



# Seaweed Asset Profile

## 1. Context

Crown Estate Scotland manages property – including buildings, land, coastline and seabed – on behalf of the Scottish people.

### We work in a way that:

- Generates prosperity and value for all of Scotland;
- Supports the growth of sustainable business and industry in Scottish seas and on the coast;
- Makes places better for those who live, work and visit there;
- Promotes sustainable ways of producing energy, food, and other products; and
- Creates opportunities for people to use and benefit from the Scottish Crown Estate.

The Scottish Crown Estate Act 2019 requires us to manage the assets in a way that is likely to contribute to the promotion of improvement of economic development, regeneration, social wellbeing and environmental wellbeing. To do this, we need to understand the wider value delivered by the assets and our management activities.



Asset profiles have been developed for the Estate's 21 asset classes. The profiles include information on financial returns, the public benefits delivered through our management activities, and our view of the opportunities for wider value creation.

The analysis has been undertaken in-house, using qualitative assessment and expert judgment.

## 2. Asset summary

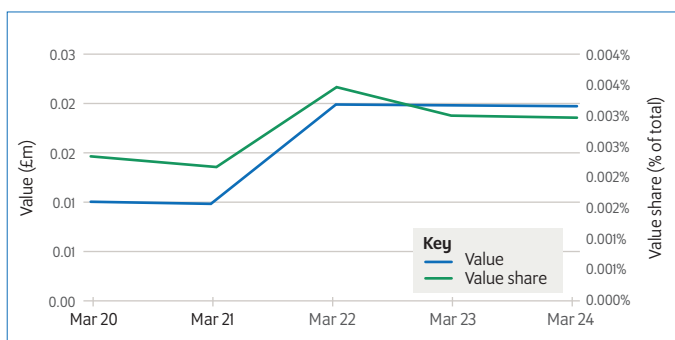
We lease the seabed for seaweed farming. The seaweed sector is of interest for numerous industries due to the nutrients in seaweed which are of value to food, pharma, marine biotech, chemicals and energy.

We also licence seaweed harvesting. Proposals are only licensed if NatureScot confirm their satisfaction of no evident risk of unacceptable environmental impacts. There is currently a moratorium on the removal of wild kelp plants from the seabed for commercial use, in accordance with the Scottish Crown Estate Act 2019.

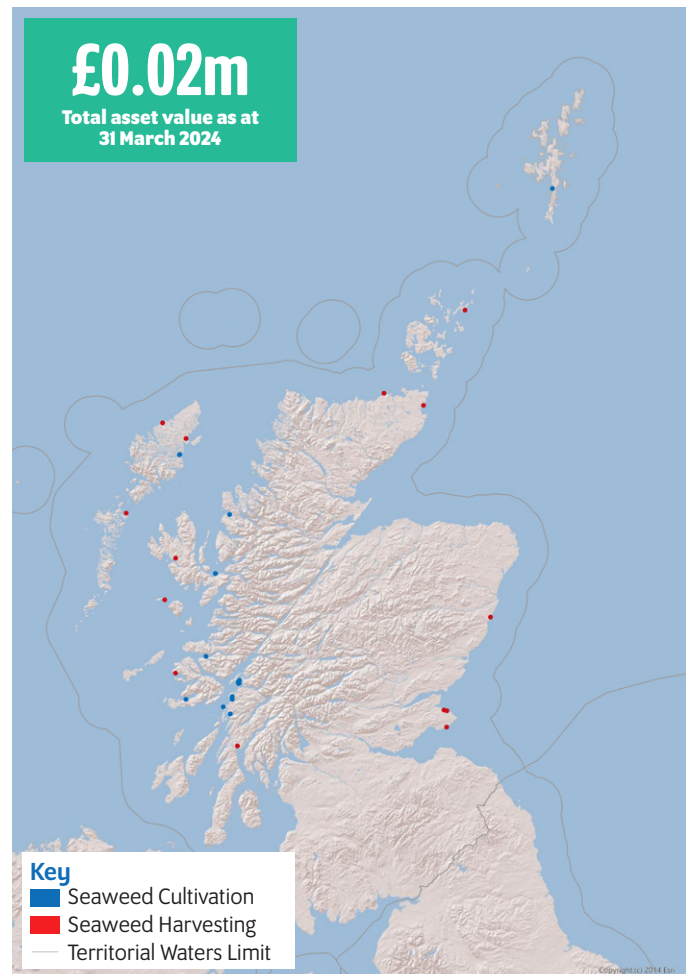
### Asset and financial information

Asset information	Value
No of agreements	29
Value (March 2024)	£0.02m
Value share (% of total Estate value, March 2024)	0.003

### Seaweed – change in value and value share over time

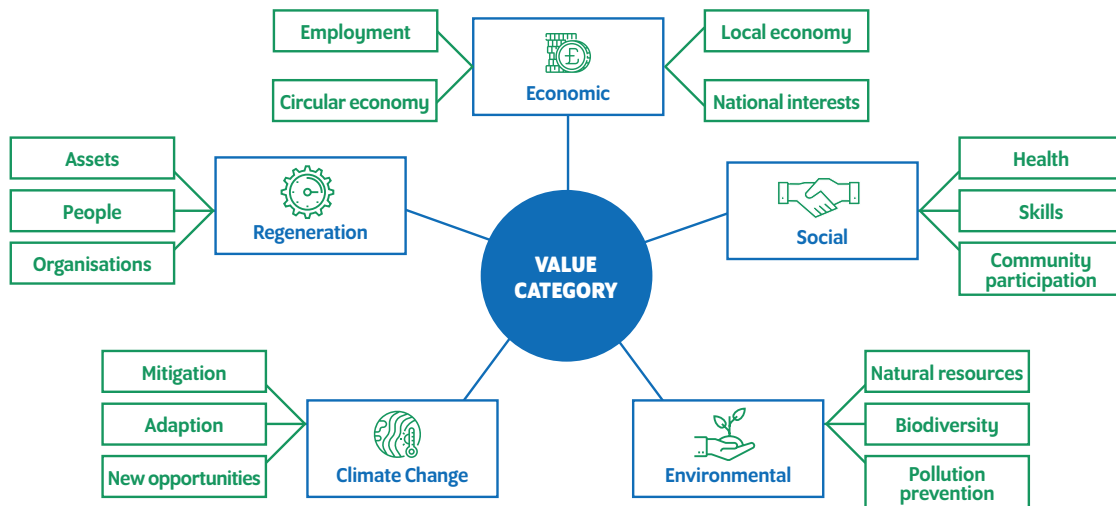


## Seaweed asset map



Map correct as at September 2024. Under the Open Government Licence, we give free access to our open datasets and map which can be found on our [Spatial Data Hub](#) which gives access to view and download spatial data, PDF maps for download, and our [interactive map](#).

### 3. Understanding Value



#### Five value categories have been identified:

- **Economic;**
- **Social;**
- **Environmental;**
- **Climate Change;** and
- **Regeneration.**

Each value category has a set of three or four indicators. The indicators are relevant for all Scottish Crown Estate asset classes and also align with Scotland's National Performance Framework and the UN Sustainable Development Goals.

#### Measures of success

##### Economic

**Employment** – jobs created or safeguarded

**Local economy** – local businesses are active in the supply chain and provide local employment

**National interests** – benefiting Scotland's national economy / showing leadership

**Circular economy** – increasing efficiency / reducing waste in processes and products

##### Social

**Health** – reflects / promotes good health at local or national level

**Skills** – stakeholders gain valuable skills

**Community participation** – community is an active stakeholder and participant

##### Environmental

**Natural resources** – resources used / maintained in a sustainable way

**Biodiversity** – biodiversity is protected/strengthened

**Pollution prevention** – pollution is decreased / not increased

#### Climate change

**Mitigation** – low or zero emissions

**Adaptation** – actions increase resilience / reduce risk

**New opportunities** – new, low or Net Zero emissions activities / businesses/products pursued

#### Regeneration

**Assets** – positive impacts on associated assets

**People** – people are enabled or empowered

**Organisations** – activities involve collaboration with other organisations

#### Next steps

The Value Project started in 2019 as a direct response to this need to define the wider value of CES's activities.

In 2023, with the help of Savills Earth we completed development of our new Value Reporting Framework (VRF). This framework will support CES to shape data gathering to inform non-financial metrics and will help to inform our future decision-making, reporting, and monitoring processes.

The VRF seeks to measure the value created through all of CES's activities, producing quantitative and qualitative data for investment case decision making and annual reporting.

To achieve this a systematic process for measuring value was developed, in which our five wider value categories – climate change, social, economic, environmental and regeneration – were individually assigned a specific value indicator, with each indicator directly tied to its own value creation metric.

We have now incorporated indicators relating to employment, investment, and social cost of carbon into our annual reporting and further indicators will be added going forwards.

## 4. Potential for Wider Value

The diagrams below demonstrate the wider value currently generated by the asset class as a whole and indicate where we consider there is potential to deliver increased wider value. This is influenced by a range of factors including the inherent value of the assets, tenant activity, regulator activity and other external factors. For seaweed, key areas identified with potential for increased wider value include:

- **Economic** – significant potential in relation to local economy and employment, especially in coastal regions, if a commercially viable cultivated seaweed industry with a profitable value chain can be established.

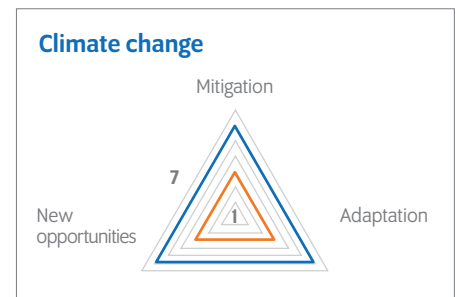
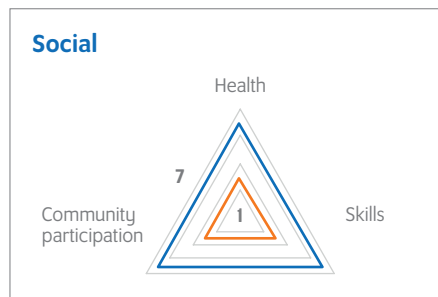
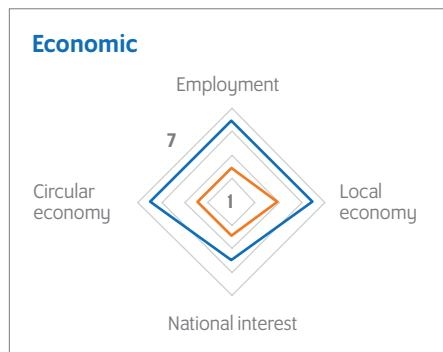
- **Social** – significant potential for health as a superfood rich in nutrients.
- **Environment** – very high potential as a regenerative, sustainable resource in a number of different ways e.g. as a raw material for biotechnology businesses developing biodegradable alternative to plastics; improving water quality and reducing pollutants including in relation to fish farms where seaweed can absorb nitrogen excreted by the fish; and to support marine biodiversity.
- **Climate change** – significant potential for carbon sequestration, as a raw material for renewable energy in the form of biogas, and to prevent coastal flooding.

### Opportunities

- Co-location of seaweed with shellfish offers carbon mitigation opportunities;
- Co-location of seaweed with offshore wind offers economic opportunities;
- Seaweed demand increases as it replaces petrochemicals to create low carbon products;
- New product opportunities for seaweed in health and nutrition grow demand and value; and
- Seaweed farming offers business diversification opportunity for fishermen.

### Threats

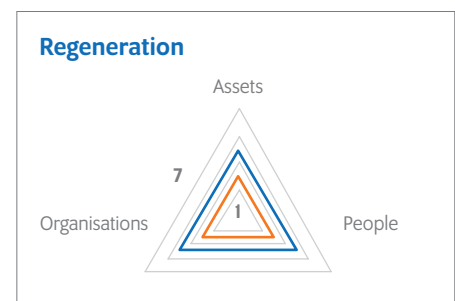
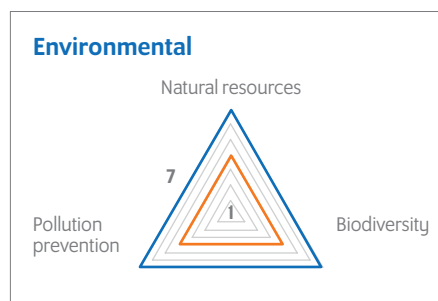
- Unsustainable harvesting of wild kelp;
- Economic viability of seaweed farming becomes too challenging for investors;
- Potential disease / parasite threats to cultivated seaweeds, possibly associated with climate change;
- Poor or slow development of markets for seaweed-based products in the UK depresses development;
- High cost of farming seaweeds in Scotland means markets import from elsewhere; and
- Regulation and / or marine use conflicts prevent necessary scale of industry development.



**Key**  
— Potential      — Current

**Assessment key**

1. Damaging	5. Very Good
2. Poor	6. Matching Best Practice
3. Fair	7. Setting New Best Practice
4. Good	



This full value potential is indicated by the blue line. The actual average performance of the assets as currently managed is shown by the orange line. The opportunity for delivering enhanced value is the stretch between the orange line and the blue line.

Where potential and actual performance are the same the orange line will hide the blue line beneath it. No weighting has been applied to any indicator.

## 5. Benefits delivered by Crown Estate Scotland

### Our 2020-2026 Corporate Plan sets out our four roles:

#### Investor

Investing in, for example, property development, as well as building external partnerships and supporting staff.

#### Asset Manager

Careful management of leases and agreements, as well as direct management of forestry.

#### Co-ordinator

Supporting other Scottish Crown Estate managers by, for example, coordinating spatial information.

#### Enabler

Empowering others by supporting local plans and projects, providing access to property and helping address barriers to sector growth

### For seaweed, some examples of our activities include:

#### Investor

- We have established a new Directorate focusing on Aquaculture and Ecosystem Services to lead on this work.

#### Asset Manager

- We completed a [Root & Branch review of aquaculture leasing](#) in January 2022. The revised terms are being introduced to encourage and allow tenants to demonstrate stewardship of the marine environment through the reporting on the management of plastic used on the leased seabed area. First reports were submitted in January 2024.

#### Enabler

- Working with the Scottish Seaweed Industry Association to promote the potential of the seaweed cultivation sector.
- We published a [report](#) which identified potential resource areas where it may be technically feasible to develop large-scale kelp farms based on their physical, environmental and operational requirements.
- We conducted an interactions project which [identified opportunities](#) for improved coexistence with capture fisheries and restorative aquaculture.
- We are sponsoring a Business Development Manager post at the Scottish Seaweed Industry Association (SSIA) to help promote the potential of the Scottish seaweed sector and develop the industry.

The table below presents our assessment of the significance of the benefits that we currently deliver through these four roles. Our Corporate Plan sets out actions against these four roles. Over time, we expect the significance of benefits to increase as considerations regarding wider value are embedded into decision making.

SEAWEED	Investor	Asset manager	Enabler	Coordinator
<b>Economic</b>				
Employment		Low	Low	
Local economy		Low	Medium	
National interests		Low	Medium	
Circular economy		Low	Medium	
<b>Social</b>				
Health		Low	Low	
Skills		Low	Low	
Community participation		Low	Low	
<b>Environmental</b>				
Natural resources		Medium	Medium	
Biodiversity		Medium	Medium	
Pollution prevention		Low	Low	
<b>Climate change</b>				
Mitigation		Low	Low	
Adaptation			Low	
New opportunities		Low	Medium	
<b>Regeneration</b>				
Assets		Low	Low	
People		Low	Low	
Organisations		Medium	Medium	

**Key**

- Inactive
- Low
- Medium
- High

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Financial information as of March 2024, other information as of July 2024. Some figures in this profile have been rounded.

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