



OSPAR
COMMISSION

Assessment of the OSPAR report on discharges, spills and emissions to air from offshore oil and gas 2010-2012



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.

Acknowledgement

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Executive Summary

This report presents in Part A of Section 3 the discharges, spills and emissions data from offshore installations for 2012. The cumulative data over the past 10 years are presented in Part B of Section 3. Section 2 presents an assessment of the data reported for the period 2010 – 2012, and the trends over the last 10 years based on the data in Part B. In some instances data has been taken from previous years' Part A reports which are not collated in Part B.

A. Level of Activity

The OSPAR region is a mature oil and gas region with the majority of Contracting Parties (CPs) experiencing declining production. Despite this there is a high level of oil and gas activity which maintains production figures and maximises economic recovery of reserves, as is apparent from the increasing number of subsea developments and high levels of drilling activity.

The total production of hydrocarbons in OSPAR's maritime area has decreased by 42% in the period 2003-2012. Despite this there has been a 50% increase in the number of oil & gas installations, with the greatest increase in the number of subsea installations.

B. Discharges & Spills of Oil

Discharges of oil continue to decrease

The total quantity of dispersed¹ oil (aliphatic oil) discharged to the sea from produced water and displacement water continued to decrease during the 2010 – 2012 period, from 4795 tonnes in 2010 to 4052 tonnes in 2012.

As in previous years, produced water and displacement water are the main contributors to the oil discharges from offshore oil and gas activities, representing 97-98% of the total amount of oil discharged to the sea during the 2010-2012 period. 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 only 1-4% to this total.

Spills of oil to sea have varied over the period as might be expected ranging from 63 tonnes in 2011 up to 137 tonnes in 2010 and 121 tonnes in 2012.

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 was 12,1mg/l in 2010, 11,6mg/l in 2011 and 11,5mg/l in 2012, well below the current performance standard for dispersed oil of 30 mg/l for produced water discharged into the sea.

In 2012, 17 installations exceeded the *30 mg/l performance standard* for dispersed oil in produced water. Despite the efforts made to reduce the number of installations which exceed the standard, there are still some installations which raise concern; however, the amount of oil discharged from most of these installations is very low.

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.

C. Chemicals

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

Since 2001 use and discharge of chemicals have been regulated by OSPAR. The first reporting year for which all major contributors provided data was 2003. The total quantity of chemicals used offshore in 2012 was just over 750 000 tonnes. Less than 6% (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 in 2012 was just over 220 000 tonnes, 86% of which were chemicals on the OSPAR PLONOR list². Less than 1% (wt.) of the discharged chemicals contains LCPA substances or substances which are candidates for substitution. Discharge to the sea of chemicals on the LCPA was 3 kg in 2012.

OSPAR Recommendation 2005/2 set environmental goals for the reduction of substances on the OSPAR List of Chemicals for Priority Action (LCPA) such that discharges were to be phased out by 2010. There was a 90% reduction in such discharges in 2010, with respect to the 2005 baseline set in the OSPAR Recommendation. This figure has further improved to almost 99% as of 2012.

The environmental goals set in OSPAR Recommendation 2006/3 on the phasing out of discharges of offshore chemicals that are, or which contain substances, identified as candidates for substitution³ by 2017, have been more than 75% achieved by 2012.

The reductions in the amounts of LCPA and substitution chemicals discharged are indicative of the success of the OSPAR measures.

D. Atmospheric Emissions

Atmospheric emissions are stable or decreasing

Atmospheric emission 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 stable with the exception of SO₂ which continues to vary greatly year on year. Significant reductions have been noted in CO₂ and nmVOC over the previous 10 year period, likely as a result of EU or national 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.

Récapitulatif

Ce rapport présente, dans la Partie A de la Section 3, les données sur les rejets, déversements et émissions provenant des installations offshore pour 2012. Les données cumulées pour les 10 dernières années sont présentées dans la Partie B de la Section 3. La Section 2 présente l'évaluation des données notifiées pour la période 2010 – 2012, et les tendances pour les 10 dernières années, établies à partir des données présentées dans la Partie B. Dans certains cas, les données proviennent de notifications d'années précédentes figurant dans la Partie A qui ne sont pas récapitulées dans la Partie B.

A. Niveau d'activité

La région OSPAR est une région pétrolière et gazière qui est parvenue à maturité, dans laquelle la majorité des Parties contractantes (PC) constatent un déclin de la production. Quoi qu'il en soit, les activités pétrolières et gazières restent à un niveau élevé, pour assurer le maintien des chiffres de production et maximiser la rentabilité de la récupération des réserves, comme l'indiquent le nombre croissant de développements sous-marins et le niveau élevé des activités de forage.

La production totale d'hydrocarbures dans la zone maritime d'OSPAR a diminué de 42 % durant la période 2003-2012. Malgré cela, le nombre d'installations pétrolières et gazières a augmenté de 50 %, l'augmentation la plus importante concernant le nombre d'installations sous-marines.

B. Rejets et déversements d'hydrocarbures

Les rejets d'hydrocarbures continuent de diminuer

La quantité totale d'hydrocarbures dispersés⁴ (hydrocarbures aliphatiques) rejetés en mer dans l'eau de production et l'eau de ballast provenant des plateformes a continué de diminuer durant la période 2010 – 2012, en passant de 4 795 tonnes en 2010 à 4 052 tonnes en 2012.

Comme pour les années précédentes, l'eau de production et l'eau de ballast provenant des plateformes apportent les principales contributions aux rejets d'hydrocarbures provenant des activités pétrolières et gazières offshore, et représentent 97-98 % de la quantité totale des hydrocarbures rejetés en mer durant la période 2010-2012. Le brûlage à la torche représente une source minime de rejets d'hydrocarbures et n'est pas couvert par les mesures OSPAR.

On notera que les hydrocarbures dispersés dans l'eau de ballast provenant des plateformes apporte une contribution de seulement 1-4 % à ce total.

Les déversements d'hydrocarbures en mer ont varié au cours de cette période, comme l'on pourrait s'y attendre, en passant de 63 tonnes en 2011 à 137 tonnes en 2010 et à 121 tonnes en 2012.

La concentration d'hydrocarbures dispersés dans l'eau de production est en dessous de la norme de performance pour la plupart des installations

La moyenne annuelle de la teneur en hydrocarbures dispersés de l'eau de production a été de 12,1 mg/l en 2010, 11,6 mg/l en 2011 et 11,5 mg/l en 2012, des chiffres largement inférieurs à la norme de performance actuelle pour les hydrocarbures dispersés, soit 30 mg/l pour l'eau de production rejetée en mer.

En 2012, 17 installations ont dépassé la norme de performance de 30 mg/l pour les hydrocarbures dispersés dans l'eau de production. Malgré les efforts qui ont été faits pour réduire le nombre des

⁴. Les hydrocarbures « aliphatiques » et « aromatiques » sont définis par la méthode de référence énoncée dans l'Accord OSPAR 2005-15 (Extraction par solvant, mesure par infrarouges à 3 longueurs d'onde). Dans ce contexte, les termes « hydrocarbures aliphatiques » et « hydrocarbures dispersés » ont le même sens.

installations qui dépassent la norme, il reste des installations préoccupantes ; toutefois, la quantité d'hydrocarbures rejetée à partir de la plupart de ces installations est très faible.

C. Substances chimiques

On considère que la plupart des substances chimiques utilisées et rejetées offshore présentent un risque faible, voire nul

Depuis 2001, l'utilisation et le rejet des substances chimiques sont réglementés par OSPAR. La première année de notification pour laquelle tous les principaux contributeurs ont présenté des données a été 2003. La quantité totale des substances chimiques utilisées offshore en 2012 a été d'un peu plus de 750 000 tonnes. Moins de 6 % (en poids) des substances chimiques utilisées contiennent soit des substances figurant sur la Liste OSPAR de substances chimiques devant faire l'objet de mesures prioritaires (LPCA), soit des substances candidates pour une substitution.

La quantité totale des substances chimiques rejetées en mer en 2012 a été d'un peu plus de 220 000 tonnes ; 86 % étaient des substances chimiques figurant sur la Liste PLONOR d'OSPAR⁵. Moins de 1 % (en poids) des substances chimiques rejetées contiennent des substances LPCA ou des substances candidates pour une substitution. Les rejets en mer de substances chimiques figurant sur la Liste LPCA ont été de 3 kg en 2012.

La Recommandation OSPAR 2005/2 a fixé des objectifs environnementaux pour la réduction des substances figurant sur la Liste OSPAR de substances chimiques devant faire l'objet de mesures prioritaires (LPCA), de façon à éliminer progressivement les rejets d'ici à 2010. On a observé une réduction de 90 % de ces rejets en 2010, par rapport à la ligne de base de 2005 énoncée dans la Recommandation OSPAR. Ce chiffre s'est encore amélioré en atteignant presque 99 % à partir de 2012.

Les objectifs environnementaux fixés dans la Recommandation OSPAR 2006/3 concernant l'élimination progressive des substances chimiques offshore qui sont, ou qui contiennent, des substances identifiées comme candidates pour une substitution⁶ d'ici à 2017, ont été réalisés à plus de 75 % dès 2012.

Les réductions des quantités des substances figurant sur la Liste LPCA et des substances chimiques candidates pour une substitution qui sont rejetées témoignent du succès des mesures OSPAR.

D. Émissions atmosphériques

Les émissions atmosphériques sont stables ou en diminution

Les émissions atmosphériques ne sont pas réglementées par des mesures OSPAR ; les émissions atmosphériques provenant des activités pétrolières et gazières offshore sont cependant notifiées annuellement par les opérateurs. Les émissions atmosphériques ont généralement diminué ou sont restées stables, à l'exception des émissions de SO₂, qui continuent de varier considérablement d'une année à l'autre. On a observé des réductions significatives des émissions de CO₂ et de COVnm au cours de la période **de 10 ans précédente, probablement en raison de mesures de l'UE ou de mesures nationales.**

⁵ Présentant un risque faible, voire nul, pour l'environnement – (en anglais, « pose little or no risk to the environment – PLONOR)

⁶ À l'exception des substances chimiques pour lesquelles, malgré des efforts considérables, on peut démontrer que cet objectif n'est pas réalisable pour des raisons techniques ou de sécurité. La démonstration de ces raisons doit contenir une description des efforts.

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 2010 – 2012 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.

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

This assessment is based on data given in the annexes which has been submitted by Contracting Parties and compiled by the Secretariat and, following examination by the relevant subsidiary bodies, published by the Commission in this report. Part A contains data specifically from 2012. Part B contains cumulative data from 2003 to 2012. Data used in this assessment report are the best available data at the time the report has been written.

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;
- certified laboratories;
- data collection format; and
- an Expert Assessment Panel.

It is, however, recognised that data collection and methodologies vary across Contracting Parties due to national preferences 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 and taking the necessary measures to protect the Maritime Area against the adverse effects of offshore activities so as to safeguard human health, conserve marine ecosystems and, when practicable, restore marine areas that have been adversely affected.

The Offshore Strategy further declares that the Commission will implement this Strategy progressively and 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 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.

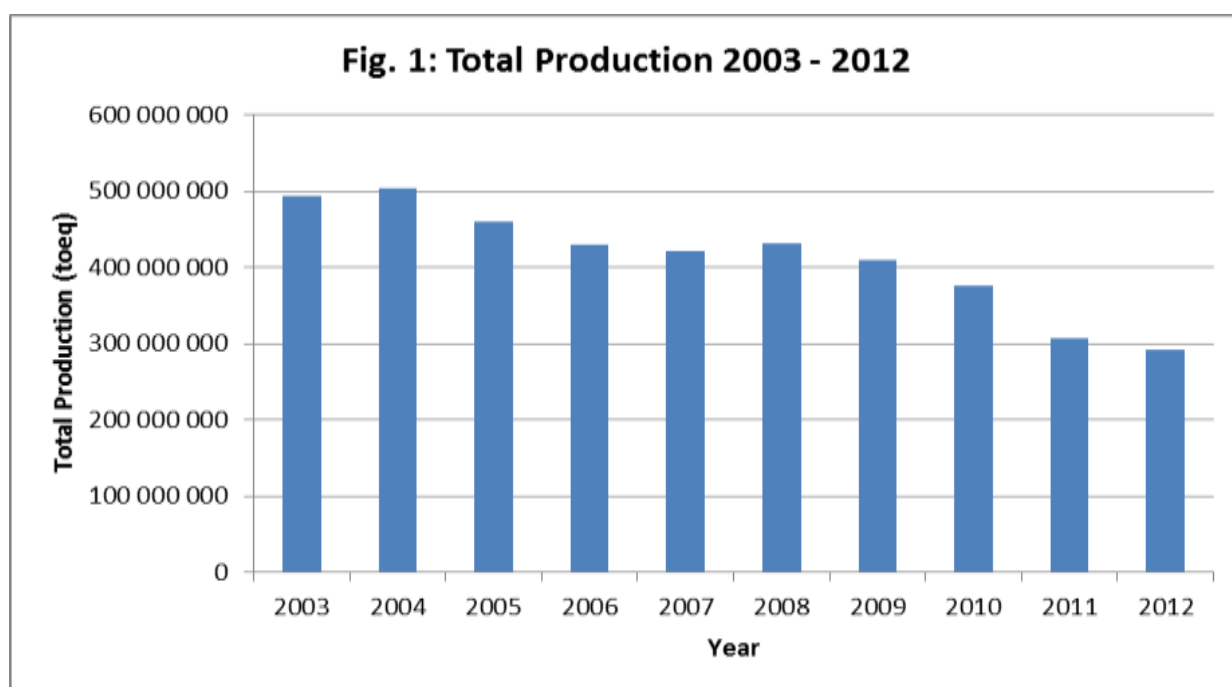
As part of this process, the Commission should develop and keep under review programmes and measures to identify, prioritise, monitor and control the emissions, discharges and losses of substances which could reach the marine environment and which are likely to cause pollution. Regular reporting is therefore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

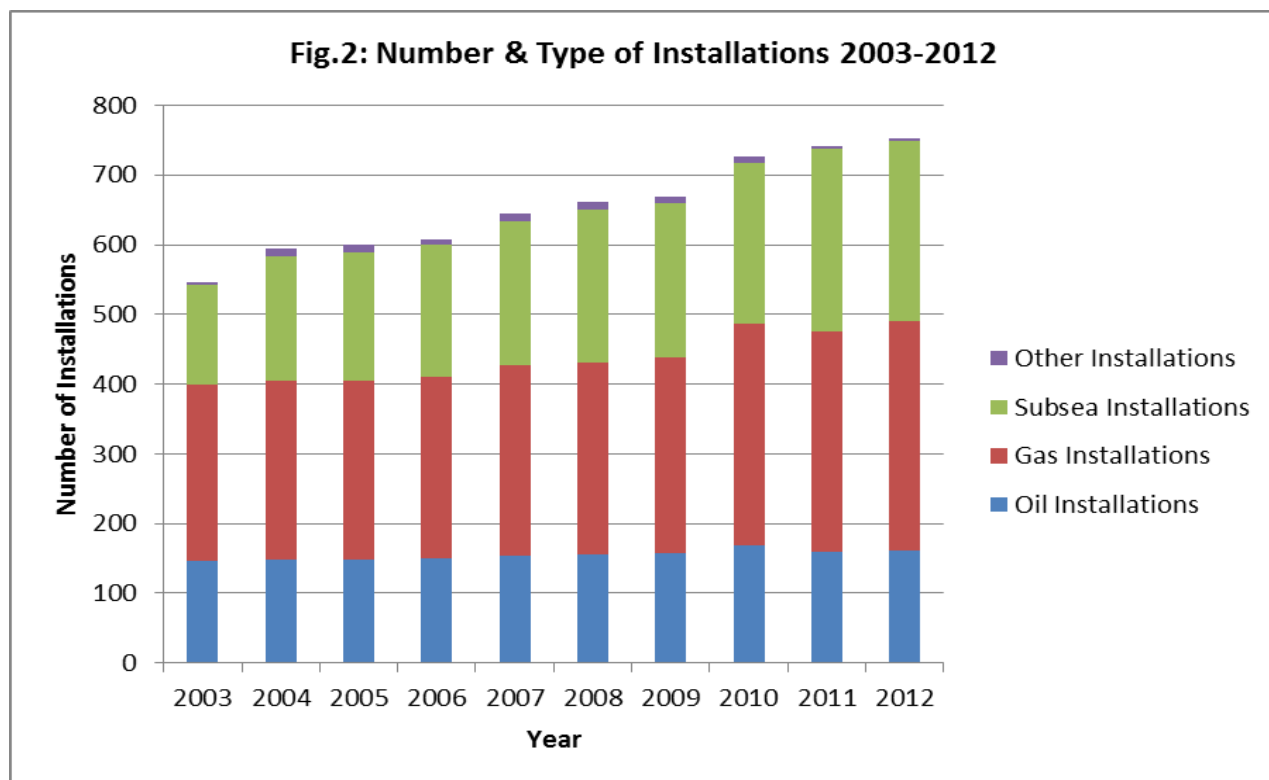
2. Setting the Scene

2.1 Level of Activity

The production of hydrocarbons decreased by 22% in 2012 compared to 2010, with the majority of this reduction occurring in 2011. Production over the period since 2002 has decreased by 41% overall.



The number of installations with emissions and discharges reported in the OSPAR Maritime Area increased in 2012 from 2011, though the number was down from 2010, primarily due to changes from 2011 in the manner in which drilling operations were determined. Previously 'drilling years' were determined on the basis of time, rather than activity, e.g. a Mobile Offshore Drilling Unit (MODU) was counted as an installation for every year spent undertaking drilling activity, irrespective of the number of wells drilled. From 2011 the number of wells drilled, including sidetracks, in each calendar year is reported separately. In 2012 there were 752 installations, up marginally from the 742 installations reported in 2011; however this is down 4% from the 784 installations reported in 2010. Over the period 2003 to 2012, there has been a 27% increase in the number of installations with emissions and discharges from 592 up to 752.

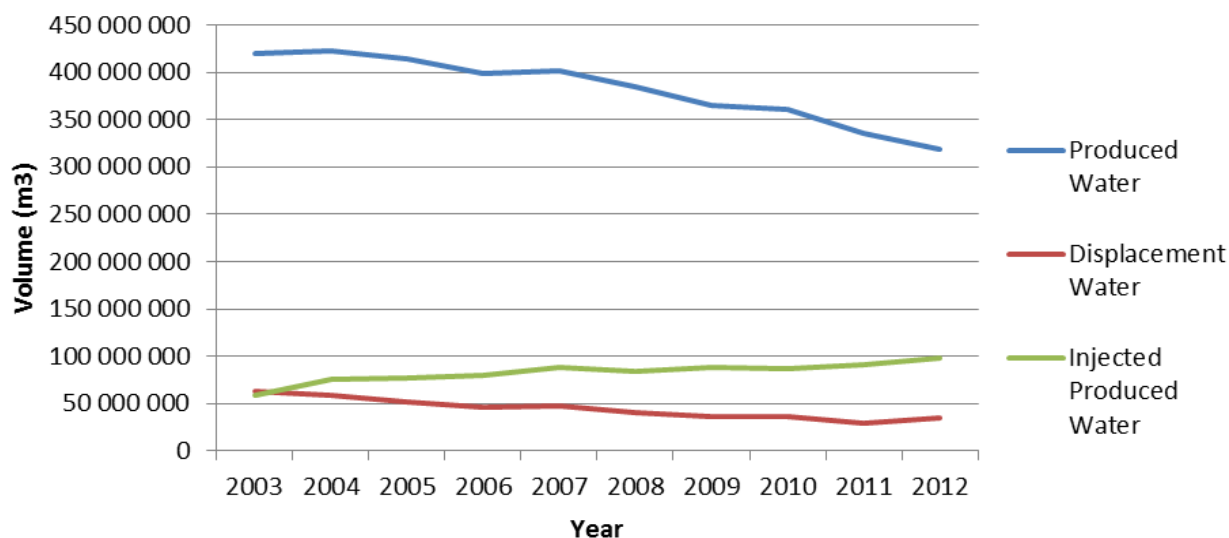


Drilling activity increased from 2011 to 2012, with 402 wells drilled in 2012 up from 380 in 2011. It is difficult at present to compare this to previous years' totals as the number of wells drilled was not reported prior to 2011. The number of actual MODUs operating within the OSPAR Maritime area varies year on year, but is currently around 70-80.

The discharge of produced water and displacement water has continued to decline from a peak of 482 million cubic metres in 2003 down to 353 million cubic metres in 2012, a 26,8% decrease attributed to a decline in production. However the amount of produced water injected has increased over this same period from 59 million cubic metres in 2003 to over 98 million cubic metres in 2012. Though not included within the 10 yearly review, the number of installations injecting produced water has increased over the period from 36 in 2002 to 66 in 2012, indicating some success in Recommendation 2001/1, which requires new installations to have zero discharge as a point of departure. However it is not possible to determine from this data what proportion of installations re-injecting produced water are new installations or have had PWRI facilities retrofitted.

The quality of the measurement uncertainty in produced water reported which can have a significant impact on the amount of oil reported as discharged, varies across Contracting Parties. In the UK and Norway a 10% measurement uncertainty is accepted, while in the Netherlands a 5% measurement uncertainty is considered acceptable.

Fig. 4: Discharge / Injection of Produced and Displacement Water 2003 - 2012



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 discharges of dispersed oil in produced and displacement water to 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 new OSPAR reference method came into effect in 2007 and since 2010 all Contracting Parties (CPs) with significant oil discharges have adopted this method.

There are now several years of data since the implementation of the new reference method. The *total quantity of dispersed* oil discharged with produced and displacement water was 4052 tonnes in 2012 which continues the downward trend over the period 2010 - 2012 and over the longer 10 year period of 2003 - 2012. During this period the total quantity of dispersed oil discharged is reported to have decreased by about 50%, however the change in analytical method in 2007 makes direct comparison of the discharge data difficult.

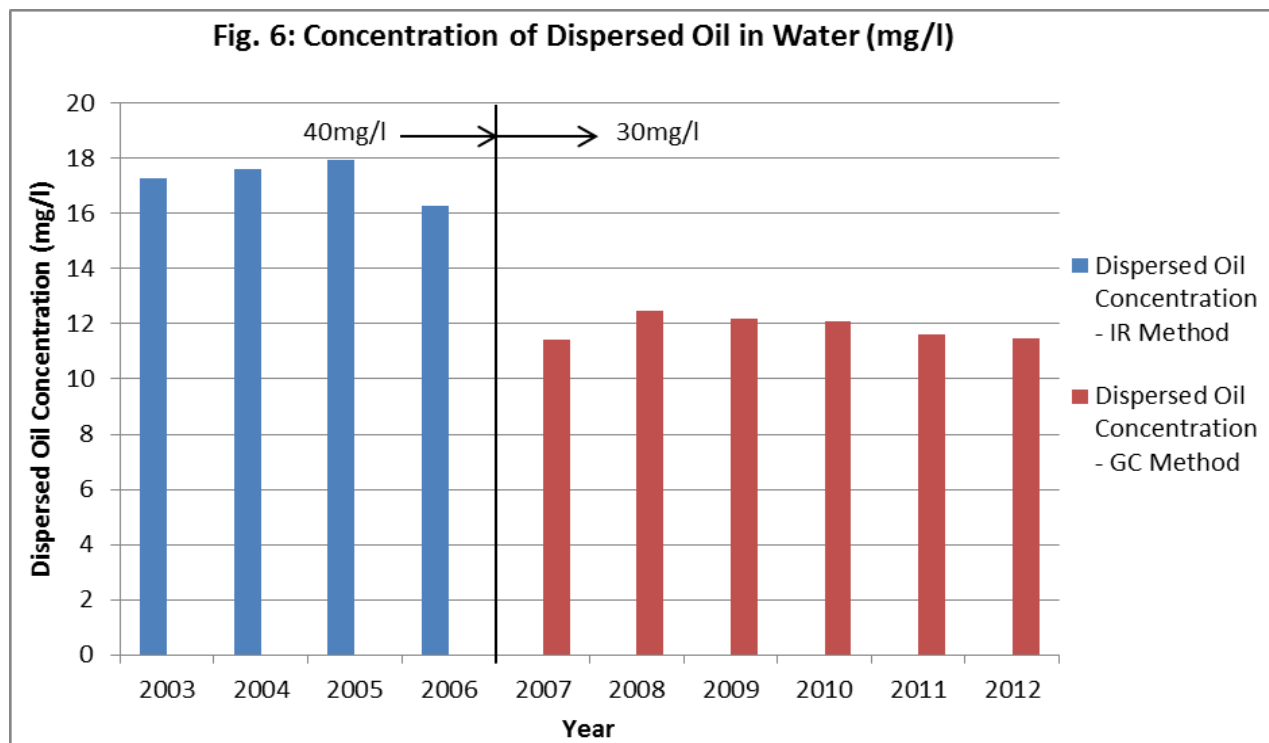
Note there was a transition period from 2007-2010 where Contracting Parties changed from the previous IR analytical method⁷ to the OSPAR reference method (GC-FID), though Norway and the UK changed in 2007 which represents the majority of the installations and discharges to sea.

While there has been a general downwards trend over the entire period, the significant decline in the 2006-2007 was partly due to the success of the reduction targets but also partly due to the change in analytical

⁷ The IR analytical method, as defined in OSPAR Recommendation 2001/1 for the Management of Produced Water from Offshore Installations (as amended), is described in OSPAR Agreement 2005/15.

method which redefined dispersed oil. Trends would indicate that the industry has been successful in reducing dispersed oil discharges in accordance with the aims of the Recommendation.

The quality of the produced water discharged has also continued a downwards trend over the 2010-2012 period, from 12,1mg/l in 2010 to 11,5mg/l in 2012. The quality of produced water has also decreased over the 10 year period from 2003 to 2012 as shown in figure 6:

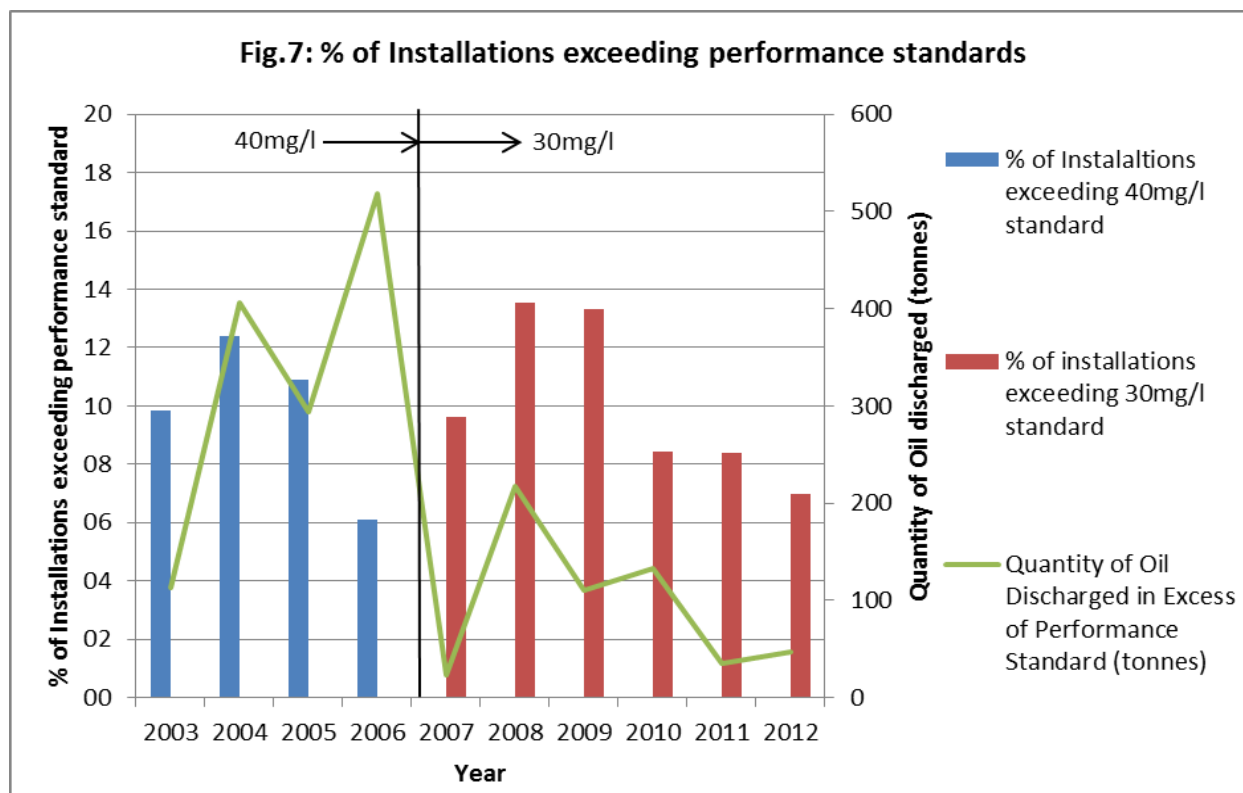


Recommendation 2001/1 sets a performance standard for the discharge of dispersed oil in produced water. During the period 2003-2006, the performance standard was 40mg/l, calculated as a monthly average. Since 2007 the performance standard has been 30mg/l calculated as a monthly average. While the majority of installations in the OSPAR Maritime Area meet the performance standard, a number of installations exceed this performance standard on an annual basis. The number of installations which have exceeded the performance standard in 2010-2012 decreased from 20 to 17. Over the period 2003 – 2012, the total number has decreased from 22 to 17, though there were increases during the 2004-2005 and 2007-2009 periods as shown in figure 7. The reason for the 2004-2005 increase is not clear, however the increase in 2007-2009 is most likely due to a tighter performance standard and a changing analytical method which may have resulted in some increases in reported discharge of produced water from certain types of installations.

As can be seen improvements have been made in the 2009-2012 period. It should also be noted that for some installations with a high uptime of produced water reinjection (PWRI), that when PWRI stops working, produced water may be discharged overboard 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.

Contracting Parties also report the dissolved oil content (as represented by BTEX components) in produced water and displacement water discharges. OSPAR does not regulate for these as they rapidly biodegrade in seawater once discharged. The discharge of dissolved oil (BTEX) has remained stable over the 2010-2012

period, though it has decreased over the longer 2003-2012 period from 4843 tonnes (as dissolved oil) in 2003 to 4235 tonnes (as BTEX) in 2012⁸.



The total quantity of hydrocarbons discharged in excess of the performance standards has decreased by 65% over the period 2010-2012.

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 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 30mg/l during 2012, only 7 discharge greater than 2 tonnes of dispersed oil during the year and over 90% of the oil discharged in excess of the performance standard is from just 3 installations.

⁸ "Aliphatics" (or "dispersed oil") are regularly and frequently measured, while the sampling is much less frequent for "aromatics". Therefore data on "aromatics" may be less reliable.

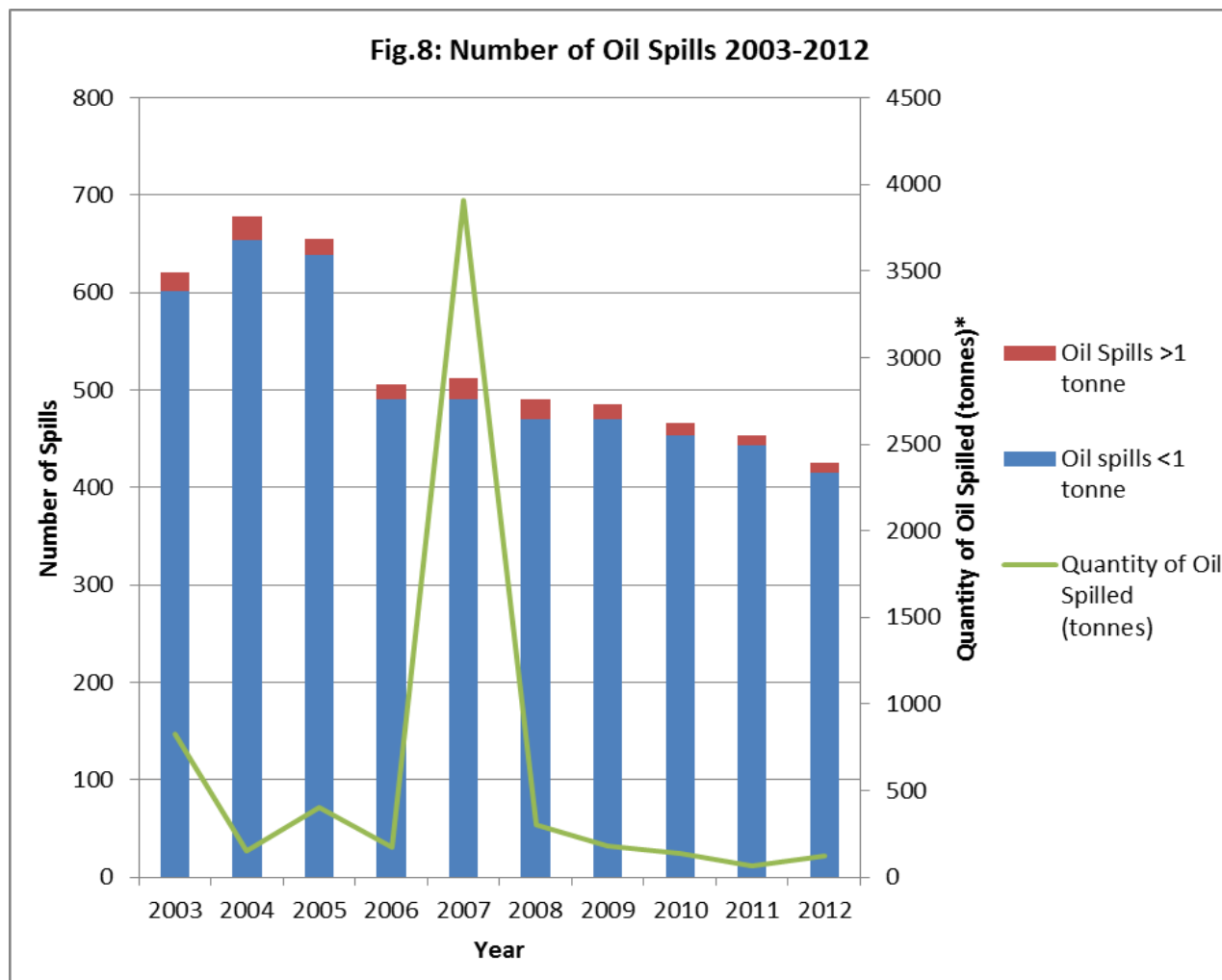
3.2 Risk-based Approach

In 2012, OSPAR Recommendation 2012/5 for a risk-based approach to the management of produced water discharges from offshore installations was adopted. Contracting Parties provided OIC with implementation plans in 2013 and the majority will commence assessments from 2014 onwards until the Recommendation is fully implemented in 2018. Future annual reports and assessment reports will report on the progress of the Contracting parties implementation plans and the outcome of the assessments.

3.3 Releases of oil to sea

The number of oil spills to sea during the 2010-2012 periods decreased from 466 in 2010 to 421 in 2012, and of these only ~2,5% of the number of spills are greater than 1 tonne (13, 11 & 10 respectively in 2010, 2011 and 2012).

During the period 2003-2012 the total number of spills has continued to decrease, with the exception of increases in 2004 -2005. The total volume spilled each year is naturally variable but has trended downwards with the notable exception of 2007 where a single large spill in Norway contributed approximately 3000 tonnes to the total. In 2012, oil spills contributed less than 3% (wt) of the dispersed oil discharged or released to the OSPAR Maritime Area and since 2003 has trended downwards. with the exception of 2007.

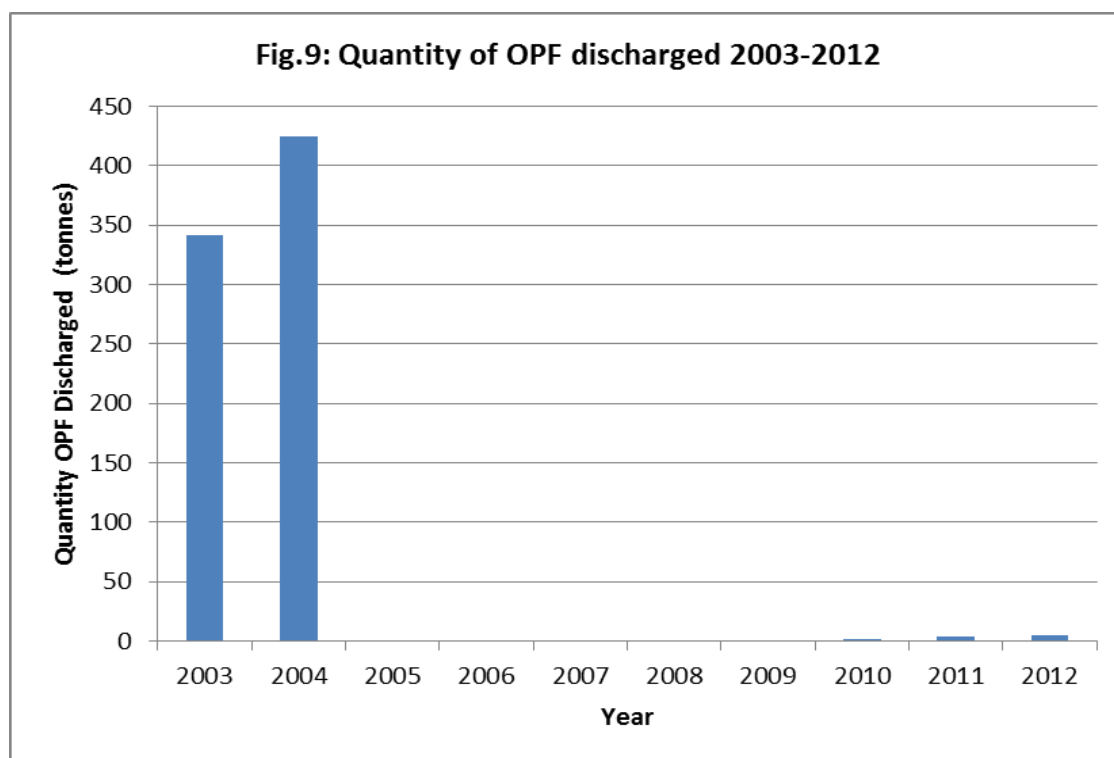


*Note: Norway reports spills in m³ rather than tonnes

3.4 Discharges of organic phase fluids

OSPAR Decision 2000/3 aims to prevent and eliminate pollution by the use and discharge of OPF and OPF-contaminated cuttings⁹ and prohibiting the discharge of cuttings contaminated with OBF¹⁰ at a concentration greater than 1% by weight on cuttings.

The amount of oil and other organic-phase fluids discharged via cuttings has been significantly reduced over the 2003 to 2012 period from 342 tonnes to 5 tonnes, however during the period 2010-2012 this has increased from 1 to 5 tonnes discharged. While there has been a restriction on the discharge of OBF since 2005, as a result of OSPAR Decision 2003/3, the discharge of OBF on cuttings is permitted if the concentration is <1% oil on cuttings. As a result of new technologies it has been possible to meet this concentration limit. All the discharges in 2010-2012 have met this criteria through the use of thermal desorption techniques.



4. Chemicals

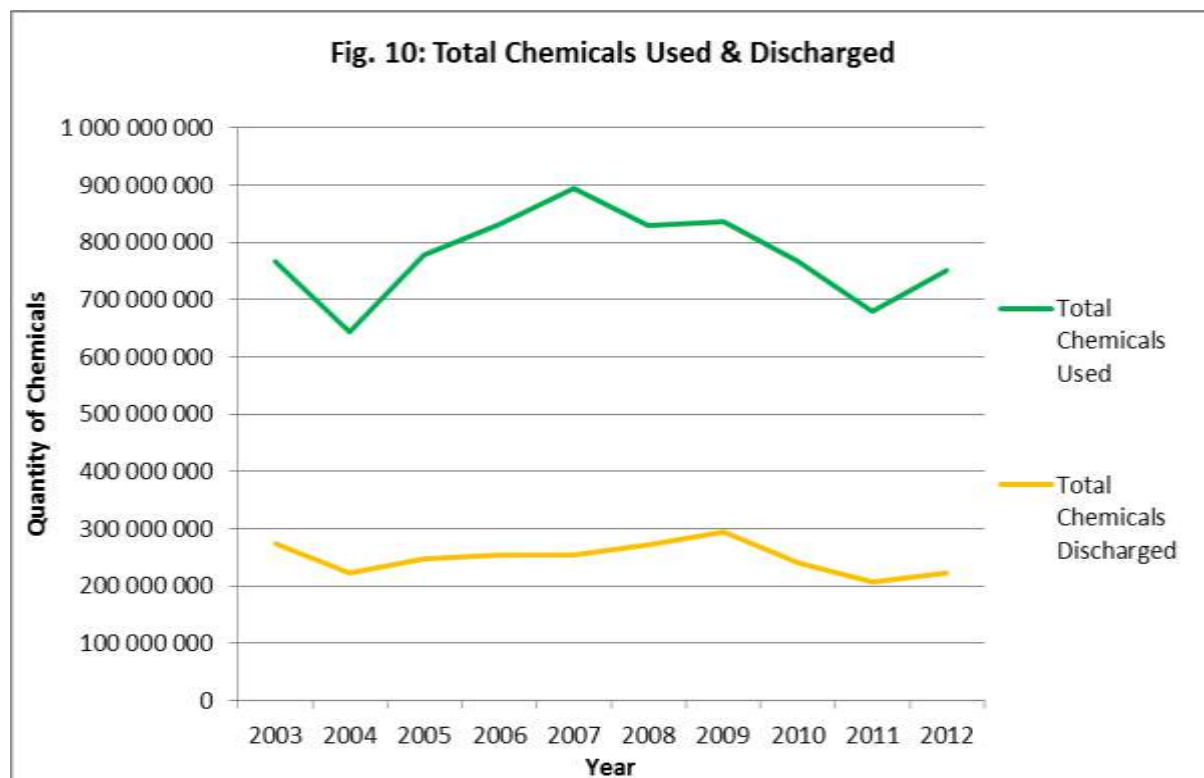
4.1 Chemical Use & Discharge

Since 2001 the use and discharge of chemicals have been covered by a number of OSPAR measures as listed in the Appendix 1. Total use and discharge of chemicals between 2010 and 2012 shows no obvious trend. Chemical use and discharge related to production operations are estimated to have remained relatively stable over the 2003 – 2012 period and the variation in use and discharge will be largely due to the level of

⁹ OPF = Organic-phase Drilling Fluids

¹⁰ OBF = Oil-based fluids

drilling activity, which varies year on year. It is not currently possible to provide more detailed information on this as the level of resolution in the data is not available.



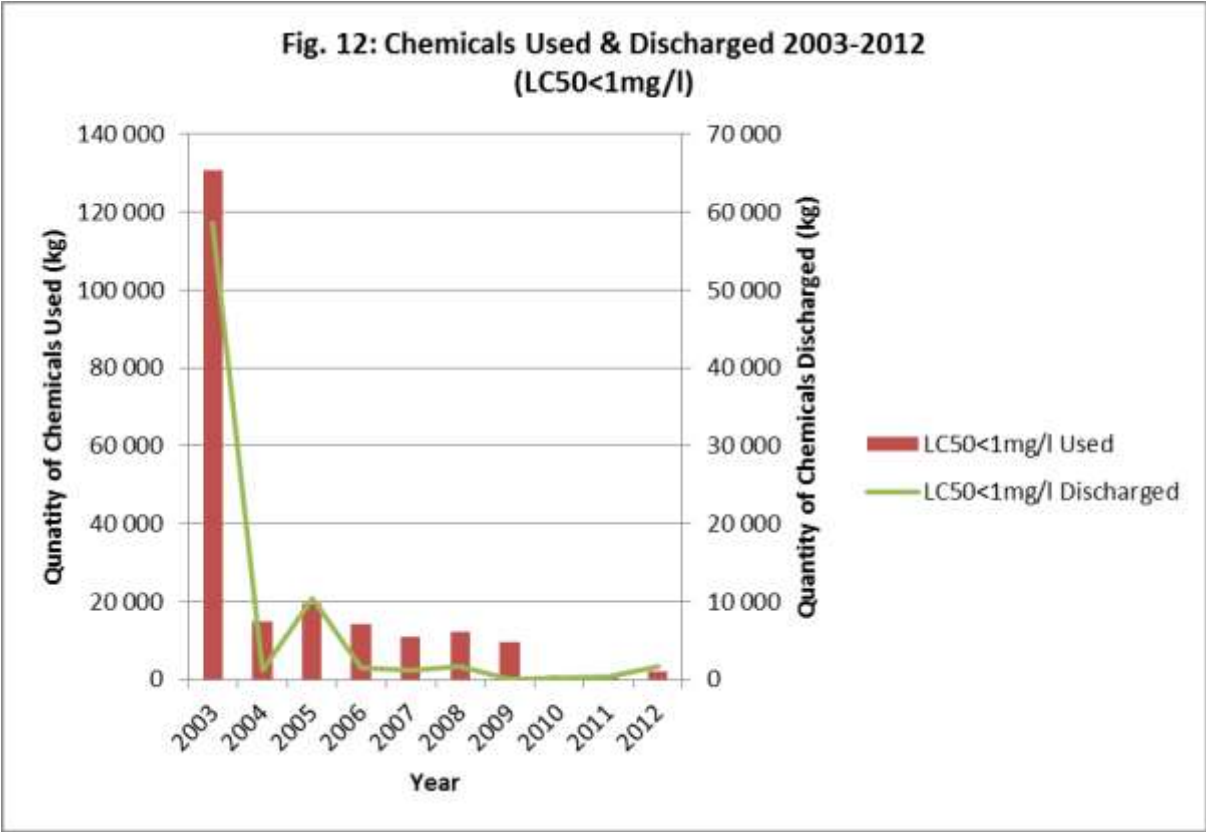
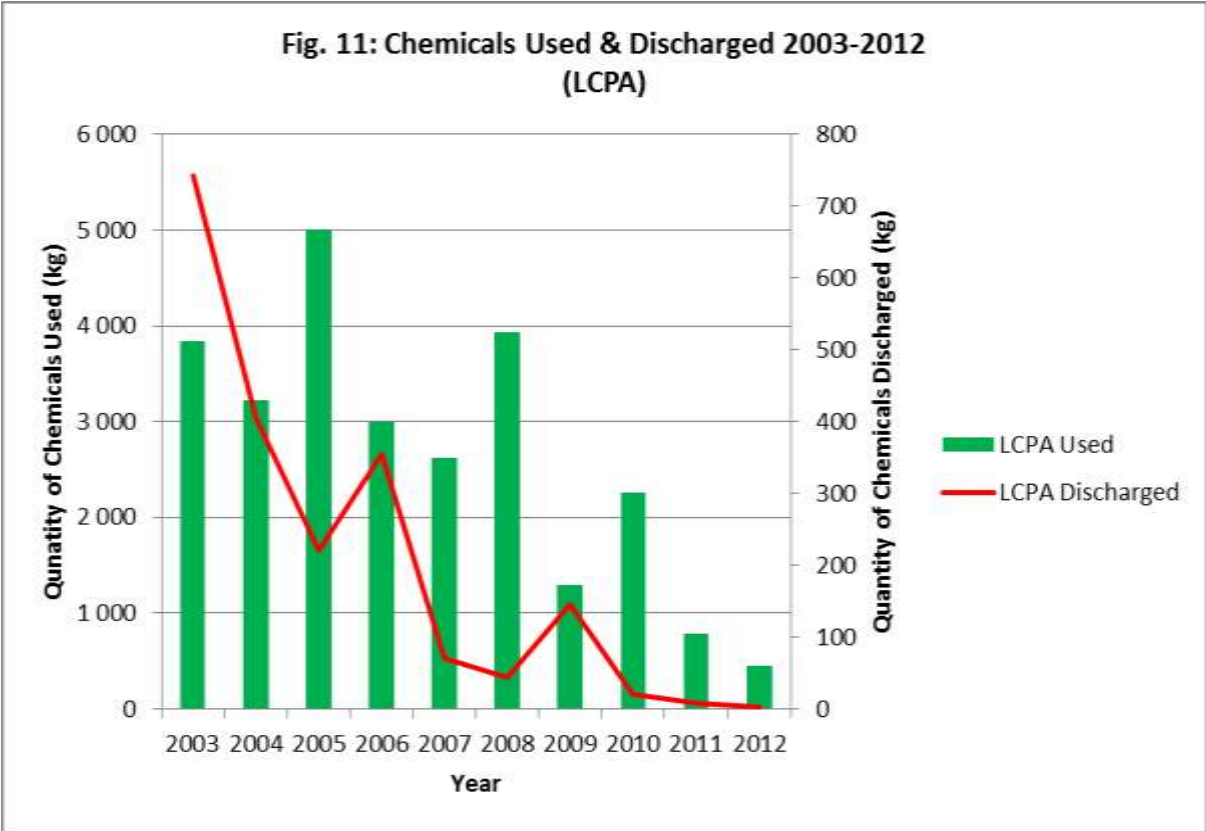
Chemicals Used

The total quantity of chemicals *used* offshore in 2012 is 751 377 tonnes out of which 74% (wt.) are on the PLONOR list and another 24% (wt.) contain no substances which are candidates for substitution. Less than 6% (wt.) of the chemicals used contain substances listed on the List of Chemicals for Priority Action (LCPA).

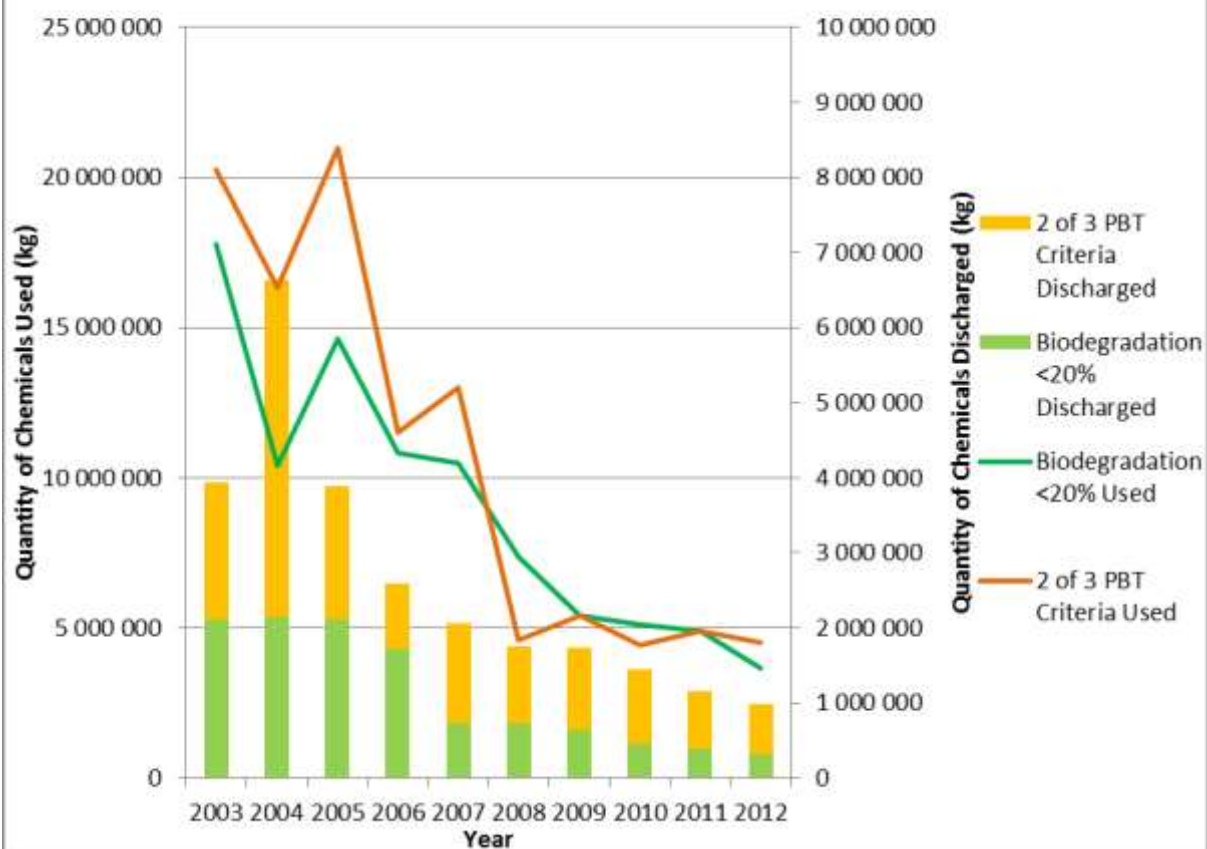
Chemicals Discharged

Total quantity of chemicals discharged into the sea in 2012 was 222 414 tonnes, almost 86% (wt.) being listed on the PLONOR list and another 13 % (wt.) are chemicals not containing candidates for substitution. Less than 1% (wt.) of the discharged chemicals contains LCPA substances or substances which are candidates for substitution.

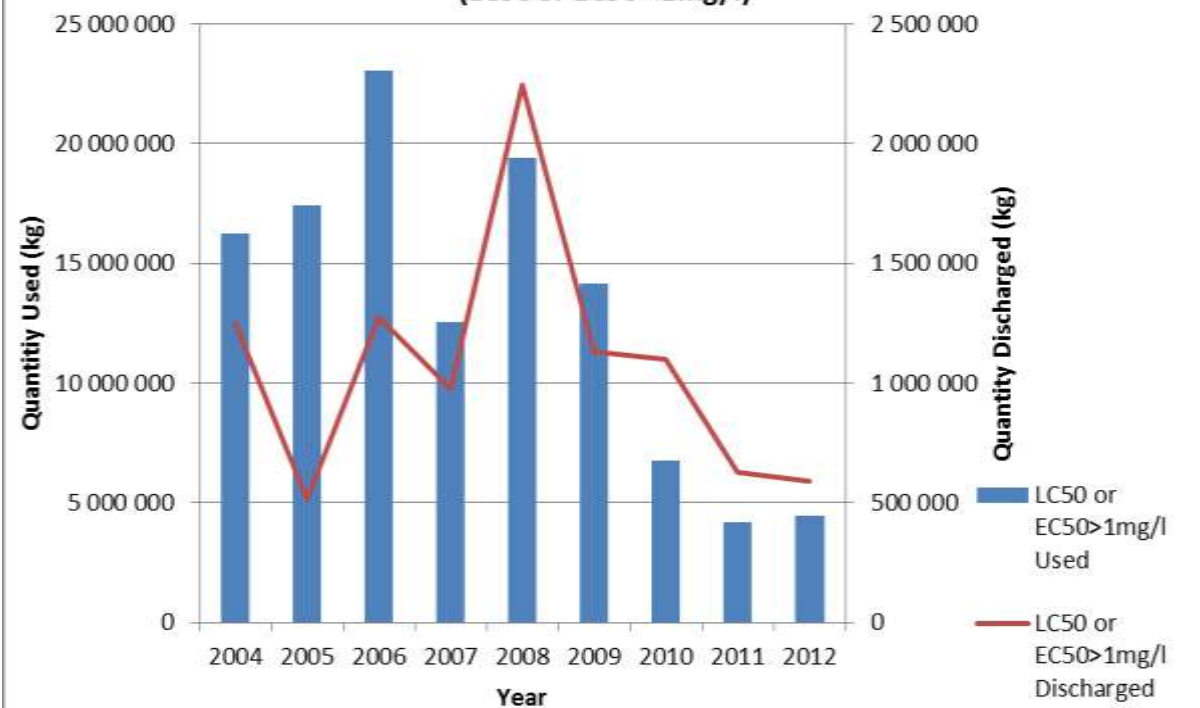
The amount of LCPA substances used has continued to decrease over the 2010 – 2012 period from 2253kg in 2010 to 443kg in 2012, similarly the amount discharged has decreased from 21kg in 2010 to 3kg in 2012. The discharge of chemicals containing substances that are candidates for substitution decreased from about 2550 tonnes in 2010 to less than 1600 tonnes in 2012.

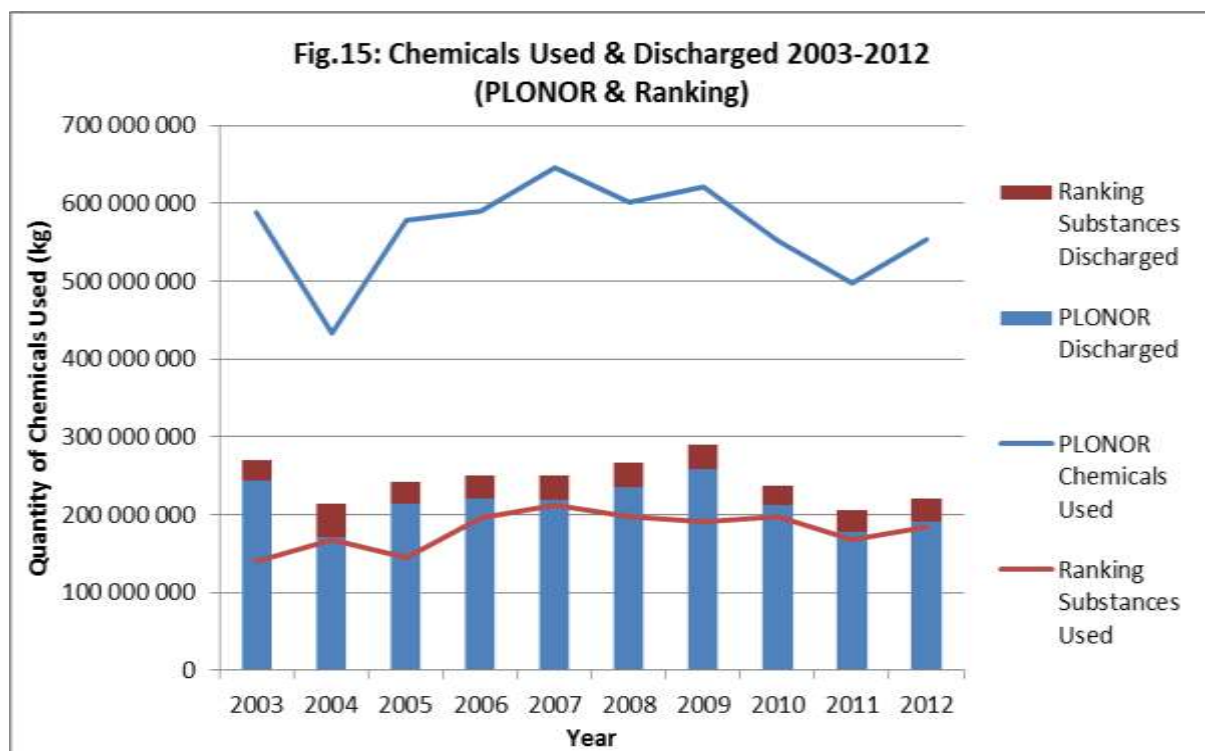


**Fig.13: Chemicals Used & Discharged 2003-2012
(Biodegradation<20% & PBT Criteria)**



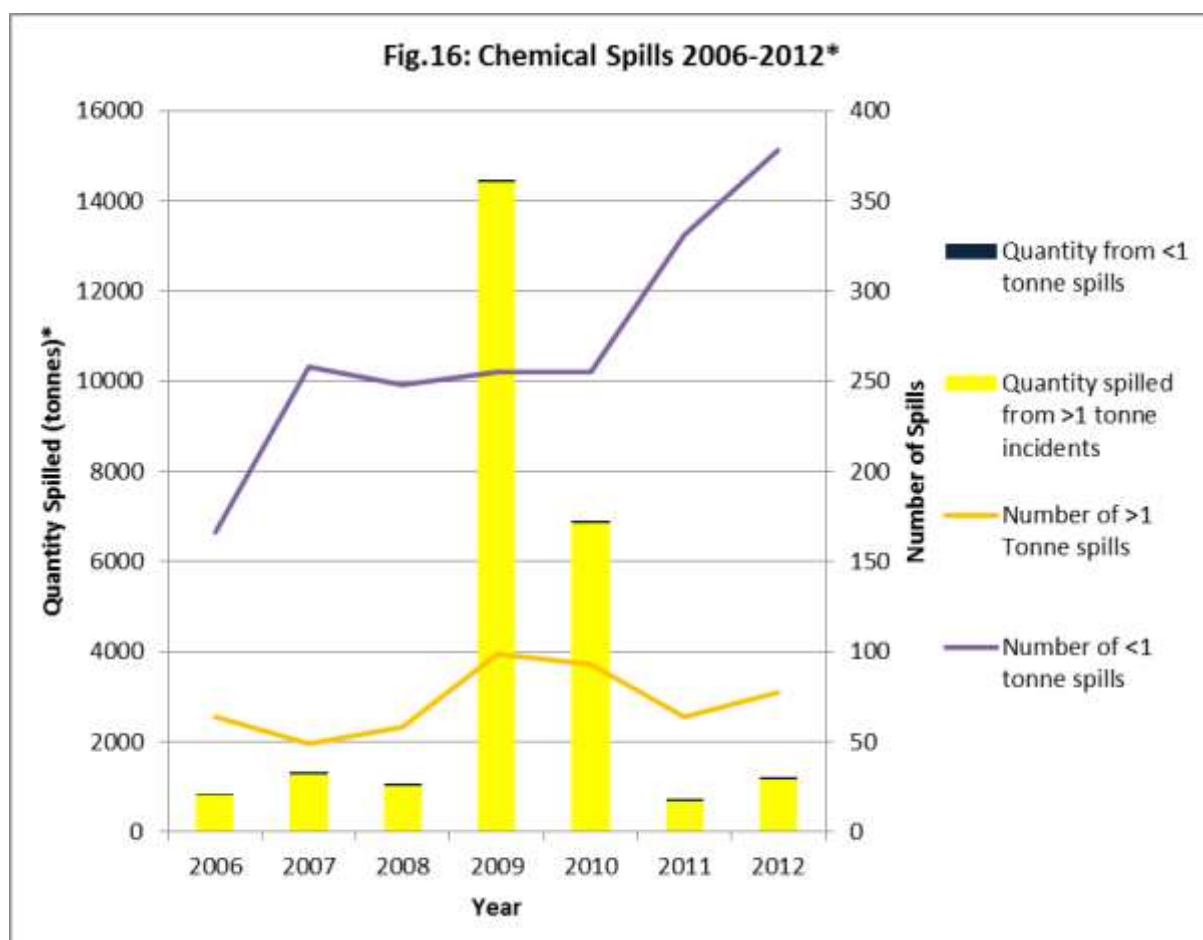
**Fig.14: Chemicals Used & Discharged 2004-2012
(LC50 or EC50 >1mg/l)**





4.2 Chemical Spills

In addition to planned discharges, 1205 tonnes of chemicals were accidentally spilled in 2012 (table 7c, Part A), compared to 6898 tonnes in 2010 and 728 tonnes in 2011. Apart from high spill volumes in 2009 & 2010 owing to a few large chemical spills in Norway, the volumes of chemicals spilled have remained largely the same since 2006. There is an increasing trend in the number of chemical spills reported. No conclusions can be drawn about the reasons for this, but may include such considerations as greater awareness of reporting requirements to ageing infrastructure. In 2012, the majority of chemicals spilled were on the PLONOR list (84%) or were chemicals not containing candidates for substitution (12%), and of the 455 spills in 2012, over 80% were <1tonne.



*Note: Norway reports spills in m³ rather than tonnes

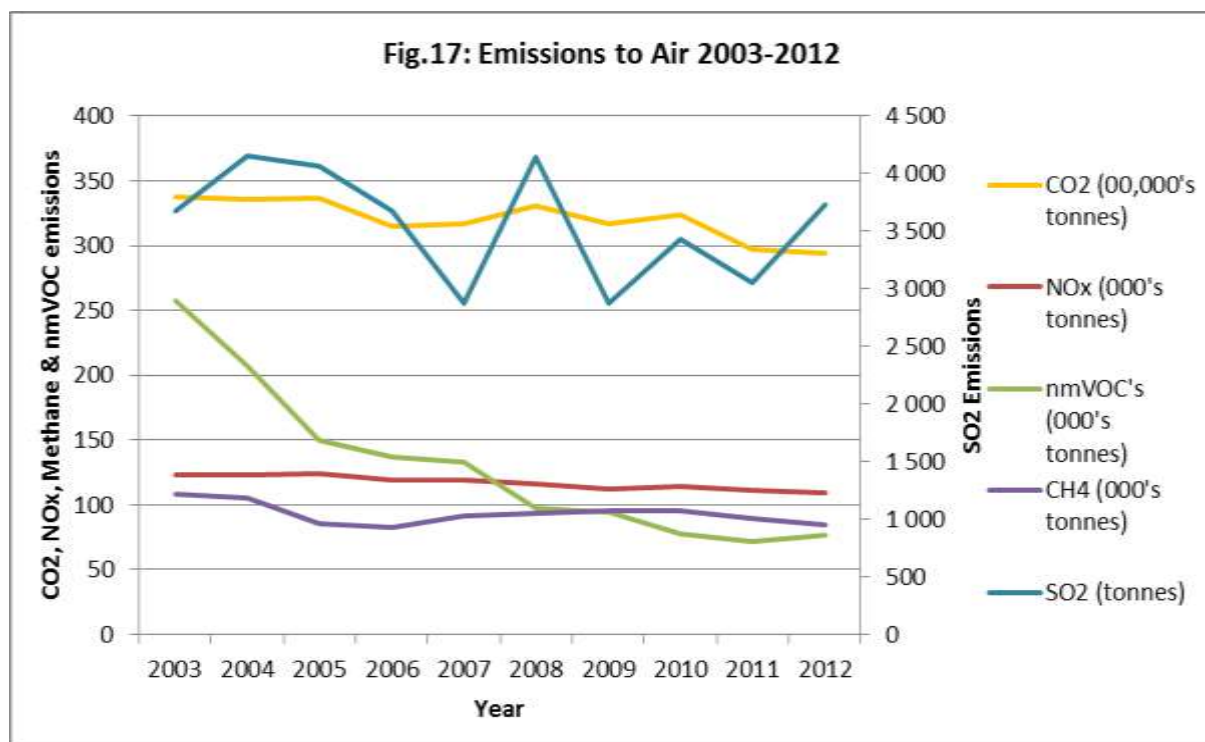
5. Emissions to air

Atmospheric emissions are not covered by OSPAR measures or harmonised OSPAR measuring methodologies, but some emissions, such as CO₂, nmVOC and NO_x are regulated by EU or national regulations. Consistencies in and quality of the data reported have undoubtedly improved over the past few years, particularly with regard to CO₂ 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 2003-2012 period, with the following trends noted:

- CO₂ emissions have reduced by 9,3% over the 2010-2012 period, potentially as a result of non-OSPAR measures such as EU ETS;
- NO_x and methane emissions have reduced slightly over the period;
- Non methane VOC (nmVOC) emissions have decreased by 70% from 2003 to 2010, but have since levelled off. This reduction is related to the extra measures taken in Norway & Denmark, i.e. the implementation of Vapour Recovery Systems on off loading facilities;
- SO₂ emissions vary greatly year on year, as they are largely dependent on consumption of diesel for power generation which is determined by periods of shut down and as fields deplete there is a greater reliance on diesel to replace fuel gas. The increase in diesel consumption from this aspect of operations is likely to have been partially compensated for by an increasing usage of low sulphur

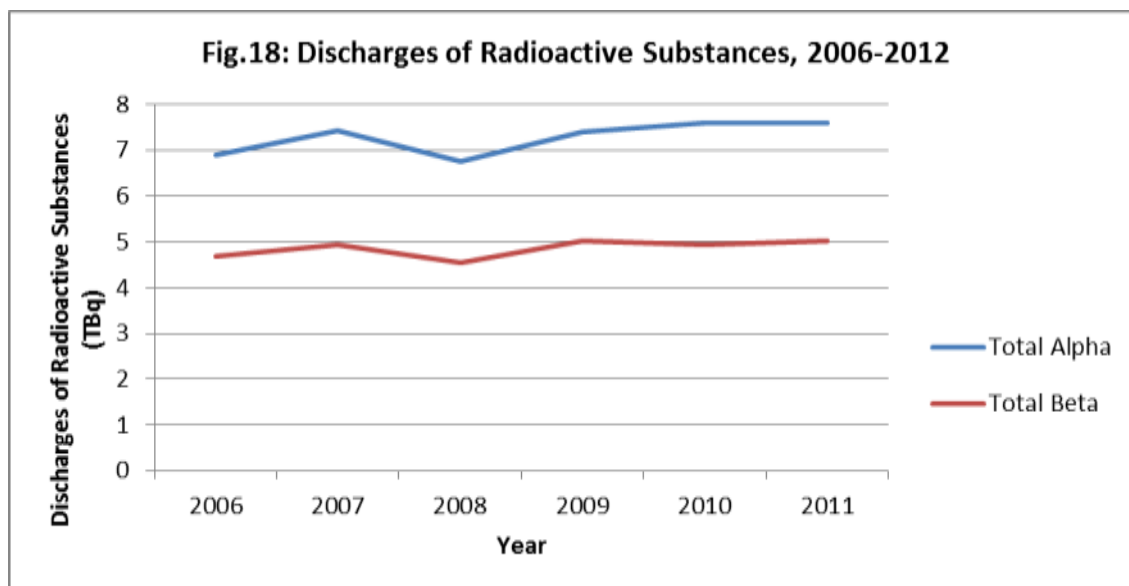
diesels. Overall there has been a general downwards trend in the emissions of SO₂ during the 2003-2012 period, though emissions increased in the period 2010-2012.



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 hide the effect of any EU or national measures taken to reduce air emissions.

6. Discharges of radioactive substances

The 2012 discharges of radioactive substances from the non-nuclear sector, including the offshore industry, have been assessed by the Radioactive Substances Committee (RSC). RSC concluded that, from all non-nuclear sources, the offshore industry is the principal source of the total alpha discharges (97,9%) of all non-nuclear sources, while for the total beta it contributed about 12,6%.



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 Platforms¹¹;

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

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

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 2010/4 on a Harmonised Pre-Screening Scheme for Offshore Chemicals;

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

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;

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.

¹¹ 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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North-East Atlantic used sustainably**

ISBN: 978-1-909159-68-6
Publication Number: 635/2014

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