

MARINE
CONSERVATION
SOCIETY



Guidelines for environmentally responsible seaweed cultivation and wild harvesting in the UK

Credit: James Lynott

Marine Conservation Society

The Marine Conservation Society (MCS) is a UK-wide community of ocean lovers all working together towards our vision of a sea full of life, where nature flourishes and people thrive. Our goal is to recover the health of the ocean, for the sake of our wildlife, our climate and our own wellbeing. Together with communities, businesses and governments, we can make a difference through social, political and cultural change.

For the sake of our wildlife, our climate and our own wellbeing, by 2030 we're calling for:

- A third of our seas to be truly protected, so nature can recover
- Ocean pollution levels to show a clear downward trend
- Our fish stocks to be at sustainable levels

For more information about MCS visit:
www.mcsuk.org

Sustainable Inshore Fisheries Trust

The Sustainable Inshore fisheries Trust (SIFT) is a registered Scottish charity (No. SC042334) founded in 2011 with the aim of achieving the sustainable management of Scotland's inshore waters so that they provide the maximum long term benefits to all coastal communities. SIFT works with all coastal stakeholders, including the fishing industry, coastal communities, the aquaculture sector and environmental organisations to develop policies and regulatory frameworks to make this come about.

More information about SIFT is available at
www.sift.scot

Why we developed these guidelines

Seaweed aquaculture is an emerging, and burgeoning sector in the UK. As the industry develops, it is important that it does so with due regard for the marine environment in which it operates. Whilst it can be a sustainable industry, it needs to understand, prevent and plan for any adverse impacts its development and operation may have. These guidelines aim to help UK seaweed businesses understand the potential environmental impacts of both seaweed aquaculture and wild seaweed harvesting, and to help them incorporate this knowledge into their projects before commencing development.



Credit: Alison Moore

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Introduction

Around 600 species of seaweed are found around the UK's coastline. They can be loosely categorised into three groups – green, brown and red seaweeds, each of which occupy a specific depth and habitat. The most abundant are the kelps and wracks – brown seaweeds that are widely distributed throughout UK waters.

Seaweeds play an important role in coastal and marine ecosystems – including by forming habitats for other marine life and sequestering carbon and nutrients from the surrounding water. Kelp habitats also provide protection against coastal erosion by dampening the energy of storm waves.

The growing recognition of the value of seaweed's ecosystem services has led to increasing calls for their protection and management. In recent years there has also been growing demand for seaweed and seaweed-based products – for use as livestock feed, nutritious ingredients for human consumption and a range of non-food applications from fertilizer to advanced polymers .

The need to protect wild seaweeds and to meet demand for seaweed products has led to an increasing interest in seaweed cultivation in UK coastal waters. In 2021 in Scotland there were 10 active sites with a further eight marine licence applications for new seaweed farms submitted in 2022 – including one farm potentially covering a site of over 3km². There has also been an upsurge in efforts to protect wild seaweeds against unsustainable harvesting. This manifested itself most clearly in the decision by the Scottish Parliament to largely ban the dredging of wild kelps in Scottish waters.



This guide

This guide has been co-produced by Marine Conservation Society (MCS) and Sustainable Inshore Fisheries Trust (SIFT). It is intended to outline our joint position on environmental best practice for both the development of the seaweed cultivation industry and the wild harvesting of seaweed. The guide highlights the most salient environmental issues and signposts other resources that may be informative. It is not a standard, so it does not offer accreditation or certification. MCS and SIFT understand that an industry-led comprehensive code of practice will be developed at a later date by the Scottish Seaweed Industry Association (SSIA).

Seaweed cultivation

Consultation and licensing

Topic	Guidance	Further guidance
Pre-consultation	Developers should contact the licensing authority before the formal application is made, to make themselves known to MMO/NRW/NatureScot. This will allow them to obtain informal advice on what their application should include.	
Consultation	<p>Developers must carry out a pre-application stakeholder consultation. This should include an inclusive public consultation event, which has been widely pre-notified. Developers should also provide details of the location, nature and scale of the proposals, along with their contact details.</p> <p>Consultation should extend beyond statutory consultees and include other stakeholders embracing commercial fisheries, recreational marine users, environmental NGOs and local communities.</p>	<p>A review of the regulatory regime for seaweed harvesting and cultivation</p> <p>https://sift.scot/wp-content/uploads/2021/05/SIFT_SeaweedRegulatory_Review-Inmara_v1.pdf</p> <p>Seaweed cultivation in Scotland - a guide for community participation</p> <p>https://sift.scot/wp-content/uploads/2021/03/SIFT-Seaweed-Guide.pdf</p>
Environmental impact assessments	Developers must carry out Environmental Impact Assessments in order to identify environmentally suitable sites for development.	<p>EIA regulations.</p> <p>Scotland: https://www.gov.scot/policies/environmental-assessment/environmental-impact-assessment-eia/</p> <p>England: https://www.gov.uk/guidance/environmental-impact-assessment</p> <p>Wales: https://senedd.wales/laid%20documents/sub-ld11027/sub-ld11027-e.pdf</p> <p>Northern Ireland: https://www.daera-ni.gov.uk/articles/environmental-impact-assessment-eia</p>
Benthic surveying	Developers should carry out comprehensive benthic surveys in advance of the planning or licence application process. Surveys should be undertaken for all sizes of proposed development and take into account potential future expansion of a site, or its cumulative impacts resulting from proximity to neighbouring developments.	<p>Seaweed Cultivation Policy Statement</p> <p>https://www.gov.scot/binaries/content/documents/govscot/publications/speech-statement/2017/03/seaweed-cultivation-policy-statement-2017/documents/00515518-pdf/00515518-pdf/govscot%3Adocument/00515518.pdf</p>

Wider impact assessment	Impact of access and activities on intertidal, sub-tidal and terrestrial habitats should be assessed. Assessment of wider marine impacts/inputs, such as CSO's and fish farms, should be undertaken before development, as these may impact the success of the seaweed farm.	
Addressing concerns	Developers should address any issues of concern raised during the consultation process before any licence applications are submitted.	
Consultation reporting	Developers must publish reports of consultations which are comprehensive, inclusive and transparent, and include a listing, subject to GDPR requirements, of which stakeholders were engaged with.	
Licensing	Developers must apply for and comply with licences issued by all competent authorities.	Marine Management Organisation https://www.gov.uk/guidance/do-i-need-a-marine-licence#activities-that-may-need-a-marine-licence Association of IFCAs http://www.association-ifca.org.uk/

Principal ecosystem issues

Topic	Guidance	Further guidance
Sensitive habitats	Developers must minimise impact upon sensitive habitats. Where sites are proposed within designated locations, additional management requirements must be made to ensure that priority marine features are not impacted.	NatureScot. Feature Activity Sensitivity Tool http://www.marine.scotland.gov.uk/FEAST/Index.aspx
Pathogens	Developers must publish a comprehensive policy regarding pathogen management, setting out risk management and inspection protocols relating to: <ul style="list-style-type: none"> • sourcing of seed stock to minimise the risk of pathogens; • monitoring, and reporting of disease to the competent authorities; • safe disposal to waste management facilities of diseased stock. 	
Detritus	Developers must publish a comprehensive policy regarding detritus management setting out risk management protocols to ensure that benthic habitats are not smothered.	

Seabed shading	Developers must take into account in the selection of the site the potential impact of seabed shading on species or habitats.	https://www.gov.scot/binaries/content/documents/govscot/publications/speech-statement/2017/03/seaweed-cultivation-policy-statement-2017/documents/00515518-pdf/00515518-pdf/govscot%3Adocument/00515518.pdf
Current flow	Developers must take into account potential impacts upon marine current flow in the design and location of seaweed farms, to ensure that altered hydrodynamics do not adversely affect the marine ecosystem.	Scotland's Aquaculture http://aquaculture.scotland.gov.uk/
Seabed impacts	Developers must take into account the method of anchoring farm infrastructure so that it does not adversely impact on seabed habitats.	
Native species	Developers must restrict the species farmed to those that are native to the area in which they are grown. Seed stock should be collected from naturally occurring seaweed in the same water body. (See wild harvest section below)	Clyde Marine Plan www.clydemarineplan.scot/wp-content/uploads/2016/05/Guidance-Biosecurity-Planning.pdf
Wildlife	Developers must minimise disturbance to wildlife arising from increased activity around a seaweed farm, particularly during seeding and harvesting seasons. No lethal control of predators should be carried out.	
Nutrients	Developers must ensure that nutrient levels at the site are regularly measured and recorded and the impacts of cultivation on nutrient levels at the site is monitored.	
Entanglement	Developers must avoid known areas of cetacean distribution. Ropes should be regularly checked to ensure tension is maintained to reduce the risk of cetacean entanglement.	Whale and Dolphin Conservation. An evaluation of cetacean bycatch in UK fisheries. https://uk.whales.org/wp-content/uploads/sites/6/2021/02/cetacean-bycatch-uk-fisheries-problems-solutions.pdf

Additional environmental management measures

Topic	Guidance	Further guidance
Moorings	Developers must conduct regular checks to ensure structural integrity including loose ropes and operational lighting.	
Structures	Regular site checks should be carried out to ensure that structural integrity is maintained, especially after storm events.	

Buffer zones	Developers must clarify if a buffer zone is included in the proposed site and provide justification if this is not included.	
Fuel leaks and spills	All fuel leaks and spills should be dealt with immediately and reported to the appropriate authority where required	
Marine traffic	Developers must set out a comprehensive explanation of how marine traffic may be affected by their developments.	Northern Lighthouse Board https://www.nlb.org.uk/ Marine Traffic https://www.marinetraffic.com/en/ais/home/centerx:7.0/centery:48.0/zoom:2
Navigational warnings	Developers must ensure that adequate navigational warning markers are in place, to enable other marine users to easily identify and avoid the site in all likely sea conditions.	https://www.gov.scot/binaries/content/documents/govscot/publications/speech-statement/2017/03/seaweed-cultivation-policy-statement-2017/documents/00515518-pdf/00515518-pdf/govscot%3Adocument/00515518.pdf
Waste management	Developers should comply with the Crown Estate Scotland Plastics Reporting Requirement.	https://www.crownestatescotland.com/resources/documents/aquaculture-guidance-for-reporting-on-the-management-of-plastics

Seaweed wild harvesting

Permissions and licensing

Topic	Guidance	Further guidance
Permission	Obtain permission from the landowner. See the Crown Estate Foreshore and Estuary Map for England, Wales and Northern Ireland ownership information. This mapping information is not yet publicly available in Scotland, please see link in further guidance.	Crown Estate Foreshore and Estuary Map https://opendata-thecrownestate.opendata.arcgis.com/ Crown Estate Scotland https://www.crownestatescotland.com/news/ref-139-cadastral-records-of-foreshore-and-seabed-apps/0aac22685d2f4d78a2a3b0a5aa1660db/explore
License	Discover if a license is required by contacting the Marine Management Organisation (covers England and Northern Ireland). Contact the local Inshore Fisheries and Conservation Authority (IFCA) for more license details (England). Contact the Crown Estate or Crown Estate Scotland to obtain a licence.	Marine Management Organisation https://www.gov.uk/guidance/do-i-need-a-marine-licence#activities-that-may-need-a-marine-licence Contact the local Inshore Fisheries and Conservation Authority (IFCA) Association of IFCAs http://www.association-ifca.org.uk/

Principal ecosystem issues

Topic	Guidance	Further guidance
Wild harvesting	<p>Only harvest by hand, not by mechanical harvesting.</p> <p>Only harvest clean seaweed, avoid taking other species that may be attached.</p> <p>Harvest only one third of the plant to allow the rest to grow</p> <p>Cut fronds well above the point of growth and always leave the holdfast attached.</p> <p>Take only a small percentage* of standing stock and rotate harvesting areas</p> <p>Rotate harvesting areas to allow ample time for recovery. Harvested areas should be left for up to several years, depending on the species, before harvesting again.*</p>	<p>*Contact local authority/ Government agency for advice. See table below for details.</p>
Non-native species	<p>Do not harvest non-native species, to avoid risk of spore transfer.</p>	<p>Non-Native Species Secretariat Seaweed Search</p> <p>https://www.nonnativespecies.org/non-native-species/information-portal/?query=seaweed</p>
Habitat disturbance	<p>Collect only a limited amount of drift seaweed, and not all in one area, to avoid disturbing/destroying this important habitat.</p> <p>Limit harvesting* in erosion prone coastal areas (i.e. dunes) where kelp forests dissipate wave energy.</p>	
Wildlife	<p>Avoid disturbance to wildlife during harvesting activity.</p> <p>Avoid or minimise trampling on non-target organisms and avoid taking 'bycatch' such as stalked jellyfish, brittlestars, bryozoans and blue-rayed limpets.</p>	<p>NatureScot (previously SNH) Seaweed hand-harvesting: literature review of disturbance distances and vulnerabilities of marine and coastal birds</p> <p>https://www.nature.scot/sites/default/files/2019-04/Publication%202019%20-%20SNH%20Research%20Report%201096%20-%20Seaweed%20hand-harvesting%20-%20literature%20review%20of%20disturbance%20distances%20and%20vulnerabilities%20of%20marine%20and%20coastal%20birds.pdf</p>

An outline of the regulatory bodies of the UK and regulations around seaweed cultivation in the UK

	Scotland	England	Wales	Northern Ireland
Authority for spatial planning for seaweed farming	<p>The Crown Estate Scotland</p> <p>Within 12 nautical miles you are required to apply for a seabed lease of foreshore/ seabed. If privately owned, leased from a private landowner.</p> <p>The application should specify the coordinates of the area proposed for development, along with:</p> <ul style="list-style-type: none"> • description of the cultivation equipment; • A decommissioning strategy; • A business plan. <p>Lease Option Agreement is also available if the full licence is yet to be granted.</p> <p>Free for 3 years - £1,000 for a five-year extension following that.</p> <p>Proposal licenced if NatureScot confirms site suitability.</p>	<p>The Crown Estate</p> <p>Within 12 nautical miles you are required to apply for a seabed lease of foreshore/ seabed. If privately owned, then leased from a private landowner.</p> <p>The application should specify the coordinates of the area proposed for development, along with:</p> <ul style="list-style-type: none"> • description of the cultivation equipment; • A decommissioning strategy; • A business plan. <p>There is no application fee but an annual rental may apply.</p> <p>Leasing should also be investigated on a local basis. There is the possibility that some counties may plan to lease whole areas of seabed from Crown Estate and lease areas of them back to businesses.</p> <p>Proposal licenced if Natural England confirms site suitability.</p>	<p>The Crown Estate</p> <p>Within 12 nautical miles you are required to apply for a seabed lease of foreshore/ seabed. If privately owned, then leased from a private landowner.</p> <p>The application should specify the coordinates of the area proposed for development, along with</p> <ul style="list-style-type: none"> • description of the cultivation equipment; • A decommissioning strategy; • A business plan. <p>Lease Option Agreement is also available if the full licence is yet to be granted.</p>	<p>The Crown Estate</p> <p>Within 12 nautical miles you are required to apply for a seabed lease of foreshore/ seabed. If privately owned, then leased from a private landowner.</p> <p>The application should specify the coordinates of the area proposed for development, along with</p> <ul style="list-style-type: none"> • description of the cultivation equipment; • A decommissioning strategy; • A business plan. <p>Lease Option Agreement is also available if the full licence is yet to be granted.</p>

<p>Regulator for spatial planning for seaweed farming</p>	<p>Marine Scotland The Algal Farms Marine Licence Application</p> <p>Seaweed farms are currently licensed under the Marine (Scotland) Act 2010, with exception of Shetland and Orkney which require an additional Works Licence.</p> <p>Pre-application consultation by Marine Licensing (Pre-application Consultation) (Scotland) Regulations 2013:</p> <ul style="list-style-type: none"> • If >1,000m² pre-application consultation is required, • If <1,000 m² consultation by Marine Scotland with statutory consultees. <p>MS will conduct the assessment following: EIA, HRA, WFD, Waste Regulation</p> <p>Navigational risk assessment by Maritime and Coastguard Agency Public Consultation.</p>	<p>Marine Management Organisation (MMO)</p> <p>Marine Licence for seaweed farms granted under the Marine and Coastal access Act (2009).</p> <p>MMO will conduct the assessment following: EIA, HRA, WFD, Waste Regulations</p> <p>Navigational risk assessment by Maritime and Coastguard Agency Public Consultation.</p>	<p>Natural Resources Wales</p> <p>Marine Licence for seaweed farms granted under the Marine and Coastal access Act (2009).</p> <p>Natural Resources Wales will conduct the assessment following: EIA, HRA, WFD</p> <p>Navigational risk assessment by Maritime and Coastguard Agency Public Consultation.</p>	<p>The Department Of Agriculture & Environment & Rural Affairs (DAERA)</p> <p>Licence granted according to adherence to the Marine and Coastal Access Act (2009) and the Marine Licensing (Civil Sanctions) Order (Northern Ireland) 2011.</p> <p>DAERA will conduct the assessment following: EIA, HRA**</p> <p>Navigational risk assessment by Maritime and Coastguard Agency Public Consultation.</p>
<p>Statutory consultees and potentially involved regulators</p>	<p>Northern Lighthouses, Maritime & Coastguard Agency; Scottish Environment Protection Agency; NatureScot; Local council.</p>	<p>Natural England; Joint Nature Conservation Committee; Inshore Fisheries and Conservation Authority; Maritime & Coastguard Agency; Trinity house; Environment Agency; Fish Health Inspectorate (CEFAS); Plant Health and Seeds Inspectorate (DEFRA); Horticultural Marketing Inspectorate.</p>	<p>Fish Health Inspectorate (CEFAS); Plant Health and Seeds Inspectorate; Maritime & Coastguard Agency; Trinity house; Plant Health and Seeds Inspectorate (DEFRA), JNCC.</p>	<p>The Northern Ireland Environment Agency (NIEA); Maritime & Coastguard Agency; the Council for Nature Conservation and the Countryside (CNCC); Joint Nature Conservation Committee (JNCC); DAERA Fish Health Inspectorate (FHI); Local council.</p>

<p>Location suitability</p>	<p>Marine Scotland provides a map marking areas that show potential seaweed farming sites in Scotland.</p> <p>More information is available on their website found below.</p> <p>https://marinescotland.atkinsgeospatial.com/nmpi/</p> <p>Seaweed for Europe provides a licensing Toolkit which includes an interactive map with information for Scotland's licensing processes.</p> <p>https://www.seaweedeurope.com/sea_toolkit/country-specific-licensing-processes/</p>	<p>The UK Government provides a map marking areas that show potential seaweed farming sites in England.</p> <p>More information is available on their website found below.</p> <p>https://explore-marine-plans.marineservices.org.uk/</p> <p>Seaweed for Europe provides a licensing Toolkit which includes an interactive map with information for England's licensing processes.</p> <p>https://www.seaweedeurope.com/sea_toolkit/country-specific-licensing-processes/</p>	<p>Wales Marine Planning Portal</p> <p>http://lle.gov.wales/apps/marineportal/#lat=52.5145&lon=-3.9166&z=8&tgt=false&layers=231,390</p> <p>Marine ecology datasets for marine developments</p> <p>https://naturalresources.wales/guidance-and-advice/business-sectors/marine/marine-ecology-datasets-for-marine-developments/?lang=en</p>	<p>DAERA, Searching Protected Areas</p> <p>https://www.daera-ni.gov.uk/services/searching-protected-areas</p>
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