A beachcomber's guide to the Solway coast

STRANDLINE

CREDITS

Design:
Hatterick's House
Photography:
Printed by:
Stranraer & Wigtownshire Free Press
2014

Strandline at Brighouse Bay

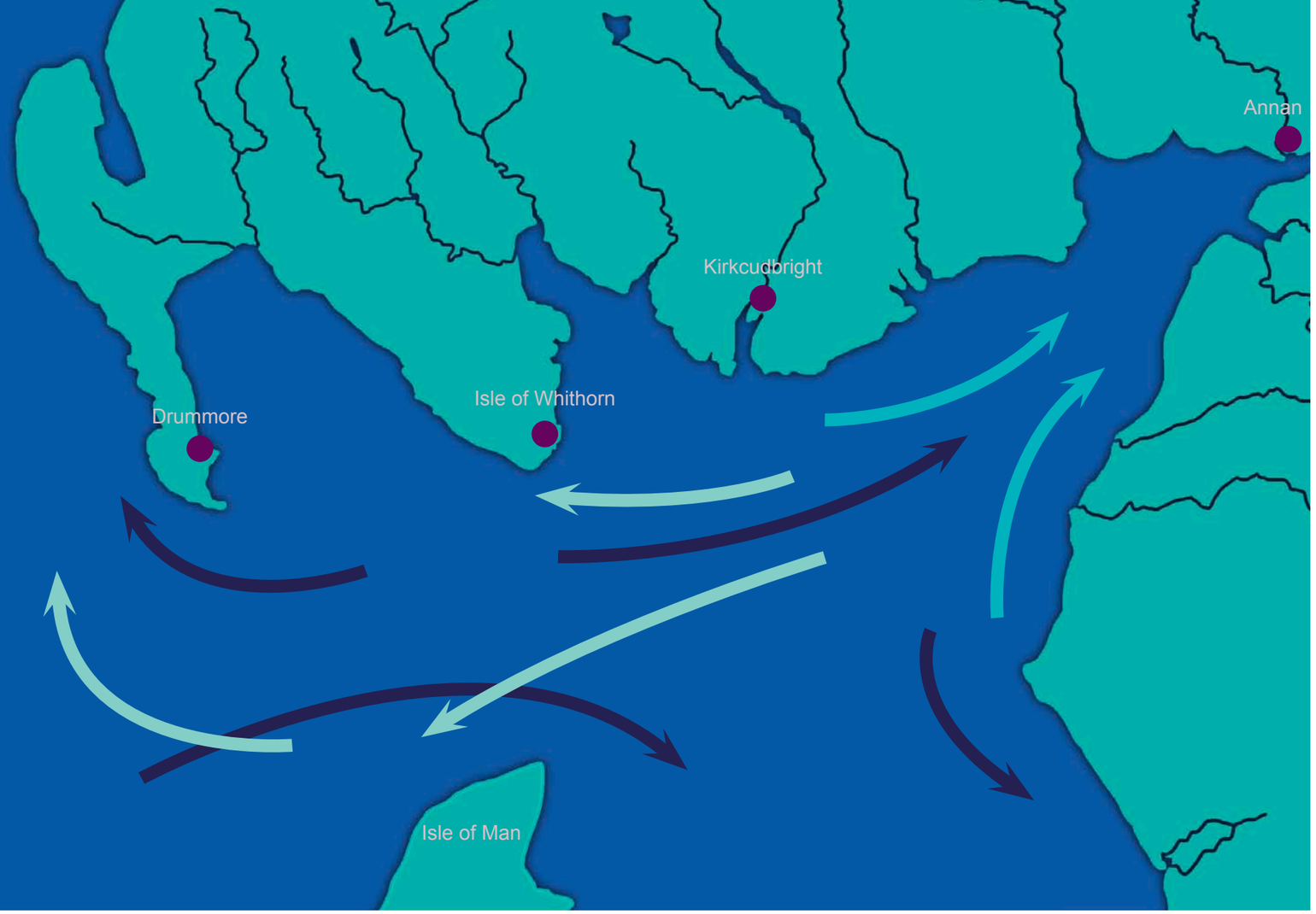
WELCOME TO SCOTLAND'S SOLWAY COAST

With over 200 miles of coastline the north Solway is richly endowed with interesting places to explore from muddy estuaries to sandy coves, rocky headlands to stony beaches. If you take the time to explore this varied coastline you will discover something new every step of the way.

TIDEMARKS

Replenished with debris twice a day, the strandline marks the turning point of the last high tide and provides endless material for the curious beachcomber. It is here that the sea deposits seaweeds and creatures torn up from below the waves as well as debris washed down from rivers or washed off storm-tossed ships. Often several strandlines can be seen on the same beach, each one a strange combination of objects sorted and deposited by the sea.

Duck race escapee



Surface currents

Bottom currents

Non-tidal wave-induced currents

TIDES AND CURRENTS

The complex behaviour and patterns of powerful sea currents is largely governed by the rise and fall of the tides. Surface tidal currents often flow in a different direction from the bottom currents in the Solway Firth which has one of the largest tidal ranges in the world and twice a month peaks at up to 10 metres.

However, the predominantly westerly and south-westerly winds generate waves and surface currents. The Solway coast is sheltered from the full force of waves from the Atlantic Ocean by Ireland and the Isle of Man but the prevailing winds have a significant impact on the overall movement of floating material towards the Scottish Solway coast.

Currents are further complicated by the shape of our coast so that some places gather vast quantities of debris while other beaches are swept clean by the sea.

Waves at Brighouse Bay

Dogfish egg case

EMPTY PURSES

The egg cases of sharks and rays are anchored to the sea bed by spiral tendrils, or curled horns, until the tiny fish hatch and the empty leathery pockets drift onto the strandline as mermaids' purses.

Different egg-laying sharks and rays have distinctly shaped egg cases which can be used to identify life below the waves. The smallest and most common egg case found on beaches in the Solway is produced by the dogfish, or cat shark. Varying in colour from golden yellow to black, it has a long rectangular shape with tendrils in each corner. Similar in shape but more than twice as big and sturdy in construction is the egg case of the bullhuss or nursehound. The egg cases of rays are black and square shaped with horns in each corner.

The Shark Trust runs The Great Eggcase Hunt project. For information on identification of egg cases and reporting finds: www.sharktrust.org

Thornback ray egg case

Common whelk egg case

CANNIBALS' FEAST

Littering the strandline, empty common whelk egg cases, called "monkey brains" by local school children, are made up of clusters of capsules, each one containing thousands of eggs - although only a few snails crawl away, having first dined on their siblings.

Common whelks live on sandy sea beds well below the low water mark where they use their keen sense of smell to locate carrion. These large snails are fished commercially with traps in the Solway and are mostly exported to the Far East. Living for more than 10 years, it is not only their eggs cases which are found on the strandline but also their strong spiral shells which provide ideal homes for hermit crabs.

The plastic containers used by fishermen to trap whelks are sometimes lost at sea causing litter on the strandline. The Marine Conservation Society champions clean seas and beaches.
www.mcsuk.org

Hermit crab in whelk shell (© Val Russell)

Duck from Dublin

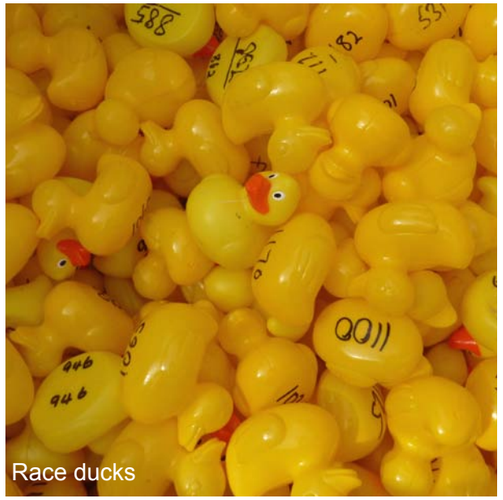
DUCK RACE ESCAPEES

Plastic ducks are frequently found on the strandline and provide clear evidence that much of the litter found on Solway beaches is washed down to the sea by burns and rivers.

Plastic ducks of all shapes, sizes and colours appear on the Solway Coast. Other than a race number the ducks usually have no distinguishing marks but occasionally the origins of the duck can be traced. A rash of yellow ducks arrived on our coast with “World Record Duck Race Ireland 2006” printed on their chests. 150,000 ducks were launched into the River Liffey, Dublin, and most were netted at the end of the one kilometre course. However, some escaped and made their way into the Irish Sea, eventually being washed up on the Isle of Man, England and even Sweden. The ducks found on strandlines in Dumfries and Galloway show that plastic on our beaches can travel great distances.

Small pieces of plastic accumulate toxins and are often mistaken as food by wildlife. **The Great Nurdle Hunt** is a project looking for evidence of plastic pellet pollution in the Firth of Forth.
www.nurdlehunt.org.uk

Contact **Solway Firth Partnership** if you find any in the Solway Firth.
www.solwayfirthpartnership.co.uk


Race ducks

Discarded shore crab shell

CRAB CAST-OFFS

Washed-up crabs found on the strandline are not the dead or dying but more often the old shell discarded by a growing crab needing a larger replacement for its body, legs, pincers and even eyes.

When the exoskeleton is too small for the growing crab, it grows a new soft shell inside, and calcium is re-absorbed from the old shell. The crab moults by splitting the back of the shell and extracts itself, leaving a fragile hollow shell which is often washed up and looks like a complete dead crab. Hiding from predators, the crab then absorbs water to dramatically increase its size and the new exoskeleton begins to harden. If you look closely at a discarded shell on the beach you will see it hinges open at the back and the eyes look white and empty. If the crab has black eyes and it has a nasty smell then it's a dead crab!

Native crabs come in many guises with descriptive names such as velvet swimming crab and the hairy crab, but an invasive non native species is threatening the Solway shore. The Chinese mitten crab has a distinctive coating of hairs on its pincers and if found should be reported to: **www.solwayfirthpartnership.co.uk**

Edible crab with discarded shell

Tangle of kelp

TORN AND TANGLED

Ranging from a smelly soup to a crispy black line, the strandline is made up of an amazing variety of red, brown and green seaweeds torn from their holdfasts by the churning sea.

The large brown kelps cast up on the strandline are known as tangle and have been used as fertiliser and in the production of chemicals. The name ‘kelp’ was first used to mean the ash produced by burning tangle, its high potash and soda content being used in glass and soap manufacture. Kelps are easy to identify: those with leathery sheet-like blades are oar weed with a smooth stalk or northern kelp with a rough stalk; those with a long strap-like blade include sugar kelp with a texture like crocodile skin or dabberlocks with a prominent midrib.

Scientists think the effects of climate change are altering the distribution of seaweeds. By identifying seaweeds and reporting what you find on the **Big Seaweed Search** you can help by providing better data: **www.nhm.ac.uk/nature-online/british-natural-history/seaweeds-survey/**

Dabberlocks

Carcass of ringed herring gull

DEATH AND DESTRUCTION

The carcass of a sea bird or other marine creature within the debris of the strandline is often the only chance we get of taking a closer look at the wildlife hidden below the waves or flying above our heads.

Death might be due to natural causes or caused by becoming tangled in fishing gear. Taking a close look at dead seabirds can be a bit grisly but sometimes a biological treasure is found such as a ringed Manx shearwater. These long-distance fliers, which are occasionally blown off course, die and are washed up on our strandline. Retrieving rings on Manx shearwaters has meant their epic return journey to the ocean off Brazil has been traced and it also helps to establish their life span, with the oldest bird being over 50 years old.

Bird ringing schemes allow us to better understand where birds go and how many survive from one year to the next providing data to measure trends in seabird populations. Report rings found on birds found on the beach to the British Trust for Ornithology: www.bto.org/volunteer-surveys/ringing/ringing-scheme

Hooked great black-backed gull

Necklace shell

DRILLER KILLERS

Found on the strandline, the snail-like necklace shell is one of several predatory molluscs which employ the same set of tools - chemicals and a rasp-like tongue - to attack their prey by drilling a hole through their shells.

The necklace shell gets its name from the eggs it lays in an open collar-shaped mass of jelly and sand grains which are sometimes washed up on the strandline in spring. Living on sandy bottoms below low tide level, it feeds on buried molluscs, usually bivalves but sometimes tower shells. Once the animal is devoured, its protective shell is washed up with a neatly drilled tapering hole providing evidence of the murderous deed (a straight-sided hole drilled in a mussel shell is the handy work of another driller killer, the dog whelk, which is a common find on rocky coastlines).

Dumfries and Galloway Environmental Resources Centre is the local record centre not only for molluscs but all wildlife found on the coast. For quality wildlife and habitat information or to report finds: **www.dgerc.org.uk**

Necklace shell egg mass

Blue rayed limpet on kelp stalk

HIGH DEFINITION

Sometimes found attached to the stalks of kelp thrown onto the strandline, young blue rayed limpets have luminous stripes which disappear later in life when they move down to the gnarled holdfast at the base of the seaweed.

The downward migration of these fragile, brightly coloured molluscs during the first summer of their life is thought to ensure they survive winter storms when the kelp fronds are often broken. The limpets are a contributing factor towards the stalk snapping because as they feed they create numerous deep circular scars which weaken the plant. The dull grey or brown older shells are variable in shape and can be found on beaches close to underwater kelp forests.

Another small mollusc, the tortoiseshell limpet, prefers cool seas and has been identified by the **Marine Conservation Association** as a climate change indicator. Find out more about climate change indicator species and how you can get involved in Shore Thing rocky shore surveys: **www.mba.ac.uk/shore_thing/**

Blue rayed limpet on kelp frond

Frosted orache

NOURISHMENT AND PUNISHMENT

Some salt tolerant plants like this frosted orache rely on tides and currents to spread their buoyant seeds onto the strandline; here they will thrive on the fertile rotting seaweed - if they can withstand the wind, waves and shifting sands.

The strandlines left by the highest spring tides are often colonised by annual plants such as sea rocket, which have adapted to survive in very punishing conditions. Seeds within the debris have coverings which protect them from sea water and the drying effect of the sun. In the spring, the fast-growing plants often have thick leaves that store water or a “sugar coating” covering that minimises evaporation. A combination of deep roots and an ability to grow up through fresh coverings of sand mean the greatest threat to these specialist seaside plants is from removal of the strandline when cleaning the beach.

The careful management of coastal plants by volunteers can enhance habitats for other wildlife such as the northern brown argus butterfly or natterjack toad. More about community projects and volunteer opportunities can be found on the **Solway Firth Partnership** website: **www.solwayfirthpartnership.co.uk**

Sea rocket

This guide aims to help you to understand more about the weird and wonderful things you might discover washed up on our beaches. The more you look, the more you will find, each treasure revealing more secrets.

This strandline guide has been produced as part of the Making the Most of the Coast project managed by Solway Firth Partnership.

Solway Firth Partnership