

The West of Scotland Herring Hunt



The importance of Atlantic herring & how *YOU* can help west coast populations

Dr Michelle Frost, ENU

WOSHH Project Co-Ordinator
UN National Decade Committee

Prof Karen Diele, ENU

WOSHH Principle Investigator
MASTS Fisheries Forum

✉ info@scottishherring.org

🌐 scottishherring.org

WHY HERRING?

Economic importance, heritage & identity in Scotland

- First herring fishery records from 860 AD
- In the mid-19th to 20th centuries, herring fisheries boomed, making up ~1/3 of the global catch
- Herring provided income and social development to coastal communities where job prospects were limited
 - Female 'paid' labour
 - Crofter fishermen



EVOLUTION OF THE INDUSTRY

Drift netting



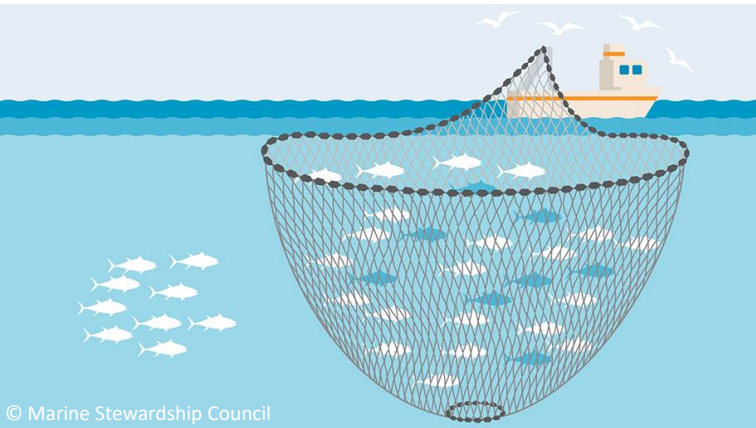
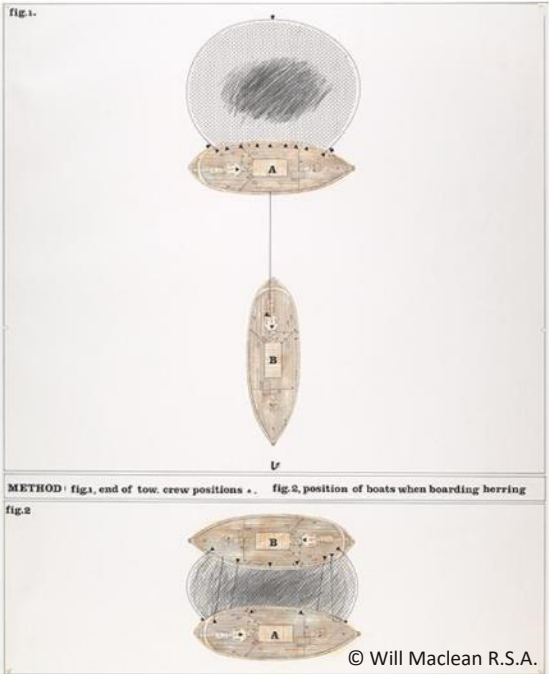
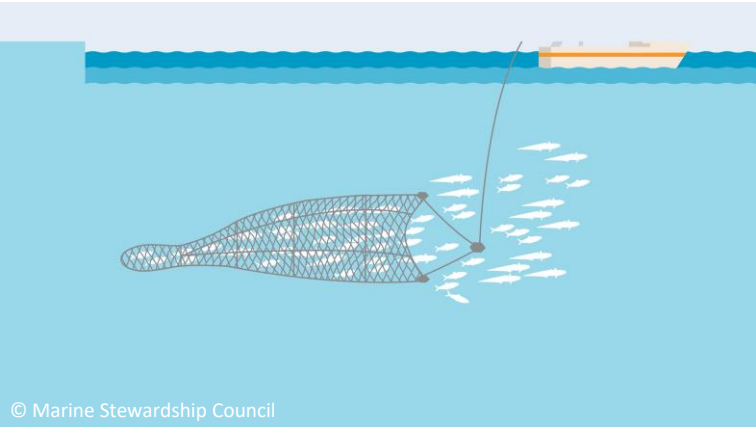
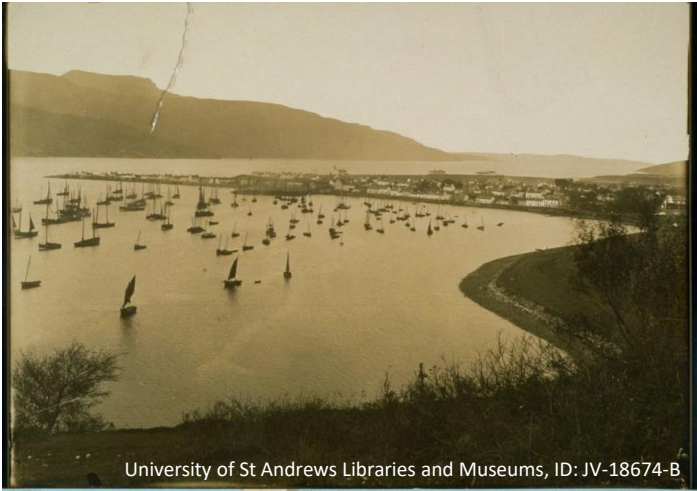
Ring netting



Mid-water trawl



Purse seine



NOT ENOUGH FISH IN THE SEA...



Wick Society, Johnston Photographic Collection



University of St Andrews Libraries and Museums



Wick Society, Johnston Photographic Collection



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BOOM & BUST

- Naturally variable populations
- Technological advances: larger, more efficient vessels = more fish caught & job losses

“70 drifters, 10 men on every boat, that’s 700 men... I’ve seen two purse net boats with 20 men landing that same quantity. 20 men as opposed to 700 men”

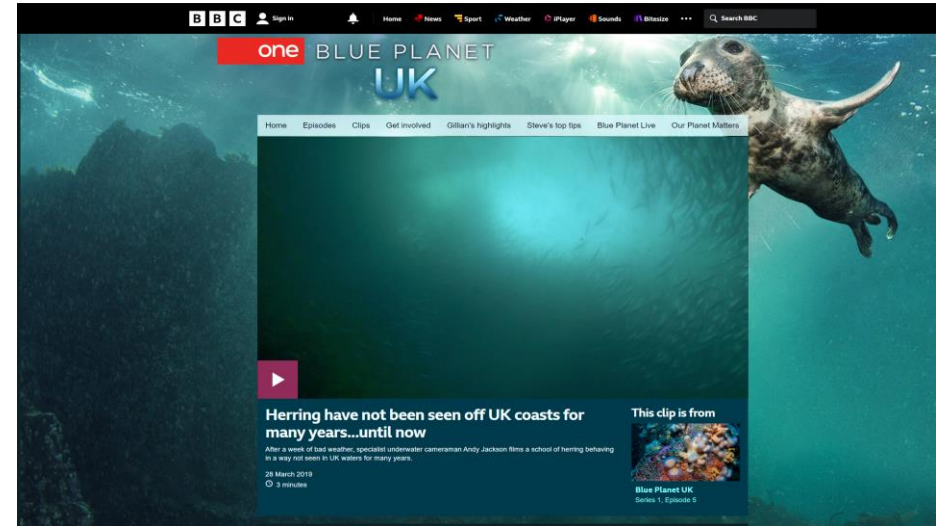
- Jim Muir, herring fisherman, Coigach Peninsula

- The fishery collapsed in the 1970s – never fully recovering on the west coast



A NEW HOPE?

- In 2018 & 2019 large shoals of spawning herring were observed (and filmed) near Gairloch for the first time in 50 years!
- This brought back memories of past herring booms and a renewed public interest



HERRING: NOT JUST NUTRITIOUS & DELICIOUS...



“Silver Darlings”
Layers of crystals make silvery scales, reflecting light

Important in the North Atlantic food web

Adults range from 20 – 38 cm (8 -15 in) in length

Live up to ~15 years and reproduce at 2-3 years

Commonly abandon & re-colonise spawning grounds

Return to spawn near where they hatched

Shoals can reach sizes up to one cubic mile, with billions of individuals

They're very fast – moving up to 10x their body length per second

FaRT?

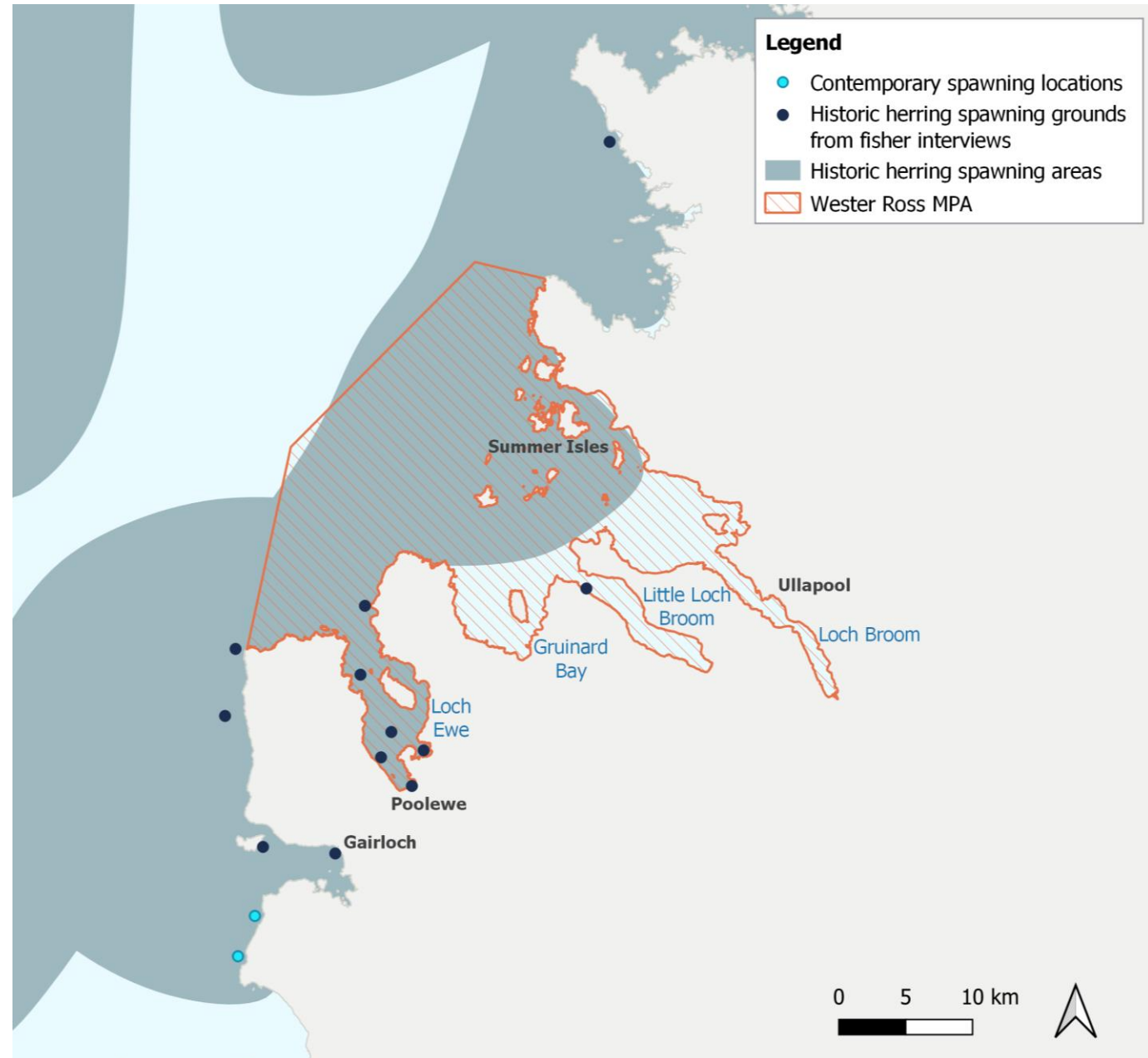
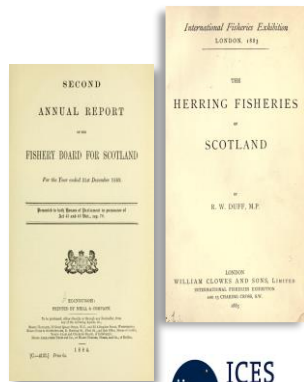


Deposit dense carpets of eggs on the seabed

WHERE DO HERRING SPAWN?

West coast herring comes *inshore in the spring* to spawn at specific locations

Within the larger spawning “areas” are the *precise* locations where herring deposit their eggs



WHAT TYPE OF SEABED DO HERRING SPAWN ON?



Muddy sand



Burrowed mud



Flame shell beds



Feather stars on mixed bottom



Kelp forests & maerl beds



Coarse shell gravel

SPAWNING BEDS



Herring spawn in waves, resulting a in build-up of eggs. "Complex" seabed allows oxygen to enter & waste to exit the dense egg carpets



SPAWNING: BRIEF BUT FUNDAMENTAL



Spawning events & larvae hatching are fundamental to maintain biodiversity & ecosystem functioning



THE WEST OF SCOTLAND HERRING HUNT (WOSHH)



GOALS:

- **Identify** and **produce evidence** for the **conservation** and **restoration** of herring spawning habitat on the west coast of Scotland
- Promote co-management & dialogue between marine stakeholders
- Champion the integration of essential spawning habitat into management measures



HOW YOU CAN HELP



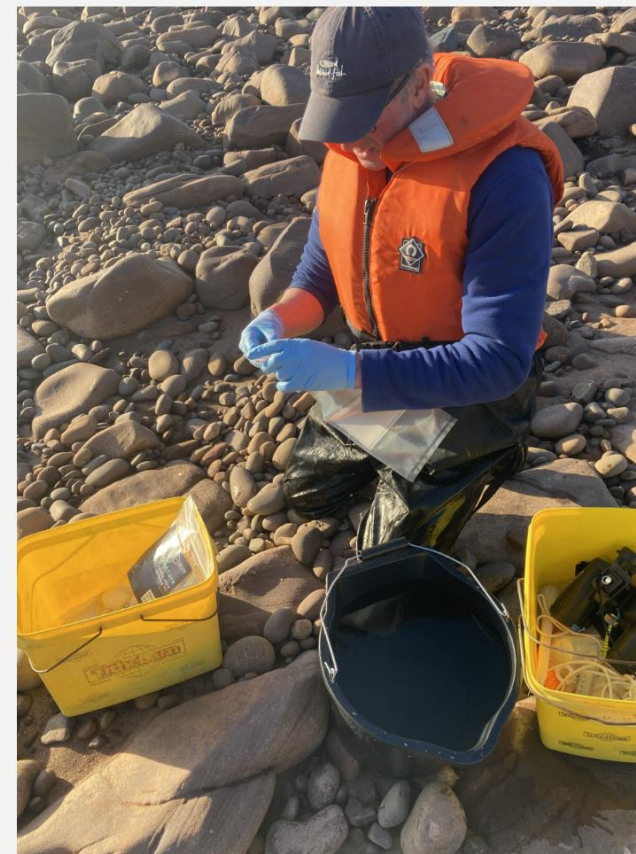
Contribute Local Ecological Knowledge

- Interviews (historic and contemporary)
- Questionnaires
- Report herring sightings and evidence of spawning (e.g., using the [web app](#))



Collect Spawning Habitat Information

- Drop-Down Cameras
- ROVs
- Diving
- Collation/sharing of existing data



Sample Environmental DNA & larvae

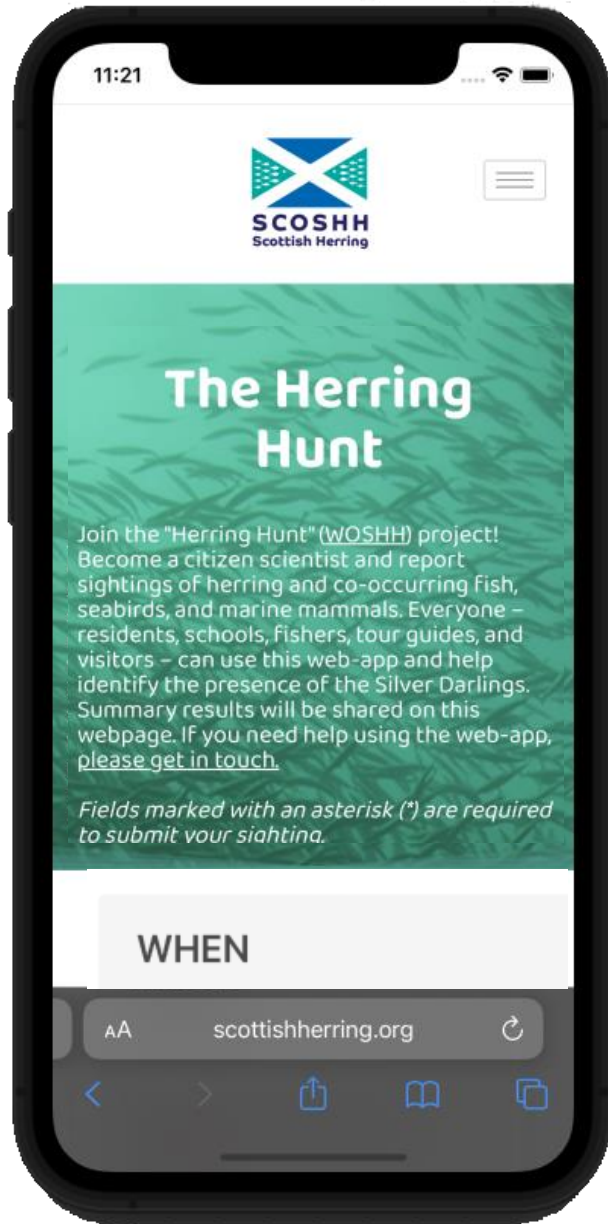
- Collect and filter sea water samples to detect herring DNA in environmental samples (*selected sites only*)
- Plankton sampling ([read more](#))

EXAMPLE: eDNA & PLANKTON SAMPLING



- eDNA is the DNA, shed by an organism (e.g. scales), present in the environment
- In spring WOSHH trialled the technique in Wester Ross at 3 locations (analyses ongoing)
- In parallel, Peter collected plankton samples to look for herring larvae
- Seabird (gannets, gulls, razorbill, guillemot, divers) & marine mammal feeding frenzies spotted within 2km of the eDNA sampling site
- Larvae sent to MSS for ID: confirmed as herring fry, estimated to be 3 to 4 weeks old

COMING SOON: CITIZEN-SCIENCE WEBAPP



- Get as many people out as possible hunting for herring up and down the W-coast and recording what they find
- Allowing *everyone* to contribute as a citizen-scientist
- Identify *precisely* where and when herring spawns

Lewis Watson
ENU, Undergraduate



- Life History
- Spawning Ecology
- Fisheries
- Cultural Importance



SCOTTISH HERRING

Bridging scientific and local ecological knowledge to help Scotland's silver darlings

[GET INVOLVED](#)

SCOSHH is a website dedicated to Scottish herring. SCOSHH is a place for you to share your knowledge on Atlantic herring in Scottish seas and find out more about their ecological, economic and cultural importance.

WHY SCOTTISH HERRING?

Herring fisheries made up nearly one-third of the global fish catch in the late 19th century, bringing income and social development to coastal communities. Today, North Sea herring is still economically important, whilst West of Scotland herring never recovered from stock collapse 50 years ago. Healthy herring populations benefit not only humans, but a wide range of other species. Herring deserve our support so that resilient populations can be rebuilt in Scottish waters, where and when possible.



You might also be interested in...

This area contains resources on herring, herring fisheries, sustainability, marine and coastal management, and communities working towards more equitable and sustainable use of Scotland's seas. It is in no particular order and by no means an exhaustive list, but it's a great place to get started and will always be a work in progress. Please [get in touch](#) if you have suggestions for additional resources.

ARTICLES & REPORTS

"Essential spawning grounds of Scottish herring: current knowledge and future challenges" explores the characteristics, status, and challenges associated with identification of historic and contemporary herring spawning grounds, as well as identifying knowledge gaps regarding location and environmental status of past and current spawning grounds, particularly relevant for Scotland's west coast. Check out the references for an exhaustive list of information on herring spawning habitat in Scottish and adjacent waters.

[VIEW PAPER](#)

"Recently hatched herring larvae sampled by Gairloch" is a news report on the discovery of herring larvae in spring 2022 near Gairloch, Wester Ross by the Wester Ross Fisheries Trust and Gairloch Ecoentre.

[VIEW PAPER](#)

"The fish that did not get away – Tales from Herring fishers about the decline of the Wester Ross herring fishery" is an MSc thesis by Ruby Neervoort that explores the social and political changes in the Wester Ross herring fishery over the last 50 years. 2013, VU University of Amsterdam, Wester Ross Fisheries Trust, and the Scottish Association for Marine Science (SAMS).

[VIEW PAPER](#)

"Herring in Divisions Assessment of the Identity of the Southern and Northern Stocks through Genetic and Morphometric Analysis. Final Report." is a report on the identity of herring stocks in ICES Divisions 6.a, 7.b and 7.c, through genetic analysis.

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"Reports on the industry-science survey of herring in the Western British Isles (ICES DIV 6A, 7BC)" are the Scottish Pelagic Fishermen's Association reports on industry-led herring surveys between 2016-2021.

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"Species Distribution Modeling Predicts Significant Declines in Coralline Algae Populations Under Projected Climate Change With Implications for Conservation Policy" explores the projected geographic range shift of maerl in Scottish waters and informs on priority areas for future conservation efforts to maximize the long-term survival of this important ecosystem.

[VIEW PAPER](#)

"Scotland's Marine Assessment 2020" reports on progress towards Scotland's vision of seas that are 'clean, healthy, safe, productive, biologically diverse marine and coastal environments, managed to meet the long-term needs of nature and people'.

[VIEW PAPER](#)

"The Great Herring Mystery" is a June 1955 archival article by Norman Creighton for Canadian magazine MacLean's.

[VIEW PAPER](#)

ON THE WEB



The **Wester Ross Fisheries Trust** aims to respond to the need for solutions to fisheries problems and improve the management of wild fisheries.

[VIEW WEBSITE](#)

Check out their [downloads](#) page for helpful resources, including reports of herring spawning in 2018/2019 and herring larvae in Loch Gairloch in 2022, and [Facebook page](#) to keep up to date.

TAKE HOME MESSAGE

- Herring populations & the habitat they rely upon have been altered by humans
- Herring require “complex” seabed, free of sediment & build-up, for successful reproduction
- We still need to determine *precisely* where that habitat is & protect it
- Help herring & get involved with WOSHH!

Email: info@scottishherring.org

Web: scottishherring.org



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