

Protected food, drink or agricultural product name

# Product specification for 'Pembrokeshire Rock Oysters'

**A protected geographical indication (PGI)**

Responsible country: Great Britain

**GB number: F0107**

This document sets out the elements of the product specification for information purposes.

## Competent authority

Name: G.I Team Department for the Environment Food and Rural Affairs

Address: Defra,

SW Area

2<sup>nd</sup> Floor

Seacole Building

2 Marsham Street

London

SW1P 4DF

Telephone:

Email: [ukgiapplications@defra.gov.uk](mailto:ukgiapplications@defra.gov.uk)

## Applicant group

The applicant group comprises of Tethys Oysters Ltd (producer) and Atlantic Edge Oysters Ltd (processor)

Name: Tethys Oysters Ltd

Address: 14 Rectory Road, Llangwm, Pembrokeshire, SA624JA

Telephone: 07828195696

Fax:

Email: [andy@tethysoysters.co.uk](mailto:andy@tethysoysters.co.uk)

Composition: Producers

Name: Atlantic Edge Oysters

Address: Unit 3, Johnston Business Park, Johnstone, Pembrokeshire, SA623PL

Telephone: 07865290243

Fax:

Email: [office@atlanticedgeoysters.co.uk](mailto:office@atlanticedgeoysters.co.uk)

Composition: Processors

## **Type of product (as in Annex XI Implementing Regulation 668/2014)**

1.7: Fresh fish, molluscs and crustaceans and products derived there from

### **1. Product name(s)**

'Pembrokeshire Rock Oysters'

### **2. Description**

"Pembrokeshire Rock Oysters" *Crassostrea gigas* are farmed oysters grown and harvested in the Daugleddau estuary in Pembrokeshire from seed and part grown oysters supplied by bio-secure commercial hatcheries and producers. The specific marine environment of the Daugleddau estuary has nutrient rich Atlantic waters mixing with freshwater flowing down from the Preseli Mountains through salt marshes and seagrass beds. This imparts a distinct set of organoleptic characteristics or "merroir" to the oysters.

*Crassostrea gigas* are the main commercial species of oysters found in Europe and are a faster growing oyster compared to native oysters, reaching a minimum marketable size of 75g in 2-3 years. 'Pembrokeshire Rock Oysters' demonstrate a variation in shell morphology but typically have a characteristic teardrop or pear shape with a deeply cupped cross section with approximately a 3:2:1 length: width: depth ratio. The shell is crenulated and fluted, the left (lower) valve is deeply cupped, and the right (upper) is typically flat or slightly convex sitting within the left. The shell is pale but will take on pink pigments from its algal food giving the oyster purple or dark stripes and spots.

<i>Flavour</i>	Provides a very delicate flavour - clean 'merroir' of brine, fresh cucumber with citrus and grassy tones.  <i>Complex mineral quality on the palate with a satisfying unctuous brine taste</i>
<i>Aroma</i>	<i>Fresh sea aroma</i>
<i>Texture</i>	Clean sea mineral finish,  Combination of soft flesh and crisp muscle.

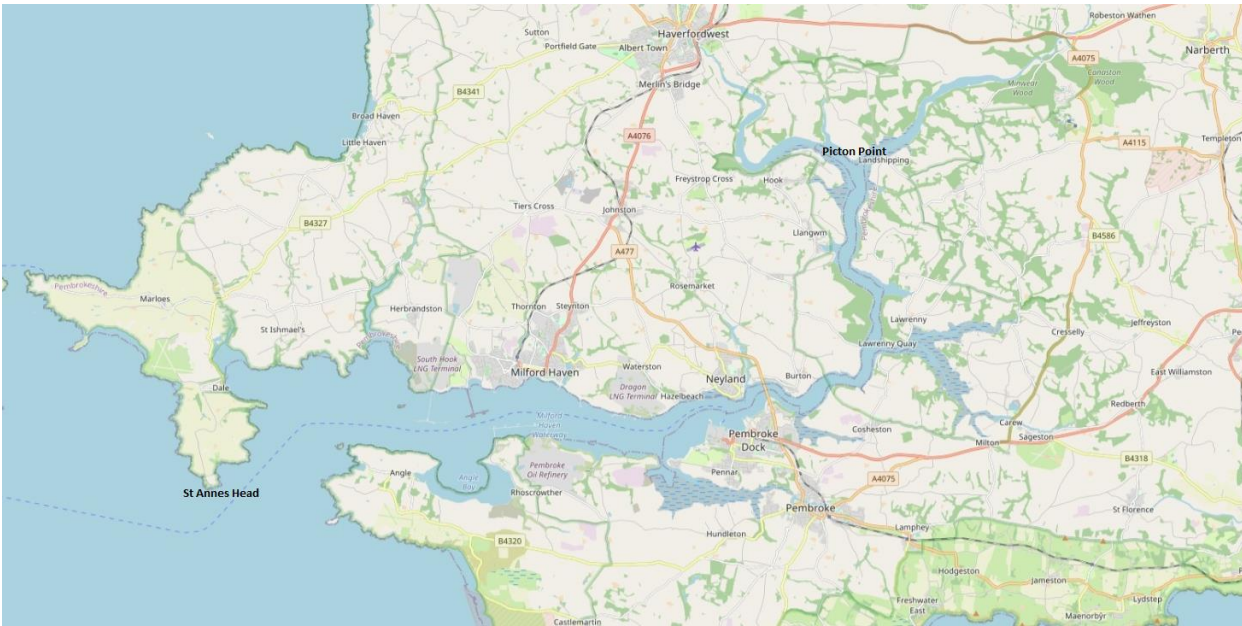
Rock Oysters are the mainstay of commercial production in Pembrokeshire and are renowned for their delicate clean "merroir" of brine, fresh cucumber with citrus and grassy tones and clean sea mineral finish reflecting the surrounding habitats and productive pristine Atlantic waters in which they are grown.

Rock Oysters from Pembrokeshire are available all year round due to modern aquaculture practices adopted by local growers.

'Pembrokeshire Rock Oysters' are a sought-after delicacy commanding a premium price on restaurant menus, compared to mass produced volume oysters. 'Pembrokeshire Rock Oysters' are a low volume /high value product, mostly eaten fresh and raw with a few drops of a condiment such as lemon juice, tabasco or mignonette dressing. Larger oysters are often served hot from the grill with any number of toppings such as the famous Rockefeller mix of spinach and bacon, or simply with garlic butter and herbs.

### **3. Geographical area**

'Pembrokeshire Rock Oysters' are farmed in the tidal waters of the Daugleddau estuary and tributaries between St Annes Head in the lower estuary and Picton Point in the upper estuary.



## 4. Proof of origin

Oyster farming and processing is highly regulated by a suite of environmental, licencing, biosecurity and food safety regulations and by this virtue full traceability is possible from hatchery-to-plate.

### Oyster Farm Licencing

#### Site Licencing

'Pembrokeshire Rock Oysters' are farmed within the Daugleddau estuary which is part of the Pembrokeshire Marine Special Area of Conservation. Marine developments within the estuary are regulated by Milford Haven Port Authority. Foreshore ownership within the estuary is Crown Estate and privately owned. A farm growing Pembrokeshire Oysters will require:

- a Works Licence from Milford Haven Port Authority
- permissions and/or a lease from the landowner (Crown Estate or other)

The Works Licence is only issued after a Habitats Regulation Assessment, a requirement of the Conservation of Habitats and Species Regulations 2017, to determine whether a plan is likely to have significant effects on Natura 2000 sites such as the SAC. Natural Resources Wales are consulted on the HRA.

## Shellfish Harvesting Area Classification

**‘Pembrokeshire Rock Oysters’ must be harvested from Class A or Class B areas.**

The classification of a production area determines the treatment required before Live Bivalve Molluscs (shellfish) may be marketed for human consumption.

Shellfish production and relay areas are classified according to the levels of *E. coli* detected in shellfish flesh. Levels of *E. coli* are measured per 100g flesh.

In all cases, the health standards are set out in:

*Annex III of retained EU law Regulation (EC) 853/2004*

*Articles 53, 54 and 55 of retained EU law Regulation (EU) 2019/627*

The end product microbiological criteria specified in the retained EU law Regulation (EC) 2073/2005 must also be met.

### **Class A**

- minimum of 10 samples required per year
- 80% of sample results must be less than or equal to 230 *E. coli*/100g
- no results may exceed 700 *E. coli*/100g

### **Class B**

- minimum of 8 samples required per year
- 90% of sample results must be less than or equal to 4600 *E. coli*/100g
- no results may exceed 46000 *E. coli*/100g

Although ‘Pembrokeshire Rock Oysters’ can be harvested from both Class A and Class B waters they are currently only harvested from Class A waters. Oysters from a Class A water can be harvested for direct human consumption if the end product standard requirements are met.

If Pembrokeshire Rock Oysters were harvested in Class B waters, they would be required to be purified at a registered purification unit.

### **Shellfish Classification Monitoring**

The Food Standards Agency (FSA) sets out the overall policy for the monitoring and classification of shellfish harvesting areas and makes all final classification decisions.

Centre of Ecology, Fisheries and Aquaculture Science (Cefas) manages the microbiological monitoring programme in England and Wales, on behalf of the FSA and according to an agreed protocol.

Shellfish Harvesting Areas producing ‘Pembrokeshire Rock Oysters’ are sampled monthly by the Pembrokeshire County Council’s Port Health team and the results submitted to Cefas. The Port Health team monitors the harvesting of cockles, oysters, mussels and

other bivalve molluscs, to ensure that they meet the appropriate standards for processing in order to prevent illness to consumers.

Results of shellfish monitoring results are published monthly on the Cefas website.

## **Aquaculture Production Business Authorisation**

**‘Pembrokeshire Rock Oyster’ production sites need to comply with:**

- **The Aquatic Animal Health (England and Wales) Regulations 2009**

Before setting up a fish, shellfish or crustacean farm (called an Aquaculture Production Business) a farm must be issued with an APB authorisation from the Fish Health Inspectorate (FHI). This is to prevent the introduction and spread of infectious diseases and A Shellfish Biosecurity Measures Plan is required to be produced by the business before an APB can be issued.

### ***Biosecurity Monitoring and Stock Movement Records***

Businesses farming Pembrokeshire Rock Oysters are required as a condition of authorisation to maintain accurate records of movements of oysters, including seed from the hatchery, on and off the farm site. These are recorded on paper logs and entered into the FHI Online movement records platform.

Fish Health Inspectorate make annual farm visits to monitor biosecurity issues.

## **Traceability**

Movements of live shellfish are regulated under Regulation (EC) No. 853/2004 which provides statutory requirements for record keeping and traceability of oysters.

### **From Farm to Dispatch Centre**

On leaving the farm the consignment of ‘Pembrokeshire Rock Oysters’ are accompanied by a Live Bivalve Registration Document to comply with EC Regulation No 853/2004. This document records:

- (i) the gatherer's identity and address;
- (ii) the date of harvesting;
- (iii) the location of the farm described in as precise detail as is practicable or by a code number;
- (iv) the health status of the production area;
- (v) the shellfish species and quantity; and
- (vi) the destination of the batch.

If ‘Pembrokeshire Rock Oysters’ are harvested from Class A waters, they do not legally have to be purified. However, if producers choose to purify their product, they must follow

the strict methodologies agreed by the Port Health officers during licencing of the Purification and Dispatch Centre and FSA/Seafish guidance regs. If Pembrokeshire Rock Oysters are harvested from Class B waters they are legally required to be purified.

On receipt at the shellfish purification and dispatch centre the document is date stamped and recorded.

However, and this is currently the case in Pembrokeshire, if:

(a) the staff gathering live bivalve molluscs also operate the dispatch centre, purification centre, relaying area or processing establishment receiving the live bivalve molluscs; and

(b) a single competent authority (Port Health) supervises all the establishments concerned,

then registration documents are not necessary if that competent authority so permits.

All oysters go to a dispatch centre irrespective of whether they are required to be purified or not

On dispatch to the customer all orders are accompanied with a waterproof label complying to Regulation (EC) No. 853/2004

- Identification Mark (Health mark) of the dispatch centre
- Species (common name and scientific name)
- Date of packaging
- Batch Number

The retailers or food service business customers receiving the consignment are required to keep this information for at least 60 days after receipt.

## 5. Method of production

1. Seed and part-grown (< 40g) rock oysters are supplied from biosecure commercial hatcheries and producers. these can be located outside the designated geographical area.
2. Seed oysters are placed in mesh standard plastic oyster bags held off the seabed on trestles on the lower shore.
3. The oysters are regularly graded and re-bagged at lower densities reduced to promote growth. Rock oysters are usually graded at least twice in their 2–3 year growth cycle.
4. Typically, small oysters have an 80% survival rate during the first 6 months. From 6 months plus 10-20% grow faster and are graded out and put in their own bags. These will be the first cohorts to achieve their minimum marketable size of 75g.

5. Oysters feed by drawing in sea water and filtering out planktonic food before letting out clean water.
6. Harvesting is carried out on low water spring tides. All harvesting is carried out by hand with minimal use of vehicles to protect the sensitive habitats around the farms.
7. Oysters are washed and transferred to a purification and dispatch centre where they are depurated (if required) and packaged.
8. When 'Pembrokeshire Rock Oysters' are from Class A waters they do not legally have to be purified. However, if farmers choose to purify their product, (or if any 'Pembrokeshire Rock Oysters' are harvested from Class B waters) they must follow the strict methodologies agreed by the Port Health officers during licencing of the Purification and Dispatch Centre. If purification is required this can take place outside the geographical area.

## 6. Link with the geographical area

Oysters are influenced by their environment and as a product express a lot of this "merroir" through their flavour.

'Pembrokeshire Rock Oysters' can only be farmed in the tidal waters of the Daugleddau estuary between St Annes Head in the lower estuary and Picton Point in the upper estuary.

### Geography

The provenance of 'Pembrokeshire Rock Oysters' is the key factor in influencing their form and flavour profile. "Merroir" is a term used in the context of oysters that mirrors the concept of "terroir" in wine. It refers to the idea that the flavour of oysters is significantly influenced by the environment where they are grown. This includes the composition of the water, the types and quantities of algae and other foods available, the salinity and mineral content of the water, the water temperature, and other environmental factors. Just as terroir affects the taste and characteristics of wine, merroir affects the taste and texture of oysters

Daugleddau estuary and rivers of the Western and Eastern Cleddau make up a complex region of tidal river estuary, with numerous branched side channels containing mudflats and saltmarsh. Upper estuary waters cuts through a complex ancient geology picking up mineral elements of Bluestone, Old Red Sandstone, Carboniferous Limestone and Millstone Grit. The surrounding rolling grassy hinterland is interspersed with stretches of steep rocky shore, with mixed and ancient woodland to the water's edge with numerous streams bringing elements of these habitats to the estuary. Downstream the waters pass through Grey and Red Sandstones and flow over sandy seabed towards the mouth of the estuary. The deep outer estuary west of Pembroke Dock is a large sheltered drowned ria (ancient river valley). The mouth of the estuary is exposed to the open sea with strong tides and currents. This contrasts with the sheltered bays at Dale, Angle Bay, and creeks



such as Sandy Haven Pill. The surrounding low rocky seaweed covered shores give way to high cliffs at the seaward most extent. The complex mix of trace elements transported by the estuary waters are considered to contribute to the “merroir” of ‘Pembrokeshire Rock Oysters’ described as having a complex mineral quality on the palate with a satisfying unctuous brine taste.

The ‘Pembrokeshire Rock Oyster’ growing areas benefits from the turbulent mixing of clean and nutrient rich Atlantic seawater, brought twice daily by the large tides, with the sweet waters of the Daugleddau estuary. This circulation of water in the deep estuary produces an environment with a distinct mix of salty sea water and river water. It is in this area, where the salt water from the sea mixes with the fresh water from the East and West Cleddau rivers, that form the main oyster farming areas.

The marine environment of the Daugleddau estuary where nutrient rich Atlantic waters mix with freshwater flowing down from the Preseli Mountains through salt marshes and seagrass beds imparts a distinct set of characteristics or “merroir” to the oysters. Contributing to the oysters ‘delicate clean’ merroir’ of brine, fresh cucumber with citrus and grassy tones *with complex mineral quality on the palate*.

Oysters are filter feeders and are wholly reliant on local sources of planktonic food. This food is predominately phytoplankton (marine single celled algae) and Particulate Organic Matter (POM) such as microscopic seagrass and seaweed fragments.

There are significant but predictable fluctuations in planktonic food availability. These are influenced by seasonal changes in temperature, sunlight hours and climatic conditions such as rainfall around Pembrokeshire. Typically, there is a spring bloom of phytoplankton which, with warming seawater temperature, triggers and supports growth in the oysters. Phytoplankton production plateaus over the summer and is followed by a further autumn bloom in the later summer months. Particulate Organic Matter (POM) varies throughout the year but POM originating from the surrounding seagrass beds and intertidal seaweed is thought to be higher in the autumn and early winter as the deciduous seagrass shed their fronds and stormy weather breaks up the seaweed stands.

These local food sources impart over the life of the oyster a complex variety of delicate flavours to the flesh and can even influence the colour of both flesh and shell.

The Daugleddau estuary forms part of the Pembrokeshire Marine Special Area of Conservation (SAC) and a large part of the catchment forms the Cleddau Rivers SAC and as such are routinely monitored for quality by Natural Resource Wales. Seed and part grown oysters are supplied from commercial hatcheries. Pembrokeshire Rock Oysters are then grown wholly within a series of biodiverse and rich SAC’s and Site of Special Scientific Interest’s (SSSIs.)

## **History –**

The strong link between the designated area and oysters is evident from historical records with oyster fisheries until the early 2000s an important shellfish industry in South Wales.

The farming of 'Pembrokeshire Rock Oysters' has been carried out in the Daugleddau estuary from the 1980s prompted in response to declining wild native oyster numbers and a strong market demand for premium oysters. 'Pembrokeshire Rock Oysters' were farmed in large numbers at sites in Beggars Reach and Creswell Quay in the upper estuary during the 1980s and early 1990s. These farms were forced to close after the Sea Empress oil spill in February 1996 and sadly much of the local oyster related food culture was lost until recently.

The 'Pembrokeshire Rock Oyster' is at the heart of a revival in Pembrokeshire with a new farm starting production at Angle Bay towards the seaward end of the estuary in 2018. Current production is close to 200,000 oysters per year and these are a fixture on restaurants in the region and are the centre of oyster festivals at local pubs.

## **Knowledge and Skill Base**

### **Human Factors**

Best practice in oyster growing has developed with changing attitudes to how farmers work with the natural world. Oyster farmers have developed novel approaches to growing Pembrokeshire Rock Oysters which means that their operations have the lightest of touches on the marine environment. These considerations mean that production is relatively small compared to other more industrialised production areas in Europe. Large volume producers in Ireland and France benefit from economies of scale but require correspondingly large spatial footprint on the shore and high levels of mechanisation with the use of tractors and machinery on the shore. Farming oysters in sensitive sites in Pembrokeshire, where all areas of shore are highly protected, require a different business model based upon high-quality low volume production which enables the use of less mechanisation and smaller low-impact vehicles and adopting a smaller spatial footprint which reduces potential impacts to shore habitats. Growing oysters in the estuary requires a particular set of skills as the oyster producers need to understand the biology and ecology of their oysters, the natural cycles of both oyster and the wider environment, and then be able to apply that understanding to their stock husbandry and operations which themselves are dictated by tide, wind and weather.

Safe working in an estuary with one of the highest tidal ranges in the UK requires an intimate understanding and awareness of the sea and how the weather can influence its behaviour. This depth of understanding can only be learned on the job and through experience passed on to new entrants.

### **Sustainability**

Oyster farming is considered to be the leading form of Restorative Aquaculture and provides a suite of ecosystem services to the environment leaving it in comparatively better condition. Oyster farming provides important ecosystem services, including water filtration, as oysters efficiently remove pollutants and excess nutrients, improving water clarity and quality. Additionally, oyster farming creates habitats for a variety of marine species, enhancing biodiversity and supporting coastal ecosystems. The comprehensive licencing system requires that all oyster farming carried out in the estuary are subject to

extensive Habitat Regulation Assessments. This ensures that farm management and operations address risk to sensitive habitats and species.

## Reputation

The use of the name 'Pembrokeshire Rock Oysters' as a quality product is well established and highly recognised by the food industry both regionally and nationally among fishmongers and restaurants. It is used by chefs who value their quality and unique merroir, and regularly appears as a named ingredient on their menus. Renowned restaurateurs and agri-food businesses have demonstrated their preference for these oysters as shown below.

There is high demand for 'Pembrokeshire Rock Oysters' with chefs sourcing them for specialist restaurants around the UK.

Quotes:

### Pembrokeshire Rock Oysters

*"Pembrokeshire Rock Oysters' have many fantastic qualities with a **strong cucumber aroma** and a delightful salty, **complex mineral quality** on the palate that reflects the quality and purity of our coastal waters".*

Fred Clapperton (Executive Chef, Coast, Saundersfoot)

*"Pembrokeshire Rock Oyster's most striking attribute is their delicate flavour profile; they literally taste unbelievably '**fresh**'. Why? these oysters have grown in an area with an enormously dense amount of sea grass, providing citrus and grassy overtones. For anyone who's had a **Gin with cucumber**, this is almost exactly what they taste like. There's none of that metallic after taste or even overt saltiness. Exactly like the waters they're in – they're just beautifully **pure**"*

Ben King (Pesky Fish, London)

## Awards

### Great Taste Award 2022

'Pembrokeshire Rock Oysters' were awarded a Great Taste Award (2 Stars) in 2022 and were the only oyster awarded in that year.

Judges' comments:

"Wow! Fresh briny, seaside loveliness. Ozone saltiness with a clean mineral abundant flavour that transports you to the coast. Lingering sweetness on the palate with, as you say a delicate cucumber delicacy that is just stunning. Divine, clear water. Your description is perfect - we are left with a gentle brine note which balances with the cucumber and sea minerals to lift the palate and put a smile on your face! Exquisite."

"What a beautiful description to accompany such majestic-looking huge oysters! There is a beautiful ozone aroma. On tasting the saltiness hits first then the creamy sweetness with a hint of citrus and yes, that cucumber develops on the finish. You feel you are eating a bit of the ocean."

"It's always a pleasure to try fresh oysters, and these are lovely, full of mineral seawater flavours with a hint of the fresh air of the Pembrokeshire coast."

## 7. Inspection body

Name: The City & County of Swansea

Address: Trading Standards Division, The Guildhall, Swansea, SA1 4PE

Telephone: +44 (0) 1792 635600

Fax:

Email: [Trading.standards@swansea.gov.uk](mailto:Trading.standards@swansea.gov.uk)

The inspection body conforms to the principles of ISO 17065 standard.

## 8. Labelling

ENDS

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