

Ports of Registration

What does KY120 mean?

Look for the letters and numbers on the side of the boats. These are each boat's registration code. If a boat is used for catching fish or shellfish, it must be registered.

The registration system started around 1820. The system of letters and numbers helped Britain and France identify their own boats and prevent smuggling. At first they were carved in wood on the inside of the boat, and later shown on the sails. Confusingly, the heavier boats had letters before the numbers and medium boats had the letter after the number.

The codes are called Port Letter Numbers (PLNs) and mostly show the first and last letter of the nearest Customs House (with some exceptions - such as **BO** for **BO**'ness). Sadly, Dunbar Custom House closed a long time ago and the nearest is at Leith. Nowadays, Scotland has over 400 harbours. The map shows every 'Port of Registration' that issues PLNs. A boat must show its PLN on the hull, the lifebelts and on the top of the wheelhouse - so it can be seen from the air!

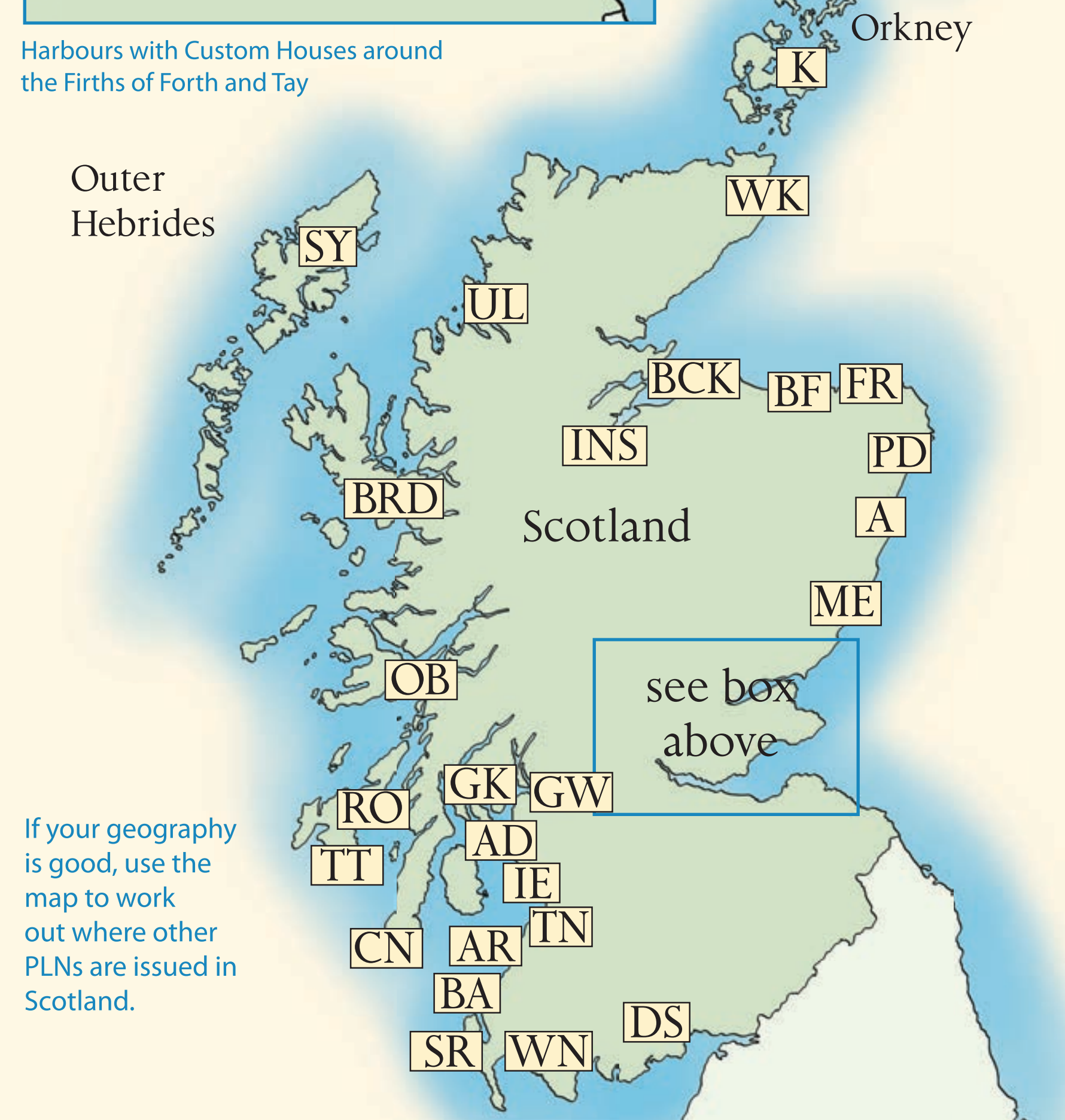
On TV's 'Doc Martin', their boats are registered as **PW**. But this did not mean the fictional **Port Wenn**, but nearby, real world **PadstoW**.

Many thanks to Stewart Lenton for information from his excellent book *What is the Meaning of the Letters and Numbers on Fishing Boats?*

Can you work out where the boats below were registered?
Can you spot the PLNs shown here on the boats in the harbour?

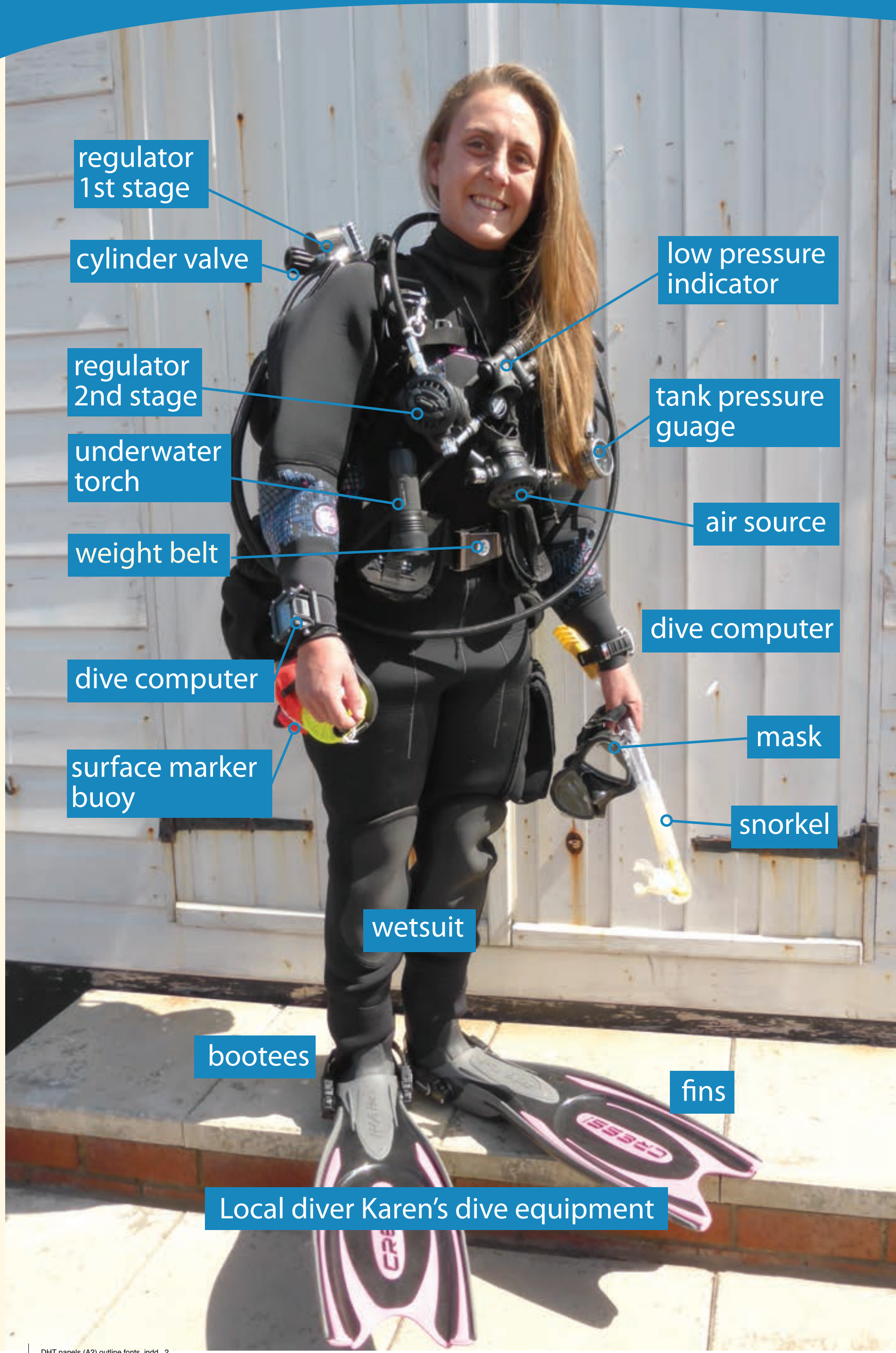


Harbours with Custom Houses around the Firths of Forth and Tay



If your geography is good, use the map to work out where other PLNs are issued in Scotland.

Diving at Dunbar



Dunbar is a great location for divers of all abilities, with trips running from both boats and the shore.

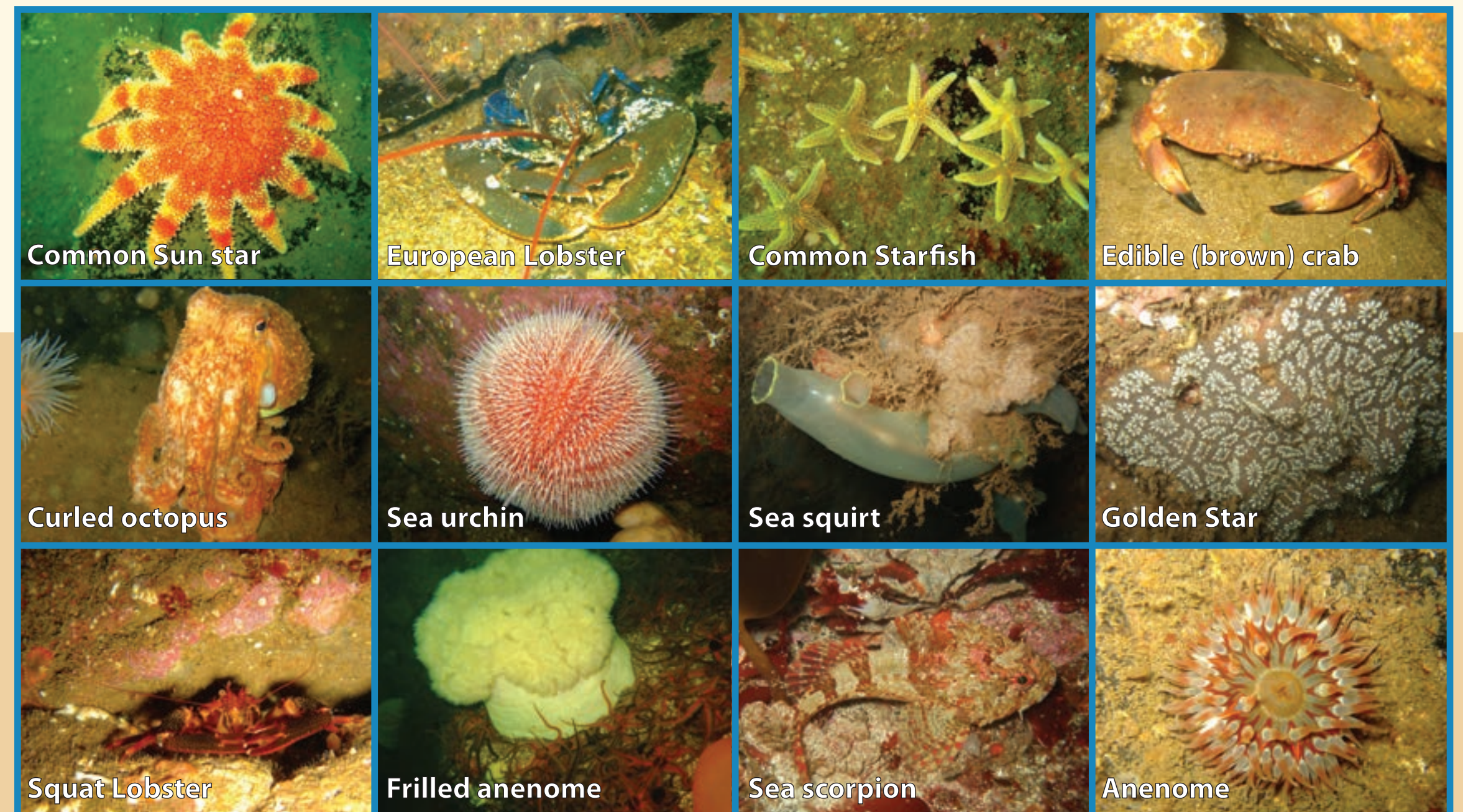
There is an abundance of marine diversity, wrecks, rocks and islands to explore and photograph. Local divers have even discovered a wrecked submarine three miles off Dunbar!

Divers need to take care to avoid the entrance channel to this busy working harbour - boat traffic can be quick and silent.



Compare this 19th century dive helmet with Karen's kit!

Some of the marine life that can be found off Dunbar harbour



Prawn Trawlers

Spitfire (below) is typical prawn trawler.

Built in 1974, she is the only remaining boat built here in Dunbar at Wetherhead's boatyard (now closed). Look for her yellow/white colours and carved name. She was named after the Spitfire fighter of WWII.

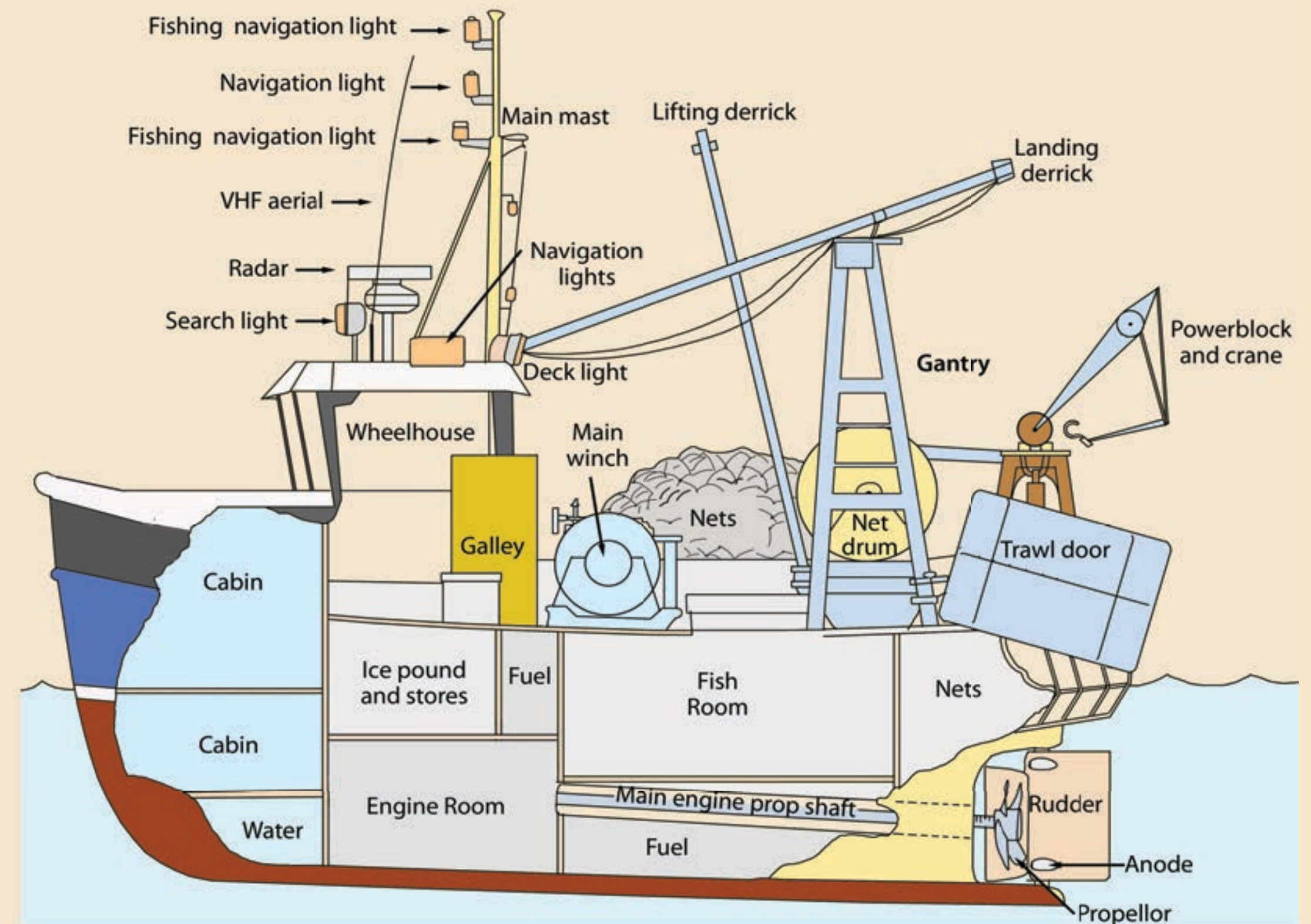
Spitfire is constructed of larch planks on oak beams with a modified aluminum superstructure. She is owned and operated by Robert Davies, lifelong fisherman, and his son. Her hull cost £36,000 in 1974 (£262,000 today) and her electronics and equipment were much more! She has a crew of 3 and fishes mainly from the Isle of May to St. Abbs Head.

Winter fishing is generally a daytime activity in gales of up to Force 8 for up to 3 days at a time. It is a dangerous activity and sleep is short! Summer's clear waters mean that night-fishing is better.

Spitfire tows 2 nets along the sea-bottom, observing a quota for conservation of stock. She can have 7 hauls in 5 hours bringing a total of 500kg of valuable prawns, sent for export to Italy and Spain. The prawns re-shell in May/June and catches increase from July to October.



Typical prawn trawler design

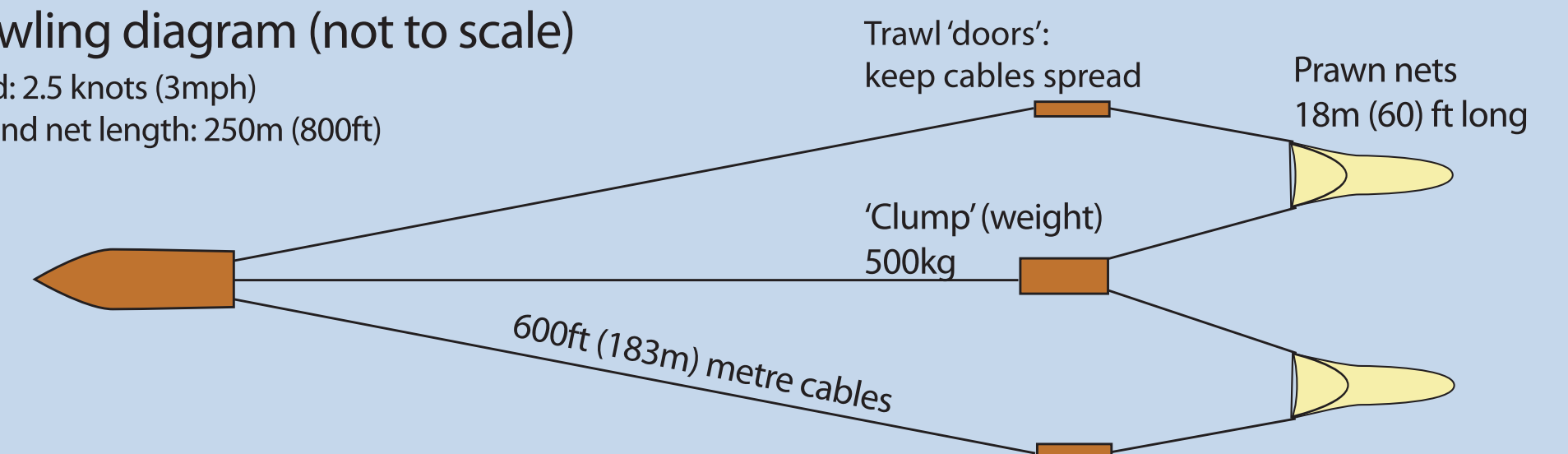


36 feet/11metres

Weight: 20 tonnes
Diesel consumption: 8 gallons/hr or 36l/hour

Prawn trawling diagram (not to scale)

Trawling speed: 2.5 knots (3mph)
Overall cable and net length: 250m (800ft)



Creel Boats

Would you like to be a crew member?

Creel Fishing is a 'passive' form of fishing. Baited creels are dropped from the boat to the seabed and retrieved days later. Creel boats make up 75% of Scotland's inshore fleet and generate around £40 million for Scotland. Creel fishing is a very sustainable form of fishing. Target species are brought to the surface alive and undamaged, meaning that egg bearing 'berried' females or undersized animals can be returned to the sea. The carbon footprint (especially fuel consumption) is minimal as most boats are small and fish close to shore. Creel fishing can be carefully carried out in fragile habitats without damage.



Creels (parlour-pots) are made of steel, wood, plastic and netting. Dunbar lobster-men still make their own creels - a skilled and labour-intensive task. You can see hundreds of creels piled around the quaysides, especially in winter.

The inshore creel fishing sector catches three main species:

Lobsters live on rocky substrate. The lobster fishery has existed for hundreds of years.



Brown crab or Edible crab. These live on both hard and soft ground. The brown crab fishery has been increasing of late and now off-shore fisheries are established.

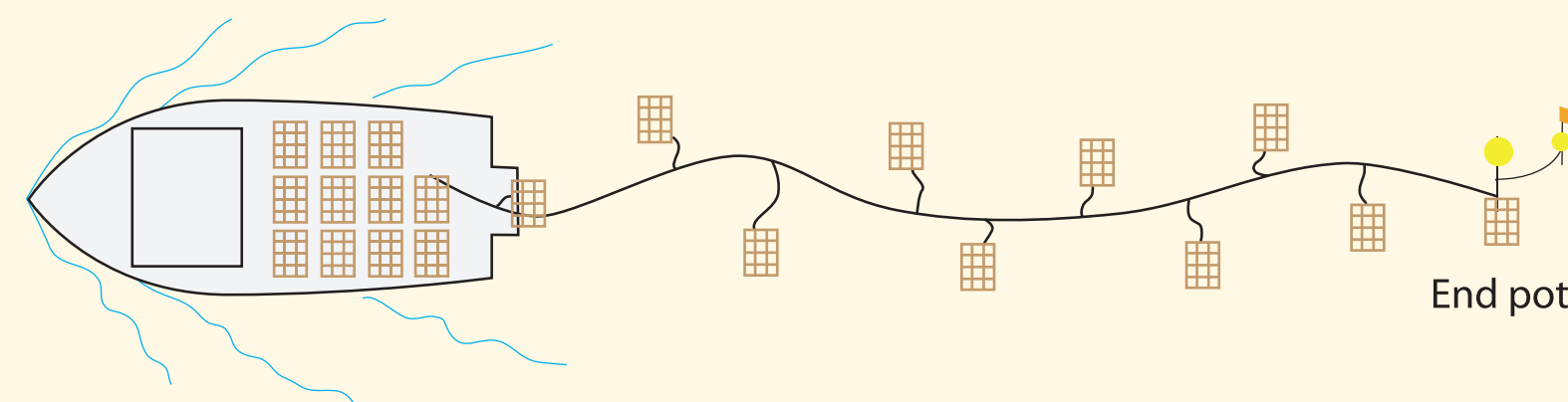
Velvet or Swimming crab is named for the shell's velvet-like texture. It is normally found on submerged rocks and usually caught between July and November.



Crabs are called 'poos' or 'partons' in Dunbar, but nearby St. Abbs calls them 'cavies'! At the moment, shellfish are exported mainly to Europe.

Laying creels

Most modern boats are cut at the stern to allow the creels to 'run off' in a 'set' which has 10-30 creels in a single line. Each boat has up to 20 sets, so an average lobster/crab boat may 'shoot' 500 creels.



Creels are 'shot' or hauled out of the boat and lie on the sea bed

An Active Harbour

Although this is a working harbour, there is plenty of fun to be had!

This map shows a selection of the activities you can do and some of the best places to do them. Take care around the rocks - **if in doubt about where you can safely go, ask the Harbourmaster.**

Activities Key

- Angling ■ ■ ■ ■
- Birdwatching* ■ ■ ■ ■
- Canoeing/Kayaking ■ ■ ■ ■
- Coasteering ■ ■ ■ ■
- Diving ■ ■ ■ ■
- Stand up paddling ■ ■ ■ ■

You can take photos almost everywhere.
*Kittiwakes can be seen on the castle rocks from March - August

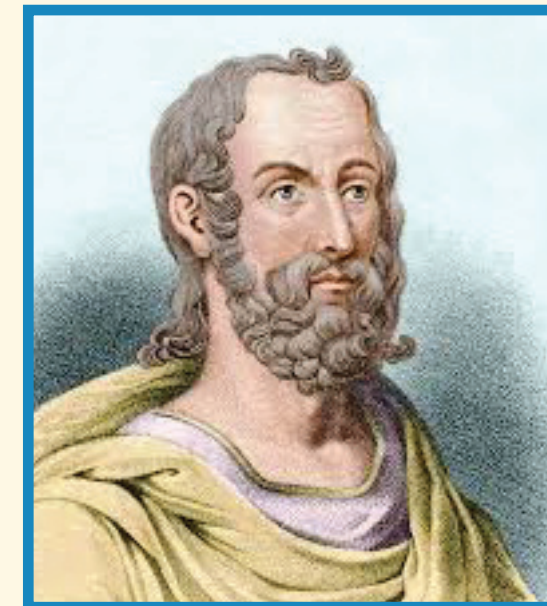


Time and Tide...

Dunbar Harbour, like many, operates within the restrictions of the tides. Dunbar has a 5 metre tidal range.

Boats can get in and out of the harbour only when the water here is deep enough for them. At low tide, there is very little water in the harbour. Dunbar (and Newlyn Harbour, near Penzance) had a tidal gauge installed in 1913 to record the depth and time of the tides.

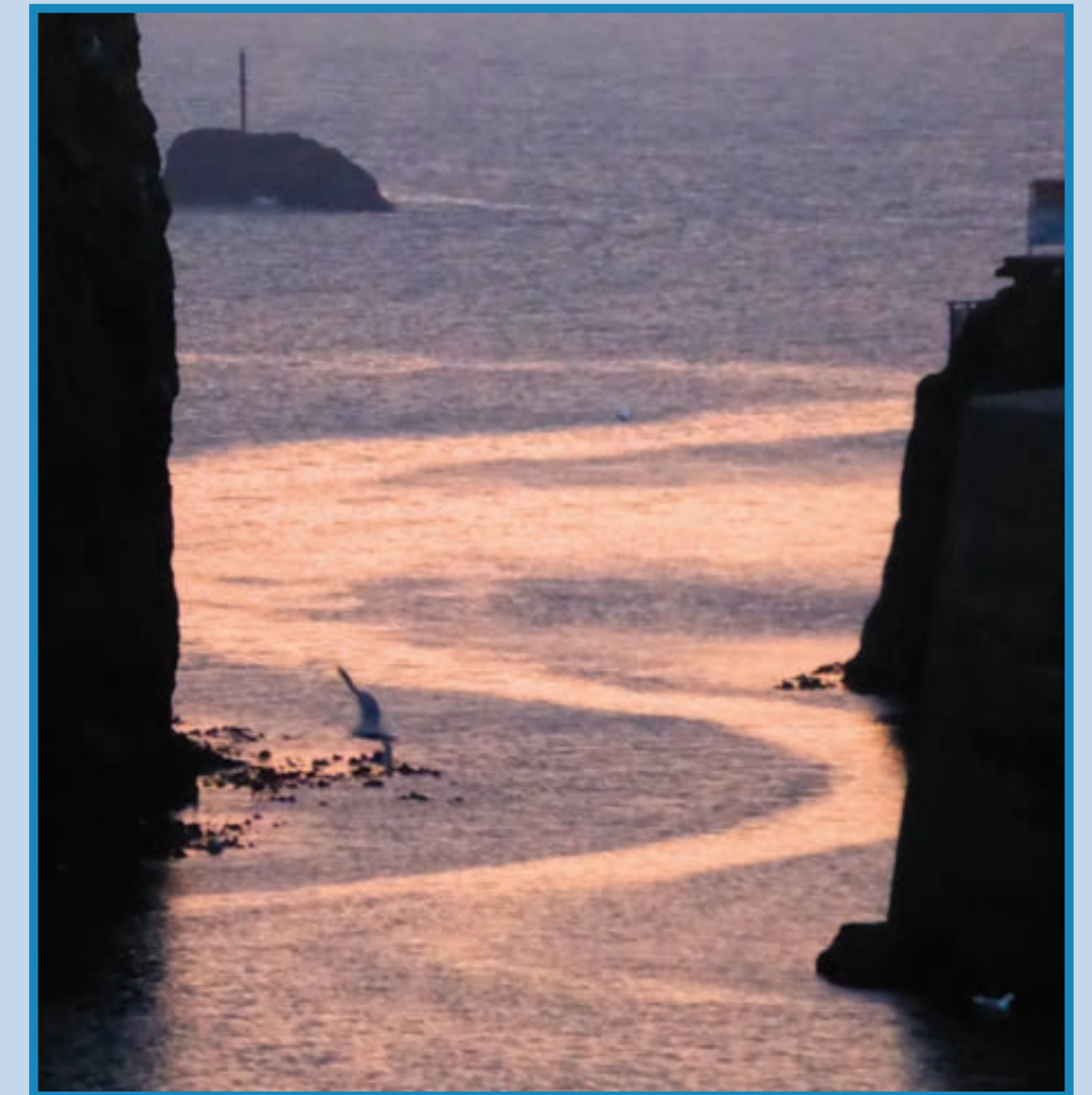
You will know that the tides are pushed and pulled by the moon. This was first recorded by Pliny the Elder, a Roman philosopher and naturalist, who lived between 23-79 AD. But we can safely assume that anyone who lived by the sea for many thousands of years before his life knew about tides! But people then would not know how the process worked, shown below.



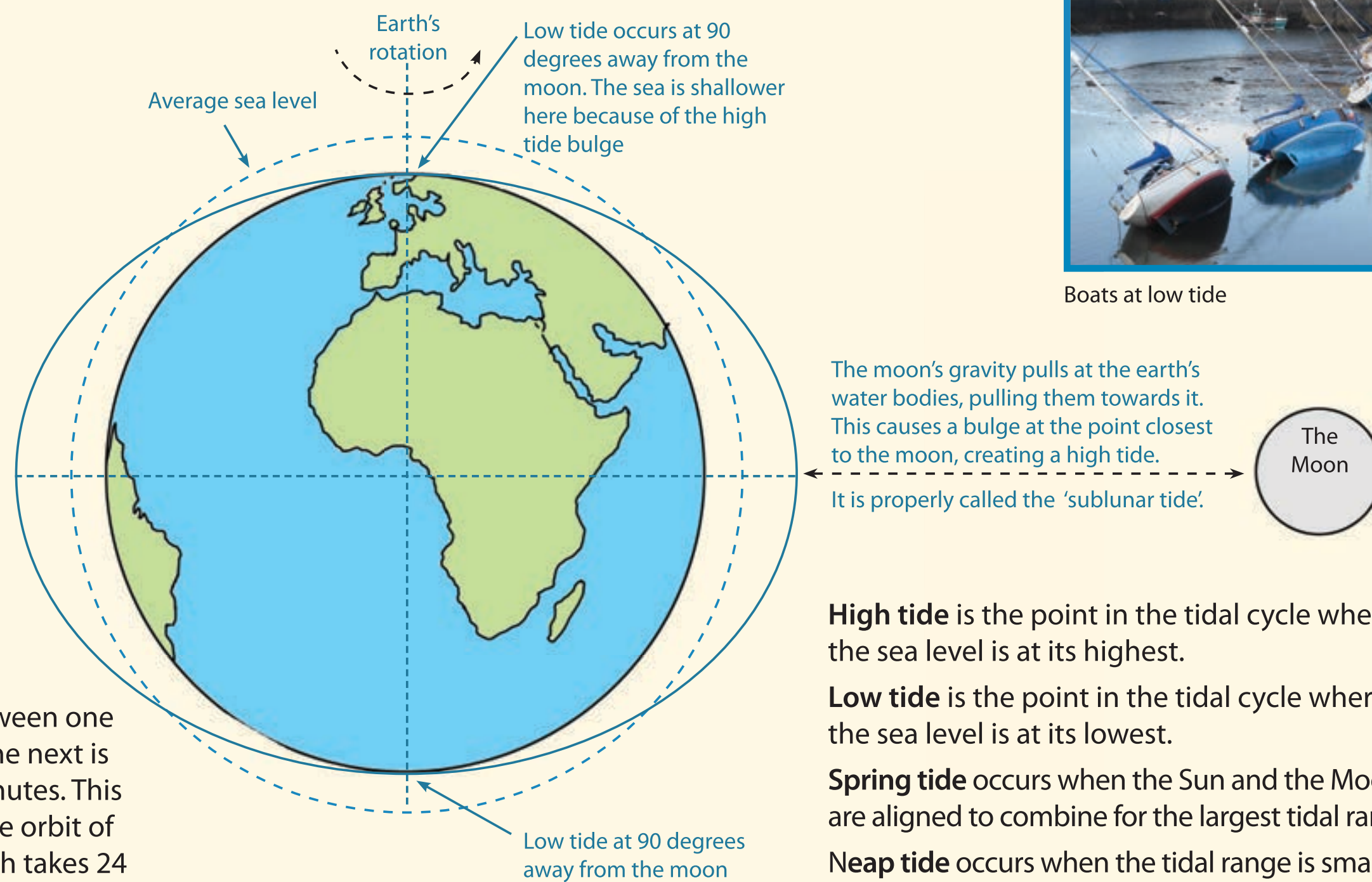
Pliny the Elder



Boats at low tide



Look at the entrance to the harbour for the sinuous pattern that shows the movement of the tide (above). Slack water happens near the highest or lowest point of the tide. Water marks and the growth of seaweed on the harbour wall and on the rocks and the harbour wall show the range of the tide (below).



High tide also occurs at the furthest away point from the moon because of the earth's rotation (antipodal tide).

The period between one high tide and the next is 12 hours 25 minutes. This is because of the orbit of the moon, which takes 24 hours and 50 minutes.

The moon's gravity pulls at the earth's water bodies, pulling them towards it. This causes a bulge at the point closest to the moon, creating a high tide. It is properly called the 'sublunar tide'.

High tide is the point in the tidal cycle where the sea level is at its highest.

Low tide is the point in the tidal cycle where the sea level is at its lowest.

Spring tide occurs when the Sun and the Moon are aligned to combine for the largest tidal range.

Neap tide occurs when the tidal range is smallest - during the first and third quarters of the Moon.

Water Sports For All!

Ever wondered about taking up a watersport? Dunbar Harbour is the place to do it. Here are our most frequent users...

Dunbar Sailing Club was established in 1964. Its 50 members sail a variety of boats. The club has strong links with the RNLi and warmly welcomes visitors. While Dunbar is home, they have cruised to places as varied as Shetland, Poland and Germany – even crossing the Pacific and Indian Ocean!

Coast to Coast Surf School has a Scotland-wide reputation for teaching surfing, bodyboarding, coasteering and stand-up paddling (SUP), with a growing watersport community at Belhaven Beach and Dunbar Harbour.

Dunbar Coastal Rowing Club offers traditional rowing skills and racing. They host a Skiff Regatta every summer outside Victoria Harbour. Their two skiffs, The Volunteer and Black Agnes, were built by Club members and have a crew of four rowers plus a cox.

Dunbar Sea Cadets. Sea Cadets date back to the Crimean War (1850s) when sailors formed Naval Lads' Brigades to help orphans created by the conflict. Cadets can start as young as ten, gaining skills and confidence along the way.



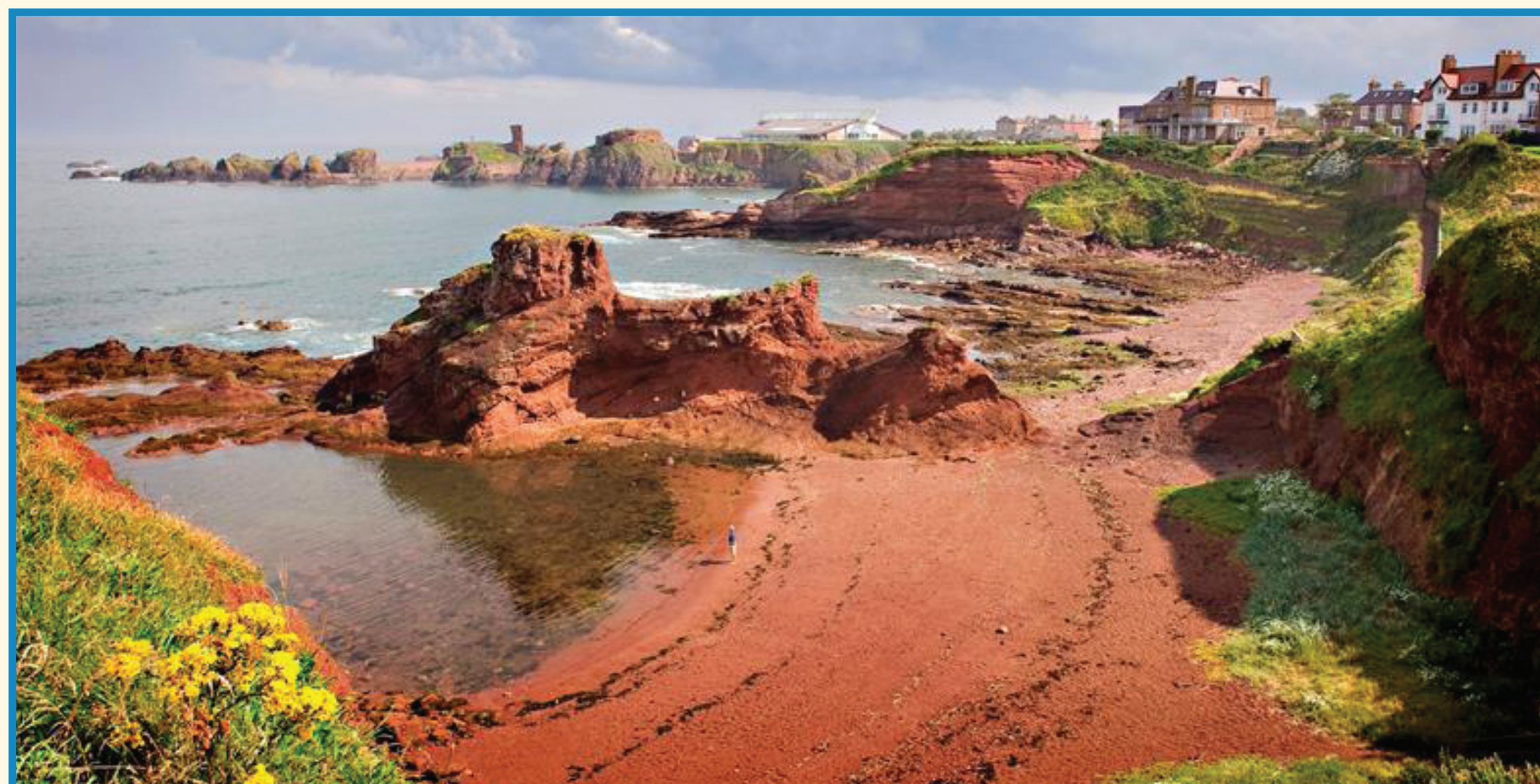
Dunbar Rocks!

Around 350 million years ago, Dunbar was surrounded by volcanic activity. Now Dunbar Harbour and our coast are a geologist's dream!

There are two different rock types here: **igneous** and **sedimentary**. Igneous rock is formed from magma or lava. You can see the roots of two volcanoes close by - the Bass Rock and North Berwick Law. Sedimentary rock is formed when layers of older rocks, minerals and even organic material are pressed together until they become solid. Igneous rock is harder than sedimentary - the rocky islands out to sea were revealed when the sedimentary rock covering these features wore away. **Basalt** is igneous rock that has cooled in crystalline shapes - look for hexagon shaped rock around the battery - there is some just off the path. You'll find **agglomerates** on our cliffs too, made from a combination of volcanic ash and rocks ejected from a volcanic vent.

Below The red Devonian sandstone (a sedimentary rock) forms much of the cliff and sand around the harbour - look for agglomerates and sedimentary layers in the cliffs.

Right Top: Longcraigs is a dyke. It formed when molten rock fills gaps in sedimentary rock, which later wears away.
Right centre: Hexagonal basalt columns around the battery.
Right bottom: Agglomerates form Parade Vent outside the harbour mouth.



Harbour Sense

We love having visitors to our beautiful and historic harbours.
Here's some advice to help you have a safe and happy visit...



Please don't feed the gulls; they need sand-eels - not chips! It also makes them less wary of humans and more likely to steal your sandwich!



Parking your car on the slipway is NOT a good idea -
RNLI need the slipway to be clear ALWAYS.



Our harbours have a Speed Limit of 3 knots /4mph on the water...



...but the RNLI
sometimes need to
speed! Please support
them by visiting the shop.



Read the tide-tables carefully.



Take care in bad weather - waves sometimes come OVER
the harbour wall!

Propeller Power

How does such a small machine move such big objects?

A propeller is a bit like a spinning wing. It produces a force called thrust, which moves an object forward through a liquid or gas. Two, three, four or even more twisted blades poke out at angles from a central spinning hub, usually driven by a motor. These create the movement. The number of blades and their length determine how much power there is, and the twists and angles of the propeller blades are calculated to help move the air or liquid as efficiently as possible.



Nature

Nature invents everything! Find Nature's own propeller under a sycamore tree in autumn.



Water thrusters

Computers have changed the way propellers are designed and made. Compare the big red propeller from the SS Great Britain (launched in 1845) with the modern ship's propeller above.

Flying machines

From the very first efforts at flying to the most modern planes, propellers have used the same basic design. Improvements in technology have made flight higher, faster and further.



Turbines

Turbines are propellers that catch movement and turn it into energy. They help provide us with our daily power needs. Steam driven turbines are used in all major power plants and wind turbines capture renewable energy.



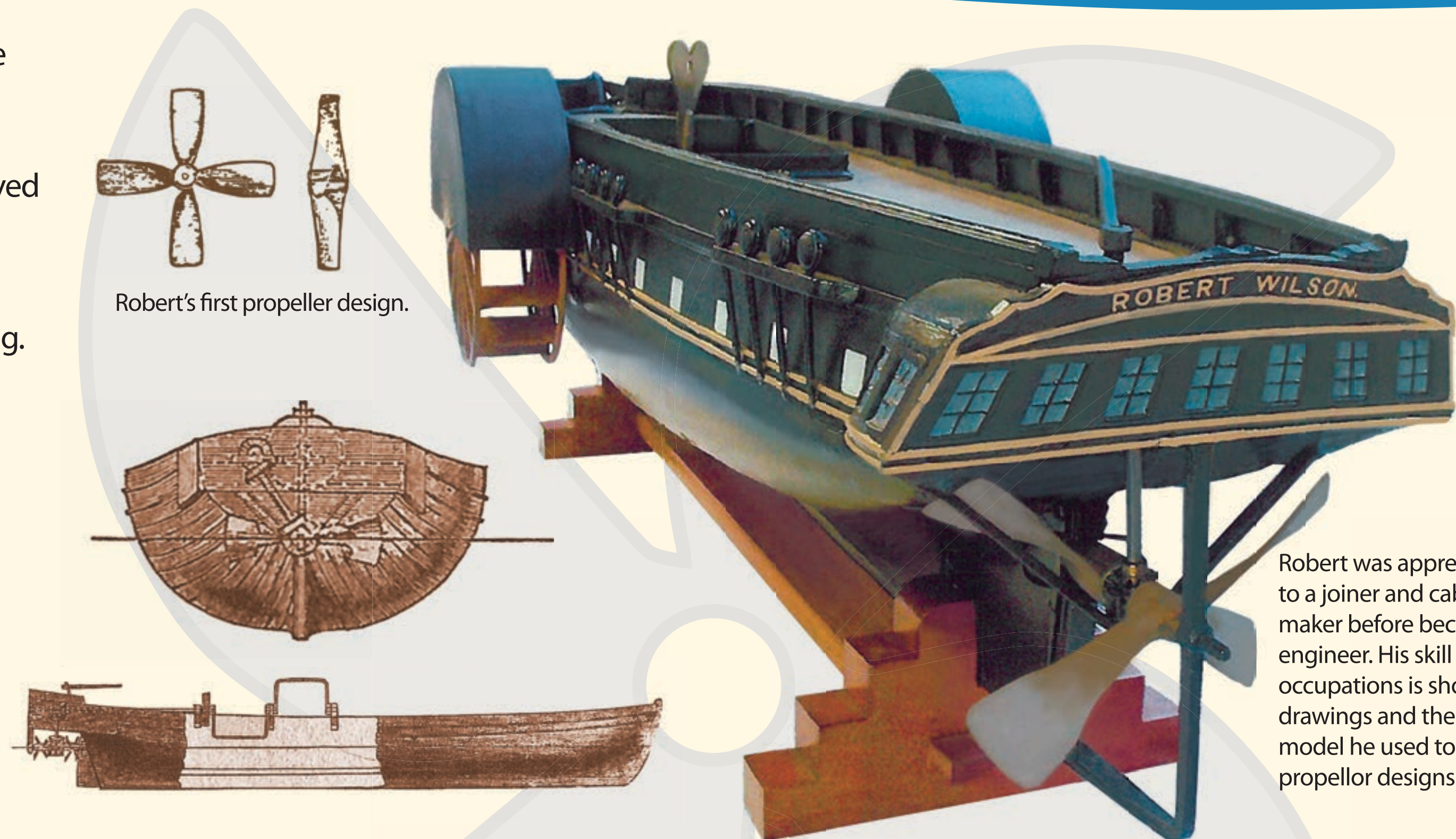
Dunbar's Propeller Pioneer

Robert Wilson was born in a fisherman's cottage near here on 10th September 1803. Aged only five, he watched a soldier from the nearby barracks demonstrate how a paddle wheel moved a boat through smooth water faster than oars - but in rough sea, it didn't work as well.

In the countryside Robert saw a windmill turning. Could a design like the blades of a windmill be used to drive a boat? By the time he left school at nine years old, he had devised a model boat propelled by 'rotating skulls' - the forerunner of the screw propeller.

In 1827, when Robert was 24, the Earl of Lauderdale brought Robert's invention to the attention of the Admiralty - but it was not interested. However, the Edinburgh Mercury carried the following paragraph on the 29th December of that year...

"New Invention" - In our paper of Monday, we mentioned that Mr Robert Wilson of Dunbar had invented a new method of propelling steam vessels; we have since had the satisfaction of examining the model and, so far as we are able to judge, we consider it as completely adapted to the objects of the ingenious inventor - particularly that of giving to canals the advantage of steam navigation.



Robert's first propeller design.

Robert was apprenticed to a joiner and cabinet maker before becoming an engineer. His skill at both occupations is shown in his drawings and the working model he used to test propeller designs.

In 1828, full-scale trials in the Firth of Forth demonstrated the potential of Robert's designs, but still led him nowhere, except into debt. Even so, he continued to invent and innovate. Between 1842 and 1880 Robert took out 30 patents for valves, pistons, propellers and hydraulic and other machinery. Finally, when he was 70 years old, the War office gave him £500 for the use of his double-action screw propeller.

Robert died two years later in 1882, having never been given the recognition he deserved for his principal invention (Francis Pettit Smith and John Ericsson are often credited). However, Robert Wilson remains Dunbar's inventor of the propeller and is rightly known as 'Scotland's Pioneer of Speed'.

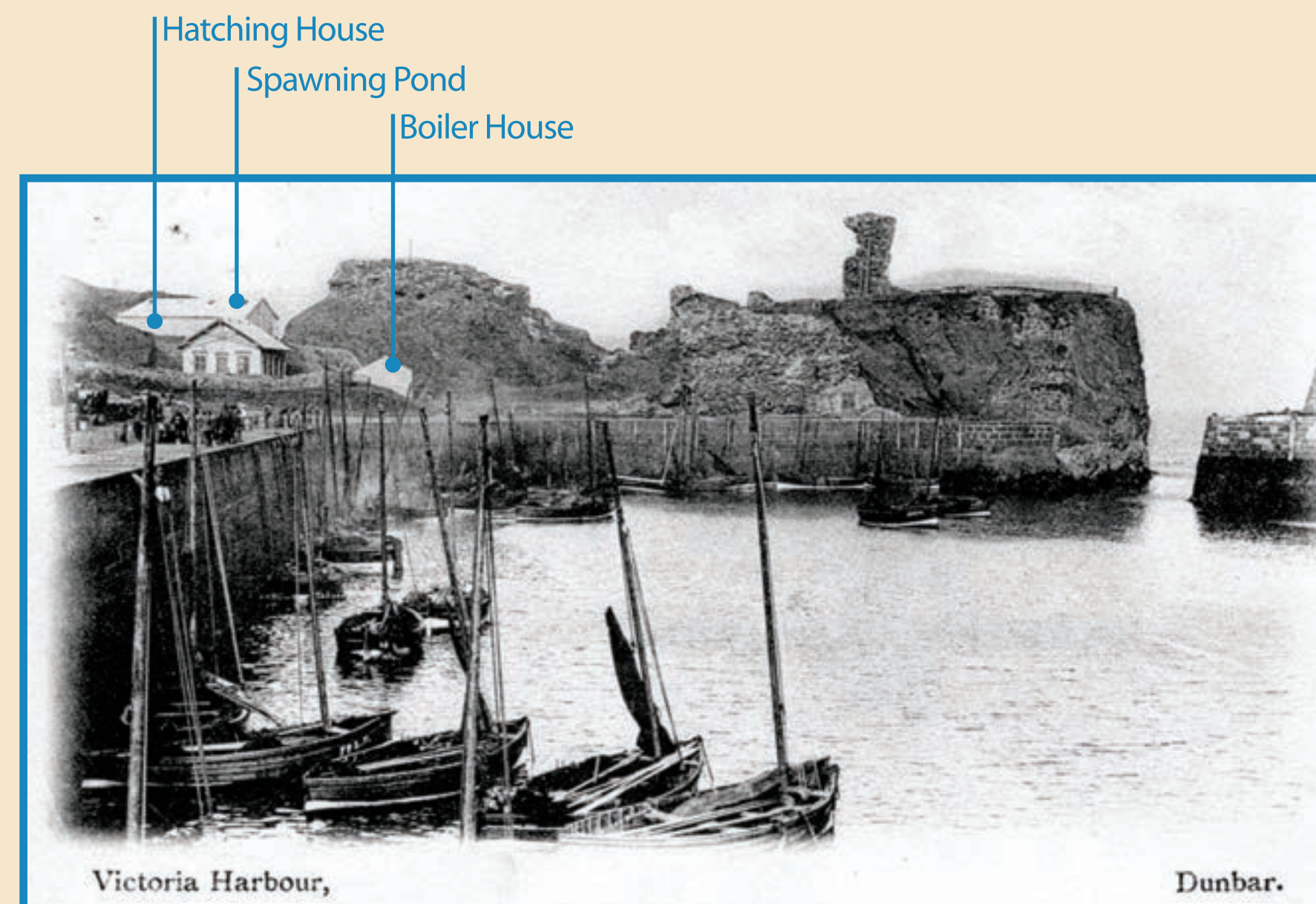


The Hidden Hatchery

Fish stocks were running low in the North Sea in the late 19th century due to over-fishing. Improvements in marine technology and more boats made matters worse. Sea-fish hatcheries were established in the USA, Canada, and Norway, so the Fishery Board for Scotland erected a hatchery at Dunbar for hatching plaice. This was managed by Mr. Harald Dannevig, a young Norwegian expert, with the aim of replenishing North Sea fish stocks.

The hatchery buildings were erected below Castle Park, by the castle rocks. An existing hidden cavern had pipes to supply seawater for the fishponds. Experiments were performed on several species of flat fish (turbot, sole, plaice and lemon sole) producing millions of fish fry.

In 1898, after six years of operation, the hatchery was transferred to Aberdeen - the Aberdeen Marine Laboratory continues to operate today. Here in Dunbar, it's hard to see that the hatchery ever existed.



An original plan of the hatchery.

Harald Dannevig came to Dunbar in 1894, aged 23 and married local girl Annie Sanson. In 1902 he emigrated to Sydney, Australia. His ship, the Fisheries Investigation Vessel Endeavour, was specifically built for exploratory fisheries. The Endeavour left Macquarie Island on 3 December 1914 with twenty-three men on board and disappeared, presumed lost in heavy gales. Dannevig was described as "a kindhearted man who would be sorely missed, both for his personality and the quality of his work."

