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Background

This document presents CleanSeaNet Service (CSN) statistics for the Baltic region for the reference period between 1st of January 2020 to 31st December 2020. Specifically, this report summarizes the results of CleanSeaNet earth observation (EO) service deliveries, CleanSeaNet detections and verification activities carried out by the Coastal States, reported to EMSA via the SafeSeaNet Ecosystem Graphical User Interface (SEG).

Action requested

The Meeting is invited to to take note of the information provided.

CleanSeaNet Statistics - 1 January 2020 to 31 December 2020

CleanSeaNet EO Service Deliveries

The CleanSeaNet service was provided to Member States based on the analysis of SAR imagery from SENTINEL-1, RADARSAT-2, and TERRASAR-X missions. During the reference period (1 January 2020 to 31 December 2020) CSN delivered to HELCOM Member States in the Baltic region a total of 1312 EO services. Figure 1 shows the monthly distribution of services. To be noted that the delivered services exceed the coverage requirements defined by HELCOM for the different areas.

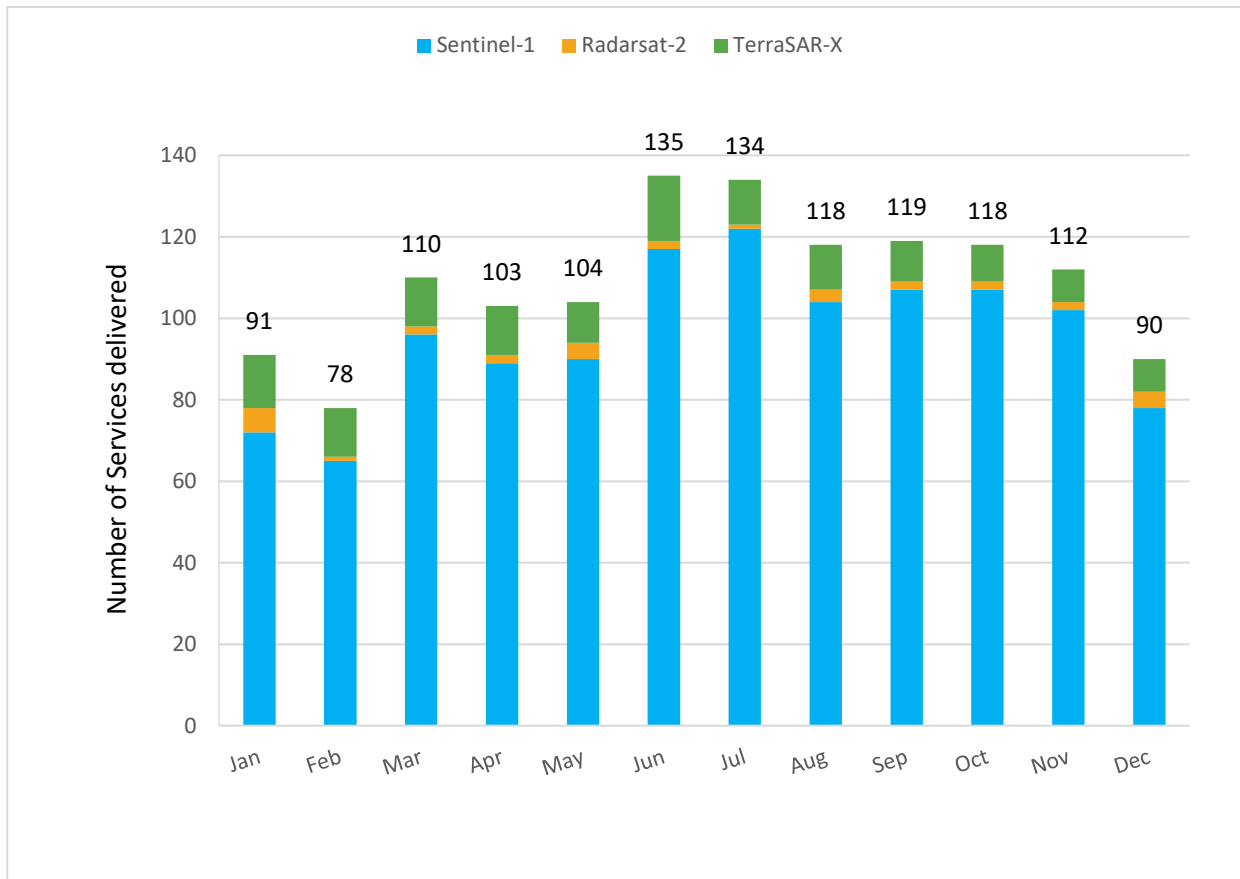


Figure 1 - CleanSeaNet services delivered per mission, for the Baltic region in 2020

CleanSeaNet Detections

CleanSeaNet detections result from the analysis of SAR images and represent features that can potentially be oil spills. Albeit radar is a proven technology concerning the detection of oil spills at sea, has a strong track record of oil spill identification and, depending on the underlying conditions, usually provides reliable information, it is important to state that due to the intrinsic limitations of radar technology, it is impossible to guarantee 100% that a certain detected feature is mineral oil. CleanSeaNet classifies the possible detections in two classes: Class A (Higher confidence level that certain feature is mineral oil) and Class B (lower confidence level that a certain feature is mineral oil). Therefore, either with higher (Class A) or lower (Class B) confidence level, CSN detections always represent "possible" oil spills, until these are verified in-situ.

In 2020, 432 detections were reported: 212 Classification A¹, 220 Classification B². Figure 2 shows the monthly distribution of CSN detections classified as A and B.

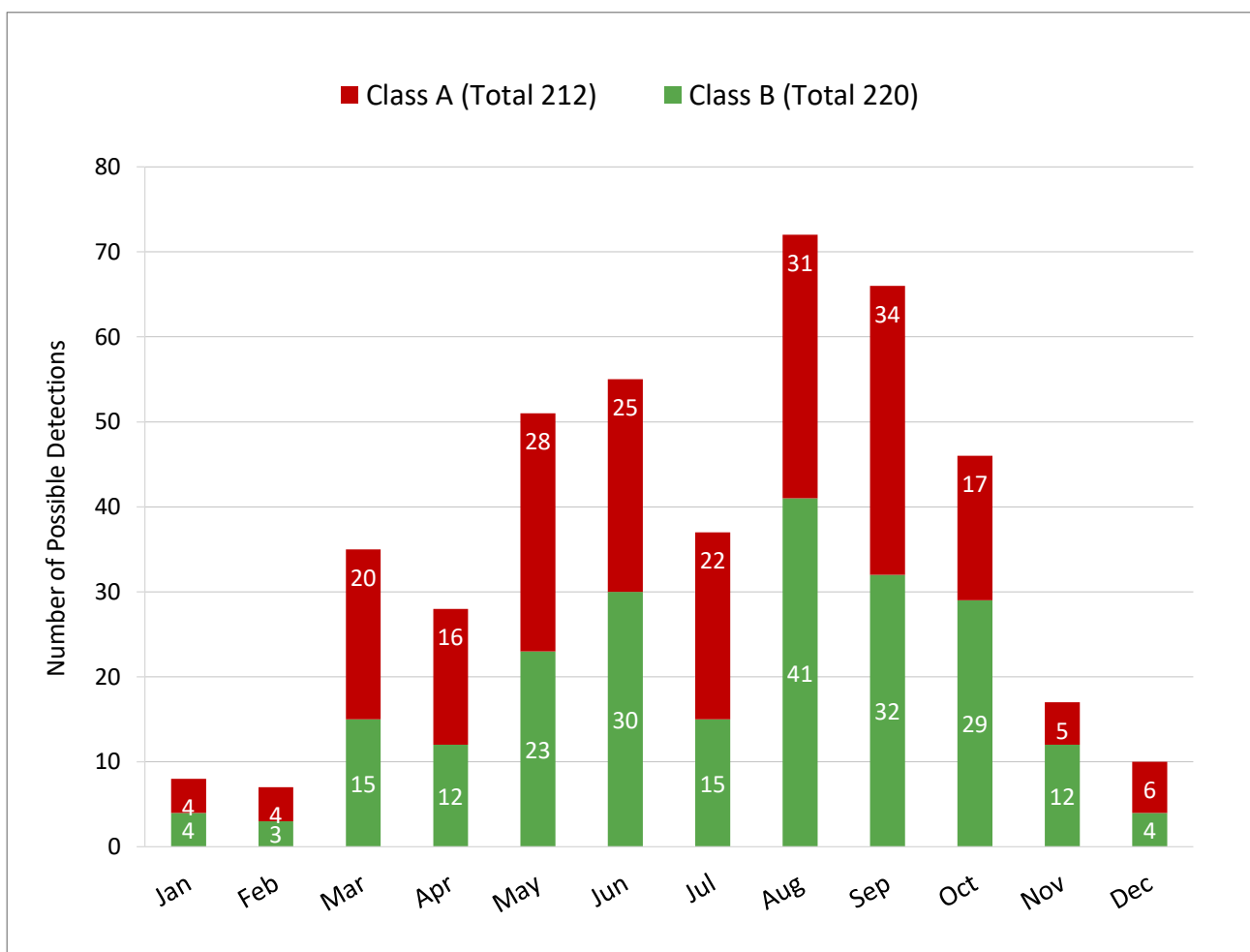


Figure 2 - Monthly distribution of CSN detections (Classification A and B) in 2020 for the Baltic region.

Figure 3 provides a distribution map of possible oil spills detections within the Baltic area.

¹ Classification A - the detected spill has a higher detection confidence level.

² Classification B - the detected spill has a lower detection confidence level.

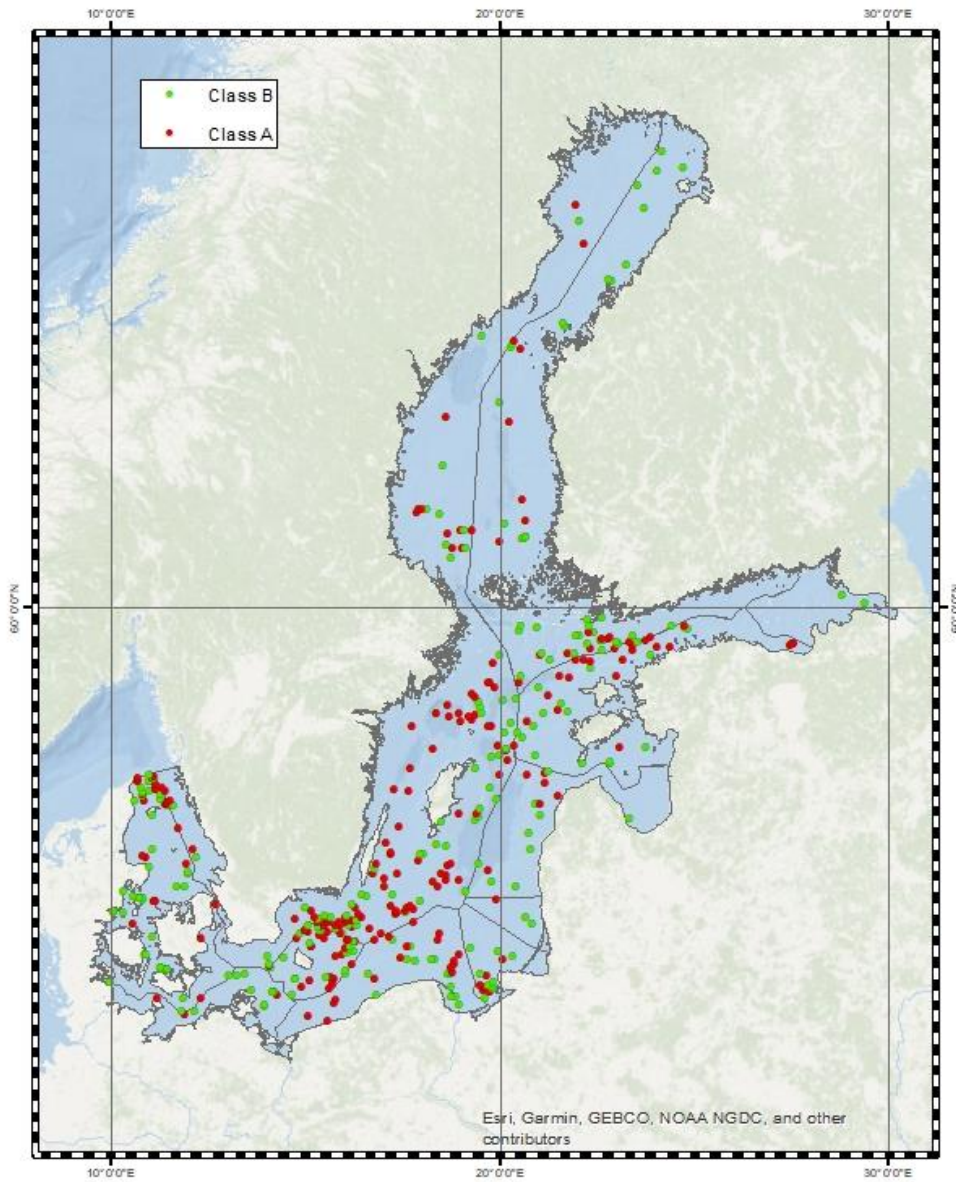


Figure 3 - Geographical distribution of CSN detections (Classification A and B) in the Baltic region for 2020

Verification activities

Verification activities are implemented by Member States in response CSN detection. Results of these verifications can vary significantly depending on several factors: size of 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), etc. During the reporting period, out of the 432 CSN detections, 219 (51%) were checked by the Coastal States with 9 confirmed as being “Mineral oil confirmed”, 62 were reported as “Other substance”, 20 were reported as “Natural phenomena”, 7 were reported as “Unknown feature” and 121 as “nothing was observed”.

Figure 4, shows the monthly distribution of CSN checked detections and respective verification results, including the percentage of detections with no verification in-situ.

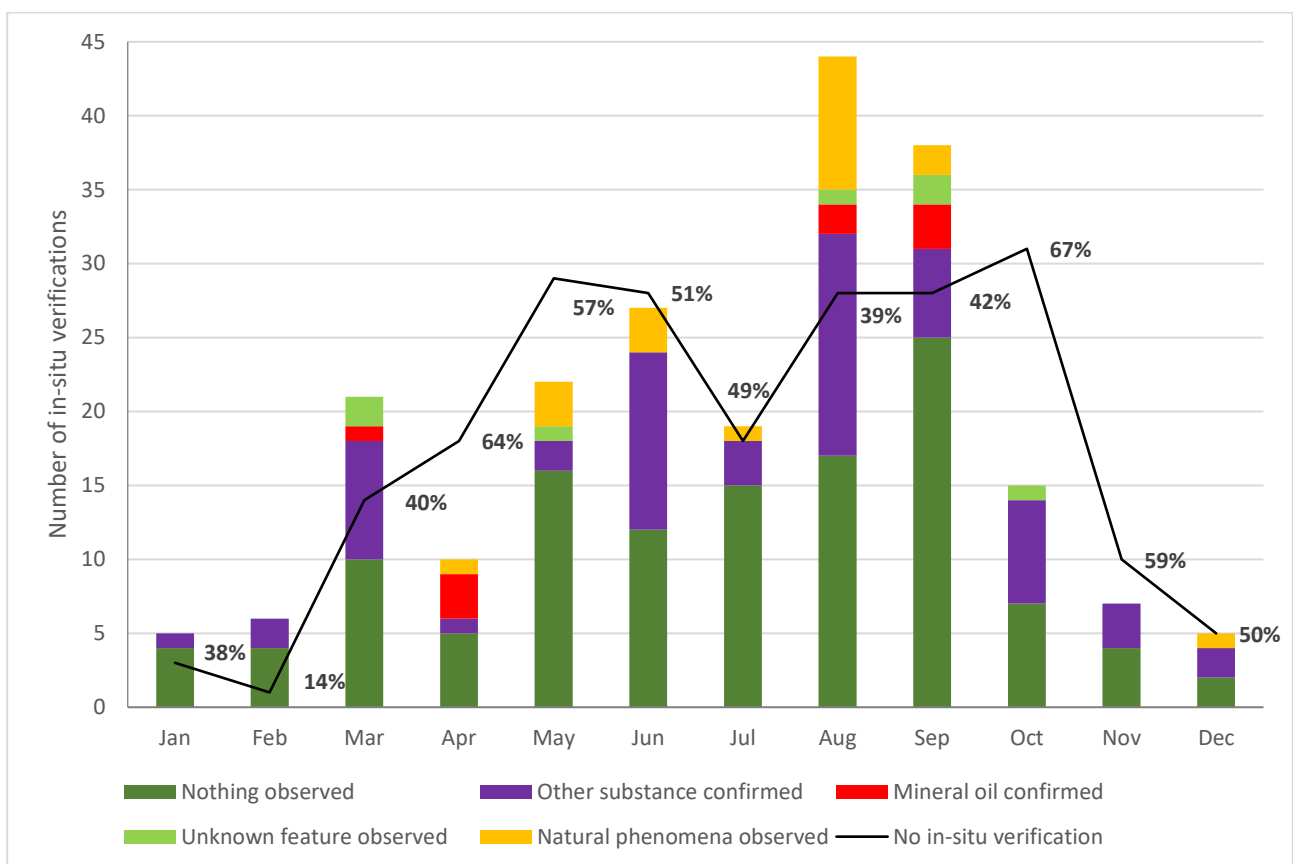


Figure 4 - Monthly distribution of checked detections and verification results for 2020, in the Baltic Sea area

(Source: Feedback provided by Coastal States and stored in the CleanSeaNet database)

Table 1 presents the annual distribution of checked detections and verification results in each country’s waters (Note: This table is organised by location of the detection and not by authority verifying the detection). The distribution of detections between the countries has been undertaken using the Exclusive Economic Zones published on the HELCOM website (<http://maps.helcom.fi>) and the centre position of the CSN detections. Therefore, numbers in the table below might be slightly different from figures based on CleanSeaNet Alert Areas and calculated using detection polygons.

Table 1 - CSN checked detections and verification results per Coastal country in 2020

Country Waters	CSN Detections	Verified Satellite Detections					Not Checked or no Feedback
		Mineral oil confirmed	Natural phenomena observed	Nothing observed	Other substance confirmed	Unknown feature observed	
Denmark	97	3	9	32	13	3	37
Estonia	40	3	0	14	3	1	19
Finland	58	0	2	7	21	0	28
Germany	14	0	3	2	2	0	7
Latvia	16	0	0	1	0	0	15
Lithuania	3	0	1	1	1	0	0
Poland	33	1	0	5	5	0	22
Russia	18	0	0	0	1	0	17
Sweden	153	2	5	59	16	3	68
TOTAL	432	9	20	121	62	7	213

Figure 5 and Table 2 illustrate that for 34% (72 out of 213) of the possible oil spills without verification it was indicated a reason for no verification on site.

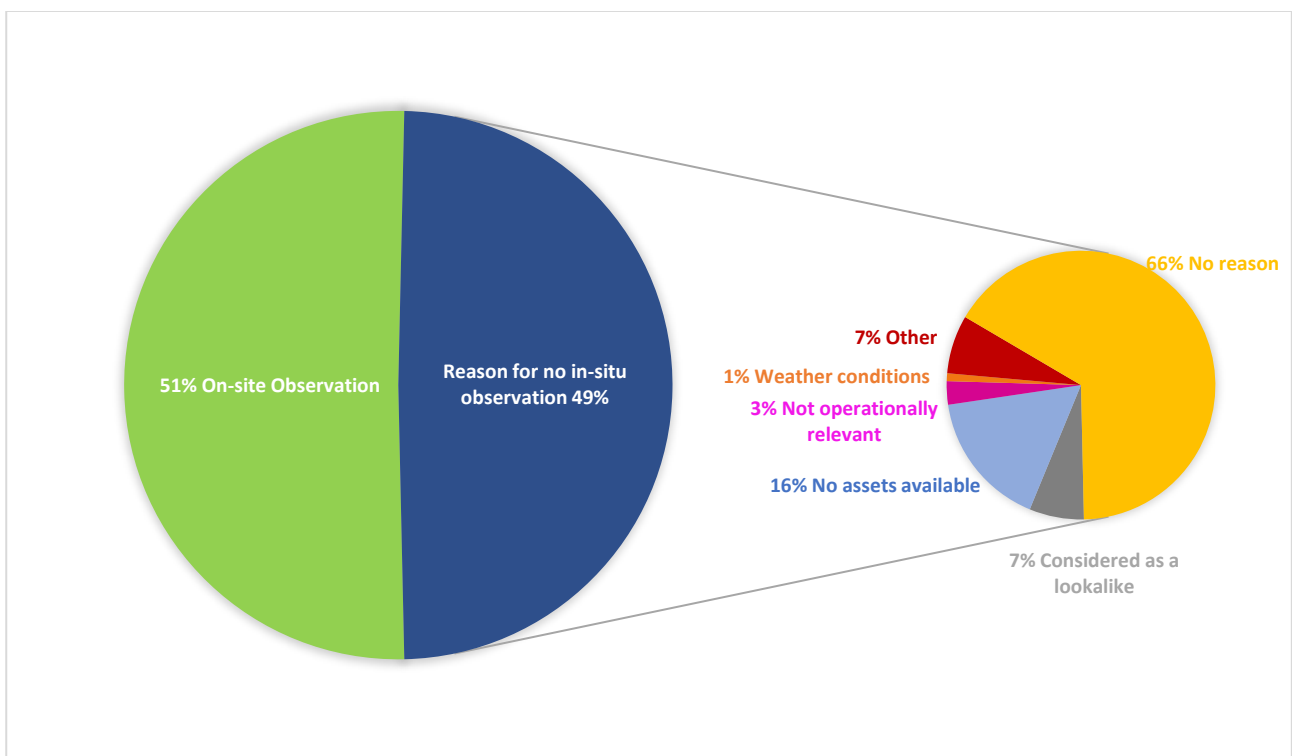


Figure 5 – Reasons for Observation not performed in situ by the Coastal States in the Baltic region for 2020

Table 2 – Reason for no verification on-site of the possible oil spills, per Coastal country in 2020

Country Waters	Reason for no observation in-situ					No Reason	Not Checked or no Feedback
	Considered as a lookalike	No assets available	Not operationally relevant	Weather conditions	Other		
Denmark	12	10	0	0	9	6	37
Estonia	1	0	5	0	2	11	19
Finland	1	3	0	0	0	24	28
Germany	0	2	0	0	1	4	7
Latvia	0	0	0	0	0	15	15
Lithuania	0	0	0	0	0	0	0
Poland	0	17	1	2	0	2	22
Russia	0	0	0	0	0	17	17
Sweden	0	3	0	0	3	62	68
TOTAL	14	35	6	2	15	141	213

Finally, Figure 6 shows the spatial distribution of CSN detections and verification activities carried out by the Coastal States in the Baltic area.

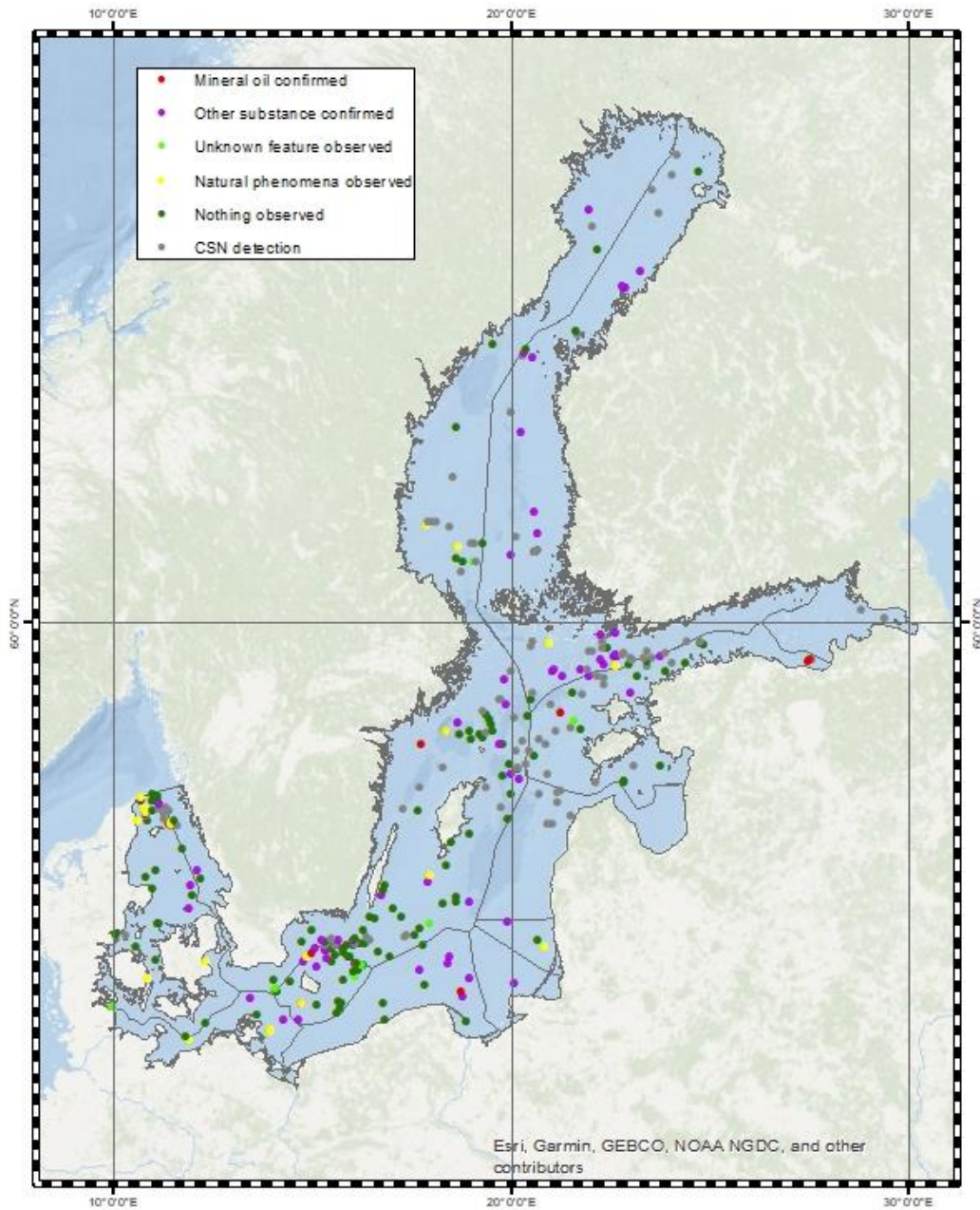


Figure 6 - Spatial distribution of CSN detections and verification activities carried out by the Coastal States in the Baltic region for 2020