

Marine Research in Wakatobi National Park, Indonesia

Project Report – Jack McGarvie

I left Scotland on Valentine's Day and flew to Jakarta, the capital of Indonesia, where I finalised arrangements to undertake an internship with the fisheries department of the World Wildlife Fund (WWF) in a remote corner of Indonesia known as Wakatobi. The name Wakatobi is an acronym made up of the first two letters from each of the main islands in the archipelago; Wangi Wangi, Kaledupa, Tomia and Binongko. I was to stay on Wangi Wangi, the main island, but first I had to learn Indonesian to a standard whereby I could communicate and work effectively without using English. From Jakarta I flew to Kula Lumpur to arrange my visa and from there to Makassar, the largest city on the island of Sulawesi, where I spent one week at a language school. I already knew a few words in Bahasa Indonesia, but the language school served to drastically improve my understanding of the grammar and pronunciation needed to develop conversational ability. After this I went to Kendari, the main city in the south east of Sulawesi, and the jumping off point to the Wakatobi archipelago. I spent two weeks there, during which time my spoken ability was transformed from almost nothing to a solid conversational standard. My days were entirely spent chatting to the locals, many of whom had never seen a European, and as such were endlessly curious and enthusiastic about my presence. I listened intently, recorded phrases, wrote down phrases, practised phrases, asked a ludicrous amount of questions, and developed my vocabulary until I felt comfortable making basic conversation in Indonesian. The main challenge in learning the language was getting past the embarrassment factor, knowing I would be wrong but trying nonetheless. Constant spoken practice is the only effective way to learn a language, and once I was able to have basic conversation, I was able to fully immerse myself in the language and my learning curve accelerated rapidly.

By now 1 month had passed and it was time to travel to Wakatobi and start my work with the WWF. I wasn't sure if I was ready for the adventure that was to come, but I already knew how much I loved the culture, friendliness and community spirit of the Indonesian people, and I knew however difficult it would be I would have their support and compassion to help me through. The boat to Wakatobi would have looked more appropriate in a museum than on water and I was thankful to be in warm seas and travelling during the low-swell season. After a 12 hour journey through the night I arrived at Wanci, the main town of Wangi Wangi. Dawn was breaking and the call to prayer echoed above the chatter of locals unloaded their cargo and reuniting with family after many weeks away working on the mainland. I was met at the harbour and went to the WWF office to be introduced to all the staff I would be working alongside for the next few months. I was to be staying on the research boat 'Menami' which was moored near the office. After a lengthy debate dissuading the captain from giving me his cabin, I stowed my gear in the crew cabin and went to get some proper food for the first time in over a day. Food choice on the islands is rather limited, and I soon had to become accustomed to eating rice and fish at least twice per day, the occasional treat of noodles and chicken, and a breakfast typically consisting of fried banana (pisang goreng). Because I had arrived on the Friday, I had the weekend to explore the island. Wakatobi has some of the highest marine biodiversity anywhere in the world, and although I have dived in several countries before, including Indonesia, nothing prepared me for the sheer numbers of fish and corals, and the staggering beauty of the reefs in Wakatobi.



My role with the WWF was to assist with their research on Yellowfin tuna, the most expensive and highly prized fish in the waters around Wakatobi. Because of this fact there is severe pressure on tuna stocks, which have been perceived to be declining given that catch effort has increased but landings have been decreasing. To successfully regulate such a fishery requires policy backed by scientific knowledge, and that can only be gained through research. Gonad maturity research examines how the reproductive age of tuna may be changing: if the reproductive age of tuna is decreasing over a period of years, this suggests that large tuna are being over-fished and genes for early maturing individuals are becoming more prevalent in the population. In the long run, this is bad news, and if fishing remains unchecked the reproductive success of the species will decrease to the point where the entire population and associated fishery will collapse. The best example of this is Atlantic Cod which were ruthlessly overfished for over 150 years leading to catastrophic decline in numbers and fishery collapse around 50 years ago. It was found their average reproductive age became less than half that of the average 'natural' age, and it would take 100's if not 1000's of years

for the species to 're-evolve' to the most successful reproductive strategy i.e. late maturing individuals producing millions of eggs rather than young individuals producing fewer eggs sooner.

The fishermen who target Yellowfin Tuna are a culturally distinct group known as the 'Bajo.' They are a traditional hunting society that have unequalled skills in locating and catching fish, but social pressures and a lack of education promotes the use of unsustainable fishing practices. In particular, on coral reefs, the use of dynamite and cyanide bombing has become especially problematic, causing the widespread destruction of corals reef ecosystems outside National Park boundaries. The rapidly increasing populations of Bajo villages also raises concern when coupled with declining fish stocks, such that the effort to protect fish stocks is as much a humanitarian as environmental mission. The WWF work with the Bajo community and educate them on sustainable fishing practices, increasing the market value of caught fish, and also setting catch-size limits to preserve a future breeding stock of Yellowfin tuna. Apart from helping with the WWF research, I also made recommendations to improve the WWF research methods and talked to fisherman from the Bajo community to better understand their perspective. I found that a lack of communication, understanding, and appropriate incentives was the main cause for lack of participation from some of the Bajo community. The WWF subsequently arranged workshops to address these issues, placing particular emphasis on providing advice and equipment to increase the market value of their catch.

Tuna are still, admirably, caught using traditional hand-line methods on very small boats, they are kept in ice buckets but frequently not, and are processed (filleted) in very basic conditions. A 100kg tuna may fetch £70, but the same fish, if immediately frozen, could be worth £700 to the Japanese sashimi market. Essentially the Bajo could catch far less fish than they currently are, and make much more money, if they had the facilities, education and trade agreements to make it possible. This is a goal of the WWF, and one which I became passionate about through my time in Wakatobi. Conservation in a developing country is very different to that in a developed country. Here we have the support, and often money, to carry out research and better understand the ocean dynamics. In Indonesia, conservation is about community, and unless they are integrated into the conservation ideal it will not succeed. Farming communities often inherently possess long-term strategic thinking due to a lifestyle incorporating seasonal variations, planting times, harvest etc., however, the Bajo fishing communities traditionally have a short term thought process stemming from the hand-to-mouth lifestyle they live. Money is normally spent on clothing, alcohol and other material goods rather than being reinvested for infrastructure and education. To change the problem of overfishing, the Bajo locals are taught business strategies and long term thinking, which consequently supports the proposed changes in fishing techniques.

I also became acquainted with the National Park employees in Wakatobi, which led me to design a research project to improve monitoring techniques for Crown of Thorns starfish, an organism which consumes live coral, and can destroy coral reefs during unfavourable conditions. The National Park was so enthused by my research proposal they have agreed to support it should I return, and provide me with an assistant and any equipment I may require. Overall, my experience in Wakatobi was an incredible, eye-opening snapshot into conservation strategies in a developing country. I was able to make a real difference to the WWF's work through my existing knowledge of research, and I was able to effectively gain the trust and respect of locals and the National Park, something I didn't predict. Much of this came from my enthusiasm for learning the language and culture, and also through my passion for the ocean, for free diving and experiencing the beauty of coral reefs. Every morning before work, and almost every night after, I would snorkel on the local reefs, sometimes with a waiting crowd of fishermen and children who would spend an hour looking at my photos once I came ashore. Anytime I would drive through the village on my motorbike everybody would come out to wave and say hello. I have never experienced such genuine friendliness and hospitality such as that I encountered on the islands of Wakatobi, and I have never had an experience so profoundly and definitely show me the direction I want to go with my career. Indonesia is a vast, diverse, fascinating and beautiful country, one that I have only just begun to scratch the surface of, next year I am aiming to undertake a Master's degree in Borneo which will allow me to continue marine research in Indonesia. After that I hope to find work with an organization such as the WWF or CTI (Coral Triangle Initiative) and eventually live and work in Indonesia.



