OSPAR COMMISSION

Protecting and conserving the North-East Atlantic and its resources

OSPAR annual report on dumping and placement of wastes or other matter at sea in 2015

Environmental Impacts of Human Activities Series

2017

Contents

OSPAR Annual Report on Dumping and Placement[1] of Wastes or Other Matter at Sea in 2015

Executive summary

Background: EIHA 2016 adopted a new reporting format for dredged material (Agreement 2016-08), as a further update of the revised Annual report (agreement 2014-07).

The revised Annual Report aims to provide an overview of:

- the quantities of material deposited at sea (per country and overall);
- the quantities of contaminated material (above national upper action level) deposited at sea (per country and overall);
- the quantities of material dumped;
- the quantities of material placed;
- the quality of material deposited at sea;
- comparisons to earlier years (per country and overall).

Reports received: reports were received from Belgium (BE), Denmark (DK), France (FR), Germany (DE), Iceland (IS), Ireland (IE), The Netherlands (NL), Norway (NO), Portugal (PT), Sweden (SE), Spain (ES) and United Kingdom of Great Britain and Northern Ireland (GB).

Indications from data:

Reports indicate that the **total amount of material dredged** and dumped or placed at sea in the whole OSPAR area appears to be broadly in line within the variability of data reported from the previous four years.

Contaminant concentrations, having been on a gradual decline since 1990 appear to have stabilised in recent years. Further information on trends in contaminant concentrations can be found in the report ICG-Trend has prepared for the Intermediate Assessment 2017.

The amount of material containing one or more determinands **exceeding the upper national action level** accounts for less than 3 % of the total amount of dredged material deposited at sea.

The amount of material used beneficially, at roughly 63 million tonnes, is equivalent to approximately forty percent of the total amount of material managed during this year and is a clear increase compared to last year 2014.

[1]Placement in this report only relates to dredged material, i.e. placement of dredged material for beneficial uses.

During this year a total number of 335 deposit sites was reported by Contacting Parties (331 for dredged material and 4 for inert material), with an average amount deposited per site of 435.346 tonnes, ranging from 11 tonnes to more than 14 million tonnes.

Raw data are not included in this report but can be found on the OSPAR website data page at http://www.ospar.org/data

1. Introduction

In 1986 OSPAR introduced guidelines relating to the dumping of wastes or other matter, e.g. dredged material, sewage sludge and fish waste. The use of these guidelines, together with existing OSPAR measures, has enabled reductions of contaminant load to the marine environment. The dumping of sewage sludge was phased out in 1998. The guidelines on dumping of fish-waste were updated in 2010, while the guidelines for management of dredged material were most recently updated in 2014.

In general, dumping or placement of dredged material is managed by licences from national and local authorities. Many OSPAR Contracting Parties also have regulatory controls on contaminant levels in dredged material. According to the OSPAR Guidelines for the Management of Dredged Material at Sea (OSPAR, 2014), measures to keep the volume of dredged material to a minimum are regarded as Best Environmental Practice for minimising the effects on the environment.

Most OSPAR countries have developed dredged material quality criteria (i.e. action levels) or equivalent measures for the assessment of dredged material for dumping or placement at sea.

Following the Convention ”dumping is deliberate disposal of waste or other matter, placement is anything else than the mere disposal…”. This report will deal with the disposal of dredged material at sea (dumping within the Convention), beneficial use (placement as defined in the Convention), and with confined disposal facilities – CDF or CAD (dumping within the Convention).

Deposit is, with reference to the OSPAR Dredged Material Guidelines, being used as an overarching term to describe dumping and placement.

This report is primarily focussed on the dumping and placement at sea of dredged material (99,8 % of the amount reported). In addition to this, the dumping of fish waste and inert material is also addressed.

2. Data

Raw data are not included in this report but can be found on the OSPAR website data page at www.ospar.org.

2.1 Quantities of fish waste and inert material deposited at sea in the OSPAR Area in 2015

In 2015, no dumping of fish waste was reported.

Regarding the dumping of inert material 263.790 tonnes was reported by Norway . This number constitutes 0,18 % of the total amount of material managed within the OSPAR Area in 2015.

After the increase in 2014, caused by infrastructure projects where not all material could be used beneficially, the amount in 2015 is on the same level as in the previous period.

Figure 1 shows the amounts of fish waste and inert material deposited at sea in the period 2010-2015.

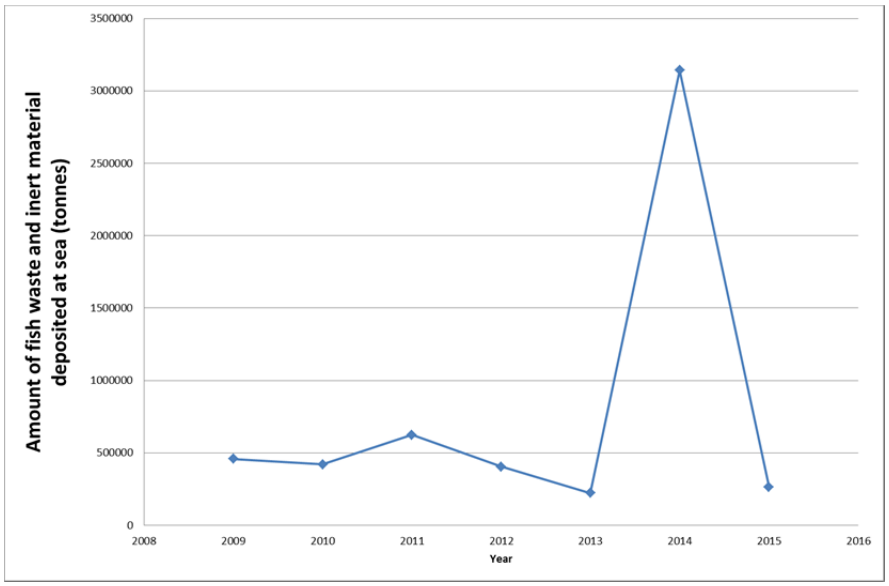

***Figure 1**. Quantities of fish waste and inert material reported as deposited at sea in the whole OSPAR Area, 2010 to 2015.*

2.2 Quantities of dredged material deposited at sea in the OSPAR Area in 2015

Table 1 below summarises the quantities of dredged material deposited at sea by Contracting Parties in 2015.

Table 1. Summary of dredged material reported as deposited at sea by Contracting Parties in 2015

Contracting Party	Dredged Material (tonnes - dry weight)
BE	29.421.405
DE	39.882.370
DK	1.938.460
ES	3.309.529
FR	24.211.945
IE	644.018
IS	1.113.711
NL	27.501.706
NO	281.870
PT	5.927.765
SW	60.800
UK	12.228.336
Total OSPAR	146.521.914

The total amount of dredged material reported to be deposited at sea in the OSPAR area is broadly in line with data reported from the previous four years, as it is reflected in figure 2.

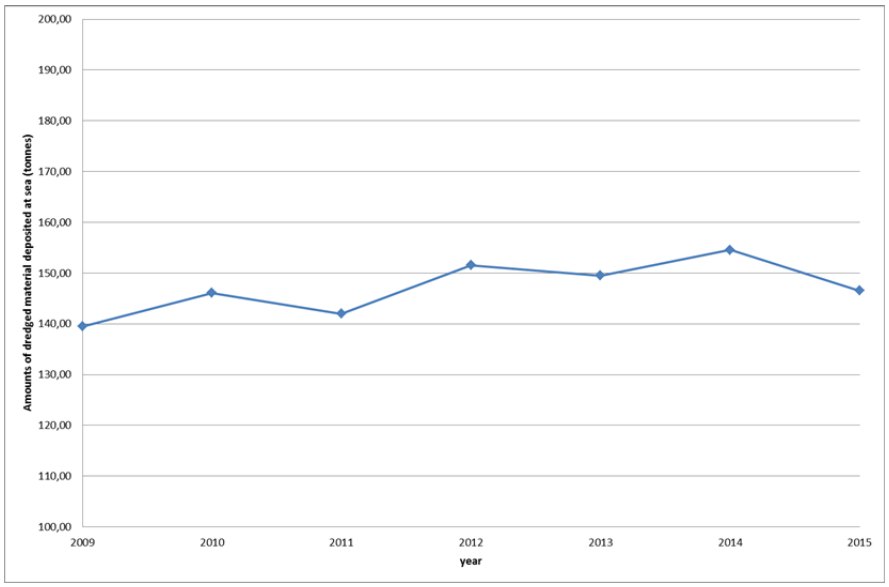

***Figure 2**. Quantities of dredged material reported as deposited at sea in the whole OSPAR Area, 2009 to 2015.*

The distribution per Contracting Parties in the deposited material amount for the period 2009-2015 is included in figure 3.

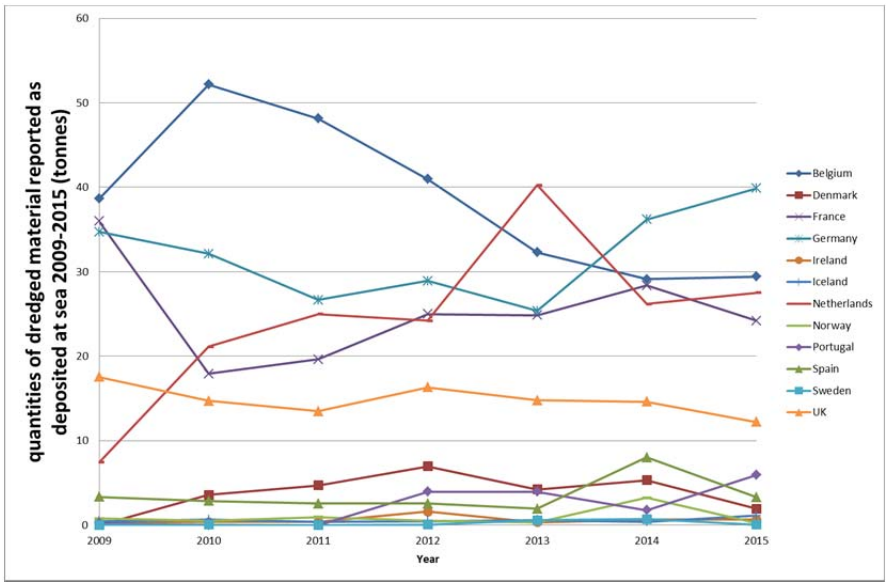

***Figure 3**. Quantities of dredged material reported as deposited at sea in the OSPAR area, 2009 to 2015, by Contracting Parties.*

According the reports provided by Contracting Parties, from the total amount of dredged material managed during 2015, approx. 142,4 million tonnes derive from Maintenance operations and 3,7 million tonnes from Capital dredging. Figure 4 shows the distribution of the activities for the whole OSPAR Area.

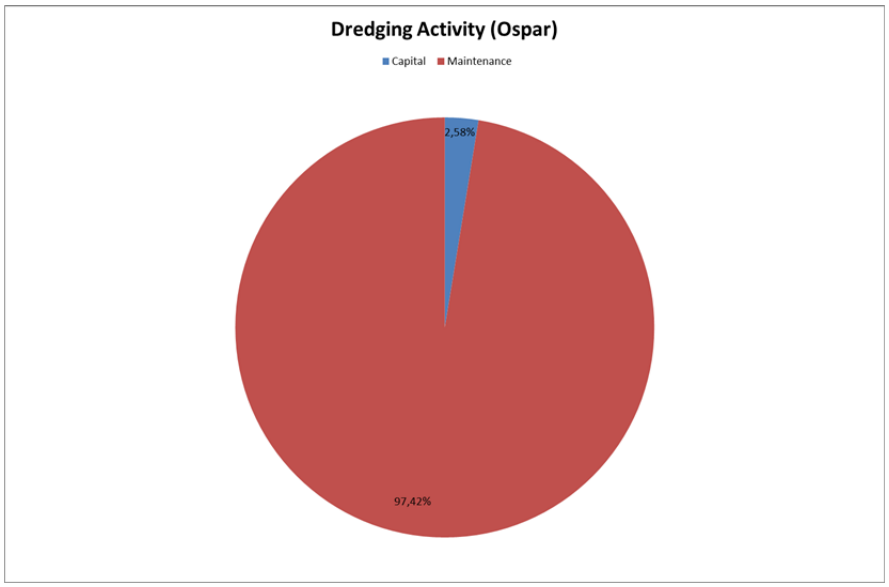

***Figure 4**. Distribution of the types of dredging activities for the whole OSPAR Area, 2015.*

Regarding the management option for the material, 82,9 million tonnes were dumped at sea whereas 63,6 million tonnes were placed, according to the distribution per Contracting Parties, included in Figure 5.

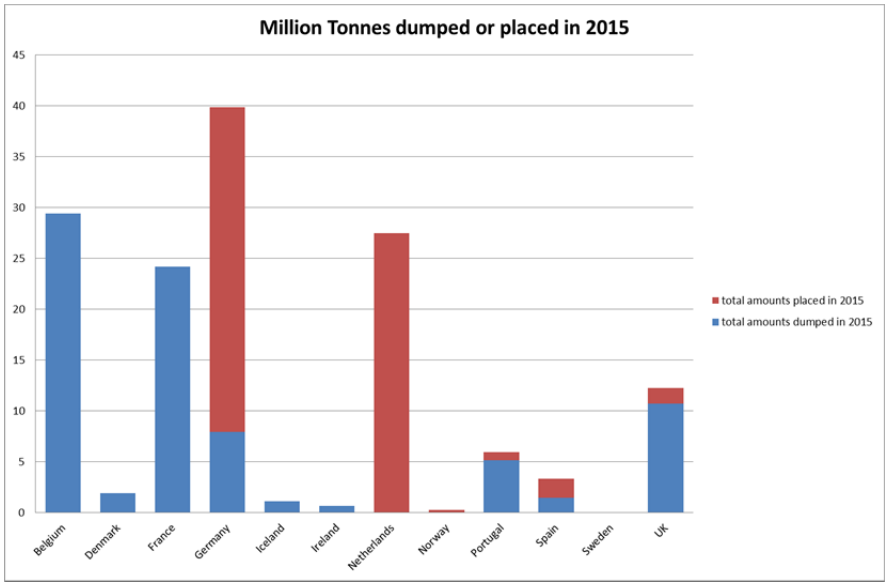

***Figure 5**. Quantities of dredged material reported as dumped or placed at sea in 2015, by Contracting Parties.*

2.2 Placement (Beneficial Use)

According the article 1 of the OSPAR Convention, the definition of “dumping" does not include placement of matter for a purpose other than the mere disposal thereof, provided that, if the

placement is for a purpose other than that for which the matter was originally designed or constructed, it is in accordance with the relevant provisions of the Convention.

Among placement activities, beneficial use, or reuse, generally involves replacing a material requirement elsewhere with dredged material and thus creates an alternative to dumping at sea for the material; it is important to note though, that beneficial use is not always an option in the case of many dredging projects.

The placement is regulated by the OSPAR Guidelines for the management of dredged material at sea and, according the current reporting format, OSPAR limits the differentiation of beneficial use in the following categories:

- Beach nourishment/sediment recharge
- Coastal protection
- Construction (or engineering)
- Land Reclamation
- Habitat generation / improvement
- Other

According the reports provided by Contracting Parties, from the total amount of dredged material assessed during 2015, 63,6 million tonnes were used beneficially. The most common reuse was the beach nourishment/Sediment recharge with dredged materials composed by sand, minor amounts for the other categories were also reported as shown in Figure 6.

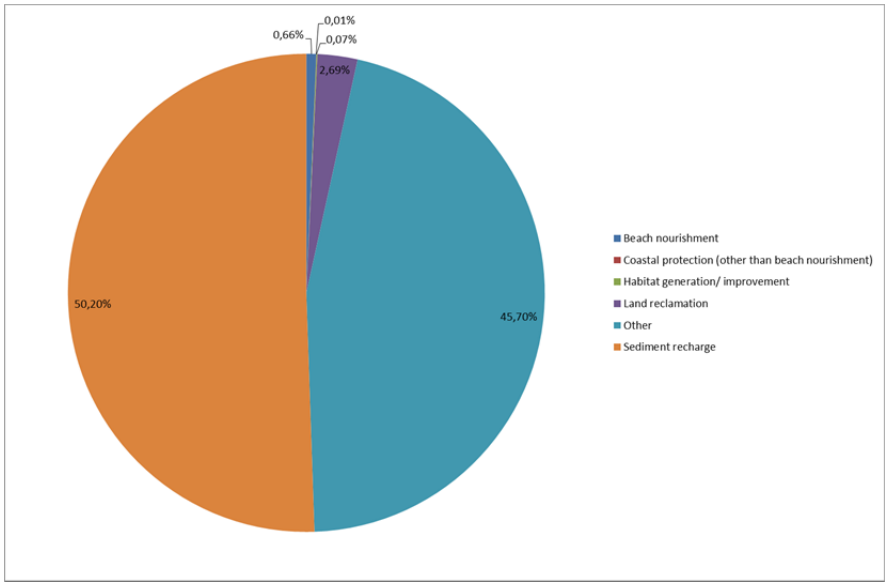

***Figure 6**. Distribution of the Beneficial uses in the whole OSPAR Area, 2015.*

Data on placement for dredged material were provided by Germany, Norway, Portugal, Spain, the Netherlands and UK.

OSPAR has been gathering data on beneficial use of dredged material only since 2013. In 2015, approx. 50 % more material was reported to be used beneficially than the previous year; again, beach nourishment/ Sediment Recharge was the most common option.

2.3 Contaminant loads

According to data provided by Contracting Parties, from the total amount of dredged material assessed during 2015, 27,6 million tonnes were considered as exempt from characterization according to paragraph 6.3 of the OSPAR Guidelines for the Management of Dredged Material at Sea (Agreement 2014-06). This amount represents an 19 % of the total amount managed during this year, for which is not possible to assign any contaminant load. The majority of this exempted material was placed , only a smaller fraction was dumped at sea.

Table 2 gives a summary of contaminant loads for the Contracting Parties in 2015 as existing in the OSPAR database[2]. While metals and TBT are determined by most countries in all samples, the organic parameters are less frequently determined. The data reported for the organic contaminants are based, in most cases, on measurements in a limited percentage of operations, thus unlikely to lead reliable assessment.

Table 2. Contaminant load deposited at sea per Contracting Party, including material subject to management measures. No information on loads was received from Denmark, Portugal and Iceland(remark: substances have not been measured in every case)

	Contracting Party								
	BE	**DE**	**ES**	**FR**[3]	**IE**	**NL**	**NO**	**SE**	**GB**
Cd (tonnes dw)	15,55	6,47	3,79	6,17	0,10	8,79	NI	0,02	5,06
Hg (tonnes dw)	3,70	4,42	4,10	2,83	0,01	3,71	NI	0,01	4,44
As (tonnes dw)	334,07	208,87	13,09	275,87	3,37	289,50	NI	0,53	228,06
Cr (tonnes dw)	1145,54	706,70	50,96	676,17	10,51	775,00	NI	1,67	571,94
Cu (tonnes dw)	344,15	311,16	62,20	332,88	4,05	362,71	0,03	2,79	478,62
Pb (tonnes dw)	681,44	465,08	124,10	802,06	6,48	629,30	NI	1,38	938,85
Ni (tonnes dw)	320,33	309,38	28,48	369,11	5,62	337,86	NI	1,06	358,93
Zn (tonnes dw)	2335,20	2036,13	737,31	1991,24	30,44	2302,21	NI	8,22	2158,64
Oil (tonnes dw)	2107,78	786,89	NI	NI	0,01	2646,35	NI	NI	NI
ΣPAH9 (tonnes dw)	313,27	7,34	1,90	18,00	0,14	18,28	NI	0,02	39,65
ΣPAH16 (tonnes dw)	16,09	10,65	NI	15,00	0,24	NI	NI	0,04	NI
ΣPCB7 (kg dw)	193,42	85,01	127,22	220,25	0,11	90,27	NI	0,56	15,52
HCB (kg dw)	3,59	12,51	NI	16,19	0,05	7,35	NI	NI	0,01
g-HCH (kg dw)	2,27	0,78	1,74	14,66	0,04	5,00	NI	NI	0,00

[3] For France, the HCB, g-HCG and DDT loads correspond to theoretical valuess calculated from the analytical quantification limits

	Contracting Party								
	BE	DE	ES	FR[3]	IE	NL	NO	SE	GB
TBT (kg dw)	920,19	144,86	0,00	154,54	0,01	74,23	0,30	4,64	162,33
DBT (kg dw)	NI	42,41	NI	123,07	0,01	NI	NI	1,56	82,22
p,p'-DDT (kg dw)	3,41	5,20	NI	28,53	0,00	4,60	NI	NI	NI
p,p'-DDE (kg dw)	11,16	8,47	NI	NI	0,00	4,80	NI	NI	NI
p,p'-DDD (kg dw)	8,46	23,87	NI	NI	0,00	4,59	NI	NI	NI

Taking into account the contaminant loads and amounts reported by Contracting Parties and following the recommendation of the 2013 annual report and in the same way that it was included in the last annual report, the average concentrations were calculated on the the basis of the contaminant loads disposed in each deposit site, per contaminant and Contracting Party as shown in table 3.

Table 3. Average concentrations of contaminants within dredged material per Contracting Party

	BE	DE	ES*	FR[4]	IE	NL	NO	SE	GB
Cd (mg/kg dw)	0,46	0,29	0,97	0,27	0,26	0,38	NI	0,24	0,35
Hg (mg/kg dw)	0,11	0,17	0,75	0,13	0,01	0,17	NI	0,21	0,22
As (mg/kg dw)	9,89	10,42	7,00	11,06	5,57	12,18	NI	5,51	16,68
Cr (mg/kg dw)	32,99	32,29	16,60	30,21	20,53	33,62	NI	21,67	42,96
Cu (mg/kg dw)	10,57	14,99	38,49	16,08	10,19	18,69	17,56	27,35	33,12
Pb (mg/kg dw)	19,46	23,79	43,28	31,37	17,25	29,78	NI	21,16	55,07
Ni (mg/kg dw)	9,09	14,85	10,03	15,79	12,52	15,60	NI	13,12	25,55
Zn (mg/kg dw)	71,58	93,56	308,11	89,80	64,19	108,2	NI	92,61	140,41
Oil (mg/kg dw)	115,2	37,46	NI	NI	0,02	105,5	NI	NI	NI
ΣPAH9 (mg/kg dw)	9,84	0,50	1,74	1,45	0,51	0,73	NI	1,09	150,27
ΣPAH16 (mg/kg	0,88	0,59	NI	0,72	0,63	NI	NI	2,11	NI
ΣPCB7 (µg/kg dw)	7,06	7,22	38,09	27,97	0,25	4,29	NI	11,19	2,13
HCB (µg/kg dw)	0,19	0,47	NI	6,38	0,02	0,43	NI	NI	0,00
g-HCH (µg/kg dw)	0,13	0,18	1,20	4,06	0,03	0,19	NI	NI	0,00
Total DDT (µg/kg	NI	NI	NI	NI	NI	NI	NI	NI	NI
TBT (µg/kg dw)	36,68	6,52	0,07	24,76	0,01	2,64	13,39	77,58	37,04
DBT (µg/kg dw)	NI	2,11	NI	13,05	0,01	NI	NI	25,52	7,52

[4] For France, the concentrations of HCB, g-HCH and DDT correspond to theoretical values calculated from the analytical quantification limits

	BE	DE	ES*	FR[4]	IE	NL	NO	SE	GB
p,p'-DDT (µg/kg	0,27	0,25	NI	7,38	0,03	0,41	NI	NI	NI
p,p'-DDE (µg/kg	0,61	0,35	NI	NI	0,03	0,42	NI	NI	NI
p,p'-DDD (µg/kg	0,47	0,74	NI	NI	0,03	0,43	NI	NI	NI

*for these CP's , part of the material was capped

Comparisons with previous years, shown in Figure 7 below, indicate that the total load of contaminants has been stable over the past few years, as also discussed in the Intermediate Trend Assessment. It is important to note that these comparisons are associated with a large uncertainty due to the lack of harmonisation for calculation.

It is important to bear in mind that the amounts included in table 2 and average concentrations in table 3 were calculated for the whole managed material, without any distinction between the dredged material dumped and the placed material at sea.

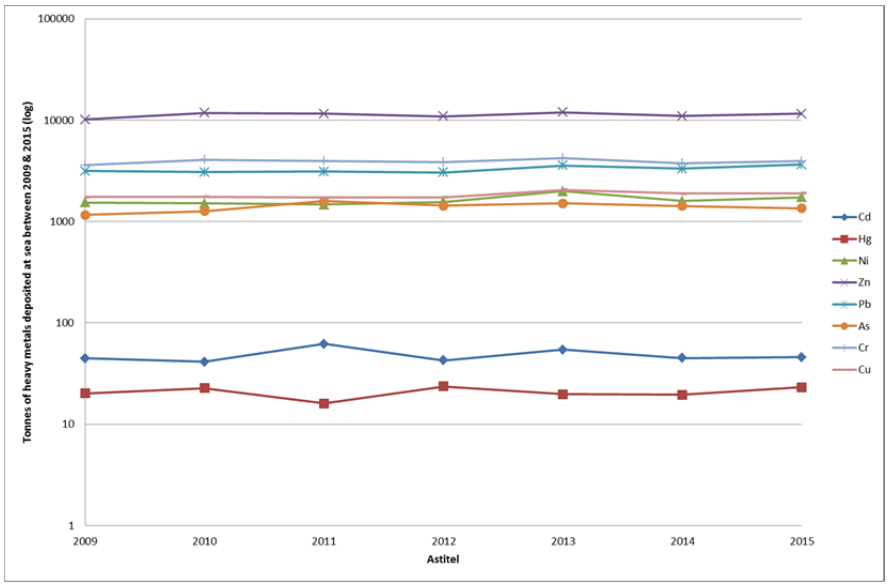

***Figure 7**. Total heavy metal loads, within deposited dredged material, from 2010 to 2015 in the whole OSPAR Area.*

2.4 Deposit of dredged material exceeding upper action levels

Dredged material with one or more determinands exceeding national upper action levels was deposited at thirteen sites. The amount of material involved was 3,8 million tonnes (less than 3 % of the total amount managed during the year).

Deposit of the material for ten of the sites was allowed on the basis that while the contaminant concentrations of one or more organic determinand(s) exceeded the upper action levels, the sediment was only deposited a short distance away from the dredging location and it was considered that no contaminants were added to the water bodies concerned.

For one dredging operation, the material exceeding the upper national action level was subject to confined aquatic disposal (capping)

Finally, for two projects, the material was disposed at sea after biological characterization indicating a non-significant ecotoxicity.

Table 4 includes the amounts and chemical characteristics of these materials. It should be noted that most operations exceed only slightly the national upper action level and that not all Contracting Parties have established action levels for all substances.

Table 4. Amount and chemical characteristics of dredged material deposited exceeding action levels.

Contracting Party	Deposit site	Pollutant exceeding action level	Average concentration (µg/kg)	National upper action level (mg/kg)	Amount deposited dredged material (tonnes - dry weight)
Germany	D/49	a-HCH	0,002	0,002	242
Germany	D/57	Hexachlorbe	0,006	0,006	353966
Germany	D/57	p,p'-DDT	0,005	0,003	353966
Germany	D/57	p,p'-DDD	0,010	0,006	353966
Germany	D/57	p,p'-DDE	0,003	0,003	353966
Germany	D/57	p,p'-DDD	0,008	0,006	330589
Germany	D/57	Hexachlorbe	0,007	0,006	247894
Germany	D/57	p,p'-DDT	0,004	0,003	247894
Germany	D/57	p,p'-DDD	0,012	0,006	247894
Germany	D/57	p,p'-DDE	0,004	0,003	247894
Germany	D/88	p,p'-DDD	0,012	0,006	1101614
Germany	D/88	p,p'-DDE	0,003	0,003	1101614
Germany	D/88	p,p'-DDD	0,010	0,006	215157
Germany	D/88	p,p'-DDE	0,004	0,003	215157
Germany	D/88	p,p'-DDD	0,010	0,006	545781
Germany	D/88	p,p'-DDE	0,003	0,003	545781
Germany	D/101	p,p'-DDD	0,006	0,006	54487
Germany	D/101	p,p'-DDD	0,006	0,006	337340
Germany	D/103	p,p'-DDD	0,012	0,006	3556
Germany	D/103	p,p'-DDE	0,003	0,003	3556
Germany	D/103	p,p'-DDD	0,010	0,006	29007

Contracting Party	Deposit site	Pollutant exceeding action level	Average concentration (µg/kg)	National upper action level (mg/kg)	Amount deposited dredged material (tonnes - dry weight)
Germany	D/103	p,p'-DDE	0,004	0,003	29007
Germany	D/105	p,p'-DDD	0,012	0,006	22133
Germany	D/105	p,p'-DDE	0,003	0,003	22133
Germany	D/105	p,p'-DDD	0,010	0,006	84160
Germany	D/105	p,p'-DDE	0,004	0,003	84160
Germany	D/105	p,p'-DDD	0,010	0,006	10283
Germany	D/105	p,p'-DDE	0,003	0,003	10283
Germany	D/121	p,p'-DDD	0,006	0,006	1409
Germany	D/121	p,p'-DDD	0,006	0,006	35773
Germany	D/126	g-HCH	0,006	0,002	3086
Germany	D/127	g-HCH	0,006	0,002	5964
France	F/0590	Hg	0,810	0,800	3100
France	F/0590	Cu	295,000	90,000	3100
France	F/0590	Cd	10,900	2,400	14500
France	F/0850	TBT	0,550	0,400	5725
Norway	1246.0	TBT	0,160	0,035	2480
Norway	2014.0	Cu	59,000	51,000	48
Norway	2014.0	TBT	59,000	0,035	48
Spain	E/5	Cd	10,500	5,000	430464
Spain	E/5	Hg	13,010	3,000	430464

3. Sites used for dumping and placement in 2015

A total number of 335 sites were included in the reports submitted by Contracting Parties for deposit operations (331 for dredged material and 4 for inert material).

Regarding the amount of material, the average quantity during this year per site was 435.346 tonnes, with only 1 site exceeding 10 million tonnes and the 61 % of used sites receiving less than 100 thousand tonnes. Figure 8 shows the amounts distribution per site.

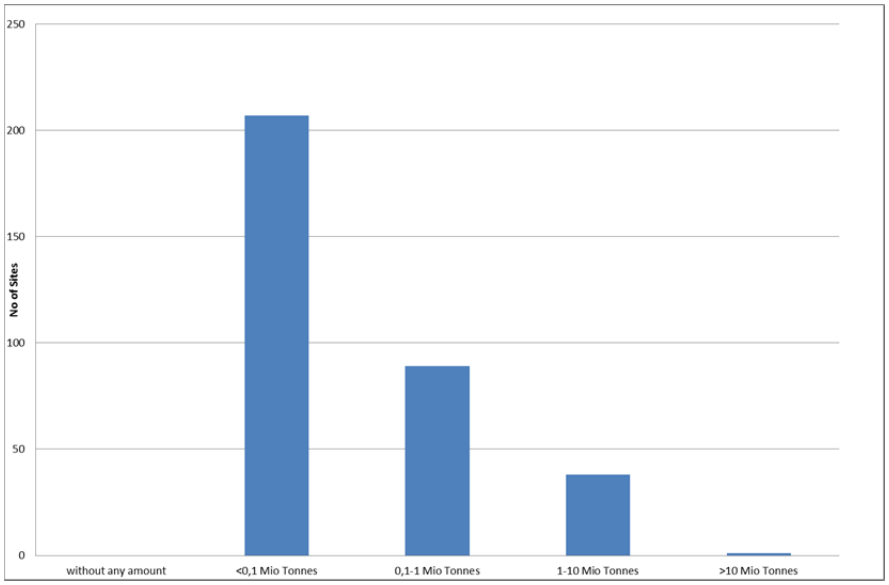

***Figure 8**. Distribution of the amounts per site, 2015.*

Figure 9 illustrates the number and location of sites at which inert and dredged material was dumped and placed in 2015. It can be seen that the sites are distributed, unevenly, along the entire OSPAR coastal area but are mostly located within the WFD transition and coastal waters; few sites are located at a distance from shore of > 10 NM. For more detail the maps can be viewed online at www.ospar.org/data, as the OSPAR Dumping and Placement of Wastes or Other Mater at Sea 2015 layer.

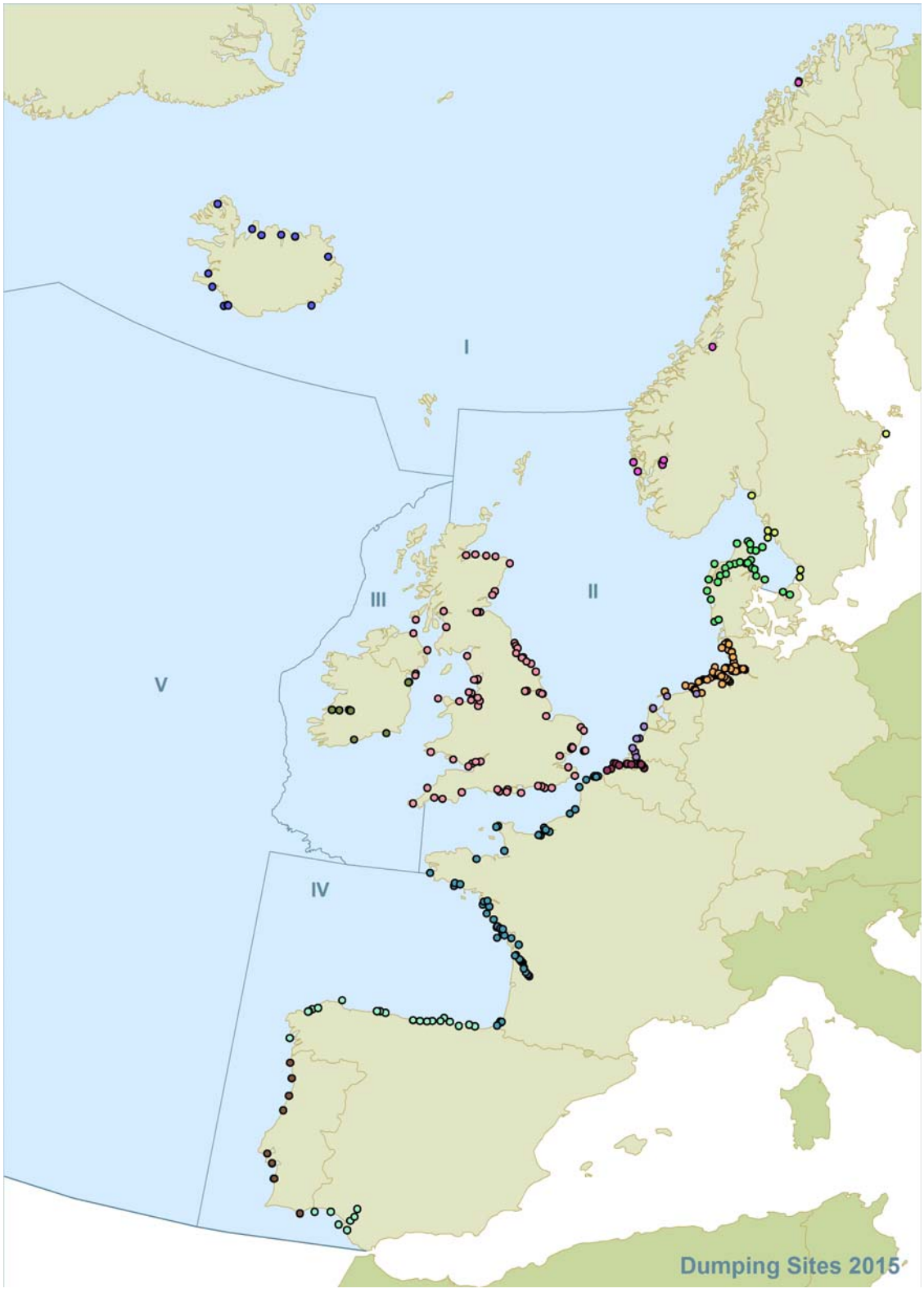

Figure 9. *Locations of sites used in 2015 for the dumping and placement of inert and dredged material in the OSPAR Area. Each site is represented by a point, not by its spatial extent (polygon). Larger scale maps can be found in Annex 2.*

4. Recommendations for future inclusion

The quality of the data in the Annual Report on Dumping or Placement of Wastes or Other Matter at Sea can be improved by the application of harmonised calculation methods and harmonised approaches with regard to analytical issues e.g. on how to incorporate results below limits of detection/quantification or for material considered as exempted of characterization according to the OSPAR Guidelines for the Management of Dredged Material at Sea.

The quality of future assessments could be improved by harmonising to a greater extent the suite of determinands to be routinely analysed, for example, organic contaminants.

Contracting Parties which are not currently reporting on contaminant loads will be encouraged, and assisted if required, to provide such data in future. In order to achieve a more comprehensive assessment, Contracting Parties could consider routine analyses of organic contaminants in dredged material.

Revisions based on experiences of Contracting Parties with the reporting format are expected to lead to improvements in the system for future years, and subsequently should enable a more comprehensive and reliable Annual Report.

5. References

OSPAR Agreement 1998/21: OSPAR Guidelines for the dumping of fish waste from land-based industrial fish processing operations. (Updated in 2010)

OSPAR 2012,Annual OSPAR report on dumping of wastes or other matter at sea in 2010,OSPAR Commission, Publication number 572/2012, ISBN no. 978-1-909159-06-8.

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OSPAR 2016, Annual OSPAR report on dumping of wastes or other matter at sea in 2014, OSPAR Commission, Publication number 671/2015, ISBN no. 978-1-911458-01-2.

OSPAR, Agreement 2015-06: Guidelines for the Management of Dredged Material at Sea (as amended).

OSPAR, Agreement 2016-08: Explanatory notes – 2016 Reporting Format for the Deposit at Sea of Dredged Material

ANNEX 1

Amounts of dredged material deposited at sea by OSPAR Contracting Countries from 2010 to 2015, in million tonnes and according to the current information included in the OSPAR Database on dumping and placement of wastes or other matter at sea.

	2015	2014	2013	2012	2011	2010
BE	29,42	29,12	32,28	40,98	48,15	52,16
DE	39,88	36,18	25,35	28,93	26,68	32,12
DK	1,94	5,32	4,24	6,96	4,72	3,58
ES	3,31	8,03	1,96	2,56	2,57	2,87
FR	24,21	28,38	24,85	24,98	19,64	17,92
IE	0,64	0,68	0,35	1,61	0,40	0,36
IS	1,11	0,39	0,62	0,47	0,37	0,63
NL	27,50	26,17	40,25	24,22	24,98	21,15
NO	0,28	3,23	0,29	0,52	0,94	0,50
PT	5,93	1,78	3,94	3,95	NI	NI
SE	0,06	0,71	0,59	0,07	0,01	0,06
GB	12,23	14,61	14,77	16,32	13,50	14,72
Total	146,52	154,60	149,49	151,55	141,97	146,07

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OSPAR's vision is of a clean, healthy and biologically diverse North-East Atlantic used sustainably

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