



**Support for the Establishment of Effectively Managed Platform Sites as
Foundations for Resilient Networks of Functionally-Connected Marine Protected
Areas**

Kimbe Bay, West New Britain Province, Papua New Guinea

FY05 Annual Report

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Support for the Establishment of Effectively Managed Platform Sites as Foundations for Resilient Networks of Functionally-Connected Marine Protected Areas

Kimbe Bay, West New Britain Province, Papua New Guinea

Project Background

Of Papua New Guinea's many islands, one of the largest is New Britain. It is home to towering volcanoes, tropical forests, and pristine coral reefs. Kimbe Bay on New Britain's north shore is a large bay covering 700,000 hectares (1.7 million acres) with a population of approximately 170,000 people. Oil palm cultivation and timber harvesting are the island's primary industries.

Kimbe Bay is one of the treasures in what scientists call the "Coral Triangle." Stretching from Bali in the west, to the Solomon Islands in the east, and to the top of the Philippines in the north, the Coral Triangle contains approximately 76 percent of the world's 794 reef-building coral species and roughly 20 percent of all known fish species. Kimbe Bay has global conservation significance because of a rare combination of shallow-water coral reefs, mangroves and seagrass beds that are adjacent to a dramatic drop off into deepwater (>2000 m) with sea mounts, hydro-thermal vents, and upwellings. The Bay is a known conservation priority for coral reefs, leatherback turtles, dugongs and a number of cetacean species including sperm whales. The deepwater upwellings make it a prime area for pelagic species such as tuna, dolphin and shark and give the bay's coral a high degree of resistance and resilience against bleaching.

The key threats to the ecosystems of Kimbe Bay are:

- Runoff and sediments from timber harvesting, gardens and oil palm plantations;
- Subsistence over harvesting of marine resources, especially in mangroves and reef areas;
- Commercial harvesting of marine resources, such as sea cucumber and mother-of-pearl; and
- Rapid population growth.

GCP has supported conservation actions at Kimbe Bay since 1999. These initial efforts focused on: strengthening the organizational and technical capacity of a local marine conservation NGO, Mahonia na Dari ("Guardians of the Sea"); increasing community awareness and participation in conservation planning and actions; developing the scientific and analytical basis for the creation of a resilient network of marine protected areas in Kimbe Bay; and piloting the establishment of locally managed marine areas (LMMAs) that build on local customs and tenure arrangements.

In 2002, The Nature Conservancy and local partners used TNC's participatory conservation area planning methodology to begin developing a comprehensive management plan for Kimbe Bay. This coincided with the development of a global framework for tropical marine conservation that emphasizes the establishment of functionally connected networks of marine protected areas (MPAs) that are resilient in the face of global climate change. As a result, the Conservancy developed a revised set of objectives and activities that focus on implementing a network of MPAs—including LMMAs—in Kimbe Bay and catalyzing the creation of ecologically linked MPA networks in the surrounding Bismarck Sea ecoregion in partnership with local NGOs, as well as WWF and WCS.

The Nature Conservancy, with GCP support, intends the following Kimbe Bay outcomes: ***By 2008, (1) a large-scale, resilient MPA network is designed for Kimbe Bay and (2) at least 20% of high priority areas are effectively protected, (3) with an additional 30% in the process of being protected.***

The Conservancy's GCP II proposal also identified a second goal for 2008: **The design of a large-scale, resilient network of MPAs in the Bismarck Sea in partnership with local and international organizations with an MPA network at Kimbe Bay as a platform site.**

Overall Assessment of Progress and Management Issues

We experienced another productive year in 2005 with the expansion of education and awareness to eastern Kimbe Bay. We opened a field base in eastern Kimbe Bay located at Ulamona in the first quarter of FY05. The office has allowed us to operate around the eastern Kimbe Bay for a long period to deliver various environment and conservation education awareness to the people and communities of eastern Kimbe Bay in partnership with RARE. As a result of this awareness we have been able to work with the Biialla local level government to draft and debate its Local Level Government Environment Law, with positive signs of passing the law in FY06. The local business houses have also responded positively joining us in funding and supporting awareness program. At least five communities have indicated a willingness to immediately start LMMA's while the general community in eastern Kimbe Bay are very supportive of marine conservation.

Despite poor management and leadership provided by its new Director, our major local conservation partner. Mahonia na Dari has been able to continue its MEEP program. This year 20 students successfully completed the program in Kimbe. For the first time Mahonia, with our assistance through the field base in Kavieng, was able to successfully complete the MEEP program for 20 Utu High School students in Kavieng. Two teachers and an education officer also completed the program.

We have moved closer to designing a science-based MPA network for Kimbe Bay by completing the seagrass and mangrove surveys, and identification of additional spawning aggregations sites at eastern Kimbe Bay. We started the socio-economic study in the last quarter of FY05 and began the current modeling study, also in the last quarter of FY05. The socio-economic study and current modeling study are scheduled to be completed in the second quarter of FY06.

In the broader Bismarck Sea, the Kavieng and Manus field bases have completed 18 months of monthly reef fish spawning aggregation monitoring. This is the longest period reef fish spawning aggregations have been monitored continuously. The results of the monitoring will be fed to the National Fisheries Authority Board so that they can be used in the live food fish management plan. Despite the delay in completing the marine assessment in Kavieng and Manus due to the availability of the scientist and weather, we are positive of completing the assessment in FY06.

Work on a policy and legislative framework for the wider MPA network in Kimbe Bay was boosted with the passing of the Hoskins and Talasea Local Level Government Environment and

Conservation Laws. There is still a huge challenge for the program to identify a legislative framework beyond the Conservation Areas Act that can provide for the Kimbe Bay wide MPA network which also covers deep areas. We will address this challenge in FY06.

Conservation Area Planning (CAP) outputs completed for the whole of Kimbe Bay allowed us to feed the information into the drafting of a 5 year Implementation Plan. The Implementation Plan covers the three strategies (MPA, Resource Use, Land Use) identified through Conservation Area Planning. There has been a delay in cost analysis but this is partly dependent on the finalizing of the Implementation plan. The Implementation Plan and the costs analysis is expected to be completed in FY06.

Our strategy for identifying and implementing sustainable financing options has been modified during the year to synchronize more closely with the process of designing the Kimbe Bay MPA network. A viable long-term financing plan must be based on sound cost estimates that can only be calculated once the details of the network are decided and once the management arrangements and responsibilities are developed and put in place.

Objective 1: Increase understanding of the importance of marine ecosystems and ensure long term support for their conservation by local communities in Kimbe Bay.

Activity 1.1: Initiate comprehensive communications strategy for building community awareness and promoting marine conservation approaches

Results Anticipated in FY05

- *Comprehensive communications strategy in place targeting specific stakeholders.*
- *Increased community support for conservation.*
- *Quantifiable increase in knowledge on conservation related information.*
- *Post Graduate Diploma qualification for Community Specialist*

During the year, TNC's Community Outreach Specialist initiated a conservation awareness campaign in schools and communities in eastern Kimbe Bay. The campaign is based on the RARE methodology, "Promoting Protection through Pride", which focuses on the selection of a highly visible species of wildlife – in this case the dugong – around which to organize awareness and education messages. Efforts this year concentrated on trialing materials and messages developed by the Community Outreach Specialist, and fine tuning them in preparation for launch of a full-scale campaign in early 2006. A range of materials were produced and piloted, including posters, bumper stickers, button badges, billboards, coffee mugs, T-shirts, fact-sheets on dugongs, a CD with environmental songs written by students, comic books, sermon sheets, and pamphlets. In addition, the Community Outreach Specialist hosts a weekly half-hour radio program on conservation issues, and a series of concerts by a popular PNG band promoted the messages targeted by the campaign and raised local funding from local business houses to support the awareness campaign.

As a result of the campaign, 7 communities of the 30 visited (20 in Biala and 10 in Hoskins), have indicated an interest in conserving their reefs and seagrass areas as LMMAs. TNC will follow up with these communities in FY06 to explore prospects of creating LMMAs. More

generally, a survey was conducted in September to compare changes in knowledge, attitudes and practices with those documented in a pre-campaign survey in 2004. Survey results are currently being analyzed.

Experience and documentation on the design and piloting of the awareness campaign will be presented by the Community Outreach Specialist in November 2005 in completion of a Post Graduate Degree from the University of Kent in the United Kingdom, which is an integral part of TNC's collaboration with RARE on this effort.

Activity 1.2: *Increase knowledge and awareness of marine resources among high school graduates*

Results Anticipated in FY05:

- *Twenty students successfully complete the marine education program from Kimbe and Hoskins High School and graduate with certificates.*
- *Thirteen students from Bialla High School successfully complete the marine education program and graduate with certificates.*

TNC did not provide funding to Mahonia na Dari, and thus to this program, in 2005 based on the results of an institutional risk assessment conducted in early FY05. The Conservancy has been working with Mahonia during the year to address the issues of concern (see Activity 1.3 below), but will continue to work with Mahonia in FY06 to expand the education program to include Biala High School in eastern Kimbe Bay.

Nevertheless, with other funding Mahonia did carry out its Marine Environment Education Program (MEEP), an intensive marine science and conservation education module, for 22 science students (10 boys and 12 girls) from Hoskins high school and 20 (10 boys and 10 girls) students from Kimbe high school during the year. Students were brought to Mahonia's Conservation and Research Center every weekend for 13 weeks to participate in a day's instruction and fieldwork. In addition, 20 students (10 males, 10 females) from Utu High School in New Ireland completed the MEEP program over mid-year school holiday in 2005. Two teachers from Utu High School and 1 education officer from Ailan Awareness were also trained in delivering the MEEP program in New Ireland.

Mahonia na Dari initiated efforts to track graduates of the MEEP to better understand how they have used the training since their graduation, and to identify graduates who might be engaged in community-based monitoring and other conservation activities. These activities will progress when TNC support to Mahonia is reinstated in FY06.

Activity 1.3: *Strengthen capacity of Mahonia na Dari to conduct and evaluate community awareness and education programs*

Results Anticipated in FY05:

- *New financial system and management in place at Mahonia na Dari*
- *Mahonia has rebuilt its staff and is well positioned to contribute to conservation, awareness and education programs in the Kimbe Bay area*

- *Mahonia's operations are guided by a new 3-year integrated strategic and financial plan and a 3-year fundraising plan*

The Executive Director of Mahonia na Dari was appointed in November 2004. The Mahonia Board was satisfied with his initial performance, however family related problems emerged that negatively impacted his performance to the extent that the Mahonia Board requested his resignation by the end of September 2005. The Mahonia Board anticipates the hiring process for a new Executive Director to begin in October 2005. This will present an opportunity for TNC to assist Mahonia in selecting an appropriate candidate with the proper skills set and character traits.

In FY05, TNC supported an independent financial audit of the organization for the period 2001 to 2004. A draft audit report was submitted to the Mahonia Board and the outgoing Executive Director. At the time of this report, the Board has not officially released or responded to the audit report. Decisions regarding design and implementation of new financial systems for Mahonia are pending the results of this audit. Mahonia recently hired an Australian volunteer who specializes in organizational development to assist the organization over the next 2 years. TNC will work with this volunteer and the new Executive Director to complete this activity in FY06. Except for volunteers, Mahonia did not initiate any additional staff recruitment during this fiscal year.

Objective 2: Develop long term strategies for marine conservation in Kimbe Bay with the full participation of major stakeholders

Activity 2.1: Complete Conservation Area Plan for the entire Kimbe Bay

Results Anticipated in FY05:

- *Completed Conservation Area Plan for the wider Kimbe Bay.*
- *Community consultations carried out based on a simplified version of the Conservation Area Plan and related tools that are particularly applicable to LMMA establishment.*

The Kimbe Bay planning team completed the identification of conservation targets, developed strategies to abate identified threats, and developed programs and cost estimates. A range of stakeholders (including communities, local level governments (LLGs), oil palm companies, provincial government representatives and national government agencies such as the Department of Environment and Conservation and the National Fisheries Authority were engaged to get their input on targets and strategies, and to identify opportunities for them to be involved in addressing threats. As a result, the targets and strategies included in the CAP were refined. The planning team participated in a final internal TNC peer review workshop with colleagues from other Pacific sites held in Kosrae, Federated States of Micronesia, in October 2004.

GIS maps and data from the seagrass and mangrove studies carried out this year (see Activity 3.3 below) were incorporated into the CAP, which was finalized in September 2005. CAP highlights and results were translated into Pidgin for use in local presentations.

The three high impact strategies that emerged from the CAP process served as the basis for the development of a comprehensive 5-year implementation plan that was initiated in FY05 for Kimbe Bay and the Bismarck Sea.

Activity 2.2: *Assessment and monitoring of the impact of land use practices on marine conservation in Kimbe Bay*

Results Anticipated in FY05:

- *Land-use practices in oil palm that minimize and contain soil loss implemented.*

A joint, preliminary study on land use practices and their impact on the coastal and marine environment in Kimbe Bay was conducted in November 2003 by independent consultants hired by TNC and New Britain Oil Palm Limited (NBPOL). NBPOL is the largest oil palm company in the Kimbe Bay catchment and one of the major industry players in the region. NBPOL's representatives have raised a number of issues about the study's findings, mainly requesting additional data and information to support analysis results related to differences in land use sediment contributions by oil palm and logging. The consultants have collected and incorporated the additional data and information into the analysis and the report and submitted a second draft to both TNC and NBPOL. TNC has reviewed the revised analysis and revised draft report and is awaiting the reviews by NBPOL. In the end, the revised analysis did not affect the original recommendations. At the time of this report, TNC is in discussions with NBPOL to finalize the revised draft and agree on implementation of the recommendations of the report. Nevertheless, NBPOL has already implemented some of the recommendations of the report related to the creation of buffer zones around streams and rivers.

In the meantime, NBPOL has received ISO 14000 certification of its operations in West New Britain, and has recently undergone an audit of its environmental performance. TNC will review the scope of these audits to verify whether they include all of the practices in which we are interested and which affect our conservation strategies, and whether a separate monitoring program is still needed.

Objective 3: Design and implement a functionally-connected network of LMMAs and MPAs in Kimbe Bay.

Activity 3.1: *Enact and implement local level government legislation to support LMMA creation and management*

Results Anticipated in FY05:

- *Marine conservation laws enacted by Talesea, Hoskins, and Biälla LLGs and LMMA Committees (LMMAC) established in at least two LLGs.*
- *LLG members and LMMA Committees have an increased understanding of their marine environment management laws and their roles in implementing them.*
- *Increased information sharing among LMMAC members and between the committees and the Pacific LMMA network.*
- *Management plans are in place for at least 3 LMMAs in the Talasea LLG area.*

Marine Environment Management legislation was passed by the Talasea and Hoskins LLGs in FY05. Although Talasea LLG has an interim LMMA committee, it has not been formalized under the new legislation. TNC will work with these two LLGs in FY06 to set up their LMMA committees and to build the capacity needed to implement their responsibilities. A comprehensive program of education and awareness of the law will also be carried out in FY06.

The Bialla LLG has developed a draft Marine Environment Management bill that was still under consideration as of the end of the year. TNC will continue to work with Bialla LLG to help facilitate the passage of the draft bill.

TNC created two new LMMA coordinator positions in late FY05 to coordinate overall LMMA activities in PNG and in Kimbe Bay. The Kimbe Bay LMMA Coordinator position will focus on the creation, monitoring and information exchange among LMMAs within Kimbe, while the PNG LMMA Coordinator will focus on overall LMMA coordination of all LMMA sites in PNG which include WWF's LMMAs in Madang. The Kimbe Bay LMMA Coordinator will be the key person responsible for working with LLGs to create LMMA committees, build their capacity, and support creation of new LMMAs in Kimbe Bay.

TNC has an MOU with National Fisheries Authority (NFA) that includes provisions for the development and trialing of community based management options that are effective and sustainable. TNC and NFA are currently discussing strategies to manage commercial invertebrates in Kimbe Bay that will involve LLGs as core implementers. If successful, NFA will apply the model to other areas in PNG.

Activity 3.2: Document standardized LMMA establishment process and approaches

Results Anticipated in FY05:

- *A standardized process for establishing LMMAs is published and disseminated.*

A draft set of guidelines for establishing LMMAs was prepared by TNC. The guidelines were based on the requirements of the LLG laws recently enacted by Hoskins and Talasea Local Level Governments. A final version reflecting input from TNC staff, Mahonia and others involved in LMMA programs was completed in September 2005. These guidelines will be used in working with LLG LMMA committees and communities to establish and manage LMMAs in Kimbe Bay. The full guidelines will be produced and published in booklet form with specific activities necessary to be undertaken with community partners, indicators of success and lessons learned. It will also provide guidelines for the formulation and implementation of LMMA management plans and how communities can be involved in monitoring LMMAs.

Activity 3.3: Enhance biophysical scientific input into MPA network design

Results Anticipated in FY05:

- *Additional data and maps on seagrass and mangrove habitats and spawning aggregation sites available to inform Kimbe Bay MPA network design.*
- *Additional data on the occurrence of coral bleaching and bleaching resistant/resilient sites/reefs available to inform Kimbe Bay MPA network design.*

- *Desktop study of currents, upwellings and connectivity for Kimbe Bay and Bismarck Sea completed based on best available information.*

This year we conducted several high priority research tasks required to apply the principles for building resilient MPA networks developed under TNC's Transforming Coral Reef Conservation approach to Kimbe Bay. These are summarized below, under the relevant resilience principle.

Spreading the Risk (through representation and replication)

To apply this principle, it is necessary to identify the biologically distinct areas (or "bioregions") of the bay for inclusion in the network. This year, we focused on mapping the shallow water habitats. These habitats are closest to shore, and are likely to be of most importance to local communities and other stakeholders in designing the network.

- **Seagrass Beds:** A broad scale survey of the seagrass communities was designed and implemented by TNC's Kimbe Bay team. This is the first time that such a large-scale survey of seagrasses has been conducted in the bay.
- **Mangrove Forests:** A survey of mangrove communities (with a focus on fishes) was conducted on the western side of the bay in 2002. This year, a broad survey of mangrove forests was designed and implemented by the Conservancy's Kimbe Bay team.

These two surveys were the first time that the Kimbe team has undertaken such large scale efforts without the participation of international experts. The results of these surveys have been spatially referenced in GIS format, and have been incorporated into a map of the shallow water bioregions in Kimbe Bay, which will be used as the basis for applying the principle of representation and replication in MPA design.

Protecting Key Sites

This year we focused on identifying high priority sites for inclusion in the network:

- **Bleaching Resistant or Resilient Sites:** We focused on identifying areas that may be naturally more resistant or resilient to coral bleaching in two ways. First, we contracted a consultant to summarize the best available information from the largest bleaching event recorded in Kimbe Bay (1998). A rapid response strategy has also been developed, which will allow us to quickly assess the extent and severity of bleaching if we get another major bleaching event.
- **Fish Spawning Aggregation Sites:** A survey has been completed to identify SPAGS in the Kimbe Bay area for inclusion in the network. A total of 10 spawning aggregation sites have been identified using UVC and traditional knowledge surveys.

Incorporating Patterns of Connectivity

This year we held two meetings with the Australian Institute of Marine Science (AIMS) to refine a research project to develop a hydrodynamic model for the Bismarck Sea, including Kimbe Bay. This project will analyze the best available information from regional current models to assess its value for understanding broad scale currents in the area. The predictions of this model will be tested using satellite imagery to identify upwellings, and track the movement of cool, nutrient rich water from these areas (for comparison with the model). Depending on the outcome of this project, further fine scale modeling within Kimbe Bay may be required in the future. We contracted AIMS in September 2005 to implement current modeling study and expect this work to be completed in the second quarter of FY06.

Activity 3.4: *Enhance understanding of socio-economic issues as input into MPA network design*

Results Anticipated in FY05:

- *Improved understanding of socio-economic factors affecting local livelihoods and attitudes, for the design of marine conservation strategies, in the Bialla/Ulamona, Central Nakanai, Hoskins, and Talasea areas of Kimbe Bay.*

The socio-economic study commenced in late July and is currently in progress. Fieldwork is being conducted from August 15 to December 5, 2005. The study is aimed at improving our understanding of marine tenure systems in the bay, decision-making processes concerning marine resources, perceptions about marine protection, patterns of marine resource use and value, dependency on marine resources for subsistence and cash income, culturally important sites, and local knowledge of special and unique areas, features such as upwellings, and important marine species.

A total of six villages, 2 in the western, 2 in the central and 2 in the eastern part of the bay have been selected for a comprehensive socio-economic study. In addition to village visits, surveys of vendor markets, and other outlets for fish and other marine resources will be visited to collect socio-economic data in these Kimbe Bay communities. Special attention has been given to collection of information from women. A female TNC staff member was hired to conduct interviews with women focus groups.

Activity 3.5: *Identify and implement policy and legal changes needed to support MPA network*

Results Anticipated in FY05:

- *The legislative and policy requirements for implementing a Kimbe Bay MPA network are identified and a plan to address them developed.*

A legal expert was contracted in FY05 to review and advise on the best possible legal framework for the establishment and management of an MPA network in Kimbe Bay. The review identified a number of laws, with the best option being the Conservation Areas Act. However, this legislation does not adequately address all issues in designing and implementing a Marine Protected Area. The other option would be to formulate a completely new Marine Conservation legislation. In FY06, we will explore drafting of a new Marine Conservation Legislation while attempting to address the issues with using the Conservation Areas Act.

Objective 4: Regularly monitor the effectiveness of the Kimbe Bay MPA network in meeting its objectives, use monitoring results to improve management, and disseminate lessons learned.

Activity 4.1: *Develop community-based monitoring program for LMMAs*

Results Anticipated in FY05:

- *At least 3 functional community-based monitoring programs for 3 LMMA communities in Kimbe Bay in place.*

No community based monitoring programs were established in FY05. TNC in consultation with the LMMA network through Mahonia Na Dari had agreed that community monitoring would be implemented through the LMMA Network Community Monitoring Program. Mahonia, in its role as Kimbe Bay LMMA Network Coordinator, was unable to initiate the community monitoring program since it had not yet hired a conservation officer whose responsibilities would include the coordination of LMMA establishment, monitoring and management. Towards the last quarter of FY05, the Pacific and PNG LMMA Network coordination team requested that TNC facilitate LMMA Network coordination for PNG and Kimbe Bay. TNC responded positively to this request and appointed Susan Ewen, a TNC staff member to coordinate the PNG LMMA network and Annisah Sapul, a TNC staff member to coordinate Kimbe Bay LMMA activities. Annisah Sapul as the Kimbe Bay LMMA Coordinator is now working and coordinating closely with Mahonia na Dari and the LMMA committee to implement this delayed activity.

Activity 4.2: *Long term scientific monitoring and analysis*

Results Anticipated in FY05:

- *Analyses of conservation results of LMMAs based on long-term scientific monitoring that can be used for improved management.*

James Cook University delayed its annual monitoring of the Kilu Tamare LMMAs to first quarter of FY06 due to the regular researchers conducting chemical tagging and other ecological studies of reef fish at Kimbe Island during the same period that they normally conduct the monitoring studies. The ecological studies at Kimbe Island will contribute to the science information of Kimbe Island

Activity 4.3: *Verification and establishment of turtle nesting monitoring at East Kimbe Bay*

Results Anticipated in FY05:

- *Estimate of turtle nesting populations and species within Kimbe Bay.*
- *A regular turtle nesting monitoring program designed.*

This activity was delayed to later this calendar year as the nesting season occurs from November to February each year. Kimbe Bay staff were not available to complete this activity during the last nesting season as they were occupied with other activities at that time.

TNC, in partnership with NOAA and PNG Department of Environment and Conservation (DEC), managed and implemented a repeat aerial survey of leatherback turtle nesting beaches in the north coast of PNG and in the island of New Britain in December 2004 to February 2005. In addition the survey extended to cover New Ireland and Bougainville where there have been new but small nesting beaches identified. The repeat nesting in Kimbe Bay identified from aerial

surveys indicated that there were fewer turtles nesting in the November 2004 to February 2005 nesting season. A further survey to estimate nesting populations at these beaches will be conducted during the November 2005 to February 2006 nesting season. Once this survey has been completed, and the sites verified, a monitoring program will be developed.

Objective 5: Identify and implement sustainable financing options for the Kimbe Bay MPA network.

Our strategy for identifying and implementing sustainable financing options has been modified during the year to synchronize more closely with the process of designing the Kimbe Bay MPA network. A viable long-term financing plan must be based on sound cost estimates that can only be calculated once the details of the network are decided and once the management arrangements and responsibilities are developed and put in place. As indicated under Objective 3 above, it will most likely be 2007 before this is achieved. Therefore, we have decided to place our near-term emphasis on two activities: (1) the coarse screening of possible financing options and sources (Activity 5.1), which will provide valuable input to the MPA network design, stakeholder consultations, and partnership development over the next 1-2 years; and (2) detailed costing of the 5-year implementation plan (basically reflecting the intent of Activity 5.2), together with identification of funding sources and gaps. Refinement of financing options will take place as the network design becomes clearer, and design of specific finance mechanisms and an integrated long-term financing strategy for the Kimbe Bay MPA network will be done in 2007-8.

Activity 5.1: Coarse screening of financial options

Results Anticipated in FY05:

- *Estimates of conservation costs and potential revenue.*

This activity was carried out in August and September by TNC finance and policy staff from the Conservancy's Indo-Pacific Resource Center in close consultation with the Kimbe Bay team. The coarse screening identified the option of creating a Kimbe MPA network Advised Fund under the Mama Graun Conservation Trust Fund as the best prospects for long term funding in the area. Other options, including debt-for-nature swaps and carbon trading, need to be explored in more depth. Overall the coarse screening shows that there is a very limited perspective of funding that will come from the Kimbe area where the project is implemented. Most of the fundraising effort will have to be concentrated outside the area, at the national and international level.

Activity 5.2: Cost analysis by CAP strategy and management action

Results Anticipated in FY05:

- *Estimates of conservation costs by CAP strategy for Kimbe Bay*

The CAP has provided substantial input to a new 5-year implementation plan developed for the project, which was initiated during this year. The implementation plan was in draft at the end of September. Once it is completed, detailed cost estimates to carry out the plan will be calculated and possible funding sources identified, together with any gaps.

Activity 5.3: *Identify and initiate design of specific finance mechanisms*

Results Anticipated in FY05:

- *Potential conservation finance mechanisms identified and under final review before being tested.*

This activity has been postponed until the MPA network is designed and management arrangements identified.

Activity 5.4: *Prepare sustainable financing conceptual framework and scenarios as input to MPA network design*

Results Anticipated in FY05:

- *A sustainable financing conceptual framework developed and different financial scenarios designed.*

This activity has been postponed until the MPA network is designed and management arrangements identified.

Objective 6: Design and begin implementation of a Bismarck Sea MPA network.

We have continued to make progress in the Bismarck Sea through our own program and through the work of our partners, National Fisheries Authority, WCS and Ailan Awareness by collecting additional information and data needed for the implementation of the Bismarck Sea MPA. TNC has completed more than one year of monthly spawning aggregation monitoring of a number of sites closed to fishing which has indicated the monthly cycle of reef fish spawning aggregations in Manus and Kavieng. We are also in the process of conducting a Marine Biodiversity Assessment of Corals, Reef Fish, Seagrass and Mangroves in November 2005. TNC is also just starting a study on the current modeling in the Bismarck Sea to be started in late September and to be ended by the end of 2005. The results of the studies conducted by WCS on reef health monitoring and the socio-economic studies conducted by National Fisheries Authority will help in the information base required for designing a Bismarck Sea MPA network.

Activity 6.1: *Reef fish spawning aggregation awareness and management at Tigak and Manus*

Results Anticipated in FY05:

- *Additional spawning aggregation sites identified and monitored in Kimbe Bay, Kavieng/Tigak Islands and Manus*

More than ten transient grouper aggregation sites have now been identified in Kimbe Bay through local knowledge and scientific surveys. Due to staffing constraints we have not been able to initiate and sustain a monthly spawning aggregation monitoring program at Kimbe Bay. Monthly monitoring for at least some of the identified spawning aggregations in Kimbe Bay will be initiated in FY06.

We continued and were able to sustain a monthly reef fish spawning aggregation monitoring program in Kavieng and Manus. Monitoring of 2 sites in Kavieng and 3 sites in Manus has now been completed for a period of 18 months. Results of the monthly monitoring indicate that reef fish in the sites at Kavieng and Manus spawn throughout the year but there are fluctuations on species and populations using the sites. Results of the spawning aggregations are being compiled and will be presented to the National Fisheries Authority Board in November 2006.

Activity 6.2: *Strengthen capacity of key partnerships in Kavieng/Tigak Islands*

Results Anticipated in FY05:

- *The capacity of Ailan Awareness strengthened in the areas of strategic and financial planning, financial systems, and staff recruitment.*

During the past year, TNC facilitated the formal registration of Ailan Awareness as an NGO. Beyond this step, however, Ailan Awareness has not been able to grow because of its inability to secure funding to hire core permanent staff. Most of its activity for the year has relied on funding provided by Gillet Preston and Associates (GPA) and TNC to conduct awareness and establishment of community based fisheries management plans using a model developed by the Secretariat of the Pacific Community for Samoa. Staff working on these activities is hired by Ailan Awareness on a temporary basis.

TNC has provided Ailan Awareness with general organizational management advice and provided job descriptions for the Director and Program/Office Manager positions. TNC will help Ailan Awareness hire the Director and Program/Office Manager as soon as Ailan Awareness secures funding in FY06. We have delayed planned assistance in developing a strategic and financial plan for Ailan Awareness until key staff are hired.

The major fisheries project being implemented in the Kavieng area by the National Fisheries Authority (NFA) has contracted Ailan Awareness to conduct awareness activities on coastal and fisheries resource management. TNC is providing funding for awareness programs in the area through this project. As part of this effort, GPA is providing assistance to Ailan Awareness on basic management and accounting practices.

Activity 6.3: *Support to program implementation by TNC field offices in Kavieng and Manus*

Kavieng Field Base

Results Anticipated in FY05:

- *Enhanced field presence of TNC in Kavieng area and improved coordination with activities of partner organizations.*

Manus Field Base

Results Anticipated in FY05:

- *Enhanced field presence of TNC in Manus and improved coordination with activities of partner organizations.*

The Kavieng and Manus field bases were active in the implementation of monthly spawning aggregation monitoring and general conservation awareness. The Kavieng field office greatly enhanced its coordination with other partners in Kavieng. The working relationship with the partners is at its best ever, with partners sharing resources and implementation of joint activities. TNC and the partners in Kavieng have formed a coordinating committee to help inform each other of respective work plans, progress on implementation and coordination of awareness, conservation and management activities.

The Kavieng field office is in the process of planning the logistics for the Tigak Islands marine assessment that will occur in November 2005. The field office has already secured the resources and commitment of partners (WCS, New Ireland Provincial Government, Ailan Awareness, Local Dive Operators and National Fisheries Authority) to participate in the assessment.

The Manus field office coordinated logistics for the spawning aggregation training, jointly hosted by Pere Village communities, the Local Level Government, Manus Provincial Government and TNC. A workshop was hosted by the Pere village community with participants and trainers coming from throughout PNG, Solomon Islands, New Zealand and Indonesia.

Both Kavieng and Manus field offices have been active and effective in coordinating conservation activities with local partners.

Activity 6.4: *Conduct ecological assessments and collect baseline data*

Results Anticipated in FY05:

- *Marine assessment completed for the Tigak Islands, New Hanover and Djaul Islands.*
- *Marine assessment completed for the South Coast of Manus and Drova Island*
- *Baseline study completed for Drova Island.*

The REA of the Tigak Islands and surrounding areas was delayed, and is currently planned to begin on the 9th November 2005. The delay has been caused by the availability of the scientist. The marine assessment will focus on corals, reef fish, seagrass and mangrove diversity, coral reef health, and commercial reef fish diversity. We are currently negotiating with National Fisheries Authority to include a resource assessment component that will focus on commercial invertebrates (sea cucumber & trochus). Members of the Kimbe Bay team who recently completed mangrove and seagrass assessments in Kimbe will lead the seagrass and mangrove surveys. The marine assessment study will complement other studies conducted by WCS and the National Fisheries Authority that have included socio-economic studies, documentation and monitoring of traditional management practices and monitoring of coral reefs in traditionally managed marine areas.

The Manus assessment has been delayed pending the completion of Tigak Islands Marine Assessment and is now planned for August 2006. We are engaging the same scientists who conducted a very successful marine assessment of the Solomon Islands more than a year ago.