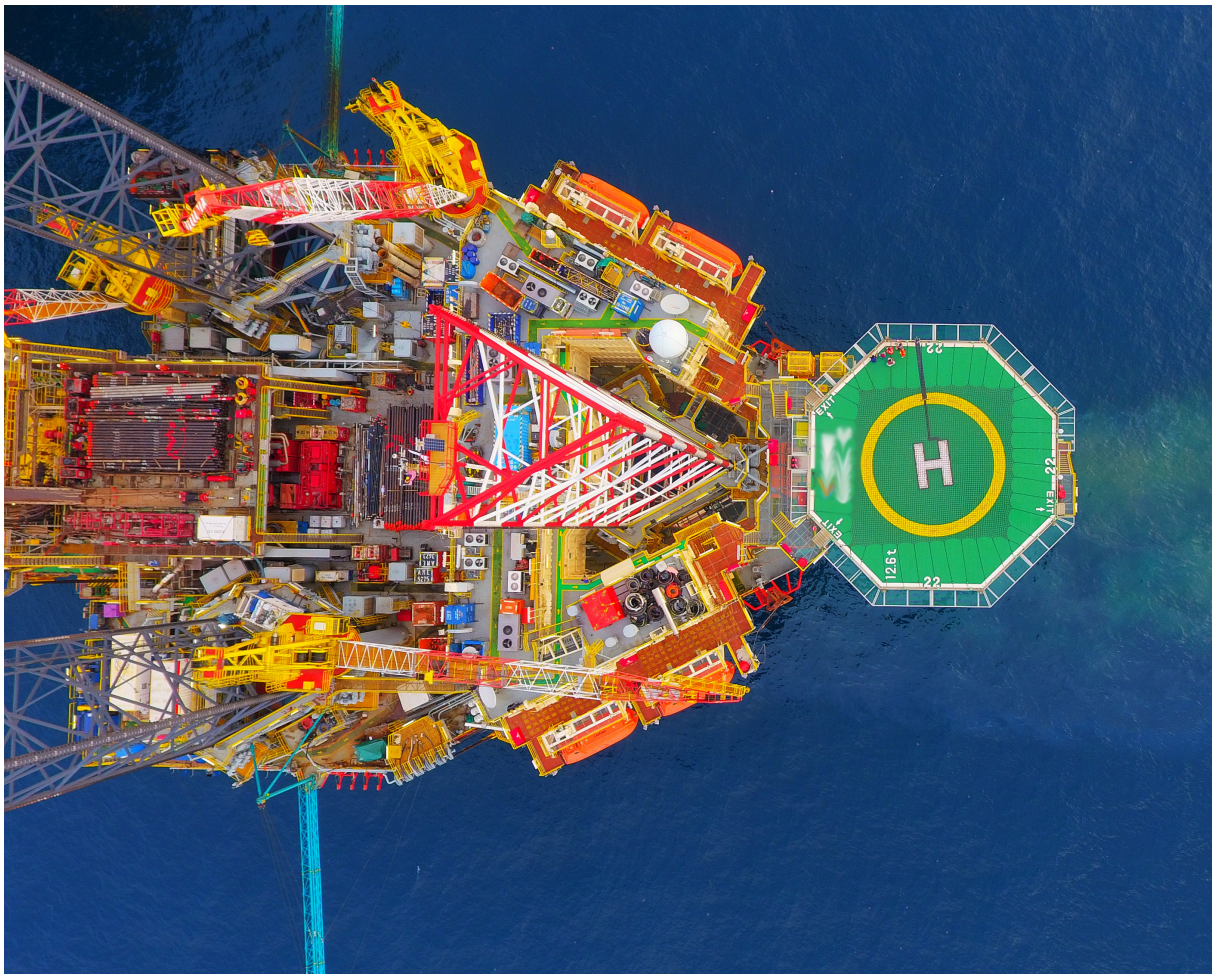
OSPAR COMMISSION

Assessment of the OSPAR Report on Discharges, Spills and Emissions from Offshore Installations 2009 – 2019



Offshore Oil & Gas Industry Series

2021

Assessment of discharges, spills and emissions from offshore installations, 2009 – 2019

OSPAR Convention

The Convention for the Protection of the Marine Environment of the North-East Atlantic (the "OSPAR Convention") was opened for signature at the Ministerial Meeting of the former Oslo and Paris Commissions in Paris on 22 September 1992. The Convention entered into force on 25 March 1998. The Contracting Parties are Belgium, Denmark, the European Union, Finland, France, Germany, Iceland, Ireland, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Convention OSPAR

La Convention pour la protection du milieu marin de l'Atlantique du Nord-Est, dite Convention OSPAR, a été ouverte à la signature à la réunion ministérielle des anciennes Commissions d'Oslo et de Paris,
à Paris le 22 septembre 1992. La Convention est entrée en vigueur le 25 mars 1998.
Les Parties contractantes sont l'Allemagne, la Belgique, le Danemark, l'Espagne, la Finlande, la France, l'Irlande, l'Islande, le Luxembourg, la Norvège, les Pays-Bas, le Portugal, le Royaume-Uni de Grande Bretagne
et d'Irlande du Nord, la Suède, la Suisse
et l'Union européenne.

Acknowledgements

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Contents

Executive Summary

This report presents the discharges, spills and emissions data from offshore installations in the OSPAR maritime area for the period 2009-2019 and provides an assessment of that data. The assessment is based on the data provided to OSPAR by Contracting Parties and published in the annual reports on discharges, spills and emissions from offshore oil and gas installations.

An assessment period of eleven years has been chosen for this report in order to support the OSPAR Quality Status Report due for publication in 2023.

a. Level of Activity

The OSPAR maritime area is a mature oil and gas region with the majority of Contracting Parties experiencing declining production. The total production of hydrocarbons in OSPAR's maritime area has decreased by 28 % over the last eleven years, though there was an increase between 2014 to 2016 before starting to decline again. Despite this, oil and gas exploration and development activities continue in order to maximise economic recovery of reserves. The number of wells drilled during the period has varied from a peak of 490 in 2017, to 366 in 2014 and 443 in 2019. Despite the long-term production decrease there had been a 14 % increase in the number of oil & gas installations reported from 2009 up to 2015, with the greatest increase in the number of subsea installations used to recover hydrocarbons from marginal fields. The number of installations subsequently declined by 12 % from 2015 due to an increase in cessation of production and decommissioning with the drop in the oil price. The number of installations reported in 2019 (676) is nearly the same as in 2009 (674). It should be noted however that reporting of the number of installations has changed for some Contracting Parties during this period with the UK amending its approach in 2010 which resulted in an increase in the numbers reported by approximately 70 installations between 2009 and 2010.

b. Discharges & Spills of Oil

Discharges of oil continue to decrease

The amount of dispersed oil discharged in 2019 is 16 % below that discharged in 2009. While there was not a year on year decrease the total quantity of dispersed[1] oil (aliphatic oil) discharged to the sea from produced water and displacement water decreased from 4 890 tonnes in 2009 to 4 096 tonnes in 2019. There had been a notable increase in dispersed oil discharged in 2015 as a result of an increase in the amount of produced water discharged and average dispersed oil concentrations.

As in previous years, produced water and displacement water are the main contributors to the oil discharges from offshore oil and gas activities, representing 95-99 % of the total amount of oil discharged to the sea during the 2009 - 2019 period. The exception was in 2011-2012 where a single large spill event accounted for 11-12 % of the total oil to sea. Flaring is a minor source of oil discharges and is not covered by OSPAR measures.

It should be noted that dispersed oil in displacement water contributes less than 1 % to this total.

1. "Aliphatics" and "aromatics" are defined by the reference method set in OSPAR Agreement 2005-15 (Solvent extraction, Infra-Red measurement at 3 wavelengths). In that context, "aliphatics" and "dispersed oil" mean the same thing.

As might be expected, the quantity of oil spilled has varied over the period, ranging from 44 tonnes in 2016 up to 541 tonnes in 2012, the later due to a single large incident in which 400 tonnes were spilled. There has been a downward trend in the number of oil spills over the period.

The concentration of dispersed oil in produced water is below the performance standard for most installations

The annual average dispersed oil content in produced water ranged from 12.4 mg/l to 14.1 mg/l over the period, well below the current performance standard for dispersed oil of 30 mg/l for produced water discharged into the sea.

In 2019, 17 installations exceeded the 30 mg/l performance standard for dispersed oil in produced water. The amount of oil discharged from six of these installations is less than 2 tonnes annually. In total, the discharge of dispersed oil in excess of the performance standard is less than 2 % of the total discharge of dispersed oil in the OSPAR region.

c. Chemicals

Most chemicals used and discharged offshore are considered to pose little or no risk

Since 2001 the use and discharge of chemicals have been regulated by OSPAR measures. The first reporting year for which all major contributors provided data was 2003. The total quantity of chemicals used offshore decreased from a peak of 838 111 tonnes in 2009 to 733 598 tonnes in 2019. In 2019 less than 1 % (by weight) of the chemicals used contain either substances on the OSPAR List of Chemicals for Priority Action (LCPA) or substances which are candidates for substitution.

The total quantity of chemicals discharged into the sea decreased from a peak of 293 402 tonnes in 2009 to 204 570 tonnes in 2019, 84 % of which were chemicals on the OSPAR PLONOR[2] list. Less than 0,5 % (wt.) of the discharged chemicals contains LCPA substances or substances which are candidates for substitution.

OSPAR Recommendation 2005/2 set environmental goals for the reduction of substances on the OSPAR LCPA such that discharges were to be phased out by 2010. The discharge of LCPA was phased out by 2014, and other than a 3 kg accidental permitting of an LCPA discharge in 2016 in the UK and a 0.5 kg unpermitted discharge in Denmark in 2019 there have been no other discharges of LCPA.

OSPAR Recommendation 2006/3 sets out environmental goals on the phasing out of discharges of offshore chemicals that are, or which contain substances, identified as candidates for substitution[3] by 2017 (the deadline has been extended to 2026). There has been a 42 % reduction in the discharge of such substances over the last 10 years.

The phasing out of the discharge of LCPAs and reductions in quantities of substitution chemicals discharged are indicative of the success of the OSPAR measures.

2 Pose little or no risk to the environment - PLONOR

3 Except for those chemicals where, despite considerable efforts, it can be demonstrated that this is not feasible due to technical or safety reasons. Demonstration of those reasons should include a description of the efforts.

d. Atmospheric Emissions

Atmospheric emissions are stable or decreasing

Atmospheric emissions are not regulated by OSPAR measures, nonetheless, atmospheric emissions from offshore oil and gas activity are reported annually by operators. Emissions to the atmosphere have generally decreased or remained relatively stable for the period 2009-2019, with a 35 % decrease in methane emissions, 33 % decrease in SO_2, 9 % reduction in NO_x, 8 % decreases in CO_2 and 7 % decrease in nmVOC's.

Récapitulatif

Ce rapport présente les données sur les rejets, déversements et émissions provenant des installations offshore dans la zone maritime d'OSPAR pour la période de 2009 à 2019. Il comporte une évaluation des données qui est basée sur les données notifiées à la Commission OSPAR par les Parties contractantes et publiées dans les rapports annuels sur les rejets, déversements et émissions provenant des installations pétrolières et gazières offshore.

Une période d'évaluation de onze ans a été choisie pour le présent rapport afin de soutenir le Bilan de Santé (QSR) 2023 dont la publication est prévue en 2023.

1. Introduction

This report provides an assessment of the discharges, spills and emissions to the environment from Offshore Installations in the OSPAR Maritime Area for the period 2009 – 2019 as well as providing a comparison of trends over the past 10 years.

The purpose of this report is to assess increasing or decreasing trends in the quantity of such discharges, spills and emissions in light of the level of oil and gas activity in each Contracting Party's area and the OSPAR Maritime Area as a whole with the aim of demonstrating the effectiveness of OSPAR measures. Trends have been assessed using expert judgement and not by statistical analyses. The data and trends described in this report will be used for the OSPAR Quality Status Report due for publication in 2023.

This report does not seek to assess the impact to the environment of these discharges, spills and emissions.

This assessment is based on annual data submitted by Contracting Parties and compiled by the Secretariat and, following examination by the relevant subsidiary bodies, published by the Commission. Part A of the report contains data specifically for the reporting year (2019). Part B of the report contains cumulative data from 2009 to 2019. The reporting period of eleven years is longer than the normal ten reporting period for the Part B report as it has been extended to support the OSPAR Quality Status Report due for publication in 2023.

With regards to quality assurance of the data, Contracting Parties use their own QA/QC procedures for the data submitted to the Secretariat. Transparency and harmonisation of the reported data are achieved through the use of:

- harmonised sampling and analysis procedures;
- accredited or accepted laboratories;
- harmonised data collection format; and

- review by an Expert Assessment Panel.

The data used in this assessment report are the best available data at the time the report was written and are subject to uncertainties in the analytical measurement of individual Contracting Parties. It is also recognised that data collection procedures vary across Contracting Parties due to national methodologies or other obligations. Where possible this is identified within the report.

1.1 Programmes and Measures

The Offshore Oil and Gas Industry Strategy (Offshore Strategy) sets the objective of preventing and eliminating pollution. It takes the necessary measures to protect the maritime area against the adverse effects of offshore activities so as to conserve marine ecosystems, restore marine areas that have been adversely affected where practicable, and consequently safeguard human health.

The Offshore Strategy further declares that the OSPAR Commission will implement this Strategy progressively, following on from, and consistent with, the commitments made in other OSPAR Strategies, insofar as they apply.

The Offshore Strategy provides that OSPAR will address the programmes and measures:

a. needed to prevent, control and eliminate pollution under Annex III of the OSPAR Convention; and
b. to be adopted under Annex V of the OSPAR Convention following the identification of relevant human activities.

In doing so, the Offshore Strategy requires the OSPAR Commission to:

- collect information about threats to the marine environment from pollution or from adverse effects from offshore activities;
- establish priorities for taking action; and
- establish and periodically review environmental goals to achieve the Offshore Strategy's objectives.

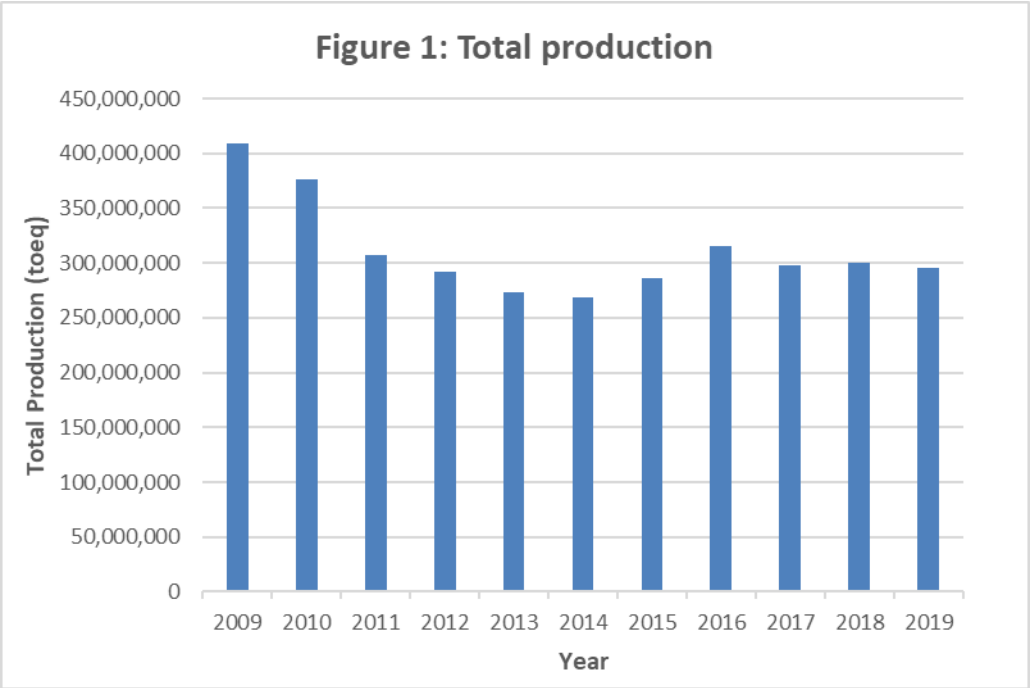
As part of this process, the OSPAR Commission should develop and keep under review programmes and measures to identify, prioritise, monitor and control the emissions, discharges and losses of substances which could reach the marine environment, and which are likely to cause pollution. Regular reporting is therefore required in order to review progress towards the targets of the Offshore Strategy.

Since 1978, discharges and waste handling from offshore oil and gas installations have been addressed and regularly reported under the former Paris Convention and under the OSPAR Convention. Since the beginning of the 1990s air emissions from these installations have been reported as well. Most measures relevant for the annual report applicable under the OSPAR Convention can be found in Appendix 1.

2. Setting the Scene

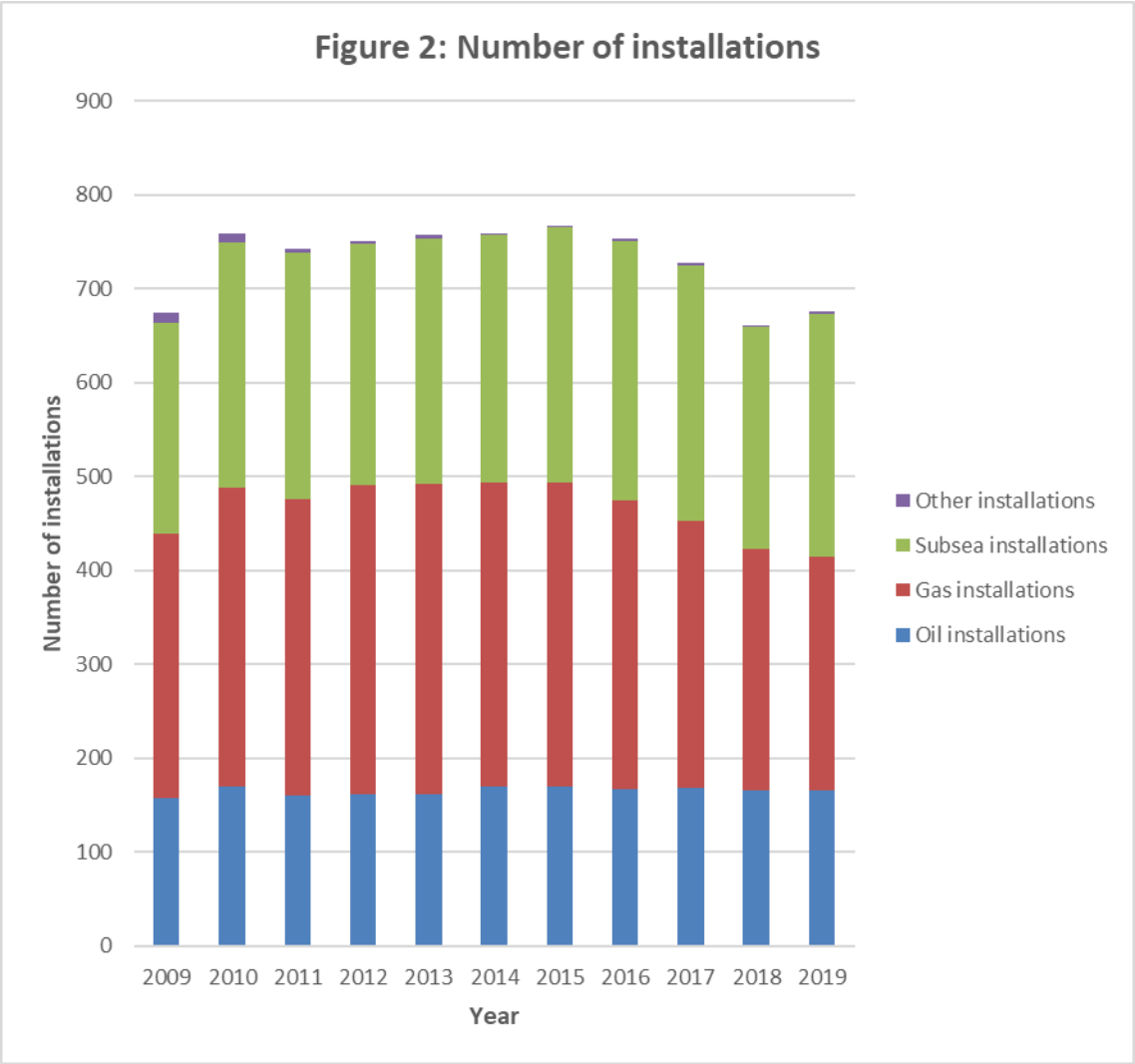
2.1 Level of Activity

The production of hydrocarbons decreased by 28 % over the eleven year period of 2009 to 2019 (see Figure 1), though production increased from 2014 to 2016 by approximately 17%, before levelling off. The increased production over 2015-2016 was primarily due to increases in UK (8,5 %), Norwegian (8,1 %) and Irish (0,8 %) production over OSPAR 2014 levels which offset reductions by other Contracting Parties.



The number of installations with emissions and discharges reported in the OSPAR maritime area is nearly the same in 2019 as it was in 2009 (674). Over this period however there was a 14 % increase in the number of reported installations up to a maximum of 766 installations in 2015, followed by a 12 % decline to 676 installations by 2019. The decline was largely as a result of increasing cessation of production and decommissioning with the drop in the oil price in 2014.

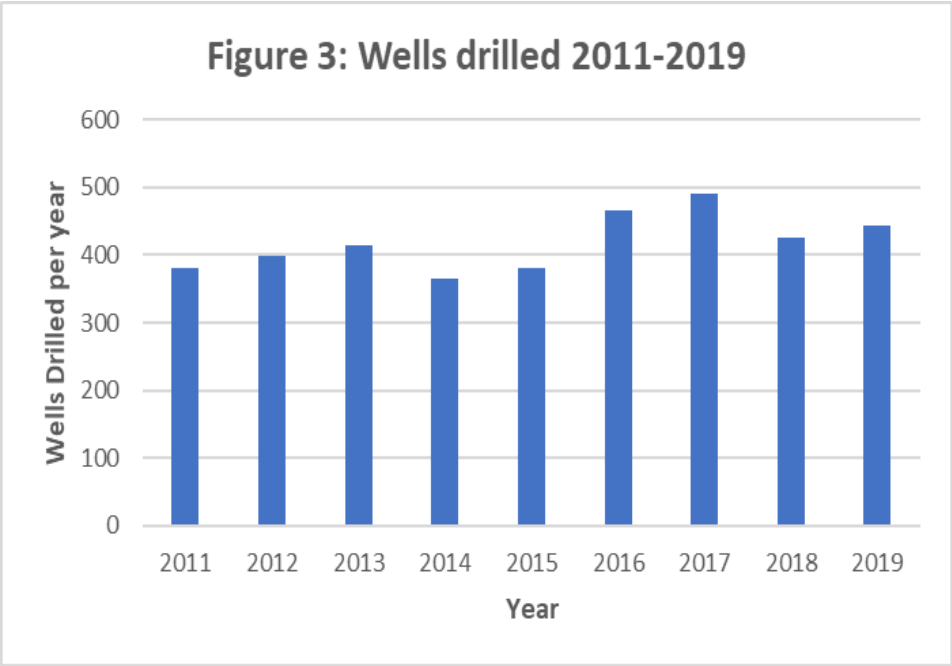
The majority of new installations reported over the period are subsea developments of more marginal fields from which discharges are likely to be very limited and which are tied back to host installations. The majority of installations removed have been smaller gas installations. It should be noted however that reporting of the number of installations has changed for some Contracting Parties during this period with the UK amending its approach in 2010. This resulted in an increase in the numbers reported by approximately 70 installations between 2009 and 2010 and likely accounted for the majority of the reported change between those two years. The change in the number of installations with emissions and discharges over the period 2009 to 2019 is shown in Figure 2. Note that in the 2009 & 2010 annual reports, drilling rigs were included in the total number of installations. Drilling rigs have been removed from the data for Figure 2.



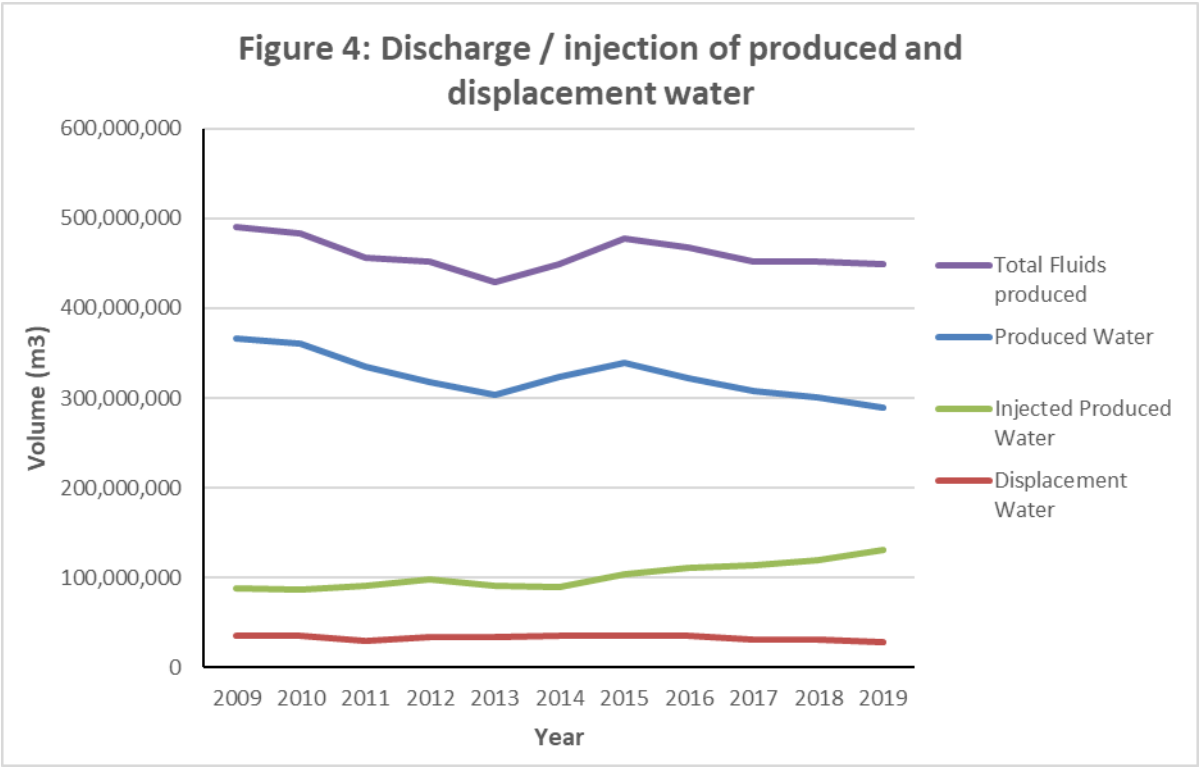
Drilling activity[4] has, despite the downturn during 2013-2015, increased over the period from 382 wells drilled in 2011 to 443 wells drilled in 2019, with a peak of 490 wells drilled in 2017. While the number of wells drilled has increased over the period, most of the wells drilled are development wells rather than exploration & appraisal wells. There has been a decline in drilling activity in Ireland and the Netherlands, while activity in Norway and the UK has remained relatively stable over the period with some annual variation.

The number of Mobile Offshore Drilling Units (MODU) operating within the OSPAR maritime area varies year on year, which has typically been around 40-80.

[4] Since 2011, drilling activity is reported to OSPAR as number of wells drilled, incudimng geological sidetracks. Prior to 2011, drilling activity was reported as fractions of a year, e.g. a MODU spending three months drilling would be reported as 0.25 years of activity.



Over the period 2009-2019, trends in total produced and displacement water generated have been in gradual decline from a total of 490 million cubic metres in 2009 to 450 million cubic metres in 2019, an 8 % decrease. While total discharges of produced and displacement water have decreased by 21 %, the amount of produced water being re-injected, in order to avoid discharging dispersed oil, chemicals and other naturally occurring substances has increased 49 % over the eleven year period. This increase represents 29 % of total produced and displacement water being reinjected in 2019 compared to 18 % in 2009 (see Figure 4). Over the past eleven years the number of installations injecting produced or displacement water has increased since 2009 from 59 installations up to a peak of 74 installations in 2017 and is currently at 67.



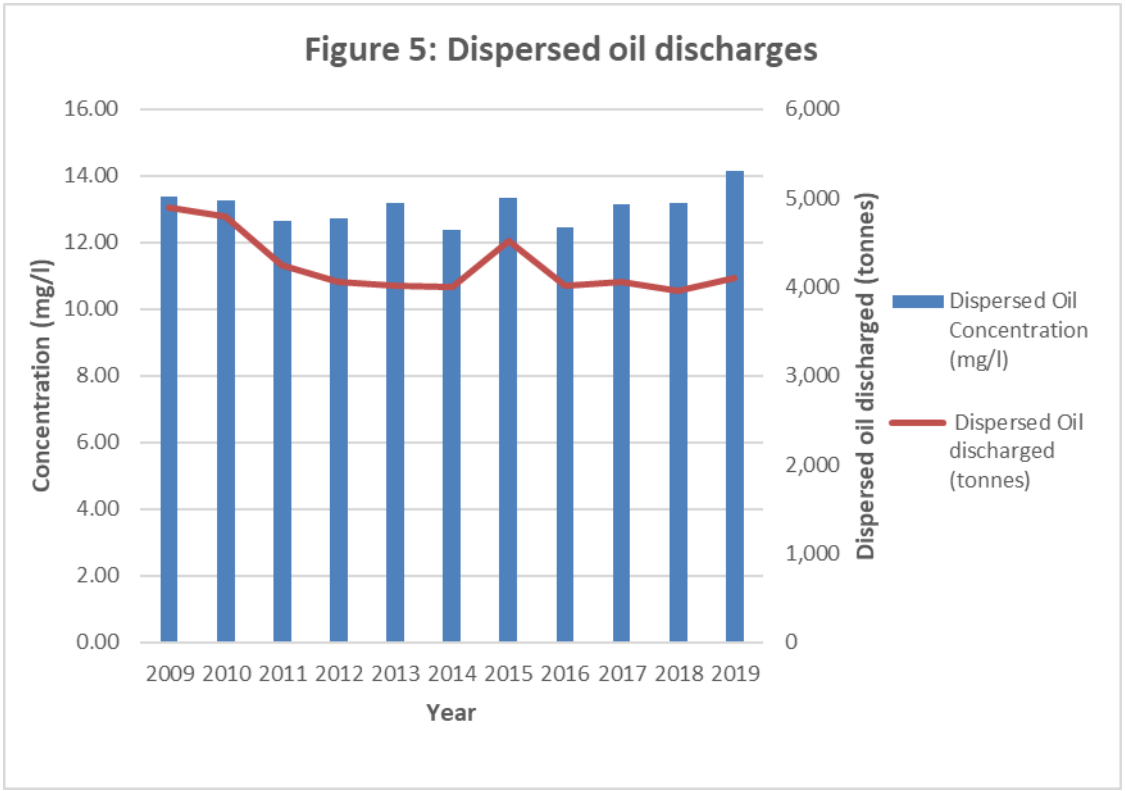
3. Oil Discharges & Spills

3.1 Discharges of oil to sea

Dispersed oil is discharged into the OSPAR Maritime Area in accordance with OSPAR Recommendation 2001/1 (as amended) which seeks to limit the concentration of dispersed oil in produced and displacement water discharges to no more than 30 mg/l. The Recommendation also called for a reduction in the total oil discharged into the sea in 2006 by 15 % compared to the equivalent discharge in the year 2000, which has been achieved. The concentration of dispersed oil is determined in accordance with the OSPAR reference method[5].

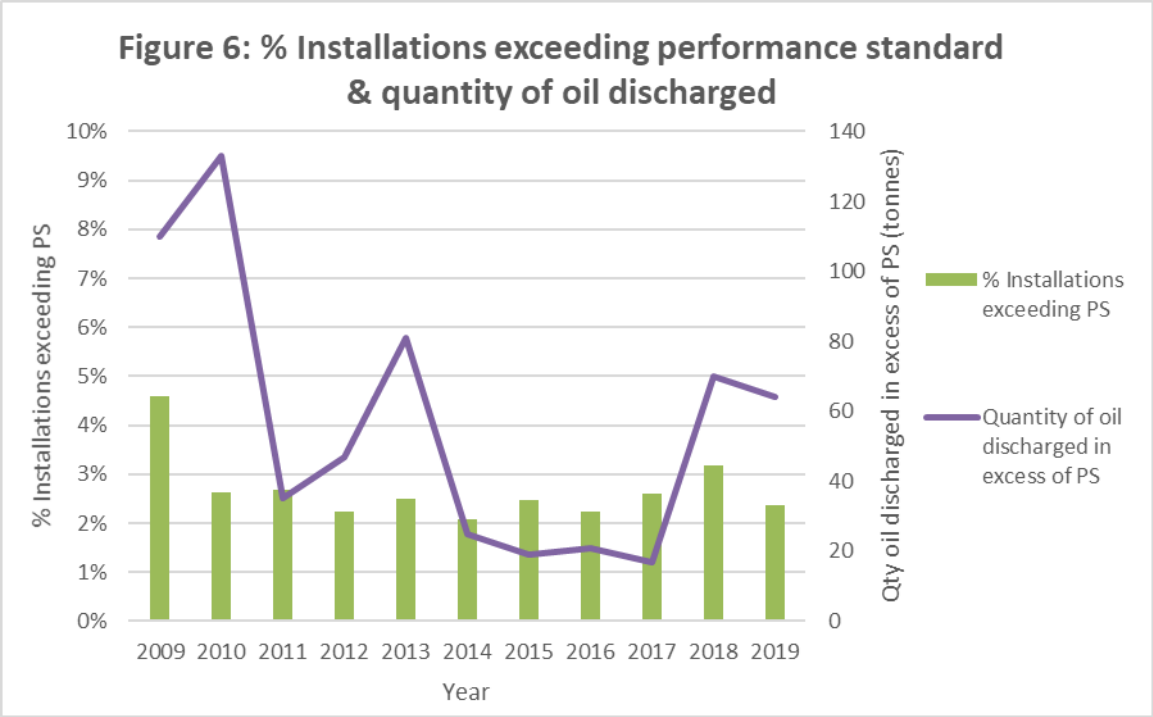
The total quantity of dispersed oil discharged with produced and displacement water was 4 096 tonnes in 2019, which is a 16 % decrease from 2009. This is largely due to decreases in produced water volumes being discharged as installations produce less fluids while dispersed oil concentrations have not changed significantly.

The concentrations of dispersed oil in produced water being discharged has remained largely steady from 2009 to 2019 ranging from an OSPAR average of 12,4 mg/l to 14,1 mg/l as shown in Figure 5. It should be noted however that the UK has a higher average dispersed oil concentration of 16.5 mg/l in 2019 which is offset by lower average concentrations in other Contracting Parties. This is largely due to the UK having older installations with limited capability to retrofit better produced water treatment technologies to deal with large produced water volumes.



[5] OSPAR Agreement 2005/15 https://www.ospar.org/convention/agreements?q=2005-15&t=32281&a=7458&s=

Recommendation 2001/1 sets a performance standard for the discharge of dispersed oil in produced water of 30 mg/l calculated as a monthly average. While the majority of installations in the OSPAR maritime area meet the performance standard, a number of installations exceed this performance standard on an annual basis. Over the period 2009 – 2019, the total number of installations exceeding the performance standard has decreased from 31 in 2009, shortly after the new reference method came into effect, down to 17 in 2019, reflected as percentages in Figure 6. It should also be noted that for some installations with a high uptime of produced water reinjection (PWRI), that when the PWRI system is not available, produced water may be discharged in excess of the performance standard. This is generally for very short periods of time, however, should they exceed the performance standard for the year they are still included in this report.



The total quantity of hydrocarbons discharged in excess of the performance standard had decreased by 84 % over the period 2009-2017. However, in 2018 and 2019 it increased again primarily due to the performance of one installation in the UK with sand and other process issues in 2018, and three installations in Norway and the UK in 2019. This has resulted in an overall 42 % decrease over the eleven year period. It should be noted that the quantity of dispersed oil discharged in excess of the performance standard equates to less than 2 % of the total dispersed oil, discharged in the OSPAR region.

Installations exceeding the performance standard tend to vary from year to year and are mainly as a result of a change in operations e.g., new wells coming online, malfunctions in separating equipment. Contracting Parties with installations exceeding the performance standard of 30 mg/l on an annual basis have reported the reasons for exceeding the performance standard as well as plans for improvements. In cases where exceedances occur, Contracting Parties take steps to ensure a return to compliance of such installations.

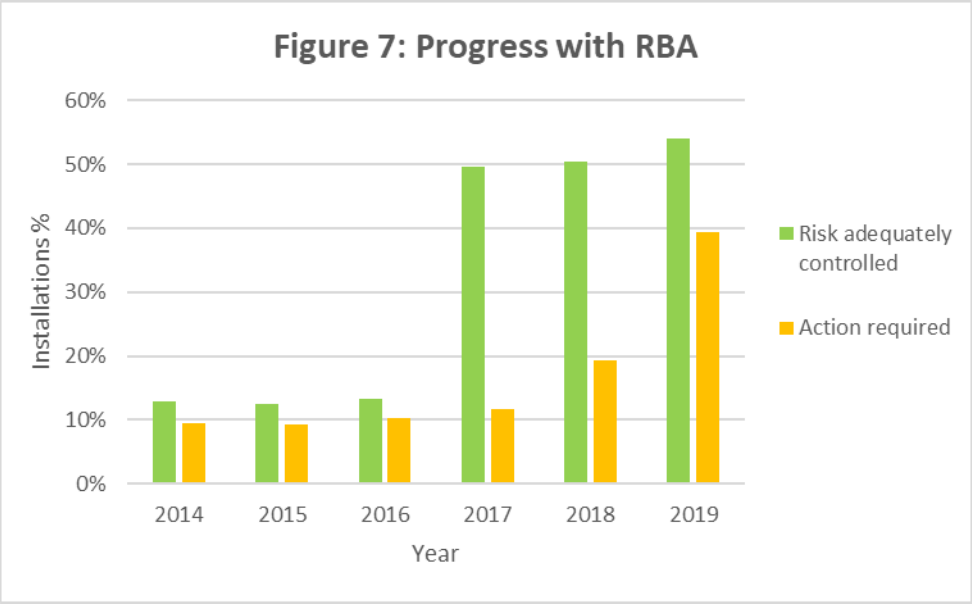
While part of the decrease in the number of installations exceeding the performance standard will be attributable to the change in analytical method, part of the decrease is likely to be as a result of improvements in performance by some installations. It should also be noted that of the 17 installations discharging in excess of 30 mg/l during 2019, 6 installations discharged less than 2 tonnes of dispersed oil

during the year and over 90 % of the oil discharged in excess of the performance standard is mainly from 6 of the 17 installations.

Contracting Parties also report the dissolved oil content (as represented by BTEX[6] components) in produced water and displacement water discharges. OSPAR measures do not cover these as they rapidly biodegrade in seawater once discharged. The total quantity of BTEX discharged has remained largely the same over the eleven year period with an average of approximately 4 800 tonnes discharged annually. It should be noted however that there is a large uncertainty in the BTEX analysis due to the infrequent sampling frequency (bi-annual) by most Contracting Parties.

3.2 Risk-based Approach

In 2012, OSPAR Recommendation 2012/5 for a risk-based approach (RBA) to the management of produced water discharges from offshore installations was adopted. Contracting Parties provided relevant subsidiary bodies with implementation plans in 2013 and the majority commenced assessments in 2014 with the Recommendation due to be fully implemented by 2018. To date, of the 232 installations still included within the RBA process, 217 have been assessed, with 126 installations (54 %) determined to have their discharge adequately controlled, 91 installations (39 %) requiring further action to be taken and the remainder still awaiting the outcome of an assessment (Figure 7). Each Contracting Party undertakes the RBA in accordance with one of the recognised approaches as set out in the guidance to the Recommendation.



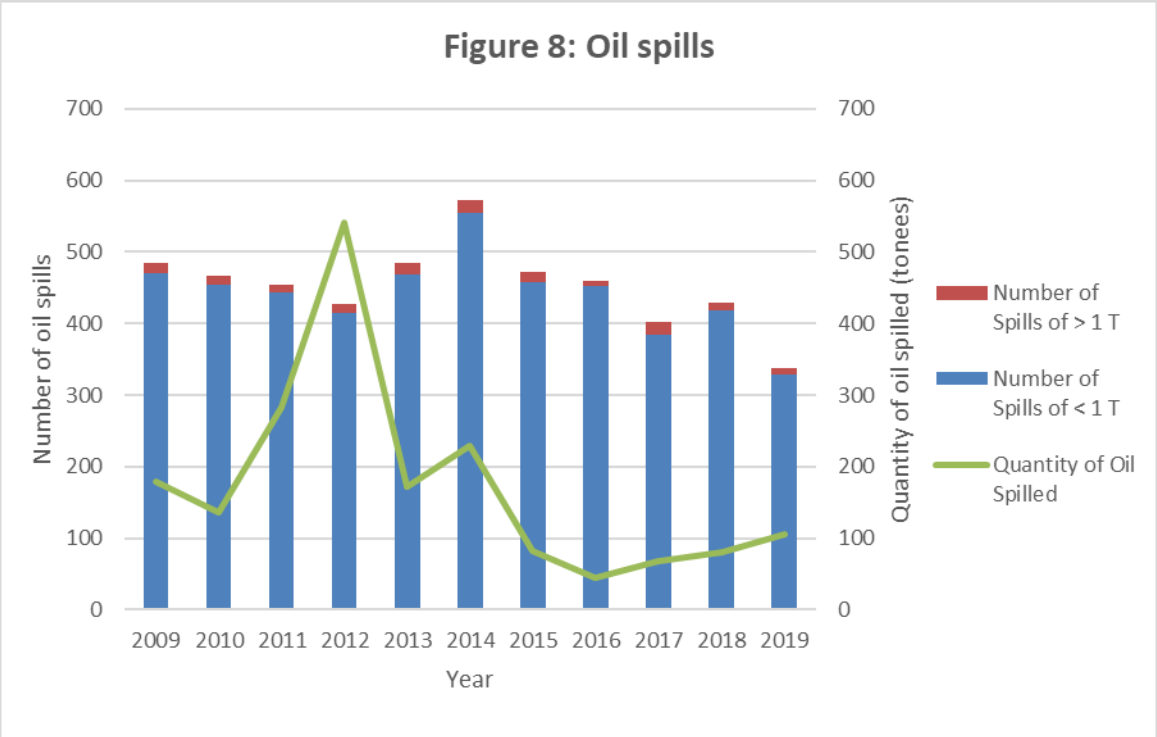
[6] BTEX = Benzene, Toluene, Ethylbenzene and isomers of Xylene.

3.3 Spills of oil to sea

Over the period 2009-2019, the number of accidental spillages of oil to sea varied widely with 2014 having the highest number of spills (572) and 2019 having the lowest (338). While there has been annual variation there is a possible downward trend in the number of oil spills being reported since 2014.

The total quantity spilled each year is variable with a high of 541 tonnes in 2012 when a single large spill in the UK contributed approximately 400 tonnes to the total and a low of 44 tonnes in 2016 (see Figure 8). In 2019, oil spills contributed less than 2 % (wt) of the dispersed oil discharged or spilled to the OSPAR maritime area.

There is no discernable trend in the quantity of oil being spilled annually. Spills over 1 tonne account for just 2 – 4 % of the number of oil spills but account for 68 – 96 % of all the oil spilled on an annual basis. Consequently the quantity spilled annually is very much dependant on a small number of larger spills.



*Note: Up to 2017 Norway reported spills in m^3 rather than tonnes

3.4 Discharges of organic phase fluids and organic phase fluids contaminated cuttings

OSPAR Decision 2000/3[7] aims to prevent and eliminate pollution by the use and discharge of OPF and OPF-contaminated cuttings[8] and by prohibiting the discharge of cuttings contaminated with OBF[9] at a concentration greater than 1 % by weight on dry cuttings and by other measures.

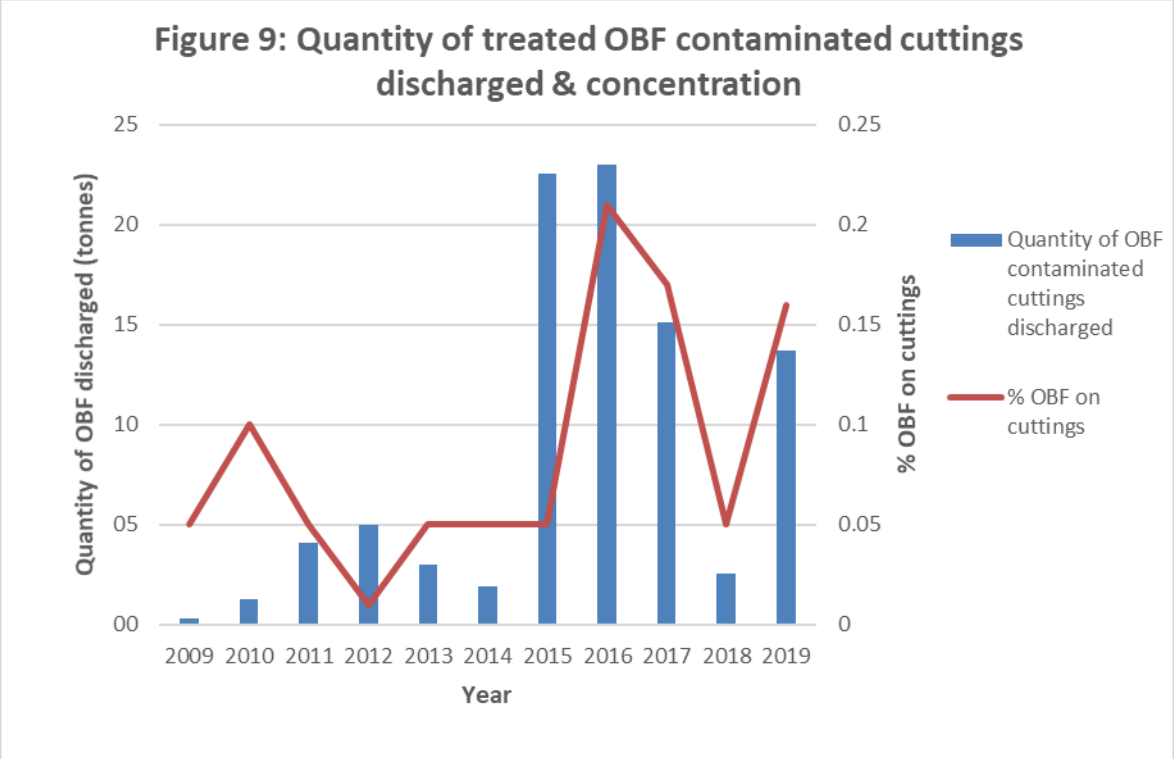
With the availability of thermal desorption treatment technologies, which enables the 1 % concentration limit to be achieved, there has been an increase in the use of these techniques offshore, particularly in the UK. Through the use of these technologies there has been an increase in the discharge of thermally treated

[7] OSPAR Decision 2000/3 - https://www.ospar.org/convention/agreements?q=2000 %2F3&t=32282&a=7458&s=

[8] OPF = Organic-phase Drilling Fluids

[9] OBF = Oil-based fluids

OBF contaminated cuttings from 0,3 tonnes in 2009 up to a maximum of 23 tonnes in 2016, however all discharges have been significantly lower than the 1 % concentration performance standard (see Figure 9). Less than 0,01 % of all the OBF used is discharged using this technology.



4. Chemicals

4.1 Chemical Use & Discharge

Since 2001 the use and discharge of chemicals have been covered by a number of OSPAR measures as listed in the Appendix 1.

In this report the term *substitution chemicals* refers to chemicals which are or contain substances that are candidates for substitution, according to OSPAR Recommendation 2006/3. This includes chemicals or substances which:

- are on the OSPAR LCPA,
- are inorganic with LC_{50} or EC_{50} less than 1 mg/L,
- have biodegradation less than 20 %, or
- meet two out of three of the following criteria
    - biodegradation less than 60 %,
    - BCF larger than 100 or Log $P_{ow} \geq 3$, or
    - LC_{50}/EC_{50} less than 10 mg/L.

Chemicals that are considered to 'Pose Little or No Risk' to the environment are referred to as PLONOR chemicals. Chemicals that are considered to be PLONOR are detailed on the OSPAR PLONOR list http://www.ospar.org/documents?d=32939.

Chemicals that are neither PLONOR nor substitution chemicals include those that are:

- inorganic with LC_{50} or EC_{50} greater than 1 mg/l,
- Ranking chemicals, which includes substances ranked according to OSPAR Recommendation 2000/2 and don't fall into another category.

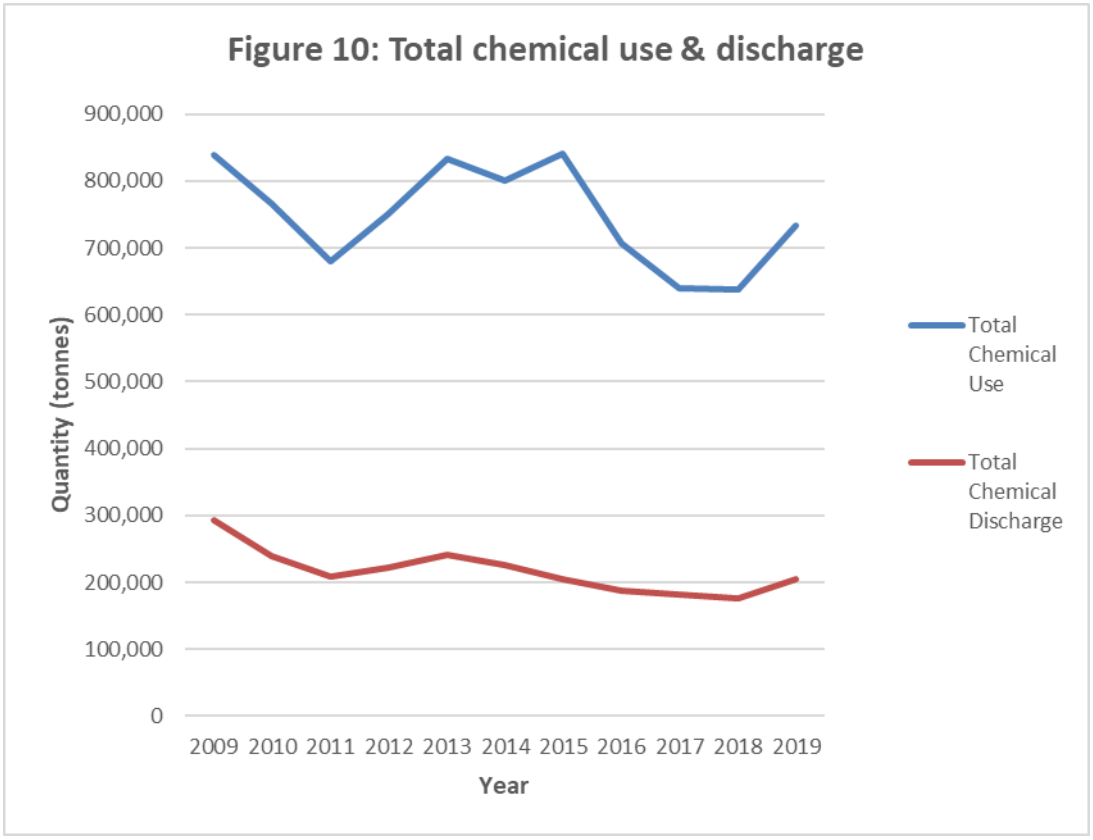
For the purposes of this report these latter two chemical groups are combined and referred to as 'Ranking'.

The goal of OSPAR Recommendation 2006/3 was for discharges of substitution chemicals to be phased out by 1 January 2017, although an exception can be made for chemicals with no identified alternative. While there has been a 42 % reduction in the discharge of such substances, the goal of phasing them all out has only partially been achieved, and the deadline has been extended to 2026.

The goal of OSPAR Recommendation 2005/2 was that the discharge of chemicals on the OSPAR LCPA would be phased out by 1 January 2010. This was met by 2014 other than for an accidentally permitted discharge of 3 kg in the UK in 2016 and a 0,45 kg accidental discharge in Denmark in 2019.

Total use of chemicals in 2019 is 12 % lower than in 2009, though there was an increase over the 2012-2015 period and has increased again in 2019. Total discharge of chemicals has also declined over the eleven year period by 30 % (see Figure 10).

Chemical use and discharge related to production operations are estimated to have remained relatively stable over the 2009-2019 period in line with production volumes and the variation in use and discharge is believed to largely be due to the level of exploration & appraisal drilling activity, which varies year on year. It is not currently possible to provide more detailed information on this as the required level of resolution in the data is not reported by Contracting Parties.



Chemicals Used

Total use of chemicals in 2019 was 12% lower than in 2009 having decreased from 838 111 tonnes in 2009 to 733 598 tonnes in 2019 of which 69 % (wt.) are on the PLONOR list and less than 1 % (wt.) contained substances which are substitution chemicals.

Chemicals Discharged

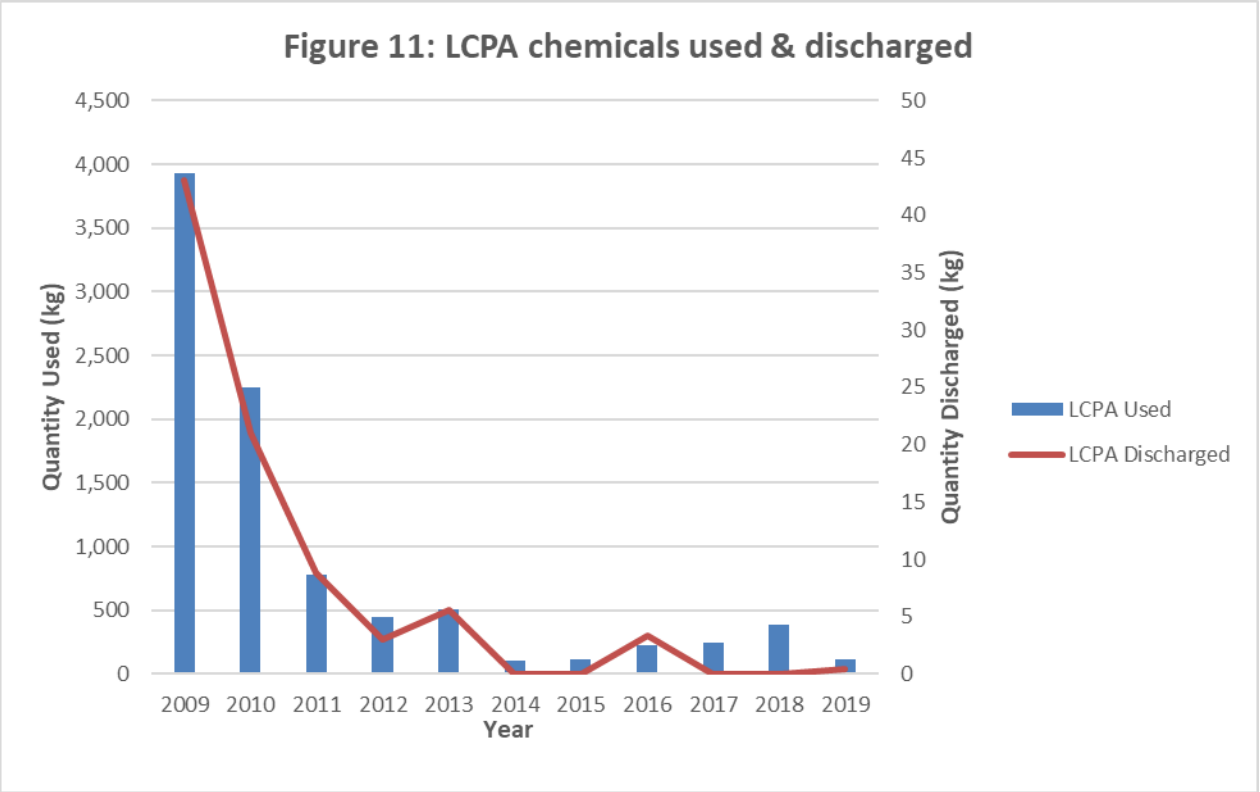
The total quantity of chemicals discharged into the sea in 2019 was 30% lower than in 2009 having decreased from 293 402 tonnes in 2009 to 204 570 tonnes in 2019 of which 84 % (wt.) are on the PLONOR list and less than 1 % (wt.) contained substances which are substitution chemicals.

LCPA and Substitution chemicals

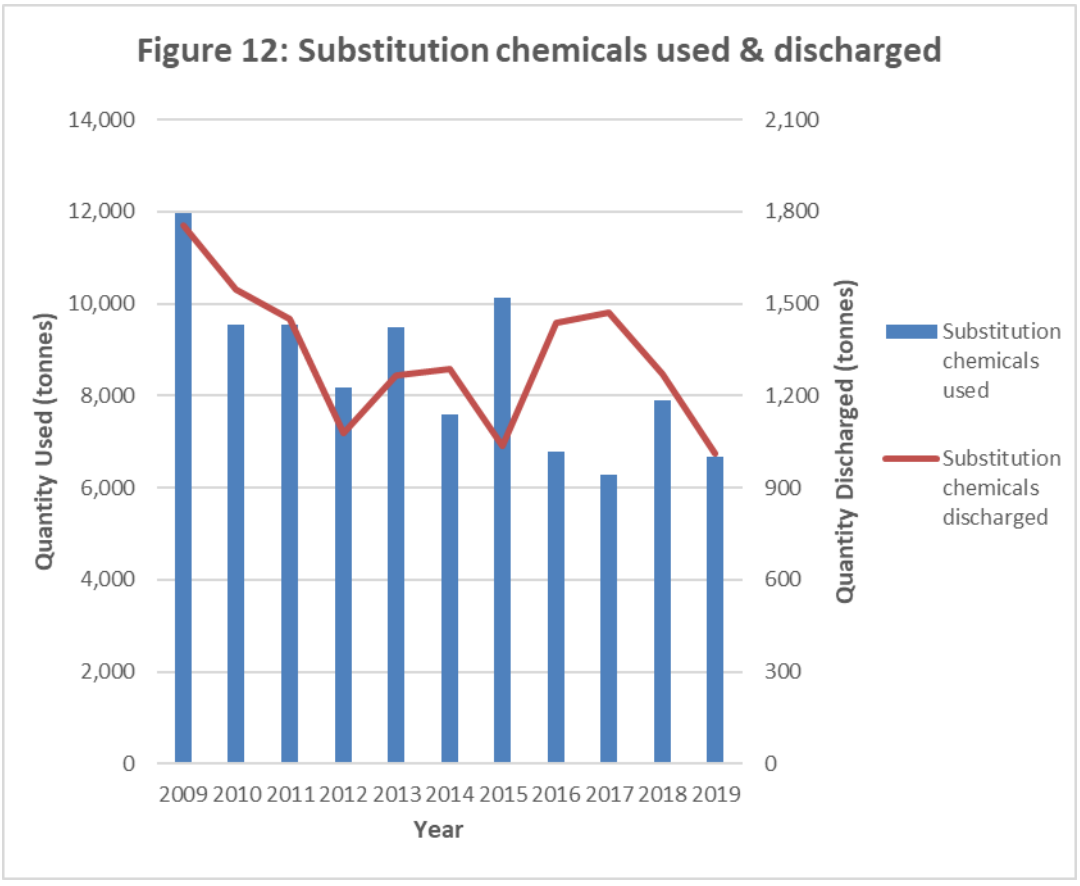
The amount of LCPA substances used has continued to decrease over the 2009-2019 period from 3 929 kg in 2009 to 111 kg in 2019, similarly the amount discharged had decreased from 43 kg in 2009 to 0 kg by 2014 (Figure 11). Two discharges of LCPA substances occurred in 2016 (3 kg)[10] and 2019 (0.5 kg)[11].

[10] The UK accidentally permitted the discharge of 3 kg of an LCPA substance.

[11] An operator in the Danish sector discharged an LCPA substance without a permit.

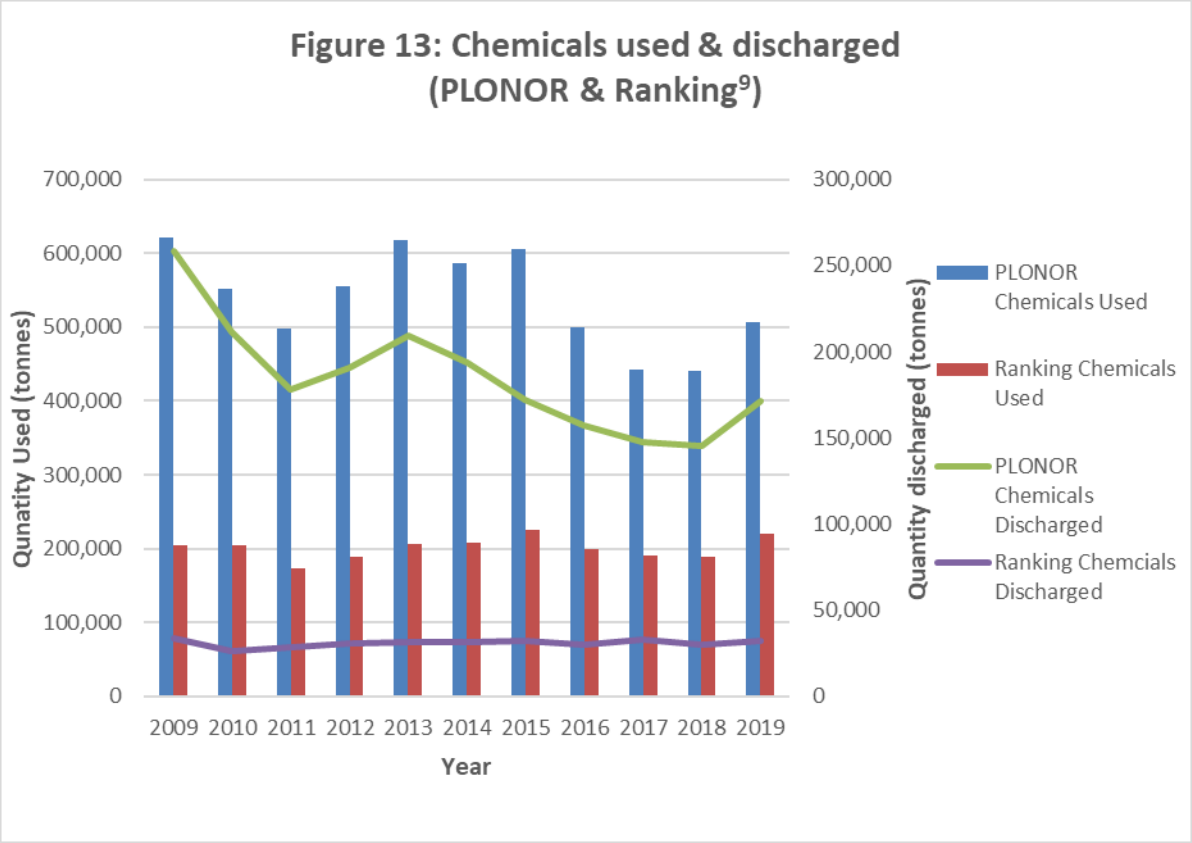


The discharge of chemicals containing substances that are substitution chemicals decreased from about 1 755 tonnes in 2013 to 1 012 tonnes in 2019, a 42 % decrease.



PLONOR and Ranking[9] chemicals

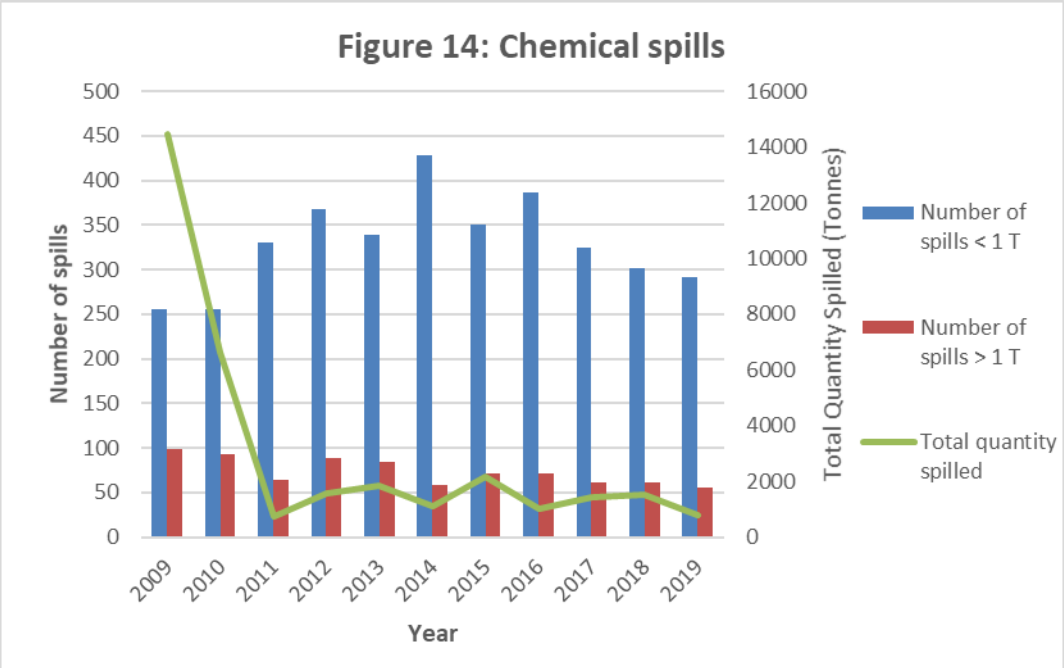
The use of Ranking[12] chemicals has increased by 7 % while their discharge has decreased by 3 % between 2009 and 2019. The use and discharge of PLONOR chemicals has decreased 18 % and 34 % respectively over the same period (see Figure 13). It is not entirely clear if this is mainly due to an overall reduction in use and discharge or a change in categorisation of chemicals off the PLONOR list.



4.2 Chemical Spills

In addition to planned discharges, 797 tonnes of chemicals were accidentally spilled in 2019 compared to a high of 14 464 tonnes in 2009 and a low of 728 tonnes in 2011 (see Figure 14). There is a decreasing trend in the number of chemical spills from 2014 onwards, however the quantity spilled is variable with no real trend over the 2009 – 2019 period. Of the chemicals spilled in each year the vast majority (97 - 99 %) were on the PLONOR list or were Ranking chemicals.

[12] Ranking chemcials being the combination of inorganic chemcials with LC50 or EC50 greater than 1 mg/l and ranking chemicals, which includes substances ranked according to OSPAR Recommendation 2000/2 and don't fall into another category.



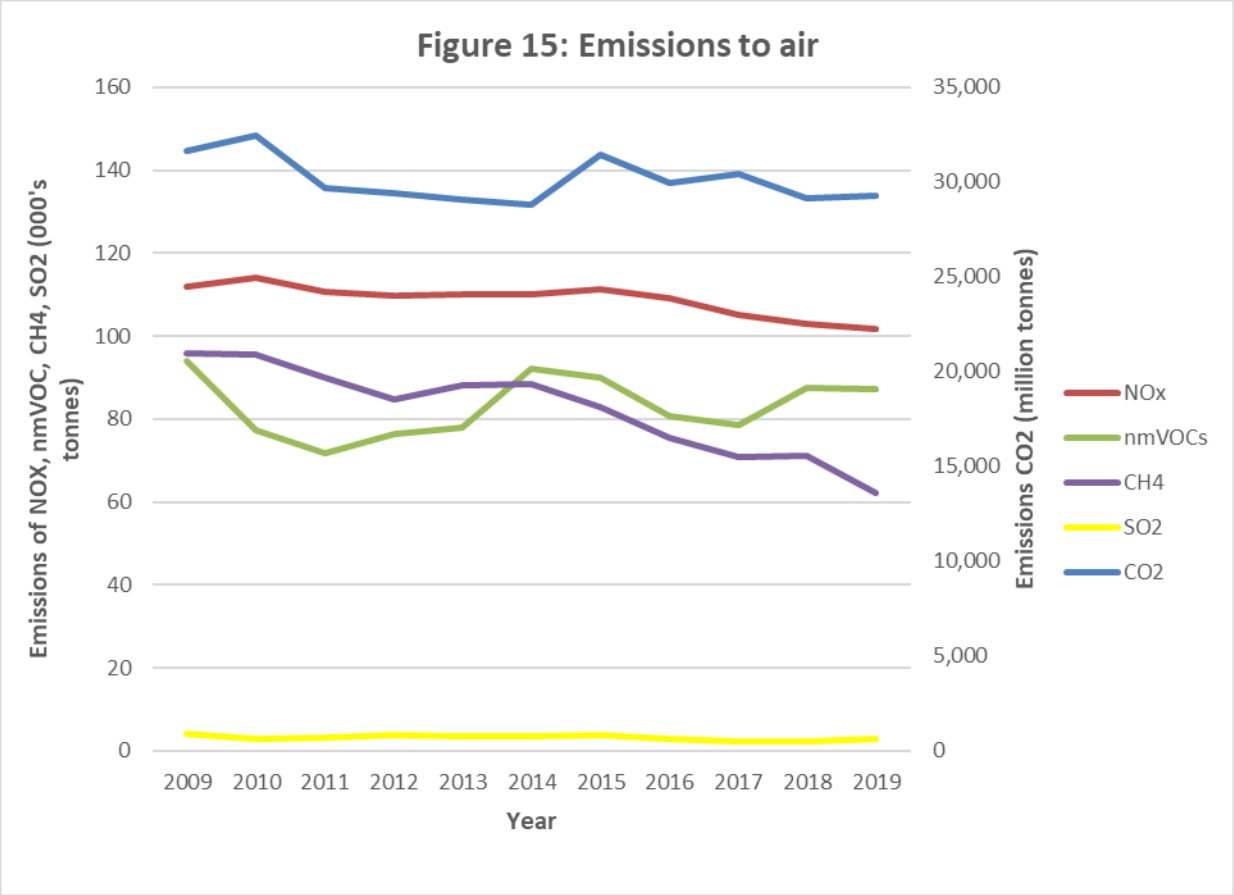
*Note: Up to 2017 Norway reported spills in m^3 rather than tonnes

5. Emissions to air

Atmospheric emissions are not covered by OSPAR measures or harmonised OSPAR measuring methodologies, but are covered by EU measures or national regulations. Consistency in quality of the data reported have undoubtedly improved over the past few years, particularly with regard to CO_2 emissions which are independently verified as part of the EU ETS Directive.

A decreasing trend of all releases into the atmosphere had been identified over the 2009-2019 period, with the following trends noted:

- CO_2 emissions having decreased by 7,5 % between 2009 and 2019 with decreases in most Contracting Parties partly offset by a 3 % increase in Norway;
- NO_x emissions trended downwards by 9.2 % from 2009-2019, predominantly in Denmark, the Netherlands and Norway where national measures to control NOx are in place. UK emissions remained largely static;
- Methane emissions having decreased 35 % over the 2009-2019, with decreases in most Contracting Parties, in particular Norway, the Netherlands and Germany;
- nmVOC emissions have decreased 7,2 % from 2009-2019 period with significant decreases in most Contracting Parties offset by increases in the UK; and
- SO_2 emissions have decreased 33 % between 2009 and 2019 with decreases in Denmark and the Netherlands offset by increases in Norway.



In interpreting these changes, one must take into account factors which have a direct influence on atmospheric emissions, such as ageing fields requiring a higher consumption of energy (e.g. additional compression), and the consequent depletion of available gas for fuel, which may require additional usage of diesel for power generation which leads to increased atmospheric emissions. These factors may partly distort the effect of any EU or national measures taken to reduce air emissions.

6. Discharges of radioactive substances

The discharges of radioactive substances from the non-nuclear sector, including the offshore industry, have been assessed by the Radioactive Substances Committee (RSC). The offshore industry is the principal source of total alpha discharges to the OSPAR maritime area. For total beta, discharges from the offshore industry are lower than for the nuclear sector, but they are probably the principal source from the non-nuclear sector. Over the period 2009-2019, there was an increase of 7.2 % in Total Alpha particle discharge and no overall change in total beta particle discharge.

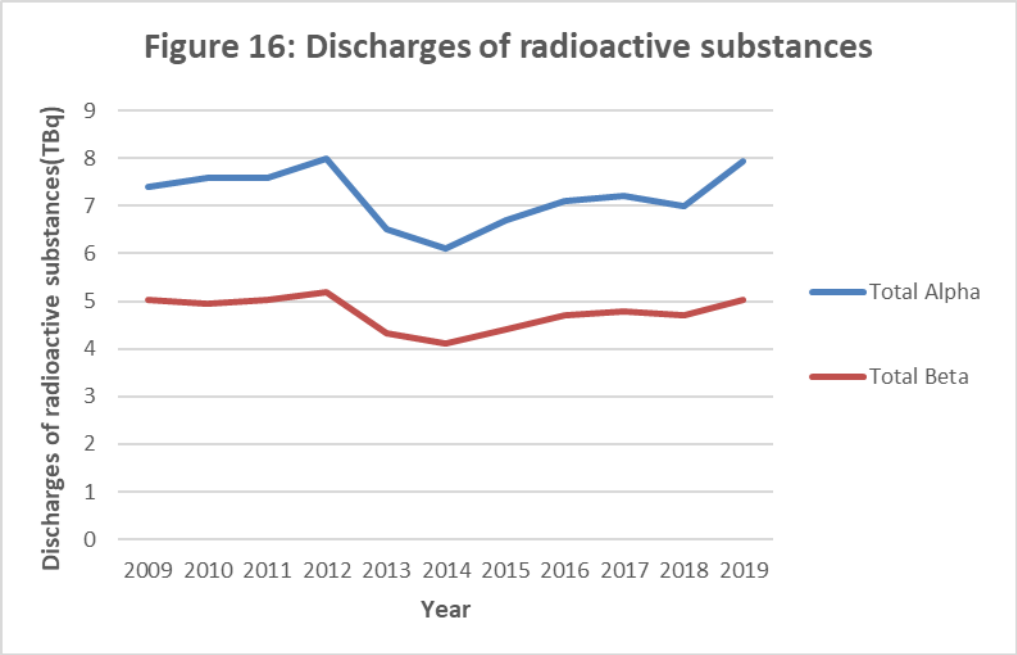


Figure 16: Discharges of radioactive substances
Discharges of radioactive substances(TBq)
9
8
7
6
5
4
3
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
Year
Total Alpha
Total Beta

Appendix 1: OSPAR Measures associated with Offshore Oil and Gas industry

Discharges contaminated with oil

PARCOM Recommendation 86/1 of a 40 mg/l Emission Standard for Platforms[13];

OSPAR Recommendation 2001/1 for the Management of Produced Water from Offshore Installations (as amended);

OSPAR Recommendation 2012/5 for a risk-based approach to the Management of Produced Water Discharges from Offshore Installations (as amended);

OSPAR Reference Method of Analysis for the Determination of the Dispersed Oil Content in Produced Water (OSPAR Agreement number: 2005-15).

Use and discharge of drilling fluids and cuttings

OSPAR Decision 2000/3 on the Use of Organic-phase Drilling Fluids (OPF) and the Discharge of OPF-contaminated Cuttings;

Guidelines for the Consideration of the Best Environmental Option for the Management of OPF-Contaminated Cuttings Residue (OSPAR Agreement number: 2002-8).

Chemicals used and discharged offshore

OSPAR Decision 2000/2 on a Harmonised Mandatory Control System for the Use and Reduction of the Discharge of Offshore Chemicals (as amended);

OSPAR Recommendation 2005/2 on Environmental Goals for the Discharge by the Offshore Industry of Chemicals that Are, or Contain Added Substances, Listed in the OSPAR 2004 List of Chemicals for Priority Action;

OSPAR Recommendation 2006/3 on Environmental Goals for the Discharge by the Offshore Industry of Chemicals that Are, or Which Contain Substances Identified as Candidates for Substitution (as amended);

OSPAR Recommendation 2010/3 on a Harmonised Offshore Chemical Notification Format (HOCNF) (as amended);

OSPAR Recommendation 2017/1 on a Harmonised Pre-Screening Scheme for Offshore Chemicals (as amended).

[13] PARCOM Recommendation of a 40 mg/l Emission Standard for Platforms, 1986 was revoked for produced water only by OSPAR Recommendation 2001/1 for the Management of Produced Water from Offshore Installations. However, this measure is still applicable in relation to ballast water, drainage water and displacement water from offshore installations.

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Our vision is a clean, healthy and biologically diverse North-East Atlantic Ocean, which is productive, used sustainably and resilient to climate change and ocean acidification.

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