

## PROGRESS REPORT

# Impacts, Alternatives, and Awareness of Mobula Fisheries in Indonesia

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## Background

Mobulas are targeted and caught as valuable by-catch in Indonesia, traditionally for local flesh consumption, and more recently for export of gills in the Chinese medicine market. Although mobulas and mantas possess similar life-history characteristics and face similar threats, mantas are now protected in Indonesia but none of the five-mobula species (*Mobula thurstoni*, *M. tarapacana*, *M. japanica*, *M. kuhlii*, and *M. eregoodootenkee*) benefit from protected in the country. This project aims to promote the long-term conservation of mobulas on a local scale by providing important biological and ecological information through fishery surveys and citizen science, by identifying alternatives, and by raising the awareness of locals.

## Summary of Objectives and Outputs

### O1: Use fishing market surveys and citizen science to conduct a preliminary assessment on mobula ray spp. density and species-specific abundance in main fishing and diving grounds.

- Created website and photo/sightings repository interface
- Conducted conversational interviews with stakeholders
- Collected abundance, morphometric, and demographic data from Tanjung Luar, Lamakera, and Muncar (ongoing)
- Conducted mobula identification presentations to dive centers and distributed poster with Mobula ID information (physical differences between manta and mobula), and address of website for deposition of photos and sightings information
- **Outputs**
  - Website: <http://www.mobulaproject.com/>
  - Facebook page: The Mobula Project Indonesia
  - Preliminary information on landings
  - First mobula sightings collected by divers

#### Forthcoming activities

- Continue fishing market surveys to collect morphometric, demographic and fisheries data at Tanjung Luar and Muncar
- Analyze data

### O2: Determine species-specific foraging habits of mobulas landed in Indonesia

- Conducted preliminary survey in Tanjung Luar and conversational interviews with stakeholders
- Surveyed fishing markets to collect stomach contents

#### Forthcoming activities

- Sample collection in Tanjung Luar and additional site Muncar
- Stomach content analysis at RCO-LIPI laboratory in Jakarta
- Report writing, presentation to stakeholders

**O3: Develop an educational program to raise the awareness of stakeholders about the importance of conserving mobulas for long-term sustainability and identify alternative solutions to reduce target and by-catch mobula fisheries.**

- Made contact with schools
- Carried out conversational interviews with stakeholders during preliminary survey
- Created and printed educational materials targeted to different stakeholder groups
- Carried Mobula educational sessions in Tanjung Luar and Labuan Bajo, conducted a quiz at the end of each session to assess the effectiveness of the intervention on knowledge of Mobula biology and ecology
- Designed interviews for fishermen in Tanjung Luar
- **Outputs:**
  - Created educational material targeted to age groups
  - Reached 364 students in Tanjung Luar and Labuan Bajo
  - Met with stakeholders to organize interview process

**Forthcoming activities**

- Carry out mobula-ID presentation as introduction to interviews with fishermen in Tanjung Luar and conduct fishermen interviews (planned start 18<sup>th</sup> October 2015)
- Analyze interviews
- Report writing and presentation to stakeholders to discuss avenues for mobula conservation

## **Key Project outcomes and setbacks to Date**

Our most prominent achievement is the success of our educational outreach activities in West Nusa Tenggara, Tanjung Luar (210 students reached) and East Nusa Tenggara, Labuan Bajo (154 students reached). However, resentment from recent enforcement actions on manta middlemen in one of our study sites in East Nusa Tenggara, Lamakera has made fishing market surveys difficult. Only Indonesians from the team went to visit the location and it was decided to shorten the field work in that location and not to conduct education outreach activities, because of the current climate not being favorable for these kinds of activities for the moment (as also advised by organizations working there on a long-term basis). There were overall apparently low mobula landings over the past month in Tanjung Luar, which is probably due to the fact that most fishermen are still uncertain whether they are allowed to catch mobulas, or due to catches not being brought to the fishing market. Market surveys are prolonged until the end of October, and one sampling location included (Muncar, East Java). Project advancement was hampered somewhat by the delay in permit procedures for our foreign researcher, who had to change local counterpart after arrival in Indonesia, and procedures requiring extended time.



**Fig. 1: *Mobula thurstoni*, Tanjung Luar.** The (a) location of a white stripe below the insertion of the pectoral fin, (b) absence of caudal spine on ventro-dorsally flattened tail, and (c) darker markings on pectoral fin 'bend' on ventral surface, indicated that this individual is a juvenile *M. thurstoni*.



**Fig. 2: Education outreach.** Schoolchildren are enthusiastic to answer *Mobula* rays quiz at the end of the session.

