



## Seawilding: native oyster restoration project

*Seawilding at Loch Craignish, Argyll, is the UK's first community-led native oyster restoration project, as Danny Renton reports.*

**N**ative oysters were once common around the British shoreline, so much so that 30 million were harvested annually in the Firth of Forth, and the North Sea was reportedly blue instead of the pea-green we know now, on account of the vast oyster beds that filtrated and cleaned the water. Now, 95 per cent of Europe's native oyster beds have disappeared, and only a few

relic populations, mainly at the head of remote sea lochs, remain. This is to the lasting detriment of coastal biodiversity because science now recognises that native oysters are 'ecosystem engineers' cleaning the water, sequestering carbon, and promoting biodiversity as their beds become fish spawning grounds and nurseries. Recent research suggests that over 90 species of marine life co-exist with native oysters, and where they are present in numbers, there is a surge in sea life.

For these reasons, native oyster restoration is a growing field of interest and in Scotland we have two native oyster restoration projects—one in the Dornoch Firth, stewarded by Glenmorangie Whisky, and the other, a community-led project, at Loch Craignish, run by our charity Seawilding. Our pioneering project is funded by the National Lottery and the Esmée Fairbairn Foundation, and our project partners include our local volunteer association Craignish Restoration of Marine and Coastal

Éowyn Rose-Price with oyster. Photo: Philip Price (lochvisions.co.uk).



Habitats, the Ardfarn Yacht Centre, the Institute of Aquaculture, Stirling University, the Scottish Association of Marine Sciences and Heart of Argyll Wildlife Organisation.

### Why Loch Craignish?

Like so many sea lochs, native oysters once existed here in abundance. Walk along the shoreline, and you can pick up colossal oyster shells, some weighing up to 800 grammes. These may be centuries old, and are proof of the historic reasons for restoration. Recently, we discovered a fascinating account of the Loch from 1900, in the book *Autumns in Argyllshire with rod and gun* by the Hon. A.E Gaythorne Hardy. This snippet suggests how much has been lost:

“...long lazy tangle waving its broad streamers over the dark rocks, the fish darting about among the undergrowth, the comical crabs parading, fighting, and gormandising at the bottom; and sea-urchins, from great red fellows as big as a good-sized melon, called seal’s eggs by natives, to little ones no bigger than a walnut, which, in some places, literally pave the sand. ... Every pool left by the

Above, left to right: Young oysters on their way to the nursery; Oyster release by kayak at Craignish; Oyster hoister at Ardfarn Yacht Centre; Sorting oysters in hoisters. Photos: Philip Price (lochvisions.co.uk), Eric Holden (oceaninterface.com).

tide is full of corallines and beautiful anemones, and the shore hunter may gather a rich harvest by turning the stones, digging in the sand...”

The book goes on to describe oysters that were five times the normal size, and far more delicious. But sadly, like so much of Scotland’s coastal waters, Loch Craignish is no longer the rich marine habitat described here. We have a popular yacht marina, and a sea trout farm, both of which produce effluent, and scallop dredgers continue to plough up the delicate eco-system of the centre of the Loch. Fortunately, we also have sheltered lagoonal areas which remain relatively untouched. Here, we have found relic populations of native oysters—just a few hundred in number—which are too scarce and dispersed to be viable self-sustaining populations, as well as, excitingly, twelve small seagrass meadows.

### Restoring oysters

After a pilot study, in 2020, we secured a grant from the National Lottery and the Esmee Fairbairn Foundation to grow 1 million native oysters to trial Scotland’s first community-led native oyster restoration project. Our aim is to grow up to one million native oysters in a floating nursery and to release them, over a five-year period, at pre-surveyed sites around the loch.

We use a floating nursery system, the first of its kind in the UK, to grow our juvenile native oysters at the southern end of Loch Craignish. Our first batch of 60,000, sourced from the Morecambe Bay hatchery, weighing around 1 gramme each, were introduced into the cages in July 2020, and after growing fabulously well, with almost no mortality, they weighed between eight and 15 grammes after three months.

We selected four good restoration sites with the right substrate of pea gravel and shell, and in October 2020, at a low spring tide, around 25 socially-distanced volunteers gathered along the shoreline to broadcast our first 60,000 into the shallows, while others were distributed by kayak and paddle-board. Since then, we have brought in another 100,000 juveniles to over-winter in the nursery. These will be released in 2021 at pre-surveyed sites. So far, all 160,000 are doing well, with recent surveys of those on the seabed showing a high survival rate.

Meanwhile, in partnership with Ardfarn Yacht Centre, we are suspending ‘oyster hoisters’ under the pontoons, each holding between 30 and 100 native oysters. The oysters will clean the water—an oyster filters up to 200 litres in 24 hours—and release ‘spat’ (the young oyster that





settles), complementing our wider restoration efforts. In conjunction with the Heart of Argyll Wildlife Organisation, pupils from five local primary schools will be monitoring the oyster hoisters for growth, mortality and biodiversity and providing vital data for our research programme.

### Ecosystem health

Biosecurity and invasive species are an ever-present concern with the movement of shellfish, boats and climate change, and now we are fundraising to carry out a programme of environmental DNA testing. This will detect problems which may arise, such as the presence of invasive species like *Didemnum vexillum* or carpet sea squirt, and help us create a unique database about the health of the loch and changes over time. We are also planning a programme of genetic research to ensure our oyster stock is resilient. By genotyping the oysters, we can assess genetic variability as well as resistance to disease and, if necessary, adapt our brood stock accordingly. This will be pioneering research of use, potentially, to all European native oyster restoration efforts.

Seagrass, *Zoster marina*, also known as common eelgrass, is also a Priority Marine Feature, playing a vital

role in the biodiversity of coastal waters. It captures carbon 35 times faster than tropical rainforests, and harbours 40 times more marine life than sea beds without it. Sadly, 90 per cent of seagrass meadows have disappeared around the UK. This year, in conjunction with Project Seagrass Scotland, our community hopes to pilot Scotland's first seagrass restoration project at Loch Craignish. Using methodologies successfully pioneered in Wales, we hope to gather seagrass seed by hand, and transplant it in hessian bags where the seeds will germinate on the seabed, thereby joining up and expanding our existing isolated and degraded meadows.

In 2021, we also plan to set up a training programme for our community and other interested parties in seabed surveying techniques and species identification. This will allow us to ensure that our survey research and growing data-sets conform to academic standards and provide us with the requisite baselines to measure our progress. We believe our model of community-led marine habitat restoration can help address some of the woeful consequences of decades of mis-management of Scottish inshore waters, that has seen an almost total collapse of white fish stocks, the ongoing destruction of the seabed by bottom-trawling and

scallop dredging, and the pollution of sea lochs by aquaculture.

In August 2020, the Edinburgh Declaration on the post-2020 global biodiversity framework called for "...strong and bold actions to bring about transformative change... to halt biodiversity loss" and the Update to the Climate Change Plan claims to "place nature at the heart of securing greater economic, social and environmental resilience and prosperity" through "significant restoration" of the natural environment. More recently, the December 2020 Scottish Biodiversity Strategy states that "the twin global crises of biodiversity loss and climate change require us to work with nature to secure a healthier planet". We believe Seawilding and the Loch Craignish Native Oyster Restoration Project is doing just that.

### seawilding.org

*Danny Renton is Project Coordinator for Seawilding (SC050126). If you would like to sponsor an oyster hoister, to further our restoration work and our citizen-science school's programme, or donate to our growing number of projects, or hear more about what we do please visit our website or contact E: [info@seawilding.org](mailto:info@seawilding.org); M: 07780 871 996.*