

APPENDIX P

Proposals for conservation measures received to date by the Council

Leatherback Conservation at *Warmon Beach*, Papua-Indonesia

Concept Proposal

I. BACKGROUND

The first aerial survey when Jamursba Medi discovered to hosting a large aggregation of leatherback nesting population, was carried out during in the absence of breeding in Warmon beach. The importance of Warmon beach as nesting habitat for leatherback turtles was identified in early 1984 when a consultant (hired by WWF) started an intensive fieldwork in Jamursba Medi. Knowing that the adjacent beach (Warmon) also landed by nesting leatherbacks, his fieldwork was then expanded. He recorded an average of 16 clutches laid per night. Starbird and Soares (1994) carried out a 21 days survey on a 4.5 km War-Mon Beach and recorded a total of 101 nesting females were encountered on nightly patrols.

Warmon beach lies on about 30 km further east of Jamursba Medi and stretches along a six kilometer halfway between Welos Cape and Wau Village. The beach compose of dark gray sandy beach. The dynamic of the beach is the same as Jamursba Medi but the extreme started a bit late (in January), as the beach is partly sheltered and facing northeast. The beach has half on each side of the Mon river mouth, two km west and 4.5 km to the river east. The later stretch is more favored by nesting turtles. The eastern beach is further separated into four segments by one perennial stream and the two dry streambeds.

Threats

Being unprotected made egg harvest accounted for over 60% has being practiced on the beach (Soares, 1994). The practice is being done mostly by nearby villagers for own consumption, sale to transit passengers on a weekly passing boat or letting the outsiders to collect the eggs at the expenses of household stuffs. Recently, a group of outsiders have settled down in certain part of the beach for wild boar hunting, thus also collecting turtle eggs for consumption.

As in Jamursba Medi, pig predation is another threat to the survival of eggs. Soares 1994-recorded less than 40% nest disturbance resulted from the pig predation. Fortunately, an increase of population and protein needs in recent years induced high rate of hunting activities (with snare and spear). This resulted in fewer pigs and a lower rate of predation in Warmon than in Jamursba Medi.

A problem in which conservation work is conflicting with development activity identified during this reporting period. A forest concessionaire operates at the lowland forest adjacent to the beach is proposing the conversion of the beach for log-pond, which is in conflict with the idea of protecting the beach for turtle nests. The conflict magnifies with the short term financial benefit provided by the company.

II. EXISTING INITIATIVES

Different from the situation in Jamursba Medi where community support is obvious due to the long term in conservation activities, the start up of activity in Warmon is with a group of local young people to collect information on turtle nesting activities and genetic sampling (dead hatchlings). The assessment was started in mid December 2002 by a local researcher and a small group of young villagers on a 4 km beach of Warmon where the largest nesting density is usually found (15 km east of Jamurba Medi), under permission from the landowner. This project aimed at assessing the population status and threats, and conducting coastal patrols to prevent disturbance and exploitation on the beach. Warmon beach hosts a breeding population

in different season (November-March) and may imply the use different foraging areas than those nesting at Jamursba Medi. When this is the case, different management regime is required. Therefore, similar management related research especially on migration and foraging ecology is also needed for this particular population. This monitoring activity was originally planned for November-March period, but as laying eggs turtles were still coming beyond the period, the monitoring extended until zero evidence of nesting (June 2003).

III. PROPOSED PROJECT

Protection of major leatherback rookeries in North Papua and inclusion of turtle critical habitats and sustainable co-management strategies in MPA design in the Bismarck Solomon ecoregion is a set three-year goal for WWF's Turtle conservation Program in Papua. Increase an understanding of the status; threats, and critical habitats of Papuan leatherbacks as well as promotion of community participation in conservation activities are some of the objectives developed to achieve the goal. Hence, proposed project is done to meet the program objectives.

Project Objective:

- Protection of nesting beaches, nesting leatherbacks and their-nests in Warmon Beach through a community based patrol and monitoring and other relevant initiatives that demonstrate the benefits of conservation in improving the people's quality of life.

Proposed Activities

In order to achieve the short-term objectives the following activities will be conducted:

1. Community consultation

A problem in which conservation work conflicting with development activity encountered during recent WWF's activity in Warmon. A forest concessionaire operates at the lowland forest adjacent to the beach is proposing the conversion of the beach for log-pond, which is in conflict with the idea of protecting the beach for turtle nests. The conflict magnifies with the short term financial benefit provided by the company. This is a common case where conservation efforts compete with development activity for economic revenue, especially in areas with poverty problem like Papua. Conserving the biodiversity will succeed only when the local people perceive the efforts as ultimately serving their economic and cultural interests. Conservation strategies must therefore reflect the dual objectives of simultaneously improving the natural resources management and the people's quality of life. Unless the people who most directly impacted by conservation projects perceive these as serving their long-term economic and cultural interests, then biodiversity conservation is not feasible. Therefore, more consultation with local people and landowners are to be conducted before the beginning of next nesting season, to ensure their continued support to the monitoring work in particular and turtle conservation in general. Focus of this activity will be a larger involvement of local communities in conservation activities.

2. Beach patrol and monitoring activities using standardized census techniques

Building on the existing monitoring initiative, a standardized technique for data recording will be applied. PIT tagging will be introduced during the coming activity to allow a better estimate on the number of turtles. During the monitoring period, possibility to conduct satellite tracking and DNA sampling will be consulted with community and proposed to NMFS to be conducted during the peak season.

3. Management related activities

In addition to population monitoring/ and beach patrol aims at reducing egg harvests on the beach, field observation on nests disturbances was recorded and intervention will be taken. So far, it was known that feral predation and beach erosion (during January-February) threatened the survival of the eggs and careful removal of the eggs to a safe place is needed. Identification of the safe place and proper training will be conducted to ensure mishandling that might reduce the hatching success.

Furthermore, as the eggs are mostly harvested for cash, job provision such as for beach patrol, population monitoring and removing potential inundated, eroded or predated nests offers potential to involve large numbers of local people. Income generating activities is identified as important when the protection of nesting beach is concerned due to the potential further development of log pond (by forest concessionaire) that might expand to favored beach for turtles to lay their eggs as well as the continuation of egg harvesting. This initiative will be a short-term show case how people will gain economic benefit as a return in doing conservation work. In a long run, the project will be further developed with greater likelihood of achieving long-term success in which community will be capable in managing, monitoring, and benefiting from their own resources.

Outcomes:

- Information on number of turtles obtained.
- Nesting beach protected from human based threats
- Management intervention to increase hatching rate implemented
- Relevant income generating models/ economic incentives for turtle protection identified.

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Reducing Leatherback's Mortality due to Traditional Practices

Participatory Monitoring and Evaluation of Indigenous Hunting of Leatherbacks in Kei Kecil islands, Maluku (Proposal Concept)

I. Background

Kei islands and threats to the leatherback populations

The Kei Islands group located in the Maluku Province of Indonesia (5°43'S; 132°50'E), on the Sahul plate between New Guinea and Australia. Six sea turtle species; Green (*Chelonia mydas*), Hawksbill (*Eretmochelys imbricata*), Olive ridley (*Lepidochelys olivacea*), Loggerhead (*Caretta caretta*), and Flatback (*Natator depressus*), are among other marine life inhabit this islands group. Leatherbacks locally known as *Tabob* is the most important marine species for indigenous people at several villages at Kei Kecil islands since they serve the subsistent and ritual needs to the locals. The species frequently occurs in the waters of southwest of Kei Kecil islands to feed on certain species of jellyfish, which are seasonally found in large numbers in this area.

Tabob have been traditionally hunted for generations in Kei kecil islands for both subsistence and ritual purposes. The local belief is that the ancestors require villagers to hunt for their ritual ceremonies and daily subsistence. Trading of leatherback meat is considered violation to the customary (*adat*) rules. The capture level of leatherbacks by the villagers of Kei is estimated as intensive as approximately 100 leatherbacks per season (Suarez, 1999). Lack of protein resources from the forest, such as birds, deer and pigs and the increased population are suspected to be the reasons behind the traditional practices. However, the critical endangered status of, and the multi-dimensional threats to the Pacific leatherbacks require closing down of such intensive traditional captures.

II. Project Context

The traditional practices of natural resources utilization are of high socio-cultural values to many indigenous people. These practices reflect the vital linkage of people to land/water, reinforce the spiritual beliefs that govern their existence and responsibility to their natural resources, and serve as a tool for passing on the socio-cultural knowledge to the future generations. Accordingly, sustainable development plans in a broader term including conservation need to consider both the social and cultural aspects of the local communities. Careful assessment of the local socio-cultural and economic perspectives in relation to leatherback hunting is needed for determination of the best approach to conservation issues and adaptation of the local customary institutional frameworks.

The following process oriented steps are identified strategic to gain community interests in turtle conservation that associated with traditional practice. Process will be emphasized on grassroot level including intensive consultations, participatory planning and activities:

I. Evaluation of Indigenous Harvest of Leatherback (Social, economic and cultural assessment).- on-going.

Currently, a locally experienced specialist in community organizing from a local NGO is hired to assess the socio-cultural and economic aspects of the traditional leatherback fisheries in eight villages of Kei Kecil islands. The assessment includes the socio-cultural perspectives and the traditional knowledge on the bio-ecological aspects of turtles, the existing local management wisdom associated with the hunting, and the local institutional framework relating to customary decision making. The main outcome will be strategies to obtain communities' support to turtle conservation, including the effective communication strategies. The final report is expected to be available by mid November 2003.

II. Community based Harvest Monitoring

Exploration of potentials for a community based harvest monitoring as well as alternate substitutes for the traditional practices is also part of the above-mentioned assessment.

The occurrence of known feeding area for leatherback turtle in Kei islands provides opportunity for gaining our scientific understanding on the foraging ecology of the species; including migration route, habitat characteristics, feeding behavior, population structure (size, sex), etc. This valuable scientific knowledge will significantly contribute to the conservation management of this critical endangered species. Community based harvest monitoring is useful tool to gain a set of information beside specific scientific studies.

This participatory project aims at generating community support and involvement in conservation project. It emphasizes the value of traditional knowledge and practice while recognizing that the adoption of modern/ scientific methods and techniques are essential. Indigenous people are unlikely to provide information about their harvests unless they see that it is in their interests to do so, particularly if they think the information is likely to be used unfairly to restrict their hunting activities. If they see a benefit for themselves, such as contributing to a management system that will ensure wildlife resources and indigenous rights to use them are protected, then cooperation is far more likely.

The set of information obtained through monitoring project and possibly scientific findings will be disseminated and communicated to evaluate the existing practice in a participatory way including distribution of information on the endangered status of the leatherbacks in the Pacific. Community organizers (outreach) person will be hired to facilitate the overall process. Depending on the assessment and organizing results, harvest monitoring is planned for the coming hunting period (November 2003-February 2004).

III. Alternate Substitutes to hunting practices

The on-going assessment will also explore and identify possible substitutes for the practice and strategies for further development of related community based activities (pilot project) that will lead to at least the significant reduction of the current level of human induced mortality. The community- based activities may include producing other source of animal proteins (e.g. farming) or traditional hunting regulations. However, this is really dependent on the output of the assessment. Further development and implementation of strategies will be done during and post monitoring project using community organizing approach.

Proposal to save doomed eggs and pre-emergent hatchlings of the Pacific loggerhead sea turtles

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Background

As a result of the dedication and hard work of an extensive network involving many independent field teams in Japan, annual census data are available from most nesting beaches. The current population level of Japanese loggerheads is considerably lower than the population levels of the other ocean basins. For example, in 1998, 1999, 2000, 2001, and 2002 seasons, a total of 2,479, 2,255, 2,589, 3,122, and 4,035 loggerhead nests, respectively, were recorded on Japanese beaches.

In contrast to dedicated nesting survey, hatching success and number of emergence for clutches *in situ* are hardly examined systematically in many rookeries. However, owing to various factors such as predation, inundation, erosion, and excessive heat, mortality of eggs and pre-emergent hatchlings seem to be pretty high. For example, hatching success in Minabe-Senri beach were: 24%(1996), 50%(1997), 53%(1998), 48% (1999), 62%(2000), 41%(2001), 34%(2002). It should be noticed that these figures do not include many clutches that were washed out and were not examined.

The purpose of this proposal is to acquire funding to support a project to reduce mortality of loggerhead eggs and pre-emergent hatchlings on Japanese beaches from extreme temperatures, beach erosion and predation.

Methodology and effectiveness

This project is scheduled for the following two beaches. With additional funding, geographical areas and conservation activities can be expanded.

Minabe-Senri beach

Minabe-Senri beach is located in Minabe-town, Wakayama prefecture. This 1,360 m long beach is one of the 9 major nesting beaches in Japan; 350 clutches were recorded in 1991 (61 clutches in 2002 and 75 clutches in 2003). As mentioned above, one of the features of this rookery is the relatively lower hatching success; for example,

about 50% of the clutches exhibit low hatching success (less than 10%) in 2002 season. The high mortality is associated with predation by raccoon dogs (*Nyctereutes procyonoides*), beach erosion, inundation caused by heavy rain and flood tide, and excessive heat (the dark-colored sand of this beach induces sand temperature that exceeds the lethal level for embryos and pre-emergent hatchlings).

Daily and nightly patrols are conducted on this beach from May through October. All clutches *in-situ* are marked with stakes, ropes, and underground-coil markers. To conserve nests from beach erosion, clutches laid below the high tide mark or on slopes beside streams are relocated immediately after nesting to an open hatchery or to higher elevations within the same beach. Sand temperatures are monitored using data loggers. To save embryos and pre-emergent hatchlings from lethal heat, nests are cooled with water or shaded with cloths when the sand temperature at the depth of 40 cm exceeds 31.6°C during the post-rainy season. In addition, to protect eggs and hatchlings from predation, safeguards are put on top of the nests. These barriers are built of iron frame (1m × 1m × 5 cm) and covered with 5 mm meshed wire.

The number of eggs and pre-emergent hatchlings we can save by relocating nests from erosion prone areas, cooled with water and shade to prevent overheating, and covered with protective barriers to prevent predation will depend on beach and seasonal weather conditions. However, on average, we expect more than half of the total nests (approximately 30 nests) can be rescued from foreseeable destruction.

Hii-Horikiri beach

Hii-Horikiri beach, Atsumi-town, Aichi prefecture is located around the tip of the Atsumi Peninsula. This 4 km long beach has suffered serious erosion. The beach is armored with ranges of tetrapods (concrete blocks) between the shore line and the vegetation line. These blocks obstruct loggerhead females from getting to the vegetation line and are forced to nest close to the shoreline. All eggs laid in the shoreline will eventually be washed out or drowned. In 2002 and 2003 season, a total of 23 and 30 loggerhead nests, respectively, were counted.

Daily and nightly patrols are conducted on this beach from May through October. All the clutches are translocated to an open hatchery located in a safety zone above the beach armament. Sand temperatures are monitored to prevent lethal overheating of nests, and safeguards against overheating and predation are put on the egg chambers. In addition, hatchlings that emerge from relocated nests occur above the beach armament concrete block area and are unable to get to the water. These hatchlings must therefore be assisted into the water. Assisting hatchlings into the water, and utilizing the same measures as at the Minabe-Senri beach (relocation, nest cooling, and predation barriers), it is expected that all nests and emergent hatchlings can be saved (approximately 30 nests).

Kamiali Integrated Conservation Development Group

Project Title: Community based conservation and monitoring of leatherback turtles at the Kamiali Wildlife Management Area.

Facilitating & Implementing Agency Kamiali Integrated Conservation Development Group

Implementation Schedule October 2003 – March 2004

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Introduction

The main goal of the community-based monitoring program is to promote the long term survival of the prehistoric marine reptile (leatherback turtle) from extinction.

The Kamiali Community has demonstrated their commitment by supporting and directly participating in the population census of the nesting female leatherback turtles from 1998 up till now. Secondly, the community has become aware of the importance of protecting the species through the staging of education and awareness building workshops. As a result of this, (it is the first in PNG) for Kamiali Community to declare a moratorium or ban on egg harvesting by the villagers for the October 2002 to March 2003 nesting season. [There was joy amongst the villagers to see for the first time ever, young leatherback turtle hatchlings swimming in abundance in Nasa bay of the Kamiali Wildlife Management Area.]

The turtle monitoring program has attracted multi-national agencies to work in partnership with Kamiali Community to manage and protect the leatherback turtle species.

Briefly, from year 2000- 2001 nesting season, US National Marine Fisheries Services base in La Jolla, California (NMFS), collaborated with the community to determine the migratory routes by use of satellite telemetric devices, collection of tissue for DNA analysis to determine population stock and also carry out health assessment of the leatherback turtle. This will continue during year 2003-2004 nesting season. In addition to this, from January to March 2004, NMFS will carry out aerial and ground survey of the nesting sites and determine nesting season, population stock analysis and deployment of satellite telemetric devices on leatherback turtles to determine their migratory routes and foraging habitats during the nesting period.

To understand more about the population dynamics of the leatherback turtle, the trained parabiologists will also be tasked to collect data/information on the incubation of hatchlings to determine the survival/mortality rate. After 60-65 days of incubation, the nests will be dug up and the number of broken shells (i.e., number of live hatchlings), dead hatchlings (i.e., unhatched eggs) and sterile eggs will be recorded. This will be implemented from October 2003 to March 2004.

Goal

To protect and manage the leatherback turtle from extinction

Objective

To determine the sustainable management level of egg harvest of the leatherback turtle by the Kamiali Community.

Activities

The objective will be achieved through the following activities:

- Activity 1: Carry out census of the nesting population (use of Pit Tagging, etc.) and qualify recruitment and also determine the mortality survival rate of the leatherback turtle hatchlings including their sex ratio.
- Activity 2: Carry out mapping of existing nesting beaches by aerial and ground survey along the northern part of New Guinea Island and where possible determine the population stock (DNA analysis), deployed satellite tracking device (migratory routes, foraging habitats management).
- Activity 3: Carry out awareness, education and workshop activities and update the community of the latest development with leatherback turtle research and other important issues relating to the Kamiali Wildlife Management Area.