



United Nations  
Environment Programme



Mediterranean Action Plan  
Barcelona Convention



*The Mediterranean  
Biodiversity  
Centre*



**Republic of Lebanon**  
Ministry of Environment

# National Training Session on monitoring techniques of marine turtles

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Tyre Nature Coast reserve (Lebanon) , 3-7 July 2018

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# Mediterranean Sea Turtles

Flegra Bentivegna

*National Training workshop on monitoring techniques of marine turtles  
Tyr (Lebanon) , 3-7 July 2018*





*Chelonia mydas*






*Caretta caretta*

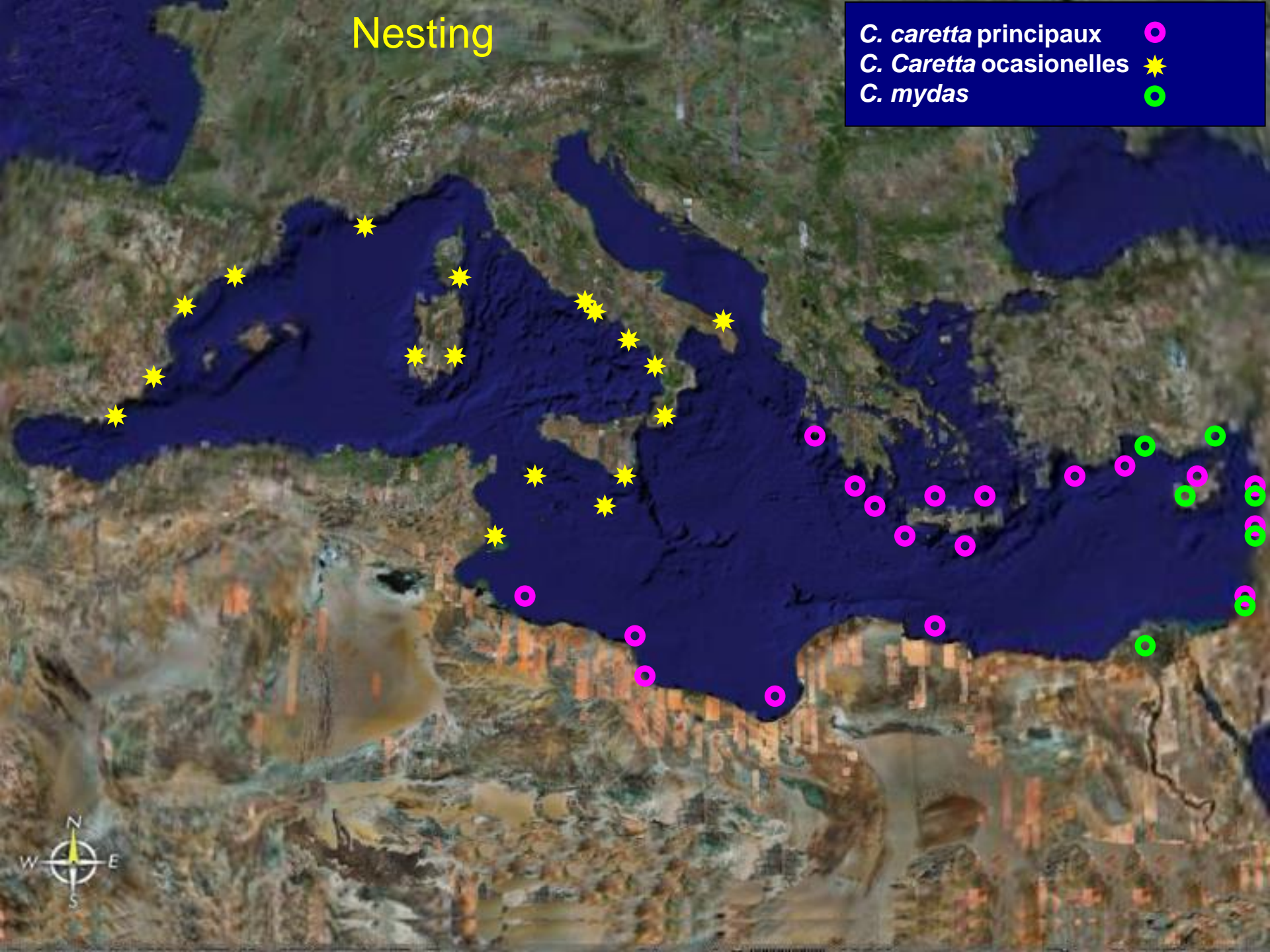


*Dermochelys coriacea*

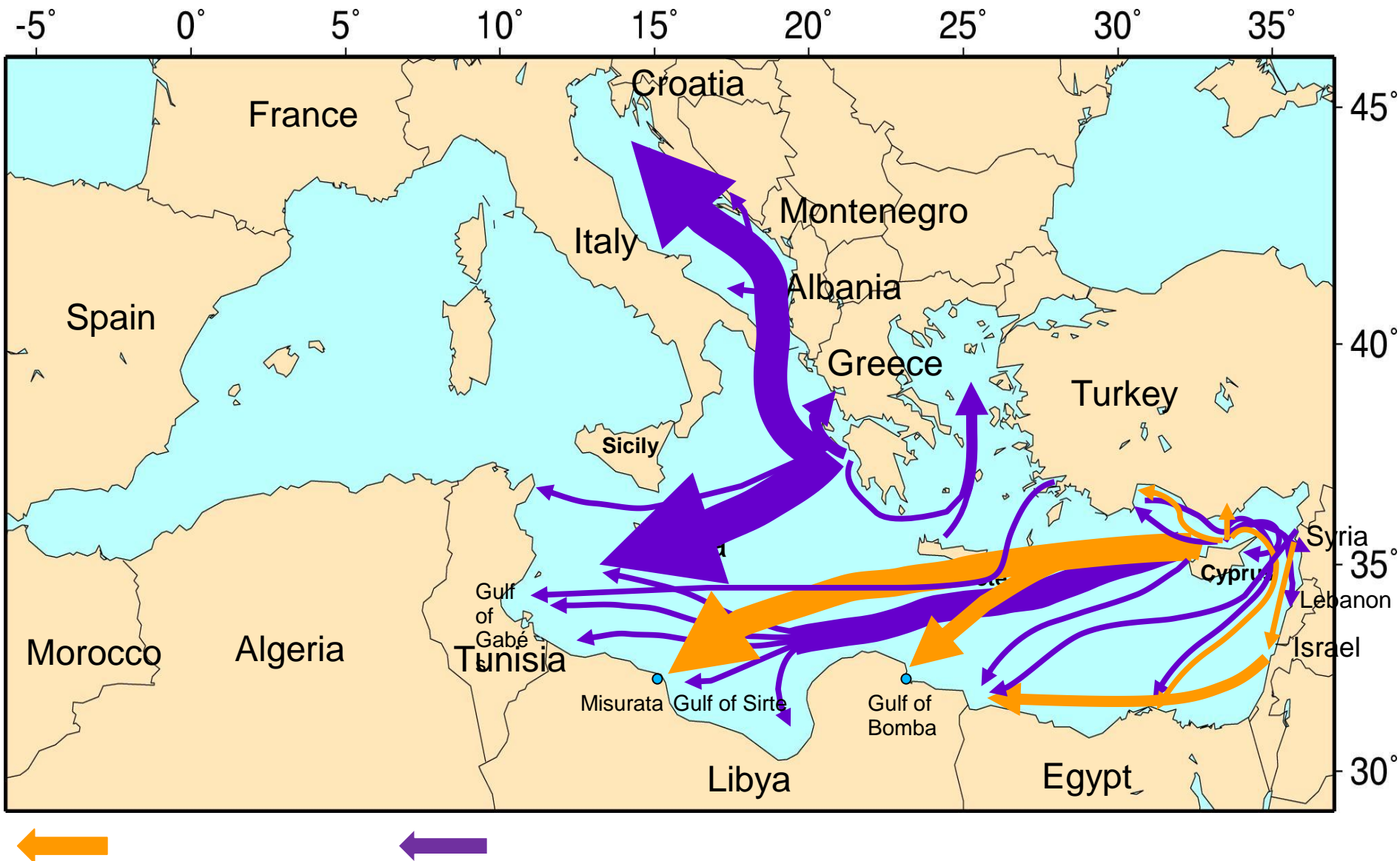


# Nesting

- C. caretta* principaux 
- C. Caretta* occasionelles 
- C. mydas* 



# Post-nesting movements of female green and loggerhead turtles





# Scutes of the carapace and plastron

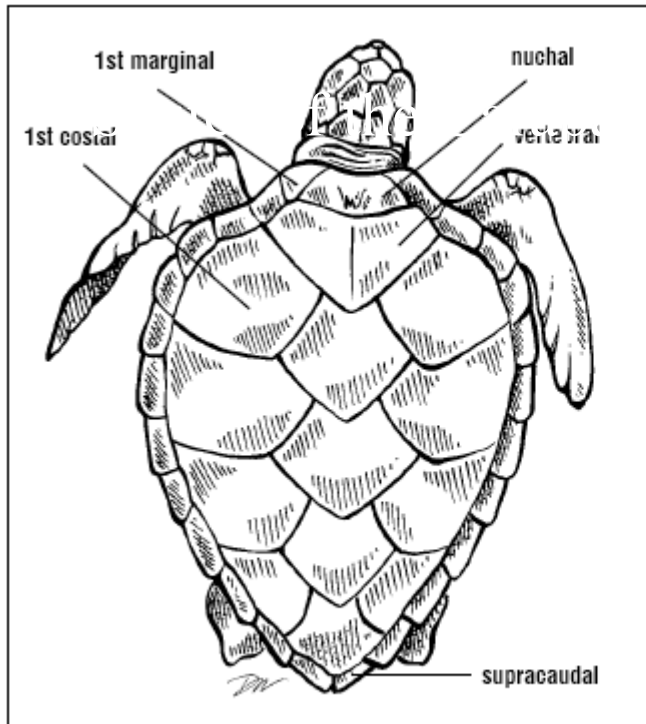


Fig. 4. Scutes of the carapace.

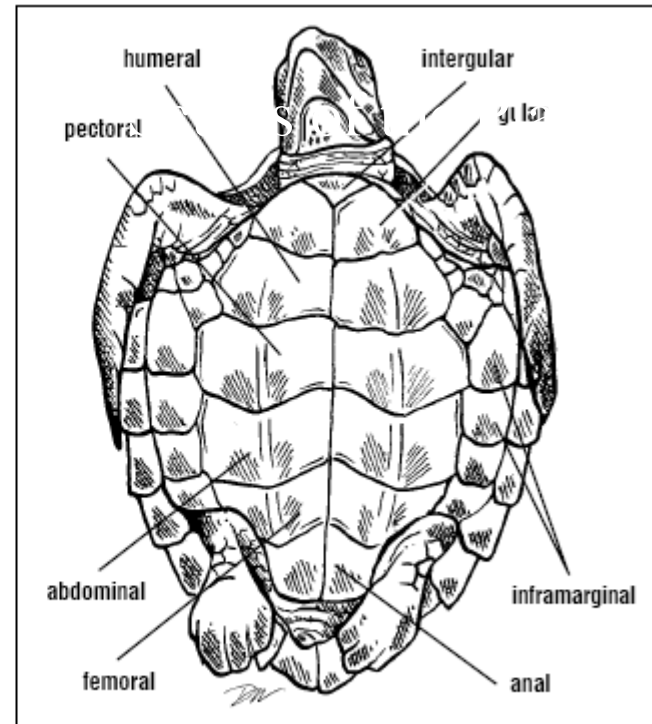
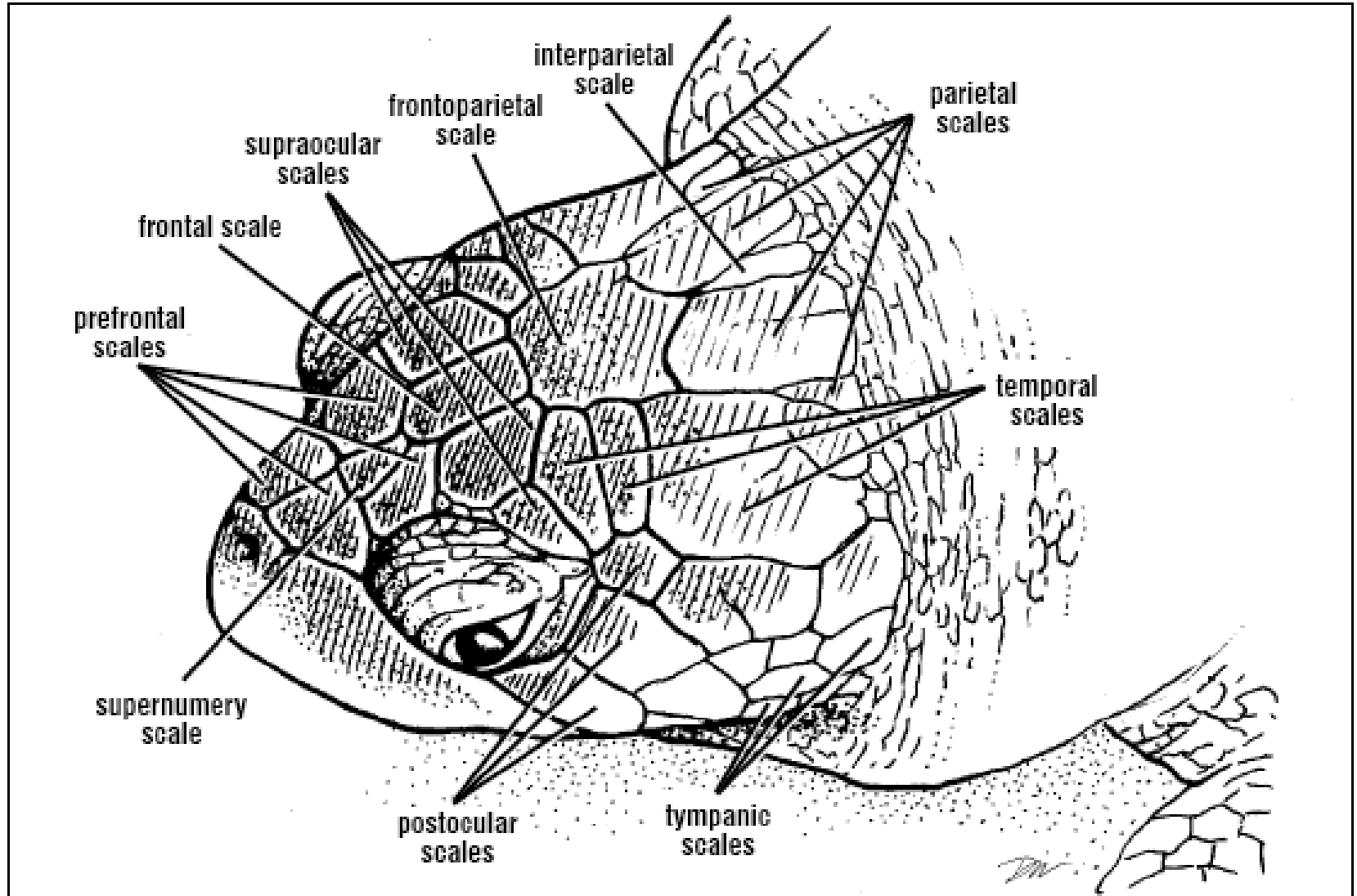


Fig. 5. Scutes of the plastron and bridge.

The number of the coastal scutes of the carapace is a species identification

The scutes of the plastron are used more often as landmarks for internal structure

# Head scales of cheloniid turtles



The prefrontal scales are used in species identification

# Species Identification

FAO Species Names : En - Loggerhead turtle; Fr - Tortue caouanne; Sp - Caguama.

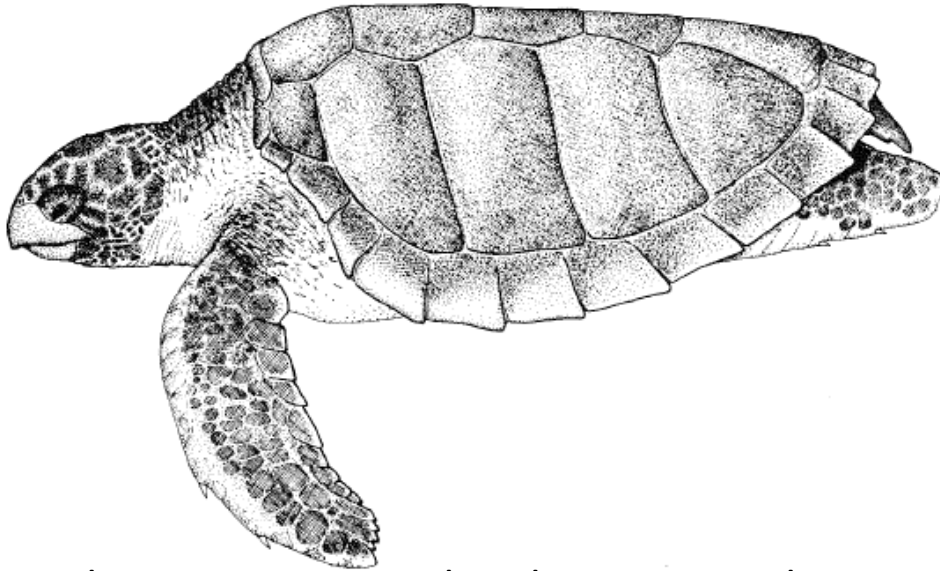


Fig. 22

In Mediterranean Loggerheads not exceed 90-100 cm of Curved Carapace length.

The carapace is flat, elongated, orange-brown to dark-brown

The flippers have two claws

## Caretta caretta

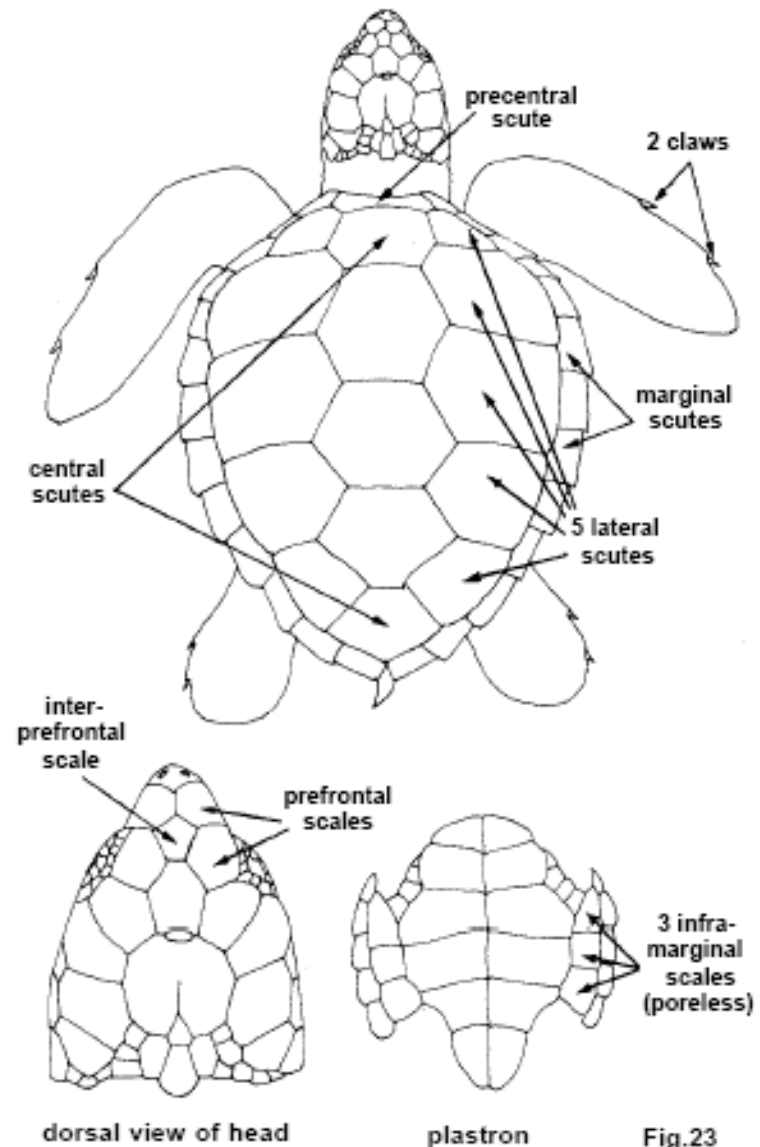
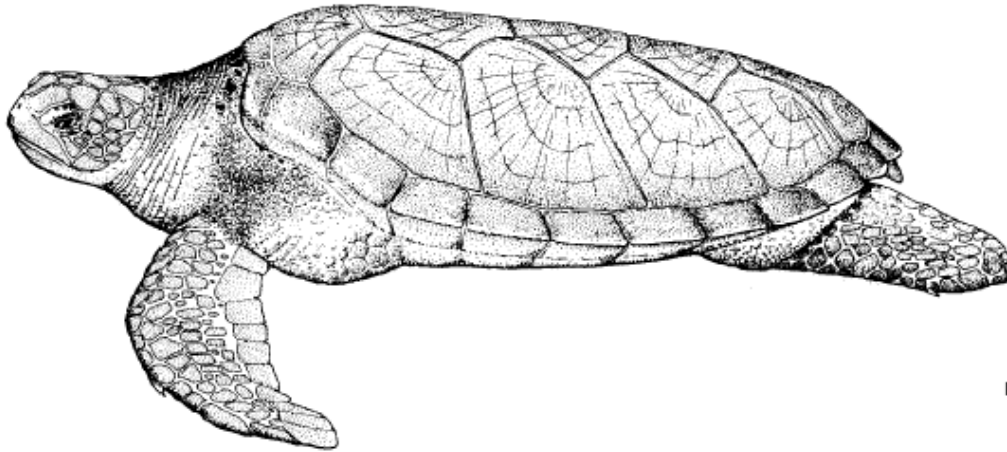


Fig.23



# Species Identification

FAO Names : En - Green sea turtle; Fr - Tortue verte; Sp - Tortuga blanca.

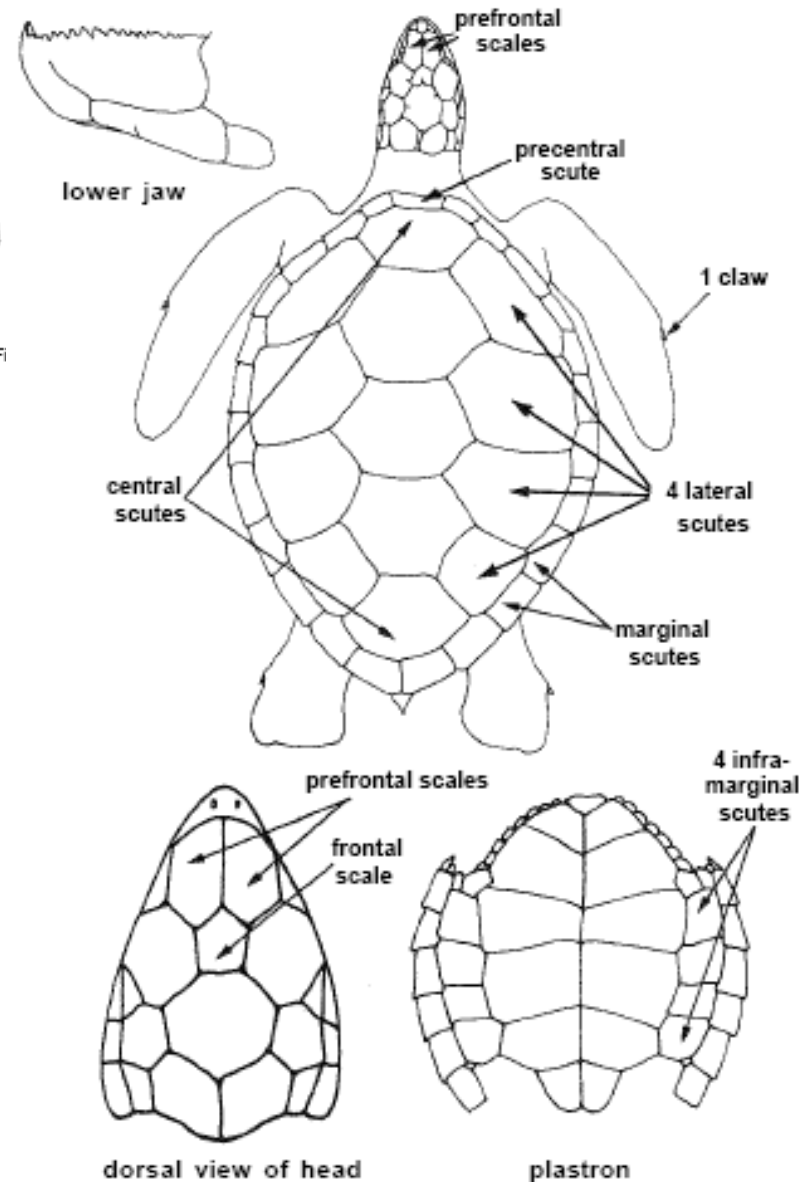


In Mediterranean Green Turtles reaches 110 or so of curved carapace length

The carapace is oval dark-olive green to black

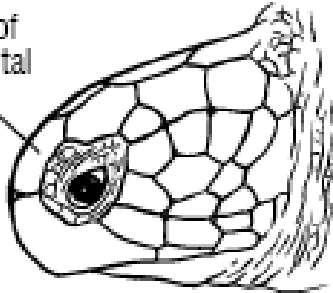
The flippers have a single claw

## Chelonia mydas



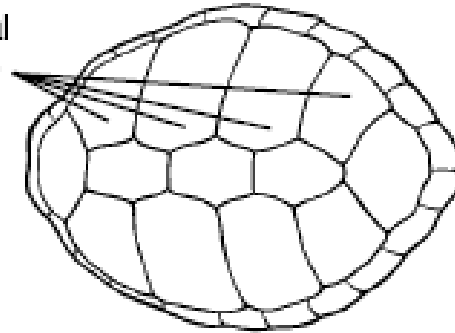
# Key to identification of Turtles

1 pair of prefrontal scales

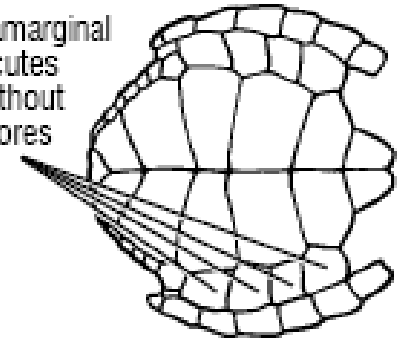


Green turtle - *Chelonia mydas*

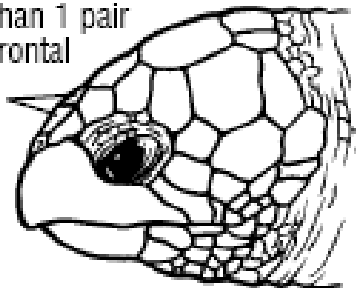
4 lateral scutes



4 inframarginal scutes without pores

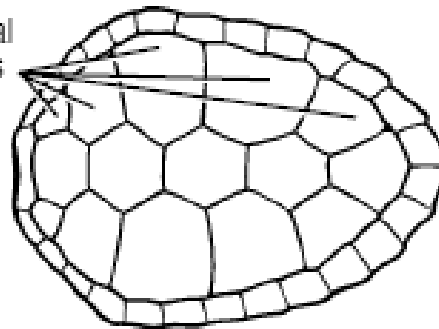


more than 1 pair of prefrontal scales

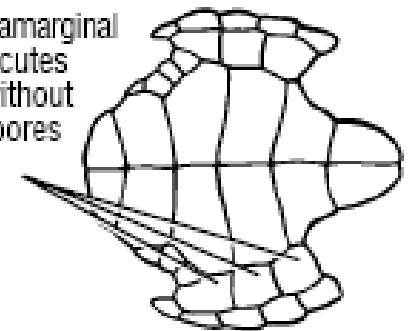


Loggerhead - *Caretta caretta*

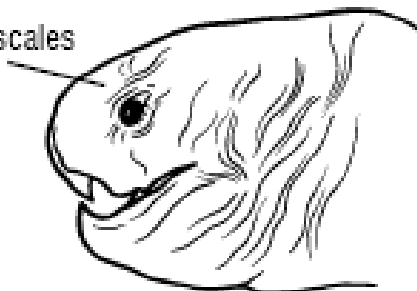
5 lateral scutes



3 inframarginal scutes without pores

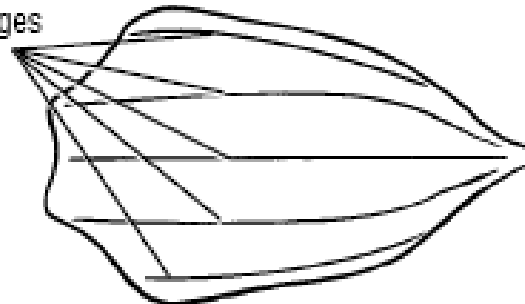


no scales

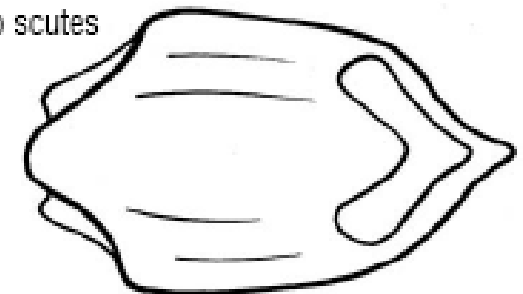


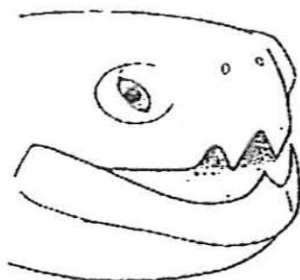
Leatherback - *Dermochelys coriacea*

ridges

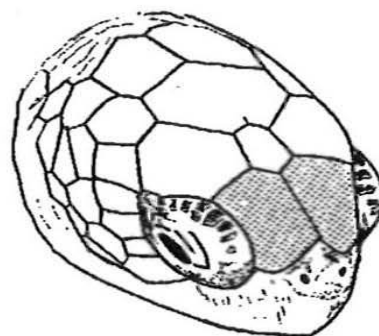


no scutes

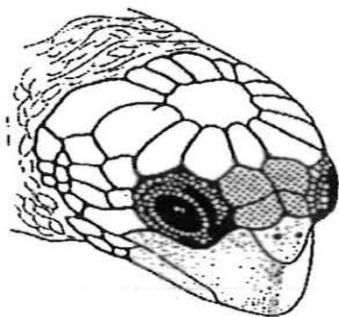




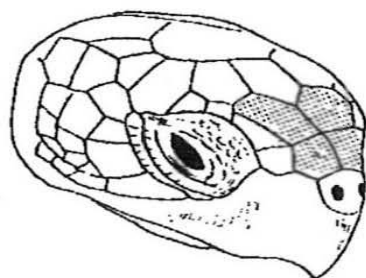
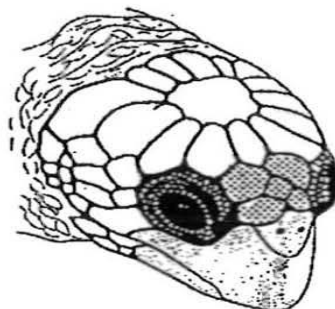
*Dermochelys coriacea*  
Tortue luth ou Tortue cuir  
pas d'écailles



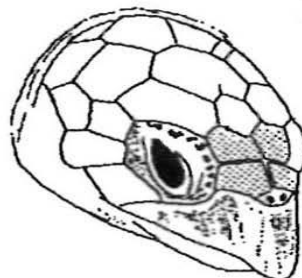
*Chelonia mydas*  
Tortue verte ou Tortue franche  
2 préfrontales



*Caretta caretta*  
Caouanne  
4 ou 5 préfrontales



*Lepidochelys kempii*  
Tortue de Kemp  
4 préfrontales



*Eretmochelys imbricata*  
Tortue imbriquée, Caret  
ou Tortue à écaille



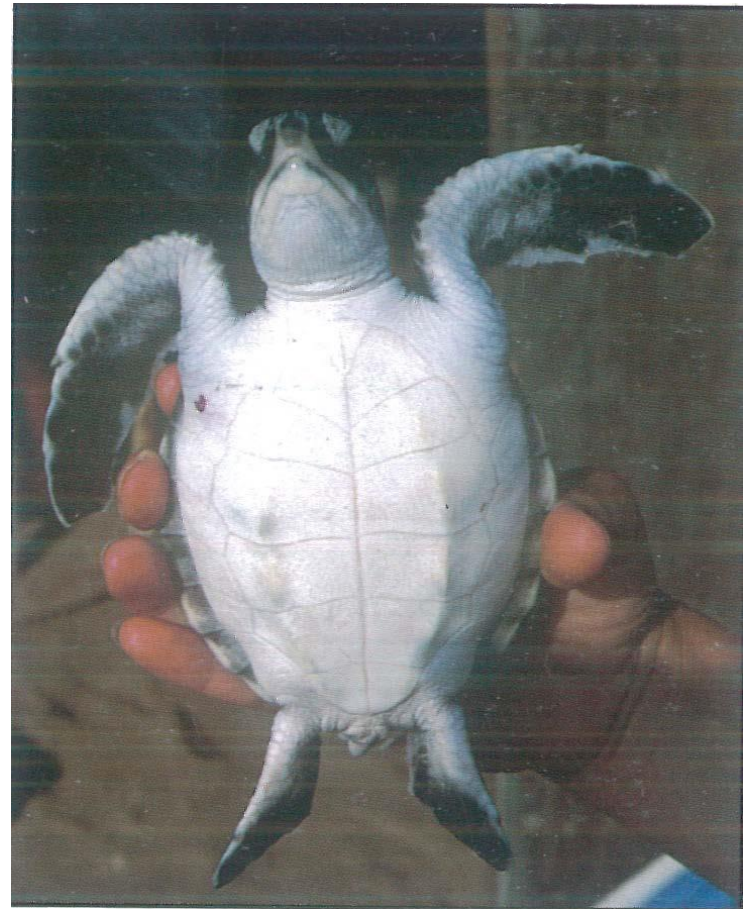
# Key to identification of hatchlings

Juvenile Loggerhead – Ventral view



The average length 41 mm (straight length)

Juvenile Green – Ventral view



The average length 47 mm (straight length)

# TRACKS and NEST

Tracks and Nests are typically of each species

Difference in the beach substrate can alter the appearance of tracks made by same individual, and morphological variation ( i.e. body size, flipper length ,etc) between individual or population of the same species can produce differences in tracks width.

**Thus is important that the fieldworkers spend time to watching nesting turtles and to note the characteristics that distinguish the tracks made by local population of each species.**

## Identification of Tracks

Important diagnostic features used to differentiate turtle tracks by species include : Track width (cm), Body pit depth , and whether the diagonal marks made by the front flipper are symmetrical or asymmetrical.)



## Identification of tracks and nests

**Loggerhead** live tracks where the deep impressions of the front flippers are alternate (Asymmetrical tracks). NoTail drag mark.



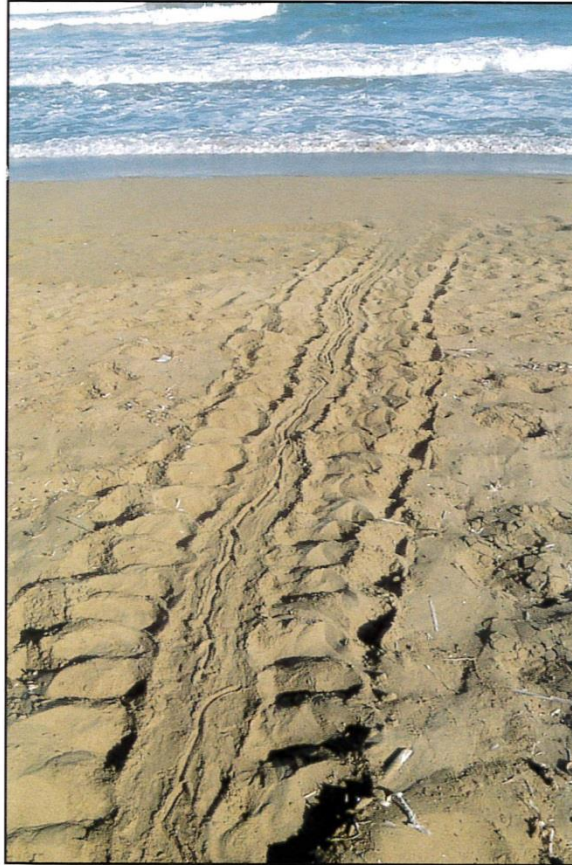
Tracks width :70-90 cm

20

An asymmetrical track is formed when the front flipper move alternatively to carry the turtle forward

## Identification of tracks and nests

**Green turtles** leave parallel impressions (symmetrical tracks). Central tail mark



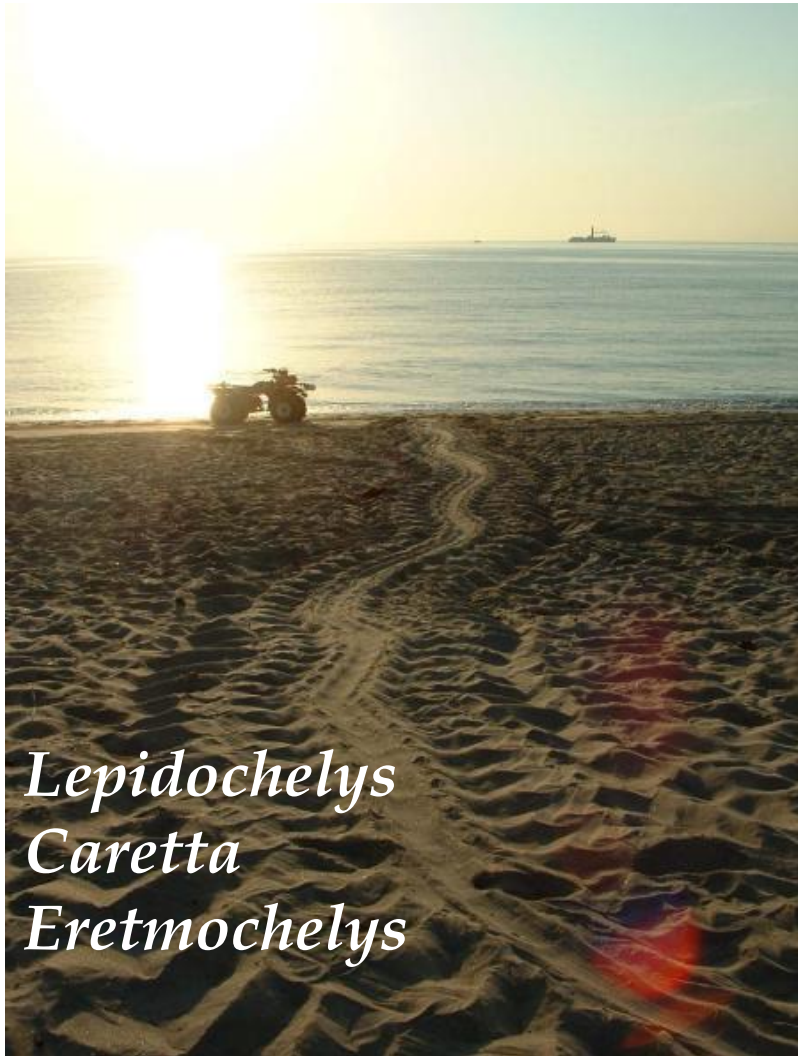
Track width : about 100-130 cm

21

A symmetrical track is formed when the front flippers move together synchronously to pull the turtle over the surface of the sand, resulting in a track in which the right and the left halves are almost mirror image

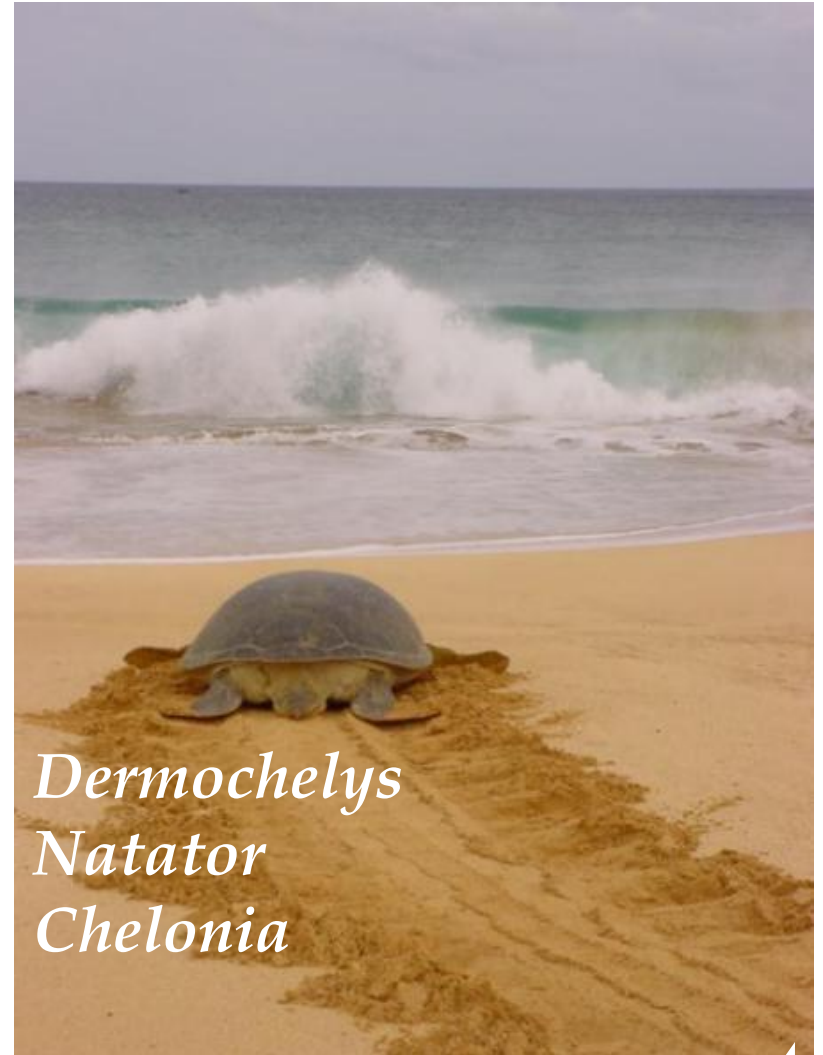
# Identification of Tracks

## Asymmetrical Tracks



*Lepidochelys*  
*Caretta*  
*Eretmochelys*

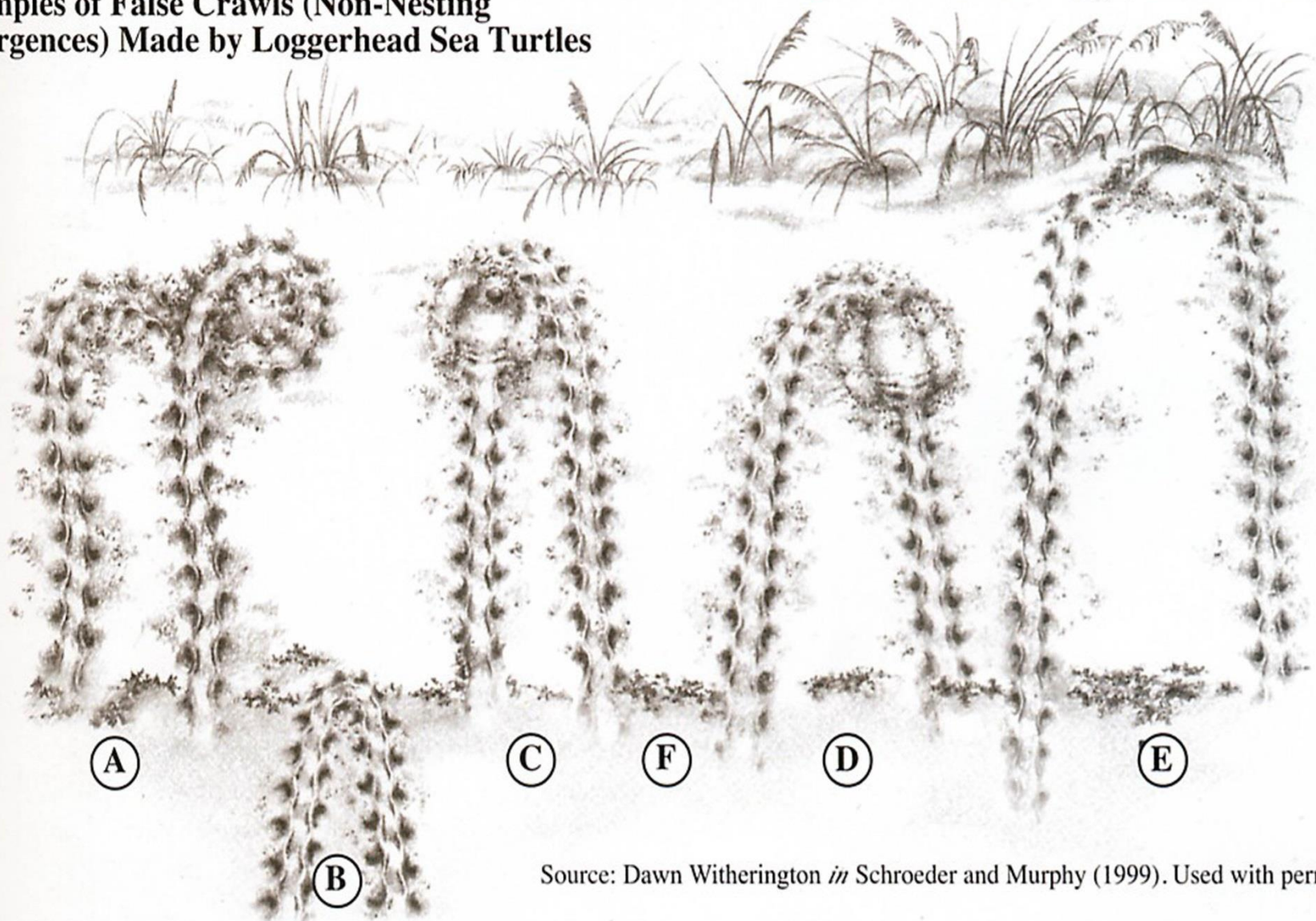
## Simmetrical tracks



*Dermochelys*  
*Natator*  
*Chelonia*



## Examples of False Crawls (Non-Nesting Emergences) Made by Loggerhead Sea Turtles



Source: Dawn Witherington // Schroeder and Murphy (1999). Used with permission.

- A. Extensive wandering with no body pitting or digging.
- B. U-shaped crawl to the high tide line (no attempt to nest).
- C. Considerable sand disturbance, evidence of body pitting and digging with a smooth-walled egg chamber, but no evidence of covering.
- D. Considerable sand disturbance and evidence of body pitting and digging, but no evidence of covering.
- E. Marks the site of a crawl where the relative lengths of the emerging and returning crawls are the same.
- F. Marks the high tide line.

# Nesting position

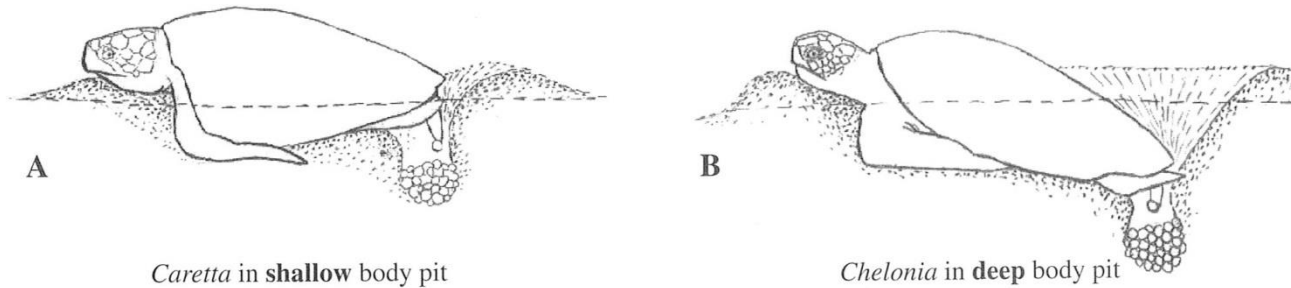


Figure 14. Two typical nesting positions of sea turtles, showing the differences in depth of body pits.

Loggerheads dig little or no body pit ( A ), simply make a small depression in the sand.

The head and carapace are above beach level during laying.

Greens leave conspicuous body pits ( B )after the female has displaced large amounts of sand while constructing and covering her nest.

The head and the carapace are usually below the surface of the beach during laying

To lay eggs the female digs a deep hole with hind flippers





## Loggerhead Turtle laying

Rear flippers are kept apart



The top layer of eggs is usually 20-35 cm below the surface of the sand while the bottom of the egg-chamber is about 35-55 cm deep

The diameter of the chamber is about 13-18 cm on top about 5 cm lower down.

Distance from the sea : 2,5-4 m



## Green Turtle laying

Rear flippers cupping the egg-chamber



The nest is wide and deep and the eggs are deposited deeper than those of loggerhead.

The top layer of eggs is 45-60 cm below the surface of the sand while the bottom of chamber may be 60-85 cm deep. The diameter of chamber is about 18-23 cm on top about 5 cm lower down

Distance from the sea : 5-10 m

Eggs laying takes few minutes, the eggs being dropped ,usually, two or three at a time.





# Nests

Loggerhead nesting is quick and may finish in one hour



Loggerhead nest . The stick marks the position of the chamber



## Nests

Green nesting takes much time and finish in 2-3 hours



Green Turtle nest. The sticks marks the position of the chamber



Back to the sea

