision should be all inclusive.

## **Incorporating the FMU**

When incorporating the FMU into the EAFM plan it is important to first compile a profile of the included area. The profile should be multidisciplinary in nature and include social, natural, and political information along with a detailed account of the fishery itself. The information included within the profile should contain both scientific and indigenous knowledge.

The profile should contain three sections:

- Resource and ecological assessment
- Socio-economic assessment
- Legal and institutional assessment

Within these assessments enough information should be given to identify the interactions between species and sectors and the impact of human activities on biota, society, and the economy.

## **EAFM Plan 1: FMU Vision and Background**

### **1. Vision**

A broad vision statement.

### **2. Background**

Description of the area and resources to be managed, including maps at different scales.

- The fisheries management area
  - area of fishery operation
  - jurisdictional and ecosystem boundaries
  - map of FMU
- History of fishing and management
  - brief description of the past development of the fishery in terms of fleets, gear, people, etc.
- Current status of the fishery
  - description of the fishery resources and fleets/gear used
  - resource status
  - map of resource use patterns
- Socio-economic benefits, including postharvest
  - description of stakeholders and their interests
  - description of other uses/users of the ecosystem, especially activities that could have major impacts/implications for coordinating and consulting
  - social and economic benefits, both now and in the future
- Special environmental considerations

- detail of critical environments, sensitive areas, and endangered species
- Institutional aspects
  - legislative background
  - existing co-management arrangements
  - MCS arrangements
  - consultation process leading to the plan and ongoing dialog
  - details of decision-making process, including recognized participants
  - nature of rights granted in the fishery and details of those holding the rights
  - maps of management interventions/user rights/jurisdictional boundaries

## Further Reading

This section was adopted from Module 10 of Staples et al. [2014]; however, they went into much more detail than what was presented here.

## 1.5 Identify and Prioritize Issues and Goals

- Why prioritize issues and goals
- Prioritizing issues
- Goals
- Incorporating issues and goals into an EAFM management plan

### 1.5.1 Details

The second step in the planning phase is to identify and prioritize issues and goals. During this process it is important to identify all direct and indirect impacts of fishing, all necessary components to effectively and efficiently enforce fishing regulations, and all externalities which may impact the fishery.

Once all issues have been identified it is important to determine which issues are the most important. Prioritizing within EAFM is important as a key component of EAFM is to directly address key issues via management intervention.

## Prioritizing Issues and Goals

When prioritizing issues it is important to guide decisions based on high-level policies, the FMU vision created in the previous step, and the management goals (which should align with existing and proposed legislation).

### *Task 1. Create a comprehensive list*

When prioritizing issues, the first step is to create a comprehensive list of all known and potential issues. As stated above, this list should be created at a stakeholder workshop and cover all issues directly and indirectly relating to fishing. This list should also contain all of the potential issues caused by the fishery on other sectors.

When creating this list, it is important to think in terms of EAFM. As a result, Staples et al. [2014] recommends thinking about issues in terms of ecological well-being, human well-being, and good governance.

- Ecological Well-being
  - fishery resources (landed catch, bycatch)
  - fishing effects (ecosystem, habitat, pollution)
  - ecosystem effects (pollution from other users)
- Human Well-being
  - income, employment, and livelihood
  - safety and health
  - post-harvest
  - interactions with other sectors
- Good Governance
  - institutions
  - fishing communities/industries

- consultation/dialog
- information and knowledge
- global economy
- compliance and enforcement

*Task 2. Causal Chain Analysis*

Once the issues have been identified it is important to sort through them. One way to do this is by a causal chain analysis. In a causal chain analysis one places each issue into one of the following categories: drivers, root cause, proximate cause, or issue. By placing the issues into these categories one can easily see the relationship amongst issues and determine where management actions can be implemented. Typically, management actions would target root and proximate causes.

**Definition 3: Drivers**

Large-scale events that have a cascading effect

**Definition 4: Root Cause**

The ultimate reason why something happens

**Definition 5: Proximate Cause**

The immediate reason why something happens

**Definition 6: Issue**

The problem or symptom

*Task 3. Risk Assessment*

Specific issues identified in the previous steps are then run through a risk assessment to identify management priority. When conducting a risk assessment one is concerned with the:

- Risk, or what can go wrong;

- Likelihood, or how likely something is to go wrong;
- Impact, or what's the consequence of something going wrong; and
- Action, or what can be done to reduce the likelihood or impact

When running a risk assessment one is ultimately interested in risk. Risk, however, is a function of likelihood and impact such that  $risk = likelihood * impact$ . Thus, those issues with the highest likelihood and impact are of the highest priority and in turn require direct management action(s).

## Goals

Issues are addressed by management and management is directed by management goals.

### **Definition 7: Management Goals**

Management goals are the long-term outcomes that management actions are striving to obtain.

Management goals, like the vision, are broad in scale. In fact, Staples et al. [2014] recommends having 3-5 goals per EAFM plan. As such, ecological well-being, human well-being, and good governance would each contain a goal.

## Plan Incorporation

Once the issues have been prioritized and management goals set, they can be incorporated into the EAFM management plan. Remember, within the plan, the issues should be ranked by priority and organized by EAFM components as the management goals should also be written in terms of the EAFM components.

### **EAFM Plan 2**

#### **3. Major Threats and Issues**

Identify the major issues of concern for each component.

- Ecological issues

- fisheries resources and general environmental issues

- Social and economic issues

- issues relating to the people involved in fishing

- general public

- gender issues

- Governance issues

- issues affecting the ability to achieve the management objectives

#### **4. Goals of Management**

Higher level goals for which management actions will lead the process.

### **Further Reading**

This section was adopted from Module 11 of Staples et al. [2014]; however, they went into much more detail than what was presented here.

## **1.6 Development of Management Objectives**

- Definition of management objectives
- Role of management objectives
- Developing management objectives
- Indicators and benchmarks
- Incorporation into an EAFM management plan

### **1.6.1 Details**

The third step in the planning phase is to develop objectives, indicators, and benchmarks.

## Management Objectives

Management objectives are the backbone for indicators and benchmarks. Specifically, management objectives are developed first and then indicators and benchmarks are created based on the management objectives.

### **Definition 8: Management Objectives**

The intention of the management actions

Management objectives relate directly to the previously identified issues by providing the desired outcomes. In other words, management objectives identify the way the fishery should look after the management actions have been successful.

## Developing Management Objectives

When developing management objectives it is important to ensure that the objectives are clear, measurable, and directly linked to a management goal. To aid in this process, Staples et al. [2014] suggests following these steps:

- For each issue identify possible management objectives
- For issues with more than management objective, determine an objective hierarchy (i.e. prioritize them)
- Obtain stakeholder input and advice
- Ensure proposed objectives align with higher level objectives, legislation, and/or policy
- Agree upon a set of management objectives

## Indicators and Benchmarks

For each management objective, indicators and benchmarks need to be set to assess progress.

### **Definition 9: Indicators**

A variable/index which measures the current condition of an ecosystem

## component

Thus, a set of indicators should be agreed upon for each management objective. The indicators should be specific, measurable (quantitatively or qualitatively), available (data can be obtained), relevant (sensitive to change), and timely (easily obtained). Indicators should be able to be directly measured, estimated from a model, measured via a surrogate, or inferred. Examples of indicators include: water temperature, habitat area, water pH, population size, etc.

Determining indicators can be accomplished following these key actions:

- Identify possible indicators
- Agree upon the level of precision and accuracy needed
- Determine what data is currently available and the cost of obtaining new data
- Determine the most cost effective options
- Determine what acceptable and unacceptable levels given uncertainty
- Determine how multiple indicators will be assessed to evaluate a single management objective

### **Definition 10: Benchmarks**

A standard for which indicators can be measured against

In terms of management objectives, benchmarks provide the stepping stones. In other words, benchmarks are measurable targets which provide an indication of how well a management action is working at obtaining a management objective. As a result, benchmarks should be linked to indicators as they are measured in terms of the indicators.

Lower and upper benchmarks should both be developed. Limiting, or lower, benchmarks should be used to determine when management actions are not working and should therefore be modified following adaptive management protocols. While upper, or higher, benchmarks indicate when the management object has been reached.

## Plan Incorporation

Objectives, indicators, and benchmarks should all be clearly indicated within the EAFM management plan.

### EAFM Plan 3

#### 5. Objectives, Indicators, and Benchmarks

Priority issues, objectives, and benchmarks for the fishery should be included in relation to:

- the resource (fish)
- the environment (bycatch, habitat, biodiversity, etc.)
- society
- the economy
- governance (ability to achieve the plan)

## Further Reading

This section was adopted from Module 13 of Staples et al. [2014]; however, they went into much more detail than what was presented here.

### 1.7 Create Management Actions

- Definition of management actions
- Role of management actions
- Determining management actions
- Incorporating management actions into an EAFM management plan

#### 1.7.1 Details

The last step in the planning process is to determine the necessary management actions. How the management actions will be financed also needs to be determined along with how compliance will be enforced.

## Management Actions

The broad nature of management objectives and their indicators/benchmarks within EAFM typically requires a suite of management actions to accomplish a single objective.

### **Definition 11: Management Action**

The specific actions done to achieve a desired management objective.

In other words, for a particular management objective there may be several regulations/controls initiated in order to achieve the objective. The regulations, or controls, set forth are the management actions. The actions taken include things such as: conventional target species regulations; actions to maintain, restore, or conserve the ecosystem; actions to address the social/economic dimensions; and actions to address governance.

## Determining Management Actions

The first step in determining management actions is to compile a comprehensive list of all possible controls. The list should be comprised with the involvement of stakeholders and regulators as their participation will be critically important later on.

From the compiled list, the controls should be ranked based on ease of application, likelihood of success, feasibility, and cost. During the ranking process, however, the link between the management action and the management objective should be considered.

The next step is to identify:

- who will be required to comply,
- how it will be financed,
- who will be responsible for enforcement, and
- time frame for implementation

for each of the selected management actions. Similarly, each action should be linked to a decision rule.

### **Definition 12: Decision Rule**

An adaptive management framework which outlines an action plan under different performance regimes where performance is measured based on benchmarks via indicators.

As mentioned above, compliance and enforcement for each management action should also be identified. However, since management actions are subject to change, adaptive management, and management plans are designed to be longer-term in nature Staples et al. [2014] suggests creating a companion rules and regulations document. Within the rules and regulations document, the enforcement plan including enforcement actions, party responsible for enforcement, and party responsible for complying should be identified. The document should also discuss how compliance will be encouraged. This document should be fluid in nature as rules and regulations are likely to change as management actions are altered.

## **Plan Incorporation**

The specific management actions, compliance arrangements, action evaluation requirements, and financing should be addressed.

### **EAFM Plan 4**

#### **6. Management Actions**

The management actions agreed upon to meet management objectives

#### **7. Compliance**

For actions require compliance, the actions done to encourage compliance as well as an enforcement plan

#### **8. Data and Information Needs**

Identify the data needed to monitor progress, where the data will be found, who will collect the data, and who will analyze and disseminate the data

#### **9. Financing**

Where funding will come from

#### **10. Communication**

Link to a communication plan

#### **11. Review of the Plan**

When and how reviews/audits will occur

## Further Reading

This section was adopted from Module 14 of Staples et al. [2014]; however, they went into much more detail than what was presented here.

### 1.8 Writing an EAFM Management Plan

- Parts of an EAFM management plan
- Example management plans

#### 1.8.1 Details

The final step of the planning process is to write the management plan. The management plan should be comprised of 11 sections:

- 1. Vision
- 2. FMU Background
- 3. Major Threats and Issues
- 4. Management Goals
- 5. Management Objectives, Indicators, and Benchmarks
- 6. Management Actions
- 7. Compliance
- 8. Data and Information Needs
- 9. Financing
- 10. Communication
- 11. Plan Review

## **EAFM Plan 5**

### **1. Vision**

A broad vision statement.

### **2. Background**

Description of the area and resources to be managed, including maps at different scales.

- The fisheries management area
  - area of fishery operation
  - jurisdictional and ecosystem boundaries
  - map of FMU
- History of fishing and management
  - brief description of the past development of the fishery in terms of fleets, gear, people, etc.
- Current status of the fishery
  - description of the fishery resources and fleets/gear used
  - resource status
  - map of resource use patterns
- Socio-economic benefits, including postharvest
  - description of stakeholders and their interests
  - description of other uses/users of the ecosystem, especially activities that could have major impacts/implications for coordinating and consulting
  - social and economic benefits, both now and in the future
- Special environmental considerations

- detail of critical environments, sensitive areas, and endangered species

- Institutional aspects

- legislative background
- existing co-management arrangements
- MCS arrangements
- consultation process leading to the plan and ongoing dialog
- details of decision-making process, including recognized participants
- nature of rights granted in the fishery and details of those holding the rights
- maps of management interventions/user rights/jurisdictional boundaries

### **3. Major Threats and Issues**

Identify the major issues of concern for each component.

- Ecological issues

- fisheries resources and general environmental issues

- Social and economic issues

- issues relating to the people involved in fishing
- general public
- gender issues

- Governance issues

- issues affecting the ability to achieve the management objectives

### **4. Goals of Management**

Higher level goals for which management actions will lead the process.

## **5. Objectives, Indicators, and Benchmarks**

Priority issues, objectives, and benchmarks for the fishery should be included in relation to:

- the resource (fish)
- the environment (bycatch, habitat, biodiversity, etc.)
- society
- the economy
- governance (ability to achieve the plan)

## **6. Management Actions**

The management actions agreed upon to meet management objectives

## **7. Compliance**

For actions require compliance, the actions done to encourage compliance as well as an enforcement plan

## **8. Data and Information Needs**

Identify the data needed to monitor progress, where the data will be found, who will collect the data, and who will analyze and disseminate the data

## **9. Financing**

Where founding will come from

## **10. Communication**

Link to a communication plan

## **11. Review of the Plan**

When and how reviews/audits will occur

## 2 Implementing an EAFM Management Plan

### 2.1 Learning Objectives

#### 2.1.1 Details

##### Learning Objectives 2

- Understand the formalization process and why it needs to occur
- Explain what an implementation work plan and communication strategy are and their role/importance in implementing the management plan

### 2.2 Formalizing an EAFM Plan

- What does formalizing an EAFM plan involve
- Who formalizes the plan
- Why the formalization must occur

#### 2.2.1 Details

After the management plan is written stage 2, doing, can be initiated. Implementing the management plan involves starting the activities outlined within the EAFM. It is important that implementation is done correctly and in a timely manner to ensure that all goals and objectives are capable of being met. The sooner the plan can be implemented the more buy-in stakeholders will have.

### Formalizing the Plan

The first step in implementing the management plan is to have it formalized. Formalizing the management plan involves having local, national, and/or regional authorities approve the plan. This process may be formal, i.e. involve legal documents and parliamentary or legislative approval, or informal, i.e. require an "OK" from local community leadership groups. Either way, the purpose of formalizing the plan is to obtain legal and social enforce-ability. In

other words, the formalizing process allows the constraints identified within the plan and rules and regulations document to be enforced. Thus, typically, "central" management authorities, local or regional authorities, and/or local communities members are apart of the approval process. Once the plan has been approved, all stakeholders should be informed.

## Further Reading

This section was adopted from Module 15 of Staples et al. [2014]; however, they went into much more detail than what was presented here.

## 2.3 Implementation Work Plan

- What is an implementation work plan
- What's included in an implementation work plan
- Why should an implementation work plan be created
- Who creates the plan

### 2.3.1 Details

An implementation work plan outlines the implementation process. In other words, it identifies what needs to be done, by whom, by when, and where for each management action. More specifically, for each management action the following things should be identified:

- the specific tasks which need to be undertaken,
- whose responsibility it is to complete the action, AND
- a timetable with milestones as to when they should be completed

The plan should also consider resource requirements. Specifically, what sort of personnel will be needed, the cost of implementation, and where financing will come from.

Because most of these actions will be carried out by the fisheries management agency Staples et al. [2014] recommends having them write the implementation plan. However, not everything will be carried out by the manage-

ment agency, in these cases it is recommended that the coordinating group aid in the implementation plan writing process.

## Further Reading

This section was adopted from Module 15 of Staples et al. [2014]; however, they went into much more detail than what was presented here.

## 2.4 Communication Strategy

- What is a communication strategy
- Why should one be written
- What should be included

### 2.4.1 Details

In order to effectively communicate with all involved/impacted parties Staples et al. [2014] recommends creating a communication strategy. A communication strategy is designed to provide a clear process for sharing results in a logical and strategic way. Thus, a communication strategy is really designed to plan a way to communicate findings, regulatory changes, workshops, etc. with stakeholders once the management plan has been implemented.

A communication strategy is important as it ensures that all vested parties remain engaged and informed on progress and changes. Maintaining this stream of communication aids with transparency and increases compliance.

When creating a communication strategy it is important to consider

- who needs to know what
- the best way to communicate with each group
- how often information should be communicated
- the type language that should be used
- the desired response/outcome of the communication

The resulting communication strategy should contain:

- an analysis of the audiences, their characteristics, and a list of priority audiences
- a detailed plan for how, where, and when information will be delivered
- a timeline for when information should be communicated
- examples of effective communication to different groups and on a variety of subjects

### Further Reading

This section was adopted from Module 15 of Staples et al. [2014]; however, they went into much more detail than what was presented here.

## 3 Evaluating an EAFM Management Plan

### 3.1 Learning Objectives

#### 3.1.1 Details

##### Learning Objectives 3

- Define and explain what adaptive management is
- Explain the role of adaptive management within an EAFM framework
- Explain how adaptive management is integrated into an EAFM management plan and its execution

### 3.2 Monitoring and Evaluating an EAFM Plan

- What is the role of monitoring
- What data should be collected
- How often should monitoring take place
- Who is involved in monitoring

### 3.2.1 Details

The last stage of EAFM is to evaluate the success of the management plan. Monitoring and evaluating the implemented management actions is key to understanding their progress in relation to the management objectives. This process is vital to implementing adaptive management.

## Why Monitor

In terms of monitoring and evaluating the EAFM plan, monitoring is the collection of the data needed to assess the plan's success. During the monitoring process, information on the indicators is collected, i.e. data is collected.

The collection of indicator data is necessary in order to evaluate progress. Specifically, the data collected during monitoring is compared against the benchmarks created in the planning process to determine how well the management objectives are being obtained. The information gained during this process is then used to adjust management actions via an adaptive management framework.

The information gained during the monitoring process is also critically important for communicating progress to stakeholders.

## Data Management

When determining what data to collect one should consider: what data needs to be collected, how often the data will need to be collected, and who will need to collect it.

As mentioned above, the data collected during this process should equate to the indicators identified within the EAFM management plan. These indicators should be specific to the management objectives and goals. During this process only "necessary" data should be collected, extraneous data should be avoided in the interest of efficiency.

Data collection should start as soon as possible after the plan has been initiated. In fact, Staples et al. [2014] recommends monitoring throughout the plan's implementation, i.e. from start to finish. How often data is collected, however, will vary by indicator. For example, some indicators will need to be monitored monthly while others may be monitored seasonally or annually.

The individuals responsible for collecting the data should also be identified in the management plan. The individuals responsible for data collection will vary by indicator. In some circumstances data should be collected by scientists while in other situations fishermen records are sufficient.

## Further Reading

This section was adopted from Module 17 of Staples et al. [2014]; however, they went into much more detail than what was presented here.

### 3.3 Adapting an EAFM Plan

- When should the management plan be adapted
- Types of management reviews

#### 3.3.1 Details

A key feature of any EAFM management plan is its fluidity. Even after the plan is formalized it still has the ability to change based on the results of monitoring and evaluation. This fluidity, allows management, and in turn fishing regulations, to change as new information is gathered.

## Frequency of Adaptation

The regularity for which a management plan is adapted will depend on the monitoring and evaluation process. Specifically, the management plan will only be adapted when the results of the monitoring and evaluation process warrant it. However, regular reviews of the plan are encouraged. During review sessions the EAFM team should assess the performance of management actions in relation to the management objectives and determine any necessary changes.

## Types of Reviews

There are two major types of reviews: short-term reviews and long-term reviews. These reviews, which will be discussed in the subsequent slides, can be carried out by the EAFM management and evaluation team or by outside contractors.

## Further Reading

This section was adopted from Module 17 of Staples et al. [2014]; however, they went into much more detail than what was presented here.

### 3.4 Short-Term Reviews

- Explanation of what short-term reviews are
- Purpose of short-term reviews
- Desired outcomes of a short-term review

#### 3.4.1 Details

##### **Definition 13: Short-term Reviews**

Short-term reviews are reviews conducted as part of an annual cycle.

Thus, these reviews tend to occur on an annual basis, rather than every several years as is the case for long-term reviews.

The purpose of short-term reviews are to evaluate and adapt management. They are particularly concerned with what aspects of the management plan are working, in relation to management goals and objectives, and which are not.

The changes made during short-term reviews tend to focus on management actions, compliance arrangements, and/or governance arrangements. However, the magnitude of the changes will depend on the amount of data available and the results of the monitoring and evaluation process. When data is plentiful, alteration decisions can be made following decision rules. In other cases, decisions may be made based on EAFM team recommendations.

The results of these reviews should be compiled in an annual report and distributed to all necessary parties. The annual reviews should contain performance assessments and fishery management responses to the assessments.

## Further Reading

This section was adopted from Module 17 of Staples et al. [2014]; however, they went into much more detail than what was presented here.

## 3.5 Long-Term Reviews

- What are long-term reviews
- Purpose of long-term reviews
- Outcomes of long-term reviews

### 3.5.1 Details

#### Definition 14: Long-term Reviews

Long-term reviews are audits conducted every 3-5 years which focus on the larger scale components of the management plan.

These audits are typically carried out by an independent third party.

As mentioned above, these reviews, unlike short-term reviews, focus on broader strategic processes including issues, goals, and objectives. As a part of this review, the pertinence of high priority issues should be re-evaluated.

The outcome of such a review will vary depending on the results. In some cases, a new management plan may be written while in other cases an audit report may be sufficient. As with short-term reviews, however, all findings should be relayed to relevant stakeholders.

### Further Reading

This section was adopted from Module 17 of Staples et al. [2014]; however, they went into much more detail than what was presented here.

## References

- D Staples, R Brainard, S Capezzuoli, S Funge-Smith, C Grose, A Heenan, R Hermes, P Maurin, M Moews, C O'Brien, and R Pomeroy. *Essential EAFM. Ecosystem Approach to Fisheries Management Training Course. Volume 1 - For Trainees*. FAO Regional Office for Asia and the Pacific, Bangkok, Thailand, 2014.