



Biology and Conservation of Large Marine Vertebrates

Sea Turtle Lab 1: Morphology and Species Identification

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Sea Turtle Species

Family / Species	IUCN status	Assesment yr.
fam. Cheloniidae (želve)		
loggerhead turtle/glavata kareta (<i>Caretta caretta</i>)	VU ↓	2015
green turtle/orjaška črepaha (<i>Chelonia mydas</i>)	EN	2004
hawksbill turtle/karetna želva (<i>Eretmochelys imbricata</i>)	CR	2008
kemps ridley (<i>Lepidochelys kempi</i>)	CR	1996
olive ridley (<i>Lepidochelys olivacea</i>)	VU ↓	2008
flatback turtle (<i>Natator depressus</i>)	DD	1996
fam. Dermochelyidae (usnjače)		
leatherback turtle / usnjača (<i>Dermochelys coriacea</i>)	VU ↓	2013

Fam. Cheloniidae

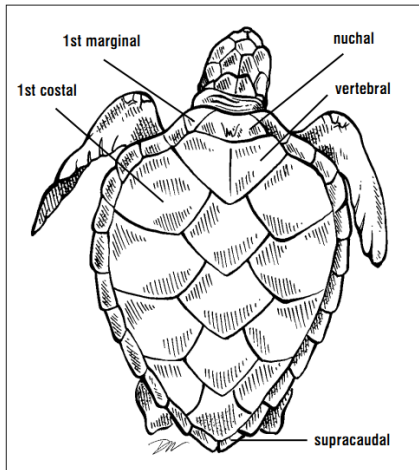


Fig. 4. Scutes of the carapace.

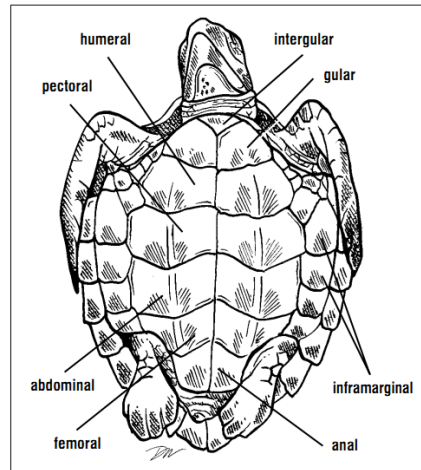


Fig. 5. Scutes of the plastron and bridge.

Fam. Cheloniidae

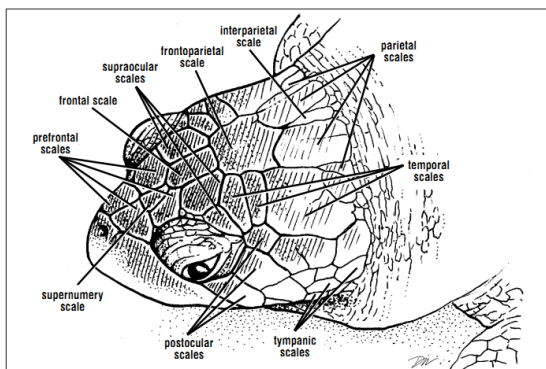


Fig. 8. Head scales of cheloniid turtles. The major sets of scales used in species identification are the prefrontals. There are often supernumerary scales (multiple extra scales) between the prefrontals. These lack pattern and are usually small. The other labeled scales serve as landmarks.

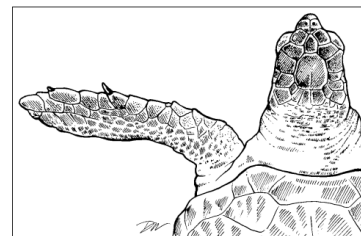


Fig. 6. Position and numbering of claws.

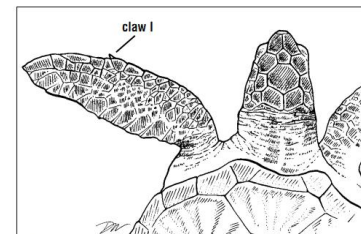
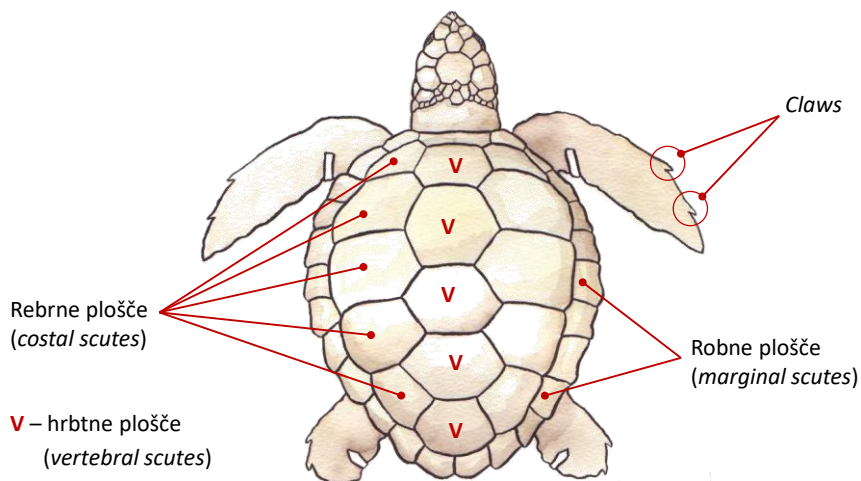


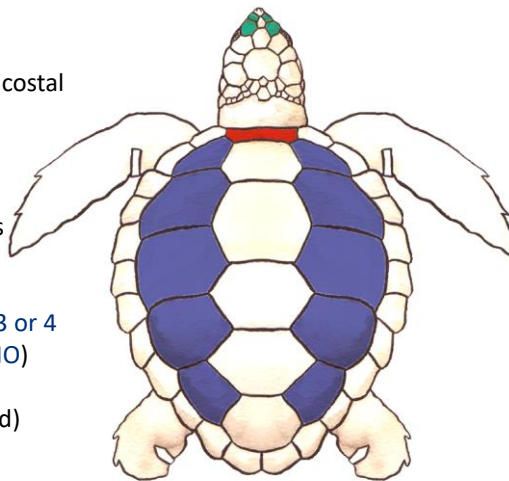
Fig. 7. The single claw occurs on the first digit. No claw forms on the second digit.

Species identification



Species identification

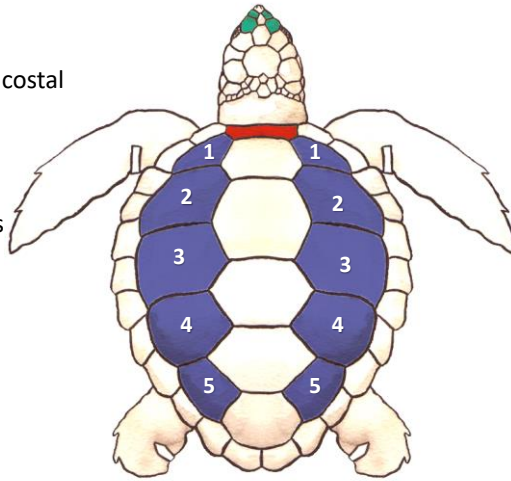
- number of costal (lateral) scutes (4 – 9 pairs)
- contact btw. *nuchal* scute and 1st costal scute (YES-NO)
- number of prefrontal scales (1 or 2 pairs)
- Number of claws on front flippers (1 or 2)
- number of inframarginal scutes (3 or 4 pairs) & presence of pores (YES-NO)
- (color and shape of shell and head)

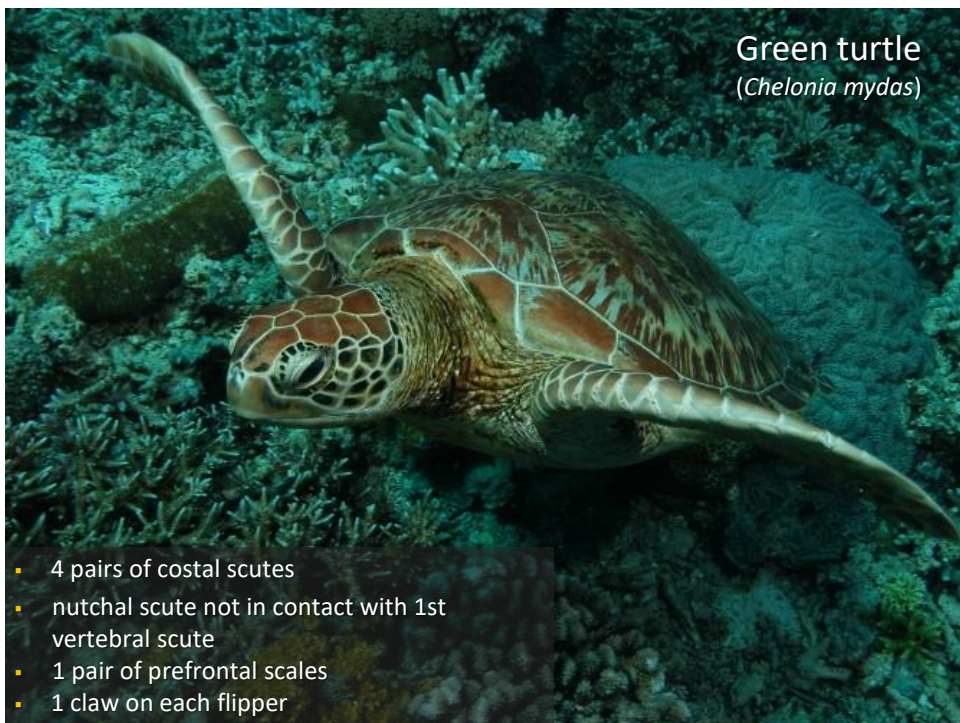
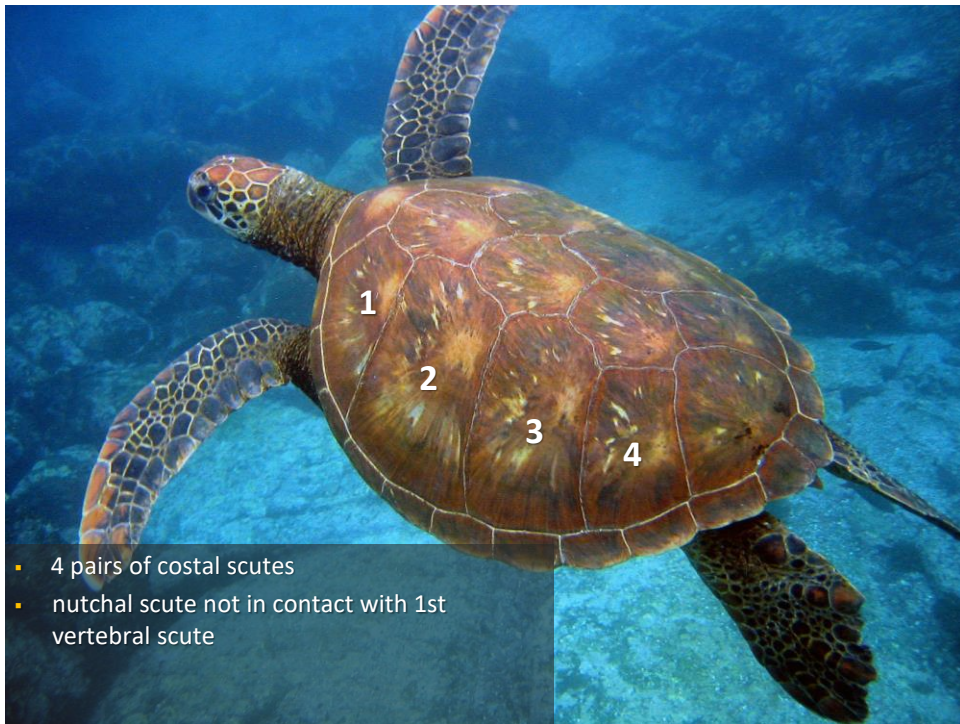


Species identification

- number of costal (lateral) scutes (5 pairs)
- contact btw. *nuchal* scute and 1st costal scute (YES)
- number of prefrontal scales (2 pairs)
- Number of claws on front flippers (2)

⇒ *Caretta caretta*



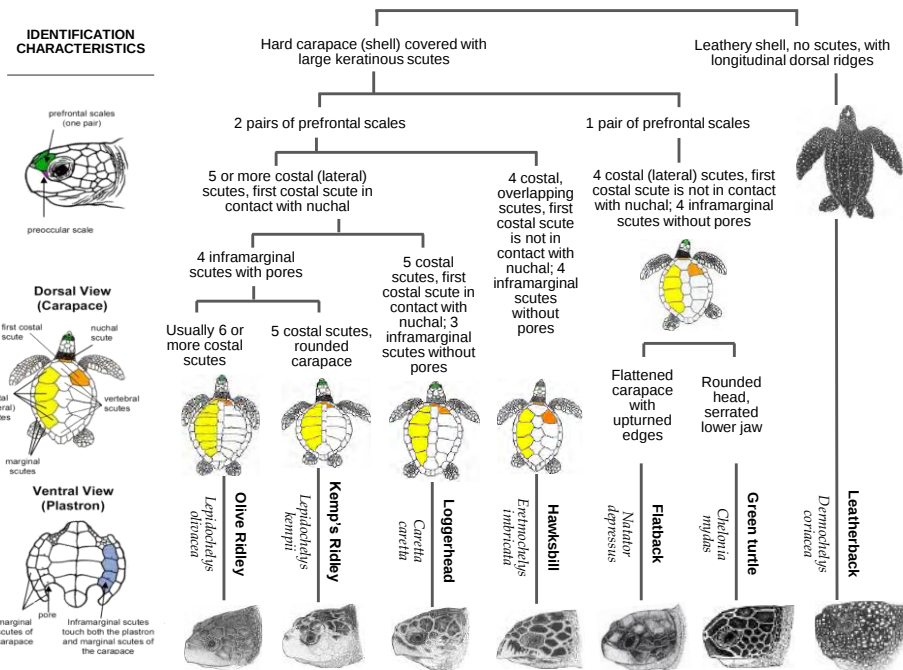


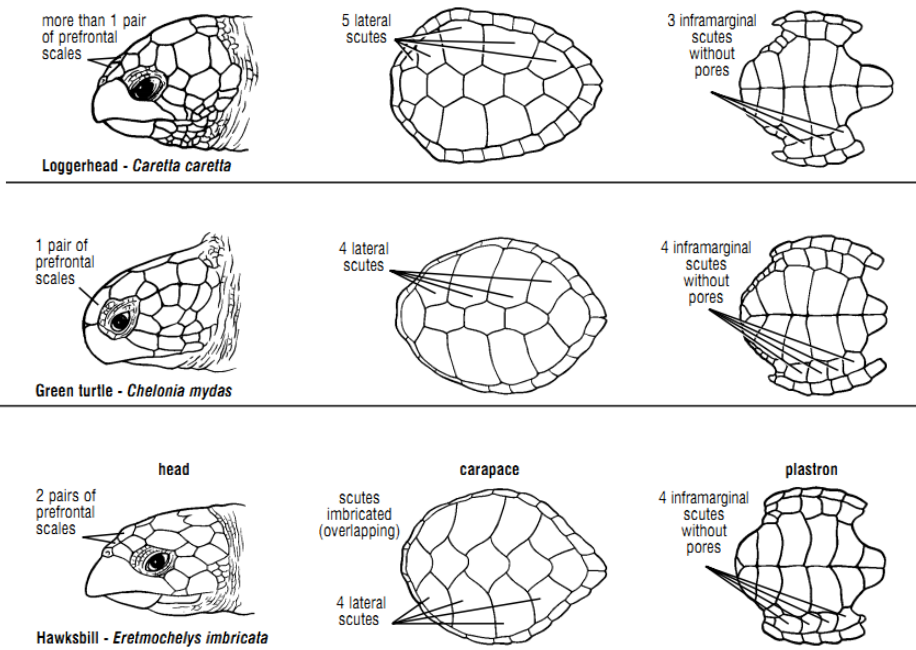
Head shape

Loggerhead turtle
(*Caretta caretta*)

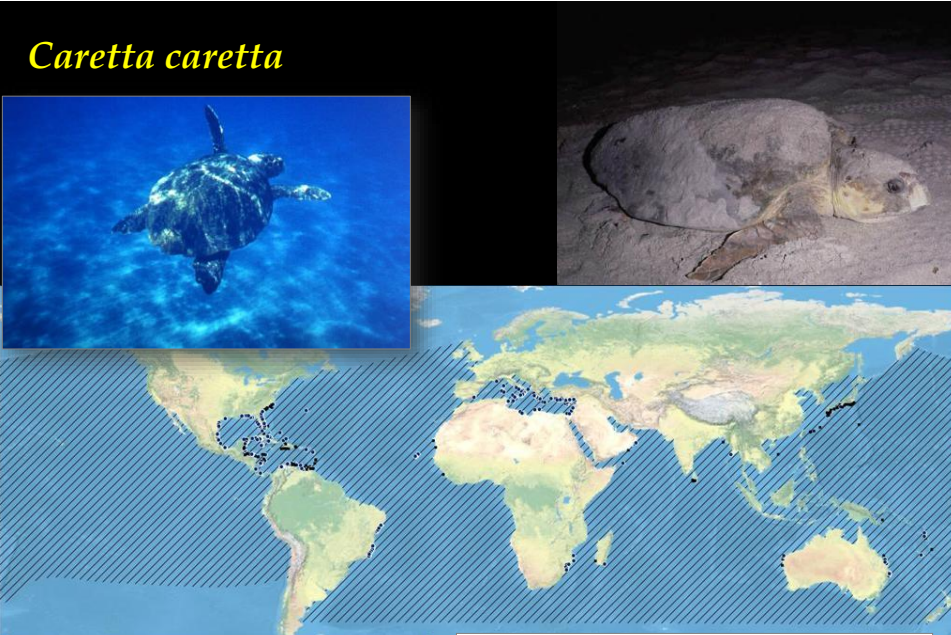


Green turtle
(*Chelonia mydas*)





Caretta caretta



Caretta caretta nesting

- site has known abundance and record is within the last 10 years
- site is either unquantified or record older is than year 2000

Main nesting sites:

USA (Florida), Oman, Mediterranean, Cape Verde Islands, Australia, Brazil



Chelonia mydas



Carapace max: 140 cm



Chelonia mydas nesting

- site has known abundance and record is within the last 10 years
- site is either unquantified or record older is than year 2000

Main nesting sites:

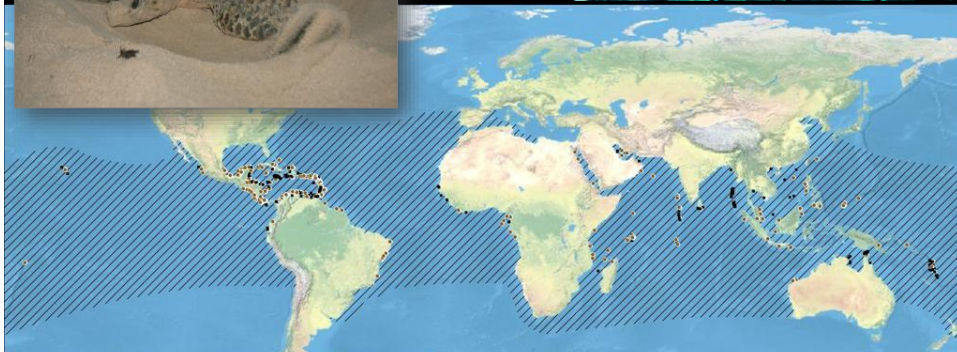
Mexico, Costa Rica, Australia, Oman, Indonesia, USA (Florida, Hawaii)



Eretmochelys imbricata



Carapace max: 114 cm

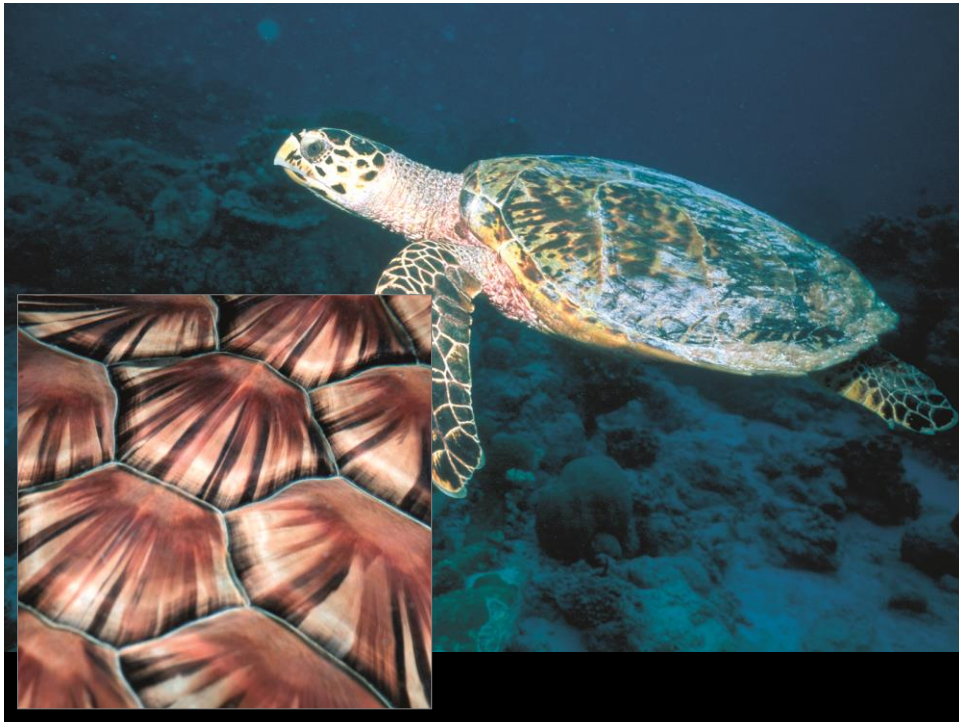


Eretmochelys imbricata nesting

- site has known abundance and record is within the last 10 years
- site is either unquantified or record older is than year 2000

Main nesting sites:

Seychelles, Mexico, Indonesia, Australia





Lepidochelys olivacea

Carapace max: 79 cm



Lepidochelys olivacea nesting

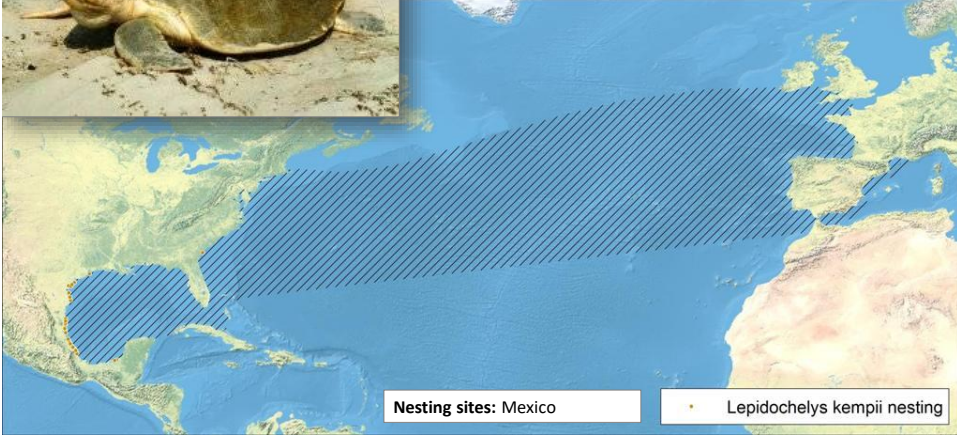
- site has known abundance and record is within the last 10 years
- site is either unquantified or record older is than year 2000

Main nesting sites:

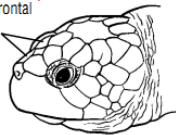
India, Mexico, Nicaragua, Costa Rica, Sri Lanka

Lepidochelys kempii

Carapace size: 65 cm

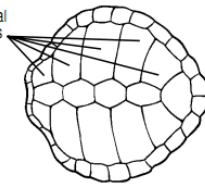


more than 1 pair
of prefrontal
scales

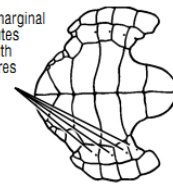


Kemp's ridley - *Lepidochelys kempii*

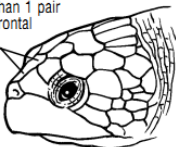
5 lateral
scutes



4 inframarginal
scutes
with
pores

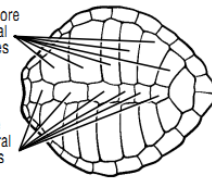


more than 1 pair
of prefrontal
scales



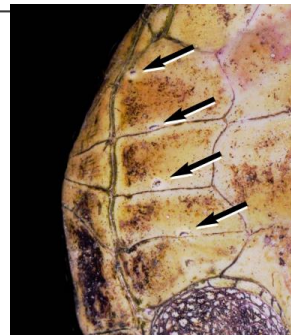
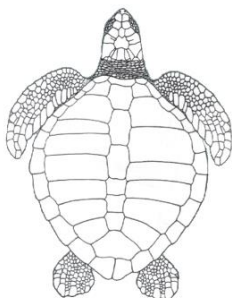
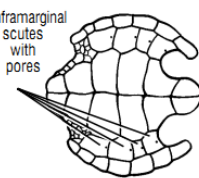
Olive ridley - *Lepidochelys olivacea*

6 or more
lateral
scutes



6 or more
vertebral
scutes

4 inframarginal
scutes
with
pores



L. kempii, arribada, 1947 (Mexico): 40.000 females in a single day.



L. olivacea, arribada (Costa Rica)



Natator depressus

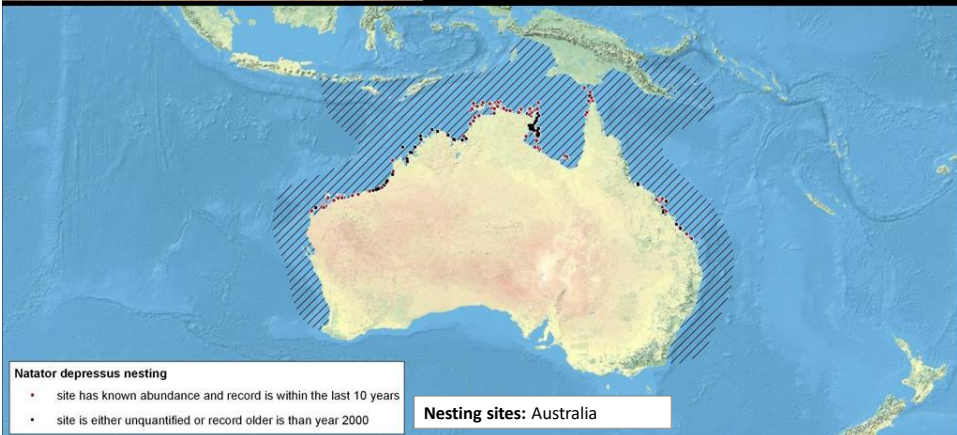
Carapace max: 97 cm



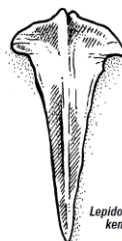
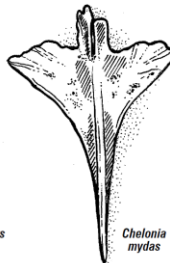
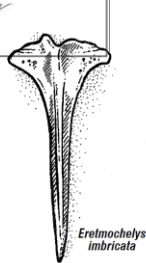
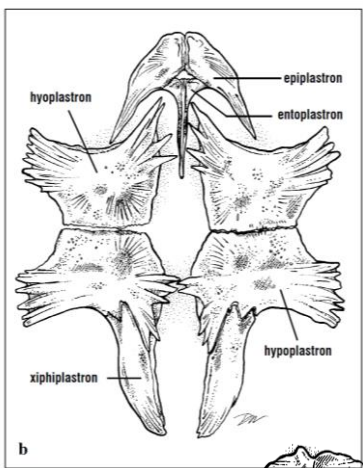
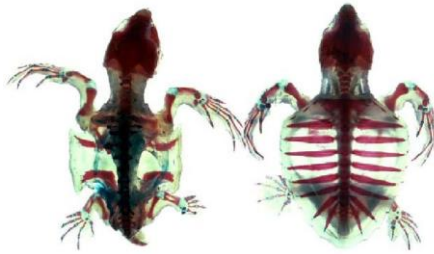
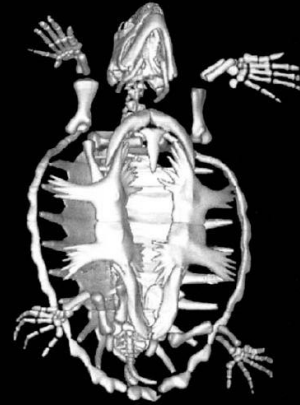
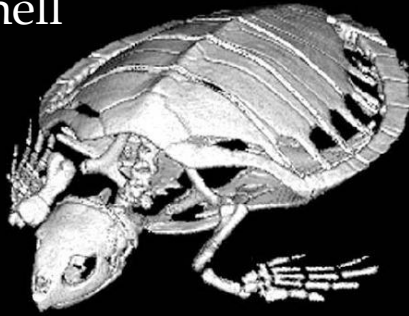
Natator depressus nesting

- site has known abundance and record is within the last 10 years
- site is either unquantified or record older is than year 2000

Nesting sites: Australia



Shell



Eretmochelys imbricata

Chelonia mydas

Lepidochelys kempi

Caretta caretta

Sex identification

- juveniles: no external sexual dimorphism(!)
- Mediterranean loggerheads: adults (> 70 cm CL) males develop longer tail

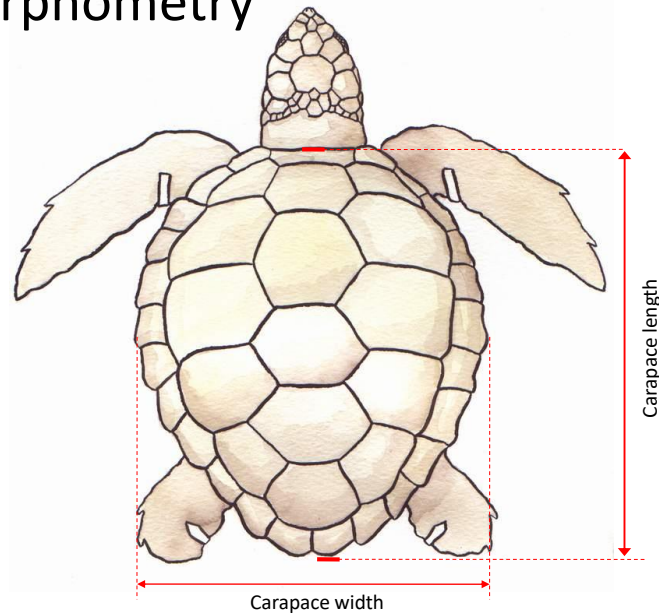


Morphometry

- Straight – line measurements
- Curved measurements
 - CCL: curved carapace length
 - CCW: curved carapace width



Morphometry



Handling alive sea turtles



Transport of alive turtles



- nutritional conditions
- muscle tropism and tone
- appearance of the skin and external surfaces of carapace, plastron, and head
- inspection of natural openings and external mucous
- respiratory capacity and mode
- temperature
- sensorium level and reflexes
- strange attitudes
- swimming and floating mode

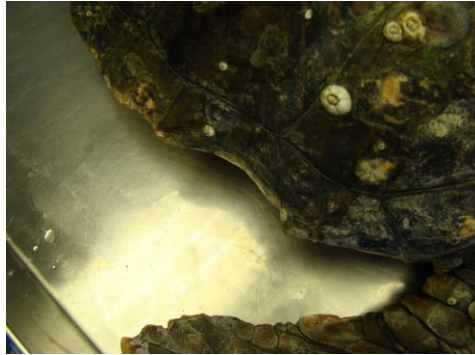
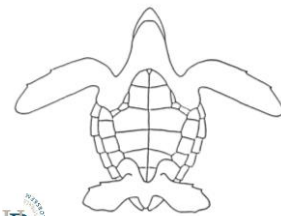
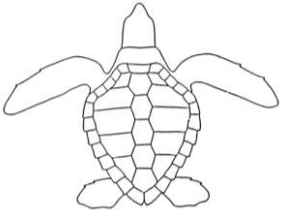


Figure 6: Turtle in a good nutrition status: it is evident abundant fatty tissue under the skin of the neck and axillary region.

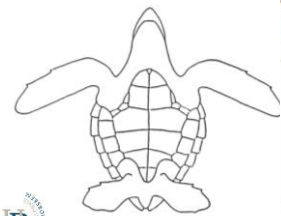
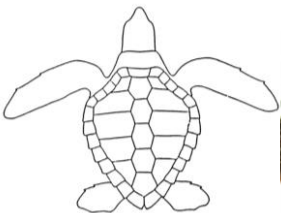


Figure 7: Turtle in a poor state of nutrition.

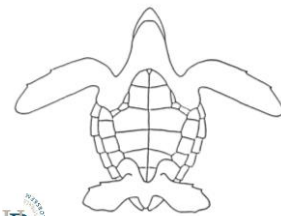
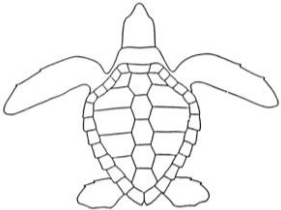
External lesions, haematomas



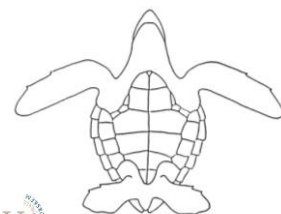
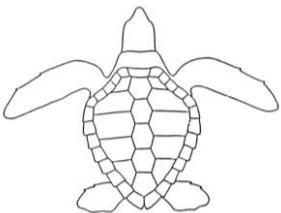
External lesions, haematomas



External lesions, haematomas



Epibionts, ectoparasites



Body condition

Score	Preservation status	Description	Practicable exams
1	Fresh carcass	Death occurred in the previous 24 hours	histology, cytology, virology, microbiology, parasitology, pollutants, biotoxins, genetics
2	Moderate decomposition	Head: integral or with partial loss of skin; Eye: sunken or liquefied; Tail: present or absent; Limbs: integral; Carapace and plastron: integral; Bloated carcass	histology (limited), virology, microbiology, parasitology, pollutants, biotoxins, genetics
3	Advanced decomposition	Head: complete loss of skin; Eye: liquefied; Tail: absent; Limbs: partially exposed skeleton; Carapace and plastron: partial or total loss of skin; Collapsed carcass	histology (limited), parasitology, pollutants (limited), genetics
		a) internal organs: still distinguishable	
		b) internal organs: liquefied	
4	Mummified carcass or partial carcass	Incomplete carcass; Skull: visible; Carapace: broken with separation of parts	genetics

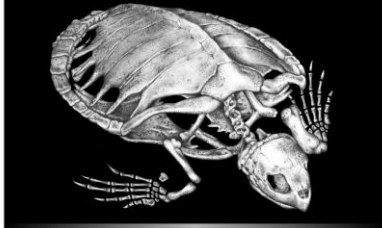
Body condition

Score	Preservation status		
1	Fresh carcass		
2	Moderate decomposition		
3	Advanced decomposition		
4	Mummified carcass or partial carcass		



NOAA Technical Memorandum NMFS-SEFSC-470

The Anatomy of Sea Turtles



Jeanette Wyneken, Ph.D.

Illustrated by Dawn Witherington

December 2001

U. S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Science Center, 75 Virginia Beach Drive, Miami, FL 33149

netcet

STANDARD PROTOCOL FOR POST-MORTEM EXAMINATION ON SEA TURTLES

Lisa Poppi
DVM, PhD

Erica Marchiori
DVM



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