

A locally-managed voluntary marine nature reserve for Gairloch?

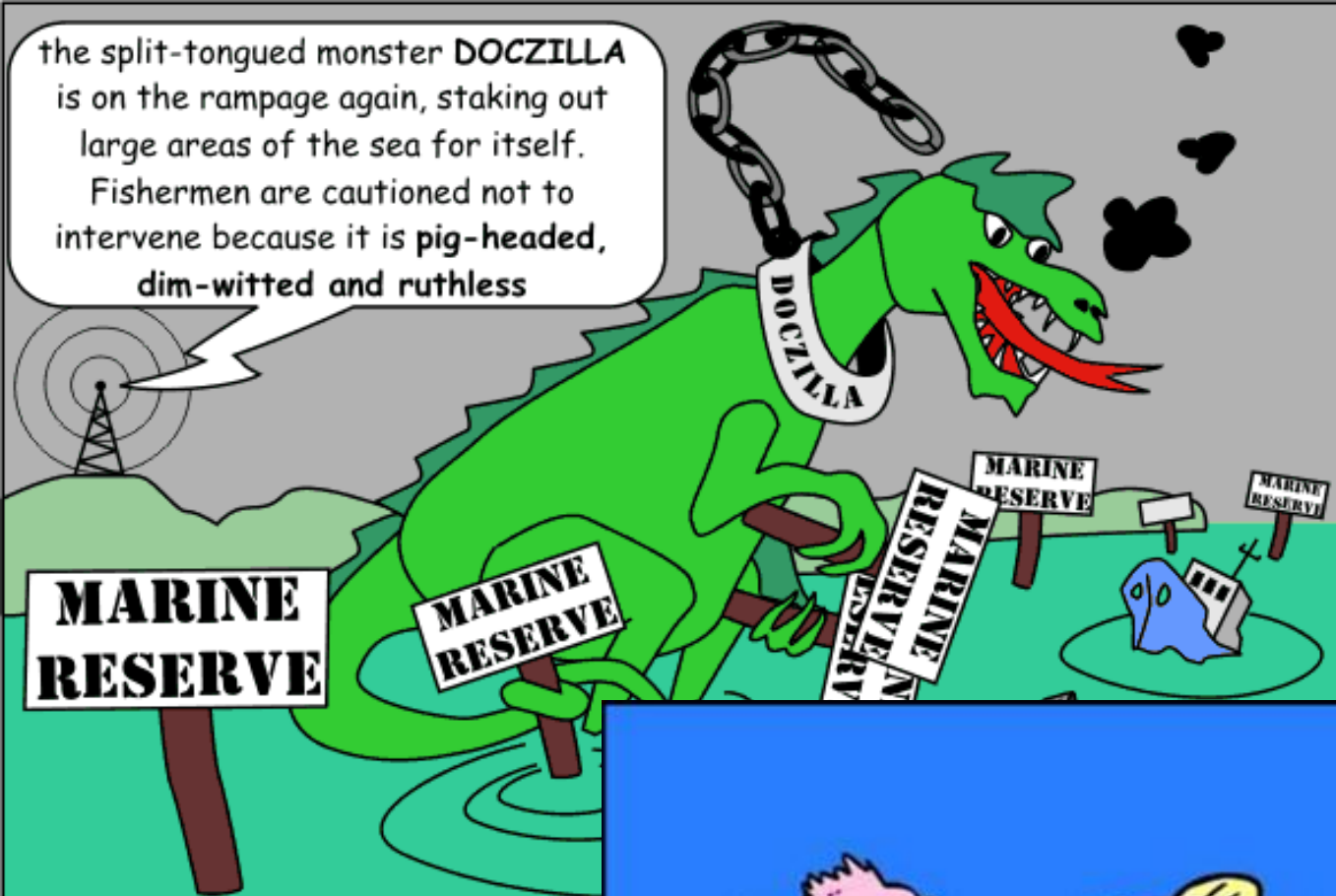
Peter Cunningham, January 2018; revised pdf version August 2023

info@wrft.org.uk / gairlochwildlife@gmail.com

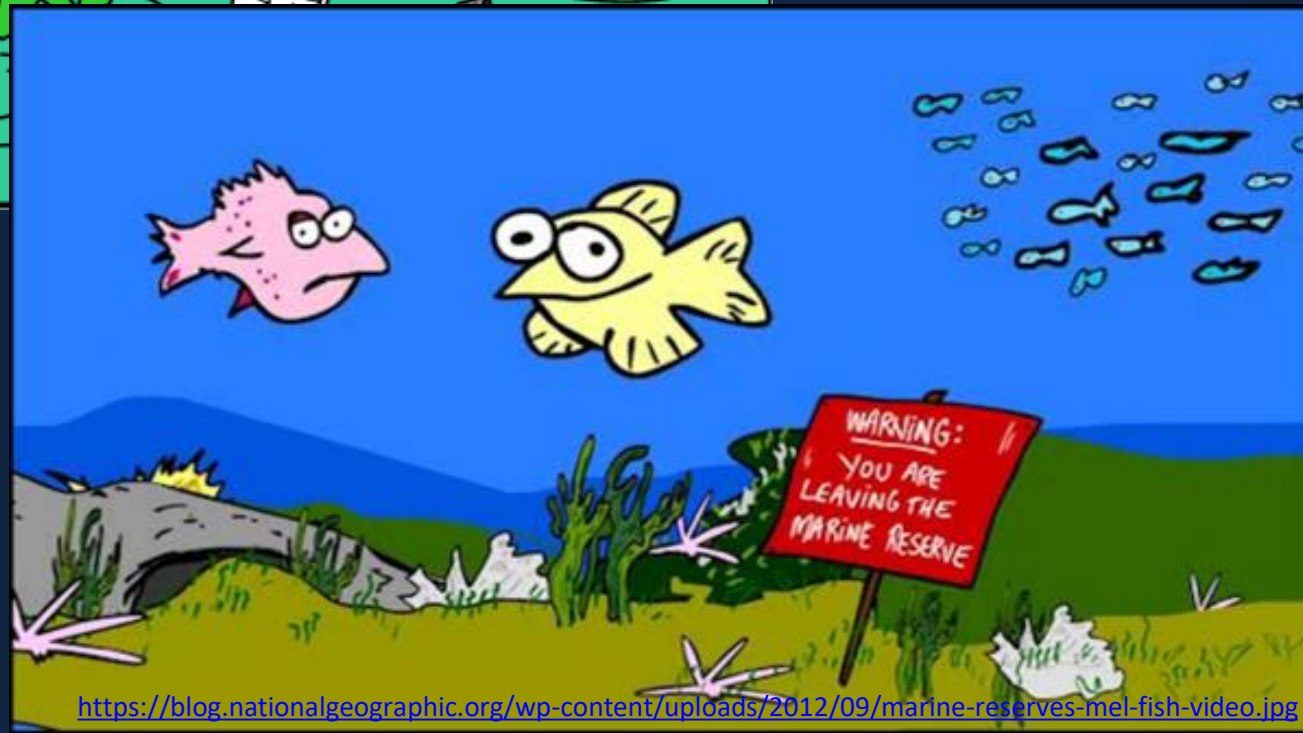
07786 836 003



the split-tongued monster **DOCZILLA** is on the rampage again, staking out large areas of the sea for itself. Fishermen are cautioned not to intervene because it is **pig-headed, dim-witted and ruthless**



... why?



Here's a proposal for an area of the sea around the head of Loch Gairloch to be recognised as a place of sanctuary for fish and other wildlife.

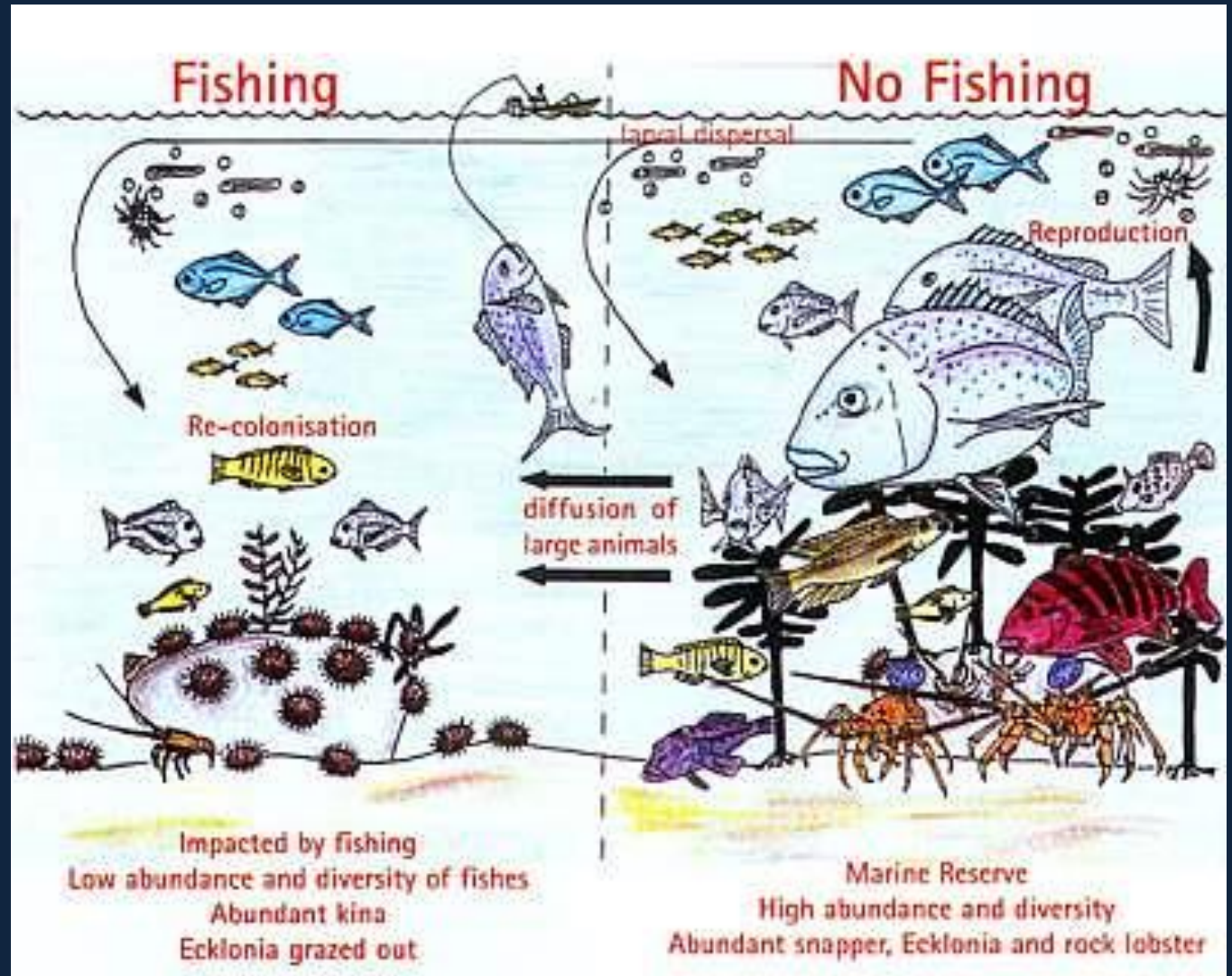
Many livelihoods and businesses in Gairloch depend on healthy populations of fish, shellfish and other wildlife.



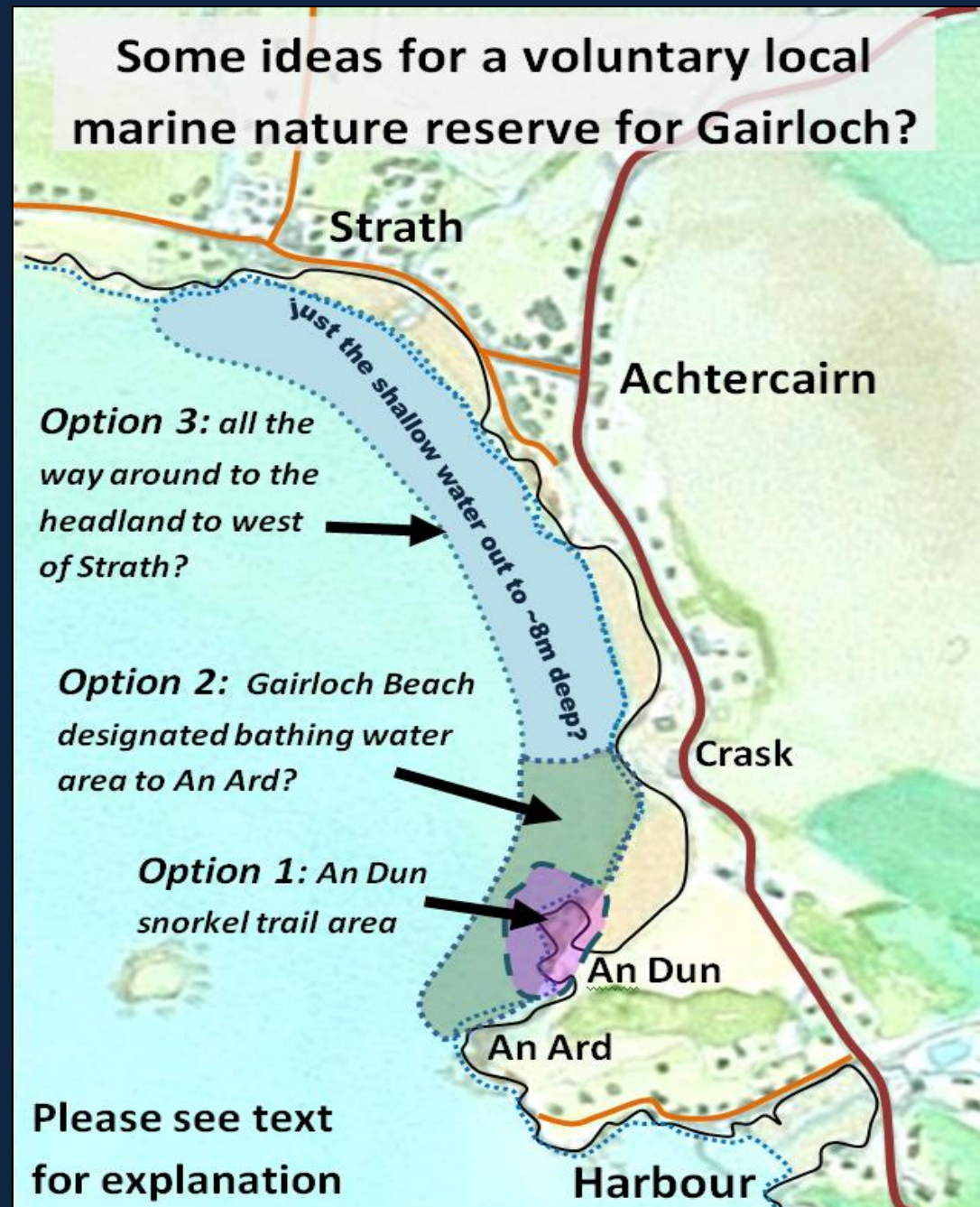
The idea for having an informal 'voluntary' marine reserve of this sort would be for local people to help to look after their coastal seas by having a place where fish and shellfish would not be taken.

Other countries have networks of marine reserves for people, marine wildlife and to support fisheries outside the marine reserves

Find out
about
marine
reserves in
New
Zealand



Three possibilities
were considered
for Gairloch in 2018



Option 1
small



Aerial

> United Kingdom • Scotland

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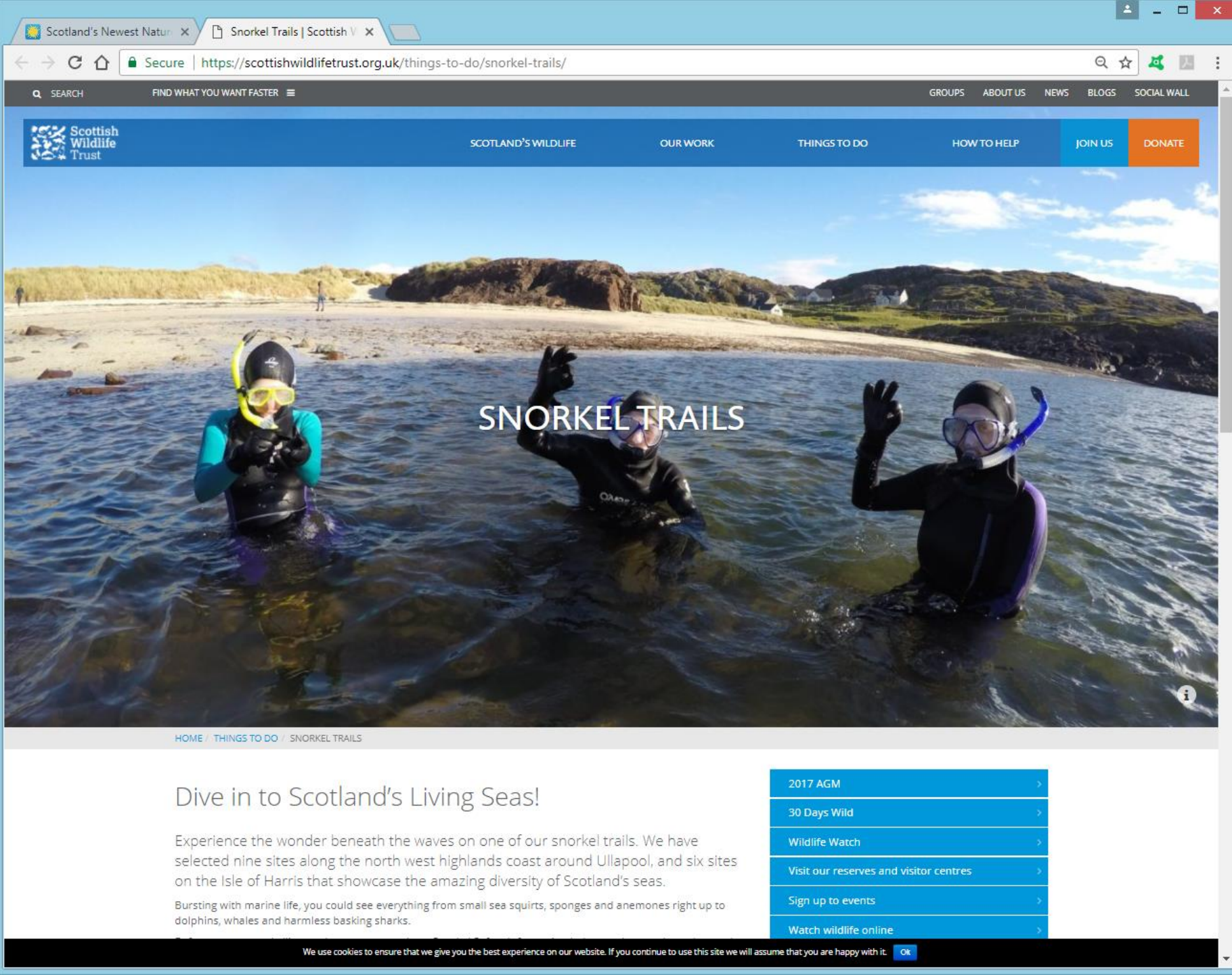
Option 1: A voluntary marine nature reserve around the An Dun headland at the far end of Gairloch beach.

This is the location of one of the NW Highlands snorkel trail sites developed by the SWT Living Seas Project.

It is one of the best places to snorkel on a calm sunny day. At low tide there is a sheltered lagoon where beginners, young and old, can paddle in shallow water and see all sorts of small fishes, assorted crabs, starfish, sea slugs and other surprises; an outdoor swimming pool with wildlife. On the far side of the headland, the kelp forest is home to larger fish especially in the summer time including wrasses and pollack, and larger shellfish including brown crab and lobster.

An objective would be to encourage snorkelers and paddlers to tread and rummage lightly and to respect the animals they see, leaving them where they find them (including those that look good to eat!).

Sometimes there is a creel set on the far side of the headland; I think the creel belongs to a non-commercial (hobby) fisherman, one would need to find out more about that; occasionally someone goes sea angling off the headland.



SNORKEL TRAILS

[HOME](#) / [THINGS TO DO](#) / [SNORKEL TRAILS](#)

Dive in to Scotland's Living Seas!

Experience the wonder beneath the waves on one of our snorkel trails. We have selected nine sites along the north west highlands coast around Ullapool, and six sites on the Isle of Harris that showcase the amazing diversity of Scotland's seas.

Bursting with marine life, you could see everything from small sea squirts, sponges and anemones right up to dolphins, whales and harmless basking sharks.

[2017 AGM](#)[30 Days Wild](#)[Wildlife Watch](#)[Visit our reserves and visitor centres](#)[Sign up to events](#)[Watch wildlife online](#)

Be a responsible snorkeller

Before you go

Check the conditions: be aware of tides, water temperatures, currents and weather forecasts before you leave.

Take a friend: never snorkel alone and always tell people where you are going.

Know who to contact: find out where the nearest medical and/or coastguard facility is and note down who to contact in an emergency.

At the beach

Know your surroundings: check what the weather and tides are doing, and identify a landmark for reference.

Use the right equipment: only use good quality and well-fitting equipment – mask, snorkel and fins.

Wear the right protection: a wetsuit will keep you warm and protect you against jellyfish stings. If it's sunny, remember to cream up!

In the water

Follow the Snorkeller's Code:

Do not remove seaweed or animals from the rock or from their homes.

Take care not to kick sealife with fins or stand on delicate animals.

Observe animals where they live and don't take anything away with you.

WARNING:

Do not snorkel in rough weather
Do not touch jellyfish and other wildlife
Never snorkel alone

Emergency Services:

999

Stornoway Coastguard:

01851 702013

Medical Centres:

Gairloch: 01445 712229

Ullapool: 01854 612015

Lochinver: 01571 844755

For further information, visit:

[scottishwildlifetrust.org.uk/
snorkeltrail](http://scottishwildlifetrust.org.uk/snorkeltrail)

North West Highlands Snorkel Trail

Wester Ross and Sutherland

E livingseas@scottishwildlifetrust.org.uk

W scottishwildlifetrust.org.uk/snorkeltrail

F facebook.com/LivingSeasScotland

T @ScottishSeas



1 Bay of Clach toll

2 Achmelvich Bay

3 Achnahaird Bay

4 Tanera Mòr

5 Camusnagaul

6 Gruinard Bay

7 Mellon Charles

8 Big Sands Carn

Dearg

9 An Dun

This project is part of the Scottish Wildlife Trust's Living Seas programme and has been supported by the Esmée Fairbairn Foundation.



Scottish
Wildlife
Trust

scottishwildlifetrust.org.uk

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Dive in to Scotland's Living Seas!



Snorkel Trail

North West Highlands

8



Big Sand Carn Dearg

P

MAP: OS Landranger 19, NG760777

A

NEAREST VILLAGE: Gairloch (3 miles)

B

C

D

The headland south of Big Sand has a nice sandy beach and is a great area for beginners. Further offshore, a reef with kelp forests, colourful rock dwellers and lots of fish is excellent for the more advanced snorkeller (100m swim required at low tide). Best explored when seas are calm.

9



An Dun

P

MAP: OS Landranger 19, NG80375

C

NEAREST VILLAGE: Gairloch (1 mile)

B

D

The An Dun headland offers a sheltered lagoon at low tide where juvenile fish and other small marine creatures congregate. The advanced trail on the outer side of the headland offers kelp forests, fish and shellfish (requires scramble over slippery boulders). The headland can be reached via a path from the Gairloch Golf Course car park.



Life under the waves

Scotland's north west coast is home to a rich and diverse array of marine habitats and species. There are no guarantees what you might see on your snorkel trail (that's part of the fun!), but here are some common species to keep an eye out for:

Fish



LESSER-SPOTTED DOGFISH



BALLAN WRASSE



BUTTERFISH



POOR COD

Crustaceans



SHORE CRAB



VELVET SWIMMING CRAB



HERMIT CRAB



EDIBLE CRAB

Snails



TOPSHELL



DOGWHELK

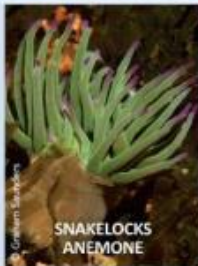


PERIWINKLE



LIMPET

Other Invertebrates



SNAKELOCKS ANEMONE



CUTTLEFISH



DEAD MAN'S FINGERS



SEA SQUIRT

Jellyfish



LION'S MANE



MOON

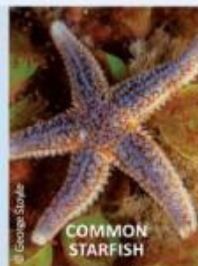


BARREL



STALKED

Starfish and urchins



COMMON STARFISH



BRITTLESTAR



SUNSTAR



COMMON URCHIN

Plants and algae



KELP



MAERL



EELGRASS



BLADDERWRACK

Also look out for...

HARBOUR PORPOISE

WHITE-TAILED EAGLE

BASKING SHARK

SEALS (COMMON AND GREY)

MINKE WHALE

MERMAID'S PURSE (SHARK OR RAY EGG CASE)

Remember the three Ts:
No touching, taking or teasing of marine animals, plants or shells.

What did you see on your snorkel?
Send us your pictures on **Facebook** and **Twitter**!



This movie is about some of the
animals that live
around the An Dun headland

(PS: Aug 2023: movie currently being updated)

00:02



Option 2
medium



Aerial

> United Kingdom • Scotland

A832

Gairloch Golf Club

The Old Inn

Wester Ross
Retreats

Braemar Road

250 feet

100 m

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Option 2: a larger area from far end of An Ard (west of An Dun) to the headland below the Crask viewpoint and war memorial. It includes the An Dun snorkel trail area (as above) and also the shallow water below Gairloch beach (now a 'designated bathing area') popular with open water swimmers.

In addition to many juvenile fish (including sandeels, herring and plaice); the shallow water is a feeding area for a variety of sea birds including three species of divers.

So the voluntary reserve could aim to be a place of sanctuary for both underwater marine wildlife and sea birds; with a request that people consider using fast motorised boats or jet-ski's elsewhere (or at low throttle at least)? Kayakers and swimmers cause less disturbance; indeed kayaking can be a good way to approach and enjoy seeing marine wildlife.

Once I met someone collecting cockles from the sands using a rake; I think he was taking just a few home for supper; that could be something to consider.



UK Record Weights, rod/line from boat



Plaice: 10-03-08 Longa Sound, Scotland. H Gardiner 1974

(photo: <http://www.uk-fish.info/pages/plaice.html>)

Loch
Gairloch
was well
known
for sea
angling



Dab: 2-12-04 Gairloch, Highlands. R. Islip 1975

(photo: <http://chesilbeach.forumotion.net/t7074-smashed-dab-record>)

LETTERS TO THE EDITOR

Dear G&DT

January, 2010

I was interested in Derek Roxborough's letter and Dorothy's response à propos the Gairloch cod fishery. As stated, both must be correct. A few years ago I was told by an old local fisherman that he vividly remembered setting out the long lines - or 'great lines' if they were for cod - in his grandfather's boat, across Gruinard Bay. He said, 'I can still feel, one by one, the bangs and knocks of fish hooking themselves all down the line' as I held the end.

In 1972 I was living in Lee-On-Solent when I read in *Angling Times* about a British record plaice that had been rod and line caught from Longa Sound by a young man in a canoe. Being very keen sea anglers, my family and I towed out boat all the way up from south Hampshire. We camped at Big Sand and fished every day for a fortnight and talked with local fishermen about the winter cod netting amongst their other commercial activities.

We caught fifteen species of fish in the Gairloch area during that holiday, many to specimen size. These included codling and hake, haddock, thornback and conger plus a lemon sole within half an ounce of the British record (in ten feet of water of Strath) and a dab from Longa Sound that actually became the British rod caught record. May still be in the Guinness Book of Records - haven't checked recently.

We had fished from shore and boat many coasts around Britain and many since then, but I never encountered anything to compare with this.

But two years later we returned, this time catching very little. The boys in the big boats had been listening! By 1980 the fishing in Gairloch wasn't worth the candle. We heard stories of suction dredgers and illegal night trawling, 'sea bottom like a ploughed and weed-less field', etc, etc. Why are we so keen, so often, to cut off the branch on which we sit?

I hope that one day Loch Torridon, the Gairloch and Loch Ewe can become a New Zealand style Marine Park, thus allowing these precious breeding grounds to return to their former glory, for the future benefit of all.

Bryan Islip

**Juvenile plaice and flounder,
Gairloch 2007.**

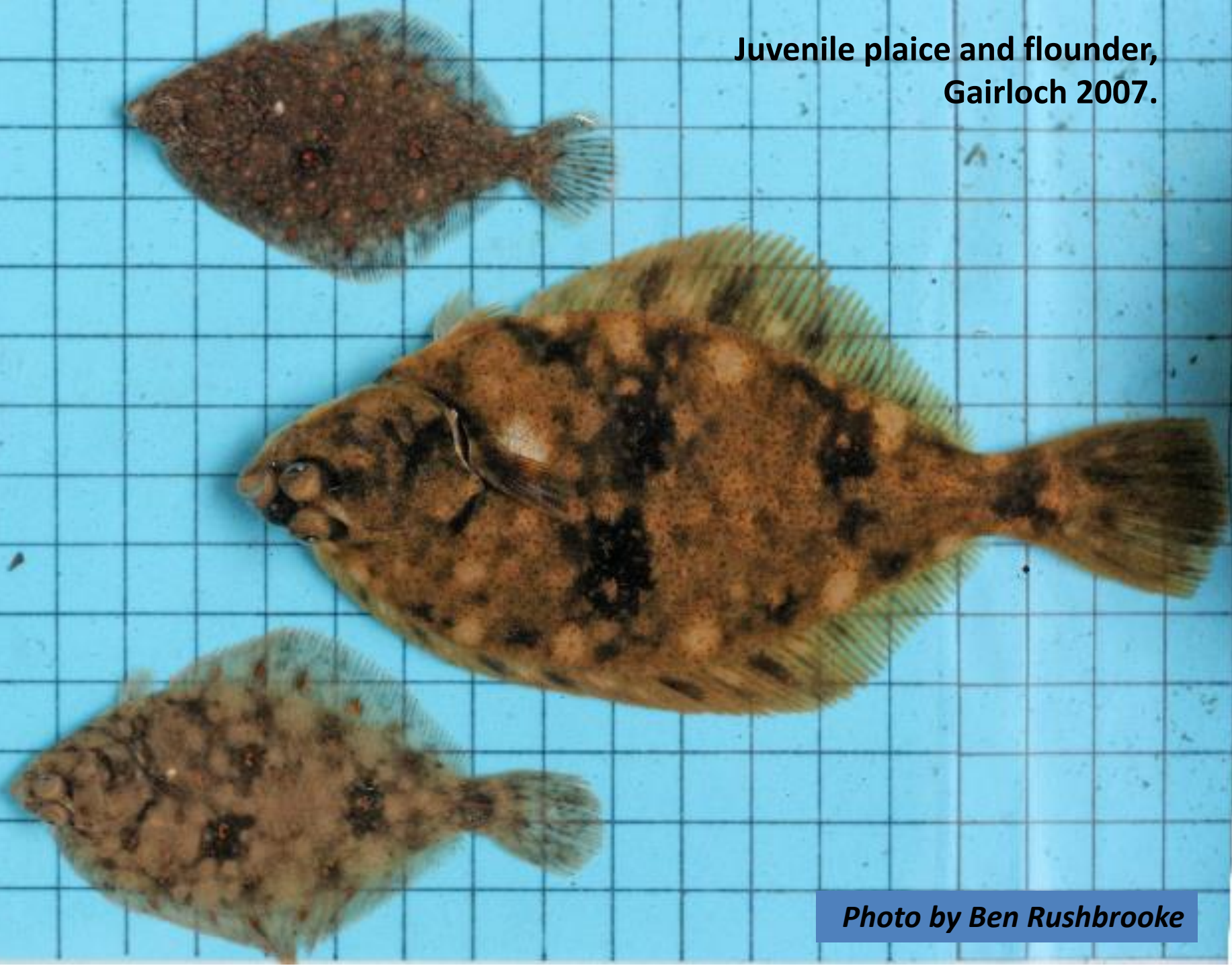


Photo by Ben Rushbrooke





Option 3: A voluntary marine reserve extending from the tip of An Ard right around to the headland beyond Strath.

The bigger area would mean that schools, local businesses, including hotels and restaurants, the GALE centre, Gairloch Museum; churches, a number of houses and other enterprises could gain a sense of shared ownership and responsibility for looking after their wildlife and local seafood.

The area could be developed as a study area for school pupils interested in marine wildlife ecology and sustainable fisheries management; important things to understand to recover much of what their grandparents took for granted?

Black-throated divers may be seen here at almost any time of year. They breed on islands in Loch Maree and several other lochs in Gairloch parish; in summer plumage they are spectacular birds. Red-throated divers nest by smaller lochans in the hills, returning to Loch Gairloch to fish for sandeels and other small fish. Gairloch is a good place for divers!

Sometimes rod anglers fish from rocks by Strath; it is many years since anyone set a salmon net or speared flounders here (to my knowledge at least!).

PUKATAI

Educational Marine Managed Areas Network from Marquesas islands



PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21-CMP11



IUCN
World
Conservation
Congress
Hawaii 2016

<https://greencoconutrun.com/category/marine-reserves-2/>

Fishing for sandeels, Strath Bay, Gairloch, July 2009



Photo by Steve Kett

Sandeels from Strath Bay, Loch Gairloch, July 2009

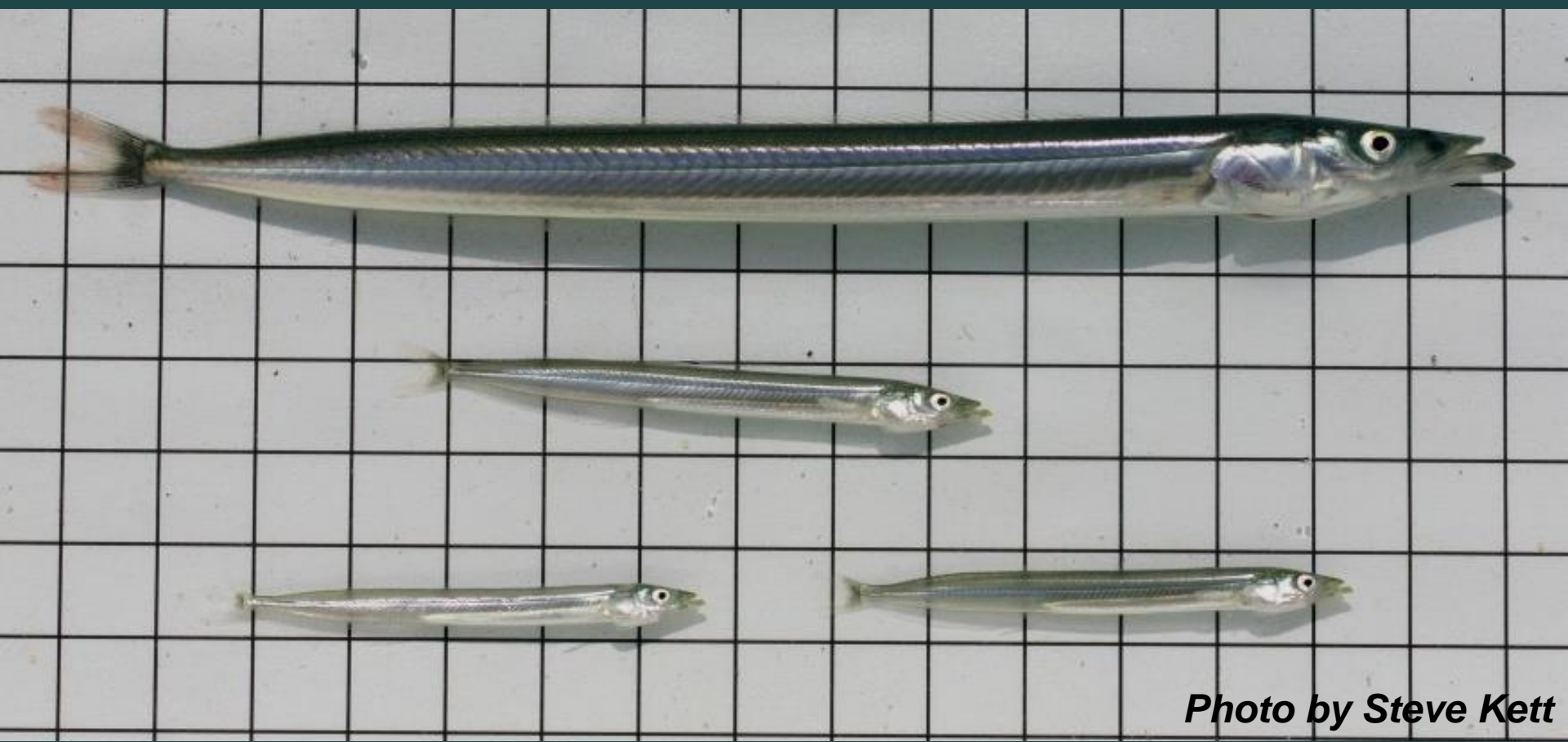


Photo by Steve Kett

... when there are lots of wee fishes in the sea,
sea trout grow fat; food for divers ...



<http://www.shenval-welcome.co.uk/Out-and-About/Bird-List.php>



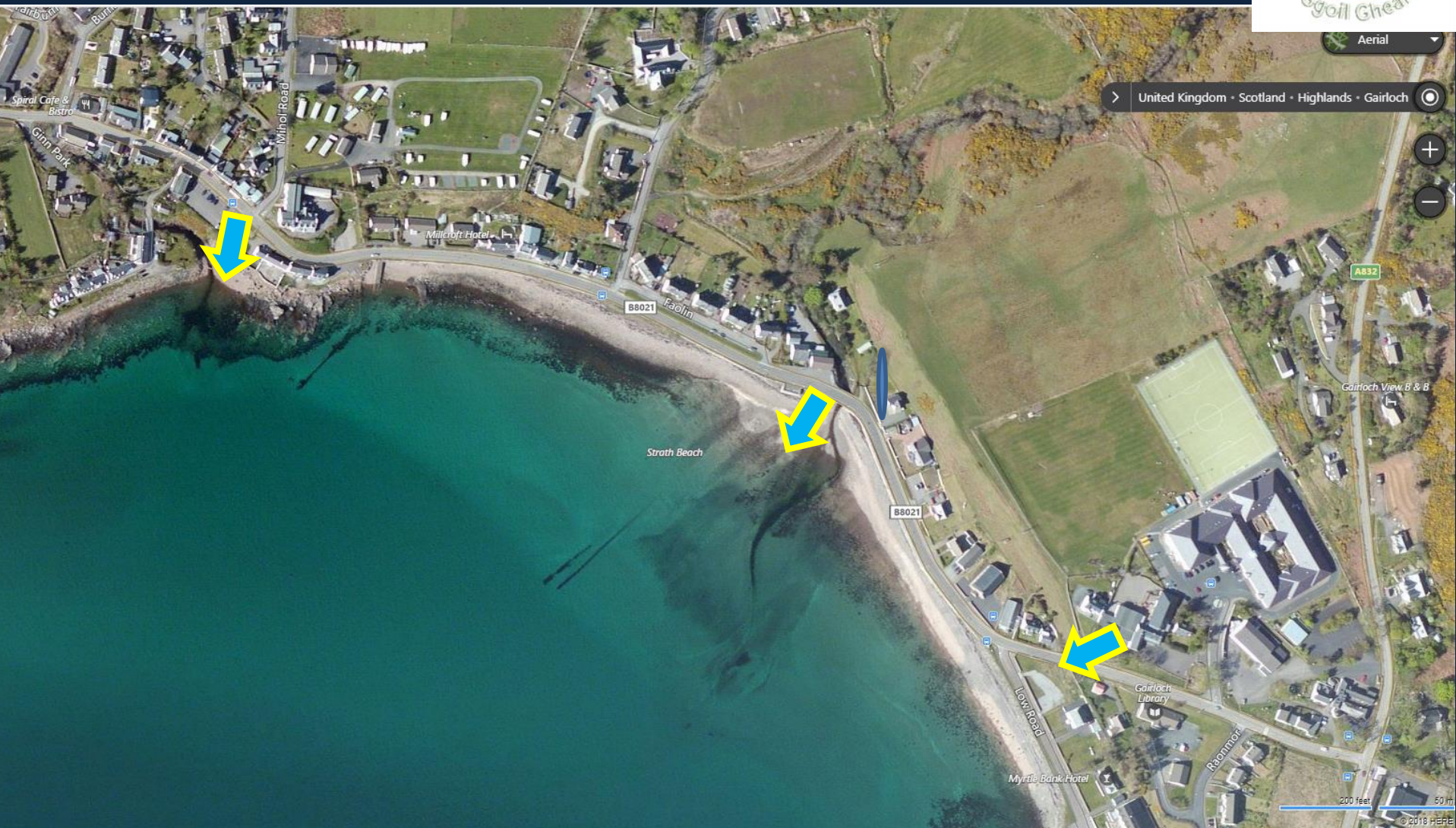
Common Tern (*photo by Barry Blake*)

Sea trout condition . . .



2009: a remarkably 'fat' sea trout of 380mm, 800g (condition factor 1.46) taken in the sweep net at Boor Bay on 15th July 2009 (photo Ben Rushbrooke)

Possible viewpoints / interpretation?

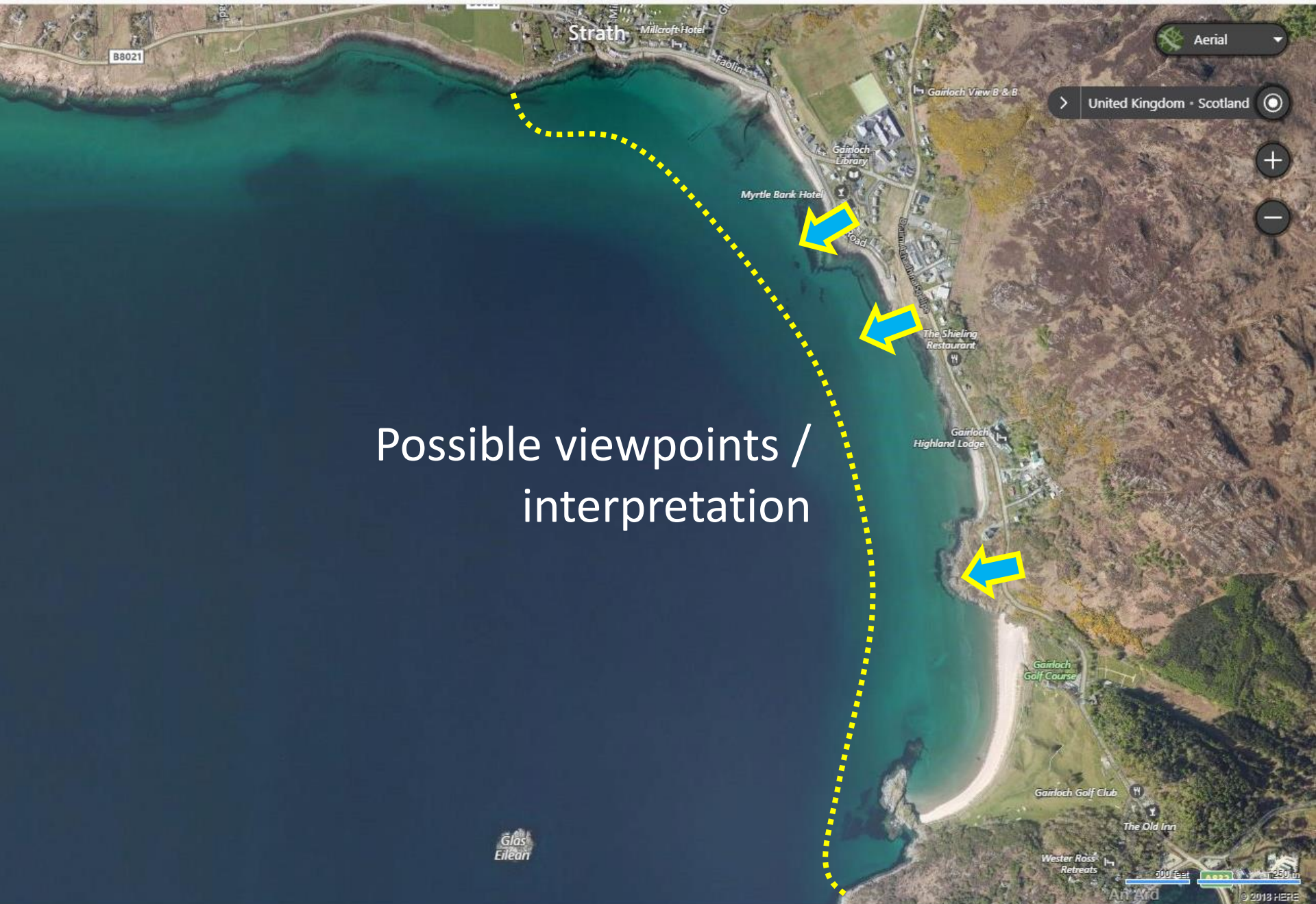


Signage: how would anyone know?

For any of the above options to progress, easily understood information about the location and purpose of the marine nature reserve would be provided via local media, notices, a series of interpretation panels, leaflets, and by word of mouth.

I envisage no laws nor enforceable regulations, no fixed red lines on maps (I'd suggest including just shallow water out to 10m or 20m deep within the nature reserve), minimal bureaucracy; just enthusiastic interest, shared understanding, active respect, a caring attitude from lots of people watching and politely telling others, common sense.





Possible viewpoints /
interpretation



This poster aims to encourage more people to take an active interest in looking after our wonderful coastal seas. Wildlife habitats range from sheltered sea lochs to rocky headlands exposed to arctic storms. Many of the North Atlantic's most

remarkable animals can be seen here, sometimes close to land. Come and explore: bring a drysuit or warm wetsuit and snorkel, a sea kayak; or book a boat trip. Take care: the seas can be dangerous. Paddle lightly; enjoy!



Gannet (March to November). Watch where gannets are diving in for mackerel or herring and you may also see cetaceans. St Kilda is the nearest breeding colony.

Feeding frenzy (May-October).
Excited seagulls gather where cetaceans have herded smaller fish towards the surface; and around sea lochs where shoals of whitebait (sprats) are chased into the shallows by mackerel.

Bird Islands. Nesting sites for Gulls, Terns, Great Skua, Greylag Geese, Shag, Cormorant, Fulmar, Black Guillemot; and Storm Petrel on Priest Island. White-Tailed Eagle hunting grounds. Vivid green vegetation grows where bird droppings have enriched soils.

Harbour Seal (all year). Dog-like face. Often inquisitive and entertaining. Pups are born in summer on haul-outs in sheltered bays and islands. The larger Grey Seal can be seen in the harbours at Gairloch and Ullapool.

Minke Whale (May to October)
Seen from headlands to within 400m of the shore. When it surfaces to breathe, the dark back and dorsal fin appear for about 3 seconds.
Feeds on small fishes.

Plankton bloom. Tiny planktonic algae multiply rapidly during the long days of spring and early summer; and are eaten by zooplankton which sustains many fishes and other marine animals.

Basking Shark (May to October). Grows to over 10m long. Filters zooplankton where surface currents converge. Look for a shiny dorsal fin in the mixing line, sometimes to within 200m from the shore.

Moon Jellyfish (April-August)
Blooms of jellyfish sometimes form slicks which are washed on beaches. Stinging Lion's Mane Jellyfish feed on Moon Jellyfish from mid-summer.

Otter (all year). Almost anywhere around coast; sometimes seen during the daytime in areas away from disturbance. Small fishes and crabs are taken; and frogs, trout and eels from freshwater habitats.

Mackerel (April-October). Filter-feeding shoals spray the surface of the water where currents converge. From mid-summer, larger mackerel hunt smaller fish close inshore. Anglers: please take only those that you can eat.

Flapper Skate. Skate of >2m are found in local waters where they may still breed. In other parts of the NE Atlantic, over-fishing has almost eradicated stocks; now listed as 'Critically Endangered' by IUNC.

Porpoise (all year) Groups of ~20 can be seen in sea lochs in summer and autumn, in pursuit of small fish and mackerel. Surfaces for air quietly; unlike dolphins, rarely jumps clear of the water.

Sandeels (May-October). Hide in sandy sea beds, feed on zooplankton and fish fry; are eaten by larger fishes, seabirds and cetaceans. Sea Trout grow fat in years when sandeels are plentiful.

Corkwing Wrasse. One of several colourful wrasse species found mainly in rocky areas. Feeds on worms and crustaceans. Territorial males make mound-like nests of algae in summer and entice females in to lay eggs.

Kelp forest. Several kinds of kelp grow around the shore providing habitat for other seaweeds and food and hiding places for many animals. Look for colourful wrasse, crabs, starfish and sea urchins.

Herring (all year). Vast shoals formerly supported important local fisheries in sea lochs and in the Minch. Maerl beds to the west of Melvaig and Greenstone Point were important spawning grounds.

Norway Lobster (*Nephrops*). Live in burrows in muddy sea beds, usually in deeper water, and scavenge anything they can find. 'Prawns' sustain important local fisheries.

Cod. Historically supported a major local fishery, larger fish have been scarce in recent years. Cod eat a wide range of invertebrates and other fishes. Young cod live close to the shore.

Pollack (all year). Pollack of >60cm long can sometimes be caught from rocky headlands as they swim among kelp. Feeds on other fish and crustaceans; spawns in April.

Sea Urchins. Powerful omnivorous grazers, scraping barnacle as well as seaweeds from rock surfaces, kelp stems or piers.

Hermit Crab. Snorkellers can find them year-round on both rocky and sandy seabeds; the largest ones often live in whelk shells. Versatile, feeding on other animals or bottom deposits.

Maerl. Formed by a free-living red seaweed, unattached nodules grow slowly to create coral-like beds which shelter many animals including juvenile fish and shellfish. Easily damaged by dredgers and siltation.

Purple Sunstar. Up to 40cm across, sunstars feed on other starfish, sea cucumbers and other slow moving animals.

Flame shell (*Limaria hians*). Using its fringe of orange tentacles and by snapping shells, this delicate bivalve is able to swim. Nests may be built on top of each other to form flame shell reefs providing habitat for other animals.

Plaice. Plaice are most active at night. Rod-caught record plaice were caught in local waters in the 1970s. Juvenile plaice are found in shallow water on sandy beaches.

Ocean Quahog (*Arctica islandica*)
Hard-shelled clam with thick black outer skin. Lives buried in muddy sand. The world's longest-lived animal, to >400 years old.

Seagrass beds. *Zostera marina* is our only truly marine flowering plant. Seagrass meadows are home to many animals including some fishes which use them as nursery areas. Seagrass beds are recovering from damage and disease in the Sound of Longa and other areas with help from local people.

Please support efforts to protect and restore important marine wildlife habitats, marine wildlife and the prolific fisheries upon which Ullapool and other local villages were founded.

For more information, please contact local tourist information centres or visit the Wester Ross Environment Network website www.wr-en.co.uk

Also illustrated: Breadrumb Sponge, Dahlia Anemone, Dead man's Fingers, Phosphorescent Sea Pen, Lion's mane Jellyfish, Paddleworm, Velvet Swimming Crab, Long-legged Spider Crab, Brown Shrimp, Tophill, Sea Hare, Sea Lemon, Fan Mussel, Horse Mussel, Great Scallop, Razor Shell, Striped Venus, Banded Wedge Shell, Banded Venus, Pullet Carpet shell, Common Otter shell, Lesser Octopus, Common Starfish, Red Cudfish Star, Black Brittle Star, Striped Venus, Wedge Shell, Spotted Venus, Common Starfish, Common Starfish, Red Cudfish Star, Black Brittle Star, Common Heart (sea Potato), Cotton Spinner, Brown Trout (sea trout), Small-headed Clingfish, Snake Pipefish, Long-scaled Seahorse, Lump sucker, Rock Cook, Butterfish (gunnel), Two-spot Goby, Dragonet,

Voluntary marine reserves in other parts of Scotland

There is one other voluntary marine nature reserve in Scotland, at St Abb's southeast of Dunbar. This has become a popular place with divers, snorkelers and other visitors. It is now managed primarily by the local community.

Elsewhere, there is a no-take zone in Lamlash Bay, by Arran supported primarily by the people of Arran.

That one has enforceable by-laws to protect wild fish and shellfish and other wildlife from exploitation; the area is used for student research and monitoring.

While neither of these are quite the same as proposed here for Gairloch; they are both examples to learn from.

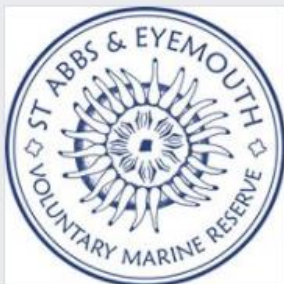
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Eyemouth Voluntary
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BERWICKSHIRE MARINE RESERVE

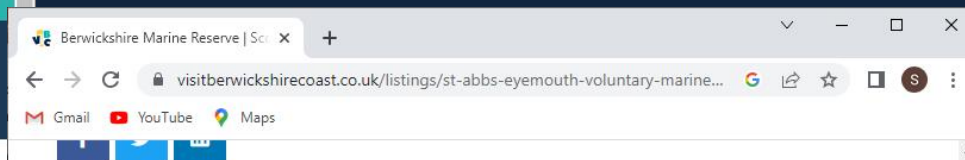


The waters off the Berwickshire coast have long been considered special by marine biologists as they contain a fantastic abundance and diversity of marine life. Add to this clear waters and spectacular underwater scenery and it is not surprising that divers have been coming to the area for decades.

The coastal waters of Berwickshire are home to a remarkable and truly unique mix of marine life not found elsewhere in the UK. Grey Seals, Bottlenose Dolphins and Minke Whales can all be seen here, and below the waters magnificent kelp forests are home to vibrant and charismatic marine creatures such as Sea Slugs and territorial fish.

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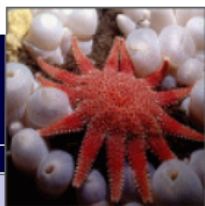
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Accept



Welcome

welcome activities scuba diving business directory contact



Code of Practice

To promote and facilitate the continued safe use of the Marine Reserve, visitors should comply with the rules defined within our code of practice. These are:

Safety



The "A" flag.

- Boat users must carry adequate equipment and ensure that someone reliable knows where they are going and when they will return.
- Divers must comply with safety requirements of SSAC, BSAC, SAA, PADI, CMAS etc. Boats with divers down must fly the 'A' flag.

Courtesy

- Maintain a high standard of behaviour and decency in public places.
- Obey parking regulations and park tidily, using bays where provided.
- Obey any special regulations which might apply, for example at harbours where the harbourmasters must be obeyed.

Conservation

- Fishing and sea angling by traditional methods are permitted. Fisheries regulations must however be obeyed. It should be noted that angling is not permitted from the shore within the St. Abbs Head Nature Reserve.
- NO spearguns, spears, hooks, gaffs etc. are to be used underwater.
- DO NOT tamper with fishing gear or lobster pots, it is illegal and highly dangerous.
- DO NOT collect plants or animals within the Marine Reserve.
- DO NOT leave litter, fishing line or chemicals (waste oil, paints etc.).
- Boat users must reduce their speed close to the cliffs of St. Abbs Head to minimise



St. Abbs Lifeboat.

Related Sites

[Scottish Sub Aqua Club](#)
Scottish Sub Aqua Club (SSAC) website.
<http://www.scotsac.com/>

[British Sub Aqua Club](#)
British Sub Aqua Club (BSAC) website.
<http://www.bsac.com/>

[Sub Aqua Association](#)
Sub Aqua Association (SSA) website.
<http://www.saa.org.uk/>

[Professional Association of Diving Instructors](#)
Professional Association of Diving Instructors (PADI) website.
<http://www.padi.com/>

[Confederation Mondiale des Activites Subaquatiques](#)
Confederation Mondiale des Activites Subaquatiques (CMAS) website.
<http://www.cmas2000.org/>

General Information

[Introduction](#)
[Location](#)
[Extent of Reserve](#)
[Code of Practice](#)
[Support & Funding](#)
[Constitution](#)



Clauchlands Point

Hamilton Rock

Lamlash Bay

The Scottish Government has issued a Statutory Instrument (SI) which prohibits all fishing for sea fish within Lamlash Bay, Isle of Arran, regardless of the method of fishing employed. This constitutes a 'No Take Zone'.

The SSI No 317/2008 entitled The Inshore Fishing (Prohibition on Fishing) (Lamlash Bay) (Scotland) Order 2008 can be found on the Scottish Government website at Lamlash Bay SSI.

By virtue of section 4 of the Inshore Fishing (Scotland) Act 1984, any person who contravenes a prohibition contained in this Order shall be guilty of an offence and liable on summary conviction to a fine of up to £5,000, and on conviction on indictment to an unlimited fine.

Marine Scotland 0845 270 3990
www.sfpa.gov.uk/suspicious.asp

Order	Name	Latitude	Longitude
1	Black Sea	41° 26' N	26° 16' E
2	Bosporus	41° 00' N	28° 50' E
3	Marmara Sea	39° 40' N	29° 10' E
4	Aegean Sea	39° 00' N	26° 00' E

[illegible]

This panel is part funded by
Esme Fairbairn Foundation

This is the area of the
No Take Zone

Lamlash Bay No Take Zone

Welcome to Scotland's first No Take Zone, an area of sea and seabed from which no sea fish can be removed by any method. This underwater world is amazing, and our Scottish waters are home to over 8,000 spectacular species, please help us keep it this way.

Holy Isle East

Holy Isle West

WELL MANAGED MARINE PROTECTED AREAS SUPPORT FISHERIES

MPAs IMPROVE THE HEALTH OF OCEANS BY:



Protecting and
Restoring
Marine Habitats



Increasing Resilience
to Environmental
Changes



Protecting Species
and Rebuilding
Fish Stocks

MPA

KEY PRINCIPLES FOR MPAs TO WORK:



Well Designed
Networks of MPAs



Enforced and
Complied With



Local Community
Engagement



Part of an Integrated
Management Plan

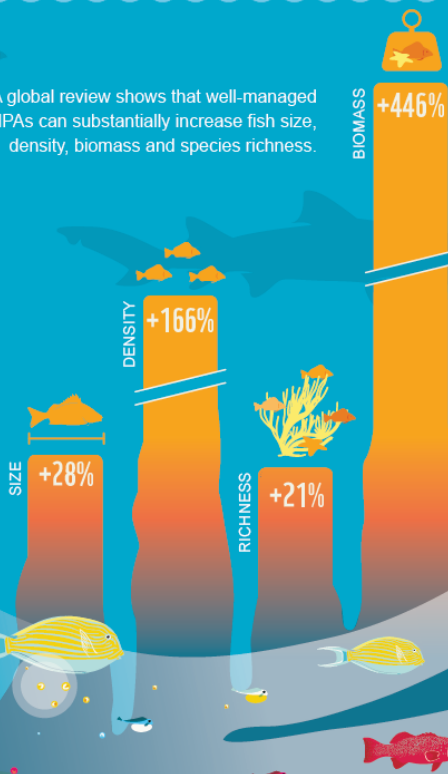


Sustainably
Financed

MPAs SUPPORT LIVELIHOODS

In Apo Islands, Philippines, fishers have doubled their catch rate 18 years after the MPA was created. As a result, they go out to sea less, saving on fuel and time.

A global review shows that well-managed MPAs can substantially increase fish size, density, biomass and species richness.



MPAs CAN PUMP FISH INTO ADJACENT AREAS

As fish populations recover within MPAs, juveniles and adults can spill over across the boundaries and replenish fishing grounds.

EXAMPLE: APO ISLAND PROTECTED AREA, PHILIPPINES

Surgeonfish and jackfish represent 40-75% of local fishery yields.



Since the MPA was established, their population has tripled...



...resulting in an increase in catch per unit effort of

+50%

MPAs CAN EXPORT LARVAE INTO ADJACENT AREAS

Larger fish inside MPAs produce disproportionately more eggs and larvae. Some larvae then drift to fished areas.

EXAMPLE: GREAT BARRIER REEF PROTECTED AREA, AUSTRALIA

The coral trout and the stripey snapper are exploited locally.

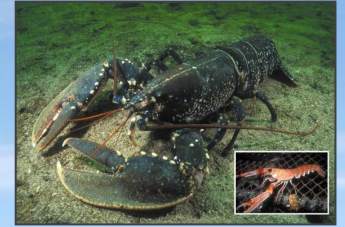


Local MPAs produce $\pm 50\%$ of total juvenile recruitment in nearby fished areas.

Globally, WWF works to support Marine Protected Areas and ensure they contribute to securing food and livelihoods for people while conserving critical habitat and species.

www.panda.org/mpa





Thank You

Photos by Jeremy Fenton, Barry Blake, Sue Scott, Peter Cunningham, & other sources. For information and support, thank you to many other people . . .