Carry out concrete planning in pilot case areas

synthesis maps for sample case areas
– Poland, Russia and Germany –

BalticRIM report GoA 3.5

Gdańsk, April 2020

Introduction

As underlined in the textual 3.5 report on filling the gaps, the ambition of GoA.3.5 was to add spatial planning components to the selected case studies. In a nutshell the GoA 3.5. aimed to:

- develop cross-sectoral (MCH relevant) pilot spatial plans,
- use map services to detect spatial conflicts and synergies and to prepare integrative maps (integrating MCH with other users),
- fill knowledge gaps.

This report summarise the results of mapping exercise, which aim was to detect spatial conflicts and synergies and to prepare integrative maps (integrating MCH with other users) and which was performed for the Polish, German and Russian case studies.

The progress of other case studies towards the conflict analyses and integrative maps has been described in case studies reports.

The report show the step-by-step approach towards conflicts visualisation and solution findings.

The first step was to visualize Maritime Cultural Heritage assets as described by the BalticRIM partners. The partners tried to follow the pan-Baltic discussion on the common MCH categories, but the national differences are obvious and understandable. Many of the MCH related data have been created within the BalticRIM project and enriched substantially national registers. The short descriptions of MCH priority areas were provided.

The second step was to map the sea uses, which have been described during WP2 as carrying physical and aesthetic threat to the cultural objects and sites. The information and data about the existing and planned sea uses was obtained from both open sources, strategic, planning documents and from the scientific publications. The short descriptions of sea-uses were provided.

The third step was to elaborate a synthesis map, which allows to brainstorm on and understand the main spatial conflicts and start the discussion on potential solutions.

The forth step was to give proposal of planning suggestions, which might by used in the further discussions with planning authorities and other stakeholders. In case of Poland – the planning suggestions have been submitted as an official proposal to the ongoing Gulf of Gdańsk MSP process in March 2020.

The process was not perfect. In most of the cases the resolution of data from regional sources (like HELCOM data base) did not suit the scale of the MCH priority areas, some of the data is missing – like the recreational coastal traffic, some of the data should be verified with the local stakeholders. Still, the planning experience show that even coarse analyses and maps brings fuel for further discussions.

The integrated map is a useful tool for awareness rising and discussing potential planning solutions.

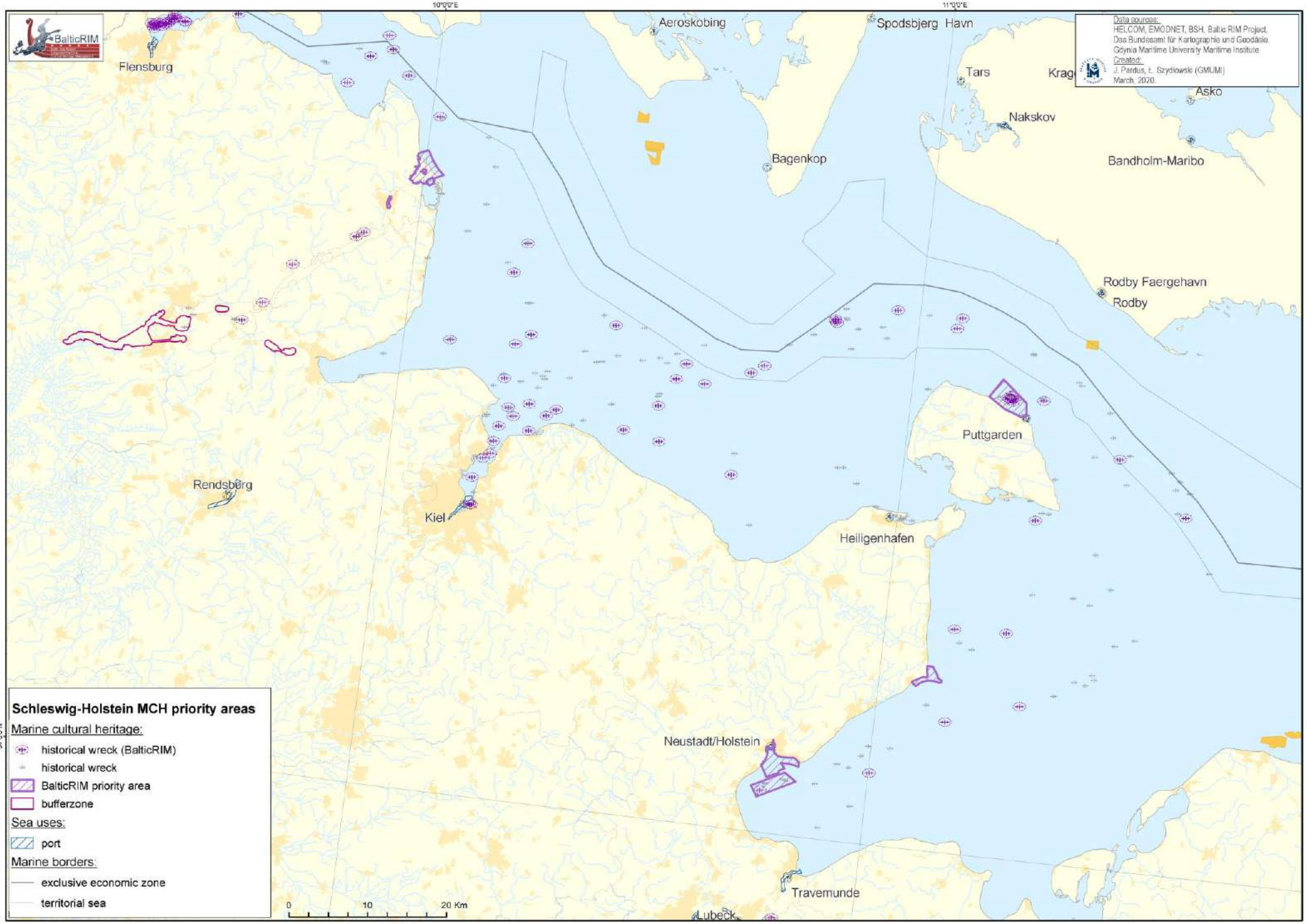
On the following pages the step-by-step approach is showed for the Schleswig-Holstein (Germany), Gulf of Gdańsk (Poland), Kaliningrad Oblast and Gulf of Finland (Russia).

Table of content

Germany – Schleswig-Holstein

1. MCH mapping and priority areas

content – Daniel Zwick (ALSH)
data processing and maps – Łukasz Szydłowski (GMUMI)



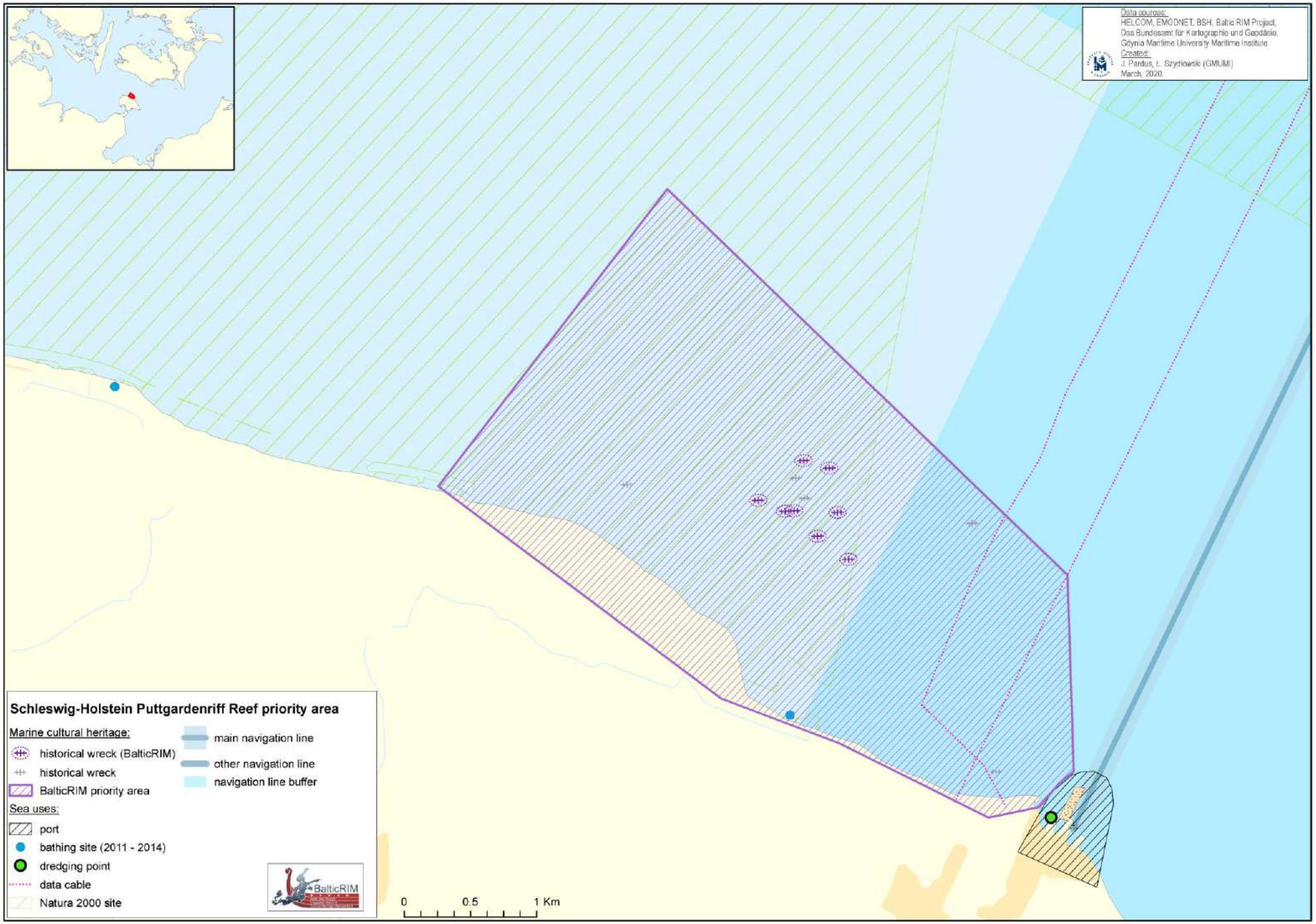
1. MCH Mapping

The BalticRIM project has identified 7 priority areas in Schleswig-Holstein.

These are:

1. PUTTGARDEN REEF
2. ANCIENT SCHLEI ESTUARY
3. MAES
4. KAPPELN
5. SCHWARZER GRUND
6. NEUSTADT BAY
7. CAP ARCONA WRECKSITE

The further mapping analysis exclude the KAPPELN area due to the lack of available data on sea uses.



1. MCH Mapping

Area: PUTTGARDEN REEF

Type: shipwrecks

Potential:

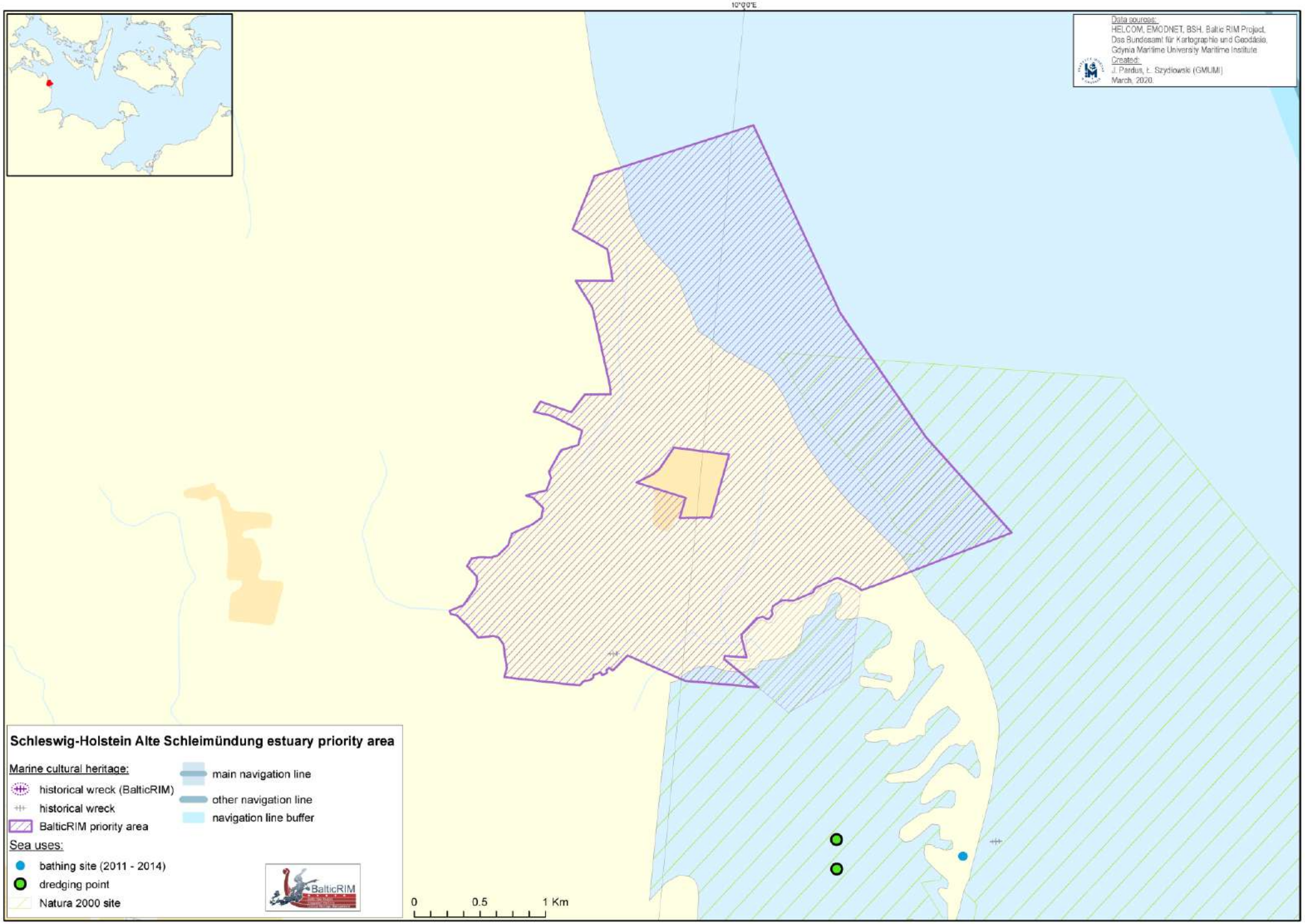
The reef is a natural navigation hazard. There are several wooden shipwrecks of the 19th and early 20th century at depths between 2–5 metres as well as anomalies, which appear to be wrecks as well, but they need further research.

Moreover, the reef is at a depth range which would have formed part of the land in Mesolithic times).

Due to the number of wrecks and the relatively good state of preservation this is also a popular site for scuba-divers.

main threats:
anchoring
marine engineering

synergies:
dive tourism,
underwater museum,
nature conservation



1. MCH Mapping

Area: ANCIENT SCHLEI ESTUARY

Type: Waterway, shipwrecks, individual finds, prehistorical settlement remains

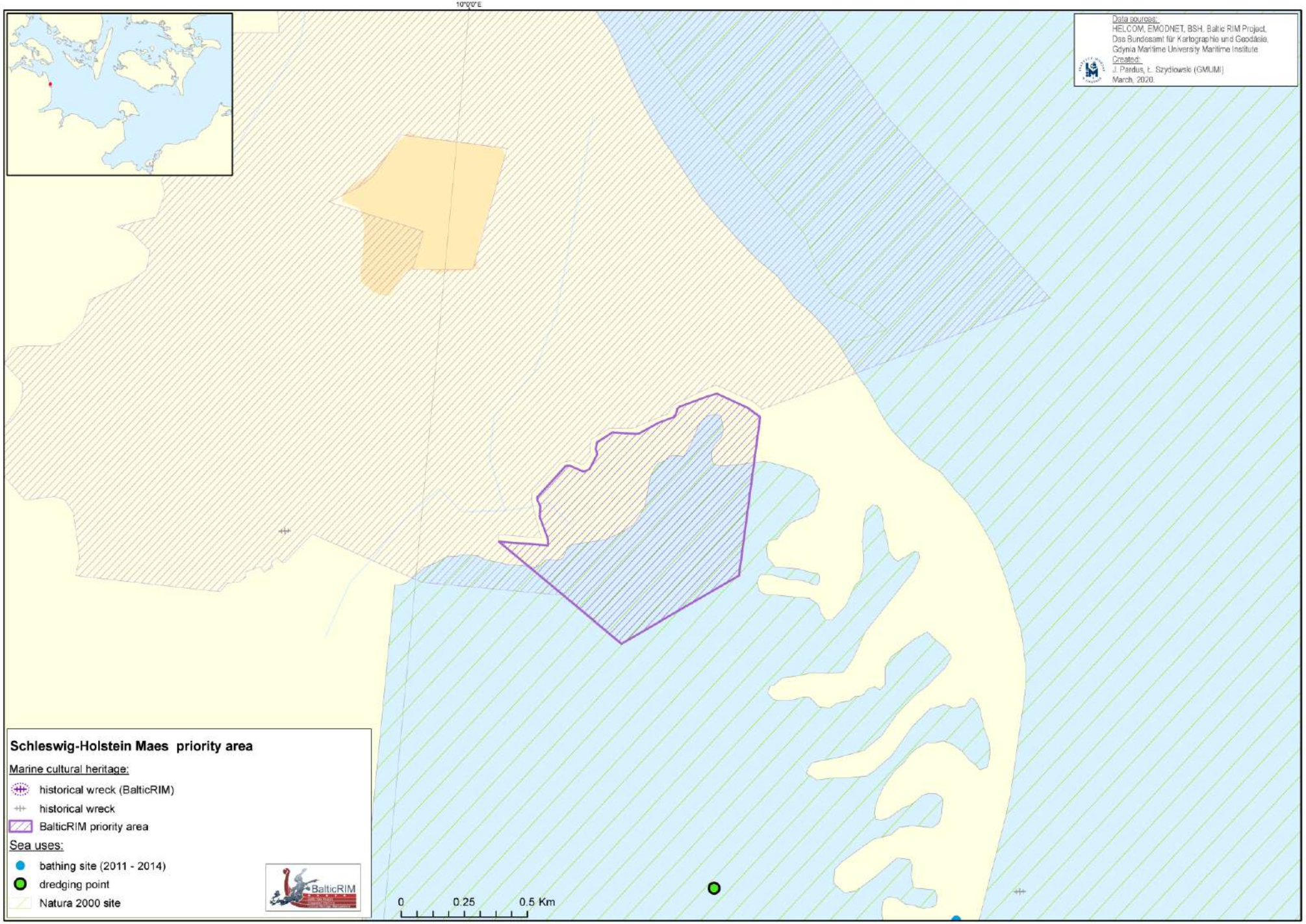
Potential:

Former Schlei estuary located at one of the most important waterways for long-distance trade of the Viking Age. The archaeological potential for fortifications and ship-traps is very high, but only few archaeological remains are known.

Moreover, prehistoric settlement remains are deposited along the shallow coastline due to currents running parallel to the coast.

This area bears great archaeological potential, but little is known so far, therefore it is recommended to enforce a provisional protection, which also includes the terrestrial area (ICZM-case).

main threats:
- land development.



1. MCH Mapping

Area: MAES

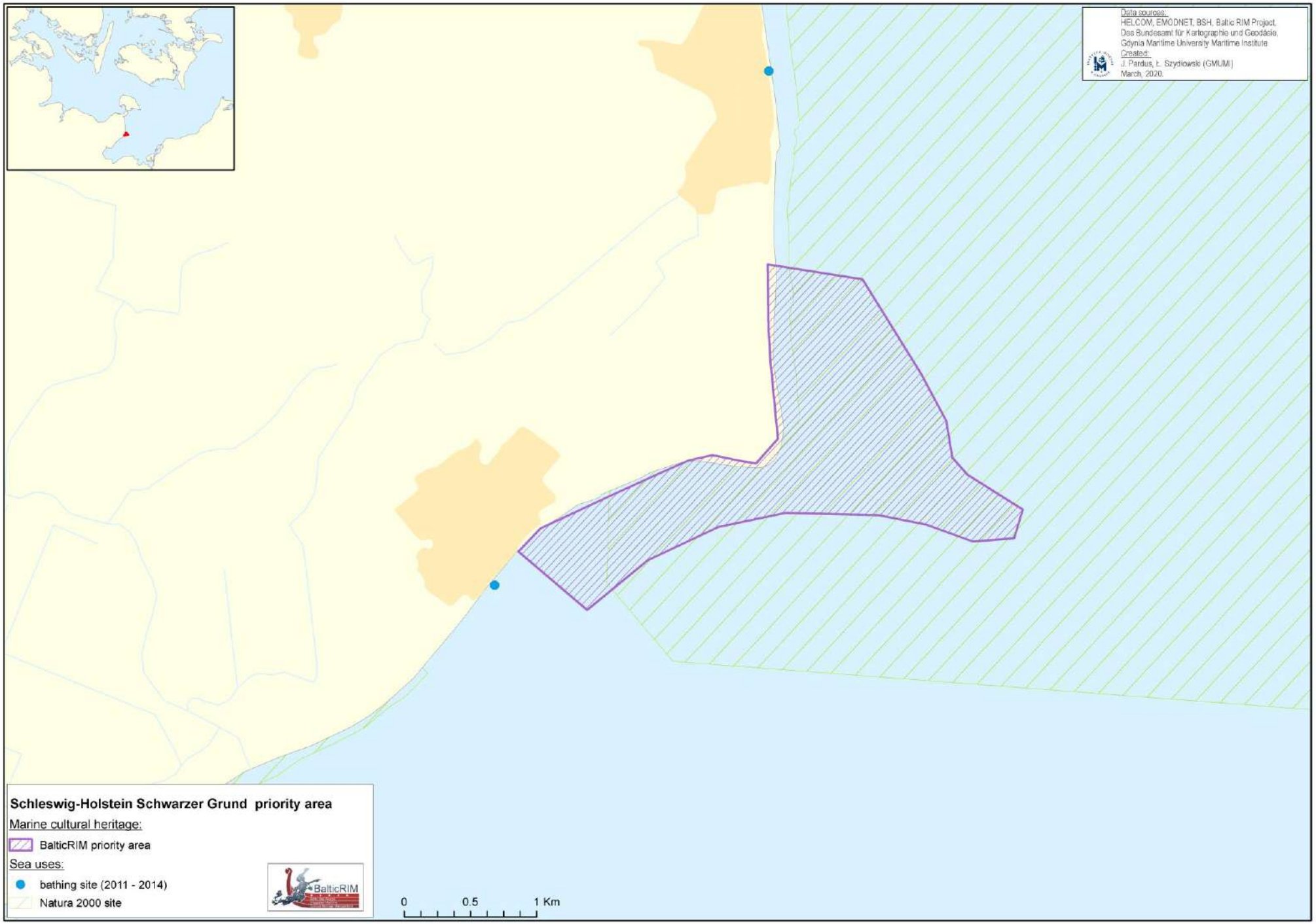
Type: Settlement area

Potential:

the archaeological remains of the inundated settlement of Maes (the precursor settlement of Maasholm) from the 16th / 17th century. The remains of the settlement which include the timber-built embankment, as well as ceramics, glazed tiles and building remains continue from the shoreline to the shallow water area. An aerial view shows anomaly that could indicate a pile structure associated to the settlement.

Due to the rarity of post-medieval settlement remains underwater at Schleswig-Holstein's Baltic Sea coast, the site is of national interest. The presently known assemblage represents only a small fraction of what can be anticipated beneath the sediment layer, so an in situ protection of this area is recommended. Further settlement remains can Further - mostly sedimented - settlement finds can be expected in this area.

main threat:
- marine traffic;
- development in the vicinity likely to have a negative impact on currents and erosion.



1. MCH Mapping

Area: SCHWARZER GRUND

Type: prehistorical settlement area and tombs

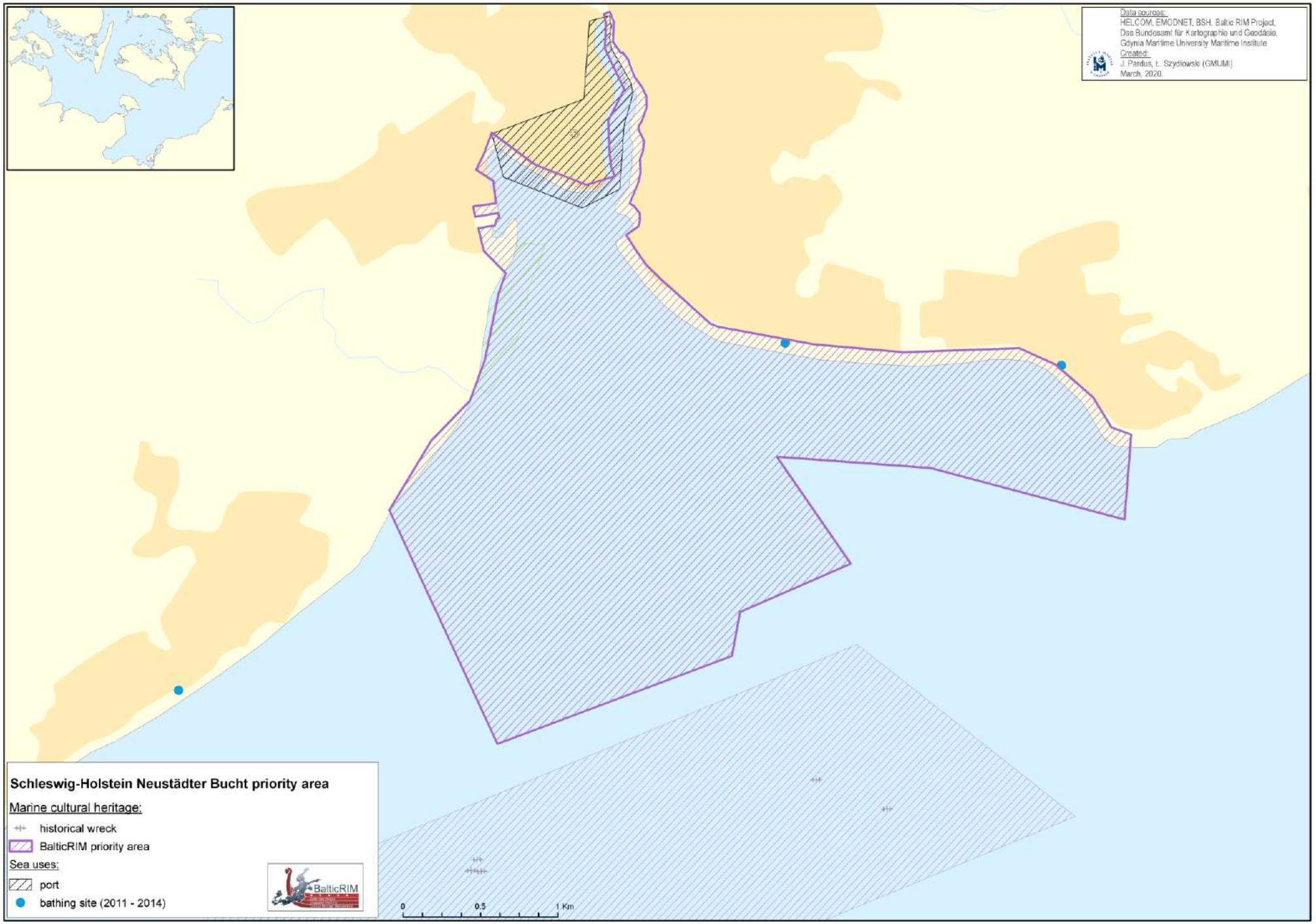
Potential:

Area of particular importance as it is one of the few sites in Schleswig-Holstein with a megalithic tomb located underwater. Another tomb located directly behind the first sandbar suggests a spatial coherence.

The site is under water due to the postglacial land subsidence and the Littorina transgression. A shoal that continues about 2 km east into the Bay of Lübeck probably formed a spit in the Neolithic period.

The potential of settlement traces is highlighted by Iron Age fire-pits and prehistoric ceramics.

main threats:
- anchoring;
- marine traffic.



1. MCH Mapping

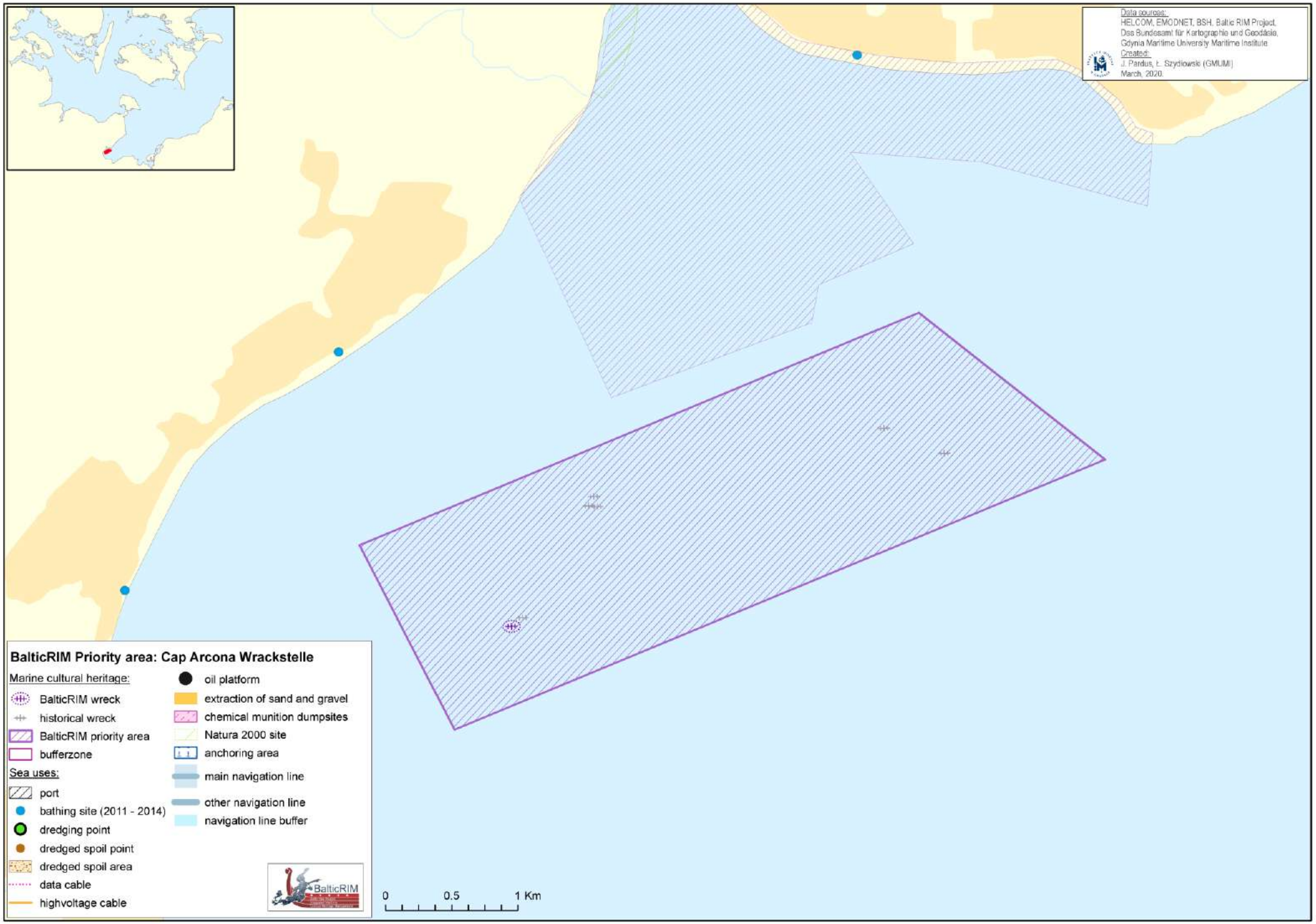
Area: NEUSTÄDTER BUCHT

Type: prehistorical settlement area

Potential:

The coastal area is of particular importance because numerous late Mesolithic and early Neolithic traces (Ertebølle period) were discovered here.
It continues from today's shoreline to a depth mark of around 7m and is underwater due to the postglacial rebound and the Littorina transgression.
It is one of the few Ertebølle underwater sites known so far, which archaeological assemblage is preserved by the anaerobic milieu.
The combination of these factors makes the area a nationally important site.

main threats:
- marine traffic;
- anchoring;
- marine engineering.



1. MCH Mapping

Area: CAP ARCONA WRACKAGE

Type: Naval battle, shipwrecks

Potential:

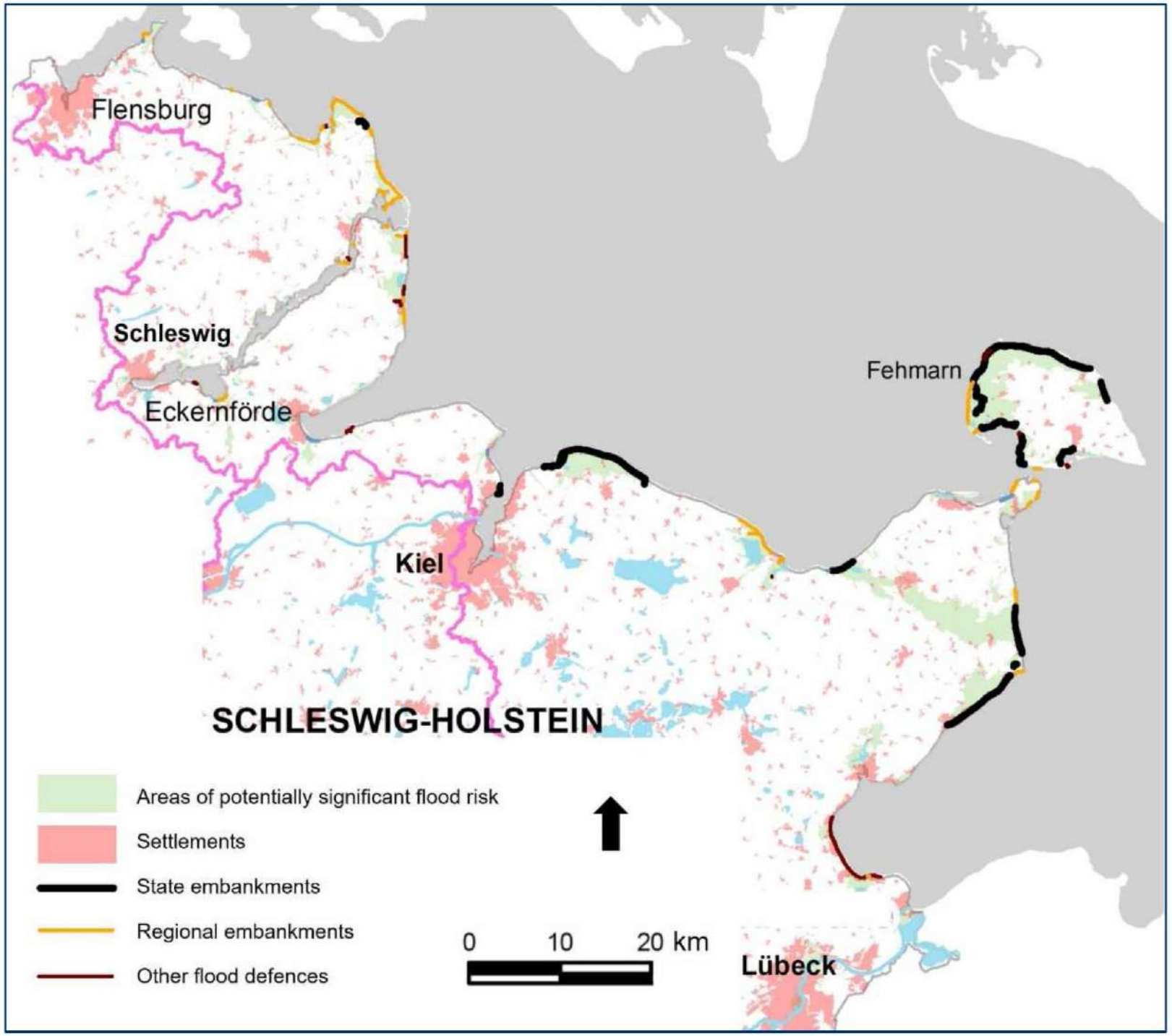
The heavily destroyed wreck of the German passenger ship "Cap Ancona" is located in this area, along with one of its lifeboats and collection of other wrecks sunk by British bombers at the end of the Second World War on May 3rd, 1945 with around 5000 people on board (mainly concentration camp prisoners from Neuengamme).

The wreck site must therefore be considered a naval war grave.

main threats:
- trawling;
- anchoring;
- marine engineering;
- marine traffic;
- marine engineering projects likely to have a negative impact on currents and erosion;
- looters.

2. Sea-uses mapping

content - Magdalena Matczak (GMUMI)
data processing and maps - Łukasz Szydłowski (GMUMI)



2. Sea uses mapping

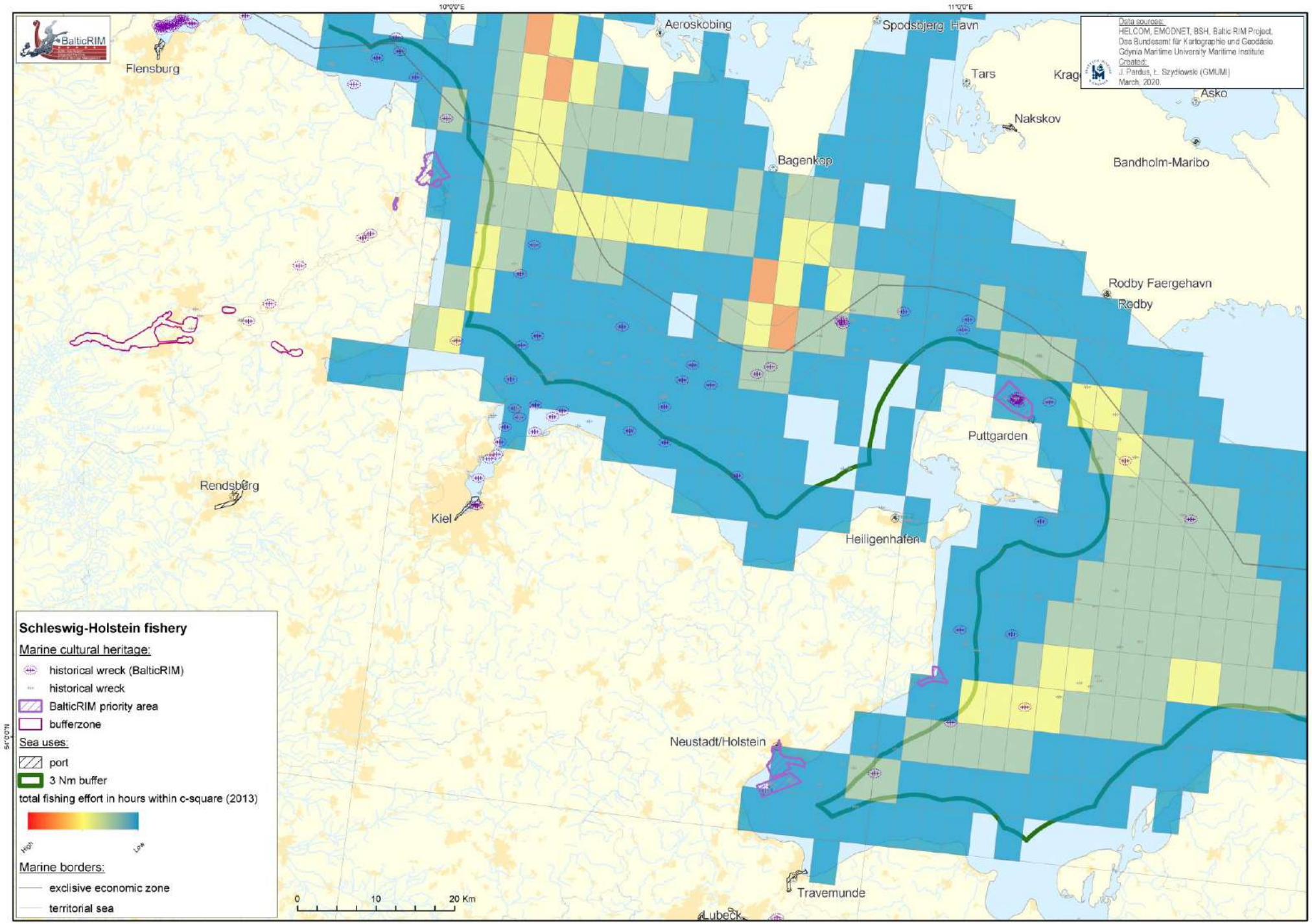
COASTAL PROTECTION

Main threads:
- sea level rise;
- increased storm days.

No sand has been thrown away as a coastal protection measure on the Baltic coast of Schleswig-Holstein. The reason for this is the lack of availability of own sand deposits off the coasts and the unpredictable short-term need to exchange large amounts of sand, depending on the storm wave, as well as considerations of nature protection for possible extraction points.

Many coastal cities use sand rinsing to protect, stabilize and improve their bathing areas. Sand is usually imported by sea.

Source of information:
1. Generalplan Küstenschutz des Landes Schleswig-Holstein/Ministerium für Energiewende, Landwirtschaft, Umwelt und ländliche Räume des Landes Schleswig-Holstein, 2012
2. Presentation Gesamtstrategie Entwicklung Ostseeküste 2100/Dr.-Ing Johannes Oelerich

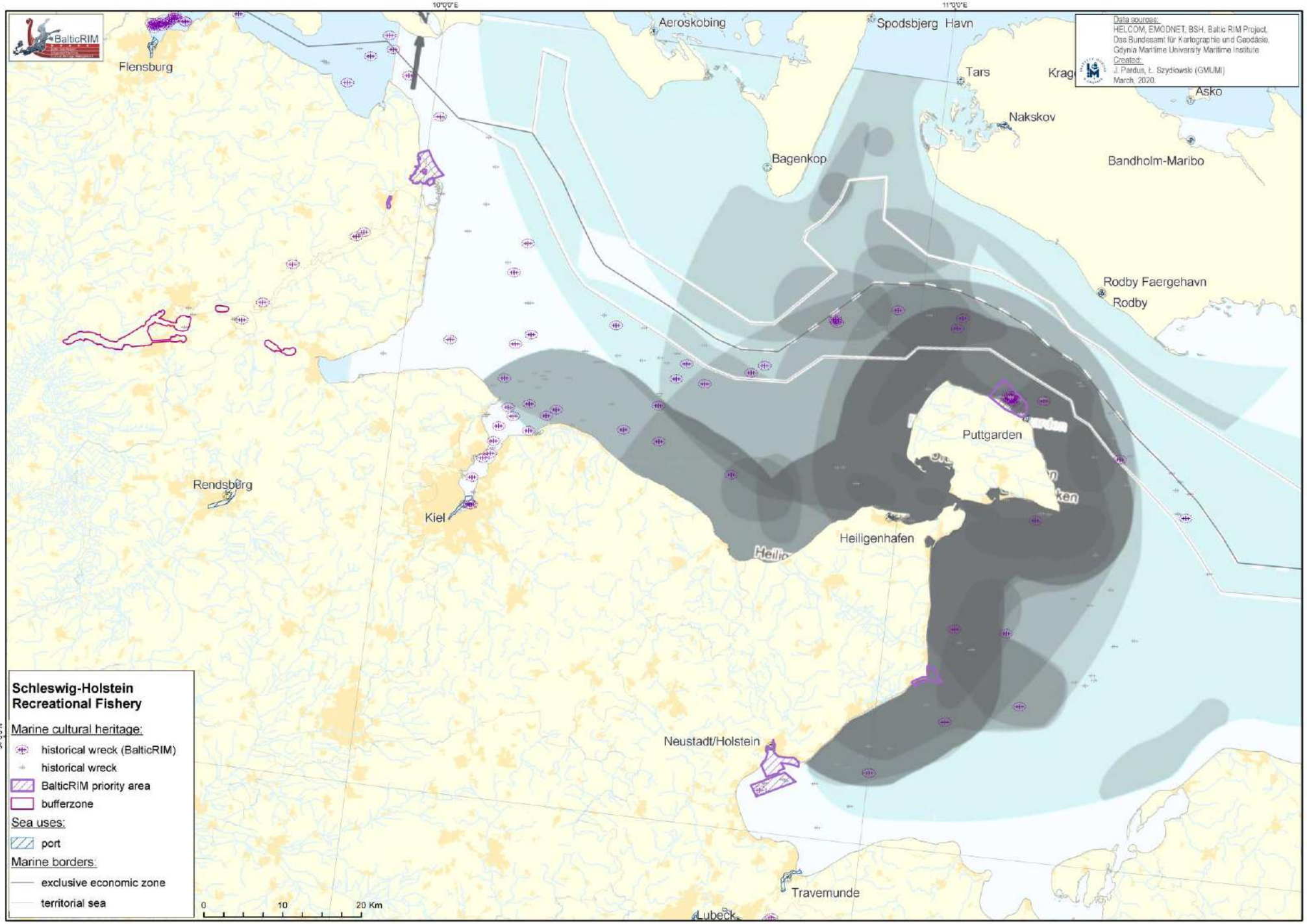


2. Sea uses mapping

FISHERY

- catches in Schleswig-Holstein's Baltic Sea are dominated by cod, herring and sprat as well as flatfish species;
- with the exception of areas deeper than 20 m, trawling must not be carried out within the 3 nautical mile zone. In the remaining area of the coastal waters of the Baltic Sea, in addition to all other forms of fishing, trawling with vehicles up to a drive power of 221 kilowatts is permitted;
- the spatial focus of fishery is mainly the area southeast of Fehmarn in the Bay of Lübeck. Another important area for trawling is in the Eckernförde Bay.

Source of information:
von Dorrien C, Krumme U, Grieger C, Miethe T, Stötera S (2013): Analyse fischereilicher Daten in den schleswig-holsteinischen Küstengewässern der Ostsee. Braunschweig: Johann Heinrich von Thünen-Institut, 72 p.



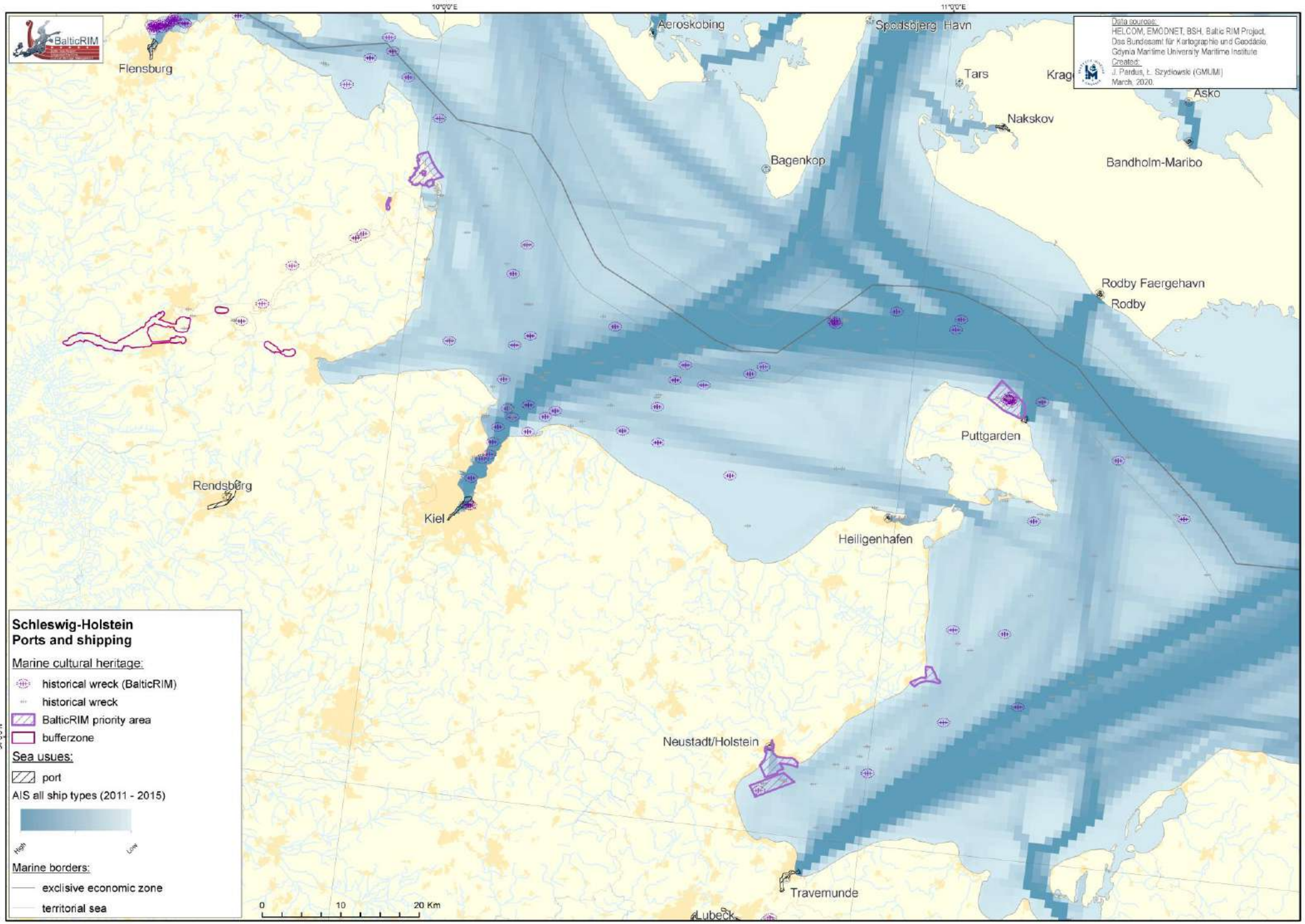
2. Sea uses mapping

RECREATIONAL FISHERY – ANGLING

- Recreational fishing is very popular in Schleswig Holstein, performed from the cutters, boats or directly from the beach;
- spatial distribution of fishing methods differs – the cutters trips operate mainly in deep waters, often in the wrecks areas;
- surf and beach anglers fish from the beach in relatively shallow water, with the fishing rod being thrown out at a distance of around 150 m.

The map shows the most common fishing grounds used by German commercial angling vessels in Fehmarnbelt and region.

Source of information:
1. FeBEC (2013). Recreational Fisheries in Fehmarnbelt. Baseline Report. Report no. E4TR0034 – Volume III
2. Lewin, W.-C., Weltersbach, S., Denfeld, G. und Stehlow, H. (2019) Bedeutung und Bewertung von Meeresmüll aus der marinen Freizeitfischerei und Maßnahmen zur Vermeidung. Thünen Institut für Ostseefischerei (TI-OF), Rostock, in Kooperation mit dem Deutschen Angelfischerverband e.V. .Bericht erstellt im Auftrag des NLWKN und des LUNG M-V.

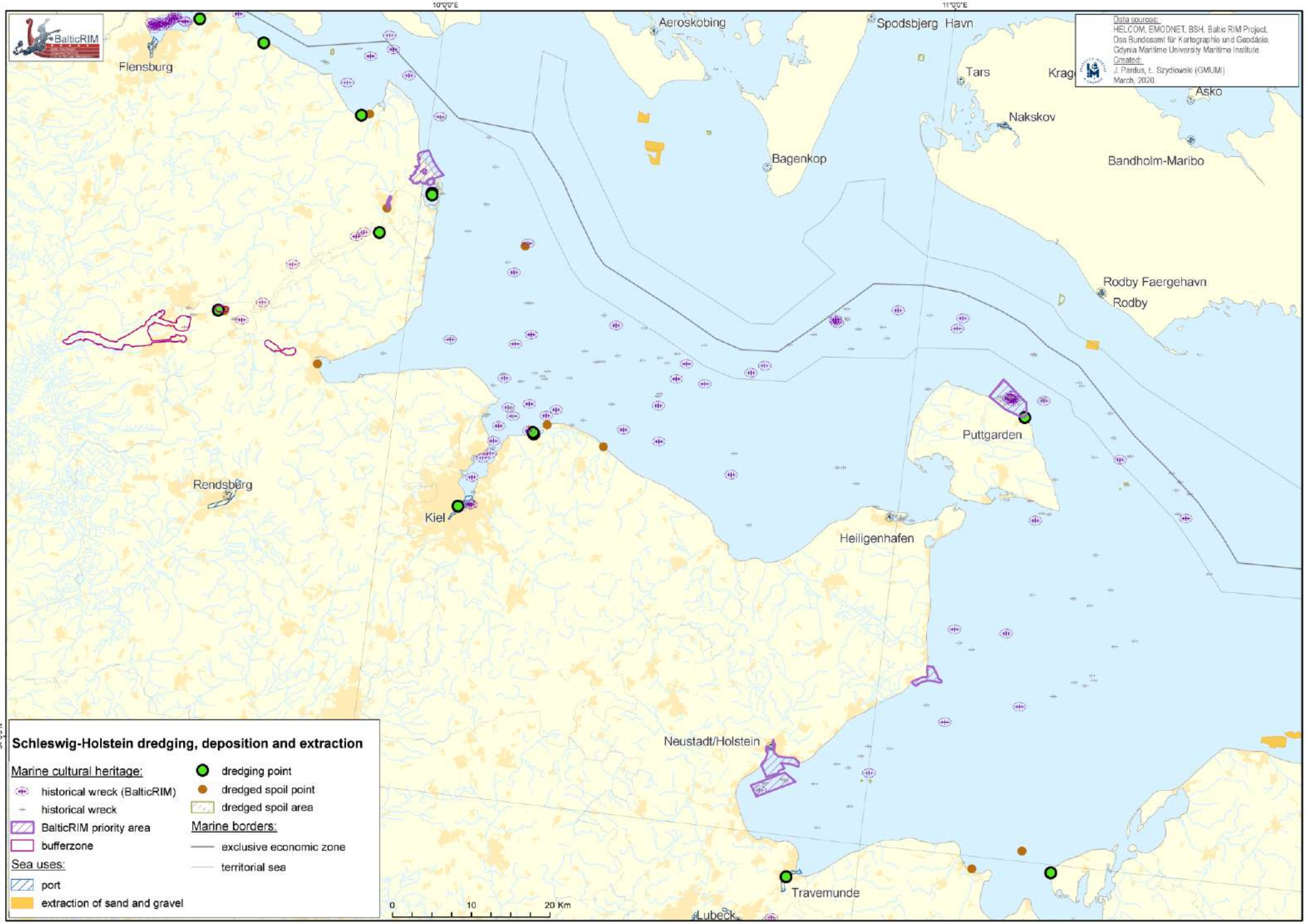


2. Sea uses mapping

SHIPPING

- In the Baltic Sea, the ship frequency density near the coast to Schleswig-Holstein is significantly higher than in the North Sea;
- in the Schleswig-Holstein coastal sea area, the Kiel and Lübeck Bay have a frequency of up to 50 ships per day;
- the most frequented seaway is Kiel Bay due to the strategic importance of the Kiel Canal;
- in order to ensure the ease and safety of maritime traffic, the sea-going entrances to the coastal port must be kept at a fixed target depth by regular dredging.

Source of information:
Raumordnungsbericht Küste und Meer / Innenministerium des Landes Schleswig-Holstein, Abteilung Landesplanung, 2006



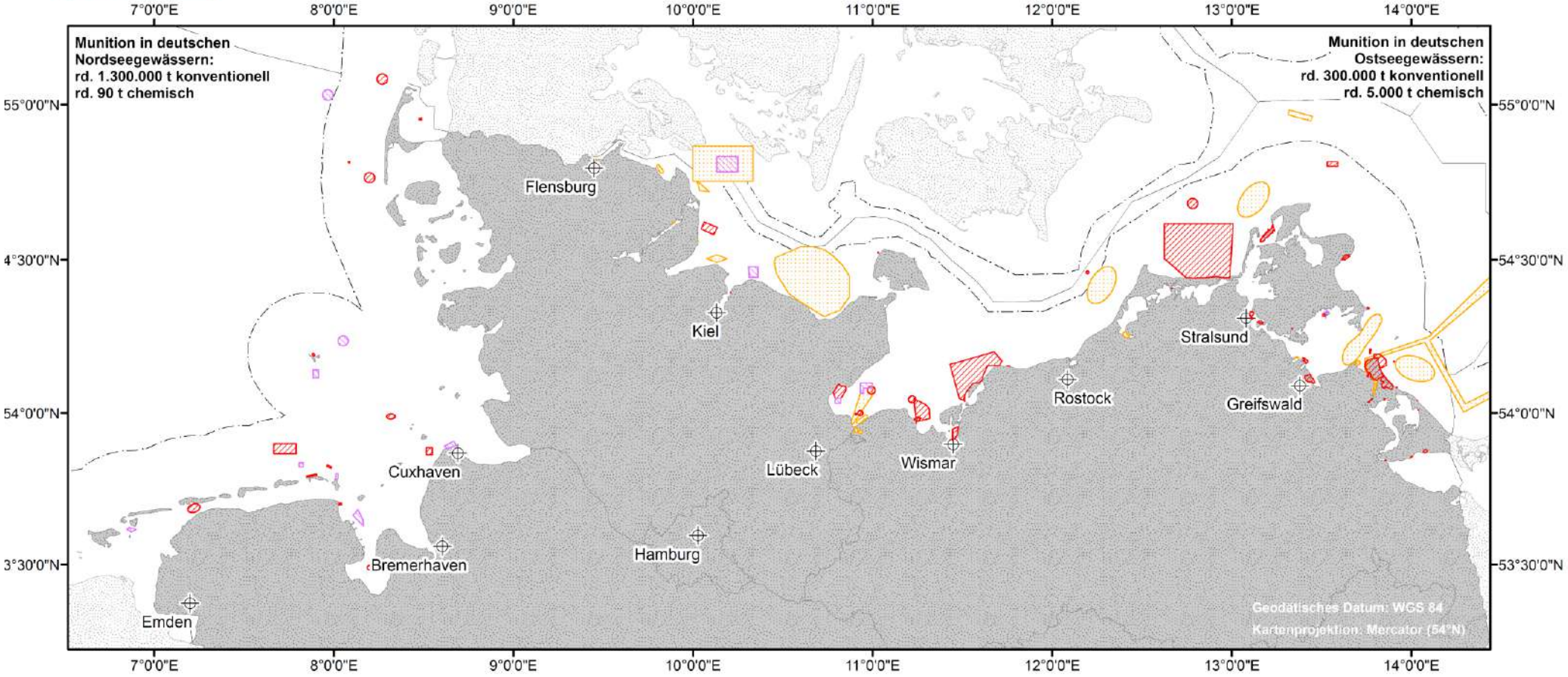
2. Sea uses mapping

DREDGING, DEPOSITION AND EXTRACTION

- Dredging activities are mainly connected with port maintenance;
- there are some sand deposits in the area of the Baltic Sea coast of Schleswig-Holstein, however there have been no mining activities in recent years.

Vereinfachte Übersichtskarte munitionsbelasteter Flächen in deutschen Meeresgewässern

Achtung! Die Ausdehnung der Flächen gibt nicht die Größenordnung der etwaigen Munitionsbelastung wieder!



Legende

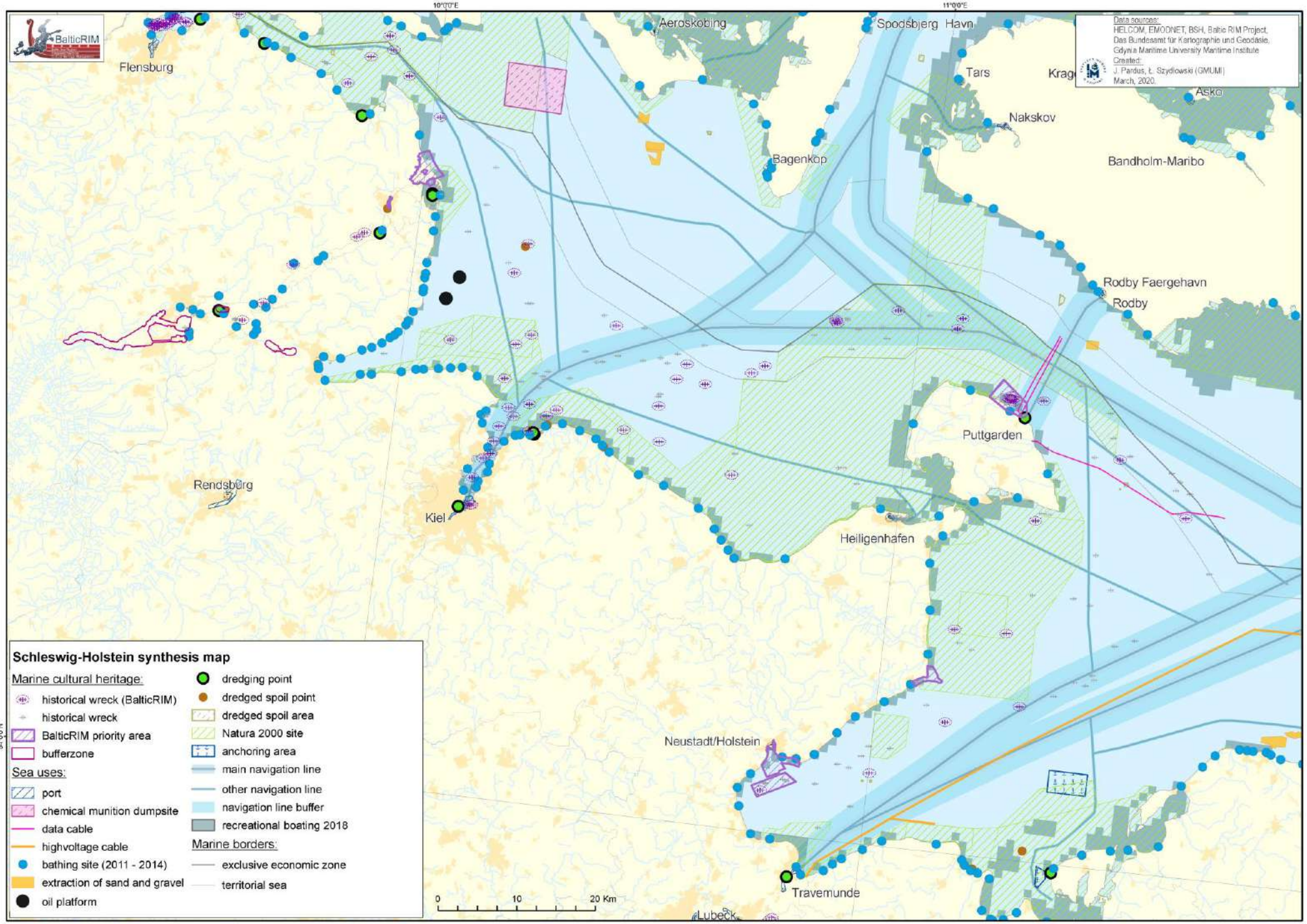
- Munitionsversenkungsgebiet
- munitionsbelastete Fläche
- Munitionsverdachtsfläche
- Seewärtige Begrenzung des Küstenmeeres
- Grenze der Ausschließlichen Wirtschaftszone

Im Rahmen dieser Studie wird folgende Unterscheidung getroffen:
In ehemaligen Munitionsversenkungsgebieten ist der Eintrag dort lagernder Kampfmittel auf eine dokumentierte Nutzung zur offiziellen Verklappung zurückzuführen. Innerhalb munitionsbelasteter Flächen sind Kampfmittelfunde dokumentiert, die Art der Einbringung erfolgte jedoch nicht über offizielle Verklappungsmaßnahmen (sondern z.B. Schiffshavarien) oder ist nicht dokumentiert. Für Munitionsverdachtsflächen besteht ein begründeter Verdacht der Anwesenheit von Kampfmitteln.

Geodaten der Landmassen: http://www.gadm.org

3. Synthesis map

content - Magdalena Matczak (GMUMI)
data processing and maps - Łukasz Szydłowski (GMUMI)



3. Synthesis map

Synthesis map of the BalticRIM recognized MCH priority areas and the threatening sea uses

<u>Main conflicts recognized:</u>

PUTTGARDEN REEF:
- recreational fishing;
- sea currents disturbance;
- looting.

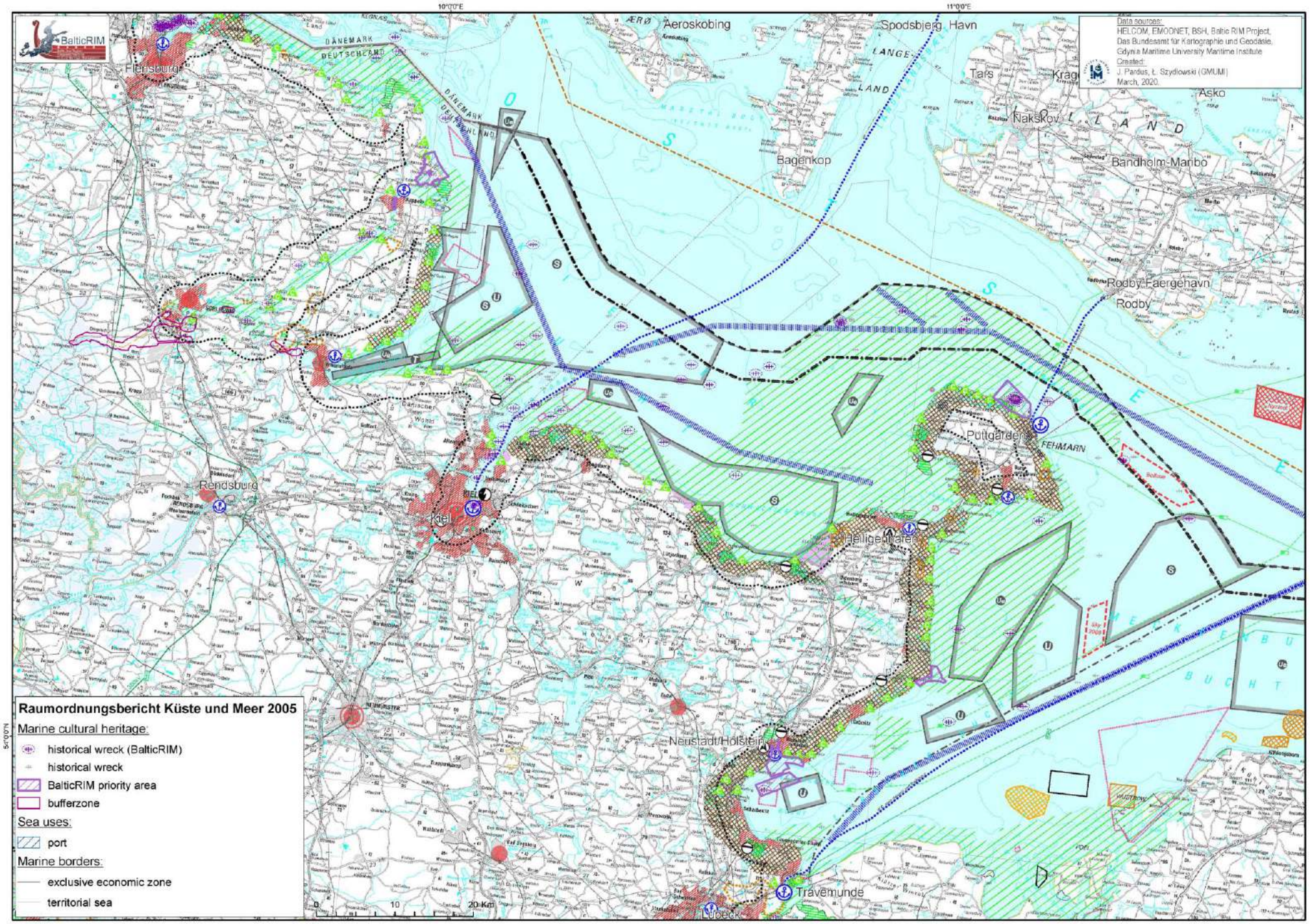
ANCIENT SCHLEI ESTUARY:
- recreational fishing;
- sea currents disturbance;
- tourism.

MAES:
- local shipping, boating and anchoring;
- dredging;
- Tourism.

SCHWARZER GRUND:
- recreational Fishery;
- local shipping, boating and anchoring.

NEUSTÄDTER BUCHT:
- local shipping, boating and anchoring;
- dredging.

CAP ARCONA WRACKAGE:
- local shipping, boating and anchoring;
- dredging;
- looting.



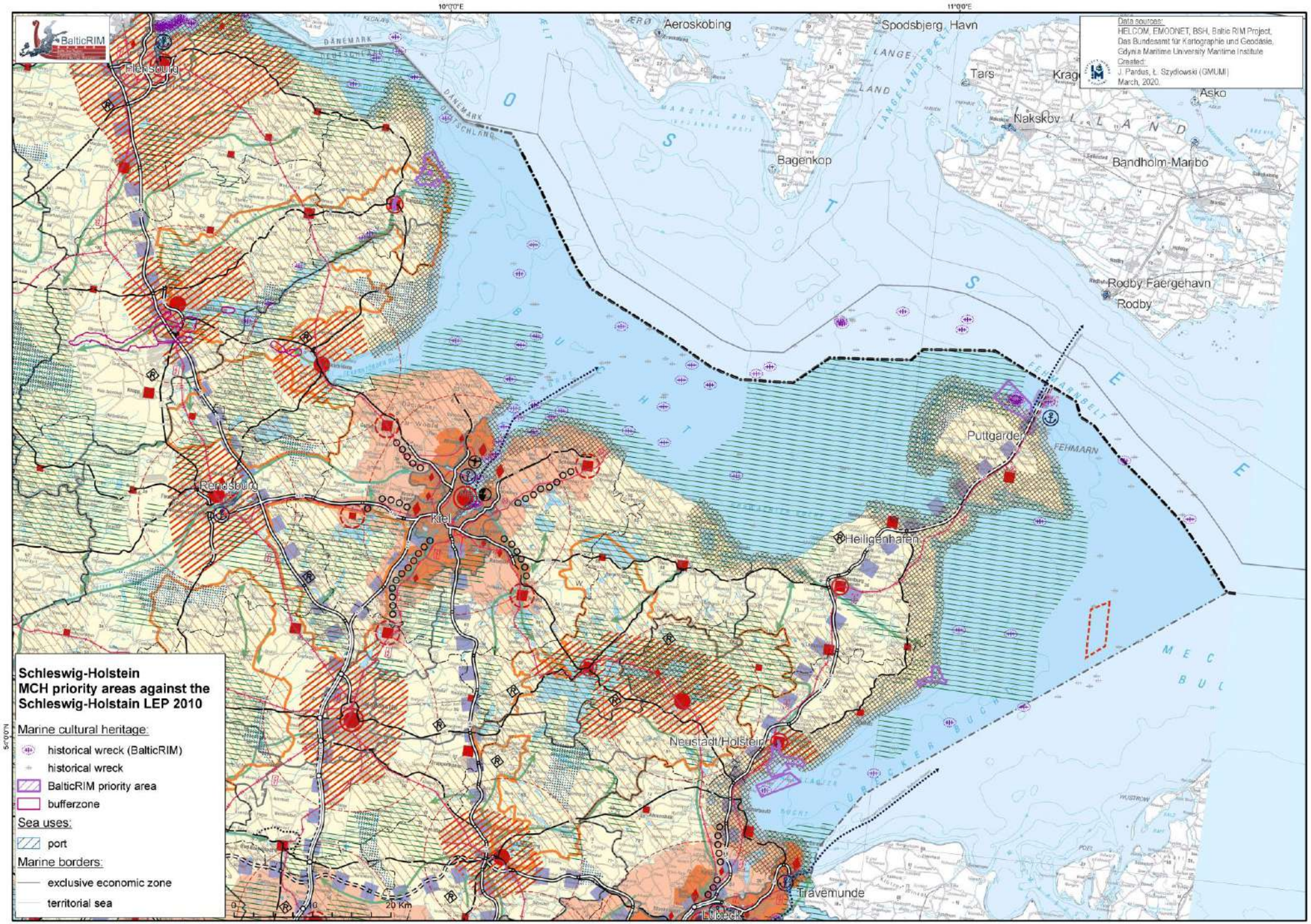
3. Synthesis map

The map shows the BalticRIM proposed MCH priority areas on the background of the map of the use of space of the Schleswig-Holstein coastal sea, being a part of the Regional Planning Report Coast and Sea – Schleswig-Holstein (2005)

Source of information:
Raumordnungsbericht Küste und Meer / Innenministerium des Landes Schleswig-Holstein, Abteilung Landesplanung, 2006

4. Planning suggestions

content - Magdalena Matczak (GMUMI), Daniel Zwick (ALSH)
data processing and maps - Łukasz Szydłowski (GMUMI)



4. Planning suggestions

The map shows the BalticRIM proposed MCH priority areas on the background on the Schlezwik-Holstain LEP of 2010

The Plan is currently under revision.

On the next page some planning suggestions are given

Source of information:
Landesentwicklungsplan Schleswig-Holstein 2010

PUTTGARDEN REEF:

- Introduction of the MCH priority function.
- In neighbouring areas - exclusion of activities/investments resulting in the changes in sedimentation patters in priority area.
- Conduction of in depth research for the full recognition of archaeological assets.
- Support to diving activities – designation of subareas devoted to diving, where other activities are forbidden while diving, introducing speed limits to decrease noise pollution.
- Exclusion of dredging, dumping and sand extraction.

ANCIENT SCHLEI ESTUARY:

- Introduction of the MCH priority function.
- In neighbouring areas - exclusion of activities/investments resulting in the changes in sedimentation patters in priority area.
- Conduction of in depth research for the full recognition of archaeological assets.
- Exclusion of structures which impair the visual axis.
- Exclusion of dredging, dumping and sand extraction.

MAES:

- Introduction of the MCH priority function.
- Conduction of in depth research for the full recognition of archaeological assets.
- Introduction of speed limits for local shipping and boating.
- Tourism.

SCHWARZER GRUND SCHWARZER GRUND:

- Introduction of the MCH priority function.
- In neighbouring areas - exclusion of activities/investments resulting in the changes in sedimentation patters in priority area.
- Introduction of speed limits for local shipping and boating.
- Conduction of in depth research for the full recognition of archaeological assets.
- Exclusion of anchoring in the archaeological sites.
- Exclusion of dredging, dumping and sand extraction.

NEUSTÄDTER BUCHT:

- Introduction of the MCH function.
- Conduction of in depth research for the full recognition of archaeological assets.
- Exclusion of anchoring, dredging, dumping and sand extraction.

CAP ARCONA WRACKAGE:

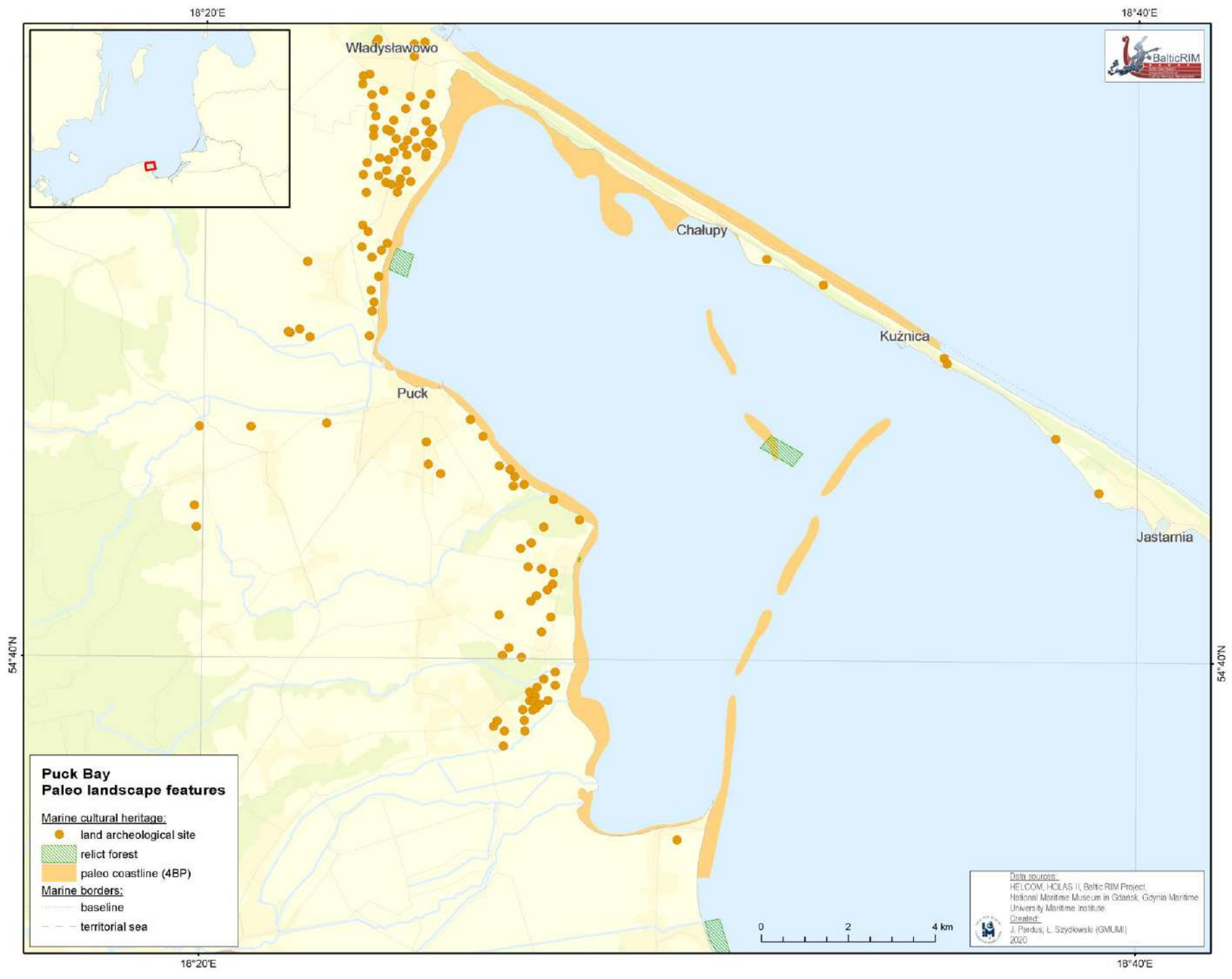
- Introduction of the MCH function.
- Introduction of II WW graveyard protection regime.
- Exclusion of anchoring, dredging, dumping and sand extraction.

POLAND –

1. MCH mapping and priority areas delimitation

content and data – Iwona Pomian, Krzysztof Kurzyk, Janusz Różycki (NMM), Szymon Uścinowicz (PIG PIB, Oddział Geologii Morza)

data processing and maps – Joanna Pardus (GMUMI)



1. MCH Mapping

Area: PUCK BAY

Type: submerged archaeological sites, submerged forests,

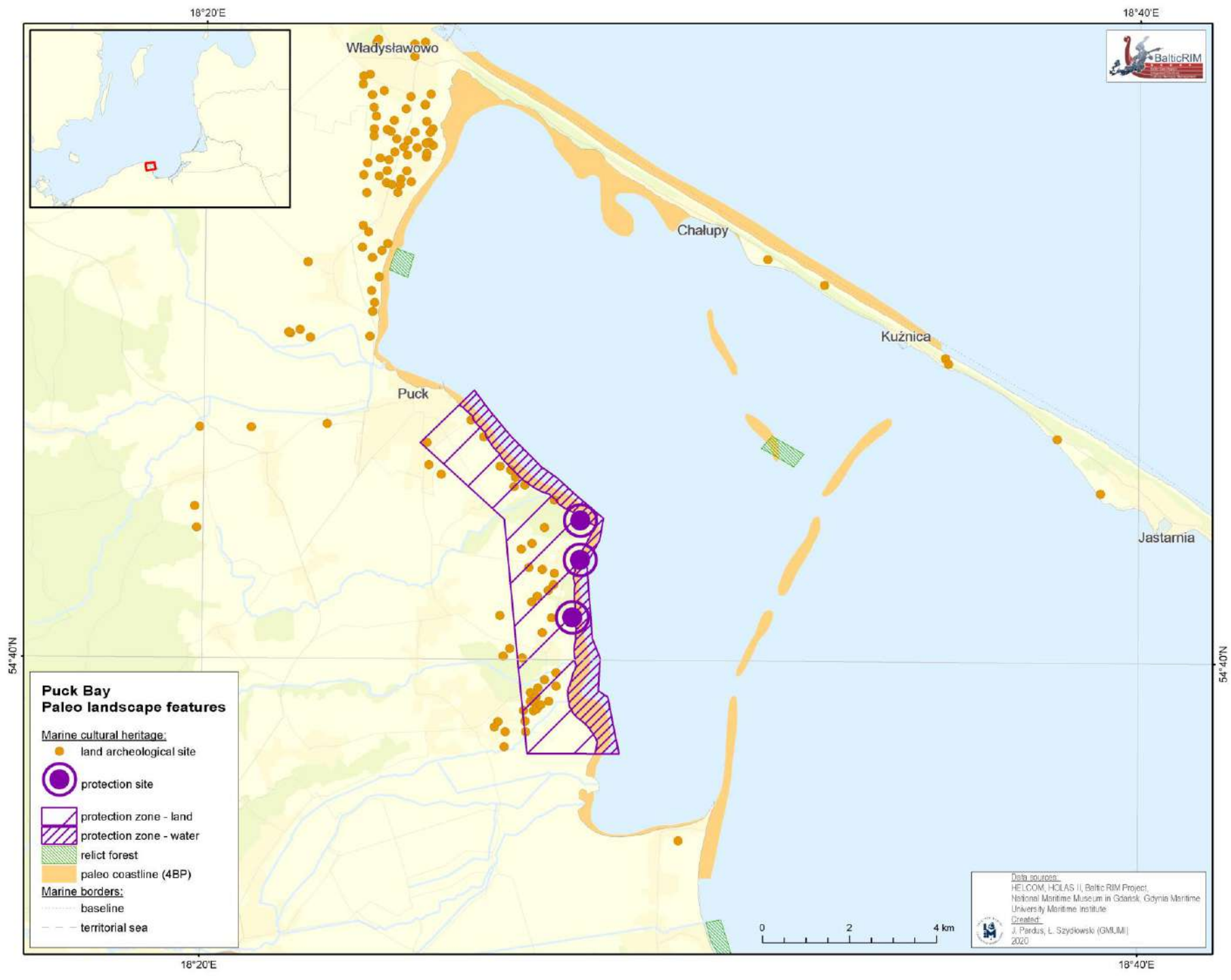
Potential:

In early Holocene after deglaciation Puck Bay (part of Gulf of Gdansk) was a land area which was subjected to flooding by sea-waters about 7500 BP. Today Puck Bay is very shallow, average 2-3 m deep with potential of submerged landscape and archaeological sites and artefacts from Stone Age.

A database of archaeological sites from stone age in the Gulf of Gdansk coastal zone was prepared by the National Maritime Museum in Gdańsk. Data were checked, digitalized and put on a map with GIS standard.

Seabed test areas (Rzucewo, Swarzewo and Piaski Dziewicze) have been scanned with side sonar and samples from submerged forests were taken for radiocarbon dating. The obtained data show dates from Early Holocene, about 9000-8300 BC and 5000-4500 BC.

The source query, geological analysis and field research carried out as part of the BalticRim project indicate the occurrence of sunken paleolandscape in the entire inner Bay of Puck and the likelihood of prehistoric archaeological sites.



1. MCH Mapping

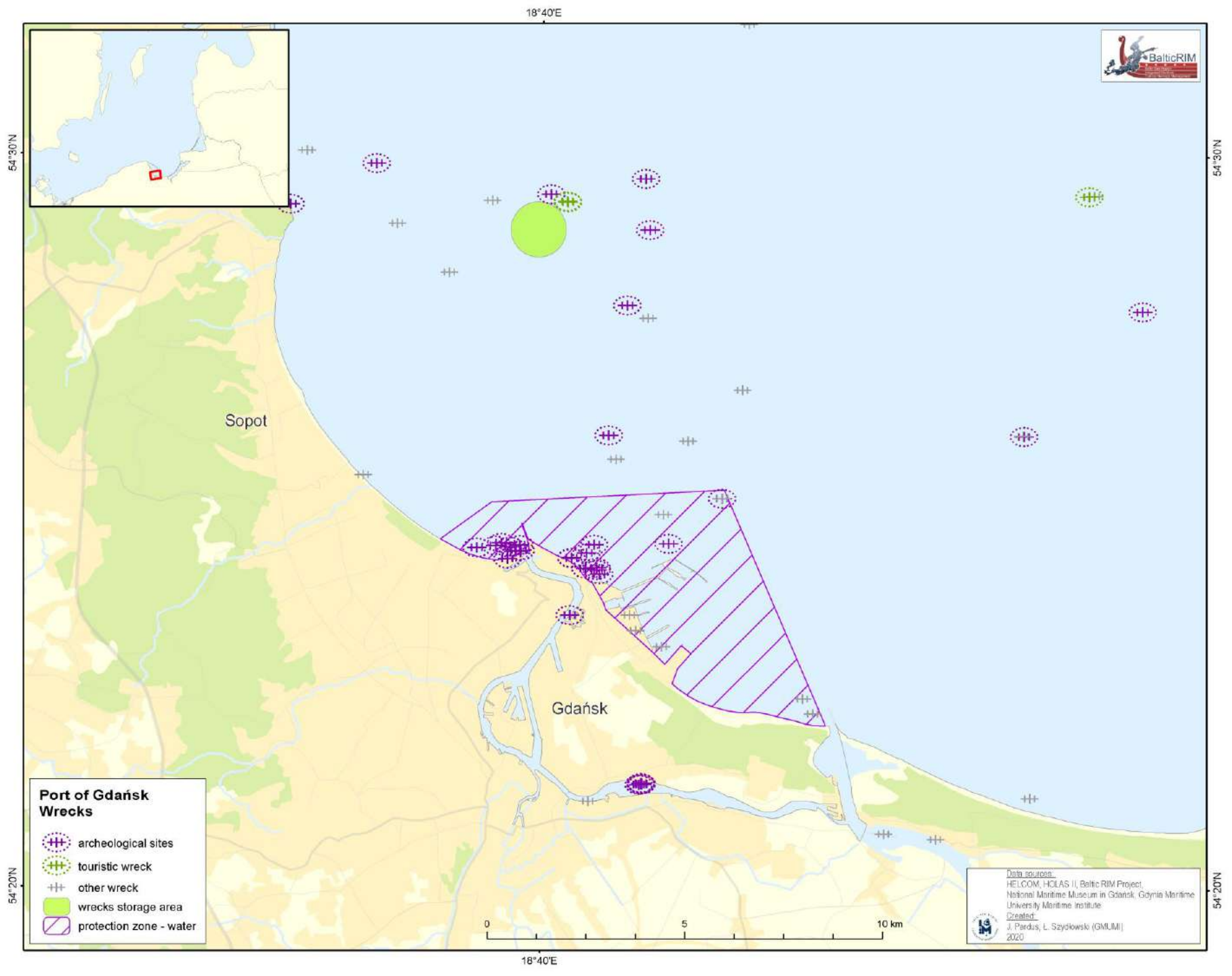
Area: THE COASTAL AREA OF PUCK BAY

Type: submerged archaeological sites, submerged forests,

Potential:

In the indicated sea basin, the probability of occurrence of settlement remains is estimated to be very high due to the location of the remains of flooded prehistoric forests and peat from the Atlantic period, where archaeological sites may occur due to intense settlements from the Stone Age occurring in the neighbouring coastal area from Rewa to Władysławowo.

Marked points indicate areas in which, as part of archaeological research, relics of the Stone Age archaeological sites and remnants of a sunken paleo landscape were identified.



1. MCH Mapping

Area: THE APPROACH AREA OF THE PORT OF GDANSK

Type: wrecks, submerged hydrotechnical structures

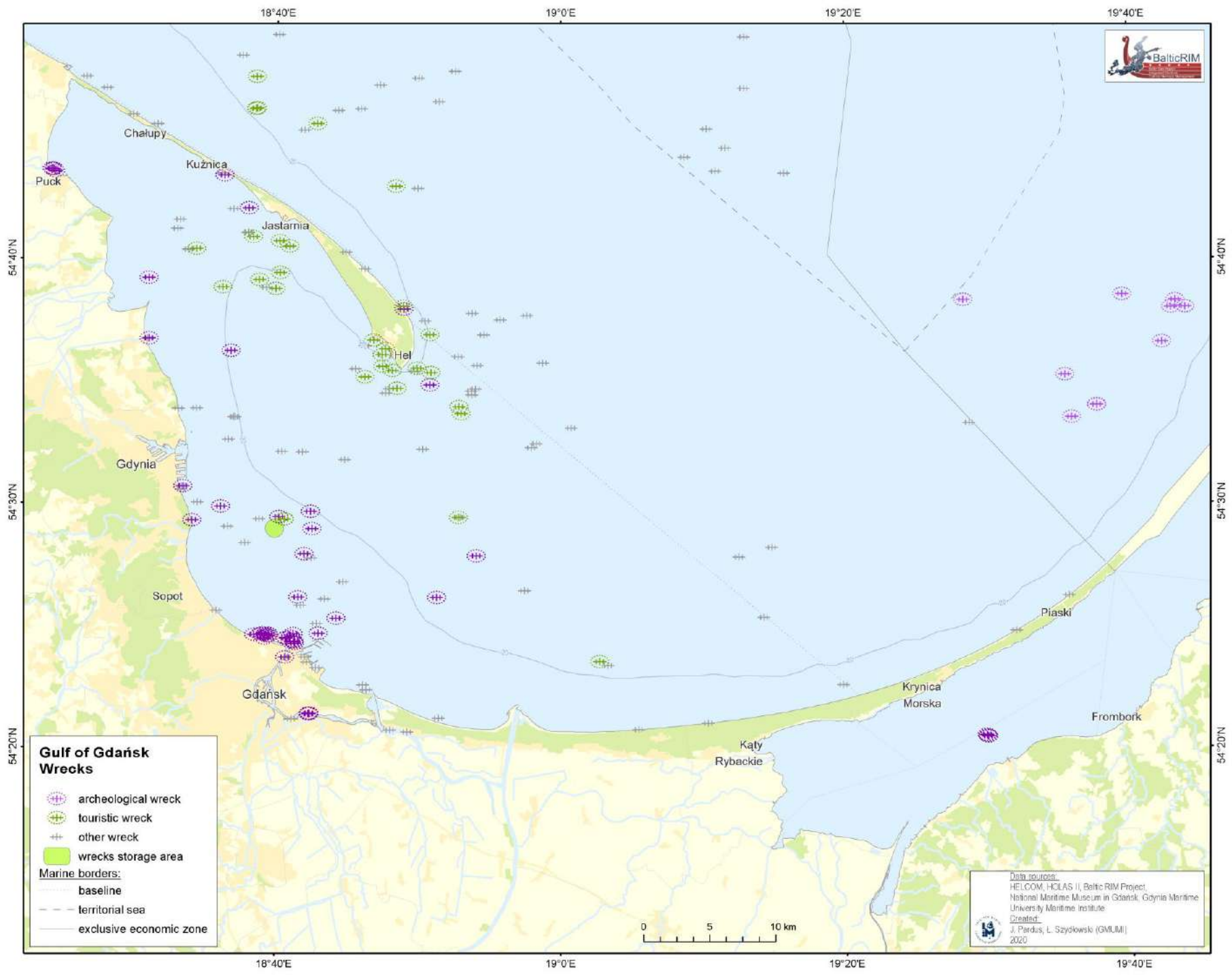
Potential:

The biggest number of the historical wrecks is noted in the Port of Gdańsk area, which can be divided into three zones:
- Eastern:
1 wreck reported, probably 1600s-1700s (unverified)

- Central:
7 wrecks 1400s -1800s
remains of a hydrotechnical structures (wooden breakwater at the entrance to the harbour from 1600s)

- Western:
7 wrecks, 1600s-1800s .

Numerous shipwrecks and remains of the port's hydrotechnical structures have been preserved in the protection zone. Due to the dynamic changes of the seabed associated with the activity of the Dead Vistula River, in which the mouth is located, archaeological monuments are also located in the layers of the seabed. In total, archival sources find information about more than 200 ships that have been damaged or sunk on the counter and on the way to the port of Gdansk.



1. MCH Mapping

Area: Gulf of Gdańsk

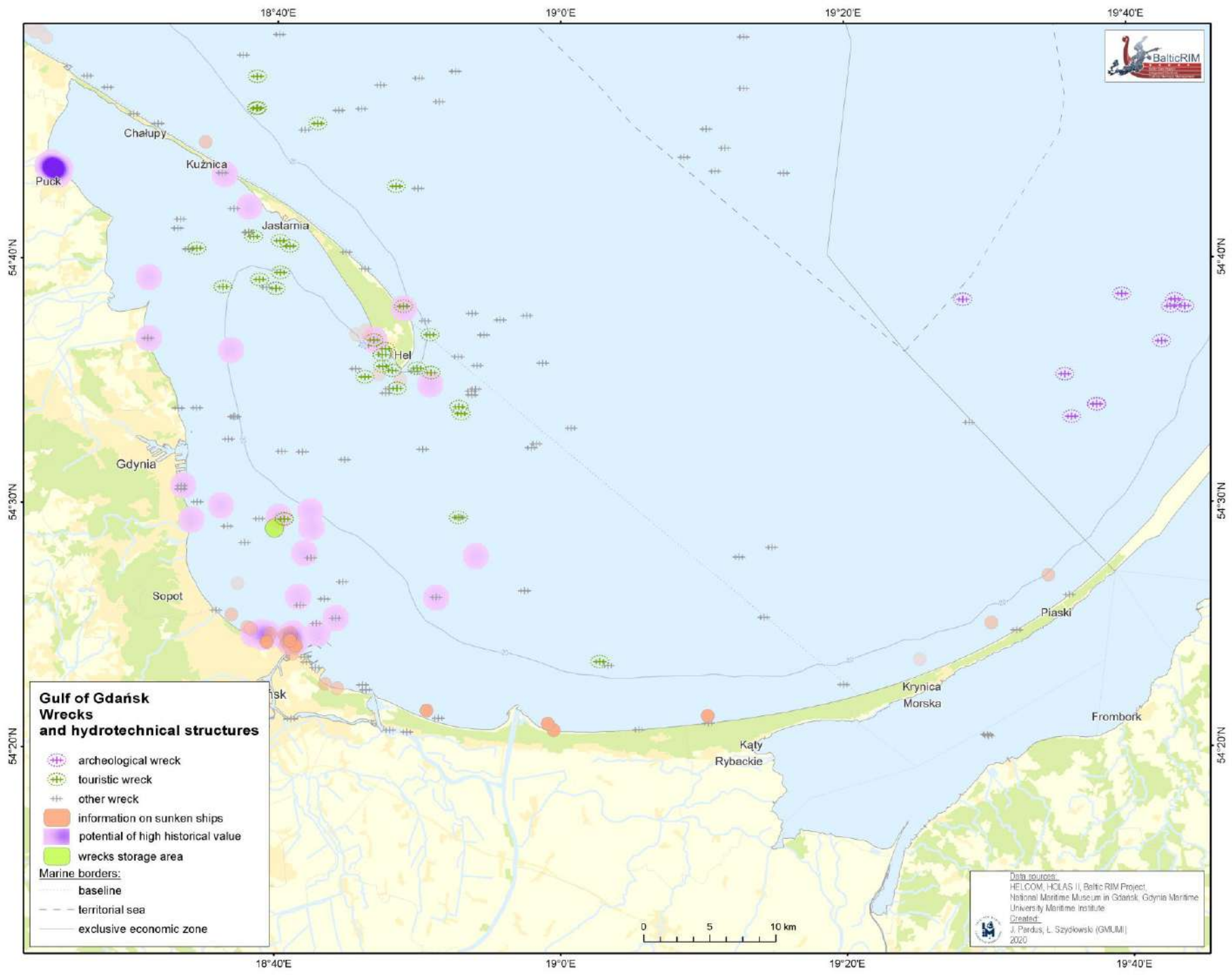
Type: Wrecks and hydrotechnical structures

Potential:

Historical wrecks were discovered mainly along the port approaches and in the vicinity of the ports (Puck, Gdynia, Gdańsk).

The survey on historical information on sunken ships together with the information on historical wrecks and submerged remains of the hydrotechnical structures made it possible to create a density heat map of these values, showing the **historical potential of the area**

Some of other wrecks in the Gulf of Gdansk are allowed for diving creating therefore kind of submerged cultural landscapes.



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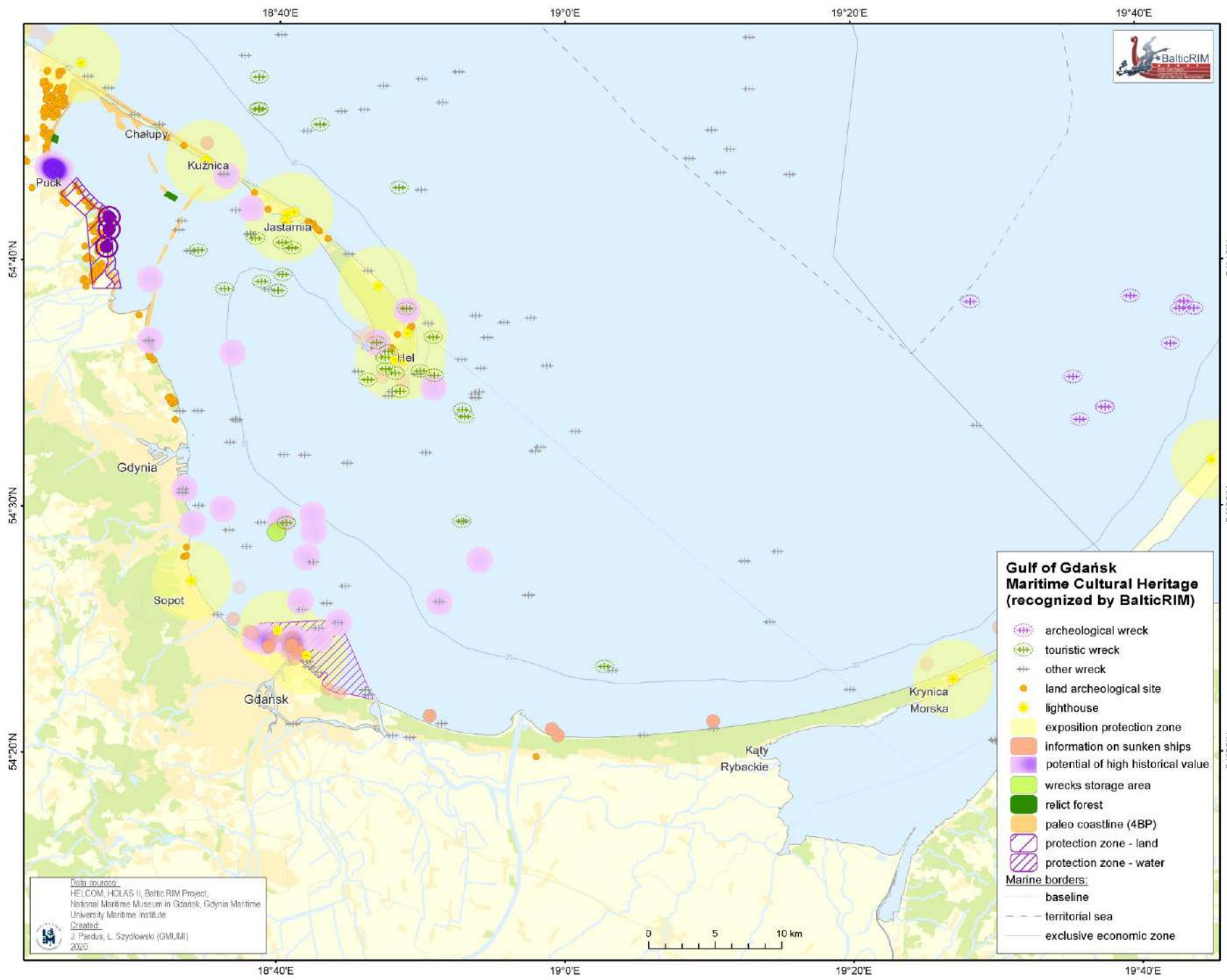


1. MCH Mapping

Area: Gulf of Gdańsk

Type: Maritime Cultural Heritage
(as recognized by BalticRIM)

The map shows the overall historical and cultural potential of the Gulf of Gdańsk based on the maritime cultural assets.

The main potentials are:

Cultural landscapes:

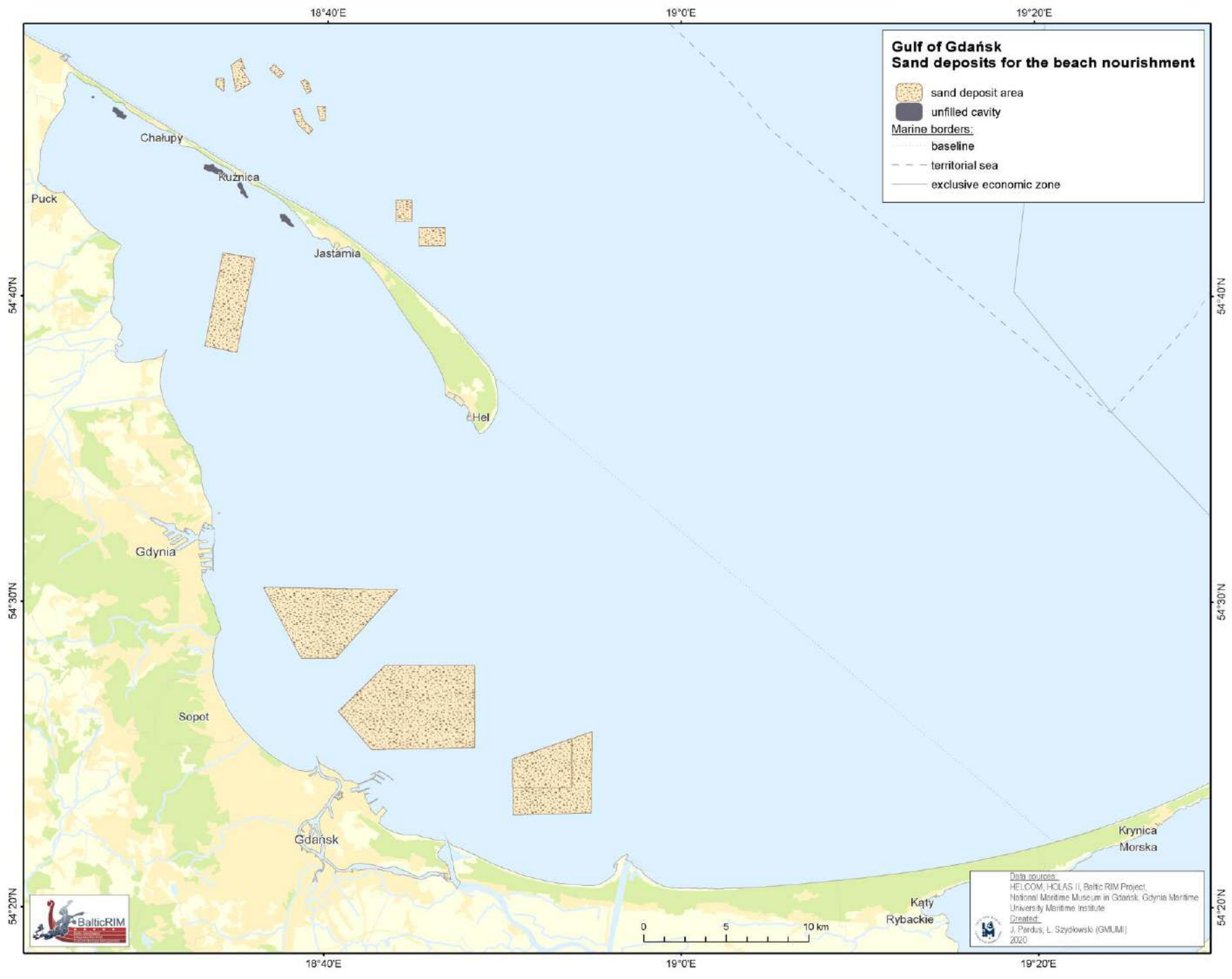
- Paleolandscape of the Puck Bay;
- wrecks for diving;
- visual aspects of the Guld of Gdańsk lighthouses together with coastal anthropogenic waterfronts (fishery villages, cities).

Wrecks and hydrotechnical structures:

- The area of the Port of Gdańsk, reach in recognized objects as well as the historical information on sunken ships.
- The area of port of Puck, with the medieval port's remains.

2. Sea-uses mapping

content – Madgalena Matczak, Joanna Witkowska (GMUMI)
data processing and maps – Joanna Pardus (GMUMI)



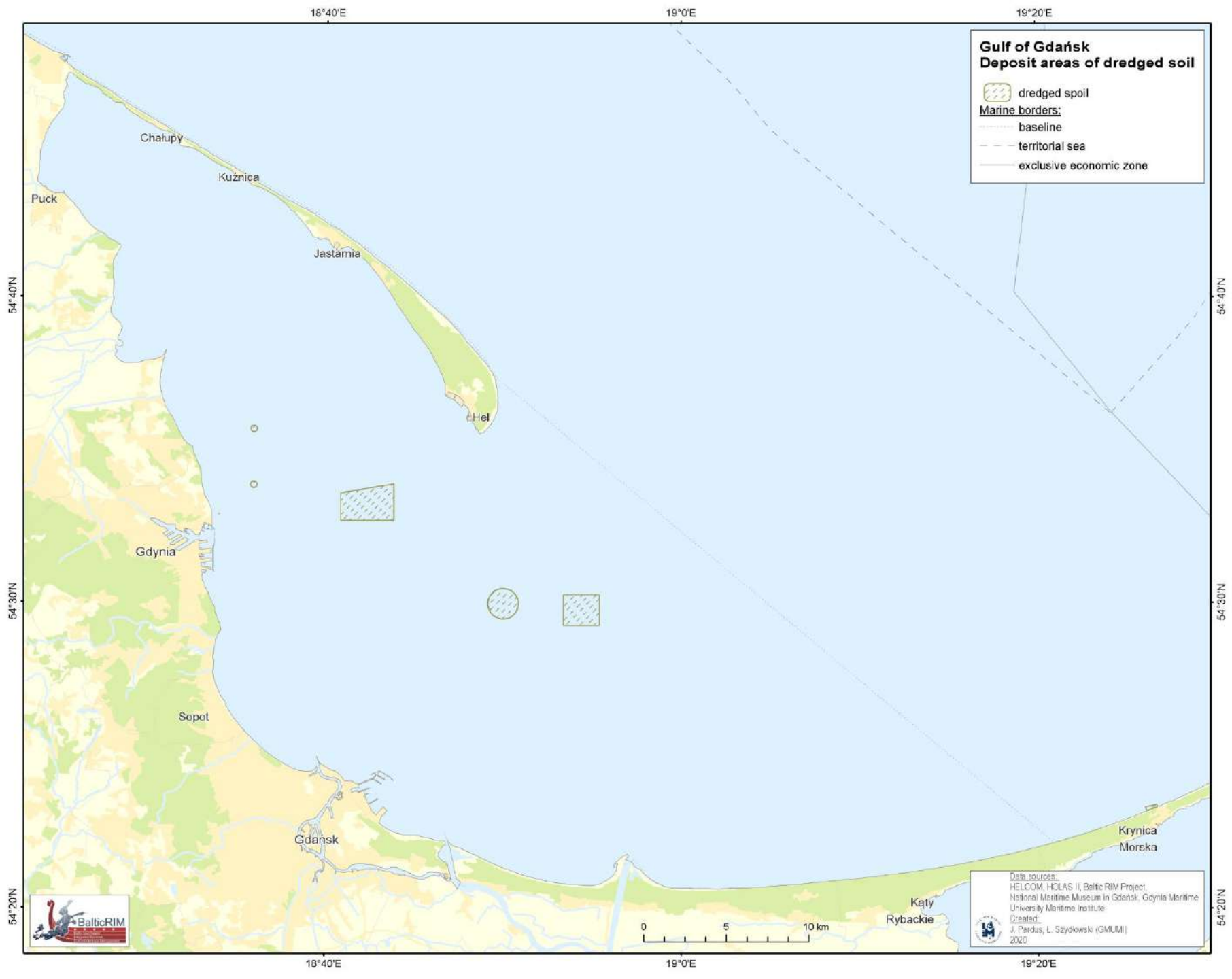
2. Sea uses mapping

SAND DEPOSITS FOR THE BEACH NOURISHMENT

Polish sandy coastline is a subject of heavy erosion due to climate changes and submerged land phenomenon.

One of the coastal protection type is the artificial supply of the coastline. In order to sustain this method large areas have been designated as a sand deposits for artificial, also in the Gulf of Gdańsk sea basin.

The main thread is the exploitation of these deposits without archaeological recognition first.



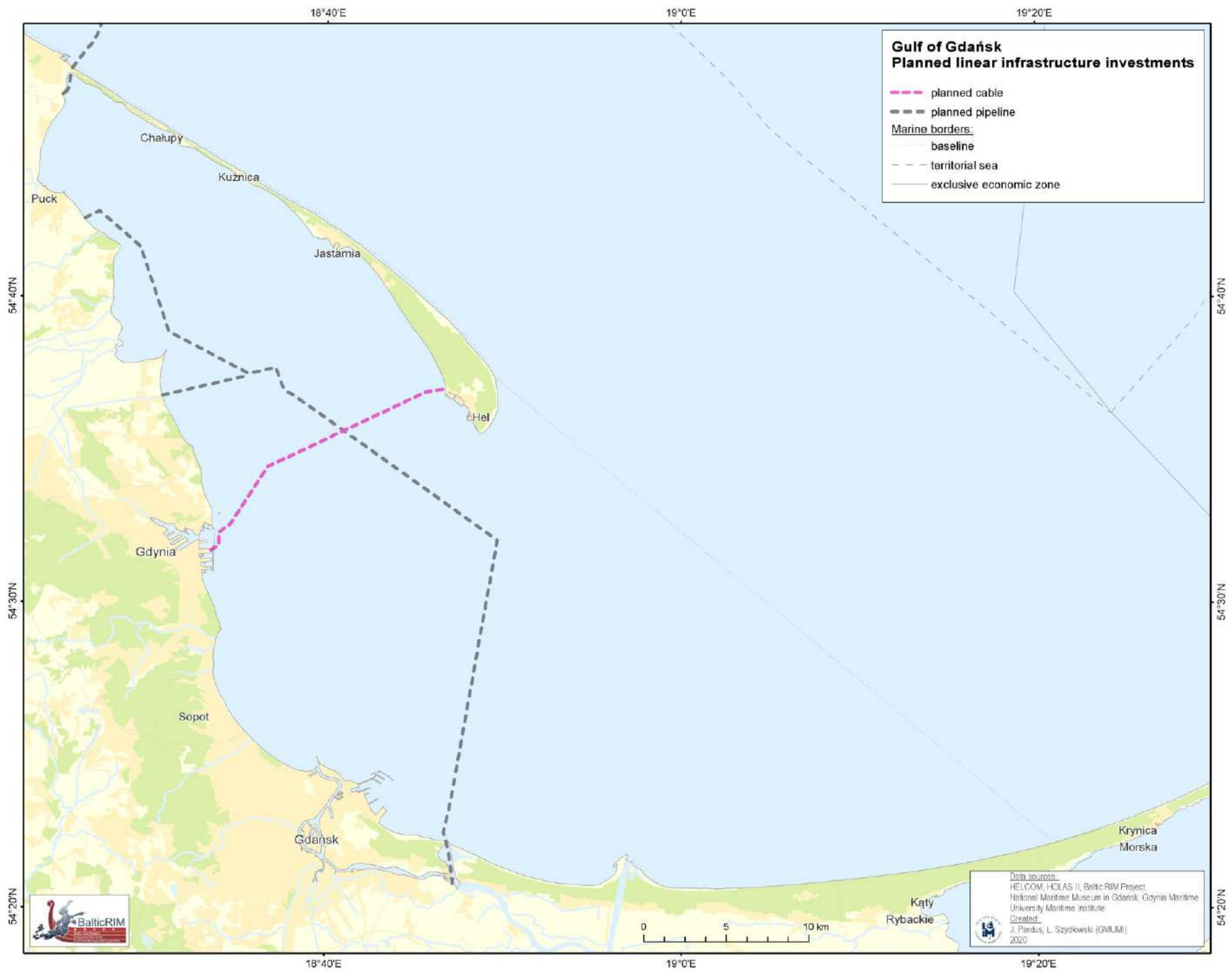
2. Sea uses mapping

DEPOSIT AREAS OF DREGDED SOIL

Another thread to MCH values can be the deposition of the dredged soil.

This activity is mainly connected to the ports functioning and infrastructural investments in the area.

In this moment, there are 5 existing deposition sites in the Gulf of Gdańsk.

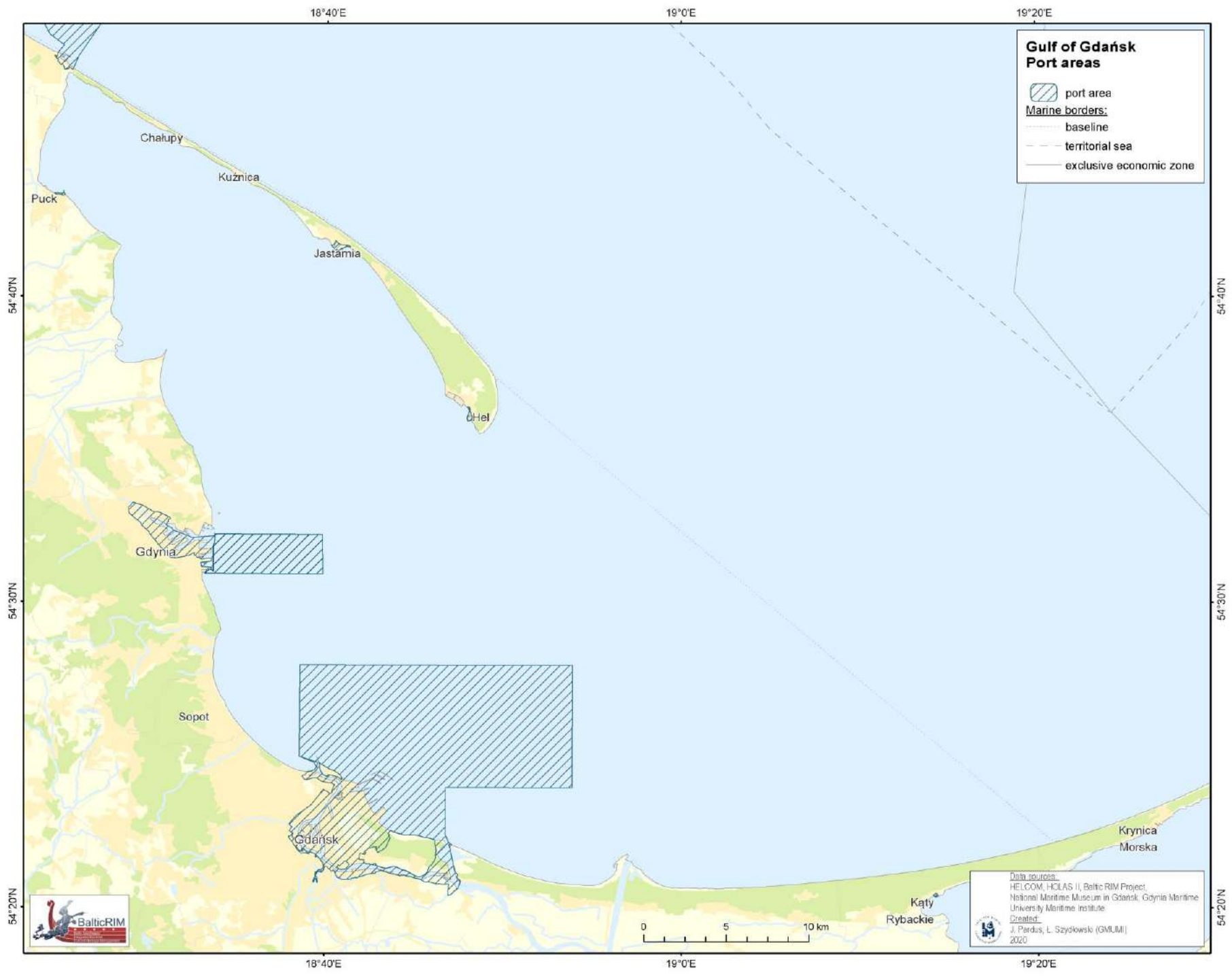


2. Sea uses mapping

PLANNED LINEAR INFRASTRUCTURE INVESTMENTS

Main planned linear investments in the Gulf of Gdańsk are:

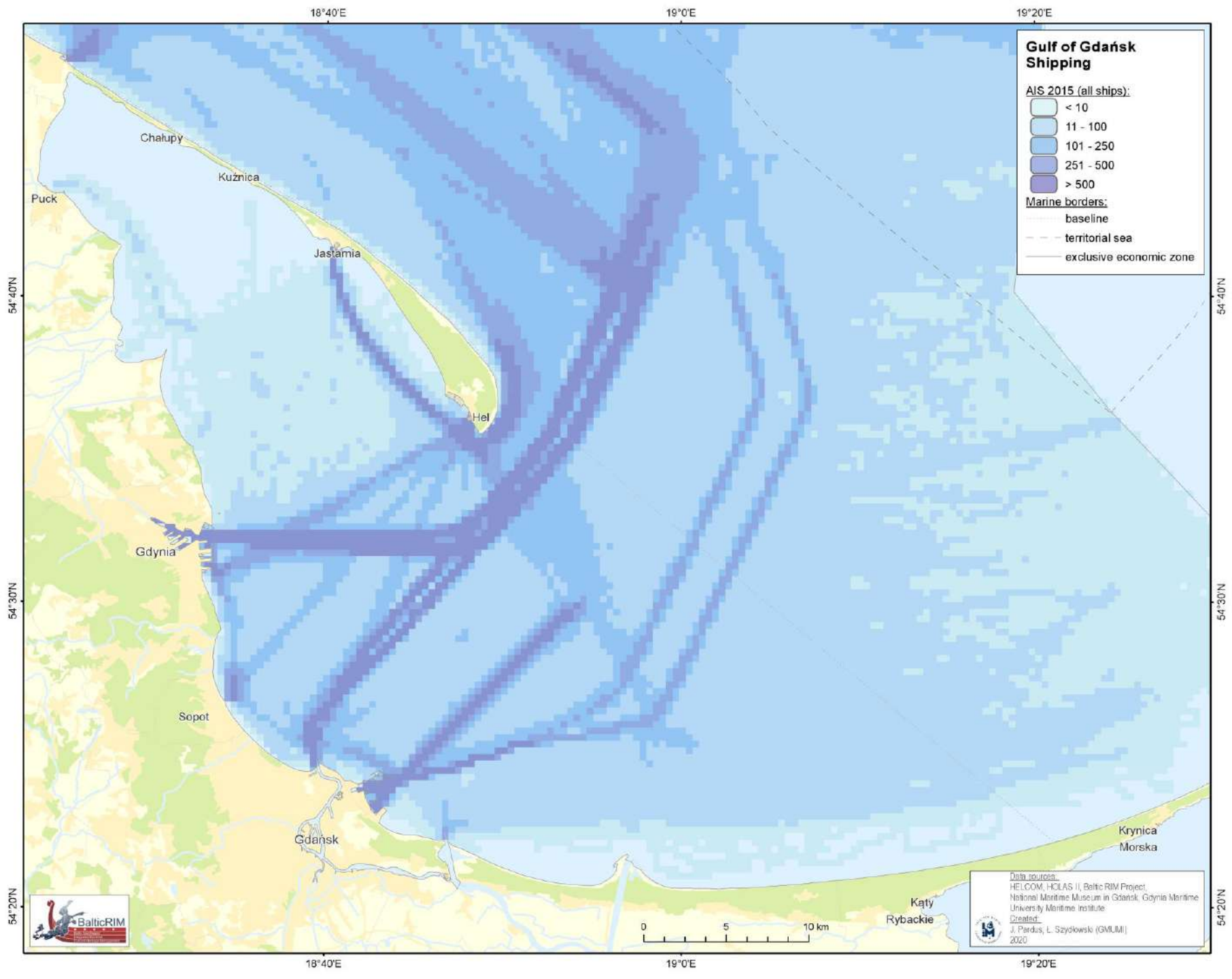
- the gas pipelines across the whole Gulf, entering the Puck Lagoon.
- data cable between Hel and Gdynia military harbours.



2. Sea uses mapping

PORT AREAS

- There are wo ports of national importance - Ports of Gdańska and Gdynia, heavily used both for anchoring purposes and port's major offshore expansion.
- Three ports of regional importance – Hel, Puck and Jastarnia, mainly yachting, fishery and local ferries.
- Fishery harbours in Kuźnica, Chałupy and Mechelinki.
- Several small piers and marinas existing and planned.
- the area of the investment described in "the Port of Gdansk Development Strategy Until 2027", updated in 2013 - the deep water part of the port in the direction of the Gulf of Gdansk, contains all of the recognised historical artefacts described under the port of Gdańsk priority area.



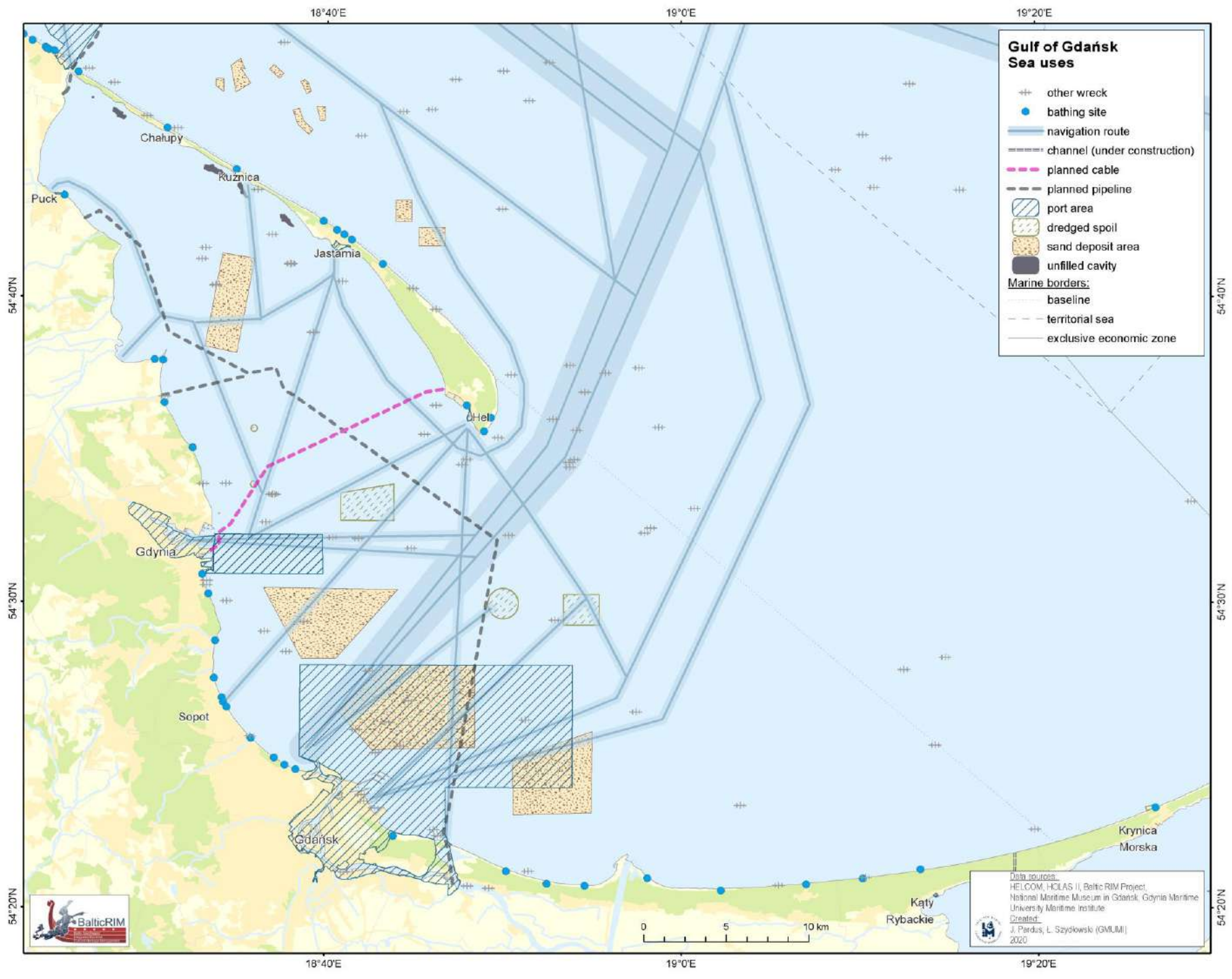
2. Sea uses mapping

SHIPPING

- Strong traffic towards the main two ports of Gdynia and Gdańsk;
- local traffic between Gdańsk, Sopot, Gdynia and Hel, mainly in summer season;
- dispersed traffic between local harbours and marinas.

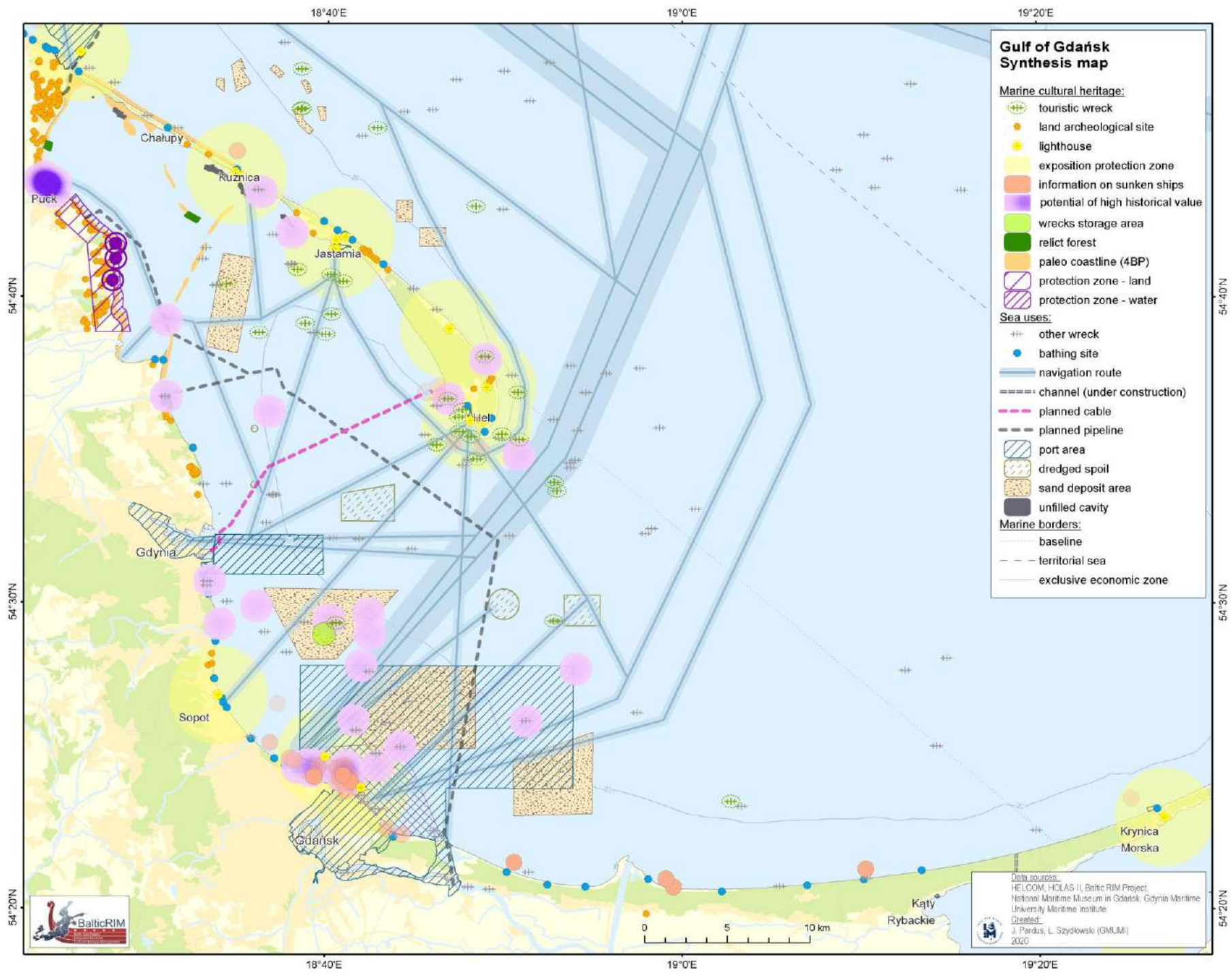
2. Sea uses mapping

Sea Uses threatening MCH



3. Synthesis map

content - Magdalena Matczak, Joanna Witkowska (GMUMI)
data processing and maps – Joanna Pardus (GMUMI)



3. Synthesis map

Synthesis map of the BalticRIM recognized MCH values and the threatening sea uses

Main conflicts recognized:

PORT OF GDAŃSK AREA:
- Port offshore expansion;
- dredging;
- sand extraction.

PORT OF PUCK AREA:
- port's investments;
- dredging;
- touristic infrastructure development.

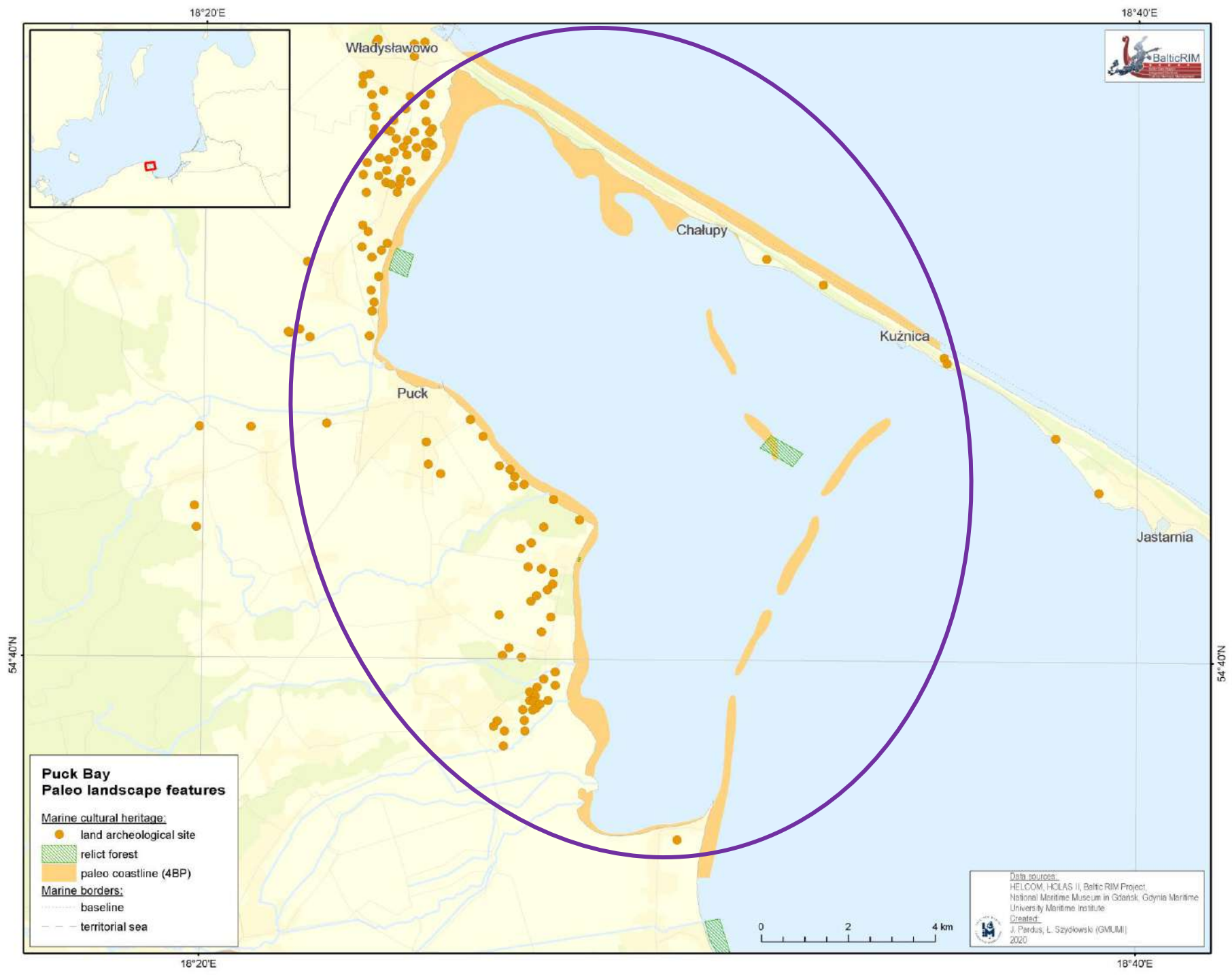
PUCK BAY PALEOLANDSCAPE:
- linear Infrastructure construction;
- touristic Infrastructure construction;
- dredging;
- sand exploition.

WRECK DIVING AREAS:
- fishery;
- shipping;
- offshore investments.

VISUAL ASPECTS:
- ports offshore expansion;
- offshore constructions.

4. Planning suggestions

content – Jacek Zaucha, Magdalena Matczak, Joanna Witkowska (GMUMI), Iwona Pomian, Krzysztof Kurzyk (NMM)
data processing and maps – Joanna Pardus (GMUMI)



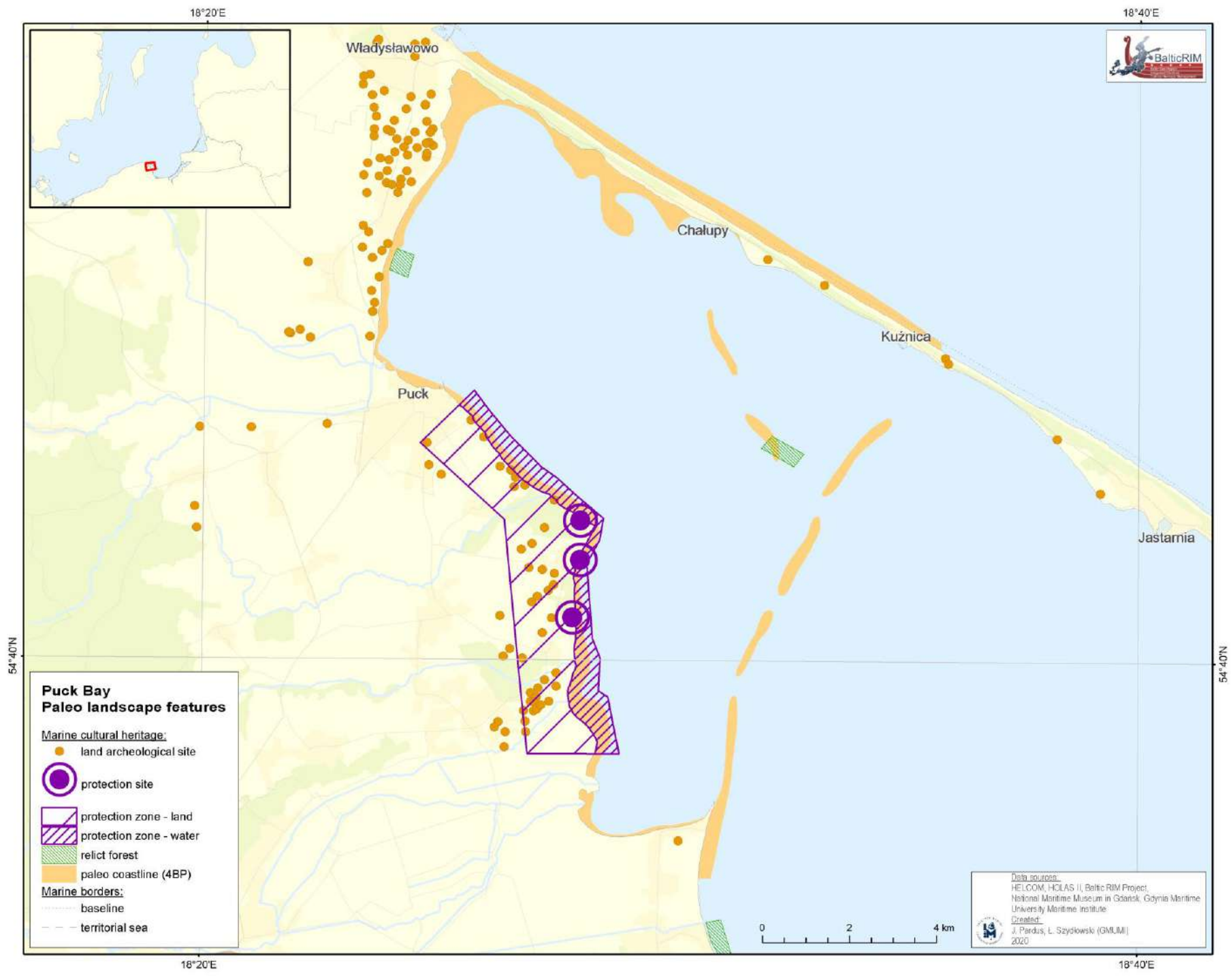
4. Planning suggestions

PUCK BAY

- area of paleolandscape from the Stone Age;
- probability of occurrence of prehistoric archaeological sites remains;

Planning suggestions:

- in-depth research in order to designate areas of the cultural paleolandscape that should be protected and those that should be further inventoried.
- Obligatory performance of archaeological research in the direction of a cultural paleolandscape, apart from environmental impact assessment.
- If remains are detected - a ban on carrying out investments threatening the above mentioned (dredging, tampering the bottom, sand extraction, constructions, etc.).
- Development of a strategy for the preservation of the cultural paleolandscape and their use for the development of municipalities.



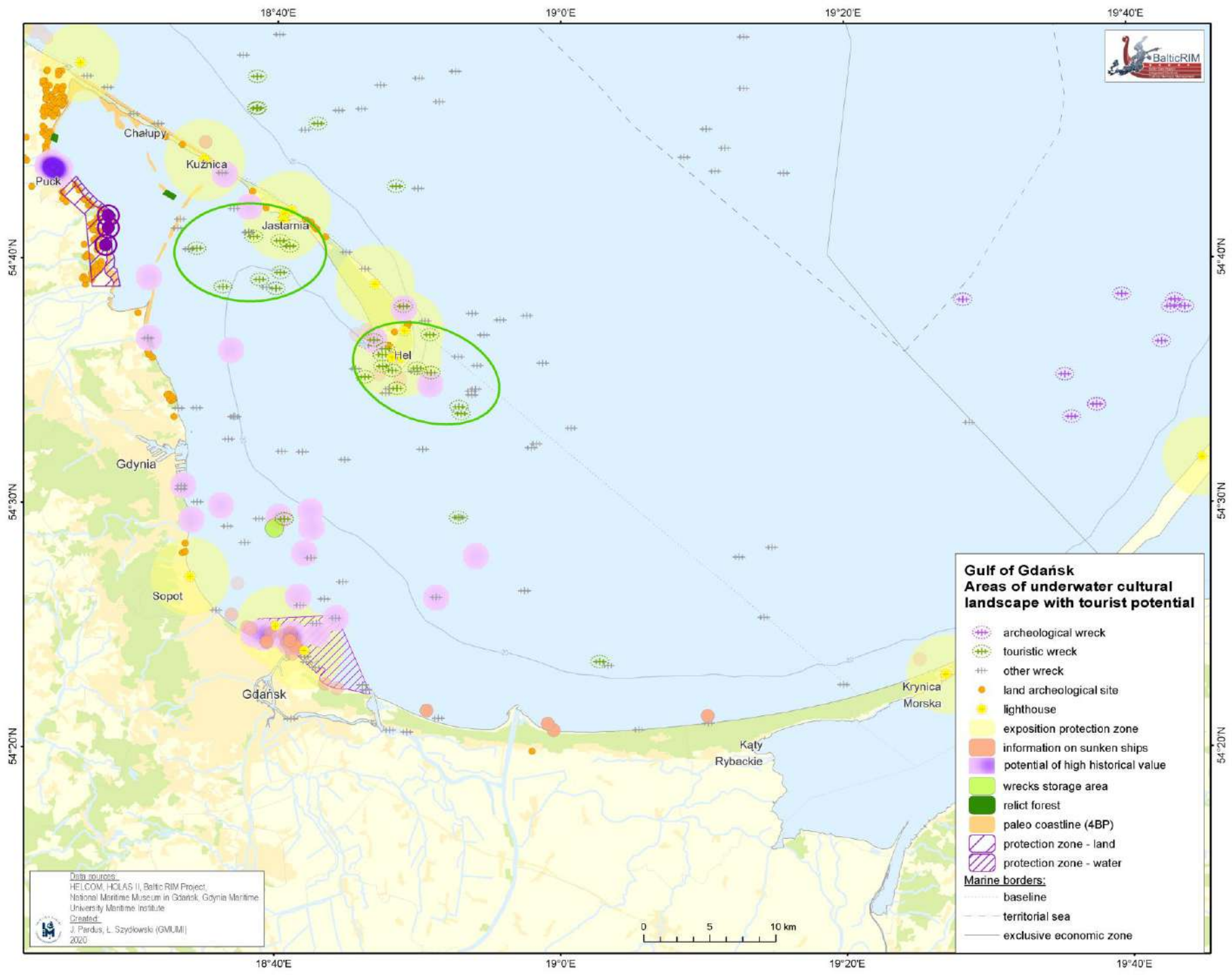
4. Planning suggestions

THE COASTAL AREA OF THE PUCK BAY

- area of paleolandscape from the Stone Age;
- high probability of relict forest remains and archaeological sites.

Planning suggestions:

- in marked spots - a restriction on carrying out investments threatening the submerged paleolandscape and archaeological sites (dredging, tampering the bottom, sand extraction, construction, etc.).
- In other parts - in-depth research in order to catalogue the cultural paleolandscape;
- Obligatory performance of archaeological research in the direction of a cultural paleolandscape, apart from environmental impact assessment.
- Development of a strategy for the preservation of the cultural paleolandscape and their use for the development of municipalities.



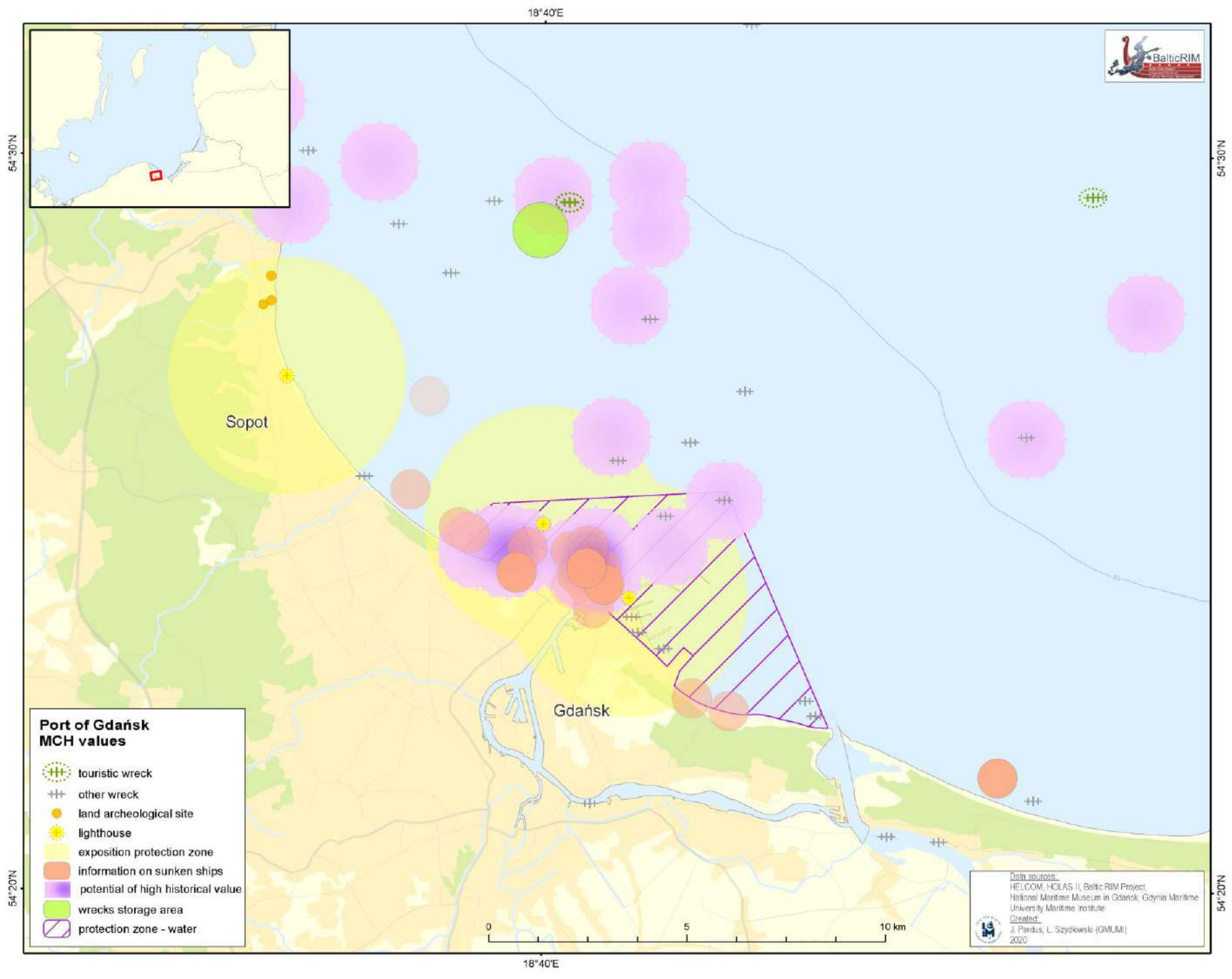
4. Planning suggestions

THE WRECS' DIVING AREA:

- given the broad definition of the term 'maritime cultural heritage' used in the BalticRIM project, these facilities create a kind of underwater cultural landscape with tourist potential that should be protected from being limited by other human activities.

Planning suggestions:

- the tourist function in the areas of wreckage made available for diving should be secured - designation of subareas devoted to diving;
- limitations to other human activities like fishery and shipping should be in place.



4. Planning suggestions

PORT OF GDAŃSK

- all of the artefacts are located within the area of the investment described in “the Port of Gdansk Development Strategy Until 2027”, updated in 2013, that foresees the creation of another deep-water part of the port in the direction of the Gulf of Gdansk;

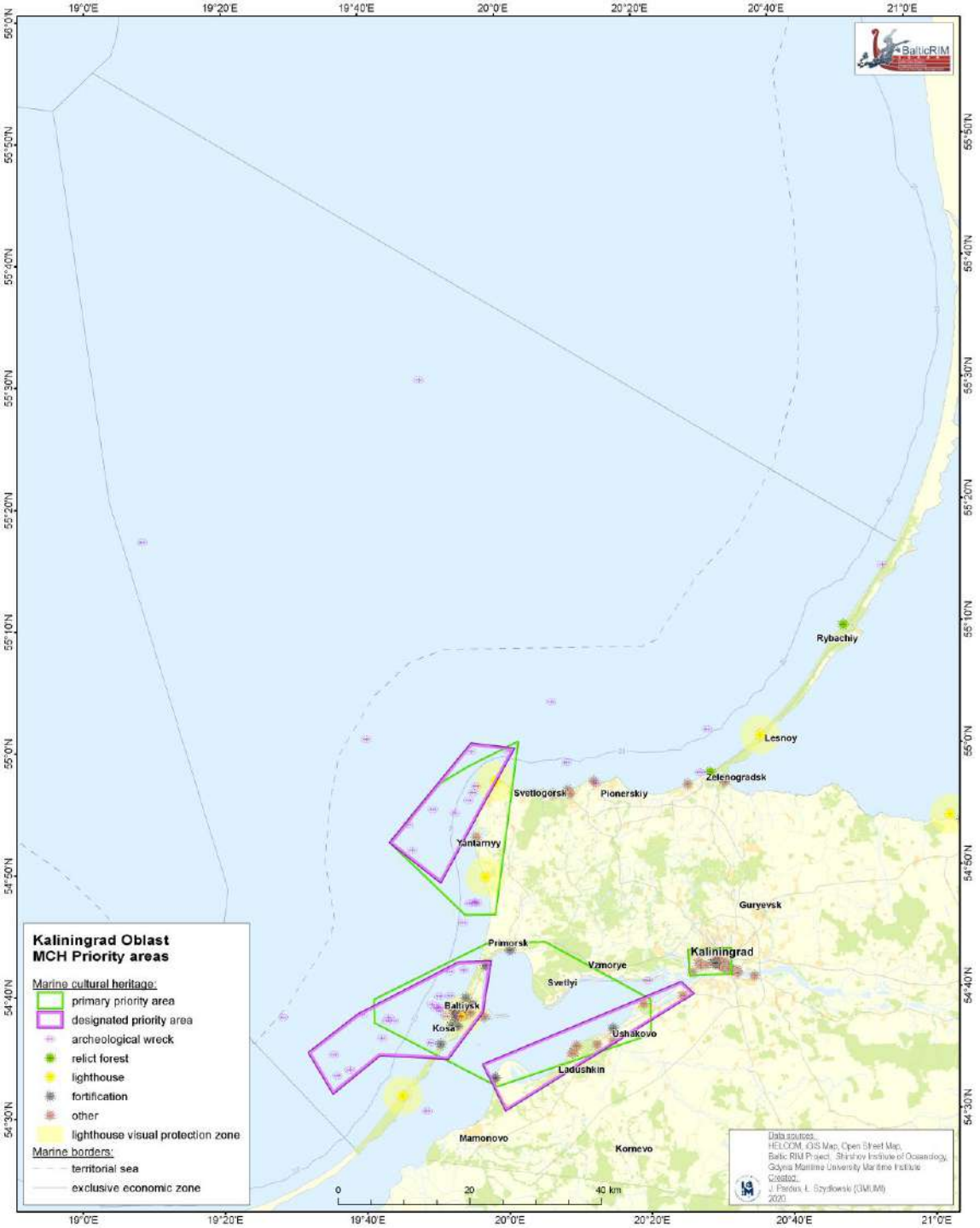
Planning suggestions - ways of protection of heritage through:

- an entry in the monument registry;
- acknowledgment as a historic monument;
- creation of a culture park;
- establishment of protection in the MSP.

Russia – Kaliningrad Oblast

1. MCH mapping and priority areas

content and data – Marina Ulyanova, Leyla Bashirova (ABIORAS)
data processing and maps – Joanna Pardus (GMUMI)



1. MCH Mapping

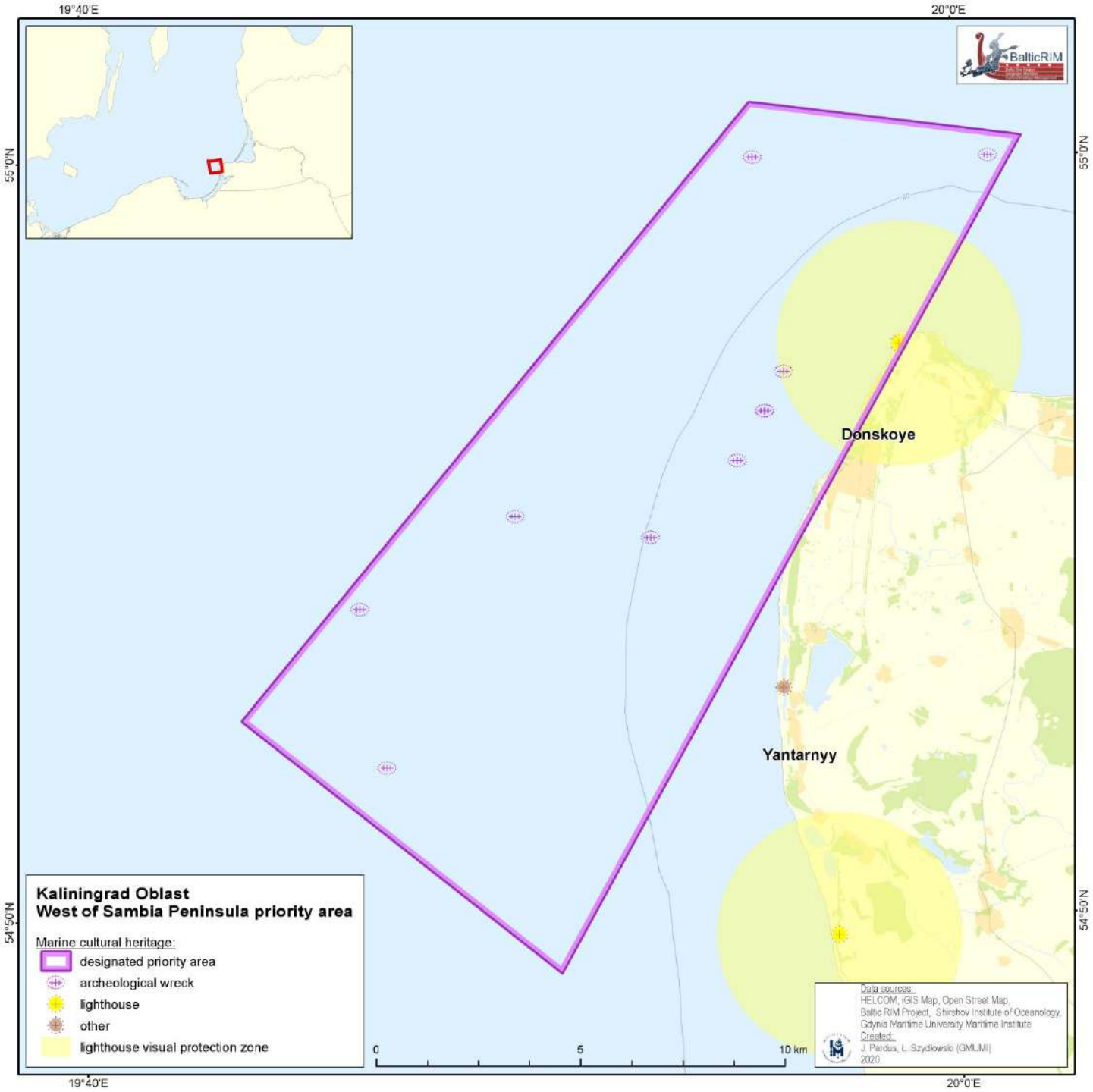
The BalticRIM project has identified 3 priority areas in the Kaliningrad Oblast.

These are:

1. WEST OF THE SAMBIA PENINSULA
2. WEST OF THE VISTULA SPIT
3. EASTERN COAST OF THE VISTULA LAGOON
4. KALININGRAD AND PREGOLYA AND DEIMA RIVERS

additionaly the coastal area of the Curonian Split has been recognized as valuable due to the submerged forest relicts.

The further mapping analyses exclude the KALININGRAD AND PREGOLYA AND DEIMA RIVERS areas due to its inland localisation and consequently the lack of available data on sea uses.



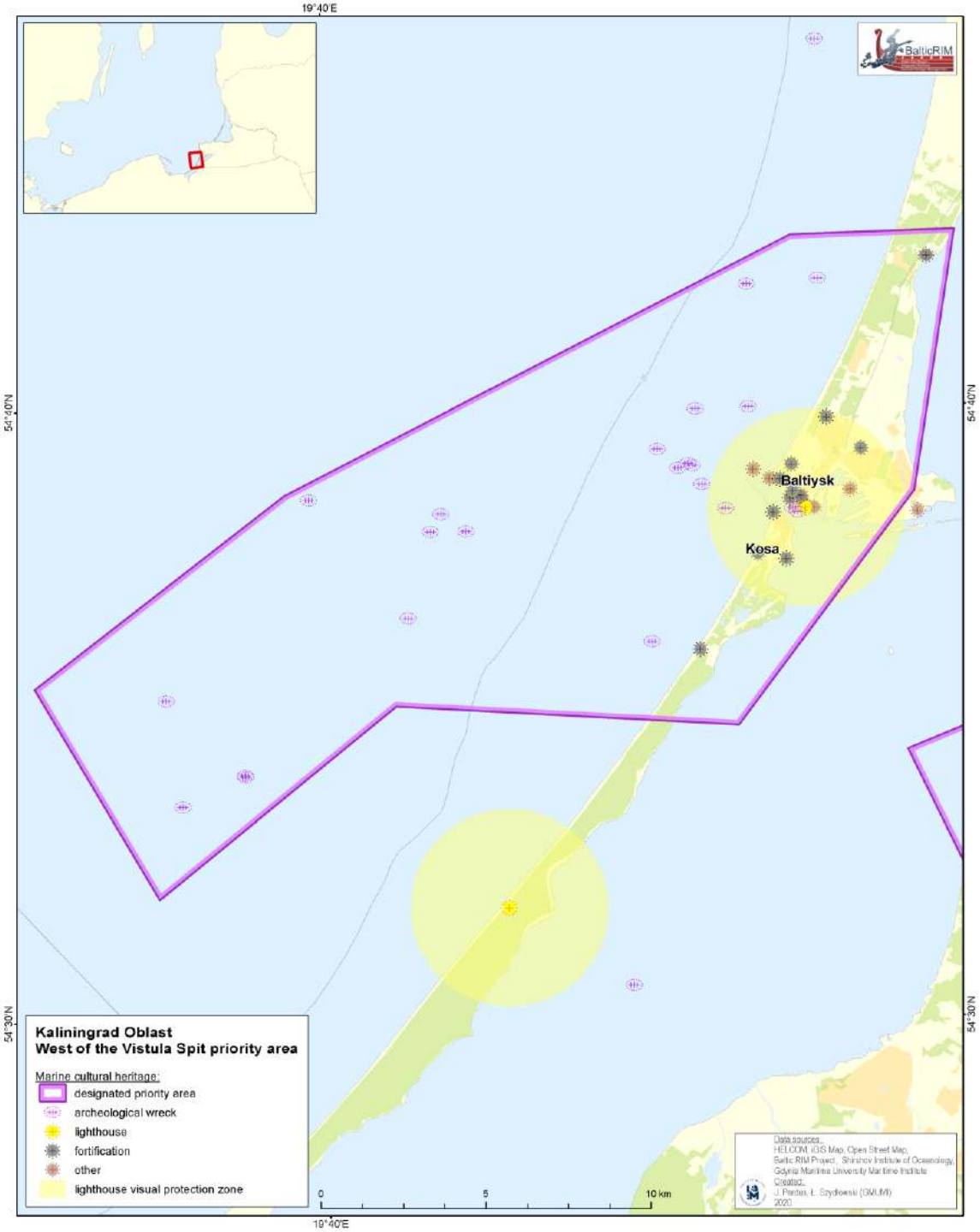
1. MCH Mapping

Area: West of the Sambia Peninsula

Type: shipwrecks, lighthouse

Potential:

The main facilities are dumped vessels such as Guard ship "Barsuk", Corvette ASW, Dredger Balkhash, Non-identified destroyer, Streamship Velox and others. Among the ground objects, the Taran lighthouse can be distinguished.



1. MCH Mapping

Area: West of the Vistula Spit

Type: shipwrecks, lighthouses, fortification, infrastructure

Potential:

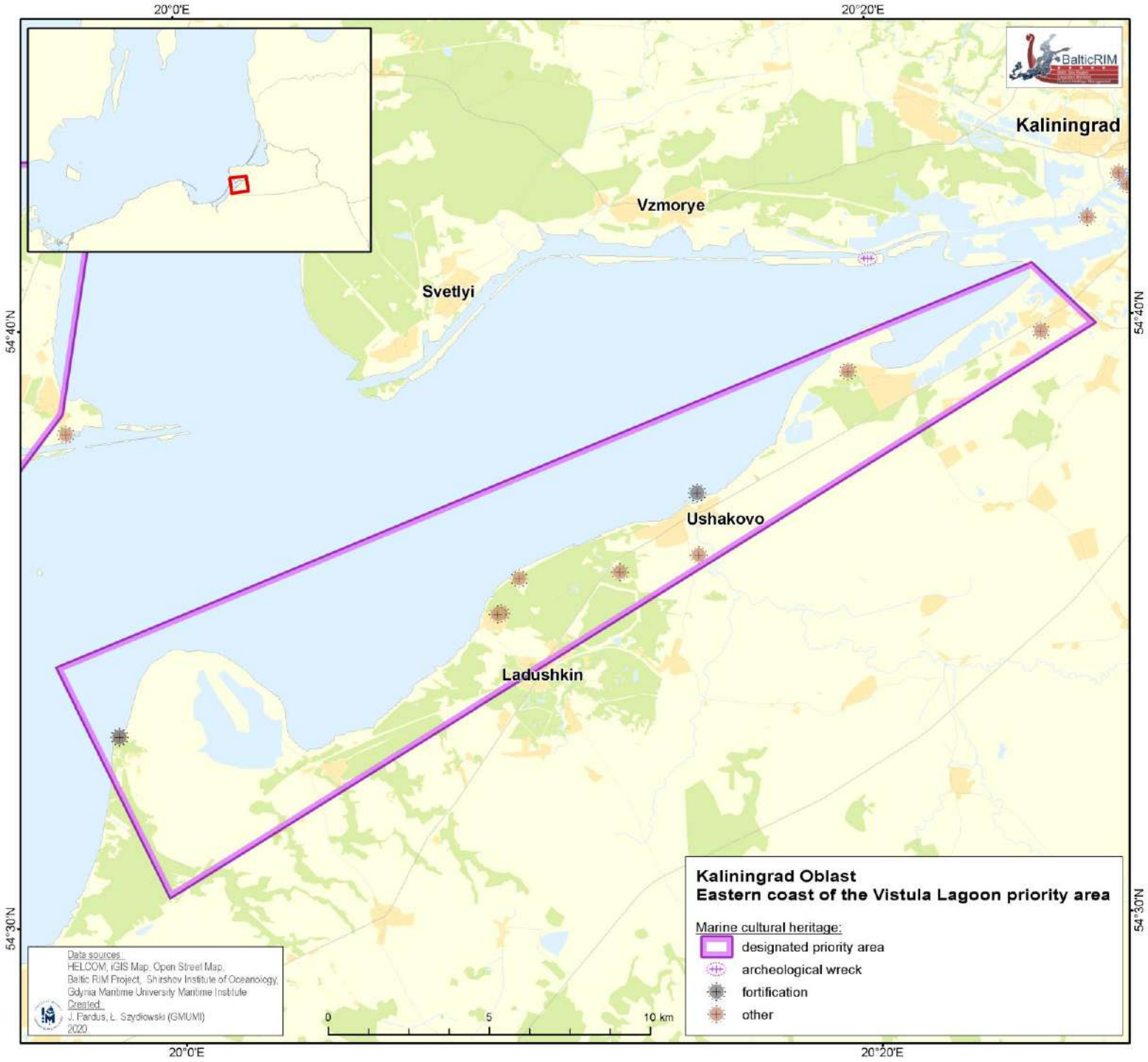
The most significant of the priority areas, with the Baltic Strait in the centre. The subarea includes the northern part of the Vistula Spit, the city of Baltiysk and the Baltic coastal waters. There are various MCH categories objects, like e.g.:
Ammunition barge (cargo ship “Jersbek”), Icebreaker “Pollux”, Wreck “Wooden”, Unidentified ship “Schit”, accompanied by onland objects - numerous fortifications, port infrastructure facilities, former hydroplane complex, as well as lighthouses, architectural monuments, memorials.

The underwater objects do not have any legal status, while many terrestrial objects are recognized as Cultural heritage objects of regional and local significance. There is still a high potential on undiscovered UCH.

This area is very attractive for tourism development, as it is suitable for both land tourism and divers, as the identified vessels are located at a shallow depth and are accessible for divers.

That is why in Baltiysk or on the Baltic (Vistula) Spit, the creation of a centre for studying MCH is relevant.

In addition, this subarea is the most promising for the detection of new objects.



1. MCH Mapping

Area: eastern coast of the Kaliningrad (Vistula) Lagoon

Type: Settlement area

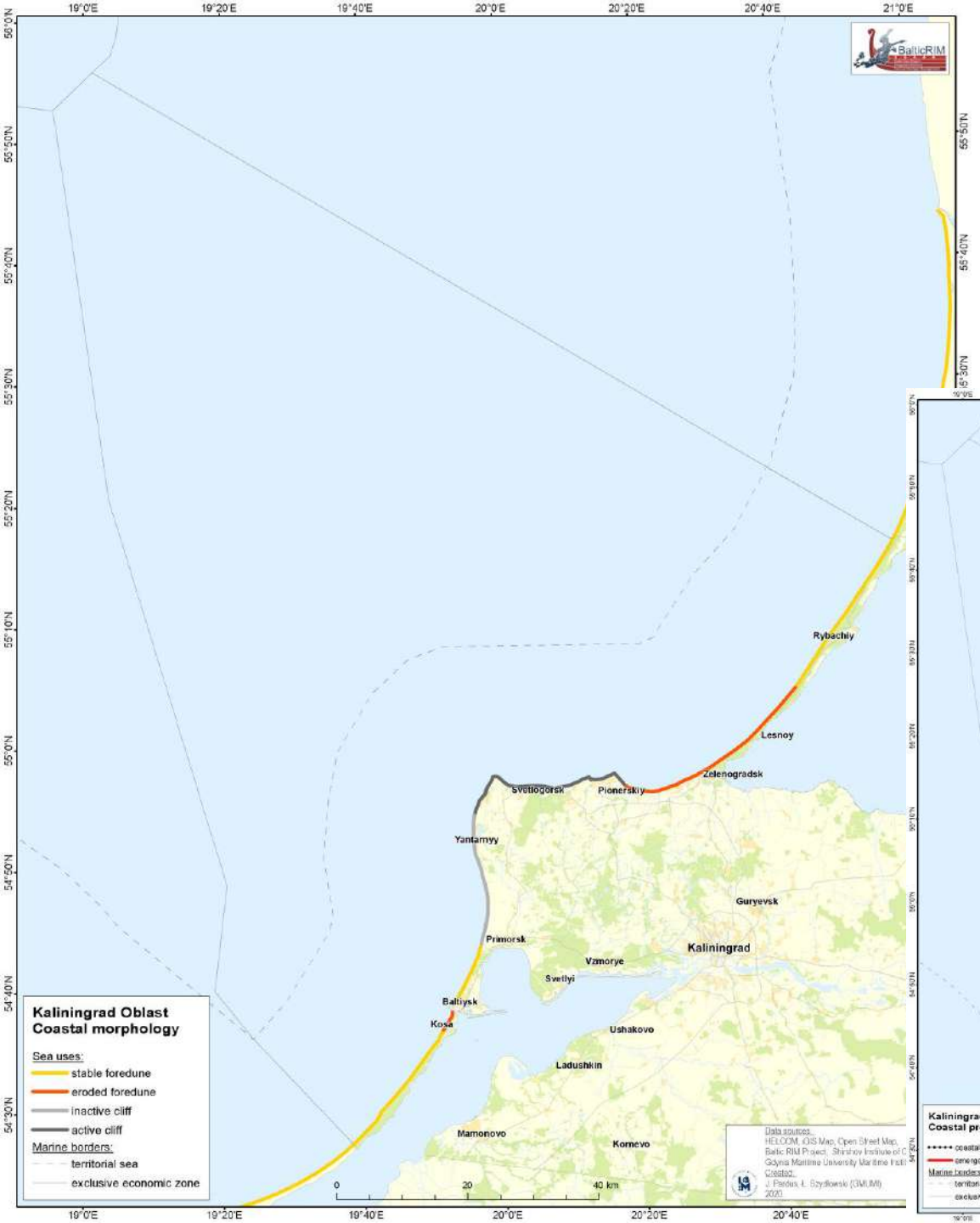
Potential:

the area includes only on-land objects, most of which are archaeological sites – Culture settlements of cord ceramics, the time of creation of I millennium BC located in the immediate vicinity of the lagoon. Residents engaged in fishing. In addition, the ruins of Brandenburg Castle and Balga Castle are in the subarea.

Russia – Kaliningrad Oblast

2. Sea-uses mapping

content – Marina Ulyanova, Leyla Bashirova (ABIORAS), Magdalena Matczak (GMUMI)
data processing - Marina Ulyanova (ABIORAS), Joanna Pardus (GMUMI)
maps – Joanna Pardus (GMUMI)



2. Sea uses mapping

COASTAL PROTECTION

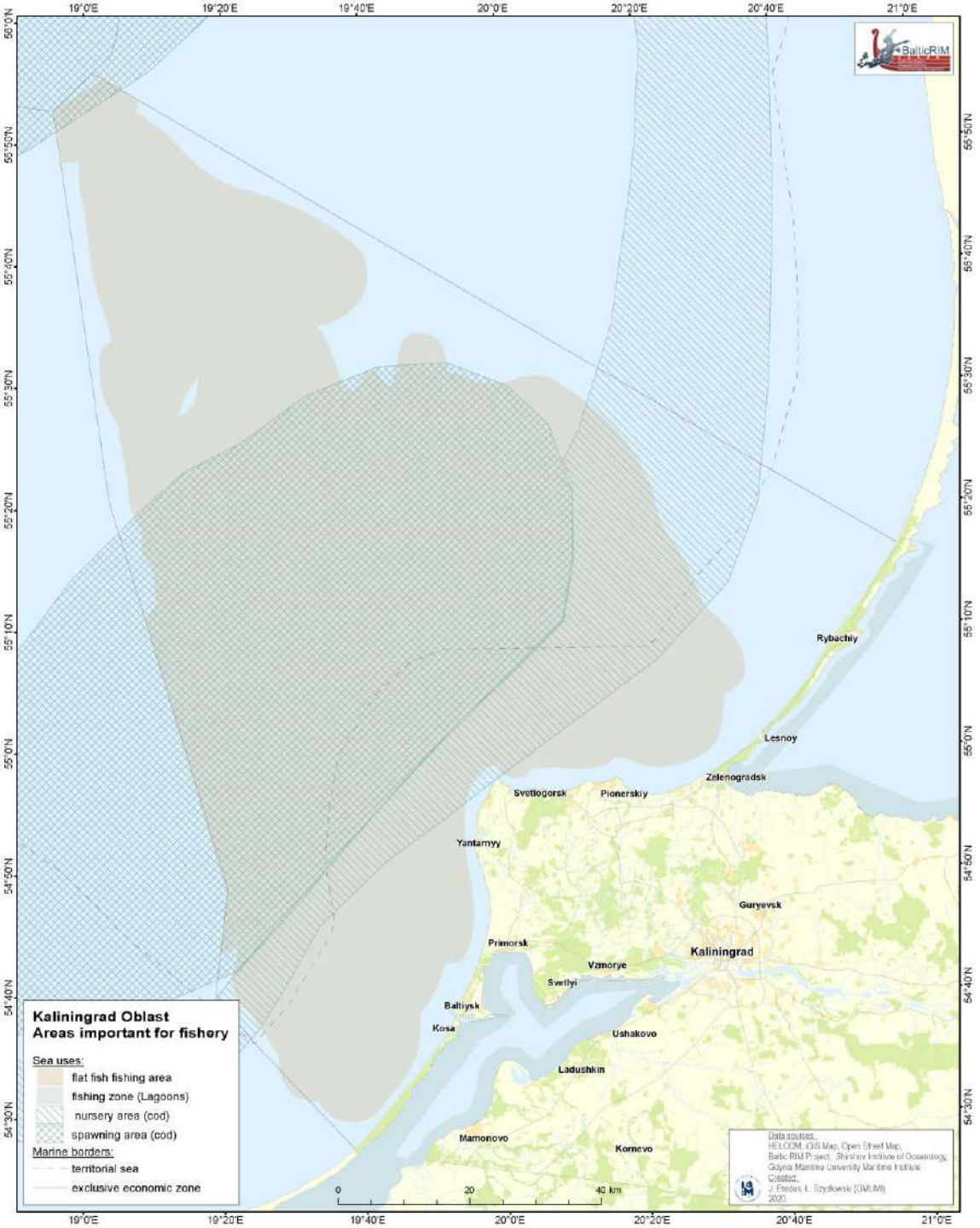
Main threads:
- coastal erosion;
- cliff abrasion;
- sand deficiency at the bottom slope;
- increased storm days.

Along the coastline of Kaliningrad Oblast, 7 local emergency sites have been identified.

Along with natural storm activity, the development of shore protection structures also influences the overall dynamics of the shore in Kaliningrad Oblast, particularly the shore of the northern Sambia Peninsula (Boldyrev et al 1990, Kirlis 1990).

They preserve the shore from erosion, but at the same time decrease the volume of natural sediment supply to the coastal area (Boldyrev, Ryabkova 2001).

Source of information:
R. Ostrowski, Z. Pruszak, A. Babakov, Condition of South-Eastern Baltic Sea Shores and Methods of Protecting Them, Archives of Hydro-Engineering and Environmental Mechanics, Vol. 61 (2014), No. 1–2, pp. 17–37, Gdańsk,
K. Karmanov, E. Burnashov, B. Chubarenko, Contemporary Dynamics of the Sea Shore of Kaliningrad Oblast, Archives of Hydro-Engineering and Environmental Mechanics, Vol. 65 (2018), No. 2, pp. 143–159



2. Sea uses mapping

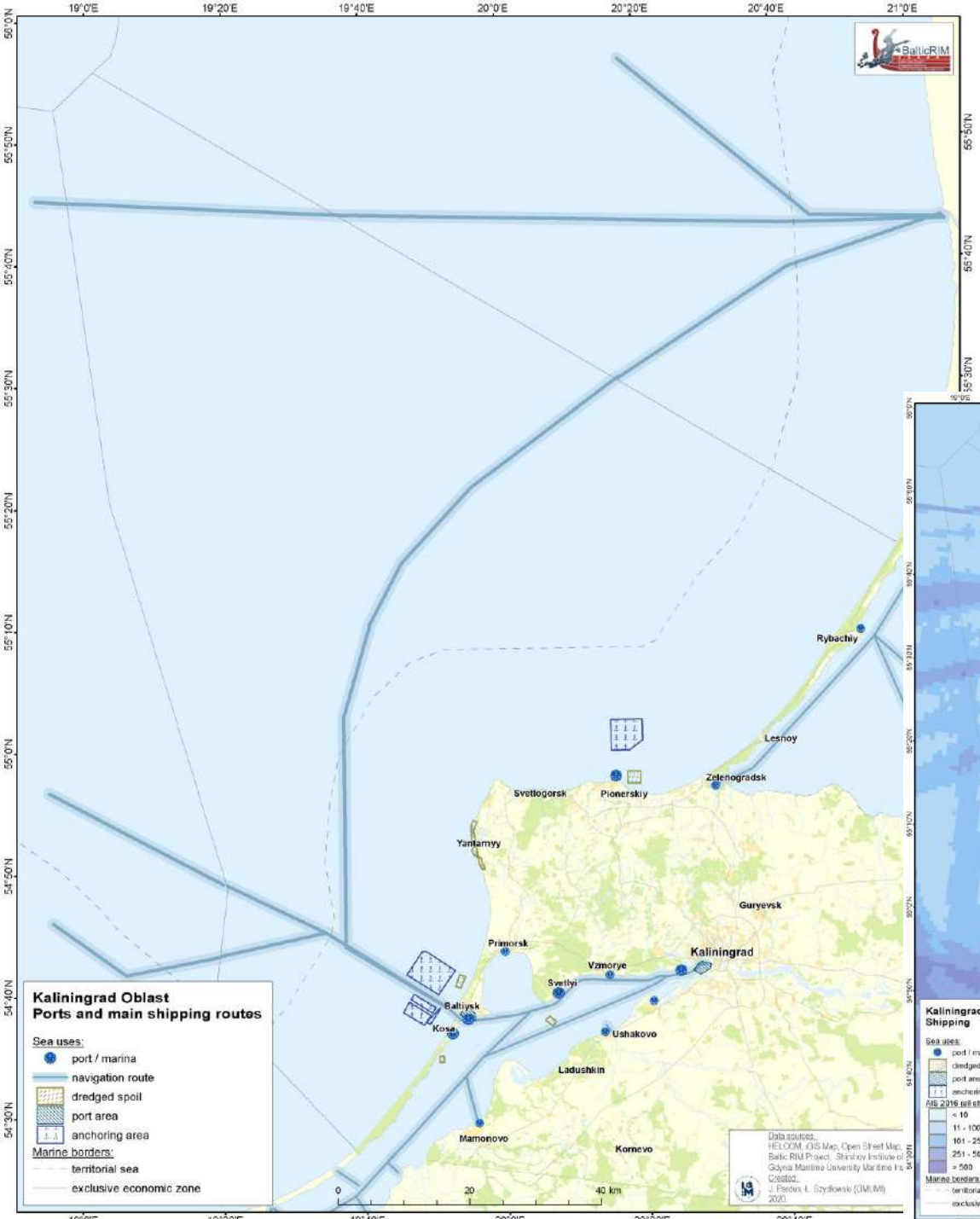
FISHERY

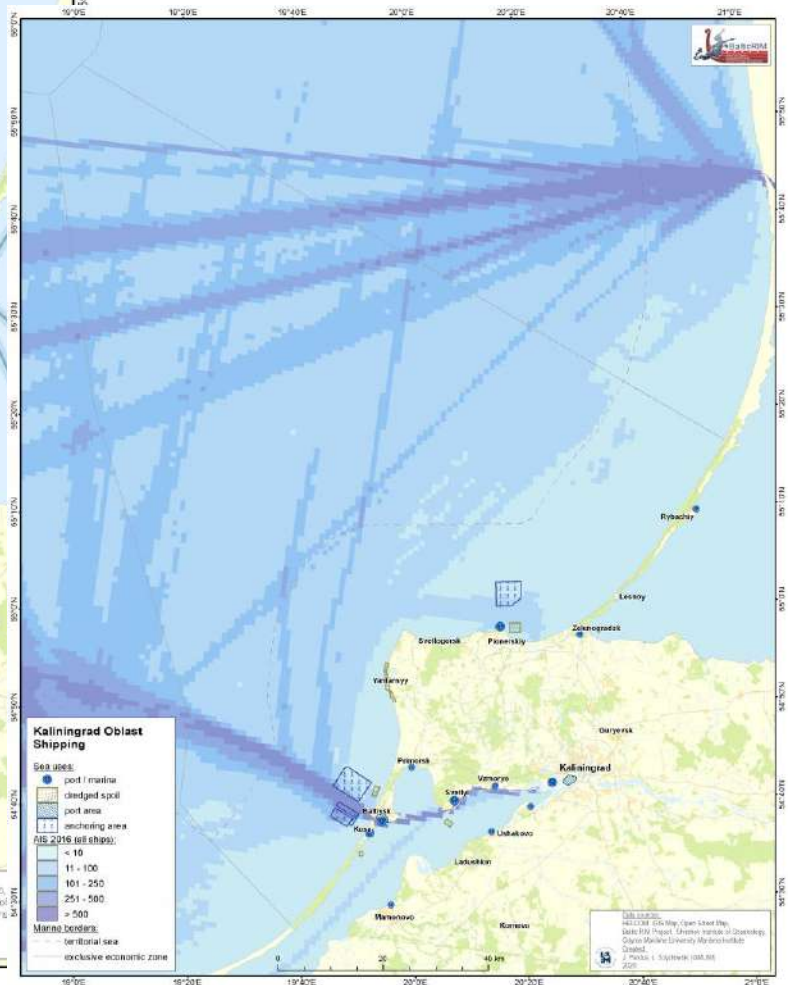
- The main industrial fish in the waters of Kaliningrad oblast is cod, herring and sprat. The catch of other species being less significant;
- The boundaries of fishery areas differ depending on the season;
- All the fish caught in the waters of Kaliningrad oblast is landed in the ports of Kaliningrad and Pionerskiy. The main industrial species in the area are sprat and herring. Other industry fish species - cod, flounder, salmon - are of lesser industrial importance.
- In the Vistula Lagoon fishing is performed, for the most part, by spreading nets, trawling is forbidden. The main species fished commercially there are pike perch, bream, roach, eel, perch, sabrefish;
- The main species fished commercially in the Curonian Lagoon are bream, roach, ziege.

Source of information:
Ulyanova, M., Danchenkov, A., 2016. Maritime potential of the Russian sector of the south-eastern Baltic Sea and its spatial usage. Baltica, 29 (2), 133–144. Vilnius. ISSN 0067-3064.

2. Sea uses mapping

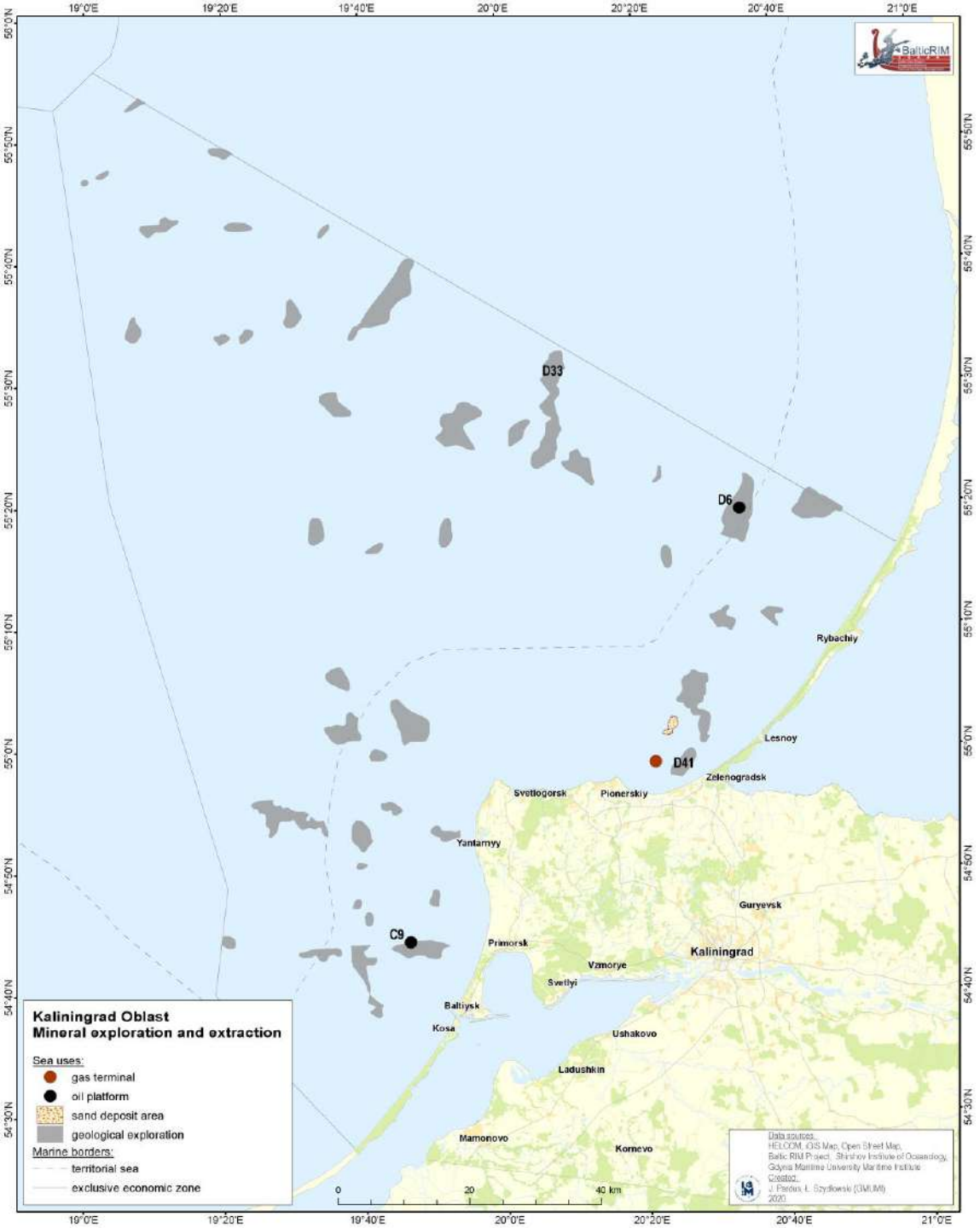
SHIPPING and PORTS





- The Kaliningrad Oblast has one port of Kaliningrad, composed of 4 harbours (Kaliningrad, Svetly, Baltiysk and Pionerskiy);
- The anchorages are located at the outer roads of the Baltijsk and north of the Pionerskiy cities.
- The main navigation routes pass from Port Kaliningrad to the western Baltic Sea;
- Currently the harbour of Baltiysk has a passenger terminal with the movement of about 12 thousand passengers per year.
- It is planned to open a new deepwater port in Pionersky with a pier for receiving cruise liners and car-passenger ferries by the end of 2021. Today, it is in stage of construction.
- A further development of ports and anchoring facilities for small ships are required.
- Official navigating routes are scarce – in fact, there area three navigating routes on the waters of the Baltic Sea including the entrance to the ports of Baltiysk and Kaliningrad and short navigating routes in the Vistula Lagoon.

Source of information:
Ulyanova, M., Danchenkov, A., 2016. Maritime potential of the Russian sector of the south-eastern Baltic Sea and its spatial usage. Baltica, 29 (2), 133–144. Vilnius. ISSN 0067-3064.

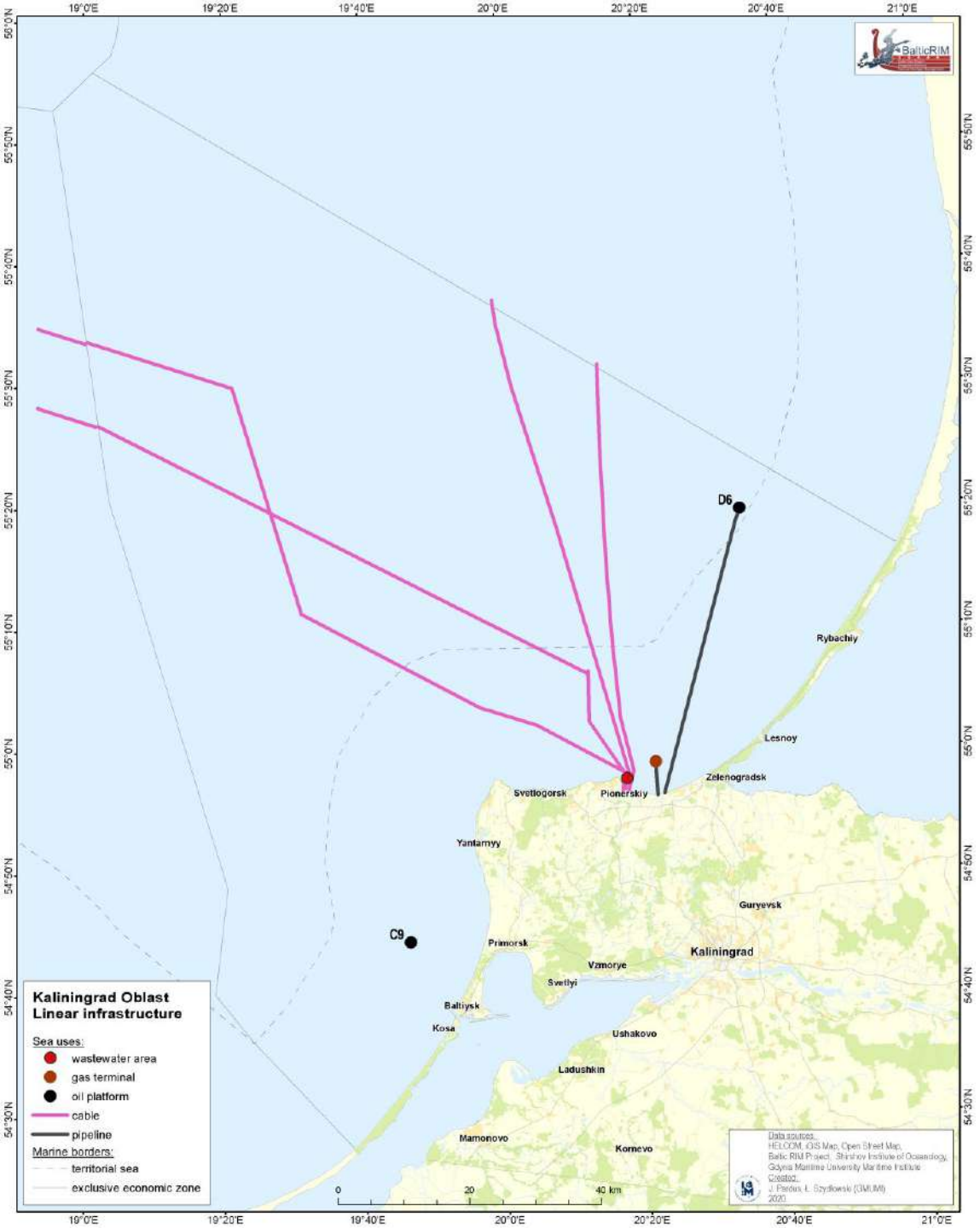


2. Sea uses mapping

DREDGING, DEPOSITION AND EXTRACTION

- The following mineral resources occur within the shelf area of the Kaliningrad Oblast: oil, amber, ferromanganese concretion, phosphorites, with appearances of heavy minerals.
- The largest oilfield Kravtsovskoe (D6) is located 22 km offshore of the Curonian Spit and has been under exploitation since 2004.
- In 2019, exploitation of the offshore field D41 began. It is located 3.2 km northward Zelenogradsk.
- Also in 2019, the D33 field development project was approved near the Lithuanian border, 57 km from the Curonian Spit.
- At the C9 oilfield in 1984 a stationary platform was constructed, but the oilfield was unprofitable and it was conserved.
- The sandy sediments suitable for the beach nourishment and coastal protection are located within the shallow area northward of the city of Zelenogradsk.
- The largest in the world amber deposits Primorskoye and Palmnikenskoye are located in the Kaliningrad Oblast on land, but it is possible to develop offshore deposits in the near future.

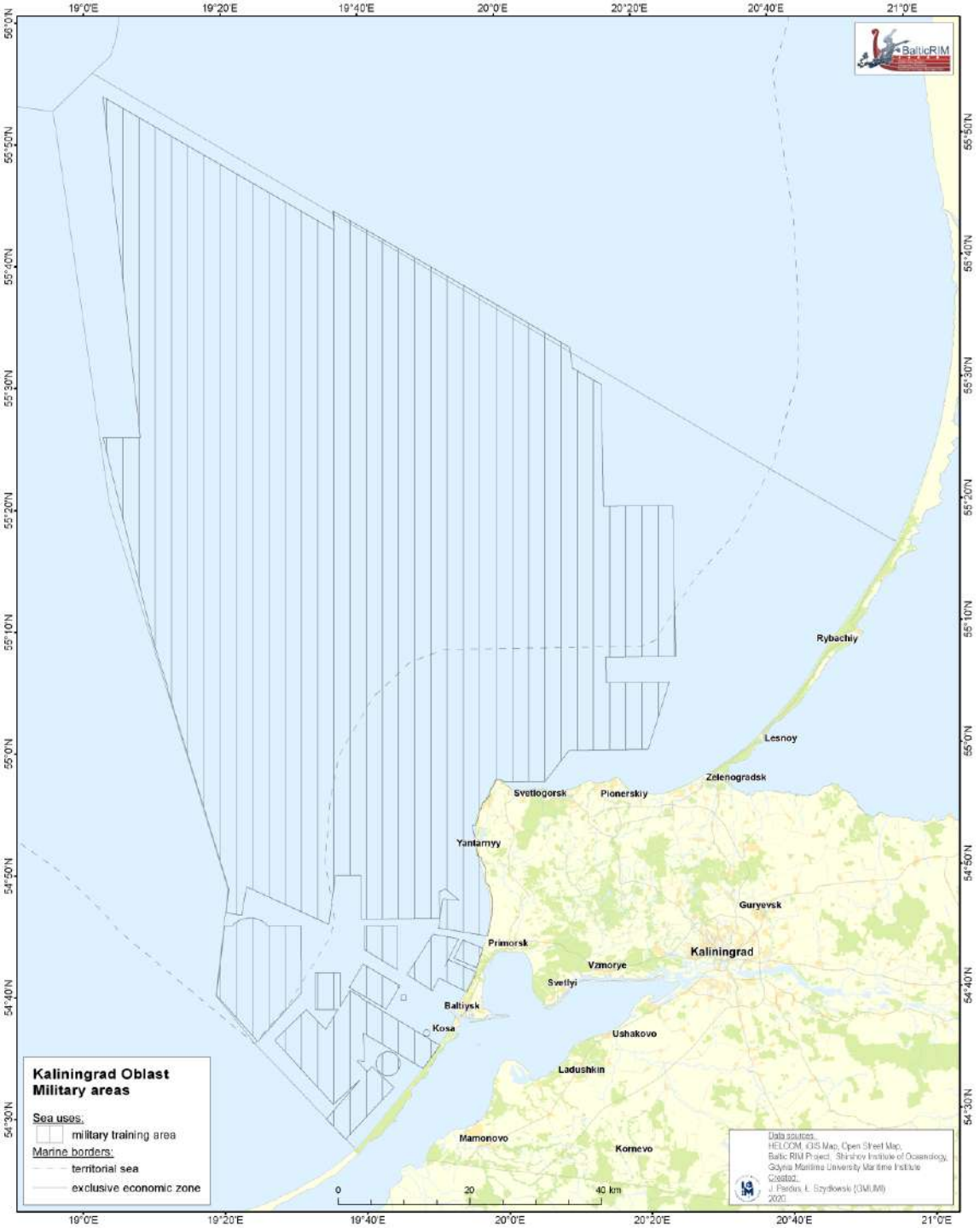
Source of information:
Ulyanova, M., Danchenkov, A., 2016. Maritime potential of the Russian sector of the south-eastern Baltic Sea and its spatial usage. Baltica, 29 (2), 133–144. Vilnius. ISSN 0067-3064.



2. Sea uses mapping

LINEAR INFRASTRUCTURE

- there are mainly telecommunication cables and pipelines linking gas and oil platforms with land;
- information on planned linear infrastructure is missing.



2. Sea uses mapping

MILITARY

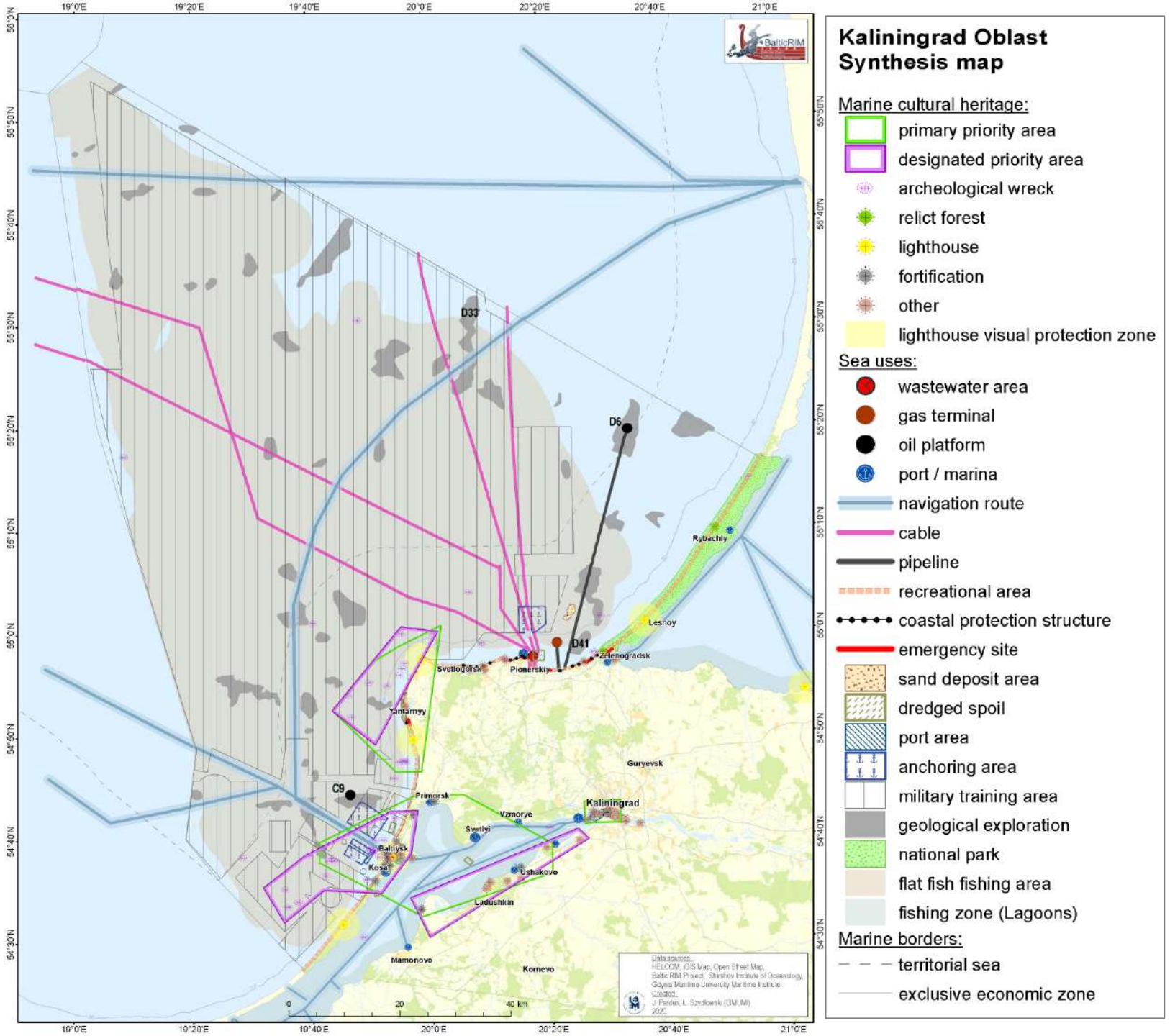
- There are closed or temporary closed military areas which cover large sectors of the territorial waters and Exclusive Economic Zone, which is 7535 km2 and accounts for approximately 76% ;
- During naval exercises, these occupied areas are closed to all other maritime space users.

Source of information:
Ulyanova, M., Danchenkov, A., 2016. Maritime potential of the Russian sector of the south-eastern Baltic Sea and its spatial usage. Baltica, 29 (2), 133–144. Vilnius. ISSN 0067-3064.

Russia – Kaliningrad Oblast

3. Synthesis map

content - Magdalena Matczak (GMUMI)
data processing - Joanna Pardus (GMUMI)



3. Synthesis map

Synthesis map of the BalticRIM recognized MCH priority areas and the threatening sea uses

Main conflicts recognized:

WEST OF THE VISTULA SPIT:
- Fishery (trawling)
- Military activities
- Anchoring
- Dumping
- Intense shipping
- Dredging
- Port's expansion
- Tourism pressures

WEST OF THE SAMBIA PENINSULA:
- Fishery
- Military activities
- Mineral extraction
- Offshore constructions

EASTERN COAST OF THE VISTULA LAGOON:
- Fishery (no trawling)
- Infrastructure expansion
- Tourism pressures

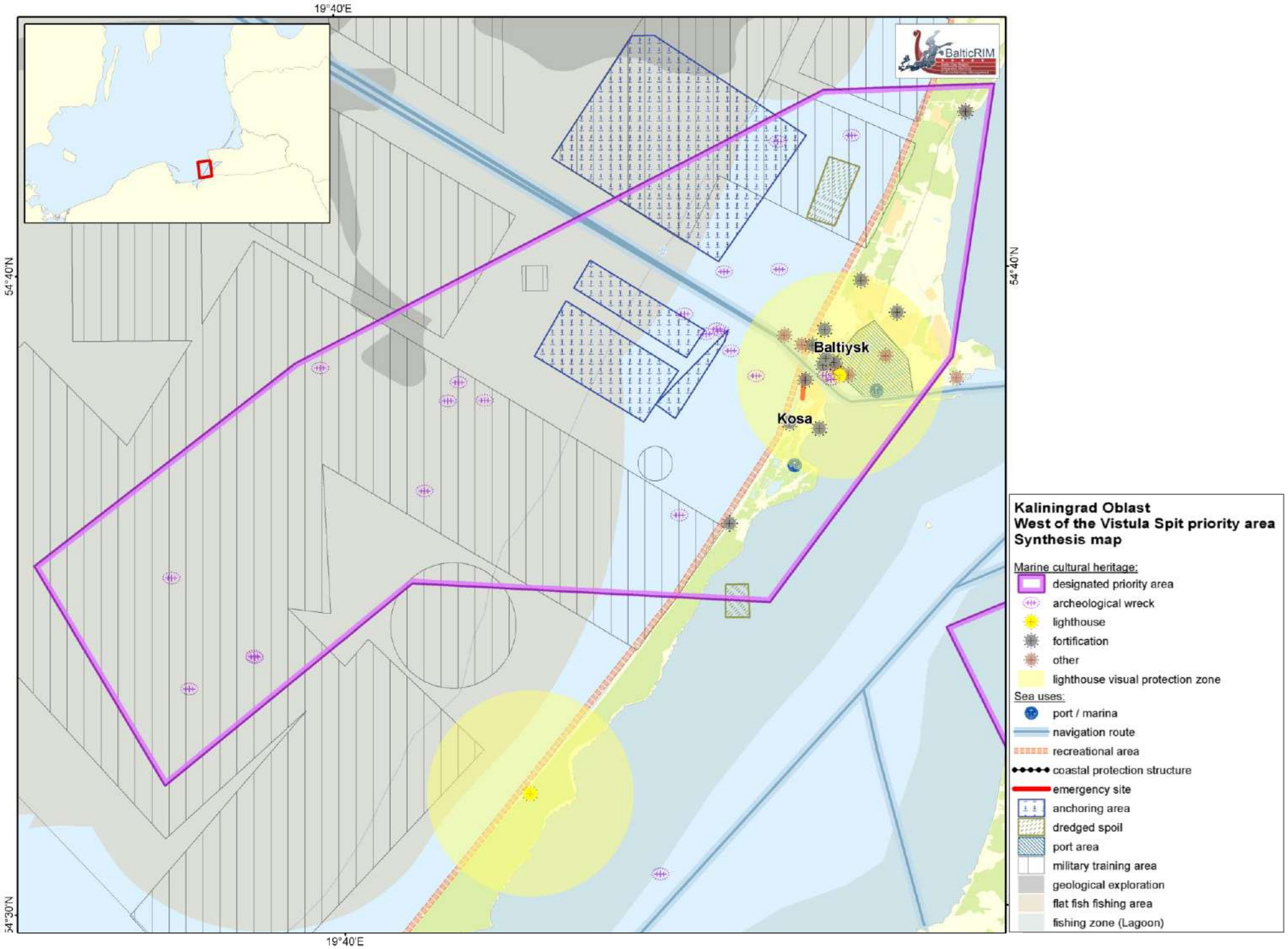
Additionally:

COASTAL WATERS:
- Erosion and coastal protection structures
- Local shipping, boating and anchoring;
- Sand extraction (potential)
- Tourism activities and Infrastructure (piers, marinas),
- Linear Infrastructure;

Russia – Kaliningrad Oblast

4. Planning suggestions

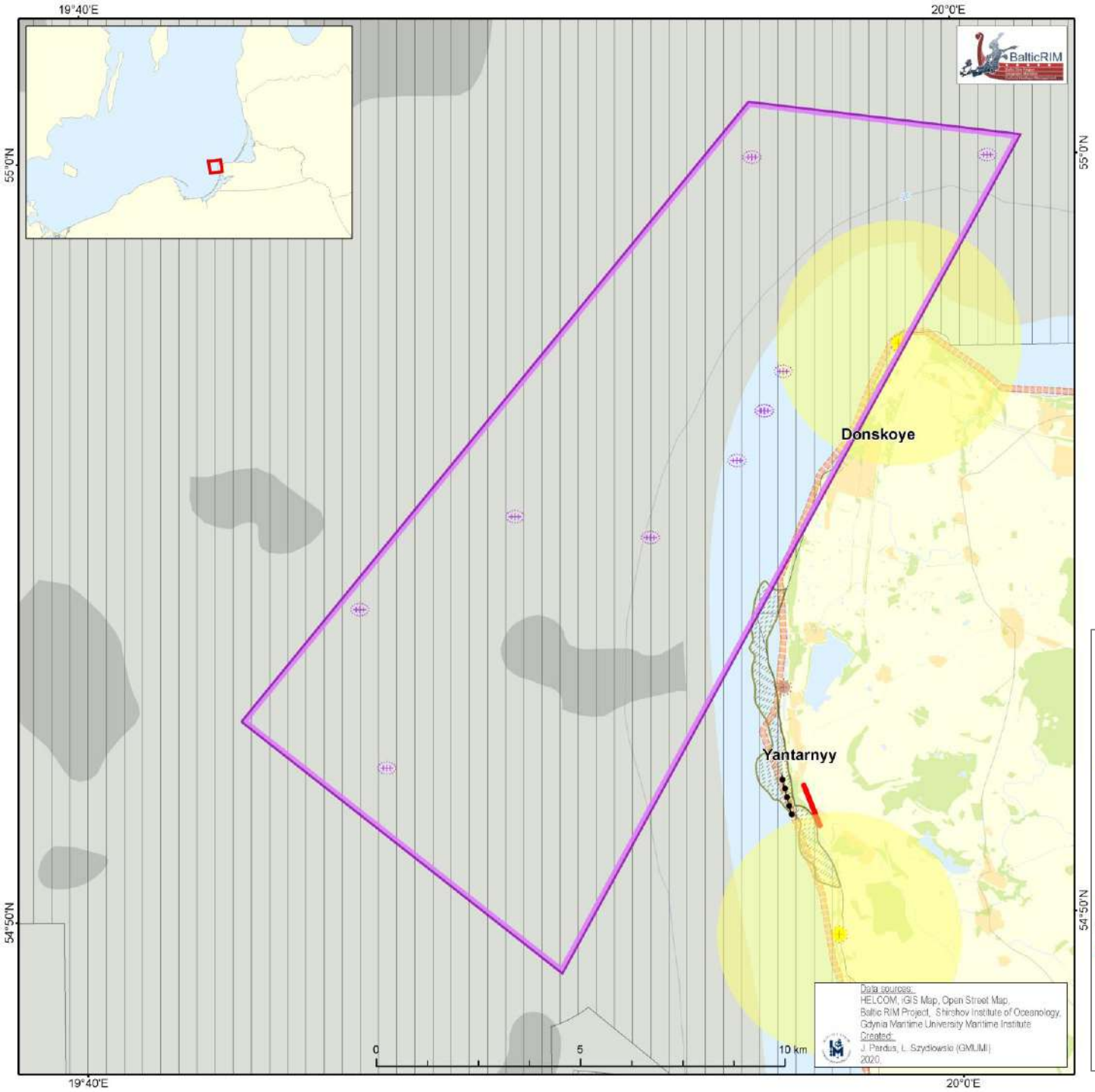
content - Magdalena Matczak (GMUMI),
data processing - Joanna Pardus (GMUMI)



4. Planning suggestions

WEST OF THE VISTULA SPIT

- Introduction of the MCH function;
- Conduction of in depth research for the full recognition of archaeological assets;
- Carefull planning of the Baltic Strait area, where the shipping and port priority function should implement measures to ensure safety of underwater cultural objects;
- Exclusion of structures which impair the visual aspects of MCH;
- Support to diving activities – designation of subareas devoted to diving, where other activities are forbidden while diving, introducing speed limits to decrease noise pollution and other measures to protect divers;
- Creation of tourist routes in order supporting the wider MCH concept, including underwater and onland cultural and industral history of the region;
- Exclusion of anchoring, dredging, dumping, sand extraction and military activities posing a danger in the areas of recognised high MCH value;



Kaliningrad Oblast
West of Sambia Peninsula priority area
Synthesis map

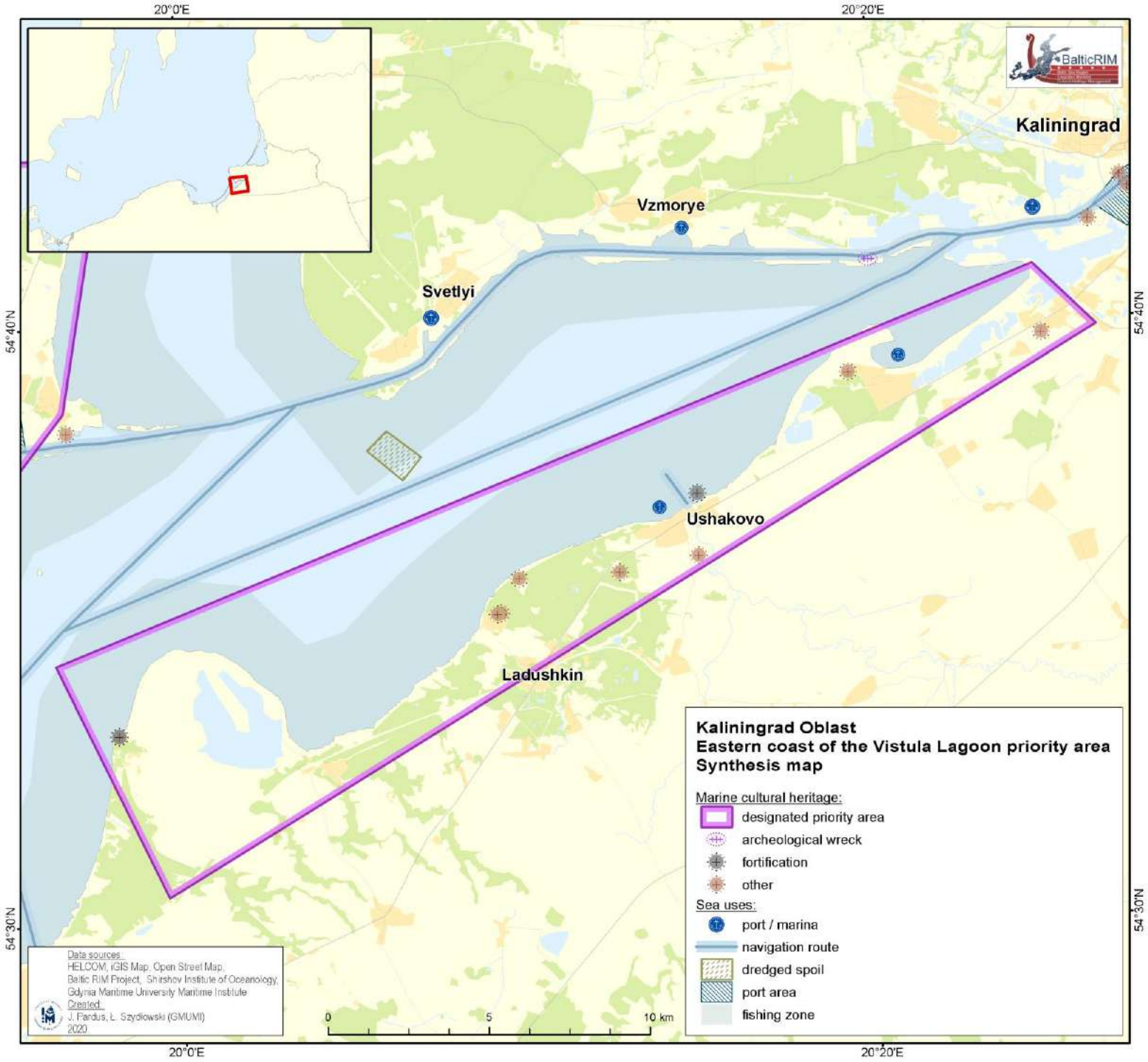
Marine cultural heritage:
- designated priority area
- archeological wreck
- lighthouse
- other
- lighthouse visual protection zone

Sea uses:
- recreational area
- coastal protection structure
- emergency site
- dredged spoil
- military training area
- geological exploration
- flat fish fishing area

4. Planning suggestions

WEST OF THE SAMBIA PENINSULA

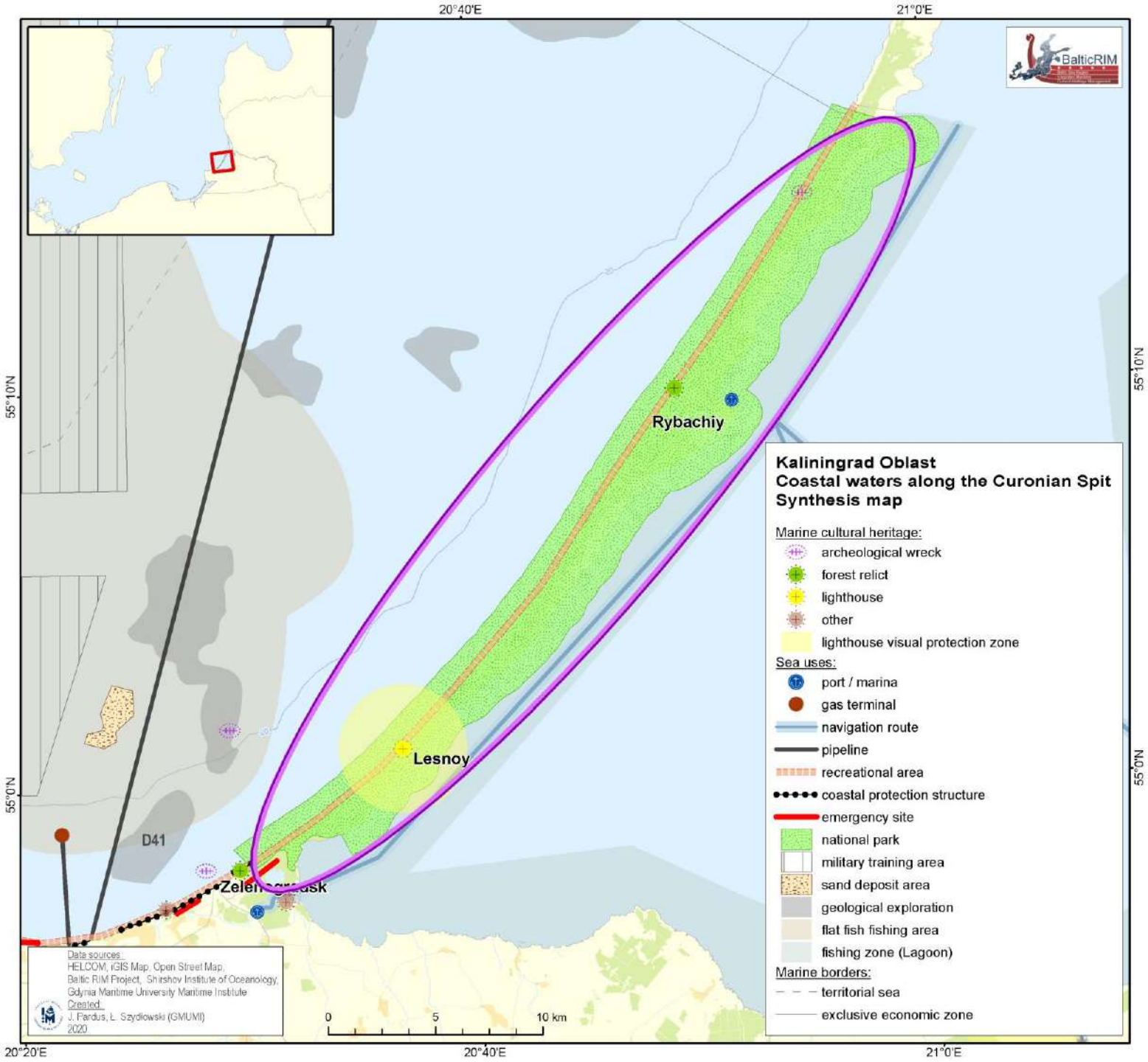
- Introduction of the MCH function;
- Conduction of in depth research for the full recognition of archaeological assets;
- Exclusion of structures which impair the visual aspects of MCH (lighthouse);
- Support to diving activities – designation of subareas devoted to diving, where other activities are forbidden while diving, introducing speed limits to decrease noise pollution and other measures to protect divers;
- Exclusion of potential anchoring, dredging, dumping, sand extraction and military activities posing a danger in the areas of recognised high MCH value.



4. Planning suggestions

EASTERN COAST OF THE VISTULA LAGOON

- Introduction of the MCH priority function;
- Conduction of in depth research for the full recognition of archaeological assets;
- Exclusion of structures which impair the visual aspects of MCH (fortifications, settlements);



4. Planning suggestions

COASTAL WATERS ALONG THE CURONIAN SPIT
(also could apply to other coastal waters)

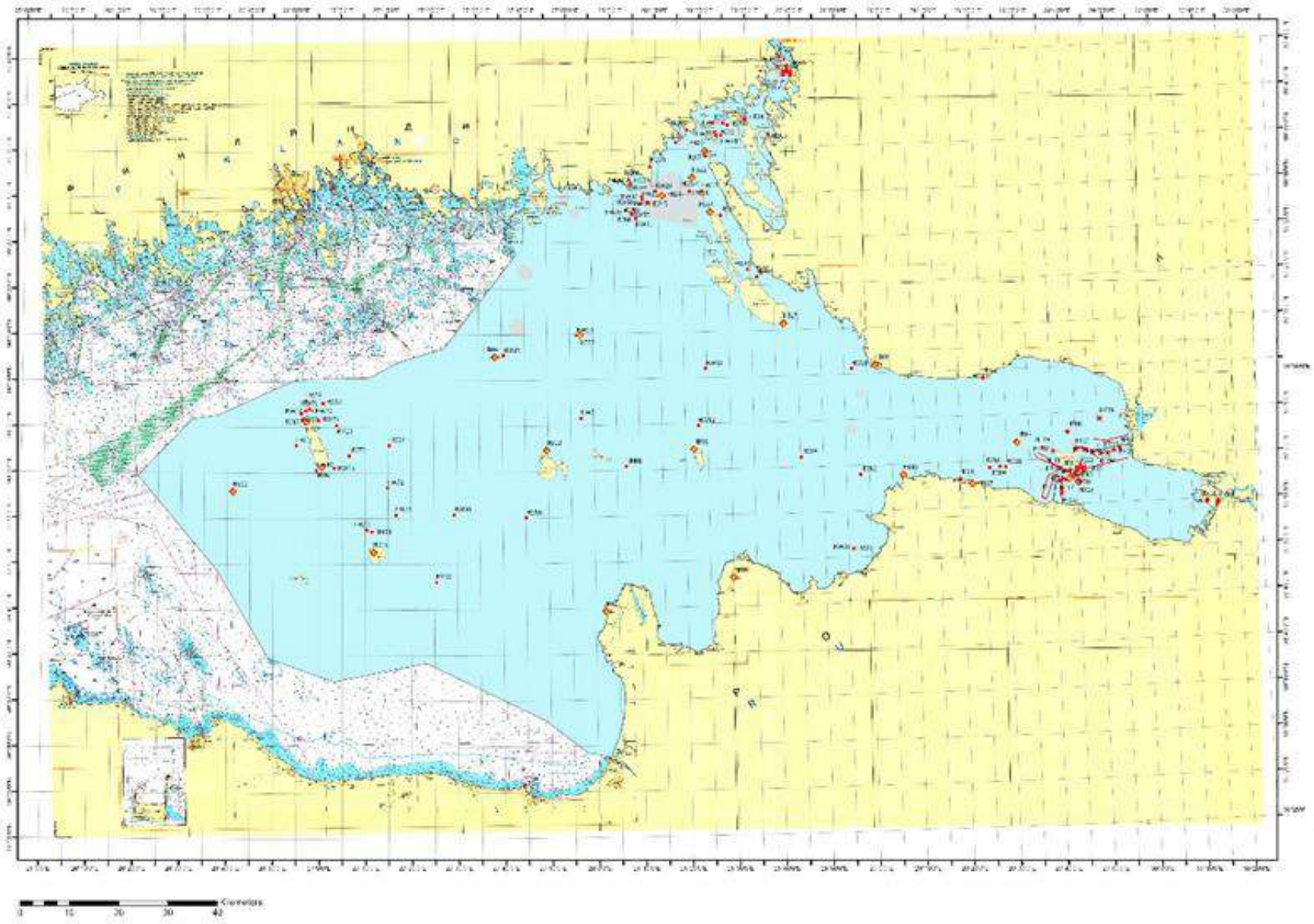
- Introduction of the MCH function, additionally to nature protection;
- Conduction of in depth research for the full recognition of sumberged relict forests;
- Protection of recognised sumberged relict forests sites from development, investments and coastal erosion;
- exclusion of activities/investments resulting in the changes in sedimentation patters, deepening the coastal erosion proces;
- Exclusion of structures which impair the visual aspects of MCH (lighthouse)

Russia – the Gulf of Finland

1. MCH mapping and priority areas

content, data and maps have been prepared by Russian partner Institute of Maritime Spatial Planning Ermak Northwest

1. MCH Mapping

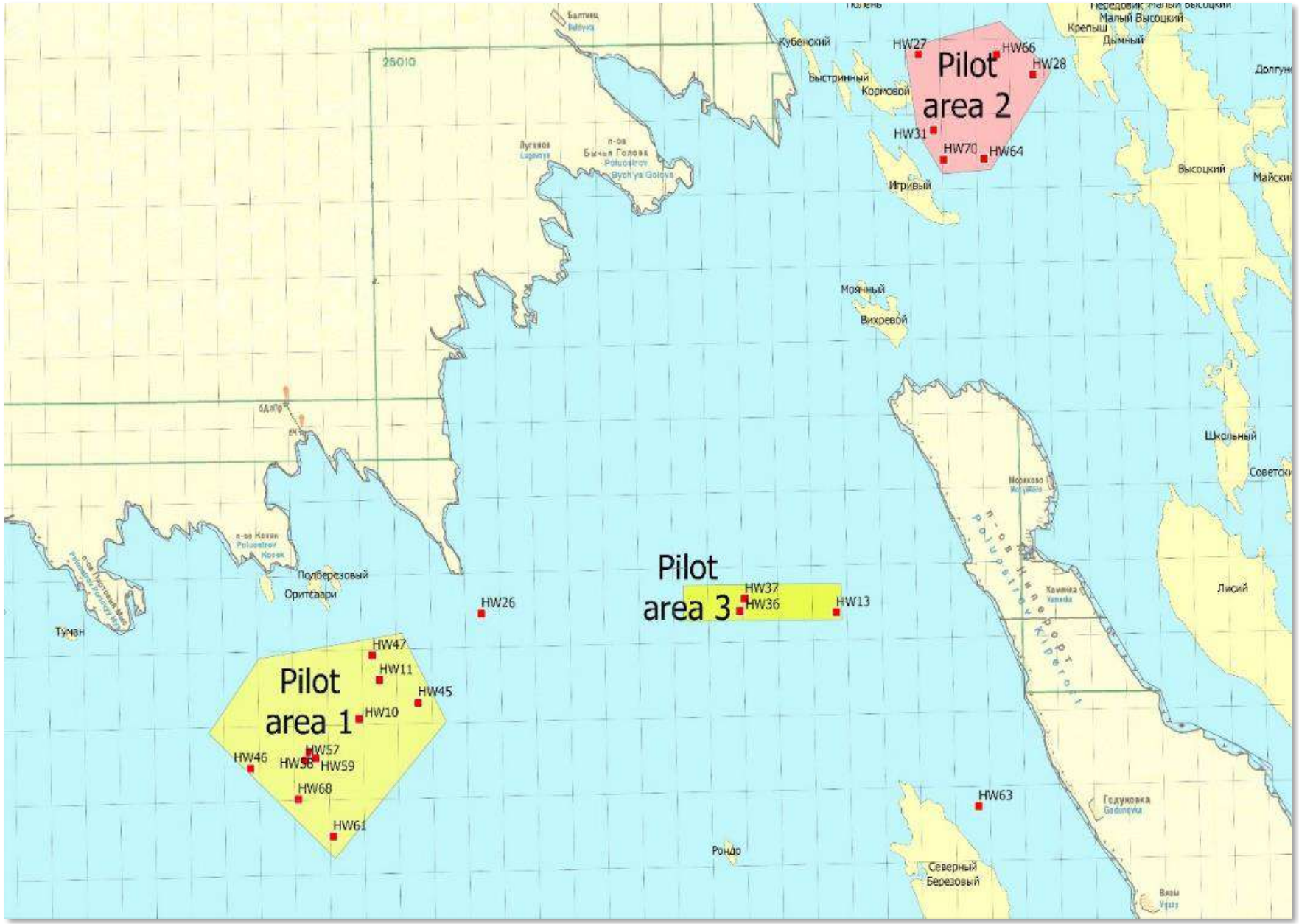


UCH and MCH in the Russian part of the GOF

Total identified MCH objects – 177

- Wrecks - 83
- Historical Quarries - 10
- Heritage fortification - 24

1. MCH Mapping



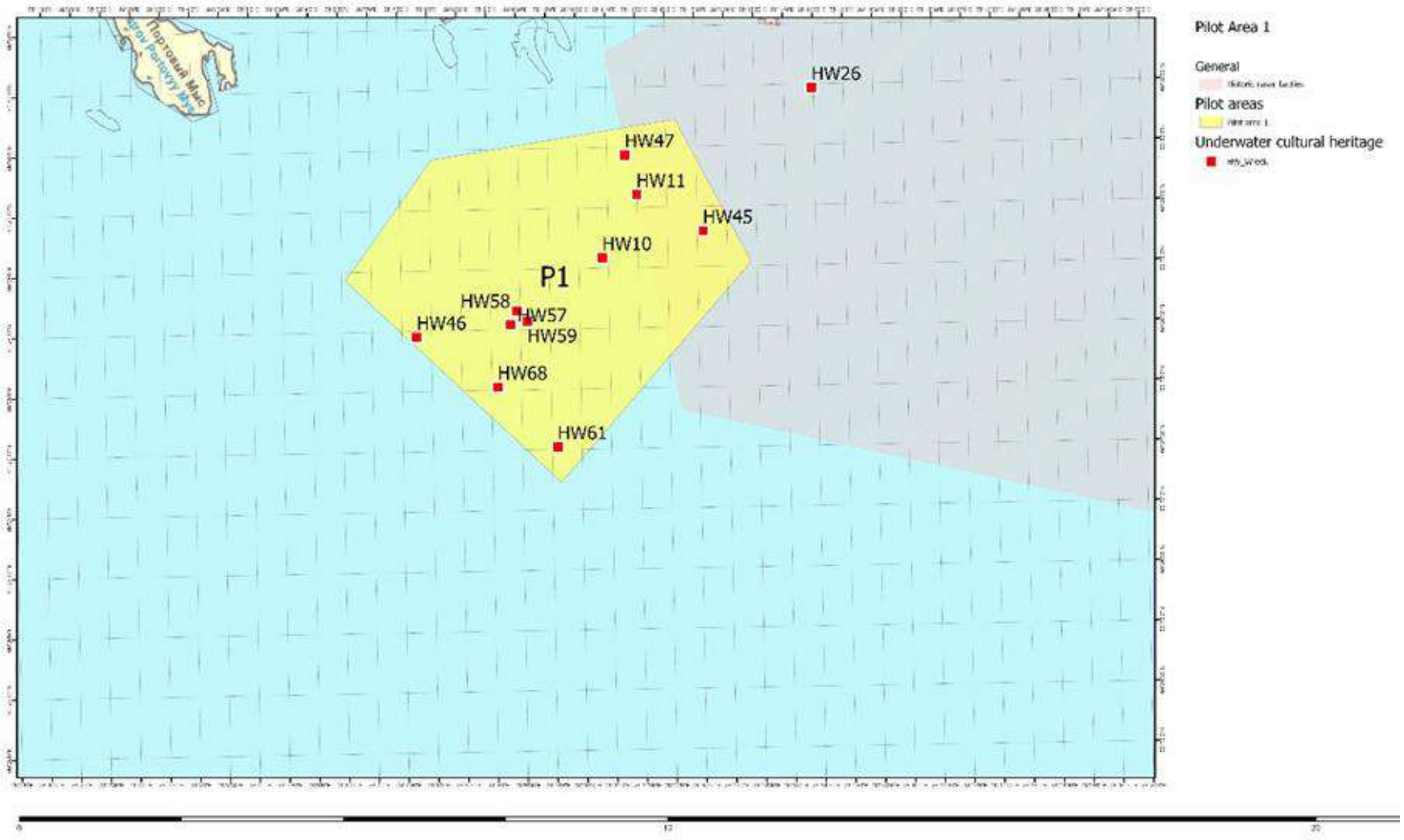
UCH Pilot areas in the Vyborg Bay

Pilot area 1 - SOUTHERN VYBORG BAY

Pilot area 2 - NORTHERN VYBORG BAY

Pilot area 3 - CENTRAL VYBORG BAY

1. MCH Mapping



Area: SOUTHERN VYBORG BAY

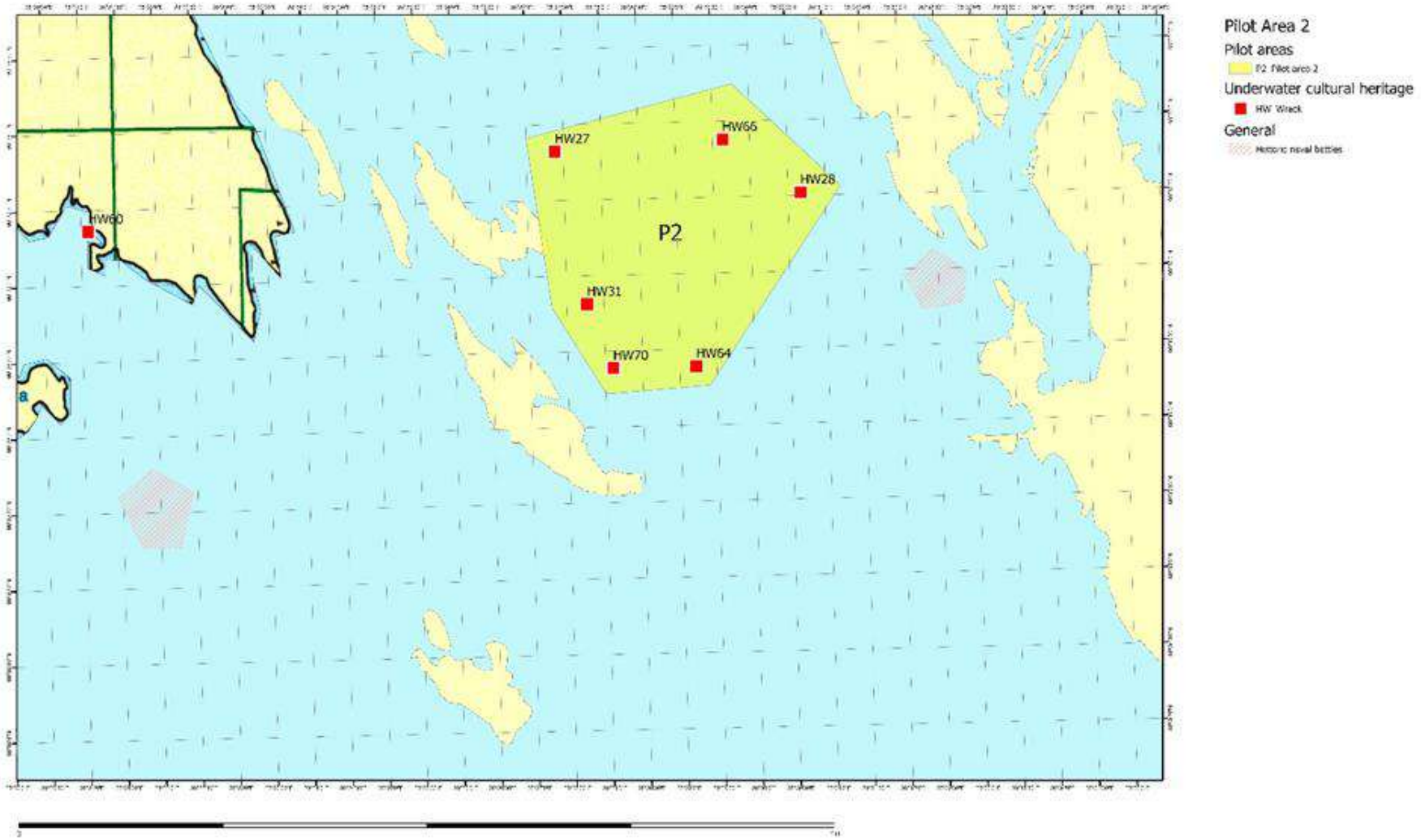
Type: shipwrecks

Potential:

Ships of the Russian-Swedish naval battle of 1790

ID	UCH Object
HW10	Swedish military yacht "Aurora", 1790
HW11	Swedish 40-cannon frigate of the line "Zemire"
HW45	Ship of the line "Hedvig-Elisabeth-Charlotta"
HW46	Fire-ship (brander) "Postiljon", after 1790
HW47	Swedish ship of the line "Enigheten", 1790
HW57	Lovisa Ulrika, 74-gun battleship. Sweden, 1790
HW58	Ertrus, galley. Sweden, 1790
HW59	«Dragon», 22-gun brig cotter. Sweden, 1790
HW61	44-gun frigate "Uppland" Sweden, 1790
HW68	Wooden sailing ship early 18th century

1. MCH Mapping



Area: NORTHERN VYBORG BAY

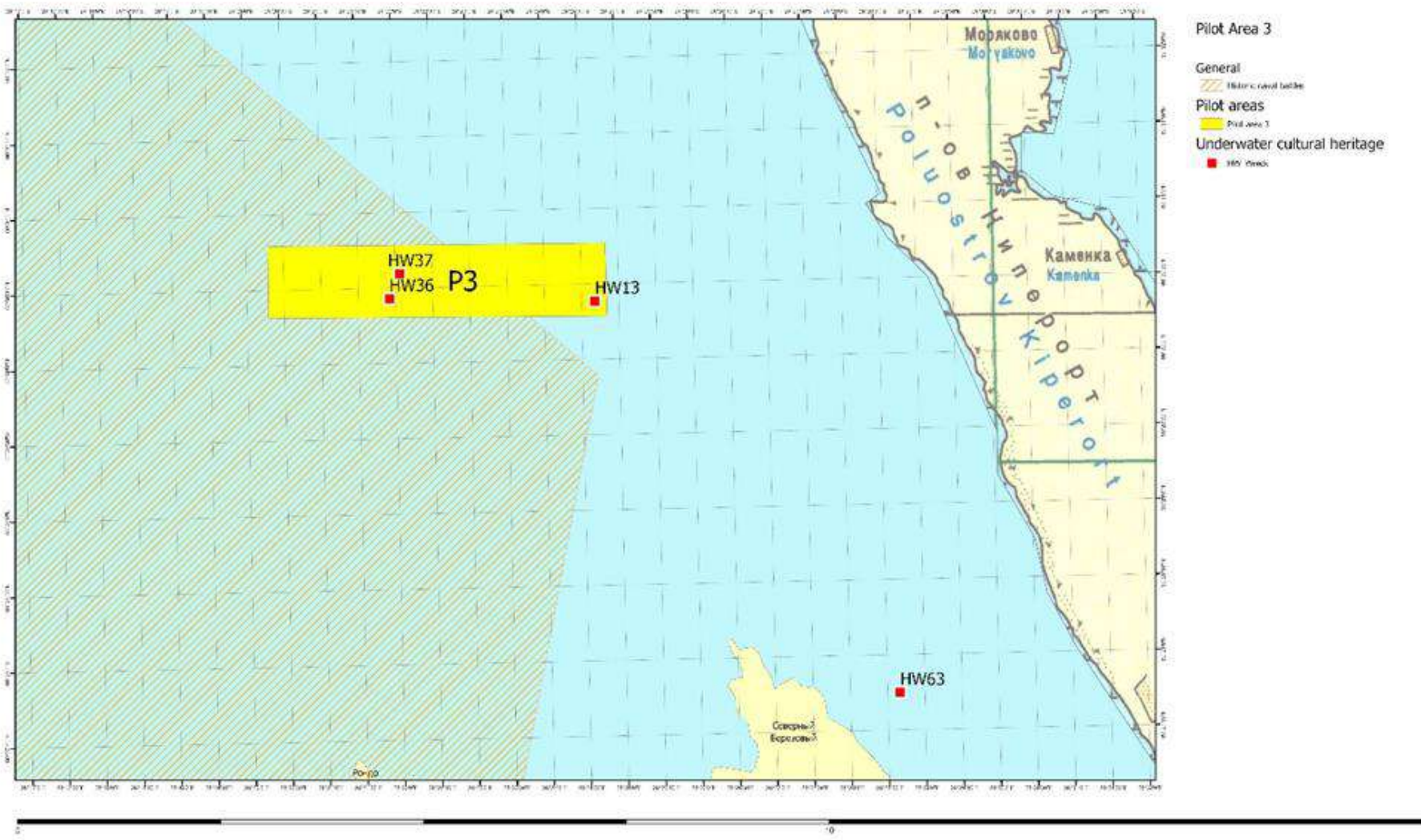
Type: shipwrecks

Potential:

Wooden vessels of the 1st half of the 19th century, excluding HW64 - BMO-506

ID	UCH ObjectПКН
HW27	Russian sailing-screw wooden clipper "Jigit", 1869
HW28	Russian sailing-screw wooden clipper "Naezdnik"
HW31	Lightship "London", 1873
HW64	Armored sea hunter "BMO-506"
HW66	Estonian sailing wooden vessel
HW70	Wooden sailing ship

1. MCH Mapping



Area: CENTRAL VYBORG BAY

Type: shipwrecks

Potential:

Metal vessels of the second half of the 19th century

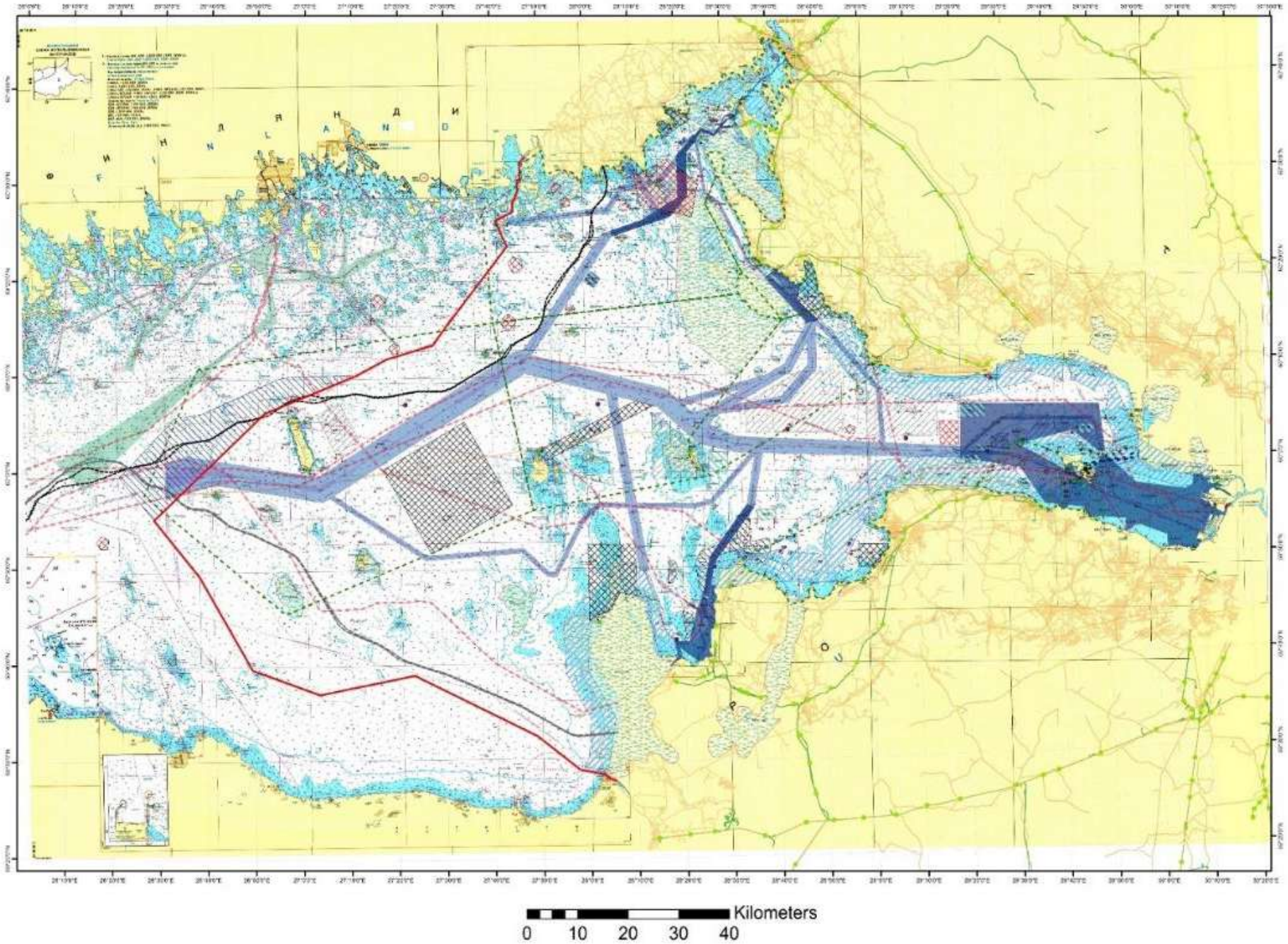
ID	UCH Objects
HW13	The hull of streamship "Hipatia", 1898
HW36	Russian ironclad "Gangut", 1897
HW37	The mast of ironclad "Gangut", 1898

Russia – the Gulf of Finland

2. Sea uses mapping and
3. Synthesis map

content, data and maps have been prepared by Russian partner Institute of Maritime Spatial Planning Ermak Northwest

2. Sea uses mapping



Complex Scheme of SeaUse
Existing

General
- State Border
- Exclusive economic zone
- Historic naval battles
- UCH_Environmental Regions

Underwater cultural heritage
- HW_Wreck
- HM_Underwater memorial objects
- HOU_Other UCH
- HOU_Historical crib barriers

Coastal and island heritage objects
- HA_Architectural and engineering monuments
- HQ_Historical quarries
- HI_Coastal marine infrastructure
- HR_Religious buildings
- HV_Heritage vessels
- HF_Forts
- HB_Lighthouses

Line infrastructure
- LE_Electricity cables
- LP_Pipeline Nord Snream 2
- LP_Pipeline Nord Stream 1
- LT_Telecommunication cable

Transport
- SA_Anchorage
- SP_E Ports existing
- SZ_Forbidden shipping
- SD_Deep water route

Agriculture
- FT_Fishing trawl
- FI_Fishing inshore

Extraction
- ES_Sand and gravel
- EF_Ferromanganese nodules

Nature and species protection
- MPA_SPb Specially protrcted natural areas
- MPA_LO Specially protrcted natural areas

Scientific research
- RM_Monitoring station

Military areas
- MT_Military training areas
- MM_Military mines training areas

Tourism and recreation
- TS_E_Leisure boating existing

Special zones
- OHL_Explosive hazardous landfill
- ODU_Dumping

Coastal infrastructure
- Railway station
- Highway
- Public transport
- Railway

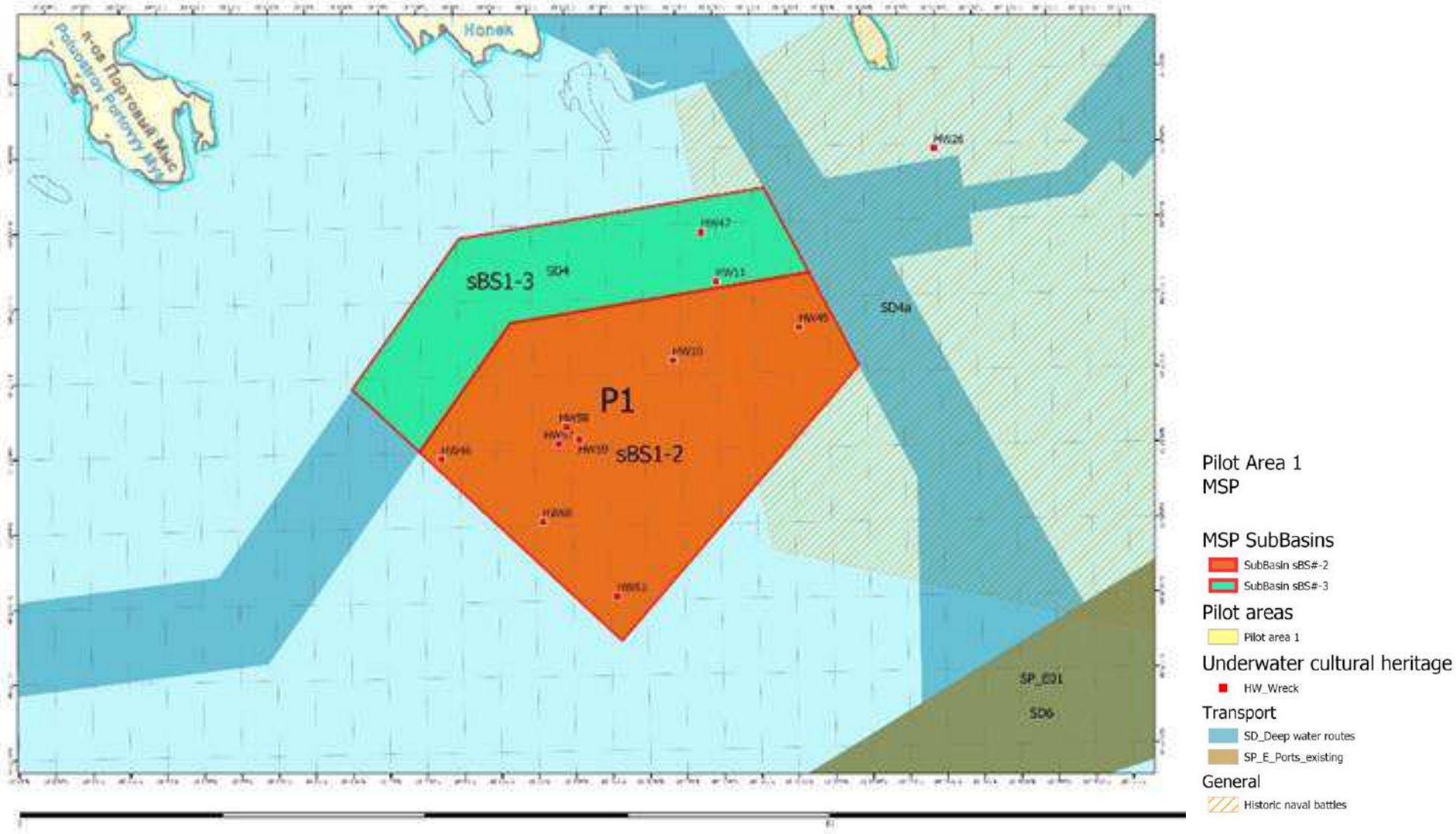
Main activities*: Shipping, Nature protection, Military

** Based on materials of Capacity4MSP project*

Russia – the Gulf of Finland

4. Planning suggestions

content, data and maps have been prepared by Russian partner - Institute of Maritime Spatial Planning Ermak Northwest and supplemented by Magdalena Matczak (GMUMI)



SOUTHERN VYBORG BAY

Main regulations:

SubBasin sBS1-2

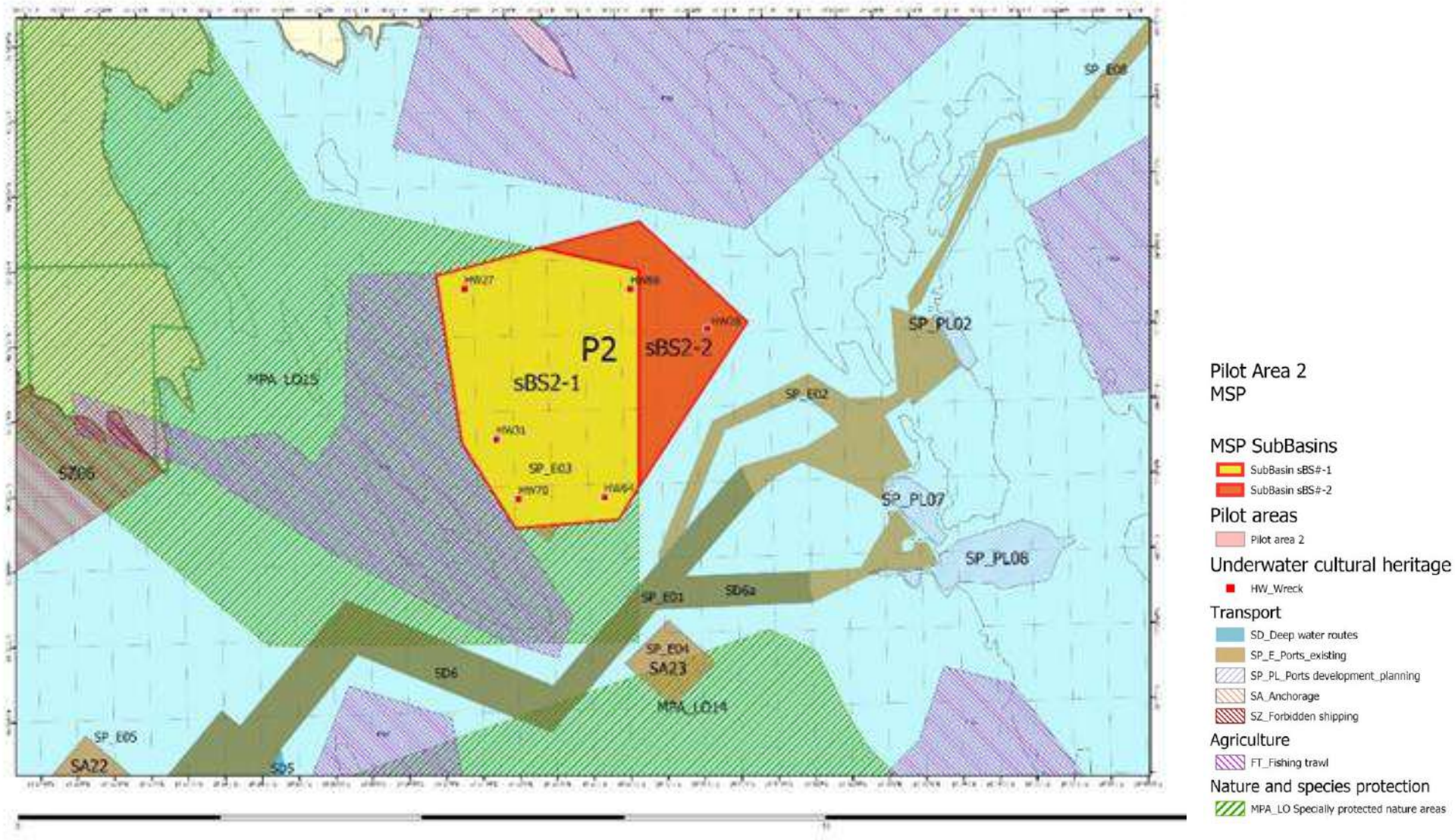
UCH zone - activities ensuring the safety of UCH and their involvement in tourism, e.g.:

- Exclusion of dredging, dumping, trawling and anchoring in the area of UCH
- designation of subareas devoted to diving, where other activities are forbidden while diving, introducing speed limits to decrease noise pollution;

SubBasin sBS1-3

Shipping and UCH zone - activities providing for the transit traffic of shipping and the safety of UCH, e.g.:

- Exclusion of dredging, trawling and anchoring in the area of UCH.



SOUTHERN VYBORG BAY

Main regulations:

SubBasin sBS2-1

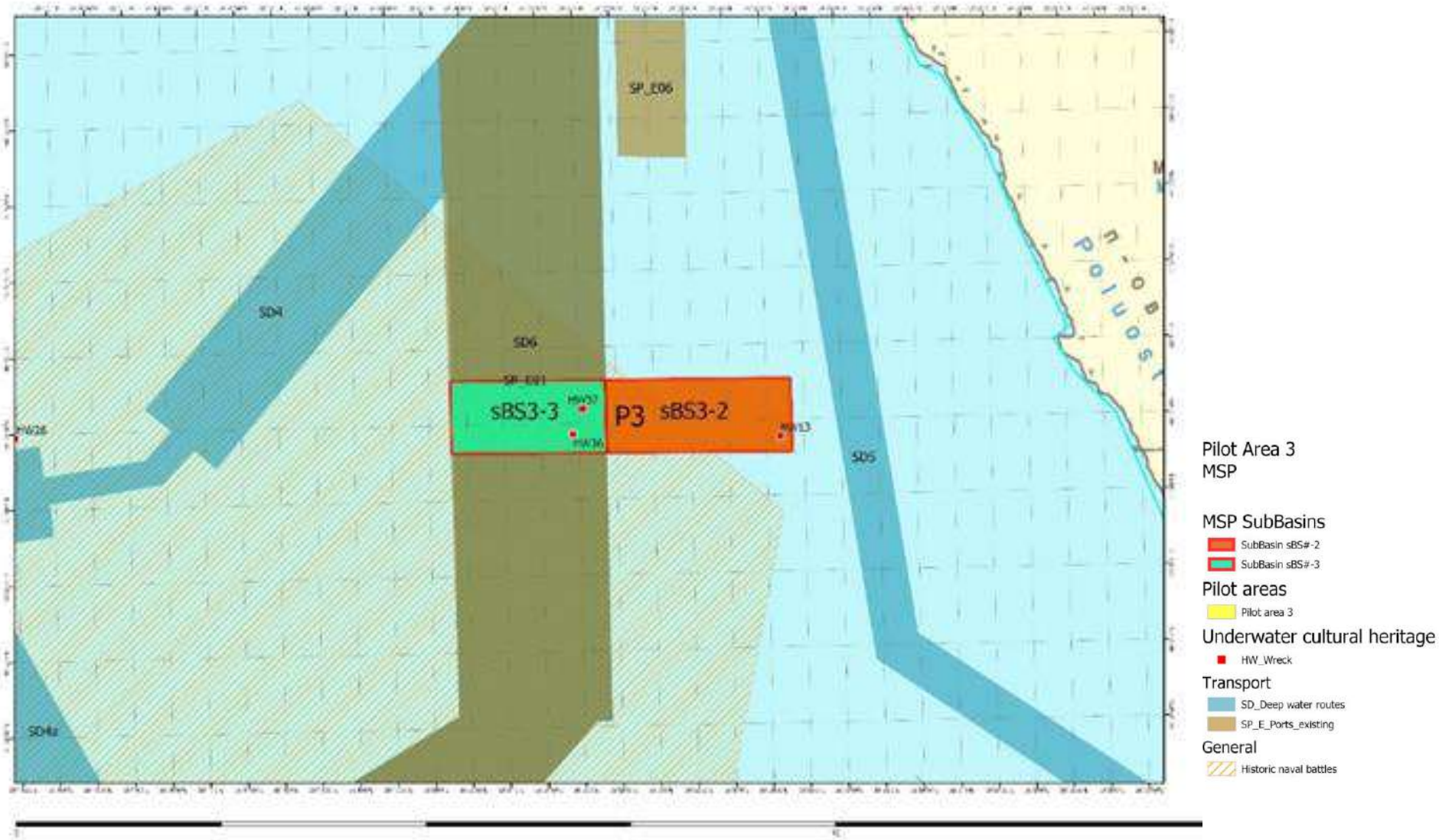
NPA and UCH zone - activities ensuring the Nature protection and the safety and use of UCH, e.g.:

- Introducing MCH function;
- Exclusion of trawling in the area of UCH;
- designation of subareas devoted to diving where measures ensuring safety of environment will be introduced;

SubBasin sBS2-2

UCH zone - activities ensuring the safety of UCH and their involvement in tourism, e.g.:

- Exclusion of dredging, dumping, trawling and anchoring in the area of UCH;
- designation of subareas devoted to diving, where other activities are forbidden while diving, introducing speed limits to decrease noise pollution.



CENTRAL VYBORG BAY

Main regulations:

SubBasin sBS3-2

UCH zone - activities ensuring the safety of UCH and their involvement in tourism, e.g.:

- Exclusion of dredging, dumping, trawling and anchoring in the area of UCH
- designation of subareas devoted to diving, where other activities are forbidden while diving, introducing speed limits to decrease noise pollution.

SubBasin sBS3-3

Shipping and UCH zone - activities providing for the transit traffic of shipping and the safety of UCH, e.g.:

- Exclusion of dredging, trawling and anchoring in the area of UCH.