

# Waste disposal - dredge material



## Key message

Dredging is key to keep ports open and provide for changes in ship size. In 2018, 4.2 million tonnes of dredge material was disposed at sea, this is over 250% higher than in 2014. This is due to an increase in the number of capital dredging projects in recent years.



## What, why and where?

Dredging is needed to maintain the water depth required keep ports operating and this results in waste which must be disposed. Dredging and the deposit of dredged material at licensed disposal sites takes place all round the coast. Dredging is split into 2 main types:

- maintenance (or navigational) dredging, which is routine dredging to previously charted depths and where dredging has occurred in the last 7 years.
- capital dredging is dredging to a new depth, such as to allow for larger vessels in a harbour or in the creation of a new harbour, or in areas where dredging has not occurred in the last 7 years.

Generally licences are for larger amounts than required to allow for flexibility in dredge campaigns. Dredging activity is expensive so ports will not dredge more than they have to, but often apply for more tonnage than they need in order to avoid paying for a second application fee. All deposit activity is subject to a marine licence from Marine Scotland under the [Marine \(Scotland\) Act 2010](#).

During 2018 a total of 4,191,664 tonnes was dredged and deposited of a total of 13,084,316 tonnes that could be allowed under licence. The amount deposited in 2018 increased due to an increase in the number of capital dredging projects (Figure 1).

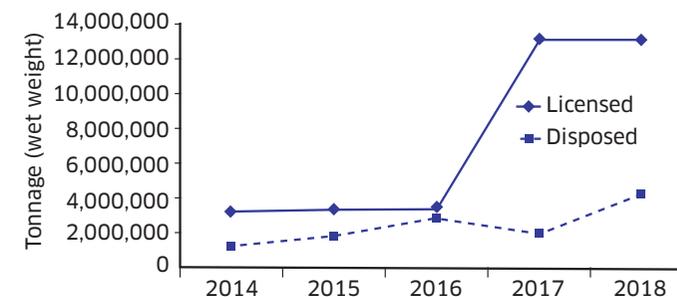


Figure 1  
Amount of material licensed and actually deposited, 2014-2018. Source: Marine Scotland.

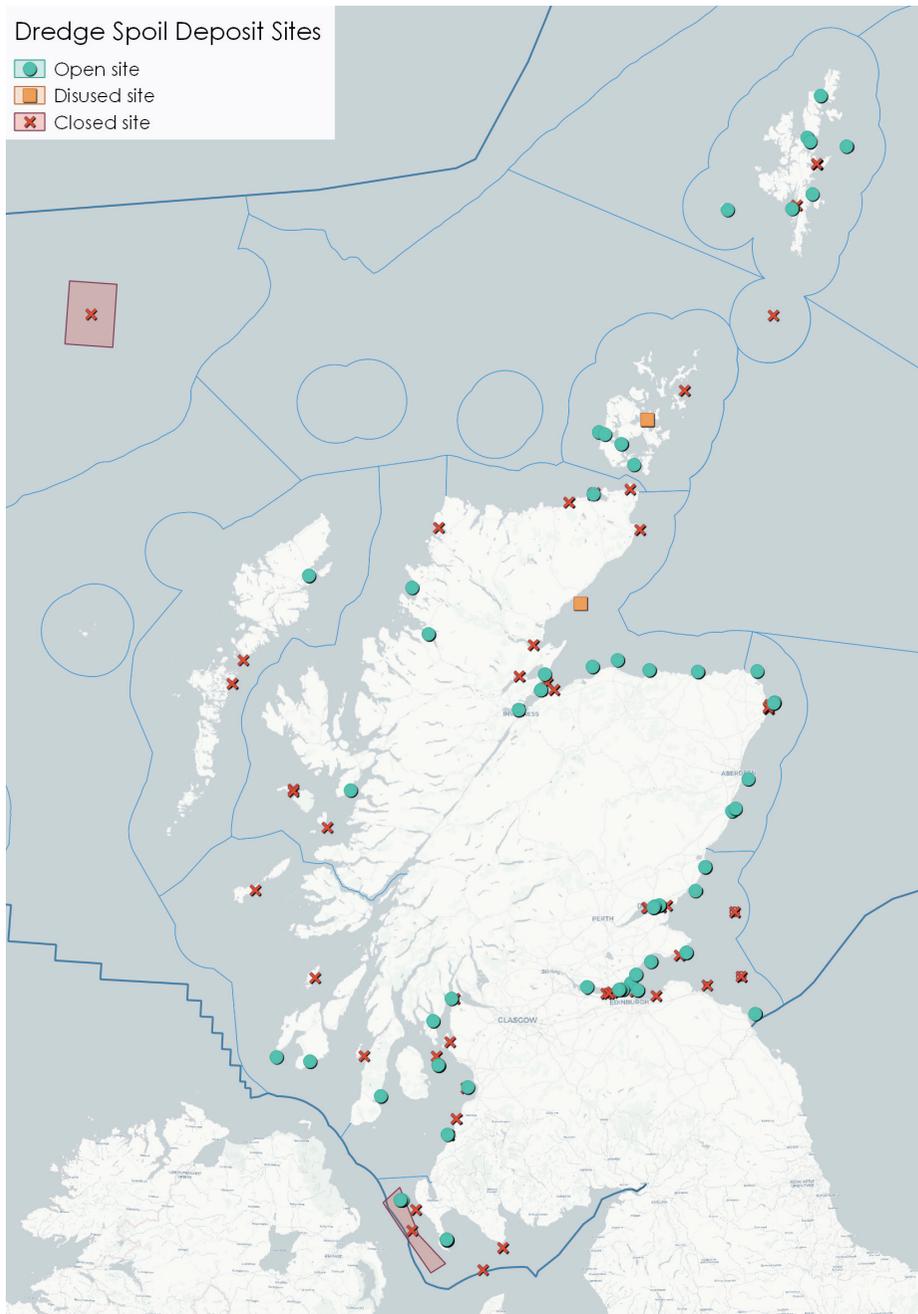


Figure 2:  
Map of open, closed and disused disposal sites. Source: Marine Scotland.



Figure 3:  
Navigational dredging at the Aberdeen harbour expansion project, November 2019. Photo by Malcolm Rose, Marine Scotland.

There are 63 open sites (Figure 2) either routinely used for deposit or used less routinely for operations such as beach nourishment operations. A further 57 sites are either closed (not having been used for at least 10 years) or disused (not having been used for at least five years).

Dredged material must be assessed for chemical contaminants before it can be considered for deposit elsewhere at sea.

## Contribution to the economy

Dredging is an essential activity to keep ports and harbours open and it is therefore economically important.

It is not possible to isolate the Gross Value Added (GVA) and number of jobs associated with dredge spoil deposit. Dredging is included in the construction of water projects industry as it is too small to be assessed separately. However, it is clear that without dredging, supported by deposit at sea, access to ports and

harbours would either be limited or face costly alternative means of disposal, which could affect the maritime transport sector's contribution to the economy.

Dredged material can also save costs, for example when suitable material is used to assist with construction projects, such as the use in 2017 of navigational dredging for Aberdeen port expansion, or to replenish sand on beaches providing coastal protection and supporting recreational uses of the coastline, thus enhancing economic performance.

From 2014-2018, 89 licences were issued for the deposit of dredged material at sea. These were mainly for ports and generated a total licence revenue of £554,820 (Figure 4). The increase in income since 2016 is explained by increases in the amounts of dredged material licensed to be deposited at sea.

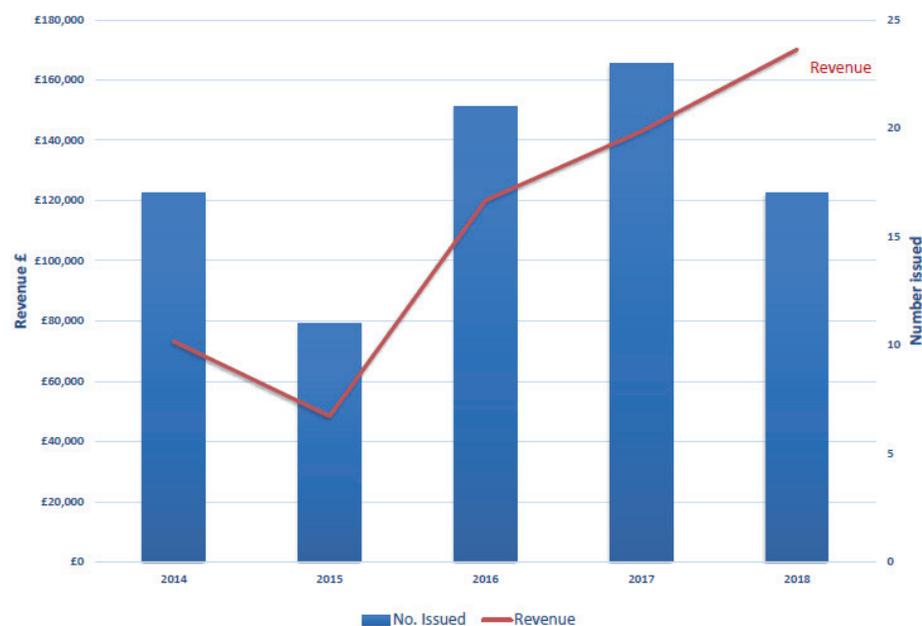


Figure 4: Number of disposal licences issued and revenue generated (cost, £) (2014-2018). Source: Marine Scotland.

The tonnage licensed for disposal that is actually disposed of is provided by Scottish Marine Region (SMR) and provides an indication of the change in activity. While the arrow is determined by the change in actual dredged tonnage between 2014 and 2018, the values are sporadic and there are instances where there was zero dredge disposed in 2014 and 2018, with a consequent 'no change' arrow, which may mask activity between the beginning and end point. Figures c to f are therefore more informative than just the direction of travel arrow (Table 2).

Table 2: Change in deposited tonnage, 2014-2018. Source: Marine Scotland.

Change in deposited tonnage 2014 to 2018			
Scottish Marine Region (SMR)	Change (tonnes)	%	
Argyll	0	0%	↔
Clyde	194,784	84%	↑
Forth and Tay	825,865	136%	↑
Moray Firth	-400	-1%	↔
North Coast	0	0%	↔
North East	1,981,302	659%	↑
Orkney Islands	0	0%	↔
Outer Hebrides	0	0%	↔
Shetland Isles	0	0%	↔
Solway	6,445	N/A	↑
West Highlands	-820	-100%	↓

As an example of the sporadic nature of the tonnage dredged, between 2014 and 2018, Moray Firth decreased from 46 thousand tonnes to 45 thousand tonnes (1% decrease). This however misses the 1.3 million tonnes in 2017 and 470 thousand tonnes in 2015.

## Examples of socio-economic effects

- Employment.
- Disposal allows industries/ports to function, alternative would be higher cost land disposal.
- Suitable dredged material can be used for construction projects including beach replenishment/ nourishment.
- Possible obstruction on seabed for other seabed users.
- Possible short-term sediment plumes could affect users requiring high water quality.

## Pressures on the environment

An OSPAR agreed list of marine pressures is used to help assessments of human activities in the marine environment. The [marine pressure list](#) has been adapted for use in Scotland via work on the [Feature Activity Sensitivity Tool \(FeAST\)](#). Waste disposal – dredge material activities can be associated with 21 marine pressures – please read the pressure descriptions and benchmarks for further detail.

## Forward look

Dredging and deposit will continue to be undertaken to maintain existing shipping channels and to improve, develop and protect the coastline. [National Planning Framework 3](#) (Scottish Government, 2014) identifies future port-related developments to provide facilities for the renewable energy sector, for example. Associated dredging may be required.

Dredged material is increasingly being seen as a resource rather than unwanted excess sediment. Stakeholders are starting to explore using sediment for beneficial uses such as beach nourishment, habitat creation and land reclamation. This may result in lower amounts of dredged material being deposited at sea.

One example of using dredge material as a resource is Montrose Port Authority's most recent dredge deposit licence. This included trials of depositing in Montrose Bay to try and provide nourishment to the local beach which is currently undergoing rapid erosion.

New dredging to re-open old ports or further develop existing ports could result in an increase in the amount of material dredged. As a consequence there may be a need to develop new sea deposit sites as existing sites reach

capacity; or where there are no sites (such as Uig) or protected areas have been designated over existing sites (such as Wick and Ullapool).

The designation of protected sites is a potential challenge as existing deposit sites may not be able to be used and harbours will need to carry out detailed investigation work to support applications to designate new deposit sites.

## Economic trend assessment

There are no economic data available on dredge disposal, however information on the tonnage disposed can be used to indicate a change in activity.

Regional values for dredge disposal are sporadic and do not necessarily show a true trend. For this reason, trends are only supplied at a national level as this is less volatile.

The total tonnage of dredge material disposed at sea was over 250% higher in 2018 than in 2014 (from 1.2 to 4.2 million tonnes).

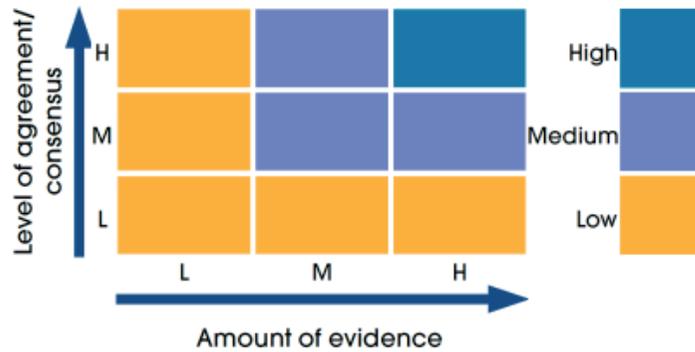
Confidence is 2 stars \*\* (medium). Based on collected statistics with some quality issues.



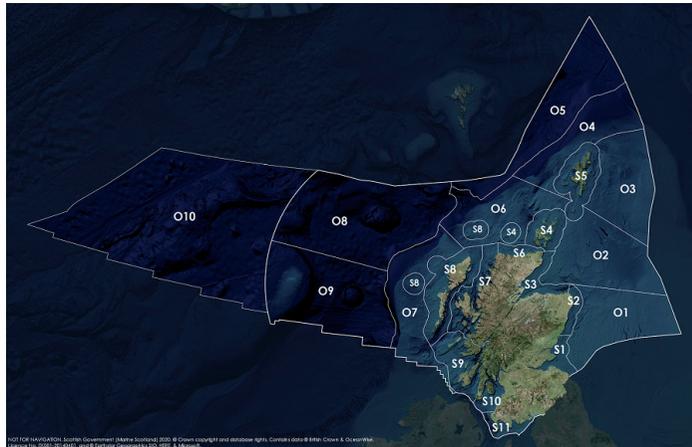
## Status and trend assessment legend

Status assessment (for Clean and safe, Healthy and biologically diverse assessments)		Trend assessment (for Clean and safe, Healthy and biologically diverse and Productive assessments)	
	Many concerns		No / little change
	Some concerns		Increasing
	Few or no concerns		Decreasing
	Few or no concerns, but some local concerns		No trend discernible
	Few or no concerns, but many local concerns		All trends
	Some concerns, but many local concerns	<b>Confidence assessment</b>	
	Lack of evidence / robust assessment criteria		
	Lack of regional evidence / robust assessment criteria, but no or few concerns for some local areas	<b>Symbol</b>	<b>Confidence rating</b>
	Lack of regional evidence / robust assessment criteria, but some concerns for some local areas	☆	Low
	Lack of regional evidence / robust assessment criteria, but many concerns for some local areas	☆☆	Medium
		☆☆☆	High

## Overall confidence



## Assessment regions

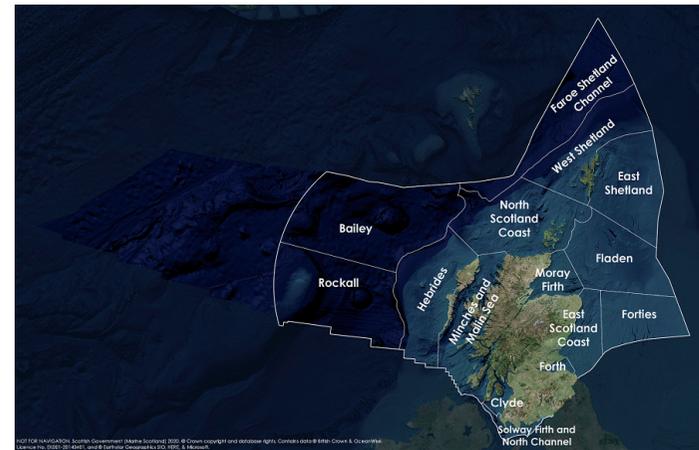


The Scottish Marine Regions (SMRs; S1 – S11) and the Scottish Offshore Marine Regions (OMRs, O1 – O10)

Key: S1, Forth and Tay; S2, North East; S3, Moray Firth; S4 Orkney Islands; S5, Shetland Isles; S6, North Coast; S7, West Highlands; S8, Outer Hebrides; S9, Argyll; S10, Clyde; S11, Solway; O1, Long Forties, O2, Fladen and Moray Firth Offshore; O3, East Shetland Shelf; O4, North and West Shetland Shelf; O5, Faroe-Shetland Channel; O6, North Scotland Shelf; O7, Hebrides Shelf; O8, Bailey; O9, Rockall; O10, Hatton.



Biogeographic, Charting Progress 2 (CP2) Regions. These have been used as the assessment areas for hazardous substances.



Scottish Sea Areas as used in Scotland's Marine Atlas 2011. These are sub divisions of the biogeographic, or Charting Progress 2 (CP2), Regions.