

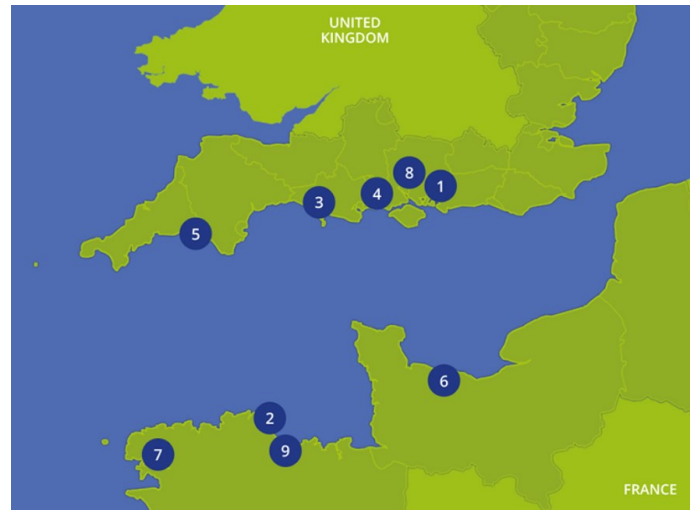
NATURE-BASED WAYS OF IMPROVING WATER QUALITY

RaNTRANS, AN INTERNATIONAL PARTNERSHIP PROJECT WITH NOVEL SOLUTIONS

Water quality is an international problem and critical environmental challenge of the Channel Manche region. Human activity has led to elevated nutrient levels, from fertilizer and sewage, inputs into streams and rivers that then flow into the sea. This water quality change results in a rapid growth of algal, termed eutrophication. Coastal eutrophication results in the growth of green algal mats on intertidal mudflats covering thousands of hectares. The Rapid Reduction of Nutrients in Transitional Waters (RaNTrans) project is an international project covering the area of coast between France and England, including the Solent.

The RaNTrans project aims to develop a range of solutions across multiple sites to address the issues of algal mats and elevated nutrient levels. The Interreg programme is providing funding for projects, to address a wide range of problems at a large scale. The RaNTrans project is also the first to develop and test innovative nature based and cost-effective methods to address the eutrophication problem.

The techniques being tested are: (i) mechanical removal of algal mats, (ii) feeding algal mats to polychaete worms (converting these to aquaculture feed), (iii) establishing and optimising seaweed culture, and (iv) European oyster aquaculture.



A map of the nine project partners across the south coast of England and the north coast of France

The project has two sites per country and works in partnership to achieve the project goals.

University of Portsmouth – lead partner, involved in all aspects of the project, from algal mat removal to project management and communication.

Centre d'Étude et de Valorisation des Algues (CEVA) - dedicated to marine algae research and exploitation, transferring scientific knowledge to industry.

Centre for Environment, Fisheries and Aquaculture Science (CEFAS) - experience in developing local and 3D models for coastal phytoplankton algal blooms and will help generate web-based algal mat prediction models to help identify local drivers of algal mats for future control measures.

Bournemouth University - expertise includes removal of algal mats and the subsequent identification of species.

ARGANS - specialists in satellite-based Earth observation and will use their expertise to help create algal mat simulation prediction tools.

Université de Caen Normandie - carrying out algal mat removal at a site local to them in France, assessing the impact of the removal on sediment, benthic species and birds.

Université de Bretagne Occidentale - expertise to extract, purify and test novel bio-active chemicals from algal mat species collected by the other project partners.

Natural England - dissemination and learning on this project as they are responsible for project communication.

Aleor - expertise in seaweed cultivation and is a leader in Europe.

This work had never been done before and was not easy, however having governments, policy advisors, investors, and other key participants at an early stage was key to achieving the ambitious goals set.

Project RaNTrans has not only seen innovative science answer real world problems, but additionally, built new collaborations with partners in both France and the UK. This project is revealing the potential to use natural nature-based solutions to restore water quality and stimulate environmental and economic opportunities.

So far the project has tested the feasibility and efficacy of different techniques and is now at the stage of upscaling the potential of these solutions. We know that these habitats and species can do a good job to remove nutrients and restore water quality at small scales, but scaling up is a very important next step. This project is reinforcing the importance of collaborative working with scientists, to lead the way and gather evidence, that when implemented can restore water quality and marine dependant species.

The hope for the project is that the different project partners will continue working on this exciting area of research, using the collaborations built already to tackle the problem of nutrient pollution in transitional waters. Several tools have been identified which can be used to help create a more resilient coastal environment using nature-based solutions. Reports and scientific articles created will be produced for years to come and available on the [RaNTrans website](#).

Some of the collective works by Interreg and project partners can be seen in these 16 videos summaries [Final France \(Channel\) England videos](#) – [Google Drive](#) including RaNTrans.

Overall, the Interreg programme (<https://www.channelmanche.com/>) of over 220 million euros is shaping and influencing behaviours towards tackling a wide range of problems at a large scale and revealing the potential for using nature-based solutions to stimulate environmental and economic opportunities.



RaNTrans partners in action along the Solent Coast deploying methods to reduce nutrients in transitional waters.



Oysters remove nutrients as they grow and these oyster cages are part of the project's nutrient reduction programme.

These cages also support over 150 different marine species such as sea anemones, sea squirts and seaweeds etc.