

## ANNUAL REVIEW 2024



# Marine Aggregates

# Contents

National overview	3	Case study: River Mersey	18
Sustainability and stewardship	4	Case study: Lydd Ranges Sea Defences	19
Reserves and resources	5		
Delivery by region / country	6	Wharf development update	20
Extraction and delivery by dredge region	7	Cadets setting sail with the Marine Aggregates fleet	21
The Humber region	8		
The East Coast region	9	The Marine Minerals Academy	23
The Thames region	10		
The East English Channel region	11	Marine Aggregates Tender 2021 / 2022	24
The South Coast region	12		
The South West region	13	Obtaining rights for sand and gravel extraction	25
The North West region	14		
Export to mainland Europe from the UK	15	Links and useful references	26
Uses of marine aggregates around the UK	16		



Click the titles  
to jump ahead

# National overview

## Why are marine aggregates important to Britain?

Britain has one of the world’s most developed marine aggregate industries, extracting 15 to 20 million tonnes from the seabed annually. Much of this is used for building houses, transport infrastructure, replenishing beaches and improving coastal defences.

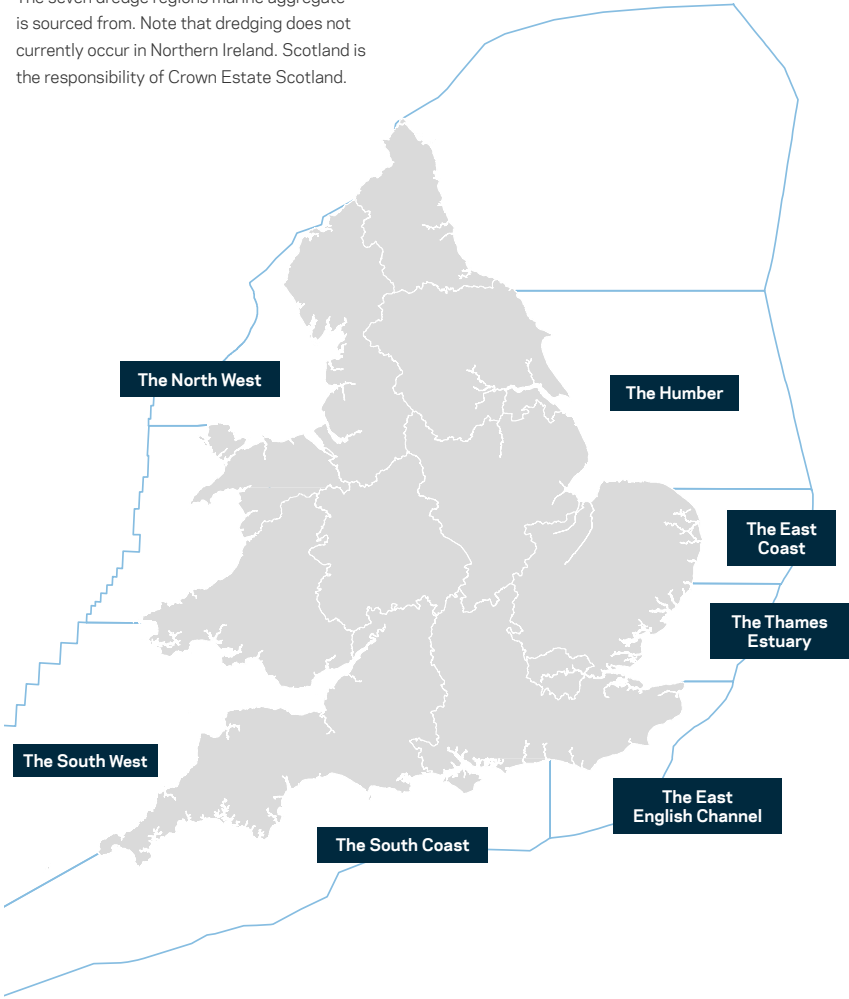
Onshore resources are becoming increasingly constrained, particularly in the South East of England and London. In 2018, marine aggregates satisfied 22% (13.7 million tonnes) of the total construction needs for sand & gravel in Great Britain.\*

The Crown Estate owns almost all of the sand and gravel resources lying off of the coast of England, Wales and Northern Ireland and we award and manage commercial agreements for companies to extract it.

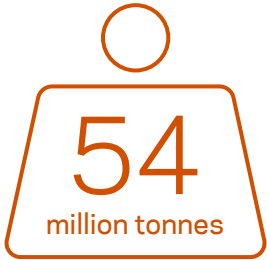
This document is designed to help planning officers in local authorities understand the contribution that marine aggregates can make, by identifying offshore sources and providing information on supply routes. In turn, this is intended to support local authorities in complying with the National Planning Policy Framework, which requires mineral planning authorities to demonstrate they have a steady and adequate supply of aggregates for their requirements through Local Aggregates Assessments.

Unless otherwise stated, all figures in this document are correct as of March 2024.

The seven dredge regions marine aggregate is sourced from. Note that dredging does not currently occur in Northern Ireland. Scotland is the responsibility of Crown Estate Scotland.

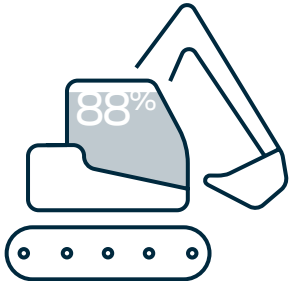


\* Source: Mineral Products Association: Profile of the UK Mineral Products Industry 2020 Edition

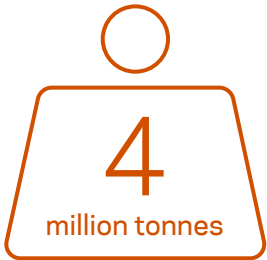


There is potential for demand to increase to **54 million tonnes per year by 2035\*\***

\*\* Source: MPA document



88% of marine aggregates landed in England and Wales are used by the **building industry**



**4 million tonnes** of marine aggregate were exported to **Europe** in 2023 (**23%** of all marine aggregate landed)

# Sustainability and stewardship

The Crown Estate exists to create value for the UK in all its forms, whether that's environmental, social or financial. You can read more about our role on page 26. As managers of the seabed around England, Wales and Northern Ireland, this means taking a holistic and long-term view of this vital resource, helping catalyse the UK's transition to net zero while playing an important role in stewarding the marine environment. In September 2024, we published plans for a [Marine Delivery Routemap](#), which set out how a more coordinated, long-term view for meeting future demands on the UK seabed can enable the growth of important offshore industries, such as renewable energy and minerals, while protecting and enhancing the marine environment, and providing onshore benefits. This builds on our world-leading spatial mapping capabilities and marine data, but will crucially require the continued collaboration between partners across multiple sectors as well nature bodies.

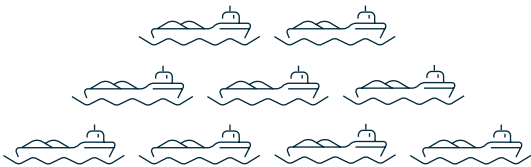
The Crown Estate has a commitment to being a responsible landlord, which includes minimising the impact that marine aggregate dredging has on the natural environment, helping local communities and preserving archaeological finds. Although the quantity of sand and gravel potentially available from marine sources is vast, the industry is aware that it is extracting from a large but ultimately finite natural mineral resource and is keen to ensure that these valuable minerals are used in the most efficient and effective manner possible. We work in partnership with industry, regulators and stakeholders to improve the sustainability of the sector, in particular reducing the area of seabed licensed that is dredged year on year. Via our Electronic Monitoring System, we ensure all dredging is undertaken in the correct locations, and every licence application must be supported by a full Environmental Impact Assessment including a Coastal Impact Study to determine whether a marine licence (essentially the planning consent) can be granted, a process governed by the Marine Licensing process.

To deliver 8,500 tonnes takes:

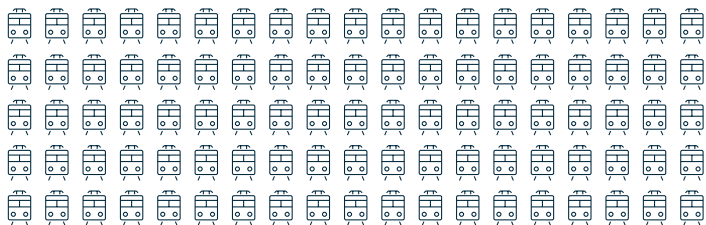
1 dredger  
(of 8,500 tonnes)



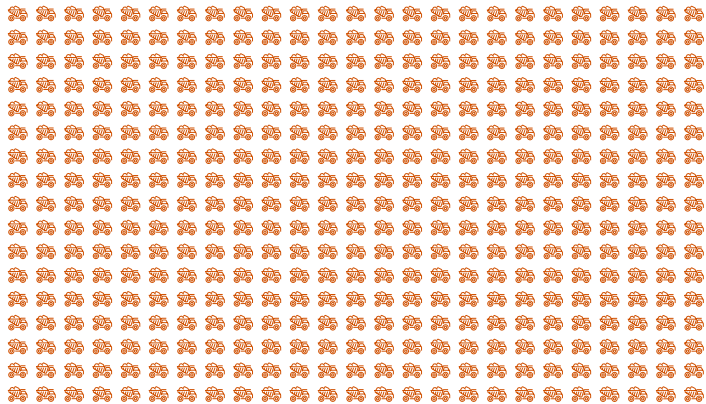
9 barges  
(of 1,000 tonnes)



95 train hopper wagons  
(of 90 tonnes)



425 aggregate lorries  
(of 20 tonnes)





# Reserves and resources

## Reserves and resources

“**reserves**” are the proportion of a mineral “**resource**” that can be mined for economic purposes

# 21

Current national estimates suggest there are **21 years** of primary marine aggregate production permitted

# 361

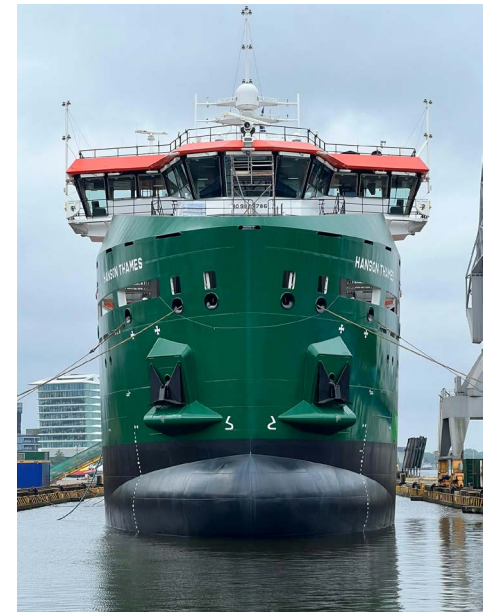
million tonnes

Estimated national total current primary reserves

Region	Total current primary reserves	10-year average annual offtake*	3-year average annual offtake*	Peak annual offtake during 10-year period*	Annual permitted offtake (as March 2024)	Regional reserve life at 10-year average annual offtake
Humber	37.97	2.66	3.55	3.69	6.88	14.28
East Coast	34.11	3.93	3.44	4.72	7.13	8.69
Thames Estuary	33.77	1.52	1.61	1.94	4.35	22.29
East English Channel	140.69	4.09	4.19	4.65	9.17	34.39
South Coast	78.04	3.45	3.89	4.02	8.13	22.63
South West	27.20	1.28	1.35	1.43	2.80	21.33
North West	10.19	0.26	0.26	0.32	0.70	39.49
<b>Total</b>	<b>361.98</b>	<b>17.17</b>	<b>18.28</b>	<b>18.10</b>	<b>39.14</b>	<b>21.08</b>

All figures are in millions of tonnes

Totals are national averages and peaks, not the sum of regional figures



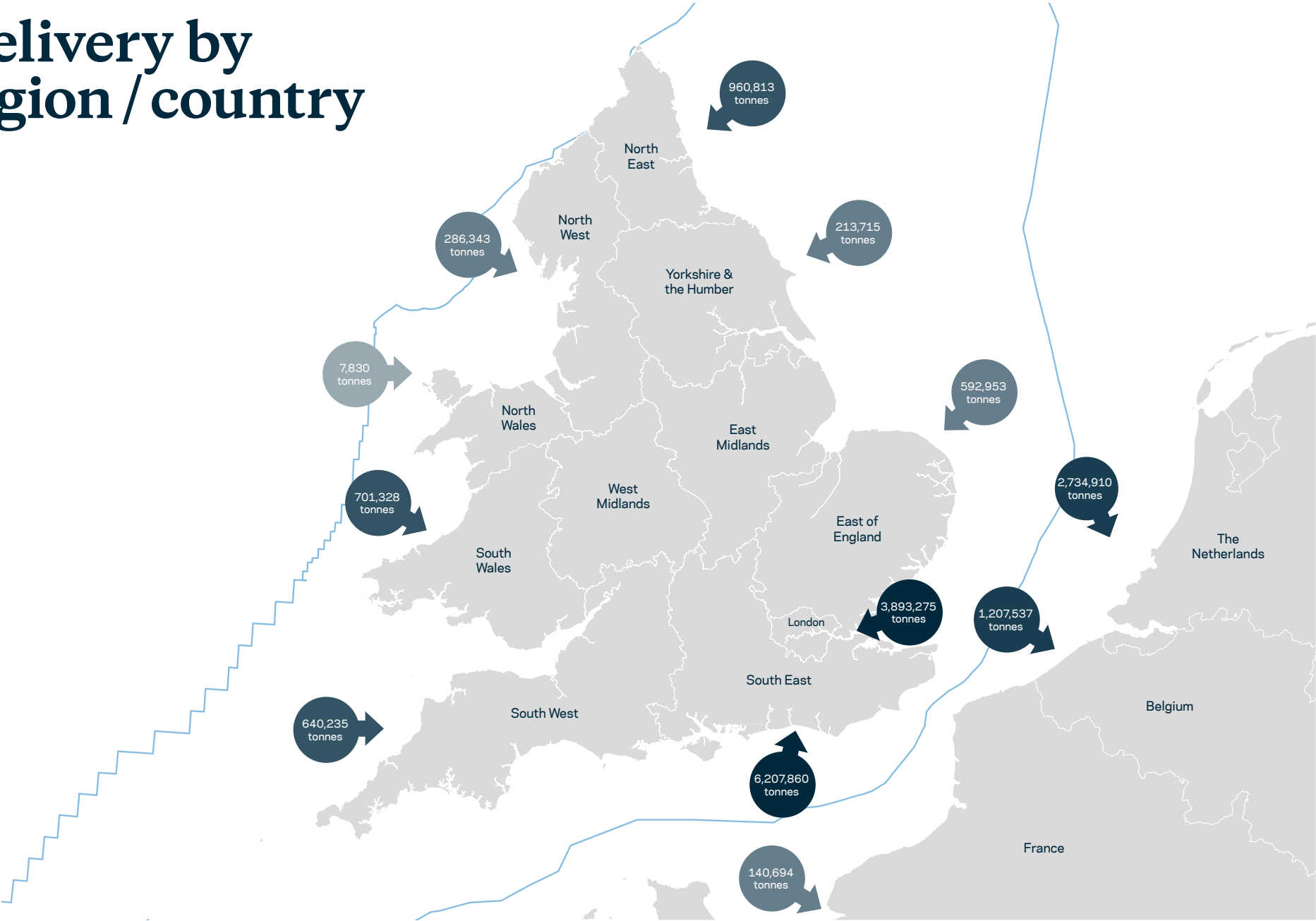
# 209

million tonnes

London and the Thames Estuary are supplied by the East Coast, Thames Estuary & East English Channel. These hold consented reserves of 209m tonnes, giving **London** and the **Thames Estuary** 22 years of production\*

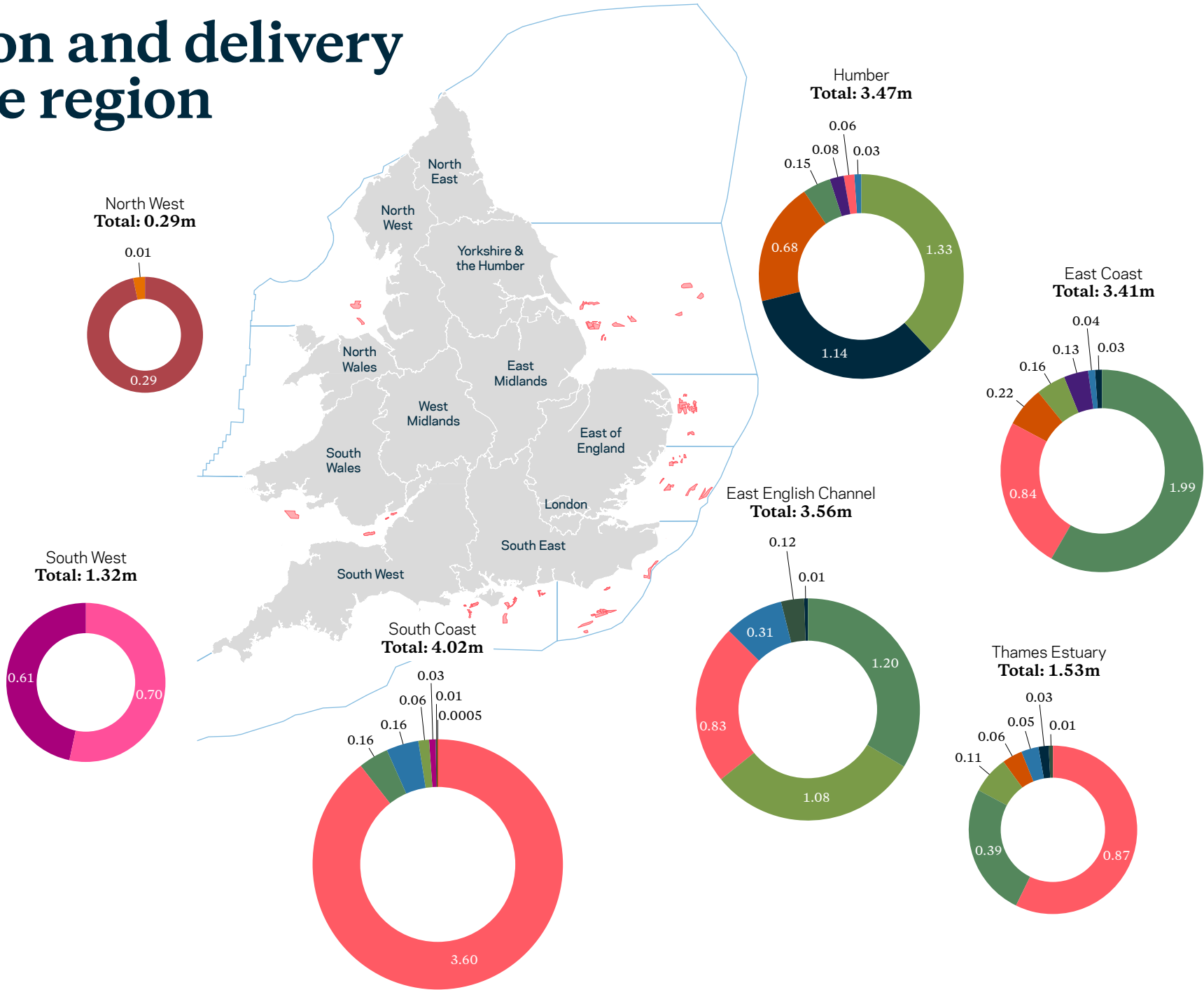
\* Based on 10 year annual offtake

# Delivery by region / country



# Extraction and delivery by dredge region

- Belgium
- East of England
- France
- London
- The Netherlands
- North East
- North Wales
- North West
- South East
- South Wales
- South West
- Yorkshire & Humber



# The Humber region

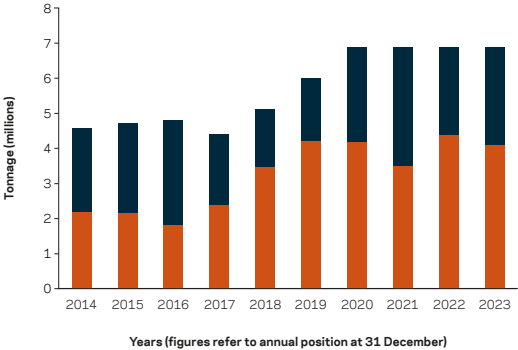
**6.88**  
million tonnes can be extracted  
from **10 licences** annually

**14**  
Current estimates suggest there  
are **14 years** of primary marine  
aggregate production permitted

**1**  
application for a licence could, if  
approved, increase the permitted  
tonnage by **0.5 million tonnes**

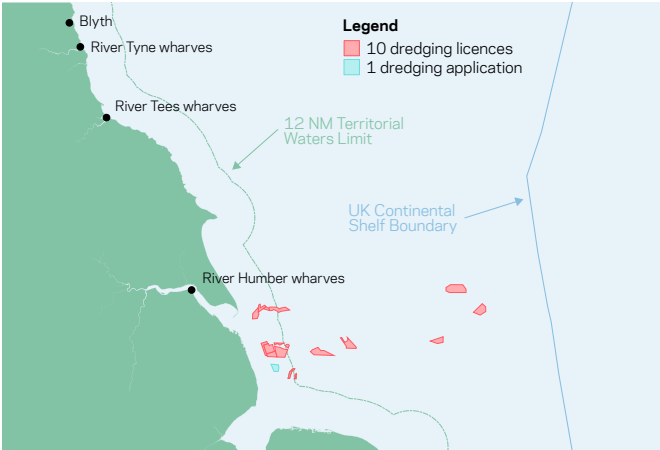
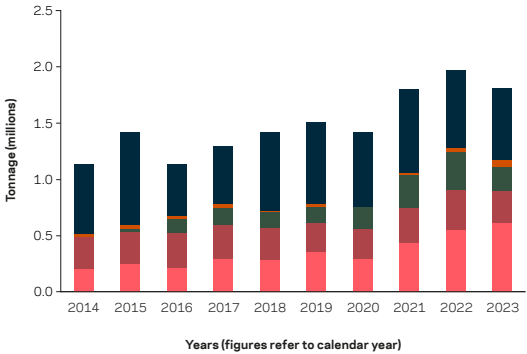
## Permitted and extracted tonnage

■ Unused permitted tonnage  
■ Extracted tonnage



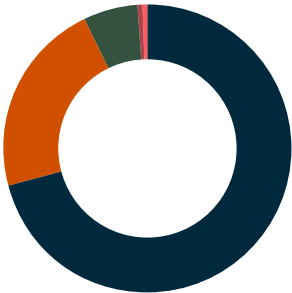
## Delivery of marine aggregate to the region

■ Secondary use from licences  
■ Blyth  
■ River Humber wharves  
■ River Tyne wharves  
■ River Tees wharves



During 2023 material  
extraction from the region  
was mainly delivered to :

■ Mainland Europe (**71.1%**)  
■ Humber (including North East) (**22.0%**)  
■ Thames Estuary (**5.9%**)  
■ East English Channel (**0.6%**)  
■ East Coast (**0.5%**)



## Sediment and indicative grain sizes





# The East Coast region

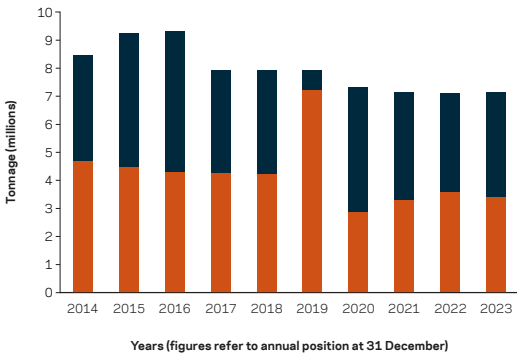
7.13  
million tonnes can be extracted  
from 11 licences annually

9  
Current estimates suggest there  
are 9 years of primary marine  
aggregate production permitted

1  
application for a licence could, if  
approved, increase the permitted  
tonnage by 0.65 million tonnes

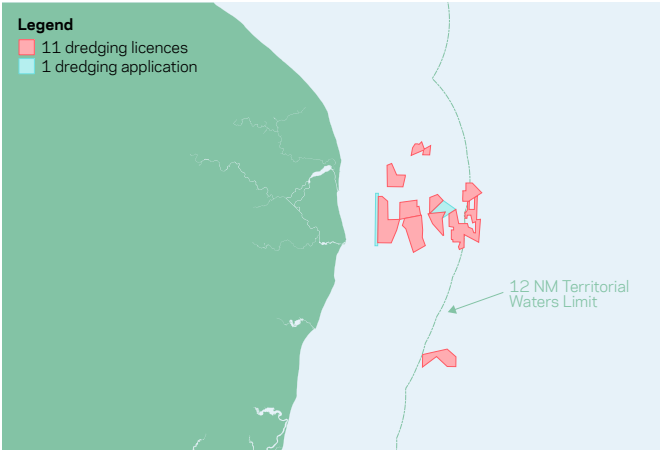
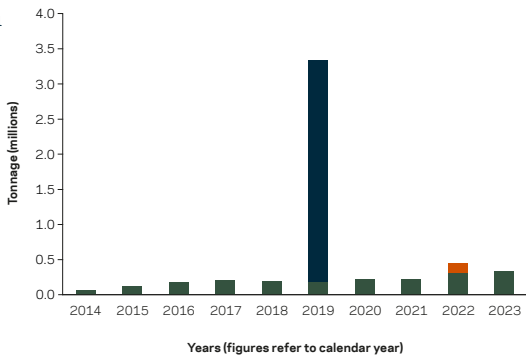
Permitted and  
extracted tonnage

Unused permitted tonnage  
Extracted tonnage



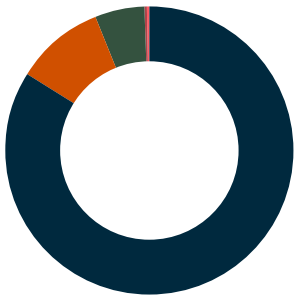
Delivery of marine  
aggregate to the region

Secondary use from licences  
East Coast Marine  
Aggregates  
Ipswich



During 2023 material  
extraction from the region  
was mainly delivered to :

Thames Estuary (84.1%)  
Humber (including North East) (10.2%)  
Mainland Europe (5.5%)  
South Coast (0.1%)  
East Coast (0.1%)



Sediment and indicative grain sizes



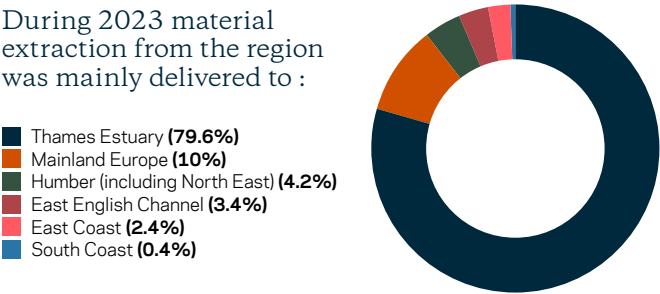
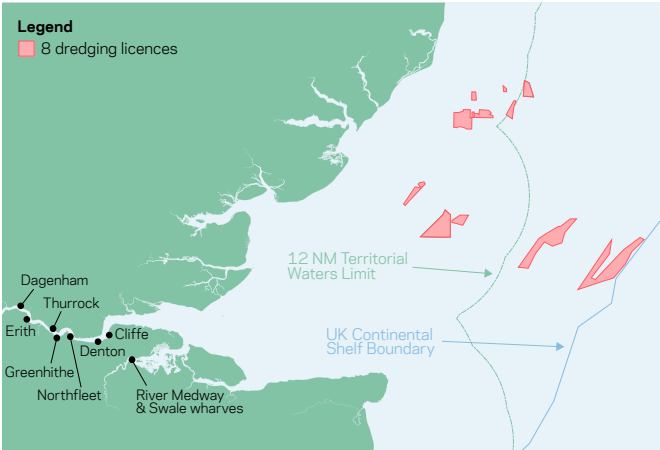
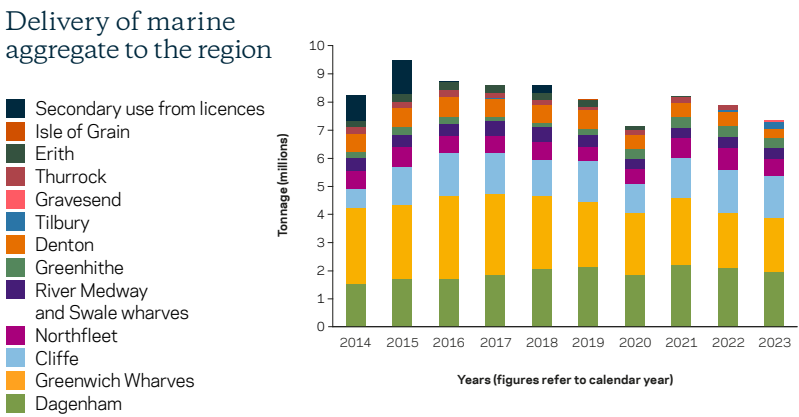
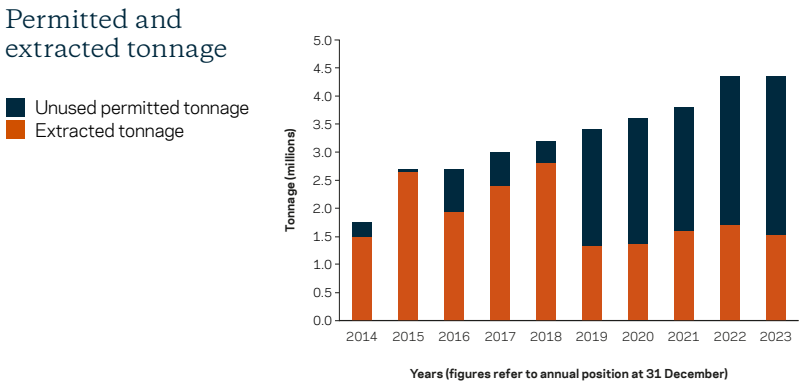
# The Thames region

4.35

million tonnes can be extracted  
 from 8 licences annually

22

Current estimates suggest there  
 are 22 years of primary marine  
 aggregate production permitted



## Sediment and indicative grain sizes



# The East English Channel region

11.16

million tonnes can be extracted  
from 11 licences annually

(\*as of June 2024)

34

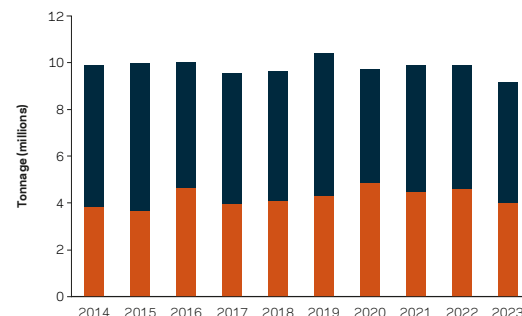
Current estimates suggest there  
are 34 years of primary marine  
aggregate production permitted

3

application for a licence could, if  
approved, increase the permitted  
tonnage by 1.6 million tonnes

## Permitted and extracted tonnage

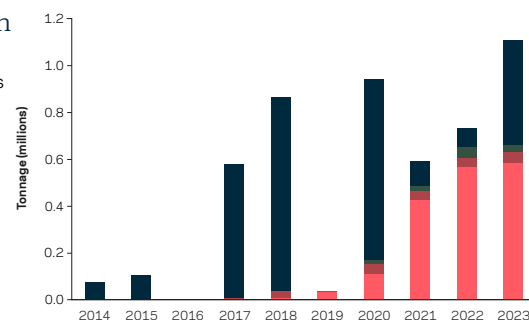
■ Unused permitted tonnage  
■ Extracted tonnage



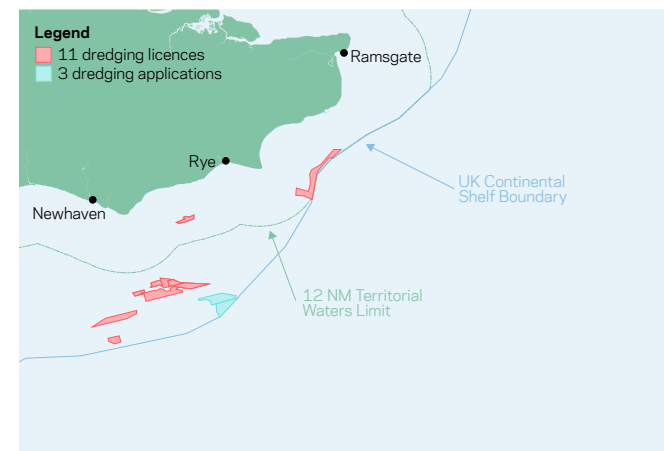
Years (figures refer to annual position at 31 December)

## Delivery of marine aggregate to the region

■ Secondary use from licences  
■ Rye  
■ Dover  
■ Ramsgate  
■ Newhaven

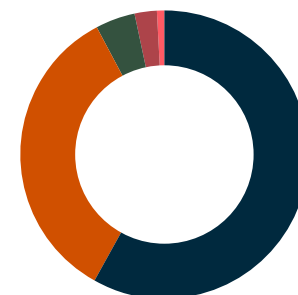


Years (figures refer to calendar year)



During 2023 material  
extraction from the region  
was mainly delivered to :

■ Thames Estuary (58.3%)  
■ Mainland Europe (34.1%)  
■ East Coast (4.4%)  
■ East English Channel (2.67%)  
■ South Coast (0.58%)



## Sediment and indicative grain sizes



**Fine sand**  
0.063 - 0.25mm



**Medium sand**  
0.25 - 0.5mm



**Coarse sand**  
0.5 - 2mm



**Very coarse sand**  
2 - 4mm



**Fine gravel**  
4 - 20mm



**Medium gravel**  
20 - 40mm



**Coarse gravel**  
40 - 63mm

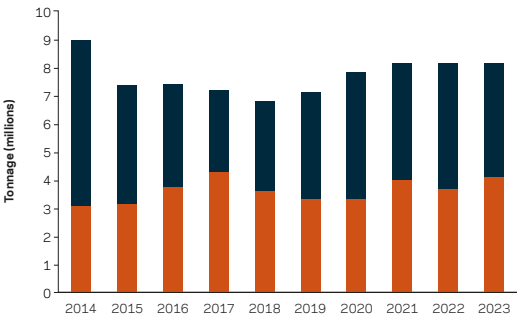
# The South Coast region

**8.13**  
million tonnes can be extracted  
from **15 licences** annually

**23**  
Current estimates suggest there  
are **23 years** of primary marine  
aggregate production permitted

## Permitted and extracted tonnage

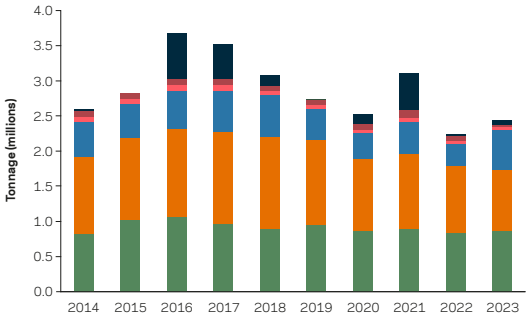
■ Unused permitted tonnage  
■ Extracted tonnage



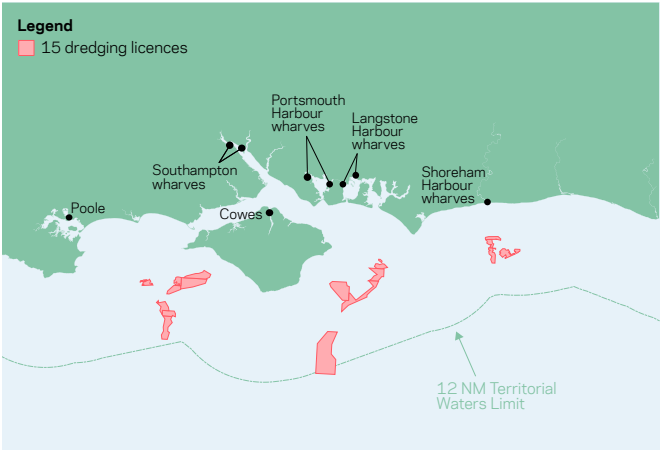
Years (figures refer to annual position at 31 December)

## Delivery of marine aggregate to the region

■ Secondary use from licences  
■ Portsmouth Harbour wharves  
■ Littlehampton  
■ Poole  
■ Cowes  
■ Langstone Harbour wharves  
■ Shoreham Harbour wharves  
■ Southampton wharves

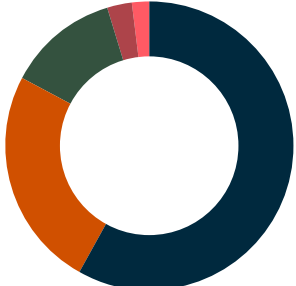


Years (figures refer to calendar year)



During 2023 material extraction from the region was mainly delivered to :

■ South Coast (**58.3%**)  
■ Thames Estuary (**24.6%**)  
■ East English Channel (**12.4%**)  
■ East Coast (**3.0%**)  
■ Mainland Europe (**1.7%**)  
■ North East (**<0.01%**)



## Sediment and indicative grain sizes





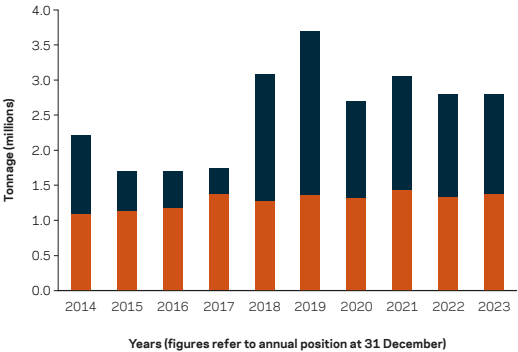
# The South West region

2.8  
million tonnes can be extracted  
from 9 licences annually

21  
Current estimates suggest there  
are 21 years of primary marine  
aggregate production permitted

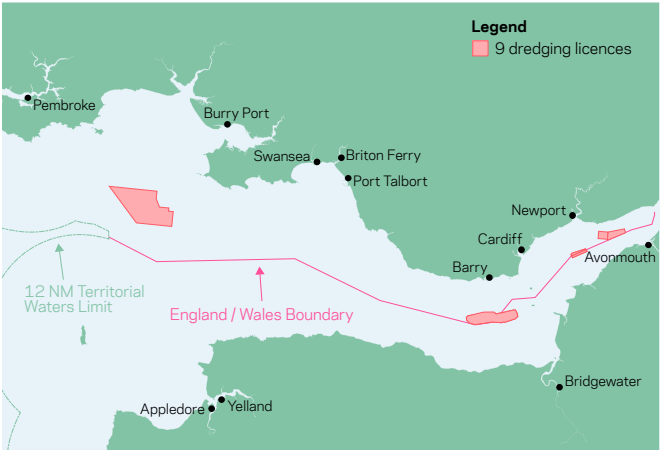
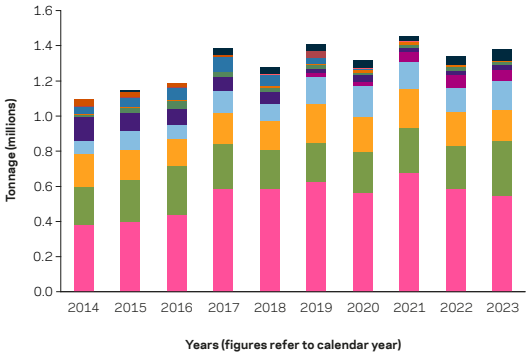
Permitted and  
extracted tonnage

Unused permitted tonnage  
Extracted tonnage



Delivery of marine  
aggregate to the region

Secondary use from licences  
Appledore  
Barry  
Yelland  
Briton Ferry  
Bridgwater  
Port Talbot  
Pembroke  
Swansea  
Hinkley  
Burry Port  
Cardiff  
Newport (Wales)  
Avonmouth

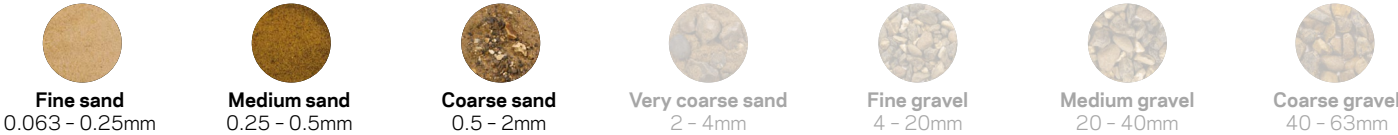


During 2023 material  
extraction from the region  
was mainly delivered to :

South West - Welsh wharves (53.3%)  
South West - English wharves (46.7%)



Sediment and indicative grain sizes



# The North West region

0.7

million tonnes can be extracted  
from **2 licences** annually

39

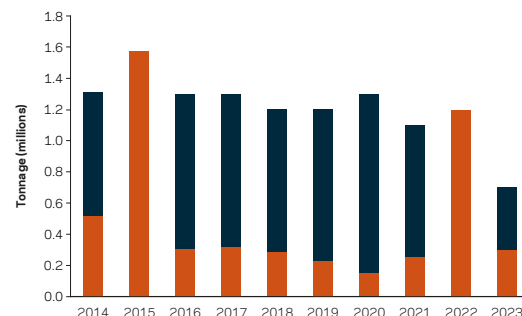
Current estimates suggest there  
are **39 years** of primary marine  
aggregate production permitted

1

application for a licence could, if  
approved, increase the permitted  
tonnage by **0.5 million tonnes**

## Permitted and extracted tonnage

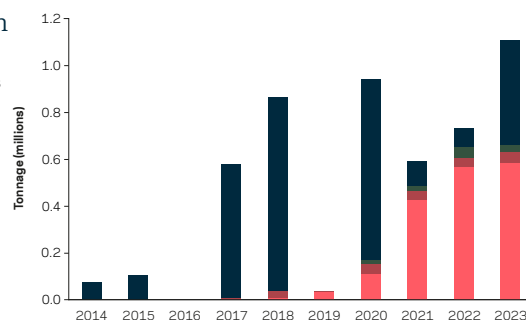
■ Unused permitted tonnage  
■ Extracted tonnage



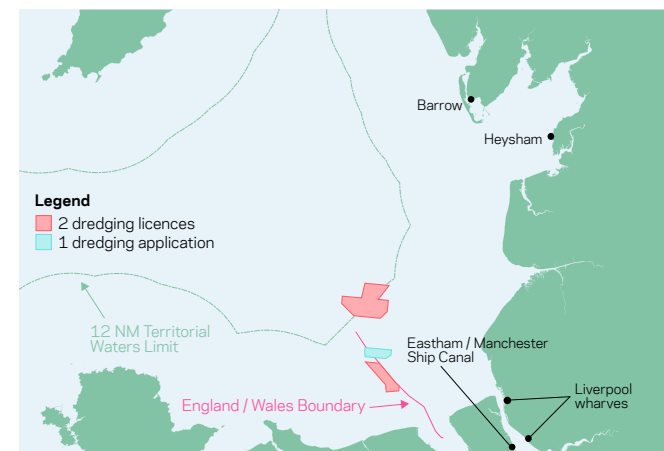
Years (figures refer to annual position at 31 December)

## Delivery of marine aggregate to the region

■ Secondary use from licences  
■ Barrow  
■ Eastham / Manchester  
Ship Canal  
■ Heysham  
■ Penrhyn  
■ Liverpool wharves

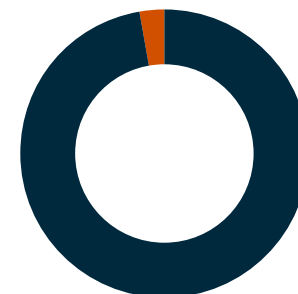


Years (figures refer to calendar year)



During 2023 material  
extraction from the region  
was mainly delivered to :

■ North West - English wharves (**97.3%**)  
■ North West - Welsh wharves (**2.7%**)



## Sediment and indicative grain sizes



**Fine sand**  
0.063 - 0.25mm



**Medium sand**  
0.25 - 0.5mm



**Coarse sand**  
0.5 - 2mm



**Very coarse sand**  
2 - 4mm



**Fine gravel**  
4 - 20mm

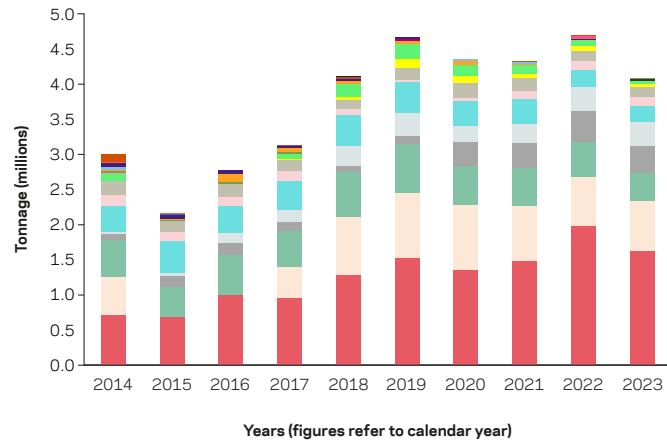


**Medium gravel**  
20 - 40mm

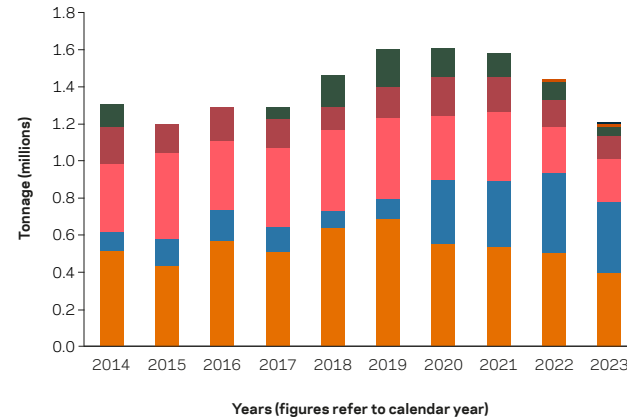


**Coarse gravel**  
40 - 63mm

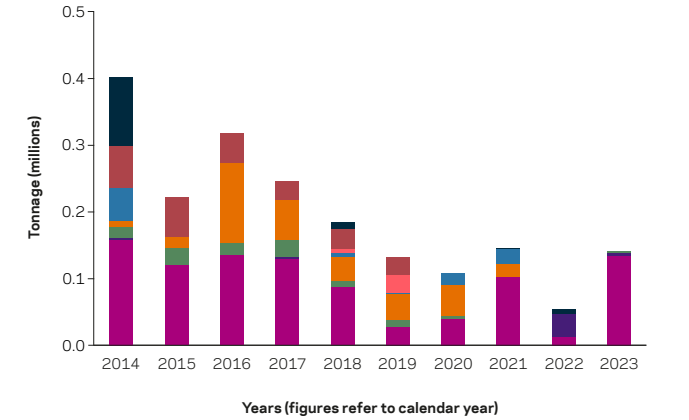
# Export to mainland Europe from the UK



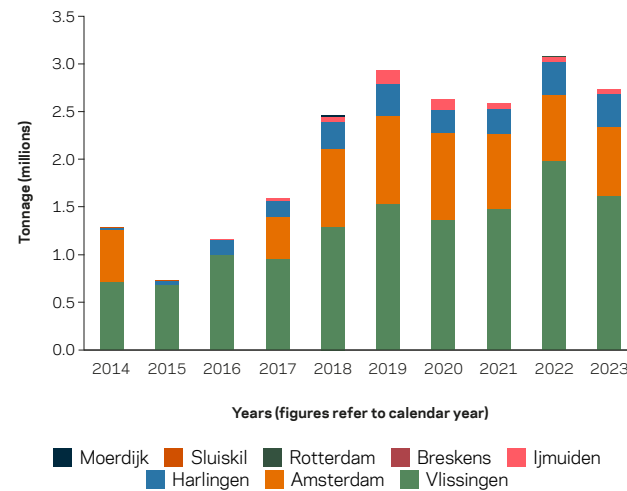
Delivery of marine aggregate to Belgium



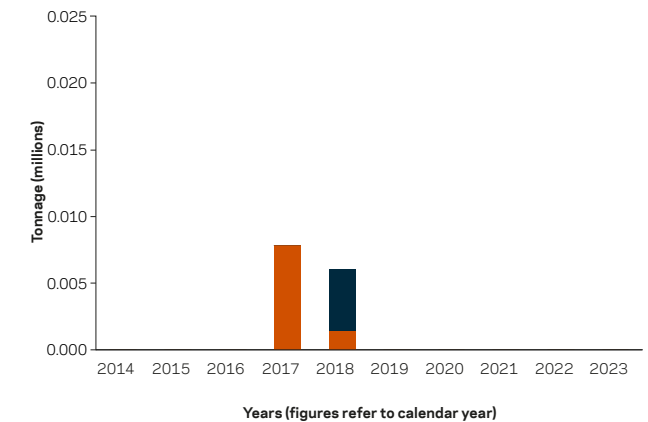
Delivery of marine aggregate to France



Delivery of marine aggregate to The Netherlands



Delivery of marine aggregate to Northern Europe



During 2023 material extracted from Crown Estate licensed areas was exported to:

The Netherlands (2.73m)  
 Belgium (1.21m)  
 France (0.14m)



# Uses of marine aggregates around the UK

The below projects have all used marine aggregates in their construction.

## Coastal & flood defences

- 1 Minehead Beach
- 2 Sea Defences (reefs), Sea Palling
- 3 Thames Barrier, London
- 4 Clacton Beach
- 5 Colwyn Bay Beach
- 6 Pevensey Bay Beach
- 7 Lincshore Beach
- 8 Dawlish Warren Beach
- 9 Bacton to Walcott Landscaping scheme
- 10 Bournemouth Beach
- 11 Hythe to Lydd Coastal Defence scheme

## Commercial development & regeneration

- 12 1 New Burlington Place W1, London
- 13 20 Fenchurch Street (Walkie-Talkie), London
- 14 Cardiff Bay Barrage
- 15 Canary Wharf & Docklands Developments, London
- 16 Central St Martins, London
- 17 Spinnaker Tower, Portsmouth
- 18 Superstore site raising, Seaton
- 19 Land reclamation, Rochester Riverside
- 20 Dover Western Docks Revival
- 21 St James's Market, London

## Energy & utilities

- 22 Energy Recovery Facility, Newhaven
- 23 Wastewater Treatment Plant, Birkenhead
- 24 London Array Wind Farm
- 25 Nuclear Power Station, Dungeness
- 26 Thames Tideway Tunnel, London
- 27 Hinkley Point C Nuclear Power Station, Bridgwater

## Community & leisure

- 28 Principality Stadium, Cardiff
- 29 National Botanic Gardens of Wales, Great Glasshouse, Carmarthenshire
- 30 The Darwin Centre, Natural History Museum, London
- 31 Northumberland Development Project, Tottenham Hotspur FC, London
- 32 British Airways i360 Observation Tower, Brighton
- 33 Everton Football Ground, Bramley Moore docks

## Port development

- 34 Nigg Yard, Cromarty Firth
- 35 Liverpool2 Container Terminal
- 36 Oil Terminal, Milford Haven
- 37 Lerwick, Shetland Islands
- 38 Leith Docks, Edinburgh
- 39 Belfast
- 40 Grimsby
- 41 Fleetwood
- 42 Container Terminal, Felixstowe
- 43 Breakwater, Cowes
- 44 Blyth
- 45 Container Terminal, Southampton
- 46 Green Port Hull
- 47 South Quay, Poole
- 48 Brett Wharf, Newhaven
- 49 Brett Wharf, Portsmouth

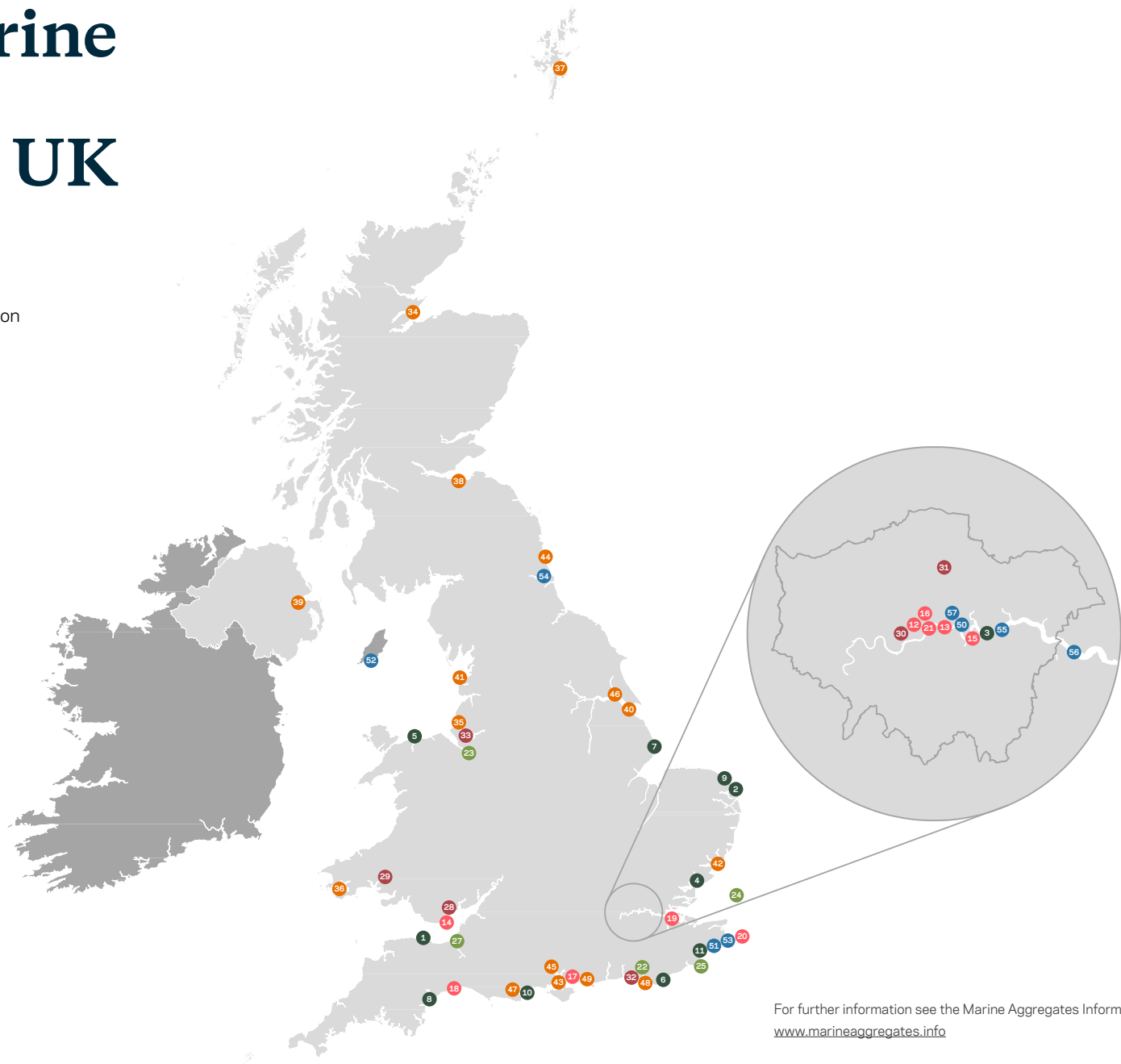
## Transport infrastructure

- 50 Canary Wharf Underground Station, London
- 51 Channel Tunnel Rail Link
- 52 Ronaldsway Airport Extension, Isle of Man
- 53 Ferry Terminal, Dover
- 54 Gateshead Millennium Bridge, Newcastle-upon-Tyne
- 55 City Airport, London
- 56 Queen Elizabeth II Bridge, Dartford
- 57 Crossrail, London



# Uses of marine aggregates around the UK

- Coastal & flood defences
- Commercial development & regeneration
- Energy & utilities
- Community & leisure
- Port development
- Transport infrastructure



For further information see the Marine Aggregates Information Centre website:  
[www.marineaggregates.info](http://www.marineaggregates.info)

# Case study: River Mersey

## Uses of marine aggregates for beneficial reuse

For the past ninety years, Boskalis Westminster Limited (Boskalis) has had a strong and permanent presence in Liverpool Bay and the Northwest of the UK in general.

The former Westminster Dredging Company Limited became a registered company in 1933, as the three Kalis brothers looked for opportunities abroad and established themselves in Bromborough on the Wirral. Boskalis has completed numerous capital projects in the area, more recently; Bramley Moore Docks Reclamation (the new Everton Football Club Stadium), Wellington Dock Reclamation, Liverpool 2 Reclamation and a number of beach replenishments on the North Wales coast, such as at Colwyn Bay. All of which using sand dredged from Marine Aggregate Area 457.

In addition, Boskalis has had a long and effective relationship with Peel Ports, providing

maintenance dredging services in the Northwest of England and Scotland. This includes the surveying and maintenance dredging of the Manchester Ship Canal from the approaches to Eastham Lock and on to Manchester Docks, Liverpool Approach Channel and Docks and The Port of Heysham.

Boskalis identified that the material being dredged from the River Mersey, particularly Bromborough Bar, located in the approaches to the Manchester Ship Canal, provides a sand grading that is of commercial value.

Previously this material was dredged and disposed of at sea, in a designated disposal site. Boskalis realised that there was an opportunity to beneficially reuse this sand, so rather than “wasting” this commercially viable sand, it can be landed ashore for use in the construction aggregate market. Boskalis entered into a production agreement with

The Crown Estate, granting the rights to Boskalis to dredge and land this material for commercial purposes.

In addition Boskalis worked closely with Peel Ports in order to assess the financial and practical viability of the operation and subsequently entered into a lease agreement with Peel to reopen an old sand depot at Eastham on the Wirral, creating a site on the western shore of the River Mersey, to land and stock the beneficially reused sand.

The Trailer Suction Hopper Dredge (TSHD) Deo Gloria was already providing deliveries by dry discharge of Area 457 sand into aggregate wharfs in the northwest and now this operation has diversified into a different delivery method at Eastham.

Boskalis works closely with Peel Ports in order to identify the most suitable sand in the areas requiring maintenance dredging at Bromborough Bar

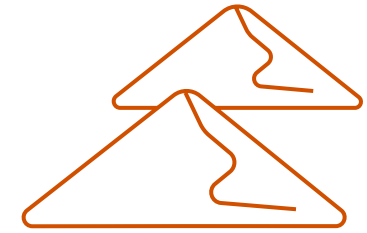
and the approaches to the Manchester Ship Canal. The sand is dredged in the normal way and is pumped into the site by the dredger via the D33 mooring pontoon and pipeline on the shore. The material is then stored, drained, and enters into the construction aggregate market and for the local cow bedding market.

The operation commenced in late 2023 and to date some 75,000 tonnes have been beneficially reused rather than disposed as waste at sea.



Images courtesy of Boskalis Westminster

Drone photos of Eastham Sands where the beneficially reused sand from the River Mersey is stored and loaded for aggregate deliveries



75,000 tonnes  
beneficially reused



# Case study: Lydd Ranges Sea Defences

## Uses of marine aggregates for beach nourishment

The Dungeness peninsula on the south coast of Kent is largely below high tide sea level. 14,500 homes, 700 businesses and 100,000s hectares (ha) of prime agricultural land and nationally critical infrastructure (including Dungeness Nuclear power station and the Ministry of Defence Lydd firing range) are at risk of coastal flooding. The extremely dynamic shingle beach, rising sea levels and sinking land make the provision of protection from coastal flooding an increasingly difficult challenge.

In 2021, Van Oord was appointed as the design and build contractor to deliver the £34 million scheme to refurbish the beaches at Lydd for the Environment Agency, in partnership with the MOD who also significantly contributed towards the cost of the scheme. A very tight grading specification with minimal fines (sand and smaller grained size material) was required to replenish the Lydd

beach, which is designated as a Special Area of Conservation, Special Protection Area, Ramsar site and Site of Special Scientific Interest for its nature conservation value. Maintaining the shingle beach grading is essential for nature conservation as it is underpins the habitat that supports the rare species of flora and fauna at this location.

Van Oord's fully owned Trailing Suction Hopper Dredger Utrecht, with a hopper capacity of 18,200m<sup>3</sup>, was deployed to deliver the main beach nourishment of 180,000m<sup>3</sup> during the summer of 2023. Prior to its arrival on site, Utrecht was fitted with a purpose designed screening system, which also requiring modifications to pipelines, valves, sensors and the operating system software, to achieve the required material grading. The material was dredged from Volker Dredging Ltd's (in which Van Oord is a 50% shareholder) Crown Estate licenced dredging area

461; this located within the East English Channel region. Utrecht pumped the material to the shore via a 1.3km long, temporary steel pipeline placed on the seabed and additional floating line sections to create a total pipeline length of 1.8km.

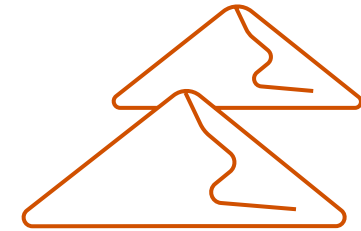
A rigorous sampling and testing regime was used to check the grading of the supplied material on the beach and all of material was proved to be fully compliant with the specification. The enhanced beach provides increased protection from wave overtopping and absorbs wave energy.

New timber groynes help to control and manage the flow of shingle through the frontage and a newly installed rock revetment provides a back-stop defence at the most vulnerable location. In accordance with the project requirements, the groynes were initially buried by 'over nourishing' the beach to ensure the throughput of

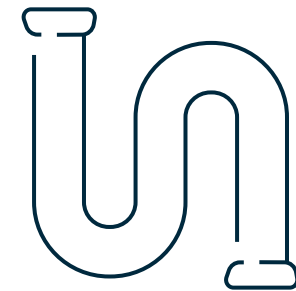
shingle across the frontage to sustain the downdrift coastal processes. A Beach Management Plan has been developed to set out the long term beach management requirements, including monitoring, the identification of triggers and response actions.



Image courtesy of Van Oord



180,000m<sup>3</sup>  
of sand deposited



1.8km pipeline  
used to pump material ashore





# Wharf development update

## Smart Shore Power at Shoreham Port

During 2023, Cemex, along with partners Iconsys and Warwick University, received UK Government funding via Innovate UK, to complete a feasibility study researching the requirements and benefits of utilising a shore power connection to allow the Marine Aggregates Dredger the Cemex Go Innovation to shut down her diesel Main Engines, whilst she was alongside discharging cargo.

The feasibility study quickly showed that a direct-to-grid connection would be subject to lengthy delays (10+ years) waiting to install a large enough connection to the National Grid, but also prohibitively expensive; both in terms of the initial infrastructure investment, but also cost per MWh should the vessel be connected during a time of increased electricity costs, due to the hourly variations of UK electricity supply costs to industry.

The feasibility study concluded that a viable alternative would

be to support the shore power system with a Battery Energy Storage System (BESS), to be charged when electricity costs and CO<sub>2</sub> intensity are lowest, and stored for use when the vessel is alongside discharging.

Moving ahead to 2024, the same project consortium partners have received further funding through the Clean Maritime Design Competition - Round 4, to deliver a real-world demonstration system.

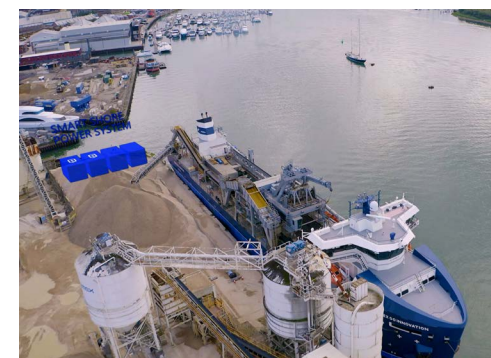
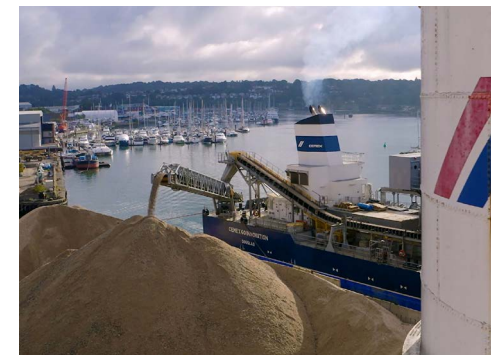
The project will deliver a scaled down real-world Smart shore power demonstration system, supported by a 2MWh BESS unit, and be capable of powering the Cemex Go Innovation for 6 hours whilst she is alongside having completed the discharging of cargo. Hardware-in-the-Loop simulation, provided by Warwick University, will be utilising the real-world data from both the shore power system and the vessel power requirements, to virtually model the full-scale system during cargo discharging.

A 100kW solar installation will also be provided support the BESS providing renewable charging capability. To increase utilisation the system will also now be capable of supplying electricity back to the grid and can also be utilised for supporting the energy consumption of the shore-side aggregates processing and concrete plants, when the vessel is at sea.

The numerous operational modes of the new system will be controlled by an integrated Smart automation system. This will self-determine when and how to use the BESS and shore power system to best effect by lowering costs and CO<sub>2</sub> consumption for the Shoreham operations. The Smart controller will be capable of determining when to charge, when to support the shore-side plant or supply the grid, and when to reserve power for the next vessel arrival at the wharf, or even blend between several modes if required. The objective is to have all systems

operational on site at Shoreham early next year, ready for a lengthy demonstration and data gathering period during Spring of 2025. The system will then remain in situ at Shoreham for use by the Cemex Go Innovation for the foreseeable future.

Cemex, Iconsys and Warwick University hope to gain valuable real-world insights and data, which can support the business case of rolling out full scale shore power systems across the UK dredging fleet and wharfs.





# Cadets setting sail with the Marine Aggregates fleet

A number of companies involved with aggregate dredging have developed apprenticeship schemes, cadetships in the marine-world, to meet specific needs.

Companies operating individual vessels and fleets, including Cemex, Tarmac Marine, Heidelberg Materials and Britannia Aggregates have been successful for over 10 years in producing qualified mariners and this success has added to more impetus recently.

Dave Thomas (Senior Operations Manager and DPA) at Heidelberg Materials Marine Aggregates has described their partnership with the Ship Safe Training Group (SSTG) and how this relationship, with academy and ship-based experience, offers a unique opportunity for those interested in a maritime career.

Cadets can choose between

two paths: Engineering or Navigation.

## **Engineering Cadetship:**

- This path is ideal for individuals who enjoy working with mechanics and technology.
- Cadets learn to maintain and operate the ship's engines and mechanical systems.
- With experience, they can advance to become Chief Engineers, responsible for overall performance and safety of the vessel's machinery.

## **Deck Cadetship:**

- This path is suitable for those interested in navigation and seamanship.
- Cadets gain experience in navigating, managing ship operations, and ensuring safety of the crew and cargo.
- The goal is to become a Master, the captain of the ship. ▶



### ► Training and Experience:

- The program combines classroom learning with practical sea experience.
- Cadets receive maritime training and hands-on experience aboard the company's dredgers, to ensure the understanding of theory behind the role as well as gaining practical skills needed to excel in a dynamic and challenging environment.

### Support:

- Heidelberg Materials provides guidance and mentorship throughout the training. With experienced crew members on hand to share their knowledge and help navigate the challenges of training.
- The company offers opportunities for career progression to help cadets reach their full potential.

### Zach's Story

Gary Langton (Marine Managing Director at Heidelberg Materials) described Zach's journey to a maritime career. This began with a simple Google search

for careers, which led him to the Ship Safe Training Group (SSTG). Initially a geography student at university, Zach soon realised he would have chosen the merchant navy earlier if he had known about it.

Drawn by the work pattern and dissatisfied with the prospect of a typical 9-5 job, he opted for Heidelberg Materials UK Marine in partnership with SSTG, which he considers "the best sponsorship available."

Zach has sailed on several of the company's dredgers, benefiting from the program's flexibility to gain the required sea hours and experience life at sea, with the option to work on a number of different ships all with their similar but different technologies.

Zach enjoys his three weeks off to travel and, despite not knowing about dredging initially, now sees it as the best learning experience due

to the frequent port entries and exits with their different challenges. Zach is set to become a second mate in the coming months and with further studies and experience is aiming for the long-term goal of becoming a Master.

Shaping and moulding good cadets has proved a successful and rewarding programme for the operators, ships' crews and helps sustain the sector with qualified individuals.



Images courtesy of Hanson Marine



*Having met a number of cadets going through their training and embarking on their shipping careers, a common theme has been the enthusiasm for their roles. The challenges and interest in shipping and the industry, the daily variety 'there are rarely two days the same' and the camaraderie and teamwork on board ship are all quoted as reasons for their enjoyment and enthusiasm. Another theme is the 'I had no idea' about dredging and construction materials but once involved and recognizing their part in the industry adds to their interest. Dredging companies recognise the need to develop qualified mariners and their support and investment through cadetship programmes is key.*

### Nigel Griffiths

Managing Agent for The Crown Estate  
Marine Minerals



# The Marine Minerals Academy

The Crown Estate recognises that knowledge forms a key component of the landscape in this specialist sector. It therefore sponsors a course to equip future company leaders and decision makers associated with the Marine Aggregates industry with the skills and understanding required for success.

The Marine Minerals Academy comprises seven one day workshops spread over the course of one year where interaction is encouraged to stimulate wide-ranging discussion.

First launched in 2015, the course runs annually and continues to grow in popularity with an output totalling over 120 alumni. 2022 saw the welcome return of the course following a Covid-19 enforced hiatus.

The course aims to provide a full sector perspective for upcoming business leaders

and associated practitioners (including regulators and advisors) to the wider policy, regulatory, operating and financial environment, as well as addressing key risks and opportunities.

The course delivers a focused, high intensity immersion in the sector, delivered by leading experts from industry, government and consultancy.

## Topics include:

- Marine sand and gravel industry history
- Markets: construction, coastal adaptation
- Resources – identification, evaluation and management
- Marine policy and planning
- Marine licensing and regulation
- Access to minerals – commercial licensing and asset management
- Vessel and wharf visits
- Marine archaeology and munitions and their impact on operations

- Dredger management – productivity and optimisation, crewing and people
- Business performance, optimisation and efficiencies
- Sustainability and environmental performance.



Nick Everington, Portfolio Manager for Marine Minerals, presented a trophy to the winners of the Business Scenario Workshop, which was held on the final event of the 2023 course



2024 delegates during Wharf and Vessel visit

# Marine Aggregates tender 2021 / 2022

The Crown Estate has now completed the plan-level Habitats Regulations Assessment (HRA) for the 2021/22 marine aggregate tender round, confirming which of the dredging sites proposed can progress.

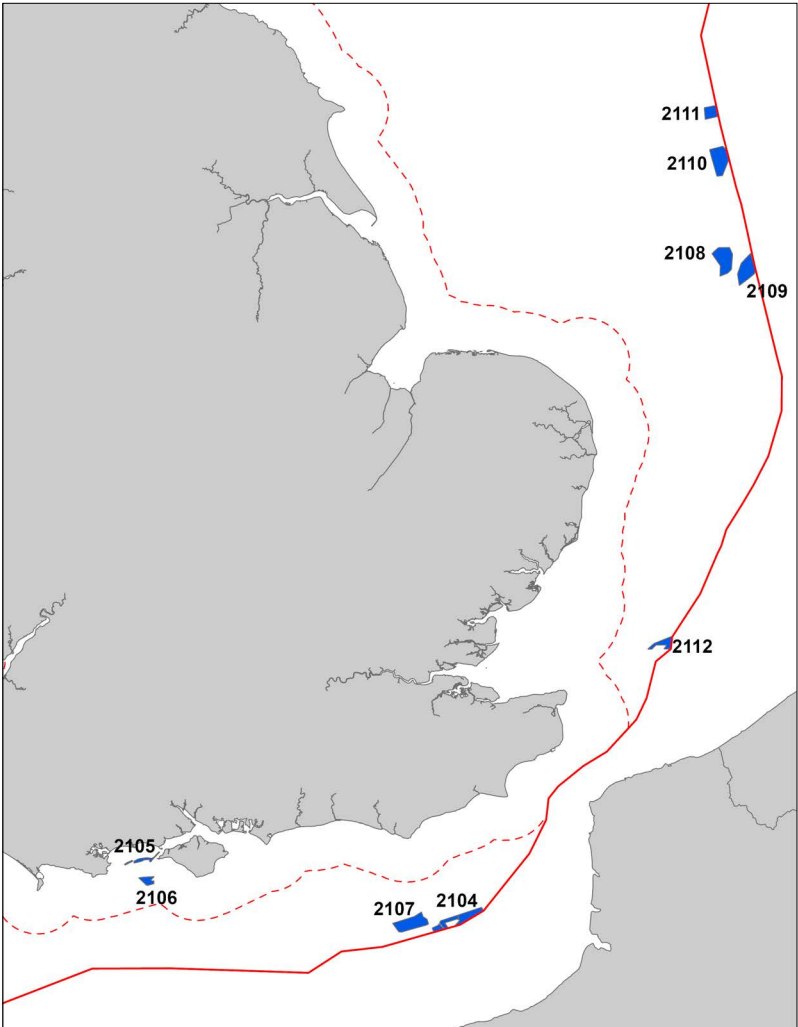
Successful bidders have been offered six year Exploration and Option agreements. Applicants will be required to obtain statutory permission in the form of a Marine Licence from the relevant regulator, prior to any extraction taking place.

The plan-level Habitats Regulations Assessment assesses the possible impact of the sites proposed for the extraction of marine aggregates, on the relevant nature conservation sites of European importance.

Throughout the HRA process, The Crown Estate, supported by expert independent advisors, has consulted

with the statutory marine planning authorities, the statutory nature conservation bodies and a number of non-governmental stakeholders.

Following the conclusion of the HRA, The Crown Estate's Appropriate Assessment, which includes an overview of the HRA methodology, has been made available on Marine Data Exchange, along with the Report to Inform the Appropriate Assessment (RIAA) prepared by its advisors.



*As managers of the seabed around England, Wales, and Northern Ireland, we take our role as careful stewards of seabed resources very seriously. We work in partnership with industry to support the sustainable use of marine sands and gravels. Our most recent licensing opportunity was launched in 2021/22, and afforded continuity in the supply of a crucial component in the building materials supply chain that supports the development of our built environment. It was greeted with significant interest from industry against a background of increasing constraints relating to extraction of aggregates from terrestrial sources.*

**Nick Everington**  
Portfolio Manager, Marine Minerals

# Obtaining rights for sand and gravel extraction

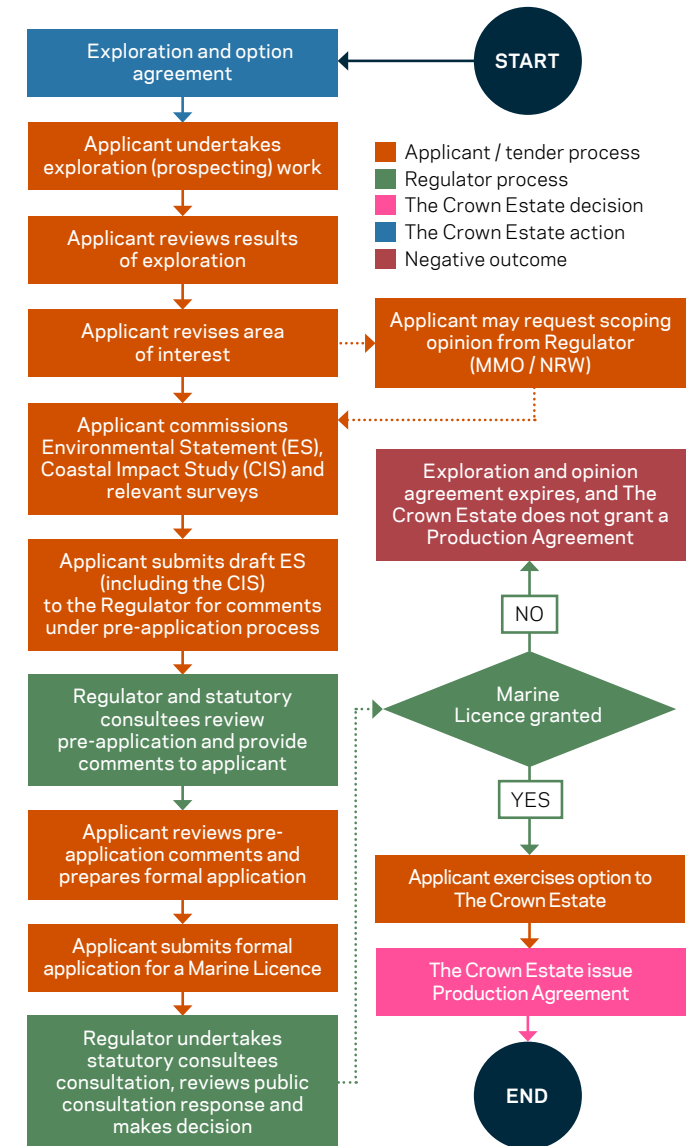
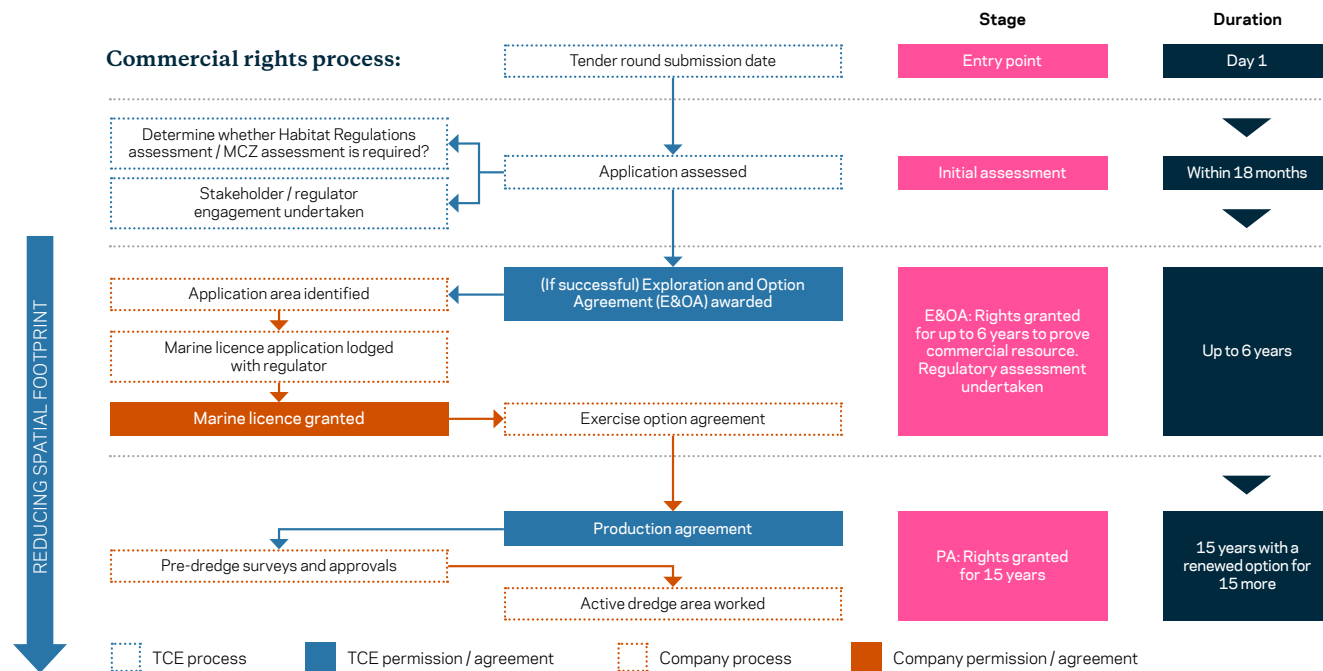
A number of stages are involved in obtaining a licence from The Crown Estate for the rights to extract marine aggregates from the seabed.

- The first stage is to identify an area of interest and submit a tender bid during a Marine Aggregates Tender Round (usually held every two years by The Crown Estate)
- Once a bid is submitted the tenders will be assessed by The Crown Estate and rights may be awarded
- Once the commercial rights have been secured from The Crown Estate the second phase of the application process commences

- The successful tenderer is required to apply for a Marine Licence (environment and legal rights/permissions) from the regulator (Marine Management Organisation in England and Natural Resources Wales in Wales)

Only if a Marine Licence is received will the applicant be able to request The Crown Estate issue a Production Agreement for extraction to commence.

The Marine Licence and commercial rights processes are summarised in the following flowcharts.



The Crown Estate has a diverse £16bn portfolio that includes urban centres and development opportunities; one of the largest rural holdings in the country; Regent Street and St James's in London's West End; and Windsor Great Park. We also manage the seabed and much of the coastline around England, Wales and Northern Ireland, playing a major role in the UK's world leading offshore wind sector.

We are a unique business established by an Act of Parliament, tasked with growing the value of the portfolio for the nation and returning all of our net profit to HM Treasury for the benefit of public spending. This has totaled £4bn over the last ten years.

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## Links and useful references

### **The Crown Estate**

[www.thecrownestate.co.uk/en-gb/what-we-do/on-the-seabed/minerals-dredging](http://www.thecrownestate.co.uk/en-gb/what-we-do/on-the-seabed/minerals-dredging)

### **Marine Aggregate Information Centre**

[www.marineaggregates.info](http://www.marineaggregates.info)

### **British Marine Aggregate Producers Association**

[www.bmapa.org](http://www.bmapa.org)

### **Marine Management Organisation**

[www.gov.uk/mmo](http://www.gov.uk/mmo)

### **Natural Resources Wales**

[www.naturalresourceswales.gov.uk](http://www.naturalresourceswales.gov.uk)

### **British Geological Survey - Minerals UK**

[www.bgs.ac.uk](http://www.bgs.ac.uk)