Bonn Agreement
Accord de Bonn

Bonn Agreement Aerial Surveillance Programme

2022 Annual Report on Aerial Surveillance

Introduction

1. The ten countries (Belgium, Denmark, France, Germany, Ireland, Netherlands, Norway, Spain, Sweden and United Kingdom) bordering the Greater North Sea and its wider approaches work together within the Bonn Agreement to undertake aerial surveillance using specially equipped aircraft and specialised personnel to detect spills of oil, litter, garbage and other harmful substances and enforce international environmental regulations. They are further supported by the European Union through the European Maritime Safety Agency (EMSA) using the CleanSeaNetwork of satellite surveillance and Remote Piloted Aircraft Systems (RPAS)[1].

2. The North West European Waters – the main part of which is formed by the North Sea – have been declared a Special Area by the International Maritime Organization for the purpose of MARPOL Annex I (Oil). This took effect on 1 August 1999, from which date the discharge of all oily wastes at sea in the Special Area is prohibited. MARPOL Annex II regulates noxious liquid substances in bulk. MARPOL Annex V on the Prevention of Pollution by Garbage from Ships went into force on 31 December 1988, and the North Sea is one of the Special Areas established under this Annex. MARPOL Annex I, II and V monitoring and enforcement is included in the Bonn Agreement surveillance activities.

3. This report demonstrates the effectiveness of cooperation in aerial surveillance among North Sea countries and their collective effort to detect marine pollution. It presents the results of aerial surveillance operations undertaken during 2022 as a collective effort under the Bonn Agreement. In addition to national flights carried out under the Bonn Agreement in their own parts of the maritime area and other aerial surveillance undertaken for national purposes, the Bonn Agreement countries also coordinate flights of the following types:

a. *Tour d'Horizon* (TdH) flights - monthly flights carried out by countries in turn to survey the offshore area of the North Sea where offshore oil and gas activities take place;

b. *Coordinated Extended Pollution Control Operations* (CEPCO), where some neighbouring countries cooperate to survey intensively an area with high traffic density during a relatively short period (e.g. 24 hours). Contracting Parties may also decide to organise a so called "Super CEPCO" where Bonn Agreement Contracting Parties, often together with countries from neighbouring regions, cooperate in the surveillance of a specific area over a period of up to 10 days.

4.

[1] At the time of this report RPAS are primarily used for Annex VI surveillance which is not currently within the scope of this report.

5. For most of the detections observed/confirmed as oil slicks or other substances, the source of the slick (i.e. the polluter) has not been identified. Most visible slicks, however, come from shipping and offshore installations. Except for oil spills originating from ships, it can often not be determined in the field whether a spill detection was the result of an illegal or a legally permitted discharge from a ship or offshore installation.

6. The marine pollution monitoring results however give a good idea of the order of magnitude of ship-source pollution and pollution from offshore oil & gas installations, and trends therein, in the Bonn Agreement region.

7. A summary report on the EU-EMSA CleanSeaNet Service that supports Bonn Agreement Contracting Parties with satellite images is at Annex 1. The report presents CleanSeaNet data for the North Sea for the period 1 January 2022 – 31 December 2022.

8. This annual Surveillance report includes estimates of the total amounts of oil discharged based on the aerial surveillance data. These oil volume estimates have been obtained by means of a simple addition of the estimated (minimum)[2] volumes of the various mineral oil slicks detected/observed at the sea surface for a given year, per type of flight and per country. These estimates use the Bonn Agreement Colour Code until 2003 and from 2004 use its replacement, the more scientifically underpinned Bonn Agreement Oil Appearance Code (BAOAC), as the standard oil volume estimation method. The use of the BAOAC (just like the older Bonn Agreement colour code) results in a best estimate of the amount of oil detected on the sea surface within a reliable order of magnitude. It leads to a minimum and maximum estimated quantity, which basically reflects the respective use of the minimum and maximum oil layer thicknesses defined for each oil appearance. More detailed information on the BAOAC, the oil slick appearances and the use of the code can be found in the Bonn Agreement Aerial Operations Handbook and the BAOAC Photo Atlas[3].

9. As aerial and satellite surveillance do not provide continuous coverage of the Bonn Agreement region, it can be concluded that there is the potential for other incidents of oil in the sea not being detected over the course of any one year. Moreover, oil slicks (or other forms of pollution) are often detected with no known source, and already weathered to a certain degree. In case of oil this means that the amount estimated may be less than originally discharged. The Contracting Parties to the Bonn Agreement therefore consider the aerial and satellite surveillance data currently available to be too sparse and too diverse to allow for a reliable overall annual estimation of oil inputs in the entire Bonn Agreement area and that such estimates should be interpreted as indicative only.

10. This report compiles all the surveillance undertaken for Bonn Agreement purposes. These tables are based on data related to the number of flight hours, the number of spills and pollution detections, and, in case of oil spills, their estimated volume. The format of the report's tables 1 – 4 was modified in 2000, 2003, 2013, 2014 and 2019. The 2000 to 2002 data reflects the relation of the observation with SLAR coverage through the concept of 'BA flight hour' (i.e. one hour of airborne remote sensing over the sea at a standardised speed of 335 km per hour). As a result of this revision of the reporting format in 2000, the flight hour data up to 1999 are absolute numbers and from 2000 to 2002 the flight hour data are standardised on SLAR-coverage, i.e. corrected for relative aircraft speed. For the countries for which the average aircraft speed is significantly different from the standard speed (e.g. Belgium and UK) the data up to 1999 and from 2000 will not be comparable. As a result of a new revision of the reporting format in 2003, from 2003 onwards, the data are again absolute numbers. In the 2008 reporting round a draft revised reporting format has been used which was then harmonised with the Helsinki Commission. In 2013 the

[2] As agreed within the Bonn Agreement, the minimum oil volumes should preferably be used for enforcement and statistical purposes, whereas the maximum oil volumes should preferably be used in the context of oil pollution response.
[3] https://www.bonnagreement.org/publications

format was updated to include data on confirmed detections/observations of “other substances” and “unknowns”, as Contracting Parties had identified increasing numbers of these types of spills and agreed to collect this data for the 2012 report. In 2019 the format was updated to further include the diversification of detection categories and a shift from mainly ship-source oil pollution and an increase in ‘other substances’, a decrease in illegal discharges of oil while permitted discharges from offshore installations remain high and a diversification in surveillance platforms. To accurately portray permitted discharges the “Type of Polluter” field has been altered to “Polluter/source”. The format further includes (Super)CEPCO for countries to report their detections to the organising Contracting Party. 2020 was the first year to utilise the new Reporting Format agreed by Bonn and HELCOM in 2019 and added categories for Litter, Garbage and Objects.

Summary

11. Data for the 2022 report was received from Belgium, Denmark, France, Germany, Ireland, Netherlands, Norway, Spain, Sweden and United Kingdom with additional satellite surveillance from EMSA's CleanSeaNet. 4292 hours of national and regional flights (Tour d'Horizon) were performed, compared to 3983 in 2021 (several flights were cancelled in 2021 due to the Covid-19 pandemic). In addition to their crewed flights, France also flew 477 hours of drone flights during daylight hours however the inclusion of pollution detections by drones are yet to be agreed by the Bonn Agreement and they are included for information only. The total number of flight hours (national and regional) from 1990 to 2022 is shown in figure 1.

12. All flights combined, the overall totals for 2022 are as follows: 404 detections were made, 74 were from offshore platforms, 39 from ships and the remaining 291 from other or unknown sources. 131 of these were confirmed as mineral oil, 145 detections were confirmed as 'Other substances', 128 were Unknown. Twenty-one Object detections were made (all in Spanish waters) and five Garbage detections.

13. The total number detections was similar to 2022 (386 vs 404) and this is reflected across all categories and is in line with the increase of flight hours.

14. EMSA's CleanSeaNet made 1023 detections with the UK and Norway contributing a further 1019 and 89 respectively. Of these 703 were confirmed to be mineral oil (617 from the UK), 33 Other Substances, 256 Unknown (225) and 24 Natural Phenomena. 731 instances were either not checked (297) or there was no feedback provided (434). Following the withdrawal of the United Kingdom from the European Union the UK sources its own satellite imagery. The full detections are in Table 5.

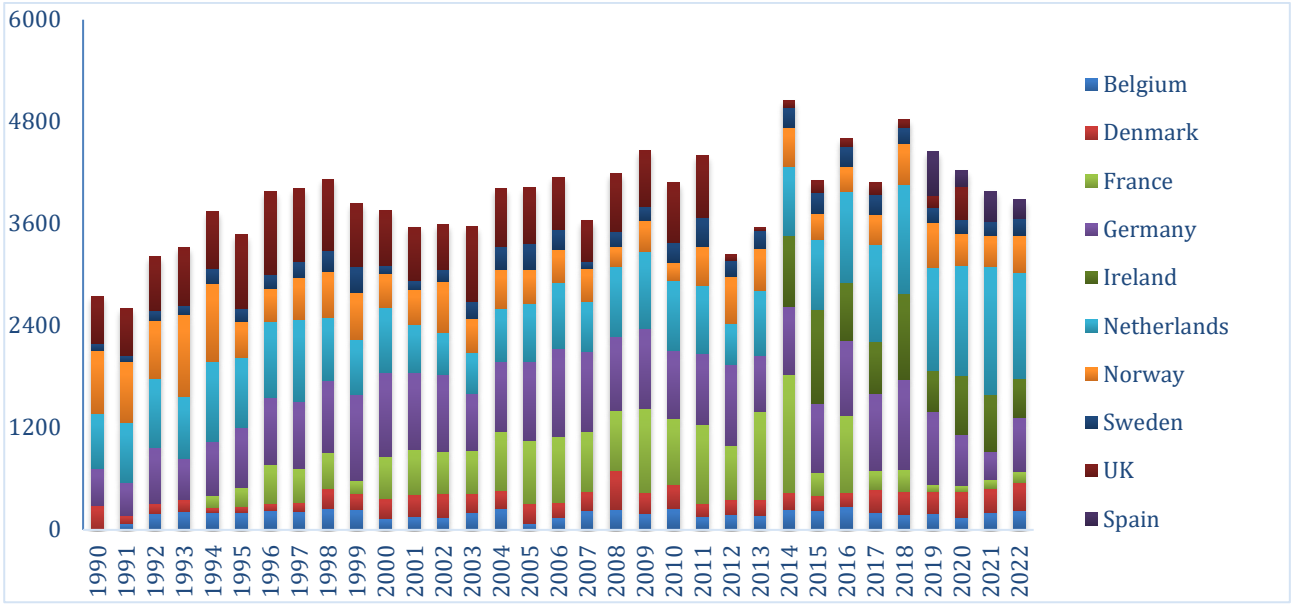

Figure 1. Number of flight hours per Contracting Party 1990-2022.

National Flights

Flight effort

15. The data presented in Table 1 relates to national flights conducted in 2022 with a total of 4232 hours flight time. As in previous years the Netherlands flew the majority of these, conducting 1243 hours.

Country	No. of flight hours		
	Daylight	Darkness	Total
Belgium	188:00	23:30	211:30
Denmark	239:58	77:45	317:43
France	116:00	14:00	130:00
Germany	404:37	228:28	633:05
Ireland	455:25	0:00	455:25
Netherlands	1127:20	116:28	1243:48
Norway	433:49	8:51	442:40
Spain	209:00	9:00	218:00
Sweden	192:00	5:00	197:00
UK	383:40	0:00	383:40
Total	**3749:49**	**483:02**	**4232:51**

Table 1. National flight hours for 2022.

Oil Detections

16. In 2022 Contracting Parties observed 108 mineral oil detections during National Flights in the Bonn Agreement area (table 2).

Country	No. of flight hours			No. of detections inside national EEZ			Detections confirmed / observed as mineral oil spills			No. of polluters (mineral oil)				Estimated volume (m^3)
	Daylight	Darkness	Total	Daylight	Darkness	Total	Daylight	Darkness	Total	Rigs	Ships	Other	Unknown	
Belgium	188:00	23:30	211:30	14	0	14	2	0	2	0	1	0	1	0.359
Denmark	239:58	77:45	317:43	67	7	74	30	2	32	17	0	0	15	5.359
France	116:00	14:00	130:00	4	0	4	1	0	1	0	0	0	1	0.04
Germany	404:37	228:28	633:05	10	4	14	0	0	0	0	0	0	0	0
Ireland	455:25	0:00	455:25	3	0	3	0	0	0	0	0	0	0	0
Netherlands	1127:20	116:28	1243:48	155	12	167	10	0	10	0	0	0	10	1.574
Norway	433:49	8:51	442:40	30	0	30	26	0	26	7	13	1	5	13.329
Spain	209:00	9:00	218:00	36	0	36	3	0	3	0	0	0	3	0.079
Sweden	192:00	5:00	197:00	7	0	7	4	0	4	0	0	0	4	8.06
UK	383:40	0:00	383:40	30	0	30	30	0	30	23	1	5	1	97.278
Total	**3749:49**	**483:02**	**4232:51**	**356**	**23**	**379**	**106**	**2**	**108**	**47**	**15**	**6**	**40**	**118.02**

Table 2 Detections of mineral oil slicks in 2022

17. Volumes of oil slicks detected during National flights were estimated (as outlined in table 3). Figure 2 shows the percentage of oil detections subdivided into different size categories. Compared to 2020 (11.11 m^3) and 2021 (60.28 m^3) there was again an increase in the total volume of oil detections to 1118.02 m^3. The majority of this is from a UK Wreck, the Inverted Bow which had an estimated combined spill volume of 85.34 m^3 from 18 flights. No spills over 100m^3 were observed.

Country	Not quantified	Category 1: <0,1m³	Category 2: 0,1-1 m³	Category 3: 1–10 m³	Category 4: 10–100 m³	Category 5: >100m³	Number of Oil Slicks	Number of quantified Slicks	% of total count
Belgium	0	1	1	0	0	0	2	2	1.85
Denmark	0	20	11	1	0	0	32	32	29.63
France	0	1	0	0	0	0	1	1	0.93
Germany	0	0	0	0	0	0	0	0	0.00
Ireland	0	0	0	0	0	0	0	0	0.00
Netherlands	0	5	5	0	0	0	10	10	9.26
Norway	0	19	5	2	0	0	26	26	24.07
Spain	0	3	0	0	0	0	3	3	2.78
Sweden	0	0	1	3	0	0	4	4	3.70
UK	0	23	4	2	1	0	30	30	27.78
Total	**0**	**72**	**27**	**8**	**1**	**0**	**108**	**108**	**100**
% of total count	**0.00**	**66.67**	**25.00**	**7.41**	**0.93**	**0.00**	**100.00**		

Table 3. Estimated sizes of mineral oil slicks detected by National flights in 2022.

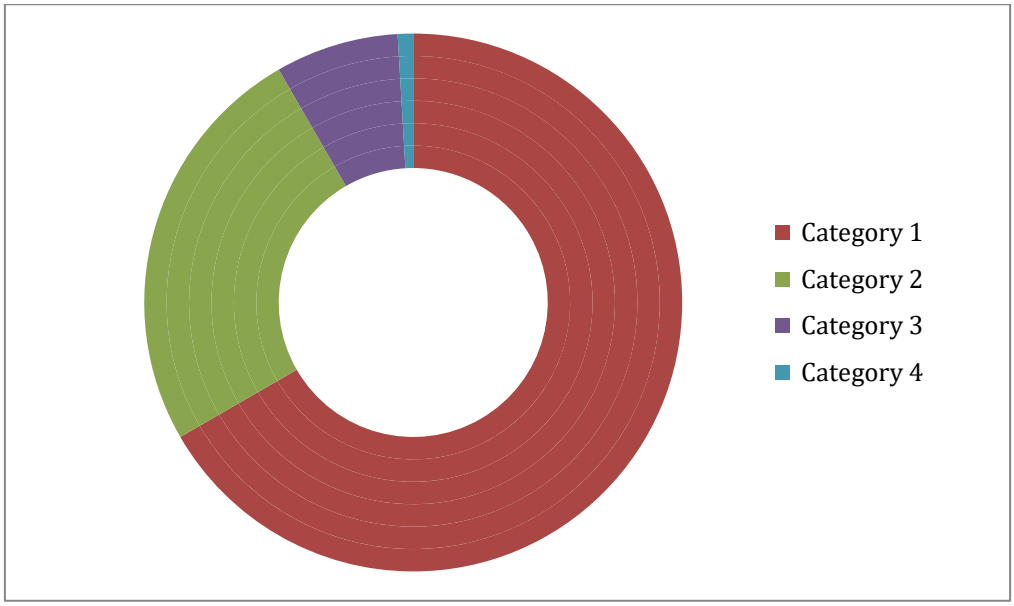

Figure 2: Percentage of national mineral oil slick detections in size categories observed in the Bonn Agreement area.

18. The location of these detections and their estimated size can be seen in figure 3, the decreasing trend in the number of detections of confirmed mineral oil since 1991 can be seen in figure 4.

19. The ratio of flight hours to oil detections during this time is shown in figure 5. Since 2015 the ratio has remained stable between 0.02 and 0.03 oil detections per hour of flight time.

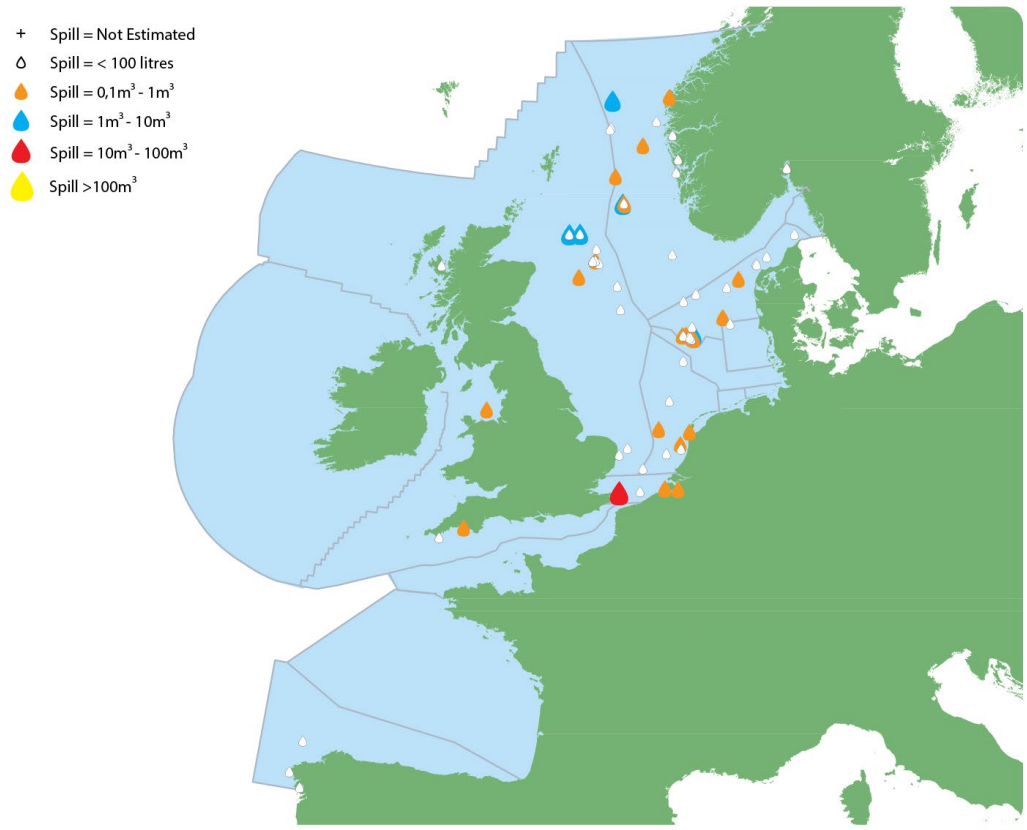

Figure 3. Location and size estimate of oil slicks.

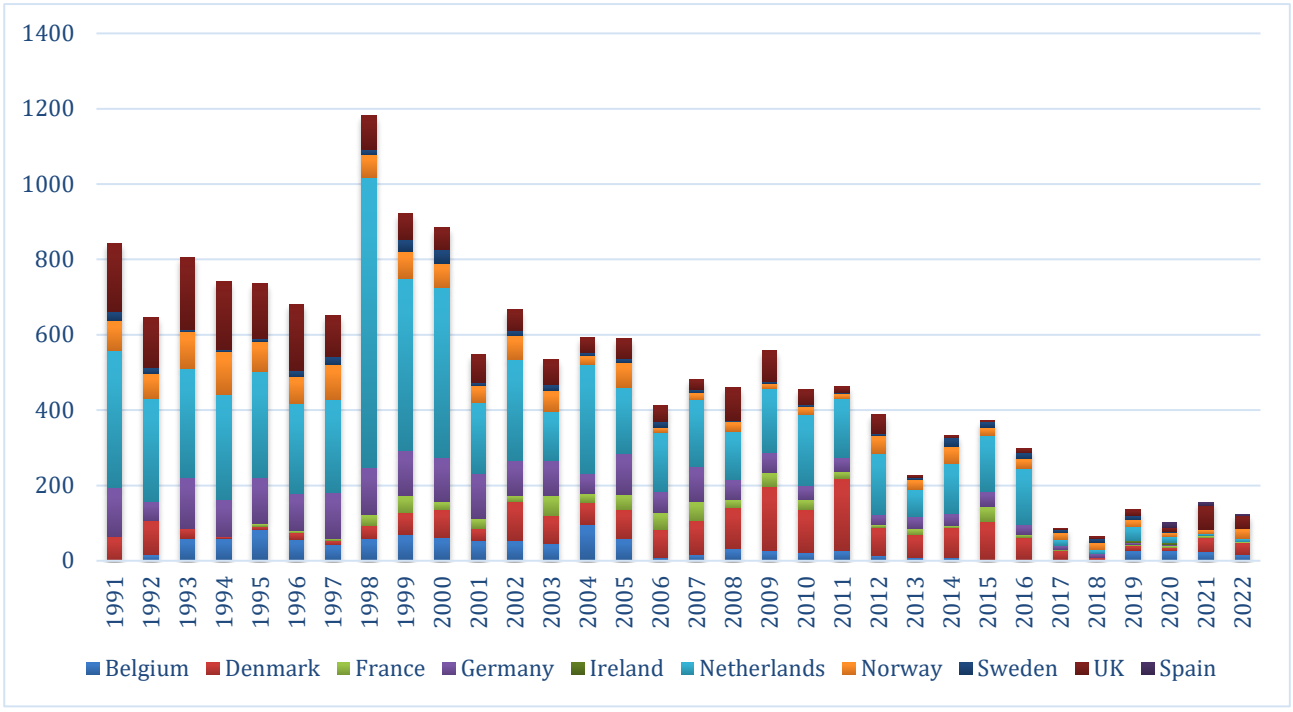

Figure 4. Number of oil slicks observed during national flights 1991 – 2022

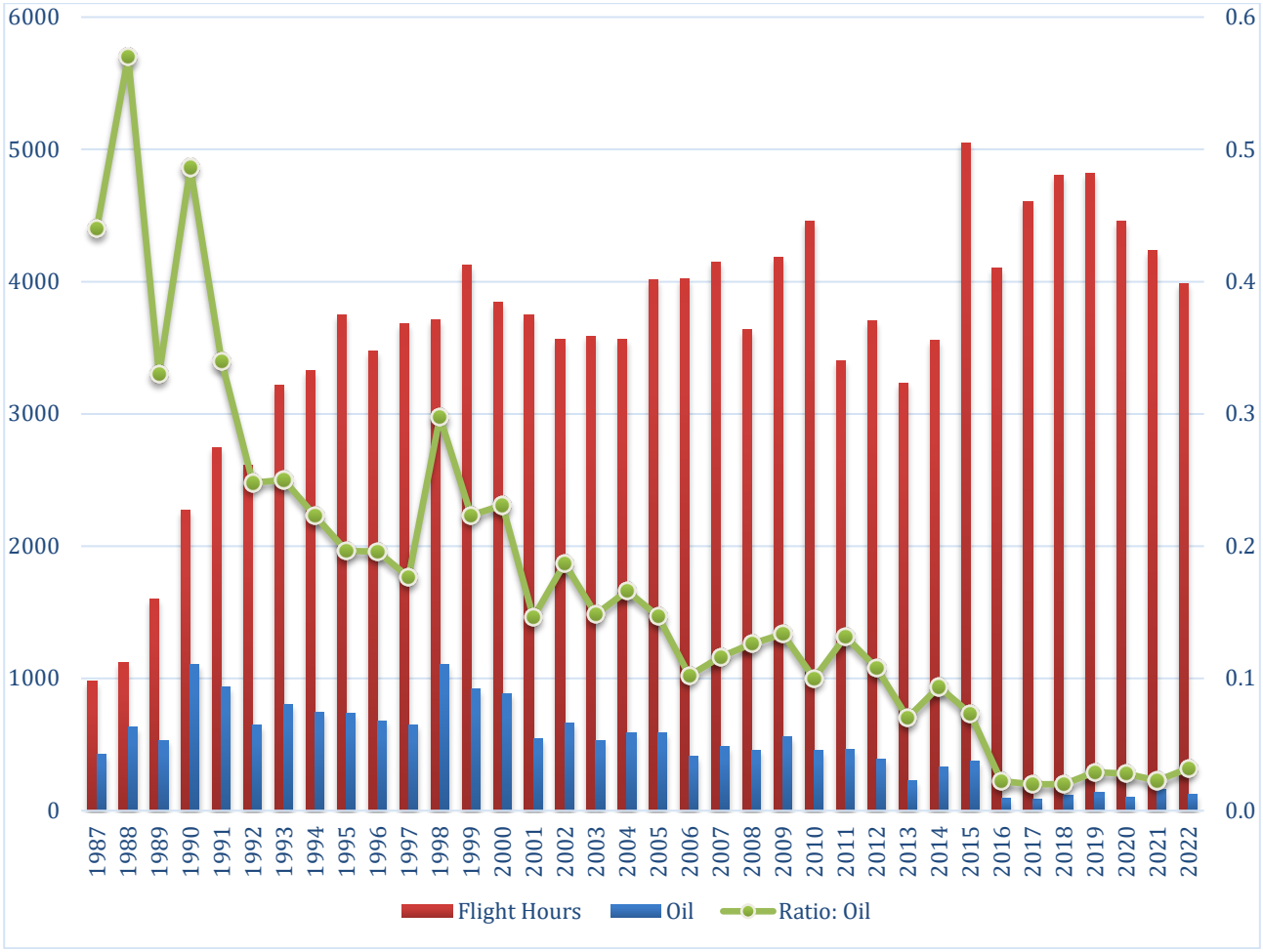

Figure 5. Ratio of flight hours: oil detections from 1987 to 2022.

Other Substances, Unknown Detections, Garbage, Litter and Objects.

20. Detections of other substances (including HNS) and unknown detections made during National Flights have also been reported as part of the annual aerial surveillance reporting (table 4). This has been included as national evidence and has pointed to an increase in spills of Other Substances and therefore it was agreed that this should be tracked at a regional level. In 2022 there were 145 detections of Other Substances during national flights, an increase compared to 171 in 2021, and 100 detections of Unknown Detections compared to 68 in 2021.Only Spain and the Netherlands reported any Object detections (26) with 21 of these from Spain. The location and types of detections are shown in figure 5. Figure 6 shows the trend in detections with an overall decline in Oil and Unknown detections but an increase in all other detections for 2021 compared to 2020. Number of detections per type and contracting party are shown in figure 7.

Country	Detections confirmed/observed as other substances	No. of polluters (other substances)				Litter detections	No. of polluters (Litter)	Object/ Garbage detections	No. of polluters (Object)	No. of polluters (Garbage)	Unknown detections	No. of polluters (unknown detections)			
		Rigs	Ships	Other	Unknown		Unknown		Unknown	Unknown		Rigs	Ships	Other	Unknown
Belgium	12	0	0	0	12	0	0	0	0	0	0	0	0	0	0
Denmark	3	0	2	0	1	0	0	0	0	0	39	3	0	0	36
France	1	0	1	0	0	0	0	0	0	0	2	0	0	0	2
Germany	5	0	1	0	4	0	0	0	0	0	9	0	3	0	6
Ireland	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
Netherlands	123	2	14	0	107	0	0	5	0	5	29	0	0	0	29
Norway	1	0	0	0	1	0	0	0	0	0	3	0	0	0	3
Spain	0	0	0	0	0	0	0	21	21	0	12	0	3	0	9
Sweden	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
UK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**145**	**2**	**18**	**0**	**125**	**0**	**0**	**26**	**21**	**5**	**100**	**3**	**6**	**0**	**91**

Table 4. Other and unknown substances, Litter, Garbage and Object detections.

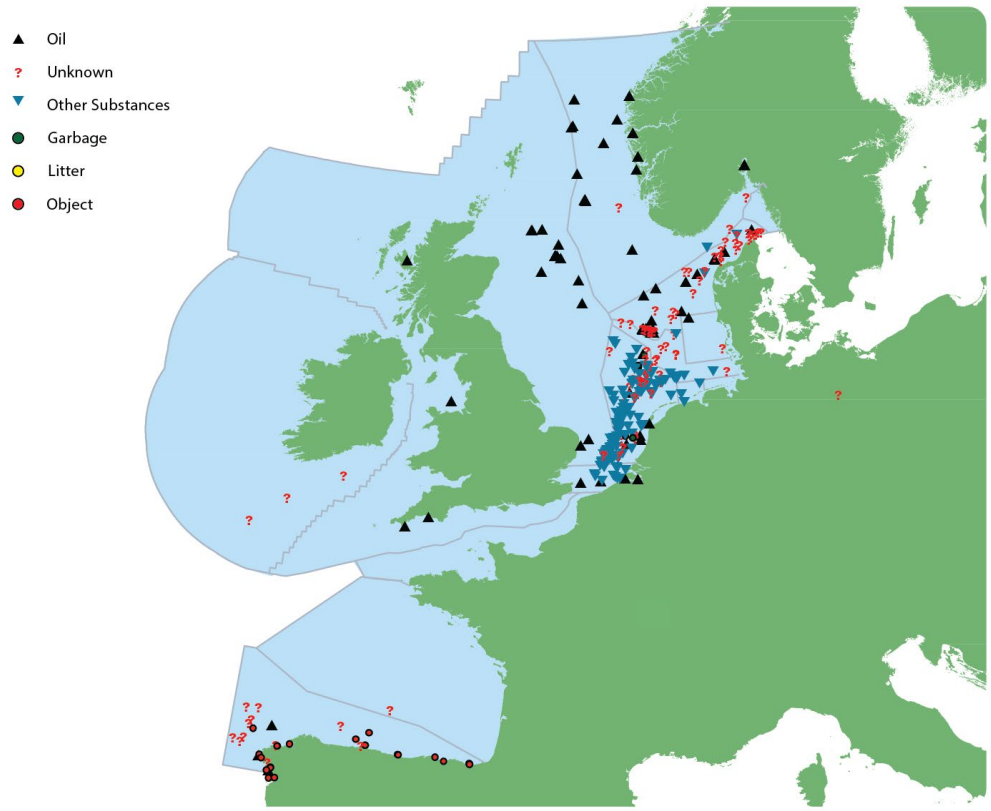

Figure 5. Location and type of detections.

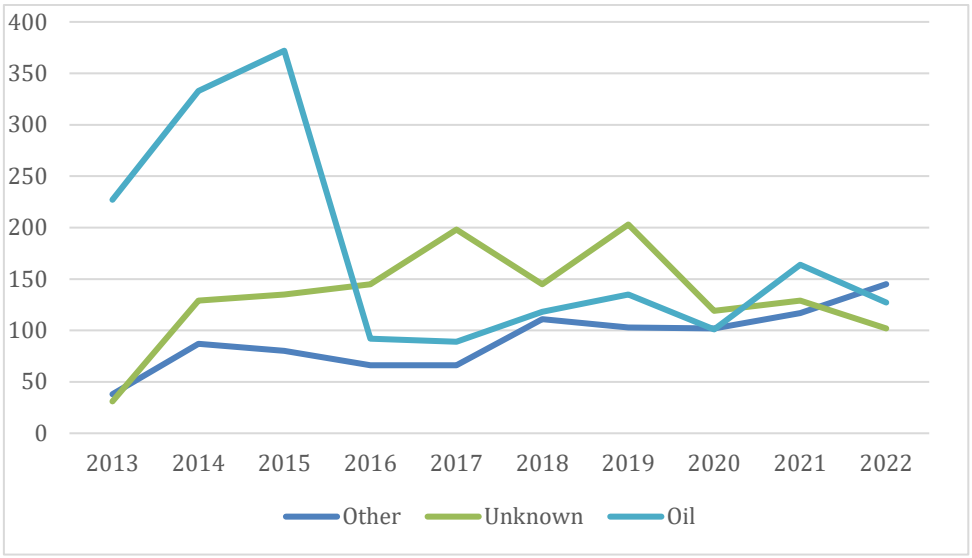

Figure 6. Detections of Other Substances, Unknown Detections and Mineral oil from 2012 – 2022.

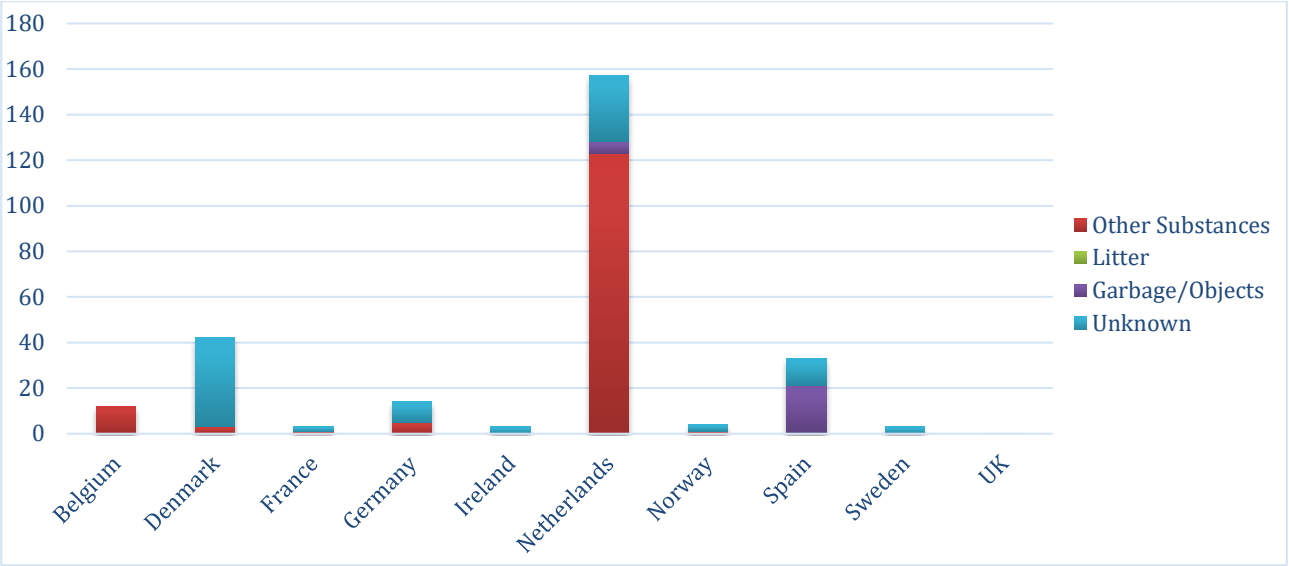

Figure 7. Detections other than mineral oil in 2022

Satellite Detections

Country	Satellite detections							
	Detected	Confirmed mineral oil	Confirmed other substances	Confirmed "unknown" spills	Confirmed natural phenomena	Nothing found	Not checked	No feedback
Belgium	4	0	0	0	0	0	4	0
Denmark	171	26	23	9	8	64	38	3
France	140	1	5	3	1	24	59	47
Germany	46	0	16	0	4	18	8	0
Ireland	62	2	0	3	0	6	37	14
Netherlands	117	1	31	9	4	22	41	9
Norway	196	55	11	0	0	2	46	82
Spain	54	0	3	6	1	2	29	13
Sweden	13	1	4	1	1	6	0	0
UK	1328	617	33	225	5	147	35	266
Total	**2131**	**703**	**126**	**256**	**24**	**291**	**297**	**434**

Table 5. National and CleanSeaNet detections during 2022. Satellite detections are not always confirmed by aircraft.

21. In total 2131 satellite detections were made by CleanSeaNet and national detections from Norway and the United Kingdom. Of these 703 were confirmed as mineral oil (table 5) down from 1275 in 2021. For full satellite details see Annex I

22. Satellite detections are increasingly used in combination with airborne surveillance but not all detections are confirmed via a visual verification. In particular discharges from offshore installations are confirmed via the operator of the platform. Figure 8 shows the verification effort of CleanSeaNet detections by Contracting Parties.

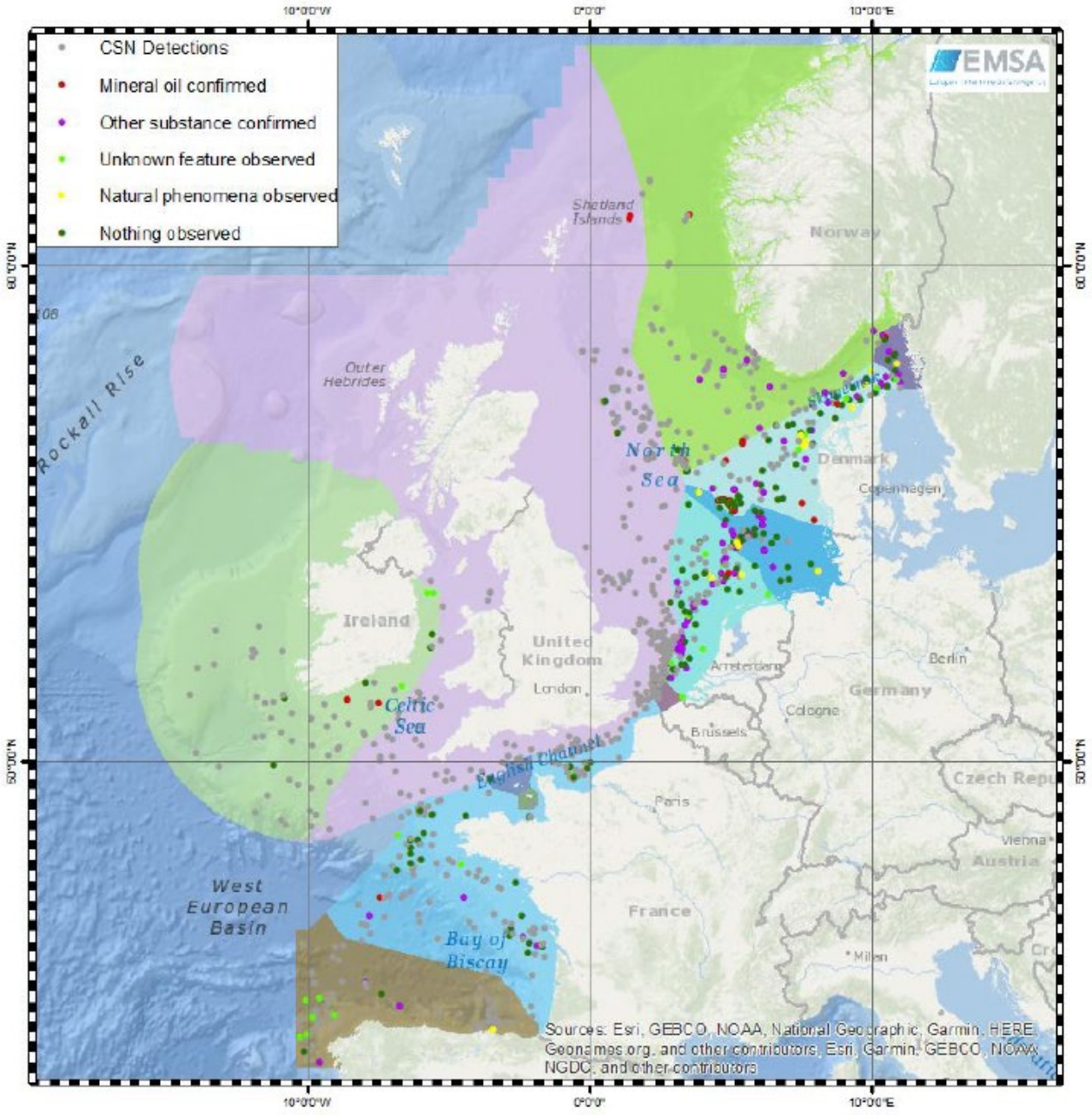

Figure 8. Spatial distribution of verified detections in 2022.

23. Long term trends of satellite detections are shown in figure 9. Satellite detections which were not checked are not available before 2017. From the available data there are no clear trends and this figure will continue to be updated in coming years.

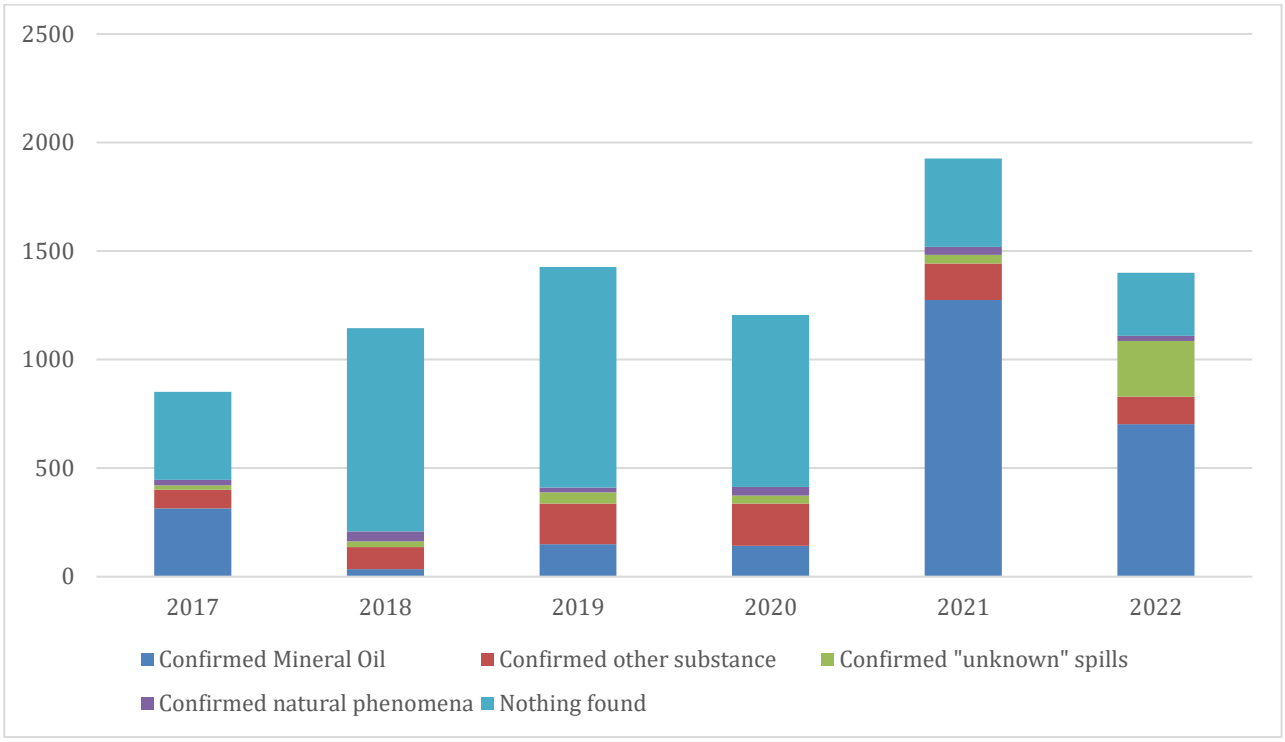

Figure 9. Types of satellite detections 2017 – 2022

Regional Flights

24. In 2022 Tour d'Horizon flights were carried out by Belgium, Denmark, Norway, Sweden and the United Kingdom. Germany were unable to complete their missions due to technical issues. In total 60:05 flight hours were carried out with a total of 25 detections, 23 of these confirmed as mineral oil and 3 unkown. Table 6a and 6b show an overview of the number and size of detections. For full details see the 2022 Tour d'Horizon report. Figure 10 shows locations of the TdH detections and figure 11 shows flight hours and detections from 1999 to 2022. It confirms the previously reported lack of trends (due to strong annual fluctuations) in annual TdH detections since 1999. This seems contrary to, for example, the significantly decreasing trend in oil pollution from ships. But it should be nuanced that such a comparison is difficult to make, since most TdH detections are assessed to be permitted OIW discharges, whilst oil spills detected in the wake of a ship are generally the result of an illegal discharge (violation of MARPOL Annex I discharge standards).

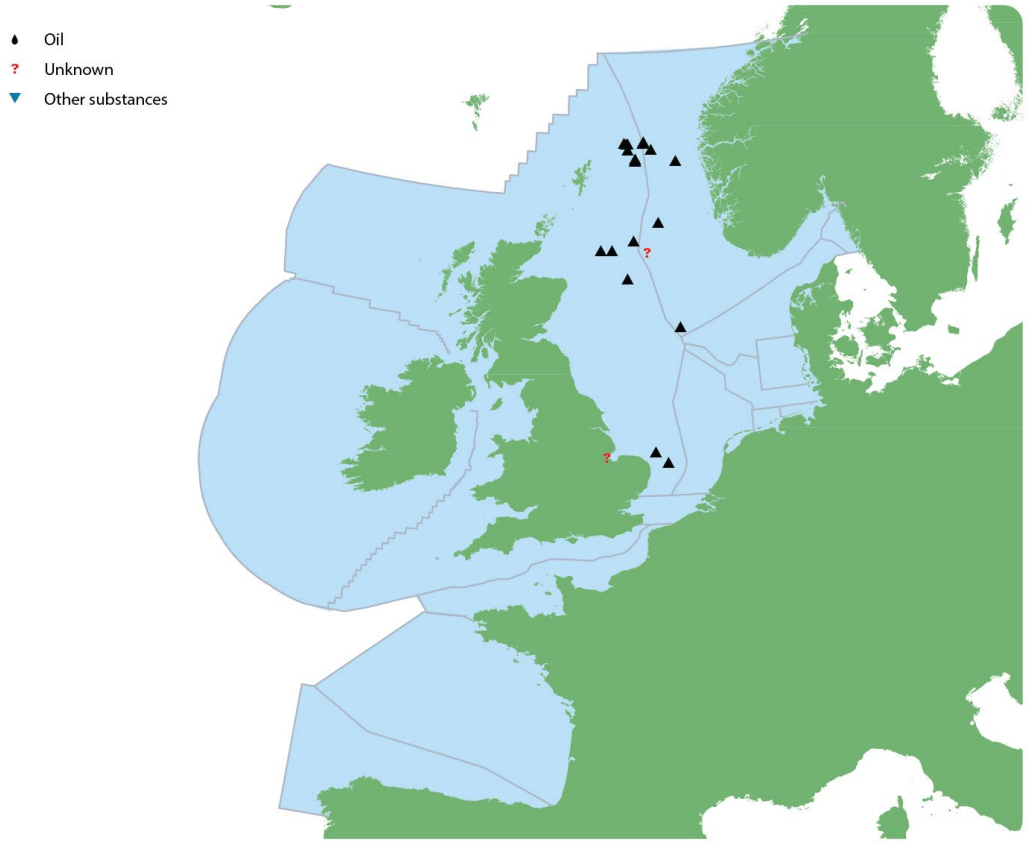

Figure 10. Location of Tour d'Horizon detections.

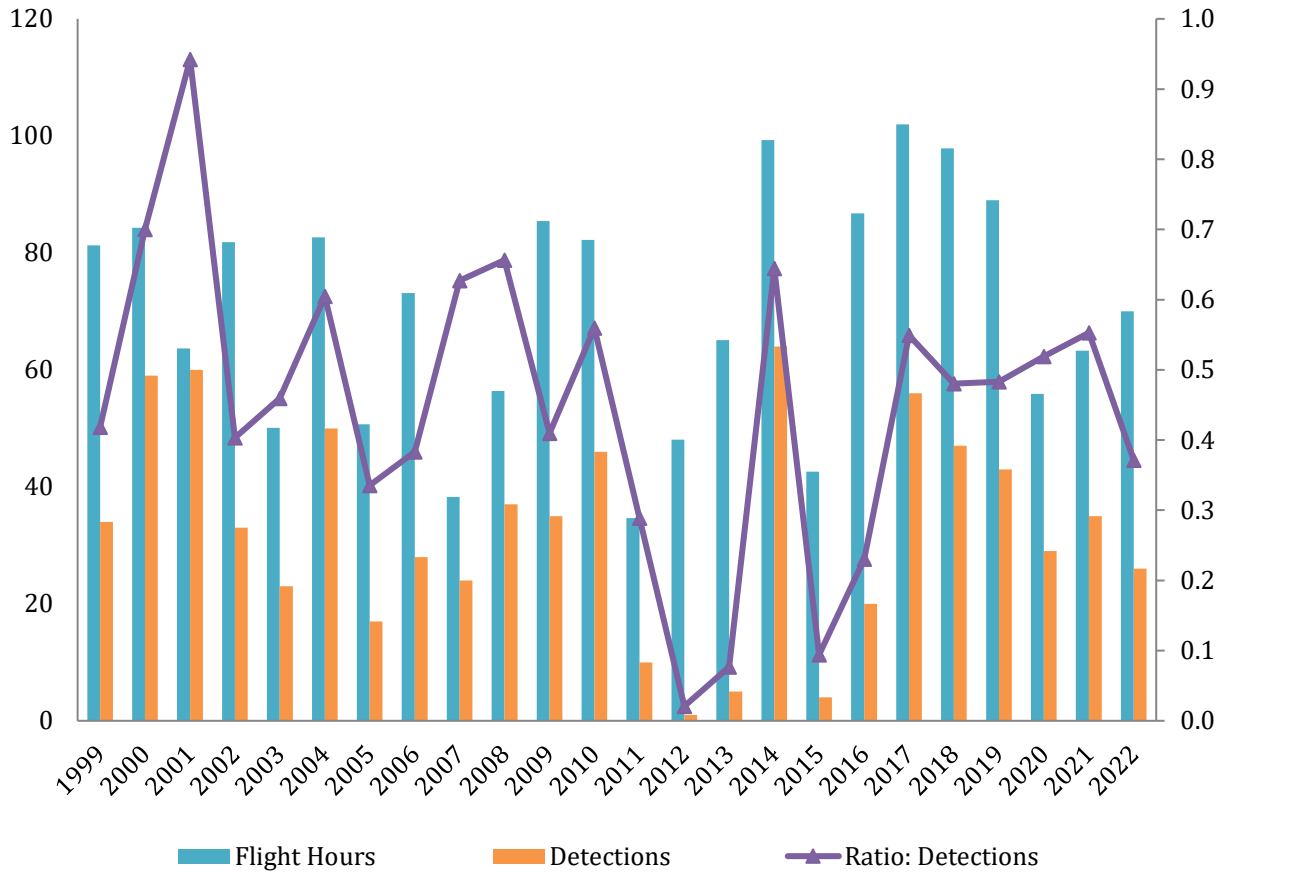

Figure 11. Tour d'Horizon flight hours and oil detections from offshore installations.

Country	No. of flights	No. of flight hours			No. of detections in TdH area			Detections confirmed / observed as mineral oil spills			No. of polluters (mineral oil)				Estimated min volume (m^3)	Estimated max volume (m^3)
		Daylight	Darkness	Total	Daylight	Darkness	Total	Daylight	Darkness	Total	Rigs	Ships	Other	Unknown		
Belgium	6	21:40	0:00	21:40	16	0	16	15	0	15	12	0	0	3	3.64	36.07
Denmark	0	0:00	0:00	0:00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
France	0	0:00	0:00	0:00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Germany	0	0:00	0:00	0:00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ireland	0	0:00	0:00	0:00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Netherlands	0	0:00	0:00	0:00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Norway	3	8:17	0:00	8:17	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Spain	0	0:00	0:00	0:00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Sweden	4	15:38	0:00	15:38	5	0	5	4	0	4	4	0	0	0	0.33	0.00
UK	5	14:30	0:00	14:30	4	0	4	4	0	4	4	0	0	0	3.40	34.30
Total	**18**	**60:05**	**0:00**	**60:05**	**25**	**0**	**25**	**23**	**0**	**23**	**20**	**0**	**0**	**3**	**7.37**	**70.37**

Table 6a. Detections of mineral oil during Tour d'Horizon flights in 2022

Country	No. of flights	No. of flight hours			No. of detections in TdH area			Detections confirmed/observed as other substances	No. of polluters (other substances)				Unknown detections	No. of polluters (unknown detections)			
		Daylight	Darkness	Total	Daylight	Darkness	Total		Rigs	Ships	Other	Unknown		Rigs	Ships	Other	Unknown
Belgium	6	21:40	0:00	21:40	16	0	16	0	0	0	0	0	1	1	0	0	0
Denmark	0	0:00	0:00	0:00	0	0	0	0	0	0	0	0	0	0	0	0	0
France	0	0:00	0:00	0:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Germany	0	0:00	0:00	0:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Ireland	0	0:00	0:00	0:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Netherlands	0	0:00	0:00	0:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Norway	3	8:17	0:00	8:17	0	0	0	0	0	0	0	0	0	0	0	0	0
Spain	0	0:00	0:00	0:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Sweden	4	15:38	0:00	15:38	5	0	5	0	0	0	0	0	1	1	0	0	0
UK	5	14:30	0:00	14:30	4	0	4	0	0	0	0	0	0	0	0	0	0
Total	**18**	**60:05**	**0:00**	**60:05**	**25**	**0**	**25**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**0**	**0**	**0**

Table 6b. Detections of Other Substances and Unknown Detections during Tour d'Horizon flights in 2022

Annex I

European Maritime Safety Agency

CleanSeaNet Statistics
Bonn Agreement

Reporting Period: 01/01/2022 – 31/12/2022

Date: 21 March 2023

EMSA

Table of Contents

1. Background

This document presents the CleanSeaNet service (CSN) statistics for the Bonn Agreement region[1] for the reference period from 1st of January 2022 to 31st December 2022. Specifically, this report presents:

- CSN service deliveries.
- CSN possible oil spills detection.
- Coastal States verification activities in the scope of CSN.

The reference date concerning the extraction of CSN data and associated feedback, for the purpose of these statistics is 10th of February 2023.

Disclaimer: This paper contains oil spill feedback data which is owned by the respective Member State providing the feedback. Albeit this feedback information is stored in EMSA databases, the decision to disclose this paper or parts of it, relies solely with the Member States that have the ownership of the information. For more information about feedback data disclosure, please contact the CSN National Competent Authorities: https://www.emsa.europa.eu/csn-menu/csn-ncas-contact-details.html

2. CleanSeaNet EO Service Deliveries

In 2022 the CSN service used images from Sentinel-1 (S1), RADARSAT-2 (RS2) and TerraSAR-X/PAZ (TSX/PAZ) missions. During this period, CSN delivered a total of 1710 Earth Observation (EO) services to the Bonn Agreement Contracting Parties in the region. Figure 1 shows the monthly distribution of EO services delivered.

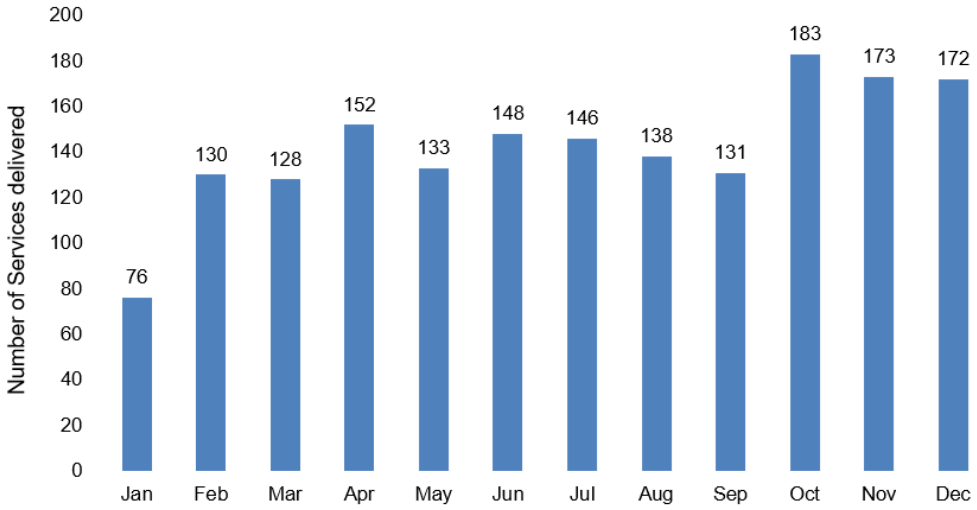

Figure 1 - CleanSeaNet delivered EO services for the Bonn Agreement region in 2022

3. CleanSeaNet Detections

CleanSeaNet detections consist in possible oil spills detected in satellite imagery. The likelihood of a certain detection being an oil spill is indicated by two classification levels: Classification A and B. In 2022

[1] An updated version of the Bonn Agreement area, in shape file format, was received by EMSA, in early 2021, with the enlargement of the geographical scope of the Bonn Agreement by incorporating the Bay of Biscay area.

the likelihood of the CleanSeaNet detections were:

- **Class A** - higher confidence level (larger than 50%) that a certain feature is mineral oil
- **Class B** - lower confidence level (smaller than 50%) that a certain feature is mineral oil

To be noted that regardless of Class A or B, CSN detections always represent "possible" oil spills, until these are verified on site. In 2022, 1023 detections were reported: 683 Class A (67%), 340 Class B (33%). Figure 2 shows the monthly distribution of CSN detections classified as A and B.

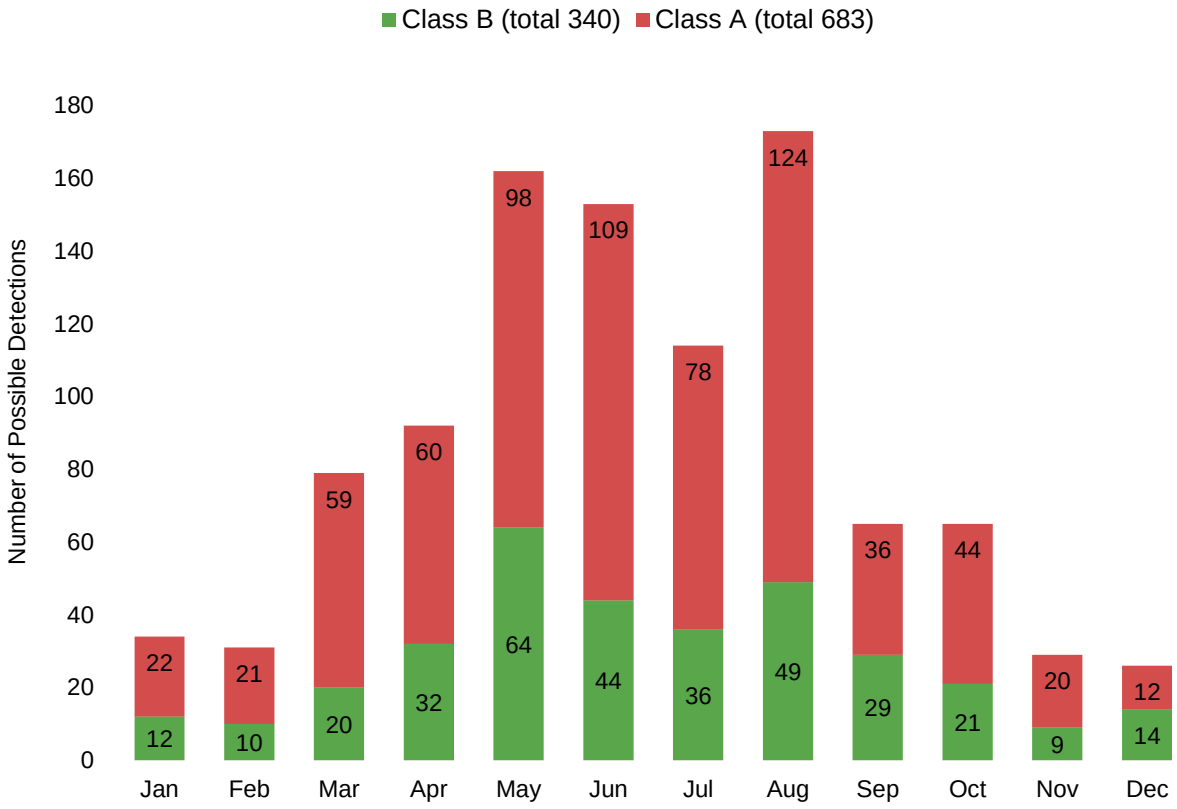

Figure 2 - Monthly distribution of class A and B detections, for the Bonn Agreement region in 2022

Figure 3 provides a distribution map of the possible oil spills detections within the Bonn Agreement region.

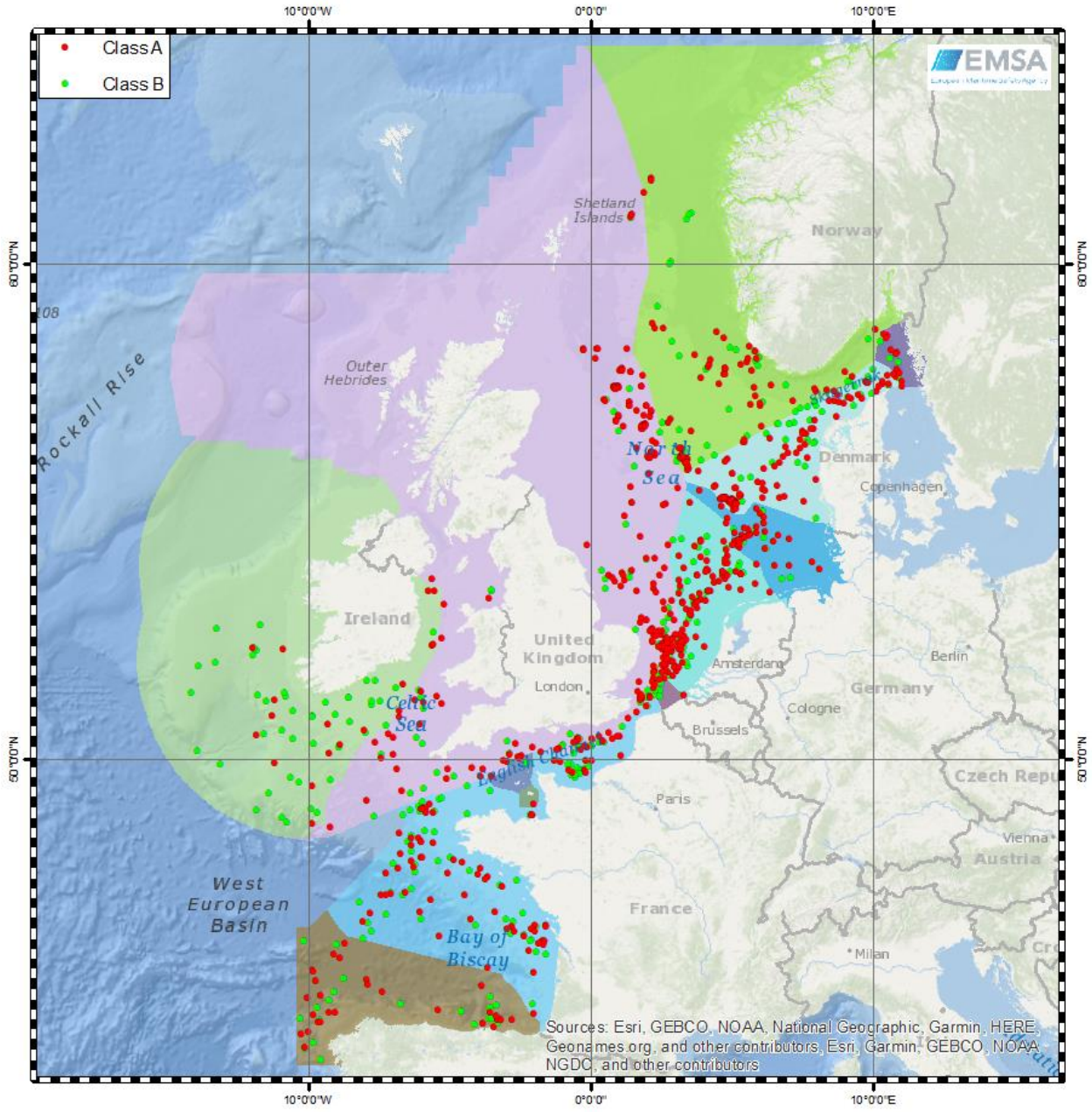

Figure 3 – Geographical distribution of class A and B detections, for the Bonn Agreement region in 2022

4. Verification activities

This section presents the analysis of the verification activities concerning the CSN detected possible oil spills and reported to EMSA via the SafeSeaNet Ecosystem Graphical User Interface (SEG).

It is worth noting that only one feedback is counted per oil spill (designated as “priority feedback”) and by default this is the first feedback submitted.

The feedback resulting from these verifications may vary significantly depending on several factors, namely the size of the spill (i.e. small spills can evaporate/dissipate in a short period of time), type of substance, weather conditions, timeliness of verification (i.e. the longer the verification takes from the acquisition, the lower the probability that the spill is confirmed).

During the reporting period, out of the 1023 CSN detections, 329 (32.2%) were verified on-site by the coastal States. In 260 (25.4%) detections, the feedback provided was “reason for no verification” and “No feedback provided” corresponds to 434 (42.4%) of the detections, as displayed in Figure 4.

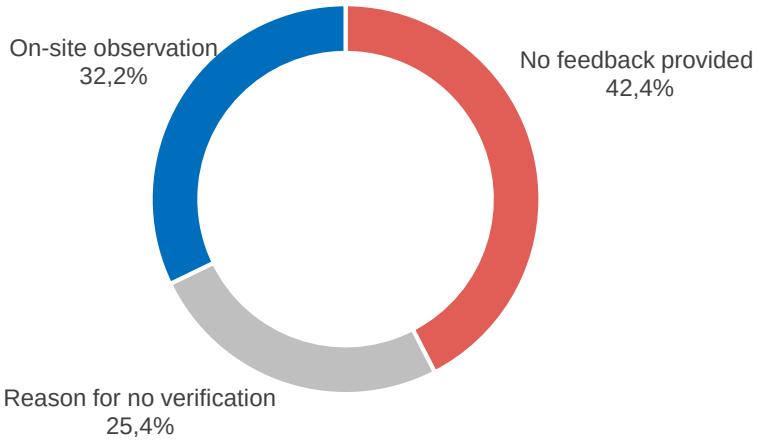

Figure 4 - CSN detection feedback distribution for the Bonn Agreement region, in 2022

In Figure 4, the figures for “No feedback provided“ includes the possible detected oil spills within the United Kingdom (UK)[2] area, representing 266 (86%) out of 309 cases (Table 1).

The reasons for not performing verifications, corresponding to 25.4% of the total CSN detections (Figure 4), are further detailed in Figure 5. The main reason for no verification was due to “no assets availability” corresponding to 61%.

[2] The CSN service ceased the provision of services to the UK on 31/12/2020, after the withdrawal of the UK from the EU.

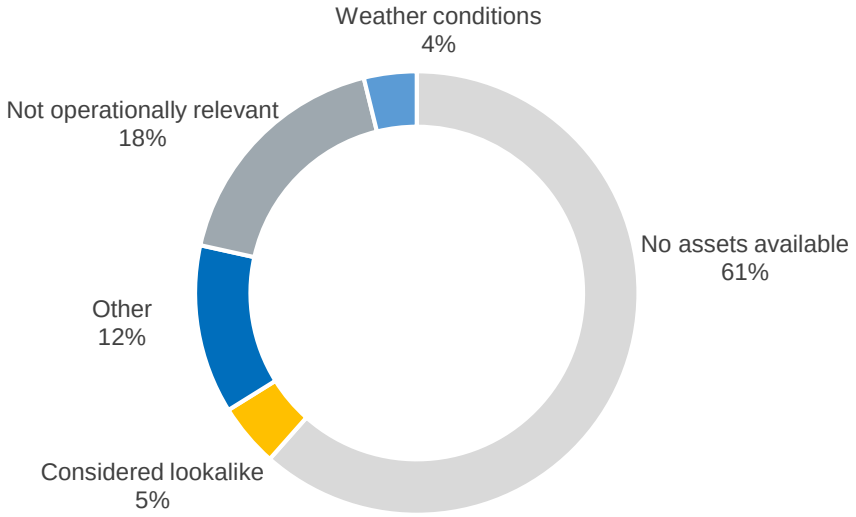

Figure 5 - Reasons for non-performance of on-site verifications in the Bonn Agreement region during 2022

During the reporting period, out of the 1023 detections, 329 (32.2%) were checked by the Coastal States (Figure 6):

- 36 (11%) were confirmed as being “Mineral oil confirmed”
- 94 (29%) were reported as “other substance”[3]
- 31 (9%) were reported as “unknown feature”
- 19 (6%) were reported as “natural phenomena”
- 149 (45%) were reported as “nothing observed”

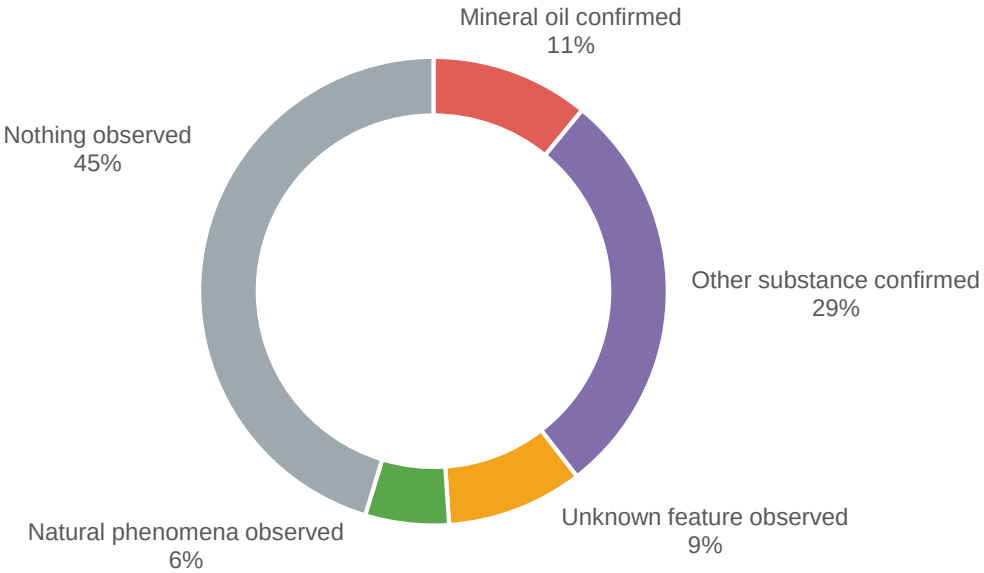

Figure 6 - On-site Observation feedback provided in the Bonn Agreement region, in 2022

The total number of feedback reports for “Nothing Observed” can be the result of several factors, namely, type of substance, weather conditions and timeliness of verification (i.e., longer the verification takes from the acquisition, the lower the probability that the spill is confirmed).

[3] Other substance can be: Chemical oil, Vegetable oil, Fish oil, Sewage, Garbage or Unknown substance.

The total number of feedback reports with “other substance confirmed” was 94 and the subtypes of substances are shown in (Figure 7).

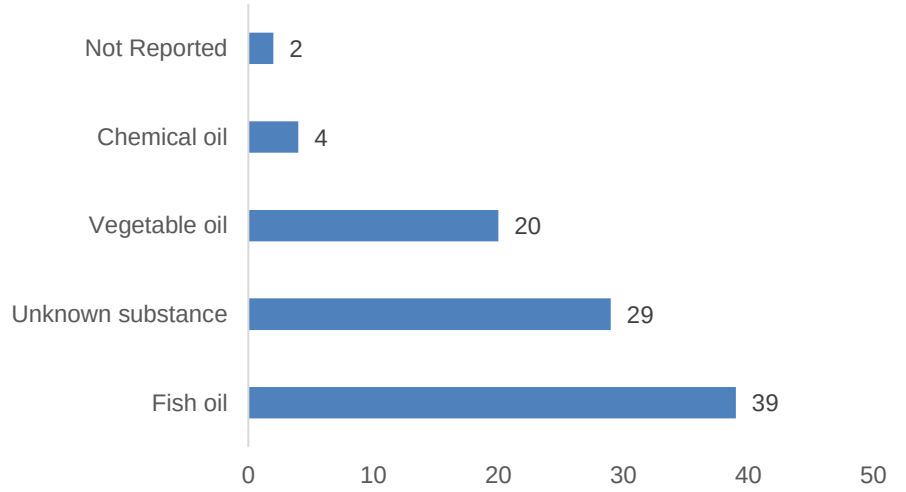

Figure 7 - Sub-type results of observation on-site for “other substance confirmed”, 2022

The “natural phenomena observed” is present 19 times in the feedback reports and the distribution of the results is displayed in Figure 8.

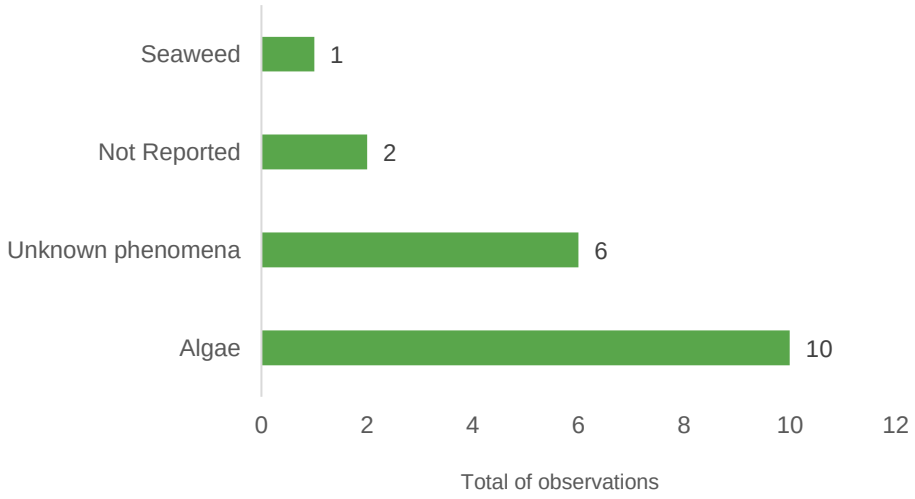

Figure 8 - Sub-type results of observation on-site for “natural phenomena observed”, 2022

Figure 9 shows the spatial distribution of CSN detections and verification activities carried out by the Coastal States in the Bonn Agreement region.

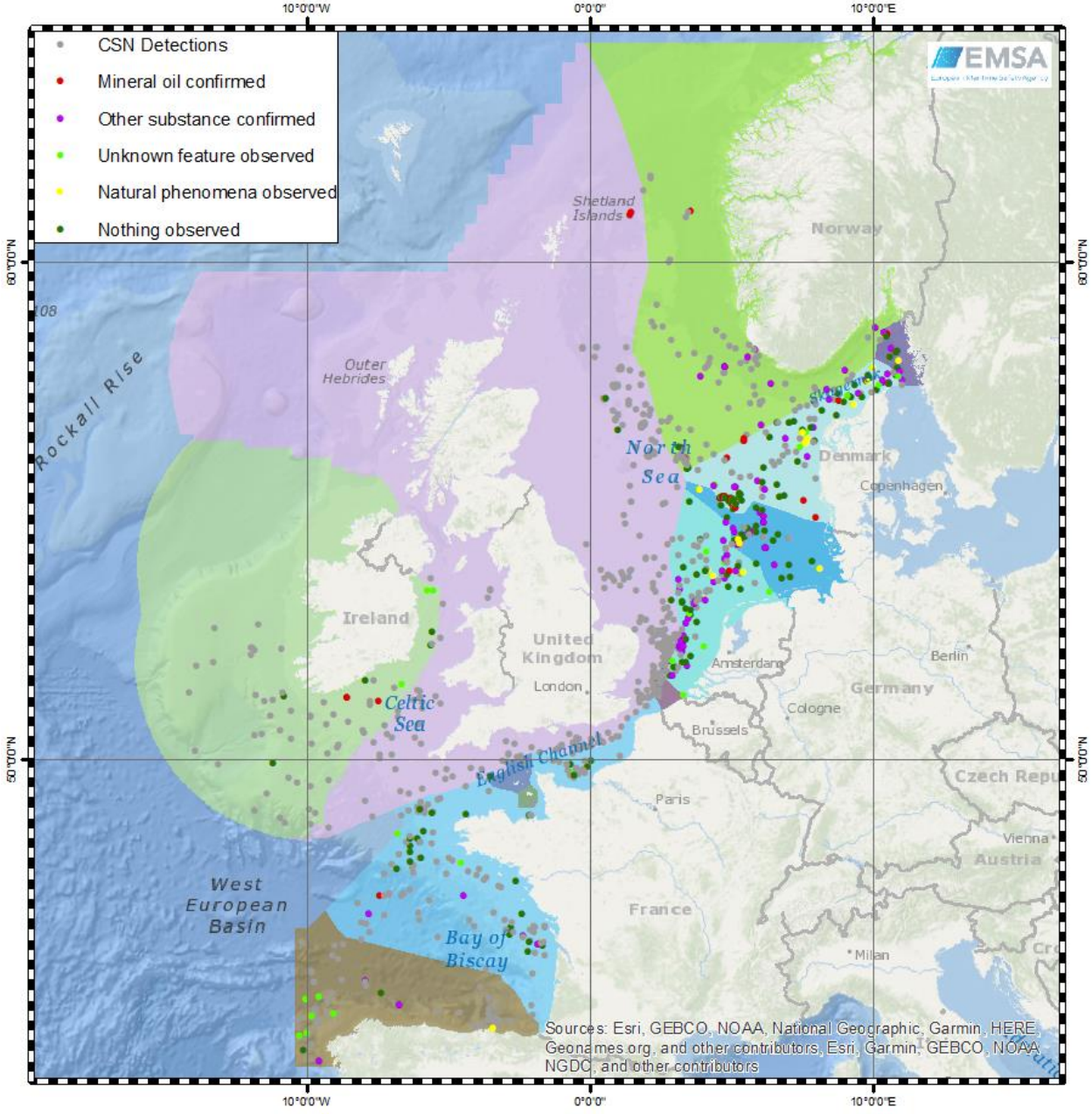

Figure 9 – Geographical distribution of CSN detections and the verification activities carried out by the Coastal States in the Bonn Agreement region in 2022

Table 1 shows the total number of detections of each Bonn Agreement coastal country area during 2022 and the on-site verification results.

Table 1 - Total of detections per Bonn Agreement coastal State's area and feedback provided, 2022

Country Waters	On-site observations						No on-site observation		No feedback provided		Total of Detections
	Mineral oil	Natural phenomena	Nothing observed	Other substance	Unknown feature observed	Total %	Reason for no verification	Total %	No Feedback Provided	Total %	
Belgium	0	0	0	0	0	0%	4	100%	0	0%	4
Denmark	26	8	64	23	9	76%	38	22%	3	2%	171
France	1	1	24	5	3	24%	59	42%	47	34%	140
Germany	0	4	18	16	0	83%	8	17%	0	0%	46
Ireland	2	0	6	0	3	18%	37	60%	14	22%	62
Norway	3	0	2	11	0	15%	9	8%	82	77%	107
Spain	0	1	2	3	6	22%	29	54%	13	24%	54
Sweden	1	1	6	4	1	100%	0	0%	0	0%	13
The Netherlands	1	4	22	31	9	57%	41	35%	9	8%	117
United Kingdom[4]	2	0	5	1	0	3%	35	11%	266	86%	309
Grand Total	**36**	**19**	**149**	**94**	**31**	**32.2%**	**260**	**25.4%**	**434**	**42.4%**	**1023**

[4] The United Kingdom is no longer a user of CleanSeaNet and therefore did not provide any feedback to CSN detections in UK Waters.

It should be noted that, in Table 1, CSN detections are assigned to countries based on national areas communicated to EMSA by the Bonn Agreement secretariat in February 2021. The centre position of the spill is used to decide to which country's area CSN detection belongs.

It should also be noted that CSN alert areas[5] defined by each country can be different from the Exclusive Economic Zone areas used as defined in the referenced Bonn Agreement area. In addition, a CSN alert report is generated each time a spill contour polygon intersects a CSN alert area and different CSN alert areas might overlap each other. Thereupon, the number of detections per country in this report and the number of CSN oil spill notifications alerts for the same country are different. Moreover, due to the overlapping of the CSN Alert areas of two different Member States, an oil spill can trigger two CSN Alerts, but it will be reported once in the Bonn Agreement statistics according to the centre position of the spill.

5. TdH operations' feedback

This section covers the verification activities on the CSN detected possible oil spills under the scope of the Tour d' Horizon (TdH) operations in 2022[6].

In 2022, two operations were supported with additional CSN services entailing ad-hoc planning activities, as detailed in Table 2.

Table 2 - TdH operations in the Bonn Agreement region, in 2022

Date	Requesting country	Operation	EO products
19-22 April	Sweden	Tour D'Horizon	6 SAR
05-09 September	Belgium	Tour D'Horizon	5 SAR

EMSA provided 11 EO products to support these operations, besides the imagery that was already planned under the CSN routine planning. A total of 15 possible oil spills were detected in these images. There was a total of 5 feedbacks provided but none of the feedbacks included the TdH in the comments feedback, thereupon not considered as reference for reporting.

[5] CSN Alert areas define the area where coastal States want to be alerted for CleanSeaNet detected oil spills or Clean Sea reports. The definition of alert areas is strictly operational, without any legal bearing or link with formal maritime boundaries.
[6] As requested by the working group on Operational, Technical and Scientific Questions Concerning Counter Pollution Activities (OTSOPA) in May 2020. A Tour d' Horizon (TdH) is a Bonn Agreement regional mission type, consisting in periodic aerial surveillance of the offshore oil and gas installations in the central North Sea for oil pollution detection. A Co-ordinated Extended Pollution Control Operations (CEPCO) is an intensive pollution control operation in a specific high-risk area (e.g.: maritime area with dense shipping traffic) performed over a period of 24 hours. Operations lasting more than 24 hours are called SuperCEPCO.

European Maritime Safety Agency
Praça Europa 4
1249-206 Lisbon, Portugal
Tel +351 21 1209 200
Fax +351 21 1209 210
emsa.europa.eu