

Community Conservation Network

Working with People to Sustain their Natural Surroundings

June 29, 2006

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**FINAL Report for Federal Grant #: NA04NOS4630282 on
“Enhancing the Management Effectiveness of
Marine Protected Areas (MPA’s) in the Indo-Pacific”
for the period of 10/01/2004-03/31/2006**

On behalf of our project partners, we at the Community Conservation Network (CCN), are pleased to submit our final report on Grant # NA04NOS4630282, entitled “Enhancing the Management Effectiveness of Marine Protected Areas (MPA’s) in the Indo-Pacific.”

CCN is an international, Hawai'i-based not-for-profit organization whose mission is to assist communities and their partners to sustain vital ecosystems and resources by fostering relationships and building capacity that results in improved long-term conservation, management effectiveness, and human security. In carrying out this NOAA grant, we at CCN are able to better actualize our mission. Attached is our final comprehensive report, covering the period from 10/01/04-03/31/06, narrating the progress made and lessons learned in implementing evaluation plans in community-based marine protected areas in Indonesia, Vietnam and the Philippines.

We also have faxed to you our financial reports (forms 272 & 269A attached). We hope this provides the information requested and that your Agency finds everything in order. Should you have any questions or need clarification on our reports, please contact us.

Thank you very much for your support and we look forward to continuing our collaboration in the future.

Sincerely,



Michael D. Guilbeaux
Executive Director, CCN

FINAL Report for Federal Grant #: NA04NOS4630282 on
“Enhancing the Management Effectiveness of
Marine Protected Areas (MPA’s) in the Indo-Pacific”
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This project aimed to address the lack of management effectiveness within existing MPAs in the Southeast Asia region by building the capacity for MPA managers to evaluate and improve their management strategies over time.

This project was successful in delivering this much needed training in MPA management effectiveness evaluation approaches to managers of MPA project sites in three countries of Southeast Asia, namely—Vietnam, Indonesia and the Philippines. This project built upon existing and created new regional capacity for adaptive management and project evaluation at MPA sites, shared experiences and lessons in implementing the WCPA -Marine/WWF International MPA Management Effectiveness Guidebook, and promoted best practices in coral reef management and monitoring.

The focal activities of this proposed 18-month project were:

- Two phased training workshops in the WCPA-Marine/WWF International MPA Management Effectiveness methodology
- The implementation of Guidebook approaches, select methods and indicators at participating MPA sites leading to a comprehensive effectiveness assessment,
- The adaptation of learning into existing management plans, and
- The communication of results and lessons learned from the experiences gained.

The first workshop took place in the Philippines where training was given to 26 participants from the region on how to implement the Guidebook’s approach. The outcome of this workshop was an MPA management evaluation plan which the participants took home to implement in the field.

The second workshop took place eight months later in Hanoi, Vietnam where the three main MPAs reported back on their results, lessons learned and experiences with implementing their evaluation plans.

These lessons, recommendations and next steps are summarized in this report.

Overall, the MPA managers found the “How is your MPA doing?” guidebook’s approach and methodology very useful for improving their work. Because our partners have bought in and taken ownership of this approach in their home MPAs, they will continue the evaluation process that they have started under their own means, and are underway to practicing and achieving adaptive management of their MPAs.

The overall goal of this capacity building project was:

“To strengthen the protection and management of resources within Marine Protected Areas in the Indo-Pacific by improving the adaptive management skills of MPA managers and the effectiveness of MPA management efforts.”

Overall, we can confidently say that we have contributed to the achievement of this goal, through the capacity building that this project provided.

The following specific objectives were also met:

- 1). Provide training in the WCPA-Marine/WWF International evaluation methodology to a minimum three sites for them to develop specific skills to undertake a comprehensive effectiveness evaluation, and to train other practitioners in their use.

As reported in our first progress report, this objective was clearly achieved and surpassed. During the two workshops (Manila and Hanoi), many practitioners and MPA managers beyond the main 3 partners were trained—over and beyond the audience of the original proposal. The additional invitees were invited on the basis of their willingness to learn, their influence and ability to amplify this training across their respective MPA networks. Through the efficiency of our local partners, this project was able to leverage the funds provided and stretch them to include other MPA projects and influential conservation organizations in the host countries.

2). Make available implementation funds for project sites to undertake assessment, update management plans activities, and participate in cross-site visits.

As in the original project budget, each country received funds for travel to workshops and implementation of their evaluation plan. Each country received \$12,000, which they used in various ways—purchase of equipment for biological monitoring and surveys, community consultations, and actual implementation of the evaluation through participative activities with the communities.

All three MPAs, Trao Reef in Vietnam, Hinatuan Bay in the Philippines, and Biak and Padaido Islands in Indonesia, have made this evaluation part of their protected area management plan. They will continue to do biological and socio-economic monitoring under their own means as they believe it to be useful in improving their management. This buy-in is in a way a direct measure of success as it shows ownership, increased competency, and confidence to be able to do monitoring and evaluation on their own. The next step is to continue the exchange and sharing of results and lessons within this triangle of countries in Southeast Asia.

3). Reconvene MPA project managers in a Second Regional Forum Workshop to review and document lessons learned in implementing the effectiveness evaluation, the ways in which their project will change as a result of the evaluation, and to discuss improvement to the assessment and training methodologies.

As reported in our second progress report, this second forum was successful in that the 3 MPAs were able to share their results, lessons and recommendations with each other. Limitations to the approach were identified as well as ways to improve it.

An additional Objective of this project that is outside the scope of the funding request is to create country and regional trainer teams to teach this methodology to other MPA practitioners in their area. The three MPA projects that will conduct the assessments in this project will become future candidate trainers in these methodologies.

We feel confident that if these partners were sought out by other local NGOs to share their knowledge with other MPAs, they could do so very well with the training and practice that they have received. In addition, during the workshops, many other organizations beyond the 3 MPAs were trained. For example, in the Philippines, Conservation International, which runs a network of MPAs received training and are already using the Guidebook approach in its network. In Vietnam, WWF and the Department of Fisheries attended the second workshop and gleaned many lessons from the presentors. A fisheries officer from Indonesia was also able to attend and benefit from this project. These big NGOs and government agencies are now embarking on networking their MPAs and their evaluation will obviously play a big role in monitoring their effectiveness. Given the expansion of MPAs in the region, having this capacity building workshops in the region was very timely.

RESULTS

Our partner (CERD) in Hinatuan Bay, Philippines selected and collected information on the following indicators:

B7: Type, level and return on fishing effort

B9: Area showing signs of recovery

S1: Local marine resource use patterns

S7: Material style of life

G1: Level of resource conflict

G2: Existence of a decision-making and management body

Of note is that their monitoring showed:

1. Improved condition of coral cover, categories based on work by Gomez and Alcala (1979)

2. Evidence of increased biomass within certain fish sanctuary sites: Highest standing stock biomass of 290 kgs/ha in one of the 8 sanctuary sites
3. Increased monthly income of households that engaged in other livelihood activities (seaweed farming) thus reducing fishing pressure, Increased of US \$ 96 to \$ 135. Income from fishing increased from US \$ 38 to US\$58.

The detailed results are attached as *Appendix A*.

Our partner, SEKPRO, in Biak and the Padaido Islands, Indonesia, selected and collected information on the following indicators:

- B1: Focal species abundance
- B3: Habitat distribution and complexity
- B7: Type, level and return on fishing effort
- B9: Area showing signs of recovery
- S2: Local values and beliefs about marine resources
- S3: Level of understanding of human impacts on resources
- S4: Perceptions of seafood availability
- S5: Perceptions of local resource harvest
- S9: Household income distribution by source
- S10: Household occupational structure

These indicators were selected based on the community needs, institutional capacity to collect information on them and based on the availability of local experts. Increases in sea cucumbers were found inside the protected areas as compared to the open harvest areas. The detailed results are attached as *Appendix B*.

Our partner, MCD, in Trao Reef, Vietnam, selected and collected information on the following indicators:

- B3: Habitat distribution and complexity
- B9: Area showing signs of recovery
- S5: Perceptions of local resource harvest
- S10: Household occupational structure
- S14: Distribution of formal knowledge to community
- G3: Existence and adoption of a management plan

Of note is that the hard coral cover is improving, although there are areas that are declining as well. Reef fish abundance and diversity is increasing. The detailed results are attached as *Appendix C*.

LESSONS LEARNED:

The participants from Hinatuan Bay, Philippines embarked on this evaluation program because they wanted to evaluate the effectiveness of seven MPAs in their bay as well as train new members of their resources monitoring team and to transfer these skills to the communities that they work with.

The lessons that they shared were:

- The community or organized fisherfolks should be involved in formulating the evaluation workplan but we were not able to do this due to time constraints
- Capacity building should always be considered for the staff and the members of the fisherfolks' organization for the identified target activities
- Creative means of transferring knowledge and skills through workshop, performing games that includes basic marine ecology concept is a must to encourage active participation of the community especially the youth sector during the resource ecological assessment
- There is need for the guidebook to be simplified so that it can be easily translated and understood by the community
- The guidebook was able to hasten the formulation of research questionnaires on the socio-economic and governance factors.
- The process undergone for this project can be replicated in other areas but will need more time and resources considering that the LMMA in Hinatuan has 7 fish sanctuaries managed by the different fisherfolks' organization under NAMA HIN Federation and 1 fish sanctuary managed by the Barangay Local Government Unit

They also reported that the following factors facilitated the capacity building:

- Efficient coordination and teamwork of the program staff specifically between the technical and community organizers team.

- Full support of the organized fisherfolks' and the respective community.

Some hindering factors were:

- Many intervening/unplanned activities that affected the NOAA project
- Time constraint

As a solution for time constraints, necessary adjustments must be made to the planned and scheduled activities

VIETNAM:

The following activities were undertaken in Vietnam as part of this project:

- Awareness raising and educational activities
- Community capacity building
- Management facilitation
- Household surveys
- Biological surveys
- 3D mapping activity of habitats

These activities provided a good solid baseline for many indicators. For instance, the household income survey revealed that:

- Most households derived some income from fishing and aquaculture activities
- Households generally do not rely on a single source of income
- Results did not show any significant changes to income since the marine reserve had been established--40% reporting a reduction in income and 42% an increase while 7% remained the same and 11% do not know.

While these were not directly related to management effectiveness, it provided MCD with valuable information for management purposes now and in the future.

The next steps for the Vietnam partners is to:

- Feed back to the community
- Inform management
- Inform research priorities
- Refine indicators and future monitoring
- Set baselines
- Promote strengths and minimise limitations

INDONESIA:

The communities in eastern Indonesia where this evaluation methodology was tested established their protected areas so that they could benefit from the wise use of their marine resources. Sea cucumbers are a main cash commodity for them. Information obtained from biological monitoring showed that the protected areas encouraged recovery and seeding of sea cucumbers and with proper rotation could be managed and harvested for the community's benefit. As of today, however, the community used the information to close off an entire island, Meos Mangguandi to fishing and harvesting, hoping that this will seed the surrounding islands. The take home message that our Indonesian partners emphasized were:

- Do not collect everything every time as the community would be angry without knowing the results.
- Data collecting should be tailored to fit the community's needs and be useful for them
- Developing conservation areas should give direct benefits to the community
- Conservation should be linked to the resource management and evaluation activities
- Locally network and share the lesson learned
- Fisheries development is important for the future
- Train the community to collect the data and MAKE IT FUN!

CONCLUSIONS:

Overall, through the training provided by this NOAA project, our partners in Southeast Asia have learned the skills and built up their overall capacity to do biological and socioeconomic monitoring in their respective MPAs. They have reported results and gleaned important lessons that will allow them to continue with their monitoring work and through iterative evaluation, improve the management of their protected areas. Already, they have established very good baselines for future benchmarking of their effectiveness in MPA management. They are determined to continue what they have started, although more time and resources will be needed. With this network, we feel confident that this work will continue and that a cadre of MPA practitioners with this skill set in Southeast Asia has been built and

has benefited greatly from this capacity building project and will continue to share their results, lessons and experiences with each other and others in the region. CCN will continue to fundraise to enable our regional partners to conduct this work. We would like to thank NOAA for its generous support.

Project Report
ENHANCING THE MANAGEMENT EFFECTIVENESS OF
MARINE PROTECTED AREAS (MPAs) IN SOUTHEAST ASIA
Hinatuan bay, Surigao del Sur, Philippines
September 15, 2005

I. Rationale

The MPAs in Hinatuan Bay joined the LMMA Network in 2003 although efforts to protect and manage the coastal and marine resources started in 1998 through the establishment of 8 marine/fish sanctuaries managed by organized fishers. Data gathering for resource assessment and monitoring started in 1998 but was undertaken by different persons/groups using different tools and sampling sites. Comparative analysis of the data was difficult to determine because of the limitation to systematize data collation, analysis, storage and retrieval. As a result, information on the effectiveness of the management of the MPAs is not conclusive although providing indications of positive changes in the biophysical as well as wellbeing of the fishers involved in the community based coastal resource management (CBCRM) efforts.

The project “Enhancing the Management effectiveness of marine Protected Areas in Southeast Asia” is a timely intervention for CERD and its partner fishers in Hinatuan Bay. This project provides us with the opportunity to review what we have done so far in terms of assessing the appropriateness and effectiveness of the resource management strategies and tools established in the Bay.

Based on the project document, this project aims to address the lack of management effectiveness within existing MPAs in the Southeast Asia region by building the capacity for the MPA managers to evaluate and improve their management strategies over time. Specifically, for Hinatuan Bay, the Management Goals are as follows:

- Recognize the uniqueness and diverse conditions of each site
- Develop a data management program
- Build capability of local communities to participate as a community based monitoring team

Major Milestones:

1. Improved condition of coral cover, categories based on work by Gomez and Alcala (1979)
2. Evidence of increased biomass within certain fish sanctuary sites: Highest standing stock biomass of 290 kgs/ha in one of the 8 sanctuary sites
3. Increase income of households that engaged in other livelihood activities (seaweed farming) thus reducing fishing pressure, Increased of US \$ 96 to \$ 135. Income from fishing increased from US \$ 38 to US\$58.

After the 3-day training workshop on “How is your MPA doing?” Evaluation of MPA Management Effectiveness was conducted last March 11-13, 2005 at the Eugenio Lopez Center in Antipolo City. CERD staff in Hinatuan together with its partner fishers’ organization, NAMA HIN (the Municipal fishers’ federation), focused their efforts in conducting orientation meetings as well as consultations with respective partners for this project. The objective of these sessions was to present the project to the



staff and to NAMAHHIN so as to integrate the project targets and activities to the existing plan of CERD Hinatuan and the Fisherfolk's organizations plan. This period is to achieve a leveled off understanding of the project and its relation to existing efforts in management particularly in the monitoring and assessment of the resource management efforts.

II. Project Accomplishment

One of the major activities conducted under the project is the training workshop focused on becoming familiar with the "How is your MPA doing?" Evaluation of MPA Management Effectiveness guidebook for the respective LMMA sites from the Philippines, Indonesia and Vietnam. Three technical staff of CERD attended the course. The training workshop output was an MPA evaluation workplan, which would be implemented in the three different LMMA sites who are participating in this project.

The main objective of the MPA evaluation workplan for Hinatuan is to evaluate the effectiveness of efforts on MPA management with community participation in Sitio Mahaba, Brgy. San Juan, Hinatuan, Surigao del Sur with three specific objectives namely: 1) to improve the management plan and system of Mahaba fish sanctuary; 2) to train new members (15) of the resource monitoring team and 3) to apply and transfer skills gained from the "how is your MPA doing" guidebook. The MPA evaluation workplan included activities in three different aspects such as the biophysical, socio-economic and governance.

After the training workshop, the SFD team discussed what they have learned to other CERD staff in Hinatuan together with the Executive Director of CERD. The group revised the MPA evaluation workplan formulated during the March 11-13, 2005 training workshop. This revised workplan was submitted to CCN and is the basis for the implementation of the activities for the NOAA funded project.

The project activities for this project were integrated to CERD 1-yr plan to avoid duplication and proper coordination among the staff.

As mentioned in the profile of the LMMA in Hinatuan, it is considered as one LMMA managed by the NAHAHIN Federation which is composed of 8 marine protected areas; of which 7 are managed by fisherfolks' organization and 1 managed by the barangay local government. Given the time constraints for the project implementation, CERD therefore decided to pilot the MPA evaluation workplan with LUMOT Dev't in Sitio Mahaba, Brgy. San Juan. LUMOT Dev't is the direct manager of the Mahaba fish sanctuary.

For three months, the Sustainable Fisheries Development (SFD) team of CERD Hinatuan, Surigao del Sur facilitated consultation and meetings with Ladies in Unity with Men onwards to Development (LUMOT Dev't Inc.). The objective of the meeting/consultation with LUMOT Dev't. was to discuss the project to the organization and incorporate the MPA evaluation workplan in the one-year PO (People's Organization) plan.

The orientation and consultation about the project was held last April 15, 2005 with 15 participants of which 12 women members from LUMOT Dev't Inc. and 3 members of the barangay local government. The participants showed great interest and support since they also wanted to know what they have achieved in the six (6) years of managing their fish sanctuary. Their fish sanctuary was established last December of 1999. The members of the organization shared that the establishment of the fish sanctuary was the basis for their unity and they wanted to know of the improvements needed for better management and the level of effectiveness their management strategies reached. This also led to a drafting of a resolution of support from LUMOT Dev't Inc. and the barangay (village) local government unit, which expressed their wholehearted support for the project and the community-based coastal resource management program of CERD.



A planning workshop was then conducted last May 2, 2005 wherein the MPA evaluation workplan was integrated with the 1-year plan of LUMOT Dev't Inc. A brief discussion of the training workshop conducted last March 11-13, 2005 was given as to the process undergone by the team and the formulation of the MPA evaluation workplan. The biophysical, socio-economic and governance goals and their indicators chosen by the team were presented and discussed for their understanding and approval. Schedules for the target activities in the MPA evaluation workplan were then adjusted to suit the availability of LUMOT Dev't Inc. in reference to their 1-year plan.

Four program staff and the president of the NAMAHERIN Federation along with the Executive director of CERD and Sustainable Fisheries Development Specialist attended the Data Management and Analysis Training Workshop held in Eden Nature Park, Toril District, Davao City last May 16-20, 2005. Data analysis was done with regards to the different learning framework factors across LMMA sites in the Philippines. This was in preparation for the Meta- Analysis in Fiji in August. Before-after-control-intervention (BACI) analysis was also discussed. As an output of the training, the LMMA site report form was completed and submitted.

Last June 20, 2005, focus group discussion on resource mapping was conducted. There were 14 participants who attended the activity with 12 women and 2 men. Historical transect, resource map tools were used. This activity was conducted to measure the socio-economic goal in terms of the local marine resource use pattern (S1) indicator. There was quite a lively discussion giving rise to the following points:

- Mahaba Island is plentifully blessed by nature. They have the presence of the high value fishes, expensive crustaceans and shells. All of this is distributed around the island particularly in Magtaros, Dakung Sabang and Baga-baga areas and its adjacent waters where the presence of different lobster species can also be found.
- There are 88 households engaged in fishing out of the total 94 households. Of this 16% are gill net users, 17% are sea urchin and/or spider conch divers, 17% are long hook line fishers, 12% are involved in deep sea fish corral, 16% are spear fishers and the remaining 28% are dropline users, crab lift netters, cowrie gatherers as well as gleaners in the mangrove area. Housewives in all households are involved in shell gathering.
- The abundance of fishes caught depends on the weather condition. Peak months from April - August register higher catch as compared to lean months from September - March. Increased in catch per unit effort from 2-3 kilos/day to 3-5 kilos/day for Hinatuan Bay was noted.
- The perception of having bigger volume of catch before compared to the current period also surfaced because there were no gear restrictions and less volume of catch today due to regulated fishing gears such as prohibiting the use of destructive and active fishing gears (triple net, fine mesh net, gill nets with scaring device and encircling gill net) within the municipal waters as well as the growing population.
- Fish stock had lessened in the 90's but started to gradually increase due to the fish sanctuary establishment which is community (fisherfolks' organization) managed.

During the FGD, the governance goal/factor pertaining to the existence of a decision-making and management body (G2) reviewed. Some of the following points were discussed:

- The level of involvement of the community as a whole in the CBCRM efforts of LUMOT Dev't Inc. wherein some non-members mostly the youth also participate in PO's activities such as mangrove planting, coastal clean-up, guarding of the fish sanctuary or reporting incidents of encroachment inside the fish sanctuary.



- CBCRM efforts lead to the recognition of LUMOT Dev't Inc. resulting to increasing number of visitors (study tours) wanting to learn from their experience. Local government provided resources such as logistical support for their fish sanctuary (i.e. motorized boat, concrete guardhouse, marker buoys, etc.) due to their efforts in voluntarily managing and protecting the coastal and marine resources as well as a result of the lobbying for local government support. Community issues such as lack of potable water and electricity was also addressed by LUMOT Dev't. Their efforts are not solely focused on protection and management but also in community issues that would improve the well being of the coastal communities.
- The organizational structure of LUMOT Dev't Inc discussed to gauge the level of knowledge and understanding of the members. This was done to enhance their awareness of the different functions and relations of the officers and members as well as the committees.
- The fish sanctuary committee, mangrove reforestation committee and fish catch monitoring committee have not been functioning. The committee chairs lack the initiative in planning, policy and decision-making. They still rely heavily on the executive committee of the organization in terms of implementing committee tasks.
- There is the existence of the apprehension and roving team of the organization with its own set of policies wherein majority of the members participate.

Although the governance goal/factor was discussed, there is still a need for more comprehensive information involving the whole community since most of the participants of the FGD were members of the organization. This will be deepened during the scheduled interviews, which will be conducted in the community after the Basic Interviewing Skills Training for the staff and members of LUMOT Dev't Inc.

Resource ecological assessment conducted last July 9 - August 6, 2005. Prior to this activity, the SFD team prepared the training modules on the methods, which was used for the assessment. Training modules on mangroves, seagrass, corals and fish were simplified and translated to the local dialect. The team also prepared a lifeform guide for the corals as well as guide to identify fish families through photo documentation in one of the fish sanctuaries and visiting the nearby market. Three new sets of SCUBA diving gears were also purchased last June in time for the Open Water SCUBA Diving training course conducted last July 6-10, 2005 for 2 CERD staff and 2 members of NAMAHAHIN Federation. Manta tow was also conducted to identify comparable sites within and outside of the sanctuary wherein markers were deployed. CERD provided the materials for the markers while the fisherfolks' organization in all of the 8 areas contributed the labor in making the markers.

A total of 12 members (6 female, 6 male) of the NAMAHAHIN Federation were trained on all of the monitoring tools. The local monitoring team was divided into 3 teams composed of five (5) members with 1 CERD staff leading each team for the monitoring of the mangroves and seagrasses in 8 areas. As for the corals and fish assessment, there were 3 monitoring sites established within and outside 3 fish sanctuaries (Pagpisotan or Municipal Fish Sanctuary, Portlamon and San Juan) while the remaining 3 Fish sanctuarish (Mahaba, Combatong and Talisay) had 2 monitoring sites within and outside their fish sanctuary and lastly 1 FS area (Cabgan) with only 1 monitoring site, inside and outside. Monitoring sites were selected according to the extent of the coral reef area. This was monitored by the whole group with 3 teams assigned per transect. Monitoring was done for 2-3 days a week as requested by the participants for them to be able to work and feed their respective families.

Resource Ecological Assessment Data Analysis Workshop followed last August 25-27, 2005. There were 12 participants who were also able to complete the REA training. The training design included inputs on biodiversity conservation giving emphasis on the coastal and marine resources of the Philippines; film showing of other areas also involved in coastal resource management (CRM) as well as



the brief profile of the municipality of Hinatuan with regards to its efforts in CBCRM in one of the known National primetime show (Magandang Gabi bayan); and games to enhance their understanding of the importance of the CBCRM program such as the web of life. This was to encourage the participants to be pro-active especially since most of them come from the youth sector.

Data collation and computation for the mangroves, seagrass and fish assessment were easily understood but they had a hard time on the corals since it was very tedious doing the summary for all transects inside and outside the fish sanctuary using only a calculator. They were requesting for another training course using the desktop computer since this would take less time in summarizing all the data. Meanwhile, data collation is still ongoing.

Another requirement for the local monitoring team was for them to present and validate the data gathered together with the SFD team in all the areas monitored. Through this activity, another idea came out from the community that it would be great to have a youth summer camp involving the children of organized fisherfolks' since they can be more relied on in terms of monitoring activities. This will also encouraged other kids who wanted to participate but were not able to since the schedules were during schooldays.

Basic Interviewing Skills Training course conducted last August 31-September 2, 2005. There were 9 participants from the LUMOT Dev't Inc. and 8 CERD staff. Inputs on research methods and tools; do's and don'ts in interviewing; and proper documentation were given. Training output included the formulation of sets of questions for the socio-economic and governance factor (local government, the community and members of LUMOT Dev't Inc). Some of the participants were hesitant in doing the actual interview, probably due to the lack of confidence but the facilitator was very encouraging. It was then agreed upon that teams would be formed with 1 staff in each group. There will also be alternation as to the roles of interviewer, documentor and observer. Pre-testing of the tools conducted in the community and some members of the organization with the trained research team members facilitating the interview and the staff as observer and documentor. In the team assessment of the pre-testing activity, the trained participants were already quite confident and capable in asking follow-up questions.

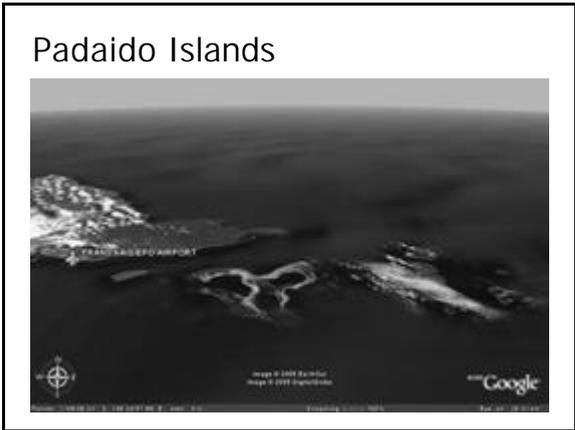
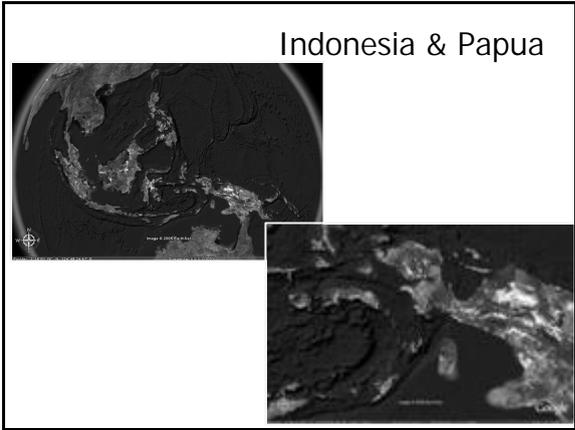
III. Insights and Lessons Learned

- ✓ The community or organized fisherfolks' should be involved in formulating the evaluation workplan but we were not able to do this due to time constraints and other priorities of the program. Still, there is a need for the guidebook to be simplified to be easily translated and understood by the community.
- ✓ In the conduct of the Basic Interviewing Skills Training Course, a major lesson or realization that came-up was that for such kind of training course that targets skills development, it is difficult to mix the staff with the POs. The staff is at the advantage position compared to the POs. It would be more effective if the staff will undergo the training course first and then the staff could assist during the PO training session as close guidance and mentoring is needed by the PO participants. All the participants (both staff and PO) had a hard time in formulating the research questions. The MPA Guidebook is a big help to the participants. Without the guidebook, the training course would have dragged and participants would not be able to come-up with the research questions during the training session itself. The training topics (interviewing, research designing with formulating questionnaires, documentation, analysis and writing) should have been divided into several modules and conducted on staggered basis so that there is focused and participants are not overwhelmed.
- ✓ The guidebook was able to hasten the formulation of research questionnaires on the socio-economic and governance factors.



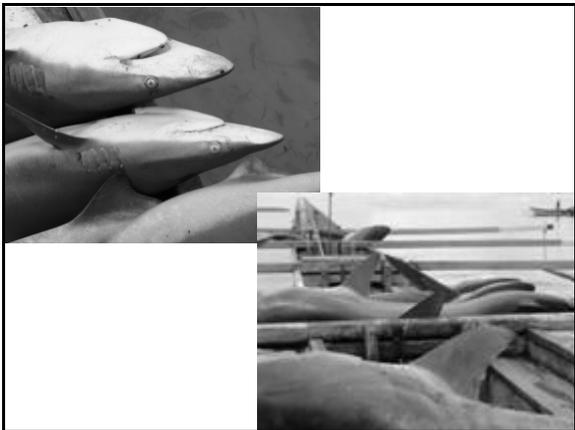
- ✓ Creative means of transferring knowledge and skills is a must to encourage active participation of other community members such as the youth sector particularly during the resource ecological assessment.
- ✓ The process undergone for this project can be replicated in other areas but will need more time and resources considering that the LMMA in Hinatuan has 8 fish sanctuaries managed by the different fisherfolks' organization under NAMA HIN Federation.
- ✓ Having both the MPA Guidebook and the LF as guide for monitoring results to confusion. During the training course on interviewing, the staff referred to the Guidebook. During the Data Management Workshop, the Data User Guide was provided, which then will be followed? How will these two resource materials be used especially us who are partners in the NOAA project and the MPA guidebook was also introduced and discussed. To address this concern, the research team will discuss the Data User Guide and revised accordingly without discarding what have been formulated based on the MPA guidebook.





Background Information

- Demography
 - ⌘ 30 islands, 10 islands permanently inhabited
 - ⌘ 18 villages
- Biodiversity
 - ⌘ Surveys by several institutions indicate high diversity of marine species and habitats (> 200 reef fish species)
- Threats
 - ⌘ Blastfishing and over-exploitation
 - ⌘ Fisheries with potassium cyanide
 - ⌘ Uncontrolled commercial fisheries
 - ⌘ Unsustainable tourism development



Background Information

Biodiversity of Padaido Islands

- 48 species of trees,
- 26 species of bird,
- 14 species of reptile,
- 7 species of mammals,
- ± 200 species coral species,
- 40 species of algae,
- 3 (9) species of seagrass
- 95 species of fish



Since 1997 Padaido Islands become a marine park with 183.000 Ha.

Goal

To develop participatory community based natural resources management in Padaido Islands

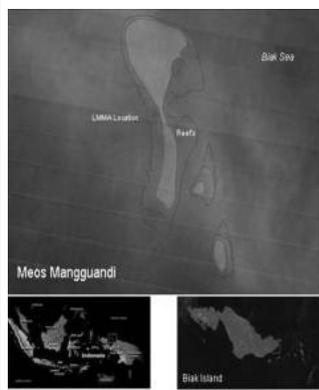
PROCESS OF DEVELOPMENT SASISEN/LOCAL MPA AT MEOS MANGGUANDI ISLAND

Methodology

- Initial participatory planning starting from the village-level and involving all stake-holders: fishermen, women, youth groups, church leaders, informal leaders



- Regular planning meetings support recognition of resource management problems, solutions and workplans developed by the community **using adaptive management**



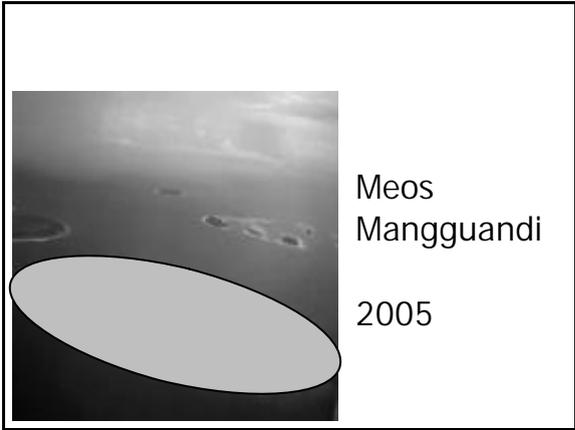
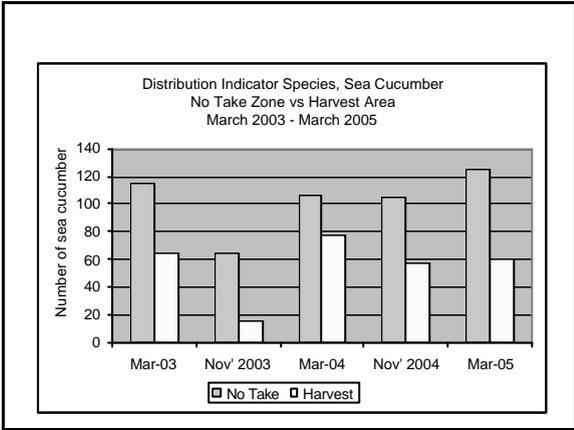
Meos
Mangguandi

2002



Meos
Mangguandi

2004



MPA CLASSIFICATION:
Category – 6:
Managed Resource Protected Area

- Protected area managed mainly for the sustainable use of natural ecosystems. Area containing predominantly unmodified natural systems managed to ensure long term protection and maintenance of biological diversity; while providing at the same time sustainable flow of natural products and services to meet community needs.



How the indicators were selected.

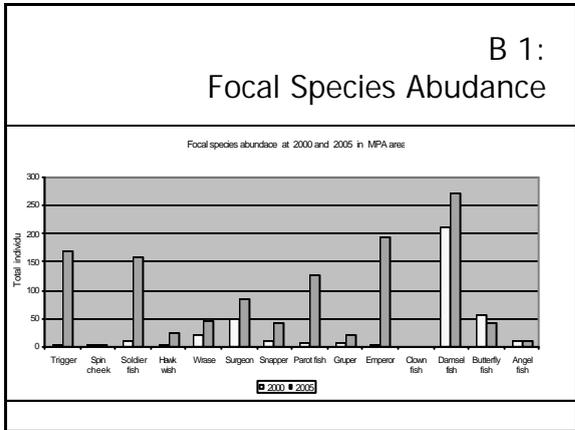
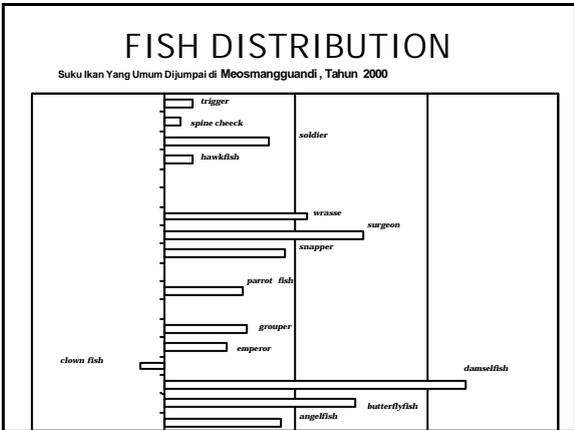
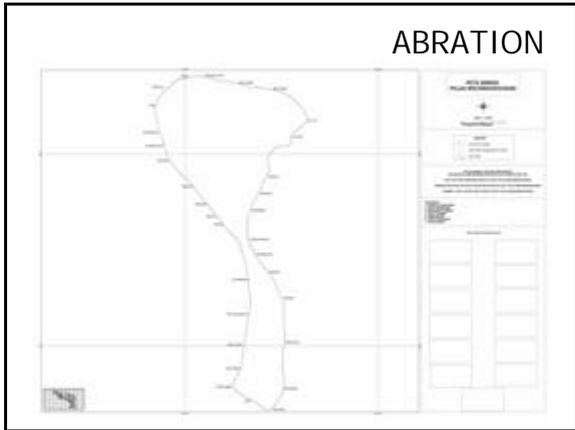
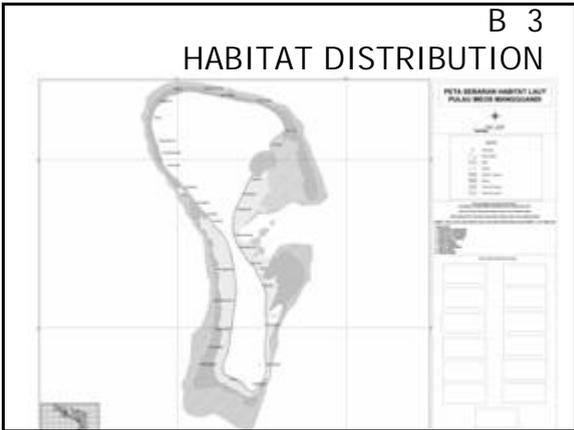
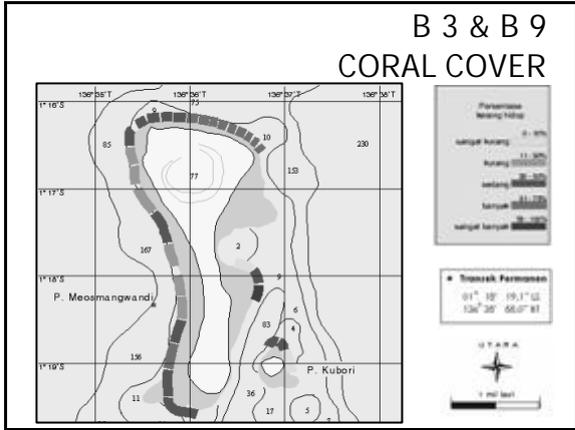
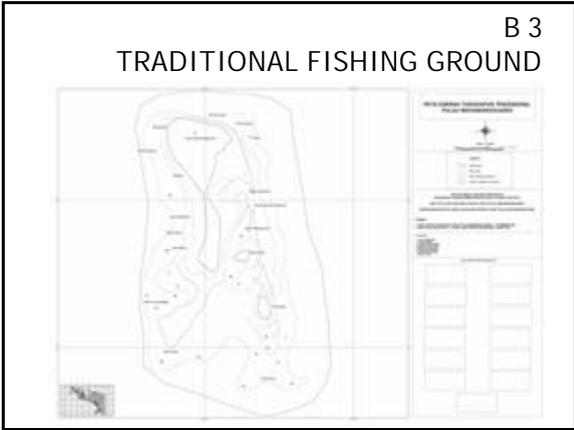
Based on the community needs;
Based on the intituitions capacity
Based on the expert aviability

Current Partners

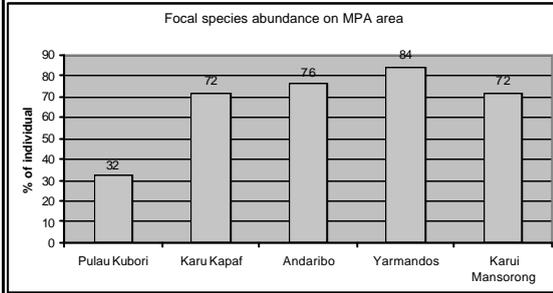


1. SekPro PLKL Biak
2. Village Council of Meos Mangguandi
3. Fishery Departement of Biak Islands
4. Faculty of Mathematics and Science, Cenderawasih University, Jayapura, Papua

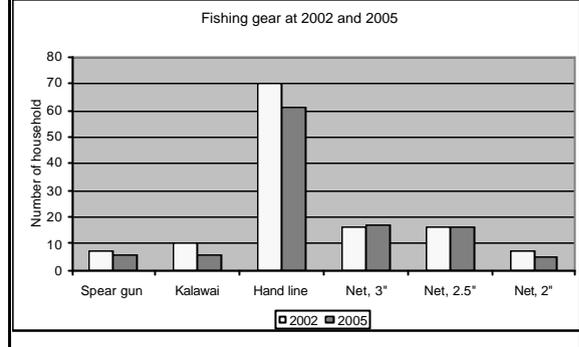
BIOPHYSICAL INDICATORS



B 1



B 7

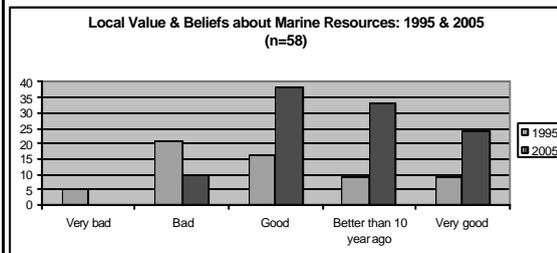


B 7
Mean & SD

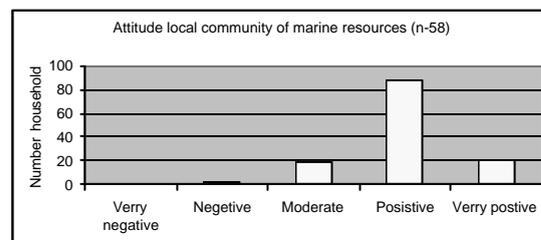
	2000	2005
Mean	2.133333333	1.85
SD	3.8243939	2.904263377

SOCIO-ECONOMICAL INDICATORS

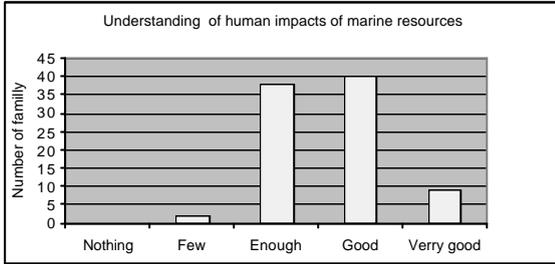
S 2



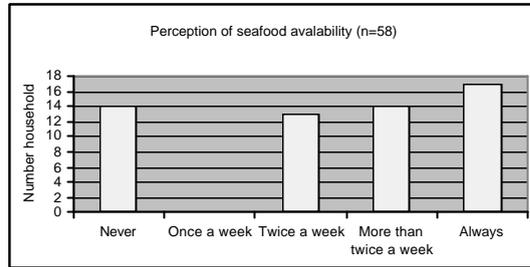
S 2



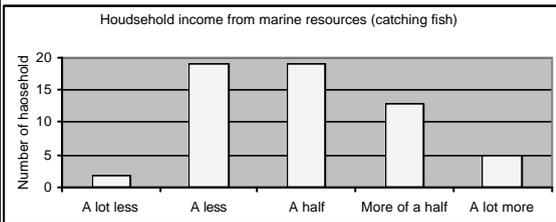
S 3



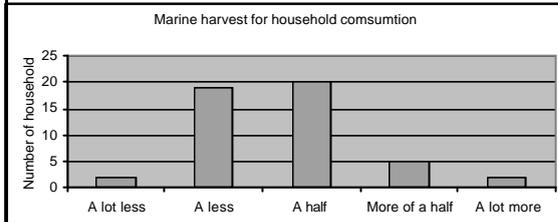
S 4



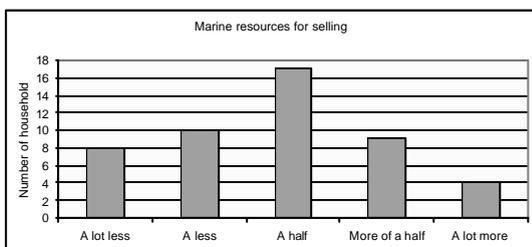
S 5



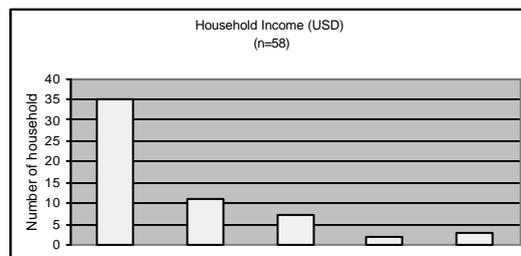
S 5



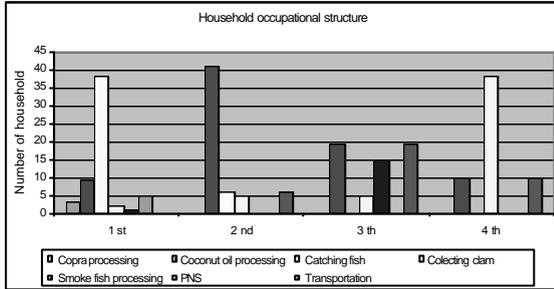
S 5



S 9



S 10



GOVERNANCE INDICATORS

TAKE HOME MESSAGE

1. Do not collect everything every time \approx the community would be angry without knowing the result \approx data collecting should be fit to the community needs and useful;
2. Developing conservation area should be give a direct benefit to the community \approx Conservation should be clear the 4W & 1H
3. Locally network on sharing the lesson learned on fisheries development is important for the future;

Sharing the idea, process and result with the community \approx would be the important key



Trained the community to do the data collecting, tabulation and analysis \approx they could shared the result to the other community



MAKE IT FUN



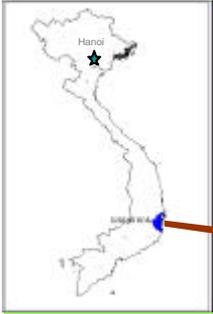


Presentation contents

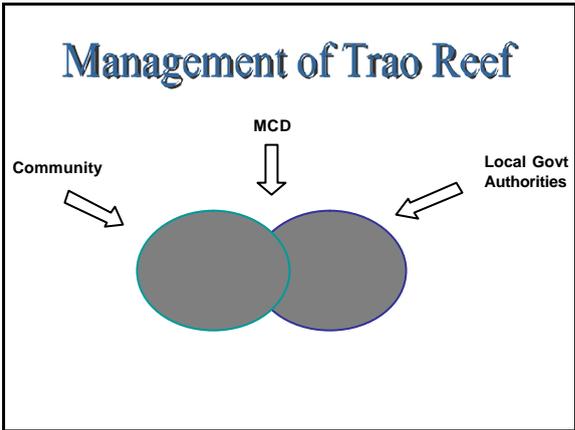
1. Trao Reef Locally Managed Marine Reserve, Khanh Hoa, Vietnam
2. Evaluation methodology
3. Results
 - Biological
- ⇒ Break
 - Socio-economic
4. Limitations
5. Future action



Trao Reef Marine Reserve



- Established in 2001
- IUCN Category 2
 - Excludes exploitation
 - Allows recreation, education, scientific activities
- Community based management scheme under the 'Regulations of Trao Reef Marine Reserve'



Trao Reef Marine Reserve

MCDs involvement prior to the 2005 evaluation:

- Awareness raising and educational activities
- Community capacity building
- Management facilitation
- Biological surveys



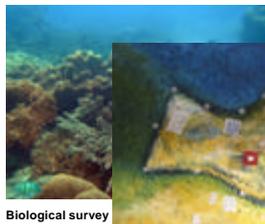
Evaluation methodology

1. Select indicators* :
 - B3: Habitat distribution and complexity
 - B9: Area showing signs of recovery
 - S5: Perceptions of local resource harvest
 - S10: Household occupational structure
 - S14: Distribution of formal knowledge to community
 - G3: Existence and adoption of a management plan

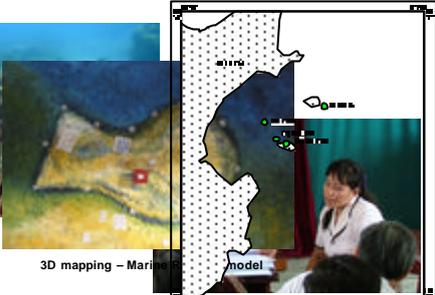
Biological surveys & 3D mapping activity (for B3, B9, S5)
Household surveys (for S10, S14, G3)
2. Involve partners & community
3. Undertake surveys

* from Pomeroy RS, Parks JE, Watson LM (2004) *How is your MPA doing?*

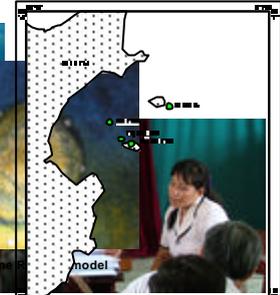
Evaluation methodology



Biological survey



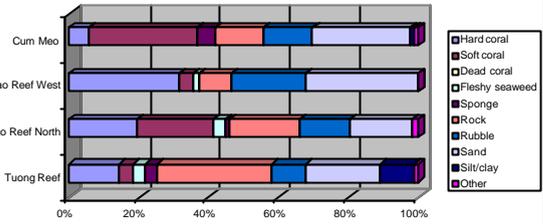
3D mapping - Marine



Household surveys - written questionnaire

Results - Biological

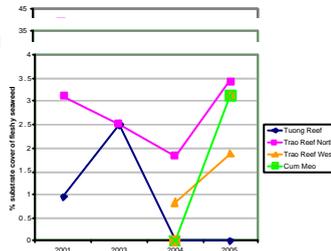
Substrate cover



Results - Biological

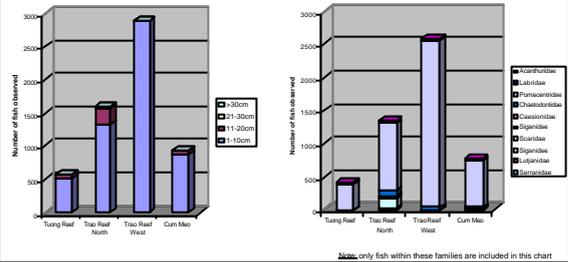
Substrate cover change

- Limitations of data
- Hard coral
 - Dramatic drop of
 - Higher % cover i
- Soft coral
 - Large increase in significantly cha
- Fleshy seaweed
 - Increase in 2005



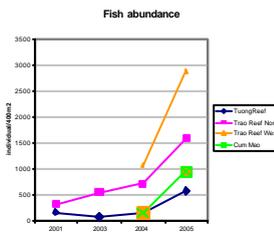
Results - Biological

Reef fish – abundance, size structure and diversity



Results - Biological

Reef fish abundance over time



- Abundance has increased in all sites
- Highest abundance observed in the two Marine Reserve sites
- Increase in larger fish in all sites, however still dominated by juveniles
- *Pomacentridae* (damselfish) is the only popular fish species found in significant numbers in all sites.
- Abundance of other popular fish species is increasing in the marine reserve sites, and to a smaller extent in Cum Meo.

Results - Biological

Benthic creatures

	Tuong Reef			Trao Reef North				Trao Reef West			Cum Meo	
	2001	2004	2005	2001	2003	2004	2005	2004	2005	2004	2005	
<i>Tridacna</i> spp. (Giant clam)	0	0	0	0	0	0	0	0	0	0	0	
<i>Chironia</i> <i>inervis</i> (Tetrah)	0	0	0	0	0	0	0	0	0	0	0	
<i>Pinna</i> sp. (Pen shell)	1.5	0	0	1	0	0	0	1	0	0	0	
<i>Lambis</i> <i>lambis</i> (Conch)	0	0	0	0	1	0	0	0	0	0	0	
<i>Strombus</i> <i>lufuianus</i> (Stromb)	0	0	0	0	1	0	0	0	0	0	0	
<i>Drupella</i> <i>corrus</i> (Drupe)	0	0	2	0	14	0	2	0	15.5	0	1	
<i>Paralichthys</i> spp. (Spiny lobster)	0	0	0	0	0	0	0	0	0	0	0	
<i>Stichopus</i> <i>hispidus</i> (Sea cucumber)	0	0	0	0	0	0	1	0	0	0	0	
<i>Cladonia</i> spp. (Lichin)	0	1.2	0	2	0	0	0	23.2	7	0	13.5	
<i>Acanthaster</i> <i>planci</i> (Crown of thorns starfish)	0	0	0	0	0	0	0	0	0	0	0.5	
<i>Haliotis</i> <i>nobilis</i> (Sea cucumber)	0	0	0	0	0	0	0	0	0	0	0	

Results - Biological

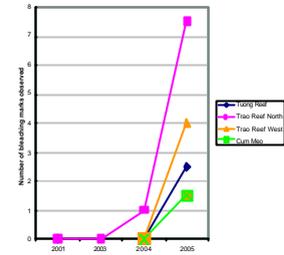
Benthic creatures

- Very few benthic creatures observed in survey sites
- No detectable trends
- Only two high value benthic creatures were observed in 2005
- *Drupella conus* and *Diadema* are the only species occurring in any amounts
- Lack of benthic grazers could be supporting the increase in fleshy seaweed



Results - Biological

Coral bleaching



Results - 3D mapping

Activity

- Successful in getting participants to think about the reserve habitats and appropriate management strategies

Model

- Effective tool to inform and educate people about the reserve
- Graphically represents components of the reserve area for the purposes of management planning

Further development

- Greater detail
- Ground truthing
- Expand to include surrounds
- Human activities
- Associated educational material



Results - Indicators

B3 – Habitat distribution and complexity

- Increased understanding of habitats in the marine reserve
- More detailed mapping is required in order to monitor change
- 'Baseline' data on substrate types has been established
- Higher levels of hard coral cover found within Trao Reef sites

➡ Significant progress has been made however further work needs to be done before this indicator can be comprehensively evaluated or monitored

Results - Indicators

B9 – Area showing signs of recovery

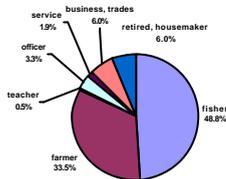
- 'Recovery' has not been explicitly defined
- Monitoring for 'signs of recovery'
- Reef fish abundance and diversity is increasing
- Hard coral cover is increasing in Trao Reef West, but decreasing in Trao Reef North
- Levels of bleaching are increasing across all sites
- Fleshy seaweed cover has increased in 3 sites

➡ The biological health of Trao Reef appears to be improving and therefore the ecosystem is showing signs of recovery



Results - Socio-economic

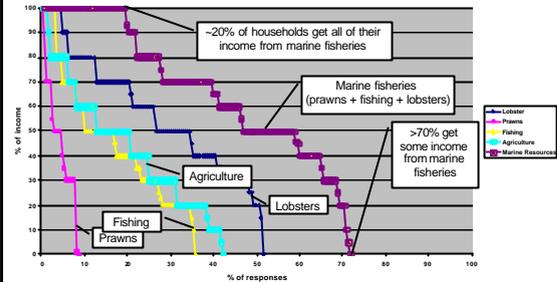
Occupation of respondents



* Not directly related to management effectiveness, but provides valuable information for management purposes

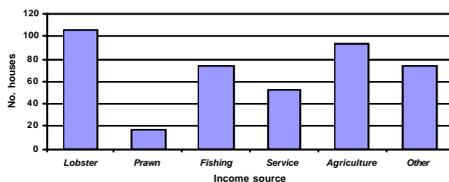
Results - Socio-economic

Income of surveyed households



Results - Socio-economic

Income of surveyed households



- Only 17% of households rely on one income source
- 65% of households have 2 income sources

Results - Socio-economic

Income of surveyed households

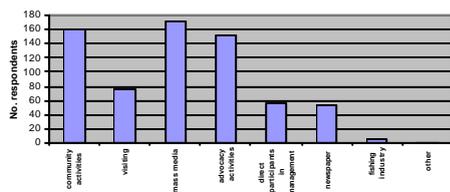
- Most households derived some income from fishing and aquaculture activities
- Households generally do not rely on a single source of income
- Results did not show any significant changes to income since the marine reserve had been established
 - 40% reporting a reduction in income
 - 42% an increase
 - 7% remained the same
 - 11% do not know



Results - Socio-economic

Knowledge of Trao Reef Marine Reserve

- All respondents knew of the Trao Reef Marine Reserve



- 75% have a knowledge of the management regulations

Results - Socio-economic

Perception of the marine reserve

- 82% of respondents perceived an increase in resources in the reserve (buffer area: 73%)
- 9% considered there had been a reduction in resources (13% in the buffer)
- Of those who fish, 85% considered resources had increased and 11% decreased

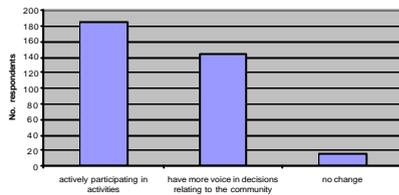


- When the reference for change is television, 99% considered there had been an increase

Results - Socio-economic

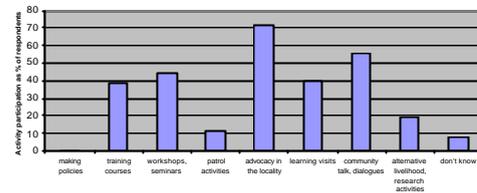
Influence on gender roles

- Many respondents had perceived a change in the role of women



Results - Socio-economic

Participation in marine reserve activities



- 50% of respondents reported participating in 3 or more activities
- The vast majority (93%) considered that the activities had a positive impact (1% a negative impact and 8% reported no impact)

Results - Indicators

S5 – Perceptions of local resource harvest

- In general respondents considered that resources have increased in the marine reserve since its establishment
- The positive perception indicates that community members, including fishers, will be more receptive to management efforts and are likely to be supportive of future activities.

S10 – Household occupations

- Baseline data established
- Difficult to know if changes would be reserve management



Results - Indicators

S14 – Distribution of formal knowledge to community

- A large proportion of the survey respondents were aware of aquaculture research being undertaken, and a smaller number knew about coral farming research activities in the marine reserve.
- Generally the respondents understood that both the community and researchers participated in these activities
- Many of the respondents knew about the results of research being undertaken and 80% of these considered that there had already been an impact from these activities.

G3 – Existence and adoption of

- Majority of the respondents are aware
- A review of the regulations in order to be strongly supported by the community



Limitations

- Data robustness
- Linking data directly to management of the marine reserve
- Need for complementary data
- Consistency in data collection

➔ Access to resources and expertise

Using the results

- Feed back to the community
- Inform management
- Inform research priorities
- Refine indicators and future monitoring
- Set baselines
- Promote strengths and minimise limitations



