James Rennie Bequest Report

Indonesia, July 2007 – Operation Wallacea

By Jennifer Scholefield

Operation Wallacea (Opwall) is an environmental organisation that works in areas of high biological importance seeking to conserve them and provide a framework for research projects to take place. Sites are worldwide and range from rainforest in Indonesia and Central America, savannah in South Africa, desert in Egypt and marine sites in all of these locations. My expedition aim was to get a general feel of what living in a research environment would be like and the various projects that were being undertaken in order that I may one day follow a career path of this nature. It would also enable me to experience the challenge of living in different conditions and culture. I chose to go to Indonesia due to the immense diversity of sea life there.

The Wakatobi National Park – made up primarily of **WA**nci, **KA**ledupa, **TO**mia, and **BI**nongko – is a small archipelago of islands situated just off South East Sulawesi on the east side of Indonesia (see map at end). The Operation Wallacea base is on Hoga Island however Kaledupa is a 30 minute boat ride away so there are very close ties with villages there as social science and fisheries research projects take place there. Accommodation on Hoga was simple and most meals consisted of rice, tuna and some vegetables.

Image 1: A map of the Wakatobi Marine National Park showing the 4 larger islands with Hoga Island shown by the arrow.

The first week of my stay was taken up with doing my PADI Open Water diving qualification, training for which is provided by Opwall staff. Even in our confined dives which took place in the shallows we could already sense the wealth of marine life around us – during our second confined session a banded sea krait swam right through our group of 6. Once I had my Open Water I then needed to pass the Coral Reef Ecology course in order to be able to identify species to help with research projects. There were 3 tested sections – Invertebrates, Corals and Algaes, and Fish – as well as general information about transect monitoring and reef conservation and management. I really enjoyed this course which included 2 dives a day as I could understand and appreciate what I was looking at on my dives. We were able to dive some brilliant sites to get a full picture of the species diversity – these ranged from 'Coral Gardens', an almost untouched bowl of various corals, to 'Sampela', which lies close to villages on Kaledupa so as a result has very high sedimentation and fishing. I saw lots of fish species ranging from territorial clownfish in anemones, beautiful lionfish, a shoal of barracuda, and the highlight - a white-tip reef shark. This was a rare sighting as sharks have sadly been heavily fished out in the area.

Invertebrate species were also numerous including many different types of starfish, nudibranchs, polychaete worms, molluscs, and sea cucumbers to name a few.

The comparison of dive-sites showed us how important the conservation effort is here. Ten years ago the preferred method of fishing was 'bomb fishing' where fishermen fill bottles with a substance that explodes on impact with the reef. This kills all the fish, which are collected, but also destroys corals and invertebrates that are not needed and take an unimaginable time to recover. Now, thanks to Opwall's presence there, it is thought that 'bomb fishing' no longer takes place with the Wakatobi and the fishermen have adopted other more sustainable ways of making their catch. However work is still needed as the fish populations are decreasing and average size is dropping. The research projects taking place on Kaledupa include experimenting with mesh sizes of nets and educating the community to fish only in certain areas whilst others can recover. I was able to go over to Kaledupa and lend my support to a dissertation project researching the use of bamboo sticks rather than nets thus enabling smaller fish to squeeze through the gaps. We went out with the fishermen in one of their boats to observe how they sorted the fish and found that they did throw many of the smaller ones out anyway. The financial cost involved is large as the fishermen will not cooperate unless they are subsidised during the experiment in case they are losing fish. One has to take into account the needs of the local population as well as the importance of conserving the environment and find a happy medium between the two.

In my third week I went on the live-aboard research vessel, Bintang Sedang ('rising star') which travels around the Wakatobi doing 'Reef Check' monitoring dives and also surveys marine mammals in the area. 'Reef Check' is a worldwide process to ascertain reef health, the data of which is then posted on to the website www.reefcheck.com . The method is simple and involves looking for specific species of fish and invertebrates which depict reef health and noting the substratum along a 100m transect. Throughout the rest of the day we would be constantly on the lookout for sea mammals and we spotted two individual pods of Spinner dolphin two days in a row. At the moment there is no specific research going on apart from counting and noting mammal species however there are plans to develop it further and get specialised equipment to find out more about the numbers of sea mammals in the park and their precise movements. We were able to go out in the tender boat and get within metres of the dolphins. For me this experience was the highlight of my trip and I hope to do more work with sea mammals in the future.

Image : The Bintang Sedang research vessel at sunset.

In my final week on Hoga I assisted a dissertation student doing a project on fish species found around coral 'bommies'. These are bunches of coral found on the reef flat and provide safe refuge and food for many of the smaller reef fish. I also went out snorkelling with a student who was surveying the behaviour of cleaner wrasse. There was a huge variety of research projects going on so it was good to be able to get involved in some of them. On some evenings there were talks about various topics of interest such as the nearby mangrove swamps and Opwall's activities in Indonesia as a whole. The mangroves are a source of financial benefit for the people that live around them as the plant material can be used for building in many different ways. Mangroves are important sheltered areas for fish nurseries and it has been found that prawn ponds thrive in the waters near to the mangrove due to increased nutrients. This information is being passed on to the local population who can then use and manage the mangroves to make a maximum economic gain in the long-term future.

We had one day a week when we didn't dive and were able to make the most of this day by going on a trip somewhere or relaxing. I was lucky to be part of a small group that went over to the village of Sampela where the Bajo tribe lives. Sampela is built on the reef flat about 200 metres off the land. As shown in the photo on the right, the buildings stand on top of piles of coral rubble and stilts. Originally the Bajo people were nomadic but within the last 50 years they have been forced to build more permanent settlements. Visiting Sampela was an interesting experience and I really enjoyed seeing how different cultures live and survive without the material things that we seem to find so vital in the western world.

All in all the experience was something I will never forget and I feel it has benefited me both personally and in my career. Thanks to the James Rennie Bequest for providing the funding to cover my flight costs to visit this unique location. I know that the range of marine research I was exposed to will help me to develop a career in this field in the future.

Image : Map of Indonesia from http://www.lonelyplanet.com/maps/asia/indonesia/ with red arrow pointing to the Wakatobi Park.