

Reporting and assessment of encounters within the OSPAR region

OSPAR agreed in 1998, and reflected this in the QSR 2000, to consider how it might address the issue of dumped chemical weapons and munitions in the Convention Area. While work on dumped chemical weapons was ongoing in HELCOM with the establishment of an ad hoc Working Group on Chemical Munitions in 1993 and the production of a final report in 1995 (HELCOM, 1995), this was the first time OSPAR considered this issue. As outlined above, OSPAR published the following reports all of which are available on the OSPAR website (www.ospar.org):

- OSPAR Framework for reporting encounters with marine dumped chemical weapons and munitions. Publication number 186/2003.
- Overview of past dumping at sea of chemical weapons and munitions in the OSPAR maritime area first in 2004 and updated in 2005. (Figure 2.1 is believed to be the best information available on the location and type of chemical weapon and munitions dumpsites for the Convention Area.) Publication number 222/2005.
- Convention-wide practices and procedures in relation to marine dumped chemical weapons and munitions. Publication number 185/2004.
- A framework for developing national guidelines for fishermen on how to deal with encounters with conventional and chemical munitions. Agreement 2004-9.
- Recommendation 2003/2 on an OSPAR Framework for reporting encounters with marine dumped conventional and chemical munitions.
- Implementation of OSPAR Recommendation 2003/2 Database on encounters with dumped conventional and chemical munitions. Publication number 267/2007.

Since the publication of the first edition of this assessment covering the period 2004 and 2005 a significant number of additional encounters were reported. In some cases, the same encounter was reported by two, or even three, Contracting Parties. To avoid including multiple reporting of the same encounter in the assessment, encounters occurring on the same date and within 2km of each other but reported by different Contracting Parties were removed from the data set.

After the removal of multiple reports, a total of 1879 encounters were reported by Belgium, France, Germany, Ireland, the Netherlands, Spain, Sweden and the United Kingdom. Denmark and Norway recorded no encounters with dumped munitions. The data used in this assessment are from the OSPAR database on encounters with marine dumped conventional and chemical munitions (OSPAR, 2009).

Encounters were reported over the period April 1999 to October 2008. This extends outside the reporting period required by Recommendation 2003/2 and some Contracting Parties may have additional records of encounters within this extended period that have not been reported. However, with the exception of multiple reportings, all reported munitions encounters are considered here. In taking this approach temporal and spatial distribution of encounters throughout the OSPAR maritime area will, to some degree, reflect the nature of reporting by different Contracting Parties. However, by including encounters reported outside the reporting period, it is a reasonable assumption that the distributions presented will better represent the real world situation.

The temporal distribution of encounters reported by Contracting Parties is shown in Figure 4.1. An increase in reporting during 2004 as a result of the coming into force of Recommendation 2003/2 is noticeable. A second, even larger increase during the months of April and May 2005, coincides with a

tragic incident on 6 April 2005 in which three Dutch fishermen lost their lives when a World War II bomb exploded on board their fishing vessel after having been hauled aboard in fishing nets.

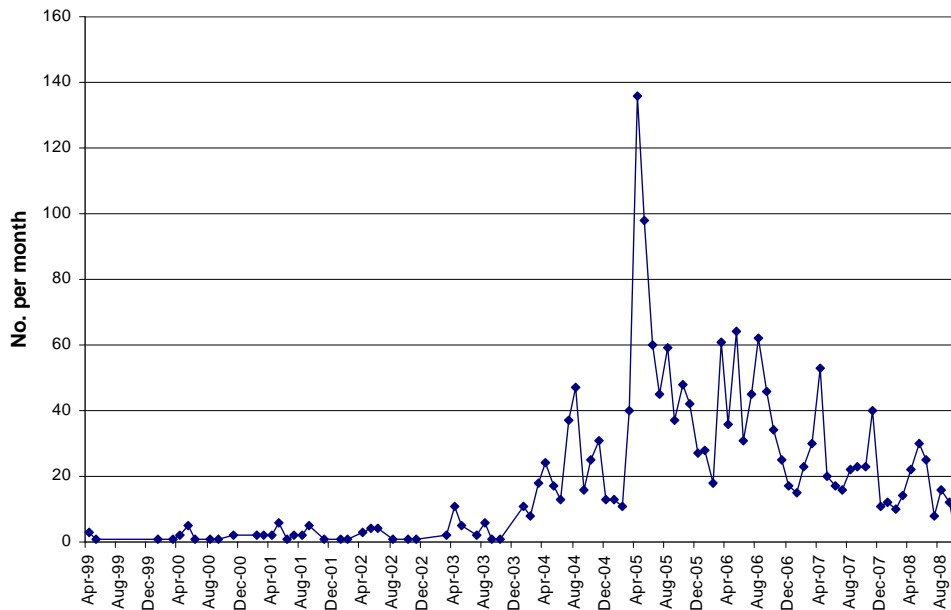


Figure 4.1: Number of reported encounters with conventional and chemical munitions within the OSPAR Convention Area for the period 1999 to 2008

Of the 1879 munitions encounters reported, 1595 (85%) were described as conventional, 30 (2%) as chemical and 254 (14%) were of unknown type. In this report, phosphorus devices are taken to be conventional munitions. The devices encountered on 786 occasions (42%) were reported to be in various stages of corrosion, from partly to completely corroded, 14 (1%) were described as being live or in good condition and the state of the remainder were unknown or not reported.

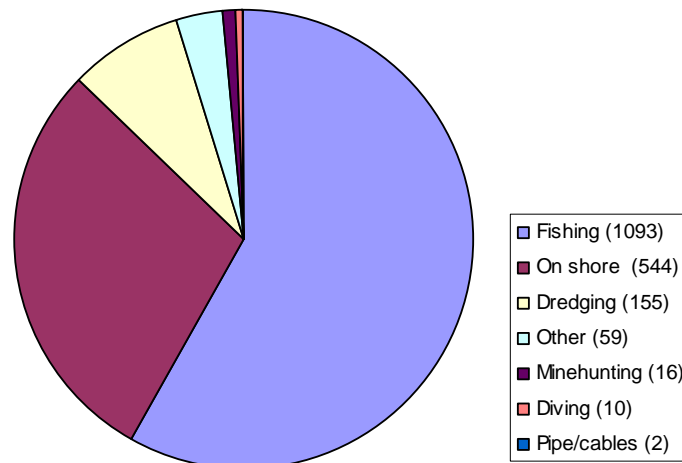


Figure 4.2: The nature or description of activity taking place when encounters occurred. The number of encounters in each category is shown in brackets

The majority of encounters, 1093 (58%), were entangled in nets during fishing activities, 544 (29%) were found on the shore, 155 (8%) were encountered during dredging activities and 59 (3%) were encountered during non specific activities. Minehunting, diving and laying pipes and cables accounted for the remaining 2% (Figure 4.2). Specific information submitted on the activities taking place ranged from children digging on the beach to spent shell heads discovered being used as ballast on a vessel under repair.

Contracting Parties are required to report on the action taken as a result of the encounters with munitions. Of the 1879 occasions when encounters were reported, the devices encountered were destroyed on 1141 occasions and disposed of on land in a further 295 occasions. This equates to the devices being neutralised on over 76% of the recorded encounters. On 202 occasions (11%) the devices were released at sea and the location of the release was recorded on all occasions except five. Not surprisingly, of the 202 occasions when munitions were released at sea, the vast majority (97%) were encountered during fishing.

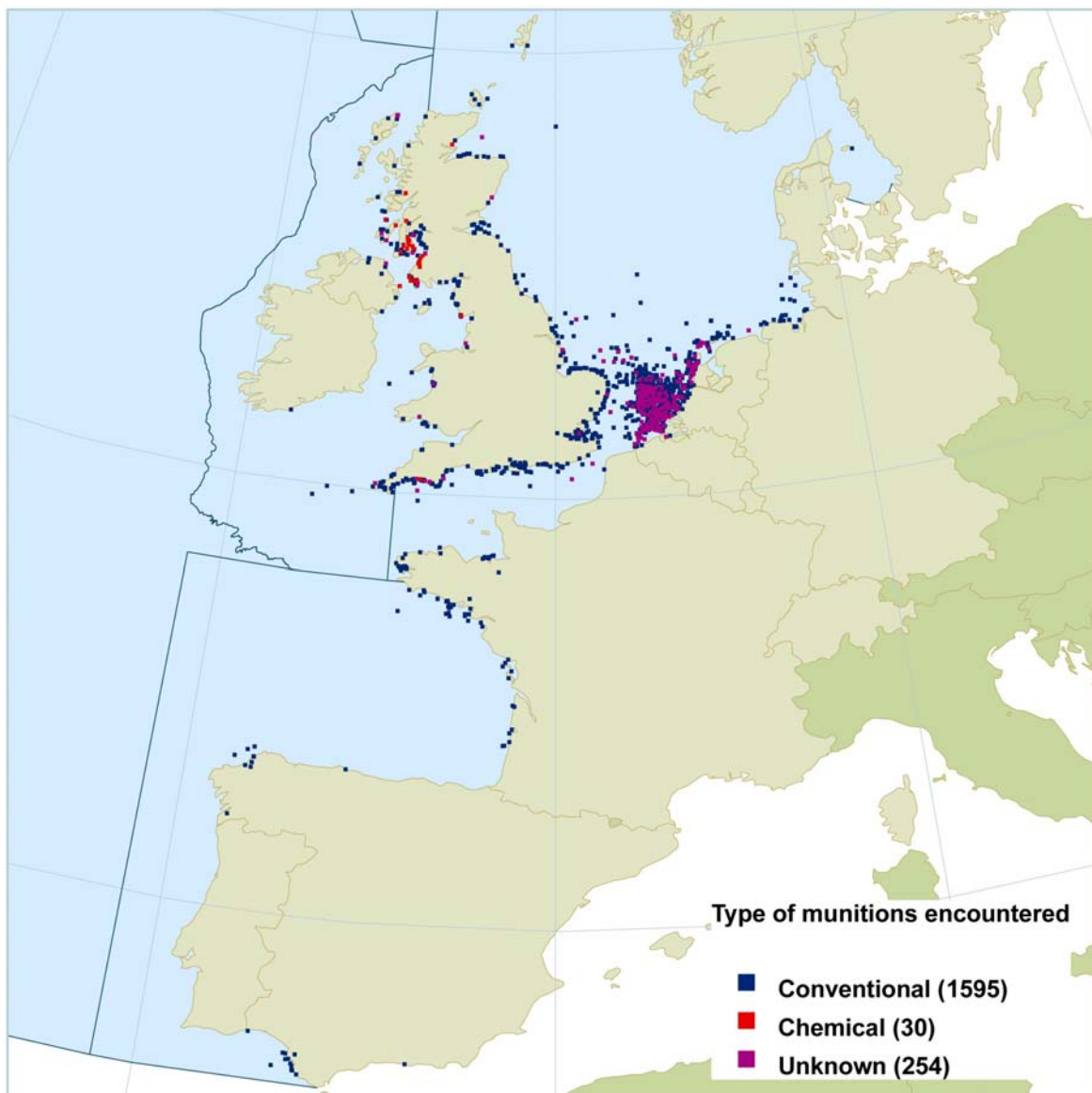


Figure 4.3: Location of encounters for which coordinates were reported by Contracting Parties. Number of encounters in brackets

Since not all Contracting Parties reported encounters over the time period required under Recommendation 2003/2, and others provided data for periods outside the reporting period, a detailed spatial and temporal analysis of encounters with munitions is difficult. Multiple reporting of the same encounter further complicated this. Reliable coordinates are available for 1821 of the 1879 encounters reported and only these encounters can be plotted. The distribution of reported munitions encounters throughout the OSPAR area is plotted against the distribution of known dumpsites reported to OSPAR (see Figure 4.3). No clear relationship between the location of known dumpsites and munitions encounters emerged from the data submitted. Of the 1821 encounters with known locations, 7% were located within 5 km of reported dumpsites, whereas 31% of encounters occurred at a distance greater than 50 km and 5% of encounters occurred more than 100 km away from known dumpsites.

The density of encounters reported is represented in Figure 4.4 and shows that the area with the highest density of encounters reported is the southern North Sea between the United Kingdom and the Netherlands. The second area where encounters are most frequently reported is west of Den Helder in the Netherlands where 92 encounters were reported. Other areas of medium frequency are the Moray Firth, the Firth of Forth and Firth of Tay in the north-east of the United Kingdom, the Firth of Clyde on the north-west and along the south and south-east coast of the United Kingdom. The Belgian, Dutch and German coasts, and the coast of Brittany in France also encounter munitions at medium frequency.

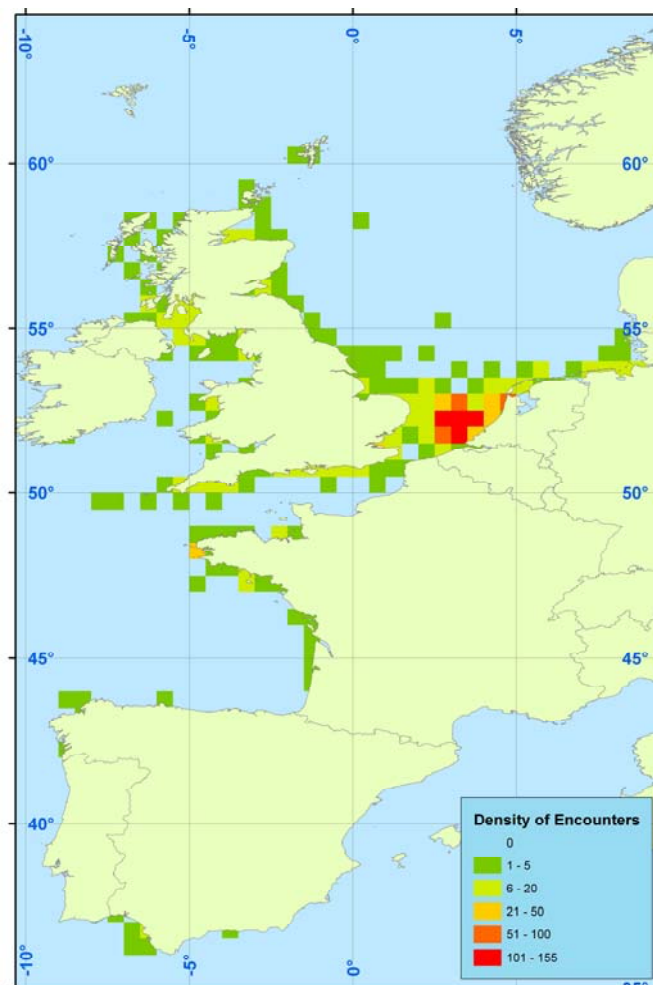


Figure 4.4: *Density of encounters reported*

For those reported encounters for which reliable coordinates are available, the different activities being undertaken when the encounter took place is shown in Figure 4.5a. The data shows that encounters on the shore are most frequent around the coast of the United Kingdom, Germany and, to a lesser extent, the coasts of France and Spain. Of the 1821 encounters plotted, approximately 1320 (72%) were located within the southern part of the North Sea between the United Kingdom and Belgium, the Netherlands, and Germany. The encounters west of Den Helder are predominantly associated with dredging activities and the offshore encounters in the southern North Sea are almost exclusively from fishing activities (Figure 4.5b).



Figure 4.5a: Location and nature of encounters, other than fishing, for which coordinates were reported by Contracting Parties. Number of encounters in brackets.

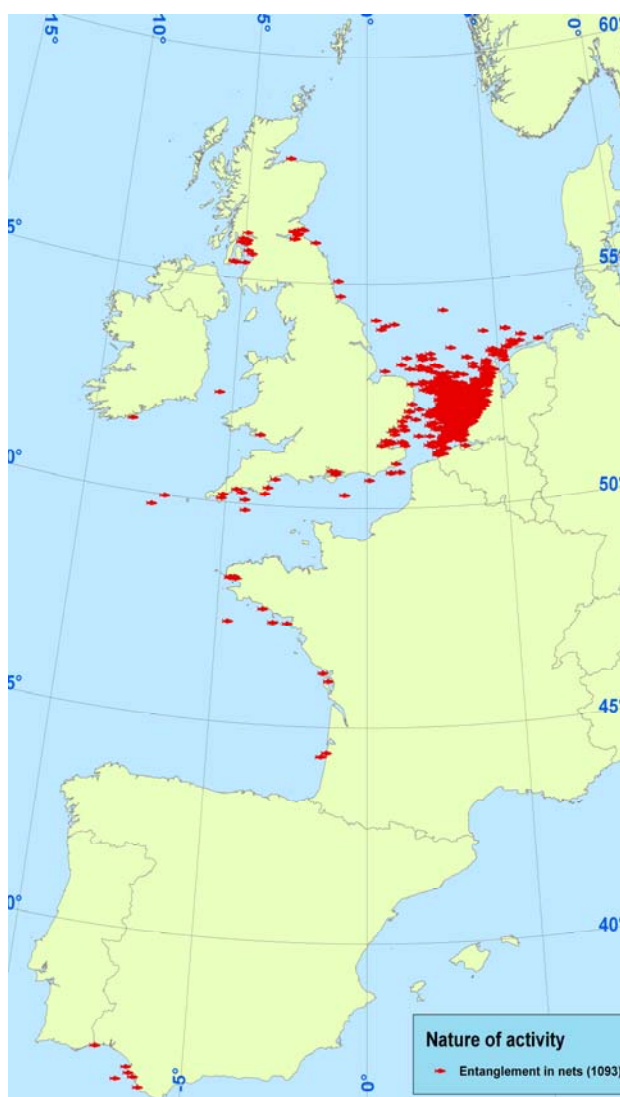


Figure 4.5b: Location of encounters by fishermen for which coordinates were reported by Contracting Parties. Number of encounters in brackets.

Based on the data presented and assessed here, there is no obvious association between the location of encounters and known dumpsites. Analyses suggest that one-off encounters are very common as 31% of encounters occurred at distances of 50 km or more from known dumpsites. Bottom trawling in the southern North Sea and dredging west of Den Helder are the activities most likely to encounter dumped munitions in the OSPAR maritime area (Figure 4.6). There could be many reasons for this, including the location of the Contracting Parties that reported data on munitions encounters, the level and type of fishing activity, the nature of the seabed and water depth as well as historical military operations and flight paths during World War II. However, the significant increase in encounters reported after the death of the Dutch fishermen in April 2005 suggests that the distribution pattern of reported encounters is influenced to a very large extent by the increased level of reporting by fishermen to the Dutch authorities.

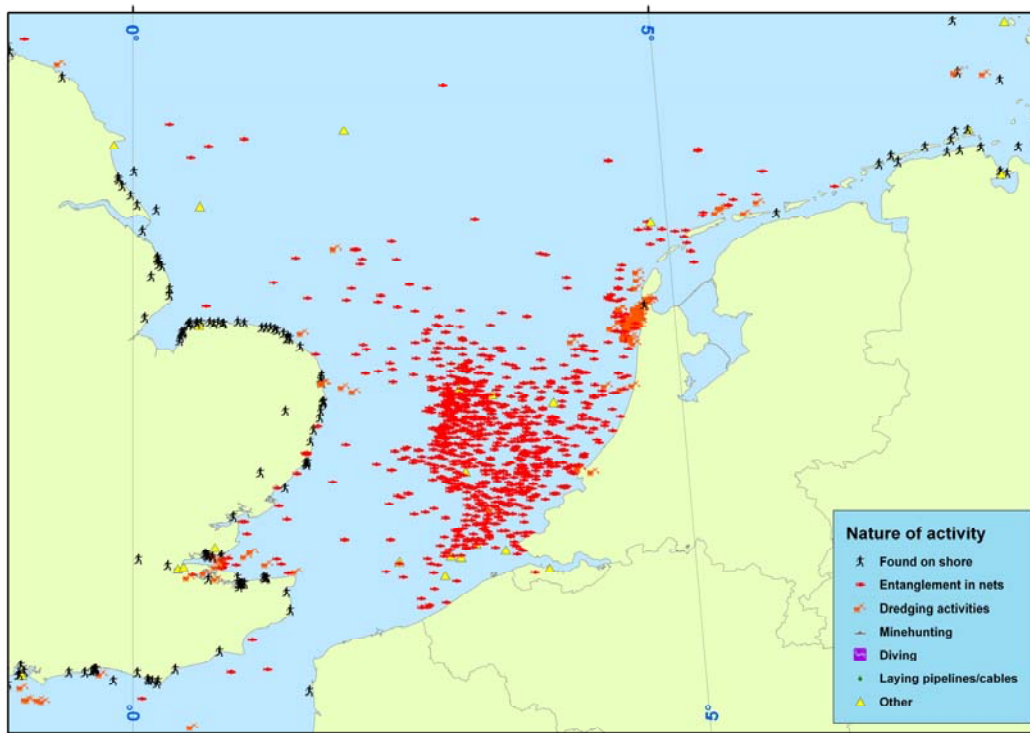
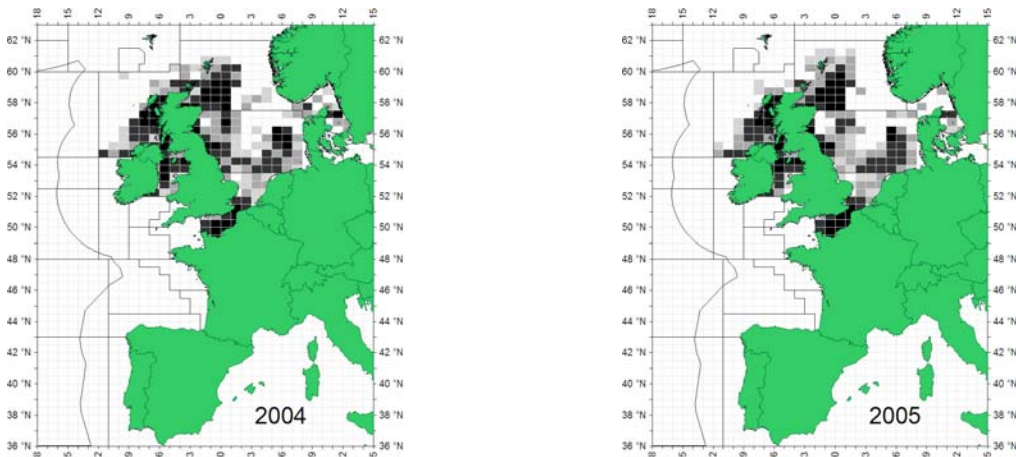
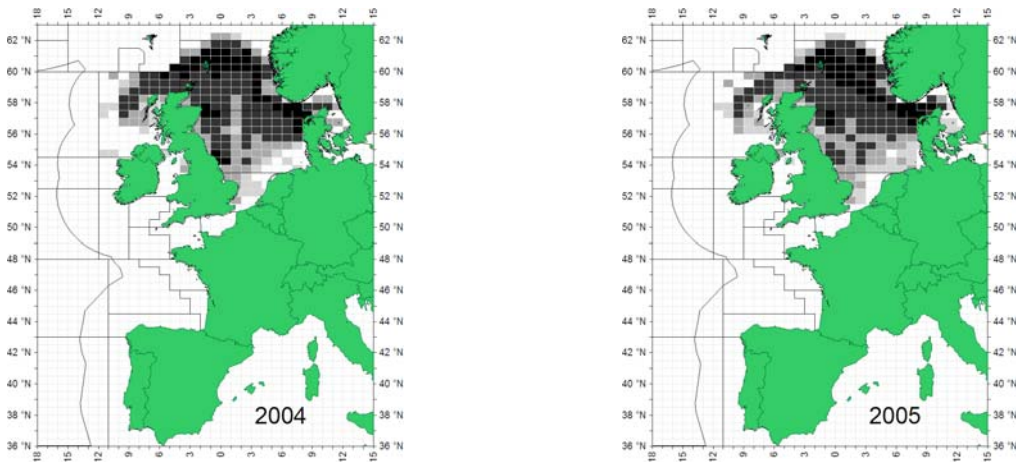


Figure 4.6: *Location and nature of encounters in the southern North Sea*

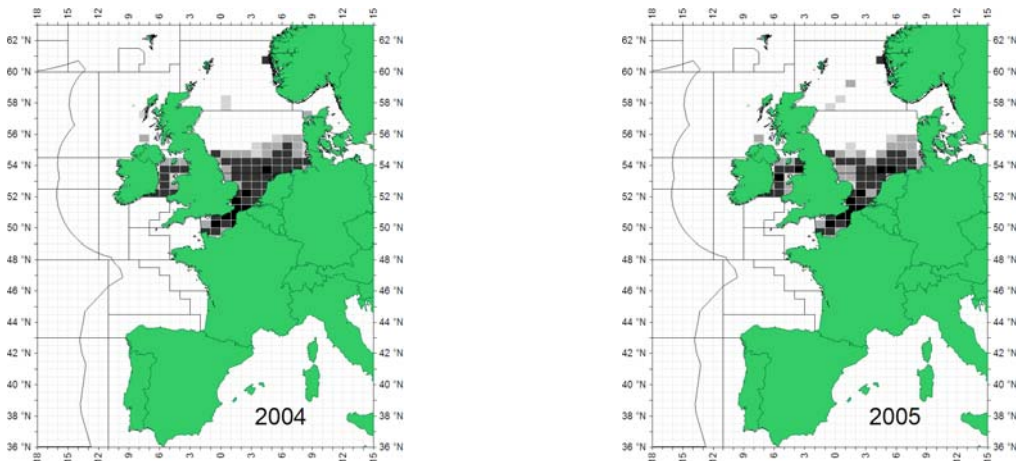
The spatial distribution pattern of bottom fishing effort in European waters (EC, 2007) is shown in Figure 4.7. This shows the distribution of effort, measured in trawled hours, of bottom trawls for vessels greater than 10 meters, for the period 2004 - 2005. The fishing effort of Dutch vessels is not included, however, according to the authors of the report, it should sufficiently reflect the geographical distribution of bottom fishing effort for the area in question. A visual comparison of the distribution of encounters reported and the bottom fishing effort suggests that there is no correlation between encounters reported and otter and seine trawling for 2004 and 2005. Beam trawl fishing activity for these years is predominantly focused on the southern North Sea but, in general, covers an area wider than the areas within which most of the munitions encounters were reported suggesting, at best, a weak correlation with bottom fishing effort.



Otter trawls and seines using mesh size between 70 and 98 mm for 2004 and 2005



Otter trawls and seines using mesh size ≥ 120 mm for 2004 and 2005



Beam trawls using mesh sizes 80-89mm for 2004 and 2005

Figure 4.7: Geographic distribution patterns of effective effort (trawled hours) of the otter trawls, seines and beam trawls for 2004 and 2005. Source: (EC, 2007)

In addition to the information on dumpsites and encounters reported to OSPAR by Contracting Parties, the Ministry of Defence in the United Kingdom commissioned the British Geological Survey (BGS) to undertake an analysis of the underwater explosions recorded by the BGS seismograph network within 100 km of the Beaufort's Dyke munitions dumpsite in the north of the Irish Sea. Explosions have a characteristic signature that allows them to be distinguished from natural events such as earthquakes. Using signals detected at a number of different seismographic stations, the BGS detected 47 underwater explosions in the Beaufort's Dyke area between 1992 and 2004 (BGS, 2005), (see Figure 4.8). These explosions do not strictly fall within the scope of OSPAR Recommendation 2003/2 and were not reported under that Recommendation. Over the period 2004 – 2005 there were five explosions detected by the BGS.

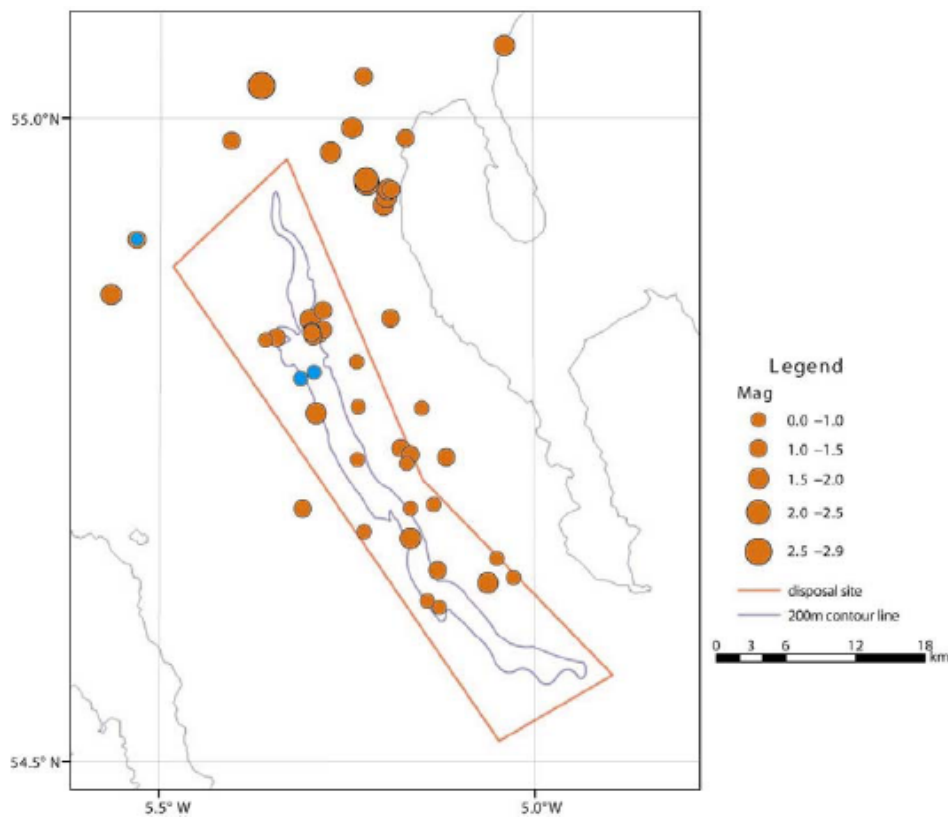


Figure 4.8: Locations and magnitude (Richter Scale ML) of underwater explosions in the Beaufort's Dyke area between 1992 and 2004 that were detected by the BGS seismograph network and are available in the BGS seismicity database. The blue circles show three explosive events identified during the BGS analyses that had not been previously attributed to the Beaufort's Dyke area. Source: BGS, 2005.

↪ [Go to full QSR assessment report on the impact of dumped conventional and chemical munitions \(publication number 365/2009\)](#)