



GREAT WESTERN RESEARCH *focus*

Since its inception, Great Western Research [GWR] has set about promoting collaborations between the highest quality research groups and the most forward thinking businesses in the South West in order to support the growth of the region and to demonstrate just what is possible when academics and businesses collaborate. A recent partnership, formed through GWR, between The National Lobster Hatchery, the University of Plymouth, the University of Exeter and GWR PhD student Carly Daniels, is focusing on delivering an innovative solution to a very real problem.

Helping Mother Nature

The Lobster has long been an unofficial emblem of Cornwall, symbolising a coastline rich in aquatic life – providing sumptuous fare for its many specialist seafood restaurants for locals and tourists alike.

However, as certain pressure stocks have become depleted in recent years from over-fishing and pollution threatens natural habitats, the industry is increasingly looking towards intensive, non-sustainable farming practices to supply rising demand. Britain's fish farming is now part of an \$80 billion global industry with 47% of all sea food consumed, now raised in some form of aquaculture.

In response to this pressure on the natural environment, The National Lobster Hatchery was set up to focus on the long term re-introduction of lobsters back into the ocean to increase the productivity of the lobster fishery and help to revitalise lobster fishing in an economic, environmental and socially sustainable way.

Nearly 2 years ago, the National Lobster Hatchery and Great Western Research came together to jointly fund research into increasing the culture success of baby lobsters through enhancing their diet. This research has been further aided by the kind donation from the worshipful company of fishmongers and the University of Plymouth.

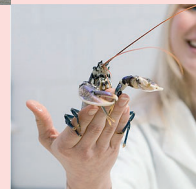
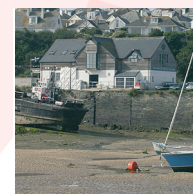
“stocks have become depleted in recent years from over-fishing and pollution threatens natural habitats”

Using natural dietary supplements in feed at different stages of larval and juvenile development, PhD researcher Carly Daniels has been able to establish that baby lobsters are very sensitive both to nutrition and the environment - just like human beings! Carly found a link between better gut health and its impact on the successful metamorphosis of larvae into lobster adults. Her work has looked at optimising gut health by putting friendly bacteria (Probiotics) and complex sugars (Prebiotics) into



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Prof. David Billington



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their food to enhance gut development thus improving the animal's immune and digestive capabilities - in principle similar to the probiotic supplements available to humans in many of our supermarkets.

With supervisor Simon Davies's international academic links, they have been able to work closely with companies such as INVE based in Belgium as well as Alltech Ltd based in Lexington Kentucky, USA, who supplied the sustainable feed supplements, one of which is a bi-product of yeast fermentation. These products have been found to stimulate the immune system in livestock, fish and now lobster larvae.

“baby lobsters are very sensitive both to nutrition and the environment - just like human beings!”

This research has improved our understanding of how such dietary supplements function in lobsters and by the end of her PhD, Carly aims to produce a comprehensive food in pellet form to assist the growth, development and survival of lobsters.

By strengthening their immune system through good husbandry and the use of enhanced feeds, which improve growth and limit disease, baby lobsters will have a

higher chance of surviving when released back into the wild.

Although it will be 5 or 6 years before they will see the impact - which is the time it takes lobsters to develop into full adulthood - it is a great start to this stock enhancement scheme.

GWR Studentships and Fellowships are stimulating the building of new partnerships with major research funders in the region, and thanks to GWR over £2 million of new public and private investment is being made into research projects in the South West of England.

The inspiration for the GWR concept is simple - “The intention is that it should increase interactions between University research groups and business, and therefore build capacity and attract more money for research,” said Prof. David Billington, Executive Director of GWR - “It is about ensuring the sustainability of internationally excellent research in the South West and preparing the region for the technologies of the future, by investing in collaborative forward looking research programs.”



GWR is a £14m collaborative project which funds 130 PhD Studentships and 20 Research Fellowships at universities in the South West of England

All GWR studentships are real collaborations, each project is 50% funded by GWR and 50% by the business partner



For further details please contact Dr Paul Hudson
p.s.hudson@exeter.ac.uk 01392 269104
 Kay Building, Exeter University, North Park Rd, EX4 4QF

