

Project Update: May 2015

Whale sharks, *Rhincodon typus*, the world's largest fish aggregate seasonally in areas of primary productivity in tropical and warm temperate waters of all Oceans (Rowat & Brooks, 2012). Their unique spot patterns can be used for photographic identification (photo ID) of individuals, a valuable tool for population studies (Arzoumanian, Holmberg & Norman, 2005). In the Philippines there are three major aggregations, though sighting reports occur countrywide, year-round. In the town of Donsol, an ecotourism endeavour developed in the late 90s with the help of WWF-Philippines and now receives up to 30,000 tourists a season between November and June (Pine, Alava & Yaptinchay, 2007). Through the use of photo ID, over 400 individual whale sharks have been identified at Donsol to date (April 2015; Wild book for Whale Sharks: www.whaleshark.org). Another aggregation has been described at a provisioning site in Barangay (village) Tanawan in Oslob, Cebu. Over 200 individual whale sharks have been identified at Oslob through photo-ID since the Large Marine Vertebrates Project Philippines (LAMAVE: www.lamave.org) started a monitoring project at the site in March 2012 (Araujo *et al.*, 2014; Wild book for Whale Sharks). This site receives up to 200,000 tourists a year (2014, unpub. data) in a small area, questioning the sustainability of such practices.

A third whale shark aggregation was reported in 2006 by Coral Cay Conservation, a British based charity (www.coralcay.org) in Sogod Bay, Southern Leyte (O'Farrell *et al.*, 2006). The people of Barangay Son-Ok in the Municipality of Pintuyan, Panaon Island, established a People's Organisation (PO), KASAKA, for the development of whale shark interaction ecotourism that same year. The whale shark tourism primarily comes from across Sogod Bay from the Municipalities of Padre Burgos and Macrohon, but also received land based tourists, liveboards and boats from as far as Cebu. LAMAVE set up a base in Pintuyan in 2013, which yielded a very fruitful season with 92 individual whale sharks identified at the site. The team started collaborative work with KASAKA in a means of establishing baseline data on the tourism so that it could be used for management and sustainability. Close to 2,000 tourists visited the site during the 2013 season, an all-time high. In November 8 2013, super typhoon Haiyan made landfall at Leyte Island. This was the strongest ever recorded storm to make landfall in the Philippine archipelago (www.pagasa.dost.gov.ph). Such influx of fresh water could have affected prey distribution and availability for *R. typus* (Delcroix & Henin, 1991). The impact of the super typhoon wasn't only in damaged lives, goods and property, but also affected the tourism industry. The 2014 whale shark season was very low, with only 95 tourists and 7 individual whale sharks identified throughout the season. This decline in whale shark sightings and tourism left the future of the ecotourism and the alternative livelihoods it supports in question.

With support from the Rufford Small Grant (www.rufford.org), the LAMAVE team aims to continue their work on whale shark research and conservation during the 2015 season. LAMAVE started the seasonal work in Pintuyan on February 3. Below is an update of the proposed outputs of the project.

Output 1: The development of new regional guidelines for whale shark interaction tourism in the Visayas & the lobbying of its implementation (Bi-annual reports to the National Authorities DENR, BFAR & the Local Government Units).

The KASAKA People's Organisation (PO) is a self-managed group and with the help of the Local Government Unit (LGU) they run, and regulate, the whale shark tourism. We work closely with KASAKA in a means of encouraging their great work. We've conducted workshops with the KASAKA members on whale shark biology, ecology and conservation, and why their work matters. We've also conducted workshops on how to improve whale shark interactions by minimising disturbance to the animals and increase tourist satisfaction. Whale shark tourism in the country varies from site to site, but the foundation of all guidelines should be mandated by good science. We are still collecting these data across our various study sites, including at Panaon Island. We have held a meeting with the key stakeholders and tourist operators that visit the site. During this meeting, we presented our preliminary results from 86 in water-tourist-whale shark interactions emphasising on how certain breaks of the code of conduct lead to whale shark avoidance, reducing interaction duration. These data will be used for the development of regional whale shark interaction guidelines.

Output 2: Increased awareness & education through media output on the project's website, blog and social media, and the production of a documentary on the research carried out on whale sharks in the Visayas.

We have an active online presence. Earlier this year we redesigned and launched our new website (www.lamave.org). The website contains information on our various projects in the Philippines and some background information on the focal species we work with, particularly the whale shark. We post volunteer and staff blogs on the website to update everyone from the field and promote conservation. We have filmed most of the research with whale sharks in the field, including the successful deployment of tags that will be used in a documentary on the whale sharks of the Philippines. Our Facebook account just reached 5,000 followers, where we have daily posts about the species we work with as well as our projects in a means of raising awareness.

Output 3: The supplementation of interactive educational sessions in local schools to raise overall ocean awareness, with particular focus on plastic and chemical pollution.

The school year in the Philippines ended in the last week of March. Upon commencement of the seasonal project in Pintuyan, we were aware of our time constraints and got to work straight away. We visited the Principals at the Pintuyan National High School (PNHS) and the Pintuyan National Vocational High School (PNVHS). We presented them our prepared modules that would complement their National curriculum therefore avoiding any problems regarding content. Our modules covered aspects of Biology, Ecology and the Environment. We worked together with an experienced Educator to develop three comprehensive modules, but due to time constraints we were limited to only two. These focused on ocean health,

covering the benefits and threats to coral reef systems, immediate impact on marine ecosystems from anthropogenic factors, and how to mitigate them. The second module focused on the basic biology and ecology of large marine vertebrates, with focus on species that inhabit the area: whale sharks, manta rays, turtles and cetaceans. The module made particular emphasis on the threats these charismatic species are facing and how them, the students, can help address some of these threats locally and on a broader scale. We reached over 400 students during these modules. When classes restart in June, we will resume school activities. We have planned two community activities for this season: a beach clean-up including waste segregation and rubbish bin supply; and a mural painting day involving students and focused on marine life. We are also working on a regional level with another two NGOs to capacitate and empower local teachers with the tools to deliver ocean health modules in their respective schools.



Figure 1. High School modules supplement the local curriculum. Photo by lamave.org

Output 4: The effective change in behaviour perceived through wildlife watching activities as a sustainable alternative livelihood for local communities.

The KASAKA PO is a great example of how an alternative livelihood such as guiding and 'spotting' for whale sharks can benefit the community. Barangay Sonok has an average household income of more than double the Municipal average in Pintuyan (National Statistics, 2012). In 2013 with the help of Ms Zerlina Leung from Conservation Sew Mates, we helped the women of Sonok establish their own PO that would focus on the sewing of stuffed whale sharks. These products are locally made by women from the community and sold to tourists that visit the area. They now run a profitable endeavour that provides extra income to the community in a sustainable manner.

Such examples will encourage other barangays to create POs that could get involved with whale shark tourism or other forms. We are collaborating with the local agricultural office in setting up information and education lectures with the fishing communities. We will target at least 4 coastal villages where we regularly survey for whale sharks in the municipality of Pintuyan. This activity will reinforce their awareness campaign on thriving coral reefs and complement it with lectures on ocean health and the species of large marine vertebrates in their waters. Ultimately, this provides an excellent opportunity to inspire more supplemental livelihood programs through sustainably using their marine resources.



Figure 2. Beach clean-up activities increase awareness about plastic pollution. Photo by lamave.org

Output 5: Determine a better population assessment of the species at Panaon Island and their habitat use.

We have so far conducted 23 dedicated surveys and had at least one researcher on 58 tourist trips, covering a minimum of 1,150km and 234 hours. During such surveys, we identified a total of 31 individual whale sharks. Through citizen science data gathered by dive operators and tourists, a further seven individuals were identified since November 2014. Whale shark presence varied between 0 and 12 individuals in a single day. Of the collectively 38 whale sharks, 22 were newly identified and 16 had been previously recorded at the study site on at least one previous occasion. There were a total of 218 individual whale shark encounters (an encounter is defined as the successful identification of an individual whale shark at point in space and time).

We successfully deployed three TDR (temperature-depth-recorder) tags on three whale sharks with known fidelity to the site. These tags need to be manually retrieved from the animals after a certain time lag. They will provide useful information about their local habitat use, and through their diving patterns, behaviour can be inferred. As part of a collaborative study with the Marine Megafauna Foundation (www.marinemegafauna.org) investigating the regional connectivity of whale sharks across South East Asia and assessing the risk of poaching by targeted fisheries from the south of China, we deployed two SPOT5 satellite tags on two juvenile males. These tags will gather valuable information about their horizontal movements, information that will be used for management of the species both locally and regionally.



Figure 3. A whale shark carrying a satellite tag.
Photo by lamave.org

Output 6: Start the groundwork of a long--term plan to create a whale shark sanctuary in Sogod Bay, Southern Leyte, and a migratory protected corridor in the northern Bohol Sea.

On February 18th, the first Sogod Bay Alliance meeting of the year was held in Sogod. We attended this meeting and presented the project objectives, and also expanded on the idea of creating a marine megafauna sanctuary in the Bay. This idea was positively received by all the attendees from across the different Municipalities that conform the Bay. It would work jointly with a Unified Fisheries Ordinance (UFO) currently under review by the provincial government that would unify the management of the fisheries in Sogod Bay. Illegal activities affect all Municipalities and progress to mitigate such activities can only be achieved by working together. A megafauna sanctuary can only be achieved by mitigating such activities. The UFO has a dedicated budget in certain municipalities to build patrol boats and employ operators and guards. With this common goal, the tourism attractiveness of a sanctuary will push for a Provincial approved project.

The whale shark season normally finished in June, after which time the team will have more time to focus on education and policy. We will then hold meetings with the provincial offices involved for the creation of a sanctuary.