



Animals other than Shells

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

Liverpool Bay Marine Recording Partnership

Additional help identifying animals other than shells, including many not on the recording sheet

Designed for recording from beaches between Fleetwood and Colwyn Bay

Index to main sections

| | |
|--------|--|
| Page 3 | Crabs |
| 13 | other mobile Crustacea |
| 16 | Barnacles |
| 27 | Tube worms |
| 29 | Oysters |
| 30 | Makers of holes in shells rocks and wood |
| 38 | Hydroids and Bryozoa, also page 25 & 26 |
| 51 | Sponges, also page 33 |
| 52 | Urchins |
| 53 | Brittle Starfish |
| 54 | Vertebrates |
| 55 | Seaweeds |
| 56 | Assorted items – Squid eggs, Sea Squirts and Sea Slugs |

Crabs and their relatives

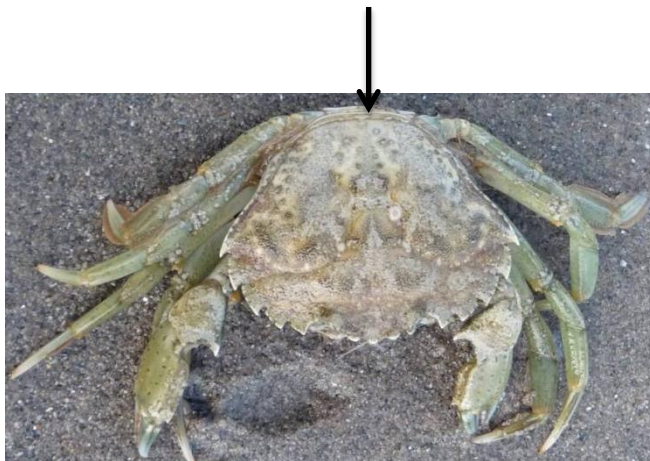
Crustacea

Dead Crab? detect with the “niff” test

Most “dead crabs” on the beach are the shells cast off as the crab grows

If your “dead crab” is moist and flexible and you can insert a finger nail between back and body at arrow and lift up the back and reveal internal skeleton and it does not smell awful it is a cast.

If you cannot lift the back on a flexible moist crab and it smells bad you have the genuine article! Cast shells can be collected and taken home to dry. Genuine dead crabs are best left behind!



Dry crab casts are brittle and disintegrate if you try the above test



The back carapace of the left-hand specimen has been hinged forward to reveal the internal skeleton.

The right hand specimen has lost the back carapace completely

Casts break up soon but many fragments can be identified to species

- If you are looking at a damaged specimen make sure the back legs are present or you might mistake a Smooth Swimming Crab for a Shore Crab.

Common Shore Crab
Carcinus maenas
Smooth Swimming Crab
Liocarcinus holsatus



The back carapace can usually be identified to species.

This is from a Common Shore Crab

Bits of cast shells of at least two Smooth Swimming Crabs. Note two paddle-like flattened hind leg (shown by arrows)

Easy Crabs (that are at least reasonably common)

- **Edible Crab** *Cancer pagurus* – often only seen as claws or backs
Unmistakeable with its brick-red colour and pie crust back.
- **(male) Masked Crab** *Corystes cassivelaunus* males have a characteristic general body shape, two long stiff antennae at the front and very long claw-bearing arms.
- **Common Hermit Crab** *Eupagurus bernhardus* (other relatives are very rare).
- **Velvet Fiddler Crab** *Necora puber* has a fuzzy back and, if freshly dead or alive, vivid red eyes. It also has paddle tips to the back legs.

The velvet on the back of a Velvet Fiddler crab can wear off on dead specimens and the back of a Green Shore Crab can be a little rough



Velvet Fiddler *Necora puber*



Common Shore Crab *Carcinus maenas*

The spikes on the edge and front of the shell are much narrower and sharper in the Velvet Fiddler Crab

Smooth Swimming Crabs and (pale) Shore Crabs can be confused

Large Shore Crabs are dark green and Smooth Swimming Crabs are pale pink.
young Shore Crabs can be lots of colours including whitish

The back legs are the easiest way to tell these crabs apart



Thin pointy last segment

(pale) Common Shore Crab



Paddle-like last segment

Smooth Swimming Crab (a cast shell that has lost its back)

Crabs with short claws and body longer than wide



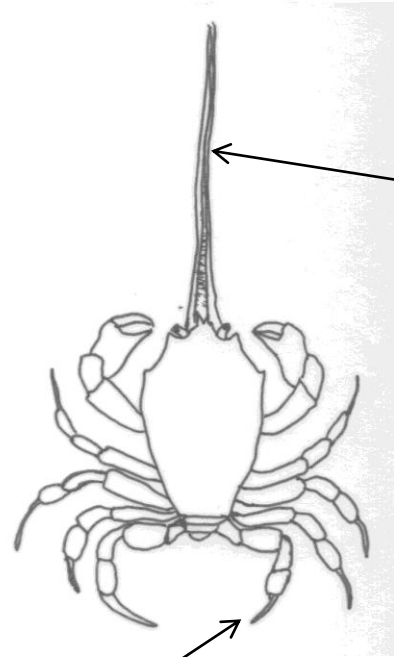
Masked Crab (female)

Pennant's Swimming Crab



Short antennae

Beached cast shell

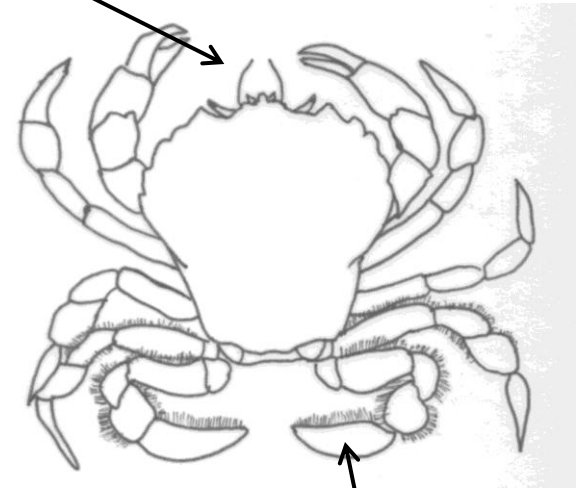


Long antennae

Hind legs with narrow end segment

Masked Crab (female)
Corystes casivelaunus

Both crabs are off white to pinkish in colour



Pennant's Swimming Crab
Portumnus latipes

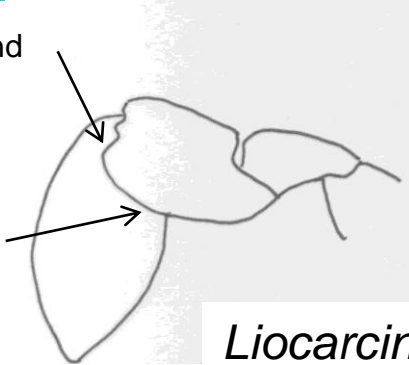
Hind legs with a paddle-like end segment

There are records of two species of Smooth Swimming Crab in our area. I have only ever found one but keep a look-out for the other



No lump on end

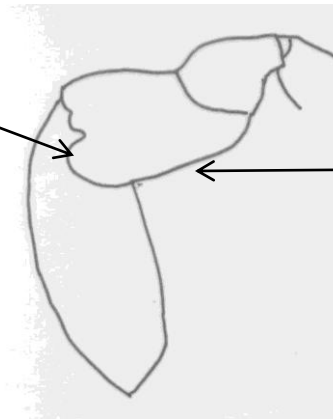
Curved edge



Liocarcinus holsatus
the usual species

Lump on end

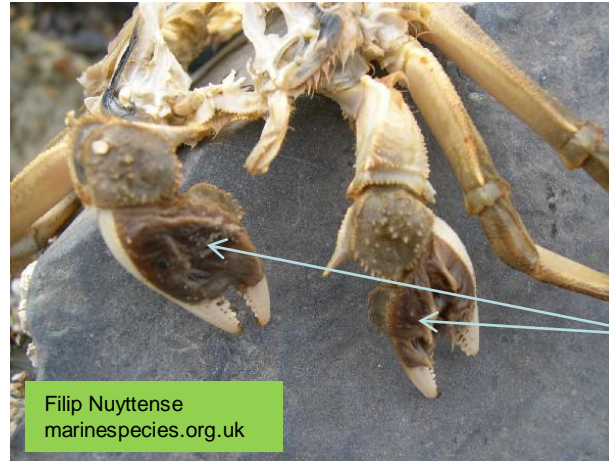
Straight edge



Liocarcinus depurator look out for it

Chinese Mitten Crab

- The alien Chinese Mitten Crab *Eriocheir sinensis* is now in our area and will eventually become common. It will live in the mud banks of the upper estuaries and tidal rivers, but females move to more saline water to breed and it is only a matter of time before cast shells and bits of dead crab end up on our beaches

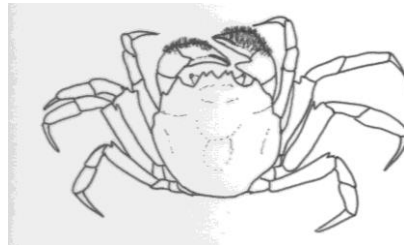


Cast Shell lacking carapace

Hairy "mittens"

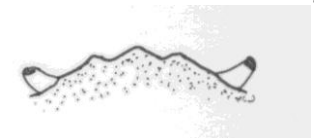


Christopher Defevre marinespecies.org



Mitten Crab has 4 spikes at the front of the shell between the eyes

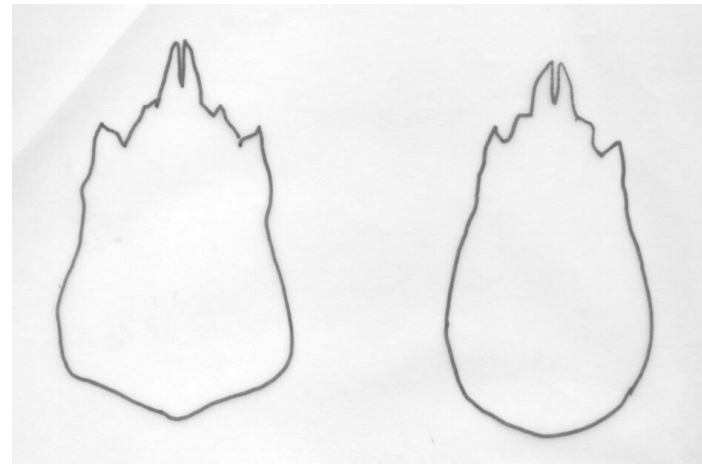
Shore crab has 3 spikes at the front of the shell between the eyes



Rarer Crabs



Long-legged
Spider Crab
*Macropodia
rostrata*



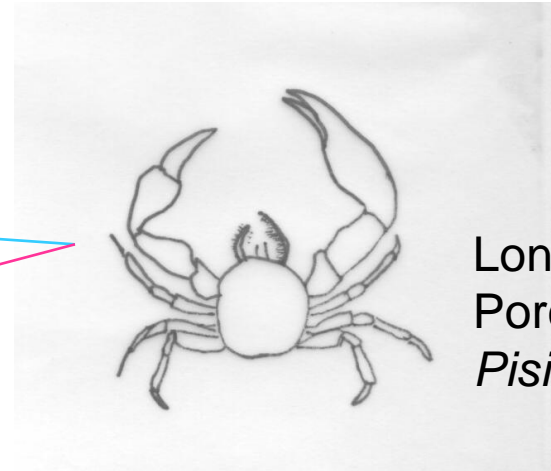
Great Spider Crab *Hyas araneus*
(right)

Lesser Spider Crab *Hyas coarctatus*
(left)

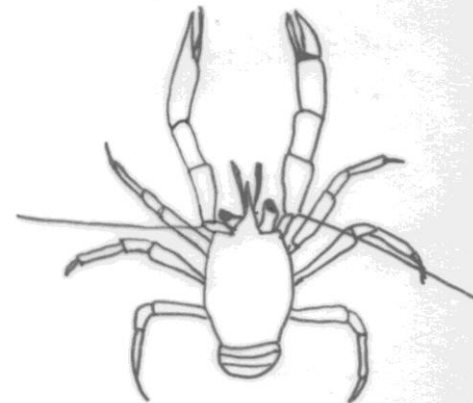


Angular Crab *Goneplax rhomboides*

More small crabs and relatives which are very rare as beached specimens

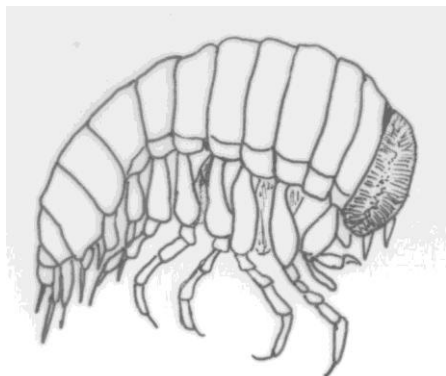


Long-clawed
Porcelain Crab
Pisidia longicornis



Squat Lobster
(various species)

Other Crustacea that might beach



Hyperia galba is a sandy-coloured Amphipod with huge green eyes **inside** a Barrel Jellyfish, where it lives. Can grow to 1 cm

Beware!! the jellyfish will sting you if you delve inside it to try and extract *Hyperia*. Rubber gloves are required.



Idotea clings to drifting seaweed and is very well camouflaged. Can grow to about 2cm



Eurydice pulchra is a tubby, speckly little Isopod that swims in shoals at the edge of the sea. It attaches to any dead or dying animal at the water's edge or in pools. Can grow to about 7mm



small Common Shrimps *Crangon vulgaris* are abundant in pools but full-grown ones sometimes get stranded and can look like on the right when they do.

Sand Hoppers and Sea Slaters are common under seaweed and Hydroid rolls at the top of the shore. They are on the Beach Recording Sheet that covers Life in pools and in the sand.



Eurydice leaving a drowned bumblebee that had been cast up

Common things that grow on other things

Our sand and mud shores are difficult places to live for marine life that needs to fix itself to somewhere hard and firm.

Pebbles, shells and man-made debris all provide that firm base and there are beds of pebbles and dead shells offshore, as well as on some shores.

Several things listed on the basic sheet but not in these additional notes, such as Seaweeds and Hydroids, are attached to hard objects.

Note - Man-made debris might have come from a long way away and been colonised by many more species than are illustrated in this guide.

Acorn Barnacles

These live at the top of the shore and if they are knocked off they do not leave anything stuck to where they were attached



Nothing left behind here when the barnacle body falls out and the wall plates break away



4 moveable door plates fall off when the barnacle dies

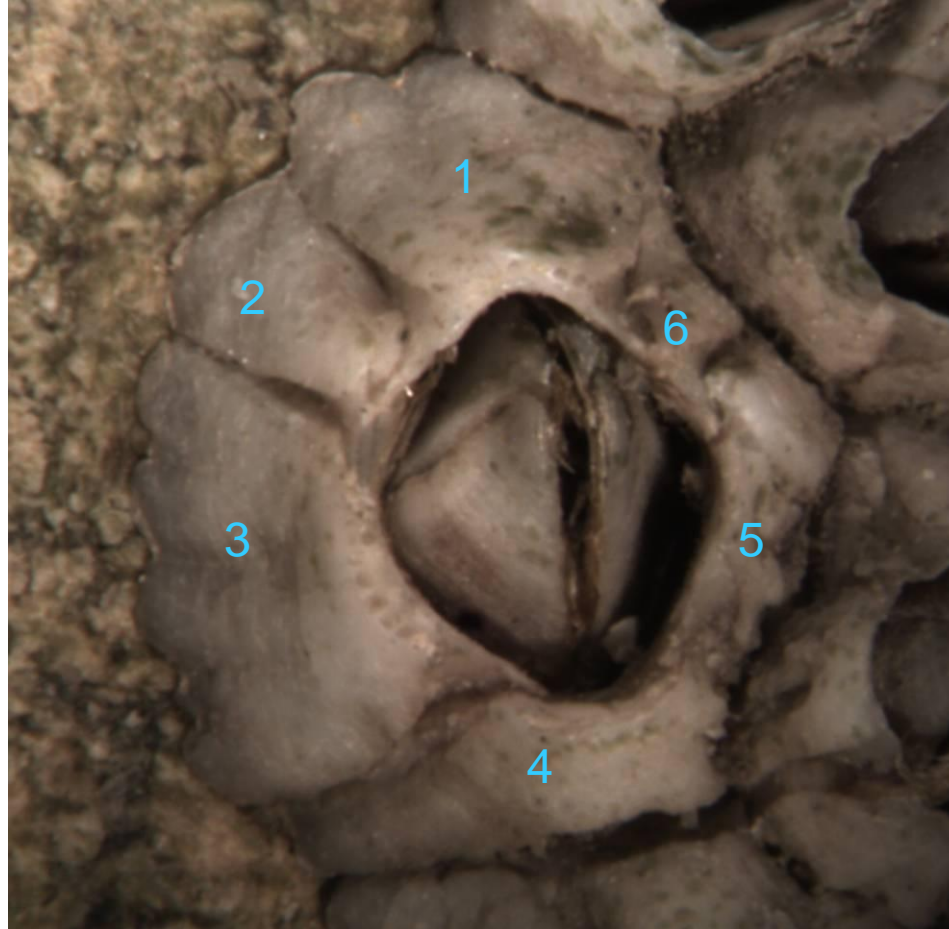
Barnacle with body

Barnacle without body

You need to look carefully at the number of wall plates. You will probably need a magnifier and if the specimen is dirty, or deformed or very old it can be very difficult to distinguish individual plates

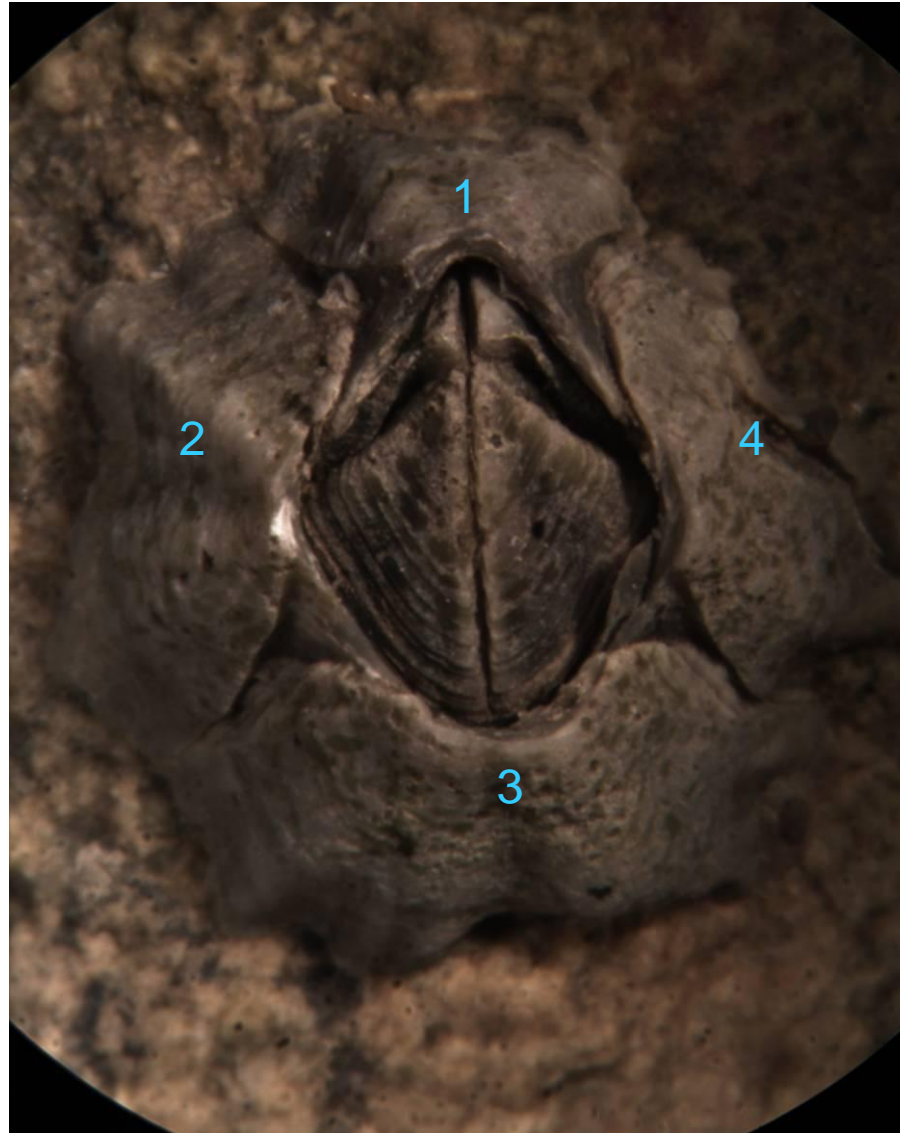
Native Acorn Barnacle

has 6 wall
plates



The latin name of this
species is *Semibalanus
balanoides*

**Australasian
Acorn Barnacle**
has 4 wall plates



This species is often just referred to using its scientific name of *Elminius modestus*

This species arrived in the UK on Australian ships about 1940. Established itself, spread, and reached Merseyside in the late 1950s

The **Native Acorn Barnacle** is off white in colour

The **Australasian Acorn Barnacle** is greyish

This colour difference is usually quite subtle and not reliable as an identification character on its own



Native Acorn Barnacle

Australasian Acorn Barnacle

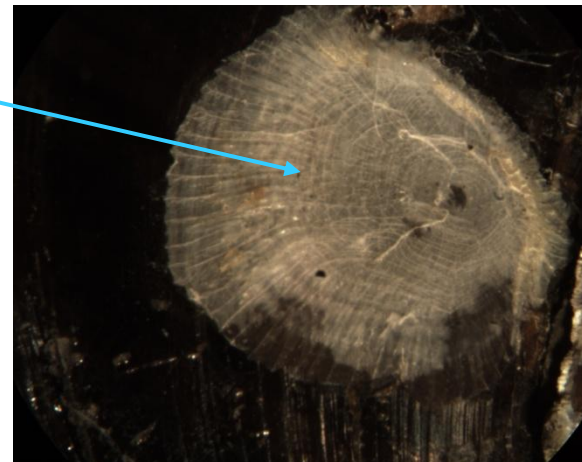
Illustrating how difficult it can be using colour.!

Lower Shore Barnacles



Shelly base plate

When lower shore barnacles die and the wall plates fall, away they leave behind a thin white shelly base



The base plate of *Balanus crenatus* has radiating and concentric rings.

The base plate of *Balanus improvisus* has only radiating rings.

This difference is subtle and difficult to see if the base plate has become worn.



Base plate of *Balanus crenatus*

There are two species of lower shore barnacle. They are very difficult to tell apart when dead.

Balanus crenatus is the commonest species.

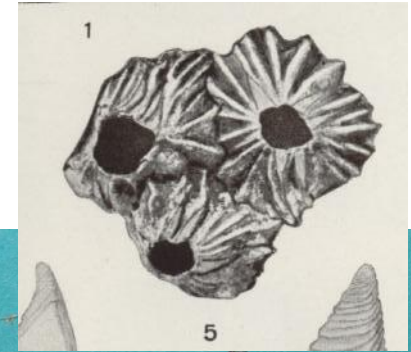
Look out for *Balanus improvisus* if your specimen is from areas where the seawater has been weakened by freshwater such as up estuaries or in enclosed Marine Lakes and docks.

Rare barnacles



Verruca a real jumble of interlocking wall plate bits and door plates

*Balanus
balanus*



Balanus balanus has very strong ridges running up the wall plates. *Balanus crenatus* can look a little like this but never has so regularly arranged strong ridges.



Goose Barnacles *Lepas anatifera* are common, attached to objects drifting in the oceans. It is rare for them to make it as far as our shores that are tucked away in a corner of the Irish Sea, but they are more common on beaches further west.

Parasitic Barnacle



Parasitic barnacle

Crab's tail

Parasitic Barnacles

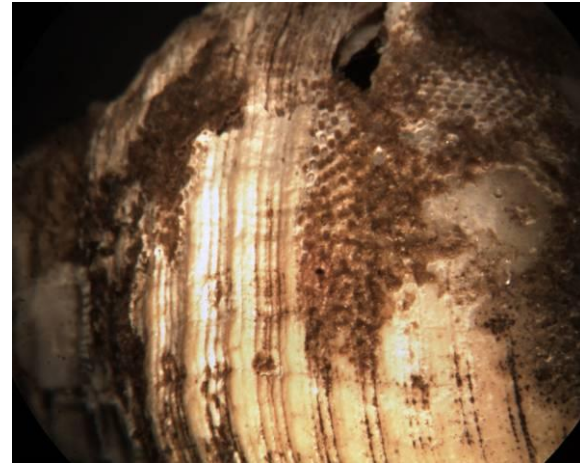
Sacculina carcini spread feeding tubes through their unfortunate host. The only visible bit is a shapeless **smooth** greyish coloured sac under the tail. Parasitised Crabs do not develop properly and stop moulting. Parasitised Crabs and larger old crabs, which only moult occasionally, get colonised by Acorn Barnacles but these are not parasites and are just using the crab as a hard surface to settle on.

Note, Crabs also carry eggs under their tail. These are orange when newly laid or brown when ready to hatch. The individual eggs can be seen and the whole mass is **rough**.

Hedgehog Hydroid *Hydractinia echinata*



fresh *Hydractinia* on a
Necklace Shell



Worn *Hydractinia* on
a Whelk Shell

Hydractinia is an encrusting hydroid that grows on shells that are used by Hermit Crabs. Part of the shell is constantly rubbing along the bottom and the hydroid cannot grow in this “bald patch”.

When shells are no-longer being used and they are rolled about by the waves the spikes on the hydroid get worn off leaving a brown sheet.

Sea Mats (Polyzoan)



A colony starts from one individual in one compartment that buds off new individuals resulting in a colony in the form of an encrusting sheet



This particular colony is of the brackish water sea mat *Conopeum serauti*, but there are many very similar species, and a good microscope is needed to identify them

Worm tubes



Keeled Worm *Pomatoceros triqueter*

Shelly tubes which have a keel along the back

Coiled Shelly tubes without a keel will probably be the worm *Serpula vermicularis*

Not coiled tubes without a keel will be *Hydroides norvegica*.



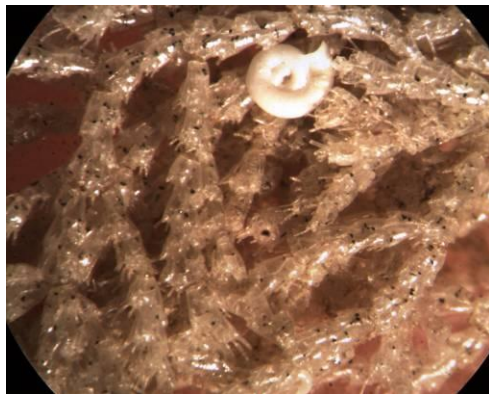
Reef Worm *Sabellaria spinulosa*

Hard sandy tubes inside shells. This is a relative of the Honeycomb Worm



Spirorbis This worm attaches its small shelly tubes to big seaweeds such as Toothed Wrack. Usual species is *Spirorbis borealis* but others occur.

Local Toothed Wrack is not used so if this worm is found the wrack it is on has come from shores in west Wales or the Isle of Man.



Similar coiled shelly tube attached to Hydroids or Polyzoa is *Cerceis spirillum*

Oyster types



Saddle Oysters up to 5cms

(small Common Oysters look similar from above)

Oysters and Saddle Oysters stick to other shells and rocks.

If the Common Oyster top valve is lost then what is left behind is a polished white sheet with an irregular outline. The white scar left by some barnacles is grooved and not very shiny

The Saddle Oyster is stuck on by a little peg that stays behind when the shell is knocked off. These pegs can turn dark brown when they dry.

See the additional notes on shells for more information on these species

Common things that make holes in rock, shells and wood

Single small tapered holes drilled into shells

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.



Big holes in stones and pieces of peat



These are made by the two molluscs called Piddocks

Really huge holes over 2cm across will have been made by **Oval Piddock** *Zirfaea crispata* but smaller ones can be young **Oval Piddock**, **White Piddock**, or **American Piddock**

Shells in the holes



Note that shells found inside abandoned burrows are not necessarily those of the borer. Other molluscs can move in such as the Pullet Carpet Shell *Tapes senegalensis* which may be in its distorted form called *saxatilis* (left). (see the additional notes on shells for other photographs of this species)

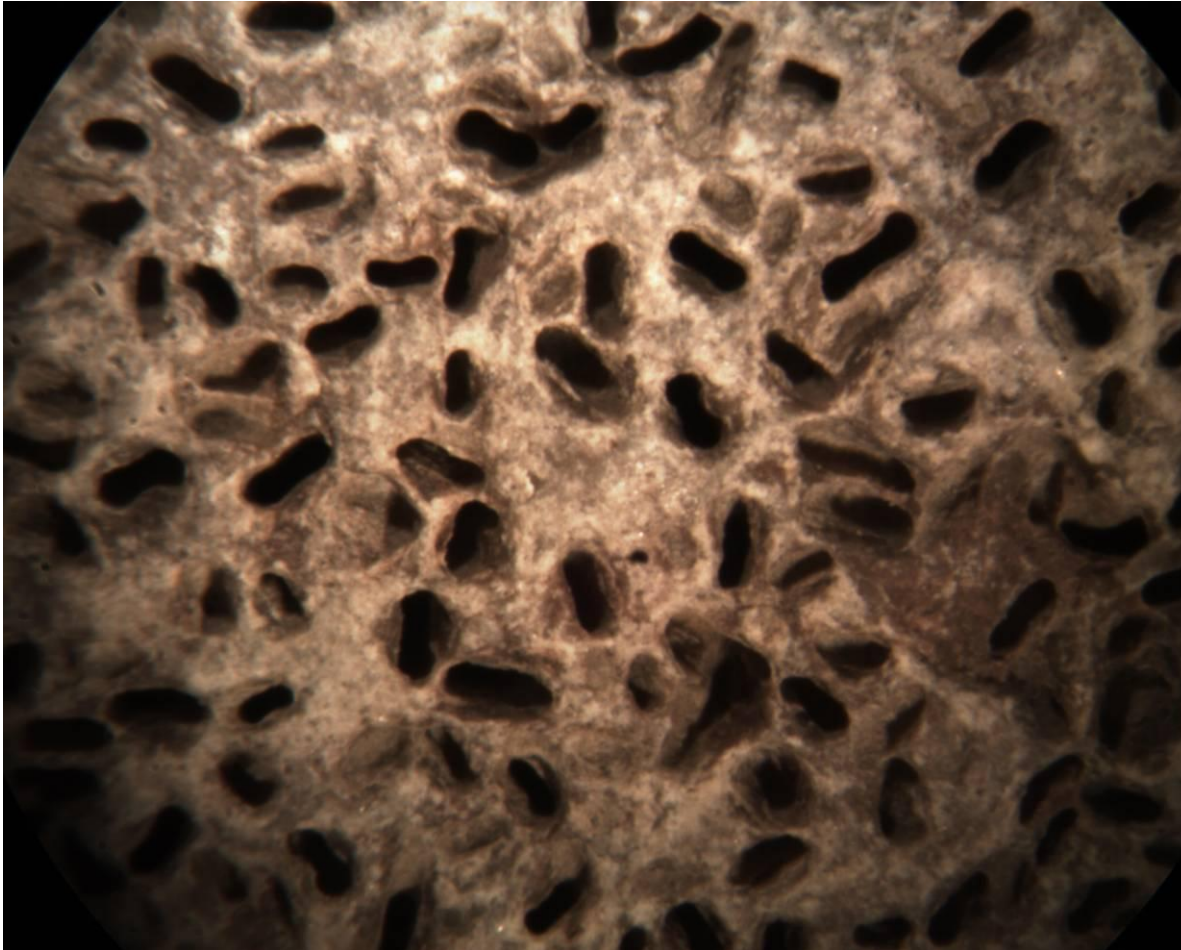
The Red-Nosed Rock Borer *Hiatella arctica* (right) can be found in holes it has made but is usually found in the holdfasts of Oarweed that have landed on the beach. **Note** These holdfasts are always worth examining for other “passengers”.

Small irregular holes in shells and stones, possibly the whole inner part looking like a sponge or sieve



Oyster Shells riddled by the
Boring Sponge *Cliona celata*

Surface covered in small slot holes



These holes start as a very shallow 'U' shaped burrows . When the rock wears away, the bottom part, in the form of a slot, is left behind

Boring Worm *Polydora ciliata*

Holes in Wood

- Quite a lot of the holes in beached wood were made by insects before the piece got into the sea. But note the following:-



This wood has probably been attacked first by the Gribble (an Isopod) *Limnoria lignorum* which made the longer wider burrows.

Then the attacked wood was colonised by the False Gribble (an Amphipod) *Chelura terebrans* which did a lot of the other damage.

Originally this burrowing would take place under the top surface of the wood but that has been worn away revealing the tunnels.

Shipworm (*Teredo* species) attacked wood is very rare on our beaches



The shelly lining has long gone



Shipworm burrows are big inside but small at the wood surface. They are lined with white shelly material.



A really badly attacked bit of wood



The inner shelly tubes last long after the wood disintegrates

Hydroids and Sea Mats

These are plant-like animals.

If the **skeleton is flexible** and made of **pale yellow transparent material** it will be a **Hydroid** sometimes called Sea Firs

If the **skeleton is white, often opaque** and **inflexible** or **jointed** it will be a **Bryozoan** – sometimes called Sea Mats

Hydroids are animals that are related to sea anemones and like them catch their prey with stinging tentacles. A colony starts off as a single animal that settles on a firm object. This can be a pebble or shell, or in a few species is a seaweed or another species of Hydroid or Bryozoan. It divides, and the two parts themselves divide leading to a colony made up of cloned individuals termed zooids. Each zooid contributes to making the colony skeleton, which is tough and flexible. The individual zooids animals live in cups or hollows at the end of tubes. The soft animal bodies have usually died and disappeared by the time the colony's skeleton ends up on the beach.

Bryozoans are also colonies that grow in the same way. Most make a hard skeleton of lime. They grow on the same sort of things as Hydroids. (Horn Wrack is also a Bryozoan but has a flexible skeleton.) Bryozoans feed on tiny plants floating in the water.

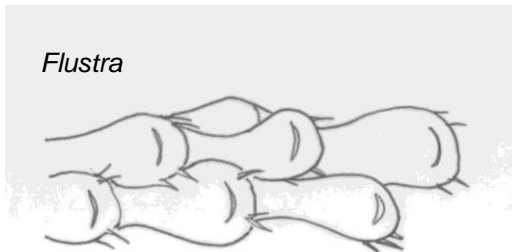
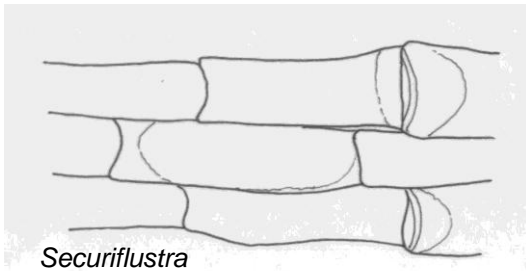
At the end of the summer, or if they are wrecked by trawler nets, the Hydroids and Bryozoans break off and are washed ashore. They can tangle together into rolls. Sometimes pieces of debris such as rope or fabric form the nucleus of a roll or may start them initially by tangling with the growing fronds.

Hydroid rolls are a distinctive feature of our local beaches.

They often have passengers in the form of small shells, to which they have attached, and Crustacea, such as Long-legged Spider Crabs and Amphipods.

Hornwracks

- Look out for pieces of Hornwrack that are elongate, bifurcate with very square ends to the fronds. These may be *Securiflustra securifrons*. Examine hopeful pieces with a hand lens as *Flustra foliacea* and *Securiflustra* have very different zooid compartment shapes.
- I have not yet found any *Securiflustra* on North Wales, Wirral or Sefton beaches but it definitely occurs on Fylde.



A Hydroid Roll



Many species can be in a Hydroid roll. 25 species of Hydroid and 24 species of Bryozoan have been found in recent years

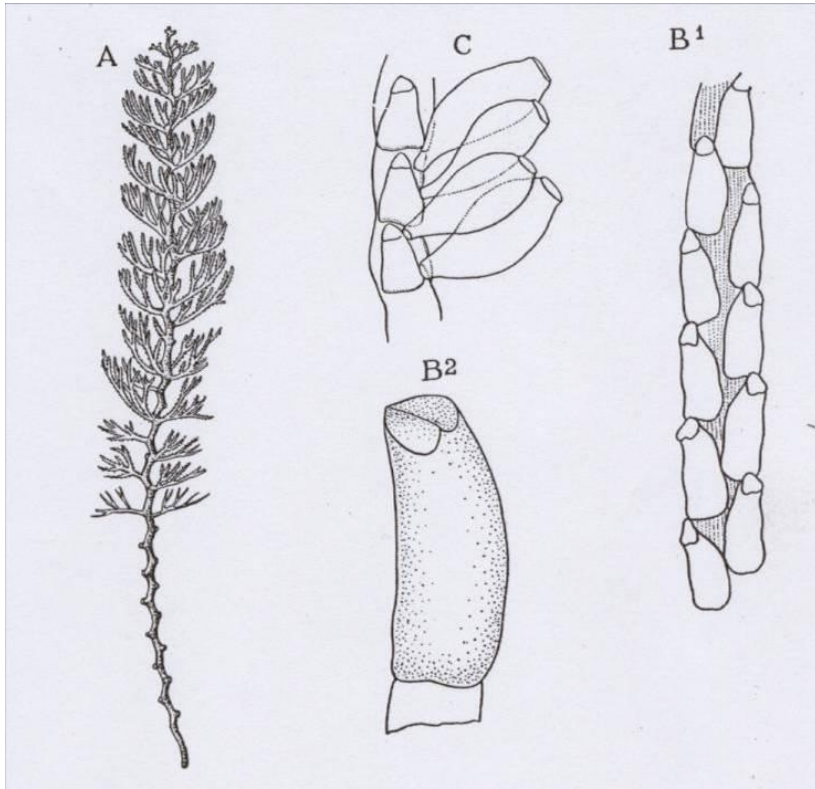
As with dead shells it is easy to make a collection of these. Bits can be glued to a piece of card but note that they are fragile, especially branching Bryozoa, and may require you to devise some padding to protect them. Note that cotton wool is no good as it will tangle with your specimen. Hydroid rolls are brittle when dry but can be made flexible for examination by wetting them with tap-water.

The following pages illustrate **SOME** of the species you might find. For more species use:-

Leloup, E. (1952). Coelentérés [**Coelenterata**]. ---. Institut royal des Sciences naturelles de Belgique: Brussels, Belgium. 283 pp

Hayward & Ryland (various dates) for volumes in the Linnaean Society Synopses of the British Fauna series to identify all UK Bryozoa

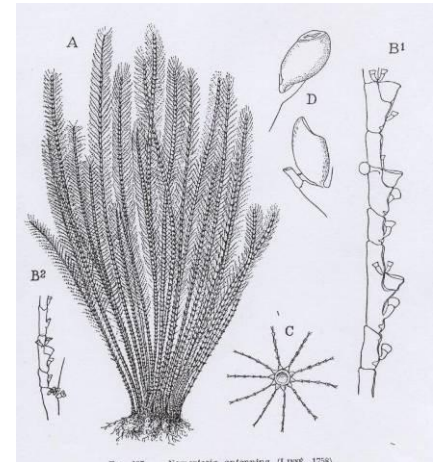
Hydroids



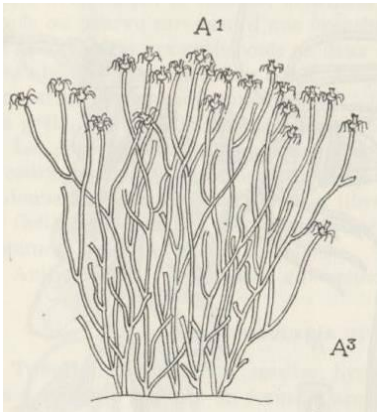
Thuiaria articulata is like a tiny chemical laboratory test-tube cleaning brush!



Nemertesia antenina has unbranched stiff stems and a tangle of attachment rhizoids

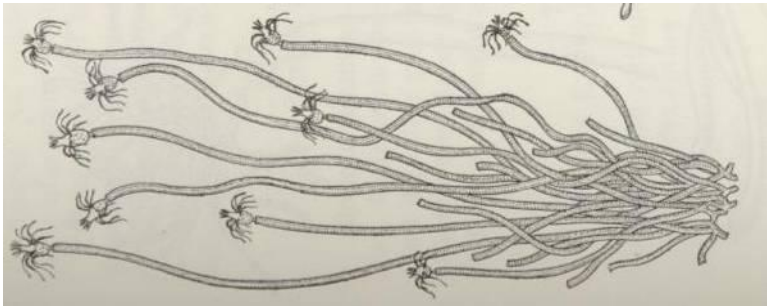


(more Hydroids)



Tubularia larynx has branched stems

In a hydroid roll, *Tubularia* will look like a tangle of yellow roots but unlike plant roots which may also occur as beached material, *Tubularia* tubes are hollow. Illustrations show tubes with hydroids but these are lacking in beached material



Tubularia indivisa has unbranched stems

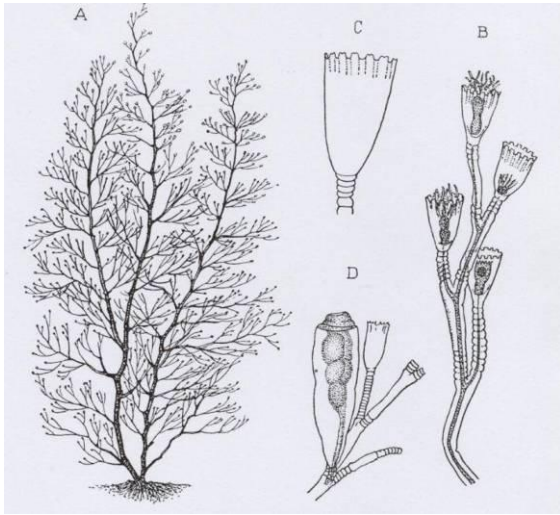
Tubularia Copied from Leloup



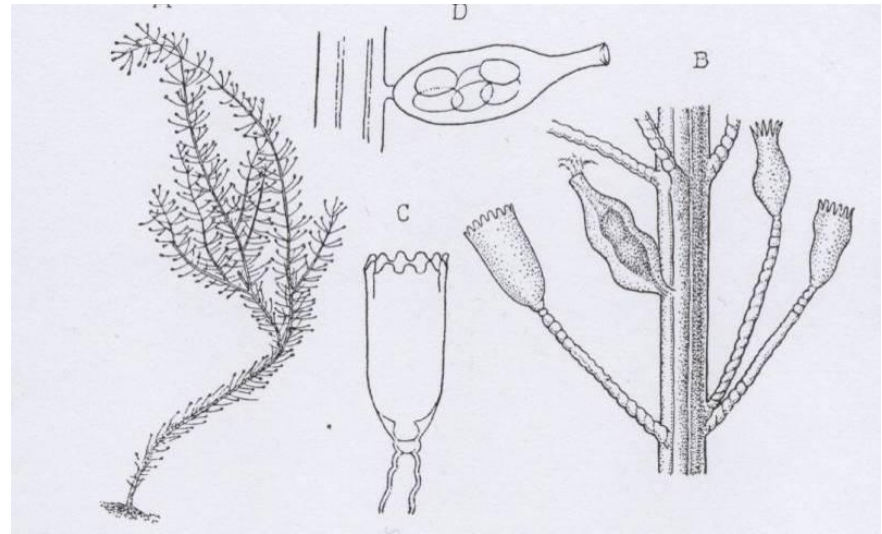
Eudendrium species have stem branches looking just like tiny flexible drinking straws

Copied from a 19th century work

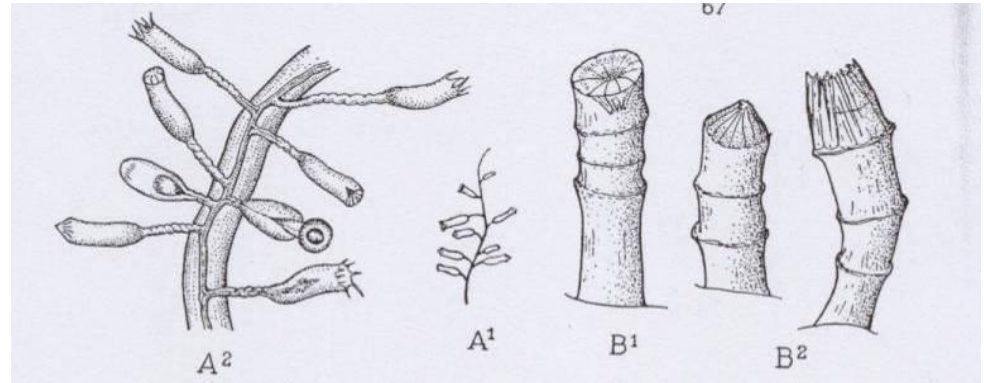
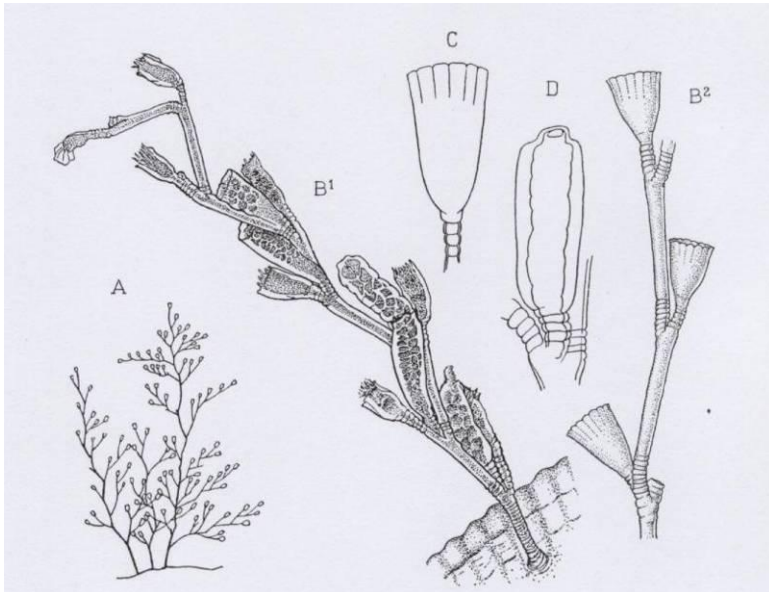
(more Hydroids)



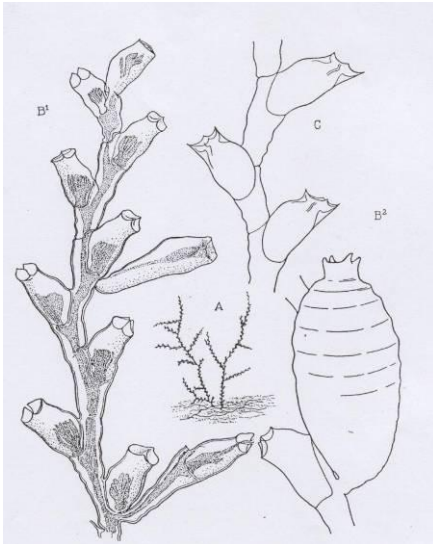
Laomedea species (top and bottom pictures) have cups with grooved ends arising from short stalks



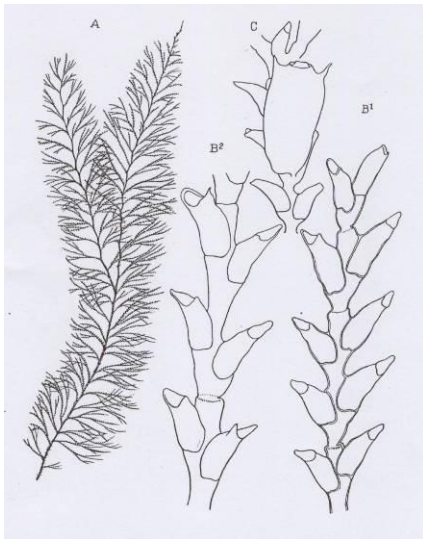
Campanularia verticillata has toothed cups at the end of long stalks



Calycella syringa grows on other hydroids



Serturaella polyzonias

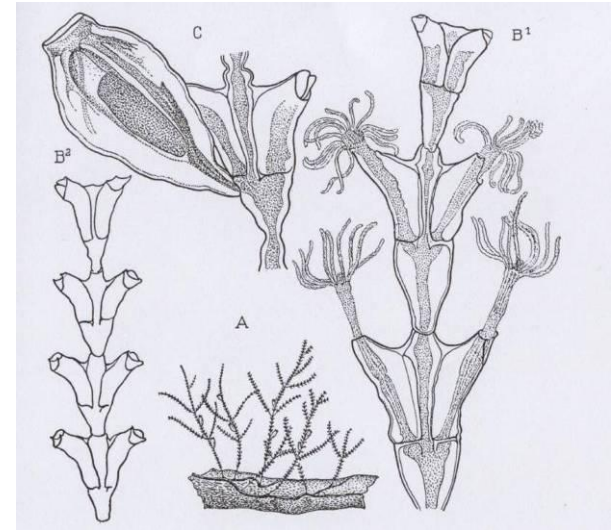


Sea Fir *Sertularia argentea*

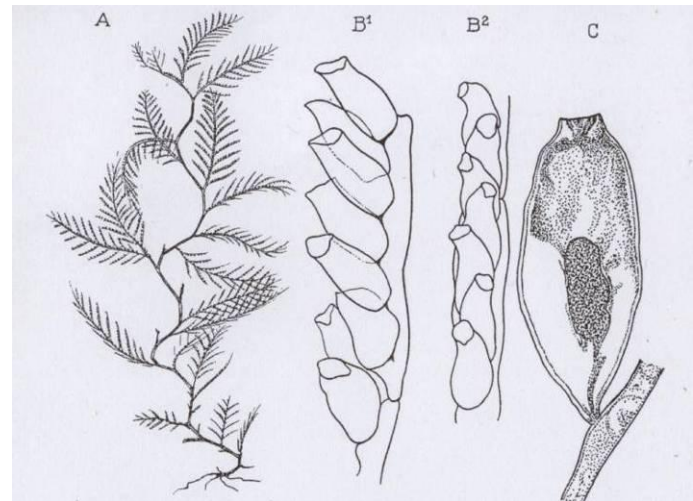
(more Hydroids)

These Hydroids have angular cups arising a the side of the stem. They can be identified by the shape of the cup and their arrangement on the stem

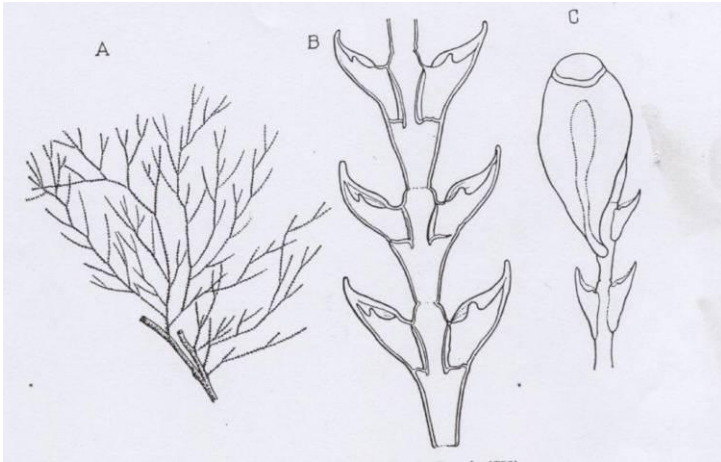
Copied from Leloup



Dynamena pumila grows on seaweed

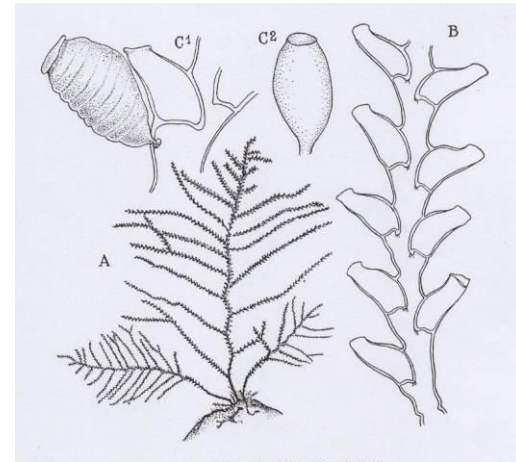


Spiral Hydroid *Hydrallmania falcata*

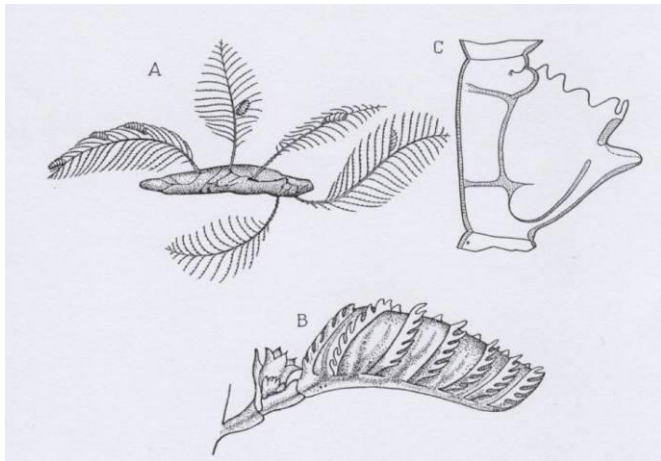


Amphisbetia operculata has sharply pointed cups

(more Hydroids)

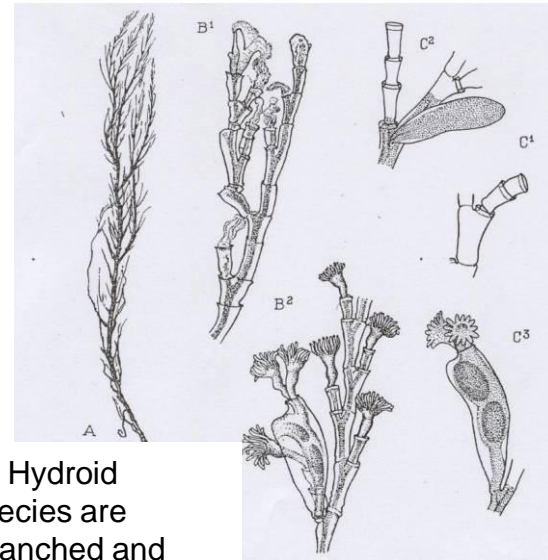


Abietinaria abietina has a zig-zag stem and strong side branches.



Aglaophenia pluma grows on other hydroids. It has broad many toothed cups

Copied from Leloup



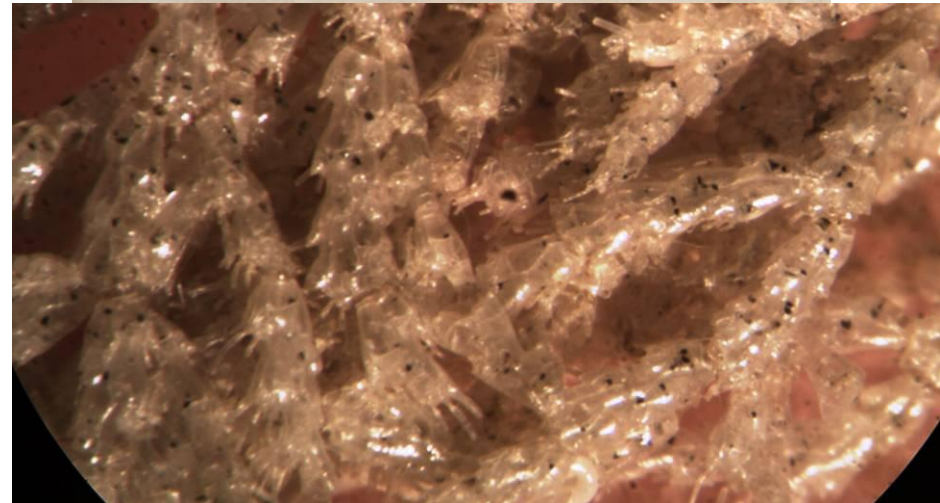
Herringbone Hydroid *Halecium* species are irregularly branched and have jointed cup bases

Bryozoa

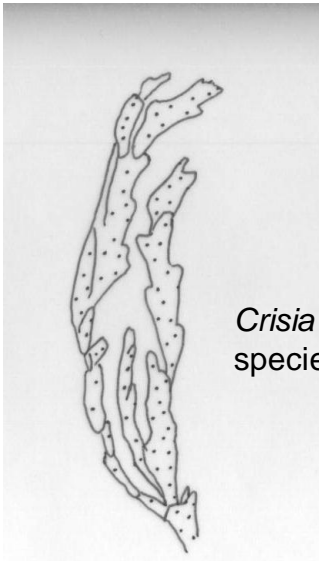
Illustrations copied from a 19th century work



Tubulipora species have a white limey base from which arise small tubes. It comes ashore on shells and growing around hydroids

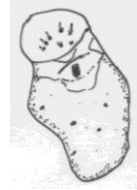
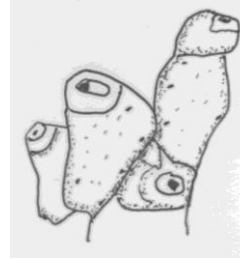


Scrupocellaria scruposa forms a very small delicate branching colony up to 2 cms tall. The individual cups have spines of varying length.

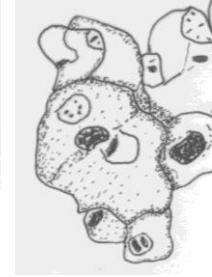


Crisia
species

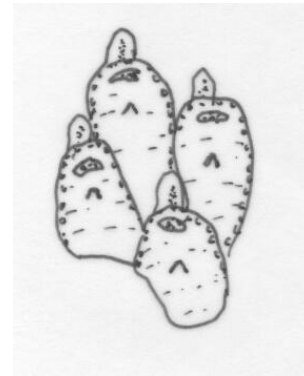
(more Bryozoa)



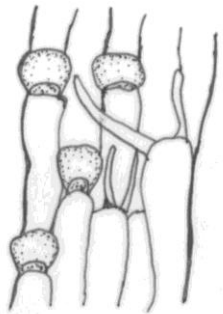
Buskea
species



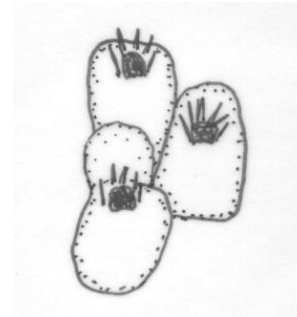
Zooid skeletons of three more distinctive and fragile branching Bryozoa that have small colonies a few cms high that can be found attached to hydroids and Horn Wracks



Chorizopora
species



Bugula
species



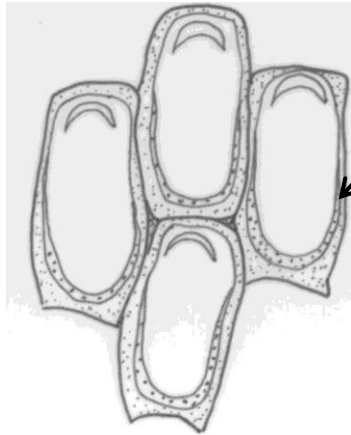
Escharella
species

Zooid skeletons of three heavily calcified encrusting Bryozoa , *Escharella* grows around hydroids

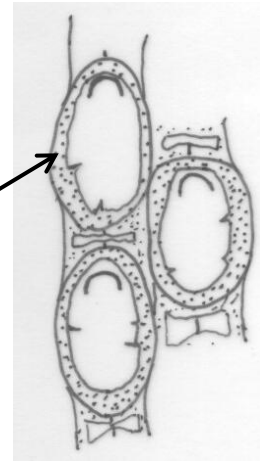


Eucratea
species

Zoid skeletons of four commonly encountered encrusting Bryozoa



white rim
without spikes



white rim, usually
with a few spikes

(more Bryozoa)

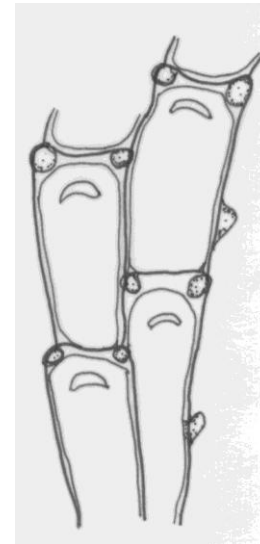
Conopeum serauti a brackish water species

Conopeum reticulum



Bottom area filled
with perforated
white material. Also
has spikes around
the rim

Electra pilosa



Big irregular cells with
pegs around the edge

*Membranipora
membranacea*

(More Bryozoans)



Appearance
when dry

Mud Fingers *Alcyonidium parasiticum* grows around Hydroids



Sea Chervil *Alcyonidium diaphanum*



Irregular brown jelly lumps and
fingers are free-living bryozoan
colonies

Photo from
marinespecies.org

Not a Bryozoan or Hydroid but note that when it dries, Breadcrumb
Sponge *Halichondria panicea* goes white and hard



Urchins

The soft spines of the Heart Urchins (inset appearance when freshly dead) fall off soon after death, and the fragile skeleton, called a test, that is left behind soon breaks up, but fragments are easy to recognise as Heart Urchins, and sometimes identifiable to species.



Denuded test of a Heart Urchin (inset with spines)



Rare *Echinocyamus pusillus* test is 1 cm or less



Indentation here is *Echinocardium cordatum*
Up to 9 cms very common

No indentation here is *Echinocardium flavescens*
Up to 5 cms, uncommon



Andreas Kroh marinespecies.org



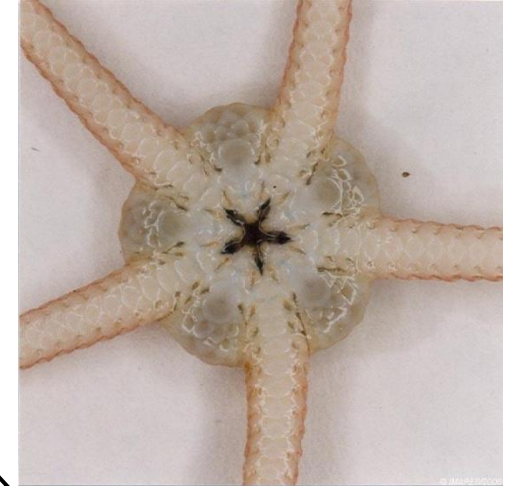
The Purple-tipped Sea Urchin *Psammechinus miliaris* has green spines with purple tips. The test is greenish. This is quite an uncommon find.

If you find a red coloured test, or bits of a test, it will be from the Edible Urchin. *Echinus esculentus*. which is very rare

Brittle Starfish

There are two common species of Sand Brittle Starfish

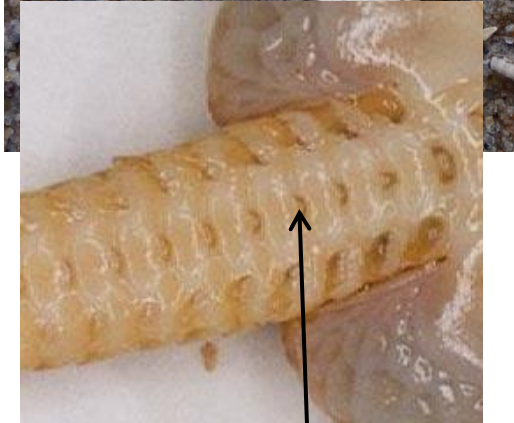
Underside view
of arms



no pore in
central scales

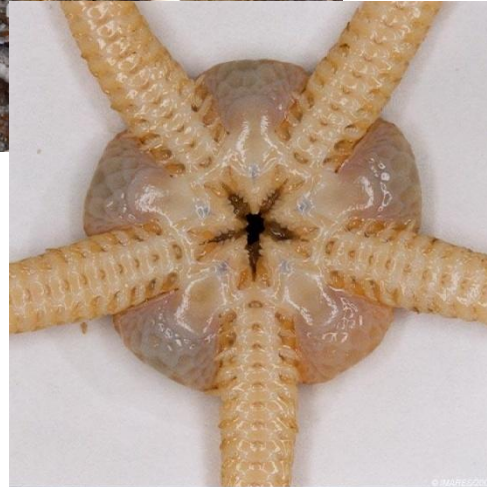
Ophiura albida

Detailed illustrations by Filip Nuyttens marinespecies.org



pore in central
scales

Ophiura ophiura



Other species occasionally get stranded on the beach. They have very spiny arms with spines almost as long as the arms are wide.

Egg cases of Dogfish, Cat Sharks, Skates and Rays

There is a comprehensive on-line guide from the Shark Trust at:-

http://www.eggcase.org/view_folder.asp?folderid=6251&level2id=6237&rootid=6237&depth=2&level1=&toptab=2

Dead Birds - there are plenty of bird books around!

Porpoises Dolphins Whales

There are guides to identifying these on the sea watch foundation web site. The foundation would like to receive any records.

<http://www.seawatchfoundation.org.uk/species.php?uid=4>

Dead birds and mammals are likely to pose a significant health risk and it is suggested that use is made of photographs taken at the time for later identification

Seaweeds

Most pieces of seaweed that land on the beach are tough brown forms, often those with floats, or Green types. Red Seaweeds are less common.

Seaweeds can land on their own or may be tangled with other debris such as Hydroids.

Unlike Hydroids and Sea Mats, seaweeds rot quickly, but can be pressed on to paper to make a more permanent mount.

If you find seaweeds that are not covered by the simple sheet and want to name them you can try an on-line key at

<http://www.nmbaqcs.org/downloads/macroalgae/EA%20Seaweed%20reference%20manual.pdf>

Three standard publications are

- Seasearch Guide to Seaweeds of Britain and Ireland, by Francis Bunker and others, published by the Marine Conservation Society cost £16.90
- Common Seaweeds fold-out guide by Morrell & Roberts from the Field Studies Council cost £2.75
- A field key to the British Brown Seaweeds by Keith Hiscock published by the Field Studies Council cost £5

Still not seen your Beached thing?

Send a photograph to your local record centre to see if someone can name it!



Squid
Eggs



Sea Squirts, this one is
Ascidiella scabra



Sea Slugs, this one
the Sea Lemon
Archidoris
pseudoargus

Various “other things” photographed on Fylde
Beaches by Kathryn Turner

There are many general sea shore books but my favourite general book is still Collins Pocket Guide to the Sea Shore by Hayward, Nelson-Smith & Shields.

A very useful web site is <http://www.marlin.ac.uk/>

There is also a specialist society for marine naturalists, called Porcupine, named after an early survey ship, not the spiky mammal. <http://pmnhs.co.uk/>