

Bornholm 1, West: Extended Archival Control

Marie Jonsson, Viking Ship Museum, 27 March 2022.

Energinet wants to construct two offshore wind farms in the Baltic Sea off the coast of Bornholm and has asked the Viking Ship Museum to prepare this archival inspection of the current project area insofar as cultural-historical interests on the seabed are concerned. These checks only cover offshore wind turbine area 1: the westernmost section (see map, Appendix 1).

The following source groups are used in the archival control:

- *Finds and Ancient Monuments*: national archaeological database
- Danish Maritime Authority's Register of Wrecks
- Previous marine archaeological surveys conducted by the Viking Sea Museum in the area
- The scuba-diving database *The Wreckage Guide*
- Geology Desk Study, offshore Bornholm, Baltic Sea. Windfarm investigations from GEUS.
- *The joint reporting database* from the Agency for Culture and Palaces

Cultural-historical objects:

The representativeness of the registrations in the Finds & Ancient Monuments (Table 1, Appendix 1) is in some cases quite poor, as most finds registered are old observations and evidence, only a few of which are correctly positioned. For the same reason, many of them are technically positioned at so-called 'administrative area points': i.e. they are centroids of Danish Maritime Safety Administration's named sections of Danish territorial waters. Thirteen objects have been registered at the administrative area point (X 462930.27 Y 6099401,201 ETRS89 /UTM zone 33N) in the Bornholm 1 area. Accordingly, this catalogue (Table 1) containing 22 objects (Wrecks and Registration of Foundering Data) should primarily be seen as proof of the shipwreck frequency in the area as a whole and not as a reliable mapping of actual wreck sites within and outside the construction area, respectively.

The 22 objects in the extract from Finds and Ancient Monuments are primarily registrations of shipwreck data, and objects discovered by geoarchaeological studies. In addition, there are three wrecks in Finds and Ancient Monuments which have also been registered in the scuba-diving database *The Wreckage Guide*:

- 401751-4 (Unknown) undated
- 401751-7 (*DAN T*) dated to the modern era
- 401751-98 (*Bacalao*), foundered in 1996

Furthermore, the Danish Maritime Safety Authority's Register of Wrecks includes wreckage registered at locality 401751-98: the wreckage of the *Bacalao* fishing vessel. The location is of little cultural historical interest, however.

The joint reporting database of the Agency for Culture and Palaces includes reports from fishermen, etc., and shows the location of potential wrecks, but the positions have not been studied in more detail.

Bornholm 1, West is crossed by a (potential) installation and anchor corridor used for the gas pipelines Nord Stream, Nord Stream 2 and Baltic Pipe, for which the Viking Ship Museum has been responsible for the geoarchaeological and archaeological studies prior to the laying of the pipeline. In addition to the verified cultural-historical objects registered in the Agency for Culture and Palaces' register *Finds and Ancient Monuments*, there are anomalies which, upon visual inspection, turned out to be scrap or of natural origin. Furthermore, the establishment of a fibre cable (*GlobalConnect*) is planned to transect Bornholm 1.

Potential cultural-historical objects have also been pointed out in this project. These have not been investigated further, however. It will be possible to use the information from these surveys in a future geoarchaeological analysis to avoid identifying or investigating something that has already been studied.

Topographic potential for traces of Palaeolithic (Early Stone Age) settlement and activity:

The entire project area is made up of seabed. A possibly flooded Palaeolithic terrain can be found intact in the shallower parts of the project area to the south-east (Jensen, Tésik , & Bennike, 2021, pp. 29, 58ff). In a geoarchaeological analysis for Baltic Pipe, several tree trunks and stumps were documented at depths down to 35 metres (Jonsson, 2022, pp. 12ff). The 35-metre-long trunks are not rooted, however, whereas some of the trunks between 21 and 31 metres are. At shallower water levels than today, the shores of the current Rønne Bank were potentially attractive for settlement in a hunter–gatherer economy, even though the area was habitable for only short periods of time. Obviously, these short periods were long enough for forests of large trees to have spread into the area near the coastline, providing the prerequisites for people to have been interested in settling here.

It cannot be ruled out that there are preserved traces of activity from the past in the area, as it was rapidly flooded on two occasions. It is possible to use geophysical and geotechnical methods to determine whether the Palaeolithic (Early Stone Age) terrain is intact, ablated or overlaid with deposits to such an extent that it is not endangered by (all of) the planned construction works and, in so doing, upgrade and elaborate on the well-founded presumption.

Conclusion

- 1) There is a well-founded assumption that archaeological sites, protected by the Danish Museum Act, exist in the project area, it is expected that a preliminary marine archaeological study will be required prior to the initiation of construction in the area.
- 2) A geophysical (and possibly geotechnical) investigation campaign should be carried out as this can form the basis for a geoarchaeological analysis of the area's potential content of ancient monuments, which would be a far more accurate basis for subsequent, preliminary marine archaeological studies than archival information alone. A geophysical/geotechnical study campaign of this nature should be designed in collaboration with the Viking Ship Museum to ensure that the data collected complies with a standard that enables the data to be used in the subsequent archaeological analysis.

English summary

Energinet is planning the construction of two offshore windfarms off the coast of Bornholm in the Baltic Sea. Energinet has requested the Viking Ship Museum in Roskilde to perform an archival screening of the archaeological interests in the area. The screening shows that there are a number of wrecks and records of ships having foundered in the area (Tables 1 and 2), and, moreover, that there is a potential for Palaeolithic remains in shallower areas. The construction site is crossed by the pipeline routes of Baltic Pipe, Nord Stream and the cable GlobalConnect, all of which have been investigated by the Viking Ship Museum, the results of which can be used in the upcoming data screening (see map, Appendix 1).

The Museum proposes that further investigations be conducted.

List of references

- Jensen, J. B., Tésik, L. P., & Bennike, O. 2021 *Geology desk study offshore Bornholm, Baltic Sea. Windfarm investigations*. Copenhagen
- Jonsson, M. (2022). *Baltic Pipe. Screening of geophysical data and target inspections for the proposed Baltic Pipe gas pipeline, anchor corridor, Danish Baltic sector*. Roskilde
- Thomsen, M.H. 2010: *Nord Stream Pipeline: anchor corridor. Inspection review of survey data and cultural-historical assessment*. Roskilde.
- Thomsen, M.H. 2019a: *North Stream 2 Pipeline: north-western route. Cultural heritage target assessment and exclusion zone recommendations*. Roskilde.
- Thomsen, M.H. 2019b: *Nord Stream 2 Pipeline: south-eastern route. Cultural heritage target assessment and exclusion zone recommendations*. Roskilde.
- Thomsen, M.H. & Cottage, F.D. 2018: *Nord Stream 2 Pipeline. Cultural heritage target assessment and exclusion zone recommendations*. Roskilde.
- Thomsen, M.H. 2020: *Baltic Pipe, Danish Baltic sector: Screening of geophysical data and target inspections*. Roskilde.
- Uldum, O. C. 2022: *Global Connect. Geoarchaeological analysis of data for planned cable route*. Roskilde

Table 1. Objects registered in *Finds and Ancient Monuments* within the Bornholm 1 area.

Place and locality no.	Facility	Event	Protected
401751-2	Galease Call name: OSCAR Salvaged: No Date of departure: 24-08-1864 Destination: Aabenraa Cargo: boards Reinforcement: no Year foundered: 1864	Registration of foundering data <i>Stranded near Bornholm, on rocky bedrock near Rutsker. Ship declared completely destroyed. Equipment and wreckage to be sold at auction. The cargo is apparently salvaged but what happened to it is not mentioned in further detail, however. When the vessel turned around the captain drowned. As well the two men left on the vessel at the</i>	Yes
401751-4	Unknown vessel type Salvaged: No Reinforcement: no	Date from: -250000 Dated to: 2009	No
401751-7	Unknown vessel type Call name: DAN T Salvaged: No Reinforcement: no	Dated from: 1661 Dated to: 2009	No
401751-98	Fishing vessel Call name: BACALAO R 481 Salvaged: Unknown Home port: Denmark Displacement type: Gross register tonnage Displacement: 6 Reinforcement: no Year foundered: 1996		No
401751-133	Pieces of wreckage Dated from: 1067 Dated to: 2009	Scanning and ROV recording in connection with the Nord Stream Pipeline. Wreck ID = S-37-2180. Interpretation of sonar and video documentation: Detached keel; could be medieval.	No
401751-134	Wreck Date from: -250000 Dated to: 2009	Interpretation of sonar recordings: Possible wreck (pointed oval anomaly, 13.5x5.1 m).	No
401751-135	Wreck Date from: -250000 Dated to: 2009	Interpretation of sonar recordings: Possible wreck, highly decomposed (rectangular well-defined anomaly, 21.6x4.4 m).	No
401751-136	Wreck Date from: -250000 Dated to: 2009	Scanning and ROV recording in connection with the Nord Stream Pipeline. Wreck ID = S-DK02-347. Interpretation of sonar recordings: Wreck, probably a wooden vessel (pointed anomaly which obstructs transecting trawling tracks, surrounded by several small objects).	No

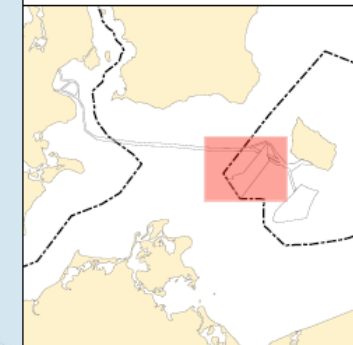
401751-147	Pieces of wreckage Dated from: 1067 Dated to: 2022 Wooden pole, one looks slightly squared, the other worn or split halfway. Smooth surface, at least two holes.	Wreckage identified by ROV surveys of SSS anomalies. Baltic Pipe Anchor Corridor, Contact ID VIRSSS_6329	No
401751-8	Schooner Call name: SKELDERVIK Salvaged: No Destination: Oskarshamn Home port: Jonstorp, Sweden Cargo: Ballast Displacement type: Tonnes, unspecified Displacement: 273 Rigging: 3 ma Reinforcement: no Year foundered: 1898	Registration of foundering data Text: <i>Stranded approx. 500 feet from shore, very close south of HasleR. S. crew members rescued</i>	No - Administrative area point
401751-11	Hoy Call name: DE JONGE TIARK GIERA Salvaged: No Date of departure: 13-09-1839 Destination: Amsterdam Cargo: rye Reinforcement: no Year foundered: 1839	Registration of foundering data Text: <i>Stranded on Bornholm on a pointed rocky ground. The maritime inquiry is held in Hasle. The ship is declared a complete wreck. The cargo is salvaged and sold at an auction with wreckage and equipment.</i>	No - Administrative area point
401751-14	Ship Call name: DE VRAU JANTIE Salvaged: Yes Date of departure: 24-03-1797 Destination: Königsberg Cargo: salt Reinforcement: no Year foundered: 1797	Registration of foundering data Text: <i>Ran aground on Bornholm near Hasle. The vessel was successfully refloated and towed to Rønne.</i>	No - Administrative area point
401751-16	Schooner Call name: SARAH JANE Salvaged: No Destination: London Cargo: wheat Reinforcement: no Year foundered: 1866	Registration of foundering data Text: <i>Stranded on stony and sandy ground. One hour before stranding, they had taken bearings from the Hammershus Lighthouse in NE-N. (The maritime inquiry is held in Hasle. (The salvaged remains are taken to Hasle waterfront.) The vessel is declared a complete wreck. Cargo and equipment salvaged and sold at an auction with pieces of wreckage. A payment of salvaging fee is paid for the wreck, but it is not apparent much</i>	No - Administrative area point

401751-21	Schooner Call name: HILMAR Salvaged: No Date of departure: 26-11-1848 Destination: Calmar Cargo: not specified Reinforcement: no Year founded: 1848	Registration of foundering data Text: <i>Stranded at Hasle. The vessel was "completely wrecked with the masts cut away and holes in the bottom. "Wreckage and equipment sold at auction. None of the cargo is salvaged."</i>	No - Administrative area point
401751-30	Galease Call name: FREDERIKKE Salvaged: No Date of departure: 20-12-1904 Destination: Hasle Construction site: Kappel Home port: Marstal, Denmark Cargo: Ballast (16 tonnes) Displacement type: Net register tonnage Displacement: 36 Materials: Oak Reinforcement: no Year founded: 1904	Registration of foundering data <i>Ran aground, founded. Turned into wreckage, Hasle.</i>	No - Administrative area point
401751-32	Galease Call name: WILHELM Salvaged: No Destination: Hammerhavnen Home port: Barth, Germany Cargo: Ballast Displacement type: Gross register tonnage Displacement: 47 Reinforcement: no Year founded: 1906	Registration of foundering data <i>Ran aground, leakage, turned into wreckage. Ran aground 2,000 feet south of Hasle harbour.</i>	No - Administrative area point
401751-34	Schooner Call name: REGINA Salvaged: No Date of departure: 14-11-1861 Destination: Gothenburg Cargo: Rye Reinforcement: no Year founded: 1862	Registration of foundering data <i>Stranded, sprang leaks. Approx. 7.5 km south of Hasle on stony ground. The vessel is declared a complete wreck. The cargo is salvaged, followed by the equipment. The salvaged material is sold at auction with the wreckage.</i>	No - Administrative area point
401751-35	Steamship Call name: CALIFORNIA Salvaged: Yes Destination: Reval Home port: Świnoujście, Poland Cargo: cotton Displacement type: Gross register tonnage Displacement: 2604 Reinforcement: no Year founded: 1898	Registration of foundering data <i>Ran aground, formed leakage. (Sorthat Reef) 3.25 km south of Hasle. 26-02-1898. Refloated by Hj. A. Svitser.</i>	No - Administrative area point

401751-36	Schooner Call name: KAREN Salvaged: Yes Destination: Nexø Home port: Nexø, Denmark Cargo: Coal Displacement type: Gross register tonnage Displacement: 233 Rigging: 3 ma Reinforcement: no Year founded: 1901	Registration of foundering data <i>Ran aground, developed leaks. Bornholm, north of Hasle. Refloated with assistance from Switzer's on 13/12/1901.</i>	No - Administrative area point
401751-37	Schooner Call name: KIRSTINE ID no.: NDWH Salvaged: No Date of departure: 16-5-1903 Destination: Riga Construction site: England Home port: Rønne, Denmark Cargo: Chalk (155 tonnes) Displacement type: Net register tonnage Displacement: 95 Materials: Oak/pine Reinforcement: no Year founded: 1903	Registration of foundering data <i>Ran aground and became wreckage. Near Hasle.</i>	No - Administrative area point
401751-38	Yacht Call name: MATHILDA Salvaged: No Destination: Rønne Home port: Brantevik, Sweden Cargo: Birch firewood Displacement type: Gross register tonnage Displacement: 20 Reinforcement: no Year founded: 1903	Registration of foundering data <i>Collision at pier-head Outer jetty of Hasle harbour.</i>	No - Administrative area point
401751-39	Unknown vessel type Call name: DE FIRE BRØDRE Salvaged: No Date of departure: 12-4-1783 Destination: Königsberg (subsequently Drammen) Cargo: Rye, barley and oats Reinforcement: no Year founded: 1783	Registration of foundering data <i>Stranded, filled with water at Bornholm north of Hasle. Everything that "could be salvaged from the ship and its equipment" is salvaged. The salvaged material, as well as the wreckage, is sold at an auction. Upon inspection, it was ascertained that "the stranding of the ship caused structural damage that was irreparable".</i>	No - Administrative area point

Table 2. Total overview of registered wrecks with coordinates in ETRS89/UTM zone 33N (EPSG 25833)

Source	System no.	Place no.	Locality no.	X	Y
Finds and Ancient Monuments	150365	401751	8	462930,27	6099401,201
Finds and Ancient Monuments	151274	401751	4	442320,4203	6088938,198
Finds and Ancient Monuments	150475	401751	11	462930,27	6099401,201
Finds and Ancient Monuments	150607	401751	14	462930,27	6099401,201
Finds and Ancient Monuments	151044	401751	16	462930,27	6099401,201
Finds and Ancient Monuments	151068	401751	2	465247,2919	6101039,231
Finds and Ancient Monuments	151245	401751	21	462930,27	6099401,201
Finds and Ancient Monuments	151275	401751	7	449786,4001	6081466,264
Finds and Ancient Monuments	153487	401751	30	462930,27	6099401,201
Finds and Ancient Monuments	153500	401751	32	462930,27	6099401,201
Finds and Ancient Monuments	153813	401751	34	462930,27	6099401,201
Finds and Ancient Monuments	153942	401751	35	462930,27	6099401,201
Finds and Ancient Monuments	154250	401751	36	462930,27	6099401,201
Finds and Ancient Monuments	154320	401751	37	462930,27	6099401,201
Finds and Ancient Monuments	154344	401751	38	462930,27	6099401,201
Finds and Ancient Monuments	154941	401751	39	462930,27	6099401,201
Finds and Ancient Monuments	186877	401751	98	461764,2516	6107686,15
Finds and Ancient Monuments	195149	401751	133	455920,3382	6090175,233
Finds and Ancient Monuments	195580	401751	134	455846,3385	6090212,232
Finds and Ancient Monuments	195581	401751	135	456990,3267	6091941,226
Finds and Ancient Monuments	195583	401751	136	459487,3012	6095600,212
Finds and Ancient Monuments	245508	401751	147	464223,3811	6101739,839
Source	OBJECT ID	STATUS	NAME	X	Y
Danish Maritime Authority	109	Reported position	BACALAO R-481	461761,4414	6107687,246
Wreckage Guide		Confirmed position	Barcaloa R481	461837,4089	6107752,077
Wreckage Guide		Uncertain position	Dan T	449857,9187	6081528,612
Wreckage Guide		Uncertain position	Unknown	442394,8099	6089007,803



Sources:

- ▲ Danish Maritime Authority's Register of Wrecks
- Wreckage Guide
- ◆ Finds and Ancient Monuments
- Nord Stream
- ▼ Global Connect.
- Baltic Pipe
- ◆ Joint reporting database

Administrative data

- Wind farm
- Cable route corridor
- 20220315 Survey Route

Data supply, WMS

Graphics display card, subdued

Contains data from The Danish
Agency for Data Supply and
Efficiency

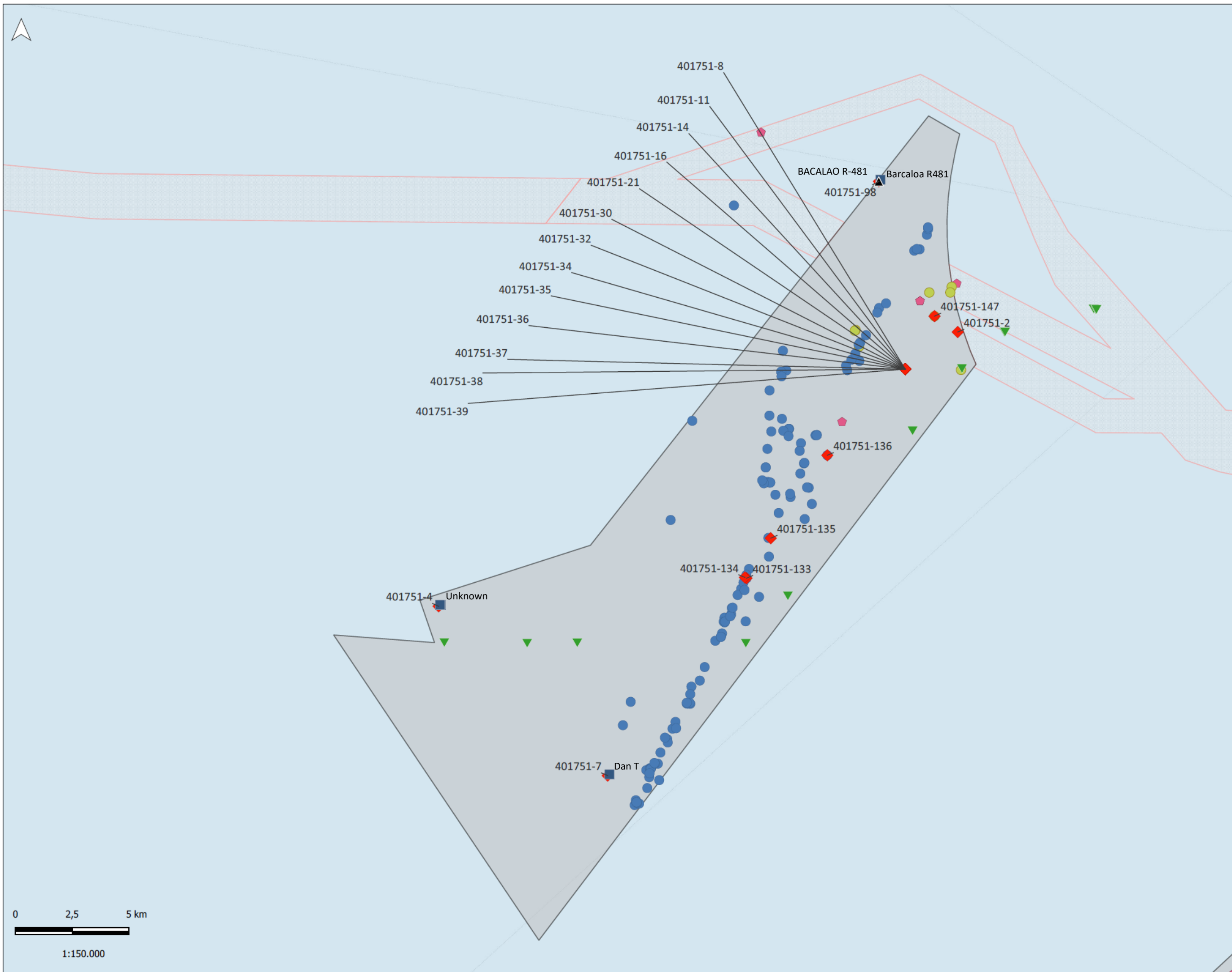
Bornholm 1, West

Objects from the various sources

File no.	VIR 2937
Initials	MEJ
System	ETRS89 / UTM zone 33N
Date	05/04/2022



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