SEA TURTLE CONSERVATION TRAINING FOR COMMUNITY IN TIMOR-LESTE

2022

This report is prepared by Dwi Suprapti for the Arafura and Timor Seas Ecosystem Action Phase II (ATSEA-2) Project.
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Cover Image: Sea turtle conservation group in Com Village, Lautem

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I. INTRODUCTION

BACKGROUND

The Arafura and Timor Seas (ATS) is part of the North Australian Shelf large marine ecosystem, which is a tropical sea lying between the Pacific and Indian Oceans and extending from the Timor Sea to the Torres Strait and including the Arafura Sea and the Gulf of Carpentaria. The region is adjacent to the Coral Triangle, which hosts the world's highest marine biodiversity and contains some of the most pristine and highly threatened coastal and marine ecosystems. At the regional scale, the ecosystems of the ATS play an important economic and ecological role in the littoral nations bordering the Arafura and Timor Sea: Australia, Indonesia, Papua New Guinea, and Timor-Leste.

ATSEA-2 is the 2nd phase of the GEF-financed, UNDP, and PEMSEA-supported Arafura and Timor Seas Ecosystem Action (ATSEA) program. This 5-year project will support the implementation of the following governance and environmental objectives of the ATS regional Strategic Action Program: (i) Strengthening of ATS regional governance; (ii) Recovering and sustaining fisheries; (iii) Restoring degraded habitats for sustainable provision of ecosystem services; (iv) Reducing land-based and marine sources of pollution; (v) Protecting key marine species; and (vi) Adaptation to the impacts of climate change.

In connection with protecting key marine species, specifically in Timor-Leste, the ATSEA-2 Project established a pilot project to improve community-based sea turtle conservation and ecotourism in Lautem Municipality (specifically Com, Muapitine and Mehara villages), by working with the existing community groups, especially women. As part of the pilot project, it is important to ensure the community groups who run the community-based sea turtle conservation and ecotourism understand and employ the best practices so that the practices can be sustainable in the long term. To do so, the ATSEA-2 National Coordination Unit (NCU) of Timor-Leste commissions a local NGO, Prospek, to run a sea turtle conservation project in Lautem Municipality and assist the community, while the ATSEA-2 Regional Project Management Unit (RPMU) will support the conduct of a capacity building program for the community.

A capacity-building program in the form of training is needed to provide the correct information and improve sea turtle conservation and ecotourism management skills in Lautem Municipality. It is also expected that this training can provide a first-hand description of technical data collection, monitoring of sea turtle nesting, and relocation of nests (if needed) so that hatchlings are produced with a minimum hatchability of 70%. Proper sea turtle conservation and management will contribute to maintaining sea turtle populations in nature so that they can continue to provide ecological, religious, and economic benefits for the coastal communities.

OBJECTIVES

The training was conducted to build the community group's capacity to deliver community-based sea turtle conservation and ecotourism. The training covers the biology and ecology of sea turtles, community-based monitoring/patrol, sea turtle bycatch mitigation, and sea turtle-based ecotourism best practices.

EXPECTED OUTPUTS

1. Information from a rapid assessment regarding the conservation status of sea turtles on the nesting beach in Lautem Municipality, Timor-Leste;
2. Training participants to know and understand the status of sea turtles and their problems, both nationally and internationally;
3. Training participants know the correct procedures for turtle conservation (Code of Conduct/CoC);
4. Training participants know the procedures for having sea turtle-based ecotourism (CoC of Turtle Ecotourism);
5. Training participants to understand sea turtle data collection and relevant monitoring techniques;
6. Training participants to know the procedures for handling stranded and/or bycaught sea turtles.

DATE AND PLACE

The training was held from 28 to 30 November 2022, including one day for preliminary observation and discussion in Los Palos, Lautem Municipality, Timor-Leste. The training was conducted in person.

RESOURCE PERSON

The main resource person for the training is Drh. Dwi Suprapti, S.KH, M.Si. She has over 15 years of experience in the field of sea turtle conservation, especially in Indonesia.

PARTICIPANTS

The number of participants in the training is 37 people, including the community group and local government representatives. Three persons from Prospek NGO also attended the training.

TRAINING AGENDA

Date	Time (GMT+9)	Agenda
28 Nov 2022	05:00-11:00	Travel from Dili to Los Palos
	11:00-15:00	Assessment of sea turtle nesting beach and discussion with a community group
	18:00-19:00	Dinner
	19:00-21:00	Material update based on the assessment
29 Nov 2022	09:00-11:00	Opening remarks
	11:00-11:15	Pre-test
	11:15-11:30	Coffee break
	11:30-01:00	Introduction to sea turtle population status in the ATS region
	13:00-14:00	Lunch break

	14:00-14:15	Video on turtle life
	14:15-14:30	Discussion
	14:30-16:30	Sea turtle biology and ecology
	16:30-17:30	Discussion
30 Nov 2022	09:00-11:00	Sea turtle identification technique and morphometry
	11:00-11:15	Coffee break
	11:15-13:00	Code of conduct of sea turtle-based ecotourism
	13:00-14:00	Lunch break
	14:00-15:30	Sea turtle relocation and hatchling handling techniques
	15:30-16:00	Sea turtle bycatch and handling techniques
	16:00-16:15	Post-test and training feedback
	16.15-17.00	Closing training

II. RESULTS

RAPID ASSESSMENT OF SEA TURTLE CONSERVATION ACTIVITIES IN COM NESTING BEACH

Timor-Leste coastal area is an important habitat for sea turtles. There are at least four species of sea turtles that lay their eggs on the coast of Timor-Leste, namely the olive ridley turtle (*Lepidochelys olivacea*), green turtle (*Chelonia mydas*), hawksbill turtle (*Eretmochelys imbricata*) and the leatherback turtle (*Dermochelys coriacea*). Based on Wikipedia (2022) Timor-Leste has a total beach length of 706 km. Of the total length of the beach, several locations are favourite areas for turtles to lay their eggs, including Com beach.

Com Beach is a beach located in the village of Com which is in the northern part of Lospalos and is part of the Nino Konis Santana National Park. This coastal area is not that long, it is estimated that it only reaches approximately 1 km. Even so, this beach is an option for turtles to lay their eggs. Based on the results of the rapid assessment, it is known that there are at least 3 species of turtles that nest at this beach to lay their eggs, namely the Olive ridley turtle, the Green turtle, and the Hawksbill turtle. Of the three species, the Olive ridley turtle is the dominant type of turtle that lays its eggs on this beach.

Olive ridley turtle or Safa in local language is a sea turtle that has the characteristics of making turtle egg nests with a relatively shallow depth of 30-50 cm. This actually makes turtle egg nests easy for predators and humans to dig up. So, it is not uncommon for Olive ridley turtle egg nests in this area to be unsafe either due to damage by predators such as wild dogs or hunting activities (Poaching).

Based on the results of non-intensive monitoring from the turtle conservation community group Com Village, in one-year turtles nest on this beach around 25-30 nests. From these nests, almost 100% of the turtle eggs are hunted and consumed by local people if relocation and intensive monitoring are not carried out. Therefore, the sustainability of sea turtle population in this area is threatened due to over-exploitation.

Seeing these conditions, the sea turtle conservation community group in Com Village felt the need to relocate all turtle egg nests to be able to secure the eggs from predators and massive poaching. But unfortunately, this relocation activity was not accompanied by knowledge and research on both nest transfer techniques and locations that became relocation areas, as a result, the hatchability of eggs (hatching success) was very low, even less than 30%.

According to group members, the hatchlings that hatched are then reared in plastic containers for a certain period of time, sometimes even more than 1 month. As a result, many hatchlings are weak, sick, and even die before being released. This then prompted the desire of community groups, local government, and NGOs (Prospek) to make a more adequate rearing pond, namely a 3 x 3-meter ceramic pond so that it can accommodate and raise hatchlings before the release event.

So based on the assessment obtained, the Trainer obtains sufficient information on matters that need to be corrected and that need to be explained theoretically in the presentation material so that the training participants understand the rules of turtle conservation properly and correctly. This information also forms the basis for formulating recommendations.

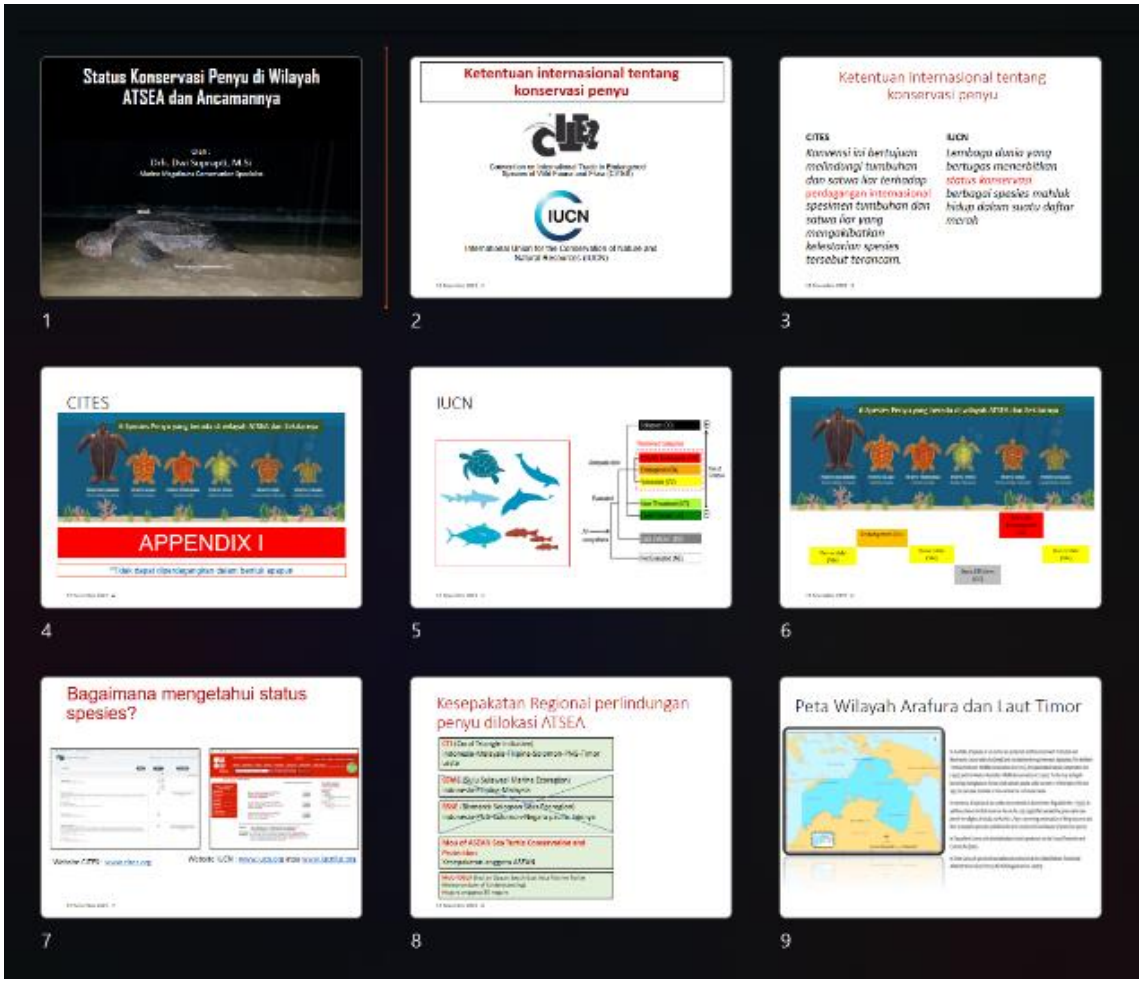
TRAINING MATERIALS

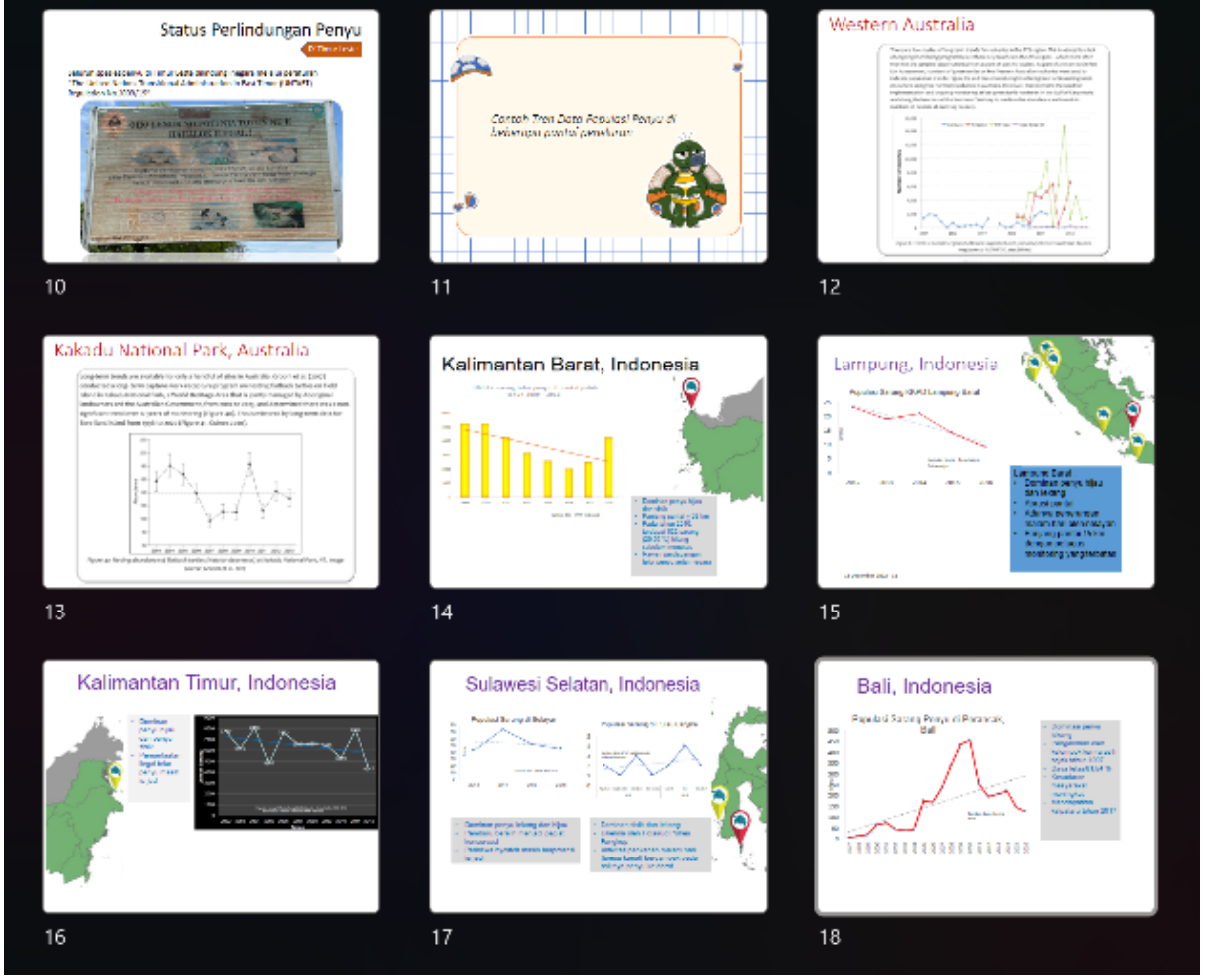
The following is material presented in the basic sea turtle conservation training for the coastal community of Com village. The materials were packaged and delivered in Indonesian considering the trainer's limitations in Tetun language. The materials were presented in the form of Powerpoint, video, and dummy. The materials were packaged in a concise form which was then conveyed and explained by the Trainer to the participants in sentences that are easy to understand, interactive and provided both verbal and visual descriptions so that participants can receive the materials as well as possible.

The following are some of the materials presented in the training.

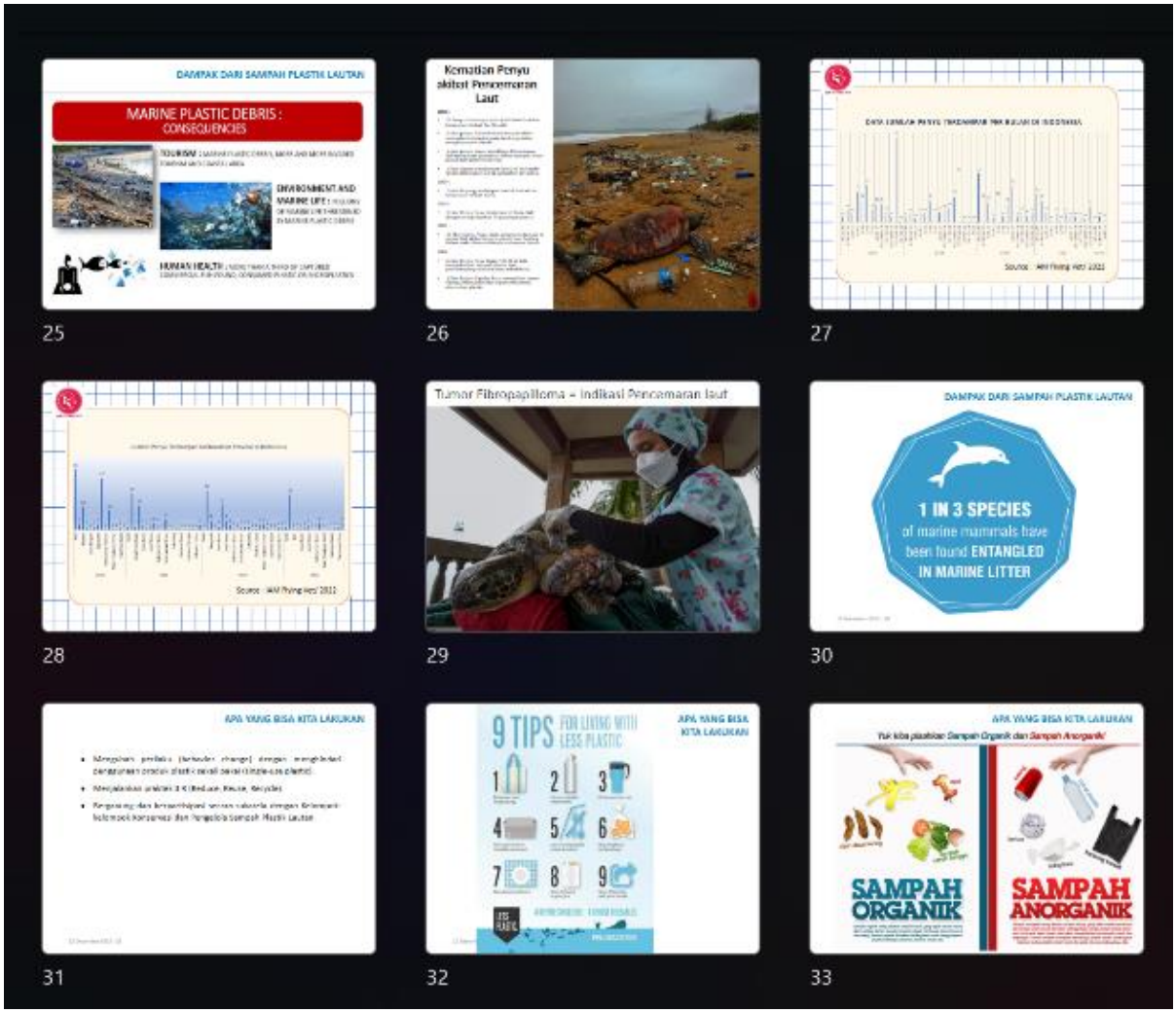
1. Status of Turtle Conservation in the ATS Region and the Problems

This material tells about the status of turtle protection both internationally (CITES and IUCN), regionally, and nationally. In general, turtles have received full protection in ATS countries which include Indonesia, Timor-Leste, Australia, and Papua New Guinea. This material also explains trends in population data on various nesting beaches, but unfortunately, Timor-Leste does not yet have a series of data on turtle nesting that can be published. For this reason, the emphasis in this presentation also includes the importance of population status data on each nesting beach, including Com beach, Timor-Leste. The material closes with an overview of the importance of turtle conservation and the various threats experienced by sea turtles causing their populations to decline.




Status Perlindungan Penyu
10
Contoh Tren Data Populasi Penyu di Beberapa pantai peneluran
11
Western Australia
12
Kakadu National Park, Australia
13
Kalimantan Barat, Indonesia
14
Lampung, Indonesia
15
Kalimantan Timur, Indonesia
16
Sulawesi Selatan, Indonesia
17
Bali, Indonesia
18

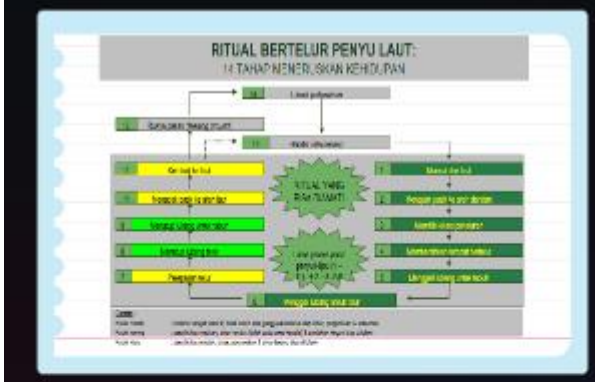

Papua Barat, Indonesia
19
Jawa Barat, Indonesia
20
Manfaat Penyu
Selain manfaat socio-ekonomi, religi juga manfaat ekologi
MENGAPA AKU PENTING?
21
Ancaman terhadap Populasi Penyu
ANCAMAN KEPUNAHAN
22
Ancaman Plastik bagi Penyu
LAGI !
PENYU MENJADI KORBAN PLASTIK
23
PERMASALAHAN SAMPAH PLASTIK LAUTAN
24


DAMPAK DARI SAMPAH PLASTIK LAUTAN
MARINE PLASTIC DEBRIS :
CONSEQUENCIES
TOURISM
ENVIRONMENT AND MARINE LIFE
HUMAN HEALTH
25
Kematian Penyu akibat Pencemaran Laut
26
27
Source : IAM Flying Hen 2011
28
Tumor Fibropapilloma = Indikasi Pencemaran laut
29
DAMPAK DARI SAMPAH PLASTIK LAUTAN
1 IN 3 SPECIES
of marine mammals have been found ENTANGLED IN MARINE LITTER
30
APA YANG BISA KITA LAKUKAN
31
9 TIPS FOR LIVING WITH LESS PLASTIC
APA YANG BISA KITA LAKUKAN
32
APA YANG BISA KITA LAKUKAN
SAMPAH ORGANIK
SAMPAH ANORGANIK
33


JANGAN PERNAH MEREMEHKAN
NILAI DARI SUATU PERUBAHAN
SEKECIL APAPUN PERUBAHAN
TERSEBUT
SINGLE USE
PLASTIC
FREE
PLEDGE
SAY NO
TO PLASTIC'S
BIG 4
34
TERIMA KASIH
35

2. Sea turtle bioecology

This presentation explains the biology and ecology of sea turtle life starting from its species, food, life cycle, reproduction, nesting tracks, anatomy of adults and hatchlings to their migration patterns. Knowing turtle bioecology, it is hoped that participants will understand the life of sea turtles with long life cycle, slow breeding and their enormous life threats.



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Karakteristik Reproduksi Penyu Laut

Jenis	Saat Bertelur	PLK (Cm)	Jumlah Serang per Musim	Interval Bertelur per Musim (Hari)	Interval Migrasi (antar Musim) (Tahun)
Penyu Belimbing	Malam	± 149	± 6	± 9 - 10	± 2
Penyu Hijau	Malam	± 99	± 4	± 10 - 17	± 3
Penyu Pipih	Malam & Siang	± 91	± 3	± 9 - 23	± 3
Penyu Kempi	Siang	± 65	± 2	± 20 - 28	± 2
Penyu Lekang (Sisik Semu)	Malam	± 68	± 3	± 14 - 32	± 2
Penyu Sisik	Malam & Siang	± 79	± 3	± 11 - 28	± 3
Penyu Tempayan	Malam	± 87	± 4	± 13 - 17	± 3

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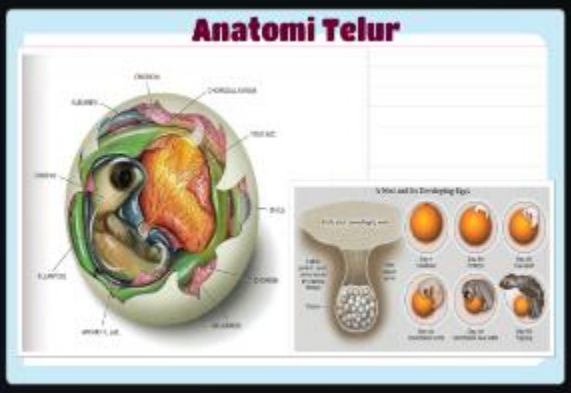
Karakteristik Reproduksi Penyu Laut

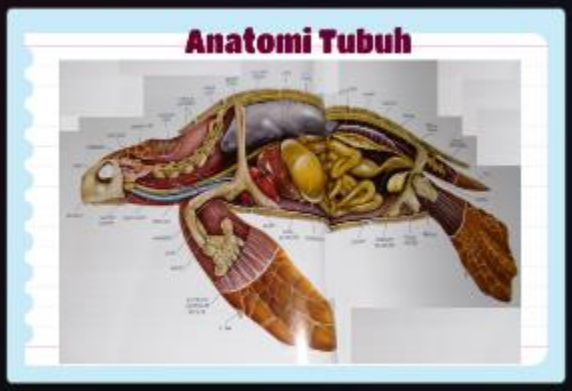
Jenis	Jumlah Telur per Sarang	Berat Telur (g)	Diameter Telur (mm)	Volume Telur (cc)	Berat Tokik (g)
Penyu Belimbing	± 82	± 78	± 53	± 80	± 44
Penyu Hijau	± 113	± 46	± 45	± 46	± 25
Penyu Pipih	± 53	± 51	± 52	± 71	± 39
Penyu Kempi	± 110	± 32	± 39	± 31	± 17
Penyu Lekang (Sisik Semu)	± 110	± 36	± 38	± 32	± 17
Penyu Sisik	± 130	± 27	± 38	± 29	± 15
Penyu Tempayan	± 113	± 33	± 41	± 36	± 20

13



Anatomi Telur

14



Anatomi Tubuh

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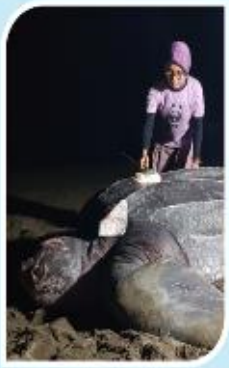
Identifikasi Jalur Migrasi Penyu

Pemasangan Satelit Tag untuk Mengetahui Pola dan Jalur migrasi Penyu



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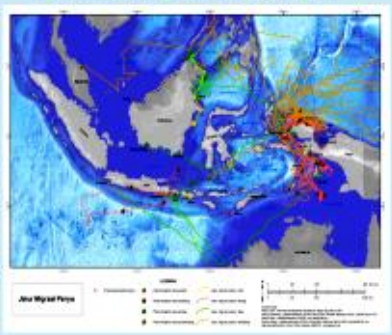
Jalur Migrasi Penyu



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Jalur Migrasi Penyu Sisik di Timor Leste

19

Kenapa Penyu Laut Begitu Penting?

- Peran kunci di pesisir & laut.
- Masing-masing jenis memiliki keunikan sendiri, memainkan peran berbeda sebagai pemangsa dan tumbangan di ekosistem pesisir & laut
  - ✓ P. Hijau berperan penting dalam ekosistem lamun & alga
  - ✓ P. Sisik makan sponge, mengatur total biomassa ekosistem karang
  - ✓ P. Belimbing mengatur total ubur-ubur
  - ✓ P. Sisik Semu adalah 'tempat singgah' burung burung laut
  - ✓ Penyu pemindah energi dan laut ke daratan; menyuburkan vegetasi, makanan beberapa satwa, kearifan pangan masyarakat pesisir, dll

20

Kenapa Penyu Laut Terancam Punah?

1. **Habitat :**
   - Pengembangan Daerah Pesisir (Pemukiman, penambangan pasir, pelabuhan dll)
   - Perubahan temperatur pasir
   - Erosi Pantai Peneluran
   - Kegiatan transportasi laut (kena baling2)
   - Sedimentasi akibat pemanfaatan lahan di darat misalnya penebangan hutan yang tidak ramah lingkungan
2. **Pemanfaatan Berlebihan (untuk tujuan komersial/Perdagangan) :**
   - Telur penyu
   - Penyu Dewasa (daging, sisik, Plastron dll)
3. **Penangkapan secara tidak sengaja oleh aktivitas perikanan :**
   - Terjerat alat tangkap (rawai, trawl, jaring insang dll)

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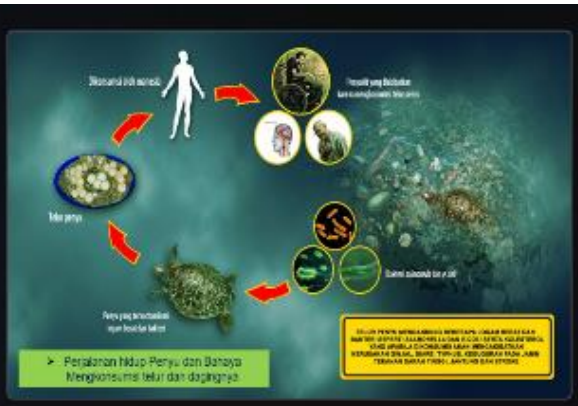

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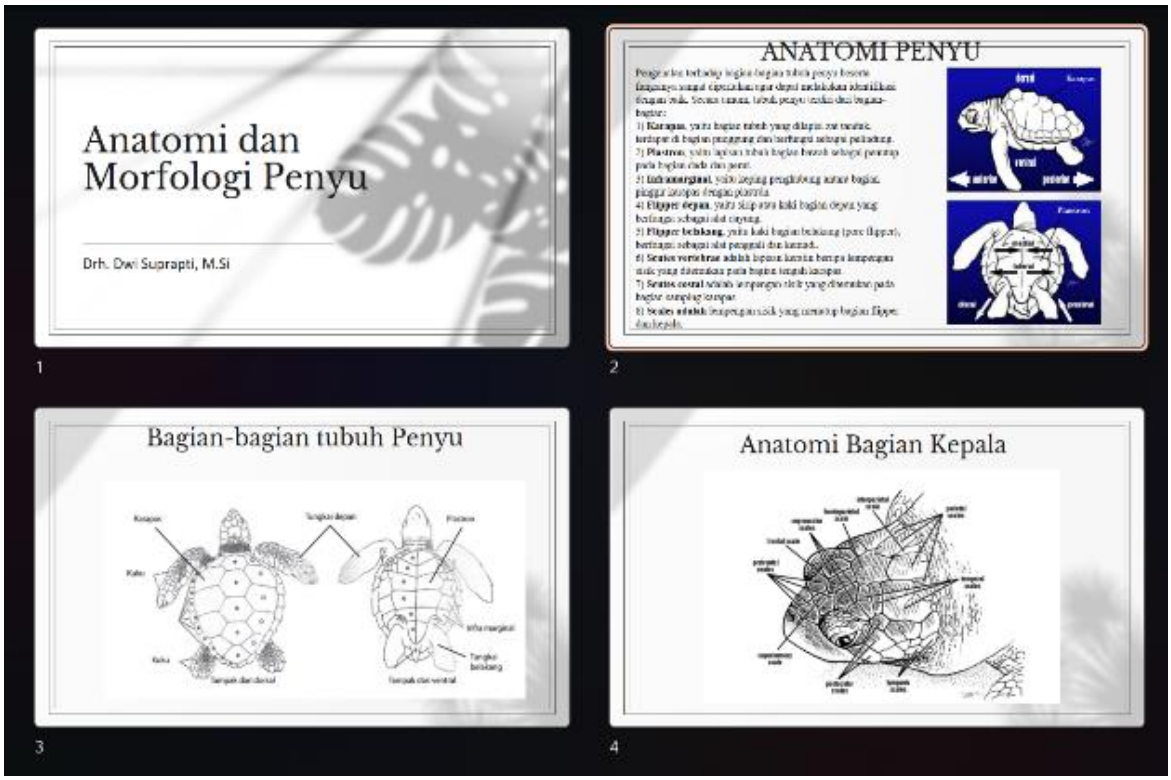
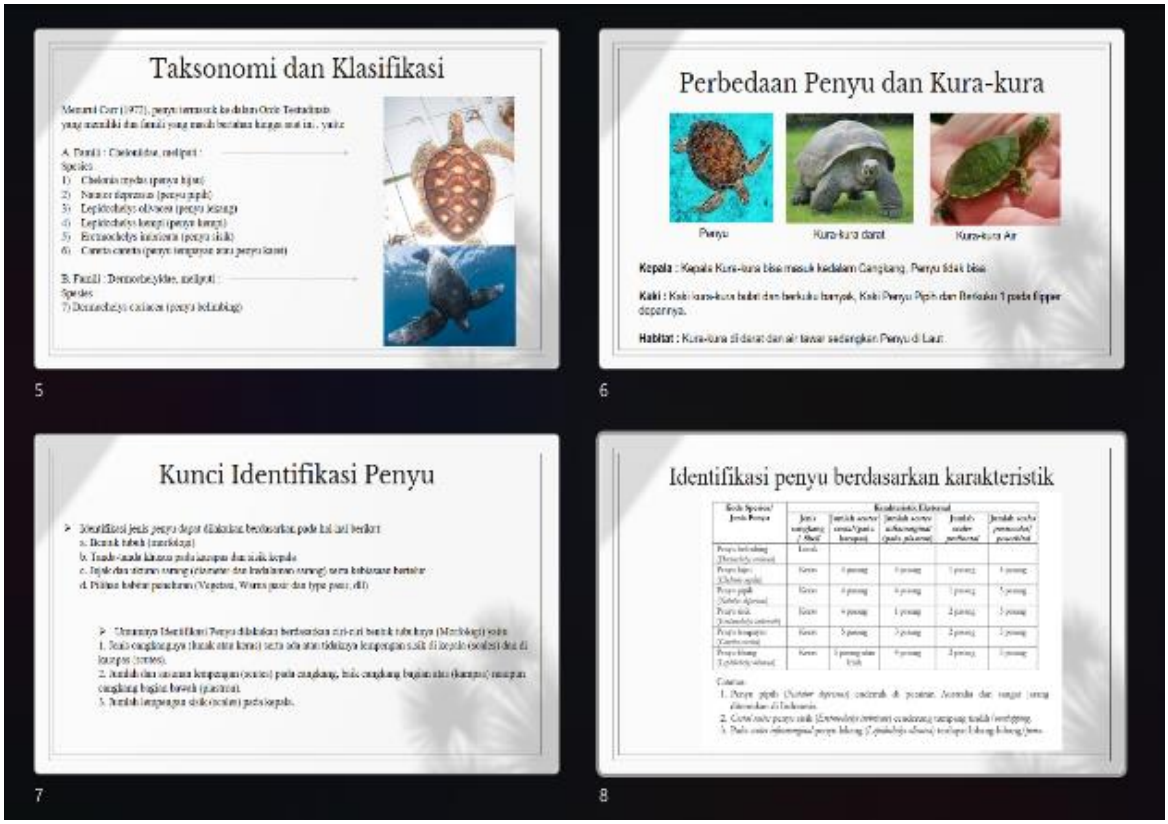
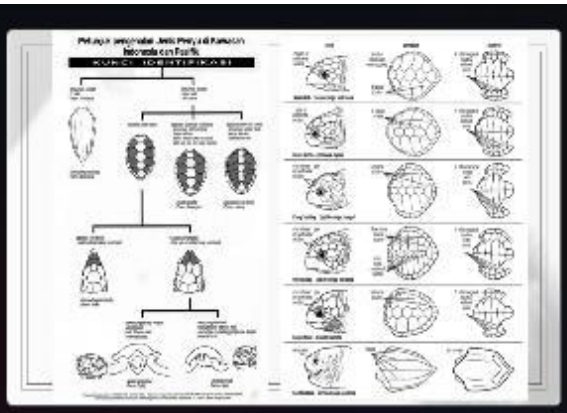
3. Anatomy and morphology

This material explains the anatomical structure of turtles, taxonomy, classification, turtle identification techniques and turtle measurement techniques. It is expected that by delivering this material the trainees will be able to differentiate each species of sea turtle based on its anatomical characteristics.







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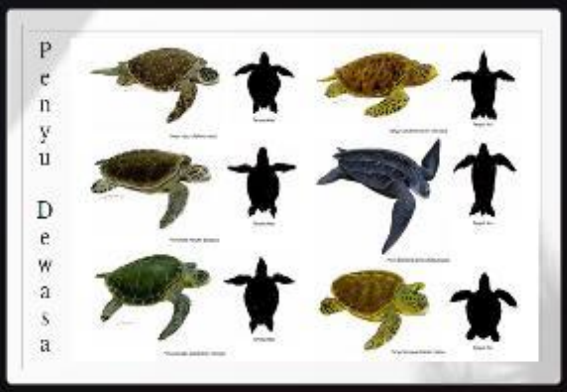

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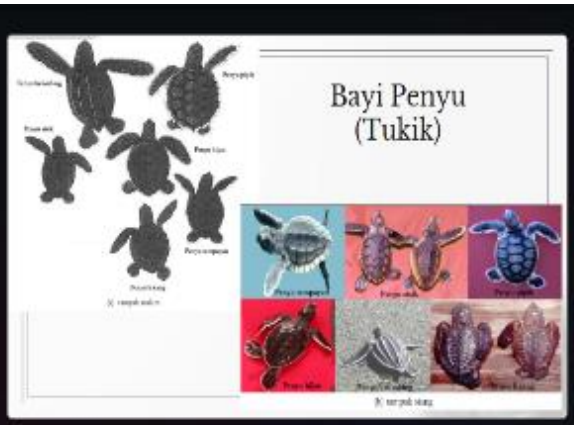

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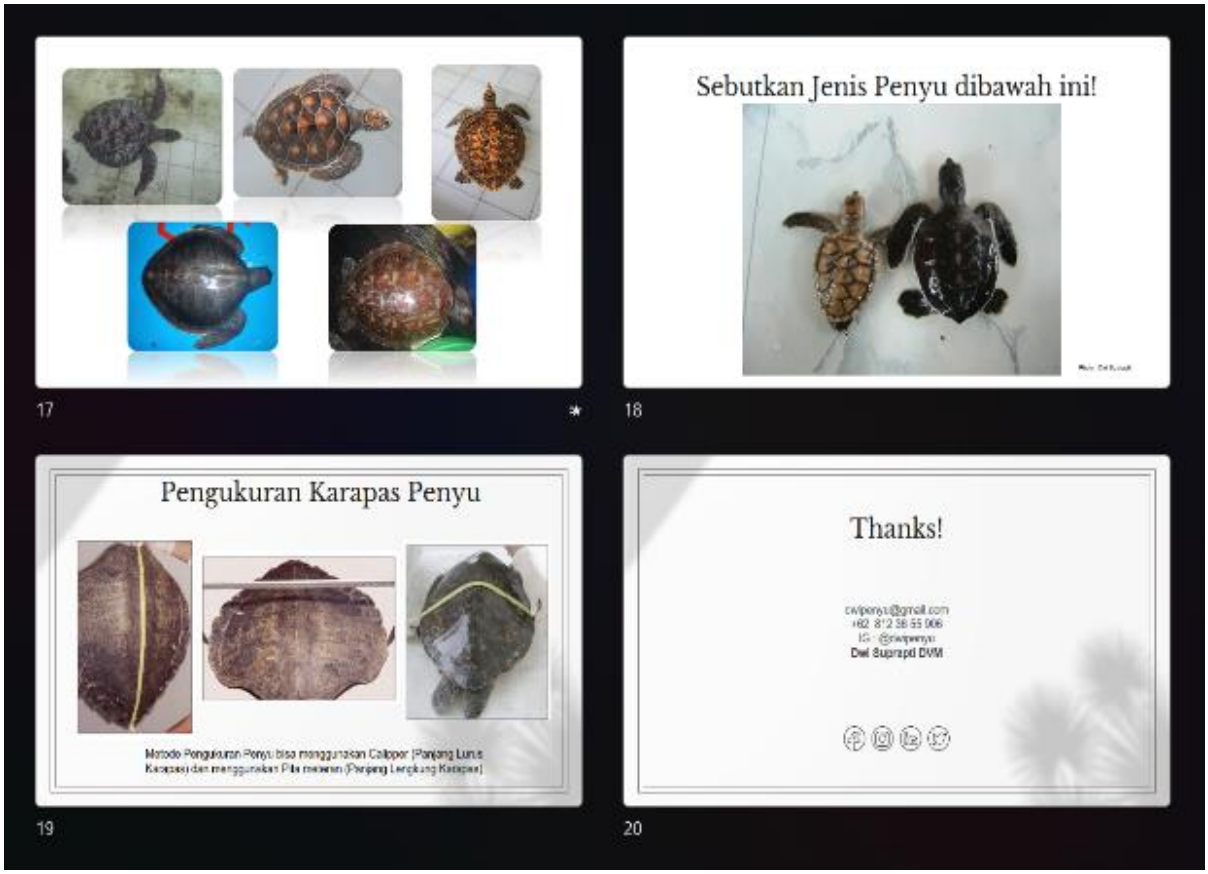


4. Turtle-based ecotourism

   This presentation material explains turtle-based ecotourism both the advantages and problems. In addition, this material also provides an overview of the success of sea turtle-based ecotourism activities in various countries.

Problema Penyu

- Status dilindungi (karena terancam punah) vs eksistensi pemanfaatan (telur, daging, cangkang, plastron, & minyak) oleh banyak kelompok masyarakat (karena bernilai ekonomis tinggi)
- Upaya penegakan hukum tak pernah efektif menimbulkan efek jera
- Apakah ekowisata berbasis penyu adalah suatu solusi?

7

Ekowisata berbasis penyu

Pelajaran dari tempat lain

8

Dibangun tahun 2004 oleh Pemda Bali & WWF dengan dukungan KSDA Bali & Universitas Udayana

9

Tujuan utama:

Mengurangi tingkat perdagangan & konsumsi penyu yang dilangsir dari alam

10

Tujuan ...

- Sumber kegiatan ekonomi bagi (sebagian) masyarakat
- Menjaga & revitalisasi pemanfaatan penyu untuk kepentingan ritual-keagamaan

11

Contoh : Lokasi Turtle Conservation and Education Center di Bali

12

13

Turtle Conservation and Education Centre – Serangan: Beberapa Program Kerja

14

Training life Skill Bagi Masyarakat

15

Atraksi 'laris': pelepasan Tukik

16

Perkembangan (Hasil)

- Tingkat perdagangan ilegal penyu di Bali pada tahun 2010 menurun 90% dibandingkan tahun 2000.
- Pendapatan (gross) TCEC per BULAN (23 – 31 jt)
  - Donasi kunjungan ~ Rp. 9 – 10 jt
  - Adopsi tukik ~ Rp. 5 – 7 jt
  - Produksi cendera-mata & makanan ~ Rp 1 – 2 jt
  - Fee dari travel agent ~ Rp 8 – 12 jt
- Retribusi ke Pemerintah (Desa): 25 – 35 jt
- 70% kebutuhan penyu (non-tangkapan alam) untuk ritual keagamaan bisa dipenuhi

17

Cayman Turtle Center

18

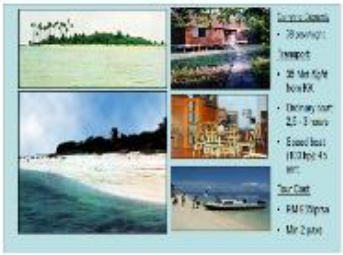
Cayman Turtle Center

19

Cayman Turtle Center

20

Sabah Park (Selingan, Bakkungaan Kecil, Gulsan)



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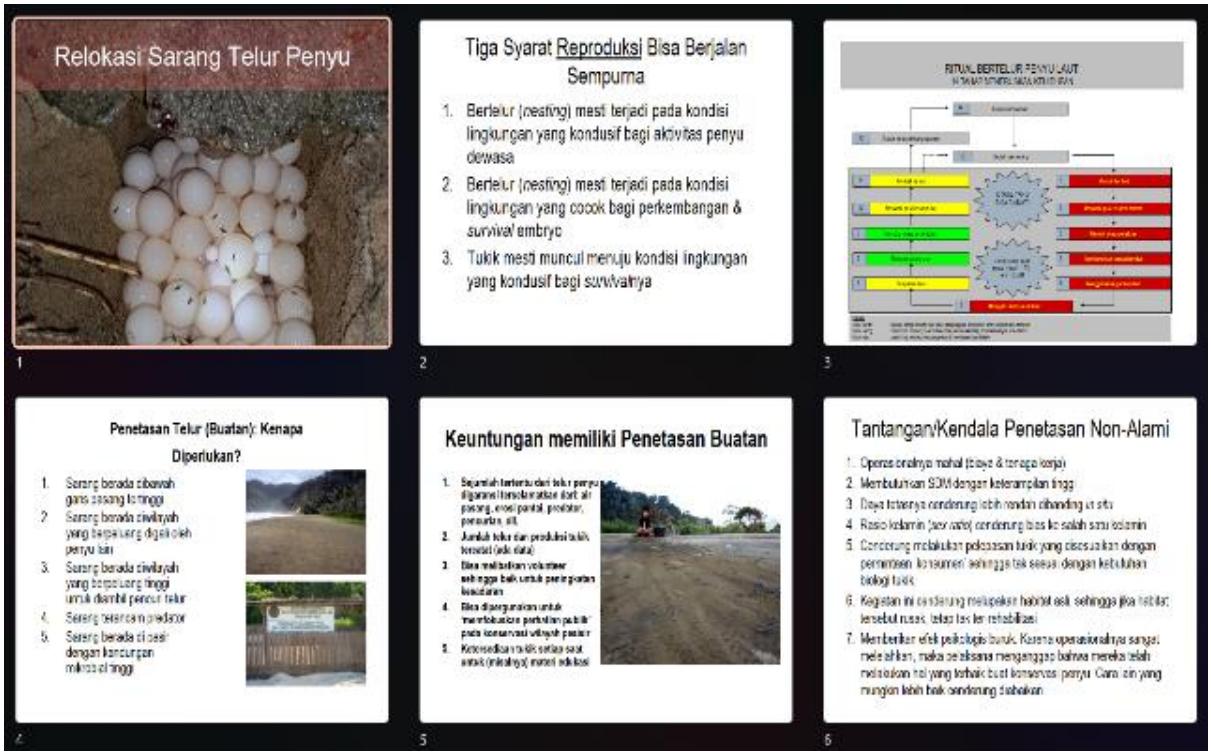
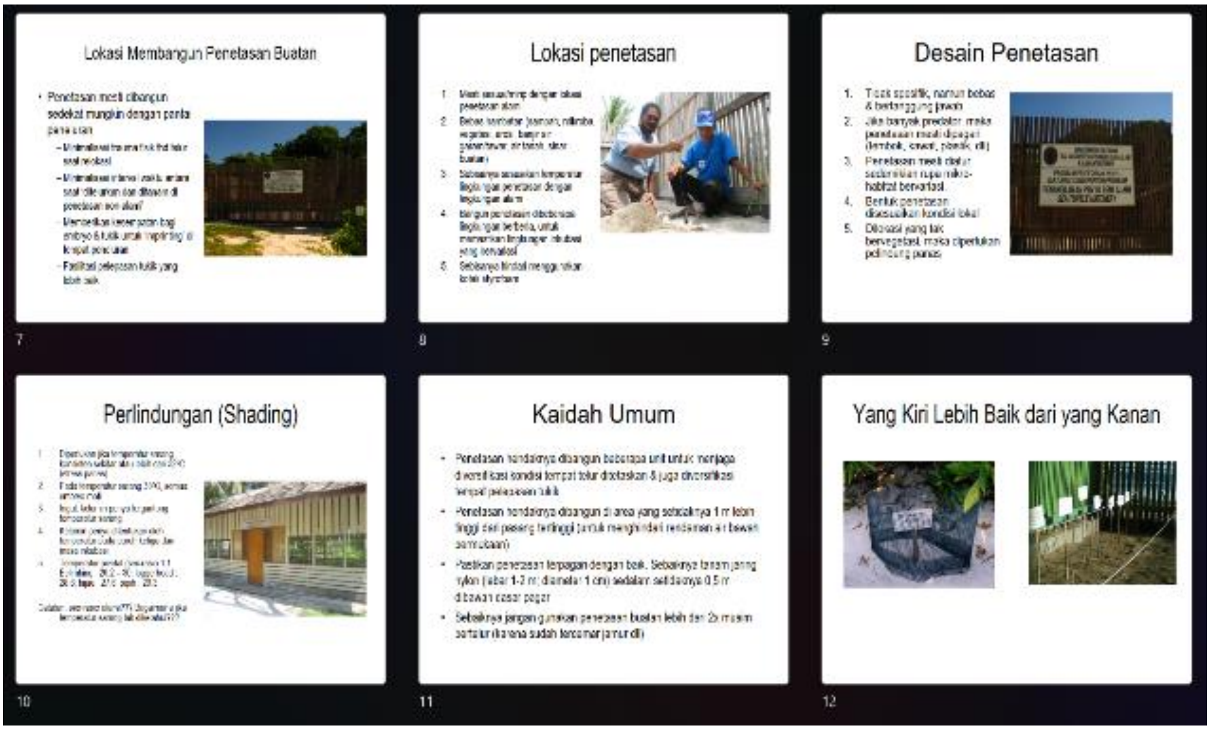
5. Turtle Hatchery

This material explains the conditions for nest relocation, the advantages, and challenges of nest relocation, the location and design of the hatchery to the relocation technique. The material is closed with the technique of releasing hatchlings when the eggs have hatched.

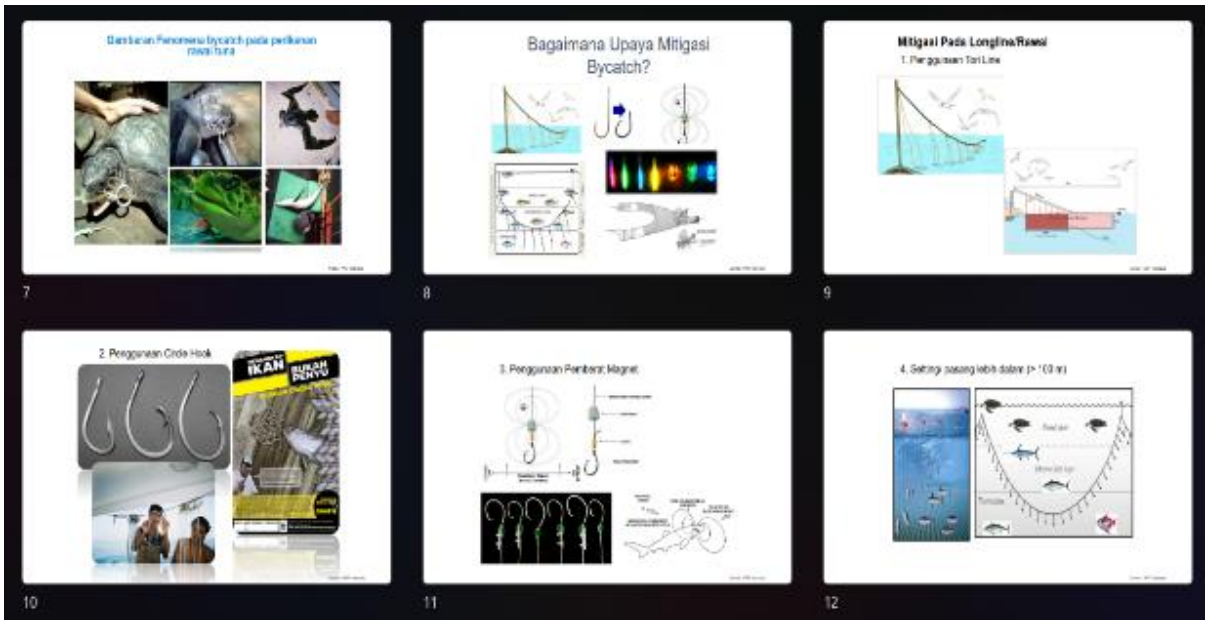



Lokasi Membangun Penetasan Buatan
Lokasi penetasan
Desain Penetasan
1. Tidak spesifik, namun bebas & bertanggung jawab
2. Jika banyak predator maka penetasan mesti dipagari (tembok, kawat, plastik, dll)
4. Bentuk penetasan disesuaikan kondisi lokal
5. Dilokasi yang tak bervegetasi, maka diperlukan pelindung panas
7
8
9
Perlindungan (Shading)
Kaidah Umum
Penetasan hendaknya dibangun di area yang setidaknya 1 m lebih tinggi dari pasang tertinggi
Pastikan penetasan terpagari dengan baik.
Sebaiknya jangan gunakan penetasan buatan lebih dari 2x musim bertelur (karena sudah tercemar jamur dll)
Yang Kiri Lebih Baik dari yang Kanan
10
11
12

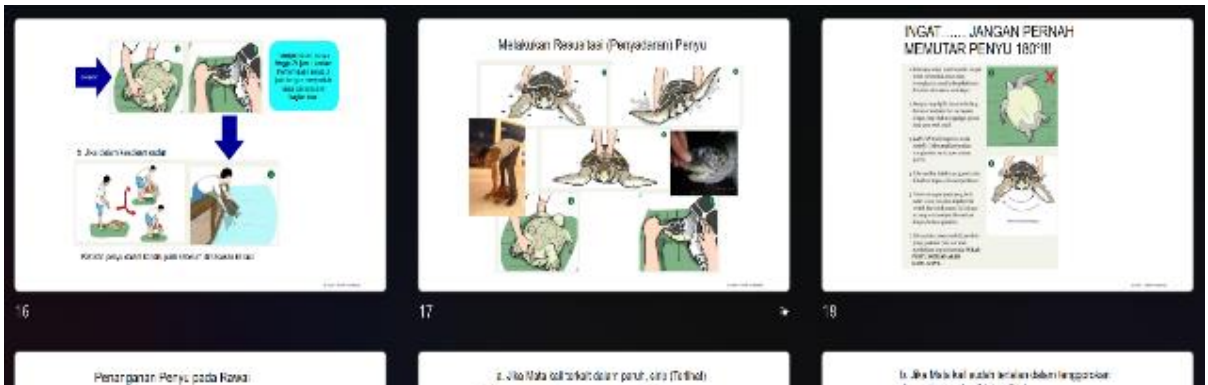

Relokasi Telur Penyu
1. Telur penyu itu tak ditakdirkan untuk dipindah
2. Selesaikan relokasi dalam 2 jam dari saat ditelurkan
5. Hindari menggunakan 'probing device' untuk menemukan telur. Telur yang pecah bisa mengkontami yang lain
Relokasi Telur
Ingat: terbaik dilakukan dalam kurun 2 jam dari saat keluar kloaka
Telur bisa diambil/tangkap langsung saat keluar kloaka
Penanaman Telur
Lubang mesti dibuat menyerupai (ukuran & bentuk) sarang asli
Jarak penanaman telur satu dengan lainnya tak kurang dari 1 m
Telur mesti ditutupi dengan pasir lembab.
13
14
15
Protokol Umum
1. Bersihkan pantai
2. Monitor/amankan penyu bertelur (catat data dasar)
3. Relokasi telur
4. Catat data yang relevan dengan sarang (tanggal ditelurkan, perkiraan menetas, persentase menetas)
5. Catat jumlah tukik yang dilepas ke laut
Pelepasan Tukik
Lepas berkelompok pada posisi & waktu 'random' di pantai peneluran
– Hindari fish feeding station
Idealnya sesaat setelah muncul ke permukaan
Jika pelepasan mesti ditunda, letakkan tukik pada container yang lembut dan lembab dalam suasana sejuk, gelap & sunyi/tenang. Jangan disimpan di container yang berisi air
16
17
18

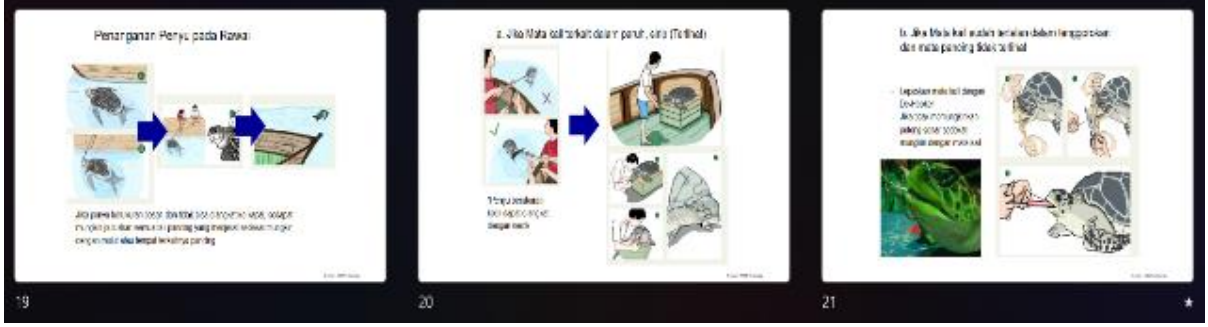
6. Bycatch mitigation

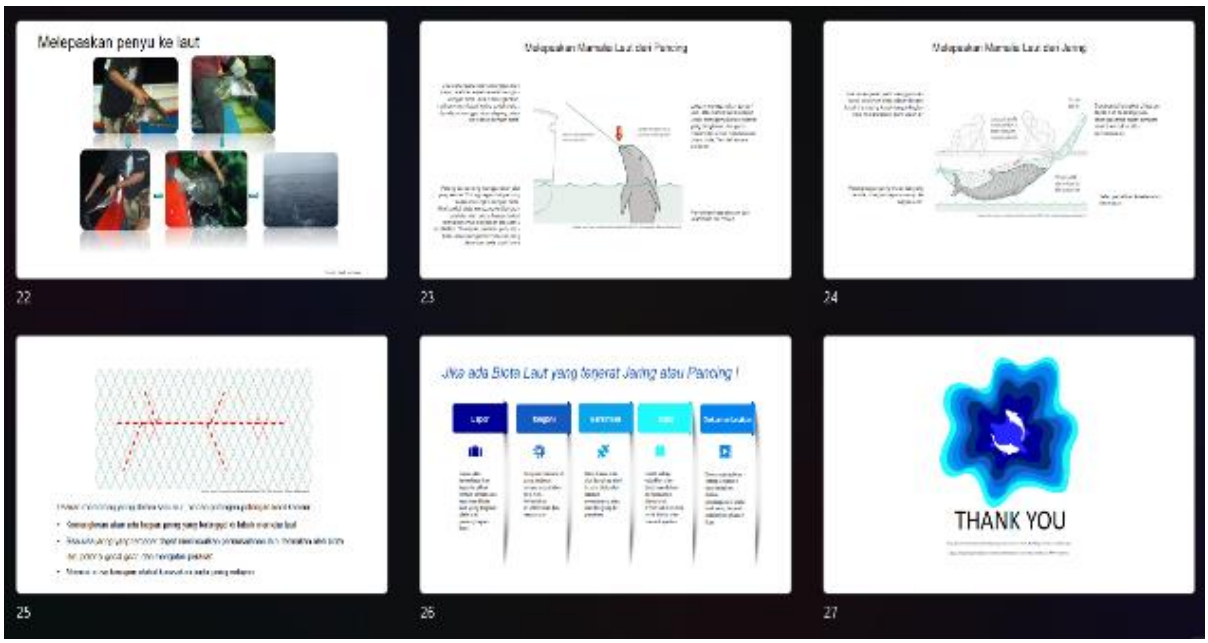
This material describes techniques for handling sea turtles and other marine biotas that are entangled in fishing gear (bycatch). The material begins by explaining the potential threat of bycatch from injury to death. This material also explains the phenomenon of bycatch in the world of fisheries, mitigation techniques, and handling if bycatch occurs to increase the chances of survival for sea turtles that experience bycatch.




13
14
Penanganan Penyu yang tertangkap Jaring
15

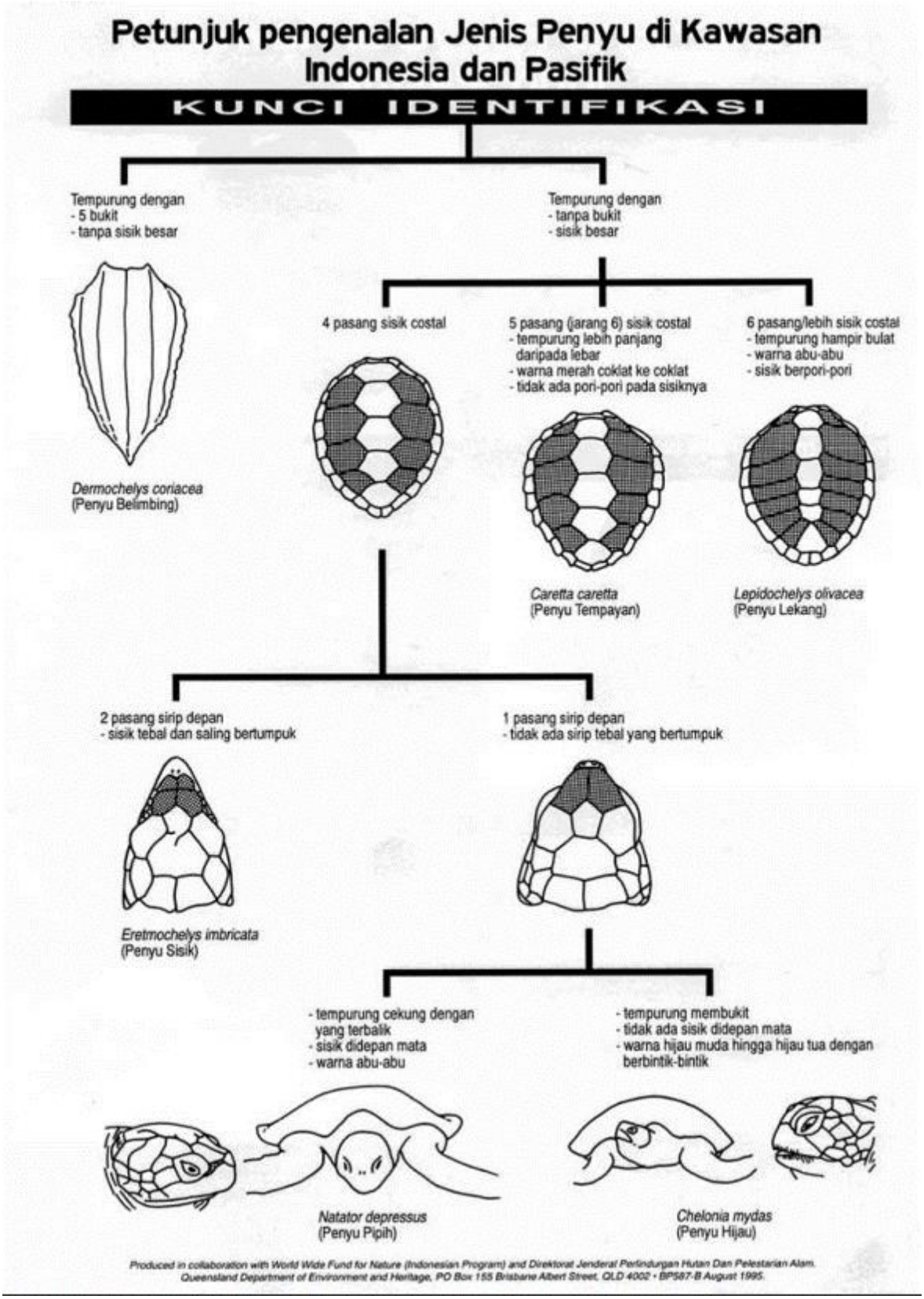

16
Melakukan Resusitasi (Penyadaran) Penyu
17
INGAT ..... JANGAN PERNAH MEMUTAR PENYU 180°!!!
18


Penanganan Penyu pada Rawai
19
20
21


Melepaskan penyu ke laut
22
Melepaskan Mamalia Laut dari Pancing
23
Melepaskan Mamalia Laut dari Jaring
24
25
Jika ada Biota Laut yang tersesat Jaring atau Pancing !
26
THANK YOU
27

7. Identification techniques

The following is a guide to help identify 6 types of turtles that are commonly found around ATS waters (Indonesia, Timor-Leste, Australia and Papua New Guinea).



TRAINING RESULTS

To measure the success of the training, pre and post-tests were carried out for all training participants. The questions given prioritise basic knowledge in differentiating turtles and tortoises and their identification, as well as knowledge about relocating nests and releasing hatched hatchlings. This type of question was chosen based on the results of the assessment when the training participants still could not differentiate all species of turtles and still believed that relocating and caring for hatchlings were the best strategy of sea turtle conservation that needs to be carried out in the long term, especially to attract tourists. The following are pre and post-test questions that were tested on training participants:

Choose the correct answer from the following questions!

1. Which one is a sea turtle (*lenuk)*?

a. 

c. 

b. 

d. 

2. Which is not the way to differentiate sea turtles and turtles?
   a. Shape of feet
   b. Habitat
   c. Head
   d. Colour

3. These are sea turtles that can be found in Timor-Leste, except…
   a. Green turtle
   b. Hawksbill turtle
   c. Olive ridley
   d. Kemp ridley

4. How old should sea turtle hatchlings be released to the sea after hatching?
   a. More than 1 month
   b. More than 1 year
   c. Less than 1 week
   d. The sooner, the better

5. These are some benefits of sea turtles, except..
   a. Ensure there is fish in the oceans
   b. Source of carbohydrate
   c. Control coral reef ecosystem productivity
   d. Control jellyfish population

6. This is a prerequisite for nest relocation…..
   a. Beach abrasion
   b. Waterlogged
   c. Many predators
   d. Pollution
   e. All is correct

7. What is the challenge to do nest relocation?
   a. Lower hatching rate
   b. Physical trauma on the eggs
   c. Need specialised skills
   d. Need extra resources and time
   e. All is correct

8. These are some challenges when tending sea turtles in a rehabilitation pond, except…
   a. Spread of disease
   b. High operational costs
   c. Need good water circulation.
   d. Limited food
   e. No need for special skills

The pre and post-tests showed an increase in the participants' knowledge from 18 out of 29 participants (62%) who took and completed pre and post-tests. While 3 participants did not experience changes and 8 participants experienced a decrease in value. This decrease is thought to be related to difficulties in interpreting the language of the questions and the presence of elderly participants who experienced difficulties in reading. Lastly, 2 participants experienced a significant increase in knowledge by 50%.

III. CONCLUSION

Based on the results of the assessment, discussions during the training and post-training as well as video analysis of handling sea turtles by community groups, some information was obtained and it was concluded as follows:

1. Com Beach is a nesting beach for at least 3 species of turtles, namely the Olive ridley turtle (*Lepidochelys olivacea*), Green turtle (*Chelonia mydas*), and Hawksbill turtle (*Eretmochelys imbricate*), where the Olive Ridley turtle is the dominant type of turtle found laying eggs on this beach.

2. Com Beach is not a big nesting beach. The population is relatively small with only around 25-30 nests per year. It is suspected that the poaching factor has caused the turtle egg population to continue to decline in this area, given the massive hunting for turtle eggs in this area since ancient times (reaching 100% nests). In addition, the data collection factor that is not intensive and the recording that is not good can be another factor for some loss of data. In addition, the coastline before and after Com Beach stretches a quite long beach, but this area is not a target monitoring area so there is a possibility that the area around Com Beach is a nesting area where no information is recorded.

3. The lack of knowledge of both the community, government and accompanying NGOs regarding the principles of sea turtle conservation, so that views on turtle conservation and turtle ecotourism are still in the context of keeping, rearing and directly holding turtles are the main things to attract tourists. Sea turtle ecotourism is not only those, other simple things can also be done.

4. The hatchability of relocated turtles (hatching success) is reported to be very low (less than 30%). This is of course still far from the recommended value of 70% of the total eggs, so it needs to be increased.

5. The unavailability of a series of comprehensive sea turtle monitoring data and the unavailability of reports and publications related to Com's nesting beaches.

6. There are no supporting facilities for sea turtle monitoring and data collection.

7. Group and group members are still not solid. There are still many gaps between group members, so it is necessary to strengthen the organisation so that the group can run with the same goals.

IV. RECOMMENDATIONS

Based on the conclusions above, there are several recommendations for both high and low-priority scales.

High Priority

1. Formation of conservation groups and strengthening of group legality.
   There is a need for clarification on the legality status of the group, group members, group name, purpose of the group's establishment, to the management structure accompanied by an advisor for the policy, conservation, and organisational aspects.

2. Series of training and practicum in an effort to increase community capacity
   Considering that the group is still relatively new and does not have the same vision and mission as well as unequal insights, a series of training and practices are needed to strengthen the group so that the goals of conservation and improvement of the economic sector can be achieved, including:

   - Organisational management training
   - Training on sea turtle data collection and monitoring techniques
   - Field training on relocation techniques, calculating hatching success and handling baby turtles/ hatchlings after they hatch
   - Training on ecotourism package management
   - Tour guide training
   - Citizen journalism training in an effort to publish ecotourism data and information.
   - Sustainable livelihoods training that can support sea turtle conservation efforts
   - Training on handling stranded and/or bycatch turtles and their rehabilitation efforts
   - Etc.

3. Provision of information boards and appeals related to sea turtle protection
   Especially in beach areas, markets and crowded areas so that more and more people know about turtle protection.

4. Develop a long-term Master Plan for Sea Turtle Conservation on Com beach. So that funding support, facilities, and others are more directed and well conceptualised.

5. Compilation of a picket list for monitoring sea turtles and ongoing monitoring and data collection by sea turtle monitoring team.

6. Hiring consultants for analysing available data and compiling various articles and other publications to introduce Com Beach to the public, both nationally and internationally.

7. Provision of Monitoring Facilities (monitoring post, camera, GPS, laptop, printer, handy talky, internet quota, stationery, etc)

Less Priority

1. Provision of non-permanent (semi-natural) nest relocation facilities (i.e. relocation is in the beach area which is given a portable fence and made of non-permanent materials).

2. Provision of turtle-based educational facilities
   As a location for socialization, research, and education for the local community, government, school children, students and others, in the forms of dioramas, laptops, projectors, active speakers, posters, projector screens, and educational rooms.

3. Conservation cadre from young people and/or community figures who can become champions of sea turtle conservation and can campaign for sea turtle conservation efforts in Timor-Leste, especially Com Beach.

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