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Implementation of Ecosystem Approaches to Fisheries Management in the Coral Triangle



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Coral Triangle Support Partnership

Implementation of Ecosystem Approaches to Fisheries Management in the Coral Triangle

(Review of Past and Present EAFM Activities within USCTI Priority Geographies)

Tammy E. Warner

Cover photo: Two local fishermen return home with some of the day's catch in Nino Konis Santana National Park, Timor-Leste. CTSP is working with local communities and other stakeholders to establish ecosystem approaches to fisheries management that accommodate ecological, social, and governance considerations. © Matthew Abbott / CTSP

Implementation of Ecosystem Approaches to Fisheries Management in the Coral Triangle

(A Review of Past and Present EAFM Activities within USCTI Priority Geographies)

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EXECUTIVE SUMMARY

This report summarizes past and current US Coral Triangle Initiative priority geographies/site-level activities in order to assess their contributions towards Ecosystem Approaches to Fisheries Management (EAFM). In addition, it evaluates whether the activities reported from the sites are EAFM activities based on the use of UN's Food and Agriculture Organization (FAO) EAFM guidelines and principles. The primary references are the Integration Site Profiles for each CTSP site which integrates MPAs, EAFM, and Climate Change Adaptation. It is fairly clear from these site profiles that:

1. EAFM is generally synergistic with MPA/LMMA activities already underway through CTSP implementation partners/NGOs.
2. EAFM seems to be used as a catch-all term substituting for any fisheries activity at some sites.

Many of the FAO's guidelines for EAFM are similar to those guiding the development of co-managed or locally-managed marine resource management areas, and so there is a great deal of overlap between activities oriented to MPAs and those oriented to EAFM. What is missing, however, in most of these site profiles, is a clear vision for the ecosystem orientation. *How are the resource managers and users defining the ecosystem under consideration?* Because many of the projects included in CTI priority geographies are at a relatively early stage of development, now may be a good time to ask that question.

The recommendations arising from this review are as follows:

1. Increase clarity of focus on the ecosystem
2. A formal EAFM questionnaire is not needed at this time
3. Encourage managers from long-standing MPAs to share their long-term perspective with people working at the newer sites who are experiencing various types of challenges
4. Continue the practice of reporting in standardized formats to facilitate future cross-site integration and information sharing.

It is clear that a major strength of CTSP is in providing a mechanism and motivation for information sharing between projects, especially but not exclusively within the CTSP umbrella. This should be considered a significant accomplishment of the USCTI program.

The following table (Table I) is a brief recap of EAFM activities, including some MPA/LMMA activities which are clearly oriented toward fisheries management, and lessons learned and/or key challenges, as reported in the Integration Site Profiles for each location.

Table I: Summary of EAFM Activities in CTSP sites

| Site | EAFM activities | Key challenges |
|--|--|---|
| Indonesia - Wakatobi MPA | <ul style="list-style-type: none"> Fishers engage in patrolling the park and in monitoring the state of fish and fishing Community organizing and post-harvest trainings have been initiated | <ul style="list-style-type: none"> Encroachments of outside fishers as fisheries inside the park have improved |
| Indonesia – Bird’s Head Seascape | <ul style="list-style-type: none"> Seascape Ecosystem was characterized from the start and the MPA network was designed with fisheries enhancement as a primary goal Joint patrols of regulated areas | <ul style="list-style-type: none"> Lack of understanding of MPA’s potential role in fisheries management creates challenges in eliciting institutional support Monitoring of fisheries-specific indicators and catch levels |
| Malaysia – Tun Mustapha Park | <ul style="list-style-type: none"> Training materials and posters have been developed Fishers organization created and has been active in the establishment of a management plan for the park | <ul style="list-style-type: none"> Reconciling conservation concerns and livelihood concerns including identifying alternative livelihood opportunities for those who cannot transition into the tourism sector National level policies that are not in alignment with ecosystem-based fisheries management |
| Papua New Guinea – Manus Province | <ul style="list-style-type: none"> Trainings on EAFM were carried out Management Plan is being revised to incorporate EAFM | <ul style="list-style-type: none"> Ground work at Manus was needed before a national plan for EAFM could be developed |
| Papua New Guinea- Milne Bay | <ul style="list-style-type: none"> Project has been monitoring the stocks of beche de mer | <ul style="list-style-type: none"> Lack of support in terms of both local political will and physical infrastructure makes the work very difficult |
| Philippines – Palawan Province | <ul style="list-style-type: none"> Management plans developed for Live Reef Fish (LRF) | <ul style="list-style-type: none"> The fact that the CTI initiatives and funding are building on pre-existing institutional relationships and conservation/fisheries management ideas has made the process much smoother than would otherwise be the case. |
| Philippines – Tawi-Tawi Province | <ul style="list-style-type: none"> Sustainability assessments conducted on seaweed farming Profiling of mariculture practices on the humphead wrasse conducted | <ul style="list-style-type: none"> None noted specific to EAFM; ongoing challenges in reconciling local level management of marine resources with national level policies across all themes |
| Philippines – Verde Island Passage | <ul style="list-style-type: none"> Research and monitoring of the dulong fishery accomplished; this is being used as a template for the development of a widely-applicable tool for community based fisheries monitoring Working with an association of lantern fishers on mangrove rehabilitation | <ul style="list-style-type: none"> None noted specific to EAFM; they do note generally that integration with national-level policies is a challenge |
| Solomon Islands – Ghizo Marine Conservation Area | <ul style="list-style-type: none"> Training in sustainable coral culture has been carried out Spawning aggregation sites and aquaculture/alternative livelihood projects have been established Seagrass monitoring sites have been established | <ul style="list-style-type: none"> Expanding the vision beyond MPAs |
| Timor-Leste – Nino Konis Santana MPA | <ul style="list-style-type: none"> Early phase work in developing LMMAs as fisheries management protocols | <ul style="list-style-type: none"> Availability and integration of marine science with local knowledge and management objectives |

ACRONYMS AND ABBREVIATIONS

| | |
|-------|---|
| CTI | Coral Triangle Initiative |
| CTSP | Coral Triangle Support Partnership |
| EAFM | Ecosystem Approaches to Fisheries Management |
| FAO | Food and Agriculture Organization |
| LMMA | Locally-Managed Marine Area |
| LRF | Live Reef Fish |
| MPA | Marine Protected Area |
| USAID | United States Agency for International Development |
| USCTI | United States support to the Coral Triangle Initiative |
| WFC | WorldFish Center |
| WWF | World Wildlife Fund (US) or World Wide Fund for Nature (other national organizations) |

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I. INTRODUCTION

This report summarizes past and current US Coral Triangle Initiative (USCTI) priority geographies/site-level activities in order to assess their contributions towards Ecosystem Approaches to Fisheries Management (EAFM). In addition, it evaluates whether the activities reported from the sites are EAFM activities based on the use of the United Nations' Food and Agriculture Organization (FAO) EAFM guidelines and principles.

EAFM is one of three major priority focus areas for the US Coral Triangle Support Program (CTSP). According to the draft activity work plan (of 26 January 2011), the goal for the EAFM theme is to “improve regional and national fisheries governance through EAFM to maintain ecological integrity, sustainable fisheries management, food security, and livelihoods.” A major objective of the work plan is that by 2013, the foundations of EAFM should be initiated at priority geographies, and integrated with MPAs and Climate Change Adaptations in at least one demonstration site per country.

The purpose of this report is to assess whether USCTI site-level activities are contributing toward the standard conceptual guidelines, and to identify the gaps at the site level. The primary references for this report are the Integration Site Profiles presented in September of 2011. These Integration Site Profiles contain comparable information on the site characteristics, successes and challenges in integration, and specific information on MPAs, EAFM, Climate Change Adaptation, and other categories outside the scope of this report.

I.1. Indonesia

There are two integration sites in Indonesia, both MPAs and MPA networks with a strong fisheries component. **Wakatobi** is an established MPA with multiple zoning schemes, a fisheries orientation, and substantial support from the national and regional governments. Fishers are active in proposals for zoning plans and the Integrated Site Profile states that “for Indonesia, Wakatobi is very advanced in managing fisheries resources within an MPA”. In terms of specific EAFM activities associated with CTSP, they have developed “better management protocols”, and are instituting EAFM indicators field testing. The site profile notes that improvement in the conditions inside Wakatobi has generated some encroachment from fishers outside the park who come in to fish. Wakatobi could serve as a learning resource for other integration sites associated with CTSP.

The second CTSP site in Indonesia is the **Bird's Head Seascape**. This is a network of 12 MPAs covering over 3.5 million ha. It is a very large scale project which seeks to combine high level ecological science, socioeconomic monitoring, and traditional management systems including *sasi* (seasonal closures) at a broad ecosystem level. Socioeconomic targets including food security and sustainable livelihoods are key conservation goals. Specific EAFM activities include regulating fisheries in various ways including no-take zones, seasonal closures, and limiting access to outside fishers. Regulations are enforced by joint patrol teams. They have developed a number of EAFM tools such as a course in sustainable fisheries, a lobster monitoring protocol, and a video about the theory of no-take zones. Challenges are in monitoring specific to fisheries, and also in upstream activities that will impact the seascape such as poorly planned coastal development and extractive industry. This is a relatively new project (begun in 2005), huge in scope and grand in its plans. It is truly ecosystem based management at a very large scale. Their challenges are related to the difficulty of integrating the interests of many different stakeholders, especially in the face of national policies that encourage transmigration.

1.2. Malaysia

In Malaysia, WWF coordinates CTI efforts, which are focused on the proposed Tun Mustapha Park (TMP), an MPA focused on sustainable economic development (including fisheries) in addition to no-take zones and two sites where community level engagement will be emphasized. Project management considers EAFM the primary focus of the park. In terms of fisheries, they have established management mechanisms for two types of destructive gear (purse seine and trawlers) in a spatial orientation. They have developed training materials and posters for fishers and other stakeholders and are working on increasing enforcement and fisheries management capacity. The integrated site profile notes some success in establishing a national fishers' organization and identifying fisheries issues and vision for TMP.

The site profile notes challenges in reconciling conservation with the need to earn a living, and also in political will and national level policies which subsidize fisheries production. This speaks to the challenge of engaging in fisheries management within a limited area in an environment which is not supportive of those management policies, and moreover without consideration to ecosystem boundaries in the definition of the area being managed. Are the (inshore) fisheries being addressed in the context of this park affected by activities outside the park boundaries?

1.3. Papua New Guinea

In Papua New Guinea, EAFM activities are occurring at Milne Bay and Manus Island, in conjunction or coordination with a number of LMMAs at varying levels of development. In **Manus Province**, fisheries are the “leading edge” of CTI activities, and the National Fisheries Authority is looking to Manus Province as an example of how to develop a management plan that incorporates EAFM. There seems to be support from governments from the national to the local level for EAFM activities. They have conducted two formal training programs and carried out “major awareness” of EAFM in all wards as of June 2011. It seems that there is quite a bit of enthusiasm for EAFM in the Manus area; however, the Integrated Site Profile does not specify exactly what has been decided or accomplished with regard to specific fisheries management activities.

In **Milne Bay Province**, there is also a network of LMMAs active in the area. Milne Bay is much larger than Manus Province geographically, and it appears that the institutional/political support for conservation activities is not as strong in that region as it is in Manus. Conservation focus in the area is on beche de mer (sea cucumber) stocks which have been overfished. In terms of EAFM, the project has been monitoring stocks of beche de mer along with other flora and fauna. It appears that they are struggling with insufficient resources to implement an agenda that isn't necessarily in alignment with local priorities.

The Integrated Site Profile for Milne Bay notes that communicating “out” is a challenge – their communications person is focused on communicating with the local communities and not on integrating with the other CTI projects or geographies. Therefore, any requests for additional information for this particular site would need to be handled with care and with a sense of what would be realistic to ask for from these already very busy people.

1.4. Philippines

There are three CTSP sites in the Philippines. In **Palawan Province**, EAFM activities focus on the live reef fish trade, along with three established MPAs. CTSP projects are building on the foundation of interagency and institutional cooperation that has historically been in place. The goal is to create a model for sustainable live reef fisheries, in the absence of consumer “pull” for such sustainable products. The Integrated Site Profile does not note any particular challenges related to EAFM; it is

likely that the long term orientation of the people involved in this project causes them to see challenges in a less dire light than is the case for other, newer projects.

Tawi-Tawi Province also includes several MPAs. The primary livelihood in the region is seaweed farming and therefore the focus of EAFM activities is on the sustainability of these practices and their impact on fish stocks. In addition, MPAs for spawning sites of live reef fish are being proposed. They do not note any particular challenges related to EAFM but note that the co-management process of involving local governments and traditions sometimes runs counter to national-level policy. In general, however, it seems that fisheries are not a primary focus of activities currently underway in this province, as the majority of residents are seaweed farmers not fishermen.

The final CTSP location in the Philippines is the **Verde Island Passage**. This is a very busy tourism destination and fishing ground and part of the Sulu-Sulawesi Seascape. EAFM activities at this site are focused on the dulong (sardine) fishery. A comprehensive research project was conducted on many aspects of that fishery, and the tools for community-based fisheries monitoring that was developed for the dulong fishery are being used as a model for other fisheries in the network. In addition, CTSP is working with an organization of lantern fishers managing a mangrove rehabilitation project. The site profile does not note any particular challenges specific to EAFM, however, large scale unsustainable development in the region is a concern.

1.5. Solomon Islands

WWF and WorldFish Center have been active in Western Province of the Solomon Islands for some time, implementing a number of MPAs and working with communities to establish 3 spawning aggregation sites as no-take zones. The Integration Site Profile is not clear as to the status of these spawning aggregation sites at the present, however. In addition, WWF and WFC have been working on sustainable coral culture and monitoring of seagrass in the area.

The Integration Site Profile indicates that they, too, are strapped for resources to implement what is being asked of them. The site profile indicates that community-based conservation activities are the only kind that will work in this area, which take time. The staff seem to recognize that bringing their focus out from MPAs to EAFM and Climate Change Adaptation will be a challenge, especially with regards to integrating those new concepts and gaining community buy-in and involvement in the process.

1.6. Timor-Leste

In Timor-Leste, marine resource management activities are being implemented for the first time through CTSP. They plan to build an appropriate network of LMMAs with sustainable fisheries at their core, thereby implementing both MPAs and EAFM through the same platform.

The CTI project leaders indicate that they would like to have more access to marine science support, in conjunction with the locally led efforts to define LMMAs. They recognize that they are simultaneously piloting integrated marine management efforts in that country and learning from other CTI countries. It is likely that EAFM will be an important part of what they develop in Timor-Leste, given that the local populations are fishers and that sustainability in fisheries will clearly be part of any plans made for marine resource management.

2. IS IT EAFM?

In all of these sites, fisheries management plans are being incorporated into MPA/LMMA planning and implementation. Many of the FAO's guidelines for EAFM are similar to those guiding the development of co-managed or locally-managed marine resource management areas, and so there is a great deal of overlap between activities oriented to MPAs and those oriented to EAFM. The third point in the FAO's EAFM guidelines, "identify the fishery or fisheries to be addressed in each case *and the geographic area to be addressed*" seems to be the primary guiding principle for delineation and definition of these fisheries, along with the FAO's guidelines regarding local participation, transparency, institutional support, etc. From that perspective, therefore, the fisheries activities discussed in these site reports are clearly meeting some of the criteria for an ecosystem approach.

A number of other EAFM guidelines, however, are not addressed in these integration reports, including "matching fisheries management system boundaries with ecosystem boundaries", and "ensure[ing] coordination, consultation and cooperation, including joint decision-making, between fisheries operating in the same ecosystem and other sectors that interact with it". These are probably much more difficult targets to hit and speak to the significant challenges of reconciling the large scale of ecosystems and the small scale of local involvement. The Bird's Head Seascape in Indonesia probably comes closest to meeting this guideline, at least in principle, but it is very new and time will tell how successful it was in integrating local management with a broad vision.

It is likely that the development of EAFM indicator tools alluded to in some of these site profiles will be helpful in assessing whether the fisheries management activities are, in fact, EAFM according to FAO's guidelines.

3. RECOMMENDATIONS AND CONCLUSION

1. Increase clarity of focus on the ecosystem.

In order to understand what is being done throughout this project on the Ecosystems Approach to Fisheries management, I suggest simply asking “how are you defining the ecosystem in which you are operating?” The answers to that question might be enlightening in terms of which other agencies, stakeholders, upstream developers, etc. might need to be engaged in the fisheries management process.

2. A formal EAFM questionnaire is not needed at this time.

The original vision for this consulting engagement entailed developing and administering a questionnaire (if necessary) in order to obtain comparable information from all of the CTSP sites. This is probably not necessary or productive; the Integration Site Profiles contain identical section headings and similar degrees of detail. Requesting a great deal of additional documentation at this time would probably not gain us much and would likely be resented by the ground staff. If a budget for travel is available, in-person interviews would probably be much less burdensome for the ground staff.

3. Share lessons learned.

Encourage MPA managers in places like Palawan Province to share their long-term perspective with people working at the newer sites who are experiencing various types of challenges.

Longstanding MPAs such as those in Palawan could provide some perspective to the people who are expressing frustration with their limited resources etc.

4. Continue the practice of reporting in standardized formats.

Finally, the consistency in the formatting of the Integration Site Profiles has been most helpful in getting a clear picture of what is going on at these sites. It is strongly recommended that future reports continue to follow a consistent format internationally as this project matures and the learning network opportunities arise.

It is clear that a major strength of CTSP is in providing a mechanism and motivation for information sharing between projects, especially but not exclusively within the CTSP umbrella. This should be considered a significant accomplishment of the USCTI program.

Annex A: EAFM Guidelines from FAO

"An ecosystem approach to fisheries strives to balance diverse societal objectives, by taking into account the knowledge and uncertainties about biotic, abiotic and human components of ecosystems and their interactions and applying an integrated approach to fisheries within ecologically meaningful boundaries."

Elements needed for successful ecosystem management:

- Recognize that management objectives are a matter of societal choice.
- Decentralize decision and action to the lowest appropriate level, while recognizing that there must also be mechanisms to ensure that management decisions and actions are consistent and coordinated at the higher levels required by EAF.
- Identify the fishery or fisheries to be addressed in each case and the geographic area to be addressed. This will include matching fisheries management system boundaries with ecosystem boundaries.
- Introduce measures to ensure transparency, public awareness and consensus building.
- Establish effective conflict resolution and enforcement mechanisms.
- Ensure coordination, consultation and cooperation, including joint decision-making, between fisheries operating in the same ecosystem and other sectors that interact with it.
- Liaise with agencies and authorities responsible for non-fisheries activities within the ecosystem encourage and facilitate reduction of negative impacts on aquatic ecosystems from non-fishery activities.
- Recognize and identify the various direct and indirect uses and users of the ecosystem and involve all stakeholders in knowledge-sharing, decision-making and management.
- Translate the high-level policy goals for EAF into transparent and comprehensive operational objectives.
- Establish indicators and reference points for the agreed operational objectives in order to provide a framework for monitoring management performance.
- Introduce ecological accounting into fisheries management.
- Undertake action at the appropriate spatial and temporal scale, including setting management objectives for the short and long term.
- Consider trans-boundary impacts of fisheries on adjacent or other ecosystems.
- Governance for EAF should ensure both human and ecosystem well-being and equitable allocation of benefits, as a condition for compliance.
- Understand and manage ecosystems in an economic context, including:

- a) Reduce those market distortions that adversely affect biological diversity;
 - b) Align incentives to promote biodiversity conservation and sustainable use; and
 - c) Internalize costs and benefits in the given ecosystem to the extent feasible.
- Establish appropriate, explicit and enforceable rights to ecosystems resources. Under EAF it needs to be recognized that access rights systems will frequently need to encompass other uses in addition to harvesting of target resources.
 - Conserve ecosystem biodiversity, structure and functioning.
 - Avoid irreversible ecosystem impacts from fisheries and reduce reversible, undesirable impacts to the minimum practically possible (e.g., by-catch and discards).
 - Ensure an appropriate balance between conservation and responsible use.
 - Recognize that ecosystem variability and changes are inevitable.
 - Conservation and management decisions for fisheries should be based on the best scientific information available, also taking into account traditional knowledge of the resources and their habitat, as well as relevant environmental, economic and social factors.
 - Recognize that while it is necessary to take immediate action to address particularly urgent problems, it is also important to advance the scientific basis for incorporating ecosystem considerations, building on existing and future available scientific knowledge. This could include improving knowledge on the structure, components and functioning of the marine ecosystem under consideration, the role of habitat and the biological, physical and oceanographic factors affecting ecosystem, stability and resilience; improve the monitoring of by-catch and discards in all fisheries to obtain better knowledge of the amount of fish actually taken; support research and technological development of fishing gear and practices to improve gear selectivity and reduce adverse impacts of fishing practices on habitat and biological diversity; and assess adverse human impacts of non-fisheries activities on the marine environment as well as the consequences of these impacts for sustainable use.
 - Under EAF, the application of a precautionary approach is particularly important because it is expected that uncertainty will be considerably greater than under traditional management focused on target resources only.

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