

## ZSL SCIENCE AND CONSERVATION EVENT

# Marine habitat restoration in the UK: how to move forward and stop treading water

Tuesday 10 March 2020

Huxley Lecture Theatre, Zoological Society of London,  
Regent's Park, London NW1 4RY

## AGENDA

Chaired by Alison Debney, Senior Conservation Programme Manager for UK  
& Europe, ZSL

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Receive the following communications

**Dr Joanne Preston, University of Portsmouth**

*Bringing back a forgotten ecosystem – native oyster restoration in the UK*

**Dr Richard Unsworth, Swansea University and Project Seagrass**

*Lessons from the UK's first major seagrass restoration project*

**Angus Garbutt, UK Centre for Ecology & Hydrology**

*Saltmarsh restoration in the UK*

**Dr Ian Hendy, The Blue Marine Foundation**

*Help Our Kelp*

## ABSTRACTS

### **Bringing back a forgotten ecosystem – native oyster restoration in the UK**

*Dr Joanne Preston, University of Portsmouth*

When we think of mass habitat extinction, colourful, diverse and highly visible ecosystems such as tropical rain forests and coral reefs come to mind. However, over the last 150 years a far less visible ecosystem crisis has occurred beneath the ocean's surface. Globally, 85% of all oyster reefs have been lost. The European native oyster (*Ostrea edulis*) reefs once plentiful and thought to be inexhaustible, have now been all but lost. The European population has declined by 95% since the 1950s, and oysters are now extinct in some regions of Europe, such as the Wadden Sea along the coast of Germany. This talk will explain why this matters, and what we are doing to bring back a forgotten ecosystem to European waters. Oysters are "ecosystem engineers" like corals – they create three-dimensional structures as they settle and grow on each other. These reefs provide habitat for an incredible biodiversity of organisms, including shelter and nursery grounds for commercially important fish stocks. As filter feeders, oysters have an incredible ability to clean seawater; a single oyster can filter up to 200 litres of seawater daily, eating the phytoplankton and removing nitrogen. This can dramatically improve water quality and clarity, preventing large scale algal blooms and the potential consequences of mass fish mortality and dead zones due to depleted oxygen. The Native Oyster Network in the UK and Ireland and the Native Oyster Restoration Alliance across Europe aim to restore native oysters around the north-west Atlantic. Both established in 2017, these networks are bringing together scientists, fishers, conservationists and governments to bring back a forgotten ecosystem. Restoring European oyster beds and reefs is possible, but there is no quick fix. Work will take years and decades and depend on multinational cooperation and effective policy to protect habitats and regulate fishing. Nevertheless, recent efforts give hope we are at the beginning of a journey to restore a forgotten ecosystem to its once magnificent state.

**Dr Joanne Preston** is a Marine Biologist based at the Institute of Marine Sciences, University of Portsmouth. She founded the UK/Ireland Native Oyster Network in collaboration with the Zoological Society of London to catalyse a national approach and scale of oyster habitat restoration and facilitate best practice in management and monitoring of restoration projects. Dr Preston provides scientific leadership for the Solent Oyster Restoration Project in collaboration with Blue Marine Foundation to enable research driven practice in restoration ecology.

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### **Lessons from the UK's first major seagrass restoration project**

*Dr Richard Unsworth, Swansea University and Project Seagrass*

Seagrass meadows are a powerhouse of the world's oceans, yet these often uncharismatic ecosystems are left off the conservation radar and as a result have declined rapidly over the last century resulting in a distribution possibly only a fraction of its former self. But there is now growing recognition of the value of restoring and conserving seagrass due to their role in storing carbon, providing fisheries habitats and protecting our coastlines. People need seagrass. With recognition of the world in a state of climate emergency this interest has led to their proposal as a so-called 'Nature Based Solution' to climate change. Although over a number of decades some groups have conducted minor seagrass restoration trials in the UK, these have never been at a large scale. In Wales, with the backing of corporate donors we've been able to plant 2 hectares of seagrass seeds as a demonstration that it is possible to restore our beleaguered and often lifeless UK seas. The scaling up of this project from small 5m<sup>2</sup> trials has resulted in an enormous learning curve. In this talk at ZSL I will discuss

the successes and learning lessons from this major project and show how we believe that restoring large areas of UK seagrass is within grasp.

**Dr Richard Unsworth** is a Senior Lecturer in Marine Biology at Swansea University and founding director of the marine conservation charity Project Seagrass. His research work has taken him to work in many regions of the world but has always focussed around the functioning, ecology and conservation of seagrass meadows. Particular research interests have been on the support seagrass provides for fisheries and the more recently the restoration of the sensitive but productive systems. Richard is married to his long-term research collaborator Leanne Cullen-Unsworth and has three young children who help inspire his conservation efforts.

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## **Saltmarsh restoration in the UK**

*Angus Garbutt, UK Centre for Ecology & Hydrology*

Coastal ecosystems are amongst the most valuable in the world as they provide many benefits to humans such as flood protection, storage of carbon in sediments to help offset global warming and a rich source of inspiration for art and literature. Most of the major cities in the world are located on estuaries or near the coast and many countries trade and transport links rely on coastal ports giving the coastal margin significant economic importance. Coastal ecosystems are however particularly vulnerable to change as they have been exposed to centuries of over-exploitation, habitat modification and pollution, which has led to estuarine and coastal zone degradation, biodiversity loss and a decline in ecological resilience. These changes can occur over extended time scales (e.g. as a gradual response to environmental change or management shifts) or as a result of one off, catastrophic events such as flooding or disturbance. Saltmarshes in particular have been impacted upon by a multitude of factors but none the less remain an important and valuable habitat that has been the focus of human activity and study over time. In Europe as the population grew, saltmarshes were embanked and drained, where the fertile soils produced high quality agricultural land, particularly from the 17th century onwards. Through natural processes and engineering, new saltmarsh grew in front of the manmade embankments which was in turn reclaimed for agriculture. And so a system of fertile farmland and embankments closely tied coastal communities to their natural and hard-won manmade environment. Saltmarshes continue to play an important part in the lives of coastal communities today through farming, buffering flood embankments from wave action and offering places for recreation and tourism. In this presentation, we will discuss the importance of saltmarshes to people and wildlife, and their restoration.

**Angus Garbutt** is an ecologist with a special interest in saltmarshes. He has worked on projects that have taken him to all the major saltmarsh complexes in the UK and Europe giving a unique insight into their diversity and cultural setting. Angus worked on the first coastal realignment projects in the UK in the early 1990's and has gone on to specialise in biodiversity and ecosystem science focussing on field experimentation, long term and national scale monitoring and quantifying the relationships between saltmarsh functions and the goods and benefits they provide.

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## **Help Our Kelp**

*Dr Ian Hendy, The Blue Marine Foundation*

Marine vegetated ecosystems are essential for life on Earth. Ecosystems including mangrove forests, saltmarsh, seagrass beds and kelp forests are incredible carbon sinks. These habitats sequester huge amounts of carbon, and deliver an amazing list of ecosystem services including (1) mitigation of climate change, (2) improvements to water quality, (3) significant enhancement to fishery biomass and productivity, (4) improved nursery

function, and (5) deliver food provisioning for many communities. However, we are losing these essential ecosystems globally and fast. These losses magnify issues associated with climate change, and the increase of habitat loss only serves to exacerbate the sixth mass extinction. We have seen between 80 to 90 % loss of kelp forests spanning Canada to Norway and at the current rate of loss, the UK will have zero kelp forests by the end of this century – resulting with more than a 90 % loss of marine wildlife. The Blue Marine Foundation, in collaboration with the Sussex Wildlife Trust and the SIFCA are working together on a joint project to restore kelp forests within a 170 Km<sup>2</sup> area of Sussex coastline. If successful, this project will generate more than £3 Million per year in ecosystem services.

**Dr Ian Hendy** has had 15 years of working with key coastal ecosystems ranging from mangrove forests, coral reefs, kelp forests and he also manages sustainable fisheries. Principally, his research is focused on impacts to the structure and function of nursery habitats and how impacts alter community and trophic structure. Ian's research also tackles global issues such as climate change and how aquatic life may cope with such impacts. Through active restoration and natural development of the ecosystem structure and function, we can significantly improve biodiversity, biomass, productivity, the environment and economy.

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## Join us at our next event

### **The future of biodiversity conservation: different dimensions of conservation thinking** 14 April 2020, 6pm – 7:45pm

A survey of nearly 10,000 conservationists from around the world revealed the full range of perspectives that are shaping today's conservation landscape and its future. At this event, we explore these different dimensions of conservation: people-centred conservation, science-led ecocentrism, and conservation through capitalism. We will hear examples of where these different approaches are being applied, how they interact, and how learning from different methods will be key to successful conservation outcomes.



Keep an eye on the event web page ([www.zsl.org/science/whats-on/the-future-of-biodiversity-conservation-different-dimensions-of-conservation](http://www.zsl.org/science/whats-on/the-future-of-biodiversity-conservation-different-dimensions-of-conservation)) or your scientific events emails, as we will be sending out the survey in advance for our audience to take part in, and analysing and discussing these results during the event!

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## ZSL Library Events

Please note there will be no talk in the library before the event on 14 April 2020, because the library is closing for renovations from 2 April – 5 May. We apologise for any inconvenience; please contact [library@zsl.org](mailto:library@zsl.org) if you have any questions.

## ZSL Wild Science Podcast

Listen to our award winning **ZSL Wild Science podcast** episodes produced by Dr Monni Bohm and Eleanor Darbey here... [www.zsl.org/zsl-wild-science-podcast](http://www.zsl.org/zsl-wild-science-podcast).

Please feel free to contact the Scientific Events Coordinator, Eleanor Darbey ([eleanor.darbey@zsl.org](mailto:eleanor.darbey@zsl.org)), if you have any queries about our events or podcasts.