JAMES RENNIE BEQUEST

REPORT ON EXPEDITION/PROJECT/CONFERENCE

Expedition/Project/Conference Title: Operation Wallacea .....

Travel Dates: 20 Aug – 6 Oct 2003 .....

Location: Hoga Island, SE Sulawesi, Indonesia .....

Group Member(s): Sarah Drummond .....

Aims: To carry out marine conservation work with Operation Wallacea staff and volunteers ..

OUTCOME (not less than 300 words):-

James Rennie Bequest - Report

Research into the Corals Reefs of the Wakatobi Marine National Park

Hoga Island, Indonesia - Operation Wallacea

Sarah Drummond August – October 2003

Project Background – Monitoring of Reefs

In 1996 Operation Wallacea presented evidence allowing the whole of the Wakatobi Islands in SE Sulawesi to be declared a Marine National Park. As the second largest marine protected area in Indonesia, the park covers 1.39 million hectares. The reefs of Eastern Indonesia are classified as the World's most diverse reefs. The population of the Wakatobi Islands is 80,000, with a large percentage relying on fishing in areas of the park to survive. Park management aims to balance the needs of the local people with protecting the biodiverse coral reefs. This is difficult because anything fishermen leave will be taken by other fishermen giving them little incentive.

Operation Wallacea volunteers are involved in the monitoring biological factors, fisheries and other economic and social factors. A research centre has been set up on Hoga Island in the Wakatobi National Park. Because of the diversity of species of both corals and fish, the research centre is located in an ideal location. The centre is also based within the Kaledupa Stakeholder Area – which is an area carrying out specialised community based management of the reefs. Operation Wallacea is supported by COREMAP in developing its management strategy here. COREMAP is the largest coral reef management programme in

the world and the approaches being used in the Kaledupa Stakeholder Area are in the future to be used in other areas of Indonesia.

Aims

The Operarion Wallacea program has four main objectives:

- To increase the total income and numbers of people receiving their annual income from sustainable reef based activities or reef substitute activities in communities within the funded area
- To ensure the reef fisheries are managed sustainably
- To ensure that the level of awareness and compliance with the rules and regulations governing the use and management of the reefs and related ecosystems increases
- To ensure that the biodiversity of the reefs remains at current levels or improves

This summer I spent six weeks at the research base on Hoga Island working with a range of international academics and scientists aiming to gain experience on a personal level as well as being a member of a team carrying out important research for Operation Wallacea.

As a general volunteer on the Marine Mammals and Reef Check program the main aims of the work I was involved in were as follows:

- To ensure that the area of mature mangrove and seagrass beds remains the same or increases
- To assess the changing health of the reefs
- To assess the diversity of the Kaledupa Stakeholder Area allowing comparisons with other sites around Indonesia and other parts of the world.
- To provide data for an international study of the worlds reefs – ReefCheck
- To assess any changes brought about by the Stakeholder protection zone allowing identification of what is working and what needs to be done

Training

During my first 2 weeks I was based at the research centre on Hoga Island. During the first week I was taught the skills that would be necessary for the diving projects. At the end of the week I received an internationally recognised diving qualification, providing me the ability to join Operation Wallacea's diving projects.

During the second week I completed a coral reef ecology course. I attended lectures by experienced marine biologists as well as dive practicals to go along with each part of the course. The intensive course included identification of a diverse range of corals and fish as well as ecological survey techniques needed for the work in the remainder of my stay. Completion of the course required a pass in 3 tests to ensure complete familiarity with the corals, invertebrates, mammals and fish that I would be identifying in the surveys for the monitoring programme.

Method

As a general volunteer I was lived aboard a research vessel called the Sama Bahari for the majority of my stay. On the ship as a team we completed transects in order to estimate the usage of the National Park by various sea mammals. When whales or dolphins were sighted, the ship approached the mammals in order for us to obtain accurate identification of the species by looking at markings and other distinguishable features. The date and time at which they were spotted, the number and species of the mammals, the length in which they stayed close to the boat and any other distinguishable features were recorded.

Twice a day the boat adopted a stationary position at various sites around the area. At each of these sites I was involved in the completion of Reef Check Surveys. Some of the sites were extremely remote, some in which Operation Wallacea had not even visited for several years.
The surveys involved baseline assessments of coral reefs conducted concentrating on benthic condition, reef fish families and invertebrate indicators of stress as designed by the Reef Check Programme based in California. Survey methods used the methodology developed for use by non-specialists by Australian Institute of Marine Science (English et al, 1997) and modified by the Reef Check programme (ReefCheck.org).
For each transect a tape measure was laid at a carefully chosen sight and we surveyed the site for a length of 100m concentrating on the area 2.5m above and 2.5m below the tape. Splitting the work throughout the team data was collected on the percentage of hard and soft corals, dead coral, rubble, recently killed coral, sponge and algae, as well as diversity and abundance of important species of fish and invertebrates.
As well as for Reef Check, the data gathered is also useful for Operation Wallacea's own purposes for rapid assessment of coral diversity, level of anthropogenic impact and health of the reefs.

Results

Marine Mammals and Reef Check surveys were successfully conducted around west Tomea Island, Ndaa Island, east Kaledupa Atoll, west Kaledupa Island and north Wangi-Wangi Island. *Stenella attenuata* (Spotted dolphins) were regularly sited off west Kaledupa and a pod of *Globicephala macrorhyncus* (Pilot whales) with calves were sited north-west of Kaledupa. A variety of other mammals including *Peponocephala electra* (Melon-headed whales), *Pseudorca crassidens* (False killer whales) and *Stenella longirostris* (Spinner dolphins) were sighted in the Park and this data has been used and compared to the data of other years. Because the marine mammal survey has only been carried out since 2000, more data in future years is required to come to conclusions regarding population sizes, densities or distribution. However a list of those species present has been compiled and some conclusions drawn regarding their relative occurrence.

The data collected from the Reef Check surveys has been sent to California. Initial results show blasting, other anthropogenic damage and over exploitation at the majority of sites with reefs around the island of Wanci faring worse than those around Hoga and those in the south east of the Park. Analysis of the data includes total assessment for entire Park and comparison with previous data sets, assessments per site for each measured parameters, comparison between main islands, identification of damage "hotspots" and mapping into GIS with additional information on reefs. Reef Check use the data along with data from other countries around the world to produce an annual report on the state of the worlds reefs. Operation Wallacea are also using the data collected to compare it with the programmes of other sites around Indonesia established by COREMAP.

Operation Wallacea is an ongoing project with contribution from volunteers each year. A large timescale is needed to reach the final objectives and work will continue in future years.

Acknowledgements

James Rennie Bequest

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