Pic: Sahlul Muring (Alor shark-fisher) helped in releasing thresher shark after tagged. (*Mark Erdmann/CI*)

FINAL REPORT

POPULATION RISK AND ALTERNATIVE FISHERIES MANAGEMENT OF THRESHER SHARKS IN INDONESIA

CLP ID: 03424518

CONSERVATION LEADERSHIP PROGRAMME

THRESHER SHARK PROJECT INDONESIA

Population Risk and Alternative Fisheries Management of Thresher Sharks in Indonesia

Final Report

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Project team	:	Rafid Arifuddin Shidqi
		Dewi Ratna Sari
		Agustin Capriati
		Eka Maya Kurniasih
Supervisor	:	Dr. Mark V. Erdmann
Contact	:	Rafid Arifuddin Shidqi
		rafid.shidqi@hotmail.com
		Jalan Raya Serpong, Roda Hias
		Block G-3, RT 007/02, Tangerang Selatan, Banten
		Indonesia 15311
		http://www.threshershark.id

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Project Partners and Collaborators

1. Government

a. Alor Regent Government
b. Department of Marine and Fisheries, East Nusa Tenggara Province
c. Department of Marine and Fisheries, Alor District
d. Department of Research and Development, Alor District
e. Alor People Council (DPRD Alor)
f. Head of Village, Lewalu, South West Alor District
g. Head of Village, Ampera, South West Alor District

2. Local Communities, Dive Operators, Resorts and Tourism Operators

a. Lewalu fishing communities
b. Ampera fishing communities
c. Fisher coordinator, Ahmad Muring
d. Women Groups
e. Air Dive Alor
f. Alami Alor Dive Resort
g. Tanapi Dive Resort
h. Mala Tours

3. Schools and Universities

a. Madrasah Ibtidaiyah Negeri (MIN) Ampera
b. Sekolah Dasar Negeri (SDN) Inpres Ampera
c. Universitas Tribuana Alor
d. STKIP Muhammadiyah

4. NGO

a. Conservation International Indonesia
b. Sea Sanctuaries Trust
c. Indonesian Manta Project
d. Shawn Heinrichs. Blue Sphere Media

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Summary

Thresher Shark Project Indonesia is the first thresher shark conservation effort in Indonesia that focuses on Alor, East Nusa Tenggara Region. The project successfully deployed the first satellite tag to thresher shark (TS) within Indonesian waters. Additional six other tags deployed in March and May 2019 as extensions beyond the goal of CLP objectives. The project identified 50 TS landed throughout July 2018–May 2019, with 36 individuals are female and 12 of them are pregnant. Even though that the TS found throughout the year, April was the highest landing of TS in Alor. Satellite tag data revealed that TS moved north toward the Banda Sea, then south toward the East Nusa Tenggara Waters (Savu Sea). The data provided first and vital information about TS movement in the Savu Sea, one of the largest Marine Sanctuary and one of the most productive fishing areas in Indonesia. 141 elementary students, 113 University students, 18 shark fishers, 53 village members of Lewalu and Ampera, and 26 people represented community groups were reached in outreach activities. 28 people represented 16 organizations comprised of governments, community groups, private businesses, and NGOs were involved in stakeholder meeting to provide options and ideas about future TS protection and livelihood alternatives for the communities.

Introduction

Thresher sharks (*Alopias* spp.) have just recently been added to the Convention on International Trade in Endangered species (CITES, Appendix II) (CoP17 Prop.43). Their family is among the most vulnerable of all pelagic species and the population was down to 83% (Amorim *et al*., 2009; Ward & Myers, 2005). The greatest threats for *Alopias* spp. are mainly being target and bycatch fisheries (Compagno, 1984). *Alopias* spp. are highly migratory pelagic sharks, but their habitats are largely unknown (Moreno *et al*., 1989; Compagno, 1984; Kohin *et al*., 2006).

The project combined fisheries survey, satellite tagging studies, citizen science and interviews to (1) identify drivers behind the decline of thresher shark population of *A. pelagicus*, (2) identify critical habitat, movement, and aggregation sites, (3) understand thresher sharks' fisheries dependency to fishing communities in Alor, and (4) raise community awareness about thresher shark conservation. The conservation measures in the local and the international scales will be supported by producing the habitat map (movement and/or aggregation sites), educational materials and recommendations for governmental institutions

Project Members

Rafid Arifuddin Shidqi

Rafid is previously a member of working for manta ray's ecology research and conservation in Raja Ampat, West Papua. He has strong interests in shark and ray's conservation, and keen to find the mutual benefits of conservation and community livelihoods. Rafid is also an East West Center Fellow in Hawaii and alumni of Young Southeast Asian Leaders Initiative (YSEALI). In the project, he was selected as Project Leader and responsible for managing the overall project activities, building and maintaining relationships with partners, communities, and other private entities. Rafid is pursuing a Master's degree at the University of California, Santa Cruz with Coastal Science & Policy focus under the support of Coastal Sustainability Fellowship.

Dewi Ratna Sari

Dewi has just recently graduated with Master of Environmental Management from the University of Queensland, through Australia Award Scholarship. Even though her bachelor's degree was in chemistry, Dewi realized that her passion is for ocean conservation and for the communities that depend on it. In the project Dewi responsible to create the socio-economic research protocol and data analysis. Her previous research was about environmental modeling for decision making in conservation and environmental management and she also joined the Australian Water and Climate Summer Institute 2018/2019 as research fellow which enhance her skills on data analysis for environmental management system. She is currently working as Sustainability Analyst at World Rescource Institute Indonesia to continue her passion in managing the environment.

Agustin Capriati

Agustin earned her MSc on Marine Resources and Ecology from Wageningen University. She received StuNed scholarship and also the National Geographic Young Explorers. Agustin's previous research was about Marine lakesin Raja Ampat, West Papua as well as ecological research of marine ecosystems which involve the work with coastal communities. She is previously the Training, Learning Network and Program Support specialist at the Coral Triangle Center. In the project, Agustin responsible to design the ecology and fisheries protocol and data analysis.

Eka Maya Kurniasih

Eka is a geneticist and on her way finishing Master's Degree of Marine Science at Diponegoro University. She is also an active researcher at Biodiversitas Indonesia (BIONESIA) working for the genetic diversity of marine species for conservation purposes. Eka was previously a Smithsonian fellow and working for genetic invertebrates' diversity from dead coral head, using next-generation sequencing technique. In the project, Eka responsible for creating public outreach and educational activities.

Aims and objectives

Project Aim

The project aims to initiate the conservation of *Alopias pelagicus* at the local scale by providing information on population-risk status and habitat. The information is needed to support both the local government and the national government in implementing the Indian Ocean Tuna Commission (IOTC) resolution for TS conservation and management.

Project Objectives

1. Use fisheries surveys, satellite tags, and citizen science to find out the habitat-use and species abundance in the main fishing and diving ground.
2. Use socio-economic surveys to assess the fisheries dependency of thresher sharks to fishing communities as the information to identify future alternative livelihoods
3. Develop education materials and programs to raise community awareness and stakeholders about the importance of thresher shark conservation for long-term sustainability

Changes to Original Project Plan

We extended the tagging activities from **one** to **seven** deployments. Although within the time-frame of the CLP project, we were only able to provide one result since the next tags would pop-off later around early 2020. However, the rest of the six tags results would provide more variability in data, which will be communicated to the government institutions.

Education workshop for fishers, both Lewalu, and Ampera regarding the bycatch prevention and release, were not possible in the first phase of our project. Building trusts among communities, and understanding their values on thresher shark fishing were instead became our priority in this phase of project. Generally, fishers disagree with releasing the catches if there are no incentives provided.

The stakeholder meeting went beyond our first plan in the project. It was first set only to disseminate our project finding to government institutions. It became a platform in which stakeholders could address the current issues, threats, and opportunities about thresher shark conservation in general. Furthermore, the meeting has provided diverse perspectives regarding future policy implementation, livelihood options, and funding opportunities. We also added outreach activities to young communities of Alor, radio and press meetings to publish our story and reach more general Alor societies.

Methodology

Objective 1: Fisheries and Ecology of Thresher Shark

Fisheries surveys

Fisheries surveys conducted from July 2018 – May 2019. Team members visited Lewalu and Ampera coastal areas regularly for catch documentation. In order to keep the data collection running when team member is not available at the field, one fisher coordinator then appointed to continue the activities. Prior collecting data, fisher coordinator was provided a brief training to fill the fishing logsheet. The fishing logsheet was filled regularly and collected by the team member during the period of the project.

Thresher shark sighting data

We collaborated with dive centers/resorts around Alor by providing them the thresher shark sighting logsheet (Appendix 3). The log sheet was used to identify the main thresher shark diving location where thresher sharks may have multiple visits. Dive centers were voluntarily asked to fill the daily sighting logsheet and regularly submit the data to our team started on September 2018 and end on March 2019.

Satellite tag deployment

MiniPAT satellite tag was used to identify the movement and home range of the thresher shark. The MiniPAT is a pop-up archival transmitting tag that used the combination of archival and Argos satellite technology[1]. Once the tag popped up, all summary data collected during the deployment period was successfully transmitted to the ARGOS system. This included a complete time-series data of depth recorded every 10 minutes. PAT tags are designed to track the large-scale movements and behavior of fish and other animals that do not spend enough time at the surface to allow the use of real-time Argos satellite tags. Data were analyzed with the help of Wildlife computer portal to generate the light-based geolocation.

We incorporated local knowledge in thresher shark fishing by involving Alor thresher shark fishers. It is also meant to build the community trusts in our research activities. Prior tagging, the total length (TL) and sex of the shark was quickly measured. Tag dart injected into the base of the dorsal fin with a hand-pole spear. Shark was quickly handled for recovery by moving the shark slowly in the water to pass the water through the gills and then released.

Objective 2: Socio-Economic Survey

Socio-econmic data was collected quantitatively and qualitatively through questionnaires and focus group discussion (FGD). Stakeholder meeting was also used to gather diverse ideas from different stakeholders related to thresher shark conservation in Alor.

Questionnaire

The questionnaire (Appendix 2) is specifically designed to survey the socio-economic condition of fishers, which is divided into five parts, including:

Part 1: To obtain the information of fshers and satisfaction of their current occupation

Part 2: To obtain the information about fishers group behaviour and general fishing practices

Part 3: To obtain the information on thresher shark fishing practices

[1] Wildlife Computer Product Sheet

Part 4: To obtain the information on thresher shark perception on thresher shark protection

Focus Group Discussion (FGD)

FGD was conducted to assess community perspective on thresher shark fishing and identify possible future alternative livelihoods to substitute thresher shark fishing. Five different groups consist of fishers, fishmongers, farmers, handicraft makers, and youth of the community were invited. The FGD was guided with a designated discussion guideline (Appendix 2).

Stakeholder meeting

The goal of this activity is to inform stakeholders about project findings as well as obtain input and develop a plan for Thresher Shark Protection in the Alor region. A possible alternative solution for the plan developed through participatory mapping and structured decision-making processes during the stakeholder meeting.

Table 1. List of stakeholder attended in the meeting

No	Institution Name	Institution type	No. of people attended
1	Department of Marine and Fisheries, East Nusa Tenggara Province	Government	1
2	Department of Marine and Fisheries, Alor	Government	2
3	Department of Tourism, Alor	Government	1
4	Department of Planning, Research and Development, Alor	Government	1
5	Alor People Council	Government	2
6	Lewalu Village Leader	Government	1
7	Ampera Village Leader	Government	1
8	World Wildlife Fund	NGO	3
9	Tribuana University Alor	University	1
10	Lewalu Community Group	Community	2
11	Ampera Community Group	Community	2
12	Lewalu Fishers	Community	2
13	Ampera Fishers	Community	2
14	Dive Center	Business	2
15	Dive Resort	Business	1
16	Tourism Operator	Business	1
	Total		**25**

Objective 3: Education and Community Awareness

Outreach and Education

Outreach activities conducted in December 2018 at two main thresher shark fishing villages and two Universities (December 2018 and September 2019). Thresher shark storybook produced, which adopted the origin of Alor kids and thresher shark (Appendix 4) The book interactively presented in the form of a puppet show. Brief presentation of TS also being delivered to provide students information about biology, threats, and conservation of thresher shark. Oral questions were given to evaluate students' engagement with the activities, and correct answers measured as knowledge increase.

Output and Results

Objective 1: Fisheries and Ecological of Thresher Shark

A total of 274 catches recorded with 50 of them are thresher sharks. 72% of thresher sharks caught were female (36 TS), with 34% (12 TS) of them were pregnant. The range of total length (TL) for all TS was 280 – 342cm. *A. pelagicus* is generally long-lived and relatively slow-growing, with the youngest male and female had estimated to be 12 years old (TL: 263 and 296 cm) (Drew et al., 2015).

Fig 1. showing the fisheries composition from July 2018-May 2019. Data gaps existed during December 2018-February 2019 when it considered a bad season, and fishing activities were low. The shift in fishing activities from tuna/snapper to thresher shark happened during March-May 2019. Alor fishers changed their fishing lines into modified fishing hooks, which specifically used to catch thresher sharks.

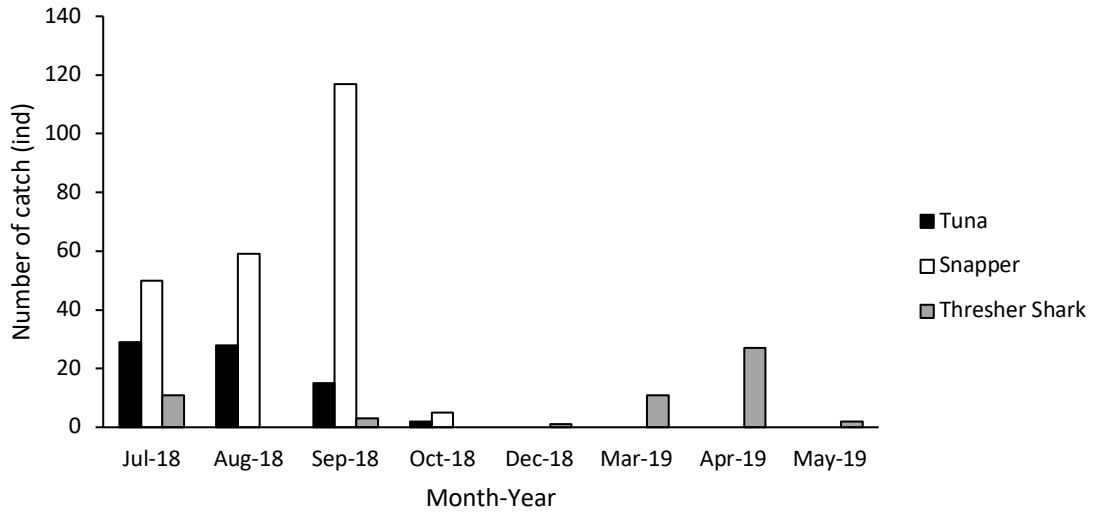


Figure 1. Catch composition of fish catches from July 2018 – May 2019

Although the population structure *of A. pelagicus* is still unknown, Alor fishing areas are close to the fisheries management area (FMA) 573 of the Indian ocean and the species is managed under Indian Ocean Tuna Commission (IOTC) Resolution 12/09. The eastern Indonesian shark fishery largely beyond the focus of national and regional fisheries management agencies, resulting in a virtually data-less fishery that lacks essential information needed for conventional stock assessments (Jaiteh *et al.*, 2017). Previous assessment of *A. pelagicus* has shown that the species were having a very low annual rate of population increase and being extremely vulnerable to overexploitation (Drew et al., 2015). Overall, thresher sharks *Alopias* spp. have been listed as vulnerable globally and also ranked at the highest risk of overfishing among 12 pelagic sharks and rays investigated (Drew *et al*., 2015).

Thresher shark movement and sighting locations

Female thresher shark 150cm Fork Length (FL) was captured. The MiniPAT tag remained on the shark in six months (177 days) and the tag was released prematurely. The shark moved north toward the Banda Sea by approximately 300km and then moved south toward the Savu Sea. Diel vertical migrations (Fig. 2) happened during the days with low depth range of 50-75m, and 150-200m during the nights. Maximum dives reached up to 450m. *A. pelagicus* inhibits the habitat with temperature ranging from 16-25˚C, with the lowest recorded of 6°°C. The presence might be due to the availability of food sources in the Savu Sea.

We also noted that based on local knowledge, thresher shark usually abundant during the upwelling season, increasing fishing activities focused on thresher shark. Upwelling happens along the south coast of East Nusa Tenggara, including the Savu Sea, indicated by cold temperature and high nutrients, or Southeast Monsoon (SE) (Ningsih et al., 2013). However, further studies needed to find the correlation between the thresher shark presence and the oceanographic condition within Alor.

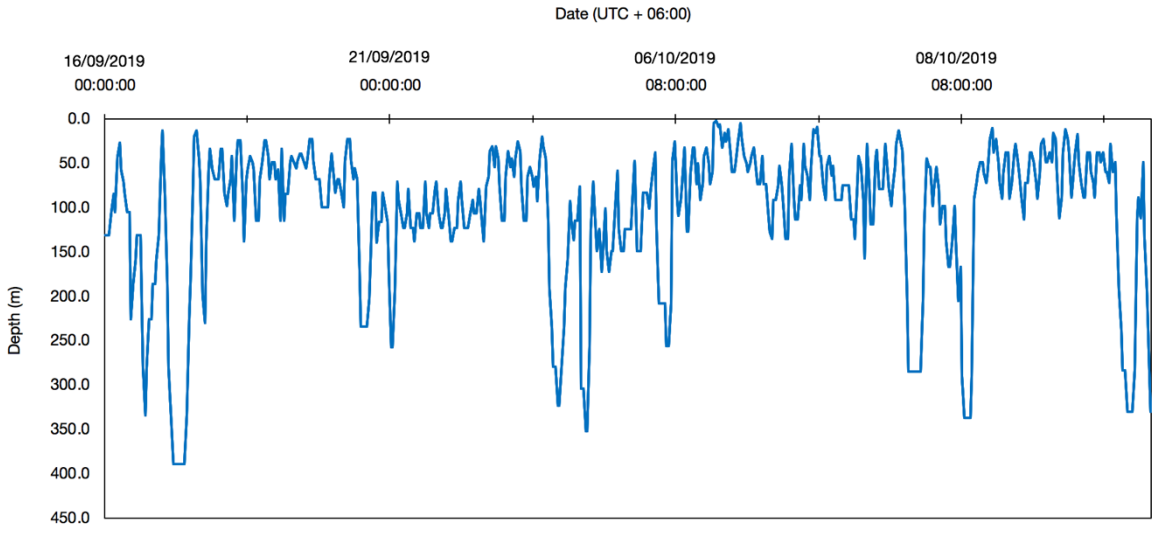


Figure 2. Sample of vertical profile of Thresher shark

Six sighting locations identified through diving logsheet. Locations are mostly situated around the reefs area surrounding the Pura Island (~30m depth) which also close the main fishing areas (Fig. 3). Areas around Pura Island is protected within the Pantar Strait Marine Protected Area (MPA) (Fig. 4) under the *Ministerial Decree 35/KEPMEN-KP/2015* as tourism zone or utilization zone (green zone). The area is mainly for non-extractive utilization, while extractive fishing activities are restricted. However, due to the recent changes in governance, all the authority and management of the MPA is now handled by East Nusa Tenggara Province. During the transition of the governance, the MPA currently has minimum management effort, and the revision for the MPA management plan is currently underway.

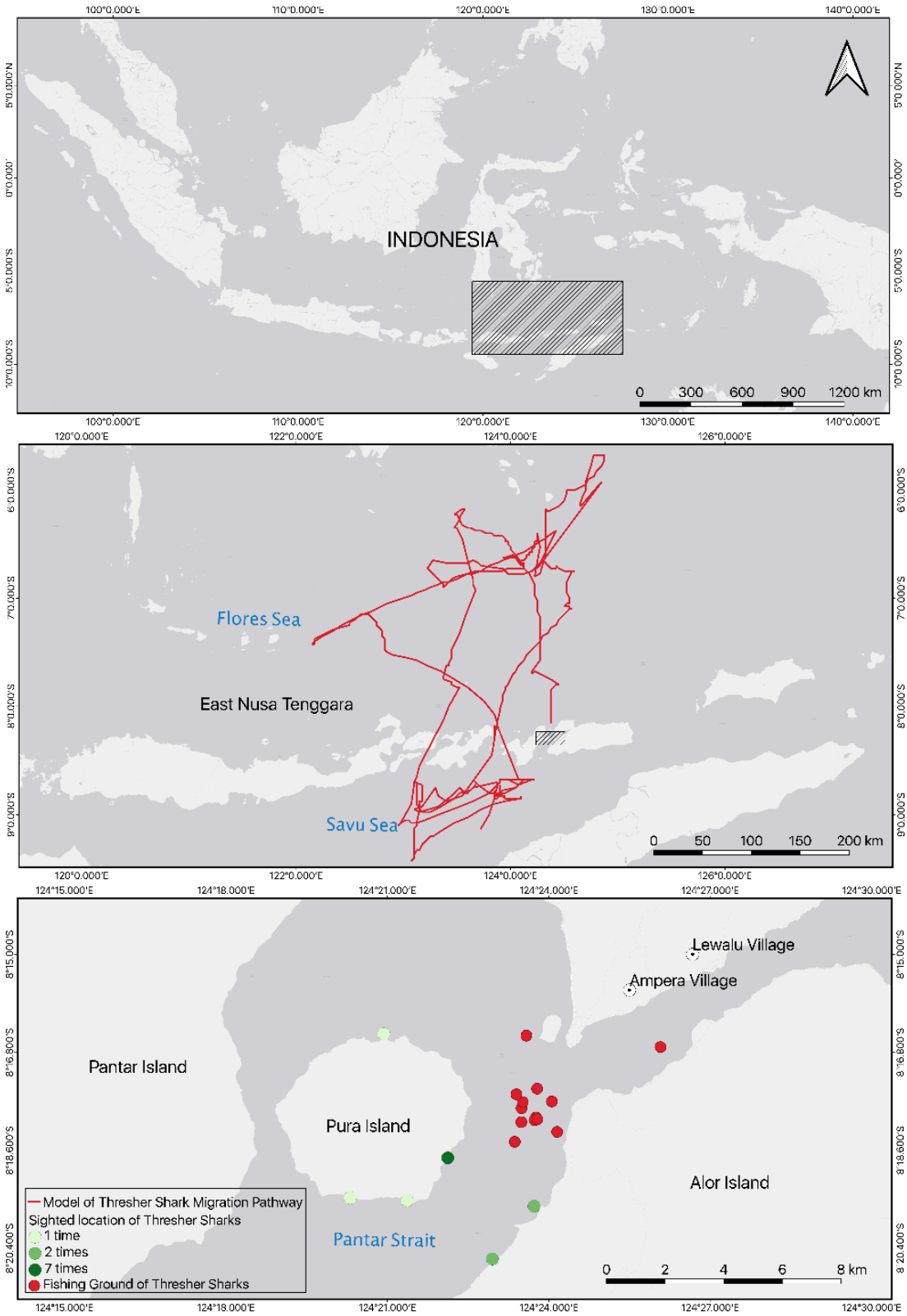


Figure 3. Thresher shark movement and sighting locations

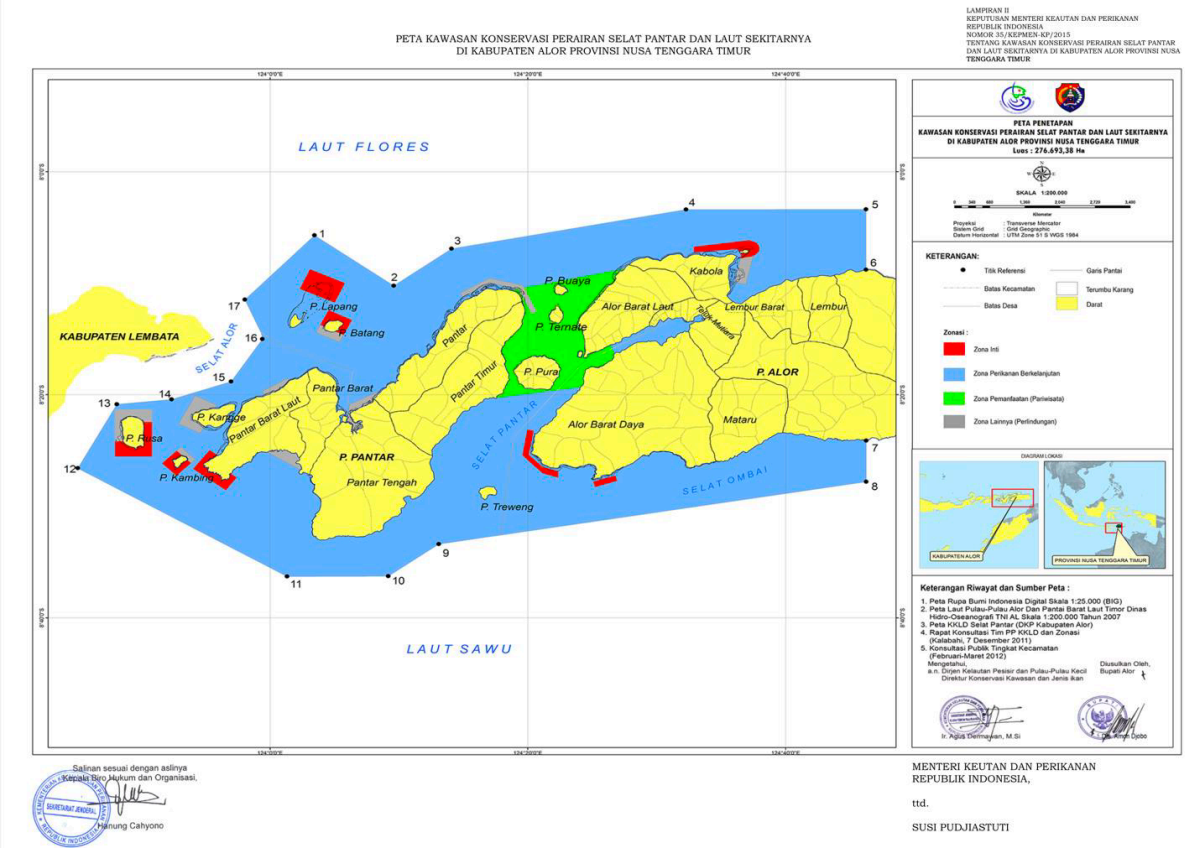


Figure 4. *Pantar Strait Marine Protected Area (MPA) Map, legalized under Ministerial Decree No. 35/KEPMEN-KP/2015, Ministry of Marine Affairs and Fisheries*

Objective 2: Socio-Economic Survey

Socio-Economic condition of fishers in Lewalu and Ampera Village

Village Structure

Lewalu and Ampera village are neighboring villages where previously administered as one village. Due to the expansion of the population, the village was then divided into two different villages. Therefore, the communities from both villages are shared the same history and culture. The total population in Lewalu and Ampera is 783 and 625 respectively. Several occupations within both villages were identified, including civil servants, fishers, farmers, small-size trader, tuna vessel worker, construction worker, handcraft maker (*tenun ikat* and *gerabah*), fishmonger and housewives.

Table 2. Village Structure of Lewalu and Ampera

Village structure	Lewalu	Ampera
Total household	387	172
Total Fishers	60	44
Total Thresher Shark Fisher	14	4

Fishers Group Structure

In total, there are 14 fishers (Lewalu) and 4 (Ampera) with medium boats (<5 GT). These fishers catch various resources, including tuna, snapper, and thresher sharks. While the rest of fishers are catching small fishes (mackerel, reef fishes). Even though TS is not considered as first catch preference, it is still considered as the top three valuable catch together with tuna and red snapper (Fig. 5)

Figure 5. The preference catches of fisher based on the type of fish. Total weighted value is calculated based on the chosen rank provided by fisher multiplied by the weight of each rank.

Top three valuable catches have different value of money per fishing trip. Big tuna usually sold per kg, that worth 50k/kg with 40 kg average size, while snapper worth from 250-300k IDR (US$1 = ~14,150 IDR). TS is valued for their meat and fins, and they could gain up to 500k-700k IDR per individual meats. TS fins on the other hand, sold separately and worth for 100k per set. Each day fisher could catch at least one thresher shark in every trip (Fig 6).

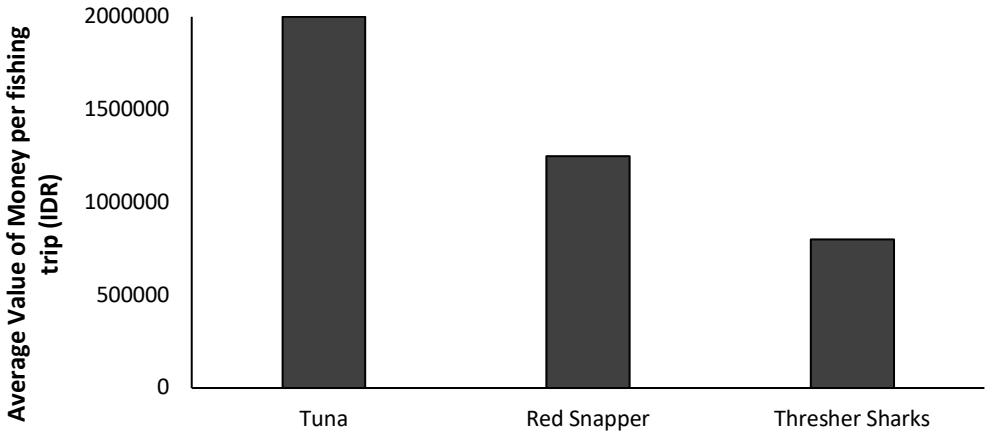


Figure 6. Average value of fish based on their type per fishing trip.

Fishers can generate 2,180k IDR per month (average), which ranged from 500k – 6,500k IDR. This wide range of income due to the variation of catches, which sometimes unpredictable. 45% of fishers also have an alternative source of incomes including farming and working in construction work, and the rest of them are only relying on fishing. Furthermore, 53% of them have a working wife as small traders or handicraft maker (Fig. 4). The study of satisfaction toward current occupations were also conducted and showed in (Fig. 7)

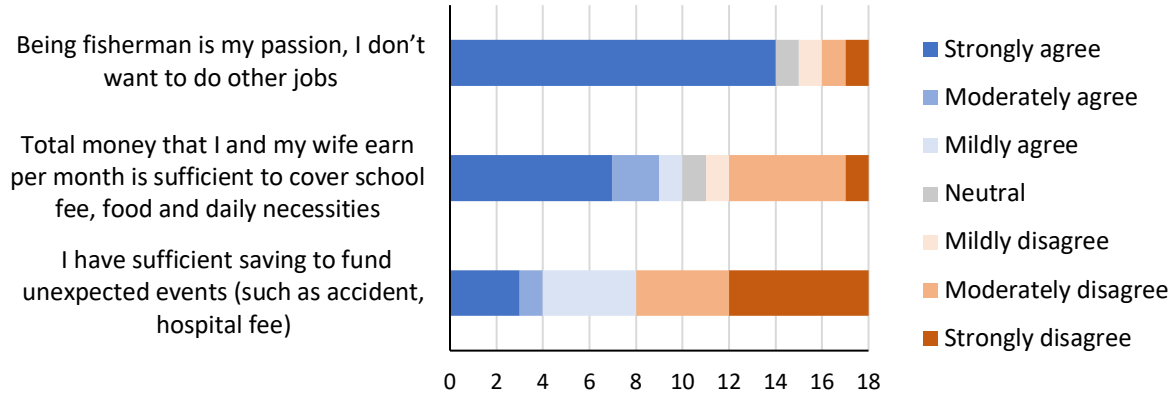


Figure 7. Satisfaction of fishers with their current occupation

Fishing and Trading Practices

Fishers are using two traditional fishing lines; one is the fishing line to catch either tuna or snapper, and another is modified to catch TS. Both of the lines made of nylon up to 250m long. Fishers do not use live baits, they only used medium hooks and wrapped big rocks with dried coconut leaves as weights. In regards to TS fishing lines, five to six hooks were joined into a stack and wrapped with chicken feathers and colorful strings which will be changed depending on TS preference foods (Fig. 8)

Fishers consistently catch TS during the day with the TS fishing line, specifically on the early morning (4–8 am) or on the afternoon (12–4 pm). Catches are considered high during March–April, in which four to five individuals landed daily. On average, three out of five thresher sharks were pregnant. We assumed that Alor waters could be one of the critical habitats for TS as nursery ground.

Figure 8. fishing lines specifically modified to catch thresher shark

All fish catches, including TS, are sold by the wives directly to the market at Kalabahi, the remaining meats were consumed locally and important as subsistence protein sources. On the other hand, TS fins sold to Larantuka and transported to Surabaya and Makassar (Fig.9). Unlike other shark fishing, TS meat has a higher value than the fins; the meat significantly higher 400k – 1000k (US$1 = ~IDR 14,170) compared to the fins 100k – 200k. However, the price has declined significantly after the fin

traders was arrested. This finding implies that TS fishing practice is mainly as subsistence needs, such as protein sources along with tuna and snapper fisheries.

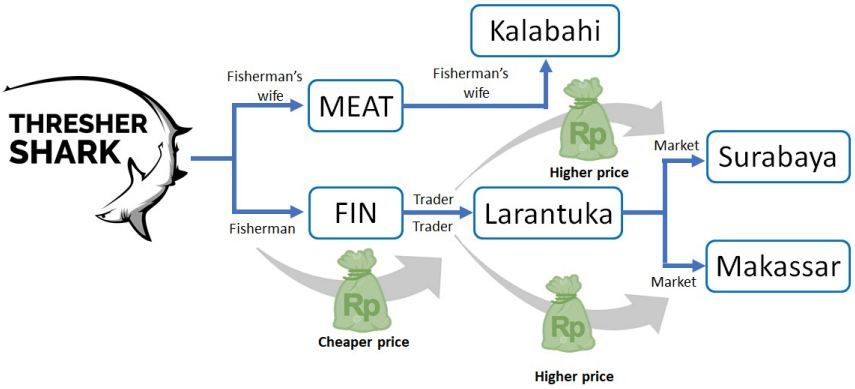


Figure 9. Thresher sharks trading chain from Lewalu and Ampera fishers

Social perspective and dependency of fisher and community towards thresher sharks

History and cultural values

Thresher sharks have been caught by fisher in Lewalu and Ampera village for more than 50 years. Before modified fishing lines, fishers used a combination of wool, silk, and pandan leaves as fishing gear. Fishers and communities generally view TS has the same value as other fishes. TS is not valued for specific traditions or cultures, and is not something they're proud of. In general, direct use of TS is only for subsistence livelihood, neither a fishing excitement nor other values. Sometimes fishers do not expect to catch thresher shark.

"We are happy when we catch something from the sea. We feel grateful for whatever we get. We do not have a specific target, should it be thresher shark or other fish. We want to catch the fish to get money, so whatever eat our baits, we took it for granted."

Suparjan, Lewalu's fisher

Perspective fisher on thresher shark's protection

Survey results found that the fishers generally do not understand about the importance of marine conservation regulation in Alor. They also do not aware about the importance of TS protection. TS protection is perceived to limit their livelihood. However, fishers agreed if TS is to be protected, as long as livelihood alternatives are provided. In regard to livelihood alternatives, all of fishers agreed to learn new skills but strictly related to fishing activities to diversify fish catches and access to different fishing areas.

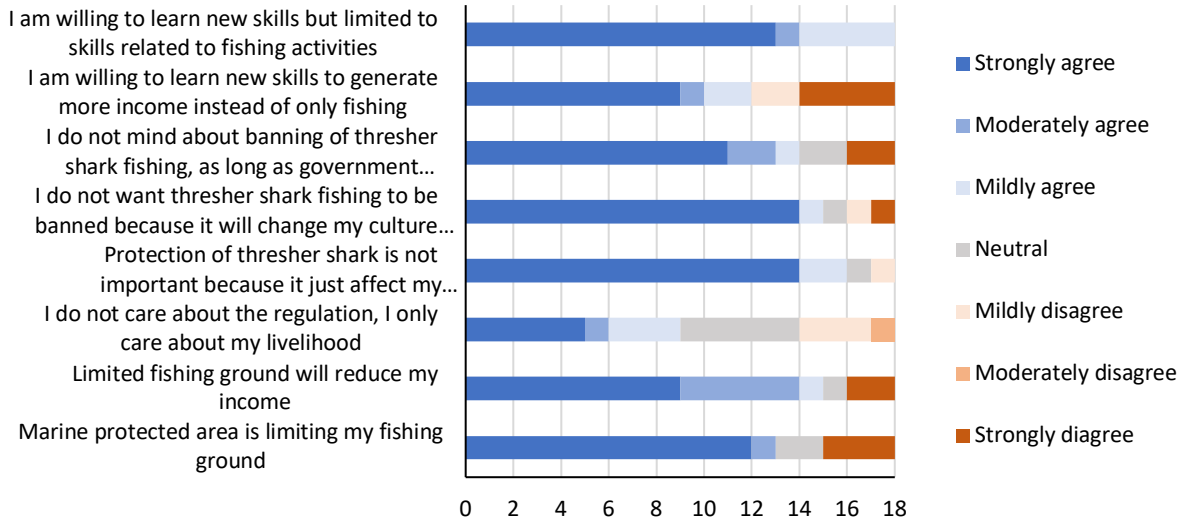


Figure 10. Fisher's perspective on current and future policy

Chosen Solutions for Thresher Shark Conservation

During stakeholder meetings, participatory mapping (Appendix 2) was conducted to locate the working area of each stakeholder and to identify the current problems which affected the sustainability of resources, particularly TS. Alternative solutions determined through stakeholder discussions in response to identified problems (Table 6), related to thresher shark conservation in Alor. The scenarios were also given to discuss the cost and benefit of proposed solutions. Each stakeholder group then ranked their preference on the alternative solutions. Five possible alternative solutions showed in (**Table 3**)

Table 3. Ranked Solutions Based on Stakeholders' Preference

Solution Preference	Stakeholder group Rank				
	Lewalu Village	Ampera Village	Government	NGO/Private institutions	Tourism Operators
Provide subsidies such as boats, fishing technology, and skills	**1**	**1**	**1**	5	5
Increase the law enforcement for conservation	4	4	**2**	**1**	**2**
Open tourism activities in Lewalu and Ampera as alternative to shark fishing	3	**2**	4	4	3
Provide regulation on sustainable tourism	5	3	5	**2**	**1**
Increase capacity of communities for other economic alternatives	**2**	5	3	3	4

Green: First priority option, Red: Second priority option. Ranked solutions attained based on stakeholders' independent discussion, facilitated by team members during the meeting.

Objective 3: Education and Community Awareness

Education and community awareness activities have been conducted on December 2018 and September 2019. We were able to produce the poster, books, websites, social media fan page i.e. facebook, Instagram. Some of our activities also documented by media posts (**Table 4**).

Table 4. List of outreach materials

Outreach Type	Outreach List
1. Permit	Letter No 070/3468/DPMPTSP/2018. Issued by Alor Provincial Government
2. Workshop and Training for Students	a. Conducting training for fisheries student at Tribuana University about Fisheries and ecology survey, attended by 25 fisheries student b. Conducting a workshop to introduce the conservation of thresher shark elementary schools, attended by 141 elementary students c. Conducting training for fisheries student at Tribuana University about thresher shark project research finding and GIS training about creating habitat map attended by 20 fisheries students d. Conducting training for student at Muhammdiyah University about thresher shark project research finding and research process attended by 53 students e. Conducting a workshop to inform community about the result of thresher shark project finding attended by 17 communities or organisation including WWF, KASI (Komunitas Alor Siap Berbagi), GMKI, KPA Jejak Pribumi, OI (Orang Indonesia), GPS (Gerakan Peduli Sampah), GPK (Gerakan Pemuda Kadelang), AC (Taputar Alor Community), RASTAMAN, KNPI, GMNI, HMI, IMM, IMU, GESER, PFN, PKBM Alorinda Uni f. Conducting a workshop to inform villagers in Lewalu and Ampera about the result of thresher shark project finding, attended by 43 villagers
3. Poster	Thresher shark conservation and awareness poster, 30 posters distributed to six government Institutions, seven schools, four dive centers, public spaces, and community centers
4. Book	*Petualangan Nia, Nimang dan Tresi di Lautan Alor* (The adventure of Nia, Nimang and Tresi the Thresher shark in Alor waters), 100 samples were printed and distributed to three elementary schools, Lewalu and Ampera villages and dive centers/resorts, 200 more books printed included the ISBN and will be distributed to more schools at Alor
5. Website	https://www.threshershark.id/ (website still under new development)
6. Facebook	https://www.facebook.com/threshershark.id/
7. Instagram	https://www.instagram.com/threshershark.id/
8. Blogs/News Articles/Social Media posts	a. English version **Tails of the Unexpected: History first thresher shark tag team**, November 2018 https://www.wildlabs.net/resources/news/tails-unexpected-%E2%80%93-historic-first-thresher-shark-tag-team **Where do the threshers go?** October 2018

http://www.conservationleadershipprogramme.org/where-do-the-threshers-go/

The thresher's under pressure, April 2019
https://stories.uq.edu.au/news/the-threshers-under-pressure/index.html

From Food Source to Friend, May 2019
http://www.conservationleadershipprogramme.org/from-food-source-to-friend/

b. Indonesian version

Populasi Hiu Tikus Terancam Punah (Thresher sharks population is on the brink of extinction), September 2019
http://tribuanapos.net/populasi-hiu-tikus-di-alor-terancam-punah/?fbclid=IwAR1Wk1iyXoqnEom8efUcnwrFx8Sns8CK3DJbJ5NGgmO5-RwTb_IGIwLNMH4

Hiu Tikus Jadi Potensi Wisata Baru di Alor (Thresher sharks to be future tourism potential in Alor), September 2019
http://tribuanapos.net/hiu-tikus-jadi-potensi-wisata-baru-di-alor/?fbclid=IwAR3w3T2mScAgSyALYXJHp9H331SvEoq17-CRYjihYCviNKi5EginFhTPLe4

Peneliti Thresher Shark Project Indonesia Temukan Hiu Tikus di Perairan Alor (Researcher from Thresher Shark Project Indonesia found Thresher sharks in Alor waters), September 2019
http://tribuanapos.net/peneliti-thresher-shark-project-indonesia-temukan-hiu-tikus-di-perairan-alor/?fbclid=IwAR2IwY73gN8vtq1M245Ic3cTzQ-xscLkza7HQfb7dcleIN00231buxRmcgg

Kagumi Keunikan Hiu Tikus di Laut Alor (Adore the uniqueness of Thresher Sharks in Alor Waters), September 2019 - Alor Pos (Newspaper)

Thresher Shark di Laut Alor (Thresher Shark in Alor Waters), Scubadiver Australasia Magazine, published September 2019

c. Instagram Posts/Project Sounding

UNDERSTANDING (reached 149k followers) – Instagram by Shawn Heinrichs (@shawnheinrichs), May 2019 - https://bit.ly/2kALy66

Alor Thresher Shark Rescue (reached 149k followers) – Instagram by Shawn
Heinrichs (@shawnheinrichs), February 2019 - https://bit.ly/2lUbp9q

Thresher Shark Project (reached 121k followers), September 2018 — Instagram by Shawn Heinrichs (@shawnheinrichs) – https://bit.ly/2FURgIT

PSPK Alor Radio 95.6 MHz, Kalabahi, Alor, September 2019

9. Radio — **London School of Public Relation (LSPR Radio)**, Jakarta, September 2018 - http://lspr.edu/lxpr/lsprradio/

10. Alor Expo	Annual event to promote tourism and community programs in Alor. Thresher shark project promoted in Alor Expo by the Department of Planning, Research, and Development of Alor during the Expo. 2-7 Sept 2019

Communication and applications of result

Our research on satellite tagging and outreach to stakeholders has been conducted and provided the first information for TS movement and conservation concern toward the population at the local level. Our project's initial goal is to help establish the thresher shark protection at Alor, as well as connecting the fishers and government officials to find the mutual ways in substituting thresher shark fisheries into other livelihood options. Our stakeholder meeting conducted on 2-3 September 2019 has attended by 28 people representing 16 organizations all across the Alor region. The two-days meeting resulted in the ranking options of future thresher shark protection at Alor both for livelihood and policy (Table 3).

Monitoring and evaluation

Project monitoring and evaluation conducted through regular team discussion (team members, project advisors and partners; Conservation International, Sea Sanctuaries Trust) to identify challenges and conflict-resolution. Outreach evaluation conducted through qualitative assessments. Furthermore, project findings and lessons learned also presented during the stakeholder meeting. Questionnaires were given to find out the stakeholder's perception in regard to our project impact for thresher shark conservation in Alor. Much of input including the need to improve the landing data in Alor and to strengthen the involvement of local government and education institutions during the research was very valuable for the upcoming project's continuation.

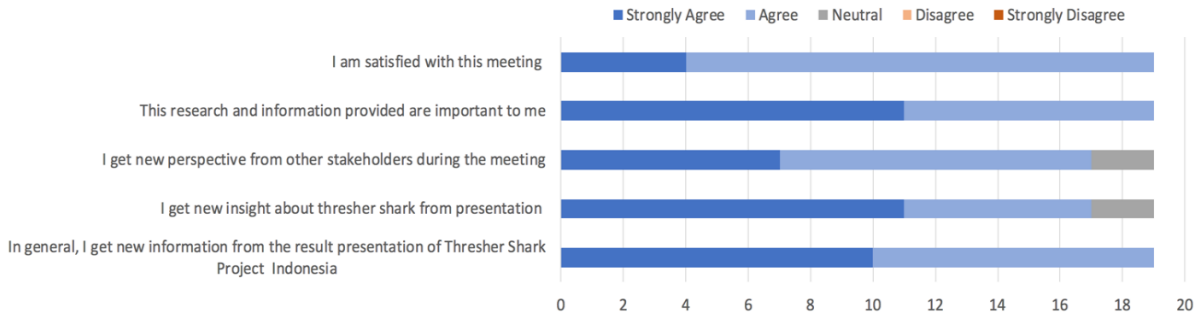


Figure 11. Liker-type question responses from stakeholders

The positive responses indicate that the research activities conducted may contribute to development planning within a stakeholder's institution. From the open-ended question, stakeholder provides feedback on how the insight from the meeting would contribute to their institution, and generally, the responses are also positive.

> ***"I will use the information provided to define the program priority to be implemented to help local fisheries and define specific sustainable fishing gear as options."***
>
> *Muhammad Sayuti, A representative of Department of Fisheries and Marine Affairs of Alor Region*

> ***"I have just known that there is Thresher Shark and need to be protected, improve monitoring activities within the marine protected area is needed."***
>
> *Diani S Liufetu, A representative of Department of Fisheries and Marine Affairs of East Nusa Tenggara Province*

> ***"I will use this insight to develop Ampera village as a tourist village using Village Development funding from the Indonesian Government."***
>
> *Mustofa Moka, Head of Ampera Village*

Moreover, the positive responses also indicate that the fisherman gets an understanding of thresher sharks and its importance in the Alor region.

> ***"The insight provided lead me to understand the benefit and importance of the thresher shark. Therefore, I will teach about this to my family and other fisher to not catching the thresher shark anymore. I do hope that we will get new fishing gear to catch Tuna outside marine protected area"***
>
> *Ahmad Muring, A representative of Fisher Group from Lewalu Village*

Achievement and Impacts

Our project first documented thresher shark sighting around Alor diving sites, movement information through satellite tagging studies, and gained the perceptions about the fisheries dependency of thresher shark fishing. Thresher shark fishing in Alor was previously unknown to local government institutions. Our project opened the possibility for continuous data collection on fisheries and habitat data of this species in the eastern region, which considered lack thereof.

Socio-economic research activities have successfully engaged the community and relevant stakeholders about thresher shark issues in the Alor region. This has built the trusts of our project activities, possibly in the long run. Five different communities' groups (shark-fishers, fishmongers, farmers, youth, weavers, and clay makers) joined FGD, which raised the awareness related to thresher shark conservation. The stakeholder meeting was successfully informed and engaged stakeholders, including local governments (Marine and Fisheries Department, Regional Research and Development Department, Tourism Department), House of Representatives of Alor Region, conservation organizations, tourism actors (dive operators, resort owners, travel agents), fisher groups, communities and village leaders.

The outreach activities successfully delivered to 141 local students in elementary schools in both shark-fishing villages, 113 university students from two Universities and 17 youth community and local organizations. We also extended the outreach to local Radio, Newspaper, and Alor Expo Event which raised awareness about thresher shark ecology and habitat within the Alor region to the general public.

It is important to note that the project has brought the attention of Alor Regent Government, as a result of extensive promotions from Radio, expo and words of mouth. Regent Government, ***Bapak Amon Djobo,*** *as current regent of Alor region* directly invited project team member to present research findings in his office. **Regent Government expressed *his commitment to support thresher shark conservation in Alor region.*** Listing thresher shark conservation within *Rencana Pembangunan Jangka Menengah Daerah* (Regional development plan for five years period) is proposed in the discussion, in which the **species would potentally protected locally under Regent's Regulation as a flagship species in Alor**. This specieal attention has opened the possibility to create a much larger impact for our future project.

Capacity Development and Leadership Capabilities

Thresher shark project Indonesia became team members' first experience to manage conservation project independently in Indonesia. Our different interests and expertise in ecology, environmental modelling, and genetics provided a broad perspective during project execution. Different leadership styles have helped each of the team members to approach conflict and resolution differently, which have taught humility, respect, and initiative. Even though all team members lived in four different time zones, it has taught us to be time-effective in meetings and provide direct feedback for continuous project's development and learning phase. We are also constantly learning in modifying our research methodology, including socio-economic and fisheries which are fundamental for many conservation research in Indonesia. CLP funding has inspired every one of us to realize one's strengths and embraced the different ways of thinking as an asset in developing a conservation project.

Conclusion

Thresher shark (*Alopias pelagicus*) is one of the most vulnerable species among all pelagic families in the world. Their presence has been identified within Alor waters as one of the important sources and livelihood security of small fishing communities. Pregnant sharks found during our project activities raised some questions of the possible birthing ground in channel between Pura Island. Satellite tag data revealed that the shark moved north toward the Banda Sea, and moved south toward the Savu Sea. The information provided the first insight into the movement and behavior of the species. The outreach program successfully reached more than 250 students and young communities. Stakeholder meeting has provided a set of options for the possible alternative solutions to address conservation and livelihood conflict of Alor thresher shark fishers.

Problems Encountered and Lessons Learnt

Logbooks

a. Fisheries catch data

   In villages, the fish catches were hard to document and uncommon. Fishers often directly sell it to the neighboring island. Thus, many catches did not very well-documented. It is important to start to encourage fishers to record their fish data independently.

b. Thresher Shark Sighting

   We started the project at the end of August; the dive centers were just started filling the logbook at the beginning of September until October 2018. November 2018 – March 2019 was known as close season to all dive centers/resorts because of bad weather. Thus the sighting data were empty for a quite long period.

Distance Communication

Team members lived in different Indonesia's regions and Australia with different time zones made our coordination was challenging to make effective decisions. Some project activities postponed, including the children's book design. Considering a few people only available at the field, also challenging to execute activities. It is important to find volunteers as substitution in the field as well as refine the communication/manner of team members in the future of the project.

In the Future

Report and scientific publication of the thresher shark project Indonesia would provide fundamental information to the Regional and National Government of Indonesia. The continuation of the project would follow-up the government's interests in policy changes for thresher shark protection as well as initiating the alternative livelihood solutions. Managing migratory species such as thresher shark would require the long-term effort and collaborative management in Indonesia. The project hopefully, would inspire more young communities in Indonesia to work in grass-root problems but aiming for the systemic changes in Indonesia

SECTION 3

Financial Report

Itemized expenses	Total CLP requested (USD)*	Total CLP used (USD)	% Difference	Explanation & Proposed Spending**
PHASE I - PROJECT PREPARATION				
Communication (telephone/internet/hoststage)	405.00	319.62	-21%	
Field guide books, maps, journal articles and other printed materials	350.00	351.64	0%	
Insurance	900.00	930.10	3%	Some of the remaining insurance funds were allocated for rebuilding our more dynamic project's website
Visas and permits	250.00	232.90	-7%	
Team training (Please detail:)	0.00			
Medical supplies/First Aid	400.00	376.75	-6%	
Other (Please detail:)	0.00			
EQUIPMENT				
Scientific/field equipment and supplies (Please detail:)	350.00	368.11	5.17%	
Photographic equipment (Please detail:)	500.00	639.45	27.89%	Considering the budget availability and long term-use, we increased the camera specification purchase which higher than the expected price.
Camping equipment (Please detail main items:)	0.00			
Vehicle Hire (E.g. Boat/Truck/Engine)	750.00	852.55	13.67%	The remaining funding for the Vehicle Hire allocated to register our children's book to gain the ISBN number and printed more books to be distrubuted to several more schools at Alor, this will expand our outreach to more regions in Alor
Other (Please detail:)	0.00			

PHASE II - IMPLEMENTATION				
Accommodation for team members and local guides (Please detail:)	2,550.00	2,119.70	-16.87%	
Food for team members and local guides (Please detail:)	900.00	948.26	5.36%	
Travel (Including fuel costs) (Please detail:)	2,000.00	2,354.42	17.72%	
Outreach/education activities and materials (brochures, posters, video, t-shirts, etc.) (Please detail:)	980.00	774.30	-20.99%	
Workshops	1,325.00	1376.10	3.86%	
Other (Please detail:)				
PHASE III - POST-PROJECT EXPENSES				
Administration	250.00	244.99	-2.00%	
Report production and results dissemination	350.00	346.40	-1.03%	
Other (Please detail:)	240.00	255.29	6.37%	
Total	**12,500.00**	**12,490.08**		

APPENDICES

Appendix 1:

Table 5. CLP M&E Evaluation Form

Output	Number	Additional Information
Number of CLP Partner Staff involved in mentoring the Project	5	Stuart Paterson, Laura Owens, Christina Imrichs, Charlotte Klinting, Martin Davies
Number of species assessments contributed to (E.g. IUCN assessments)	1	Pelagic thresher shark (*Alopias pelagicus*)
Number of site assessments contributed to (E.g. IBA assessments)	0	
Number of NGOs established	0	
Amount of extra funding leveraged ($)	1	$948 (Seastainable. Co)
Number of species discovered/rediscovered	0	
Number of sites designated as important for biodiversity (e.g. IBA/Ramsar designation)	0	
Number of species/sites legally protected for biodiversity	0	
Number of stakeholders actively engaged in species/site conservation management	2	Department of Marine and Fisheries, Kupang and Department of Marine and Fisheries, Alor
Number of species/site management plans/strategies developed	0	
Number of stakeholders reached	22	See project partners & collaborators
Examples of stakeholder behaviour change brought about by the project.	2	Interests in using the project's data for MPA management/evaluation, Communities involved in project's outreach and research
Examples of policy change brought about by the project	0	
Number of jobs created	0	
Number of academic papers published	0	
Number of conferences where project results have been presented	1	Conference on Conservation Biology, University of Queensland

Appendix 2: Socio-Economic Research Materials

Part 1: This section of the survey obtains background information about you and your job as a Fisherman

1. What is your tribe?
   1. Matulelang (Suku kakak) 2. Dialelang (Suku Adik) 3. Kamabura
   4. Kafini 5. Moru 6. Newcomer
2. What is your age?
   _____ years
3. What is the level of your formal education? **(Please circle the number of highest level attained)**
   1. SD 2. SMP 3. SMA 4. Diploma (D1,D2,D3)
   5. Bachelor degree (S1) 6. Master degree (S2) 7. Doctoral degree (S3)
4. Do you live in your own house?
   1. YES 2. NO
5. Please List Electronic devices and household equipment that you have in your house? (for example: fridge, TV, etc.)
   _____
   _____
6. How many is your dependents? (people)
   _____
   _____
7. How many years have you worked as Fisherman? **(Count part of a year as one year)** (years)
   _____
   _____
8. How do you obtain your fishing skills?
   1. Following my father/close relative 2. Following people in the village 3. learn by myself
9. Do you own a boat?
   1. YES 2. NO,_____(who own it?)
10. How much money do you earn per month as a fisherman? (IDR)
    _____
    _____
11. Do you have any other jobs beside fisherman? (Please choose one that you most often do beside fisherman)
    1. No, only work as fisherman 2. Tuna vessel worker 3. Cattle/Livestock farmer
    4. Fruits/Vegetables Farmer 5. Farming Land owner 6. Fishing product Trader
    7. Farming product trader 8. Construction worker 9. Civil servant
    10. Ojek driver (land or sea transport) 11. Resort or hotel worker 12. Other (please specify)
12. How much money do you earn per month from that jobs? (IDR)
    _____
    _____
13. Does your wife work?
    1. YES 2. NO
14. If yes, what is the jobs of your wife?
    1. Cattle/livestock farmer 2. Fruits/Vegetables Farmer 3. Farming Land owner
    4. Farming product Trader 5. Fishing product trader 6. Resort or hotel worker
    7. Civil servant 8.other (please specify) _____
15. If yes, How much money does your wife earn per month?
    _____
    _____

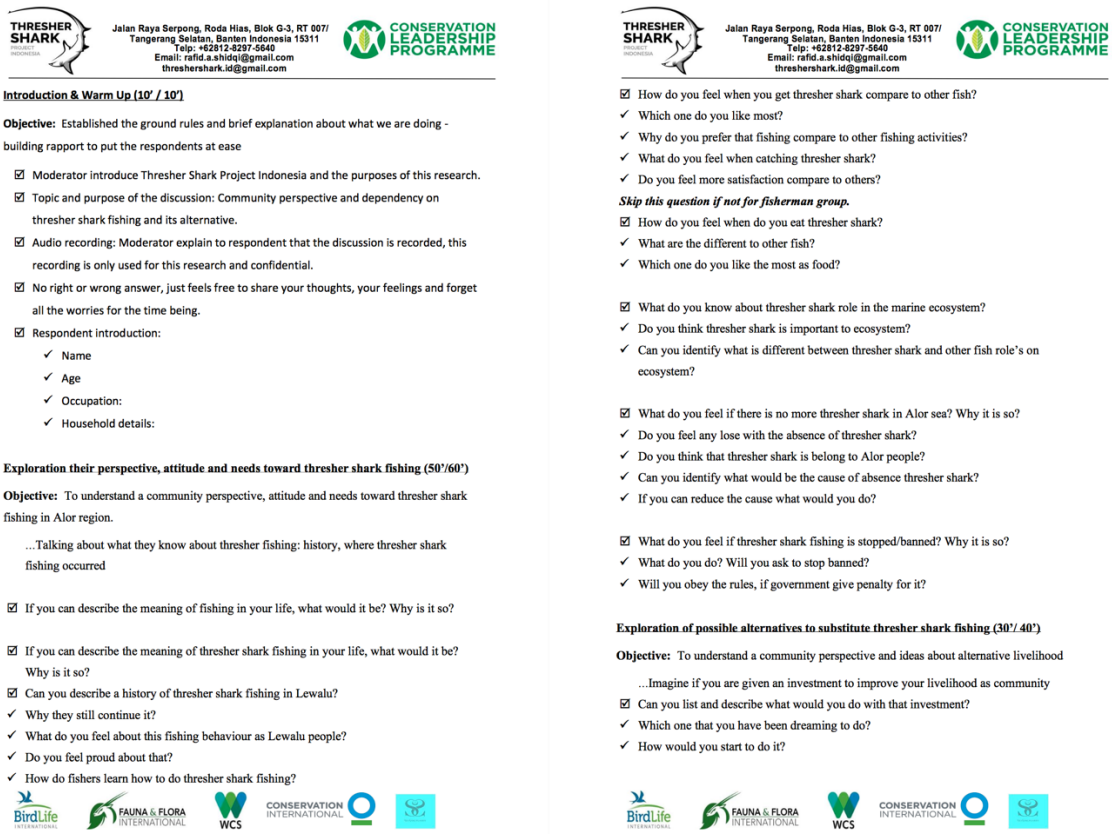
Question 16 - 19 obtains the satisfaction about your current jobs

16. Being fisherman is my passion, I don't want to do other jobs
    1. Strongly disagree 2. Moderately disagree 3. Mildly disagree
    4. Neutral 5. Mildly agree 6. Moderately agree
    7. Strongly agree
17. Being fisherman is not my passion, if I have options I prefer to do other jobs.
    1. Strongly disagree 2. Moderately disagree 3. Mildly disagree
    4. Neutral 5. Mildly agree 6. Moderately agree
    7. Strongly agree
18. Total money that I and my wife earn per month is sufficient to cover school fee, food and daily necessities
    1. Strongly disagree 2. Moderately disagree 3. Mildly disagree
    4. Neutral 5. Mildly agree 6. Moderately agree
    7. Strongly agree

Question 65 - 72 obtains the perception about the regulations

Statement		Fisherman perception						
		Strongly disagree	Moderately disagree	Mildly disagree	Neutral	Mildly agree	Moderately agree	Strongly agree
65.	Marine protected area is limiting my fishing ground							
66.	Limited fishing ground will reduce my income							
67.	I do not care about the regulation, I only care about my livelihood							
68.	Protection of thresher shark is not important because it just affect my livelihood/income							
69.	Protection of thresher shark is important, I do care the sustainability my environment							
70.	I do not want thresher shark fishing to be banned because it will change my culture of fishing							
71.	I do not want thresher shark fishing to be banned because it affected my income and I do not believe that alternative fishing will give same benefit							
72.	I do not mind about banning of thresher shark fishing, as long as government provide alternative fishing activities for me							
73.	I am willing to learn new skills to generate more income instead of only fishing							
74.	I am willing to learn new skills but limited to skills related to fishing activities							

Figure 12. *Sample pages:* Socio-Economic Questionnaire



THRESHER SHARK PROJECT INDONESIA

Jalan Raya Serpong, Roda Hias, Blok G-3, RT 007/
Tangerang Selatan, Banten Indonesia 15311
Telp: +62812-8297-5640
Email: rafid.a.shidqi@gmail.com
threshershark.id@gmail.com

CONSERVATION LEADERSHIP PROGRAMME

Introduction & Warm Up (10' / 10')

Objective: Established the ground rules and brief explanation about what we are doing - building rapport to put the respondents at ease

- ☑ Moderator introduce Thresher Shark Project Indonesia and the purposes of this research.
- ☑ Topic and purpose of the discussion: Community perspective and dependency on thresher shark fishing and its alternative.
- ☑ Audio recording: Moderator explain to respondent that the discussion is recorded, this recording is only used for this research and confidential.
- ☑ No right or wrong answer, just feels free to share your thoughts, your feelings and forget all the worries for the time being.
- ☑ Respondent introduction:
  - ✓ Name
  - ✓ Age
  - ✓ Occupation:
  - ✓ Household details:

Exploration their perspective, attitude and needs toward thresher shark fishing (50'/60')

Objective: To understand a community perspective, attitude and needs toward thresher shark fishing in Alor region.

...Talking about what they know about thresher fishing: history, where thresher shark fishing occurred

- ☑ If you can describe the meaning of fishing in your life, what would it be? Why is it so?
- ☑ If you can describe the meaning of thresher shark fishing in your life, what would it be? Why is it so?
- ☑ Can you describe a history of thresher shark fishing in Lewalu?
- ✓ Why they still continue it?
- ✓ What do you feel about this fishing behaviour as Lewalu people?
- ✓ Do you feel proud about that?
- ✓ How do fishers learn how to do thresher shark fishing?

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Jalan Raya Serpong, Roda Hias, Blok G-3, RT 007/
Tangerang Selatan, Banten Indonesia 15311
Telp: +62812-8297-5640
Email: rafid.a.shidqi@gmail.com
threshershark.id@gmail.com

CONSERVATION LEADERSHIP PROGRAMME

- ☑ How do you feel when you get thresher shark compare to other fish?
- ✓ Which one do you like most?
- ✓ Why do you prefer that fishing compare to other fishing activities?
- ✓ What do you feel when catching thresher shark?
- ✓ Do you feel more satisfaction compare to others?

Skip this question if not for fisherman group.

- ☑ How do you feel when do you eat thresher shark?
- ✓ What are the different to other fish?
- ✓ Which one do you like the most as food?

- ☑ What do you know about thresher shark role in the marine ecosystem?
- ✓ Do you think thresher shark is important to ecosystem?
- ✓ Can you identify what is different between thresher shark and other fish role's on ecosystem?

- ☑ What do you feel if there is no more thresher shark in Alor sea? Why it is so?
- ✓ Do you feel any lose with the absence of thresher shark?
- ✓ Do you think that thresher shark is belong to Alor people?
- ✓ Can you identify what would be the cause of absence thresher shark?
- ✓ If you can reduce the cause what would you do?

- ☑ What do you feel if thresher shark fishing is stopped/banned? Why it is so?
- ✓ What do you do? Will you ask to stop banned?
- ✓ Will you obey the rules, if government give penalty for it?

Exploration of possible alternatives to substitute thresher shark fishing (30'/ 40')

Objective: To understand a community perspective and ideas about alternative livelihood

...Imagine if you are given an investment to improve your livelihood as community

- ☑ Can you list and describe what would you do with that investment?
- ✓ Which one that you have been dreaming to do?
- ✓ How would you start to do it?

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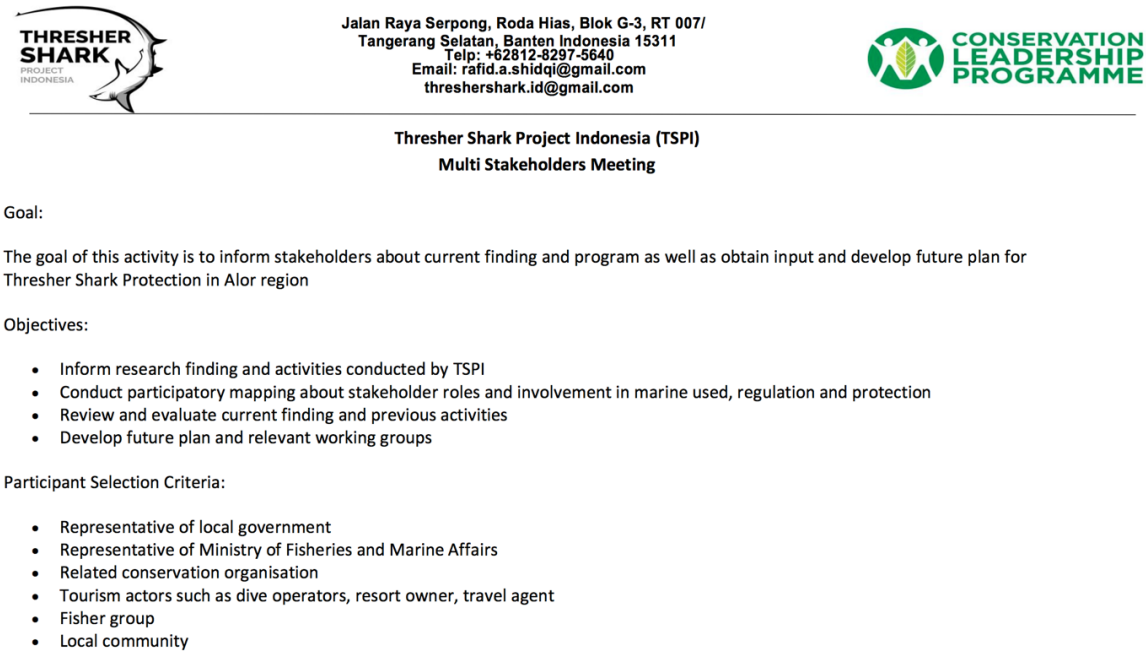
Figure 13. *Sample pages:* Focus Group Discussion Guideline



THRESHER SHARK PROJECT INDONESIA

Jalan Raya Serpong, Roda Hias, Blok G-3, RT 007/
Tangerang Selatan, Banten Indonesia 15311
Telp: +62812-8297-5640
Email: rafid.a.shidqi@gmail.com
threshershark.id@gmail.com

CONSERVATION LEADERSHIP PROGRAMME

Thresher Shark Project Indonesia (TSPI)
Multi Stakeholders Meeting

Goal:

The goal of this activity is to inform stakeholders about current finding and program as well as obtain input and develop future plan for Thresher Shark Protection in Alor region

Objectives:

- Inform research finding and activities conducted by TSPI
- Conduct participatory mapping about stakeholder roles and involvement in marine used, regulation and protection
- Review and evaluate current finding and previous activities
- Develop future plan and relevant working groups

Participant Selection Criteria:

- Representative of local government
- Representative of Ministry of Fisheries and Marine Affairs
- Related conservation organisation
- Tourism actors such as dive operators, resort owner, travel agent
- Fisher group
- Local community

Figure 10. *Sample pages:* Stakeholder meeting guideline

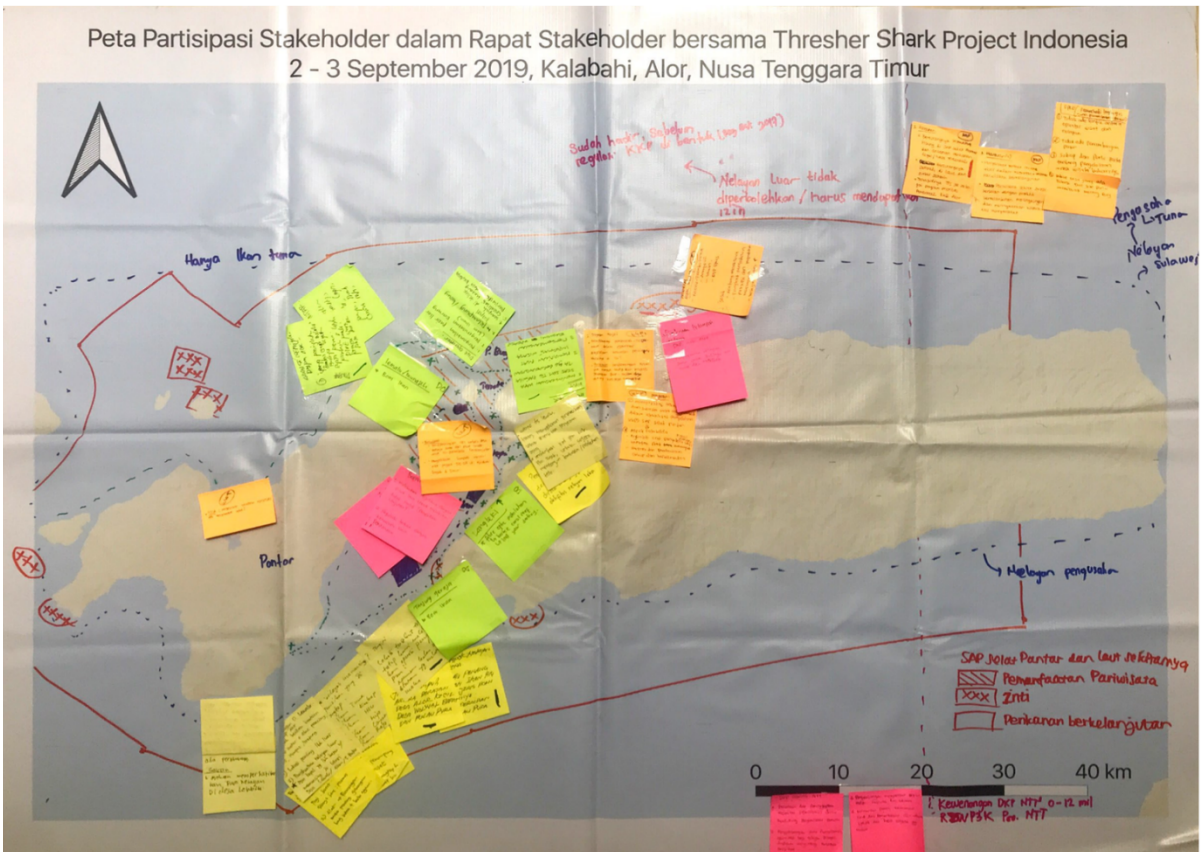


Figure 11. Participatory Mapping Result: Problems and Opportunities

Table 6. Identified Problems and Proposed solutions based on stakeholders' discussion

No	Stakeholder	Identified Problems	Proposed solutions
1.	Department of Marine and Fisheries (Province and District), Department of Planning, Research and Development of Alor	1. Limited information on fisheries potential	1. Utilizing the terrestrial area for aquacultures 2. Facilitating training for fishers 3. Collaborating with other parties for research on endangered species in Alor 4. Creating regulation related to conservation 5. Provide more funding for research and monitoring in conservation area 6. Assisting in the village financial planning dedicated for marine conservation 7. Improving the capacity of marine monitoring to ensure the MPA are protected from outside threats 8. Improving the livelihoods of fishers to minimize the existing destruction

			9. Improving village facilities 10. Conducting regular patrol to monitor the number of tourist ships entering Alor
2.	WWF, Tribuana University, Alor People Council	1. Increasing marine wastes in Alor 2. Destructive fishing activities in Pantar Strait 3. Conflicts between tourism operators and fishers/villagers 4. Sand mining on island 5. Regulation on sustainable marine tourism isn't yet available	1. Reduce destructive fishing from outside threats 2. Reduce marine wastes 3. Communities directly involved in sustainable tourism initiatives 4. Minimizing conflicts between tourism operators and fishers/villagers 5. Stop sand mining 6. Legalize regulation on sustainable marine tourism 7. Setting marine buoys as tourism facilities in villages 8. Assisting the development of community-based tourism 9. Facilitating governments and communities in the aspect of management of conservation area 10. Increasing capacity of tourism staff 11. Funding for tourism development and conservation
3.	Tourism Operator, Dive center, Department of Tourism	1. Installation of underwater fibre optics destructive to coral reefs 2. Destructive bomb fishing 3. Sand mining 4. Marine wastes are increasing 5. Marine buoys aren't available for tourism boats 6. Limited tourists' numbers	1. Socialization about tourism potential to villages 2. Increase the capacity of village about sustainable tourism 3. Build community centre for thresher shark conservation 4. Diversify the products for alternative economy 5. Optimize the tourism activities by considering the high season and low season
4.	Communities and Village Leaders of Ampera	1. Government did not pay attention to community welfare 2. Outside fishers are catching fish around Alor 3. Inadequate boat capacity	1. Improve facility for fishing gears and boat capacity 2. Improve fish market 3. Provide incentives for shark 4. Stop the permit for outside fishers

		4. Fishing in main income for fishers 5. Skills for alternative livelihood options are lacking	
5.	Communities and Village leaders of Lewalu	1. Regulation on thresher shark conservation is not yet available 2. Inadequate boat capacity to catch more fish 3. Tourists entering the village areas without permit 4. Coordination between villages and tourism operators are still lacking	1. Improve fishing facilities for fishers 2. Stop the permit for outside fishers 3. Provide incentives for shark 4. Build better system for tourism activities

Appendix 3: Raw Data

Dive site location of sighting Thresher Shark

Dive Site	Longitude	Latitude
Anemone carpet	124.338468	-8.324522
Reta	124.356185	-8.325362
Cathedral	124.382548	-8.343225
Sopi market	124.348925	-8.274293
Anemone City	124.368721	-8.312294
Anemone City	124.368721	-8.312294
Anemone City	124.368721	-8.312294
Cathedral	124.382548	-8.343225
Baipa	124.395427	-8.327105
Anemone City	124.368721	-8.312294
Anemone City	124.368721	-8.312294
Anemone City	124.368721	-8.312294
Baipa	124.395427	-8.327105

Fishing ground survey of Thresher Shark

Date	x	y	z
29-Aug-18	124.434615	-8.278335	7.31311
28-Aug-18	124.393068	-8.274848	5.299263
27-Aug-18	124.39158	-8.29709	10.134895
27-Aug-18	124.389496	-8.30737	9.090096
27-Aug-18	124.402591	-8.304333	10.439426
25-Aug-18	124.391972	-8.295176	4.429047
25-Aug-18	124.389981	-8.292817	6.774921
24-Aug-18	124.400955	-8.295006	4.098434
24-Aug-18	124.396068	-8.29992	5.636322
24-Aug-18	124.396	-8.30055	6.559639
24-Aug-18	124.395591	-8.300759	7.96777
24-Aug-18	124.396454	-8.300461	10.362522
17-Aug-18	106.66456	-6.315848	59.89986
5-Sep-18	124.396376	-8.291115	5.686039
5-Sep-18	124.391489	-8.301335	5.481571

Satellite tag data: Sample of Vertical Profile data

Date	Time	Depth	Drange
16-Sep-2018	00:00:00	131.5	15.25
16-Sep-2018	00:10:00	131.5	15.25
16-Sep-2018	00:20:00	131.5	15.25
16-Sep-2018	00:30:00	104.5	15
16-Sep-2018	00:40:00	84	7.75
16-Sep-2018	00:50:00	104.5	15
16-Sep-2018	01:00:00	43.5	7.5
16-Sep-2018	01:10:00	26.5	4
16-Sep-2018	01:20:00	57	7.5
16-Sep-2018	01:30:00	70.5	7.75
16-Sep-2018	01:40:00	84	7.75
16-Sep-2018	01:50:00	104.5	15
16-Sep-2018	02:00:00	104.5	15
16-Sep-2018	02:10:00	226.5	29.75
16-Sep-2018	02:20:00	185.5	15.75
16-Sep-2018	02:30:00	158.5	15.25
16-Sep-2018	02:40:00	131.5	15.25
16-Sep-2018	02:50:00	131.5	15.25
16-Sep-2018	03:00:00	131.5	15.25
16-Sep-2018	03:10:00	280.5	30.25
16-Sep-2018	03:20:00	335	31
16-Sep-2018	03:30:00	280.5	30.25
16-Sep-2018	03:40:00	226.5	29.75
16-Sep-2018	03:50:00	226.5	29.75
16-Sep-2018	04:00:00	185.5	15.75
16-Sep-2018	04:10:00	185.5	15.75
16-Sep-2018	04:20:00	158.5	15.25
16-Sep-2018	04:30:00	131.5	15.25
16-Sep-2018	04:40:00	43.5	7.5

16-Sep-2018	04:50:00	13	3.5
16-Sep-2018	05:00:00	84	7.75
16-Sep-2018	05:10:00	185.5	15.75
16-Sep-2018	05:20:00	280.5	30.25
16-Sep-2018	05:30:00	335	31
16-Sep-2018	05:40:00	389	31.75
16-Sep-2018	05:50:00	389	31.75
16-Sep-2018	06:00:00	389	31.75
16-Sep-2018	06:10:00	389	31.75
16-Sep-2018	06:20:00	389	31.75
16-Sep-2018	06:30:00	389	31.75
16-Sep-2018	06:40:00	389	31.75
16-Sep-2018	06:50:00	335	31
16-Sep-2018	07:00:00	226.5	29.75
16-Sep-2018	07:10:00	185.5	15.75
16-Sep-2018	07:20:00	84	7.75
16-Sep-2018	07:30:00	19.5	3.75
16-Sep-2018	07:40:00	13	3.5
16-Sep-2018	07:50:00	43.5	7.5
16-Sep-2018	08:00:00	68.5	8.25
16-Sep-2018	08:10:00	198.5	16.75
16-Sep-2018	08:20:00	229.5	17
16-Sep-2018	08:30:00	137.5	16.5
16-Sep-2018	08:40:00	57	4.25
16-Sep-2018	08:50:00	34	4.25
16-Sep-2018	09:00:00	57	4.25
16-Sep-2018	09:10:00	68.5	8.25
16-Sep-2018	09:20:00	68.5	8.25
16-Sep-2018	09:30:00	68.5	8.25
16-Sep-2018	09:40:00	34	4.25
16-Sep-2018	09:50:00	34	4.25
16-Sep-2018	10:00:00	84	8.5
16-Sep-2018	10:10:00	99	8.25
16-Sep-2018	10:20:00	84	8.5
16-Sep-2018	10:30:00	68.5	8.25
16-Sep-2018	10:40:00	41.5	4.25
16-Sep-2018	10:50:00	114.5	8.5
16-Sep-2018	11:00:00	41.5	4.25
16-Sep-2018	11:10:00	24.5	2.25
16-Sep-2018	11:20:00	24.5	2.25
16-Sep-2018	11:30:00	84	8.5
16-Sep-2018	11:40:00	137.5	16.5
16-Sep-2018	11:50:00	68.5	8.25
16-Sep-2018	12:00:00	57	4.25
16-Sep-2018	12:10:00	41.5	4.25
16-Sep-2018	12:20:00	49.5	4.5
16-Sep-2018	12:30:00	57	4.25
16-Sep-2018	12:40:00	114.5	8.5
16-Sep-2018	12:50:00	114.5	8.5
16-Sep-2018	13:00:00	68.5	8.25
16-Sep-2018	13:10:00	49.5	4.5

16-Sep-2018	13:20:00	24.5	2.25
16-Sep-2018	13:30:00	24.5	2.25
16-Sep-2018	13:40:00	41.5	4.25
16-Sep-2018	13:50:00	68.5	8.25
16-Sep-2018	14:00:00	49.5	4.5
16-Sep-2018	14:10:00	49.5	4.5
16-Sep-2018	14:20:00	68.5	8.25
16-Sep-2018	14:30:00	57	4.25
16-Sep-2018	14:40:00	114.5	8.5
16-Sep-2018	14:50:00	34	4.25
16-Sep-2018	15:00:00	114.5	8.5
16-Sep-2018	15:10:00	84	8.5
16-Sep-2018	15:20:00	84	8.5
16-Sep-2018	15:30:00	49.5	4.5
16-Sep-2018	15:40:00	41.5	4.25
16-Sep-2018	15:50:00	49.5	4.5
16-Sep-2018	16:00:00	56	4.75
16-Sep-2018	16:10:00	48	4.75
16-Sep-2018	16:20:00	40	4.75
16-Sep-2018	16:30:00	40	4.75
16-Sep-2018	16:40:00	48	4.75
16-Sep-2018	16:50:00	56	4.75
16-Sep-2018	17:00:00	48	4.75
16-Sep-2018	17:10:00	22.5	2.5
16-Sep-2018	17:20:00	22.5	2.5
16-Sep-2018	17:30:00	48	4.75
16-Sep-2018	17:40:00	68	9
16-Sep-2018	17:50:00	68	9
16-Sep-2018	18:00:00	68	9
16-Sep-2018	18:10:00	99.5	9.25
16-Sep-2018	18:20:00	99.5	9.25
16-Sep-2018	18:30:00	99.5	9.25
16-Sep-2018	18:40:00	99.5	9.25
16-Sep-2018	18:50:00	68	9
16-Sep-2018	19:00:00	40	4.75
16-Sep-2018	19:10:00	68	9
16-Sep-2018	19:20:00	83.5	9.25
16-Sep-2018	19:30:00	68	9
16-Sep-2018	19:40:00	68	9
16-Sep-2018	19:50:00	83.5	9.25
16-Sep-2018	20:00:00	99.5	9.25
16-Sep-2018	20:10:00	48	4.75
16-Sep-2018	20:20:00	22.5	2.5
16-Sep-2018	20:30:00	22.5	2.5
16-Sep-2018	20:40:00	48	4.75
16-Sep-2018	20:50:00	68	9
16-Sep-2018	21:00:00	56	4.75
16-Sep-2018	21:10:00	68	9
16-Sep-2018	21:20:00	170.5	18.25
16-Sep-2018	21:30:00	234	19
16-Sep-2018	21:40:00	234	19

16-Sep-2018	21:50:00	234	19
16-Sep-2018	22:00:00	234	19
16-Sep-2018	22:10:00	202.5	18.5
16-Sep-2018	22:20:00	115.5	9.5
16-Sep-2018	22:30:00	83.5	9.25
16-Sep-2018	22:40:00	83.5	9.25
16-Sep-2018	22:50:00	139	17.75
16-Sep-2018	23:00:00	115.5	9.5
16-Sep-2018	23:10:00	115.5	9.5
16-Sep-2018	23:20:00	83.5	9.25
16-Sep-2018	23:30:00	99.5	9.25
16-Sep-2018	23:40:00	115.5	9.5
16-Sep-2018	23:50:00	170.5	18.25

Satellite tag data: Sample of Temperature data

Date	Time	Temperature	Trange
17-Sep-2018	00:00:00	23.2	0.65
17-Sep-2018	00:10:00	27	0.7
17-Sep-2018	00:20:00	22	0.7
17-Sep-2018	00:30:00	20.7	0.7
17-Sep-2018	00:40:00	27	0.7
17-Sep-2018	00:50:00	25.7	0.65
17-Sep-2018	01:00:00	24.5	0.7
17-Sep-2018	01:10:00	18.2	0.7
17-Sep-2018	01:20:00	24.5	0.7
17-Sep-2018	01:30:00	22	0.7
17-Sep-2018	01:40:00	22	0.7
17-Sep-2018	01:50:00	18.2	0.7
17-Sep-2018	02:00:00	23.2	0.65
17-Sep-2018	02:10:00	24.5	0.7
17-Sep-2018	02:20:00	23.2	0.65
17-Sep-2018	02:30:00	24.5	0.7
17-Sep-2018	02:40:00	25.7	0.65
17-Sep-2018	02:50:00	25.7	0.65
17-Sep-2018	03:00:00	14.4	0.7
17-Sep-2018	03:10:00	14.4	0.7
17-Sep-2018	03:20:00	18.2	0.7
17-Sep-2018	03:30:00	18.2	0.7
17-Sep-2018	03:40:00	25.7	0.65
17-Sep-2018	03:50:00	25.7	0.65
17-Sep-2018	04:00:00	20.7	0.7
17-Sep-2018	04:10:00	15.6	0.65
17-Sep-2018	04:20:00	13.1	0.65
17-Sep-2018	04:30:00	13.1	0.65
17-Sep-2018	04:40:00	13.1	0.65
17-Sep-2018	04:50:00	25.7	0.65
17-Sep-2018	05:00:00	25.7	0.65
17-Sep-2018	05:10:00	9.3	0.65
17-Sep-2018	05:20:00	9.3	0.65
17-Sep-2018	05:30:00	9.3	0.65
17-Sep-2018	05:40:00	8	0.7

17-Sep-2018	05:50:00	8	0.7
17-Sep-2018	06:00:00	8	0.7
17-Sep-2018	06:10:00	8	0.7
17-Sep-2018	06:20:00	8	0.7
17-Sep-2018	06:30:00	8	0.7
17-Sep-2018	06:40:00	15.6	0.65
17-Sep-2018	06:50:00	27	0.7
17-Sep-2018	07:00:00	8	0.7
17-Sep-2018	07:10:00	8	0.7
17-Sep-2018	07:20:00	8	0.7
17-Sep-2018	07:30:00	8	0.7
17-Sep-2018	07:40:00	8	0.7
17-Sep-2018	07:50:00	8	0.7

Sample of questionnaire data:

Quest Code	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
RS_Lewalu_01_AD	3	49	1	1	TV	4(3 kids+1 wife)	30	2	YES	4500000
RS_Lewalu_02_AM	3	46	2	1	TV	3 (2 kids+1 Wife)	9	1	YES	6500000
RS_Lewalu_03_AD	3	35	3	1	TV	3 (all kids)	10	1	YES	2000000
RS_Lewalu_04_MS	5	35	1	1	None	4 (3 child+1 Wife)	14	1	YES	1000000
RS_Lewalu_05_RM	2,6	67	1	1	TV, Receiver	3 child	50	1	YES	4000000
RS_Lewalu_06_SM	3	37	2	1	TV, Fan	3 (2 child+1 wife)	22	1	YES	3500000
RS_Lewalu_07_RM	5	31	1,2	1	Speaker	3 (1 wife)	3	2	YES	1000000
RS_Lewalu_08_RA	4,5	34	1	1	TV, Parabola	4 (3 child, 1 wife)	20	1	YES	3500000
RS_Lewalu_09_RS	2	50	2	1	TV	5 (4 child, 1 wife)	35	1	YES	1000000
RS_Lewalu_10_KK	2	43	1	1	HP	1 Wife	11	1	YES	1500000
RS_Lewalu_11_BP	3	42	2	2	HP	5 childrean, 1 Wife	11	1	YES	1500000
RS_Lewalu_12_AM	6	40	1	1	TV	5 childre	30	1	NO	3000000

						n, 1Wife				
RS_Lewalu_13_ID	3	41	1	1	TV	6	16	1	NO	900000
RS_Lewalu_14_S	3	53	1	1	TV	4	37	2	YES	2500000
RS_Ampera_01_L	7 (lewo lang)	50	1	1	TV, Fridge	7	20	2	YES	500000
RS_Ampera_02_N	7 (lewo lang)	63	2	1	TV	4	20	1	YES	500000
RS_Ampera_03_H	7 (lewo lang)	53	1	1	TV, Laptop, Printer	5	45	3	YES	1000000
RS_Ampera_04_A	7 (lewo lang)	52	1	1	TV	6	40	3	YES	1000000

Quest Code	Q65	Q66	Q67	Q68	Q69	Q70	Q71	Q72	Q73	Q74
RS_Lewalu_01_AD	1	7	7	5	4	7	2	6	6	7
RS_Lewalu_02_AM	1	1	2	7	1	7	3	7	7	5
RS_Lewalu_03_AD	4	6	4	7	4	3	6	5	3	6
RS_Lewalu_04_MS	7	7	4	7	1	7	7	7	1	7
RS_Lewalu_05_RM	7	7	4	7	5	7	4	4	3	7
RS_Lewalu_06_SM	7	4	4	7	4	7	3	7	5	5
RS_Lewalu_07_RM	7	6	3	7	3	7	7	7	7	7
RS_Lewalu_08_RA	4	7	7	7	7	7	7	7	7	7
RS_Lewalu_09_RS	7	7	7	7	1	7	1	7	7	7
RS_Lewalu_10_KK	7	6	5	7	5	7	1	7	1	7
RS_Lewalu_11_BP	7	6	5	7	5	7	1	7	1	7

RS_Lewalu_12_AM	7	6	5	7	5	7	1	7	1	7
RS_Lewalu_13_ID	6	5	6	4	3	5	6	4	5	5
RS_Lewalu_14_S	7	7	3	7	1	7	4	7	7	5
RS_Ampera_01_L	7	7	4	5	1	1	1	7	7	7
RS_Ampera_02_N	1	1	3	3	6	4	3	6	7	7
RS_Ampera_03_H	7	7	7	7	4	7	7	1	7	7
RS_Ampera_04_A	7	7	7	7	4	7	7	1	7	7

Code
1 = Strongly Disagree
2 = Moderately Disagree
3 = Mildly disagree
4 = Neutral
5 = Mildly agree
6 = Moderately Agree
7 = Strongly Agree

Sample of Fisheries Data Logsheet

INFORMASI UMUM			JENIS TANGKAPAN								
			TUNA		KAKAP		HIU EKOR PANJANG (Hiu *Thresher*)				
Tanggal	Nama Nelayan	Waktu (berangkat-pulang)	Besar (kg)	Kecil (ekor)	Besar (kg)	Kecil (ekor)	Panjang Cagak (FL)	Hamil/Tidak	Jantan/Betina	Jumlah Anak	Panjang Anak (cm)
29/12/2018	Bungsu	13:00-15:30					168		Betina		
28/03/2019	Sahlul Muring	09:00-12:30					151	Tidak	Betina		
28/03/2019	Sahlul Muring	09:00-12:30					149	Tidak	Betina		
29/03/2019	Ahmad Muring	10:00-13:00					153	Hamil	Betina	2	90
29/03/2019	Rahmat Ali	10:00-13:00					150		Jantan		
29/03/2019	Madjid Salama	10:00-13:00					160	Hamil	Betina		116
29/03/2019	Madjid Salama	10:00-13:00					143	Tidak	Betina		
29/03/2019	Rahman Amakae	10:00-13:00					150	Tidak	Betina		
29/03/2019	Ahmad Djae	10:00-13:00					146	TIdak	Jantan		
29/03/2019	Sahlul Muring	10:00-13:00					145	Tidak	Betina		
30/03/2019	Ahmad Muring	11:00-13:30					160	Hamil	Betina	2	76
30/03/2019	Amir Djou	11:00-13:30					148	TIdak	Betina		
01/04/2019	Amir Djou	06:00-09:00					162	Hamil	Betina	2	114
01/04/2019	Haji Pihang	06:00-09:00					144	Tidak	Jantan		
09/04/2019	Sahlul Muring	07:00-10:30					161	Hamil	Betina	2	112
09/04/2019	Haji Pihang	07:00-10:30					155	Hamil	Betina	2	115
09/04/2019	Rahmat Ali	07:00-10:30					143	Tidak	Betina		
10/04/2019	Haji Pihang	08:00-11:00					148	Tidak	Betina		
10/04/2019	Haji Pihang	08:00-11:00					151	Tidak	Betina		
11/04/2019	Sahlul Muring	09:00-11:30					138	Tidak	Jantan		
11/04/2019	Sahlul Muring	09:00-11:30					160	Hamil	Betina	2	114
11/04/2019	Sahlul Muring	09:00-11:30					154	Hamil	Betina	2	98
11/04/2019	Bungsu	09:00-11:30					147	Tidak	Jantan		
11/04/2019	Rahmat Ali	09:00-11:30					145	Tidak	Betina		
12/04/2019	Rahman Amakae	10:00-12:00					150	Tidak	Betina		
12/04/2019	Ahmad Djae	10:00-12:00					146	Tidak	Betina		
12/04/2019	Amir Djou	10:00-12:00					160	Hamil	Betina	2	115
12/04/2019	Suparjan Muring	10:00-12:00					156	Hamil	Betina	2	118

Sample of Focus Group Discussion Transcript:

TRANSCRIPT FOCUS GROUP DISCUSSION THRESHER SHARK PROJECT INDONESIA

Occupation: Fisherman

Rafid (R):	Bapak pertanyaan pertama ni ya, ini dong pengen tau tanggapan bapak-bapak mengenai ikan hiu tikus. Jika bapak bisa mendeskripsikan memancing dalam hidup bapak itu kira-kira seperti apa? Dalam pandangan bapak, memancing itu, bapak melihatnya seperti apa? Misal itu adalah, bapak tidak bisa tinggalkan atau su jadi… apa yang special dari memancing begitu? Dibandingkan pekerjaan lain misal bapak dorang melakukan pekerjaan lain, tapi dibandingkan dengan memancing, memancing itu kira-kira yang special apa? Yang bikin dia berbeda? Siapa? Bapak Salu dulu?
Salu (1)	Karena apa memancing itu dia punya hasil lebih banyak daripada pekerjaan yang lain
R	Hasil memancing lebih banyak dari yang lain ya? Ok. Bapak Amir ada mau kasih pendapat juga?
Amir (2)	Memancing itu gampang mendapat duit pak
R	Jadi memang dari segi pendapatan dia lebih banyak dari pekerjaan yang lain. Tapi kalau bapak dorang suka dari memancing selain dari uang, mungkin ada secara emosi, missal kalau tidak pergi memancing sehari saja itu rasanya ada yang kurang atau bagaimana? Kira-kira, yang paling disuka dari memancing itu apa?
Ahmad (3)	Tidak ada, hanya kebutuhan saja, untuk keuntungan saja
R	Tapi kalau dari segi pribadi itu?
3	Macam Cuma iseng itu tida ada, macam senang-senang itu tidak ada, kita semata-mata ini, karena tidak ada pekerjaan lain yang mau kita kerjakan
R	Pasti dari sisi ekonomi gitu ya? Maksudnya dari segi pribadi mungkin kalau sehari tidak memancing itu rasanya ada yang kurang begitu?
3	Ya.. ya…
R	Ada lagi? Mungkin bapak punya pendapat berbeda?
1	Yang paling pertama itu kan untuk memancing, baru kalau macam air laut tidak bagus, baru kita bisa ambil sampingan macam kerja didarat
R	Macam kerja didarat itu bagaimana?
1	Macam kerja ternak, kerja bangunan, pokoknya macam-macam lah, yang paling inti itu dilaut
R	Yang paling inti itu di laut. Kalau semisal air laut itu tidak bagus lalu kerjaan di darat to. Tapi kalau dibanding memancing lebih senang memancing ya?
1	Ya…
R	Ok, ada pendapat lain bapak? Yang mungkin punya pandangan lain selain dari dapat uangnya cepat banyak mungkin kalau tidak ke laut pura sedikit kalau tidak kena air garam atau matahari tubuh kering
3	Memang bakat-bakat sudah disitu, bakat sudah memancing itu
R	Berarti memancing dapat uang yang lebih cepat ya?
1	Ya…
R	Tidak ada ini lagi, pendapat lain? Sudah? Bisa lanjut ke pertanyaan lain?
Suparjan (4)	Macam ini kita ini mau kerja lain juga bisa tapi kita ini mau dapat modal darimana? Saya ngga bisa usaha lain. Jadi kita yaa mau tidak mau harus kelaut.

	Kita mau berkebun, kita yang khusus nelayan ini boleh dikatakan tidak punya tanah didarat. Nah, jadi kebun-kebun tanah itu tidak ada mau tidak mau harus kita usaha dilaut, kalau tidak kelaut mau kita kerja apa, apa yang bisa kita mau membiayai anak-anak sekolah, kebutuhan sehari-hari, jadi ini ya satu-satunya jalan harus kelaut, biar angin badai pun kita harus turun.
R	Terimakasih bapak Suparjan. Ada lagi?
Agustin (A)	Mungkin dari jaman dahulu apa misalnya ayahnya sudah memancing kemudian ikut-ikutan juga begitu?
Crowd	Ya..yaa. begitu.. sudah turun temurun
1	Dari jaman nenek moyang
R	Oke bapak kita pindah ke pertanyaan selanjutnya ya? Tadi kan memancing secara umum to, bisa pancing ikan merah, pancing ikan tuna, pancing ikan hiu, ikan meja apa saja. Sekarang ini tentang memancing ikan hiu tikus ini. Kalau bapak bisa mendeskripsikan memancing ikan hiu tikus di keseharian itu kira-kira bagaimana? Misal dapat hiu tikus itu apa lebih special dari ikan tuna. Misal bapak Tami kan su bisa kasi prediksi to "Wah ini hiu ini" macam kemarin to? Su bisa tau kalau ada ikan di kail ketauan ini hiu gitu. Perasaan bagaimana? Maksudnya lebih senang kah atau biasa saja, atau apabila dibanding dapat ikan lain misal dapat ikan tuna, ikan merah, kira-kira bagaimana?
4	Itu kita tu senang. Rasa senang ini, kita yang kelaut itu walaupun ikan apa saja kemakan, itu kita sudah rasa syukur itu, rasa terimakasih karena ikan itu yang kita cari. Kita tidak niat bahwa saya hari ini harus cari ikan hiu, tidak ada punya niat begitu. Kita ini niat keluar jalan itu cari ikan. Nah, jadi ikan apa kemakan itu tetap kita ambil.
R	Berarti tidak bisa prediksi hari ini mungkin saya memancing ikan hiu saja tapi ternyata dapat ikan tuna
4	Kalau ikan hiu kan ada musimnya. Kalau dia punya musim itu tiba semata-mata itu kita harus kejar ikan hiu. Walaupun harga tidak bagus, tapi itulah pekerjaan kita.
R	Hmmm, berarti kalau musim baru bapak dong su mulai fokus untuk mancing ikan hiu ya? Tapi kalau ikan hiu lagi musim begitu ikan lain dapat?
3	Kalau lagi betul musimnya, itu ikan lain su tidak ada. Dia dari pagi sampai sore itu hiu tok
A	Musimnya kapan itu?
4	Ini lagi satu bulan ini…
3	Seharusnya begini sudah makan, jadi bulan bulan begini dia sudah makan karena kita tidak bisa prediksi, tidak bisa pasti…
R	Berarti yang pertama tadi kalau mincing tidak bisa pilih ya? Maksudnya taruh kail saja to yang makan itu dapat diambil
3	Kalau sudah musimnya, itu biar kita lepas umpan selain hiu dia pasti sambar, kalau kita lepas umpan yang kecil itu juga ia sambar. Seperti yang kemarin itu sama bapak tami ituu bukan umpannya itu, yang dia sambar itu bukan umpannya. Jadi pas kebetulan dia lewat dia sambar.
R	Tapi kalau maksudnya tidak ada perasaan istimewa begitu ya kalau misal mungkin ya memang tidak bisa prediksi bakal dapat ikan apa tapi ketika dapat

TRANSCRIPT FOCUS GROUP DISCUSSION THRESHER SHARK PROJECT INDONESIA

Occupation: Fishmonger and fisherman wives

Rafid (R)	Mama mungkin begitu awal penjelasan saya tentang kegiatan sama tentang ikan hiu tikus itu ya mama? Sekarang kita bisa mulai ke pertanyaan ya? Nanti kalau mama dorang mau bicara mungkin kita bisa bagikan ini jadi kalau mau bicara ini ada ikan hiu tikus kecil yang, jadi kalau mama mau bicara supaya tidak susul-susul begitu ini nanti kakak eka kasih distribusi nanti yang pegang hiu tikus ini baru boleh bicara, jadi kalau mau bicara harus angkat tangan lalu kakak eka kasih… Mama pertanyaan pertama ini, kira-kira ini mau tau apa nelayan dorang atau mama dorang jual hiu tikus ini su berapa lama? Kira-kira yang pertama dia mulai dapat hiu tikus itu, siapa yang pertama tau kira-kira "oh ternyata di lewalu ini ada hiu tikus jadi dong su mulai su tangkap barang itu" siapa kira-kira yang bisa jelaskan sejarahnya bagaimana.
Ibu (1)	Mengenai hiu tikus ini sudah turun temurun, dari nenek moyang sampai sekarang ini. Sudah lama sekali sebelum kami ada sudah, hiu tikus ini sudah ditangkap oleh nenek moyang kampung ini.
R	Berarti ketika mama dong belum lahir, nenek moyang sudah lahir, mama dong lahir, kira-kira diturunkan begitu kemampuannya? Tapi kira-kira mama dorang ada rasa bangga kah tidak turun nenek moyang itu kan, kemarin saya ada, maksudnya sebelum kita mulai di lewalu kita Tanya-tanya orang di alor di kalabahi ini, dong tidak ada yang tahu tentang hiu tikus karena tidak ada yang tangkap barang ini, ini tidak ada di alor. Tapi ketika kita lari ke arah abal sini to, oh ternyata ada di lewalu dengan ampera memang dorang yang… berarti hanya dua desa yang tau cara tangkap barang ini to? Punya kemampuan begitu… Kira-kira mama ada rasa-rasa bangga karena Cuma lewalu saja yang tau cara tangkap barang ini.
1	Karena kita dapat satu ekor saja cukup memenuhi kebutuhan
R	Berarti dong nelayan baru belajar dari orang tua pas waktu kecil diajari begitu?
Crowd	Iya…
R	Begitu ya, ada tanggapan lain mama? Kira-kira mungkin ada pengalaman waktu masih muda begitu? Ikut memancing? Memancing hiu tikus lalu pernah dapat di laut. Berarti kalau misal dari hiu tikus yang mama dorang selain tadi satu ekor kan dia su jual agak mahal begitu to? Yang berbeda dia dari ikan lain selain itu apa lagi? Beda dari ikan tuna, atau ikan merah… Yang mama suka dari ikan hiu tikus itu apa? Kalau hiu tikus kira-kira yang bikin mama suka hiu tikus dibanding ikan lain?
Crowd	Sama saja, tidak ada yang beda
R	Berarti daging dia bagaimana?
Crowd	Daging dia beda

R	Mama ada suka daging hiu tikus? Dibanding dengan daging ikan lain kira-kira?
2	DIa beda rasa
R	Lebih enak mana itu?
2	Semuanya enak
1	Cuma bedanya hiu tikus dia punya tulang kan beda, kalau ikan tuna, ikan-ikan yang lain kan tulangnya banyak. Kalau hiu tikus kan tulangnya Cuma bulat-bulat panjang di tengah, lebih banyak dagingnya.
R	Berarti tidak repot pisah-pisah tulang begitu ya?
1	Bahkan kepalanya juga bisa dimakan, kalau yang lain kan dibuang. Ikan hiu tikus dia punya kepala sampai ekor bisa di konsumsi semua. Siripnya juga bisa dijual.
R	Berarti semua anggota badannya bisa dimakan dan dijual begitu ya?
Crowd	iyaa
R	Ada lagi kah mungkin tanggapan mama yang lebih suka hiu tikus mungkin? "Ah menurut saya hiu tikus dagingnya beda, saya lebih suka hiu tikus dibandingkan ikan lain"
2	Kalau ikan hiu tikus ini kan kita cukup puas juga sebagai istri nelayan to? Jadi Kalau kita jual di pasaran harganya cukup lumayan kan. Karena dagingnya juga cukup banyak, baru untuk memenuhi kebutuhan kita tiap hari juga cukup memuaskan dibandingin dengan ikan-ikan lain begitu. Soalnya hampir semua bisa kita jual jadikan uang kalau ikan hiu kan? Dari mulai ekornya, sirip, daging, sampai ke kepala. Malah tulangnya juga kita jadikan uang.
R	Tulangnya jadi apa tu?
2	Kita jual juga, orang-orang di pegunungan kan… Katanya dimakan, sampai jantungnya juga. Jadi kita juga cukup puas sebagai nelayan ikan hiu itu.
R	Berarti dia mungkin kalau dapat jual, ada sisa mungkin bisa untuk dirumah juga begitu ya?
1	DIa dagingnya juga tidak cepat hancur, dikeringkan lebih enak…
R	Dikeringkan lebih enak?
Crowd	Iya…
R	Tapi kalau yang di desa di jual, jual basah atau jual kering?
Crowd	Kering
1	Kalau tidak habis, di jemur kering juga laku jadi uang. Dagingnya lebih bagus
R	Berarti hiu tikus ini memang buat makan juga ya?
Crowd	Iya
R	Nah, kira-kira semisal mama tadi liat ada video dia cara makan begitu kan. Misal dia hidup di laut begitu, dia hidup di lautan luas, dia makan ikan-ikan kecil begitu, kira-kira mama ada tau dia punya fungsi di laut itu bagaimana? Macam kalau polisi dia pu fungsi kan kalau dong tidak pakai helm di tangkap, motor diambil, atau mungkin dokter dia pu fungsi ada orang sakit di obatin. Kalau ikan hiu tikus, kira-kira mama ada tau tidak? Dia pu manfaat dilaut bagaimana?
1	Dia itu makan ikan yang kecil

Appendix 4 : Outreach materials

Figure 14. Children Book: Petualangan Aisa dan Rizal di Lautan Alor – The adventure of Aisa, Rizal and *Tresi the thresher shark in Alor waters*

Figure 16. Project poster, distributed to schools, offices and project partners (left), Alor Pos Newspaper, printed on September 2019 (right)

Figure 17. T-shirt Design: Distributed to communities and partners

Figure 18. Thresher Shark Project Published in Scubadiver Australasia Magazine

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Address List and Web Links

1. Rafid Arifuddin Shidqi – _Jalan Raya Serpong, Roda Hias, Block G-3, RT 007/02, Tangerang Selatan, Banten 15311. rafid.shidqi@hotmail.com. (+62) 8128297-5640