GENERAL FISHERIES COMMISSION FOR THE MEDITERRANEAN

First Transversal expert meeting on the status of asmobranches in the Mediterranean and Black Sea (S
Tunisia 20–22 September 2010)

Embryonic diapause for the common guitar fish *Rhinobatos rhinobatos* from the Gulf of Gabès (central Mediterranean Sea)

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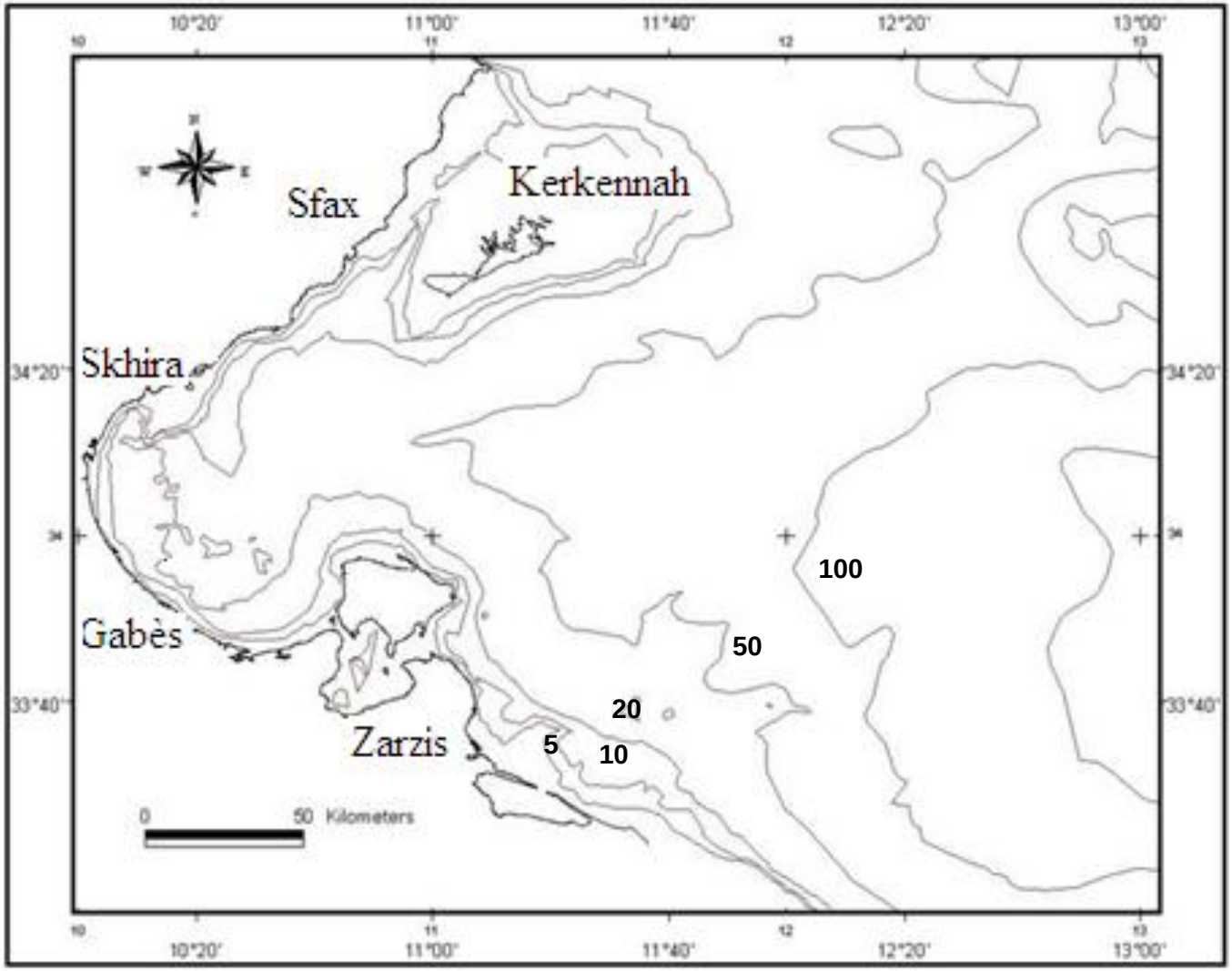
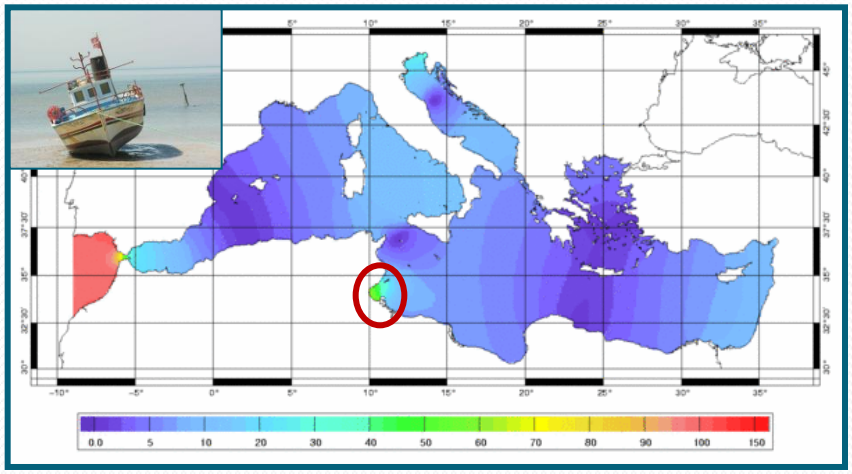
Study area



The Gulf of Gabès known by its wide and regular continental shelf (-60m at 110km of the coats)

Study area



An active water circulation which was predominantly affected by a semi-diurnal tides.

The surface temperature and salinity of the Gulf of Gabès are higher than the northern coast of Tunisia.

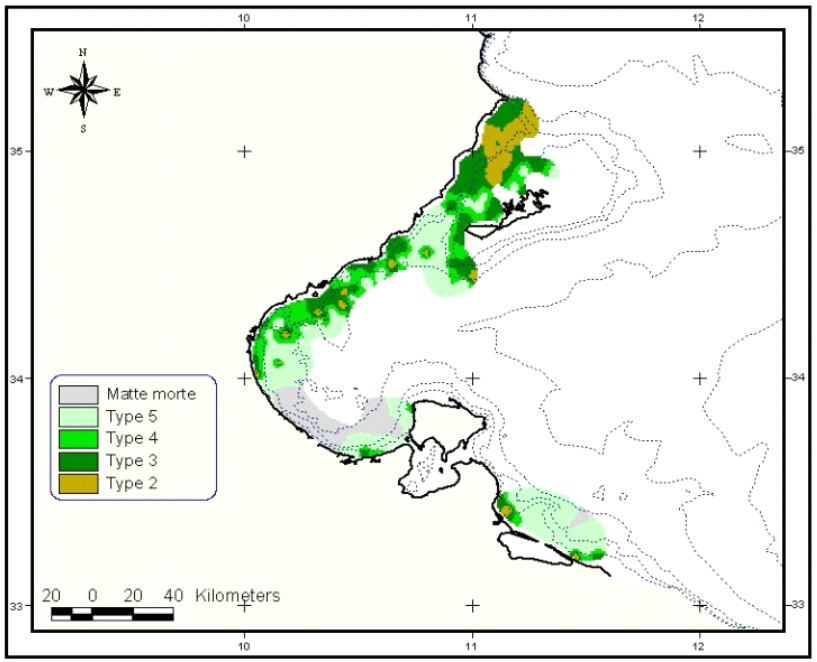
	Temperature °C	Salinity
Winter	13.9	38
Spring	22.2 – 24.3	
Summer	26	39
Autumn	24.6 – 26.5	

Study area

Posidoniacea and cymodocea have a wide geographical distribution.

It constitute the most important fishing area where many benthic invertebrate species are targeted.





67 % of tunisian trawlers, 33% of purse seine for small pelagic species and 86 % of ships using purse seine for tuna

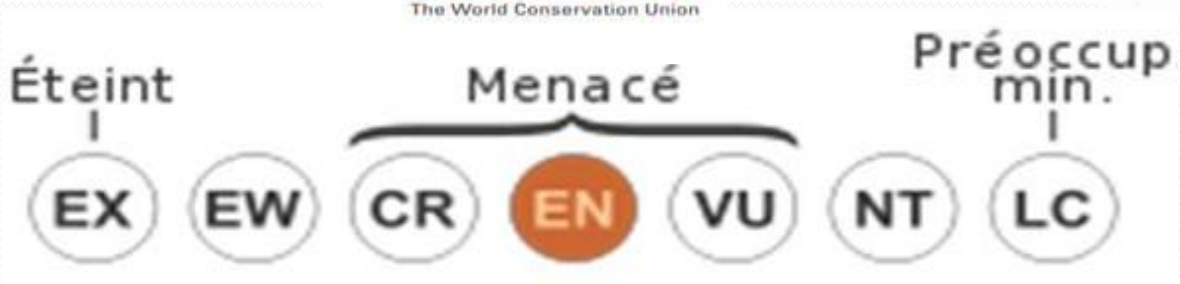
Samples

Species		Number	TL (cm)
Rhinobatos rhinobatos	M	1190	31.5 – 99.5
	F	1226	29 – 112
	T	**2345**	31.5 - 112

Presentation of Rhinobatids

Kingdom : Animal
phylum : Cordes
Sous-embranchement : Craniates
Class : Chondrichtyes
Subclass : Elasmobranchii
Infraclass : Euselachii
Division : Neoselachii (Nelson, 2006) / Squalea (de Carvalho 1996)
Superorder : Hypnosqualea
Order : Rajiforme (Batoïdea)
Sous-ordre : Rhinobatoidei
Family : Rhinobatidae

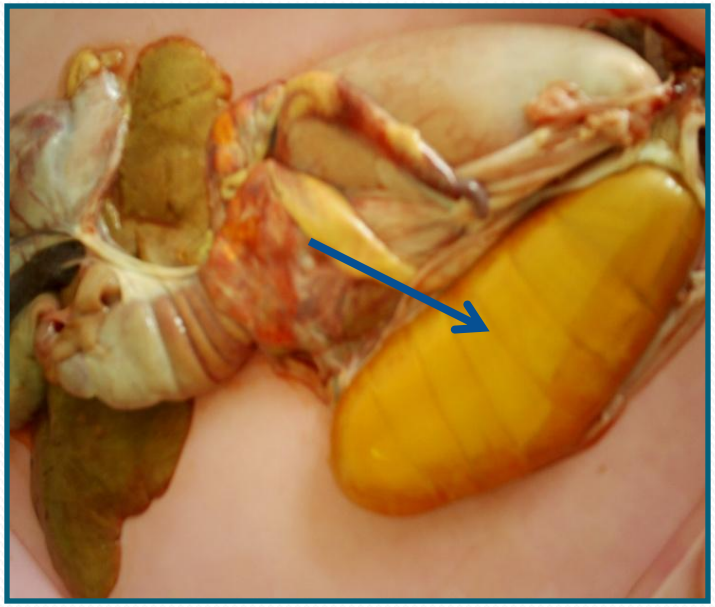
IUCN
The World Conservation Union

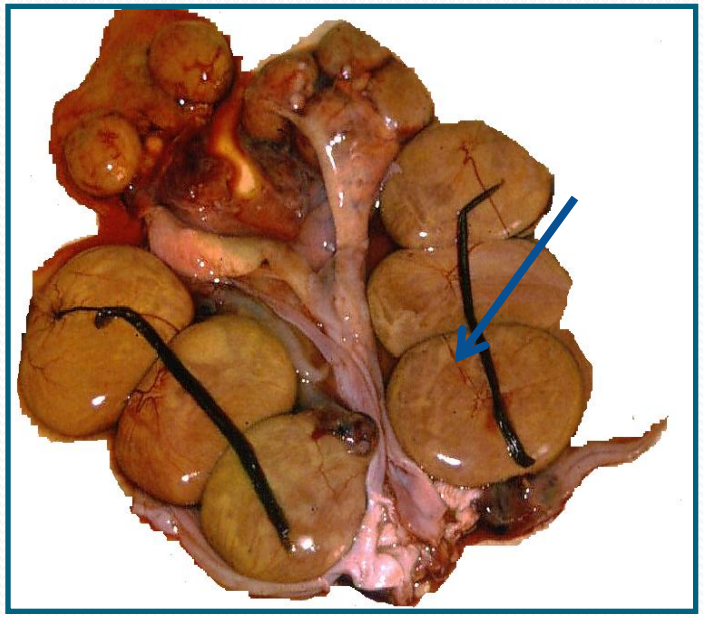


Reproductive cycle

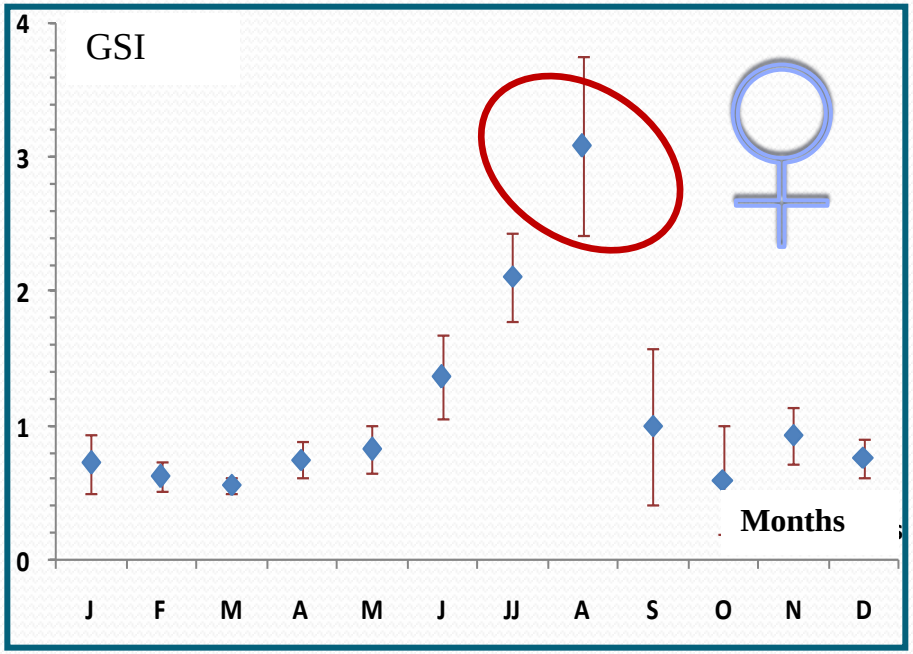
An aplacental viviparous species

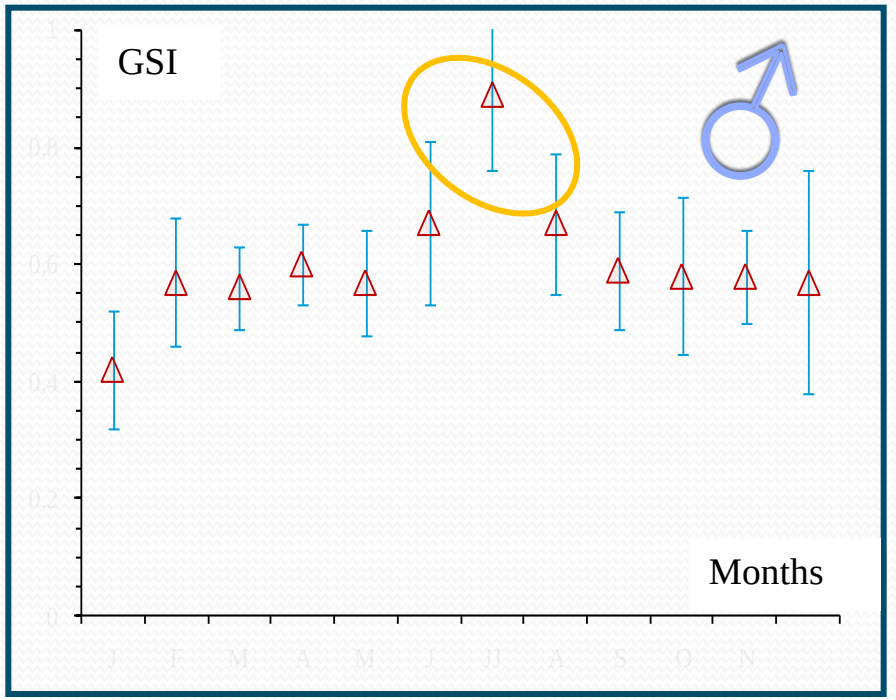
Vitellogenesis and gestation occur simultaneously





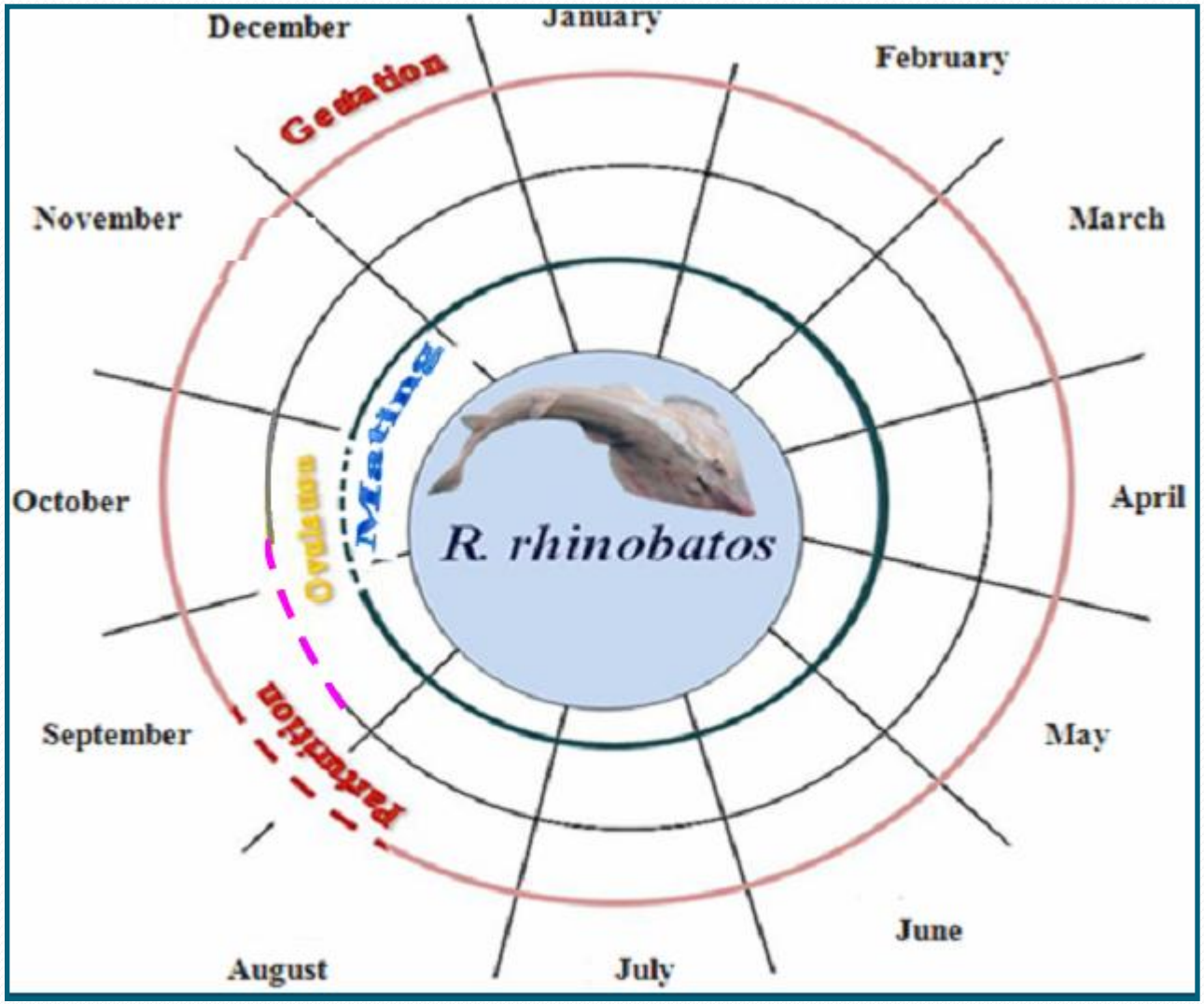
Reproductive cycle



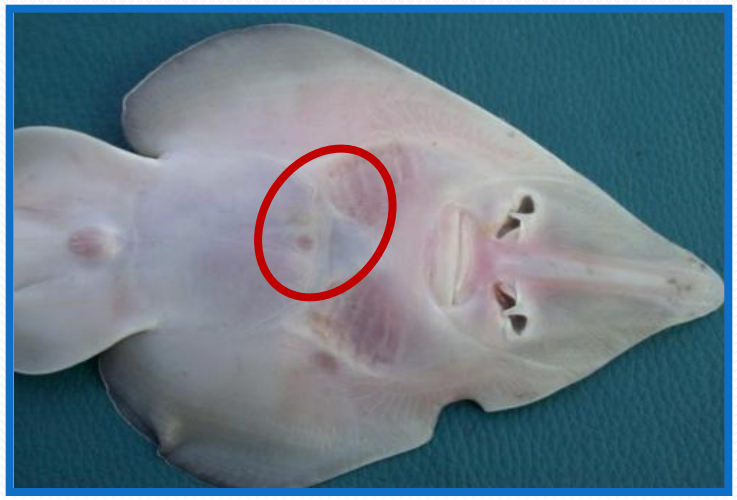


Monthly variation of gonadosomatic index for *Rhinobatos rhinobatos*

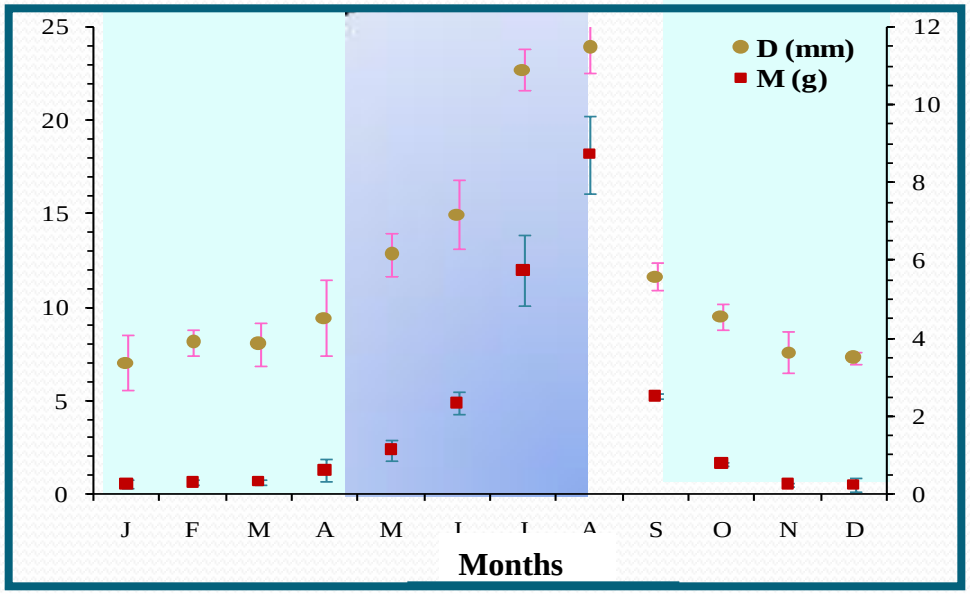
Reproductive cycle



eproductive cycle : fecundity & size at birth

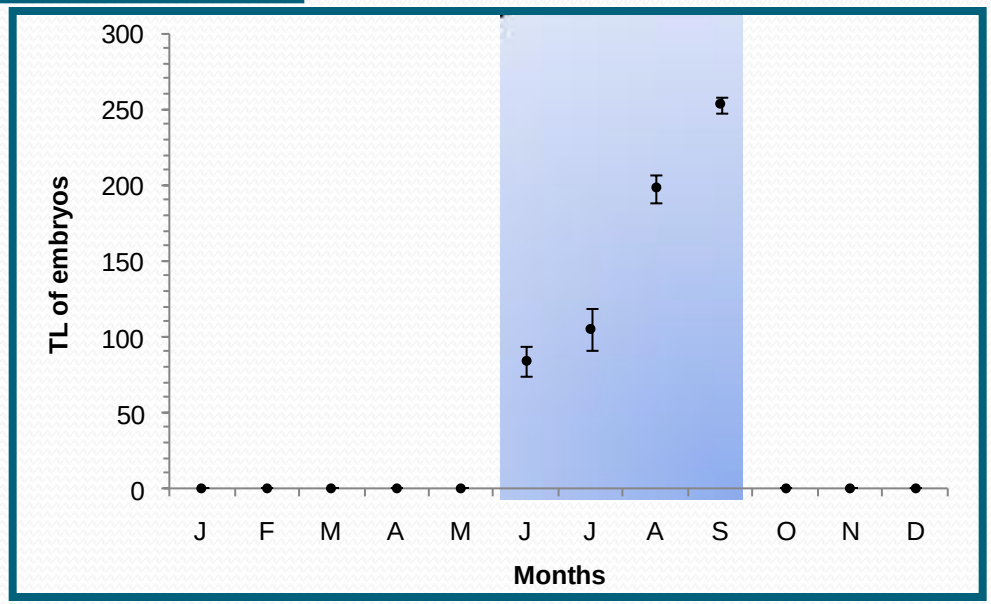


Reproductive cycle : embryonic diapause



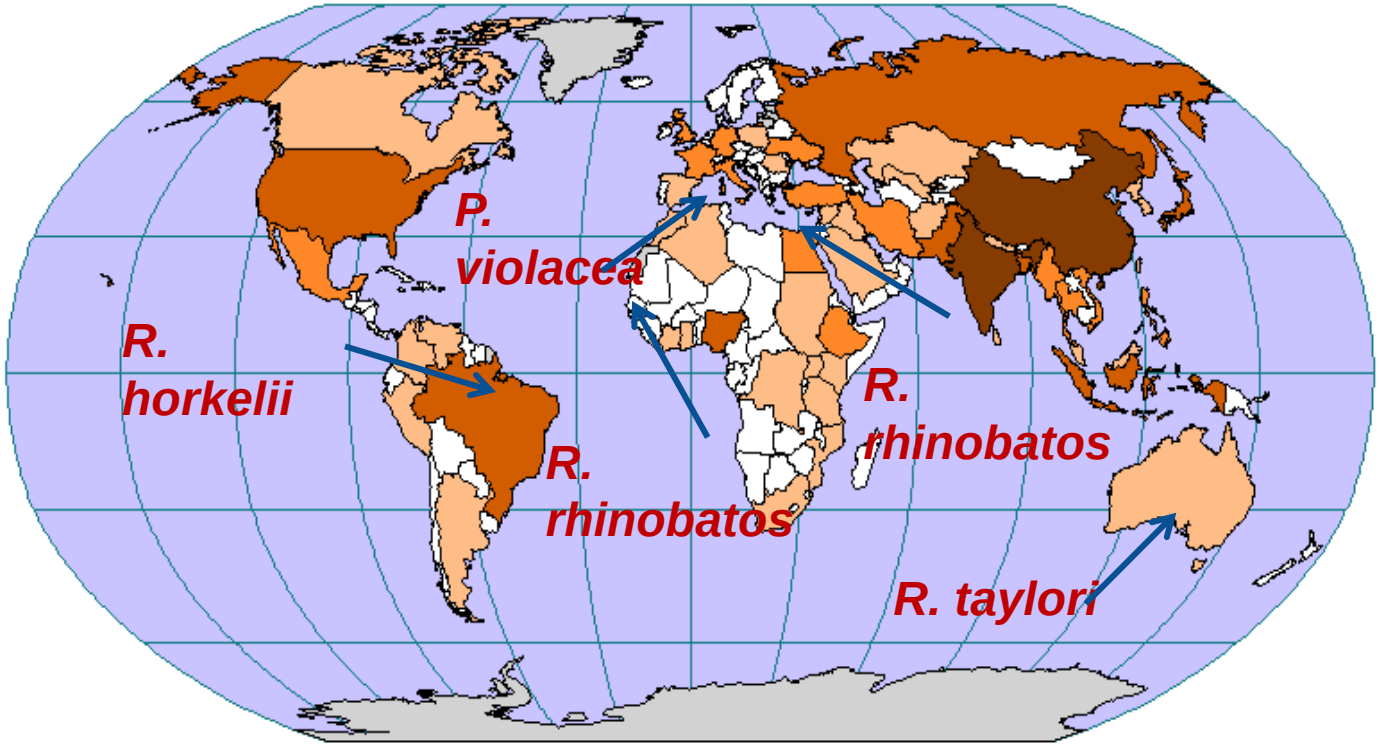
The first one lasted approximately 6 to 8 months. During this first period, the diameter and the mass of oocytes evoluated slowly; the uterine content was formed only by eggs.

Second phase : acceleration in vitellogenesis and in embryonic activity was observed. The ova reached the highest diameter and mass in this second phase and eggs evolved rapidly to embryos and foetuses.



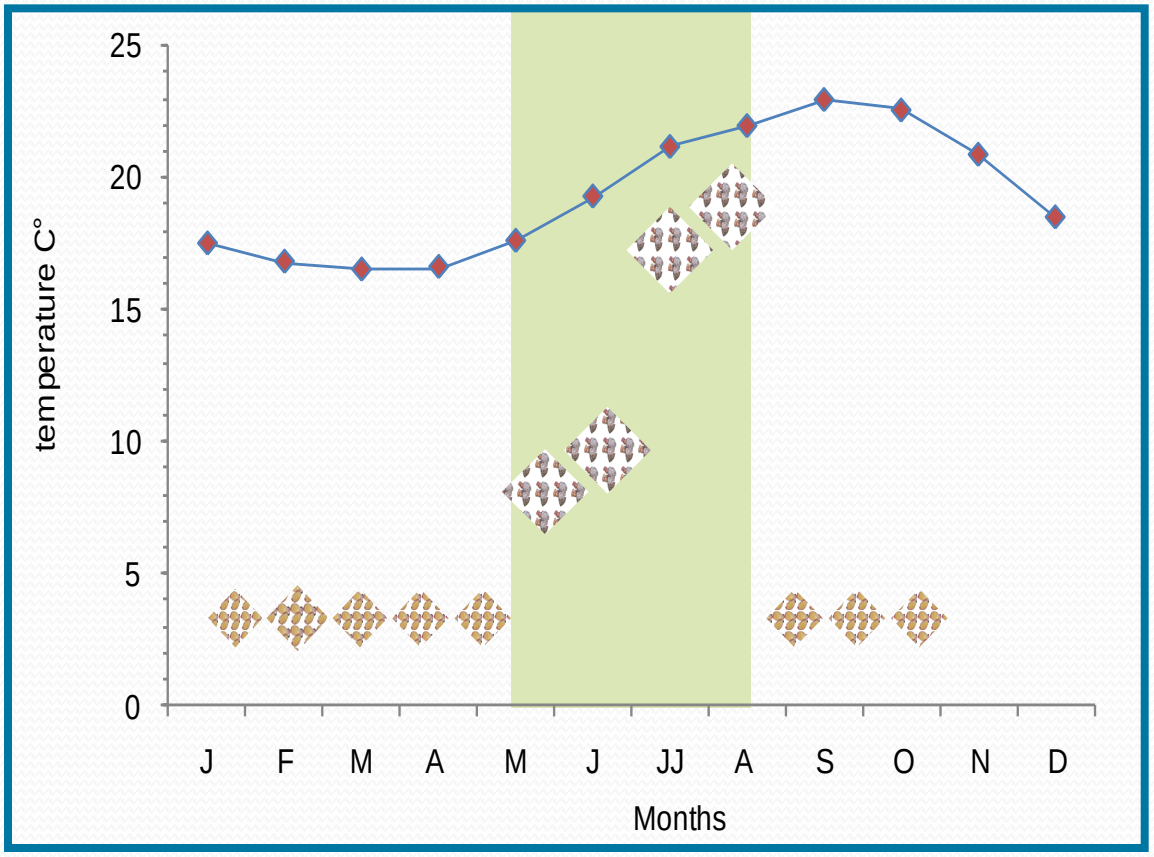
Reproductive cycle : embryonic diapause

Diapause will be defined as a pause in the development of fertilized eggs or young embryos within the uterus during development. The reason for this diapause may be environmental. The pause allows embryos to be born when water temperature and conditions for juvenile growth are optimal



This phenomenon was described for the first time for *Rhinobatos horkelii* from Brazil. The Australian sharpnose shark, *Rhizoprionodon taylori* suppresses the development of ova over several months and its embryos undergo approximately a seven-month diapause

Reproductive cycle : embryonic diapause



Conclusion

This study show the presence of the embryonic diapause for the common guitar fish from the Gulf of Gabès

Rhinobatos rhinobatos **has a low reproductive rate and poor recruitment. Therefore, more attention should be paid to the population of this species**

Thanks for your attention