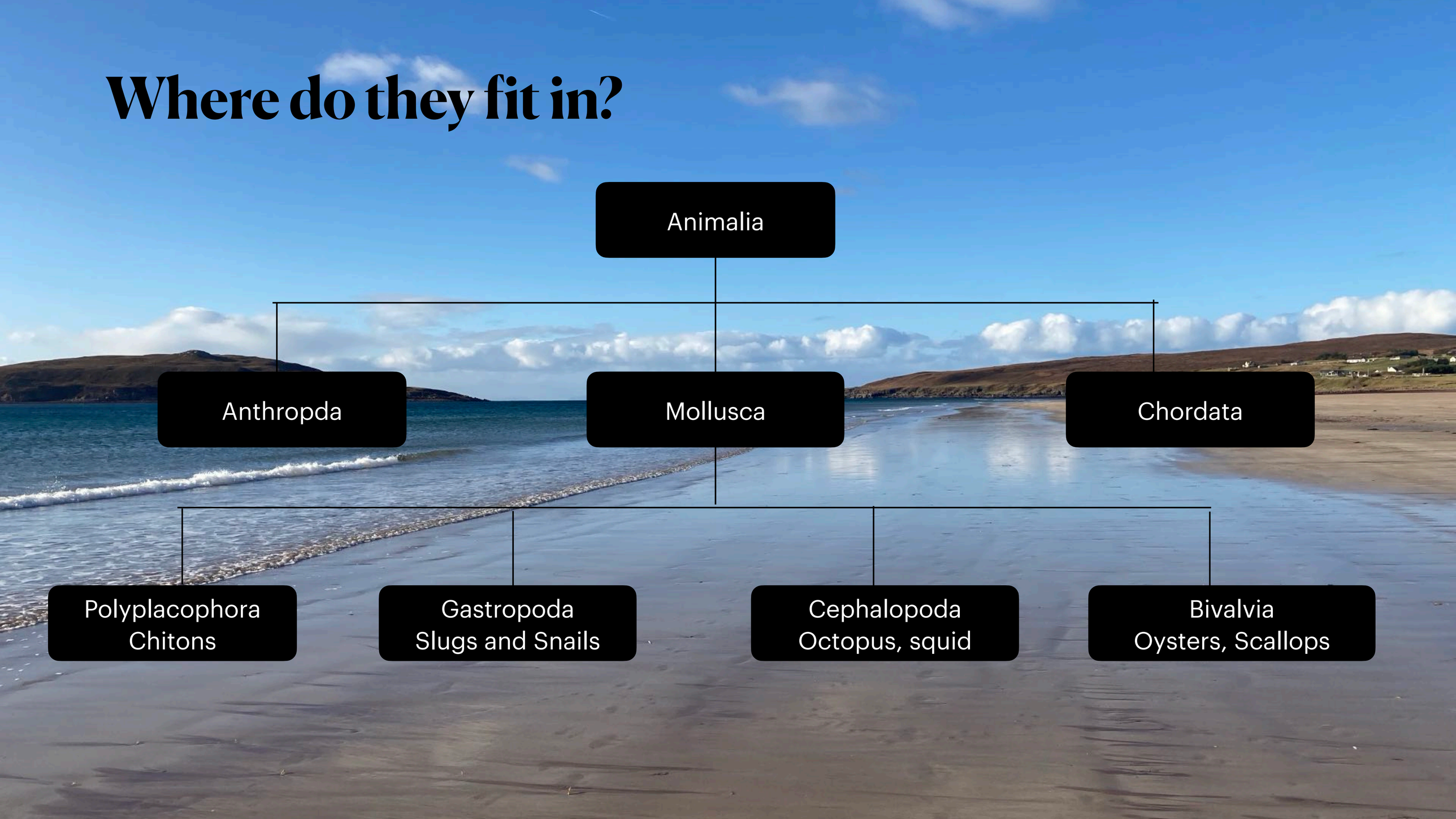
Seashell Identification

Mostly Bivalves

Roger McLachlan - Dec 2023

Where do they fit in?



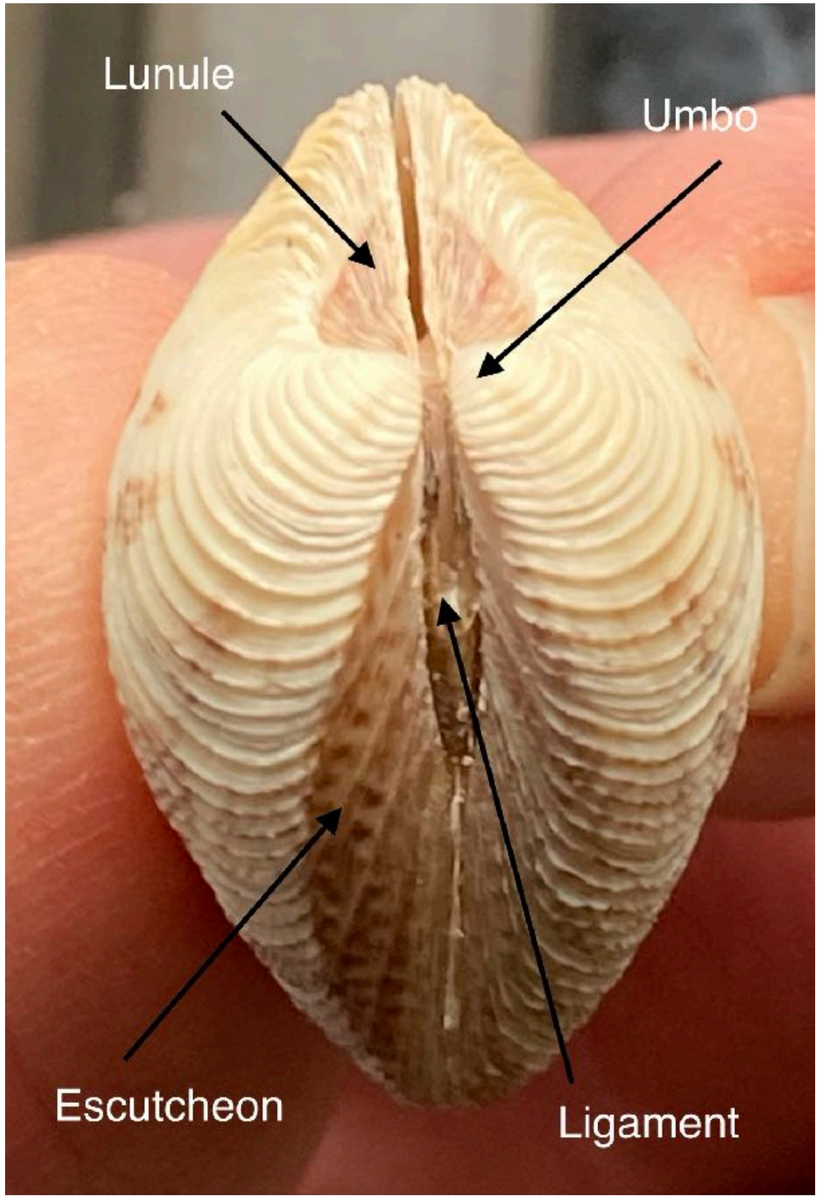
Why should we care?

- The *Mollusca* is the 2nd largest animal phylum at something like 100000 species.
- About 80% of all the species are *Gastropoda* and 14% are *Bivalvia*.
- Molluscs are the largest marine phylum and make up 23% of the named organisms.
- Cephalopods are the most neurologically advanced molluscs.
- Molluscs are a key part of the marine environment, in terms of a food source, but also water filtering and habitat creation.

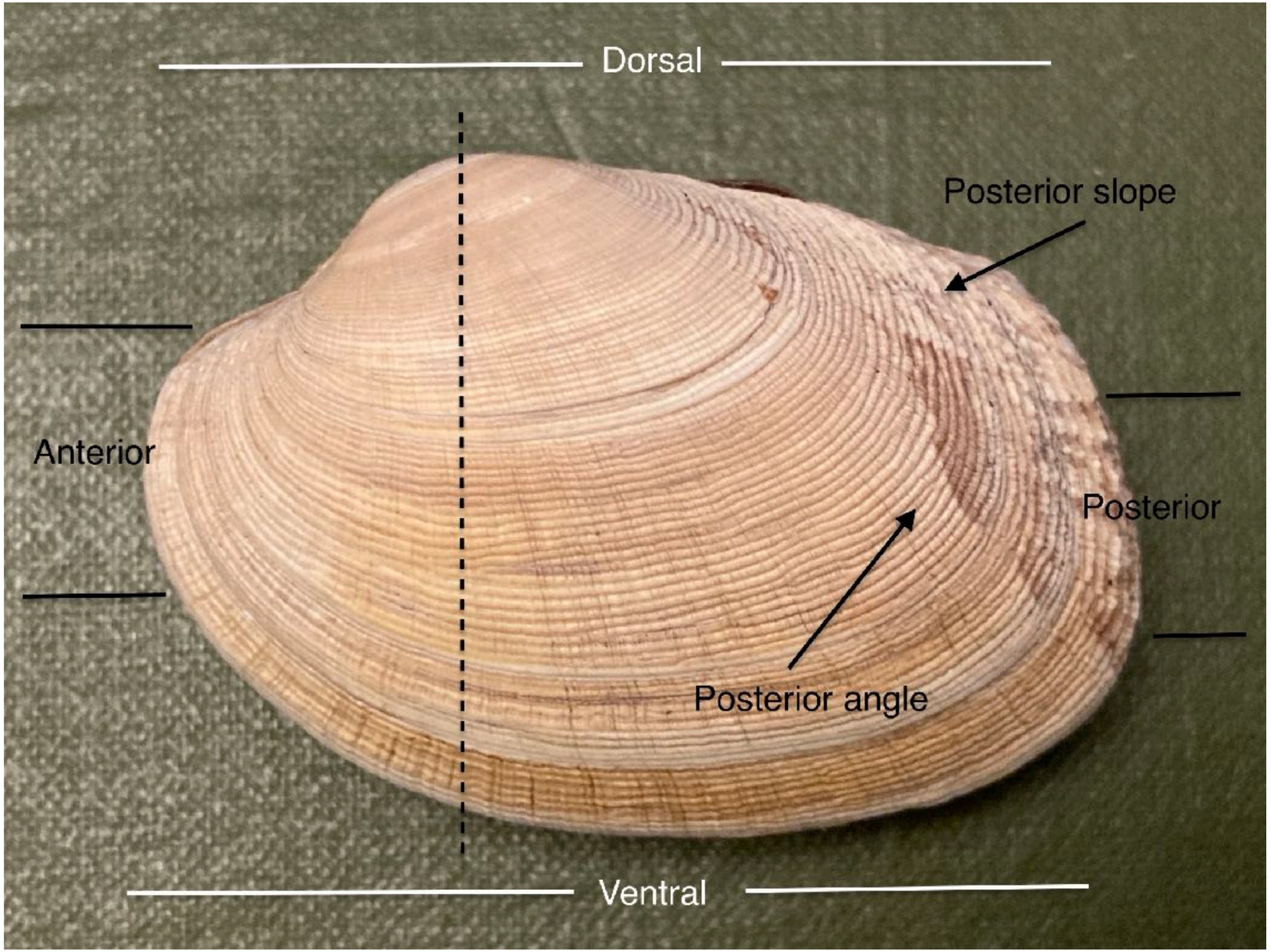
Shell Structures

Dorsal Features

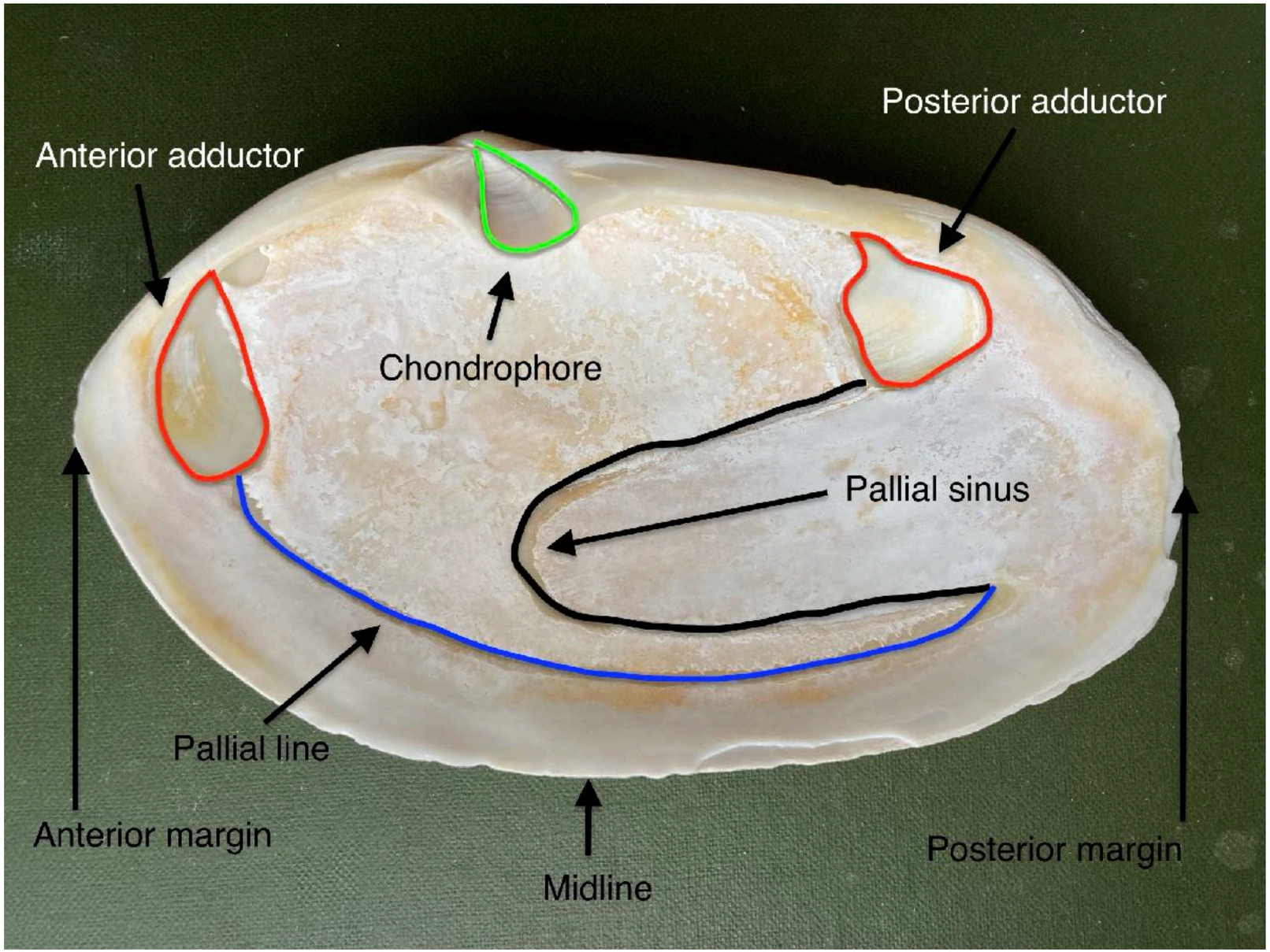
- The dorsal section is the top of a bivalve, and contains the hinge and beaks.
- For many bivalves with the beaks upwards, and the ligament on your side of the umbo the right valve is on your right side.



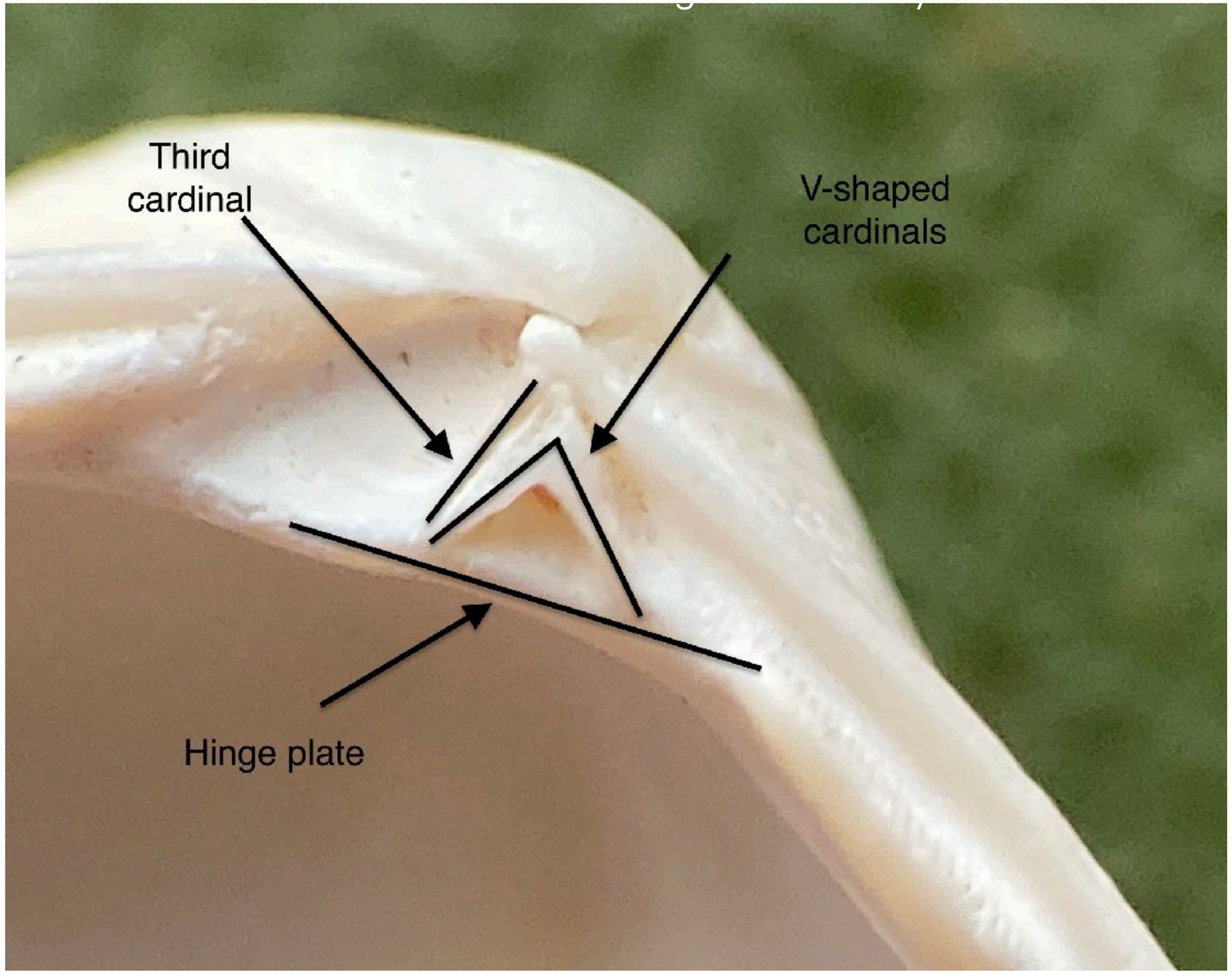
Left valve - the posterior is often more pointed

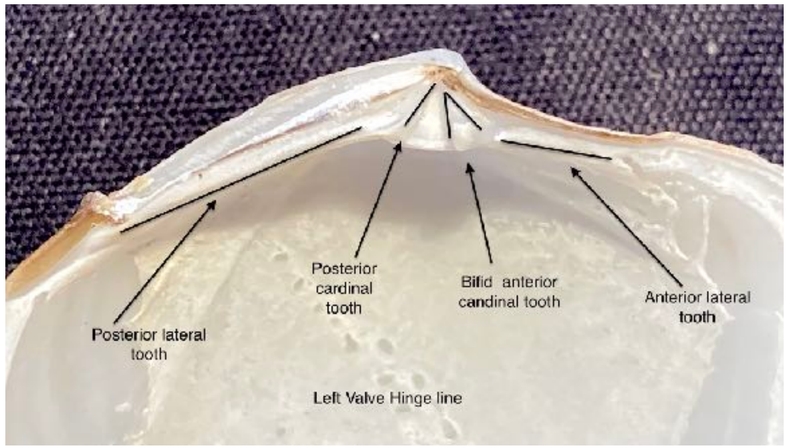


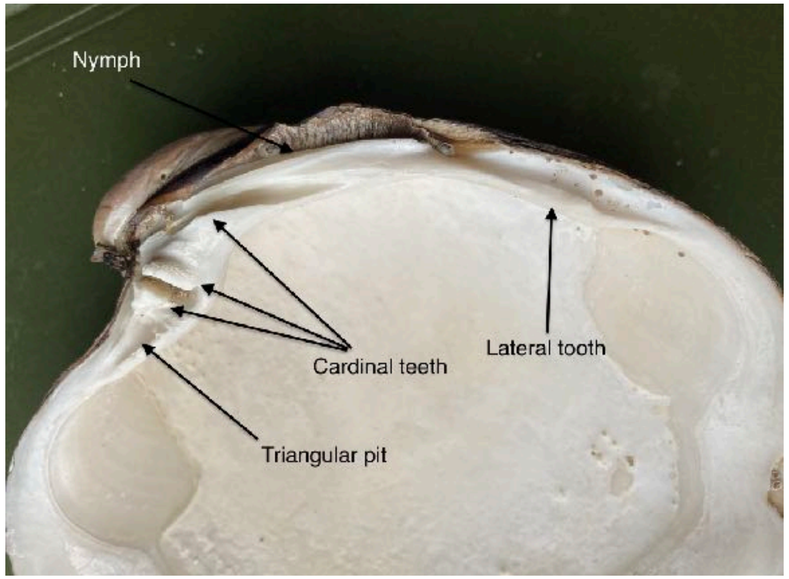
Internal Structure - Pallial sinus is on the right hand side of a right valve



Hinge teeth are a key identification feature







Superfamiles

The easy ones

- *Mytilidae* - mussels
- *Ostreoidea* - Oysters
- *Solenoidea* - Razor Shells
- *Pectinoidea* - Scallops
- *Cardioidea* - Cockles
- Plus about 20 other superfamilies

Horse Mussel (*Modiolus modiolus*) and Common Mussel (*Mytilus edulis*)(Probably)

Trouble with oysters

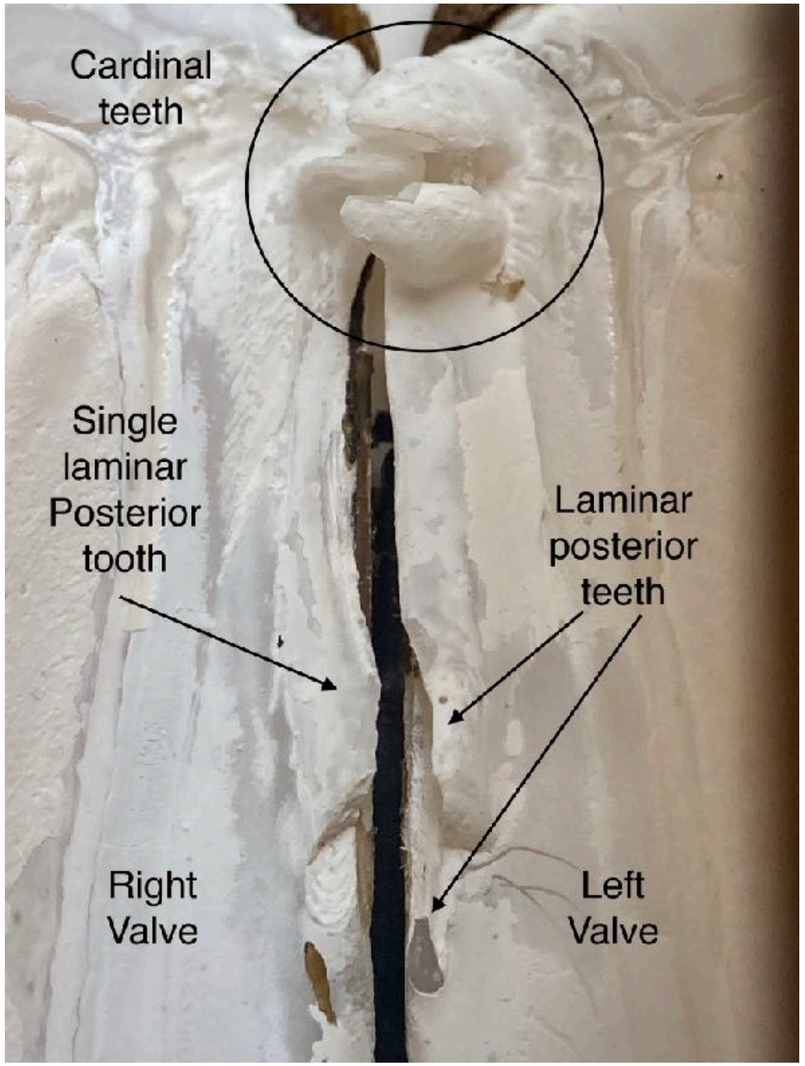
- Native Oysters (*Ostrea edulis*) are increasingly rare, so fresh shells are tricky to find. Tend to be more fan shaped, and less deeply cupped. Often have multiple hinge line scars. Avoid giving fresh or living ones a location on social media.
- Pacific Oysters (*Magallana giga*) are an invasive non-native. Escapees form oysters farms or other introductions. They can form large reefs when they established, and they grow faster than the Native Oysters. Single kidney shaped adductor scar, irregular shape, pointed hinge, wavy edges and often look very flakey. Often hints of purple colouration.

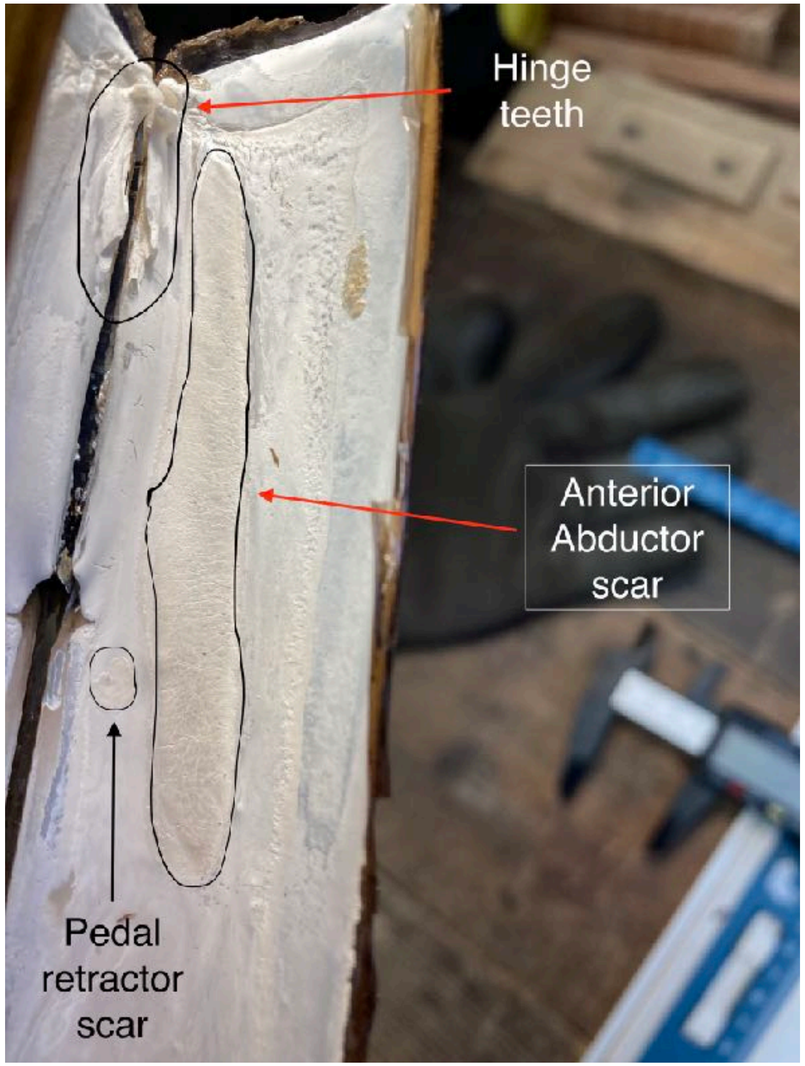
Razor Shells

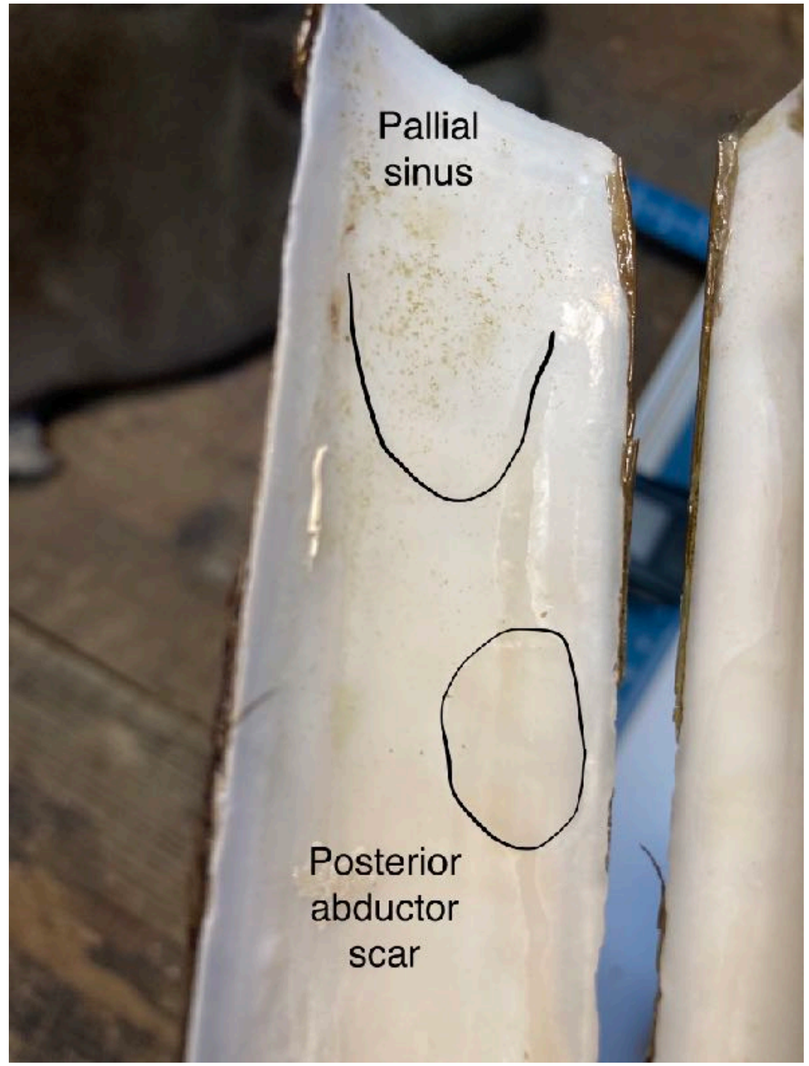
Ensis and others

- Five species two straight and three curved
- Big and straight is a Pod Razor (*Ensis siliqua*)
- Big and curved is a Sword Razor (*Ensis Magnus*) on West Coast
- Grooved, Egg and Transparent Razor exist but are not *Ensis*, but belong to the same superfamily
- The ligament is at the anterior end.

Razor Shell identification features







Scallops need their ribs counting!

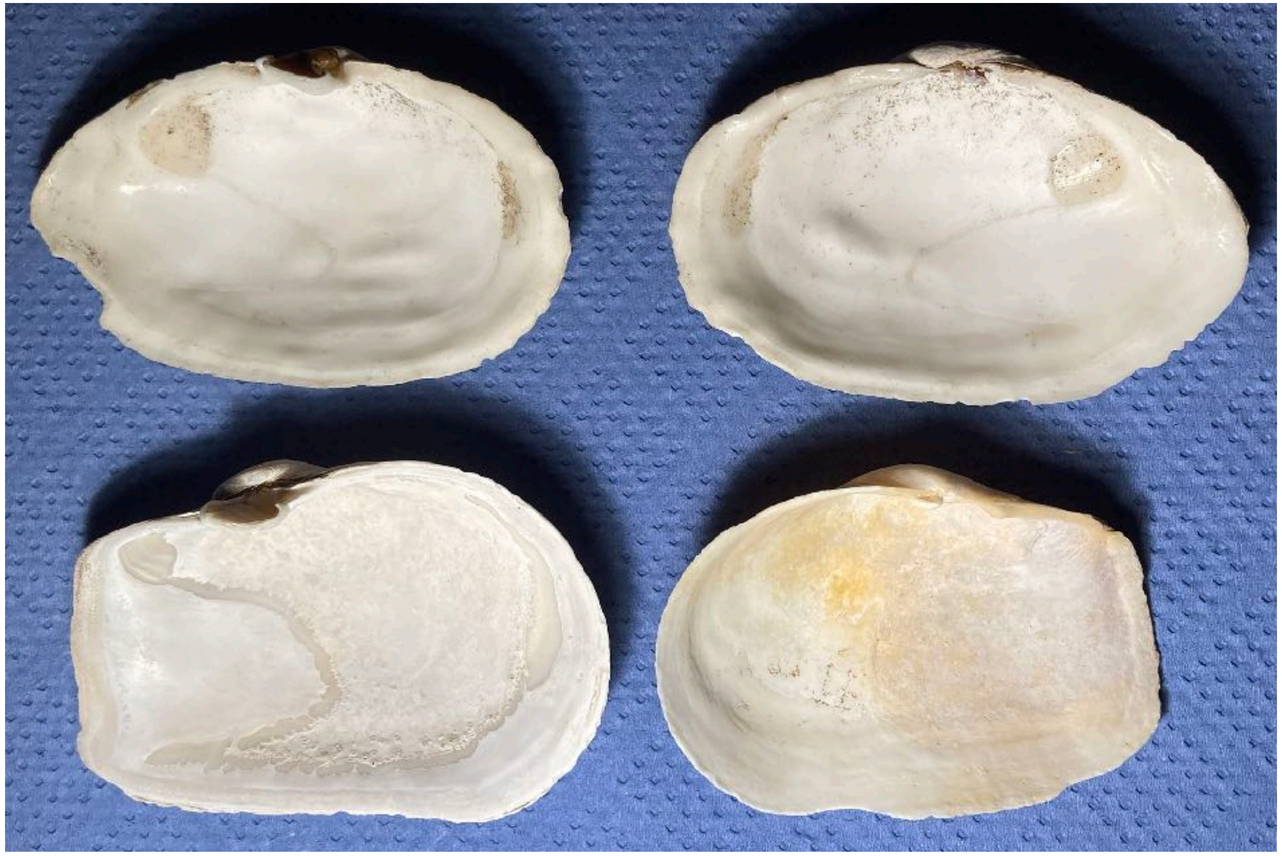
- Four different species pictured, Great (*Pectin maximus*), Queen (*Aequipectin opercularis*), Variegated (*Mimachlamys varia*) and *Mimachlamys varia nivea*
- The large ears are usually anterior
- The single adductor muscle scar is slightly posterior

Cockles (*Cardiodea*) - probably the most commonly seen bivalve

- Four species of cockle and Dog cockle (*Glycymeris glycymeris*), which is not a cockle!
- Common cockle (*Cerastoderma edule*) in the centre, ribs inside stop at the pallial line
- The large cockles are hard to distinguish, but only the Prickly Cockle (*Acanthocardia echinata*) occurs in Scotland (so far).
- Norway Cockle (*Laevicardium crassum*), tall oval pointed shell at the hinge

Gapers - *Mya*

- Two common Gaper species - Sand Gaper, *Mya arenaria* and Blunt Gaper, *Mya truncata*
- The Mya species are easy to recognise in you find a left valve because of the spoon shaped projecting Chondrophore
- The right valves can be mistaken for Otter Shells
- Periostracum thin and straw coloured, but often worn off



Sand Gaper - *Mya arenaria*

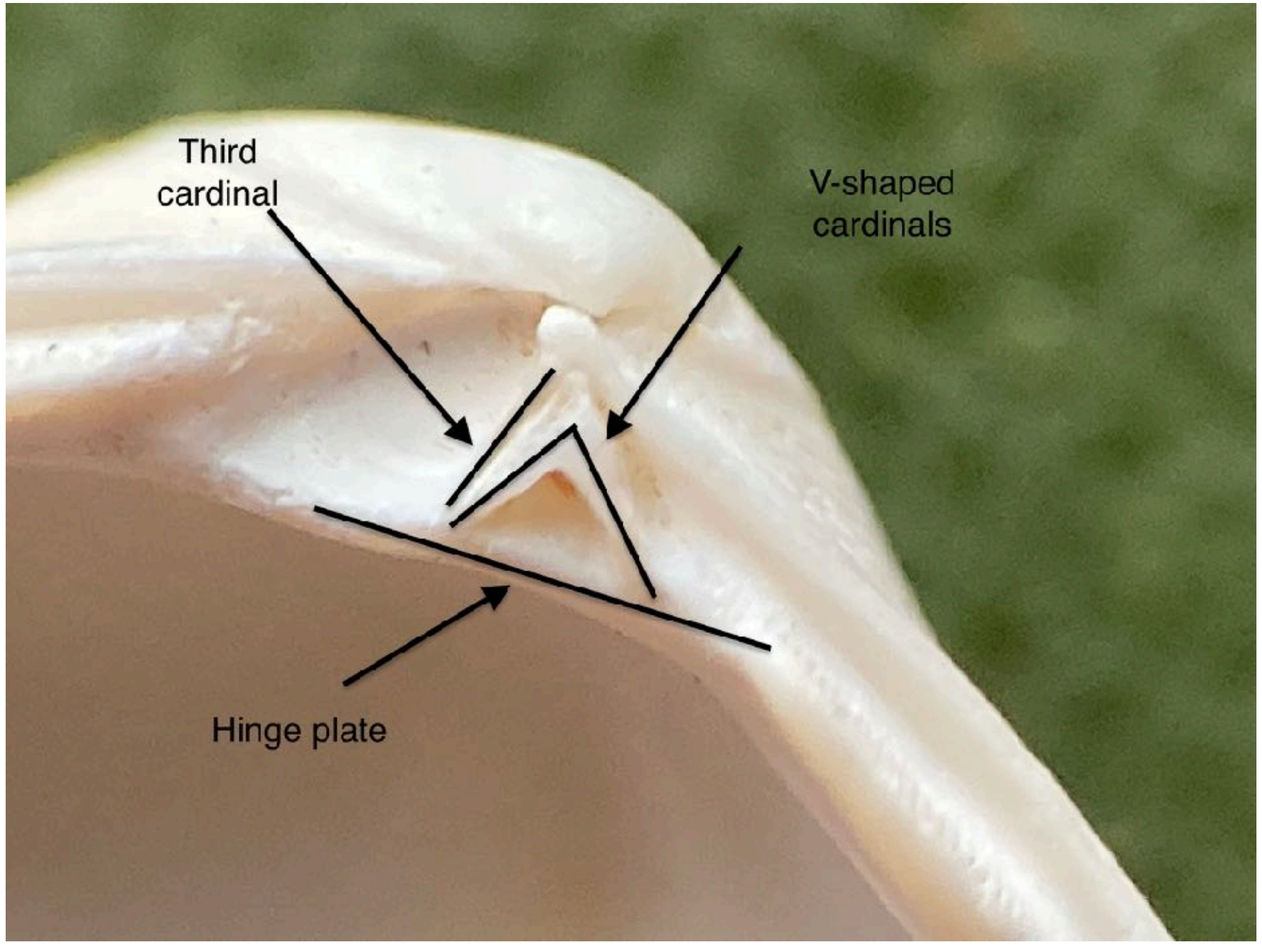
Spoon shaped chondrophore

Troughs and Otters - *Mactridae*

- Characterised by chondrophores and triangular cardinals
- Common Otter-Shell, *Lutraria lutraria* is a large shell. A line through the chondrophore will make 45 degrees angle to margin
- The Rayed Trough Shell (*Mactra corralina* | *Mactra Stultorum*) sometimes has rays, but has thin lateral teeth without serrations.
- True Trough shells the *Spisula* have serrations on the lateral teeth which are more robust.

True Trough Shells - *Spisula*

- The three species of True Trough shell have serrations on their lateral teeth, which are difficult to see with a hand lens.
- To identify to species you need the left valve unless the shell bigger than 3.5 cm when it will be the Thick Trough shell (*Spisula solida*). The V-shaped Cardinals for *S. Solida* comes half-way down the hinge plate
- The V-shaped cardinals reach the hinge plate for Elliptical Trough Shell (*S. elliptica*) and Cut Trough (*S. truncata*).
- *S. Elliptica* rarely found on beaches. *S. Truncata* has a very triangular shape.



Northern Lucine - *Lucinoma borealis*

- A very round shell which is easily mistaken for an Artemis (*Dosinia*)
- The key is to look for a complete pallial line and the elongated adductor muscle scar
- The elongated muscle scar is anterior
- Two cardinals and single laterals either side on the beak in both valves, laterals often very worn.

Wedges and Tellins - *Tellinoidea*

- Thin shells, often colourful and flattened. Generally have a deep pallial sinus which runs confluent with the pallial sinus.

More on *Tellinoidea*

- Peppery Furrow (*Scobicularia plana*) has a chondrophore. Cruciform scars at end of sinus.
- Faroe Sunset (*Gari fervensis*) a long thin shell with truncate posterior
- Thin Tellin (*Macomangulus tenuis*) has external ligament only. Has a different binomial name in virtually every book.
- Banded wedge (*Donax vittatus*) has a finely crenelated margin, and a wedge like posterior. Purple colouration not uncommon.

Venus Clams and Carpet Shells - *Veneroidea*

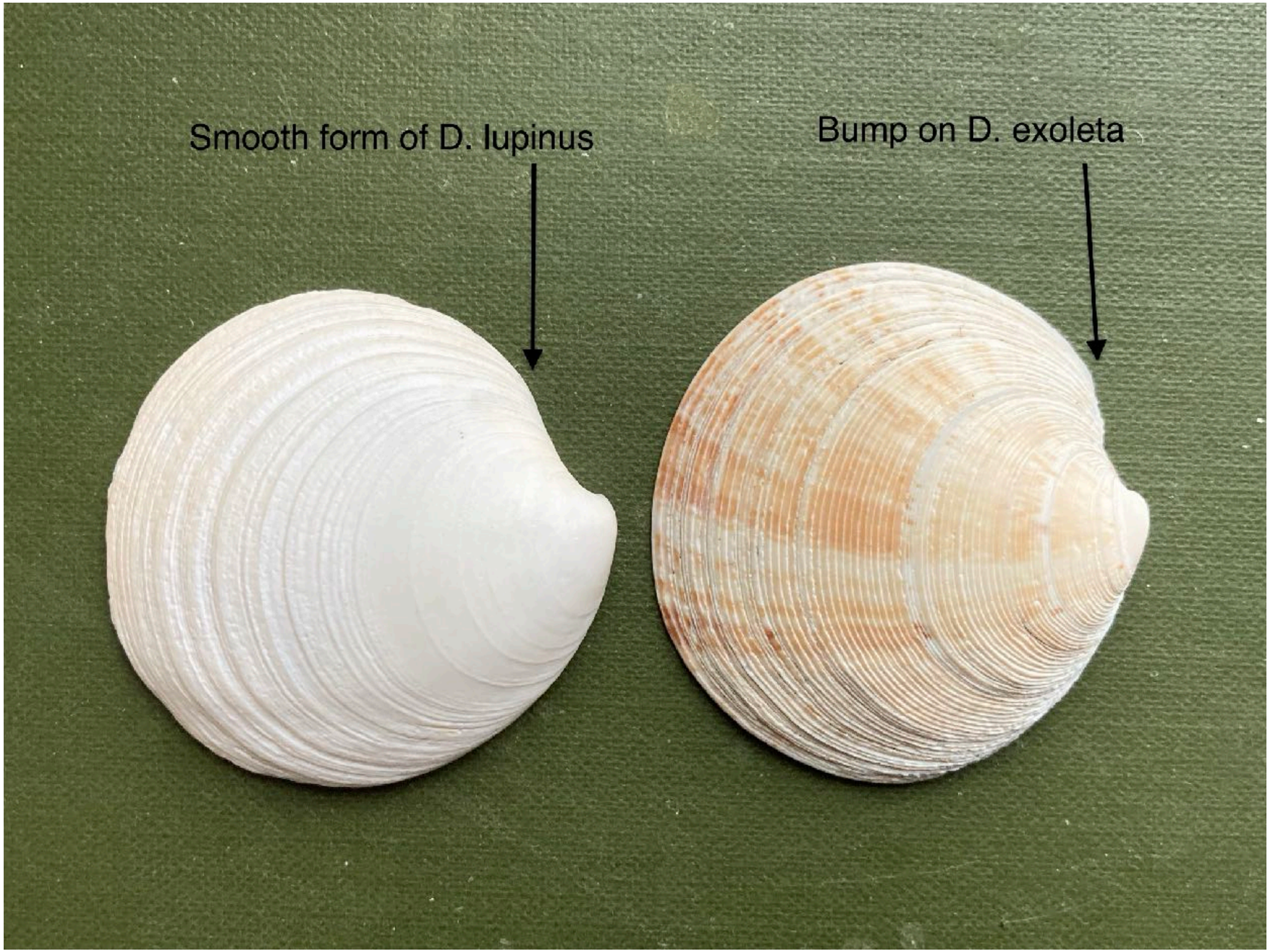
- Generally quite handsome shells, and often very common. There are some which are hard to tell apart, and some have undergone a lot of name changing. They all have a pallial sinus.
- Striped Venus (*Chamelea striatula*) which looks roughly triangular and the banding is often clear. This one has undergone all sorts of name changes and is very often *Chamelea gallina* which is now the name used for the Southern Hemisphere species.
- Pullet Carpet (*Venerupis corrugata*) is a roughly oval with an abrupt curve down to the posterior margin. The pallial sinus is deep and there is a short section which is confluent with the pallial sinus. Another shell with a lot of name changes.

More *Veneroidea*

- Banded Carpet (*Polititapes rhomboides*) is similar too the Pullet Carpet but the break to the anterior is less sharp and makes the posterior look more pointed. The pallial sinus is less deep and does not have have a confluent section.
- Artemis (*Dosinia*) have a circular outline and if you are lucky the Rayed Artemis (*Dosinia exoleta*) is easy to spot because of its size and the distinctive pattern on the outside. Smooth Artemis (*Dosinia lupinus*) is generally smaller but are difficult to tell apart from small faded Rayed Artemis. Both has a deep triangular pallial sinus.
- Quahog (*Mercenaria mercenaria*) non-native and only in south of England. Used a form of currency when trading with Native Americans.

Dosinia bump

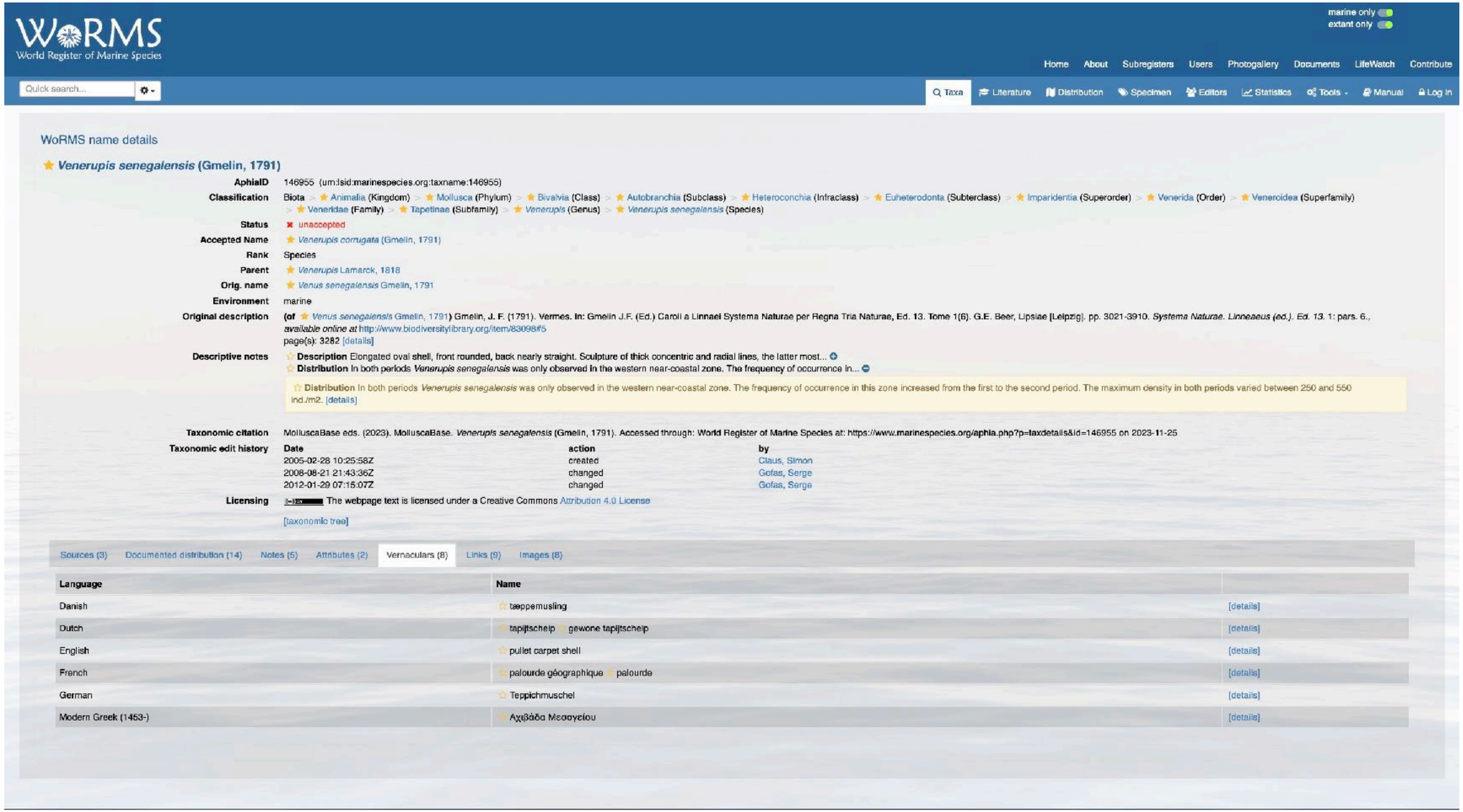
- Rayed Artemis (*Dosinia exoleta*) has a bump anterior to the lunule.
- Smooth Artemis (*Dosinia lupinus*) the rise from the lunule is less pronounced
- The examples here are really clear, but it can be tricky because of natural variation of specimens.



Arcidae, Arcticidae, Pholadidae

- Only the Dog-Cockle (*Glycermeris glycermeris*) is likely member of the Ark Shells. It has a taxodont hinge, a line of small ridges and grooves rather than teeth. It's not a Cockle!
- Only the Icelandic Cyprine (*Artica Islandica*) is an extant member of the *Arcticidae*. When huge easy to recognise otherwise the teeth are critical
- Shells with irregular shapes, or accessory plates are likely to be Piddocks or Ship Worms. Remains of Oval Piddock (*Zirfaea crispata*)

What's in a name - WoRMS (World Register of Marine Species)



WoRMS World Register of Marine Species

marine only
extant only

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WoRMS name details

Venerupis senegalensis (Gmelin, 1791)

AphiaID 146955 (urn:lsid:marinespecies.org:taxname:146955)

Classification Biota > Animalia (Kingdom) > Mollusca (Phylum) > Bivalvia (Class) > Autobranchia (Subclass) > Heteroconchia (Infraclass) > Euheterodonta (Subterclass) > Imparidentia (Superorder) > Venerida (Order) > Veneroidea (Superfamily) > Veneridae (Family) > Tapetinae (Subfamily) > *Venerupis* (Genus) > *Venerupis senegalensis* (Species)

Status unaccepted

Accepted Name *Venerupis corrugata* (Gmelin, 1791)

Rank Species

Parent *Venerupis* Lamarck, 1818

Orig. name *Venus senegalensis* Gmelin, 1791

Environment marine

Original description **(of** *Venus senegalensis* Gmelin, 1791**)** Gmelin, J. F. (1791). Vermes. In: Gmelin J.F. (Ed.) Caroli a Linnaei Systema Naturae per Regna Tria Naturae, Ed. 13. Tome 1(6). G.E. Beer, Lipsiae [Leipzig]. pp. 3021-3910. *Systema Naturae. Linneaeus (ed.). Ed. 13.* 1: pars. 6., *available online at* http://www.biodiversitylibrary.org/item/83098#5
page(s): 3282 [details]

Descriptive notes **Description** Elongated oval shell, front rounded, back nearly straight. Sculpture of thick concentric and radial lines, the latter most...
Distribution In both periods *Venerupis senegalensis* was only observed in the western near-coastal zone. The frequency of occurrence in...

Distribution In both periods *Venerupis senegalensis* was only observed in the western near-coastal zone. The frequency of occurrence in this zone increased from the first to the second period. The maximum density in both periods varied between 250 and 550 ind./m2. [details]

Taxonomic citation MolluscaBase eds. (2023). MolluscaBase. *Venerupis senegalensis* (Gmelin, 1791). Accessed through: World Register of Marine Species at: https://www.marinespecies.org/aphia.php?p=taxdetails&id=146955 on 2023-11-25

Taxonomic edit history

Date	action	by
2005-02-28 10:25:58Z	created	Claus, Simon
2008-08-21 21:43:36Z	changed	Gofas, Serge
2012-01-29 07:15:07Z	changed	Gofas, Serge

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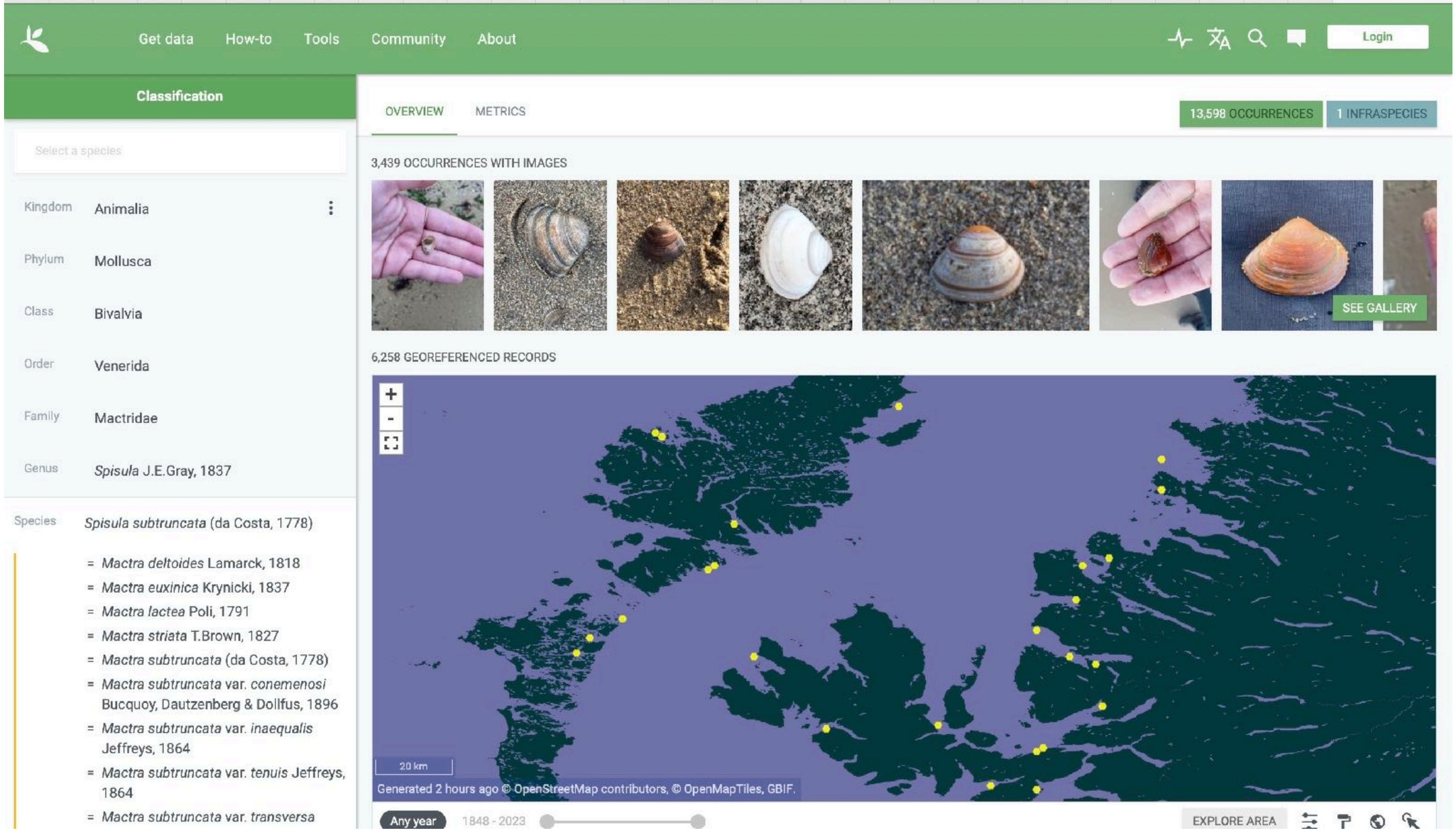
[taxonomic tree]

Sources (3) | Documented distribution (14) | Notes (5) | Attributes (2) | Vernaculars (8) | Links (9) | Images (8)

Language	Name	
Danish	tæppemusling	[details]
Dutch	tapijtschelp gewone tapijtschelp	[details]
English	pullet carpet shell	[details]
French	palourde géographique palourde	[details]
German	Teppichmuschel	[details]
Modern Greek (1453-)	Αχιβάδα Μεσογείου	[details]

Has it been found here before ?- Global Biodiversity Information Facility (GBIF)



Is it really here (part 2)? - National Biodiversity Network (NBN)

Cut Trough Shell

species Accepted **Name authority:** UKSI **Establishment means:** Native

Overview | Gallery | Names | Classification | Records | Literature | Sequences | Data Partners

Spisula subtruncata

Spisula subtruncata, the **cut through shell**, is a medium-sized marine clam, or bivalve mollusc, found in the Eastern Atlantic from Iceland to Morocco and into the Mediterranean Sea. Common and sometimes very numerous. Up to 2.5 centimetres (0.98 in) long, with a distinct triangular shape. [1]

This species of clam is found in sandy and silty bottom in the sublittoral zone, where it lives as a sediment-burrowing filter feeder.

- Right valve

Source: http://en.wikipedia.org/w/index.php?title=Spisula_subtruncata&oldid=1152274080
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Provided by: Encyclopedia of Life

Online Resources

- JSON
- GBIF
- Encyclopaedia of Life
- Biodiversity Heritage Library
- PESI

2,369 records (2,369 in total)

This map contains both point- and grid-based occurrences at different resolutions

Recording what you see

How do you know if you have lost it, if you didn't know you had it in the first place

- Marine mollusc recordings for Wester Ross, and come to that, pretty of anything are really quite sparse. (Only 535 bivalve records in Loch Ewe in GBIF, not many recent)
- There are three main citizen science recording platforms: iRecord, iNaturalist, iSpot
- iRecord - probably the most formal, records are scrutinised by volunteer experts, but there is a massive backlog, and in some things years
- iNaturalist - whose records now get automatically fed into iRecord. Two identifications produces a so called research grade observation.
- iSpot - probably the least formal, but generally the most supportive in terms of getting help in identifications.
- There are not many people in any of the three recording systems who take a lot of interest in marine molluscs, so it can be a slow work. All three do feed into either GBIF or NBN at varying rates

Recording for bivalves

Assuming you want someone else to agree

- Clear external photographs, both valves if possible.
- Photos of the insides of the shell showing the pallial lines and muscles scars.
- Closeups of the hinge line or any other key features.
- A general habitat photo of where you found the specimen.
- An accurate location, most phones and any many cameras can give good GPS locations.
- A believable identification with some supporting text and even some links to relevant reference material.
- Species is not always possible, a correct genus is better than a wrong species.

Bivalve resources

Although not exclusively so

- Collins Complete Guide to British Coastal Wildlife - a comprehensive and generally useful book
- British Bivalve Seashells by Norman Tebble - this is still the best book on bivalves, with a good set of keys, many of the names are now out of date and the book is out of print
- https://naturalhistory.museumwales.ac.uk/BritishBivalves/home.php? - This is the most comprehensive site, with detailed descriptions but searching is only on scientific names.
- https://conchsoc.org/encyclopedia - Has a section on bivalves, but also other molluscs. Not as comprehensive, but does have a lot of good pictures and descriptions
- https://www.aphotomarine.com/mollusc_shells_bivalves_marine.html - Dave Fenwick's very comprehensive photo record of vast numbers of marine species
- https://www.record-lrc.co.uk/Downloads/Shell identification February 2012 version2[18042012].pdf - A really useful identification guide produced for Liverpool Bay Marine Recording Partnership
- https://www.marlin.ac.uk/species - Marine Life Information Network, generally a good around marine information site
- https://www.habitas.org.uk/marinelife/index.asp - Has a big collection of all sorts of marine life
- http://www.seawater.no/index.html - A range a marine species, but does tend to have pictures of living species.