

# Summary of Trends in Discharges, Spills and Emissions from Offshore Oil and Gas Installations



## OSPAR Thematic Assessment

### Key Message

Hydrocarbons and offshore chemicals are routinely discharged to the marine environment during offshore oil and gas operations. Assessment of the discharges and spills show that OSPAR measures have led to decreases in the discharges of both hydrocarbons and the most harmful offshore chemicals

## Background

Chemical inputs to the marine environment from the offshore oil and gas industry vary depending on the activity being carried out (**Figure 1**). Hydrocarbons are primarily discharged in produced water, which contains both naturally occurring substances and added chemicals, some of which are categorised as hazardous substances. Hydrocarbons and chemicals are also discharged during the exploration phase, in the course of drilling operations, although the more harmful chemicals are not used whenever this is possible and are frequently not discharged.

The least harmful substances used in the industry are considered to Pose Little Or No Risk (PLONOR) to the marine environment. The most harmful chemicals in terms of toxicity, bioaccumulation and biodegradation are considered as candidates for substitution.

The OSPAR Commission's strategic objective for offshore oil and gas activities is to prevent and eliminate pollution and take the necessary measures to protect the OSPAR Maritime Area against the adverse effects of offshore activities. This is achieved through setting environmental goals and improving management mechanisms.

Oil and chemicals also enter the marine environment through accidental spills.

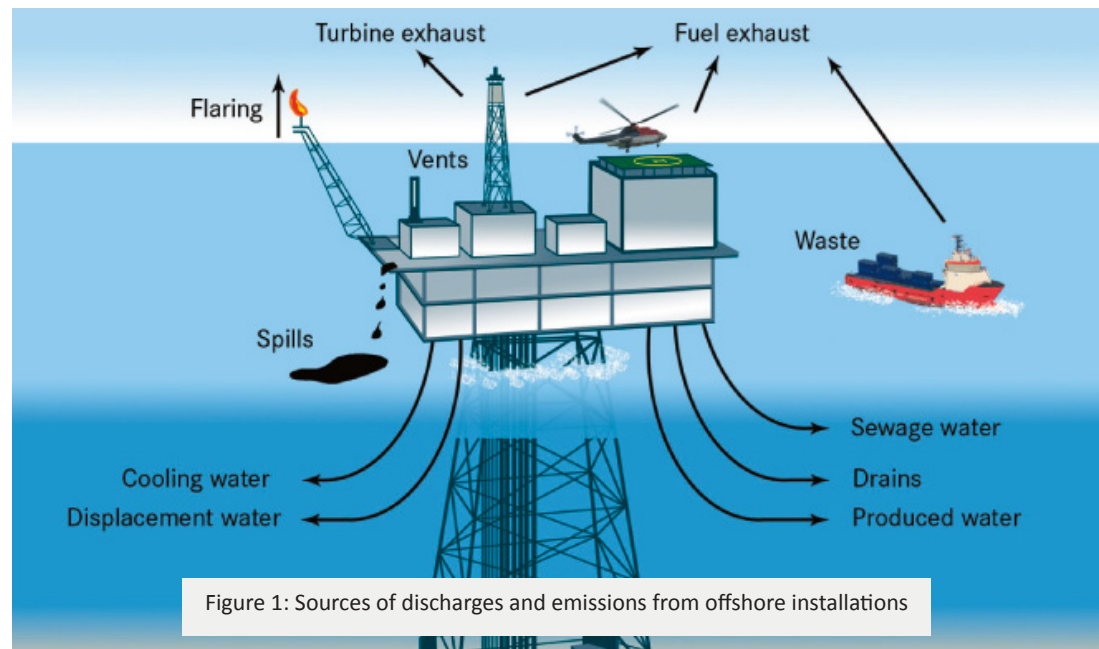


Figure 1: Sources of discharges and emissions from offshore installations

## Oil and gas production in the OSPAR area

The OSPAR maritime area is a mature oil and gas production area. Total production has steadily declined over the period of the assessment. **Figure 2** shows the downward trend in production.

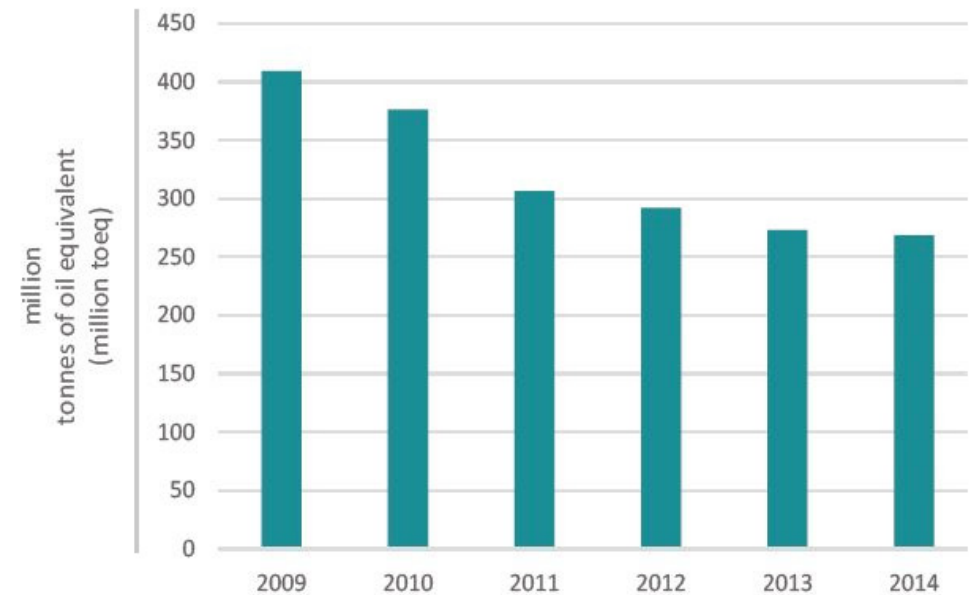


Figure 2: Total oil production in the OSPAR Maritime Area from 2009 to 2014

## Results

Results indicate a general downward trend for several indicators:

- The amount of dispersed oil discharged in produced water decreased by 18% between 2009 and 2014;
- The use of chemicals on OSPAR's List of Chemicals or Priority Action (LCPA) has reduced by over 90% since 2009, and in 2014 no LCPA chemicals were discharged;
- There has been a 30% decrease in the use of chemicals carrying substitution warnings, and a 40% decrease in their discharge.

## Conclusion

Downward trends were observed in:

- Amount of dispersed oil discharged in produced water;
- Use and discharge of LCPA chemicals;
- Use and discharge of chemicals carrying substitution warnings.

The gradual reduction in dispersed oil discharged in produced water has been achieved through the application of standards set out in OSPAR Recommendation 2001/1 for the Management of Produced Water from Offshore Installations, as amended by OSPAR Recommendation 2006/4 and Recommendation 2011/8.

The phasing out of LCPAs was achieved through the application of 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.

Reductions in the use and discharge of substances carrying substitution warnings can be directly attributed to the implementation of 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.

A decrease in the number of installations exceeding 30 mg l<sup>-1</sup> oil for dispersed oil in produced water discharged to seawater was noted, though a clear trend is not apparent. Many of the downward trends have clearly been achieved as the direct result of measures adopted by OSPAR and their subsequent implementation by the offshore oil and gas industry.

Trends were not observed in:

- Quantities of chemicals spilled;
- Number of oil spills;
- Quantity of oil spilled.

It was not possible to determine any positive or negative trends in the number of oil and chemical spills, or in the quantity of oil and chemicals spilled, due to the unpredictable nature of such events.

## Knowledge Gaps

In 2012, OSPAR adopted Recommendation 2012/5 for a Risk-Based Approach to the Management of Produced Water Discharges from Offshore Installations. However, the risk based approach has not been in operation long enough to indicate whether it is having an impact on the quality of the marine environment. This gap will be addressed as more information becomes available.

