2. Draft protocol for stranding network including all activities carried out with stranded animals

Stranding definition:

Any Sea turtle found on land or in the water that is dead, injured or exhibits any indication of ill health or abnormal behavior, is considered a stranded sea turtle.

Importance of stranded Sea turtles:

1. An animal in need of care and rescue for the cause of species conservation
2. Collection of data using samples and parts, following NAST-Net protocols, or for conservation-related research scientific studies.
3. Improved understanding of causes of death and threats to sea turtles in the marine environment.
4. Monitoring of stranding trends and timely data for conservation management purposes.
5. Provision of initial aid to live stranded sea turtles.

Importance of the National Stranding networks:

1. The National Stranding Network is an environmental observer tool to inventory sea turtles along the coastline of a specific country, that allows efficiency and speed of the stranding reporting
2. Strandings provide a significant source of information about sea turtle populations in the national waters.
3. Stranding data collected on a standardized reporting form include the date, species, location, carapace length and width, carcass condition, carcass disposition, and information on anomalies (e.g., entanglement, propeller damage, and fibropapillomas).
4. Monitoring strandings can also provide demographic data on the species studied (cause of mortality) and enables the collection of biological samples (blood, tissues, parasites …etc), which can be used to study turtle age, reproductive status, pollutant concentrations, pathologies, and diet; this information provides an insight into the status of sea turtle and the impact of human activities, mainly fisheries interaction, pollution events, and marine traffic impacts.
5. Live stranding should be immediately rescued and transported to properly permitted first aid or rehabilitation facilities.

6. Stranded turtle can be used in public awareness campaigns to educate the public on threats facing these endangered species.

For its good functioning, a stranding network should have (SPA/RAC, 2009):

- An alert mechanism (24/7 telephone service) to report quickly stranding alive, injured, or dead turtles;

- An intervention team in each area to report the event;

- Equipment for examination and transport of animals when necessary

- A data collection Form

- Facilities for autopsying corpses

- Personnel (veterinary biologists) qualified and trained for such interventions (determination of species, measurement, autopsy, rehabilitation…) and/or working with specialized institutions From several institutions involved: Research institutes, universities, NGOs, fisheries administration, ministries of the environment, defense and interior, rescue centers, tissue bank

-Basic field equipment

- Gloves

- Sheets for data collection

- "Waterproof" markers

- Measuring equipment (tape measure, caliper) and weighing (scale, dynamometer)

- Knives, scissors, scalpel, plastic knives, string

- Appropriate vials for different samples

- Aluminum foil and plastic bags

- Coolers

- Chemical products (alcohol, formaldehyde, etc.)

- First aid kit

- Photo and video cameras

Stranding data collected through the national stranding network should be also used to identify and rank mortality factors, and in the development of recovery actions, such as the testing of Turtle Excluder Devices (TEDs), and other modifications in fishing gear that contribute to reduced mortality.

It is crucial for NAST-Net to adopt a unified protocol on stranding, to standardize data collection and sharing among the network countries. The following protocol is proposed to be used in the NAST-Net subregion.

garments. protective without turtle sea the touch NOT Do

1- OBSERVER's DETAILS

Name	
Telephone/ e-mail	
Recording source	

2- DISCOVERY OF THE TURTLE

Date		
Time		
Please circle	Beach	In water
Dist. from sea		
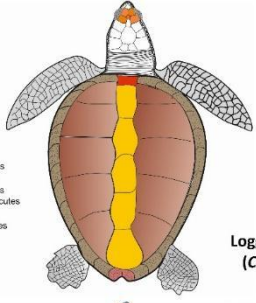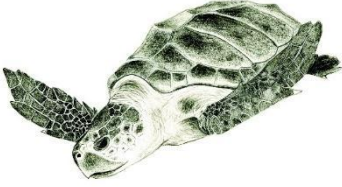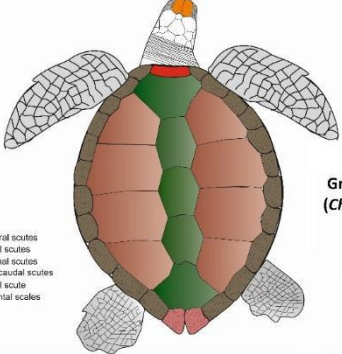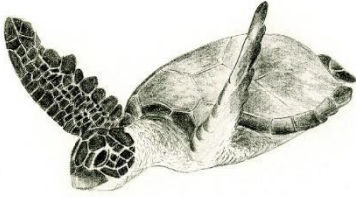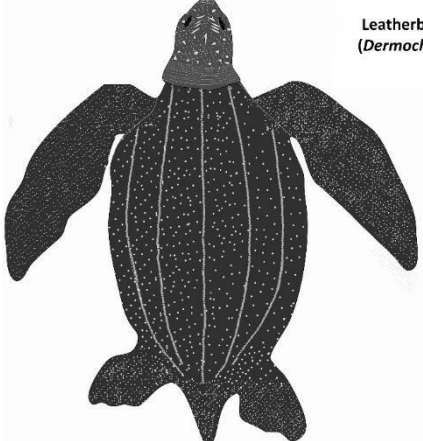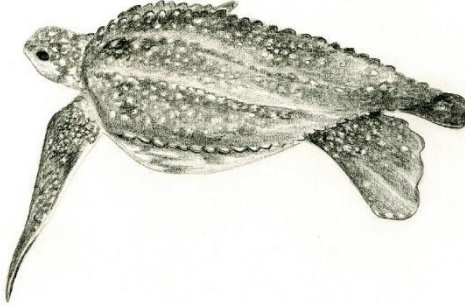
3- STRANDING LOCATION

Country & Region		
Location		
Coordinates	Latitudes	Longitudes
Closest landmark		

4- SPECIES ID

The photo was taken with a scale:	YES	NO

<div align="center">SPICIES IDENTIFICATION:</div>
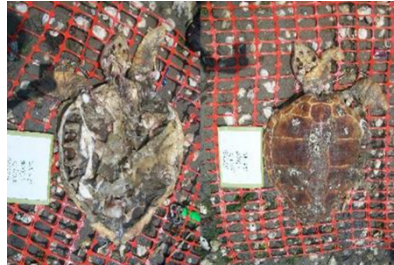
Vertebral scutes
Lateral scutes
Marginal scutes
Supracaudal scutes
Nuchal scute
Prefrontal scales

Loggerhead Sea turtle
(*Caretta caretta*)

Vertebral scutes
Lateral scutes
Marginal scutes
Supracaudal scutes
Nuchal scute
Prefrontal scales

Green Sea turtle
(*Chelonia mydas*)

Leatherback sea turtle
(*Dermochelys coriacea*)

Are you sure of the species ID?

Reliability of species ID	Uncertain	Probable	Certain

5- CONDITION OF TURTLE

Is turtle	Alive	Dead
If ALIVE, is the turtle INJURED?	YES	NO

If DEAD, what decomposition state? (put X mark)	
Freshly dead	
Moderately decomposed	
Severely decomposed	
Dried carcass	

| Skeleton bones only | |

| Possible cause of death | |

6- MEASUREMENTS

		Weight (If possible) in Kg
Standard Curved carapace length (SCCL)		
Curved carapace width (CCW)		
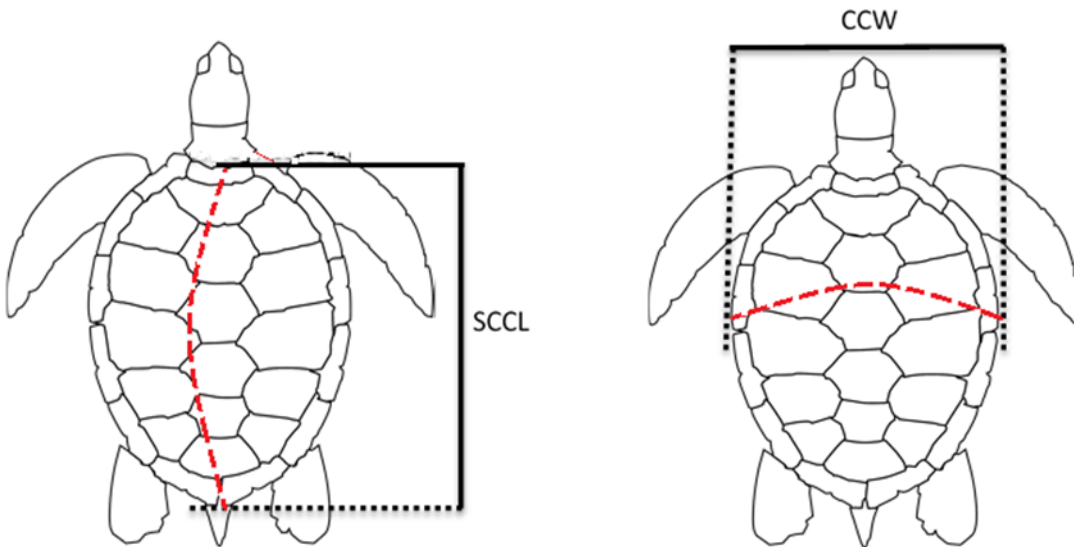
Sex determination by necropsy or by tail length measurements:
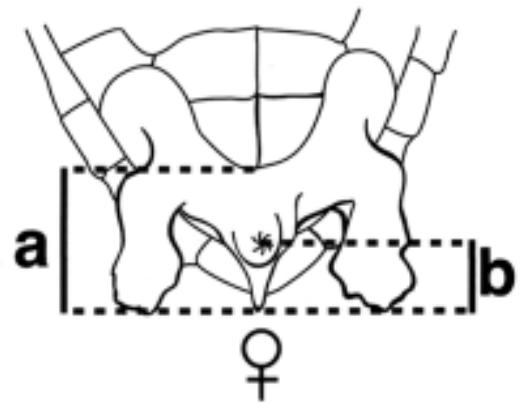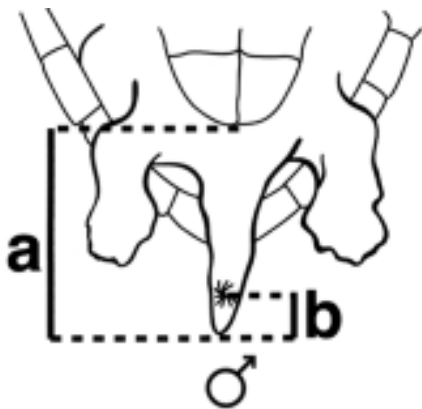
Two tail length measurements: (a) total tail length (TTL) is the distance from the midline of the posterior margin of the plastron to the end of the tail following the curvature of the tail; (b) post-cloacal tail length (PTL) is the distance from mid-cloacal opening to the end of the tail following the curvature of the tail (source: Bolten, 1999)

7- AG/Any other monitoring device (e.g.: tagging)

LOCATION	TYPE (plastic/ metal/ device, etc)	CODE NUMBER	CONTACT DETAILS	PHOTO TAKEN
Front Right				
Front Left				
Rear Right				
Rear Left				
Carapace				

8- procedures

address & name center rescue INJURED, If

....
....
....
....
DEAD: If

Necropsy (Where?)		
Samples Taken?	YES	NO

Type of sample(*):	
Buried/ Discarded	
Other Notes	

(*): Blood, muscle, skeleton, liver, kidney, heart, epibiont…, other

9- REMARKS

Mark on the drawing the position of anything of interest e.g., injuries, debris/ fishing gear entanglement, etc. Label markings stating possible causes.
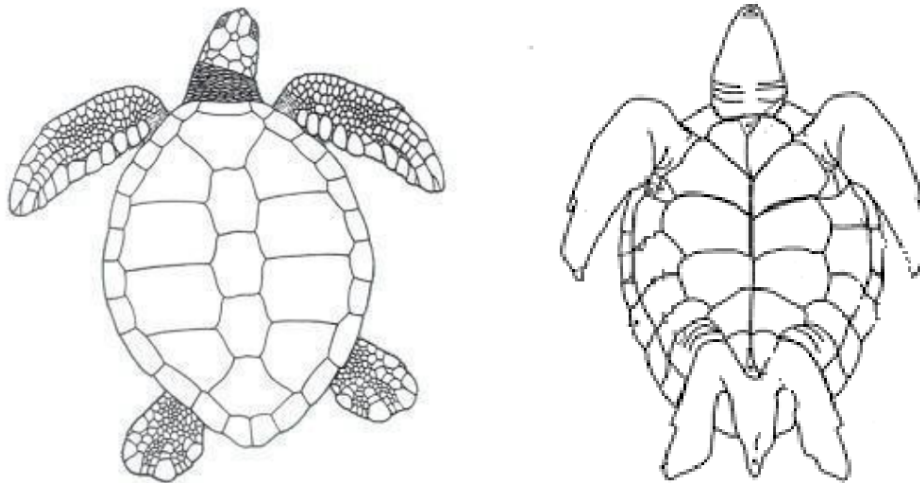
Please add turtle photos of dorsal, ventral, and views

Observer Name and Signature

……………………………………………………………………

……………………………………………………………………

First Aid Center contact (to be filled according to country)

Address: ……………………………………………….
Tel: ....
Email: …………………………………………………….
Person in charge:………………………..

What to do if you find a stranded turtle?

Whether the turtle is alive or dead, please call your nearest rescue center/ NASTnet contact/ National marine research institute depending on the country.

Data on turtle populations and injuries/deaths come directly from these calls, so every animal that is reported to the hotline increases the accuracy of our data on sea turtles and helps guide management decisions.

The following information is the most important and should be collected for both living and dead animals:

1. Species: Can you determine what species of sea turtle it is? In the NAST-Net region three species are common, the Loggerhead, the Green, and the leatherback turtle.

2. Size: Can you estimate the size of the turtle? Scientists use the Standard curved carapace length (SCCL) to classify turtles by age group. Generally, turtles that are 70cm or more are classified as adults, anything under 65cm is a juvenile, and turtles that are between 65-70cm are sub-adults.

3. Location: Can you describe where the turtle is located? Many phones have GPS applications built-in, but a name and general location along a beach with landmarks (if any) are helpful too.

4. Tag: Does the turtle have a flipper tag? If a tag is present, record the number on the front of the tag; this will help researchers link any previous data on that turtle with its present location and condition.

5. Injuries or marks: Does the turtle have any obvious injuries or missing limbs? Boat strikes, for example, usually leave large gashes on the shell or flippers. Information about injuries and marks can help scientists determine the biggest threats to turtles in a given area.

6. Photographs: If you have access to a camera, photographs are always helpful in determining a turtle's condition

7. If the turtle is dead, collecting the above data (if possible) and reporting it to the authorities is usually sufficient; The hotline operators will advise if you need to do more.

8. If the turtle is still alive, you can do a preliminary assessment of its condition. Some turtles may not be in distress at all; juvenile green turtles in particular will come into shallow areas at low tide to feed and bask and will go out with the next tide. Here are some signs of a sick or malnourished turtle:

   - Carapace covered in algae and barnacles: wild turtles usually have a few barnacles, but a carapace that is loaded with barnacles and algae is a sign that it is not moving around well, often a symptom of illness or weakness.

   - Carapace that is soft around the edges: in green turtles, in particular, a softshell is a sign of poor health. The scutes (scales on the shell) should be hard to the touch and not flaking off.

   - Sunken eyes: healthy turtles have slightly protruding eyes; sick or starving turtles will have notably sunken eye sockets.

   - The sunken plastron (bottom of shell): a fat and healthy turtle will have a plastron that sticks out; a sick turtle's plastron will look caved in, and sometimes the breastbone will have rubbed through the plastron completely.

   - Skinny neck and flippers: Sick turtles may have no fat in their limbs and neck.

   - Tumors on eyes, neck, flippers: Some turtles may have cauliflower-like Fibropapilloma tumors on their bodies, eyes, and mouths. Sunken eyes, thin neck & flippers, algae covering carapace. The same turtle after rehab: fat neck/flippers, protruding eyes, firm carapace. If you aren't sure if a turtle is sick or healthy, report it to the hotline with your location and the best description you can give of the turtle. Any information helps!

What not to do:

- Don't try to move or transport the turtle yourself.
- Don't put your fingers near a turtle's mouth. Even a sick turtle has impressive jaw strength and sharp beaks that can sever a human finger with ease.
- A turtle's flippers are also very powerful, so try to maintain a safe distance for your protection and the animal's.

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  (online at: https://www.isaac.qld.gov.au/downloads/file/874/turtle-stranding-what-do-i-dodocx.)

- Santos, B. (2017) Sea Turtle CSI: A Graphing Activity, Subjects: Life Science / Biology Environmental Science Marine / Ocean Science. VA SEA 2017 Lesson Plans. Virginia Institute of Marine Science, William & Mary. https://doi.org/10.21220/V5N15H

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