Department for Environment Food & Rural Affairs

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United Kingdom multiannual national plan for the development of sustainable aquaculture

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Llywodraeth Cymru
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The Scottish Government

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1 National context and link with main national objectives

1.1 Introduction

Aquaculture represents a growing contributor to the production of aquatic food worldwide. Most fisheries in the world are currently near or above sustainable exploitation limits. In parallel, global consumption of fish as food has doubled in the period 1973-2003. Various projections have been made to 2020 on fish supply and demand, which confirm that per capita consumption of fish as food is expected to rise.[1]

Aquaculture is one of the UK's key strategic food production sectors and helps to underpin sustainable economic growth, both in rural and coastal communities and in the wider economy. The industry provides community benefits in high quality, secure jobs and related social infrastructure. The UK is committed to continue supporting industry-led sustainable growth of aquaculture.

This support for growth has new impetus at EU level. The Commission is keen to use the opportunities presented by Common Fisheries Policy Reform and the European Maritime and Fisheries Fund (the financial instrument to support CFP implementation) to boost aquaculture growth. It therefore requires Member States to produce Multiannual National Plans (MANPs) outlining how they intend to foster growth in the aquaculture industry.

The UK's Multiannual National Plan for development of sustainable aquaculture aims to demonstrate the diverse nature of the aquaculture industry throughout the UK, both in terms of nature and scale of the sector but also in terms of relative position and response of administrations within the UK facing these aquaculture growth challenges.

The UK's Multiannual National Plan for aquaculture takes account of four major areas:

1. The structure, management and national support of the industry as it exists in 2014, and the inherent or latent trends in its development and in the developments of the markets it supplies;

2. The European Union's clearly articulated objectives for growth in sustainable aquaculture, as a component of Blue Growth, thereby enhancing long-term seafood security;

[1] *Fish to 2030: Prospects for Fisheries and Aquaculture*– a collaboration between the World Bank, Food and Agriculture Organization of the United Nations (FAO) and the International Food Policy Research Institute – published on 5 February 2014 – stated "Aquaculture – or fish farming – will provide close to two thirds of global food fish consumption by 2030 as catches from wild capture fisheries level off and demand from an emerging global middle class, substantially increases."

3. The outcomes of the SWOT Analysis and Needs Assessment undertaken in preparation for the new European Maritime and Fisheries Fund (EMFF), which will operate for the period 2014 – 2020;

4. Consideration of specific Articles relating to aquaculture, and processing and marketing in the EMFF Regulation, and how these might serve to support elements of the three strands noted above.

1.2 Aquaculture in the UK

Aquaculture policy in the UK is a devolved matter, with the separate administrations of Wales, England, Northern Ireland and Scotland responsible for its collective oversight. This governance arrangement means that the elements of the UK approach reflected in the Multiannual National Plan will vary to reflect differences in priorities and policy approaches.

Aquaculture within England, Northern Ireland and Wales differs significantly from Scotland both in terms of scale of production and species cultivated. Scotland is undoubtedly the major player in the production of farmed Atlantic salmon (over 95%) which dominates the UK finfish production figures. Although primarily marine based, Scotland's industry also incorporates a significant freshwater production sector. Collectively the English, Northern Irish and Welsh industries place greater emphasis on shellfish and trout production. The maps at Figures 1-3 show the location of aquaculture sites throughout the UK. The data in Figures 5 and 6 below demonstrate the differences between the aquaculture sector in the UK's respective administrations in terms of scale (size and value of respective industries), as well as between shellfish and finfish.

Aquaculture in the UK is EU-leading in terms of knowledge (practical and academic), innovation, good practice and health status. Our coastal topography provides numerous excellent sites for finfish and shellfish farms. We are also well placed to develop marine aquaculture in more exposed locations - technologically and economically challenging but with great potential to contribute to Blue Growth and helping meet food security concerns.

Given the limited scope to introduce large finfish aquaculture sites in sheltered inshore waters, more exposed location aquaculture provides a means of sustainably growing the sector while reducing competition for space in inshore areas, and reducing potential environmental impacts. More exposed sites provide sufficient water flow to prevent build-up of waste materials associated with inshore aquaculture. Supporting investment through use of structural funds and grants will help encourage industry involvement and technological development, and new research is underway to fully scope the available opportunities. There are possibilities of co-location (with marine energy installations), multi-trophic aquaculture (salmon and shellfish (mussels)), new systems and species (e.g. seaweed) and co-operative approaches to share costs and risks.

Figure 1: Aquaculture Sites in England and Wales

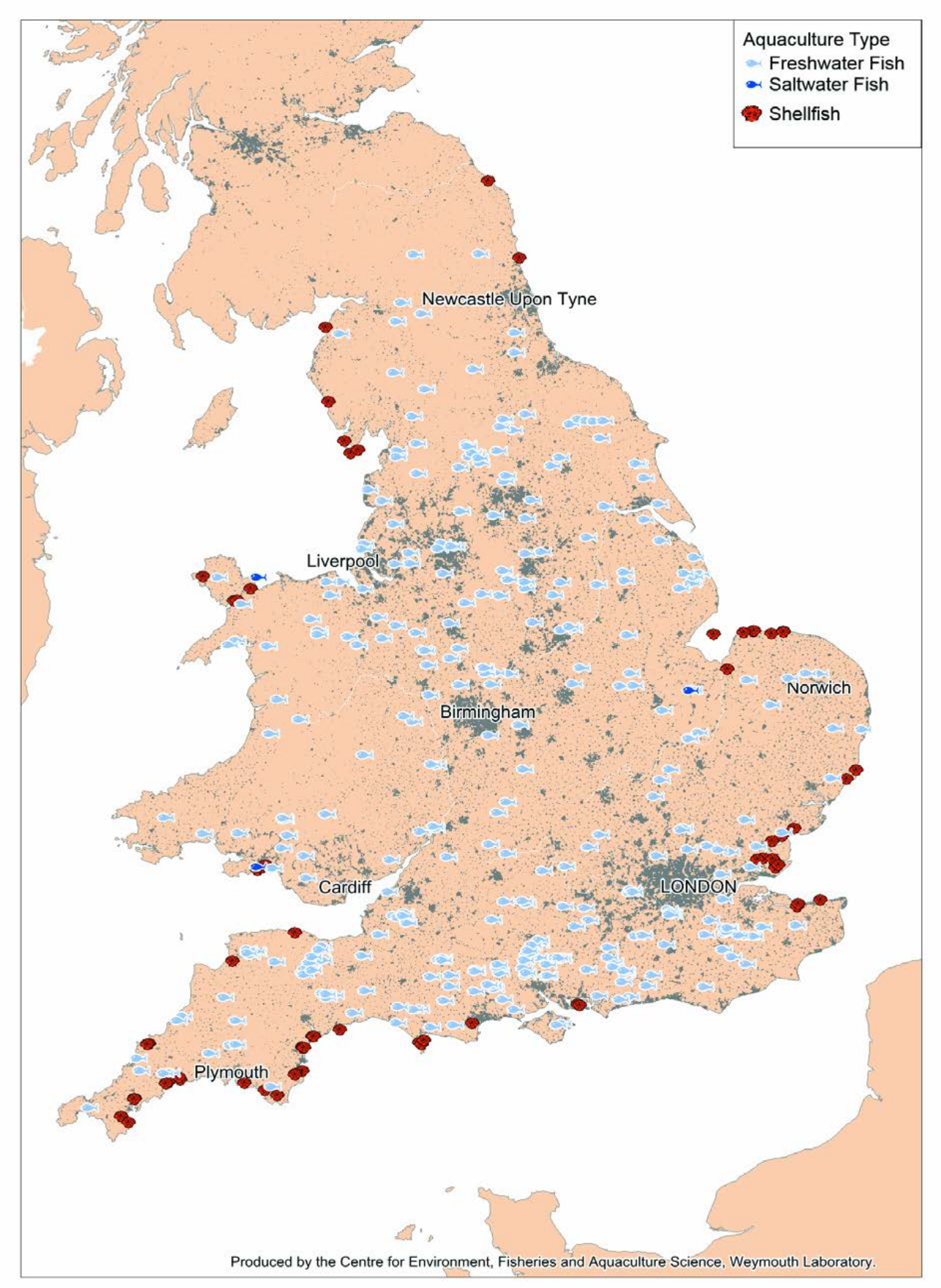


Figure 2: Aquaculture Sites in Northern Ireland

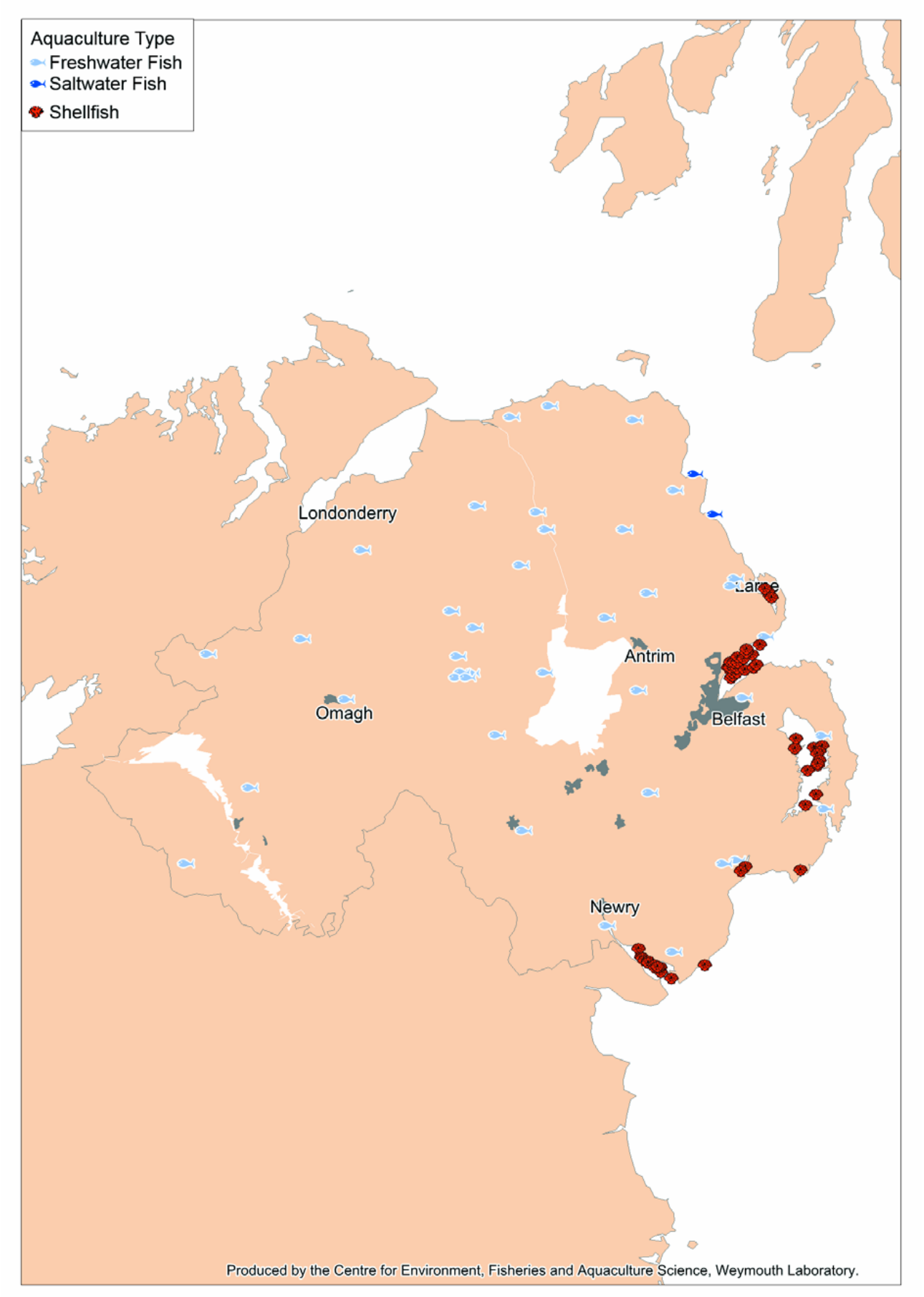


Figure 3: Aquaculture Sites in Scotland

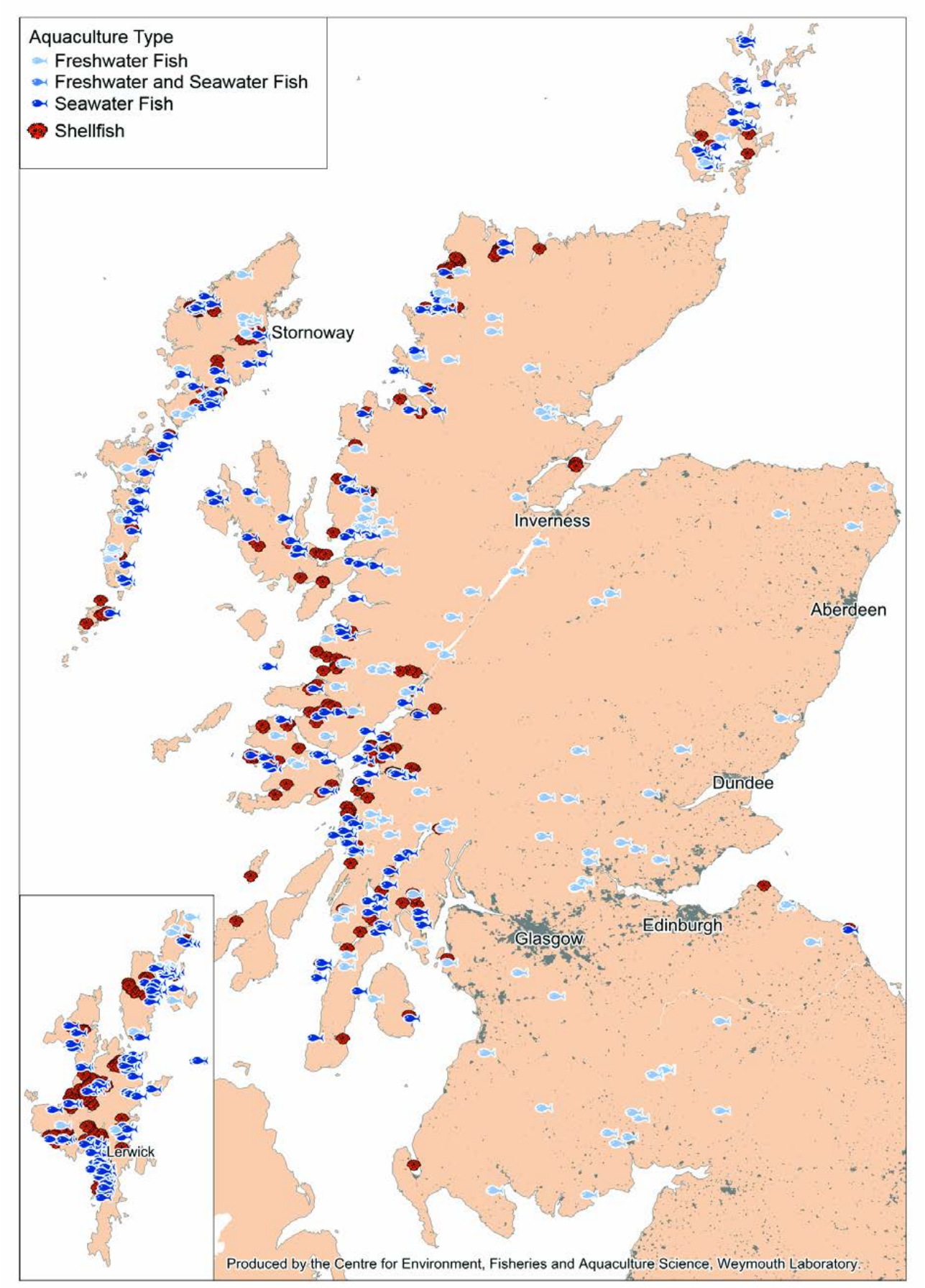
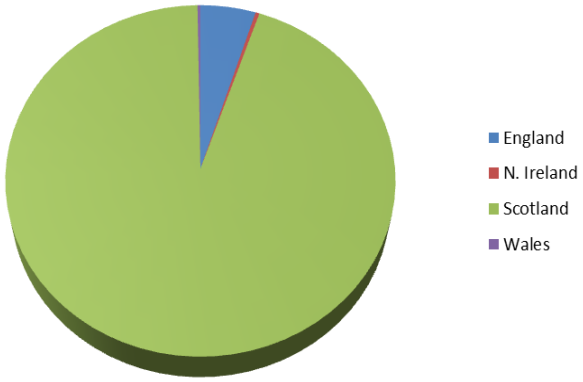


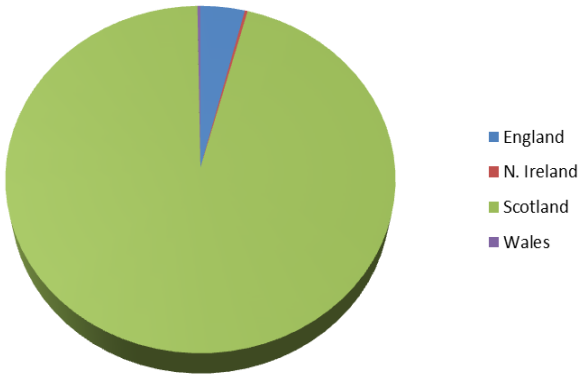
Figure 4: Number of Aquaculture Sites in the UK[2]

	Finfish	Shellfish	Total
England and Wales	342	73	415
Northern Ireland	42	55	97
Scotland	415	328	743

Figure 5: UK Aquaculture Production of Finfish by Tonnage and Value in 2012. *Source: Cefas* and UK Fishery Administrations



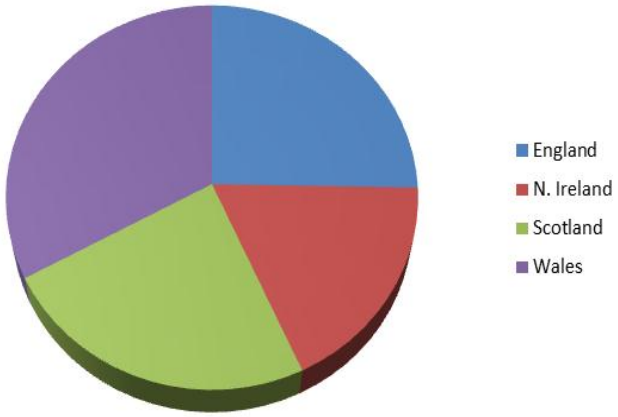
Finfish Tonnage (tonnes) (UK Total >180 000)	
England	8,709
N. Ireland	946
Scotland	168,006
Wales	453



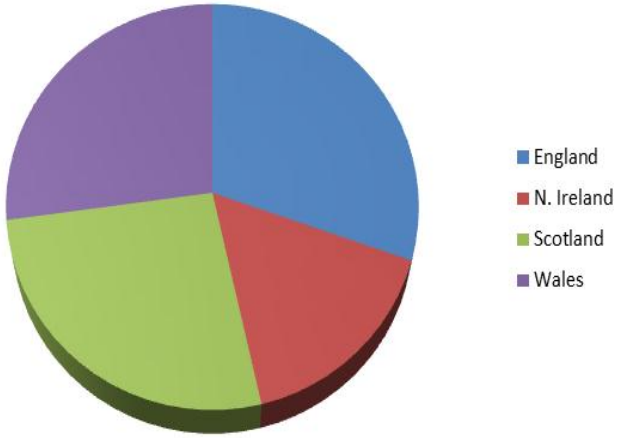
Finfish Value (£) (UK Total ca £557M)	
England	£21,526,536
N. Ireland	>£4,118,998
Scotland	ca £550,000,000
Wales	£2,840,400

[2] Source: Cefas
[3]https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/405469/Aquaculture_Statistics_UK_2012.pdf

Figure 6: UK Aquaculture Production of Shellfish by tonnage and Value in 2012. Source: Cefas



Shellfish Tonnage (tonnes) (UK Total 27,360)	
England	6,915
N. Ireland	4,920
Scotland	6,525
Wales	8,999



Shellfish Value (£) (UK Value ca £32M)	
England	£10,060,882
N. Ireland	£4,539,207
Scotland	£8,773,900
Wales	£9,008,000

1.3 Strategic approach towards the EU main objectives

There is evidence that the aquaculture industry across Europe has stagnated, despite some areas of the UK experiencing growth in the sector. This has led to an increased reliance on fish products from outside the EU. Aquaculture is therefore being promoted strongly in the Blue Growth Strategy, the Atlantic Strategy and the reformed Common Fisheries Policy (CFP). Some UK administrations have also adopted specific aquaculture policies and strategies to encourage or support industry growth and development.

Quantified National Growth Objectives (2014-2020)

The UK's freshwater and marine resources and coastal topography provides numerous excellent opportunities for finfish and shellfish farms. There is scope to increase the UK's production of aquaculture products, but the rate of progress in expanding the industry will depend on technical, investment and socio-economic factors. Additionally, the UK is well

placed scientifically and technically, as a centre of aquaculture knowledge, to contribute to the development of more exposed offshore marine aquaculture, potentially in conjunction with marine renewable energy installations. Supporting investment through the use of structural funds and grants will help encourage industry involvement in technological development, and new research is underway to fully scope the available opportunities.

The UK is supportive of industry-led growth in aquaculture production, but not all administrations have quantified growth targets. Scotland supports an industry plan to increase marine finfish production (whole, wet fish) sustainably to 210,000 tonnes (181,045 tonnes in 2014) and shellfish production to 13,000 tonnes (7,980 tonnes in 2014) by 2020.

Also, the Welsh 'Marine and Fisheries Action Strategic Plan' sets sustainable growth targets for the industry to increase sustainable production of finfish from 761 tonnes (in 2011) to 2,000 tonnes by 2020 and shellfish from 8,376 tonnes (in 2011) to 16,000 tonnes in 2020. At a UK level these figures imply growth projections of approximately 22% in finfish production by 2020 and 33% increase in shellfish production by 2020.

It is also important to acknowledge the importance of the interaction between aquaculture development and aquatic animal health, as well as the interaction between farmed and wild populations. In order to ensure the long term economic and environmental sustainability of aquaculture it will be important that the sector maintains and develops high standards of biosecurity.

2 Response to the strategic guidelines

2.1 Simplify administrative procedures

2.1.1 Assessment of the national situation

This section gives a broad overview of the current regulatory framework for aquaculture. The framework differs in detail in each administration of the UK where aquaculture schemes and operations are conducted[3].

The Administrations in the UK have recognised the challenge that administrative and regulatory compliance presents to aquaculture growth, particularly in respect of Small and Medium Enterprises (SMEs). This was highlighted during the preparation of the EMFF SWOT Analysis and Needs assessment.

There are a number of existing work areas within the UK focussed on i) identifying regulations and administrative procedures which hamper growth and ii) considerations of

[3] The scope of consents required will depend to an extent on the nature of the application. For further information please contact relevant administration.

options for deregulation and/or smarter implementation. We have outlined below some examples of these existing initiatives, including linked timelines where appropriate. In addition we have given a summary of the current regulatory framework administered by respective administrations for aquaculture schemes/operations.

i) England

The key aquaculture consenting framework in England comprises (including the main regulators):

- Planning permission from the local authority
- Authorisation by the Fish Health Inspectorate under Aquatic Animal Health (England and Wales) regulations 2009 (https://www.gov.uk/fish-and-shellfish-farm-authorisation-and-registration); and the Alien and Locally Absent Species in Aquaculture (England and Wales) Regulations 2011 if applicable.
- Land use consent from The Crown Estate or other land owner (http://www.thecrownestate.co.uk)
- Abstraction licences http://www/environement-agency.uk
- Local authority permissions (food hygiene and safety);
- Marine Development/Construction license from the Marine Management Organisation (http://www.marinemanagement.org.uk/)
- Discharge consents (http://www.environment-agency.gov.uk/)
- Those operating in the aquaculture sector must also abide by the Gangmasters (Licensing) Act 2004. (http://gla.defra.gov.uk/)
- Activities would also need to comply with environmental regulations if in an area of statutory protection (such as SSSI, European Marine Site, or Marine Conservation Zone) and will need to be consented and/or assessed accordingly by the Competent Authority in question:
    - Natural England. (http://www.naturalengland.org.uk/)
    - The local Inshore Fisheries and Conservation Authority (IFCA) (http://www.association-ifca.org.uk)

The Shellfish Act (1967) made provision for 'the establishment or improvement, and for the maintenance and regulation, of a fishery for shellfish.'[4] Under this Act, members of the public or agencies, including local authority bodies, may apply for 'several' or 'regulating' orders. These allow the management of private and natural fisheries. 'Several Orders allow legal ownership of certain named shellfish species within a private shellfishery. Regulating Orders allow management rights to designated natural shellfisheries.'[5] For

[4] Sea Fisheries (Shellfish) Act 1967, http://www.legislation.gov.uk/ukpga/1967/83
[5] Shellfisheries: Several Orders and Regulating Orders, gov.uk, 2013, https://www.gov.uk/shellfisheries-several-orders-and-regulating-orders

more information please contact Defra or visit https://www.gov.uk/shellfisheries-several-orders-and-regulating-orders.

Aquaculture developments are also affected by the EU Water Framework Directive, the key aspect of which is that the whole river basin will be classified based on a range of criteria, including the water quality at shellfish waters, and the rule that "no deterioration" must occur. To support this, the Environment Agency is carrying out investigations to identify sources of pollution and take forward remedial work as necessary. The Water Company investment period for 2010-2015 has committed £68m to investigating and improving shellfish waters alone.

Evidence from the Red Tape Challenge (RTC) exercise showed that the framework can appear fragmented, overlapping, inconsistent and complex. For some businesses this may act as a barrier both to effective compliance with their environmental obligations and to growth. [6] As a result, the Smarter Environmental Regulation Review in England aims to eradicate the duplication of regulation by considering problems from a user perspective. In practice this means that if an applicant aims to ascertain exactly what need be done in order to set up an aquaculture business, all the guidance will appear in once place, despite the fact it has been developed piecemeal and organically over a relatively long period of time. This will ease the administrative process, through presenting all relevant information in one place.

In addition to improving the manner in which information is accessed, Defra is also committed to reviewing and renewing the guidance which is available to applicants for Several and Regulating Orders (SROs) in England and Wales.[7] In addition to this Defra aims to update the application form for SROs which applicants are required to complete, in order to make it electronically interactive. Defra is committed to completing this update of guidance before the end of 2015

The Centre for Environment, Fisheries and Aquaculture Science (Cefas) has been contracted by the European Commission to deliver the project "Background information for sustainable aquaculture development addressing in particular environmental protection". The objective of the project is to provide support for the development of guidance documentation for the implementation of environmental legislation in the context of the development of sustainable aquaculture the results from which will be turned into guidance.

[6] Defra (2013) Smarter Environmental Regulation Review: (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/199869/serr-phase1-exec-summary-130516.pdf)

[7] This is special legislation to encourage the setting up and management of private and natural shellfisheries. Several Orders and Regulating Orders may grant exclusive fishing or management rights within a designated area. Several Orders allow legal ownership of certain named shellfish species in a private shellfishery. Regulating Orders allow management rights to designated natural shellfisheries.

ii) Scotland

The Ministerial Group for Sustainable Aquaculture (MGSA) was established in 2013 to work alongside the Aquaculture & Fisheries (Scotland) Act 2013 to secure sustainability of aquaculture growth and its interactions, supporting industry to achieve its sustainable growth targets as set out in the National Marine Plan Consultation ; to grow marine finfish production sustainably to 210,000 tonnes; and shellfish production (especially mussels) to 13,000 tonnes, with due regard to the marine environment, by 2020.

http://www.scotland.gov.uk/Topics/marine/Fish-Shellfish/MGSA

The key aquaculture consenting framework in Scotland comprises:

- Scottish Environment Protection Agency (SEPA) consent for discharges from a fish farm, and routine inspections for conformity to all environmental regulation, including the provisions of the Water Framework Directive and related permissions and controls. http://www.sepa.org.uk/water/hydropower/regulation.aspx
- Marine Scotland Marine Licence (Section 20, Marine (Scotland) Act 2010) for navigational risk (replacing the previous consenting regime under the Coast Protection Act 1949) or discharge from boat; http://sh45inta/Topics/marine/Licensing/marine
- Authorisation by Marine Scotland under the Aquatic Animal Health (Scotland) Regulations 2009; http://www.legislation.gov.uk/ssi/2009/85/contents/made and are routinely inspected by the Marine Scotland Fish Health Inspectorate for conformity with all statutory requirements under the Animal Health and Welfare (Scotland) Act 2006.
- Measures in place to contain fish; prevent escapes of farmed fish and control parasites under the Aquaculture and Fisheries (Scotland) Act 2007 http://www.legislation.gov.uk/asp/2007/12/contents;and subsequent secondary legislation The Fish Farming Businesses (Record Keeping) (Scotland) Order 2008 http://www.legislation.gov.uk/ssi/2008/326/contents/sld/made, and the Aquaculture and Fisheries (Scotland) Act 2013 http://www.legislation.gov.uk/asp/2013/7/enacted.
- A lease from the Crown Estate http://www.thecrownestate.co.uk/coastal/aquaculture/
- Planning permission from the local authority;http://www.scotland.gov.uk/Topics/marine/Fish-Shellfish/18716
- The Scottish Government has introduced a package of measures to ensure the continued protection and improvement of Scotland's shellfish growing waters by integrating these within the river basin management planning process. A Designation Order identifying 84 waters as 'shellfish water protected areas' has been made. Regulations on the setting of environmental objectives for those areas have also been made.

- Data collected by SEPA, Marine Scotland, Food Standards Agency Scotland (FSAS) and The Crown Estate through their regulatory functions is published on Scotland's Aquaculture Database and website at http://aquaculture.scotland.gov.uk/

Along with the existing regulatory framework, the Scottish aquaculture industry also operates under additional measures which seek to promote best practice in farming activities. This includes the Code of Good Practice (CoGP) for Finfish Aquaculture which is managed and updated by a Code of Good Practice Management Committee and is independently audited by Food Certification International. Adoption of the CoGP is a mandatory requirement on SSPO members and elements of the code form the basis of the BTA's quality assurance scheme for rainbow trout production (Quality Trout UK). The Scottish industry is also characterised by a number of specific assurances and standards:

- Scottish farmed salmon has been awarded protected geographical indication status by the European Commission
- Scottish farmed salmon obtained the first non-French recognition under the prestigious 'Label Rouge' designation in 1992
- More than 70% of Scottish salmon production is accredited under the Royal Society for the Prevention of Cruelty to Animals (RSPCA) 'Freedom Foods' scheme, which requires strict adherence to health and welfare standards above the legal requirement
- Scottish salmon farms are variously accredited under a wide range of other quality assurance schemes, including schemes under the auspices of the Soil Association (organic salmon), Global Gap, British Retail Consortium and individual retailer standards

iii) Wales

Regulation for the establishment of an aquaculture farm in Wales will depend on the nature of the farm. For example the majority of farmed production comes from benthic mussel fisheries where the mussels are directly grown on the sea bed. These farms are authorised via Orders under the Sea Fisheries (Shellfish) Act 1967. A number of possible consents and licences are required before an aquaculture farm can operate, it should be noted that not all of these will apply in every case as the consents required are location and development dependent:

The key aquaculture consenting framework in Wales comprises:

- An Order under the Sea Fisheries (Shellfish) Act 1967 (granted by the Welsh Ministers)
- Planning permission from the local authority

- Consent for discharges from a fish farm, or a Marine License for discharge from a boat http://naturalresourceswales.gov.uk
- Abstraction licences http://naturalresourceswales.gov.uk
- License for collecting mussel seed (granted by the Welsh Government)
- Marine Licence for navigational risk (replacing the previous consenting regime under the Coast Protection Act 1949) http://naturalresourceswales.gov.uk
- Marine Licence for construction on the sea bed http://naturalresourceswales.gov.uk
- Authorisation by the Fish Health Inspectorate under Aquatic Animal Health (England and Wales) regulations 2009 (https://www.gov.uk/fish-and-shellfish-farm-authorisation-and-registration)
- A lease from the Crown Estate or other landowner. (http://www.thecrownestate.co.uk)

iv) Northern Ireland

In April 2013, the Northern Ireland Agri-Food Strategy Board published the 'Going for Growth' Strategy. The Strategy which includes more than 100 recommendations is aimed at accelerating the growth of farming, fishing/aquaculture and food and drink processing to 2020 and beyond.

'Going for Growth' sets challenging targets that reflect the industry's ambition for increased sales, as well as job creation and overall contribution to future prosperity. In Northern Ireland, the Department of Agriculture and Rural Development (DARD), is also striving to simplify procedures wherever it can to ensure that the balance between regulation and simplification creates an environment which allows businesses to grow further. Having recently completed a three year agri-food 'Better Regulation Action Plan', DARD is well aware of the serious challenges faced in reducing red tape, including the National and International requirements to regulate. The DARD Minister has given a commitment to examine any areas of excessive administrative burden which the industry highlights through an online feedback facility on the DARD website which goes to a Better Regulation Unit within DARD (http://www.dardni.gov.uk/index/about-dard/better-regulation.htm)

DARD is currently bringing forward proposals for a new Fisheries Bill to amend and update the current Fisheries Act (Northern Ireland) 1966, including amending aquaculture licensing powers. It is envisaged the legislation will be introduced by 2016.

The key aquaculture consenting framework in Northern Ireland comprises making application to DARD for a fish culture licence under the provisions of the Fisheries Act (Northern Ireland) 1966.

An application for a fish culture licence must be accompanied by all relevant supporting documentation, for example-

- Proof of site ownership or lease (land based sites only)
- An application for an Aquaculture Production Business authorisation under the Aquatic Animal Health Regulations (Northern Ireland) 2009
- Planning permission from the Department of the Environment Planning Service (land based sites only)
- Written confirmation from the Maritime and Coastguard Agency that the proposed development will not create a navigational hazard (marine sites only)
- Consent in principle to the grant of a seabed lease from the Crown Estate Commissioners or other owner of the seabed (marine sites only)
- An environmental impact assessment under the Environmental Impact Assessment (Fish Farming in Marine Waters Regulations (Northern Ireland) 2007 (marine fin fish farms only))
- A Marine Licence from the Department of the Environment Marine Division in the case of a marine fin fish farm
- A water discharge consent and abstraction licence from the Northern Ireland Environment Agency Water Management Unit

2.1.2 Quantitative data and explanations

i) Challenges Imposed by EU Directives

The UK is fully supportive of the aims and principle of the EC Habitats Directive (92/43/EEC) Birds Directive (2009/147/EC) and the protection afforded by the Environmental Impact Assessment Directive (97/11/EC). However, the challenge that the authorisation process provides for the development of aquaculture in the UK should be noted.

Feedback through the EMFF SWOT analysis and directly from the aquaculture industry has highlighted some frustration with the current way that environmental legislation is applied (in its consistency and proportionality) to aquaculture proposals, and, the linked impact the required compliance has on progress of aquaculture expansion. Within this context some specific industry observation worthy of highlight includes:

- In particular, smaller aquaculture businesses find it prohibitively costly and time-consuming to undertake producing Environmental Statements to support aquaculture development proposals
- Some in the industry contend that the way the EIA and Habitats Directive has been applied in some cases, has not supported the efficiency, transparency and predictability which a regulatory process needs to support in order to foster investment confidence

Whilst there is recognition from the Commission of the this challenge as evidenced by the EU Guidance produced in 2012, it is clear that the EU and UK needs to continue to identify

ways in which environmental legislative compliance is compatible with industry growth aspirations.

ii) Quantitative examples of regulatory challenges for UK aquaculture

The UK is clear that the various EU Directives and obligations discussed above provide a structure within which developments can be properly assessed in terms of likely environmental impact. The challenge is applying them fairly, appropriately, speedily and efficiently across the UK devolved administrations – with the proviso that some in the industry do not believe this has always been the case heretofore.

2.1.3 Main elements of the intended policy response: planned actions to reduce the administrative burden

Aquaculture is a highly specialised sector, and it seems clear that the main challenge across all the UK devolved administrations is the expertise available within the regulatory organisations, and the confidence to take speedy and perhaps controversial decisions. The challenge is compounded by other factors identified through the SWOT analysis:

- There may be a lack of scientific or other objective knowledge about the possible impacts - or not - of aquaculture, rather than lack of expertise, in some situations
- In many cases, there is significant interest in regulatory applications for aquaculture developments on the part of key stakeholder groups, some of whom are, according to industry, inherently opposed to aquaculture development for different reasons. This interest, and the lobbying that may accompany it, creates an additional pressure on regulators.

Proposed actions:

There are measures available in the draft EMFF Regulation for addressing the range of issues discussed above:

Table 1: Relevant EMFF Measures

ISSUE	EMFF Article
Better understanding of the science behind environmental interactions	Art. 47
Constant improvements in industry's relationships with stakeholders and regulators.	Art. 47, 50, 56
Sharing of best practice – particularly confidence-building in officials charged with decision-making in these areas, but also proactive industry approaches through robust pre-application discussion procedures Provision of support for advice/ and or advisory services.	Art. 50, 49

2.1.4 Quantified targets

The UK is not able to set quantified targets for the simplification of administrative burdens within this document. There are four devolved administrations, each with very different situations relating to their aquaculture sectors. Emerging 'marine plans' are seen as proactive developments which may, in the future, inform UK / DA thinking on spatial planning for aquaculture.

Despite the difficulty in setting quantifiable targets, and possible changes to national legislation, the core issues of adherence to the obligations of EU Directives, and lack of knowledge, expertise or industry support remain valid and overarching. The EMFF initiatives outlined above will have some positive effects on the regulatory process in the long term, and are important.

2.2 Securing sustainable development and growth of aquaculture through coordinated spatial planning:

2.2.1 Assessment of the national situation: existing framework for spatial planning (marine and on land), distribution of competencies and spatial plans already in place

This Marine Policy Statement (MPS) is the framework for preparing Marine Plans and taking decisions affecting the marine environment. It will contribute to the achievement of sustainable development in the United Kingdom marine area. It has been prepared and adopted for the purposes of Section 44 of the Marine and Coastal Access Act 2009.

The MPS is facilitating and supporting the formulation of Marine Plans, ensuring that marine resources are used in a sustainable way in line with the high level marine objectives and thereby:

- Promote sustainable economic development
- Enable the UK's move towards a low-carbon economy, in order to mitigate the causes of climate change and ocean acidification and adapt to their effects
- Ensure a sustainable marine environment which promotes healthy, functioning marine ecosystems and protects marine habitats, species and our heritage assets; and
- Contribute to the societal benefits of the marine area, including the sustainable use of marine resources to address local social and economic issues.

The UK is actively incorporating aquaculture production areas within National Marine Plans with the aim of recognising aquaculture's place within the context of national priorities and alongside other interests, with the aim of supporting the long term growth of this sector. Due to the nature of devolution in the UK, marine plans in each administration are at various stages of development.

i) England

The Marine Management Organisation (MMO) is developing a series of Marine Plans, the first of which is in the East Inshore and East Offshore areas, off the coast between Flamborough Head in East Riding of Yorkshire and Felixstowe in Suffolk. The first draft for these areas was launched on 16th July 2013, and a consultation ran until 8 October 2013. This is the first of 11 plans to be launched for England, and we are one of the first countries in the world to introduce a cross-marine activity marine planning system. The East Inshore Marine Plan Area accounts for around 40% of English shellfish production via aquaculture in 2010 and 51% of English mussel production via aquaculture in 2010. There are nationally significant private Regulated and Several fisheries (mussel, oyster and cockle) within the Wash and along the north Norfolk coast. The East Inshore Marine Plan

Area has the potential to make a significant contribution to the growth of aquaculture in English waters given the large estuaries and sheltered sites.[8] In sites identified as being particularly suited to potential aquaculture activity (identified through research), proposals which are unrelated to aquaculture should demonstrate:

- That they will avoid compromising potential future aquaculture development in optimum sites by altering either the sea bed or water column in ways which would prevent or interfere with aquaculture productivity or potential
- How, if there are impacts on aquaculture development in optimum sites, they will minimise or mitigate these
- The case for proceeding with the proposal if it is not possible to minimise or mitigate the impacts[9]

Full details of the East Marine Plan can be found at:
https://www.connect.marinemanagement.org.uk/uploads/upload25.pdf

The MMO does not intend to develop Marine Plans in isolation, but will work with an extensive range of marine and coastal stakeholders.

The aquaculture industry can be represented through three main avenues:

- Through government departments and agencies responsible for aquaculture issues
- Through industry groups representing the aquaculture industry, for example the Shellfish Association of Great Britain
- Through individuals farming finfish, shellfish and planning other forms of aquaculture such as marine algae

Co-ordinated and consistent input from the aquaculture industry, where appropriate, will strengthen its effective representation within the marine planning process.

The promotion of aquaculture in the development of Marine Plan areas is achieved by:

- Highlighting the Government's commitment to encourage the development of aquaculture in the new Marine Plan areas
- Emphasising to marine planners the importance of aquaculture to the environment, society and economy of the Marine Plan area in line with engagement timetable set out in each Plan's Statements of Public Participation
- Strengthening data and evidence locally and nationally: e.g. initiate research into the potential for aquaculture development (marine finfish, shellfish, algae and other organisms) in the new Marine Plan areas, for example:

[8] Draft East Inshore and East Offshore Marine Plans (MMO 2013), ttps://www.connect.marinemanagement.org.uk/uploads/upload25.pdf
[9] Draft East Inshore and East Offshore Marine Plans (MMO 2013)https://www.connect.marinemanagement.org.uk/uploads/upload25.pdf

- Identify the environmental conditions (physical, chemical and biological) required for different forms of marine aquaculture
- Assess the suitability of different forms of aquaculture within each marine plan area, identifying areas with the greatest potential
- Identify factors that may limit aquaculture development in these areas, such as water quality and other marine activities and recommend solutions
- Assess the legislative environmental designations in those areas (SSSIs, EMS, MCZs, etc.) and likely constraints and opportunities associated with them
- Determine how the aquaculture industry could be best represented in each of the Marine Plan areas and at each stage of the process of developing the Marine Plans, for example by setting up regional hubs (note: SAGB has sectorial groups).

ii) Wales

Welsh Ministers are the Marine Planning Authority for Wales and are responsible for developing marine plans for the Welsh marine area. The Welsh Government has committed to developing a National Marine Plan for Wales by the end of 2015. The Wales National Marine Plan (WNMP) will set out the policies, objectives and the approach for the sustainable development of Welsh seas.

In developing the WNMP, Welsh Government will work collaboratively and engage proactively with interested parties as set out in the Statement of Public Participation for Marine Planning in Wales: http://wales.gov.uk/consultations/environmentandcountryside/public-participation-statement-for-marine-plan/?lang=en/

The WNMP process has a role in supporting the identification of sites that have potential for aquaculture alongside consideration of other human uses with the overall purpose of ensuring the sustainable development of Welsh seas. It will be important that the aquaculture industry is represented in the marine planning process – coordinated and consistent input from the aquaculture industry, where appropriate, will strengthen its effective representation within the marine planning process.

Marine planning for Wales will be undertaken by the Marine Planning Team in Welsh Government's Marine and Fisheries Division. The team will work closely with aquaculture colleagues to ensure that the needs of the aquaculture sector are taken into account.

A public consultation was carried out in 2014 to seek feedback on the vision and objectives for the WNMP. There is intense focus on preparing a robust draft of the plan, which will also incorporate contributions from across Government. It will then be subject to Ministerial scrutiny in Wales and in Westminster before final consultation and launch at the end of the year.

iii) Northern Ireland

The development of the draft Marine Plan for Northern Ireland is progressing in consultation with the other Departments with responsibilities in the Northern Ireland marine area including the Department of Agriculture and Rural Development (DARD). Aquaculture is recognised as a key activity and DARD continues to engage with the Marine Plan Authority, the Department of the Environment, to ensure that the sustainable development of this activity is accurately reflected. An important feature in the development of the draft Marine Plan is stakeholder engagement and this will continue through to the public consultation scheduled for November 2015 with adoption anticipated in 2016.

iv) Scotland

In Scotland, development planning for aquaculture is the responsibility of the Local Authorities under the Town and Country Planning Acts. This creates a unique situation where aquaculture development alone is influenced by two planning systems.

The introduction of Marine (Scotland) Act 2010 means the Scottish Government now has the authority to introduce statutory marine planning for Scotland's seas. A National Marine Plan will manage increasing demands for the use of Scotland's marine environment, encourage economic development of marine industries and incorporate environmental protection into marine decision making.

Scotland's National Marine Plan (NMP) was adopted on 25 March 2015 and laid before Scottish Parliament on the 27 March 2015.

http://www.gov.scot/Topics/marine/seamanagement/national/nmp

Supporting documents (SA addendum, final BRIA, and EQIA) for the NMP have also been published**.**

http://www.gov.scot/Topics/marine/seamanagement/national/MPSA

http://www.gov.scot/Topics/marine/seamanagement/national/MPBRIA

http://www.gov.scot/Topics/marine/seamanagement/national/eqia

The Plan covers Scotland's inshore waters (0 – 12 nm) and offshore waters (12 – 200 nm) and will support management and sustainable development of Scotland's seas whilst ensuring protection of the natural environment and historic heritage. It includes aquaculture industry targets to grow marine finfish production sustainably to 210,000 tonnes and shellfish production – especially mussels – to 13,000 tonnes by 2020..

Where national marine planning sets the wider context for planning within Scotland, regional marine planning will allow more local ownership and decision making about the specific issues within a smaller area. The aim will be to develop a system of regional marine plans for Scottish waters however, before these plans can be developed, the different marine regions need to be established. Under the Marine (Scotland) Act 2010,

Scottish Ministers were given the power to identify the boundaries of Scottish Marine Regions (SMRs).

2.2.2 Main elements of the intended policy response: how spatial planning will be promoted taking into account the needs of aquaculture

Section 2.2.1 has alluded to emerging initiatives in marine spatial planning, as well as covering existing arrangements: the two are so inextricably linked that to attempt to separate them in this MANP would be inappropriate.

It should be noted that marine spatial planning covers many other sectors of interest, in addition to aquaculture. The example of the MMO's activities, described above, illustrates how the sector's interests can be woven together during the plan development process.

The EMFF SWOT Analysis and Needs Assessment clearly indicated that 'opening up commercially viable new productive areas' for UK aquaculture was desirable – and by definition this process must interact with the wider marine spatial planning process. From an EMFF Operational Programme (OP) perspective, this is an area of activity that will be supported by **Article 51** of the draft EMFF regulation.

2.2.3 Quantified targets

It is not possible to quantify targets for the UK in relation to aquaculture and marine spatial planning, other than to note the aspirations and developments discussed in (1) and (2) above.

2.3 Enhance the competitiveness of EU aquaculture

2.3.1 Assessment of the national situation

The UK Aquaculture industry is arguably driving the competitiveness of its own sector both in the context of local and international markets. This is being achieved through partnerships comprising administrations, growers and research bodies. With this aim, the exploration of technical or economic feasibility of innovations, products or processes, will continue to be supported under EMFF. The following section gives details of some of the existing initiatives, research bodies and partnerships (including knowledge exchange forums) which are helping to drive competitiveness of the sector. Although the UK's MANP is primarily aimed at identifying areas which the UK sees as priorities for accessing EMFF, other areas of funding may be available. For example, in England aquaculture businesses could also take advantage of potential opportunities that may emerge as Local Enterprise Partnership (LEP) Local Growth Strategies develop It is likely that financial instruments will be made available under the European Structural and Investment Funds (ESIF), including to small and medium enterprise (SME) and micro businesses, which many aquaculture businesses should be eligible to apply for. On funding opportunities within England, Defra

will look to provide information, in the form of signposting funding opportunities for aquaculture (European, National and Local opportunities)

i) Role of innovation and partnerships in development of the industry

The **Centre for Environment, Fisheries and Aquaculture Science (CEFAS**) is an Executive Agency of Defra. It is a multi-disciplinary scientific research and consultancy centre providing a comprehensive range of services in fisheries management, environmental monitoring and assessment, and aquaculture to a large number of clients worldwide. Cefas has a number of internationally recognised scientists specialising in aquatic animal health and aquaculture, providing high level technical and scientific advice to both policy makers and industry. Its outputs encompass a wide range of subjects and disciplines that relate to sustainable aquaculture development of shellfish and finfish in both marine and freshwater environments. Their work includes fish and shellfish health, food safety, the efficiency of resource utilisation and environmental impact, systems performance and planning.

http://www.cefas.defra.gov.uk/

The **Marine Alliance for Science and Technology for Scotland (MASTS)** is a research pool that brings together the majority of Scotland's marine research capacity representing approximately 700 researchers and £66 million a year of public investment. MASTS members include one of the largest concentrations of scientific expertise in aquaculture in the world.

http://www.masts.ac.uk

The **Centre for Sustainable Aquatic Research (CSAR)** at Swansea University operates a series of state-of-the-art controlled environment laboratories that are fully staffed and equipped for aquaculture research, advice and training. Active research areas include: aquaculture water quality management; sustainable aquaculture nutrition and feed development; marine hatchery optimisation; recirculating aquaculture system (RAS) technology development; micro / macro algae cultivation, harvesting and processing; effects of climate change on commercially important marine aquaculture species. The centre incorporates a series of fully programmable RAS systems, unique within the UK Higher Education Institution sector, which are tailored for research on a diverse range of aquaculture organisms (fish, molluscs, crustaceans, polychaetes, algae). These facilities enable close control of salinity, temperature, pH, lighting, water chemistry and many other environmental conditions.

The **Scottish Aquaculture Research Forum (SARF)** is an independent charity tasked with prioritising, commissioning and managing applied aquaculture research, based upon the needs of industry and its key regulators and stakeholders. It has published over 90 research reports since its inception in 2004 – many have which have had a measurable and practical impact on the way aquaculture is conducted and managed in Scotland.

http://www.sarf.org.uk/

Seafish is a Non-Departmental Public Body (NDPB) set up by the Fisheries Act 1981 to improve efficiency and raise standards across the seafood industry. It is the only pan-industry body offering services to all parts of the seafood industry, including catching and aquaculture, processors, importers, exporters and distributors of seafood and restaurants and retailers. Seafish is funded by a levy on the first sale of seafood landed in the UK, including imported seafood.

As an organisation Seafish aims to support and improve the environmental sustainability, efficiency and cost-effectiveness of the industry, as well as promoting sustainably-sourced seafood. Its services include technical research and development, responsible sourcing initiatives, economic consulting, market research, industry accreditation, safety training for fishermen and legislative advice.

http://www.seafish.org/

The **Aquaculture Common Issues Group**, facilitated by Seafish, was formed in 2009 and aims to discuss and develop consensus positions on some of the sector's most important issues. The group meets twice a year and provides a forum for the discussion of ethical, environmental and economic challenges to the aquaculture industry. A monthly news alert keeps interested parties up-to-date with the latest news. Participants are representative of the whole seafood supply chain and include culturists, the main producer associations, food and fish feed processors, retailers, environmental NGOs, Crown Estates, Government Departments and regional development organisations.

http://www.seafish.org/industry-support/aquaculture/aquaculture-groups/aquaculture-common-issues-group

The **Institute of Aquaculture at the University of Stirling** is recognised as a leading international centre of excellence in aquaculture. The Scottish Association for Marine Science laboratory at Aberdeen and the Universities of Aberdeen and St Andrews have a long and distinguished record of delivering cutting edge aquaculture research and innovation. More recently, Edinburgh Napier, Dundee and Strathclyde and Scotland's newest University – the University of the Highlands and Islands, have been developing aquaculture-related research capacity. Research interests span the full spectrum of aquaculture from applied production technologies through to cutting edge disease, nutrition and environmental research.

http://www.aqua.stir.ac.uk/

The Scottish Aquaculture Innovation Centre (SAIC), a Scottish Funding Council (SFC) funded centre of aquaculture was established in 2014. The SAIC is a virtual hub drawing together the collective expertise and resources found across its 13 research partners and its extensive aquaculture supply chain and will receive core funding through SFC's Innovation Centres programme which is being delivered jointly by SFC, Scottish Enterprise and Highlands & Islands Enterprise (HiE). It will deliver industry-led aquaculture research

and development, consultancy, knowledge exchange, education and training to support the sustainable growth of the aquaculture sector and retain Scotland's international reputation for the provision of premium, high quality, traceable and environmentally sustainable seafood.

www.scottishaquaculture.com

Marine Scotland also directly conducts research through its Marine Laboratory and Freshwater Laboratory and through grant awards to other agencies and organisations. This includes both aquaculture research and related studies on fish health and environmental management. It is currently working with the Scottish salmon farming industry on a £1M programme of sea lice research funded in equal portions by government and industry

The Ministerial Group for Sustainable Aquaculture (MGSA)'s Science and Research Working Group published –an Aquaculture Science & Research Strategy on 15 July 2014. www.scotland.gov.uk/Publications/2014/07/4459

The document is based on a combination of review and analysis of historic research, expert opinion and subject to a broad range of stakeholder scrutiny. It highlights some of the cogent research required to help underpin the Scottish aquaculture industry's 2020 sustainable production targets, as well as identifying a range of science and research which could contribute to the future sustainability of the aquaculture in Scotland and internationally.

In recent years there has been a series of studies focussed on sea lice that have received significant grant funding, these include: work on the use of cleaner fish as biological controls; area/farm management; sea lice resistance to treatment – monitoring in Shetland; modelling of sea lice dispersal in the North Minch, and the development of a natural control for sea lice. There is currently a project on hydrodynamic modelling for Scotland, funded by Scottish Government that will lead to a better understanding of sea lice dispersal around Scotland's coast.

ii) Examples of industry-driven innovation

The UK aquaculture sector is actively exploring, through applied research, innovative pathways of increasing production; a good example of this exists in areas of co-location of production operations with renewable energy installations (below).

The Scottish salmon farming industry is exploring the move to more efficient production in a changing climate through development of increasingly exposed, higher energy cooler water sites, using new technologies and innovation. More efficient production is being backed by the use of cleaner fish – wrasse and lumpsuckers – as alternatives to sea lice medicines to help minimise environmental impact.

Industry is also developing multi-trophic trials where seaweed, mussels, and salmon are farmed together to improve production whilst also reducing environmental discharges.

Shellfish Co-location in Welsh Offshore Windfarms. Industry, through the Shellfish Association of Great Britain (SAGB) have funded a feasibility study entitled, ‘Aquaculture in Welsh Offshore Windfarms; A feasibility study into potential shellfish cultivation in offshore wind farm sites.’ It is investigating the possibility of siting aquaculture projects on offshore wind farm sites. In the short term, this project is centred round research into blue mussels, but aims to investigate the possibility of diversification into other species once experience has been gained. This work is being conducted by Aquafish Solutions Ltd, on behalf of Shellfish Association of Great Britain (SAGB).

Co-location is seen as a means by which the use of space can be maximised, and an example of integrated marine planning around the coastline. The project is in its infancy, and is an example of the way in which UK industry is approaching the development of the aquaculture industry, as well as marine planning in a strategic and holistic manner.

The study aims to review past research, policy drivers and permission for shellfish cultivation within offshore wind farm sites with recommendations regarding the type of species which may be most suited to co-location. Another planned output of the project is a guidance manual which will detail how to cultivate shellfish within a wind farm site.

This project is consistent with the type of activities outlined in the Commission’s Blue Growth Initiative and the findings will provide potential wider benefits not only for the UK aquaculture sector but for other Member States.

Marine finfish farming Demonstration Project in South West England (Cefas, The Crown Estate and the British Trout Association). This project will generate data that will broadly validate the principles and application of the methodology of marine finfish farming to a species which the project team considers to have potential for production in English waters. For this project, large marine-grown rainbow trout (>2.5kg) is the species of choice, reflecting the participation and interests of the British Trout Association (BTA) as a project partner. The project team believe that there is sufficient understanding of the farming principles, technical knowledge and expertise, and scope within the market for an enterprise producing this species in a net-pen system to be viable in waters of South West England. This project will investigate the social, economic and environmental sustainability of marine trout farming in English waters as a proxy for other marine finfish developments in the region. Using various scientific models that shall be developed by Cefas, the information generated from the project will support future marine finfish aquaculture development. The data generated will also be fed into the marine spatial planning process and help to identify future marine finfish opportunities around the southern coastline of the UK.

iii) Key knowledge exchange forums

There are a number of existing groups, partnerships and fora where UK aquaculture issues and challenges (both local and national) are discussed. A few examples include:

The **UK Aquaculture Forum**[10] meets annually and brings together the industry and government from all parts of the UK. Held in Scotland House, Brussels the forum includes government officials representing the aquaculture sector from the Department for Environment, Food and Rural Affairs, Department of Agriculture and Rural Development, Northern Ireland, Welsh Assembly Government and Scottish Government. Industry representatives include the Scottish Salmon Producers' Organisation, Association of Scottish Shellfish Growers, British Trout Association, Shellfish Association of Great Britain, , European Economic Interest Group and Sea Fish. The forum creates an environment for open and more general discussion about issues facing the industry and provides a platform to discuss, and where possible, agree a common UK approach to responding to the EU decision-making process.

The **Ministerial Group for Sustainable Aquaculture (MGSA)**[11] was established in 2013 to support Scotland's aquaculture industry to achieve its 2020 sustainable growth targets with due regard to the marine environment; by providing the framework to drive forward the growth of the Scottish aquaculture industry taking into account of the economic, environmental and social principles of sustainability, good governance and science. It is chaired by the Minister for Environment, Climate Change and Land Reform with membership comprising government, industry, wild fish interests, environment NGOs, COSLA, the enterprise network, science & research and regulatory bodies. Activity has been progressed through time-limited, project-based working groups - initially: Capacity; Interactions; Science & Research; Containment; Shellfish; Farmed Fish Health & Welfare; and Wellboats.

The Scottish Salmon Producers' Organisation (SSPO) is a Producer Organisation formed in accordance with Council Regulation EC 104/2000. 80% of the farmed salmon produced in Scotland is produced by SSPO members. SSPO has roles in product and industry promotion and also in commissioning research, provision of regulatory and technical advice and knowledge exchange in the Scottish salmon industry. Over 70% of the SSPO member companies are also members of the Global Salmon Initiative (GSI) an international initiative to share pre-competitive research and technology in sustainable salmon production.

www.scottishsalmon.co.uk

Welsh Aquaculture Producers' Association (WAPA) is a not-for-profit organisation founded to promote, represent and inform Welsh aquaculture locally, nationally and internationally. It represents 25 full members directly involved in aquaculture production. One member represents WAPA at the Programme Monitoring Committee for European Fisheries Fund (EFF). He also sits on the EFF selection panel and has been

10 http://www.scotland.gov.uk/Topics/marine/Fish-Shellfish/international/ukaf

11 http://www.scotland.gov.uk/Topics/marine/Fish-Shellfish/MGSA

involved in projects supporting or influencing the mussel sector. WAPA has been instrumental in encouraging the industry to support increased science-based approaches to the management of the fisheries habitats/stocks in Wales.

Shellfish Association of Great Britain (SAGB) represents the views of stakeholders within the shellfish industry, both wild-caught and cultivated both in liaison with the government and also other users of the sea, as well as environmental associations. The association represents a useful means of communication between government and the industry.

http://www.shellfish.org.uk/

The **Association of Scottish Shellfish Growers (ASSG)** represents Scottish shellfish farmers and the Scottish Shellfish Marketing Board (SSMG) to improve the financial returns of all Scottish shellfish producers; increase demand for Scottish farmed shellfish by promotion; set and encourage acceptance of quality standards for Scottish shellfish, and to establish appropriate Codes of Practice; collect and disseminate shellfish industry statistics; provide a forum and lobby to enable government and others to be properly advised on matters concerning the shellfish industry; and carry on trades, industries and businesses which will further the above objectives.

The **British Trout Association (BTA)** represents around 80% of trout production in the UK. The association monitors the legislative framework in which the industry operates, as well as structuring research and development and providing promotional support to the trout industry.

In Northern Ireland, **the Aquaculture Representative Group** was established in 2012. The aim of the Group, which comprises six representatives from the salmon, trout, oyster and bottom grown mussel sectors, is to create one cohesive representative organisation to liaise with government and contribute to the development of policies.

Defra currently encourages and enables the dissemination of knowledge and ideas between the devolved administrations in order to promote the competitiveness of the UK's aquaculture industry as a whole.

2.3.2 Main elements of the intended policy response: planned activities to support innovation and links between R&D and the industry

The SWOT Analysis and Needs Assessment noted several areas where innovation and links between research and development and the industry would be beneficial, and these are included in the table below. These will link to specific measures in the UK's EMFF Operational Programme.

Table 2: EMFF measures to be supported	
ISSUE	**EMFF Article**
Innovation and research into reducing potential impacts on other sectors, e.g. sea lice and escapes with respect to wild salmonids; use of licensed therapeutants; interaction with predatory species	• Art. 47 • Art. 50 (for sharing best practice) • Art. 56
Constant innovation in development of sustainable (sometimes non-traditional) raw material sources for 'fed' aquaculture species	• Art. 47 • Art. 48 (demonstrations/pilot scale) • Art. 50 (for sharing best practice)
Innovation and technical developments that open up commercially viable new productive areas	• Art. 51 • Art. 48 (demonstrations/pilot scale)
Innovation that reduces shellfish sector reliance on variable wild seed supplies	• Art. 47 • Art. 50 (for sharing best practice)
Water quality improvements in all aquaculture areas, but especially shellfish	• Art. 47 • Art. 50 (for sharing best practice)
Partnering in (using core expertise) developments in non-food aquaculture: marine agronomy; marine bio-fuels	• Art. 47 • Art. 48 (demonstrations/pilot scale) • Art. 50 (for sharing best practice)
Moves to further exposed sites through adherence to equipment technical standards	• Art. 47 • Art. 48 (demonstrations/pilot scale) • Art. 50 (for sharing best practice)
Work to provide/improve environmental services from Aquaculture	• Art 54

2.3.3 Quantified targets

It is not possible to set detailed quantified targets for 'outcomes' in the context of partnerships and innovation within the UK MANP, but the OP does provide some indications of planning for use of the Articles listed above, by way of the output indicators. There is no value in repeating those in the MANP, but it is important to note, generally, that the UK's ambition in terms of aquaculture innovation is significant, and builds upon a very high degree of existing expertise and activity.

2.4 Promoting a level playing field for EU operators by exploiting their competitive advantages

The UK Government and Devolved Administrations recognise the value of market intelligence and marketing in improving the growth of the aquaculture industry and the role Producer Organisations can play in providing capacity and support to achieve these ends. Arrangements are to some extent in place to support these objectives in each country of the UK and are particularly well developed in Scotland in respect of the salmon industry. In summary key activities to encourage a level playing field include:

- Defra's encouragement of the industry to form an English Aquaculture Producer Organisation (which support through the EMFF exists for: Art 66 and 68);
- A number of aquaculture projects currently being developed in partnership with Welsh academia.[12]
- A range of initiatives by the Scottish Government.[13]

2.4.1 Main elements of the intended policy response (2014-2020)

Most of the examples described in 2.4.1 above and in Section 4 below are initiatives that will continue to expand, develop or evolve over the lifetime of the EMFF Programme, so there is some degree of overlap between (1) and (2) in this MANP.

Two overarching issues which require a degree of new activity are described below:

EU and Third Country Playing Field

Many member states within the EU believe that imports arriving from outside the EU pose a threat to the 'level playing field'. This is most succinctly stated by the European

[12] One of these is the Novel Ingredients from Seaweed Extracts (NISE) project, which aims to explore the use of Welsh Seaweed in applications including additives for face creams and other cosmetic products. For further details on this project: Advances Wales Magazine, Issue 68, Spring 2013, Page 3 https://www.expertisewales.com/advances.

[13] In 2009 the Scottish Government published 'Recipe for Success – Scotland's National Food and Drink Policy (http://www.scotland.gov.uk/Resource/Doc/277346/0083283.pdf) and since 2007 has worked in partnership with the industry umbrella body Scotland Food and Drink (www.scotlandfoodanddrink.org) and with individual industry bodies such as the SSPO (see, p. 21). The overall objective has been to develop a market focused, food exporting culture amongst Scottish food and drink businesses around the theme of 'Scotland as a Land of Food and Drink'. Progress since 2007 has seen the industry turnover increase from £7.5 billion to £13.13 billion (in 2011) and exports in the same period have increased from £3.7 Billion to £7.1 billion (in 2011). Recent developments have been the publication of 'Tomorrow the world: an export plan for Scotland's food and drink industry' (http://www.scottish-enterprise.com/~/media/SE_2013/Food%20and%20drink/An%20export%20plan%20for%20Scotland's%20food%20and%20drink%20industry.pdf) and the' Scottish Seafood Partnership Report' an action plan for the fishing, aquaculture and fish processing industries (http://news.scotland.gov.uk/News/Plan-to-grow-Scotland-s-seafood-sector-9b2.aspx). This latter report is focused around six key areas of standards and provenance; market development; collaboration and effective supply chains; skilled workforce; financial and legal considerations; and forecasting and horizon scanning.

Parliament's assertion "We produce at one level, but consume at another". Some have contended that legislation which applies to EU aquaculture producers may not apply to producers outside the EU. This may affect the price of their products and mean they are able to undercut their EU-based counterparts. This would seem to be at odds with the Commission's desire to promote a level playing field, and arguably hampers the industry's ability to compete with imports from outside the EU.

Public Perceptions of UK Aquaculture Industry

There are opportunities to improve public understanding and support for the sector by raising the profile and improving the image of aquaculture. The provision of balanced information about the nature of the industry will inform the general community. Greater understanding of how aquaculture may support local communities is important for the sustainable development of the industry.

The UK industry is taking steps to secure recognition for their sustainability credentials. A case in point: the bottom grown mussel sector in Northern Ireland has obtained Marine Stewardship Certification (MSC) as a sustainable and well managed fishery. MSC meets the highest benchmarks for credible certification and eco-labelling programmes, including the UN Food and Agriculture Organisation guidelines and the ISEAL Code of Good Practice. Mussels from the fishery are now eligible to bear the MSC's blue eco-label.

MSC certification will secure premium market access for Northern Ireland mussels in Europe, particularly to key markets in the Netherlands, and will improve consumer and investor confidence in the sector.

3 Governance and partnership

3.1 Key contributions from the main actors involved (regional and/or local authorities, industry, stakeholders and NGOs)

The UK MANP for aquaculture has drawn extensively on the SWOT Analysis and Needs Assessment, as well as the ex-ante evaluation, both undertaken in preparation for the EMFF. These processes have involved significant elements of stakeholder and public body consultation, including structured workshops in all the UK countries as well as many bilateral discussions with organisations and individuals.

Another source of experienced contribution has come from members of the UK Programme Monitoring Committee for the European Fisheries Fund (EFF). Several of its long-term members come from the aquaculture sector, and their views have helped in developing this plan.

The plan has been consulted upon in all four parts of the UK, and feedback has been analysed and incorporated in the plan, where appropriate.

3.2 Link with the EMFF Operational Programme (OP) priorities and financial allocations (EMFF and other EU or national funds)

Some details of the EMFF OP and its links with this plan have been identified in the main body of this document. The EMFF OP provides the framework for the way the Programme will assist UK aquaculture to develop sustainably over the period 2014-2020, and specifically:

- Provides for fostering sustainable competitive aquaculture through innovation, technological development, knowledge and skill development, improved animal health and welfare, investments in infrastructure, and improved marketing and market organisations
- Identifies (in total) 21 specific types of intervention by way of a range of Articles, including links back to the SWOT and ex-ante evaluation and an indication of how these interventions contribute to the eleven thematic objectives of the Common Provisions Regulation

3.3 Name and contact details of the National Contact Point for the promotion of sustainable aquaculture

- **England** – Sustainable Fisheries Division, Marine Programme, Defra
- **Scotland** – Aquaculture Unit, Performance Aquaculture & Recreational Fisheries, Marine Scotland
- **Wales** – Fisheries Strategy Branch, Marine and Fisheries Division, Welsh Government
- **Northern Ireland** – Fisheries and Environment Division, Department of Agriculture and Rural Development for Northern Ireland.

4 Best Practices

There are a number of examples of innovative aquaculture policy approaches across the UK which highlights the strengths of our programmes in supporting the continued growth of our aquaculture sector. Whilst we have limited the number here, if any Member State would like more information about these or others, they should contact the relevant policy home (contact points at end of document).

4.1 Environmental Impact

4.1.1 Farm management areas and agreements

Scotland's marine fish farming sector currently operates 277 active sites, of which 261 are used to farm Atlantic salmon, within 91 farm management areas as depicted in The Code of Good Practice for Scottish Finfish Aquaculture. Within the areas operators undertake to coordinate activities that may include the synchronisation of production to mitigate against any potential impacts of pathogens and disease. These areas are delineated by industry. The delineation of the areas is subject to review which takes account of changes in operation, production and ownership. The CoGP has required and under the Aquaculture and Fisheries (Scotland) Act 2013 it has become a legal requirement for farms to hold a written farm management agreement or farm management statement that requires the operator to conform to an agreed set of criteria that relate to optimal farmed fish health management. These criteria may include: the requirement to synchronously fallow fish farms within an area; synchronously treat across the area, and stock with the same generation of fish. Farm management agreements and farm management statements assist farms working in contiguous locations to better coordinate farm management to optimise fish health and farm biosecurity, reducing the risk of potential transmission of parasites and diseases and helping to optimise performance in the farming area.

4.1.2 Demonstrating best practice on containment:

A Containment Working group (CWG) was established through the MGSA to make recommendations on best-practice to reduce fish farm escapes; improve profitability; minimise adverse environmental impacts and prevent conflict with other interests. The groups' key recommendation was to develop a Scottish Technical Standard (STS) which would apply to all fish farms and include training requirements. The standard is viewed as crucial in significantly reducing the risk of escape events happening in the future.

The Aquaculture & Fisheries (Scotland) Act[14] commenced in September 2013 and includes specific powers to prescribe statutory technical requirements to ensure the installation and deployment of fish farming equipment that is well maintained and appropriate for the site conditions at which the farm operates. It also imposes a duty for training to use prescribed equipment.

The STS has been developed by an expert working group comprising fish farming businesses and trade associations, research and engineering institutes, equipment manufacturers and suppliers and government. It sets standards for design, construction, materials, manufacture, installation, maintenance and size of equipment; and takes account of site specific environmental conditions e.g. wave height, wind and current speeds; flood risk assessments for land-based, pond and raceway sites; and is future-proofed for technological developments, novel farming approaches and moves to high energy sites or climatic changes.

A Technical Standard for Scottish Finfish Aquaculture was published on 11 June 2015 with subsequent regulations to follow. All equipment must meet the Standard by 2020 at the latest. www.gov.scot/Publications/2015/06/5747

4.1.3 Bangor Mussel Producers Association voluntary best practice agreement to avoid introduction of the NNI slipper limpet.

Industry voluntary agreement developed with Countryside Council for Wales (CCW) (the statutory nature conservation advisor since replaced by Natural Resources Wales) on the processes followed when laying down seed mussel in a European Marine Site, to avoid the non-native invasive species slipper limpet, which has now become a best practice guide for all mussel fisheries in Wales.

[14]Aquaculture & Fisheries (Scotland) Act 2013 available at: http://www.legislation.gov.uk/asp/2013/7/contents

4.2 Governance and communication:

4.2.1 Scotland's aquaculture database and website

Scotland's Aquaculture Database and website was launched on 1st October 2013 and brings together data collected by SEPA, Marine Scotland, FSAS and the Crown Estate through their regulatory functions – making it accessible through a data search tool and interactive map. It presents a way of accessing this information directly in one place and seeing how it relates together. The website provides information about:

- Industry location
- Types of aquaculture
- Leasing, licensing and reporting on controlled activities
- Shellfish hygiene monitoring

It also features:

- An interactive map of the Scottish aquaculture industry which can be customised for your area of interest
- A searchable database of information about finfish farms and shellfish harvesting areas
- A view of which farms, leases and licences relate together
- Fully downloadable data for use in spreadsheets and analysis tools

It has been well-received as an excellent example of open and transparent Government and streamlined regulation and praised by The Scottish Information Commissioner as an exemplar of proactive publication.

The website is available at: http://aquaculture.scotland.gov.uk/

The Scottish salmon industry publishes a quarterly and annualised report on fish health for thirty wild salmon fisheries areas in which salmon farming is established. This report includes information on sea lice, medicinal treatments and other matters:

http://scottishsalmon.co.uk/category/science-behind-fish-farming/fish-health/ and

Marine Scotland Fish Health Inspectorate also proactively publishes operational activity at: http://www.scotland.gov.uk/Topics/marine/Fish-Shellfish/FHI/CaseInformation

4.3 Innovative Techniques

4.3.1 Rope grown mussels in Swansea Docks

The use of different technologies (within Wales) to turn an old unused area within a dock to an economically sustainable activity:

http://thomasshellfish.co.uk/

4.3.2 Recirculating bass farm

Using state-of-the-art closed recirculation systems producing a niche product of sustainable sea bass.

4.3.3 Marine Stewardship Council (MSC) certification Wales

In 2010 the Bangor Mussel Producers Association in North Wales were awarded the Marine Stewardship Council blue tick, the first fishery of this type to be approved.

http://www.msc.org/track-a-fishery/fisheries-in-the-program/certified/north-east-atlantic/north-menai-strait-mussel

4.3.4 Marine Stewardship Council (MSC) certification Northern Ireland

The bottom grown mussel sectors in Northern Ireland and in the Republic of Ireland supported by DARD and the Department of Agriculture, Food and the Marine respectively, have been certified as a sustainable and well managed fishery. Subject to chain of custody traceability certification, mussels from the fishery are now eligible to bear the MSC's blue ecolabel. Further information is available at:

http://www.msc.org/newsroom/news/cross-border-irish-mussels-limber-up-with-msc-label

In Northern Ireland, the assessment was funded under the European Fisheries Fund.

4.3.5 Sustainable Mariculture in Lough Ecosystems (SMILE) carrying capacity models

In Northern Ireland, DARD commissioned the Agri-Food and Biosciences Institute (AFBI) to develop and maintain functional carrying capacity models to determine the ecological carrying capacity for shellfish cultivation in Northern Ireland sea loughs.

The models, more commonly referred to as the SMILE models, support the fisheries management decision making process and demonstrate that shellfish aquaculture is environmentally sustainable. They:

(a) Describe key environmental variables and processes, aquaculture activities and their interactions;

(b) Evaluate the sustainable carrying capacity for aquaculture in the various sea loughs, considering interactions between cultivated species, targeted market cohorts and fully integrating cultivation practices;

(c) Examine the effects of overexploitation on key ecological variables; and

(d) Examine lough scale environmental effects of different culture strategies.

Outputs from the SMILE models assist AFBI in undertaking assessments on marine shellfish aquaculture developments in accordance with the European Commission's methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC and Guidance on Aquaculture and Natura 2000 publications.