

# OBSERVATIONS ON THE ELASMOBRANCH FISHES FROM THE LAGOON OF BIBANS (SOUTHERN TUNISIA, CENTRAL MEDITERRANEAN)

Christian Capapé<sup>1</sup>, Jeanne Zaouali<sup>2</sup>, Branko Radujkovic<sup>3</sup> and Jean-Pierre Quignard<sup>1\*</sup>

<sup>1</sup> Université Montpellier II, France.

<sup>2</sup> Département Halieutique, INAT, Tunis, Tunisie.

<sup>3</sup> Prirodno-matematički fakultet, Podgorica, Yougoslavia.

## Abstract.

Ten elasmobranch species are recorded in the Lagoon of Bibans, a hyperhaline brackish area located in southern Tunisia and adjoined to the Gulf of Gabes. Five of them permanently inhabit the lagoon: *Rhinobatos rhinobatos*, *R. cemiculus*, *Raja miraletus*, *R. radula* and *Dasyatis chrysonota*. The permanent occurrence of *Scyliorhinus canicula* and *Torpedo torpedo* requires further confirmation. The other inside elasmobranch captures are probably due to fortuitous events.

*Key-words.* - Elasmobranchii, Mediterranean, southern Tunisia, Lagoon of Bibans.

The ichthyological literature provides data about the freshwater elasmobranchs (1), in opposite the species living in high saline lagoons are poorly known. The faunistic lists related to the perimediterranean lagoons rarely report elasmobranch captures in these areas (2, 3). Investigations in the hyperhaline Lagoon of Bibans (southeastern Tunisia) allow to state that some species are able to develop and reproduce in the area. The Lagoon of Bibans is located in southeastern Tunisia and adjoins the Gulf of Gabes (Fig. 1).

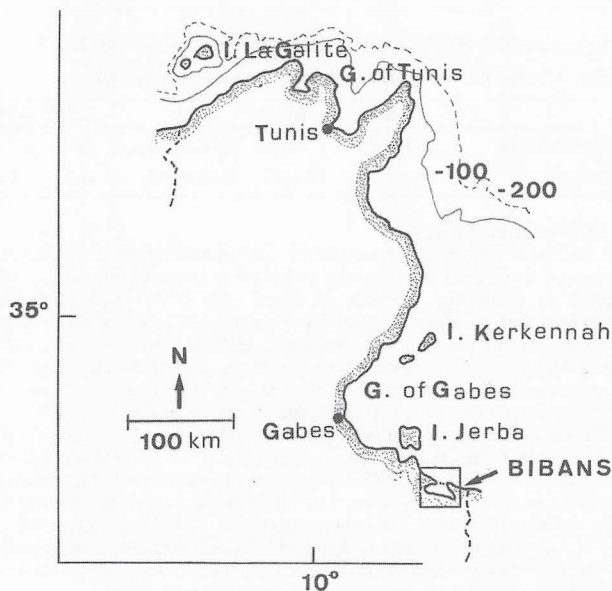


Figure 1. Map of Tunisia pointing out the Lagoon of Bibans (arrow).

Sharks, Rhinobatidae and the common torpedo observed were measured to the nearest millimetre in terms of total length (TL), skates and the marbled stingray in terms of disk-width (DW).

The common guitarfish, *Rhinobatos rhinobatos*, is considered to be abundant in the Gulf of Gabes and the Lagoon of Bibans. Size at sexual maturity occurs at 750 mm and 850 mm TL for males and females respectively. The maximal sizes for males and females are 1400 mm and 1620 mm TL respectively. Pregnant females with encapsulated eggs and embryos, but chiefly with fully developed fetuses were found in the lagoon.

In *R. cemiculus* sizes at sexual maturity of males and of females are 1000 mm and 1100 mm TL respectively. Adult females are generally larger than males, maximal TL for males and for females are 1920 mm and 2300 mm respectively. All the year round, pregnant *R. cemiculus*, newborn with IVV (mean TL = 323.59 mm) and small free-living specimens (400 mm < TL < 500 mm) are regularly found in the lagoon.

*Raja miraletus* from the Lagoon of Bibans were observed at the fish-market of Tunis, they were specimens of both sexes, juveniles (45 males, 37 females) and adults (66 males, 79 females). Size at sexual maturity occurs in males and in females at 220 mm and 240 mm DW by males and by females. Females with ripe oocytes ready to be ovulated in the ovaries, and/or encapsulated eggs in their oviducts round, egg cases containing embryos were regularly found in the Lagoon of Bibans.

Several hundred *R. radula* from the Lagoon of Bibans were observed, 126 males and 158 females were measured. Sexual maturity occurred for males and for females at 280 mm and 310 mm DW respectively. The largest male and female were 340 mm and 360 mm DW respectively. All the females bore ripe oocytes and encapsulated eggs.

The marbled stingray is only recorded in the shallow coastal waters of the Gulf of Gabes and in the Lagoon of Bibans. Size at sexual maturity for males and for females is about 300 mm and 320 mm DW respectively. The largest male and the largest female observed were 400 mm and 440 mm DW respectively. Estimated size at birth is 118 mm DW. Gestation period lasts about three months.

The common torpedo, *Torpedo torpedo* is abundantly fished in the Lagoon of Bibans. However, it seems that specimens do not occur too far inside the lagoon. Most are caught near by the passes. The occurrence of common torpedos is seasonal.

About 300 *Scyliorhinus canicula* were observed. All were adult, 56 females and 44 males were measured. Females size ranged from 450 to 500 mm TL; 24 specimens had encapsulated eggs in their genital tract. Males size ranged from 440 to 460 mm TL.

*R. clavata* is rarely found in the Lagoon of Bibans. A single specimen was observed. It was an adult male, 480 mm DW. This capture was accidental.

A single *Prionace glauca* of small size was examined. It was a juvenile male, 790 mm TL, captured as it was about to leave the lagoon. A male, I, 600 mm TL, was captured in May 1980. This specimen exhibited an umbilical scar suggesting it was born during the year. From 1980 to 1990, six hammerhead sharks were observed.

Three species are recorded in the lagoon consequently to fortuitous events, strong tide and/or to take refuge. A single *R. clavata* and two sharks, *P. glauca* and *S. zygaena* were also recorded. These records concern small specimens which probably get lost.

Two marginal species were found in the Lagoon of Bibans, *S. canicula* and *T. torpedo*. These species enter the lagoon to breed during spring and/or summer. Records during winter, remain questionable, probably occasional. *T. torpedo* is the only backish marginal torpedinid known to date. Moreover, the common torpedo enters hypo and/or hyperhaline waters at the time to breed. Most of the gravid females observed had full-term fetuses in their uteri.

Five species occur in the locale and are abundantly caught, *R. rhinobatos*, *R. cemiculus*, *R. miraletus*, *R. radula* and *D. chrysonota*. Their captures in a restricted area suggest some degree of competition between them. However, the size of these species is different and they do not simultaneously occupy the same sites and same food niches. Moreover, they find sufficient food in the lagoon (4). The occurrence of juveniles of both sexes, females with embryos and full-term fetuses and egg-capsules for oviparous species, means that the Lagoon of Bibans is a nursery area and/or an laying site.

## References

- 1 - Oettinger M.I. and Zorzi G. D., 1995. The biology of freshwater Elasmobranchs, *J. Aquaricult. Aquat. Sci.*, 7: 1-161.
- 2 - Quignard J.P. and Zaouali J., 1980. Les lagunes périméditerranéennes. Bibliographie ichthyologique annotée. Première partie: les étangs français de Canet à Thau. *Bull. Off. nat. Pêch. Tunisie*, 4 (2): 293-360.
- 3 - Quignard J.P. and Zaouali J., 1981. Les lagunes périméditerranéennes. Bibliographie ichthyologique annotée. Deuxième partie: les étangs français de Canet à Thau. *Bull. Off. nat. Pêch. Tunisie*, 5 (1): 41-96.
- 4 - Medhioub K. and Perthuisot J.P., 1977. Le comportement géochimique des eaux de la bahiret El Biban. Conséquences sur la pêche. *Bull. Off. nat. Pêch. Tunisie*, 1(1): 23-35.