

Shell pages



These supplementary notes are designed to be used in conjunction with the recording sheets

Liverpool Bay Marine Recording Partnership

Additional help identifying difficult shells and those not covered by the recording sheets

Designed for recording from beaches between Fleetwood and Colwyn Bay

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Preliminary Note



Why are some shells black?

It is not oil pollution, or pollution of any sort, it is quite natural

There is a lot of iron oxide, or rust, on sand grains, that comes from the rocks they were made from. That is why most beaches are sandy coloured. There are also millions of bacteria living in the sand.

If oxygenated water cannot get down to the lower layers of sand, perhaps because the sand-grains are very small or there is a lot of mud too, then strange things happen!

The bacteria feed on the organic matter that is abundant in all beach sand. They use up all the oxygen and die. They are replaced by other bacteria that can continue to feed on the organic matter but without needing oxygen. These are called anaerobic bacteria and they produce a substance called Hydrogen sulphide as they feed. This chemical reacts with the rust on the sand grains to produce iron sulphide and this dissolves into the water. It is black in colour. So the deeply buried sand grains go black.

Any shells that become deeply buried will also be turned black by a deposit of iron sulphide from the water that surrounds them.

So any black shell you find has been dead for some time.

So what happens to the blackened shells if they are washed on to the surface of the sand? The black iron sulphide meets the oxygen and turns back into rust so a shell that became covered with black iron sulphide may end up quite orange in colour, and often after only a few days.

Another general point of interest

What drills holes in shells?

The holes are made by a snail

Dog Whelks, Sting Winkles and Necklace Shells feed on other molluscs, especially bivalves.

Like all snails they have a rasping tongue. They place their lips against the other mollusc's shell and rasp away with their tongue until a hole is made in the shell of the other mollusc. They can sometime make acid to help eat away the lime in the other shell.

Once the hole is made they put their tongue in further and rasp away at the body and remove it bit by bit to swallow.



Snails

- The following few pages deal with some snails that are difficult to distinguish from similar species

Necklace Shells

These two species are very, very, similar. Any shells over 15mm will be the **Large Necklace Shell**.

For smaller necklace shells, if they are fresh shiny shells, the form of the necklace can be used but note that the necklace may vanish with wear or burial and not all Alder's Necklace have a multi-stranded necklace.

Alder's Necklace Shell

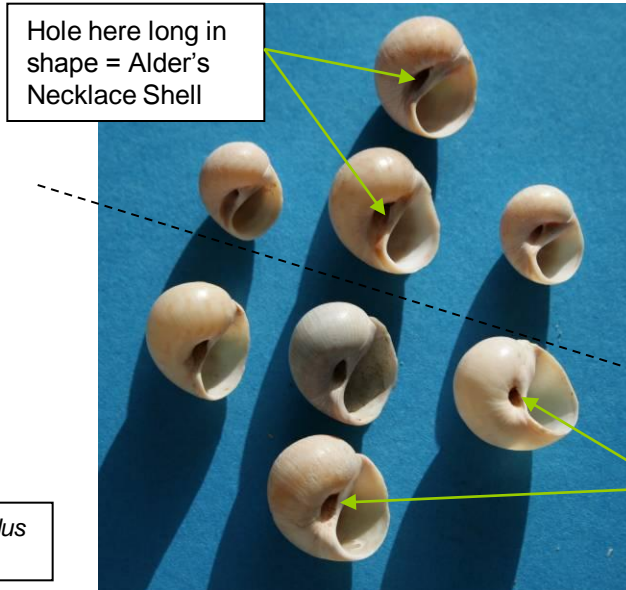


Sharper triangular shaped top of shell

Alder's Necklace Shell *Polinices pulchellus*
Large Necklace Shell *Euspira catena*

LEFT One row of marks on big whorl, a single stranded necklace = **Large Necklace Shell**.

RIGHT Several rows of marks i.e. several strands of necklace = **Alder's Necklace Shell**



Hole here long in shape = Alder's Necklace Shell

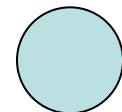
Hole here rounder in shape = Large Necklace Shell

Large Necklace Shell



Flatter triangular shaped top of shell

Note:- If your Necklace Shell will not fit inside this circle, 15 mm, it is a **Large Necklace Shell**



Necklace Shell Eggs



Two egg rings of the **Large Necklace Shell** *Euspira catena*



Egg ring of a Large Necklace Shell that has dried brown

These look like strips of flexible, grey, sand-impregnated jelly when they are fresh but are brown when dry, as above right.

Each hole or pit marks the site of an egg

They are often beached as fragments but if present as a small but whole coil it will be **Alder's Necklace Shell** or if a semi-circle, as all illustrated above it will be the **Large Necklace Shell**

Winkles

Flat Periwinkle *Littorina obtusata*, with *Littorina mariae* also at Colwyn Bay and possibly elsewhere
Periwinkle *Littorina littorea*
Rough Winkle (see next page) *Littorina saxatilis* and possibly *Littorina nigrolineata*

Note:- If your Rough Winkle or Periwinkle will not fit inside this circle, 16 mm, it is a **Periwinkle**



More on these winkles on next page

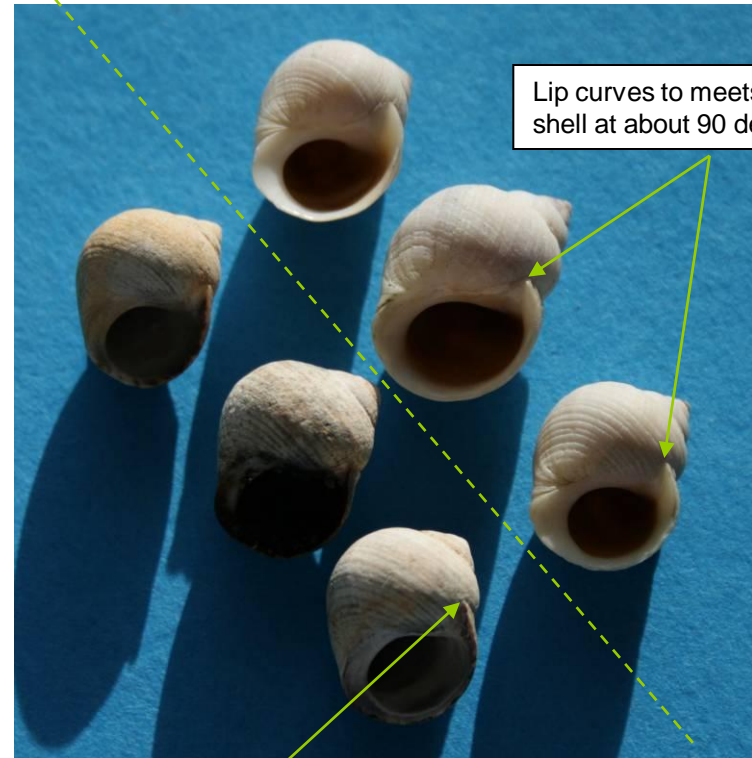
Flat Periwinkle

Easy to identify due to having no point at the end and having a thick shell.

(There are two species of Flat Winkle but they cannot be told apart by the shell)



Rough Winkle



Lip curves to meet axis of shell at about 90 degrees

Lip straight and does not meet axis of shell at about 90 degrees

Periwinkle

The shells are very thick compared with **Large Necklace Shells** that also have no pointy top but have a prominent hole near the mouth



Flat winkle for comparison

Note It is recommended not to try and identify winkles that are less than 7 mm high as the two species can converge in appearance. The Rough Periwinkle is particularly variable in shape and shell texture

Periwinkles are usually grey (but can be red, yellow, or banded in all these colours)

Rough Winkles are usually whitish (but can be grey, red yellow, brown, or banded)

Periwinkles regularly grow to 25 mm high

Rough Winkles are typically 12 mm or less but can grow to 16 mm high

Periwinkles are often seen on the strandline. **Rough Periwinkles** are rare on the strandline

Look out for



Littorina nigrolineata

Raised parts much wider than grooves.

Can be various colours but black grooves common in this species

Currently not recorded east of the Ormes in our area



By comparison Rough Winkles *Littorina saxatilis* have smooth shells **or** grooves and ridges similar in width **or** ridges very sharp topped



The *tenebrosa* form of the Rough Winkle is thin shelled and most have this characteristic pattern.

Found in quiet estuarine conditions

Edible Whelk *Buccinum undatum*
Red Whelk *Neptunea antiqua*
Slender Spindle Shell *Colus gracilis*

Whelks



Edible Whelk has prominent ridges (arrowed), and fine ridges between them and often regular raised longitudinal ridges (as inset).





Red Whelk has no prominent ridges, only the fine ones, and no regular raised longitudinal ridges



Whelk egg batches are very common. If each egg capsule is 10 mm or less it will be the Common Whelk but look out for any with giant egg capsules about 15mm as they will be from the Red Whelk.



Edible Whelk each egg capsule about this size 

Red Whelk each egg capsule about this size 

Look out for the rare
Slender Spindle Shell

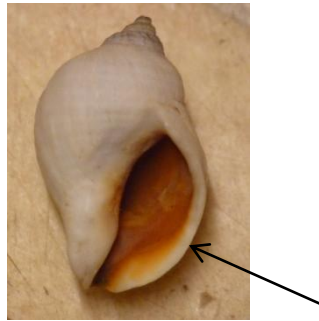


Dog Whelks *Nucella lapillus* and young shells of Edible Whelk *Buccinum undatum*

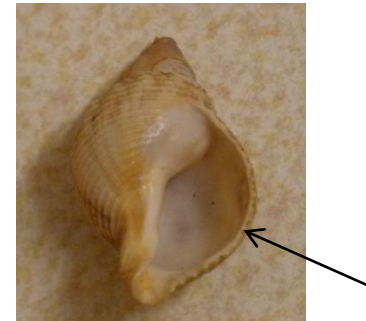
If your whelk is larger than this line it is probably NOT a Dog Whelk but still check other characters as giant Dog Whelks do occur occasionally



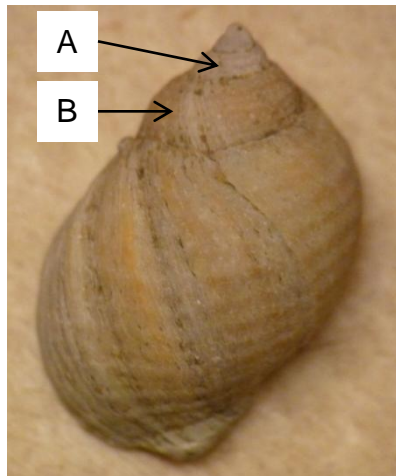
Dog Whelks are very variable and the thick shells are tough and last a long time and can get very worn.



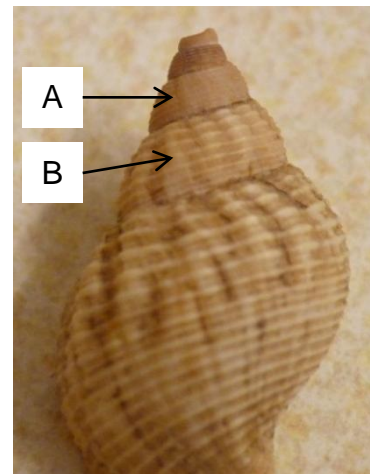
Dog Whelks have thick shells with a thick lip (arrowed)



Young Whelks have thin shells with a thin lip (arrowed)



In Dog Whelks whorl (A) is less than half the width of whorl (B)



In Common and Red Whelks whorl (A) is half or more the width of whorl (B)

Laver Spire Shell *Hydrobia ulvae*; Jenkin's Spire Shell *Potamopyrgus antipodarum*; Dun Sentinel *Assiminaea grayana*

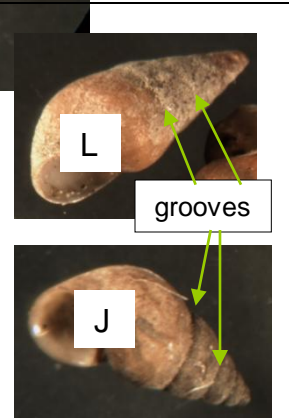
Laver Spire Shells and other similar

Note these are small shells, the size of this line (6 mm), or less —

The **Laver Spire Shell** often called **Hydrobia**, based on part of its scientific name, is a super abundant little mollusc in all of our estuaries. It has been joined recently by a similar snail, the **Dun Sentinel**, that used to be found only in south east England but appeared a few years ago in the Mersey and is now common in Mersey and Dee estuaries. (It is a terrestrial snail that lives at the edge of saltmarsh but its shell will disperse)



Beware Jenkin's Spire Shell (J) that is abundant in many rivers and washes down. A similar general shape to the Laver Spire (L) but with more marked grooves between the whorls



The **Laver Spire Shell** is a taller narrower shell than the **Dun Sentinel**. Compare the angles where the green lines join. The problems are with young Laver Spire Shells, such as the one arrowed, which have shorter shells. Their mouths are a little taller than wide compared with the mouths of equivalent sized Dun Sentinels (example arrowed) which are more or less as wide as high. However it is recommended that you do not attempt to identify a shell smaller than this line which is 3 mm —

Vagrants from the Dunes and Saltmarsh

Often at the top of the beach you meet a shell that came from the dunes, or saltmarsh. These are not marine species, so not comprehensively dealt with here, and a book on terrestrial species is required. Most species are very small and/or fragile and do not survive long on the beach. A few larger and tougher species are shown here.



Common Garden Snail *Cornu aspersum* (up to 3.5 cms)



Brown-lipped Snail *Cepaea nemoralis* (up to 2.5cms)

Dune species



Wrinkled Snail (up to 1cm)
Candidula intersecta



Striped Snail (up to 1.5cm)
Cernuella virgata



Pointed Snail (up to 2cms)
Cochlicella acuta



Hairy Snail (up to 1cm)
Trochulus hispidus



Two-toothed White Snail
(up to 6 mm)
Leucophytia bidentata



Mouse-eared Snail (up to 1cm)
Myosotella myosotis



Dun Sentinel (up to 8mm)
Assiminaea grayana

Saltmarsh species

The species shown here are semi-aquatic and their shells can be common in runnels where saltmarsh and beach abut

Bivalves

- The following pages deal with groups of Bivalves that are difficult to distinguish from similar species

Common Oyster *Ostrea edulis*
Foreign Oyster *Crassostrea* species

Oysters

The **Common Oyster** is found in Liverpool Bay. **Common** and **Foreign Oyster** shells are also frequent where there are, or were, seaside piers. These are the left-overs from snacks, as oysters were a very popular food about 100 years ago. People have also tried growing Foreign Oysters at various places in the Irish Sea.

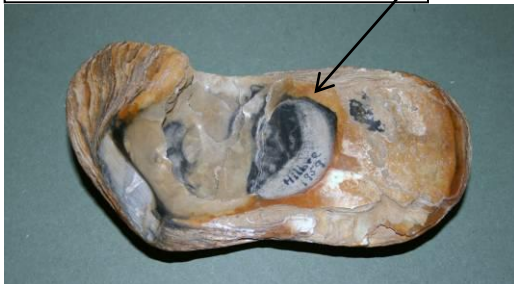
The shells are very tough and can last for years. Shells that are orange or black have been buried in the sand for a long time then washed out by the waves.



Common Oyster

Shell often rounded and **if it has not been buried and changed colour**, the muscle scar on the inside is pale

An example of an oyster where the scar (arrowed) has been changed in colour by burial and re-exposure. Shells with **BLACK** muscle scars may be very difficult to identify



Beware confusion with

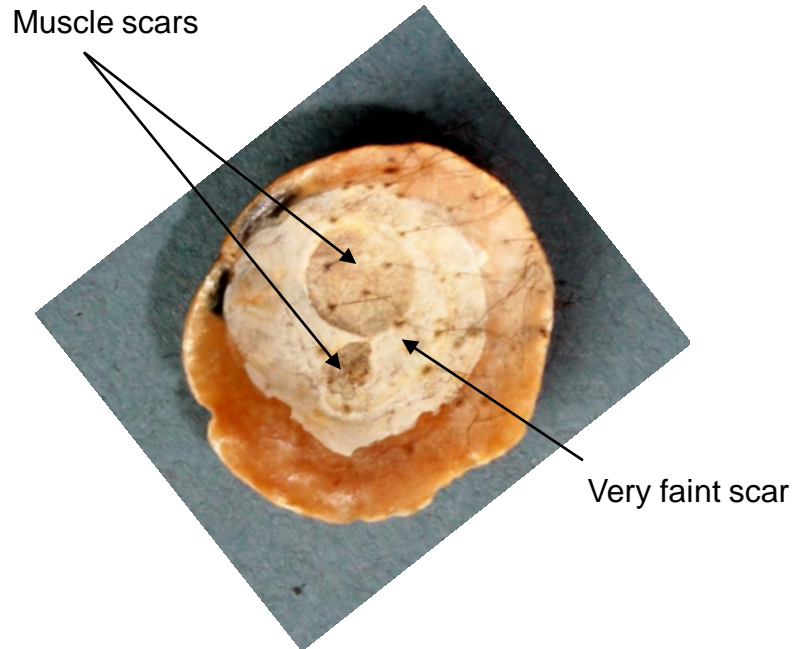
Saddle Oysters which have small thin shells rarely more than this length (see next page) _____

Foreign Oysters

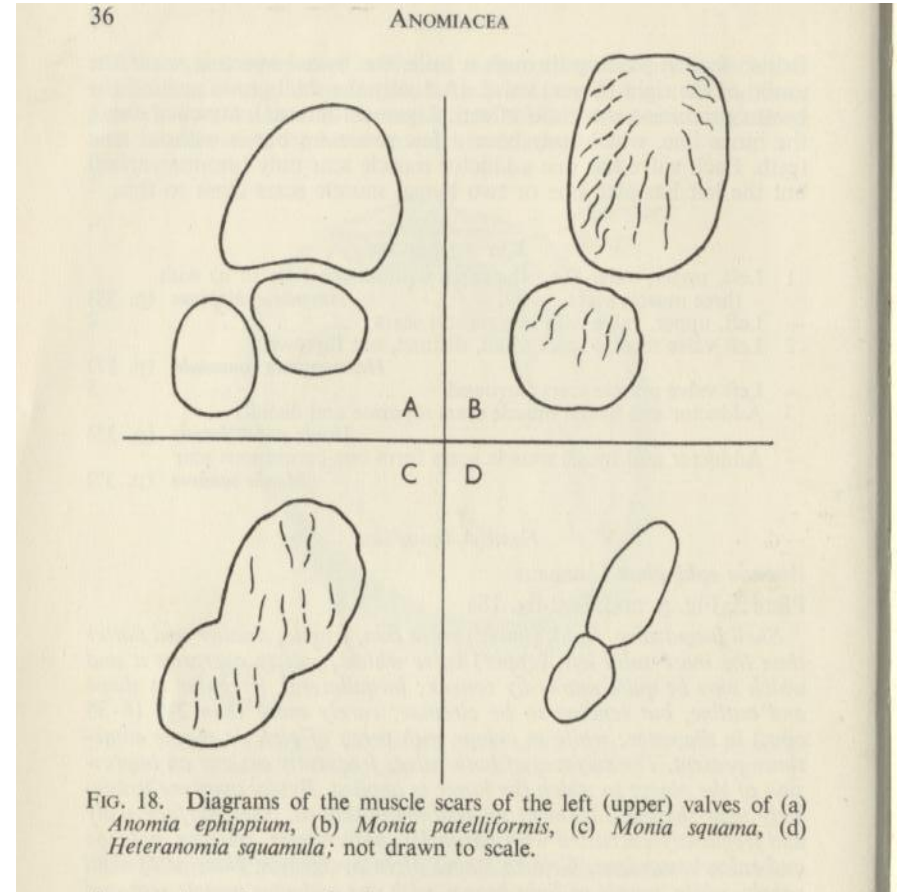
Shell long and the muscle scar on the inside is very dark **PURPLE**

Saddle Oysters

are identified by the muscle scars



Despite only having 2 obvious scars this looks most like 'A' i.e. *Anomia ephippium*



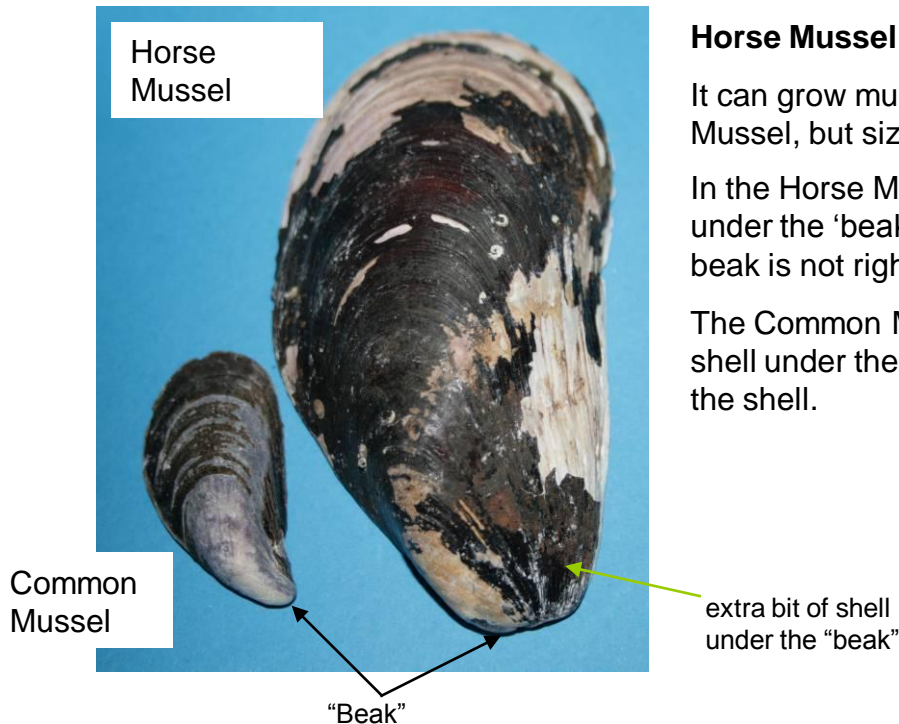
from Tebble 1966, British Bivalve Seashells

Common Mussel *Mytilus edulis*
Horse Mussel *Modiolus modiolus*

Mussels

Mussels are easy to identify. Almost all Mussel Shells you will find are **Edible Mussels**

If the shell is thick and blue the mussel that made it probably lived on the shore so it needed a strong shell for protection and grew slowly. If the shell is thin and brown it will probably have lived offshore, or in a big pool where it was always covered by water. It did not need a strong shell for protection and grew quickly. There are often attractive dark lines on these thinner mussel shells.



Horse Mussel (An uncommon shell)

It can grow much bigger than the Common Mussel, but size cannot be used to identify them.

In the Horse Mussel there is an extra bit of shell under the 'beak' at the narrow end. Sometimes the beak is not right at the end of the shell.

The Common Mussel does not have an extra bit of shell under the beak, which is always at the tip of the shell.



A young Horse Mussel found attached to a Hydroid roll. They have horny bristles on the shell that leave stumps when worn off, (Arrow) but beware confusion with irregularly arranged stumps left by attachment byssus threads of both mussel species as on shell to right which was found attached to a dead mussel shell

Common Cockle *Cerastoderma edule*
Prickly Cockle *Acanthocardia echinata*

Cockles

There are two species of Cockle. They are easy to identify. Around Liverpool Bay the Prickly Cockle grows bigger than the Common Cockle, as in the photograph, but size cannot be used to identify them. Shells of the Common Cockle are usually more numerous than those of the Prickly Cockle, but the Prickly Cockle is not a rare species



Prickly Cockle

There are wide grooves between the raised bits, and there are prickles, or marks where the prickles have worn off, along the raised bits

Common Cockle

There are only narrow grooves between the raised bits. The raised bits are knobby, but there are never prickles or marks where prickles have worn off along the raised bits

Look out for the Lagoon Cockle *Cerastoderma glaucum*. As yet no specimens seen by author for our area, but quite likely to occur in brackish water



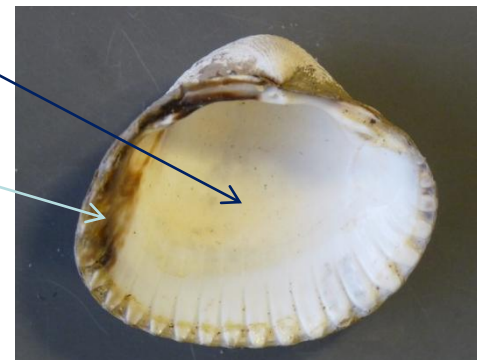
Internal grooves extend into middle of shell
Purple or brown colour extends into middle of shell

Usually one edge more elongated compared with Common Cockle

Lagoon Cockle

Internal grooves do not extend into centre of shell
Purple or brown restricted to edge of shell

Shape more equi-lateral



Common Cockle



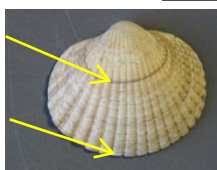
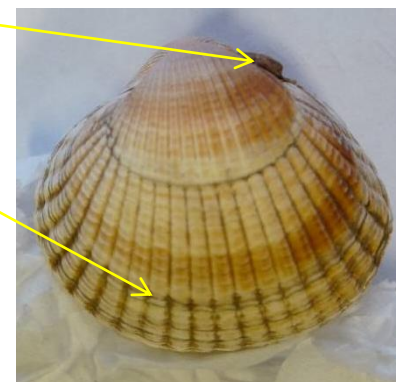
No brown flexible ligament visible in flat view of paired valves

Quite sharp edged ridges

Shell generally much thinner than comparably sized Common Cockle

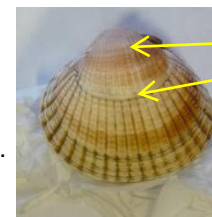
Brown flexible ligament visible in flat view of paired valves

Rounded ridges



A
B

Beware young Common Cockles, under 2cms, which have thin shells with internal grooves and often internal colour like Lagoon Cockles. Recognise young cockles by size and by only having one major growth ring



A
B

Old cockle to show position of A & B shown on young cockle

Variegated Scallop *Chlamys varia*; Queen Scallop *Aequipecten opercularis*; Great Scallop *Pecten maximus*

Scallops

Scallops are uncommon. The species is usually the **Variegated Scallop**



Variegated Scallop

One “ear” and lots of narrow raised bits.

The top part of the shell by the “ear” is more triangular than in the Queen or Great Scallop

“ear”



Queen Scallop

Two “ears” and lots of narrow raised bits.

Top part of shell by ears a much flatter triangle than in the Variegated Scallop

(If you find Great Scallops, they are probably the left-overs of a meal or the remains of a natural seafood platter.)



Great Scallop

Two “ears” and a few broad raised bits

Razor Shells

To identify Razor Shells they must first be put into one of 4 categories

•Curved Razors



Even curve along top and bottom edge

•Straight Razors

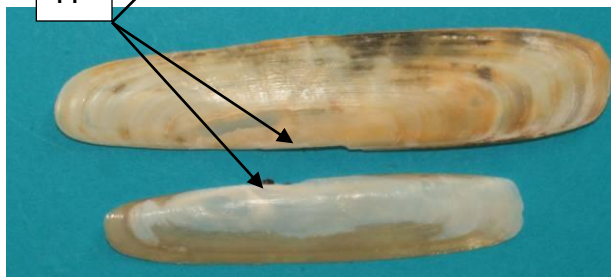


Straight along top and bottom edges apart from a curve near one end in one species

•Bean Razor

Bean Razor
Pharus legumen

H



The **Bean Razor** is often the commonest razor shell. Recognisable by having the hinge that joins the two shells together when it is alive (arrowed H) near the middle rather than at the very far end. The shells also taper towards one rounded end.

Razor Shells that are shorter than this line make the 4th category "Small Razors"

Straight Razor Shells

Pod Razor Shell *Ensis siliqua*



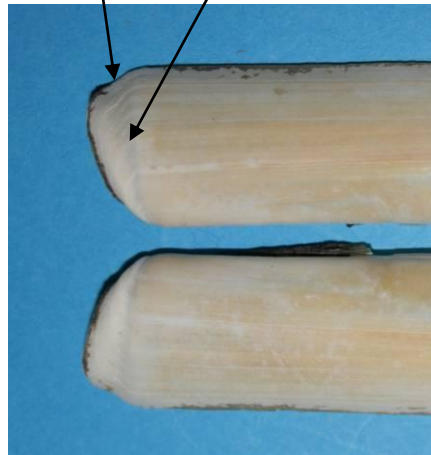
A similar species *Ensis minor* seems to be currently restricted to the east coast, but so was the American Razor until its recent arrival on our shores so *E. minor* could appear too. It is very difficult to tell from Pod Razor. A paired valve looked end on at the end away from the hinge is not smoothly oval. 'K' as opposed to 'J' of Pod Razor. Any suspect specimens should be retained for more detailed examination. (*E. minor* said to grow only to 150mm as opposed to 200 of Pod Razor)

Illustrations from
Von Cosel (paper in) *Basteria* 2009 Vol. 73 pages 9-56



A sort of a groove but no notch

Notch and Groove



Grooved Razor Shell *Solen marginatus*

Uncommon shell. Usually found worn



Curved Razor Shells

Other Curved Razors (see following pages)



Shell does not taper from the posterior end to the front end

Common Razor Shell *Ensis ensis*

Note A shell longer than this line will be one of the other Curved Razors (see next page)



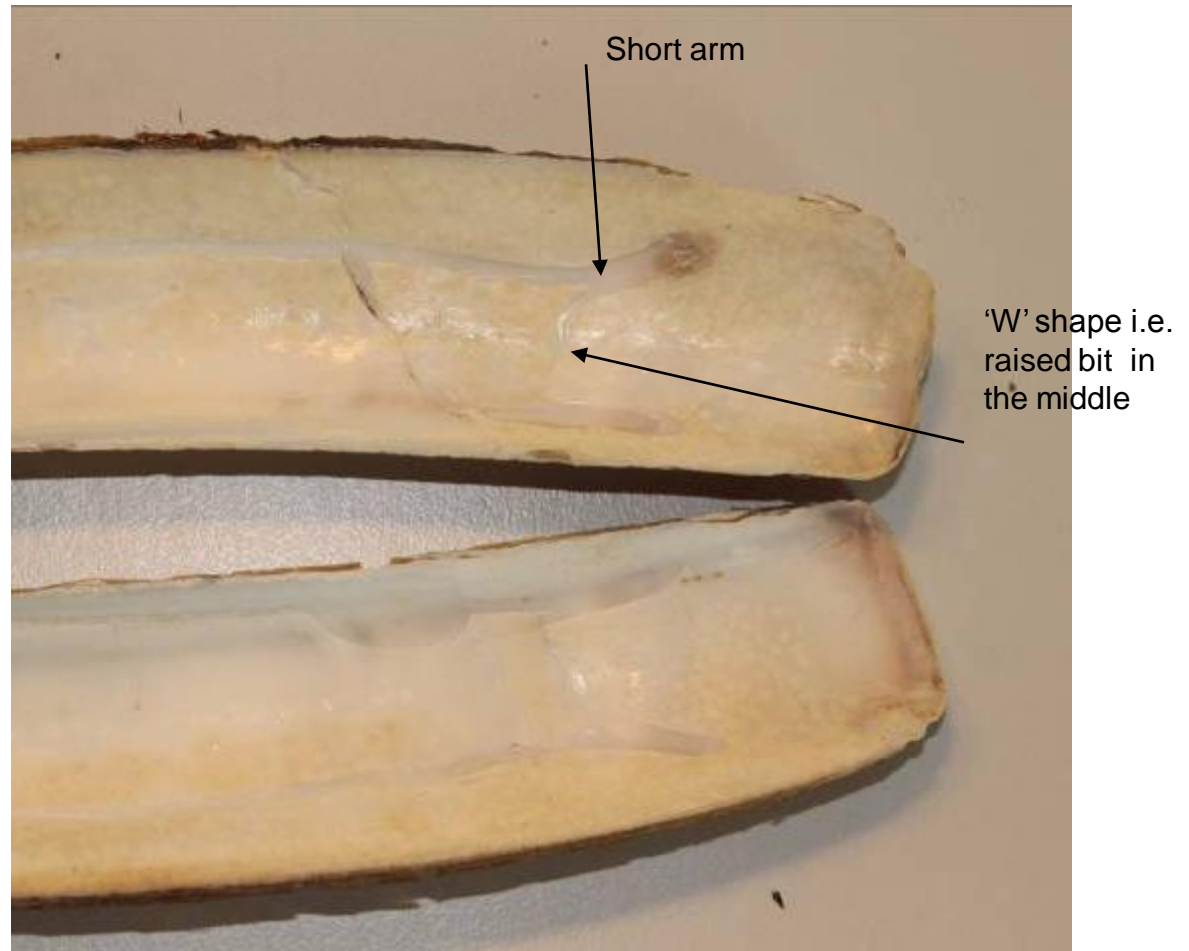
Shell tapers from the posterior end to the front end

In 2011 a local conchologist realised that the alien American Razor, that was believed to live only on the east of England, was now established on our shores.

Look for the pallial line, where the body attached inside the shell at the opposite end to the hinge. This line can be difficult to see on wet shells

American Razor *Ensis directus*

The length to width
ration of the mature shell
Less than 6.5

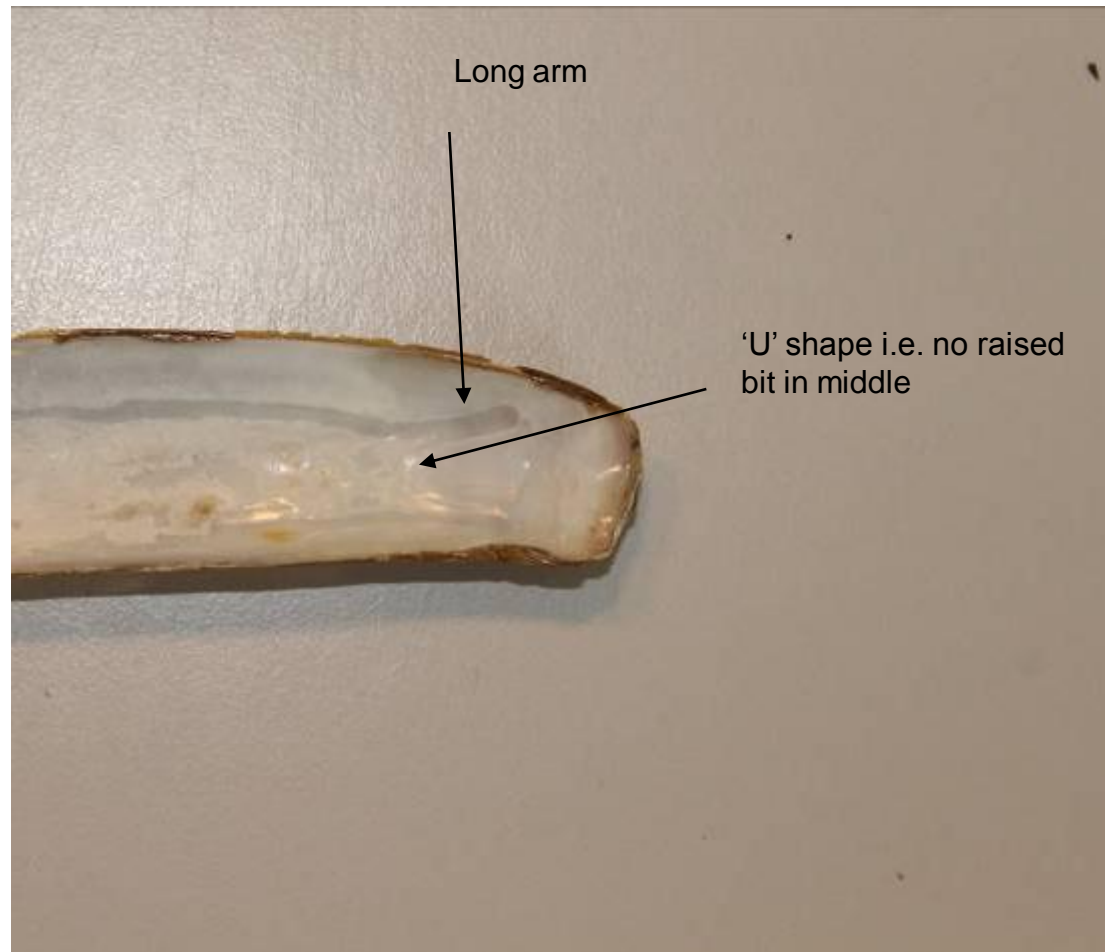


Sword Razor *Ensis arcuatus*

Length to width ratio
of the mature shell

More than 6.5

In 2011 all Sword Razors collected from local beaches were worn, i.e. not freshly dead. All fresh Curved Razors were the American Razor suggesting at least a partial take-over by the new alien.



Transparent Razor *Cultellus pellucidus*
Bean Razor *Pharus legumen*

Young shells of the Razors on the previous pages look more or less like miniature versions of the adult shell

Young of curved type razors particularly difficult to identify.

Common Razor look for tapered end

Sword and American Razors - if the pallial line cannot be seen then you cannot name the shell

Small Razor Shells



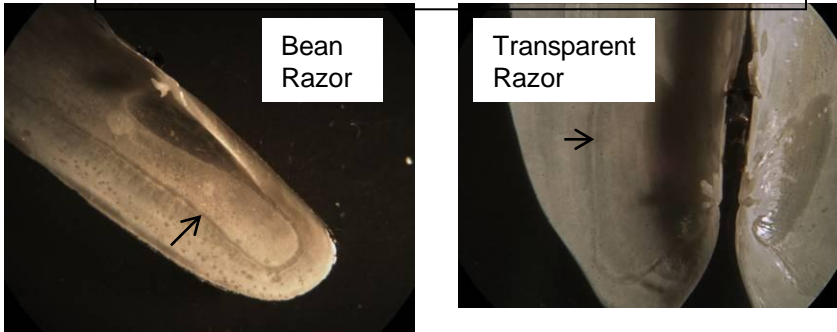
When identifying small Bean Razors look out for the rare **Transparent Razor**, which has the hinge at one end

Max length of Transparent Razor



Small shells of American Razor (top) and Pod Razor Shell (bottom)

Magnified view of inside of shells showing hinge and line along which the body is attached to the shell (arrow) which also differs between the two

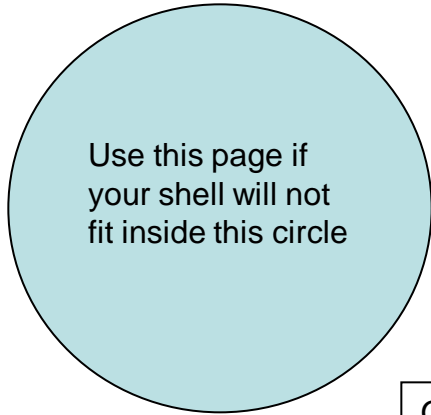


Otter Shell *Lutraria lutraria*; Sand Gaper *Mya arenaria*

In both Otters and Gapers, if you close an empty pair of shells together they do not join all the way round



gap



Use this page if your shell will not fit inside this circle



These strange looking things are the outside parts of the feeding tubes of a Blunt Gaper

Otter Shell

Thin flaky brown covering

Flat bottom edge



Sand Gaper

Only bits of flaky brown material, if any

Curved bottom edge, but shells can become distorted as the animal grows

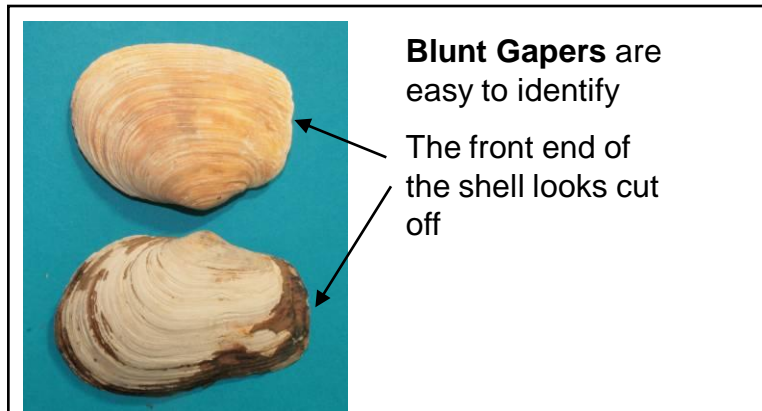


Once the flaky layer has worn off, shells of the Otter are less obviously different from the Sand Gaper



Blunt Gapers are easy to identify

The front end of the shell looks cut off



More on Otters & Sand Gapers

Look inside the shells at the hinge area. That is where the two shells are joined together in life, and shortly after death The hinges of the two valves may be different.

One of the valves of a Sand (and Blunt) Gaper has a very conspicuous shelf

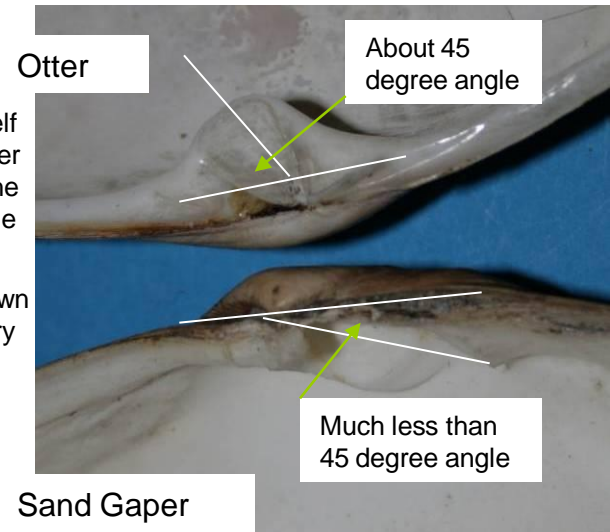


Both valves of Otter Shells have a similar hinge area

The valve of a Sand Gaper without the shelf can be distinguished from valves of an Otter Shell by looking at the chondrophore pit, the depression where the ligament that held the shells together in life fitted in.

The angle that an imaginary line drawn down the middle of this pit joins with an imaginary line drawn along the shell edge differs

Small Otters & Gapers are dealt with on page 40 and very small ones on page 47



Otter

About 45 degree angle

Sand Gaper

Much less than 45 degree angle

White Piddock *Barnea candida* (see also next page)
Oval Piddock *Zirfaea crispata*

Piddocks

The books often suggest that Piddocks live in a burrow they have bored into a rock throughout their life. In our area they also bore into the stiff clay and peat that were laid down just after the ice age when the sea level was lower and are now found submerged by the sea. As these get eroded by the waves the shells are released. The shells are often broken but the bits are very distinctive



White Piddock has a very long, thin and fragile shell



Oval Piddock has a shorter thicker shell

The shell most likely to be confused with the Oval Piddock is the Blunt Gaper. The two are very different when complete, but broken fragments may be less obvious



American Piddock *Petricola pholadiformis*
White Piddock *Barnea candida*

American Piddock

a newly arrived alien

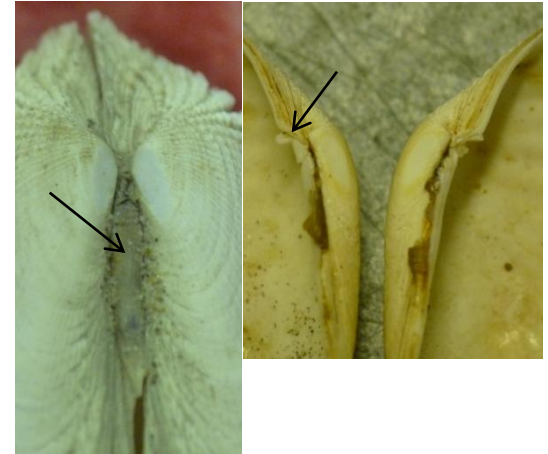
Current records from
Wirral and North Wales

Shorter end
with finer
grooves

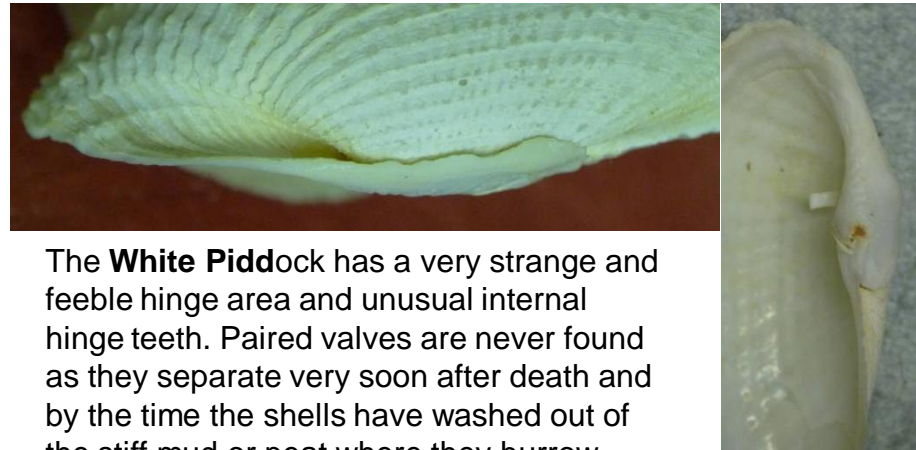
More
raised
lines



The **American Piddock** has a normal external hinge (arrow left) and small internal teeth (arrow right). Paired valves are common



White Piddock for comparison



The **White Piddock** has a very strange and feeble hinge area and unusual internal hinge teeth. Paired valves are never found as they separate very soon after death and by the time the shells have washed out of the stiff mud or peat where they burrow, they are not joined together.

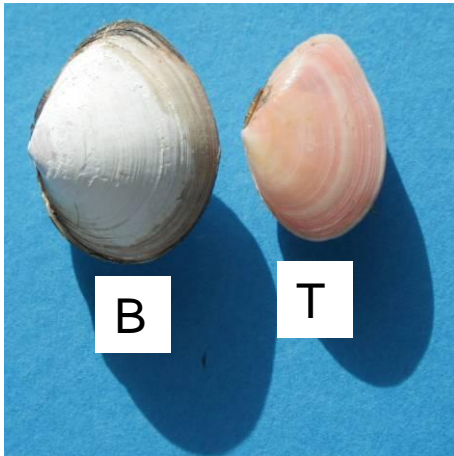
Thin Tellin *Tellina tenuis*
Baltic Tellin *Macoma balthica*
Bean-like Tellin *Tellina tenuis*

Pink Tellins

Usually pink, but they can also be white or yellow. Unlike many of the species of shells we find, these actually live in the beach, rather than just offshore.

The **Thin Tellin** and **Baltic Tellin** are always common

The **Bean-like Tellin** is only common sometimes



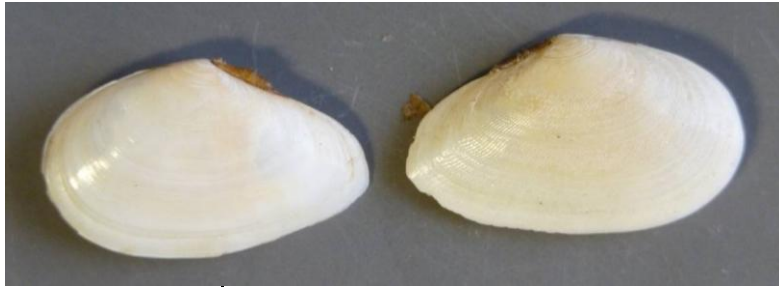
The Baltic Tellin **B** is rounder, fatter, thicker shelled, and less shiny than the Thin Tellin **T**

The **Bean-like Tellin** may have a salmon tinge. It is discussed on the next page. The elongated end results in a shell almost twice as wide as high is distinctive.





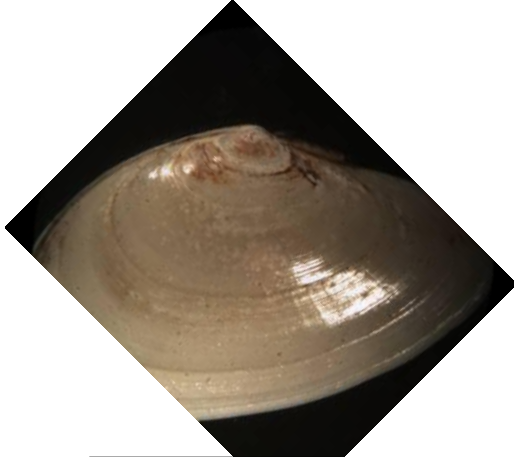
more on **Tellins** (you will probably need to use a magnifier)



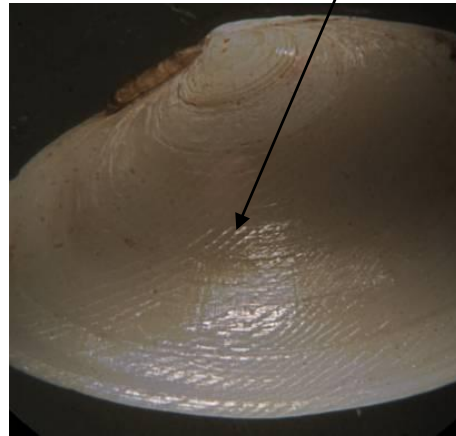
Bean-like Tellin
has fine striations
on outside of one
valve



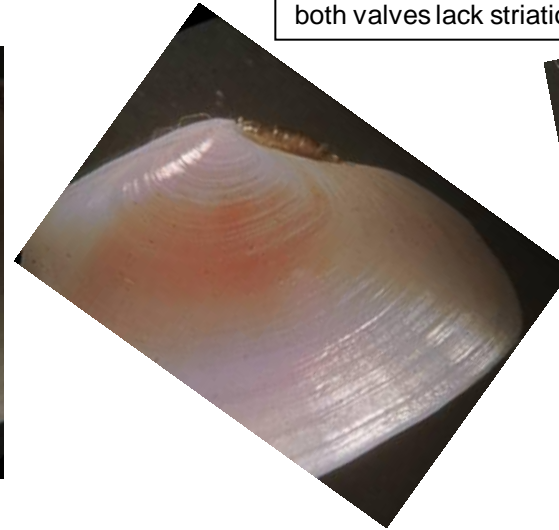
Thin Tellin outside of
both valves lack striations



Bean-like Tellin
un-striated other
valve



Bean-like Tellin Looking at the outside of the shell. If the sharpest end of the shell points left when the beak is at the top you will see striations if you look at it with a hand-lens.



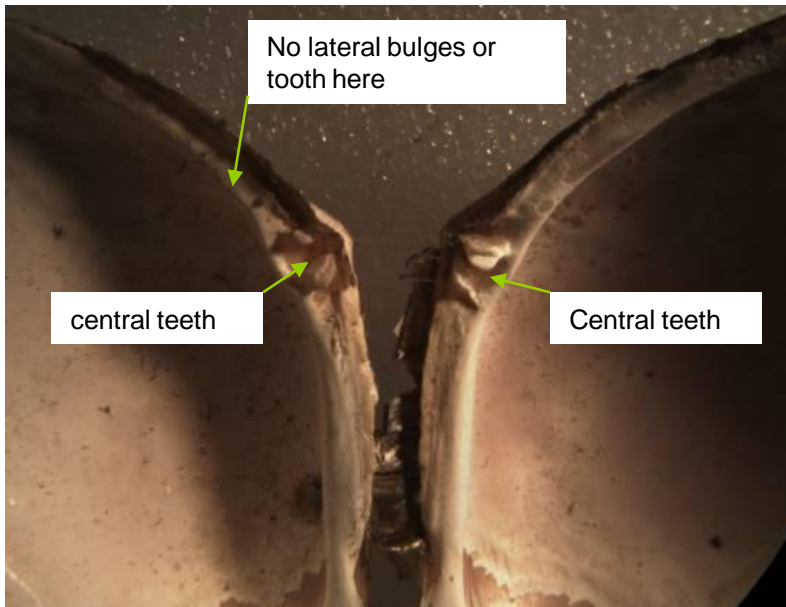
Thin Tellin Looking at the outside of the shell. If the sharpest end of the shell points to the left when the beak is at the top and you look at it with a hand lens it will be shiny and the same as the other valve



Baltic Tellins are flat when they are young. They are much more rounded than the Thin Tellin. The hinge teeth illustrated here are also different

Even more on **Tellins** (a good hand lens will probably be needed to see these features)

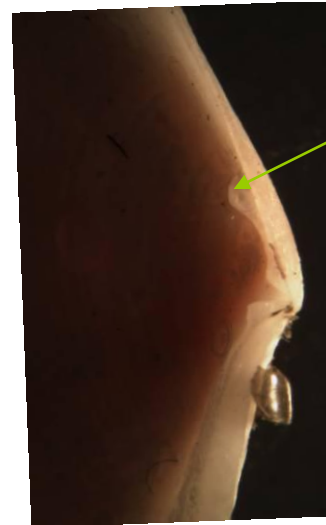
The hinge area of Tellin shells has small central teeth , but weak lateral teeth, if any, and there is no conspicuous spoon-shaped depression, called a chondrophore, where the internal ligament fits into in life.



Baltic Tellin has no lateral teeth on either valve

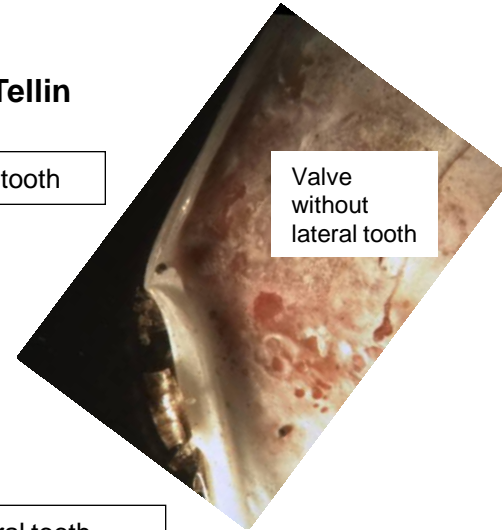
This page gives additional features to distinguish between Baltic Tellins and Thin and Bean-like Tellins

Bean-like Tellin

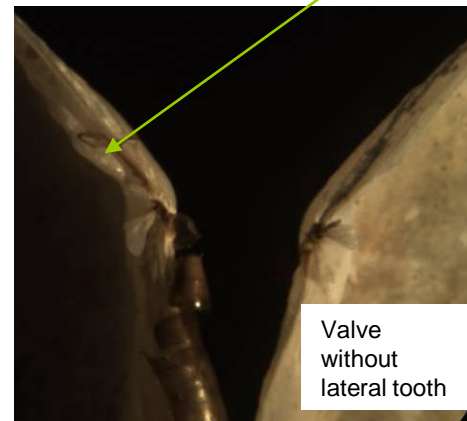


Thin Tellin

Lateral tooth



Lateral tooth



Valve without lateral tooth

Thin and Bean-like Tellins both have teeth or bulges lateral to the central teeth, but only on one of their two valves.

Unfortunately the valve lacking teeth in the **Bean-like Tellin** is also the one lacking the striations.

Shells with a Sunset Pattern

The pattern of bands on the shell that give this the common name of Sunset Shell can be absent



Fine sharp grooves on shell

Faroe Sunset Shell

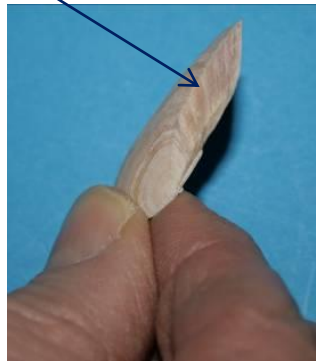


The **Donax-like Tellin**, which is rare as a beached shell, has less prominent grooves, no ridge and never a brown outer layer



Brown outer layer often present

Sharp ridge



The **Donax-like Tellin** never grows as big as the **Sunset Shell** so any shell longer than this line should be the Sunset Shell _____

Faroe Sunset Shell *Gari fervensis*
Donax-like Tellin *Moerella donacina*

Banded Carpet Shell *Tapes rhomboides*
Pullet Carpet Shell *Venerupis senegalensis*
and hole dwelling (*saxatilis*) form

Carpet Shells

note the carpet pattern often missing in worn shells

Rather square shells.



Banded Carpet Shell



Pullet Carpet Shell



young Pullet Carpet Shell



piddock hole & crevice dwelling form of Pullet Carpet Shell



Young Sand Gaper
Mya arenaria

Possible shape confusion with Sand Gapers

- Hinge teeth very different (see Gaper pages)
- Gapers (Left) thin shelled with a sharp edge, compared to the thicker shelled Carpet Shells (Right)





Pullet Carpet Shell has fine longitudinal striations (worn away in very beach-rolled shells) and less obvious in the *saxatilis* form below and young shells about 2 cms where the ridges and grooves are comparatively widely spaced



- **Banded Carpet Shell** (which is rare) has a smooth shiny shell without any longitudinal ridges

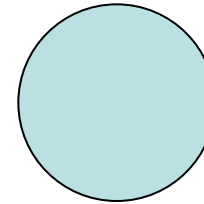
Smooth Whitish Bivalves

The bivalve shells on the next few sheets are not easy to identify. You will need your magnifying glass to look at the hinge area of the shell, where the two shells of the animal were joined together in life, and shortly after death.

There are several categories, Start by looking at their size

•**Group 1** are shells which cannot be fitted inside this 3cm circle

Start at page 38



•**Group 2** are shells that can be fitted inside that larger 3cm circle but not inside this 1 cm circle

Start at page 47



(Note that really small white bivalves which will fit inside the smaller circle, which is 1 cm wide, are considered too difficult to identify.)

Group 1 from the previous page = Larger **Smooth Whitish Bivalves** needs to be further subdivided into:-

- Shells that are more or less as high as they are wide and have both ends of the shell looking more or less the same **Group 1A (go to page 39)**



- Shells that are definitely wider than they are high or have one end obviously a very different shape to the other, see below, and page 45 also worth consulting

Sand Gaper has a rough shell

Otter Shell is smooth thin and quite fragile

Blunt Gaper with its characteristically shaped truncated end

Sunset Shell see page 34 for details. The hinge area of the shell is quite unlike Otters or Gapers (see pages). There are small pointed teeth in the central area.



Sunset shell teeth



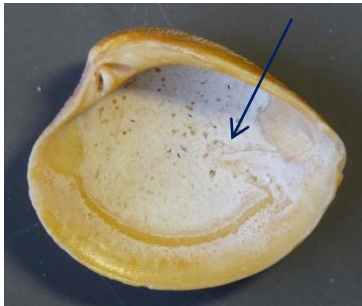
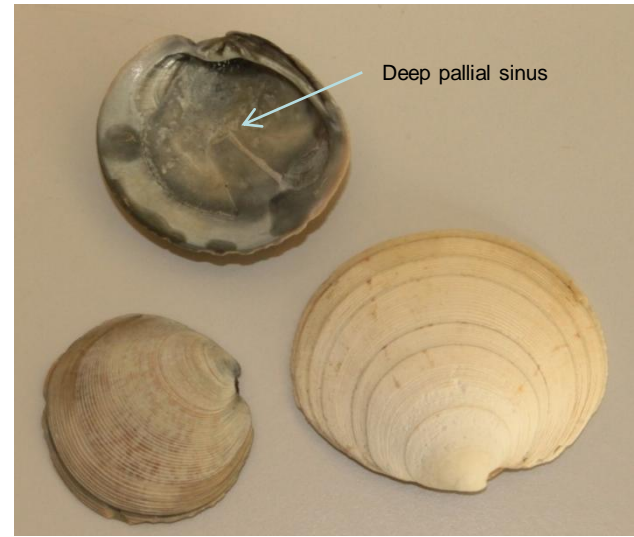
Artemis Shells are very rounded and thick

Striped Venus *Chamelea gallina*
Rayed Artemis *Dosinia exoleta*
Smooth Artemis *Dosinia lupinus*

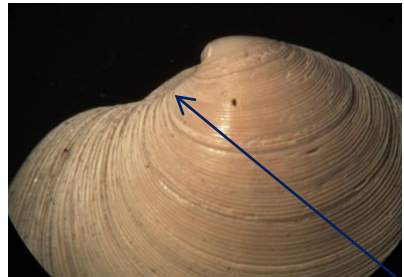


Beware possible confusion with the **Striped Venus** which has one side of the shell very different from the other but could be confused with the very rounded **Artemis Shells**

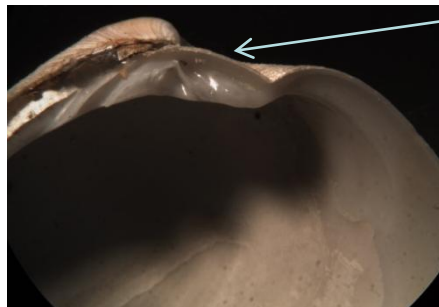
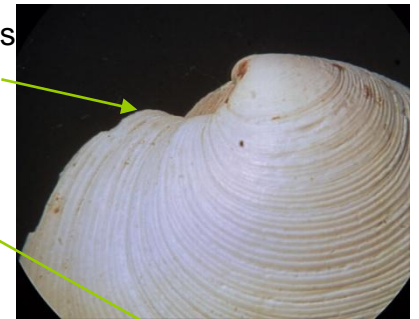
The characteristic very rounded appearance of the Artemis Shells



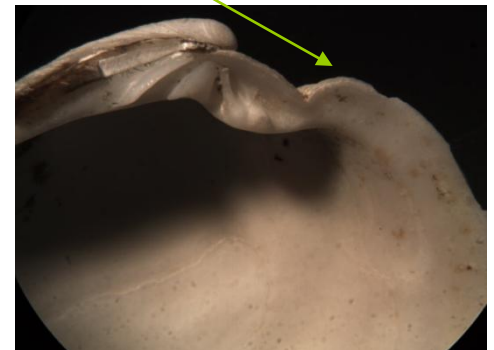
Venus Shell (above) has a shallow pallial sinus compared with the Artemis (below) (arrowed)



Rayed Artemis has this bit of the shell raised up



Smooth Artemis does not have this bit of the shell raised up

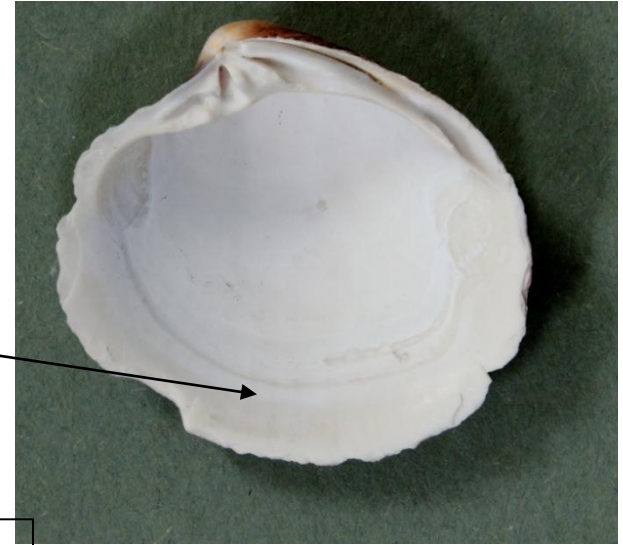


Possible confusion between Artemis Shells and young Icelandic Cyprine Shells



Pallial line, (the shiny bit inside the lip of shell deeply indented in Artemis not in the Cyprine but may be difficult to see in very worn shells

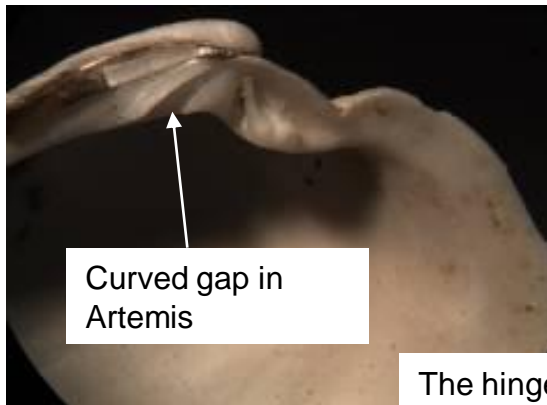
Deep indent



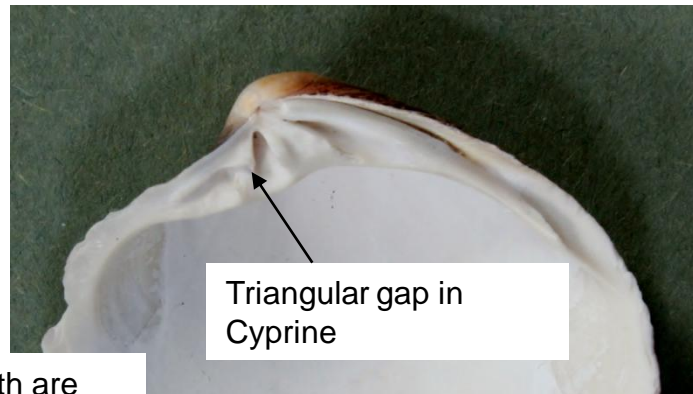
No indent along line

Artemis Shells

Ocean Quahog also known as Icelandic Cyprine *Arctica islandica*



Curved gap in Artemis



Triangular gap in Cyprine

The hinge teeth are different, but may be worn away



Striped Venus also added above. Note it has a moderately deep pallial sinus (see previous page)

Rayed Trough Shell *Mactra stultorum*; Peppery Furrow Shell *Scrobicularia plana*

more on **Group 1A** from page 37

Larger smooth white bivalves that are more or less as high as they are wide and have both ends of the shell looking similar

Rayed Trough Shell (white rayless form)



(Thin sharp edged shell.)

A thin wall (arrowed) between the upper and lower parts of the hinge teeth when freshly dead. No grooves on hinge teeth

Spisula Shells (see next page)



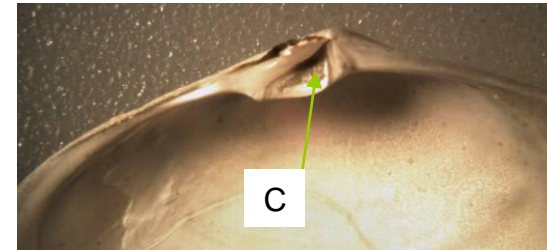
Thick blunt-edged shells, heavier than equivalent-sized Rayed Trough Shell



The strong lateral teeth have ridges inside and sometimes on the outside too (look in area of arrows)

Note Even when they are very small shells, the ridges on the teeth of Spisula are present

Peppery Furrow Shell

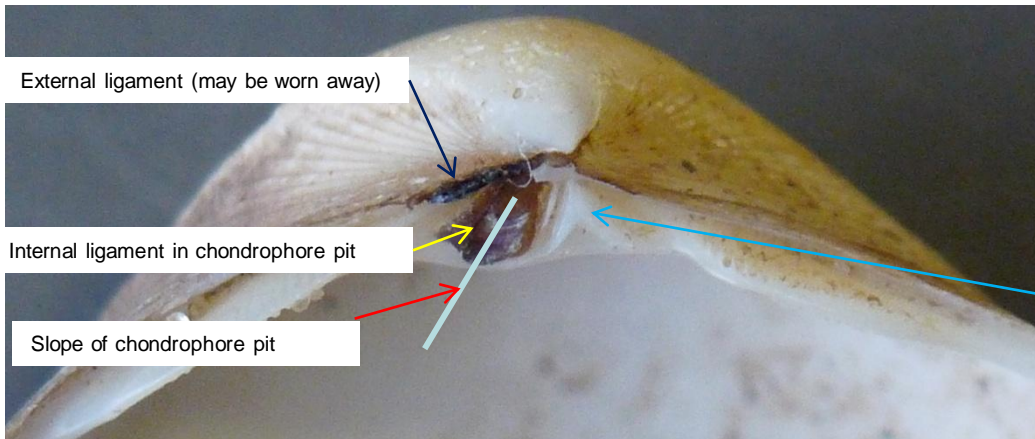


(Flat shell, rough surface) two valves may not join perfectly together)

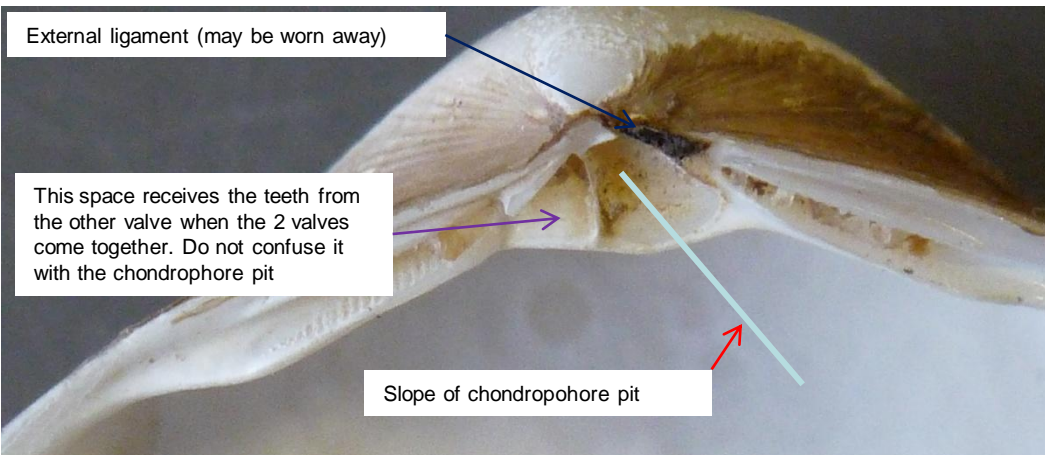
No lateral teeth, but a long narrow groove (arrowed) on one valve. Prominent ligament holding area, arrowed C.

Spisula hinge teeth

One valve has teeth that are useful for identification, but they can be worn away. Teeth on the other valve are not useful



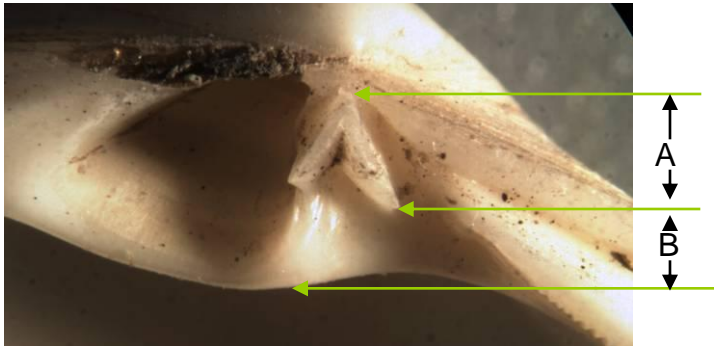
Useful valve has External ligament to left of teeth
Internal ligament to left of teeth
If internal ligament worn away then the chondrophore where it fitted enlarges to the left



Not useful valve has External ligament to right of teeth
Internal ligament to right of teeth
If internal ligament worn away(as in example shown) the chondrophore where it fitted enlarges to the right
Teeth on this valve are not useful to separate species

Thick Trough Shell *Spisula solida*; Elliptical Trough Shell *Spisula elliptica*; Cut Trough Shell *Spisula subtruncata*

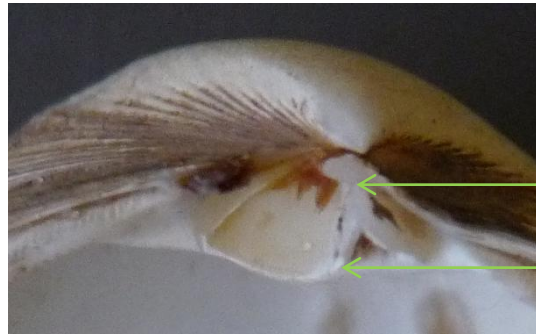
Separating the three **Spisulas** using the teeth shown on the previous page



Look at the very middle of the hinge plate
There are a set of teeth that join together
If distance A and B are similar it is the
Thick Trough Shell. A common species

Cut Trough Shell

A chunky little
bivalve up to 2.5
cms across



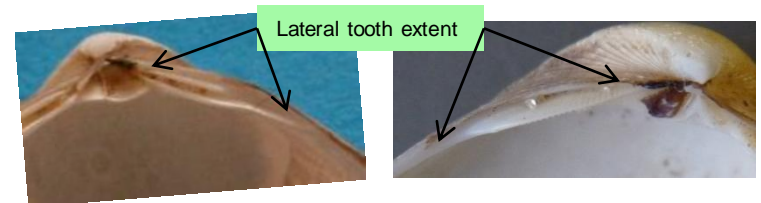
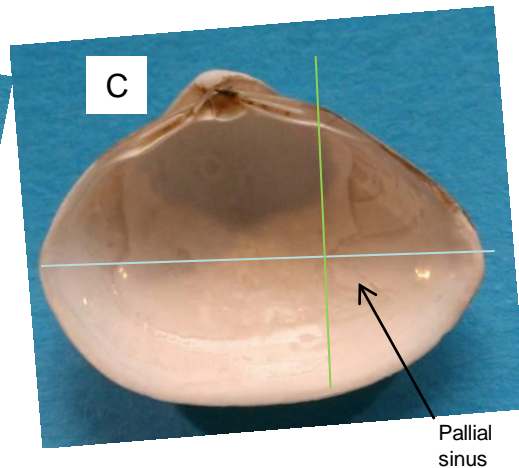
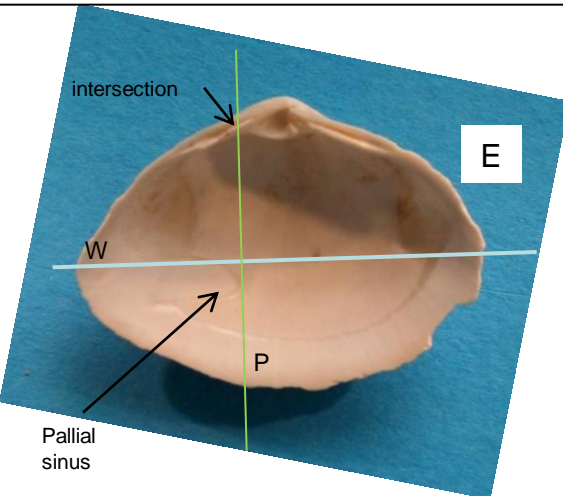
In the other two *Spisulas* the central joined teeth extend
more or less to the bottom of the hinge plate, i.e. no
measurement 'B'



Inside the shell are scars. Look for a line which marks where the edge of the body was attached. The line has an indentation in it called the pallial sinus, (where the siphons fit when the animal retreats into its shell). Draw an imaginary line "W" across the maximum width of the shell. Draw another line "P" at 90 degrees to it, touching the end of the pallial sinus. Now look where line "P" intersects the lateral hinge tooth. If it is nearer to the central teeth than the far end it is either the **Thick Trough** or the **Elliptical Trough (Photo "E")**

If nearer the far end of the lateral tooth than to the central teeth it is the **Cut Trough (Photo "C")**

(This character also works, but not quite so well, for the valve without the distinctive central teeth e.g. Photo C)

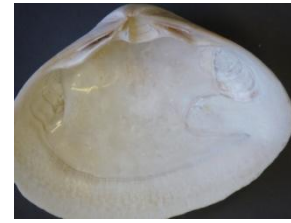


Additional notes

A shell more than 3cms wide will be a **Thick Trough Shell**

Cut Trough Shells are the most triangular of the three and many local specimens have one end extended so are the most asymmetrical of the three, also the most tubby, seen end on.

Elliptical Trough Shells are rare as beached specimens. (The other two are common, Cut Trough may be abundant)



Thick Trough Shell
Spisula solida



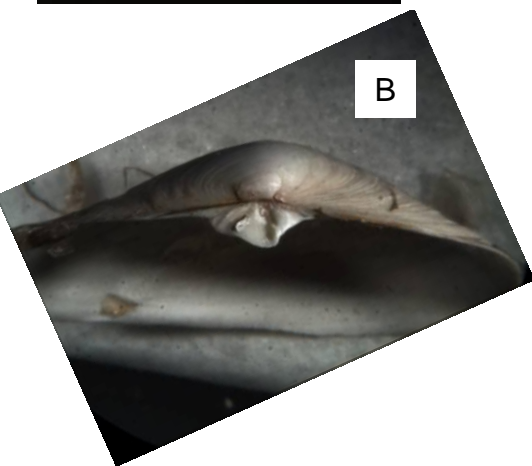
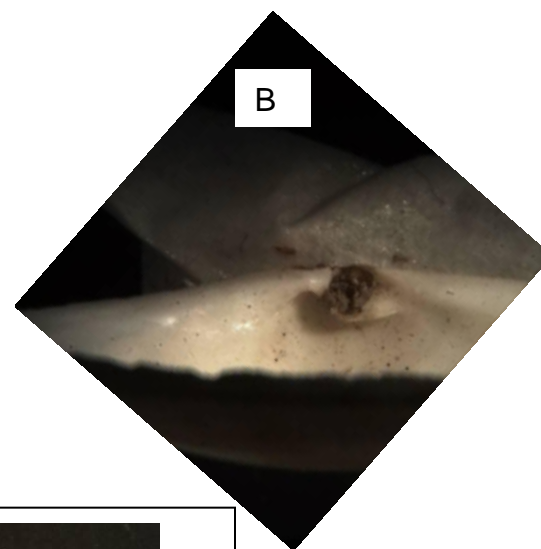
Elliptical Trough Shell
Spisula elliptica



Cut Trough Shell
Spisula subtruncata

More on smaller Gapers and Otters

Otter Shell *Lutraria lutraria*; Sand Gaper *Mya arenaria*; Blunt Gaper *Mya truncata*



The other valve in small gapers has the tooth hidden away under the edge and is only visible if the shell is tipped up

As in larger Gapers, there is a shelf on one valve in both species

Key to symbols

S = Sand Gaper B = Blunt Gaper

O = Otter



The valves of young and old Otters have similar hinge areas

Small Whitish Bivalves Group 2 from page 37

This is certainly the most difficult general group of bivalves to identify. A few species are featured here for the first time in this guide, but the small shells of many other species must also be considered. **A good had lens is needed to look at details of the hinge, where the two valves are joined together in life, and shortly after death**

They are separated initially along the same lines as the Large Whitish Bivalves:

- Shells that are more or less as high as they are wide **Group 2A**



- Shells that are about twice or more as wide as high **Group 2B (go to page 51)**

(note that if the shells are 4 or more times as wide as high they will be small Razor shells and are dealt with on page 18)



more on **Group 2A** from page 46

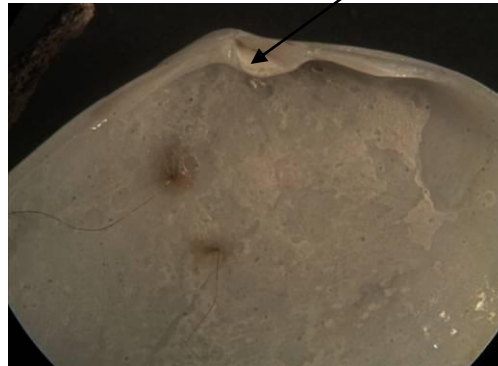
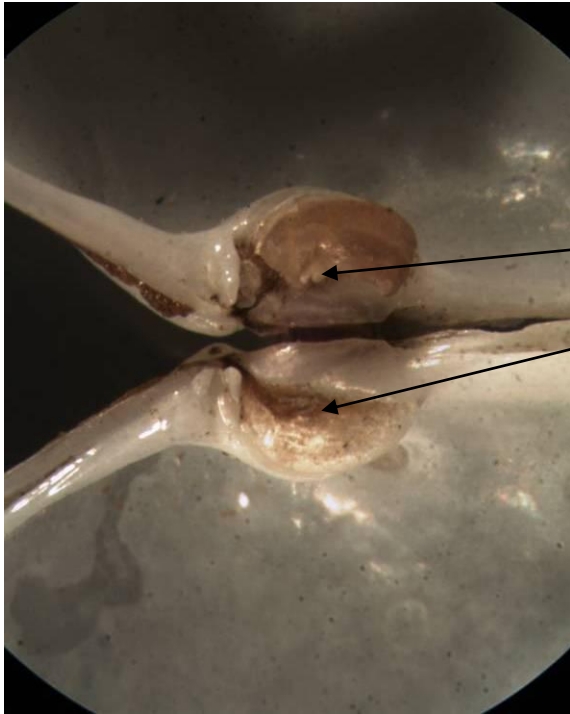
Shells that are more or less as high as they are wide and with both ends of the shell looking similar

Step 1 Turn back to page 41 and look at the hinge.

Does it have an intermediate wall (as in the **Rayed Trough Shell**) or ridges on the teeth (as in the **Spisula Shells**) If so, you can identify it using the features on pages 41- 43

Step 2 If it does not look like a Rayed Trough Shell or any of the other shells on page 41 - 43, turn back to pages 33. If the hinge is quite small with teeth, but no large central ligament holding pit then it is probably a **Tellin** and you can try and identify it using the pictures on pages 31 - 33 & 48. If it does not look like a Tellin try Step 3 next

Step 3 Does the hinge in your shell look like these below? If so, turn to page 49



Very large spoon-shaped depression where the internal ligament fits in life. This is called the chondrophore. Other teeth, if present, are small.

Baltic Tellin *Macoma balthica*; Thin Tellin *Tellina tenuis*; Bean-like Tellin *Tellina fabula*

More on small Tellins

The feature of the **Baltic Tellin** being rounder shelled and fatter than the **Thin Tellin** and **Bean-like Tellin** which was discussed on page 31 also works for smaller white versions of those species. Really small shells of Baltic Tellin, under 1cm across, may be quite thin but still have the rounded shape width /height ration just over 1, compared with that for the Thin Tellin of almost 1.5. and Bean-like Tellin of almost 2



assemblage of young Baltic Tellin
largest specimen 12mm



young ThinTellins
largest 12mm

Baltic Tellin



Thin Tellin



Bean-like Tellin



White Furrow Shell *Abra alba*; Peppery Furrow Shell *Scrobicularia plana*

White Furrow Shell

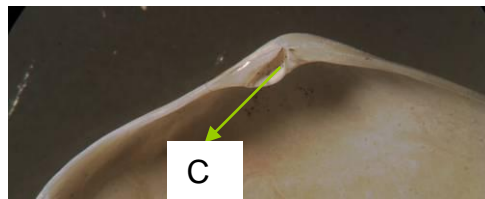
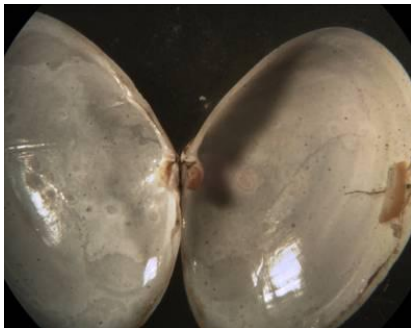


Note, these are quite fragile, shiny and pure white



Look at the inside of the shell. If the ligament pit (labelled C) expands to the right there will be teeth in the form of bulges on either side (Labelled T).

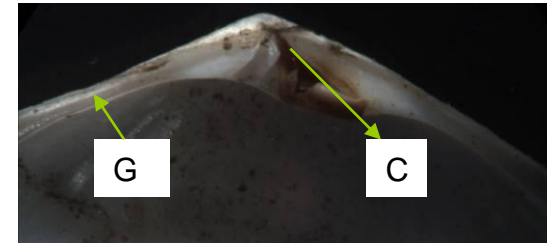
If the ligament pit expands to the left there will be no teeth



White Furrow Shells are very abundant offshore and every now and then beach in large numbers, but are present as ones and twos most of the time. **Peppery Furrow Shells** live buried on the shore, as well as offshore.

Peppery Furrow Shell

Note, these are not shiny shells and usually have brown areas and lines



Look at the inside of the shell. There are no lateral teeth at the places you would expect them in White Furrow Shells. If the ligament pit (labelled C) expands to the right there will be a groove (labelled G) on the side to its left.

Common Nut Shell *Nucula nucleus*; Banded Wedge Shell *Donax vittatus*

If the hinge teeth still look nothing like any of the alternatives, are they like this?



Common Nut Shell
(is not at all common on our shores)

In life the shell is covered with a flaky brown layer but this soon gets worn away after death

The Banded Wedge Shell is the only other shell you will meet which has a finely grooved edge and top. The shell is clearly wider than high and the hinge only has central teeth

teeth

This block contains a text box and two images of a Banded Wedge Shell. The text describes its unique features: a finely grooved edge and top, and a hinge with only central teeth. The first image shows the shell from a top-down perspective with three arrows pointing to the hinge teeth and a label 'teeth'. The second image shows the shell from a side-on perspective, highlighting its wider-than-tall shape and the fine grooves on its surface.

Banded Wedge Shell *Donax vittatus*; Prismatic Furrow Shell *Abra prismatica*; Otter Shell *Lutraria lutraria*; Bean-like Tellin *Tellina fabula*

more on **Group 2B** from page 46
Shells that are twice or more as wide as they are high

Return to pages 45 to look at distinguishing most Small Gapers and Otters and shells like them.

This page looks at species that might be confused with the Otter.

The next page looks at possible problems with Gaper shells about 1 cm shell length

The Banded Wedge Shell is sometimes white. It has a finely grooved edge and polished shell inside and out.



The shiny **Bean-like Tellin**, with one end elongated, belongs on this page too. See pages 31 – 33 for more details



Prismatic Furrow Shell

If the shell is very shiny and smooth then it might be the rare **Prismatic Furrow Shell**



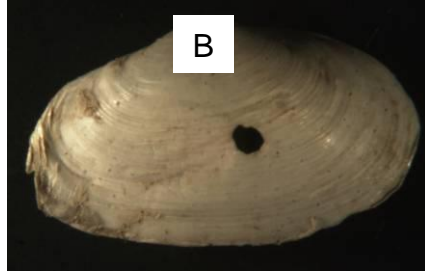
Not very shiny, and rough lined, young **Otter Shell** for comparison



Otter



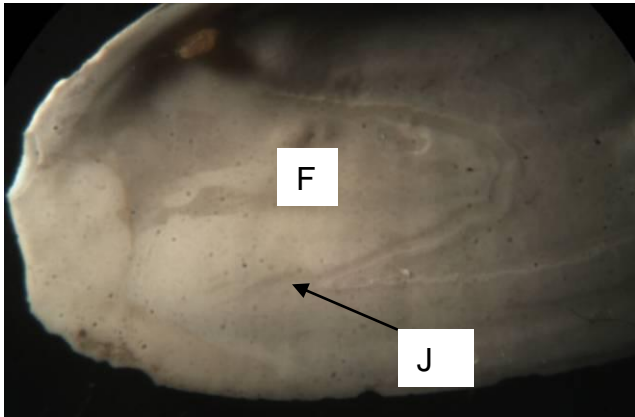
Sand Gaper *Mya arenaria*; Blunt Gaper *Mya truncata*; Otter Shell *Lutraria lutraria*



Very small Sand Gapers and Blunt Gapers are very similar. The Blunt Gaper (labelled B) usually has one end that looks a bit "dunched". The lines on both Gapers are very obvious.

Very small Otter Shells have more transparent and smoother shells than gapers and the lines are much less conspicuous

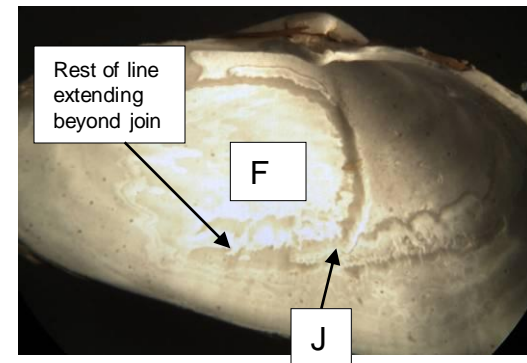
Sand Gaper



A character for real Small Gaper enthusiasts!

Look inside the shell and find the pallial line which is where the body joins to it in life. There is a big indentation (labelled F) to accommodate the feeding siphons. If this joins (labelled J) the rest of the line just at the end it is a Sand Gaper if it joins earlier on, it is the Blunt Gaper

Blunt Gaper



These shells are not likely to be confused with other species and they are very rare on our beaches



Slipper Limpet
Crepidula fornicata



Smooth Cockle
Laevicardium crassum



Pelican's Foot (young)
Apporhais pespelicani

When young it does not have the characteristic Pelican's Foot extension

This space is reserved for the species of shell that you find that we have not illustrated.



It is worth examining the rolls of beached Hydroids for shells to which they are attached. The shells come from off-shore deposits where the hydroids grow.

Fragile shells that would not normally survive the journey can arrive on the beach in this way.

(Encrusting shells such as saddle oysters can come ashore on hard plastic items)



A Barrel Shell *Actaeon tornatilis* 7mm long found in a hydroid roll carried ashore at Prestatyn in 2010.

If you want to develop your interest in beached shells, e.g. Want to find someone to help you name all the really small shells, you may want to consider joining the Conchological Society. <http://www.conchsoc.org/>. They are steadily developing on-line keys.

The British Shell Collector's Club also has many enthusiastic beach recording members but currently no on-line resources. <http://www.britishshellclub.org.uk/pages/club.htm>

There are on-line descriptions of all UK marine bivalves at <http://naturalhistory.museumwales.ac.uk/britishbivalves/home.php>