

# Abalone culture in the UK - from research to pilot-scale production



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**INNOVATION AND DIVERSIFICATION** are strong drivers behind the continuing development of the shellfish culture sector in South West England and this is clearly demonstrated by the efforts to move the production of the high value European abalone, or ormer as it is more commonly known, from a R&D phase through to commercial production. After a lengthy initial development stage, to ensure that abalone culture can be both sustainable and economically viable in the UK, there are a number of current factors that should see pilot-scale production commence during 2009.

## Abalone and EC Framework 7

The South West Abalone Growers Association (SWAGA) has been exploring the development of ormer culture in the region since the successful field trials by Cornwall Sea Fisheries in 2001-2003. A principal objective of SWAGA has been to support sustainable development in an environmentally responsible manner. This is echoed in its involvement in a €972,000 EC-funded research project.

SUDEVAB (Sustainable Development of European SMEs engaged in Abalone Aquaculture) is a 2 year project that was launched in Exeter last June. In addition to SWAGA there are Partners in France, Spain, Ireland and Germany.

The wide-ranging project programme includes work on disease, genetics, nutrition, production systems, legislation and marketing. It also includes the first steps towards the formation of a European Producers' Organisation. Work has already been carried out looking at the nutritional value of various seaweed species as part of the move to help develop a water stable seaweed-based feed that could be used in sea cage production.

Cage production is considered by SWAGA to be the technique most likely to prove attractive to existing industry looking to diversify - especially when compared to the relatively high set up costs of onshore recirculation technology.

A central theme that underpins many aspects of the work is 'harmonisation', in terms of the interpretation of EU legislation, in order to ensure that producers across Europe are operating on a level playing

field. This is an issue that not only affects the development of abalone culture but is also often perceived to handicap the UK shellfish culture sector generally. The next Project Partner meeting is currently being planned for this May in Galway, Ireland and there are also plans for an Abalone Culture Symposium on the 19th May which is being supported by Bord Iascaigh Mhara (BIM), the Irish Sea Fisheries Board.

## Current South West projects

SWAGA has also been active in several UK-based research programmes to help demonstrate that abalone culture is a sustainable and environmentally benign activity. Recent work has involved marine ecosystem investigations to show that there will be no negative environmental impacts and assessments of sustainable harvest levels of seaweed. A series of investigations were

Right: France Haliotis work boat lifting sea cages in Brittany for servicing



Photo: France Haliotis



A close up shot of a European abalone

also carried out in 2008 to test the suitability of two sea cage systems for use in UK waters. These systems consisted of macro-containment units, supplied by the French abalone specialist France Haliotis, and micro-containment systems based on the innovative ORTAC cylinder system. The trials, carried out in Cornwall, tested the systems in terms of both physical integrity and culture suitability, taking into account environmental parameters such as dissolved oxygen levels, pH changes and water exchange.

SWAGA is now designing a further set of trials that will test a Spanish system supplied by Servimar Norte. Further work will also be carried out to test the actual growth rates of abalone held in these systems, using both locally available seaweed and artificial seaweed-based diets. The hope is that, by combining the two feed strategies, producers will be able to consistently supply the market with a premium quality product.

#### Classification of gastropod harvesting areas

One of the main parts of SUDEVAB is to ensure that hygiene and food safety aspects have been fully identified and investigated. SWAGA are therefore currently helping in the development of a set of trials that will compare uptake routes and levels of comparative contamination in gastropods and bivalves, with respect to faecal indicator bacteria and norovirus.

There is a pressing need for this work as currently abalone, as a marine gastropod, would require a Shellfish Harvesting Classification in the same manner as marine bivalves such as oysters or mussels before harvesting and sale can be carried out. SWAGA has previously argued that a non-filter feeding gastropod should not be treated in the same way as true filter feeders and it appears that the European Commission is now willing to consider changing the regulations.

This has wider implications for industry, as theoretically >>



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## The European abalone has never been implicated in the molluscan shellfish diseases

<< the requirement for a Shellfish Harvesting Classification currently applies to all gastropods – including, for instance, potted whelks and hand-gathered winkles. The Food Standards Agency has confirmed that, although the review is still in its early stages, there does appear to be support for a move to allow harvesting gastropods from unclassified areas.

### Legislation changes and seed availability

The availability of high quality seed has been a key limiting factor to the development of abalone culture in the UK. Previous attempts to run small scale UK hatcheries have proved unsuccessful as individual growers have not had the resources or manpower available to consistently produce large enough quantities of seed.

However, high quality abalone seed is being successfully and consistently produced by the Brittany hatchery France Haliotis. Unfortunately, under the current legislation, differences in Approved Zone status between France and the UK, based on *Marteilia* and *Bonamia*, have meant that this seed could not be imported - even though abalone themselves are not affected by these shellfish diseases or considered to be vectors for



Photos: Aquafish Solutions Ltd

Top: A France Haliotis sea cage unit being recovered during recent FIGG funded cage trials conducted in Cornwall by SWAGA. Above: the ORTAC systems being serviced during the FIGG funded cage trials carried out in Cornwall in 2008.

transmission. However, the recent introduction of the new Aquatic Animal Health Directive in England and Wales will effectively bring into force a new 'risk-based surveillance strategy' to prevent and control the spread of serious shellfish diseases.

As the European abalone has never been implicated in the molluscan shellfish diseases covered by the Directive, it is therefore now free to be moved between member states subject to the correct move-

ment documentation and inspections. This means that seed can now be imported, thus removing a major obstacle to the start of commercial production in the UK.

As with any new aquaculture species, there will be a need to run pilot-scale operations at first over a range of differing locations to ensure there are no unforeseen problems due to such factors as temperature-related mortalities or disease. However, one of the primary reasons for the incorporation of SWAGA was to facilitate the purchase, transport and distribution of seed to co-operative members and it now appears possible.

The ability to move seed freely has meant that France Haliotis will be aiming to



produce around 3 million juveniles per year by 2010 with an existing production capacity of up to 5 million seeds at their current hatchery site. They have been involved in a significant amount of market research and promotion and their abalone are creating a great deal of interest amongst high quality restaurants - as can be seen by their inclusion on the menu of the renowned Le Cinq restaurant of the George V Hotel in Paris.

The present lack of wild-fished ormers and current low levels of aquaculture production in France mean that prices are currently highly variable. This is one of the primary reasons for investigating the potential for establishing a Producers' Organisation as part of SUDEVAB. However, minimum prices per kilo for the wild fishery market are around €39/kg, but can reach up to €160/kg depending on how they are sold.

#### Future prospects

The eventual aim of SWAGA is both to allow diversification by shellfish growers into this high-value product and to open up opportunities for the capture-sector to explore the possibilities offered by aquaculture. For example, plans are underway for the design and development of smaller cage units that can be deployed using the type of equipment commonly involved in pot-hauling. In this way it is hoped that abalone culture can be opened up to



Photo: France Haliotis

France Haliotis stock on their feeding plates

industry from a wide range of backgrounds targeting differing levels of production. SWAGA is also currently working on a proposal, to offer a 'turn-key' service for prospective farmers in order to provide support with: advice for new entrants and starters, baseline surveys for site suitability (including environmental monitoring), supply of trial quantities of seed, culture system information, business support and marketing advice.

It is hoped that this novel approach will help to remove many of the barriers to the adoption of a new species for aquaculture and thus encour-

age new entrants.

There has been considerable work undertaken since the establishment of SWAGA to try and establish the ormer as a new species for UK aquaculture. As described, there is still work to be done but it does now seem that with recent legislative changes and the on-going development work that this drive to achieve commercial production of abalone in the UK will take a major step forward during 2009.

For further information regarding abalone culture contact Andy FitzGerald, Chairman of SWAGA, on 01752 339 005.

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