The presence of *Pholas dactylus* Linnaeus, 1758 (Mollusca: Bivalvia: Pholadidae) in West African and South African waters

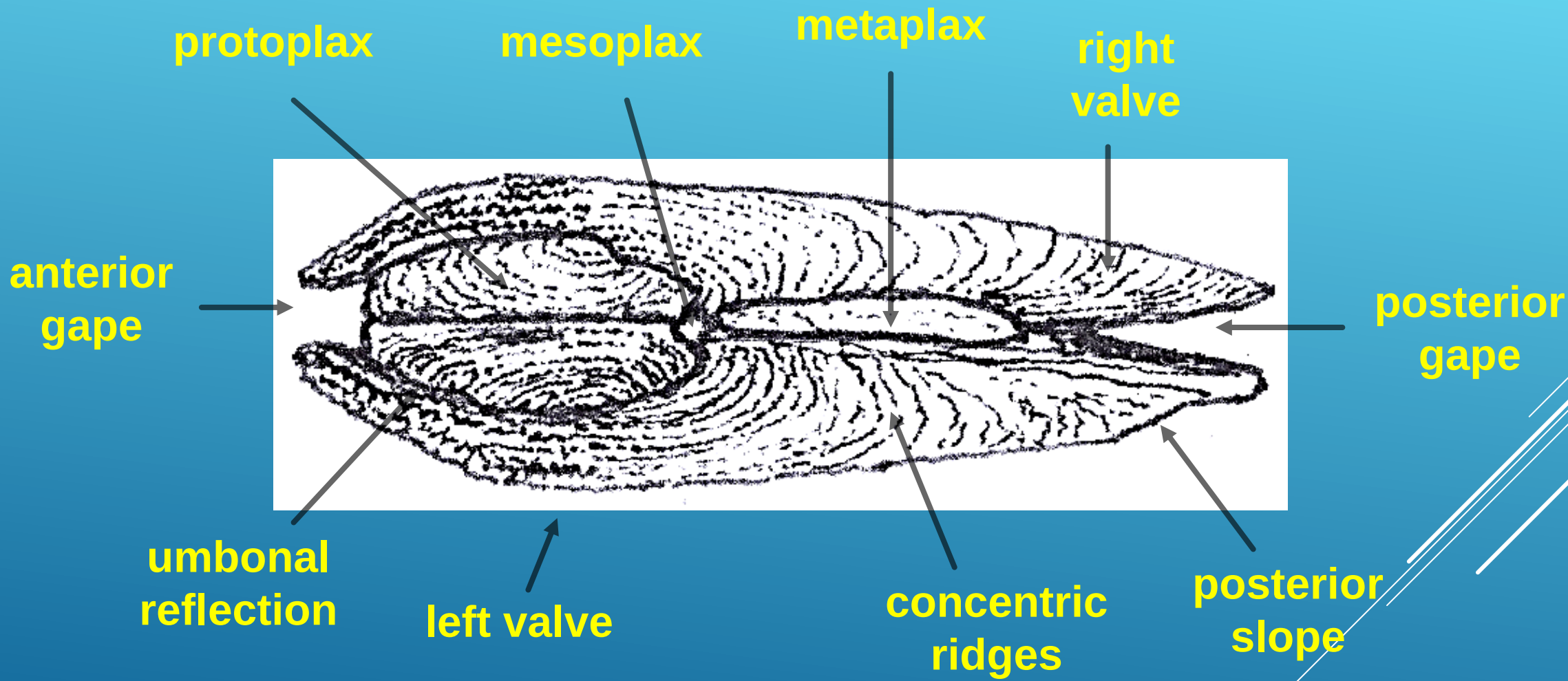
presentation by F. Nolf

***Pholas dactylus* Linnaeus, 1758 is already known to live in Senegal and South Africa (Huber, 2015 – CD Rom: Chapter 5: Systematic listing of 8,500 valid species).**

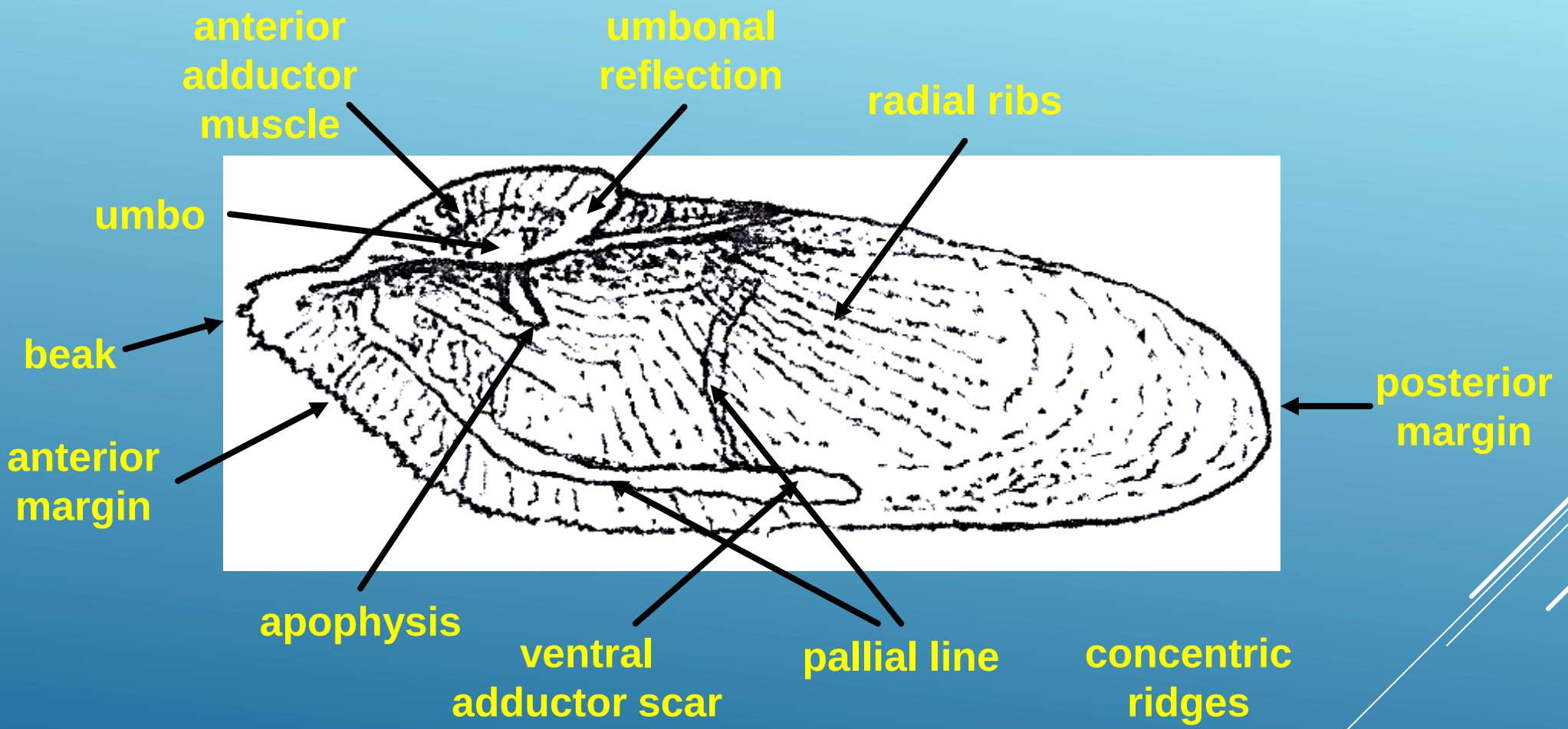
Few specimens are really reported from these two areas due to a lack of material. Even von Cosel and Gofas (2020) did not mention it in their extensive review of West African bivalves.

Specimens of *Pholas dactylus* from Western Sahara are often handled by shell collectors and dealers as *Pholas campechiensis* Gmelin, 1791 (see Encyclopedia of Marine Bivalves by Robin, 2011.).

For this reason it seemed necessary to avoid all further confusion by illustrating both species with comments about their differences.



dorsal view of *Pholas dactylus* with characteristics



interior view of *Pholas dactylus* with characteristics

Family PHOLADIDAE

- 75 species worldwide
- at least 11 of them living in West Africa
- Pholadids from West and South Africa: not studied thoroughly enough.
- Recently three species discovered from off West African coasts:
  - *Pholas bissauensis* von Cosel & Haga, 2018
  - *Barnea ghanaensis* Huber, 2018
  - *Pholadidea eborensis* von Cosel & Haga, 2018
  - and finally *Barnea pseudotruncata* Nolf & Verstraeten, 2022

The genus *Pholas* includes only 4 species worldwide, two of them in the W and E Atlantic Ocean.

Family PHOLADIDAE Lamarck, 1809

The family Pholadidae in the Americas and the Eastern Atlantic is quite well known, due to the work of R.D. Turner (1954).

Subfamily Pholadinae Lamarck, 1809

(syn.: Zirfaeinae Gray, 1851)

Genus *Pholas* Linnaeus, 1758

- shells more or less elliptical in outline
- shell beaked or rounded anteriorly
- sculpture extending over the entire shell or lacking on the posterior slope
- with septate umbonal reflections
- one or three accessory dorsal plates:

  * protoplax oval to quadrangular in outline, thin, calcareous, in one part or divided longitudinally into two parts

  * mesoplax transverse and more or less triangular in outline, calcareous and solid in structure

  * metaplax transverse and narrow.

Subgenus *Pholas* Linnaeus, 1758

- shells medium-sized or large, elongate to very elongate, thin and brittle, **beaked anteriorly**, narrowly gaping with rounded margin or broadly gaping with obliquely truncated margin
- **three** dorsal accessory plates, protoplax divided longitudinally into two parts with the nuclei of the divided protoplax located near the **posterior** outer margin
- umbones well anterior to the vertical midline
- surface with strong, commarginal lamellae or ridges bearing spines or scales at the anterior part
- umbonal reflection double, connected by vertical septa between them
- this subgenus is restricted to the East Atlantic.

Main distinctive characters

- shell white
- beaked anteriorly, rounded posteriorly
- with double, septate umbonal reflections
- divided protoplax, a triangular mesoplax, and a long narrow metaplax
- nuclei of the divided protoplax located near the outer posterior margin.

Geographic distribution

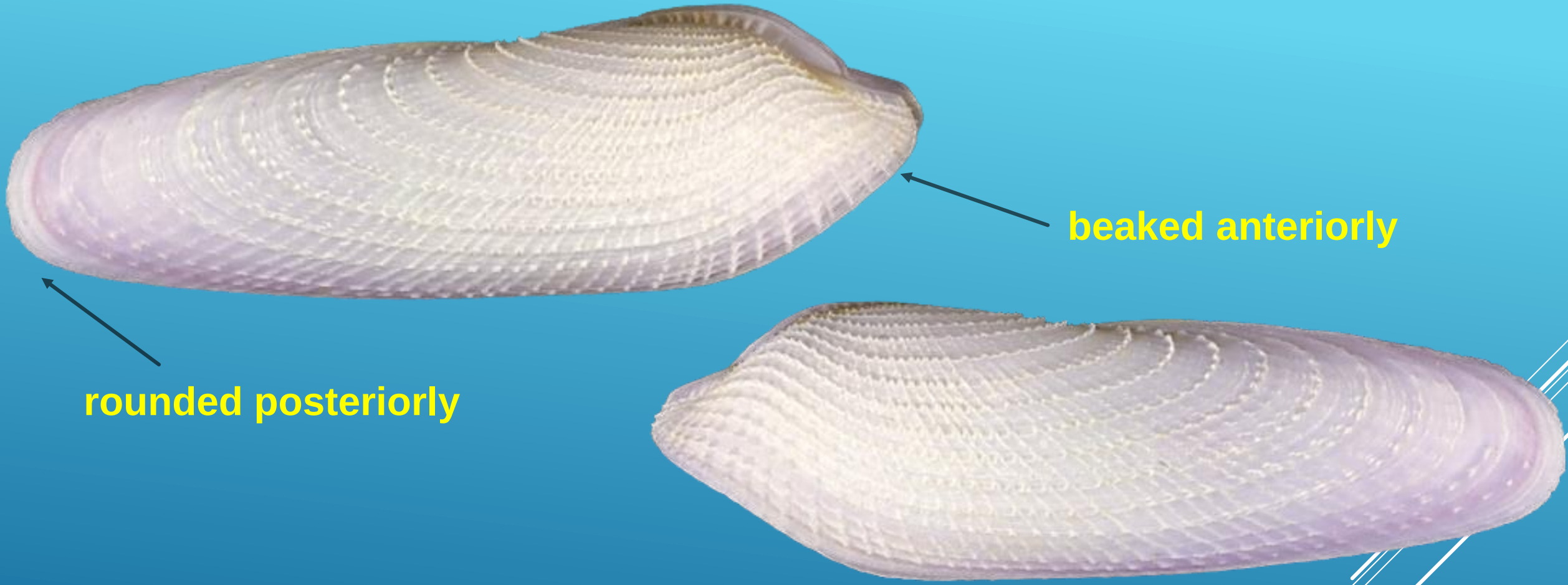
- only in the East Atlantic, from Norway, Scotland (UK) to the Bay of Biscay
- the West African coasts from Morocco to South Africa (from False Bay to KwaZulu-Natal)
- the West Mediterranean Sea, Adriatic Sea, Aegean Sea and Black Sea, possibly also in the Red Sea and Oman.

Interesting remark

Nearly all the specimens from Mauritania show lilac growth lines, shining through the valves. Perhaps this characteristic was decisive for shell collectors and dealers to label samples as ***Pholas campechiensis***, a hitherto rather unknown species from W African coasts, but in fact very different from *P. dactylus* and never provided with the striking lilac growth lines.

Abbreviations

CFN: Private collection of Frank Nolf (Oostende, Belgium)
CJV: Private collection of Johan Verstraeten (Oostende, Belgium)
CSH: Private collection of Steve Hubrecht (Koksijde, Belgium)



***Pholas dactylus* Linnaeus, 1758. Ras Timirist,** Mauritania. In solid mud at low tide. June 2006. 69.61 mm. CSH.

***Pholas dactylus* Linnaeus, 1758. Ras Timirist,** Mauritania. In solid mud at low tide. June 2006. 69.61 mm. CSH.

***Pholas dactylus* Linnaeus, 1758.**

Cabo Blanco, Mauritania. On sand at low tide at -0.5 m.

73.67 mm. CSH.

***Pholas dactylus* Linnaeus, 1758.**

N Mauritania. In muddy sand. Dived at a depth of 5 m.

1985. 78.26 mm. CFN.

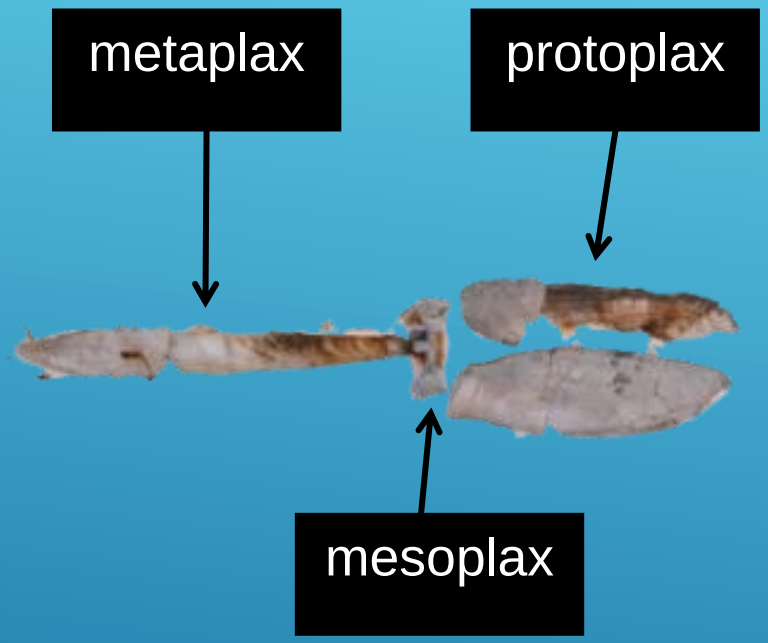
***Pholas dactylus* Linnaeus, 1758.**

N Mauritania. In muddy sand. Dived at a depth of 5 m.

1985. 78.26 mm. CFN.

***Pholas dactylus* Linnaeus, 1758.**

Venice, Italy, Adriatic Sea. On the beach after a storm. 1990. 112.28 mm. CFN.



***Pholas dactylus* Linnaeus, 1758.**

Pointe du Chevet, St. Jacut-de-la Mer, Brittany, France. In muddy clay at very low tide. November 1979. CFN. 137.58 mm; accessory plates. CFN.

***Pholas dactylus* Linnaeus, 1758.**

Pointe du Chevet, St. Jacut-de-la Mer, Brittany, France. In muddy clay at very low tide. November 1979. CFN. 130.49 mm. CFN.

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***Pholas dactylus* Linnaeus, 1758.**

First row: Chatelaillon-Plage, Charente Maritime, W France. In muddy clay at very low tide. 26 September 2007. 53.62 mm. CFN.

Second row: Beachy Head, S England, UK. Trawled by Belgian fishermen at -30 m. In clay. March 2010. 46.09 mm. CFN

Subgenus *Thovana* Gray, 1847

- distribution: Eastern Pacific and both West and East Atlantic.
- shells medium-sized, elongate
- rounded anteriorly, with septate umbonal reflections and three accessory plates:
  - protoplax divided into two parts longitudinally
  - nuclei of the divided protoplax located near the anterior outer margin and more or less centrally located
  - metaplax thin, long and narrow

Pholas campechiensis Gmelin, 1791

Main distinctive characters

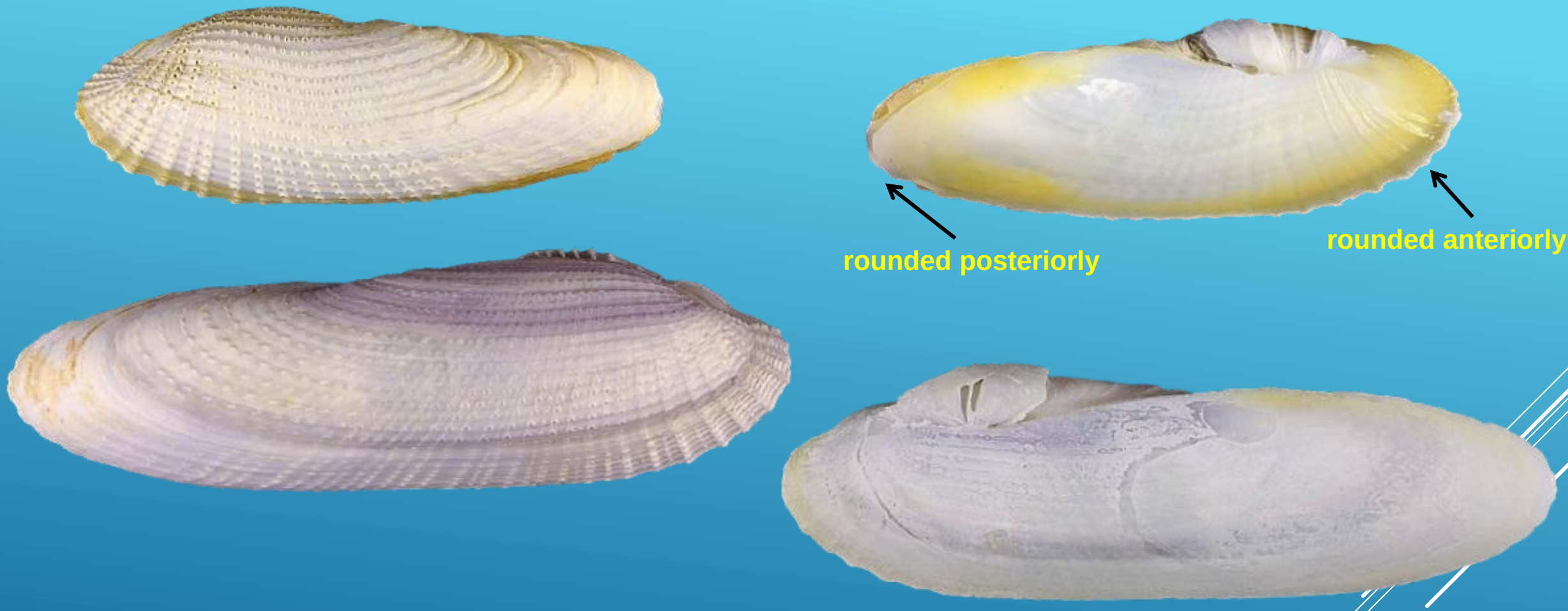
- shell white, rounded at both ends
- with septate umbonal reflections
- concentric sculpture extending over the entire length of the shell
- three accessory plates: a divided protoplax, a mesoplax and a metaplax
- typical lilac shades in particular at the growth lines

Geographic distribution

- Eastern Atlantic (from Senegal to northern Angola)
- Western Atlantic from North Carolina to Florida, Gulf of Mexico throughout the Caribbean Sea, southward to Uruguay.

***Pholas campechiensis* Gmelin, 1791.**

Pointe Noire, Congo-Brazzaville. In rocks north of refinery. September 1996. 38.79 mm. CJV.



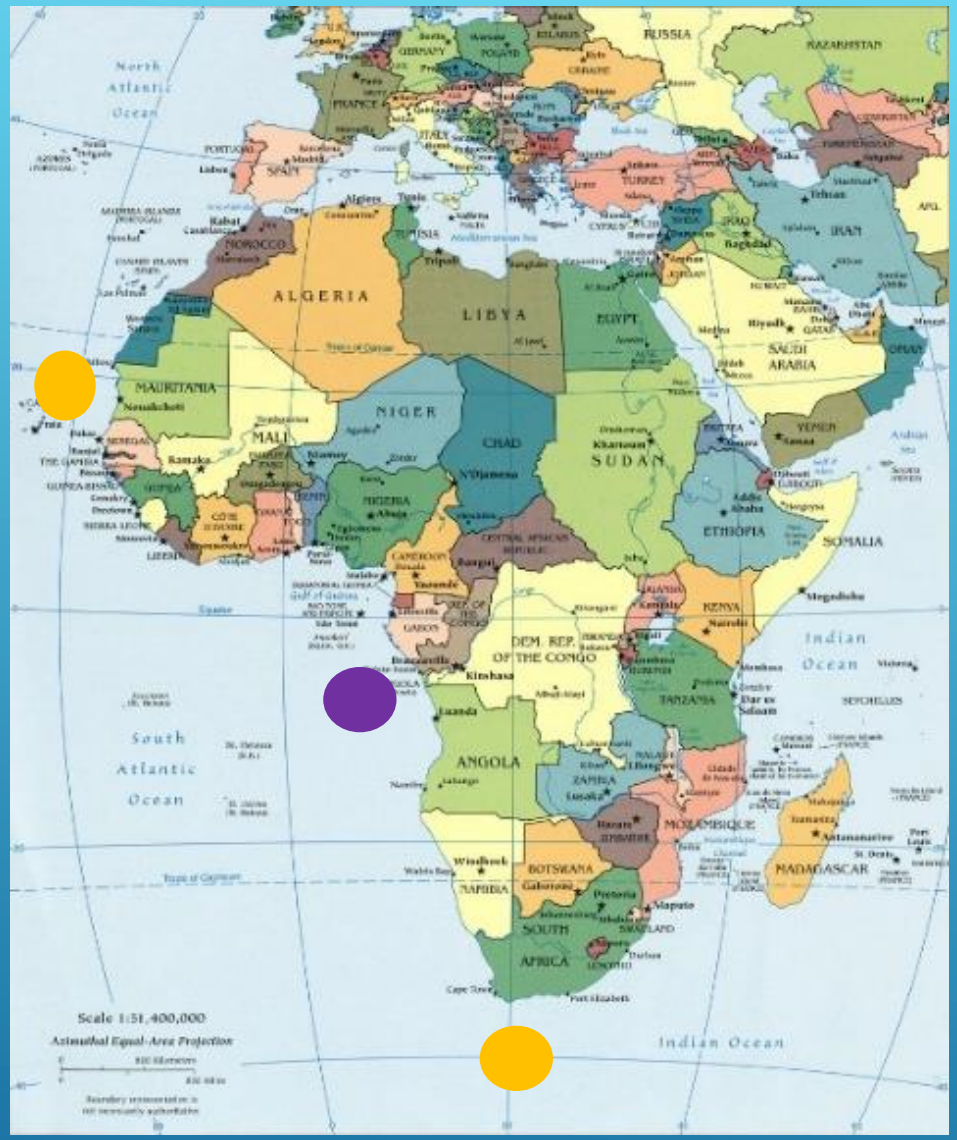
***Pholas campechiensis* Gmelin, 1791.**

La Guardia, Margarita, Venezuela. On the W of the town. 19 March 1995.

First row: 66.89 mm; second row: 99.44 mm.

Comparison between *Pholas dactylus* and *P. campechiensis*

- *Pholas dactylus* and *P. campechiensis* both occur in West African waters
- shells of *P. campechiensis* are rounded at both ends, while *P. dactylus* is beaked anteriorly
- specimens of *P. dactylus* from Mauritania and Moroccco possess lilac growth lines, a typical characteristic in specimens of *P. campechiensis*
- as a consequence Robin (2011) (Encyclopedia of Marine Bivalves) confused the two distinct species: fig 3 on Pl. 275 is *Pholas dactylus* instead of *P. campechiensis* and Figs 2 & 4 are *P. campechiensis* from Gabon.



Localisation of studied samlples of *Pholas dactylus* and *P. campechiensis*