Dorset Marine Aquaculture Strategy
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Who is this strategy for?

- The marine aquaculture and fisheries sector.
- Strategic bodies such as the Dorset Local Enterprise Partnership, The Local Nature Partnership, The Local Industrial Strategy Working Group, Southern Inshore Fisheries and Conservation Committee (SIFCA), Poole Harbour Commissioners, Portland Port Harbour Authority, Dorset Councils Harbour Committee, South West Marine Cluster, Department of International Trade, Aquaculture Leadership Group and the Aquaculture Common Issues Group and well as many more.
- Funding bodies and investors.
- Regulators such as Southern IFCA, CEFAS, Fish Health Inspectorate, Environmental Health Officers and local authorities including planners.
- Education and research sector including colleges, universities and independent research bodies.

What is the strategy for?

This key document will be used to:

- Provide an overview of the Aquaculture and fisheries sector.
- Promote sustainable development of the aquaculture sector.
- Provide a shared ambition and a collective voice for the aquaculture sector.
- Provide guidance on the needs of the sector and how to meet those needs.
- Encourage investment.
- Provide evidence and verify the needs of the sector to funding bodies and investors to enable them to see the full potential within Dorset.
- Provide a framework for discussion of the issues, challenges and opportunities facing Dorset in relation to its marine resources with respect to aquaculture.
- Provide key action points to explore and drive development, especially in relation to research.
- To link to the Local Industrial Strategy.
The strategy considers the needs of Dorset as a whole including other marine stakeholders but with a principle focus on promoting sustainable and responsible aquaculture production without adverse impact on Dorset’s marine environment. It considers options to promote the cultivation of marine species onshore, intertidally, inshore and offshore by using a variety of methods.

This strategy will describe the following;

- Short, medium and long term aspirations for the marine aquaculture sector;
- What needs to happen to achieve these aspirations
- Potential projects
- How the strategy can be used to stimulate further investment into the sector

The content of the strategy was collated through engagement and consultation with all stakeholders related to the Dorset aquaculture sector to listen to the challenges they face, the potential opportunities and how these can be capitalised on. Regional, national and international conversations were also held to support the development of this work. From these consultations, four main strategic priorities were developed:

- **Infrastructure** - such as buildings, land, ports and equipment
- **Research and Innovation** – research and studies that support new markets, opportunities and technology
- **Industry Support** – support with licensing, permissions, funding, promotion and project development
- **Training and Skills** – ensuring the work force has the skills and development prospects to help the sector

This strategy describes the current situation of the sector, the potential for development and suggested key action points that can be carried forward to help reach the full potential of this sector in Dorset.
Introduction

Seafood 2040 states that sustainable aquaculture offers substantial potential to grow revenue and increase its current contribution to the UK economy. As a vital protein source, farmed seafood can contribute to domestic food production and thereby meet the requirements of both the health and food security agendas. Aquaculture is also one of the few industries in a position to provide growth in both rural and coastal communities, a fact recognised worldwide by governments, scientists and industry. England has the third longest coastline in the EU, after Scotland and Greece. Aquaculture therefore, theoretically, offers the greatest opportunity for expansion of seafood output, yet English aquaculture accounts for only 4% of the total 214,345 tonnes of UK farmed seafood production.

At a national level, the Seafood 2040 Strategic Framework is intended to help develop a thriving seafood sector in England with aquaculture identified as a priority for support. Seafood 2040 has a working group, the Aquaculture Leadership Group (ALG), on which, at the time of writing, the Dorset Coast Forum (DCF) is represented by the Aquaculture Development Officer (ADO). The Sea Fish Industry Authority (Seafish) have commissioned a research project entitled “Size of the Prize” to help estimate the extent to which aquaculture could be developed in the UK under differing growth scenarios. The results of this study will then help inform a new English Aquaculture Strategy.

The UK Government has designated Dorset as England’s High Potential Opportunity area in aquaculture, with Dorset leading the way in developing on-line and physical infrastructure to assist aqua-farming and aqua-tech companies to locate and manage their businesses.

Dorset’s Local Industrial Strategy recognises that the next phase of aquaculture productivity story needs to be planned, managed and accelerated. Aquaculture is one of the worlds fastest growing food industries (£173bn) and Dorset and close borders are uniquely placed to exploit the opportunity. We see that there is nowhere else in England that can take advantage of this market faster for the UK exchequer, given the right support.

The Great South West partnership recognises Aquaculture as key part of the Blue Economy for which they aim to create the necessary conditions for the rapid advance to a clean, smart and connected economy.

The Dorset Marine Aquaculture Strategy not only links with relevant initiatives and strategies but also provides a way to implement changes by providing agreed actions, initiatives and solutions designed to address local issues. This will enable targeted support to those working within the Dorset aquaculture sector as well as helping to attract new investment and increase productivity. It is essential that the aquaculture sector in Dorset continues to have its voice heard at a national level and is recognised as leader in the industry.

Although the freshwater aquaculture sector plays an important role within the Dorset economy, it should be noted that this strategy does not specifically cover the cultivation of freshwater species.
Strategy Development

The Dorset and East Devon Fisheries Local Action Group (FLAG), a group of local key stakeholders within the fisheries and aquaculture sector, recognised Aquaculture as priority to ensure the continued sustainable development of the local sector. The Dorset Coast Forum (DCF), who host the FLAG, started the development of the Dorset Marine Aquaculture Strategy in January 2018 where priorities and opportunities were discussed by key stakeholders at a workshop. This identified several key projects that would benefit the sector and enable a collaborative strategy to be developed. Two key projects included having a dedicated Aquaculture Development Officer (ADO) for Dorset and an Aquaculture Virtual Resource Hub which were supported and funded through the FLAG. A further DCF workshop was held in November 2019. A SWOT analysis in figure 1 shows the strengths, weaknesses, opportunities and threats for the aquaculture industry within Dorset.

The strategy with its key priorities and action points have been developed from a combination of the two consultations, ongoing engagement, one on one interviews by the ADO and then further refinement from Dorset Coast Forum team and the Southern Inshore Fisheries and Conservation Authority (Southern IFCA).

The Dorset Marine Aquaculture Strategy is intended to cover cultivation of marine species onshore, intertidally, inshore and offshore. The stakeholder meetings highlighted not only where the new opportunities could arise but also the role that existing growers could play in expanding the aquaculture sector in Dorset, especially if they have access to suitable funding/finance. This would need to be underpinned by specialist advice and mentoring in helping them to achieve growth and expansion. There was also a call for a more ‘joined-up approach’ amongst existing growers with the possibility of looking at cooperative working and other different business opportunities.
Current Aquaculture Overview

The types of aquaculture present in Dorset include:

- **Onshore** – which is the use of onshore facilities to grow marine species. This can be in tanks or recirculation systems.

- **Intertidal** – which is using the area between High and Low Water Spring tide marks to cultivate species such as Pacific Oysters.

- **Inshore** – operating in sites which are sheltered from extreme environmental conditions. This includes species such as Pacific Oysters, Mussels, and Seaweed.

- **Offshore** – currently there is nothing offshore in Dorset waters but there is a large mussel farm in adjacent Devon waters.

There is onshore cultivation of Lumpfish which are used as a biological control method to tackle the issue of lice infestations in the Scottish Salmon Industry. This operation is based in Portland Port and currently produces 750,000 fish per year.

The intertidal operator focusses on the Pacific Oyster in the Fleet Lagoon and this is coupled with an onsite depuration facility and restaurant.

Species which are cultivated inshore at Portland Port include Seaweed, Scallops, Oysters, and Mussels. There are currently two operators using the area.

The largest several order in England is situated in Poole Harbour and is managed by the Southern IFCA. It covers 837.8 hectares and the order allows for the potential expansion of aquaculture and cultivation activity within the harbour without overlapping with habitats of conservation importance or areas where existing public fisheries may be adversely affected. Currently 51 hectares are leased to a large operator which cultivates 3 million Pacific Oysters per year. Mussels and Manila clams are also cultivated in the area.

The offshore operator in the adjacent Devon waters is the largest offshore rope cultured Mussel farm in the UK and could produce up to 10,000 tonnes per year once its expansion is complete. Although not strictly in Dorset waters, there could potentially be ties to the local industry through its close proximity.

Portland, Dorset
## Combined SWOT Analysis for Marine Aquaculture in Dorset

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
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<tbody>
<tr>
<td><strong>Common to all aquaculture locations;</strong></td>
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<tr>
<td>• Dorset has the ability to fulfil the environmental criteria demanded by international certification schemes</td>
<td>• Low demand on the home market for seafood</td>
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<tr>
<td>• Generally good seawater quality (RAS is controlled for this factor)</td>
<td>• Regulation resources</td>
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<tr>
<td>• Local markets for most products (excluding lumpfish)</td>
<td>• Planning environment</td>
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<td>• Access to finance or capital – especially with offshore aquaculture where initial capital costs of setting up will be high</td>
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<td>• Potential availability of agricultural buildings that could be switched to RAS use</td>
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<tr>
<td>• Availability of shoreside areas within Portland Port with associated buildings</td>
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<td><strong>Intertidal</strong></td>
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<td>• Availability of aquaculture zones with Portland Harbour</td>
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<td>• Existing mature aquaculture businesses</td>
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<td>• Eco-harvesting techniques employed in Poole Harbour</td>
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<td>• Large commercial scale production of Pacific oysters in Poole Harbour with overseas exports</td>
<td>• Regulations/permissions within ports and harbours can cause delays in obtaining licences</td>
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<td>• Pacific oyster seed is available from France at a lower cost for some areas with disease status is the same as France</td>
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<td><strong>Offshore</strong></td>
<td>• Lack of space for expansion within Portland Harbour given current usage</td>
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<tr>
<td>• Nearby sites have proved suitable for offshore shellfish cultivation</td>
<td>• Commercial shipping can pose a risk to aquaculture infrastructure</td>
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<td>• Technology and expertise now exist for offshore aquaculture</td>
<td><strong>Offshore</strong></td>
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<td>• Shore-based docking and landing facilities for large vessels</td>
<td>• Poorly understood economics of large-scale seaweed farming</td>
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## Combined SWOT Analysis for Marine Aquaculture in Dorset

### OPPORTUNITIES

**Common to all aquaculture locations:**
- Brexit (e.g. new trade/market opportunities)
- Encourage consumption within Dorset e.g. through school meals
- New species
- Certification or accreditation of products
- Raise awareness of how aquaculture can develop sustainably whilst meeting conservation objectives in the marine environment

**ONSHORE**
- Facilitate planning for change of use of agricultural buildings to use with RAS
- Diversification for agriculture
- Possible use of ‘waste’ energy from agriculture to heat water
- Foreign Direct Investment (FDI) through mechanisms such as the HPO
- New investment sources such as fund-based investment

**INTERTIDAL**
- Depuration for norovirus
- Move to a risk-based management system for Classification of shellfish
- Expansion of existing Pacific oyster production
- Aquaculture processes can improve water quality, development of certain farming methods can be used to offset effects of, for example nitrogen and phosphorus.

**INSHORE**
- Move to a risk-based management system for Classification of shellfish
- Increased supply to overseas markets
- Co-location
- Multi-species aquaculture
- Development of commercial scale seaweed aquaculture
- Subtidal shellfish cultivation including mussels and oysters
- Cooperative processing facilities
- Creation of additional lease beds in Poole Harbour under Southern IFCA management
- Lease bed realignment in Poole
- Assessment of ecosystem service benefits of shellfish production to support catchment-based initiatives
- Systematic assessment of seed mussel resources

**OFFSHORE**
- Move to a risk-based management system for Classification of shellfish
- Large-scale shellfish and seaweed production
- Potential to attract new FDI and fund-based investment, possibly based on environmental credentials of the sector e.g. Environment Finance
- Use of new remote sensing technology for water quality, HABs etc.
- Offshore relay areas
- Diversification for fishermen e.g. GreenWave project
- Potential to exploit natural mussel seed resources for relaying

### THREATS

**Common to all aquaculture locations:**
- Brexit (e.g. tariffs; restrictions on movements of goods)

**INTERTIDAL**
- Norovirus in shellfish/lack of reliable test for viability/infectivity levels are unknown
- Climate change and warming waters could lead to new hygiene threats e.g. from Vibrio species bacteria
- Oyster herpes virus in some Dorset sites (although this can result in lower seed costs with imported seed)
- Water quality effected by agricultural practice and adequacy of water treatment processes.

**INSHORE**
- Norovirus in shellfish/lack of reliable test for viability/infectivity levels are unknown
- Delays in receiving export licences
- Climate change and warming waters could lead to new hygiene threats e.g. from Vibrio species bacteria
- Local periodic water quality issues associated with inadequate storm water storage e.g. Poole Harbour
- Lack of access to seed mussel resources

**OFFSHORE**
- Occasional unexplained poor water quality results
- Competition for the marine space resource
- Damage to equipment caused by other marine users
- Security of stock
- Opposition to new sites by other marine stakeholders
- No legislative requirement to consider co-location in new offshore renewable energy developments before licences are issued
Infrastructure

In order for the onshore sector to develop there needs to be the right infrastructure in place in suitable areas. There is currently land available and potential sites and buildings available, but more work needs to be done to ensure that these buildings are suitable for aquaculture operations. This could be achieved through a mixture of conversations and investment from landowners and potential operators. Infrastructure is also needed for the other types of aquaculture as facilities will be needed for depuration, storage, vessels etc.

Research and Innovation

The sector is constantly evolving and growing but with this comes the need for research to support both the technical development and the economic viability. Market and supply chain studies could open potential markets for new and existing species. Further research into cultivation techniques and technologies would support the industry and open up opportunities for new species cultivation. Many species have potential, but they need more research and study to show viability. With limited space comes the need for innovation (e.g. adoption of co-location). If Dorset is to succeed in its desire to boost the economy and create jobs, then it will need the workforce to meet those needs.

Industry Support

Throughout all of the opportunities, the need for support to the industry is key. A point of contact who can provide advice and signposting for funding and development can help drive the sector forward. The need for information on navigating licensing is something the industry could benefit from. The promotion of the sector on a local, regional and national scale would also help to raise the profile of Dorset aquaculture and its products.

Training and skills

Dorset is perfectly placed to offer unique training for the industry with an agri-tech college and so many operators in the area requiring employees with specific training. A key consideration of most sectors is where the work-pool comes from and the goal would be for the skills to be developed within Dorset while learning from the world-wide aquaculture community. If Dorset is to develop the sector to boost the economy and create jobs, then it will need the workforce to meet those needs.

Priorities

There are four clear main priorities to focus on that could enable the sector to reach its full potential:

Aquaculture careers and training
Development Opportunities

There are currently several key development opportunities across Dorset that with the right investment, support and guidance could be successful along the Dorset coast. For simplicity, they have been split into Onshore, Intertidal, Inshore and Offshore opportunities. It is important to note that the opportunities have not had full feasibility studies and each opportunity may require different permissions and licensing, infrastructure and stakeholder engagement. However, they have been discussed with stakeholders within the industry as possibilities subject to further investigation. The South Marine Plans highlight the number of activities present along the South Coast. The area contains one of the busiest shipping channels in the UK, significant fishing activity, as well as important tourism and recreation activities. Dorset is also highly designated with a network of Marine Protected Areas. Other users of marine areas and resources would have to be considered in potential opportunities.

Onshore Aquaculture

Recirculation Aquaculture Systems (RAS)

Recirculation Aquaculture Systems (RAS) represent an emerging area of aquaculture. They utilise recent advances in technology to enable the growth of a variety of species in controlled environments. Typically, RAS rear the chosen species at high densities, indoors in tanks, where life support systems provide waste removal and temperature control. These systems significantly reduce water consumption by filtering and recirculating water and means that the placement of such operations is flexible. Land infrastructure and fully trained staff are required to operate these systems. Many species can be cultivated through RAS and the potential of Finfish cultivation through the technology has already been researched and precedent is there for a potential land facility at Portland Port, depending on the operation.

Hatchery Production of Seaweeds

There is currently no commercial seaweed hatchery production in Dorset. Although there is a reliable supply of “adult” species, these must currently be shipped to the Scottish Association of Marine Science (SAMS) in Oban in order for seeded ropes to be produced. The development of a commercial hatchery locally could enable expansion of the seaweed cultivation sector in Dorset’s waters and would unlock the potential for a variety of species to be cultured. The development of a hatchery could be combined with other trophic species, such as bi-valves, to enable a multi-function hatchery. This could provide a more stable business model for investors. There are several suitable onshore sites in this respect across the county with access to good quality seawater.

Integrated Multitrophic Aquaculture (IMTA)

IMTA describes an approach whereby different species are cultivated together each at differing trophic levels (level in the food chain). The concept is that the differing species help to reduce waste products or environmental impacts at one trophic level whilst obtaining some form of benefit, generally nutritional, at the same time. In theory, IMTA could be carried out onshore, within sheltered inshore waters or in fully offshore conditions.

Whilst this approach offers obvious benefits, to date there have been few examples of commercial IMTA projects in the UK marine cultivation sector but there is potential. There is still research to be done on the economic and environmental value of IMTA systems and their co-products to ensure the success of IMTA systems.
Development Opportunities

Hybrid Facilities

There may be scope to develop a combination facility for use by private/public bodies for aquaculture, education and tourism. For example the National Lobster Hatchery in Padstow Cornwall (www.nationallobsterhatchery.co.uk) has fisheries enhancement as its main objective, although it also supports aquaculture research with public exhibition and education/conference facilities – all on a small footprint.

There might also be scope for a dual use facility (e.g. public aquarium exhibition and shellfish depuration) as such a facility could share some common infrastructure (e.g. full salinity tidal abstraction, marine storage tanks, disinfected discharge etc.). However, shared responsibilities would require careful consideration. Any public/private partnership will need a clear delineation of liabilities and responsibilities.

Potential Onshore Sites

Within Portland Port there is an extensive shore-based area available with buildings that may be suitable for aquaculture. The port currently houses one onshore aquaculture operation producing lumpfish and there is potential for more operators. The Port could provide an excellent location as it offers 24/7 security, is close to the sea for water extraction and benefits from berths and anchorages with Portland Harbour.

In addition to agricultural buildings, there may be other buildings and sites that would be suitable across Dorset for onshore aquaculture operations. Identifying these however could be time consuming and difficult for industry to undertake without assistance. There may therefore be a need to establish the following:

- Buildings and sites that are currently available that could be used for onshore aquaculture within the Dorset region.
- The planning and licensing requirements of establishing aquaculture operations at different sites.
- Potential for co-location of onshore aquaculture with other activities e.g. where there is waste energy available to help heat water etc.
Development Opportunities

Intertidal Aquaculture

Increased Production of Pacific Oysters

There is scope to expand Pacific Oyster production within the Fleet Lagoon. The existing lease includes a second site that is currently unused. There are plans to modernise and expand the current production of Pacific Oysters by the leaseholders.

Cultivate Other Species for Intertidal Aquaculture

**Manila and Native clam** – The Manila Clam (*Ruditapes philippinarum*), whilst a non-native species, is the subject of a controlled fishery within Poole Harbour. The Native Clam (*Ruditapes decussatus*) is not currently cultivated within Dorset waters. Both these clam species can be grown intertidally, normally under mesh, and there have been previous trials in this respect in the south west e.g. Exe Estuary. However, given that the Manila Clam is a non-native species, it is unlikely that permission would be obtained for intertidal cultivation in areas of Dorset where it has not already naturalised.

**Native oyster** – There is a market for the Native Oyster (*Ostrea edulis*) and generally a price premium compared to the Pacific Oyster although the grow-out time is considerably longer. The main questions that would need to be answered with cultivation of this species in Dorset waters are whether they can be cultivated in enclosed systems whilst maintaining adequate growth rates, whether such cultivation techniques will result in mortalities through disease and ultimately whether they can provide an economic return in excess of Pacific Oysters.

Inshore Aquaculture

**Barnacle Cultivation**

There has been a recent interest in Dorset for new sites to cultivate Barnacles. Sites for harvesting or cultivation could be intertidal, inshore or offshore depending on the species of Barnacle used. Intertidal sites could be existing fixed structures such as piers or settlement surfaces specifically set out to collect settling Barnacles. Inshore or offshore, the equipment utilised is similar to that used for rope Mussel cultivation.

**Abalone Cultivation**

Cultivation of the European Abalone (*Haliotis tuberculata*) has previously been trialled in Portland Harbour as well as other parts of the south west. However, changes in legislation now mean that it is impossible to import seed from France as it is currently deemed to be a non-native species in England. There has been a recent discovery of a juvenile Abalone shell during a ‘Bioblitz’ on the south Devon coast. There is a possibility therefore that this species may in fact be a native of English waters which could open up the opportunity to farm this high value marine gastropod.

**Scallop Cultivation**

The technology exists to cultivate Scallops within inshore waters. Ear hanging has been suggested as one possible approach to help avoid the fouling often associated with the use of lantern nets. Although not currently in Dorset waters, there is current use of lantern nets for successful Scallop cultivation in Torbay. The economics of production of Scallops would require careful consideration especially given the relatively high cost and scarcity of supply of seed at present. A combination of cultivation in lantern nets and then ranching on the seabed has been trialled previously in Scotland. Such an approach would require both a licensed aquaculture site and a Several Order in order to provide rights of ownership whilst the Scallops are on the seabed.
Development Opportunities

Offshore Aquaculture

Landing and Processing Facilities
Any expansion of offshore aquaculture whether it is for finfish, shellfish or seaweed will require the use of large specialised vessels. It will be important that these vessels can quickly access offshore sites for feeding, maintenance and harvesting etc. As such, local dockside facilities for the vessels and landing facilities for harvested product will be required. The availability of these types of facilities will therefore help to attract new entrants and investment into the Dorset.

Marine Finfish Farming
The 2012 draft English Aquaculture Plan states that large scale expansion of marine finfish farming in English waters will require large scale offshore developments which will need high investment, high and stable prices, long-term security of tenure and a greater variety of species. In Scotland, concerns over benthic impacts of salmon farming have led to a move away from the more traditional sheltered sites to specialised cage designs. These cages should help to alleviate the impacts of faeces or waste food on the environment. There is certainly scope for offshore finfish farming in English waters but, to date offshore aquaculture around the UK have been focussed more on shellfish cultivation.

Seaweed Cultivation
The potential for seaweed cultivation together with IMTA within the Dorset and East Devon region was reviewed. It was identified that the most commonly farmed seaweed species in the UK were *Saccharina latissima* (Sugar Kelp), *Laminaria digitata* (Oarweed), *Alaria esculenta* (Winged Kelp), *Palmaria palmata* (Dulse), *Laminaria hyperborea* (Tangle or Cuvie). Farming of seaweeds with a potential higher value and demand, such *Porphyra* (Laver) and *Osmundea pinnatifida* (Pepper Dulse), is still at the Research and Development stage. The report recommended that:

- A review is required of seaweed species that will be suited to cultivation in Dorset waters based on yield, reliability, value and demand, market end uses and environmental conditions on-site
- Market analysis should be completed for seaweed products from Dorset and how to grow these markets
- Consumer familiarisation with seaweed products is needed
- There is the potential for development of a Dorset seaweed brand
- Collation of information sources regarding seaweed cultivation would be of benefit to the local industry
Development Opportunities

Offshore Aquaculture

Urchin Cultivation

It is understood that sea urchins are a regular by-catch from the rope mussel lines offshore in Devon. It is reported that if mussel ropes are left in the water beyond two years then the urchins are just about market ready when the mussels are harvested. However, the supply and quality are unpredictable. There could be potential to keep urchins as and when they come off the lines and then hold them in stock, perhaps using onshore tanks or baskets at sea. In terms of licensing and permissions, urchins are currently considered a wild fishery product from ropes and as such would require a fishing licence. It is not clear however how these urchins differ to the mussels that also settle naturally on the ropes but don’t require a fishing licence.

Managed Several Orders

The Poole Harbour Several Order, 2015, provides a model for aquaculture development where growers can develop businesses under sub-leases, but where one organisation takes responsibility for management and establishes a system of overall control. Whilst there are many advantages and some disadvantages of such a system, overall in heavily used areas, where there is significant competition by other sea users (in terms of demand for space), such a system has multiple advantages; principally that sustainable development can occur within a planned system. Such a system reduces the risk for aquaculture operators who otherwise would have to consider in-combination effects of their development with other sea users. This type of development system also reduces uncertainty at the site establishment stage. The benefit of a development led process, as opposed to a plan led process is that planning for the wider environmental considerations can be taken in to account a strategic manner. Furthermore, the Poole model demonstrates how aquaculture can grow and develop within marine protected areas without compromising the objectives of that area.

Diversification for Fishermen

Any expansion of offshore aquaculture would require the availability of suitable vessels for routine husbandry, maintenance and harvesting. Whilst these vessels are likely to be of a specialist design there may still be a role for local fishing vessels to play in supporting these aquaculture operations.

Action Point

There is currently an active inshore fishing fleet operating within Dorset waters. It is possible that some of these fishermen may be willing to consider diversification into aquaculture. An example is the GreenWave IMTA approach from the eastern seaboard of the US which was designed with current and ex-commercial fishermen in mind and could be a type of model that could be considered for south west fishermen i.e. training in aquaculture operations, supply of seeded seaweed ropes and shellfish seed and a for-profit co-operative purchasing, processing and distribution facility. In addition to a local fishing sector there are also a wide range of other skills that might be employed within an expansion of aquaculture including boat builders, charter boats etc.
### Strategy Action Points

This table provides a list of key action points that can be taken forward to help develop the sector. These have been developed in consultation with all key stakeholders.

<table>
<thead>
<tr>
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| **Deliver an Aquaculture Innovation Centre in Dorset** | Dorset Aquaculture Innovation Centre based in Dorset would provide coordinated industry access to:  
  - Technical and scientific solutions to technology development  
  - Skilled workforce Development  
  - Appropriate land and sea development space  
  - Supported problem Solving  
  - Commercial sustainable aquaculture expertise  
  - Policy and planning expertise  
  - The latest research information and a range of specific aquaculture testing facilities  
  - Aquaculture Industry and academic showcases  
  - The national and international aquaculture arena  
  - An area of collaborative working | It should also be noted that The English Aquaculture Plan (Ref: 2012) recommended the establishment of both an English Institute of Aquaculture and a National Aquaculture Technology Training Centre. It was anticipated that these centres could have the following main roles:  
  - Providing technical and scientific solutions to existing bottle necks and develop new technologies to enable future growth of the industry.  
  - Provide technical and managerial education producing a highly skilled and knowledgeable workforce for industry.  
  - To support developers with an awareness and facilitate engagement in the planning process, such as access to expertise in the development of Habitat Regulation Assessment models – building on the experience to Southern IFCA in the Poole Harbour Fishery Order 2015. | Medium term delivery |
| **Identify and deliver digital infrastructure to improve aquaculture productivity and cost savings within the industry development** | With the roll out of 5G mobile networks, the increased availability of and reducing cost of technology, there is the opportunity to develop a remote sensing network that could be used to monitor water quality at existing farm sites and more generally across the coast. The Internet of Things (IoT) could also be used to the advantage of the industry with introduction of “smart” equipment. | Mobile network signal around the coast can be patchy and this should be improved to provide consistent and reliable service to industry. The use of Smart technology in aquaculture is in its infancy but there is an opportunity for Dorset to be at the forefront of this roll out. | Medium term delivery |
| **Investigate the potential for the development of communal depuration, processing and hygiene testing facilities at sites in Dorset.** | Although initial ideas have been suggested for communal facilities, further exploration of the requirements, costs, how it could work and industry support for communal facilities is required. | The provision of dockside and landing facilities for offshore aquaculture have been described. There also exists the potential to consider communal facilities for depuration of shellfish, processing of aquaculture produce and hygiene testing. The latter would most likely relate to testing of shellfish for positive batch release and could include testing for bacteria, viruses and algal biotoxins. New accredited technology for hygiene testing, such as impedance, would make this type of positive release possible and would be of great benefit for any moves towards a risk-based management approach to shellfish Classification, harvesting and dispatch. In practice communal facilities might be difficult to operate and there would need to be further investigation as to whether it would be economically viable and if any additional frameworks would need to be set up such as Community Interest Companies. | Medium term delivery |
## Strategy Action Points

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<td><strong>RESEARCH AND INNOVATION</strong></td>
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<tr>
<td><strong>Explore new Markets and increase demand through supply chain studies, promotion of the sector and exploring the seed supply chain</strong></td>
<td>There is potential for new species and new markets for existing species but there needs to be a collaboration between research, marketing and industry to fully investigate and realise the potential of them. The seed supply chain is an issue throughout Dorset with further investigation into hatcheries needing to be done. Increasing demand throughout the supply chain links to the public, schools, restaurants and providing information on how to cook local products and where to buy them.</td>
<td></td>
<td>Long term delivery</td>
</tr>
<tr>
<td><strong>Support new technologies for the sector through research and investment</strong></td>
<td></td>
<td>Links to the Dorset Aquaculture Innovation Centre and development of digital technologies</td>
<td>Medium term delivery</td>
</tr>
<tr>
<td><strong>Establish branding for Dorset aquaculture</strong></td>
<td>Developing a brand for products that are cultivated in Dorset would require industry support and recognition throughout the supply chain.</td>
<td>There are existing certifications and initiatives for seafood that the branding would not seek to replicate. Branding specifically for aquaculture products rather than all Dorset fisheries products would be easier to provide provenance for as IVMS is not yet mandatory on fishing vessels.</td>
<td>Medium term delivery</td>
</tr>
<tr>
<td><strong>Undertake baseline studies and monitoring needed to ascertain the ongoing impacts of aquaculture on the environment and economy</strong></td>
<td>With the emphasis on sustainable aquaculture, there will need to be baseline studies available in which to monitor the impacts of any developments along the coast. These could be at individual sites or general observations across the Dorset coast. Environmental licensing may be required for certain practices and methods which might account for some impacts however a report into the likely impacts and how these can be monitored for different species/methods could be collated.</td>
<td>Currently, the aquaculture potential for some of the Dorset and East Devon area is being mapped by Cefas through a FLAG funded project. This mapping will be of significant value both to the current aquaculture operators in the region and new entrants or investors. There is likely to be a need in the future to update or refine/revisit the aquaculture mapping outputs produced by Cefas as part of a FLAG funded project.</td>
<td>Ongoing delivery</td>
</tr>
<tr>
<td><strong>Work with schools and public health Dorset to promote seafood as part of a healthy diet and lifestyle</strong></td>
<td>Schemes such as procurement of local seafood for use in school meals could be developed. Education and training programmes exist across Dorset but further rollout or support for these could be explored. Working with Dorset Public Health could promote the health benefits to a wider audience</td>
<td>A central weakness that has been highlighted for the seafood sector in the UK is low domestic demand. There are a number of national and local initiatives (e.g. Seafish and their Seafood Week campaign; Dorset Seafood Festival) to help promote seafood consumption. However, at present much of UK seafood is still exported to overseas markets such as Europe and, more recently, Asia. There is certainly a need therefore to try and increase the public’s awareness of UK seafood, including health and wellbeing benefits, ecosystem benefits and, perhaps most importantly, to introduce younger consumers to seafood. This could link with a “Dorset Aquaculture Brand”.</td>
<td>Medium term delivery</td>
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<td>Develop the concept of an Aquaculture Park areas in Dorset</td>
<td>The context of an ‘Aquaculture Park’ here is where there might be a working arrangement where a main marine stakeholder is granted or has the licence/ability to undertake a secondary co-location activity, such as mariculture, within the spatial footprint of their site. They would also have the right to sub-let the licensed areas for co-location activities to selected partner organisations, such as aquaculture producers. The Aquaculture Park concept envisages that the main stakeholder will supply services to those partner organisations to help maintain a degree of control over partner activities. Services might include supply of production equipment; hire facility for support vessels; co-operative on-shore facilities through to central administration of licensing, permissions, Classifications etc.</td>
<td>The advantage to industry of the Aquaculture Park concept is that start-up costs and times are greatly reduced, and overhead costs may also be reduced depending on the services provided. This may help to increase investor confidence that a commercial return can be made on investments into the aquaculture sector and could help Industry to more easily access finance. This also links to: • Managed Several Orders • Communal Facilities • Dorset Aquaculture Innovation Centre</td>
<td></td>
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Long term delivery
Strategy Action Points

Below is a list of key action points that can be taken forward to help develop the sector:

| INDUSTRY SUPPORT |
|-------------------|------------------|------------------|------------------|
| **Action Point**   | **Brief Explanation** | **Other Considerations** | **Long/Medium/Short Term Delivery** |
| Consult and establish a governance structure to implement the Aquaculture strategy | The governance of delivery of the strategy is key to the development of the sector. Key organisations need to be included in the governance group to enable to correct advice and guidance.  
  • For lead organisations to assist and shape the implementation of the strategy  
  • To direct any project or project staff in the strategy  
  • To provide advice and guidance on the implementation future strategy development | The proposed structure of the governance can be found on page 21. | Short term delivery |
| Provide support to industry with through the Aquaculture Development Officer Role | This role will continue to:  
  • Provide advice and information to the industry  
  • Act a key point of contact  
  • Work in partnership across the sector to provide links, connections and advice  
  • Promote the sector at a local, regional and national scale  
  • Help write funding bids and increase investment into the sector  
  • Identify opportunities for the sector  
  • Develop and run working groups or issue specific groups for the industry and other stakeholders  
  • Work to help navigate licensing, permissions needed and provide advice, support and connections  
  • Build relationships between aquaculture and other sectors  
  • Promote and update the Virtual Hub | High Potential Opportunity  
The Department of International Trade (DIT) High Potential Opportunity (HPO) for aquaculture in Dorset is intended to help attract Foreign Direct Investment (FDI). It is important that Dorset continues to actively market and promote its strengths to overseas investors.  
Sources of Funding and Investment  
There is significant investor interest worldwide in the fast-developing aquaculture sector. Fish Farmer reports interest from venture capitalists in new technology start-ups whilst Environmental Finance Ltd., supported by WWF, are looking for aquaculture projects requiring investment as part of their new Blue Impact Fund. Investees will benefit from the “halo” effect of the Blue Impact Fund’s wider investment and conservation programme, which will help investees build strong brand and consumer appetite for products | Short term delivery |
| Promote the Aquaculture virtual hub to industry | Aquaculture Virtual Hub  
The Aquaculture Virtual Hub has been built around the aquaculture mapping that is being produced by Cefas as part of a FLAG funded project to highlight aquaculture opportunities within the Dorset and East Devon area. To be effective, the mapping output will require feedback and periodic updates. The Virtual Hub to build a feedback option on the mapping output that would help to inform future updates and revisions of the maps. | | |
## Strategy Action Points

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<td>Establish relevant courses and training for the sector</td>
<td>A skilled workforce is essential if the sector is to develop further. Ensuring that Dorset has a pool of skilled employees would be a great benefit to the sector and for future investment. Many courses already exist through Seafish Training Centre and there are mobile industry trainers; however, Dorset also has an Agri-tech college and other colleges and universities where new courses could be established or modules within existing courses be modified to suit the industry.</td>
<td>Any expansion of aquaculture within Dorset will require the availability of a skilled workforce within the region. At present, there are plans by a local education provider, Kingston Maurward College (KMC), to offer courses in aquaculture to students as part of their wider land management education and training programme. It would be advisable to promote dialogue between the education provider and industry to ensure that course content is, and remains, relevant to the needs of the local aquaculture sector. KMC already actively seek extended work placements for students on their courses. There has been interest expressed by students in work placements within aquaculture and the ADO has helped facilitate this. Going forward, this arrangement could be formalised, perhaps through some form of working group consisting of KMC, Industry, and a facilitator. Apprenticeships may also be worth considering as another route towards providing a skilled local workforce.</td>
<td>Medium term delivery</td>
</tr>
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</table>

| Establish an industry and education working group to guide the development of the sector regarding training and employment | Setting up a sub-group for the training and skills priority of the strategy would ensure that the correct key stakeholders from industry and the education sector are able to work together to ensure we have a skilled workforce. | Links to establishing a governance group and also to establish relevant courses and training for the sector. | Short term delivery |
Proposed Governance Structure for the Strategy

To ensure that the strategy provides sustainable growth and development and that action points are explored and delivered, a governance group is proposed that is made up of key organisations within the industry. These representatives can shape and support the implementation of the strategy, provide advice and guidance for projects and ensure the strategy evolves as the sector develops.

Representatives to be invited to the Strategy Delivery Group:

- Industry Representatives
- Research and Science Representatives
- Skills and Training Representatives
- Governance and Management Representatives
- Food and supply chain representatives
- Economic and strategic representatives

Where the strategy sits in relation to other key strategies: