Training Workshop on Reducing Bycatch of Endangered, Threatened and Protected Species (ETP) in Fisheries of the Guianas:
Improved Species Identification and Monitoring

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Report of the 2nd training workshop

9 – 10 May 2018, Georgetown, Guyana

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The SRJS Programme is financially supported by the Dutch Ministry of Foreign Affairs (DGIS)

1. Introduction

Endangered, Threatened and Protected (ETP) species is a term commonly used in relation to the management of marine fisheries. ETP species include species that typically interact with fisheries, but need attention because they are endangered or threatened, and therefore either protected by local, national or international legislation, or in need of a protected status. Species are classified as ETP based on vulnerability assessments, among which the Red List of IUCN (International Union for Conservation of Nature) is probably the most widely used. ETP species might also be protected from international trade if they occur in the annexes of CITES (Convention on International Trade of Endangered Species). At least 25 ETP species are known to interact with marine fisheries in the Guianas, including sharks, rays, sea turtles and dolphins. While some of these are targeted in the fishery, most are caught as bycatch and often discarded back to sea.

To mitigate fisheries impact on ETP species, WWF Guianas aims to get more information on the bycatch of these species in different fishery sectors throughout the Guianas. However, **WWF has recognized that fishermen in the region are often unable to identify ETP species and are largely unaware of the vulnerable status of these species**. This also applies to personnel of the Guyana Fisheries Department (FD), Ministry of Agriculture, responsible for data collection on species captured in the fishery. This has recently become apparent during a sea-going observer program funded by WWF to characterize bycatch in industrial trawl fisheries off Guyana as well as a scoping study done on sharks and rays. Many species were misidentified due to lack of knowledge, experience and appropriate identification literature. Several species, especially sharks, present a challenge for identification, especially when they are landed headed and/or finned. Clearly, the lack of identification skills for ETP species hampers the collection of appropriate data, needed as a basis for management measures to secure their protection. This data is essential to inform decision makers on the management of bycatch in general and in particular of ETP (Endangered, Threatened and Protected) species.

In response, WWF Guianas embarked on developing an ETP species ID identification booklet for the Guianas that is waterproof and can be taken to sea to improve data from the fishermen on the types and amounts of ETP species caught. The guide will also be useful for field staff of regulatory agencies, who also interact with these species by either collecting landing sites data or issuing import or export permits. Furthermore, WWF Guianas has organized a set of workshops to train fishermen and others in the Identification of ETP species suing the ID guide as basis. The first training workshop of 2 days was held in Guyana in November 2017, for the fishermen of the Guyana East Coast area (Regions 5 and 6), and fisheries officers from the FD (see 1st workshop report). The second training (this report) was held in Georgetown, Guyana on 9 and 10 May 2018.

The objectives of the training workshop were to:

1) **Raise awareness on the concept of ETP species, their interactions with fisheries and how they can be mitigated**
2) **Train the participants on the different species that occur in the coastal waters of Guyana, and how they can be identified**
3) **Obtain recommendations on how ETP-fisheries interactions can be mitigated and how data collection on ETP species can be improved**

2. Workshop Description

The workshop was held on 9th and 10th of May 2018, at the Georgetown Fishermen's Cooperative, Meadow Bank, Georgetown, Guyana. The workshop was attended by a large audience, with a diverse background, including fishermen, fishing sector representatives (both artisanal and industrial), fisheries officers (fisheries department), students (University of Guyana), etc. People from both Georgetown and the coastal regions participated. In total, the workshop was attended by 102 registered participants. The full lists of participants are attached as Annex 1.

The workshop consisted of seven sessions, including theoretical, discussion-oriented and practical (hands-on) sessions. Most sessions were facilitated by a consultant Tomas Willems (TW). The workshop schedule is attached as Annex 2.

3. Workshop sessions

3.1 Opening

Opening words came from Aiesha Williams (AW) (Guyana Country Manager of WWF Guyana) and Denzil Roberts (DR) (Chief Fisheries Officer of Fisheries Department). Both stressed the importance of improved awareness and identification of marine ETP species for sustainable fisheries management. A moment of silence was held, in sympathy with the fishermen and their relatives that suffered from recent violent attacks at sea in Suriname.

AW in her opening remarks highlighted that fisheries play an important role in our social and economic development and our peoples' health and wellbeing, therefore we must ensure that we do all within our power to maintain healthy fish stocks; it is important for us to be aware of the impacts of some fishing gears/ vessels may pose to several of these ETP species and take the necessary care to ensure that any harmful activities are reduced- some of which can drive some of these sensitive species population to very low numbers or to extinction, over time, which in turn, affects the healthy fisheries stocks we all depend on. AW stressed that these ETP species need special care, their life cycle, the way in which they multiply, the current global populations and the fact that they help us to understand the oceans health, and all of this also make it complicated for them to recover from activities such as overfishing, net entanglement among others. AW emphasized that "as fisheries stakeholders we all have our part to play in ensuring that measures are in place to reduce these interactions and impacts and that we fish in a sustainable manner". Therefore, the workshop will help in building our local capacities and knowledge, you learn from the team and the team learns from you – identifying the species, possible measures we could put in place to help reduce the impacts.
DR officially declared the workshop open and charged those present to maximize on the resources available for their development in this regard. DR stressed the importance of reducing bycatch and the FD's interest and commitment to endorsing and facilitating initiatives such as today's.Next, Sopheia Edghill (SE), Marine Officer at WWF Guianas introduced the aims of the training workshop in more detail while reiterating that the workshop came as a result of several dialogues among fishermen, the FD and WWF who all recognize the difficulties that exist in differentiating what these species are, especially the sharks since they are landed dressed. The main aim of the workshop was to strengthen/

build our local capacities and knowledge, while identifying and discussing what possible measures could be developed to help reduce the impacts our nets / vessels may have on these species. These developments could be based on changes to gears, or changes to your current fishing practices and us working together towards implementing area/ time closures or more effective management strategies.

At the end of the introduction, SE ran through the workshop agenda and introduced the facilitator (Tomas Willems). Next, every participant introduced him/herself.

3.2 Session 1: Introduction to Endangered, Threatened and Protected Species

This first session focused on the concept "ETP species". It was explained how ETP species are defined, and through what mechanisms species can *become* an ETP species. In general, one could state that marine species become endangered or threatened through a combination of their vulnerability, and mortality through fisheries. Marine species have different life history strategies. This strategy is a combination of traits, resulting in various investments in growth, reproduction and survivorship. Based on typical life history traits such as maturation, number of offspring, life span, natural mortality, etc, two major life history strategies can be defined. K-strategists life in an equilibrium state with their environment, and have a slow growth, late maturation, long life expectance and few offspring. On the other hand, r-strategist are species characterized by rapid growth, early maturity, high fecundity and a short generation time. Most marine species of fish and shrimp exploited in commercial fisheries are r-selected species, capable of recovering from fishing mortality. K-selected species, however, are not adapted to handle the (accidental) mortality caused by fisheries. An example includes the unsustainable fisheries for Orange roughy, a typical K-selected fish species that grows over a 100 years old. Consequently, many populations of K-selected species, such as marine mammals and turtles, rays and sharks, may be severely declined by fisheries, and are classified as ETP species.

The presentation of session 1 is attached as Annex 3.

3.3 Session 2: ETP species of Guyana

The aim of the second session was to introduce the ETP species that occur in Guyana. ETP species are classified as such, based on assessments of their population status. The IUCN Red List of Threatened Species is the most widely used in this respect. The IUCN Red List classifies species in seven different categories, from 'least concern' to 'extinct', based on the health of their global populations. A second list that might be consulted to assess whether a species classifies as ETP is annex 2 of CITES: The Convention on International Trade in Endangered Species of Wild Fauna and Flora. Based on these criteria, 15 species of sharks, 5 species of rays, 2 marine turtles and 2 marine mammals were identified as ETP species for Guyana. These species were introduced using the field identification guide developed by WWF Guianas: "On board guide for the identification of marine ETP and key species of the Guianas".

A pdf of the on-board identification guide is attached as Annex 4.

3.4 Session 3: Fisheries and ETP interactions in Guyana

Session 3 was facilitated by Ms. Ingrid Peters (IP), the Principal Fisheries Officer at the Guyana Fisheries Department. The aim of this session was to give a brief overview of the fisheries sector in Guyana in terms of target species, boats and gear, fleet sizes and landings, and the known interactions with ETP species in the Guyana fishery. The offshore industrial trawl fishery off Guyana consists of some 113 trawlers, including 86 for seabob and 21 for prawns. Some 38 semi-industrial vessels fish with traps and 18 with long-lines and 6 target tuna. The inshore artisanal sector is the largest fishing sector, comprising over 1000 boats fishing with gill nets, pin seine, cadell or Chinese seine. The data collection system of the Fisheries Department was briefly introduced. IP explained that there are some challenges with this system, also related to (potential) ETP species such as sharks. Limited access to the resources and lack of cooperation from fishers lead to inaccurate data. Due to poor collection of biological data, the status of many species remains unassessed, and their vulnerability in Guyana is unknown. FD staff is often unable to identify sharks at landing sites because they are landed finned and/or headed. IP suggested to develop a national plan of action for sharks, which should include training on species identification, improvements to the national data collection program and research to assess the status of shark populations.

The presentation of session 3 is attached as Annex 5.

Key questions/comments from participants following the presentation:

- Improving the fisheries sector so that checks can be done on the fishes caught in different regions daily instead of randomly.
- Have measures been put in place for tuna to ensure harvest is sustainable?
- Before vessels are licensed, stipulations should be given and after 2 years when it is time for reapplying for licenses, a review should be done on the fishermen to ensure that they have been giving their data regularly and cooperating with the fisheries department.
- Fisheries department needs to step up and be more on guard with the fishermen.

3.5 Session 4: Fishery and ETP species interactions and mitigation measures

The aim of this session was to introduce the workshop participants to the potential interactions between fisheries and ETP species, and what mitigation measures can be taken to reduce these interactions. First, technical (fishing gear related) measures were discussed. For bottom trawl, the Turtle Excluder Device (TED) is well-known, and this device also has the benefit of excluding other unwanted organisms (e.g. rays) or debris on the seafloor. While the TEDs sort the catch 'mechanically', other Bycatch Reduction Devices (BRDs) rely on the behavior of the species to be excluded from the trawl, and hence require more development and testing. For gillnet fisheries, the following adaptations were introduced to mitigate bycatch of turtles and dolphins: "tie-downs", pingers and green lights on the headrope. Finally, the use of circular hooks (in contrast to normal "J-hooks") to reduce turtle bycatch in longline fisheries was discussed. Next to the technical measures, fisheries management could also introduce spatial and/or temporal restrictions to reduce bycatch. As an example, the move-on role was given. As a third option for mitigation of ETP species interactions, it was emphasized that correct handling of the organisms, once caught, is crucial to improve their chances of survival.

The presentation of session 4 is attached as Annex 6.

After the 4th session, the experience and knowledge of the workshop participants was used to answer some questions related to ETP species interactions in fisheries in Guyana. Four groups were formed, with three groups discussing artisanal fisheries, and the other dealing with industrial fisheries.

Each group was asked to answer the following questions:

1. Are interactions ETP species known to occur in the fishery? (species that were reviewed, or other potential ETP species)
    a. What kind of interactions?
    b. What is the frequency of the interactions?
    c. Do they occur in specific areas or seasons?
2. How are these interactions perceived in the fishery?
    a. Positive/negative?
    b. Are the species retained or discarded?
3. Are there any measures in please in relation to ETP species interactions in the fishery?
    a. If yes, what measures?
    b. Are they effective?
    c. What other potential measures could be taken to reduce ETP species interactions in the fishery?

The answers were summarized on flip-chart papers, presented and discussed in plenary.

Summary of responses (see Annex 10 for detailed responses):

Industrial fisheries

1. Are interactions with ETP species known?
    a. Rays, Dolphins. Juvenile sharks are caught
    b. Sightings- dolphins, turtles
       Caught- rays, juvenile sharks
    c. Dolphins- 2 rainy seasons
       Turtles- July to Sept
       Sharks- Everyday, mainly Ju
       Rays- Everyday
2. How are these interactions perceived in the fishery?
    a. Negative- Hinders Production
    b. Discarded
3. Measures in place?
    a. Yes, TED and BRD
    b. Both are effective
    c. TTED

Artisanal fisheries

1. Are interactions with ETP species known?
    a. Both types of interactions i.e., catch and release
    b. Dolphins- seldom (15 per year)
       Turtles- June to Sept (occasionally), 25-30 yearly)

Sharks- caught regularly
Rays- caught regularly

2. How are these interactions perceived in the fishery?

Positive for retained species (sharks), negative for other ETP species.

3. Measures in place?

a. Yes, TED, Zoning + temporal closure (Shell beach)
b. All are effective
c.
   - When stakeholders interact with fishermen they should use more layman languages.
   - One on one interaction should be encouraged
   - Open and closed season
   - Government support
   - Dolphin pingers
   - Reliable rangers and adequate enforcement of prescribed gear types
   - TED
   - Green lights
   - Public awareness
   - Move-on rule

3.6 Session 5: Identification of ETP species occurring in Guyana (theory)

During this session, the identification of all 25 ETP species was discussed in detail. Most attention was given to the sharks, which present the most challenging group, represented by 15 species. Next, the rays were treated, followed by the marine turtles and marine mammals. For each group, the terminology of the different body parts was introduced first. Diagnostic features, separating the different species in Guyana, were emphasized. Most of the participants received a copy of the draft identification sheets for ETP species in the Guianas, developed by WWF. In this way, participants could take notes on the most important identification characteristics, pointed out by the trainer.

The presentation of session 5 is attached as Annex 7.

3.7 Session 6: Identification of ETP species occurring in Guyana (practice)

Using the information provided in session 5 and the ETP identification sheets, the participants could now practice identification skills. Seven fresh specimens of sharks and rays were displayed. The participants were given some time to identify these, after which the identification was discussed in plenary. Although some shark specimens were headed and/or finned, identification was still possible based on characteristics related to the position of the fins, body color, etc.

The identification of sharks presents the biggest challenge. An identification key (Annex 8) for the 15-shark species covered in the ID sheets was developed and used complementary to the on-board identification guide (Annex 4).

3.8 Session 7: Data collection and monitoring of ETP species interactions

The aim of this session was to use the experience and knowledge of the workshop participants to answers some questions related to data collection and monitoring of ETP species interaction in fisheries in Guyana. Three groups were formed and each group was asked to answer the following questions:

1. What information is currently being collected on ETP species interactions?
2. Which of the following (or other) methods could be used to collect data on ETP species?
   a. At-sea observers
   b. Landing site observations
   c. Interviews
   d. Reporting obligations
3. Recommendations for information collections on ETP species interactions

The answers were summarized on flip-chart papers, presented and discussed in plenary.

Summary of responses (see Annex 10 for detailed responses):

1. Collected Information:
   - Location
   - Depth of water
   - Species
   - Size
   - Dead or alive
   - Frequency of species
   - Number of species captured
   - Number of species released
   - Capture rate
   - Last haul assessment
   - Biological data

2. Which methods can be used to collect data:
   a. At-sea observers
      - Accurate data
      - Coast guard can help to make sure fishers are legal and have documents, but a disadvantage would be that the coast guard would not know if the documents are authentic or not.
      - A trained eye collecting data, accurate data collection but it's expensive and its over very long periods of time.
   b. Landing site observations
      - No visitation to small landing sites by fisheries officers, resulting in no information is being collected from smaller fishermen.
      -A fair data collection because bycatch is often discarded at sea, sharks are often landed dressed.
   c. Interviews

- Fair catch data is gathered. A disadvantage is the fear or unwillingness fishermen have with cooperating with authorities resulting in availability of fishes and under reporting.

d. Reporting obligations
- Artisanal fishermen are not reporting everything e.g. data.
- Improved data collection and submission but fishermen are withholding data and under reporting.

3. Recommendations:
- Closed seasons
- Move on rules
- Reporting area
- More visits are remote areas on the lading sites
- Construction of sub-offices can house fisheries officers so they won't have to travel far.
- Fisheries department could host workshops to help the fishermen & teach them to record. After which fishermen would be able to better communicate with fisheries officers because they would be educated on what the data is being used for and its importance.
- Urgent exploration and site analysis on ETP species and how we can retain them.
-Building trust between fishermen and fisheries department.
- Follow up on promises and provide update reports

3.9 Closing of the workshop

Ms. Ingrid Peters (Fisheries Dept.) closed the workshop and thanked all participants for their time and active cooperation. It is also expected that the fishers and fisheries staff will now take what they've learned and apply same to their job.

4. Recommendations

During the two ETP training workshops held so far, especially during the group discussion sessions (session 4 and 7), several ideas and recommendations were formulated related to data collection on ETP species in Guyana, and the mitigation of ETP species interactions in Guyana fisheries. For future reference, the recommendations are summarized below (combined from both workshops).

4.1 Recommendation to improve data collection

- **Improve the ETP identification guide:**
  - include an identification key to shark species
  - print on water-resistant paper
  - Include more species in the ETP identification sheets: certain species seem to be lacking from the sheets, notably the following species:
    - ✓ Southern (American) stingray
    - ✓ Manta ray
    - ✓ Eagle ray
    - ✓ Chupare stingray
    - ✓ Guitarfish
    - ✓ Brazilian electric ray

        - ✓ Smalltooth Sawfish (? – rare)
        - ✓ Loggerhead turtle
        - ✓ Hawksbill turtle
        - ✓ Daggernoze shark (? – rare)
        - ✓ Goliath grouper (?)

    - Include local/common names in the guide. The following names were mentioned during the workshop:
        - ✓ Black fin (Blacktip shark)
        - ✓ Sand shark (Smalleye smooth hound)
        - ✓ Waterguts; Waterbelly Shark (Brazilian/Caribbean Sharpnoze shark)
        - ✓ Tingeray (all stingray species)
        - ✓ Butterflap (Butterfly ray)
        - ✓ Seabat (Cownoze ray)
        - ✓ Palpas (Guiana dolphin)
        - ✓ Diamondhead shark (Guitarfish)
        - ✓ Sea devil (Manta ray)
        - ✓ Combshark (Smalltooth sawfish)
    - Include Dutch names (to cover languages of the 3 Guianas) instead of Spanish?

- Training and education of fishers on identifying ETP species + develop and distribute training materials
- Proper monitoring through ETP log sheets: introduce penalty for not submitting the log sheet or falsifying it + Reward fishermen who actively cooperate in the data collection
- Use a combination of the following methods for ETP data collection:
    - At-sea observers (also on artisanal vessels)
    - Landing site observations
    - Interviews
    - Reporting obligations (be aware of misreporting)
- Introduce a logbook (including ETP encounters) for artisanal fishing fleet

4.2 Recommendations to mitigate ETP species and fishery interactions

- Avoid fishing with certain gear in certain areas or seasons to minimize interaction
    - E.g. areas with high ray concentrations
    - E.g. turtle season
    - E.g. avoid fishing in 8-9 fathoms of water during the period October – November in the Corentyne River to minimize shark captures
- Educate fishers on handling of ETP species so specimens can be released alive with minimal damage
- Execute more research to identify areas with high probability of ETP encounters
- Implement move-on rules for industrial fisheries

5. Annexes

Annex 1: List of registered participants

Annex 2: Agenda of the training workshop

Annex 3: PPT presentation session 1

Annex 4: On-board guide for the identification of marine ETP and key species of the Guianas (Draft)

Annex 5: PPT presentation session 3

Annex 6: PPT presentation session 4

Annex 7: PPT presentation session 5

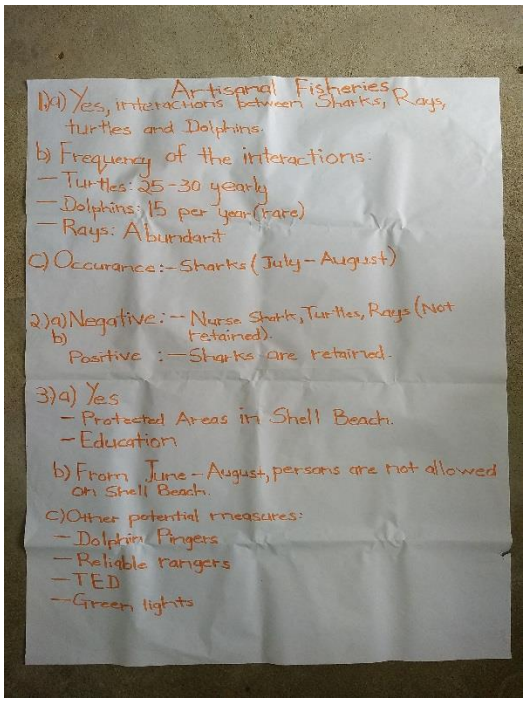
Annex 7: PPT presentation session 6

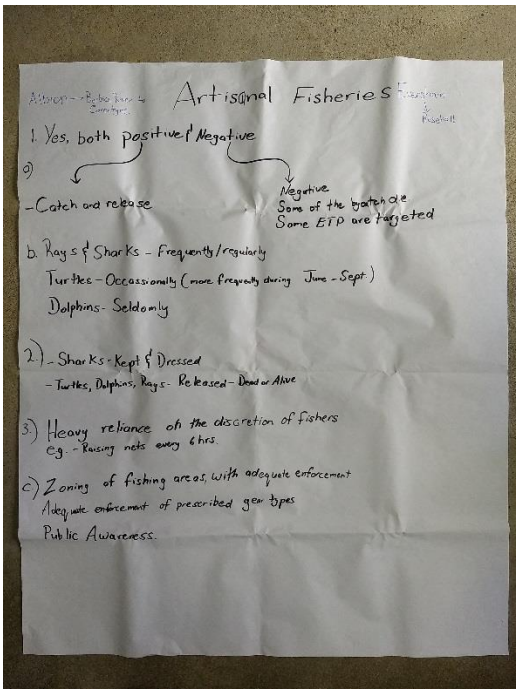
Annex 8: Shark identification key

Annex 9: Press Release ETP Training WWF

Annex 10: Pictures of the workshop:

Session 4





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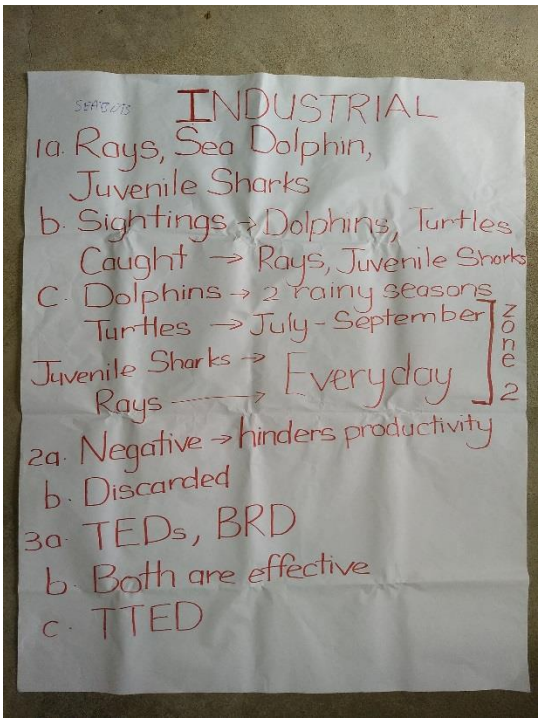
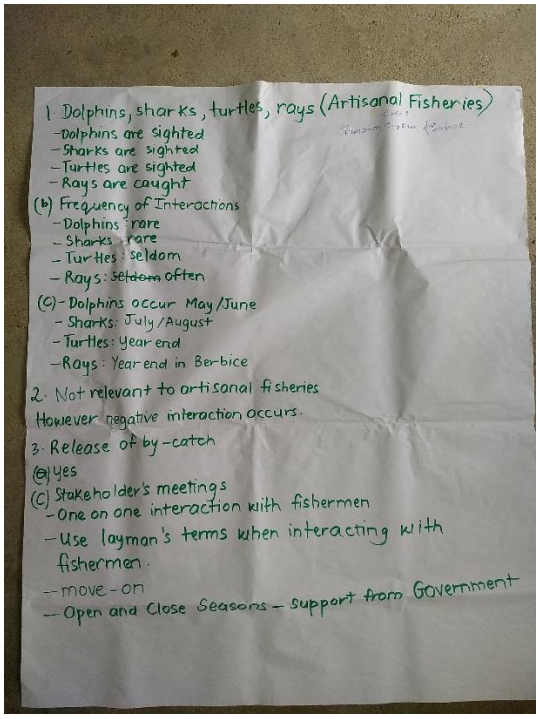
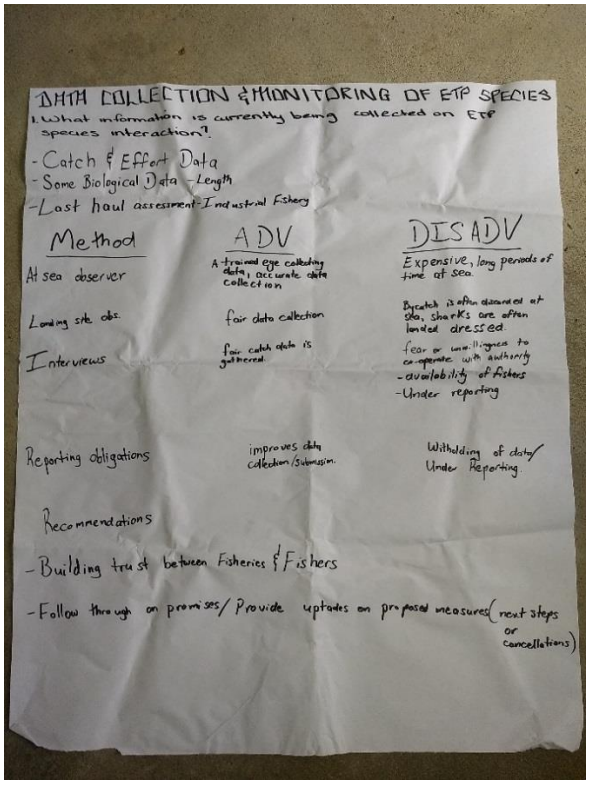
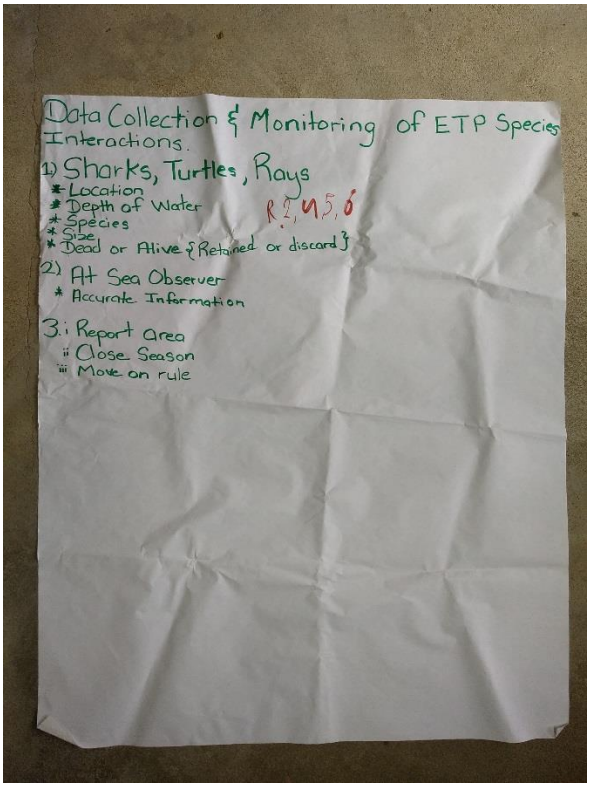




Session 7





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Other sessions

Opening session/ Day 1

Notice placed at the wharf

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Plenary discussions

Practical Session/ Day 2

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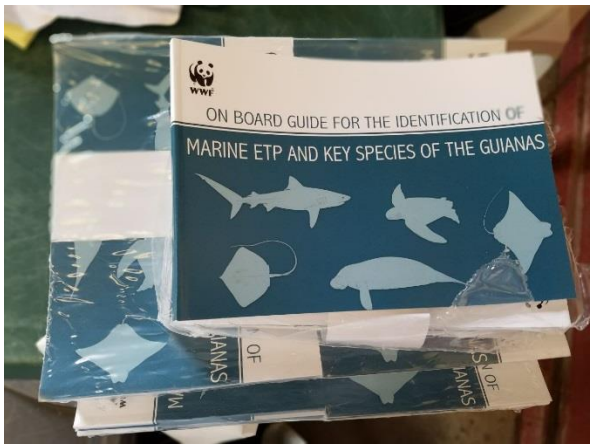

ETP Species Guide

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