

## SWAN Introduction

Maritime UK South West (MUK SW) brings together the breadth of South West England's ocean economy, working in partnership to champion, grow and clean the marine sector. By aligning the region's existing and emerging strengths, MUK SW will create a circular knowledge economy enabling government, industry and academia to work together at pace, with unified purpose, to deliver clean sector growth building practical "*development to delivery*" pathways.

The South West Aquaculture Network (SWAN), part of MUK SW, aims to sustainably enhance aquaculture production in line with the evolving national aquaculture strategy and international development goals<sup>1</sup>. SWAN is comprised of diverse members representing industry, academia and public sector organisations, providing distinct capabilities including:

- unique aquaculture facilities,
- technical and operational knowledge
- research and innovation development
- partnerships and engagements

The network will also feed into the developing [Great South West](#) strategy to support initiatives for sustainable development in the region.

## AQUACULTURE in the South West

Aquaculture is projected to be the prime source of seafood by 2030, creating a global market in excess of £200 billion<sup>2</sup>. The UK domestic aquaculture industry, worth £1.4billion a year, is dominated by the salmon and shellfish industry in Scotland and is the eighth largest producer of finfish from marine and coastal aquaculture in the world.

In comparison, English aquaculture accounts for only 4% of the total 214,345 tonnes of UK farmed seafood production. Despite its limited input, the existing industry in the SW is diverse including onshore, intertidal, inshore and offshore production that ranges in size and species selection. Examples include: intertidal and inshore cultivation of oysters, seaweeds, scallops and, in recirculating systems, lumpfish producing approximately 900,000 fish per year, supplying the Scottish Salmon Industry to tackle lice infestations. The largest offshore rope cultured Mussel farm in the UK is in Lyme Bay and aims to produce up to 10,000 tonnes per year.

Aquaculture provides opportunities to diversify farming and improve the livelihoods derived from inshore fishing in sheltered waters around the coast. Growth opportunities also exist in supply chain by developing and deploying a diverse range of technologies (sensors, automation and engineering) for monitoring environmental conditions, for life support (nutritional feed, health and welfare), farming and processing fish for sale.

Multiple opportunities for sustainable development exist across diverse sectors using aquaculture as a common denominator including:

- **Boost economic activity** – aquaculture is a technically diverse sector; increased development will create demands across multiple existing regional supply chains.
- **Increased technical knowledge and expertise** – employing technology, skills transfer and integration from established industries including wild capture fishing and agriculture to diversify and create resilient coastal and rural communities.

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<sup>1</sup> Nationally, the Seafood 2040 Strategic Framework looks to develop a thriving seafood sector in England with aquaculture identified as a priority for support. Work continues to develop a new English Aquaculture Strategy. Internationally, several United Nations Sustainable Development Goals (SDGs) are closely associated to aquaculture development including SDG 14 'Life Below Water'.

<sup>2</sup> FAO. 2020. The State of World Fisheries and Aquaculture 2020. Sustainability in action. Rome.  
<https://doi.org/10.4060/ca9229en>

- **Facilitate enhanced ecosystem services** – extractive aquaculture species including seaweed and shellfish provide services including water quality remediation and carbon capture, provision of habitat, conservation and nursery areas in addition to providing a food source.
- **Enhance established regional tourism** - contribute to the creation of a South West “brand” for quality sustainable seafood, enriching local community pride and product development opportunities.
- **Strengthen UK science capability** - creating world-leading national capability that is exportable as part of UK PLC.

### Why develop aquaculture in the Great South West?

The GSW is the location for many of the UKs existing aquaculture operations, from marine bivalve production to freshwater finfish cultivation, incorporating some of the most innovative aquaculture practitioners - e.g. offshore longline shellfish. There is strong interest in aquaculture development and growth from major supportive organisations that are represented, located and working in the locality - e.g. Cefas, PML, MBA, Seafish, Dorset Coast Forum, Bristol, Bournemouth, Exeter and Plymouth Universities.

There is a recognition amongst a wide variety of stakeholders that the GSW is important in this sector and could be an even greater hub of UK aquaculture production, training and expertise (particularly low trophic aquaculture, i.e. shellfish and seaweed). This is demonstrated in the Department of International Trade’s High Potential Opportunity for [Dorset Aquaculture](#). The GSW has a strong seafood awareness derived from the wild capture sector, and the possibility to transfer skills from the fishing industry into aquaculture is being seen with increasing interest by fishing industry stakeholders.

The beneficial attributes of the SW have been categorised below<sup>3</sup>:

<p><b>Location</b></p> <ul style="list-style-type: none"> <li>• Highly productive coastal waters</li> <li>• Higher water temperatures than rest of UK</li> <li>• Suitable for shellfish and seaweed culturing.</li> <li>• Highest value landing port in England (Brixham)</li> </ul>	<p><b>Existing industry capabilities</b></p> <ul style="list-style-type: none"> <li>• Existing location for a variety of aquaculture operations</li> <li>• High number of maritime-skilled personnel.</li> <li>• Region’s rich maritime history - Engineering and ship/boat building</li> <li>• Ports/harbours/boat launch sites. Reception points for landing product.</li> <li>• Strong seafood auction and onward distribution links. Recognised as a source of quality seafood.</li> </ul>
<p><b>Support</b></p> <ul style="list-style-type: none"> <li>• Strong regional interest in aquaculture development and growth from major supportive organisations. Dorset HPO for sustainable aquaculture</li> <li>• Good network collaborations</li> <li>• Recognition amongst a wide variety of stakeholders that the SW is important in this sector and could be an even greater hub of UK aquaculture</li> <li>• Strong SW seafood awareness derived from the wild capture sector. Skills transfer to aquaculture</li> </ul>	<p><b>R&amp;D presence leading to innovation</b></p> <ul style="list-style-type: none"> <li>• High concentration of Marine Science expertise</li> <li>• Leading aquatic science and research in the region</li> </ul>

<sup>3</sup> Link to survey results: <https://www.surveymonkey.com/stories/SM-PVYRDNT7/>

## What are the factors stopping growth?

Enhanced sustainable production is currently impeded by multiple factors. Following consultation with 22 leading industry, academic and regulator stakeholders in the SW, the barriers to growth facing aquaculture were identified and ranked according to importance:

**Figure 1.1: Chart representing the current barriers to growth facing the aquaculture sector in the South West. Qualitative data sourced from members of SAN.**

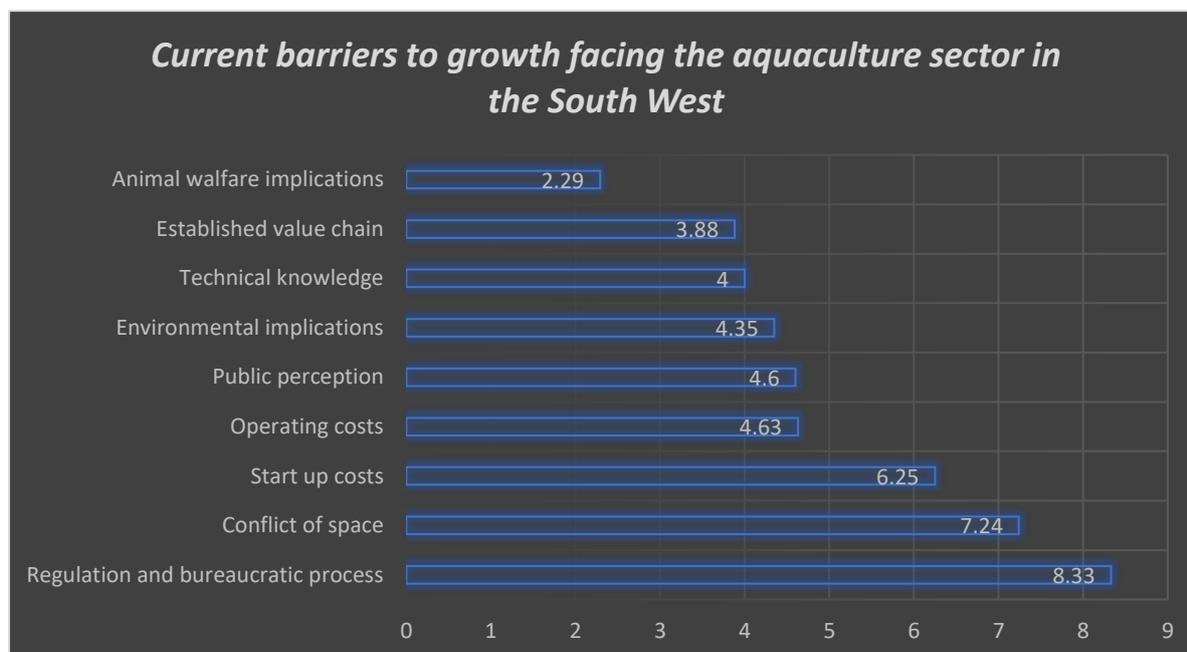


Figure 1.1 shows the broad topics which currently impact the sector. The top three barriers are:

- 1. Regulation and bureaucratic process** - current licensing system allocates the processing of permissions to multiple statutory bodies. Coordination and communication between these bodies can be delayed and contradictory. Regulation of existing farms too, for the most part, depends on the classification of shellfish and shellfish waters based on microbial water quality.
- 2. Conflict of space** - demand for sea space with recreational interests, marine protected areas (conservation), the fishing industry, dredging, dumping and military uses cannot always be solved by integration. Land based facilities for handling, depurating and processing shellfish need to be located on the waterside, this also faces competition with holiday homes and tourist interests. Proactive policy guidance and practical protection could be given to aquaculture installations. Marine spatial planning will be a key focus to facilitate the growth of Offshore wind and aquaculture. Conflicts between stakeholders will require a compromise in terms of a “solution fits all” approach that gives all marine users value.
- 3. Start-up costs** - aquaculture is viewed as either a cottage industry servicing local markets or multi-billion-pound finfish production. The reality is that sustainable expansion in the SW lies between the two. Small scale expansion of the shellfish industry is difficult due to poorer water quality inshore. Large scale expansion will be dependent on offshore development which has high start-up costs and will require growth in the existing markets.

These demonstrate immediate barriers facing existing and emerging industry stakeholders looking to expand or establish respectively.

**Environmental** implications are an important issue. The SW currently has no long-term Class A production waters due to impacts from land use, catchment area management and deficiencies in wastewater treatment. These issues negatively affect shellfish production. Aquaculture is subject to many environmental risks (microbiological water quality, Harmful Algal Blooms and physical storm damage). This factor is integral within the top 3 factors and could easily elevate in priority as weather patterns and events become increasingly extreme and uncertain.

## Roadmap for Successful Development

SWAN aims to sustainably enhance aquaculture production by engaging in the following proactive, solutions-based approach:

- 1. Champion and promote our sector, internally, nationally and internationally.**
- 2. Drive clean growth by fostering collaboration between business, research and government and brokering access to financial and technical support.**
- 3. Build centres of excellence to maintain regional competitive advantage.**

To support the growth of this sector, we will develop strong links to the wider stakeholders via consultation to ensure all opinions are consulted including industry fishing groups, fish processing, and all relevant statutory bodies, to facilitate sustainable development.

We aim to combine the region's multi-sector knowledge and expertise to create a **Sustainable Aquaculture Centre of Excellence** and build practical "*development to delivery*" pathways.

- **Bid** for national and international R&D funding.
- **Link** support from Local Enterprise Partnerships.
- **Create** a unified circular knowledge economy between industry, academia and government.
- **Input** coordinated and informed content to the **English Aquaculture Plan** due to be updated in 2020.
- **Innovate** value chain - access to new markets requires creative thinking about processing, packaging and transportation of aquaculture products. This is essential for sustainable industry expansion due to competition in existing markets.
- **Support** SMEs to develop proposals and expand administrative skills e.g. project management, via knowledge and innovation hub. Currently SMEs find difficulty in funding development projects for innovative ideas as the application process is complex.
- **Restore & enhance marine environment** through nature inclusive design of subsea infrastructure such as moorings, cable protection and anti-trawl detents around a site can serve as a rocky reef replenishment serving a dual purpose.

We will drive clean growth by utilising world leading knowledge and expertise drawing upon the existing capabilities in:

1. Autonomy, geospatial and environmental data
2. World leading research
3. Marine engineering
4. Physical and natural assets ([range of test sites and facilities](#))

These aims are anchored in delivering the UK Government's policy ambitions by aligning our world class ocean economy assets against complementary international ([UN Ocean Decade](#)), national (Defra [25year environmental plan](#), [Seafood 2040](#), [Maritime 2050](#)) and regional policy areas.

### What is needed to overcome the barriers?

The following actions are needed to overcome the current issues slowing development.

#### Dedicated policy and support

More political and regulatory support is required via dedicated government policy, to give the necessary foundations for infrastructure to further develop the sector. For example, there is no security of tenure for marine leases, providing security will make financing easier to secure mitigating either operating or start-up costs.

Support and direction via policy could lead to environmental improvements especially in water quality and delivery of other ecosystem services and public goods. This is in addition to the economic benefits of farming extractive species such as shellfish and seaweeds. The recent release of the [Coastal Concordant 2019](#) which sets out how regulatory bodies can co-ordinate the separate processes for coastal development consents in England is encouraging. Also, the new Agriculture Bill could see improvements in water quality as farmers will be rewarded for providing ecosystem services for society like clean air, clean and plentiful water, flood protection and thriving wildlife.

**Action** – approach SW MPs to present SWAN's aims, challenges and targets through awareness of this positioning paper, demonstrating proactive solutions-based approach to facilitate sustainable enhanced production. Streamline the marine licensing and consents process.

In addition, the recently developed The Dorset Sustainable Marine Aquaculture Strategy (DSMAS) provides opportunities for collaboration as it links relevant initiatives and strategies and provides a way to implement changes through agreed actions, initiatives and solutions. The challenges, potential and opportunities identified in DSMAS are relevant and scalable across the GSW region, linking with the development and implementation of DSMAS is essential.

#### Skills and facilities development

A major hurdle is establishing sites for testing aquaculture, having a suitable legislative process that accounts for small scale test sites would help SME's to enter and develop the industry. This will enable skills development across the board both applied and vocational training of new entrants that are operationally competent in aquaculture, providing jobs and increasing the regional labour pool. A balance needs to be identified between innovation and regulators wanting to minimise the possibilities of negative impacts for new developments. Pioneering concepts need to be allowed to be tried, tested, failed and reinitiated with lessons learnt if the SW is to make possible the rapid development in efficient marine resource extraction, be it food source or energy.

**Action** – Assess existing infrastructure sites for development suitability. Further develop links with education institutes and industry to expand training for the industry and partner test sites with research institutions where possible.

#### Develop value chain and markets

The UK domestic market is small and dominated by the expectation of the UK consumer that food should be cheap. Export sales of live product is limited to neighbouring European countries and Brexit may become a serious barrier to trade.

Establishing suitable markets for products that ensure the operating cost does not outweigh the product market value and protection for UK producers against cheaper, less sustainable imports out competing in the UK market. Market and supply chain studies could open potential markets for new and existing species.

**Action** - Facilitate the promotion of the sector on a local, regional and national scale to help to raise the profile of GSW aquaculture and its products. Establish a GSW brand. Identify opportunities for communal depuration, processing and hygiene testing facilities at sites across the South West. Identify and deliver digital infrastructure to improve aquaculture productivity and cost savings within the industry development. Horizon scan for emerging markets and demand and ensure Gross Value Added is retained for the benefit of the SW.

### Funding

Funds such as EMFF were not aligned to the needs of industry. Most practical and technical barriers need to be solved by practitioners and due to the nature of the industry that can take several years. The Seafood Innovation Fund is an encouraging step towards efficient development, it is hoped this type of funding will continue and expand as larger scale, national funding programmes are needed for further R&D and infrastructure. This will allow academia and industry to approach practical solutions in achievable timeframes.

**Action** - Develop a point of contact who can provide advice and signposting for funding and development can help drive the sector forward. Support new technologies for the sector through research and investment for example the Seafood Innovation Fund.

### World Leading Environmental Standards

Recent licences awarded for mussel and seaweed farms as well as reef enhancement projects have come with strict conditions and time-consuming environmental research obligations. This is not the case for traditional fishers or MOD activities which are often far more damaging to the marine environment. If the industry is to be embraced, requirements need to be streamlined and aligned in general with current activities.

**Action** – Utilise connections with MUKSW to expand the conversation and create awareness of the current context to develop equality in environmental obligations for all marine operations. Develop ‘Decision Support Tools’ that help deliver economic and community benefits whilst protecting and enhancing natural resources.