

An underwater photograph showing a variety of submerged macrophytes. In the foreground, there are green, grass-like plants and a large, feathery, brownish structure. The background is filled with more diverse plant life, including some yellowish-green plants. The water is clear, and the scene is lit from above, creating a natural underwater environment.

# *Distribution atlas*

*of submerged macrophytes along  
the German Baltic Sea coastline*

Karin Fürhaupter · Torsten Berg · Thomas Meyer · Petra Schilling



2022  
KOELTZ BOTANICAL BOOKS

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## Preface

The world's population has rapidly increased to around 8 billion people within the last 200 years. The associated human activities are leading to a growing pressure on all parts of the biosphere. The speed of change in nature is alarming and the continuous intensification in all use of natural resources is inevitably leading to severe changes of the entire natural regime of all ecosystems and their species. The seas are no exception.

Macrophytes (underwater macroalgae and flowering plants) are an important ecological component to study when assessing environmental health. They play a mediating role between the substrate and the water body above, as well as between the coastal and offshore environment. They serve as habitat, spawning and nursery area and feeding ground for numerous animal species. By reducing current speed and increasing sedimentation macrophytes stabilise nearshore seabed and form a natural filtering system and coastal protection. Although marine biotopes dominated by vegetation only occur in a comparatively tiny area, they have a significant importance for marine biodiversity due to their multiple functions.

It is in the nature of things that changes on the sea floor are not visible to everyone without technical effort and thus do not immediately catch the eye. Therefore, they often remain unnoticed for a long time. In recent decades, the introduction of the Habitats Directive (HD), the European Water Framework Directive (WFD) and the Marine Strategy Framework Directive (MSFD) attempted the requirement of biological-ecological surveys to make these changes more visible to society and subsequently implement specific measures. However, the focus of those surveys is often on specific questions and the reports are typically not easily accessible or understandable.

This makes the present comprehensive compilation of the distribution of macrophytes along the coast of the German Baltic Sea even more valuable. In addition to the distribution maps and literature references, this work also provides information on taxonomy, ecology and the current conservational status. The numerous coloured underwater photographs give an impression of the beauty and diversity of the underwater vegetation.

It is remarkable that the publication does not only evaluate data from current monitoring but also includes historical data and information from grey literature, such as environmental impact assessments, master theses and interim or status reports of research projects. It must be highlighted that this work is especially laborious and time-consuming and the authors went to great length to meticulously collect and process such data to present them spatially alongside current data sources.

The present compilation certainly cannot be exhaustive and the continuous developments in taxonomy and systematics based on modern genetic methods may lead to changes in taxonomic classification and the renaming of taxa. Nonetheless, this book is a comprehensive reference work, documenting the current state of knowledge on the distribution of macrophytes in the German Baltic Sea. As such, it serves as a valuable working aid for the assessment of the environmental status and its changes on the basis of the occurring macrophytes.



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The authors also would like to particularly recognise Elke Burkhardt, whose support and constructive comments significantly improved the content and language of the manuscript.

Special thanks go to our colleagues who, together with us, collected numerous macrophyte samples during the sometimes very demanding diving work. We have often overstretched your patience until we succeeded in taking a satisfactory sample and underwater photo. We also greatly appreciate the help from all the experts who provided us with their own photos of rarer species.

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## Background

Research in marine botany has a long tradition along the German Baltic Sea coastline. First herbarium findings with geo-botanical information date back to 1820 Boll (19), 1860 Holtz (91) and 1890 Sonder (223) respectively.

Historical vegetation analyses were often geographically restricted to areas neighbouring the scientific institutions located at or near the coastline (Christian-Albrechts-University of Kiel, University of Rostock, Ernst-Moritz-Arndt University of Greifswald) and their associated field stations.

At that time investigations and data acquisition were usually limited to plant material washed ashore or growing in very shallow waters, which could easily be accessed by wading trousers or small boats. The first method is rather imprecise for the compilation of distribution data in terms of geographical reliability as currents may transport macrophytes torn off the substrate long distances before they are washed onshore. This may lead to artefacts in distributional data i.e. species are listed for certain areas although they do not occur there.

Reinke has published the first comprehensive analysis of the vegetation of deeper waters in 1889 (190). Dredges operating from ships were used to sample macrophytes and animals living on the sea floor. Further far-reaching investigations of the vegetation have been conducted by Fraude 1906 (48), Lakowitz 1929 (124), Hoffman 1952 (87, 88), Schwenke 1960–1969 (214–218), Lindner 1975–1978 (129–131) or Schramm 1988 (207), which have been using dredges, direct observations from boats or even video technology to map the vegetation.

However, those investigations were restricted to either specific regions or specific dominant species relevant for the

vegetation/habitat structure of the Baltic Sea, such as *Zostera marina* or *Fucus* spp.. They didn't aim at comprehensive analyses of the vegetation and its distribution.

The present national monitoring programmes on macrophytes (Bund-Länder-Meßprogramm für die Meeresumwelt von Nord- und Ostsee BLMP, 16) are focusing on the European Directives targets dealing with nature or marine protection (Fauna-Flora-Habitat Directive (FFH); Water Framework Directive (WFD); Marine Strategy Framework Directive (MSFD)). Those do normally not include comprehensive species inventories.

Currently vegetation analyses in shallow waters are conducted with video or diving techniques in particular. Whereas in water depths over 20 m dredges are still used as diving operations in such depths are very time and cost intensive.

Differences between vegetation surveys cannot only be noticed in terms of regional cover and methodology but also with respect to the object of investigation. Rarely the group of macrophytes is considered as a whole. Surveys are typically focussed on specific sub-groups i.e. higher plants (vascular plants), charophytes (stoneworts) and macroalgae. The most relevant publications in this context are:

- Pankow 1990 (169): A determination book for macroalgae, charophytes and phytoplankton with ecological and "rough" distributional information.
- Nielsen et al. 1995 (161): A distributional index of the benthic macroalgae of the Baltic Sea area with species and reference lists for each analysed region.
- Schubert & Blindow 2003 (210): A determination book for charophytes for the Baltic Sea with detailed data on

taxonomy, morphology, and ecology as well as the distribution in the Baltic Sea region.

- HELCOM (Helsinki Commission – Baltic Marine Environment Protection Commission) Checklist (81): A distributional index of the benthic macrophytes of the Baltic Sea area with species and reference lists for each HELCOM region. A basic document prepared for the HELCOM Red List Assessment (82).

Consequently, the overall amount of distributional data on submerged macrophytes is comparably well for the German Baltic Sea coastline. However, a summarizing documentation, which considers several groups of macrophytes, takes historical and current investigations into account, and includes detailed distributional data for the whole German Baltic coastline, is still lacking.

This atlas aims at closing this gap with a comprehensive analysis of available distributional data on Baltic marine submerged macrophytes. Besides distributional information, relevant data regarding taxonomy, ecology and conservation status of the respective species are also included.

## Methodology

The geographical range of the atlas includes all marine territorial waters along the German Baltic Sea coastline between Flensburg in the west and Ückermünde at the Little Lagoon/Oder Lagoon in the east, as well as the Exclusive Economic Zone (EEZ). The area covers a coastal stretch of about 2481 km in length including open coastline, inland sea coastline and island coastlines: 536 km in Schleswig-Holstein (134) and 1945 km in Mecklenburg-Vorpommern (224).

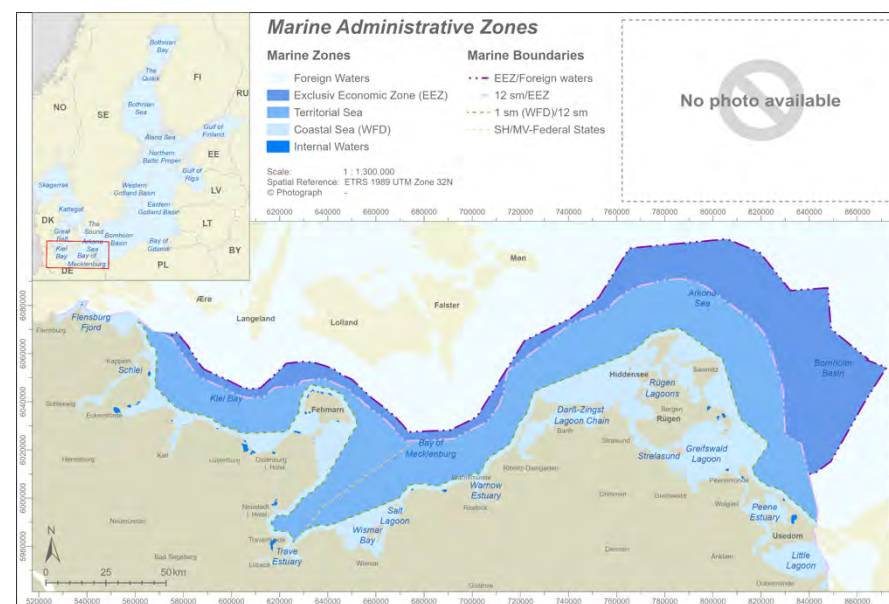
Territorial marine waters can be grouped administratively in

- internal marine waters – coastal lakes (specific German term “Strandseen”) located landward of the baseline, without a permanent connection to the sea, but with a long-term mean salinity  $\geq 0,5$  psu
- coastal waters (in terms of WFD definition) – fjords, bays, lagoons (specific German terms “Bodden, Haffe, Noore”) and estuaries. The area extends 1 sm (WFD definition) seaward of the baseline
- territorial sea seaward of coastal waters, maximally 12 sm seaward of the baseline

The Exclusive Economic Zone stretches out to a maximum of 200 nm from the baseline. However, in the Baltic Sea as a comparably small-scale inland sea the EEZ zone is usually significantly narrower (Figure 1).

**Note!** A clear-cut landside marine boundary of historical distribution records of marine plants is often hard to define. The hydrography of estuaries and coastal lagoons in Germany has been severely altered. Hence, mean salinities have changed, in some coastal lagoons even from brackish to freshwater conditions with corresponding effects on species composition. Coastal defence activities have greatly reduced near-coast

flood plains. Moreover, the Baltic Sea as a brackish sea also hosts some typical freshwater species like *Ceratophyllum demersum*, a vascular plant, or *Chara vulgaris*, a stonewort. Therefore, it can sometimes not be determined whether locations mentioned in the literature should be attributed to the Baltic Sea area or to adjacent ditches or drainage channels with freshwater.



**Figure 1** Administrative Zones, HELCOM regions (small overview map) and German marine (sub-)regions, used to standardize location data (Section Distribution, p. 7).

Type, structure and amount of information on macrophytes given in referenced literature are extremely variable. This makes a certain standardization of the gathered information necessary to enable comparable analyses and illustrations. Thus, the

information of the relevant categories' taxonomy, ecology, conservation, and distribution are subdivided into standardized sub-categories, if applicable (Table 1).

**Table 1** Categories and subcategories used to organize data in the species spread sheets.

Category	Subcategory
Taxonomy	Scientific species name
	Higher taxonomy
	Subspecies, hybrids
	Synonyms (incl. forms and varieties)
Distribution	Baltic Sea
	German Baltic Sea
Ecology	Substrate
	Attachment
	Salinity
	Vertical zone
	Exposure
Conservation	Red List
	Threats
Remarks	
References	

The data about these categories/sub-categories are displayed in species-specific factsheets. The distributional information is illustrated in two maps per taxon:

- an overview map of the distribution in the Baltic Sea
- a detailed map of the distribution along the German Baltic Sea coastline.

References considered (for distribution and ecology) are listed for each taxon. Detailed descriptions about the analyses within the categories/subcategories are given in the following methodology chapters.

## Taxonomy

### Scientific name (valid name)

Taxonomy and nomenclature have continuously changed during the last decades. Taxon names listed in historical references rarely correspond to the current valid taxon names. An adjustment using an internationally consolidated reference of taxonomic valid names is therefore essential. Taxonomy, valid names, author(s) and year of identification in this atlas are based on WoRMS – the World Register of Marine Species (248), a database on marine organisms, which is maintained and regularly updated by international experts.

Not all species distributed along the German Baltic Sea coastline are included in WoRMS, as it is a database on marine organisms in general. However, the Baltic Sea as a brackish environment also hosts freshwater species which may be adapted to lower salinities.

In such cases other relevant databases such as Floraweb (47), a database for wild plants and vegetation of Germany, or AlgaeBase (1) are considered. The information which database has been applied to derive the valid species name is included in the alphabetical taxon list (Section Taxon List, p. 386).

### Higher taxonomic levels

Not only species nomenclature but also higher taxonomic levels have changed in the past. Therefore, the classification of species to higher taxonomical levels varies between references. This atlas uses the taxonomical classification given in WoRMS (248), which matches the classification used in the reference list of the German Monitoring Program for the Marine Environment (175) and the common German list of marine taxa (Bundestaxaliste BTL: 200).

The taxonomic levels used in this atlas are phylum, order, class and family. The references do not always list each taxonomic level for a given species. For species not listed in WoRMS (248) the taxonomical classifications of either Floraweb (47) or Algae-Base (1) are used.

### Subspecies (valid name)

For some plant species (especially higher plants) distributional data for subspecies could be evaluated. This information has been analysed together with the references of the species.

Subspecies names are listed separately in the species profiles, if they are valid. In case the names are invalid, they are listed as synonyms.

#### Examples

*Ulva flexuosa* ssp. *paradoxa* (C. Agardh) M.J. Wynne, 2005  
*Zannichellia palustris* ssp. *pedicellata* (Wahlenb. & Rosen) Syme

### Synonyms (incl. forms und varieties)

Due to the changing nomenclature and the fact that identical species in different marine regions have been described by various authors with different species names, several names exist for nearly all macrophyte species. If those names are taxonomically "invalid", they are regarded as synonyms.

The requirements for a valid taxonomic name are defined by the code of nomenclature (233) which also forms the basis of the expert work in WoRMS (248).

Synonyms in the strict sense of the word are real binary species terms, consisting of a genus name and an epithet. Especially in brackish environments, macrophytes tend to develop specific morphological growth forms due to the reduced salinity. In historical references those forms have been often described by using "form or variety" terms for species.

#### Examples

Form: *Fucus vesiculosus* f. *filiformis* (C. Agardh) Kjellman 1890  
Variety: *Fucus vesiculosus* var. *filiformis* C. Agardh 1819

For each taxon the most relevant synonyms (including forms and varieties) are listed in the species lists to enable a linkage to the distributional data of synonyms. Synonyms are also listed in the alphabetical taxon list (Section Taxon List, p. 386).

Basis for the synonym list is the information given in:

- German list of aquatic taxa, BTL (200)
- German list of marine macrophytes for BLMP (175)
- WoRMS (248)
- FloraWeb (47)
- Schories et al. (205)
- HELCOM Checklist (81)
- and the various historical references

### Distribution

The distribution information for each taxon is given in two formats – text and maps – and on two geographical scales – Baltic Sea and German Baltic Sea Region.

#### Baltic Sea

The distribution of the macrophytes within the Baltic Sea is based on the HELCOM Checklist (81), a background document for the preparation of the HELCOM Red List (82).

The checklist provides species occurrences per HELCOM region. These occurrence data have been updated for HELCOM regions containing German waters with references gathered for this atlas. The marine regions and (if available) the neighbouring country in which the species are known to occur are listed in each species table.

**Table 2** HELCOM regions used to standardize taxon occurrence information in the Baltic Sea.

HELCOM regions	Neighbouring countries
Kattegat	DK, SE
Great (and Little) Belt (Belt Sea)	DE, DK
The Sound	DK, SE
Kiel Bay	DE, DK
Bay of Mecklenburg	DE, DK
Arkona Basin	DE, DK, SE
Bornholm Basin	DE, DK, SE
Gulf of Gdansk	PL, RU
Western Gotland Basin	SE
Eastern Gotland Basin	EE, LT, LV, PL
Northern Baltic Proper	EE, SE
Gulf of Riga	EE, LV
Gulf of Finland	EE, FI, RU
Åland Sea (incl. Archipelago Sea)	FI, SE
Bothnian Sea	FI, SE
The Quark	FI, SE
Bothnian Bay	FI, SE

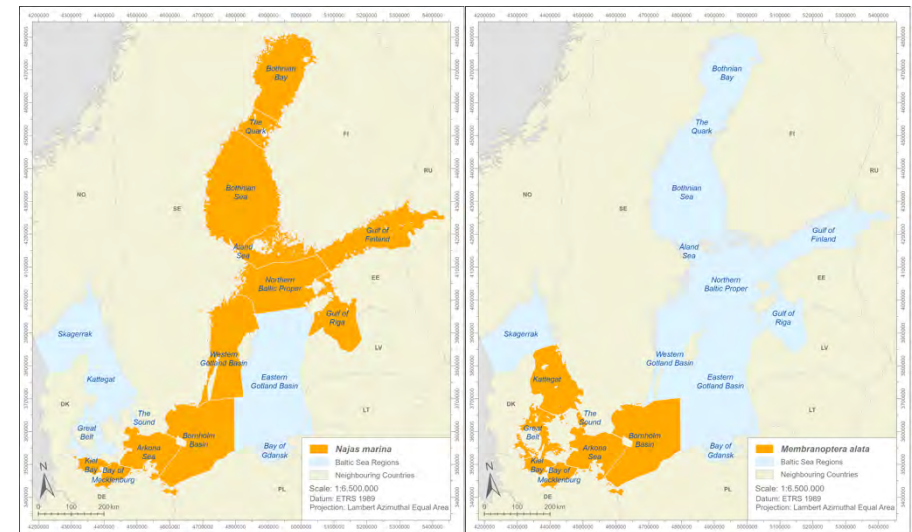
Additionally, a small overview map of the Baltic Sea is displayed in the upper left corner of each species distribution map. HELCOM regions with species records are highlighted respectively (Figure 2).

The names of the neighbouring countries are abbreviated using the two-digit ISO 3166-(Alpha-2)-Country Code. For the marine HELCOM regions, terms and boundaries from HELCOM (83) are used (Table 2).

**Examples**

*Membranoptera alata*: western Baltic Sea – from Kattegat to Bornholm Basin (DK, DE, SE)

*Najas marina*: whole Baltic Sea coastline beside northwesternmost parts and Gulf of Gdansk, Eastern Gotland Basin – from Kiel Bay to Bothnian Bay (all neighbouring countries beside DK, LT, PL)



**Figure 2** Baltic Sea distribution maps of the vascular plant *Najas marina* (left) and the red seaweed *Membranoptera alata* (right).

**German Baltic Sea**

The distribution data of macrophytes within the German Baltic Sea region is based on the available reviewed references (Section References, p. 373).

The textual description of the species-specific distribution in the German Baltic Sea area needs a certain standardization for geographical designations to enable listing in the species fact-sheets.

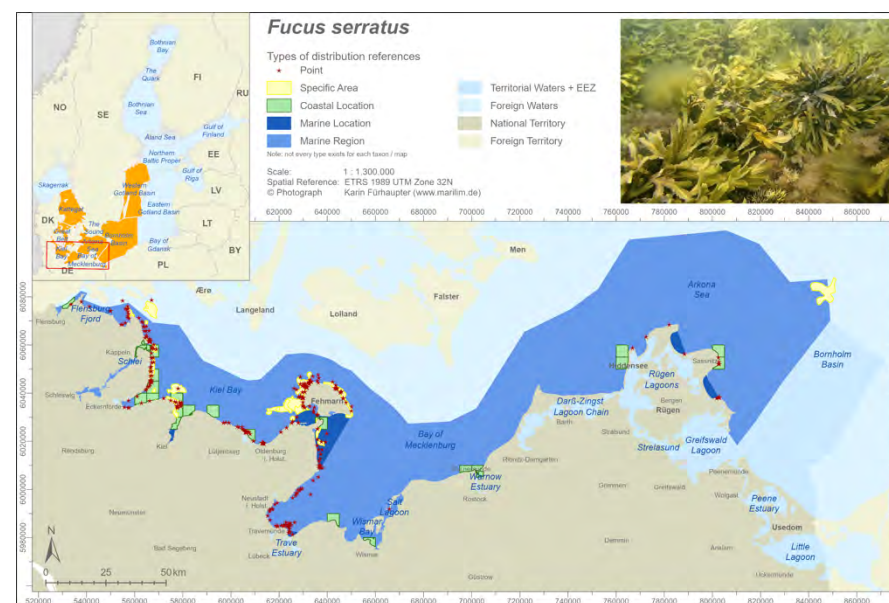
**Table 3** German marine (sub-)regions with relation to HELCOM regions (Federal states: SH – Schleswig-Holstein, MV – Mecklenburg-Western Pomerania) from west to east along the coastline.

German marine (sub-)regions	Administrative zones	HELCOM regions
Flensburg Fjord	Coastal zone (SH) + internal waters (SH)	Great (and Little) Belt (Belt Sea)
Schlei (Fjord)	Coastal zone (SH)	Kiel Bay
Kiel Bay	EEZ, Territorial Sea (SH), Coastal zone (SH) + internal waters (SH)	
Trave Estuary	Coastal zone (SH)	Bay of Mecklenburg
Bay of Mecklenburg	EEZ, Territorial Sea (SH/MV), Coastal zone (SH/MV) + internal waters (SH/MV)	
Wismar Bay	Coastal zone (MV)	
Salt Lagoon	Coastal zone (MV)	
Warnow Estuary	Coastal zone (MV)	
Arkona Sea	EEZ, Territorial Sea (MV), Coastal zone (MV) + internal waters (MV)	Arkona Sea
Darß-Zingst-Lagoon-Chain	Coastal zone (MV)	Bornholm Basin
Rügen Lagoons	Coastal zone (MV) + internal waters (MV)	
Strelasund	Coastal zone (MV) + internal waters (MV)	
Greifswald Lagoon	Coastal zone (MV) + internal waters (MV)	
Bornholm Basin	EEZ, Territorial Sea (MV), Coastal zone (MV) + internal waters (MV)	
Peene Estuary	Coastal zone (MV) + internal waters (MV)	
Little Lagoon	Coastal zone (MV)	

The standardization on the highest hierarchical spatial level is based on HELCOM regions. Those are subdivided into smaller

German (sub-)regions (Table 3, Figure 1) based on ecological parameters and/or administrative zones such as water bodies in the sense of the Water Framework Directive.

The precise spatial distribution (compared to the textual description) is illustrated in species-specific distribution maps of the German Baltic Sea coastline. An example is given in Figure 3.



**Figure 3** Distribution map of the brown seaweed *Fucus serratus*.

Distribution information is referenced in various formats, feature types and location accuracies depending on the reference and its publication time. To symbolize them in one map and simultaneously minimize dislocation artefacts, different methods were applied to transform and illustrate the information in the maps.

Table 4 gives an overview of the information formats and feature types available in references, their related spatial



accuracies and the different map symbols used for different accuracies.









To illustrate the different distributional information types and features, geo-datasets of various sources have been used:

- BKG – Federal Agency for Cartography and Geodesy (14): administrative borders and zones, specific marine regions

and locations, 5x5 km grid for the German territory (extended to EEZ zone)

- BSH – Federal Maritime and Hydrographic Agency (26): administrative borders
- HELCOM Data Portal (83): HELCOM marine regions
- BLMP – German Monitoring Program for the Marine Environment (16): WFD water bodies.

**Table 4** Overview of the different formats and types of distribution references and their application format in the maps.

Format	Feature type	Legend item and symbolisation in the distribution map	
Text	<b>coordinates:</b> point source	<b>Point</b> – red star symbol	★
	<b>distinct features at sea:</b> point source – navigable water buoy, lightship, platform, pier	<b>Point</b> – red star symbol (digitized from nautical charts)	★
	<b>distinct morphological “landscape” features at sea:</b> shallow/rise, shallow (offshore cape/spit), deep/trench	<b>Specific area</b> – defined yellow polygons (digitized from nautical charts)	
	<b>distinct features on land:</b> point source – lighthouse, building, cape/hook	<b>Coastal Location</b> – green grid cells of 5x5 km base (covering marine area adjacent to those distinct features on land)	
	<b>distinct morphological “landscape” features on land:</b> polygon source – (sand-)spit, cliff, forest, marsh	<b>Coastal Location</b> – green grid cells of 5x5 km base (covering marine area adjacent to those distinct features on land)	
	<b>distinct localities/ regions on land:</b> polygon source – island, territory, city, village	<b>Coastal Location</b> – green grid cells of 5x5 km base (covering marine area adjacent to those distinct features on land)	
	<b>distinct (small) areas at sea:</b> polygon source – smaller bay, lagoon (in German “Bodden”, “Noor”, “Wiek”), river mouth channel, strait, inland lake (in German “Binnensee”, “Strandsee”)	<b>Marine Location</b> – defined blue polygons (delineation by official shape files of the marine features)	
Printed maps	<b>distinct (greater) areas at sea:</b> polygon source – basins, large bays, fjords, lagoon chains	<b>Marine Region</b> – defined blue polygons (delineation by official shape files of the marine features)	
	species specific <b>map points</b>	<b>Point</b> – red star symbol (from georectified and digitized maps)	★
Geodata (digital)	species specific <b>map polygons</b>	<b>Specific area</b> – defined yellow polygons (digitized from georectified and scanned maps)	
	<b>point feature classes</b> from monitoring or environmental survey programs	<b>Point</b> – red star symbol (re-projected where necessary)	★
	<b>polygon feature classes</b> from aerial surveys or seabed mapping (and modelling) projects	<b>Specific area</b> – defined yellow polygons (re-projected where necessary)	

Specific issues concerning the distribution data, e. g. whether

- species have only few records,
- have been detected historically but not since 1950,
- are of doubtful identification or
- doubtful allocation to the marine area,

are mentioned either in the distribution text or in the “Remarks” section of the species profile. Whenever possible a photo of the respective taxon is provided with the distribution map.

## Ecology

Information about the ecology of the species given after the distributional information apply mainly to conditions of the Baltic Sea. Especially in relationship to vertical zonation or salinity, different information may exist for other marine regions.

## Substrate

Substrates macrophytes are attached to or rooted in, are categorized in three classes (Table 5).

**Table 5** Classes and definitions of substrates.

Substrate	Definition
<i>Soft bottom</i>	All abiotic substrates, which require an anchoring in the sediment
<i>Hard bottom</i>	All abiotic substrates, which require an attachment on the surface of the substrate
<i>Plants or animals</i>	All biotic (alive*) substrate forms (organisms)

\* dead mussel shells are regarded as “hard bottom”

If more specific data for substrate classes are available those terms are listed additionally. The following terms for substrate classes are used: boulders, stones, gravel, sand and sand mixtures, mud and mud mixtures, coarse sediment, peat, hard clay, shell gravel, wood or specific organism names.

## Examples

*Myriophyllum spicatum*: soft bottom – mainly pure sand to sandy mud, rarely on pure mud or coarse sediment

*Vertebrata byssoides*: hard bottom and plants or animals – smaller stones, blue mussels (dead shells and live mussels) and on various algae (*Furcellaria*)

## Attachment

The settlement or attachment to the substrate is closely linked to the substrate itself. However, the characteristic type of attachment is rarely mentioned explicitly in the literature, only in exceptional cases. In lack of references, the kind of settlement is assumed to be in line with the substrate assigned.

**Table 6** Classes and definitions of settlement/ attachment.

Settlement	Definition
<i>rooted</i>	permanently anchored in soft bottom with roots or rhizomes
<i>loosely anchored</i>	loosely anchored in soft bottom without roots or rhizomes
<i>epilithic</i>	permanently attached to hard bottom with holdfasts
<i>epiphytic/epizoic</i>	permanently attached to plants or animals with holdfasts
<i>endophytic/endozoic</i>	permanently anchored in plants or animals
<i>drifting (at the bottom)</i>	without permanent attachment or anchor to or in the bottom, easily displaced by bottom currents
<i>free floating (at the water surface)</i>	kept at the water surface by air-filled buoyancy organs, easily dislocated by surface currents

## Examples

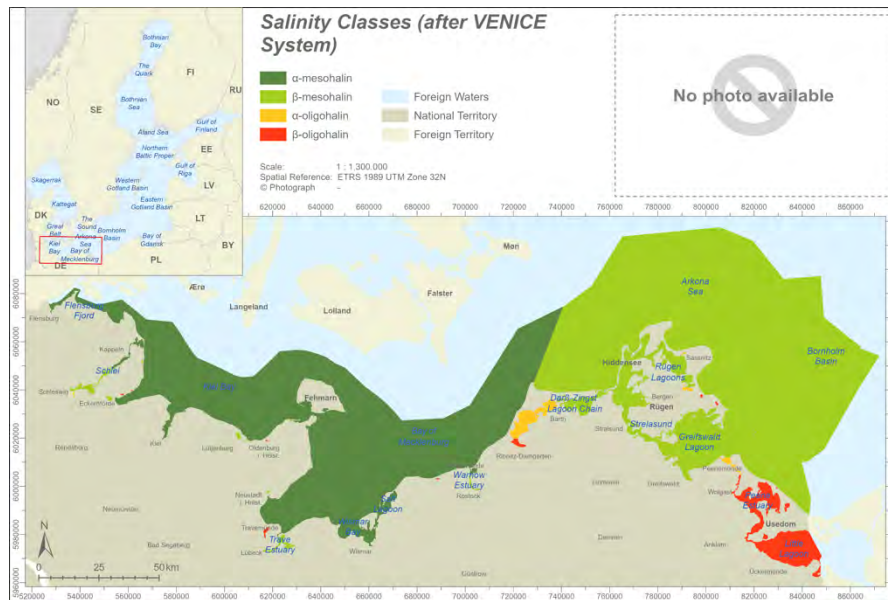
*Ceratophyllum demersum*: loosely anchored

*Dasya baillouviana*: epilithic, epizoic/epiphytic and drifting (at the bottom) – often entangled in *Zostera*, *Fucus* stands and mussel beds

## Salinity

To describe the salinity range in which the macrophyte species are present, the VENICE system (98) with its detailed brackish water classification (Table 7) is applied.

If more specific salinity values exist, the upper and/or lower salinity limits are listed additionally. If no or only a few species-specific salinity references are available, the salinity classes/ranges are assigned on basis of the geographical distribution. Figure 4 illustrates the salinity classes within the study area, which have been set using the class boundaries in Table 7 and the available mean bottom salinities of BLMP (16) and/or HELCOM (83).



**Figure 4** Distribution of salinity classes (98) along the German Baltic Sea region.

## Examples

*Chara aspera*: freshwater to  $\alpha$ -mesohaline – up to a maximum of 16–18 psu  
*Rhodochorton purpureum*: ( $\beta$ -mesohaline)  $\alpha$ -mesohaline to euhaline (fully marine) – only one record from  $\beta$ -mesohaline, possibly from a host plant washed ashore

**Table 7** Classes and ranges of salinities (VENICE-System).

Salinity class	Range
euhalin (fully marine)	30 – 40 psu
polyhalin	18 – 30 psu
$\alpha$ -mesohalin	10 – 18 psu
$\beta$ -mesohalin	5 – 10 psu
$\alpha$ -oligohalin	3 – 5 psu
$\beta$ -oligohalin	0.5 – 3 psu
limnic (freshwater)	< 0.5 psu

## Vertical zone

Different standardized terms are used to categorize the vertical (growth) zones of macrophytes (Table 8). If more specific data for the vertical zonation are available, the upper and/or lower distribution limits are listed.

**Table 8** Classes and definitions of vertical zones.

Vertical zone	Definition
Supralittoral	Splash zone
Hydrolittoral	Zone, which may periodically fall dry – in the mainly tideless Baltic Sea only wind-induced sea level changes are relevant
Infralittoral	Zone which is permanently covered by water down to the lower distribution limit of vegetation = photic zone
upper Infralittoral	to the lower distribution limit of higher plants (10 m depth contour)*
lower Infralittoral	between the 10 m depth contour and the lower distribution limit of macroalgae*

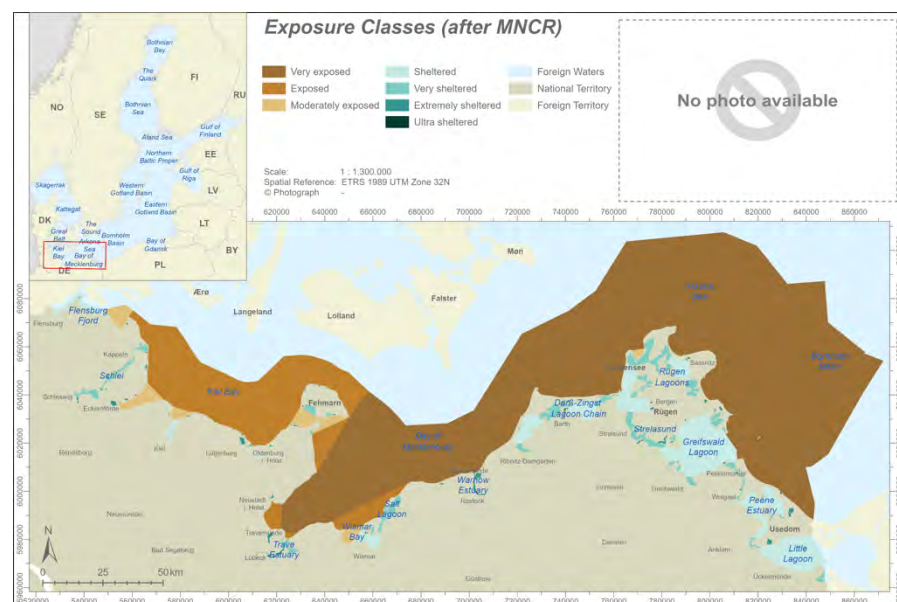
\* no officially acknowledged category and definition

### Examples

*Laminaria digitata*: upper to lower Infralittoral – from 7 to about 30 m depth  
*Zostera noltei*: hydrolittoral to upper infralittoral – from 0,1 to 1,0 m (3,0 m – one record), mainly  $\leq 0,5$  m

### Exposure

To describe the exposure level in which the macrophyte species are typically occurring, the wave exposure system of the Marine Nature Conservation Review (MNCR) (158) is applied (Table 9). As this system is fitted to open oceans the class “extremely exposed” does not occur in a marginal, inland sea such as the Baltic Sea.



**Figure 5** Distribution of exposure classes (158) along the German Baltic Sea region.

If no or only a few species-specific exposure references are available, the exposure classes are assigned based on the geographical distribution. Figure 5 illustrates the exposure classes within the study area, which have been assigned by the descriptive definitions of Table 9.

**Table 9** Classes and definitions of exposure.

Exposure class	Definition
<i>extremely exposed</i>	Open coastlines which face into the prevailing wind and receive both wind-driven waves and oceanic swell without any offshore obstructions such as islands or shallows for several thousand kilometres and where deep water is close to the shore (50 m depth contour within about 300 m)
<i>very exposed</i>	1) Open coasts which face into prevailing winds and which receive wind-driven waves and oceanic swell without any offshore obstructions for several hundred kilometres, but where deep water is not close to the shore (50 m depth contour further than about 300 m) or 2) Open coasts adjacent to extremely exposed sites but which face away from prevailing winds.
<i>exposed</i>	1) Coasts which face the prevailing winds, but which have a degree of shelter because of extensive shallow areas offshore, offshore obstructions, or a restricted (less than 90°) window to open water. These sites are not generally exposed to large waves or regular swell or 2) Open coasts facing away from prevailing winds but with a long fetch, and where strong winds are frequent.
<i>moderately exposed</i>	Generally, coasts facing away from prevailing winds and without a long fetch, but where strong winds can be frequent
<i>sheltered</i>	Coasts with a restricted fetch and/or open water window. Coasts can face prevailing winds but with a short fetch (< 20 km) or extensive shallow

very sheltered	area offshore, or may face away from prevailing winds Coasts with a fetch less than about 3 km where they face prevailing winds or about 20 km where they face away from prevailing winds, or which have offshore obstructions such as reefs or a narrow (<30°) open water window.
extremely sheltered	Fully enclosed coasts with a fetch of no more than about 3 km.
ultra-sheltered	Fully enclosed coasts with a fetch measured in tens or at most a few hundred metres

**Examples**

*Desmarestia aculeata*: moderately to very exposed

*Najas marina*: extremely sheltered to sheltered

**Conservation status**

The conservation status is derived from different Red List assessments covering various geographical scales:

- Red List of the Baltic Sea for marine and brackish water macrophytes (82)
- Red Lists of Germany (DE) for marine macroalgae (206), charophytes (114) and higher plants (147)
- Red Lists of the Federal States Schleswig-Holstein (SH) and Mecklenburg-Vorpommern (MV) for charophytes (75, 230) and higher plants (156 237). (for marine macroalgae currently only an overall German status is available).

Depending on the actuality and geographical scale of the assessment, the Red List criteria and status classes may deviate from the guidelines published by the International Union for Conservation of Nature IUCN (99) to standardize assessment procedures on international scale. Table 10 gives an overview over the different conservation status classes in use and the comparability between them.

**Examples**

*Lamprothamnium papulosum*: **EN** (Baltic Sea), **1** (DE), **1**(SH), **1**(MV)

*Ruppia cirrhosa*: **LC** (Baltic Sea), **3** (DE), \* (SH), \* (MV)

If threats are listed in Red List assessments, these are mentioned separately. Threat abbreviations follow the codes of the reference list on threats, pressures and activities (in accordance with Article 17 code list), maintained by DG Environment, European Environment Agency (43).

**Specific issues**

For some species, important information besides the categories and subcategories described before is available, e.g. whether a taxon is a neophyte, or some ecological parameters have changed historically such as depth ranges. Such information is listed in a “Remark” section or the specific ecological species-specific section.

**Examples**

*Eudesme virescens*: a characteristic spring/early summer species, which may have already disappeared during the usual monitoring period in summer/late summer

*Blidingia marginata*: can be confused with *Blidingia minima* or other *Blidingia* species according to recent genetic analyses (225)

**References**

Macrophyte occurrence data can be gathered from a variety of different reference types, such as

- herbaria at universities, research institutes or national history museums
- scientific research published
- master theses, student seminar reports, cruise reports of research cruises, which are typically not published in scientific

journals, but accessible in the libraries of the respective institutions

- national monitoring programmes which are rarely published as scientific publications, but the reports/data are typically accessible via the libraries or the responsible expert of the respective nature conservation department
- environmental impact assessments and its corresponding background reports which are usually inaccessible during plan approval procedures or until construction work is started.

Recently, several nature conservation frameworks have been adopted by the EU. Especially the Water Framework Directive (WFD) required a review of macrophyte taxon distribution in European marine waters.

Comparable approaches also apply to the Red List assessment processes on national (DE), Baltic-wide (HELCOM) or EU level.

Hence, it was possible to use some of the preliminary work done for those assessment processes, such as

- the herbarium review of Rostock, Greifswald and Berlin (17, 85)
- the herbarium review of Kiel (95)
- the BLMP checklist (175)
- the HELCOM checklist (81)

For all references (incl. the mentioned basic documents) it was attempted to get access to the original literature referencing a species occurrence location to avoid duplicate analyses. However, this was hard to achieve in some cases. For example, Lakowitz (124) or Pankow (169) mention own survey results parallel to those of Reinke (190, 191) or Reinbold (186, 187) in their

books without documenting which findings were taken from other authors. By checking the original literature, it was possible to identify that e. g. Lakowitz (124) contains only own occurrence data from the marine area belonging to Poland today, whereas all German locations date back to Reinke (190, 191).

In many reports the connection to macrophyte distribution data is not immediately evident as studies primarily targeting other research objects. Investigation for plant physiology or phytal fauna issues, for example, may list plant taxa and survey sites. Therefore, a literature survey and review were conducted in libraries with a comparably wide range of “key words” for titles and abstracts.

The used references as well as checked references that have not been included for various reasons are listed separately (Section References, p. 373).

**Table 10** IUCN categories to classify the risk of extinction of species in Red List assessments and the corresponding national categories.

IUCN Category	Definition	DE Category
<i>Extinct (EX)</i>	A taxon is Extinct when there is no reasonable doubt that the last individual has died. A taxon is presumed Extinct when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historical range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.	<b>0</b>
<i>Extinct in the Wild (EW)</i>	A taxon is Extinct in the Wild when it is known only to survive in cultivation, in captivity or as a naturalized population (or populations) well outside the past range. A taxon is presumed Extinct in the Wild when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historical range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.	
<i>Critically Endangered (CR)</i>	A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria for Critically Endangered, and it is therefore considered to be facing an extremely high risk of extinction in the wild.	<b>1</b>
<i>Endangered (EN)</i>	A taxon is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered, and it is therefore considered to be facing a very high risk of extinction in the wild.	<b>2</b>
<i>Vulnerable (VU)</i>	A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable (see Section V), and it is therefore considered to be facing a high risk of extinction in the wild.	<b>3</b>
<i>NEAR Threatened (NT)</i>	A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.	<b>V/P/G</b>
<i>Least concern (LC)</i>	A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category.	<b>*</b>
<i>Data Deficient (DD)</i>	A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore not a category of threat. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate. It is important to make positive use of whatever data are available. In many cases great care should be exercised in choosing between DD and a threatened status. If the range of a taxon is suspected to be relatively circumscribed, and a considerable period of time has elapsed since the last record of the taxon, threatened status may well be justified.	<b>?/D</b>
<i>Not Evaluated (NE)</i>	A taxon is Not Evaluated when it has not yet been evaluated against the criteria.	<b>#/♦</b>

## Species distribution

This section is divided into four taxonomical sub-groups. Each sub-group is highlighted using a specific colour code and taxa are listed in alphabetical order within each sub-group to facilitate a quick lookup of the taxa in the atlas.

Species with three locations at maximum and less than 10 records over time are not represented in the species table and distribution map but listed and briefly described in a separate chapter of Rare Taxa subsequent to the sub-group chapters.

Location data could be gathered for 257 taxa in total. 84 of them are regarded as rare taxa. Red Seaweeds represent the most species-rich group with 78 taxa, followed by green seaweeds (73 taxa), brown seaweeds (71 taxa), vascular plants (20 taxa), stoneworts (15 taxa) (Table 11, Figure 6).

**Table 11** Number of taxa per sub-group (rare taxa) and the respective colour code for each sub-group.

Vernacular term	Taxonomic term	Total number of taxa (rare taxa)
Vascular Plants	Magnoliophyta	20 (3)
Stoneworts	Charophyta	15 (3)
Red Seaweeds	Rhodophyta	78 (31)
Brown Seaweeds	Phaeophyta	71 (18)
Green Seaweeds	Chlorophyta	73 (29)
<b>Sum</b>		<b>257 (84)</b>

Compared to the seaweed diversity, vascular plants and stoneworts have less than 1/3 of their diversity. Nevertheless, due to the brackish water characteristics of the Baltic Sea, their species range is high compared to a marine environment. On the other

hand, the seaweed diversity is already respectively reduced in German Baltic Sea waters by around 150 species less in contrast to Skagerrak/Kattegat with 401 species (241).

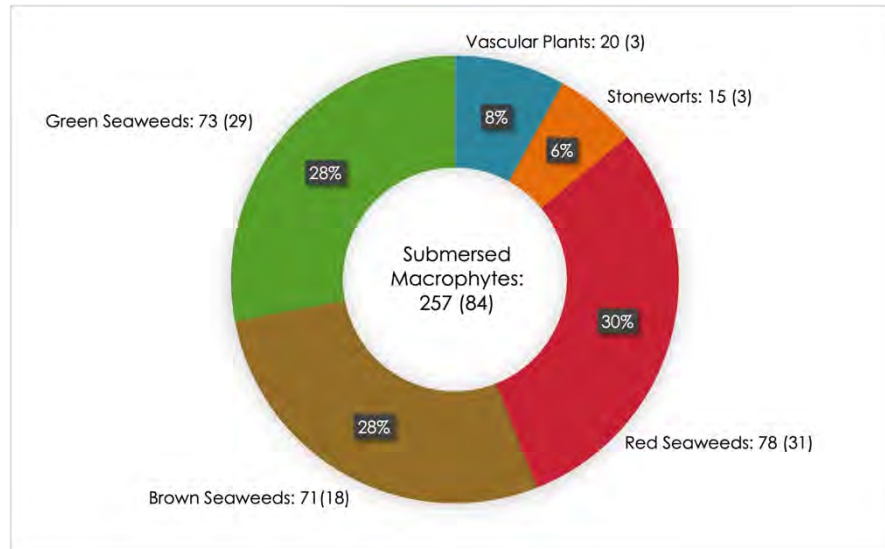
The fraction of rare species is high at 33 % and is highest in red and green algae. Many of them have only been recorded during historical surveys or around the 1960ies and 1970ies.

Few records do not permit a clear conclusion on “real” rarity, for various reasons:

- many tiny red seaweed taxa and specific green seaweed genera are difficult to identify morphologically,
- low salinities lead to morphologically abnormal growth forms, which are misleading in determination keys that are based on the normal (marine) growth forms,
- identification keys often use fertile plants to distinguish closely related species from each other, but fertility phases vary between species and do not match in every case to the main sampling season in modern monitoring,
- recently applied DNA and bar-coding methods questioning morphological species characteristics and determination rules, especially in green seaweeds,
- taxonomic expertise is becoming increasingly rare in the German-speaking world,
- there are no routine surveys aiming at capturing the full range of species at regular (time) intervals,
- the focus of investigations has shifted vertically in course of time from the shoreline to deep areas and the lower distribution limit of vegetation.



However, for species that have only been recorded once since 1820, it can be assumed that they are either not a real member of the German Baltic Sea area or misidentifications (40 taxa).



**Figure 6** Number of taxa (rare taxa) and percentages per sub-group in the total number of species.

The Darß Sill is considered an important ecological barrier between the western and central Baltic Sea (136), as it is a natural barrier to the dispersal of more saline waters due to the shallow water depths. As a result, the salinity in this area does not decrease as continuously as in other areas, but rather abruptly. This largely prevents the spread of marine species to the eastern areas of the German Baltic Sea coast.

Although this effect is particularly evident for marine macrozoobenthos, it is also visible in those macrophyte sub-groups with a high proportion of marine species (Table 12).

As mentioned in Section [Background](#), the geographic focus of sites has historically been strongly influenced by the location of research institutes and their field stations. Therefore, the following localities have the largest number of historical records:

Schleimünde (Field station), Boknis (Long-term monitoring station), Kiel Fjord (GEOMAR, University Kiel), Warnemünde, (IOW, University Rostock), Hiddensee (Field station), Danish Bight (University Greifswald)

Nowadays the geographic focus has shifted to the permanent stations of the monitoring programs for the nature conservation guidelines (MFD, WFD, FFH), like Schausende, Nieby, Eitzgrund, Wallnau for Schleswig-Holstein or Klützhöved, Meschendorf, Zingst, Glowe, Göhren for Mecklenburg-Western Pomerania.

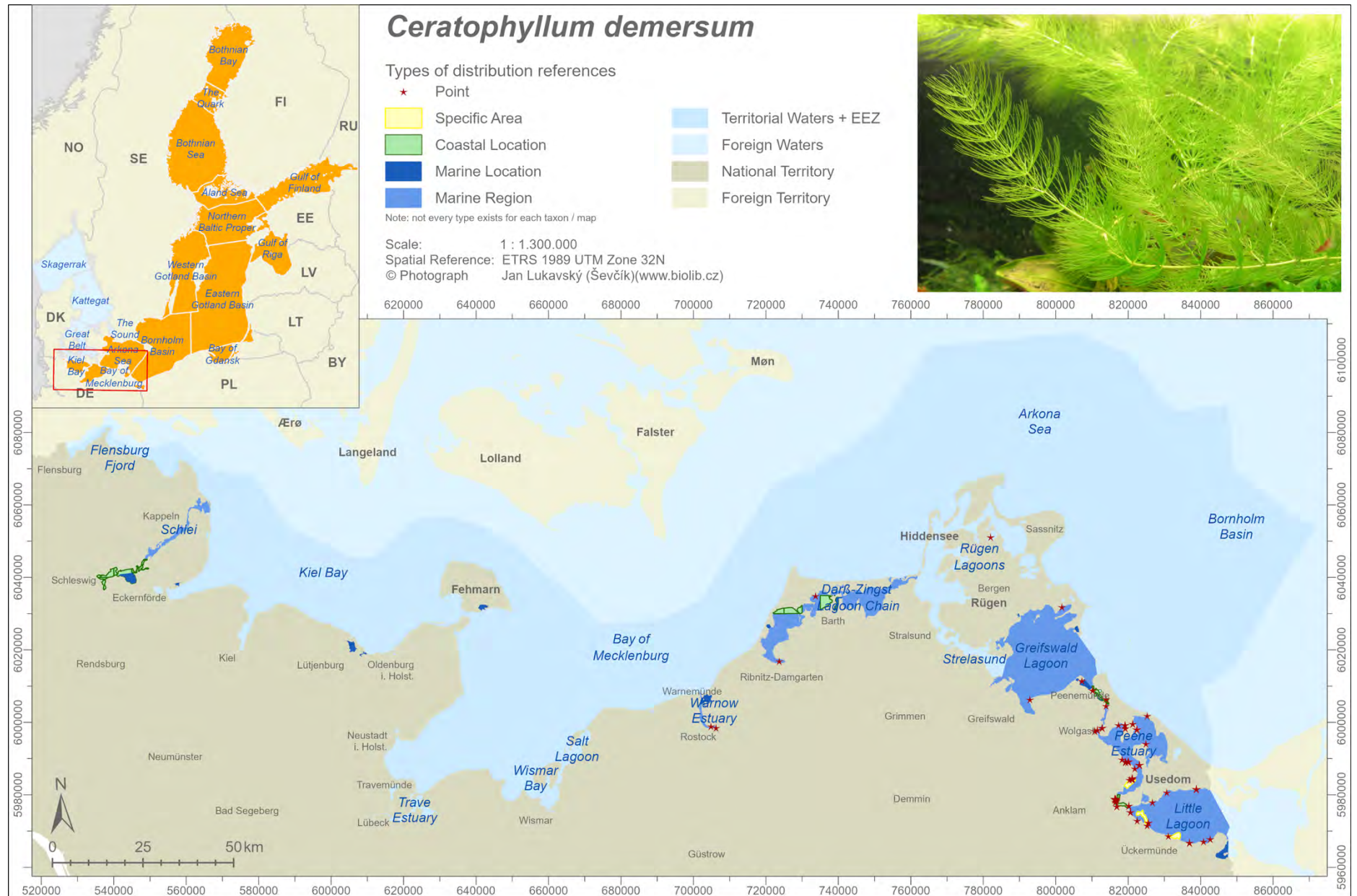
**Table 12** Number of taxa per sub-group (rare taxa) west and east of the Darß Sill.

Vernacular term	Taxonomic term	Number of taxa	
		W	E
Vascular Plants	Magnoliophyta	19 (2)	18 (1)
Stoneworts	Charophyta	14 (3)	13 (1)
Red Seaweeds	Rhodophyta	76 (30)	38 (6)
Brown Seaweeds	Phaeophyta	69 (17)	40 (5)
Green Seaweeds	Chlorophyta	69 (26)	39 (7)
<b>Sum</b>		<b>247 (78)</b>	<b>148 (20)</b>

## Ceratophyllum demersum L.

Taxonomy	
Phylum	Tracheophyta
Class	Magnoliopsida
Order	Ceratophyllales
Family	Ceratophyllaceae
Subspecies	–
Synonyms	<i>Ceratophyllum demersum</i> Sieber <i>Ceratophyllum demersum</i> var. <i>demersum</i> L., 1753 <i>Ceratophyllum demersum</i> ssp. <i>demersum</i>
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of northwesternmost parts – from Kiel Bay to Bothnian Bay (all neighbouring countries apart from DK, LT)
German Baltic Sea	regularly in innermost parts of eastern estuaries, lagoons and coastal lakes with strong freshwater influence – Warnow Estuary (Rostock), Darß-Zingst-Lagoon-Chain (Saal and Bodstedt Lagoon), Greifswald Lagoon (Hav-ing, Lanken, Wreechen Lake, Zick Lake and Freesendorf Lake) Peene Estuary (various locations), Little Lagoon (various locations); rarely in western lagoons (inner Schlei), but regularly in coastal lakes – Kiel Bay (Hemmelmark Lake, Great Inland Lake, Sehlendorf Inland Lake), Bay of Mecklenburg (Burg Inland Lake)

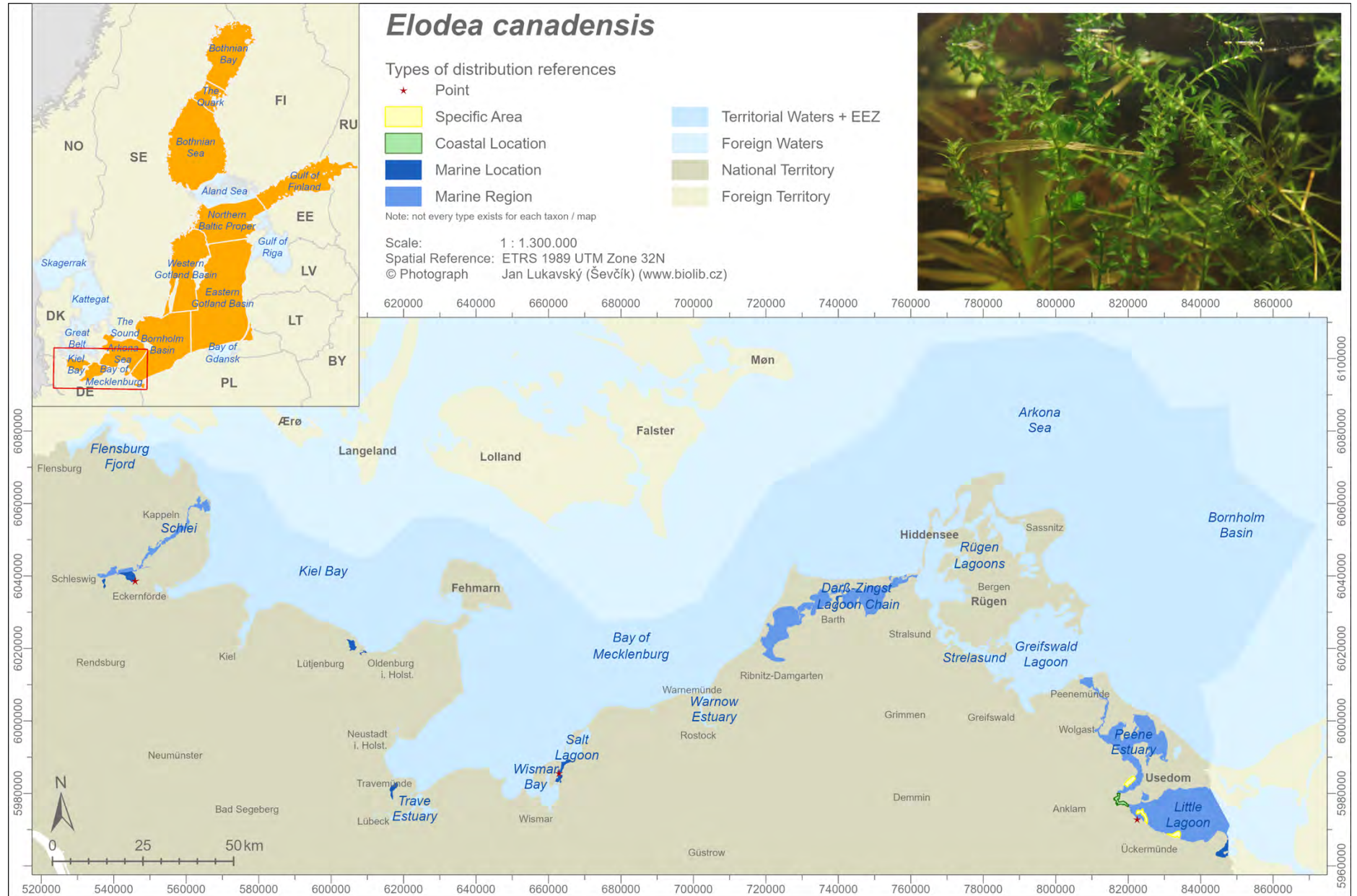
Ecology	
Substrate	soft bottom – primarily mud and muddy sand, rarely on pure sand or coarse sand
Attachment	loosely anchored
Salinity	freshwater to $\beta$ -oligohaline ( $\beta$ -mesohaline) – mainly between 0,5 to 3 psu, records from higher salinities from drifting specimens
Vertical zone	upper infralittoral – from 0,2 to about 3 m depth
Exposure	ultra to very sheltered
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE), * (SH), * (MV)
Threats	–
Remarks	
few records in marine monitoring, borderline species to freshwater; references of higher salinity regions in front of freshwater inflow and/or from unattached, drifting specimens	
References	
13 28 30 41 50 52 62 66 72 76 81 82 86 92 129 147 156 179 180 196 211 219 220 237 239	



## *Elodea canadensis* Michx.

Taxonomy	
Class	Magnoliopsida
Order	Alismatales
Family	Hydrocharitaceae
Subspecies	–
Synonyms	<i>Anacharis canadensis</i> (Michx.) Planch., 1849 <i>Elodea latifolia</i> Caspary, 1857 <i>Elodea planchonii</i> Caspary, 1857 <i>Philotria canadensis</i> (Michx.) Britt.
Distribution	
Baltic Sea	unevenly distributed in western, central and inner parts – Kiel Bay to Eastern Gotland Basin (DE, LT) without Bay of Gdansk, Gulf of Riga/Finland to Bothnian Bay (FI, SE) without Åland/Archipelago Sea; not entirely clear, if records originate in brackish or freshwater
German Baltic Sea	rarely in brackish waters, in innermost parts of estuaries, coastal lagoons and coastal lakes with strong freshwater influence – Schlei (Haddeby and Selk Lagoon, Fleckeby), Kiel Bay (Great Inland Lake, Sehlendorf Inland Lake), Mecklenburg Bay (Hemmelsdorf Lake), Salt Lagoon (Breitling/Poel), Darß-Zingst-Lagoon-Chain (Barth River Stream), Peene Estuary (Jamitzower Hard, Anklamer Fähre), Little Lagoon (Göschenbrinksfläche, Leopoldshagen, Kamighaken, Neuwarp Lake)

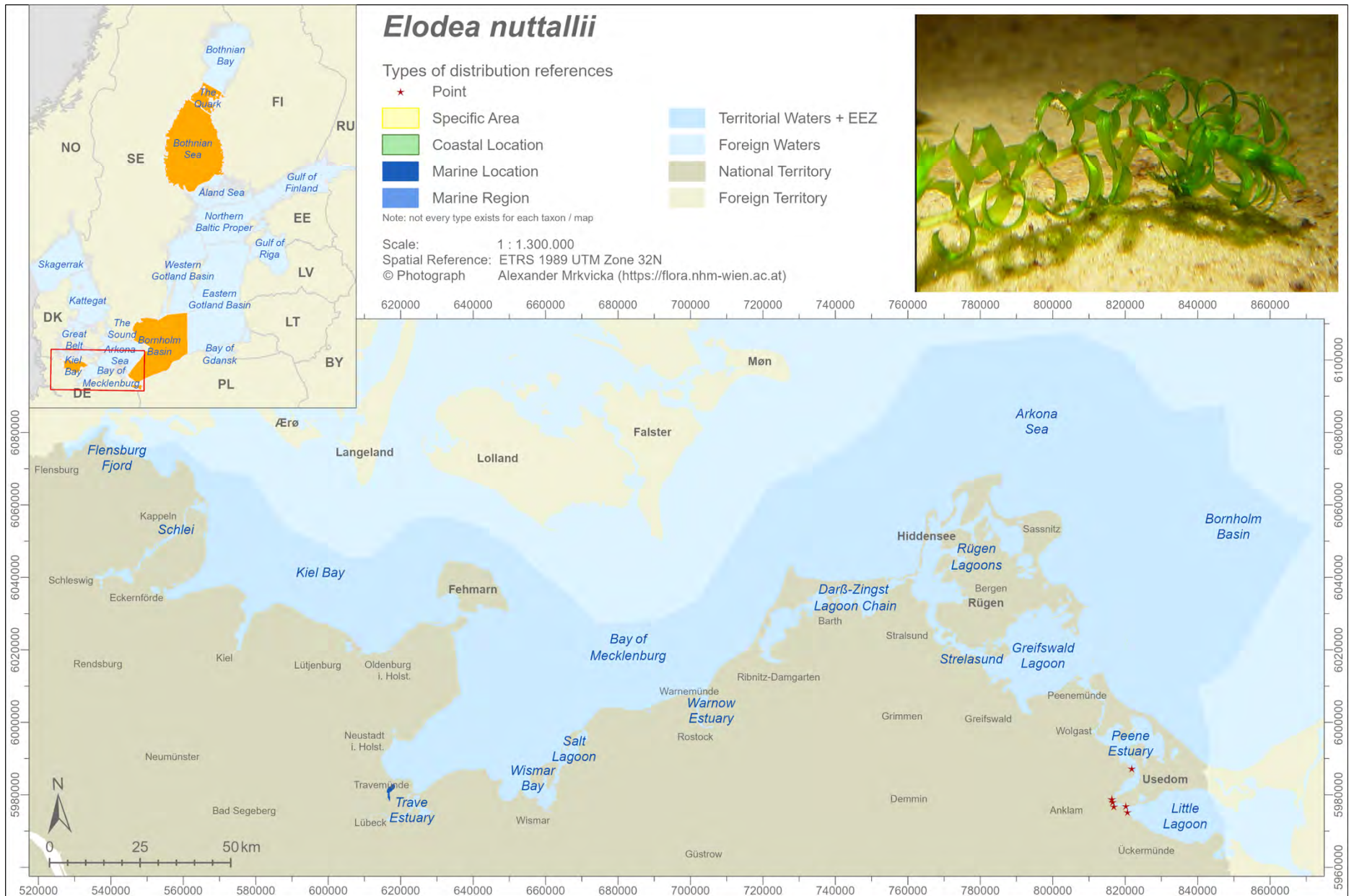
Ecology	
Substrate	soft bottom – primarily mud and muddy sand
Attachment	rooted
Salinity	freshwater to $\beta$ -oligohaline ( $\beta$ -mesohaline) – mainly between 0,5 to 3 psu, records from higher salinities drifting specimens
Vertical zone	upper infralittoral
Exposure	ultra to extremely sheltered – mainly in semi-enclosed lagoons, coastal lakes and brackish ditches
Conservation	
Red List	<b>NA</b> (Baltic Sea), <b>♦</b> (DE), <b>*</b> (SH), <b>V</b> (MV)
Threats	–
Remarks	
neophyte (invasive), first confirmed occurrence in German freshwater in 1859 in Berlin; since then spreading all over Germany; regarded as freshwater species, only randomly in brackish waters; references in higher salinities only in front of freshwater inflow and/or from unattached, drifting specimens	
References	
13 41 52 53 66 81 82 86 92 105 147 156 196 211 220 228 237	



## *Elodea nuttallii* (Planch.) H. St. John, 1920

Taxonomy	
Phylum	Tracheophyta
Class	Magnoliopsida
Order	Alismatales
Family	Hydrocharitaceae
Subspecies	–
Synonyms	<i>Anacharis nuttallii</i> Planch. <i>Elodea minor</i> (Engelm. ex Caspary) Farw. <i>Elodea occidentalis</i> (Pursh) H.St. John, 1920 <i>Philotria angustifolia</i> (Muhl.) Bfitt. ex Rydb. <i>Philotria nuttallii</i> (Planch.) Rydb.
Distribution	
Baltic Sea	records from Bothnian Sea and Kiel Bay only (DE, SE); not entirely clear, if records originate in brackish or freshwater
German Baltic Sea	four different locations overall from a coastal lake, which has (recently) no constant connection to Baltic Sea and in front of ditch outlets – Bay of Mecklenburg (Hemmelsdorf Lake), Peene Estuary (Schadefähre, Karmin), Little Lagoon (Kreuzort)

Ecology	
Substrate	soft bottom – primarily mud and muddy sand
Attachment	rooted
Salinity	freshwater (to $\beta$ -oligohaline) – no clear evidence in brackish waters
Vertical zone	upper infralittoral
Exposure	ultra to extremely sheltered – mainly in semi-enclosed lagoons, coastal lakes and brackish ditches
Conservation	
Red List	<b>NA</b> (Baltic Sea), $\blacklozenge$ (DE), * (SH), * (MV)
Threats	–
Remarks	
neophyte (invasive), first confirmed occurrence in German freshwater in 1953 in Münster; since then, spread all over Germany; regarded as freshwater species, only randomly in brackish waters	
References	
52 81 82 147 156 196 237	

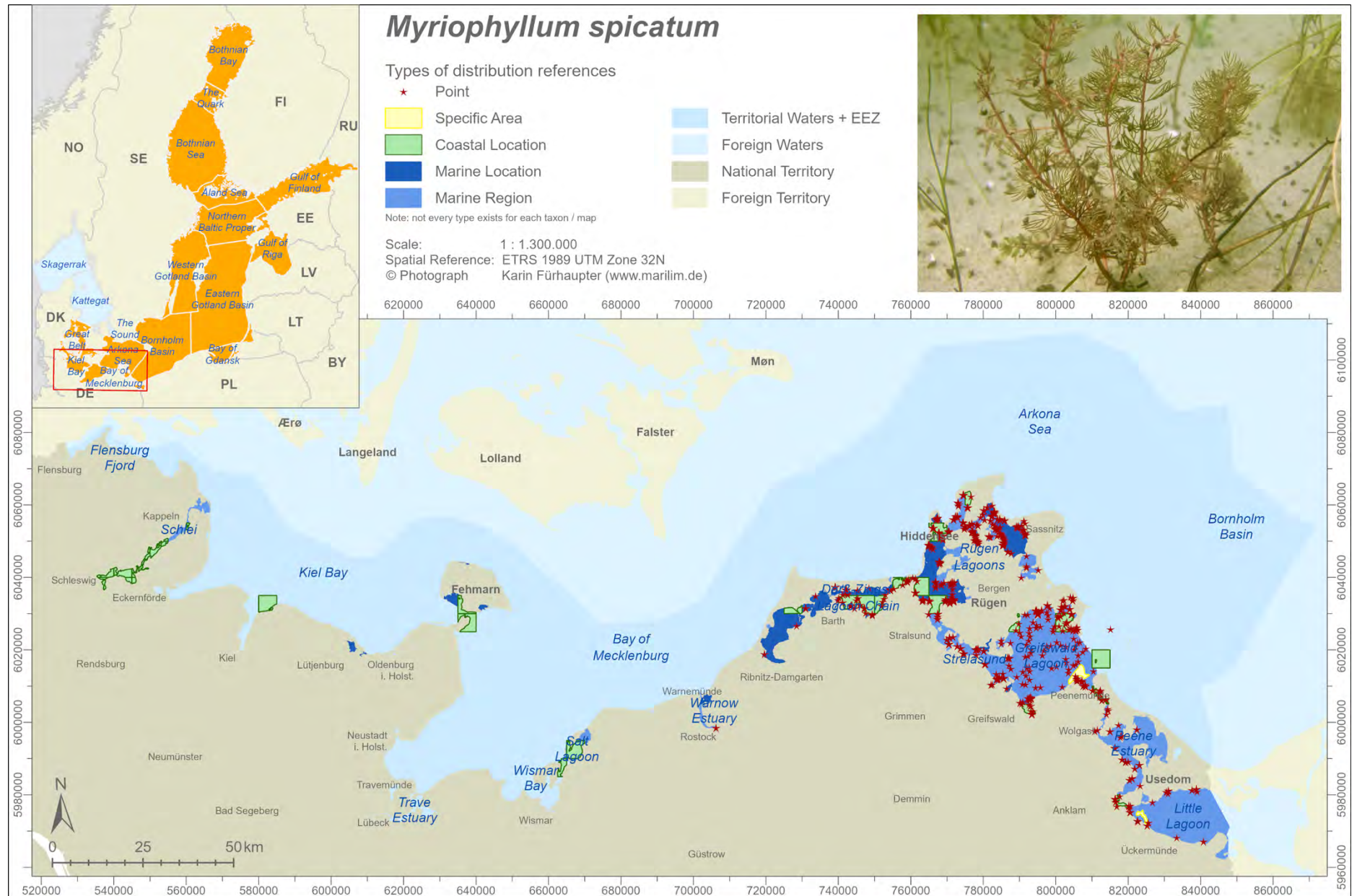


## *Myriophyllum spicatum* L.

Taxonomy	
Phylum	Tracheophyta
Class	Magnoliopsida
Order	Saxifragales
Family	Haloragaceae
Subspecies	–
Synonyms	–
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of northwesternmost parts – from Great Belt to Bothnian Bay (all neighbouring countries)
German Baltic Sea	numerous historical and recent records from eastern coastal bays, estuaries and lagoons – Darß-Zingst-Bodden-Chain, Rügen Lagoons, Strelasund, Greifswald Lagoon, Peene Estuary, Little Lagoon; significantly less and predominantly historical records from western coastal bays, estuaries and lagoons – Schlei, Kiel Bay (Orth Bight, Burg Inland lake), Wismar Bight, Salzhaff, Warnow Estuary; only two recent records in western coastal lakes – Kiel Bay (Great Inland Lake, Northern Inland Lake/Fehmarn)

Ecology	
Substrate	soft bottom – soft bottom – mainly pure sand to sandy mud, rarely on pure mud or coarse sediment
Attachment	rooted
Salinity	freshwater to $\beta$ -mesohaline ( $\alpha$ -mesohaline) – up to a maximum of 10 psu, above 10 psu only sporadic records
Vertical zone	upper infralittoral – from 0,2 to about 5 m depth (4,6 m a single record)
Exposure	extremely sheltered to sheltered
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE), * (SH), <b>V</b> (MV)
Threats	–
Remarks	
recently no records in higher salinities, possibly a side effect of high turbidity and particular sensitivity at the upper ecological occurrence range	
References	
5 13 17 28 30 40 41 42 49 50 52 62 63 65 66 72 80 81 82 86 92 103 109 112 113 129 130 131 147 156 166 172 180 181 191 196 211 220 228 229 232 237 239	

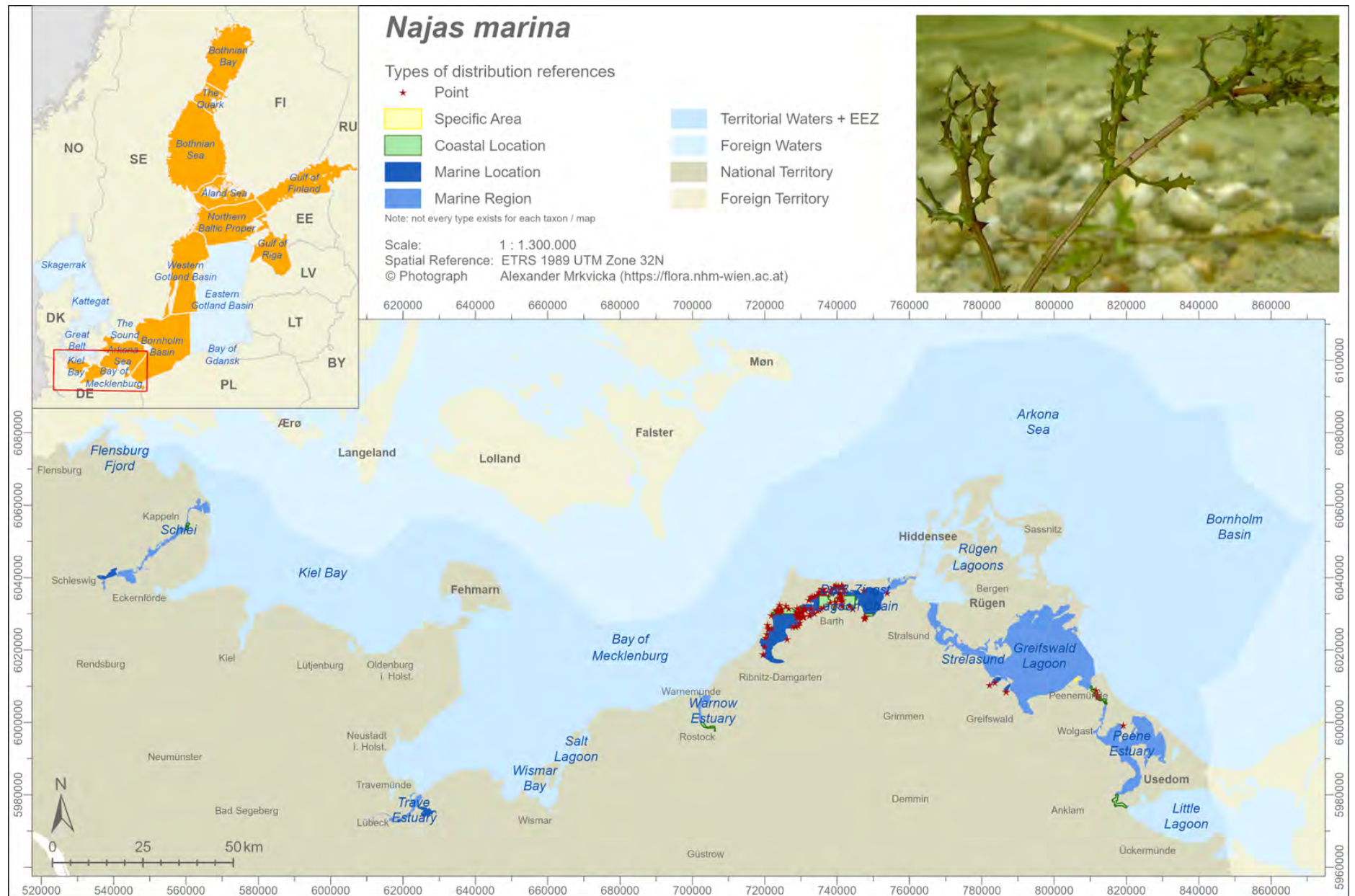




## *Najas marina* L.

Taxonomy	
Phylum	Tracheophyta
Class	Magnoliopsida
Order	Alismatales
Family	Hydrocharitaceae
Subspecies	<i>Najas marina</i> ssp. <i>intermedia</i> (Wolfg. ex Gorski) Casper <i>Najas marina</i> ssp. <i>marina</i> L.
Synonyms	<i>Najas gracilis</i> (Morong) Small <i>Najas major</i> var. <i>angustifolia</i> A. Braun ex Schum. <i>Najas marina</i> ssp. <i>major</i> (All.) Viinikka <i>Najas marina</i> var. <i>recurvata</i> Dudley
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of northwesternmost parts – from Kiel Bay to Bothnian Bay without Bay of Gdansk, Eastern Gotland Basin (all neighbouring countries apart from DK, LT, PL)
German Baltic Sea	inner parts of most eastern estuaries, lagoons, coastal lakes – Darß-Zingst-Lagoon-Chain (Saal, Bodstedt, Barth Lagoon), Strelasund (Kemlade), Greifswald Lagoon (Freesendorf Lake, Koos Lake), Peene Estuary (Old Peene, Kröslin Lake); a single recent record from a western coastal lake – Kiel Bay (Windeby Lagoon); historically also Schlei, Kiel Bay (Sehendorf Inland Lake), Trave Estuary (Dassow Lake), Warnow Estuary

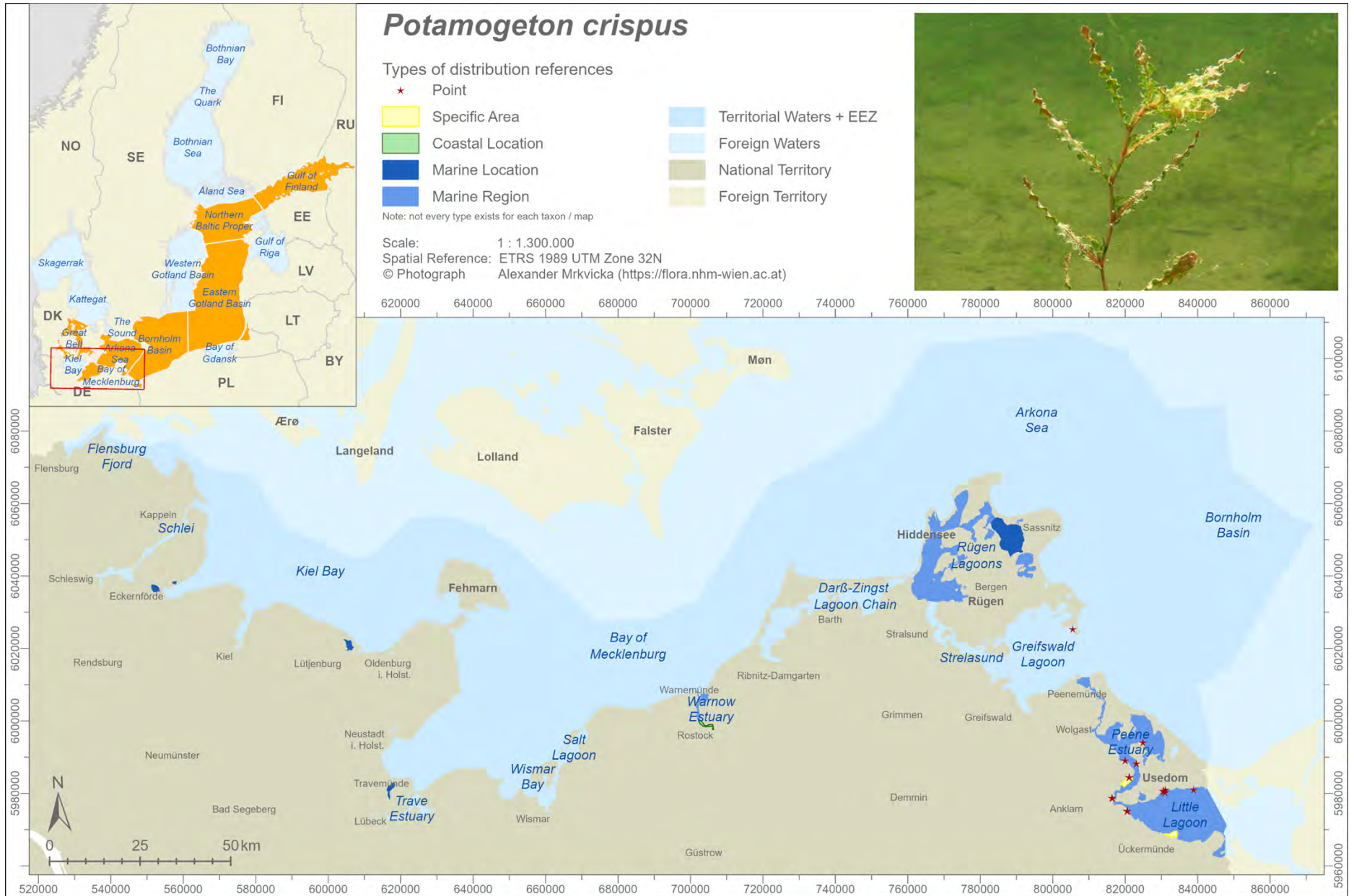
Ecology	
Substrate	soft bottom – mainly mud, muddy sand, more rarely on pure sand
Attachment	rooted
Salinity	freshwater to $\alpha$ -oligohaline ( $\beta$ -mesohaline) – up to a maximum of 10 psu, but more frequently below 5 psu
Vertical zone	upper infralittoral – from 0,2 to about 1,5 m depth, but mainly below 1 m
Exposure	extremely sheltered to sheltered
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE) <i>N. marina</i> ssp. <i>intermedia</i> , <b>D</b> (DE) <i>N. marina</i> ssp. <i>marina</i> , <b>D</b> (DE), <b>1</b> (SH), <b>2</b> (MV)
Threats	–
Remarks	
in recent WFD coastal monitoring no distinctions between subspecies are assessed	
References	
7 13 17 28 42 50 52 60 62 63 66 81 82 86 92 112 113 129 130 131 147 156 180 181 211 237 239	



## Potamogeton crispus L.

Taxonomy	
Phylum	Tracheophyta
Class	Magnoliopsida
Order	Alismatales
Family	Potamogetonaceae
Subspecies	–
Synonyms	<i>Potamogeton crenulatus</i> D. Don, 1825 <i>Potamogeton crispatus</i> Wallmann ex Rchb., 1845 <i>Potamogeton tuberosus</i> Roxb., 1820
Distribution	
Baltic Sea	unevenly distributed in western and central Balti Sea – Great Belt (DK), Bay of Mecklenburg to Gulf of Finland (DE, FI, LT, RU, SE) without Bay of Gdansk and Riga
German Baltic Sea	regularly in innermost parts of eastern estuaries and lagoons with strong freshwater influence Warnow Estuary, Rügen Lagoons (Great Jasmund Lagoon, Spycyk Lake), Peene Estuary (Achterwasser, Lassan, Jamitzower Hard), Little Lagoon (Anklamer Fähre, Stolpe, Kamig-haken); along the western part only in coastal lakes – Kiel Bay (Hemmelmark Lake, Windeby Lagoon, Great Inland Lake), Bay of Mecklenburg (Hemmelsdorf Lake)

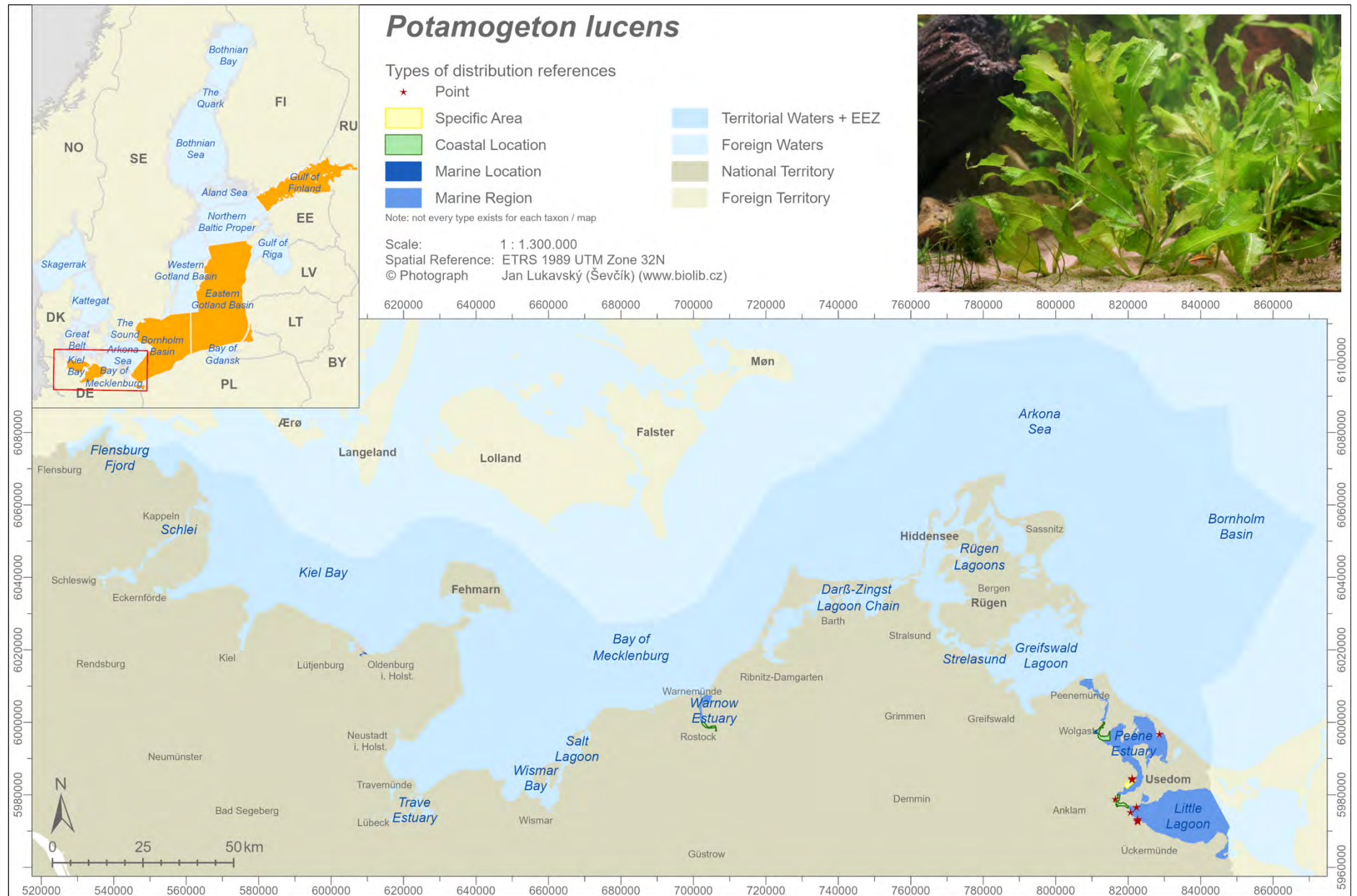
Ecology	
Substrate	soft bottom
Attachment	rooted
Salinity	freshwater to $\beta$ -oligohaline ( $\alpha$ -oligohaline) – mainly between 0,5 to 3 psu (a single reference for $\alpha$ -oligohaline)
Vertical zone	upper infralittoral
Exposure	ultra to very sheltered
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE), * (SH), * (MV)
Threats	–
Remarks	
few records in marine monitoring programs, borderline species to freshwater	
References	
13 41 52 62 65 66 81 82 147 156 180 196 228 237	



## Potamogeton lucens L.

Taxonomy	
Phylum	Tracheophyta
Class	Magnoliopsida
Order	Alismatales
Family	Potamogetonaceae
Subspecies	–
Synonyms	<i>Potamogeton acuminatus</i> Schumach., 1801 <i>Potamogeton fluviatilis</i> Roem. & Schult., 1818 <i>Potamogeton longifolius</i> Gay, 1816 <i>Potamogeton macrophyllus</i> Wulfen, 1827 <i>Potamogeton rotundifolius</i> Schultz, 1819
Distribution	
Baltic Sea	unevenly distributed in western and central parts of Baltic Sea – Kiel Bay, Bay of Mecklenburg, Bornholm Basin, Eastern Gotland Basin, Gulf of Finland (DE, LT, RU)
German Baltic Sea	in innermost parts of eastern estuaries and lagoons – Warnow Estuary (a single historical record at Rostock), Peene Estuary (Achterwasser, Jamitzower Hard, Anklamer Fähre), Little Lagoon (Leopoldshagen, Mönchow, Kreuzort); a single record in a western coastal lake – Kiel Bay (Sehlendorf Inland Lake)

Ecology	
Substrate	soft bottom
Attachment	rooted
Salinity	freshwater to $\beta$ -oligohaline ( $\alpha$ -oligohaline) – mainly between 0,5 to 3 psu
Vertical zone	upper infralittoral
Exposure	extremely sheltered to sheltered
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>V</b> (DE), <b>3</b> (SH), * (MV)
Threats	–
Remarks	
few records in marine monitoring programs, borderline species to freshwater	
References	
28 52 66 81 82 147 156 180 237	

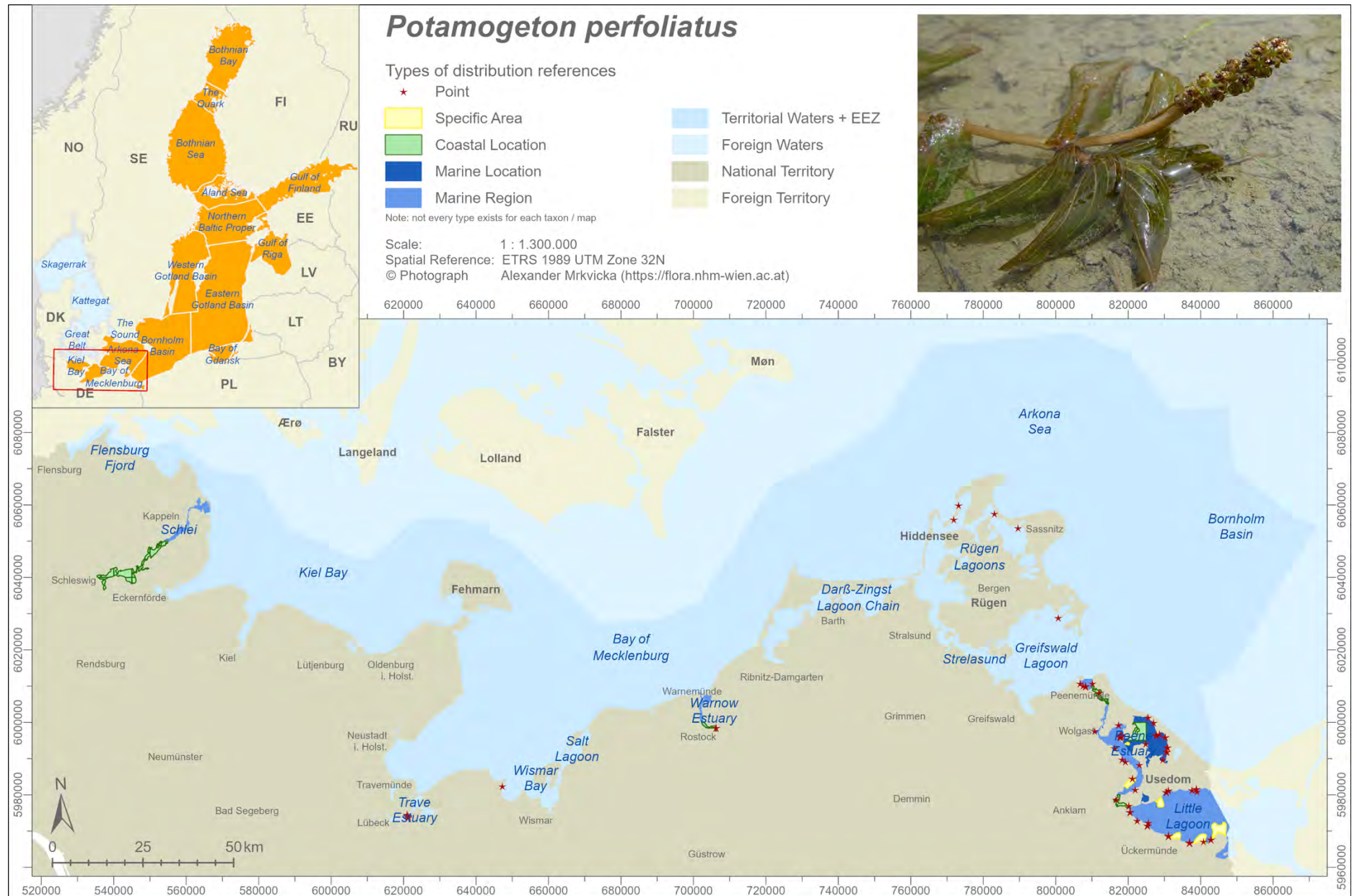


## Potamogeton perfoliatus L.

Taxonomy	
Phylum	Tracheophyta
Class	Magnoliopsida
Order	Alismatales
Family	Potamogetonaceae
Subspecies	–
Synonyms	<i>Potamogeton amplexicaulis</i> Kar. <i>Potamogeton bupleuroides</i> Fern. <i>Potamogeton perfoliatus</i> ssp. <i>bupleuroides</i> (Fern.) Hultén
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of northwesternmost parts – from Kiel Bay to Bothnian Bay (all neighbouring countries apart from DK)
German Baltic Sea	inner parts of coastal bays, estuaries and lagoons as well as in various coastal lakes – Schlei, Kiel Bay (Hemmelmark Lake, Windeby Lagoon), Trave Estuary (Little Wood Bight), Bay of Mecklenburg (Hemmelsdorf Lake, Great Inland Lake), Wismar Bay (Tarnowitz) Warnow Estuary, Rügen Lagoons (Bug), Peene Estuary (many locations), Little Lagoon (many locations)

Ecology	
Substrate	soft bottom – sand, mud
Attachment	rooted
Salinity	freshwater to $\beta$ -mesohaline – up to about 6 psu
Vertical zone	upper infralittoral – from 0,5 to 2 m
Exposure	extremely sheltered to sheltered
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>V</b> (DE), * (SH), * (MV)
Remarks	
in other areas of the Baltic Sea (SE, FI) <i>P. perfoliatus</i> occurs regularly in eelgrass stands, in German brackish waters these two species seem to be separated from each other even in historical records	
References	
13 17 41 52 53 62 66 81 82 86 147 156 167 180 181 196 228 237	

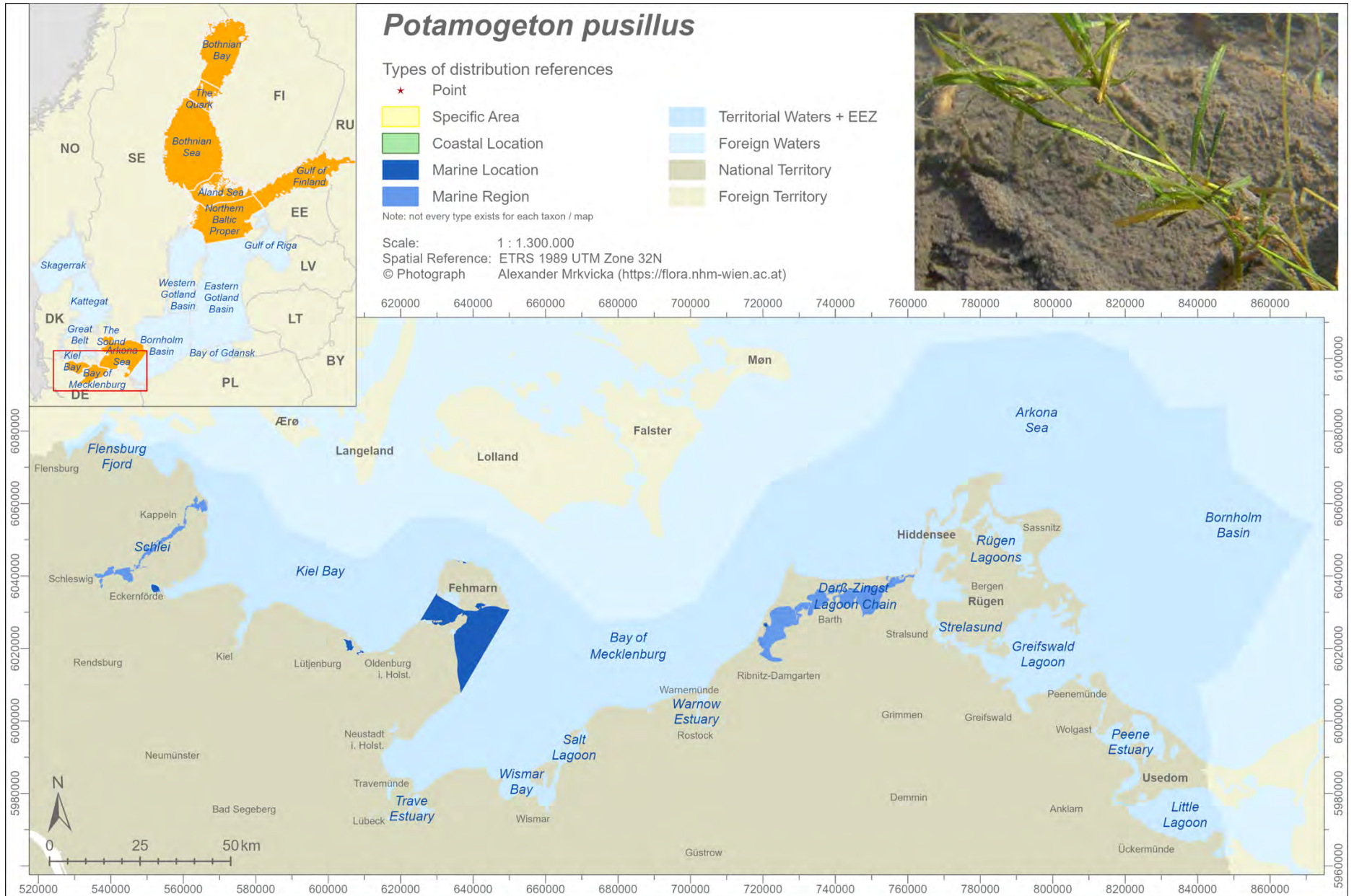




## Potamogeton pusillus L.

Taxonomy	
Phylum	Tracheophyta
Class	Magnoliopsida
Order	Alismatales
Family	Potamogetonaceae
Subspecies	–
Synonyms	<i>Potamogeton denticulatus</i> Link, 1825 <i>Potamogeton noltei</i> A. Benn., 1890 <i>Potamogeton panormitanus</i> Biv., 1838 <i>Potamogeton reichenbachii</i> Löhr, 1853 <i>Potamogeton striatus</i> Torr. ex Morong, 1886
Distribution	
Baltic Sea	unevenly distributed in some western and northeastern parts of the Baltic Sea – Kiel Bay to Arkona Sea (DE) and Northern Baltic Proper to Bothnian Bay (FI, RU, SE)
German Baltic Sea	few historical records at locations, which cannot be clearly assigned to brackish water and some recent records from western coastal lakes – Schlei, Kiel Bay (Windeby Lagoon, Great Inland Lake, Sehlendorf Inland Lake, Northern Inland Lake/ Fehmarn, ditches at Fehmarn-sund), Mecklenburg Bay (Burg Inland Lake), Darß-Zingst-Bodden-Chain (Prerow, Permin)

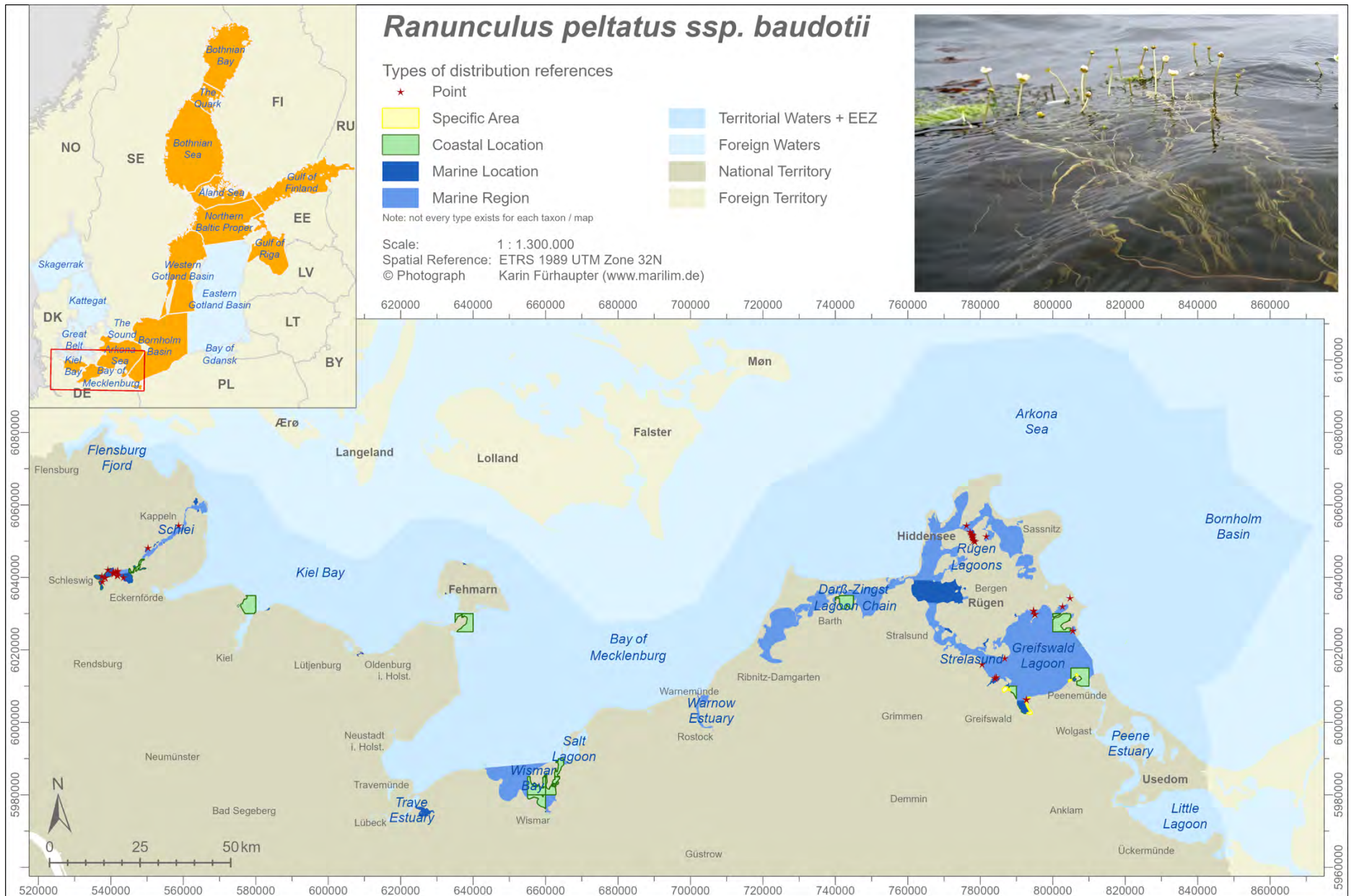
Ecology	
Substrate	soft bottom – muddy sand
Attachment	rooted
Salinity	freshwater to $\beta$ -oligohaline – up to about 2 psu
Vertical zone	upper infralittoral – from 0,3 to 0.6 m
Exposure	ultra to very sheltered
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>V</b> (DE), * (SH), <b>3</b> (MV)
Threats	–
Remarks	
regarded as freshwater species, only randomly in brackish waters	
References	
13 30 81 82 86 129 147 156 228 237	



## *Ranunculus peltatus* ssp. *baudotii* (Godr.) Meikle ex C.D.K. Cook

Taxonomy	
Phylum	Tracheophyta
Class	Magnoliopsida
Order	Ranunculales
Family	Ranunculaceae
Species	<i>Ranunculus peltatus</i> Schrank
Synonyms	<i>Ranunculus baudotii</i> Godr., 1840
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of northwesternmost parts – from Kiel Bay to Bothnian Bay (DE, EE, FI, LV, SE) with exception of Eastern Gotland Basin, Bay of Gdansk
German Baltic Sea	inner parts of coastal lagoons estuaries and coastal lakes – Kiel Bay (Sulsdorf Bight and Northern Inland Lake/Fehmarn), Wismar Bight, Darß-Zingst-Lagoon-Chain, Rügen Lagoons, Strelasund, Greifswald Lagoon; historical references also from Schlei, Kiel Bay (Seelendorf Inland Lake), Estuary Trave (Dassow Lake), Warnow Estuary

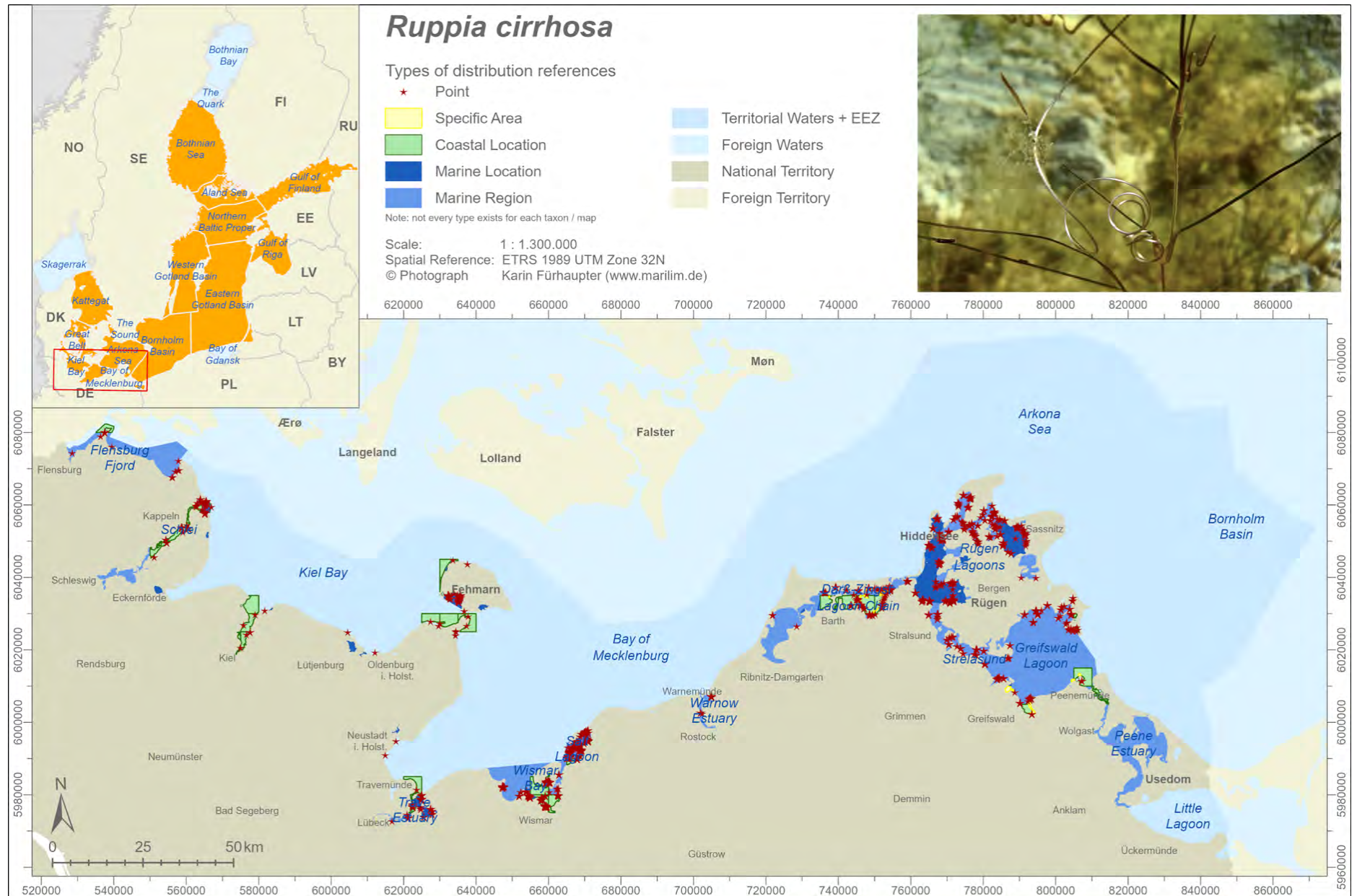
Ecology	
Substrate	soft bottom – sand, muddy sand, sandy mud, mud
Attachment	rooted
Salinity	$\beta$ -oligohaline to $\beta$ -mesohaline – between 1 to 8 psu
Vertical zone	upper infralittoral – from 0,3 to 2 m, mainly around 1 m
Exposure	extremely sheltered to very sheltered
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>3</b> (DE), <b>3</b> (SH), <b>3</b> (MV)
Threats	–
Remarks	
appears only sporadically, in some years not even single specimens can be detected at the confirmed sites	
References	
28 52 63 65 66 72 80 81 82 84 86 105 109 112 113 129 147 156 180 181 188 211 220 237 239	



## *Ruppia cirrhosa* (Petagna) Grande, 1918

Taxonomy	
Phylum	Tracheophyta
Class	Magnoliopsida
Order	Alismatales
Family	Ruppiaceae
Subspecies	–
Synonyms	<i>Buccaferrea cirrhosa</i> Petagna, 1787 <i>Ruppia maritima</i> ssp. <i>spiralis</i> (Dumort.) Asch. & Graebn., 1913 <i>Ruppia occidentalis</i> S. Wats. <i>Ruppia spiralis</i> L. ex Dumort.
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of northeasternmost parts – from Kattegat to Bothnian Sea (all neighbouring countries apart from PL, RU) with exception of Bay of Gdansk
German Baltic Sea	in all coastal bays, estuaries and lagoons with exception of Little Lagoon – from Flensburg Fjord, in the west to Peene Estuary in the east; also regularly recorded in most coastal lakes

Ecology	
Substrate	soft bottom – mainly pure sand to sandy mud, more rarely on pure mud or coarse sediment
Attachment	rooted
Salinity	(oligohaline) $\beta$ -mesohaline to euhaline (fully marine) – very few records from oligohaline sites
Vertical zone	hydrolittoral to upper infralittoral – from 0,1 to 1,5 m (3,5 m – a single record), mainly $\leq$ 1 m
Exposure	very sheltered to moderately exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>3</b> (DE), * (SH), * (MV)
Threats	–
Remarks	
most common tassleweed; differentiation to <i>R. maritima</i> for unfertile specimens difficult; apparently <i>R. cirrhosa</i> occurs at more exposed sites with coarser substrates and at higher salinities	
References	
7 13 28 40 49 52 53 54 55 59 60 62 63 65 68 77 80 81 82 104 105 108 112 113 126 129 130 131 145 147 152 153 156 172 177 181 184 196 203 211 222 227 228 229 237 239 246 247	

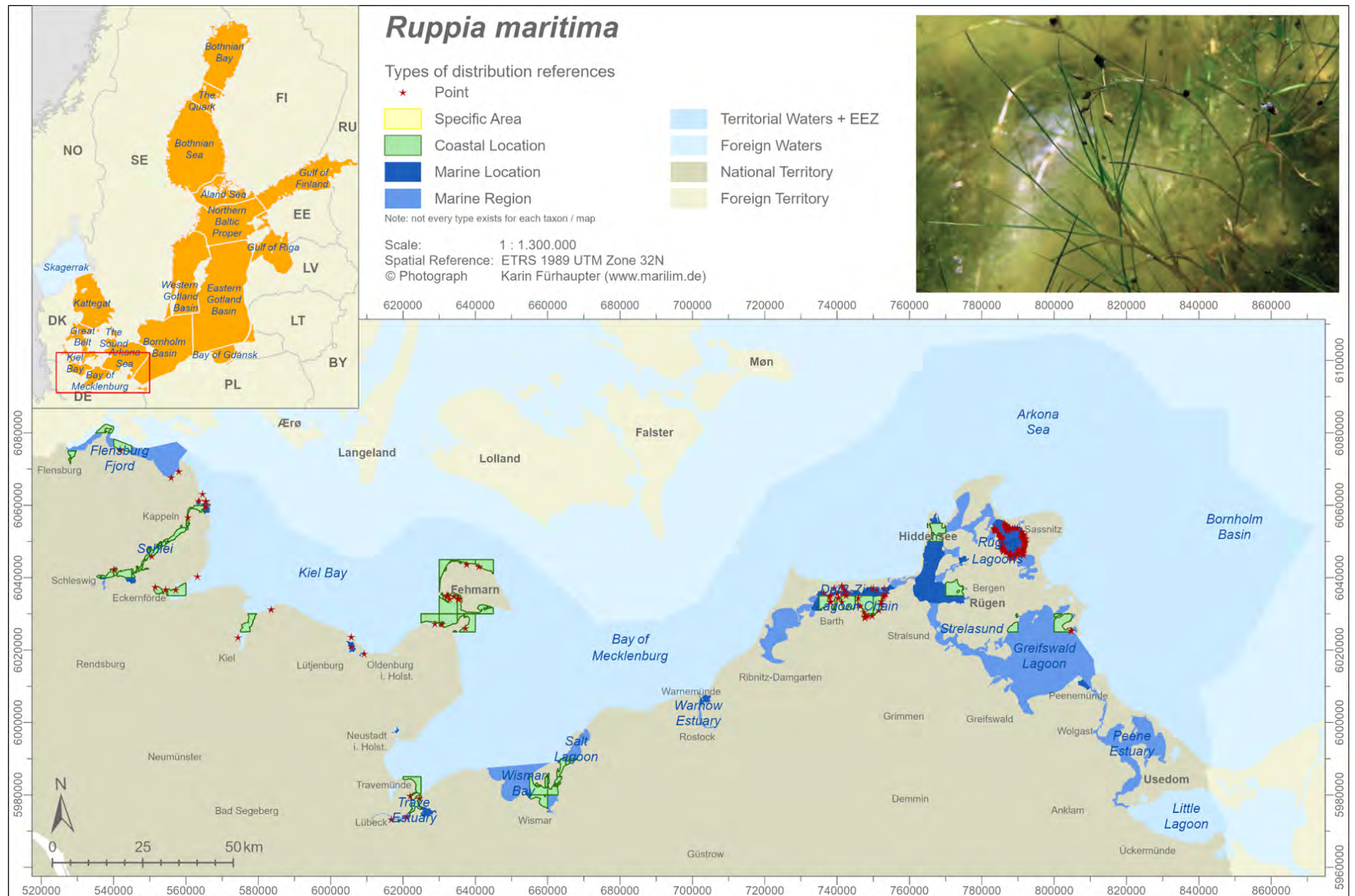


## *Ruppia maritima* L., 1753

Taxonomy	
Phylum	Tracheophyta
Class	Magnoliopsida
Order	Alismatales
Family	Ruppiceae
Subspecies	–
Synonyms	<i>Ruppia brachypus</i> J. Gay, 1848 <i>Ruppia maritima</i> var. <i>brevirostris</i> C. Agardh, 1823 <i>Ruppia pectinata</i> Rydb. <i>Ruppia rostellata</i> Koch, 1824
Distribution	
Baltic Sea	entire Baltic Sea coastline – from Kattegat to Bothnian Bay (all neighbouring countries)
German Baltic Sea	in all coastal bays, estuaries and lagoons with exception of Little Lagoon – from Flensburg Fjord, in the west to Peene Estuary in the east; also regularly recorded in western coastal lakes

Ecology	
Substrate	soft bottom – mainly muddy sand, sandy mud and mud, more rarely on pure sand or coarse sediment
Attachment	rooted
Salinity	oligohaline to $\alpha$ -mesohaline (polyhaline)– only very few records from polyhaline sites
Vertical zone	hydrolittoral to upper infralittoral – from 0,1 to 1,5 m (2,0 m – a single record), mainly $\leq$ 1 m
Exposure	extremely sheltered to sheltered
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>2</b> (DE), <b>2</b> (SH), * (MV)
Threats	–
Remarks	
differentiation to <i>R. cirrhosa</i> for unfertile specimens difficult; apparently <i>R. maritima</i> occurs more at sheltered sites compared to <i>R. cirrhosa</i>	
References	
18 30 44 50 52 53 59 60 61 63 64 65 68 77 80 81 82 86 92 100 108 109 113 116 119 129 130 131 141 145 147 156 159 165 167 172 180 181 182 184 195 220 229 232 237 238 239 247	





## *Stuckenia filiformis* Pers. (Börner)

### Taxonomy

Phylum	Tracheophyta
Class	Magnoliopsida
Order	Alismatales
Family	Potamogetonaceae
Subspecies	–
Synonyms	<i>Potamogeton fasciculatus</i> Wolfg., 1827 <i>Potamogeton filiformis</i> Pers., 1805 <i>Potamogeton juncifolius</i> A. Kern., 1896 <i>Potamogeton marinus</i> Fr., 1828

### Distribution

Baltic Sea	unevenly distributed in some western, central and inner parts of the Baltic Sea – Kiel Bay, Arkona Sea and Bay of Gdansk (DE, PL) and from Western Gotland Basin to Bothnian Bay (Fi, LV, SE)
German Baltic Sea	only four locations in coastal lagoons and one coastal lake, of which three cannot be clearly assigned to brackish water – Schlei, Kiel Bay (Lemkenhafen and Northern Inland Lake/Fehmarn), Darß-Zingst-Lagoon-Chain (Nisdorf)

### Ecology

Substrate	soft bottom – (gravel – doubtful record)
Attachment	rooted
Salinity	freshwater ( $\beta$ -mesohaline – doubtful records)
Vertical zone	upper infralittoral
Exposure	extremely to very sheltered

### Conservation

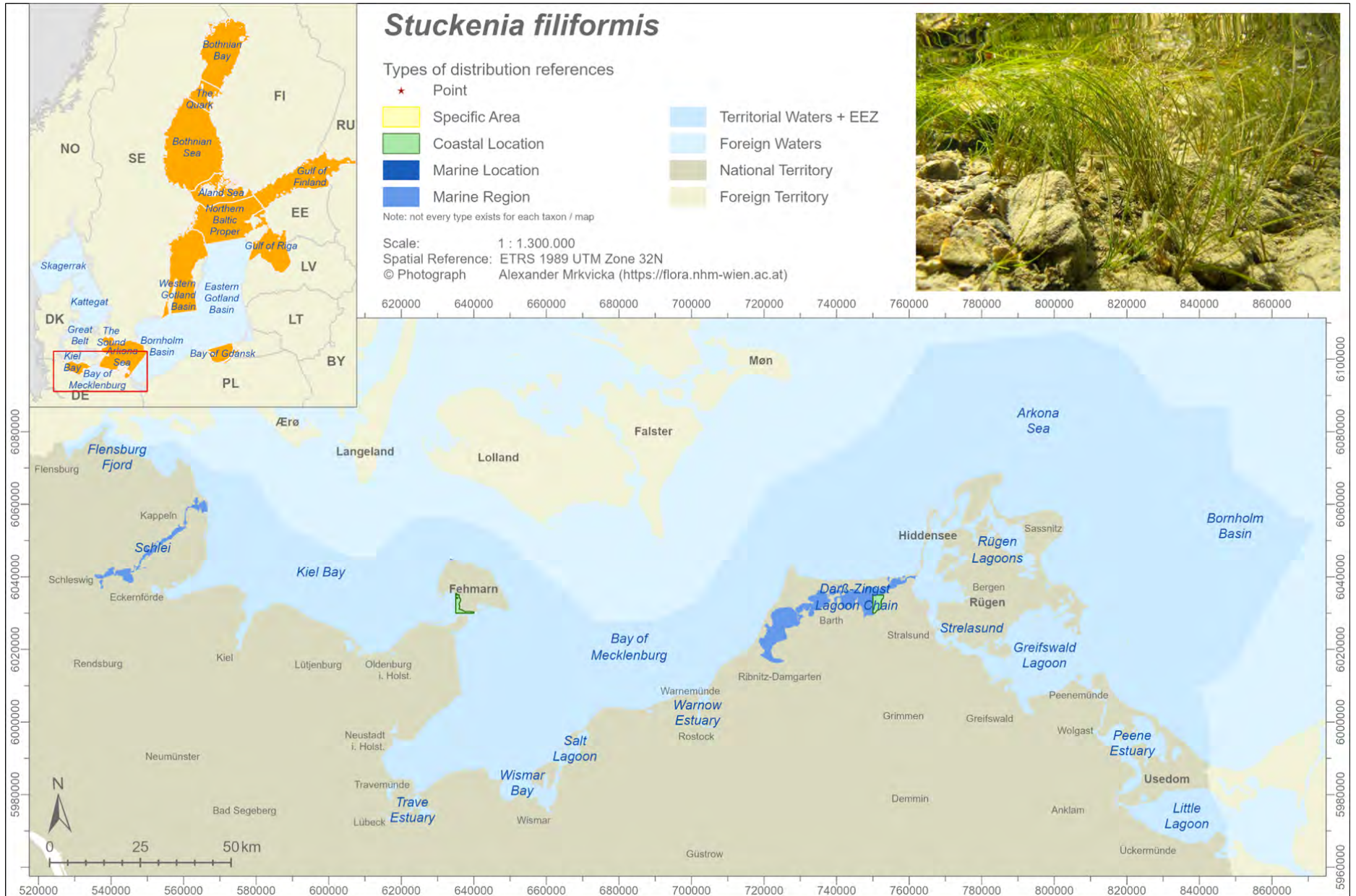
Red List	<b>LC</b> (Baltic Sea), <b>2</b> (DE), <b>1</b> (SH), <b>1</b> (MV)
Threats	–

### Remarks

regarded as freshwater species, only randomly in brackish waters or confused with *Stuckenia pectinata*

### References

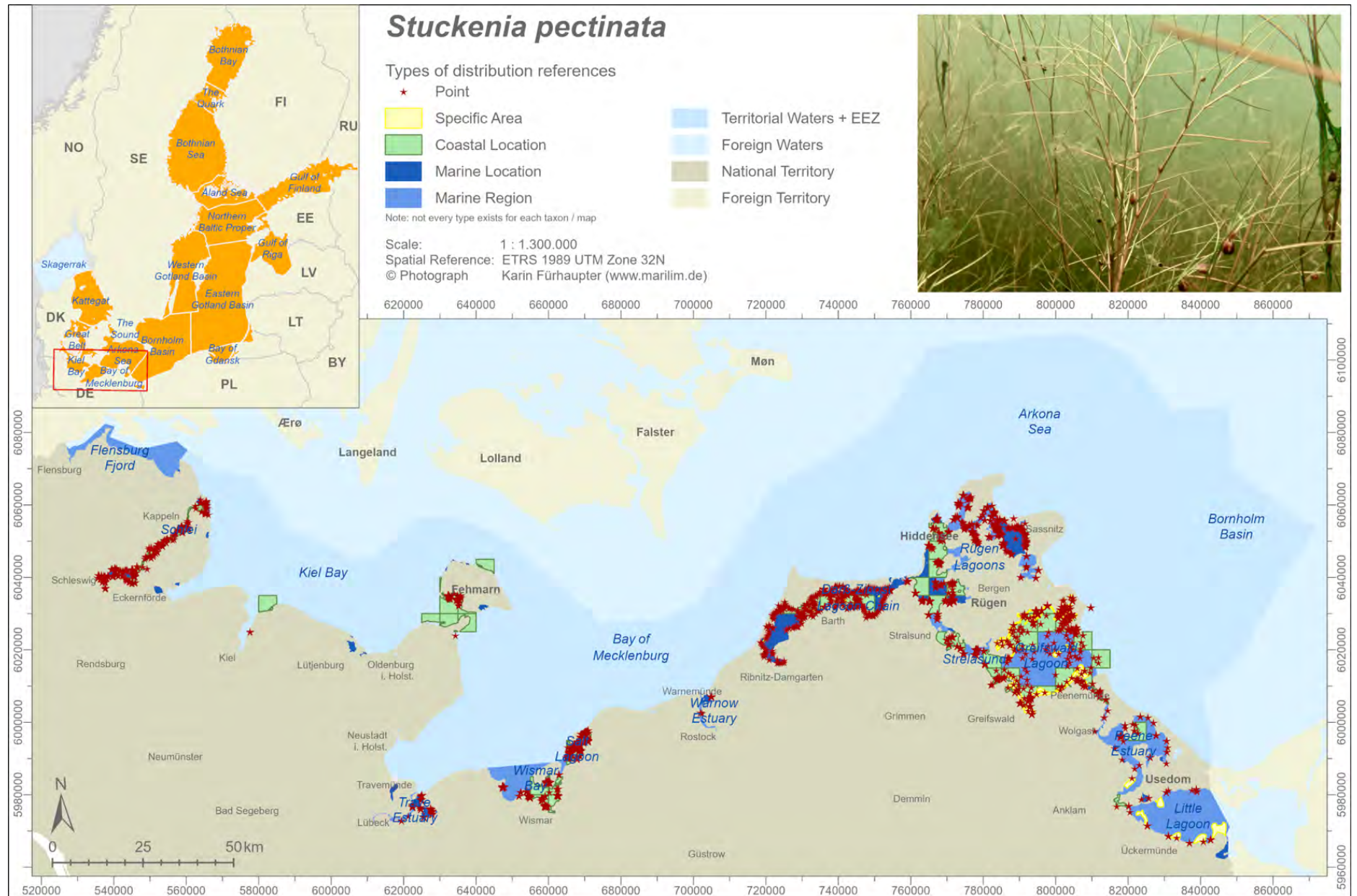
30 80 81 82 86 129 147 156 237



## *Stuckenia pectinata* (L.) Börner, 1912

Taxonomy	
Phylum	Tracheophyta
Class	Magnoliopsida
Order	Alismatales
Family	Potamogetonaceae
Subspecies	–
Synonyms	<i>Potamogeton marinus</i> L., 1753. <i>Potamogeton maritimus</i> Pohl, 1810 <i>Potamogeton pectinatus</i> L. <i>Potamogeton pectinatus</i> var. <i>scoparius</i> Wallr. 1812 <i>Potamogeton zosteraceus</i> Fr., 1828
Distribution	
Baltic Sea	entire Baltic Sea coastline – from Kattegat to Bothnian Bay (all neighbouring countries)
German Baltic Sea	in all coastal bays, estuaries and lagoons – from Flensburg Fjord in the west to Little Lagoon in the east; along the east coast of the Island Rügen sporadically even along the open exposed coastline; also regularly recorded in coastal lakes

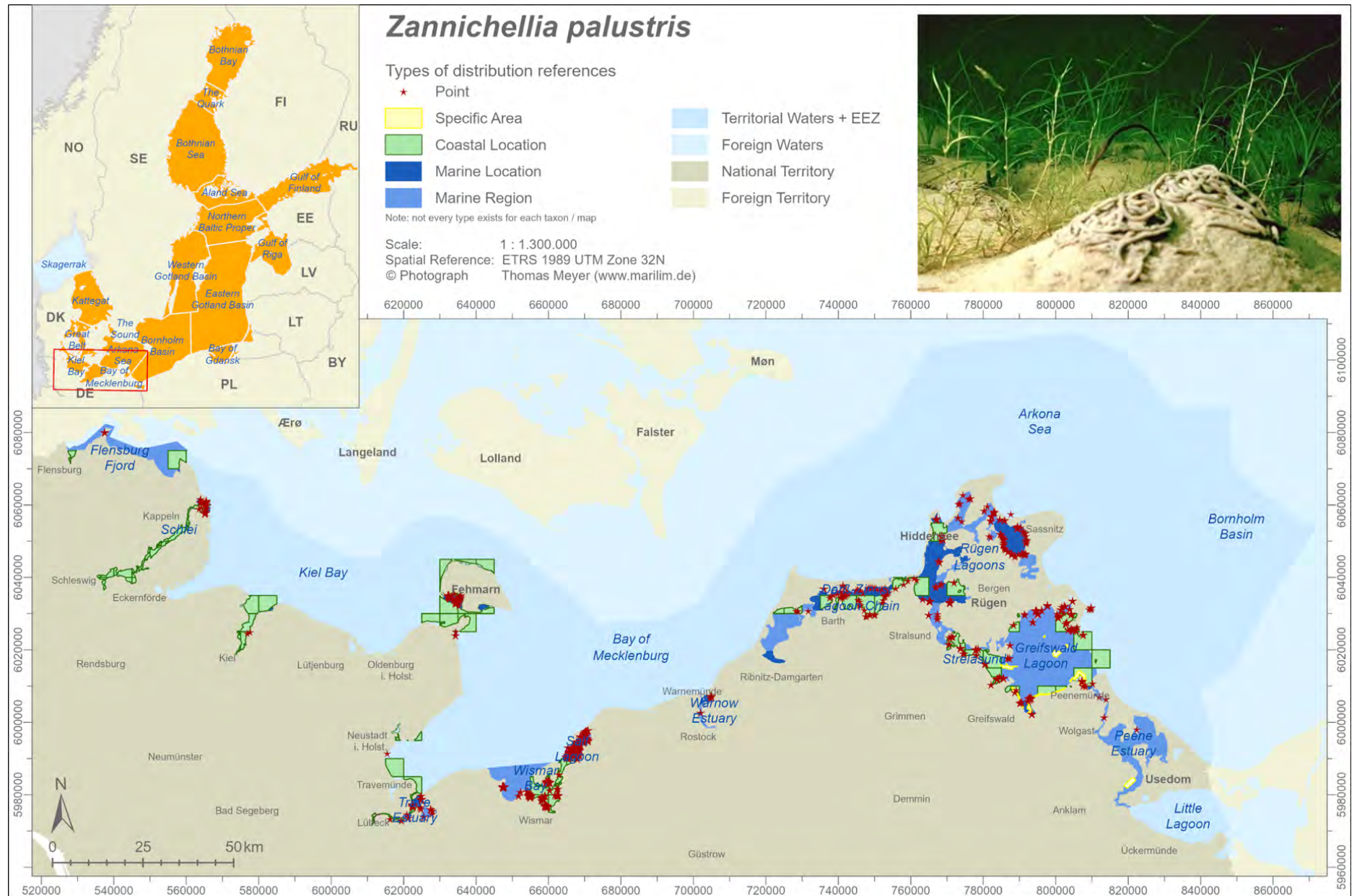
Ecology	
Substrate	soft bottom – sand, sandy mud, muddy sand, mud
Attachment	rooted
Salinity	freshwater to $\alpha$ -mesohaline – up to about 16 psu
Vertical zone	upper infralittoral – from 0,2 to 3.8 m
Exposure	ultra-sheltered to sheltered (moderately exposed, exposed) – at exposed sites only “behind” boulders, stony or marl ridges (“surf shadow”)
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE), * (SH), * (MV)
Threats	–
Remarks	
most common pondweed in brackish waters	
References	
4 5 7 13 17 21 27 28 29 30 40 41 50 52 53 54 59 60 61 62 63 65 66 68 72 76 80 81 82 86 92 100 103 105 108 109 112 113 116 118 129 130 131 145 146 147 149 152 153 156 162 165 166 172 177 180 181 188 191 196 204 211 220 228 229 232 237 239 247	



## Zannichellia palustris L.

Taxonomy	
Phylum	Tracheophyta
Class	Magnoliopsida
Order	Alismatales
Family	Potamogetonaceae
Subspecies	<i>Zannichellia palustris</i> ssp. <i>palustris</i> <i>Zannichellia palustris</i> ssp. <i>pedicellata</i> (Wahlenb. & Rosén) Syme <i>Zannichellia palustris</i> ssp. <i>polycarpa</i> (Nolte ex Rchb.) K. Richt.
Synonyms	<i>Zannichellia dentata</i> Willd., 1805 <i>Zannichellia major</i> Boenn. ex Rchb., 1829 <i>Zannichellia repens</i> Boenn.
Distribution	
Baltic Sea	entire Baltic Sea coastline – from Kattegat to Bothnian Bay (all neighbouring countries)
German Baltic Sea	in all coastal bays, estuaries and lagoons with exception of Little Lagoon and along the more sheltered open coastline (e.g. Fehmarnsund) – from Flensburg Fjord in the west to Peene Estuary in the east; along the east coast of the Island Rügen sporadically even along the open exposed coastline; also regularly recorded in coastal lakes

Ecology	
Substrate	soft bottom – sand to mud
Attachment	rooted
Salinity	freshwater to $\alpha$ -mesohaline – records up to 12–15 psu, but most records below 10 psu
Vertical zone	upper infralittoral – from 0,1 to about 4 m depth
Exposure	extremely sheltered to sheltered (moderately exposed, exposed) – at exposed sites often “behind” boulders, stony or marl ridges (“surf shadow”)
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE), * (SH), * (MV)
Threats	–
Remarks	
no clear differences in salinity preferences between subspecies – clear evidence/records of subspecies are illustrated in separate maps ( <a href="#">Section Distribution maps (below species level)</a> , p. 368)	
References	
10 13 27 30 40 50 60 61 62 63 64 65 66 68 80 81 82 86 92 100 108 109 113 117 118 119 129 130 141 142 145 147 152 156 165 166 180 181 182 184 191 196 203 211 227 228 229 232 237 238 239	



## *Zostera marina* Linnaeus, 1753

### Taxonomy

Phylum	Tracheophyta
Class	Magnoliopsida
Order	Alismatales
Family	Zosteraceae
Subspecies	–

### Distribution

Baltic Sea	entire Baltic Sea coastline with exception of northeastern parts – from Kattegat to Bothnian Sea (all neighbouring countries)
German Baltic Sea	along the entire open coastline of the German Baltic Sea with exception of the Island Usedom – from Flensburg to the east coast of the Island Rügen; in outer parts of coastal bays, estuaries and lagoons with exception of Peene Estuary and Little Lagoon; not in coastal lakes (only as drifting shoots)

### Ecology

Substrate	soft bottom – coarse sediment to muddy sand, mainly pure sand and only rarely on mud
Attachment	rooted
Salinity	$\beta$ -mesohaline to euhaline (fully marine) – above 5 psu
Vertical zone	upper infralittoral – from 0,75 to 10 m, mainly distributed between 2 and 5 m
Exposure	very sheltered to very exposed – at very exposed sites only “behind” boulders, stony or marl ridges

### Conservation

Red List	<b>LC</b> (Baltic Sea), <b>3</b> (DE), * (SH), * (MV)
Threats	–

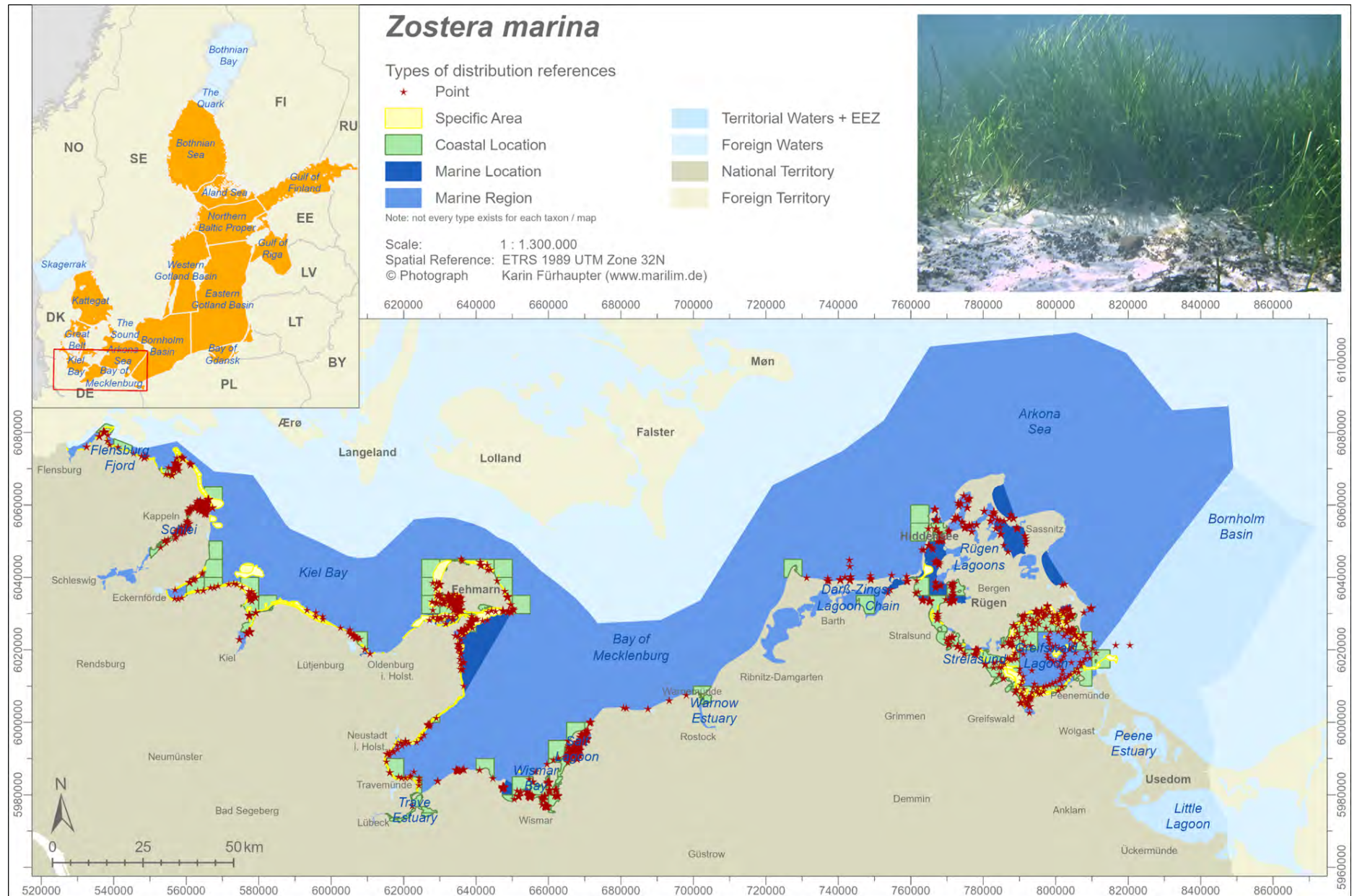
### Remarks

recently no records in salinities below 8 psu, possibly a side effect of high turbidity and particular sensitivity at the lower ecological occurrence range

### References

2 4 9 11 13 15 17 18 22 28 30 35 36 40 44 49 50 51 52 53 54 55  
59 60 61 62 63 64 65 66 68 69 71 76 77 81 82 86 87 89 92 93 94  
100 101 105 108 110 113 114 116 117 118 119 126 128 129 131  
132 140 141 142 144 145 146 147 149 150 151 152 153 156 159  
161 165 166 167 171 172 175 176 178 179 180 181 182 188 191  
195 196 197 203 204 207 211 212 218 220 222 223 224 227 229  
232 235 237 238 239 243

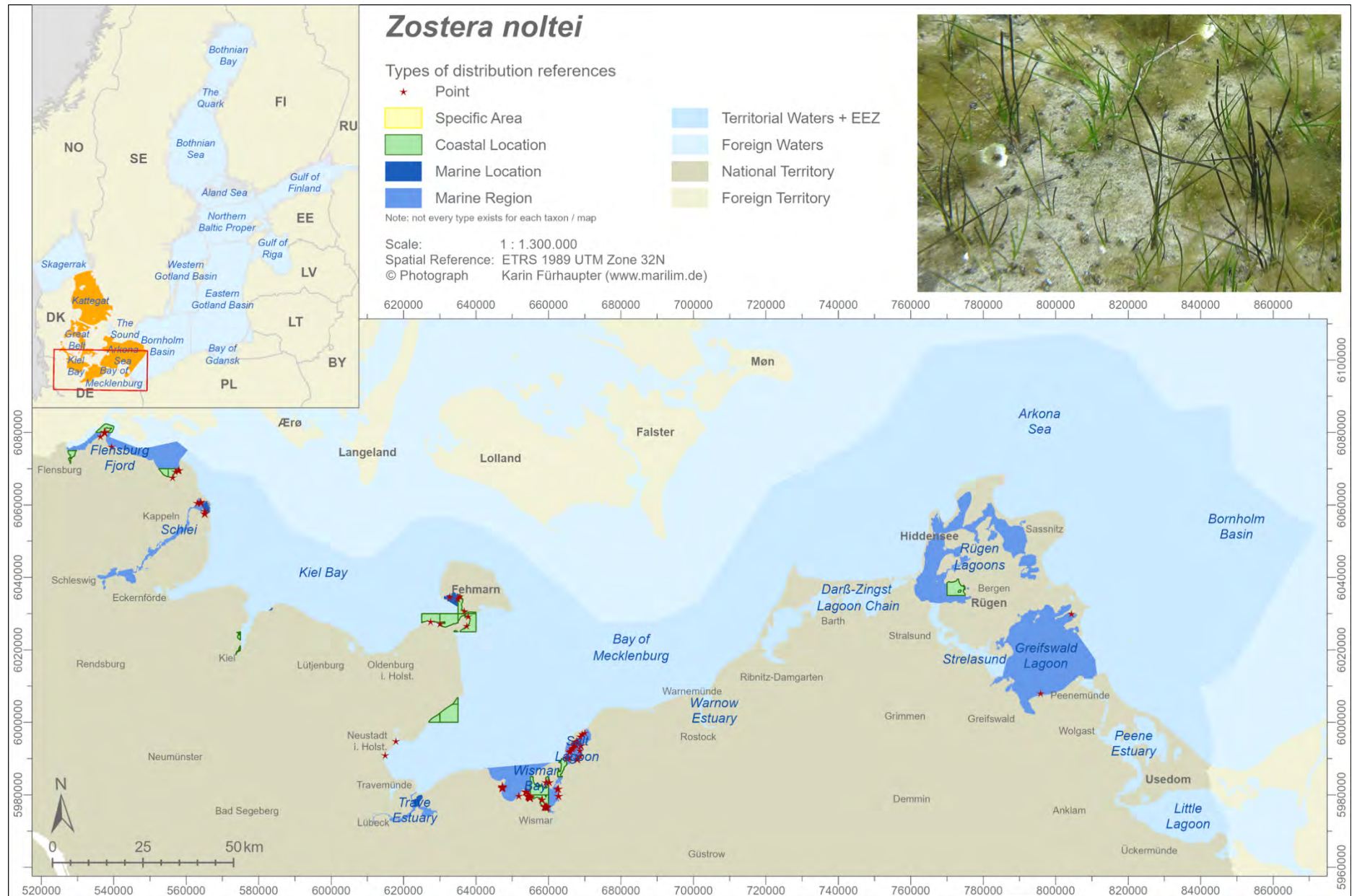




## *Zostera noltei* Hornemann, 1832

Taxonomy	
Phylum	Tracheophyta
Class	Magnoliopsida
Order	Alismatales
Family	Zosteraceae
Subspecies	–
Synonyms	<i>Nanozostera noltei</i> (Hornemann) Tomlinson & Posluszny, 2001 <i>Zostera nana</i> Roth, 1827 <i>Zostera noltii</i>
Distribution	
Baltic Sea	only western Baltic Sea – from Kattegat to Arkona Sea (DE, DK, SE)
German Baltic Sea	in outer parts of coastal bays, estuaries and lagoons with higher salinities and/or open connection to the open coast – Flensburg Fjord (Holnis, Bockholmwiek, Gelting Bay), Kiel Bay (Kiel Fjord, Orth Bay, Heiligenhafen), Bay of Mecklenburg (Großenbrode, Neustadt), Wismar Bay and Salt Lagoon; historically also Rügen Lagoons, Greifswald Lagoon

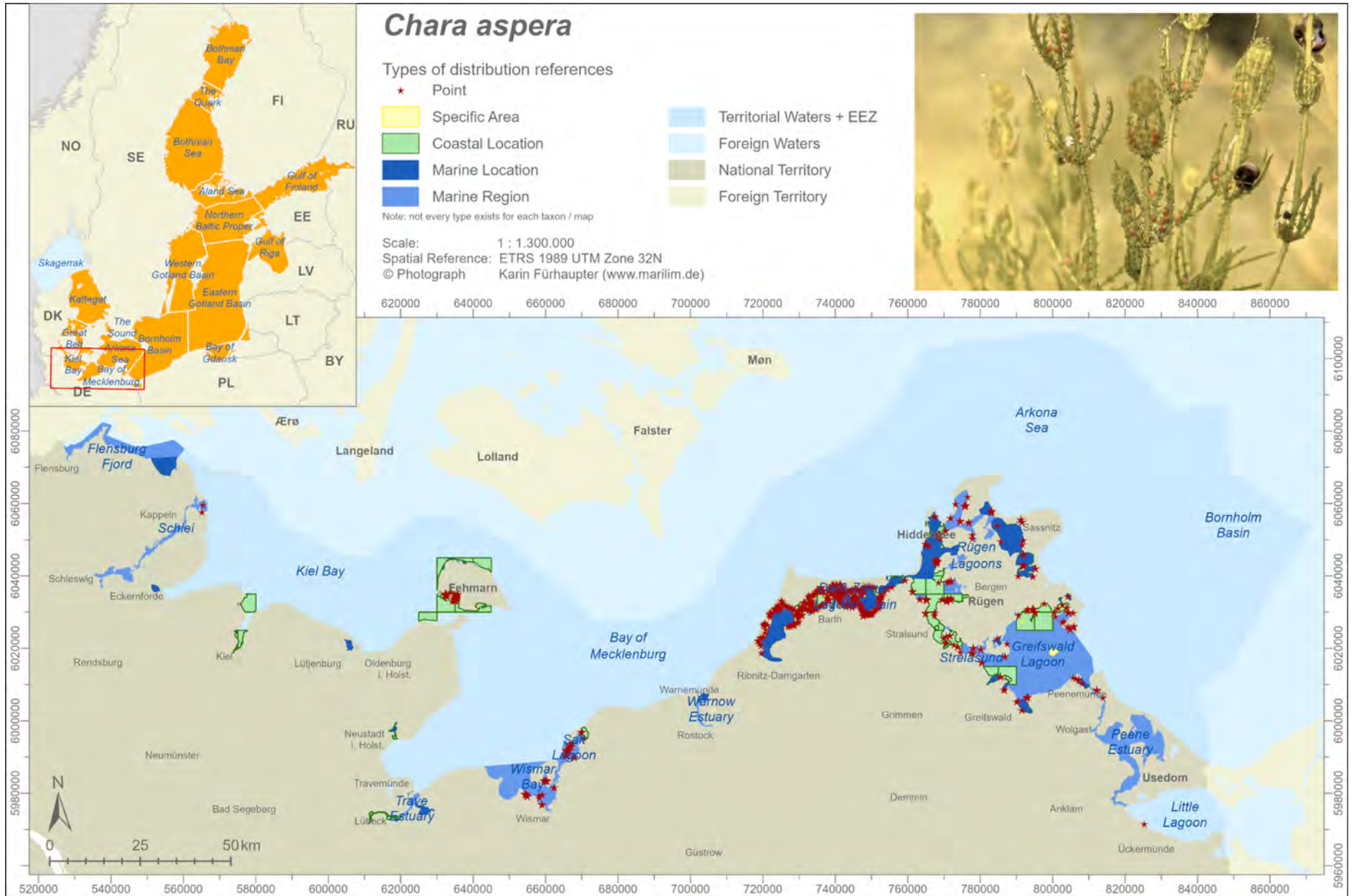
Ecology	
Substrate	soft bottom – sand, sandy mud, muddy sand, rarely on pure mud
Attachment	rooted
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – recently only at sites above 10 psu, historically also at sites around 7 psu
Vertical zone	hydrolittoral to upper infralittoral – from 0,1 to 1,0 m (3,0 m – a single record), mainly $\leq$ 0,5 m
Exposure	very sheltered to sheltered
Conservation	
Red List	<b>VU</b> (Baltic Sea), <b>3</b> (DE), <b>V</b> (SH), <b>2</b> (MV)
Threats	E, Co, T, To, OT, Cc
Remarks	
unfertile specimens often not to be distinguished from young shoots of <i>Z. marina</i> ; apparently <i>Z. noltei</i> occurs primarily at sites, which may fall dry wind induced and is particularly competitive against <i>Z. marina</i> at such sites	
References	
6 17 30 32 35 42 44 52 53 54 55 61 81 82 100 105 108 147 153 156 172 178 181 182 209 211 222 227 229 237	



## *Chara aspera* Willdenow, 1809

Taxonomy	
<i>Phylum</i>	Charophyta
<i>Class</i>	Charophyceae
<i>Order</i>	Charales
<i>Family</i>	Characeae
<i>Subspecies</i>	–
<i>Synonyms</i>	<i>Chara aspera</i> f. <i>brachyphylla</i> A. Braun ex W. Migula, 1897 <i>Chara aspera</i> var. <i>subinermis</i> Kützing, 1849 <i>Chara galioides</i> C. Agardh, 1824 <i>Chara pusilla</i> G. Detharding ex Kützing, 1834
Distribution	
<i>Baltic Sea</i>	entire Baltic Sea coastline – from Kattegat to Bothnian Bay (all neighbouring countries)
<i>German Baltic Sea</i>	in all coastal bays, estuaries and lagoons – from Flensburg Fjord in the west to outer Peene Estuary in the east; a single more recent record from Little Lagoon as drifting specimen; occasionally in coastal lakes – Kiel Bay (Windeby Lagoon, Great Inland Lake, Northern Inland Lakes of Fehmarn)

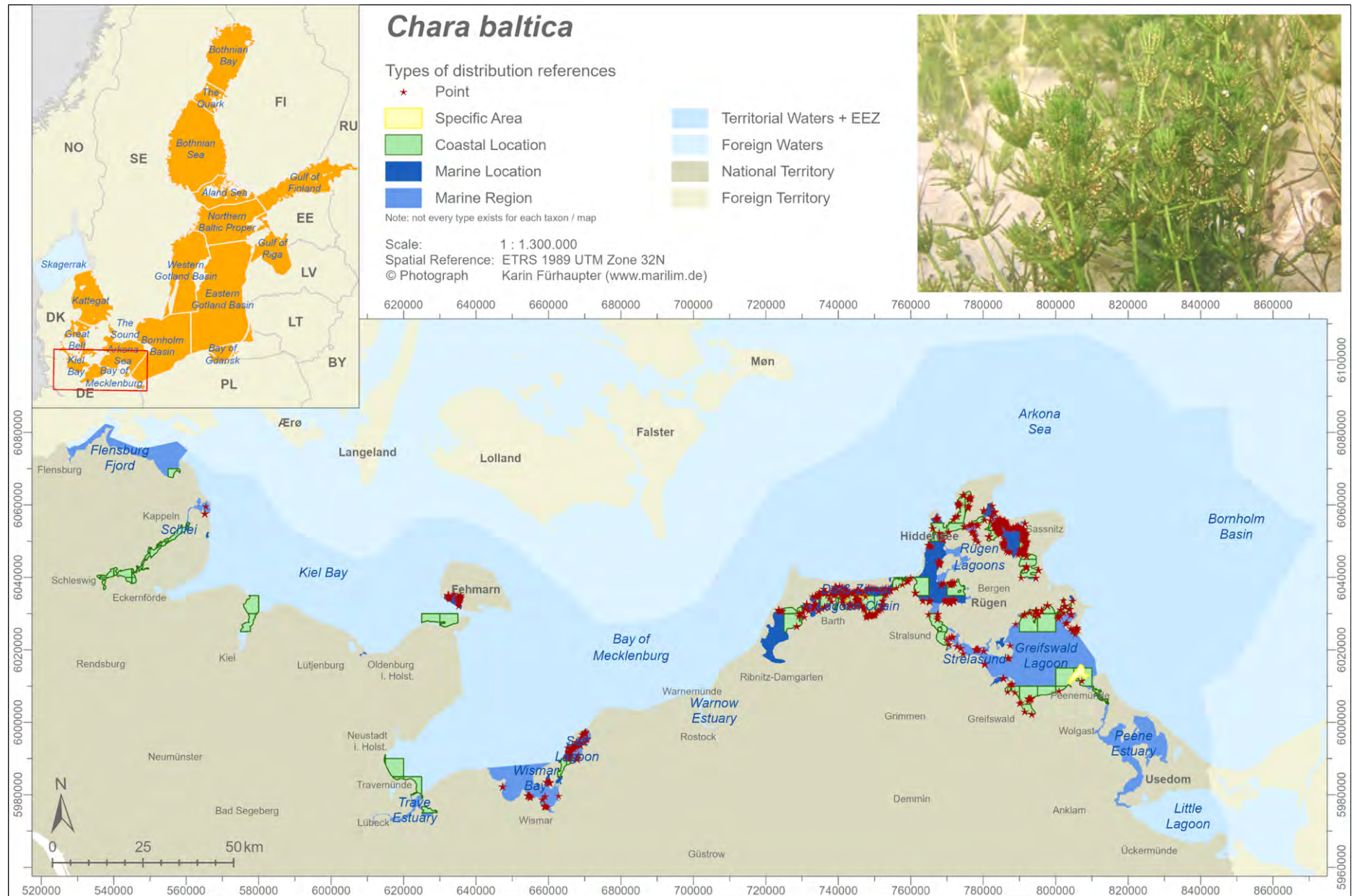
Ecology	
<i>Substrate</i>	soft bottom – mainly mud, muddy sand, more rarely on pure sand or coarse sediment
<i>Attachment</i>	rooted
<i>Salinity</i>	freshwater to $\alpha$ -mesohaline – up to a maximum of 16–18 psu
<i>Vertical Zone</i>	upper infralittoral – from 0,1 to about 1,5 m depth, mainly shallower than 1 m; historically also records from 2 to 4 m depth
<i>Exposure</i>	extremely sheltered to sheltered (moderately exposed) – records at moderately exposed sites only because of inaccurate geographical allocation
Conservation	
<i>Red List</i>	<b>LC</b> (Baltic Sea), <b>3</b> (DE), <b>3</b> (SH), <b>3</b> (MV)
<i>Threats</i>	–
Remarks	
<i>Chara aspera</i> var. <i>subinermis</i> is a frequently occurring variety in brackish waters; as sterile plants distinguishable from <i>Chara baltica</i> by its characteristic white, single-celled bulbils; records of <i>Ch. hispida</i> in brackish waters of Darß-Zingst-Bodden-Chain is most likely <i>Chara aspera</i>	
References	
3 7 13 17 19 25 40 50 52 53 54 59 63 75 77 80 81 85 86 91 92 104 106 113 114 115 129 130 131 145 149 160 177 180 190 191 196 211 223 228 229 230 232 234 239 245 249	



## *Chara baltica* (C.J. Hartmann) Bruzelius, 1824

Taxonomy	
Phylum	Charophyta
Class	Charophyceae
Order	Charales
Family	Characeae
Subspecies	<i>Chara baltica</i> var. <i>liljebladii</i> (J. Wallman) A. Braun, 1859
Synonyms	<i>Chara hispida</i> var. <i>baltica</i> (Bruzelius) R.D. Woods, 1962 <i>Chara hispida</i> var. <i>baltica</i> C.J. Hartman, 1820 <i>Chara liljebladii</i> J. Wallman, 1853
Distribution	
Baltic Sea	entire Baltic Sea coastline – from Kattegat to Bothnian Bay (all neighbouring countries but RU)
German Baltic Sea	in all coastal bays, estuaries and lagoons with exception of Warnow Estuary and Little Lagoon – from Flensburg Fjord in the west to outer Peene Estuary in the east; rarely in coastal lakes – Kiel Bay (Schwansen Lake, Sehlendorf Inland Lake), Greifswald Lagoon (Sellin Lake)

Ecology	
Substrate	soft bottom – mud to coarse sediment, mainly muddy sand and sand
Attachment	rooted
Salinity	$\beta$ -oligohaline to $\alpha$ -mesohaline – between 2 and 18 psu, mainly between 3–12 psu
Vertical zone	upper infralittoral – from 0,1 to about 2,5 m depth, mainly around 1 m, historically also records from 3 or 4 m depth
Exposure	extremely sheltered to sheltered (moderately exposed) – records at moderately exposed sites only because of inaccurate geographical allocation
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>3</b> (DE), <b>1</b> (SH), * (MV)
Threats	–
Remarks	
<i>Chara baltica</i> var. <i>densa</i> can be confused with <i>Chara aspera</i> , if plants are sterile and lack bulbils, confusion with <i>Chara horrida</i> may also occur	
References	
3 5 7 13 17 19 25 49 50 52 53 54 61 63 64 65 75 81 82 85 86 91 92 108 114 121 129 130 131 145 153 159 160 165 166 172 177 191 203 211 220 223 227 229 230 232 239 249	

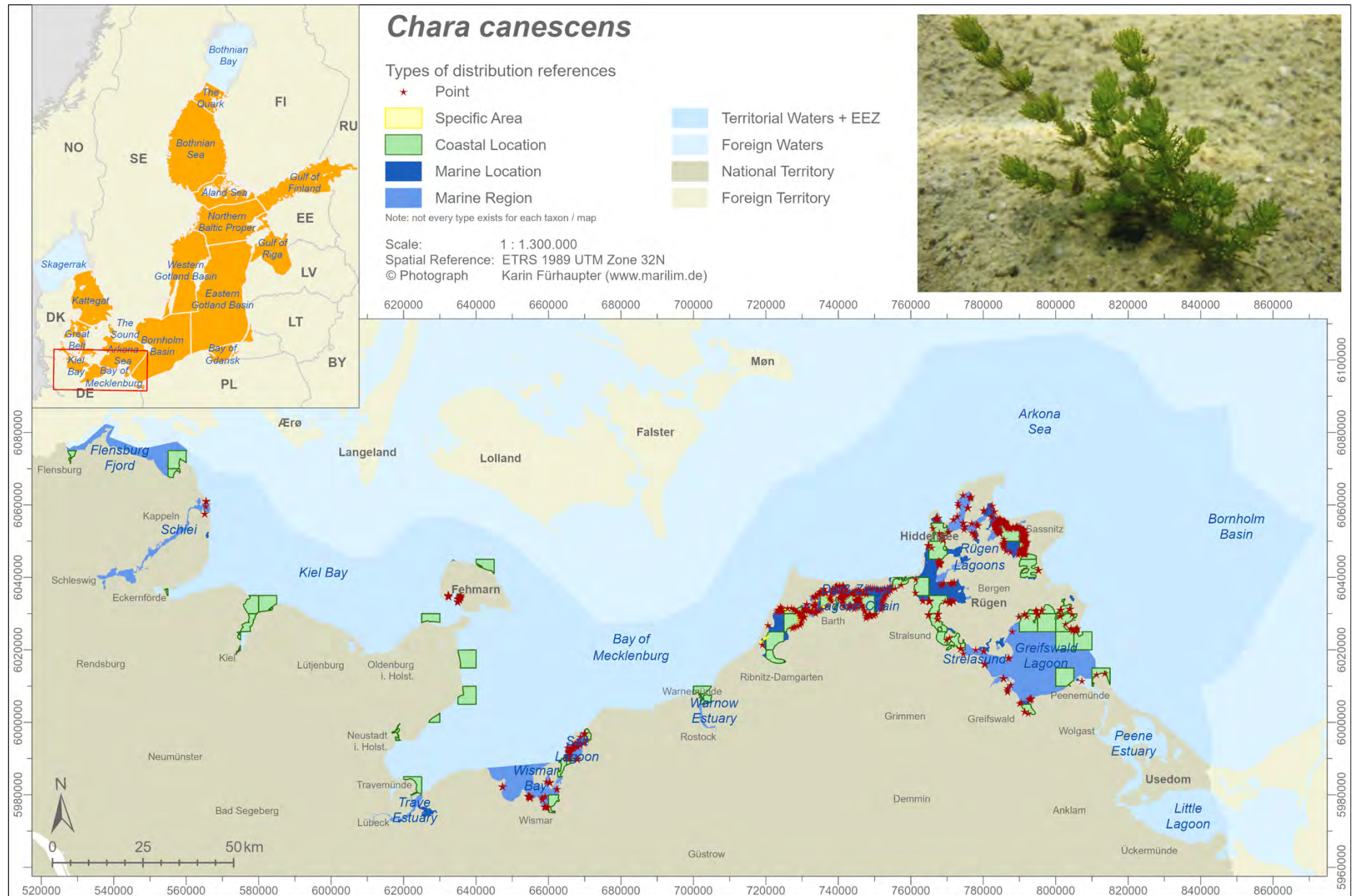


## *Chara canescens* Loiseleur, 1810

Taxonomy	
<i>Phylum</i>	Charophyta
<i>Class</i>	Charophyceae
<i>Order</i>	Charales
<i>Family</i>	Characeae
<i>Subspecies</i>	–
<i>Synonyms</i>	<i>Chara crinita</i> F.G. Wallroth, 1815 <i>Chara crinita</i> f. <i>brachyphylla</i> W. Migula, 1897 <i>Chara crinita</i> f. <i>hispida</i> Kützing, 1857 <i>Chara pusilla</i> Floerke ex Kützing, 1849
Distribution	
<i>Baltic Sea</i>	entire Baltic Sea coastline with exception of northeasternmost part – from Kattegat to Bothnian Sea / The Quark (all neighbouring countries)
<i>German Baltic Sea</i>	in all coastal bays, estuaries and lagoons with exception of Peene Estuary and Little Lagoon – from Flensburg Fjord in the west to Greifswald Lagoon in the east; occasionally in coastal lakes – Kiel Bay (Schwansen Lake, Northern Inland Lakes of Fehmarn), Greifswald Lagoon (Sellin Lake, Fresendorf Lake); some historical records along the open coastline probably from waters, which are now constantly separated from the Baltic Sea by coastal defence structures – Bay of Mecklenburg (Rosenfeld, Dahme, Grömitz)

Ecology	
<i>Substrate</i>	soft bottom – mud to coarse sediment, mainly muddy sand and sand
<i>Attachment</i>	rooted
<i>Salinity</i>	freshwater to polyhaline – below 21 psu, mainly between 3–12 psu
<i>Vertical zone</i>	upper infralittoral – from 0,1 to about 1 m depth, but mainly below 0,5 m
<i>Exposure</i>	extremely sheltered to sheltered (moderately exposed) – records at moderately exposed sites only because of inaccurate geographical allocation
Conservation	
<i>Red List</i>	<b>LC</b> (Baltic Sea), <b>3</b> (DE), <b>1</b> (SH), * (MV)
<i>Threats</i>	–
Remarks	
References	
3 5 7 13 17 19 50 52 53 59 72 75 77 80 81 82 85 86 91 92 104 106 108 113 114 121 129 130 131 145 160 172 180 191 211 223 227 229 230 232 239 249	

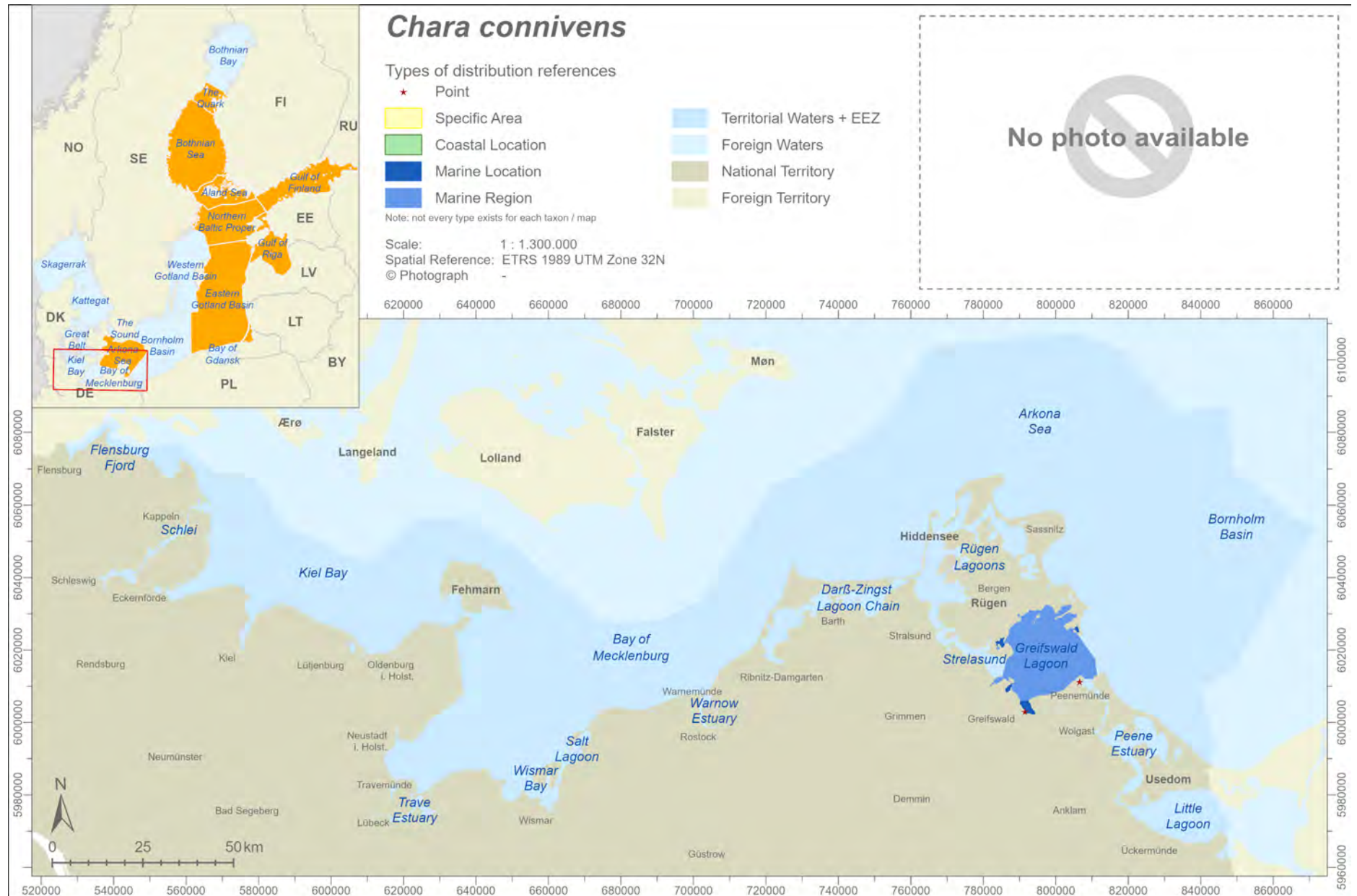




## *Chara connivens* P. Salzmann ex A. Braun, 1835

Taxonomy	
Phylum	Charophyta
Class	Charophyceae
Order	Charales
Family	Characeae
Subspecies	–
Synonyms	<i>Chara concinna</i> M.C. Durieu & E. Cosson, 1859 <i>Chara duriaei</i> (A. Braun) A. Braun, 1867 <i>Chara globularis</i> f. <i>connivens</i> (P. Salzmann ex A. Braun) R.D. Wood, 1962
Distribution	
Baltic Sea	unevenly distributed in western, central and inner parts of the Baltic Sea – Arkona Sea (DE), Eastern Gotland Basin to Bothnian Sea / The Quark (DE, EE, LT, RU, SE); records for Bay of Gdansk in Nielsen 1995 (148) could not be verified
German Baltic Sea	few historical records (herbarium material) from inner parts of Greifswald Lagoon (Danish Bight, Schoritz Bight, Koos Lake, Zick Lake) and three more recent records from lakes on Island Fehmarn and near Peene Estuary (Cämmer Lake) but without clear assignment to brackish water and therefore not illustrated in the distribution map

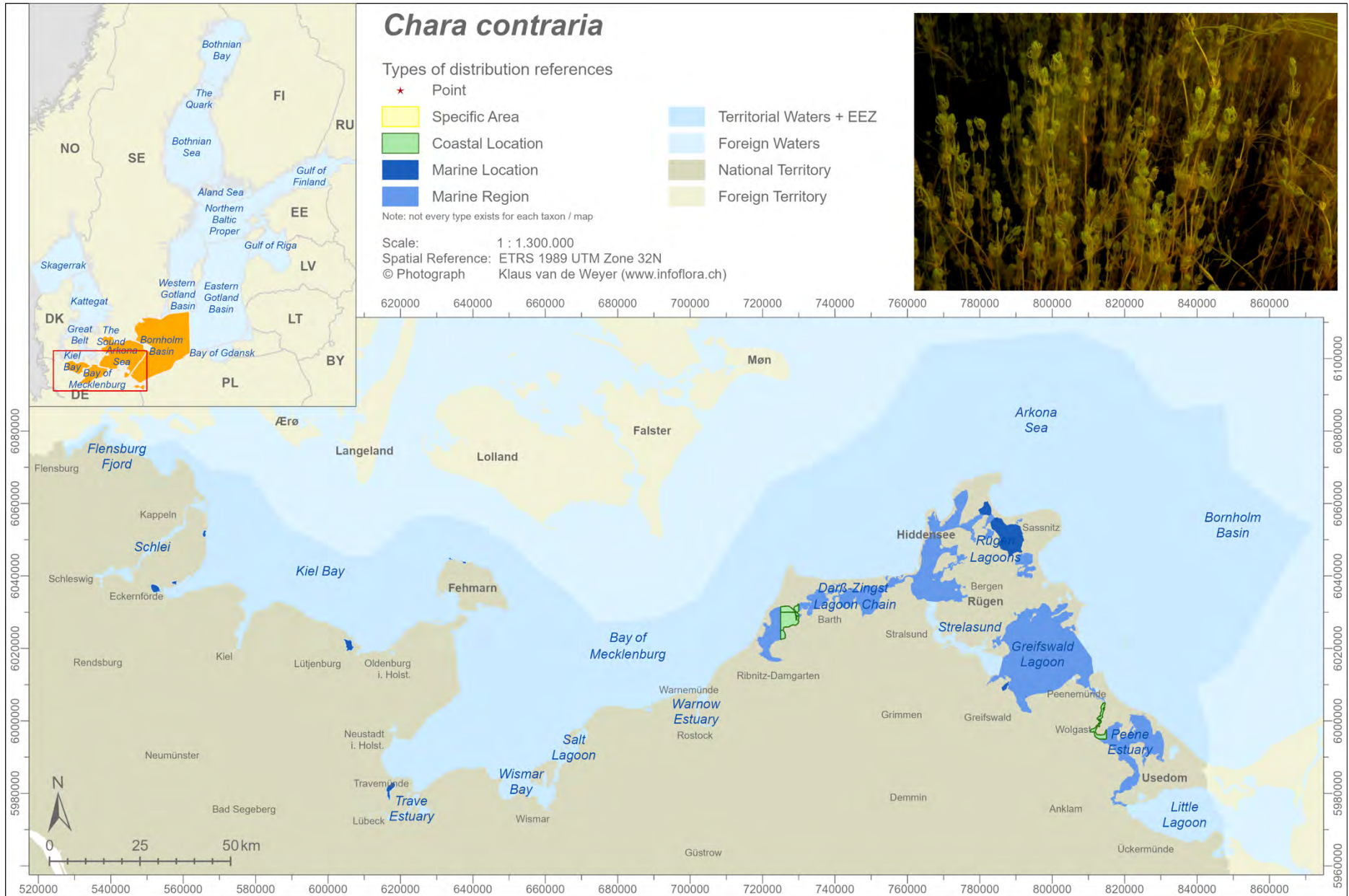
Ecology	
Substrate	soft bottom – mud to coarse sediment, mainly muddy sand and sand
Attachment	rooted
Salinity	$\beta$ -oligohaline to $\beta$ -mesohaline – between 1 and 8 psu; recent distribution shows an allocation towards lower salinities (below 5 psu)
Vertical zone	upper infralittoral – from 0,1 to about 1 m depth
Exposure	very sheltered
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>1</b> (DE), <b>0</b> (SH), <b>2</b> (MV)
Threats	–
Remarks	
the status as a neophyte in the Baltic Sea is controversial; can be confused with <i>Chara aspera</i> var. <i>subinermis</i> , if bulbils are lacking; no records in marine monitoring, borderline species to freshwater; references of higher salinity regions in front of freshwater inflow or due to confusion with other <i>Chara</i> species	
References	
3 17 75 80 81 85 91 106 114 115 229 230 232	



## *Chara contraria* A. Braun ex Kützing, 1845

Taxonomy	
Phylum	Charophyta
Class	Charophyceae
Order	Charales
Family	Characeae
Subspecies	–
Synonyms	<i>Chara contraria</i> f. <i>macroteles</i> W. Migula, 1925 <i>Chara foetida</i> var. <i>moniliformis</i> A. Braun, 1834 <i>Chara vulgaris</i> f. <i>contraria</i> (A. Braun ex Kützing) R.D. Wood, 1962
Distribution	
Baltic Sea	comparatively small distribution range, delimited to some parts in the western Baltic Sea – from Kiel Bay to Bornholm Basin (DE, SE)
German Baltic Sea	few records in eastern coastal lagoons and estuaries – Darß-Zingst-Lagoon-Chain (Saal Lagoon), Rügen Lagoons (Breege Lagoon, Great Jasmund Lagoon), Greifswald Lagoon (Koos Lake), Peene Estuary (Wolgast); regularly in western coastal lakes – Kiel Bay (Schwansen, Hemmelmark, Great Inland Lake, Northern Inland Lakes of Fehmarn, Windeby Lagoon), Bay of Mecklenburg (Hemmelsdorf Lake)

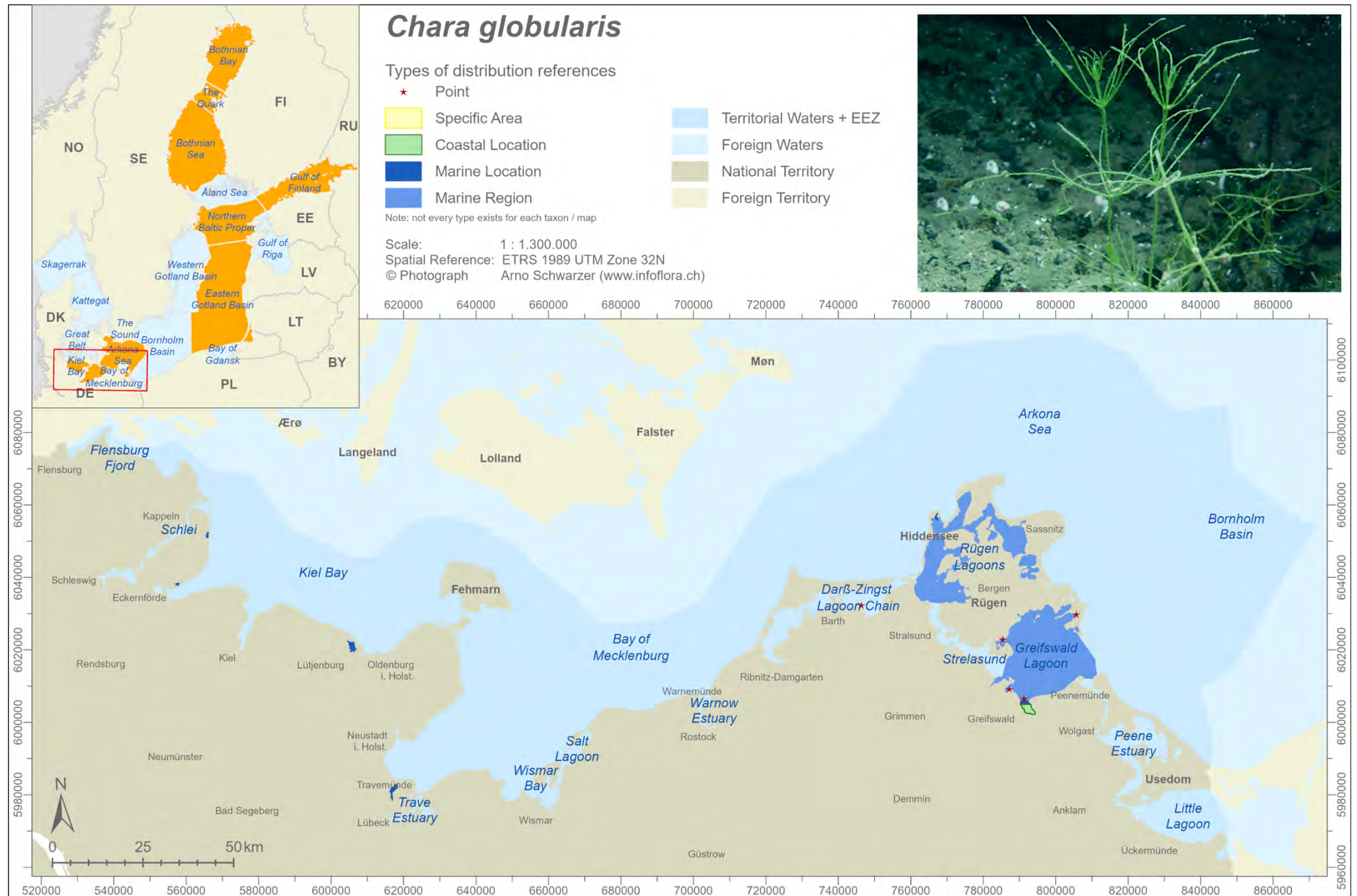
Ecology	
Substrate	soft bottom – mud to coarse sediment, mainly muddy sand and sand
Attachment	rooted
Salinity	freshwater to $\beta$ -mesohaline – below 8 psu
Vertical zone	upper infralittoral – from 0,2 to about 1 m depth
Exposure	extremely sheltered to sheltered
Conservation	
Red List	<b>NA</b> (Baltic Sea), * (DE), <b>3</b> (SH), * (MV)
Threats	–
Remarks	
no records in marine monitoring, borderline species to freshwater; references of higher salinity regions in front of freshwater inflow or due to confusion with other <i>Chara</i> species	
References	
3 13 65 75 80 81 85 91 114 115 125 129 196 228 230	



## *Chara globularis* Thuiller, 1799

Taxonomy	
Phylum	Charophyta
Class	Charophyceae
Order	Charales
Family	Characeae
Subspecies	–
Synonyms	<i>Chara fragilis</i> A.N. Desvaux, 1810 <i>Chara hirta</i> F. Meyen, 1827 <i>Chara pulchella</i> Wallroth, 1815 <i>Chara trichophylla</i> Kützing, 1881
Distribution	
Baltic Sea	unevenly distributed in western, central and mainly inner part of the Baltic Sea – Kiel Bay to Arkona Sea (DE), Eastern Gotland Basin to Gulf of Finland (FI, LT, RU, SE), Bothnian Sea to Bay of Finland (FI, SE); records for The Sound, Bornholm Basin, Bay of Gdansk, Gulf of Riga, Åland/Archipelago Sea in Nielsen 1995 (148) could not be verified
German Baltic Sea	few, historical records in eastern coastal lagoons – Darß-Zingst-Lagoon-Chain (near Darß-Zingst), Rügen Lagoons (Grieben Bight, Kubitz Lagoon), Greifswald Lagoon (Danish Bight, Koos Lake, Schoritz Bight, near Lobbe); few recent records in western coastal lakes – Kiel Bay (Schwansen, Hemmelmark and Great Inland Lake), Bay of Mecklenburg (Hemmelsdorf Lake)

Ecology	
Substrate	soft bottom – mud to coarse sediment, mainly muddy sand and sand
Attachment	rooted
Salinity	freshwater to $\alpha$ -oligohaline ( $\beta$ -mesohaline) – up to a maximum of 7 psu but most frequently below 3 psu
Vertical zone	upper infralittoral
Exposure	extremely sheltered to very sheltered
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE), – <sup>1</sup> (SH), * (MV) <sup>1</sup> Records from Schleswig-Holstein Inland Lakes newer than the publication of the Charophyte Red List of Schleswig-Holstein
Threats	–
Remarks	
few records in marine monitoring, borderline species to freshwater; references of higher salinity regions in front of freshwater inflow	
References	
3 13 17 75 81 85 91 114 115 121 191 196 230	

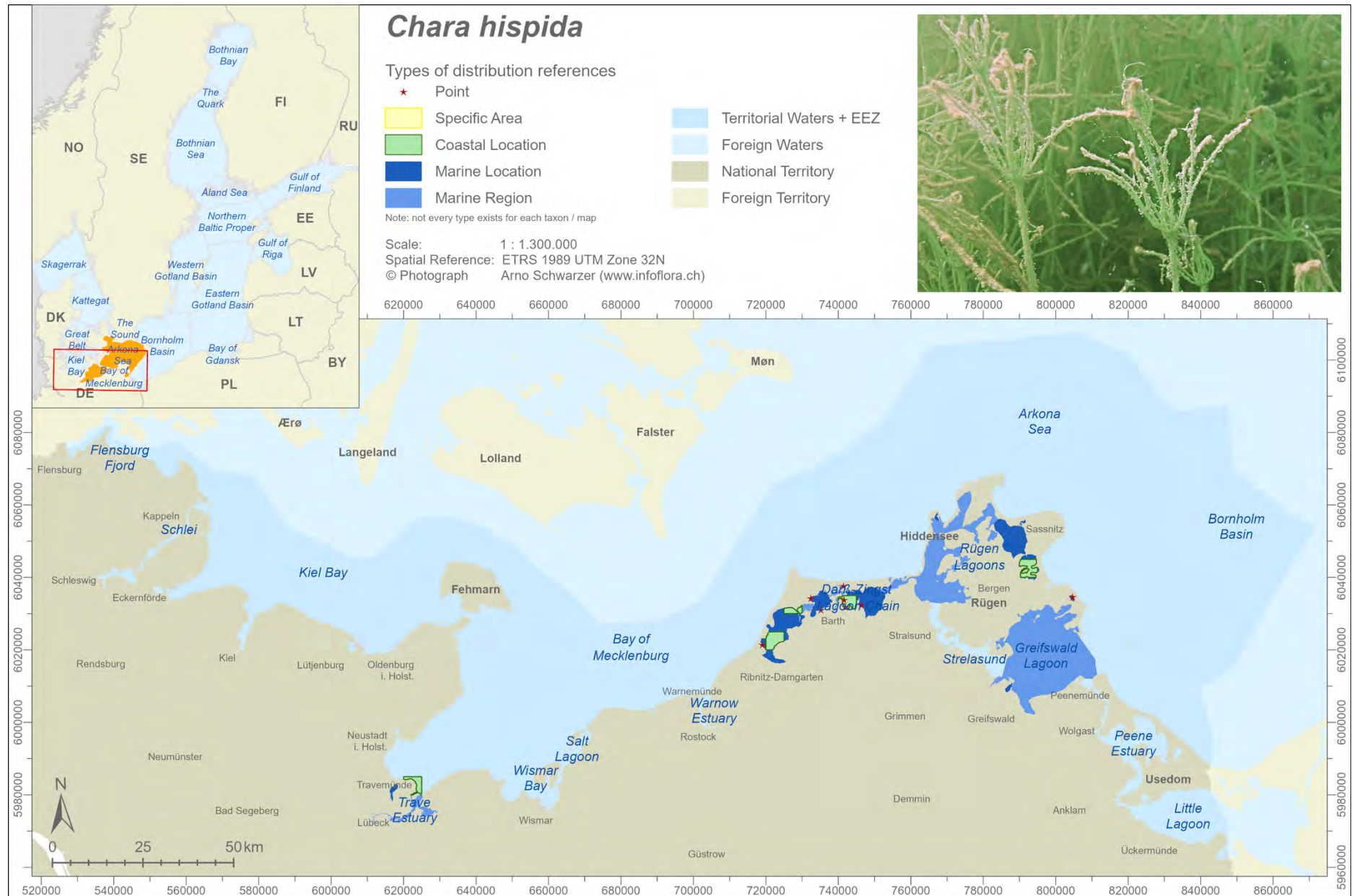


## *Chara hispida* Linnaeus, 1753

Taxonomy	
Phylum	Charophyta
Class	Charophyceae
Order	Charales
Family	Characeae
Subspecies	–
Synonyms	<i>Chara hispida</i> f. <i>elongata</i> N. Filarszky, 1930 <i>Chara hispida</i> var. <i>major</i> C.J. Hartmann, 1820 <i>Chara major</i> Valliant ex Hy, 1913
Distribution	
Baltic Sea	comparatively small distribution range, delimited to some parts in the western Baltic Sea – Bay of Mecklenburg, Arkona Sea (DE); records for Great and Little Belt in Nielsen 1995 (148) could not be verified
German Baltic Sea	various records in eastern coastal lagoons and/or coastal lakes, but either without clear assignment to brackish water or misidentification assumed – Darß-Zingst-Lagoon-Chain, Rügen Lagoons (Grieben Bight, Spyck Lake, Small Jasmund Lagoon, Island Pulitz), Greifswald Lagoon (Koos and Sellin Lake); two records from western parts of the coastline – Bay of Mecklenburg (Hemmelsdorf Lake), Trave Estuary (Travemünde)

Ecology	
Substrate	soft bottom – mud
Attachment	rooted
Salinity	freshwater
Vertical zone	upper infralittoral – from 0,5 to about 0,9 m
Exposure	extremely sheltered to sheltered (exposed) – records at exposed sites only because of inaccurate geographical allocation
Conservation	
Red List	<b>NE</b> (Baltic Sea), <b>3</b> (DE), <b>3</b> (SH), * (MV)
Threats	–
Remarks	
does not penetrate into brackish water, the assignment of records to the German Baltic Sea area either because of inaccurate geographical allocation or due to confusion with other <i>Chara</i> species	
References	
3 17 19 50 65 75 81 85 91 92 114 115 129 160 223 230	

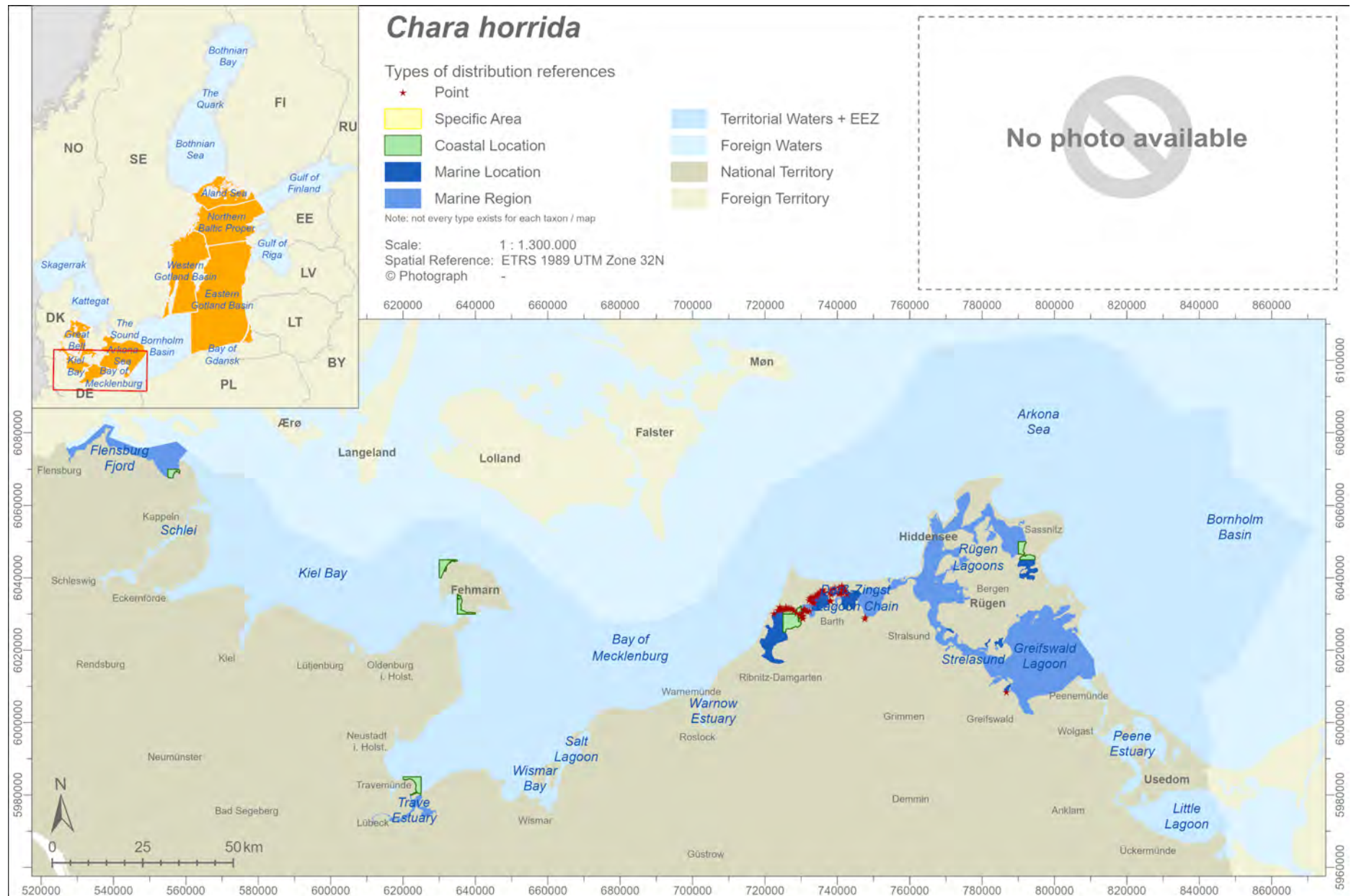




## *Chara horrida* L.J. Wahlstedt ,1862

Taxonomy	
Phylum	Charophyta
Class	Charophyceae
Order	Charales
Family	Characeae
Subspecies	–
Synonyms	<i>Chara baltica</i> var. <i>fastigiata</i> J. Wallman, 1853 <i>Chara hispida</i> f. <i>fastigiata</i> (Wallman) R.D. Wood, 1962 <i>Chara hispida</i> ssp. <i>horrida</i> (Wahlstedt) A. Braun, 1876
Distribution	
Baltic Sea	unevenly distributed in some western and central parts of the Baltic Sea – from Great Belt to Arkona Sea (DE, DK), Western and Eastern Gotland Basin to Åland/Archipelago Sea (EE, FI, SE); records for Bornholm Basin, Gulf of Riga and Finland in Nielsen 1995 (148) could not be verified
German Baltic Sea	frequently in eastern coastal lagoons – Darß-Zingst-Lagoon-Chain (particularly common in Saal and Bodstedt Lagoon), Rügen Lagoons (Lietzow, Small Jasmund Lagoon), Strelasund (Wamp and Puddemin Bight), Greifswald Lagoon (Koos Lake, Schoritz Bight); very few, historical records in the western part – Flensburg Fjord (Gelting Bay), Kiel Bay (Lemkenhafen, Markelsdorfer Huk), Trave Estuary (Travemünde)

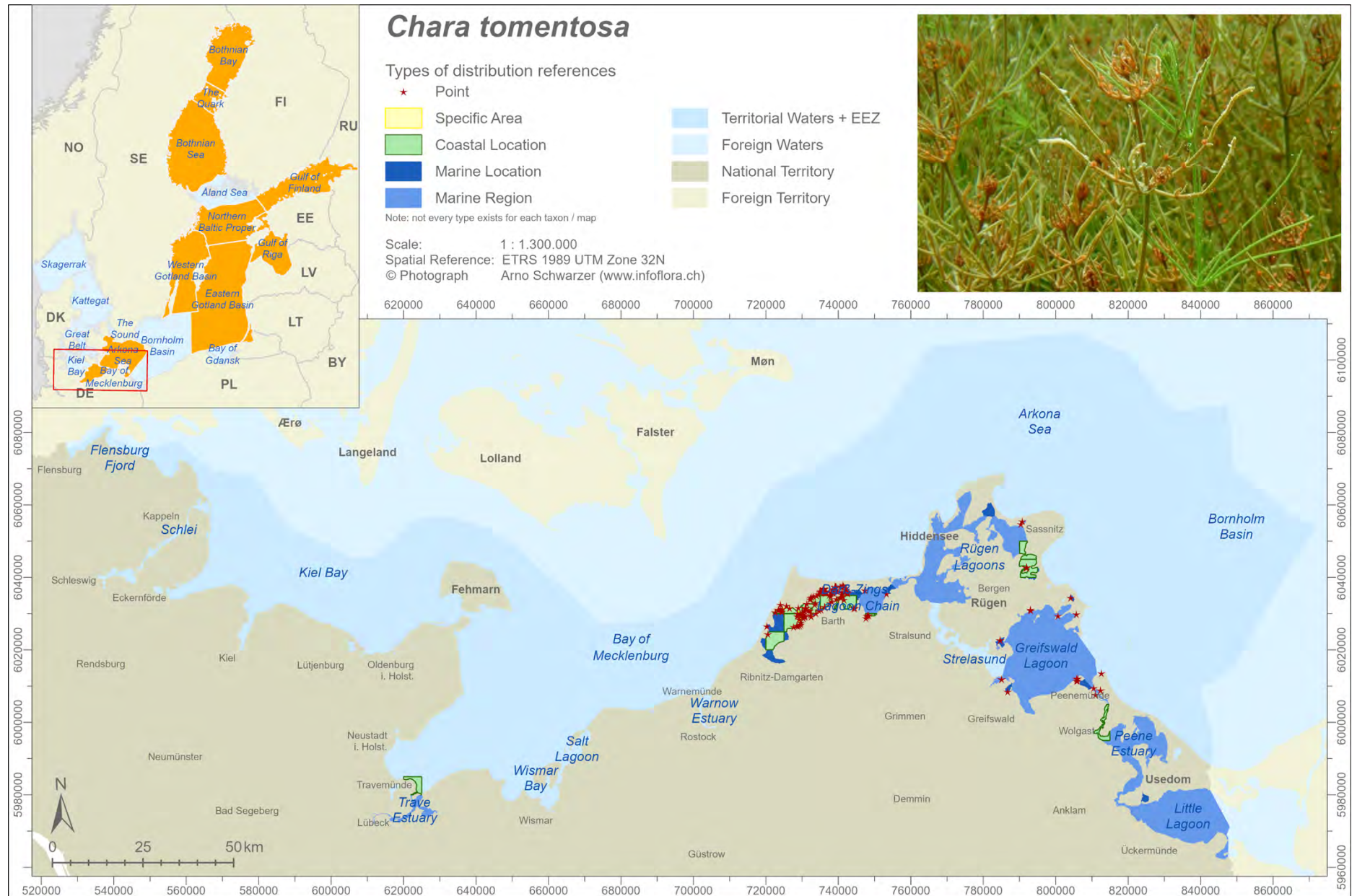
Ecology	
Substrate	soft bottom – mainly pure sand to sandy mud, more rarely on pure mud
Attachment	rooted
Salinity	( $\alpha$ -oligohaline to) $\beta$ -mesohaline ( $\alpha$ -mesohaline) – mainly between 5 and 10 psu; only single historical record from lower or higher salinities
Vertical zone	upper infralittoral – from 0,5 to about 3 m
Exposure	very sheltered to sheltered (exposed) – records at exposed sites only because of inaccurate geographical allocation
Conservation	
Red List	<b>NT</b> (Baltic Sea), <b>1</b> (DE), <b>0</b> (SH), <b>1</b> (MV)
Threats	E, Co, T
Remarks	
endemic to the Baltic Sea; nomenclature and type description confused, making it difficult to allocate historical records precisely; can be confused with <i>Chara hispida</i> and <i>Chara baltica</i> var. <i>densa</i>	
References	
3 17 50 52 59 75 77 81 91 114 115 129 130 223 229 230	



## *Chara tomentosa* Linnaeus, 1753

Taxonomy	
<i>Phylum</i>	Charophyta
<i>Class</i>	Charophyceae
<i>Order</i>	Charales
<i>Family</i>	Characeae
<i>Subspecies</i>	–
<i>Synonyms</i>	<i>Chara ceratophylla</i> Wallroth, 1815 <i>Chara ceratophylla</i> var. <i>inflatum</i> Wallroth, 1833 <i>Chara ceratophylla</i> var. <i>macroptila</i> A. Braun, 1835
Distribution	
<i>Baltic Sea</i>	Western, central and inner parts of Baltic Sea – Bay of Mecklenburg, Arkona Sea (DE), Western / Eastern Gotland Basin to Gulf of Finland, Bothnian Sea to Bay (EE, FI, LT, SE); records from Bornholm Basin, Åland/Archipelago Sea in Nielsen 1995 (148) could not be verified
<i>German Baltic Sea</i>	frequently in eastern lagoons, estuaries and some coastal lakes – Darß-Zingst-Lagoon-Chain (common in Saal and Bodstedt Lagoon), Rügen Lagoons (Breege Lagoon, Spyck Lake, Small Jasmund Lagoon), Greifswald Lagoon (Wreechen, Koos, Freesendorf and Sellin Lake, Schoritz Bight), Peene Estuary (Spandowhagen Bight, Wolgast), Little Lagoon (Usedom Lake); only a single historical record in the western part – Trave Estuary (Travemünde)

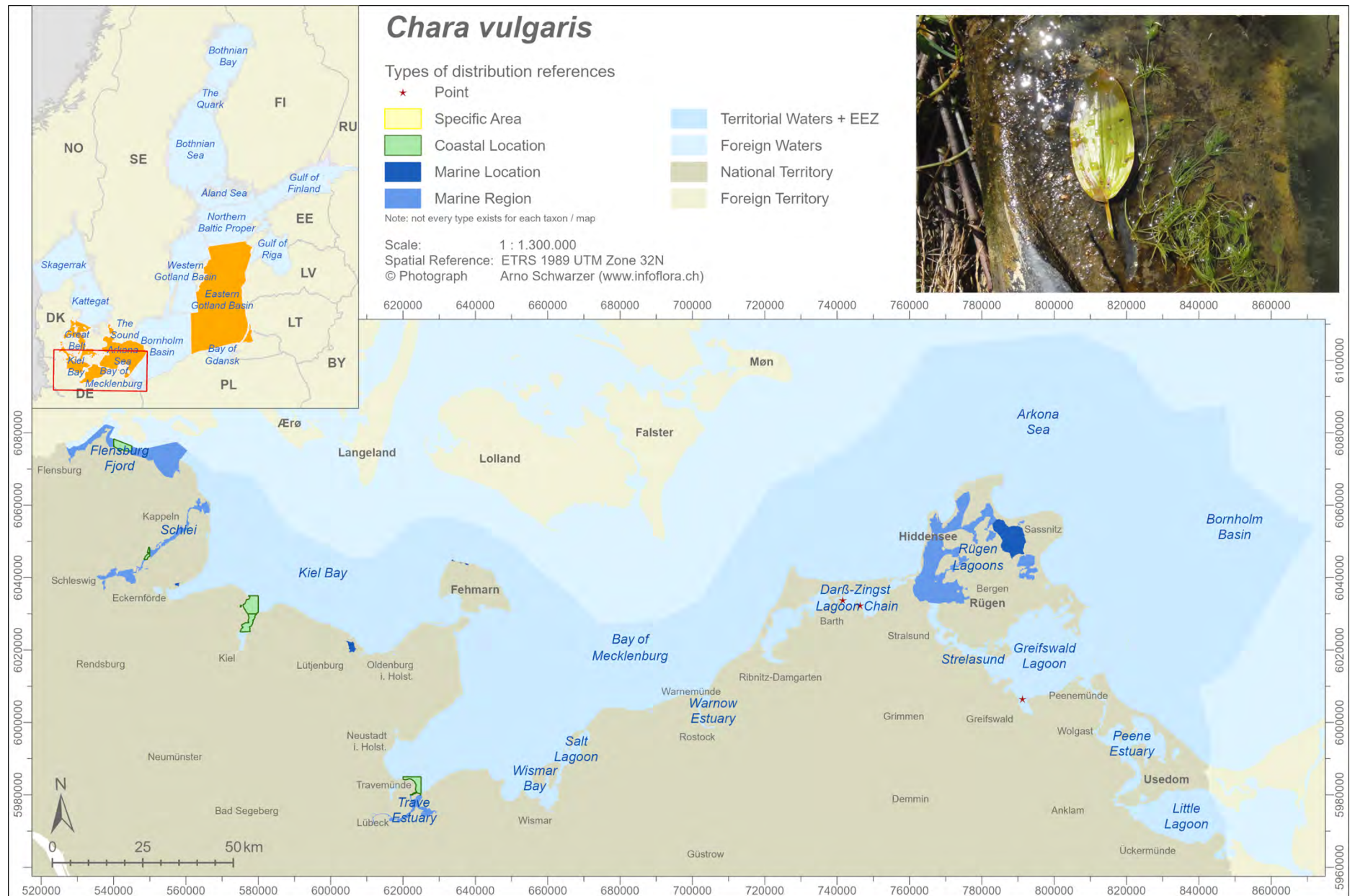
Ecology	
<i>Substrate</i>	soft bottom – mainly mud to muddy sand, rarely on pure sand or coarse sediment
<i>Attachment</i>	rooted
<i>Salinity</i>	$\beta$ -oligohaline to $\alpha$ -oligohaline ( $\beta$ -mesohaline) – below 6 psu
<i>Vertical zone</i>	upper infralittoral – from 0,5 to about 1,2 m, historically down to 2 m depth
<i>Exposure</i>	extremely sheltered to sheltered (exposed) – records at exposed sites only because of inaccurate geographical allocation
Conservation	
<i>Red List</i>	<b>LC</b> (Baltic Sea), <b>3</b> (DE), <b>1</b> (SH), <b>3</b> (MV)
<i>Threats</i>	–
Remarks	
recently mainly in inner sections of Darß-Zingst-Lagoon-Chain or semi-enclosed lakes adjacent to Great Jasmund Lagoon distributed, but not in Greifswald Lagoon, inner Peene Estuary or Little Lagoon	
References	
3 7 17 19 50 52 75 81 85 91 92 114 115 125 129 130 131 160 170 177 211 223 230 245	



## *Chara vulgaris* Linnaeus, 1753

Taxonomy	
Phylum	Charophyta
Class	Charophyceae
Order	Charales
Family	Characeae
Species	–
Synonyms	<i>Chara batrachosperma</i> J.L. Thuillier, 1799 <i>Chara elongata</i> K. Wallroth <i>Chara foetida</i> A. Braun, 1834 <i>Chara refracta</i> Kützing 1834
Distribution	
Baltic Sea	unevenly distributed: in some western and two central parts – Belt Sea to Arkona Sea (DE) and Eastern Gotland Basin (LT)
German Baltic Sea	very few records in coastal lagoons (probably rather in ditches connected to those lagoons) – Flensburg Fjord (Holnis Lagoon, Langballigau), Schlei (Nordschau), Kiel Bay (Laboe), Trave Estuary, Darß-Zingst-Bodden-Chain (near Dabitz and Barth River Stream), Rügen Lagoons (Great Jasmund Lagoon); occasionally in western coastal lakes – Kiel Bay (Hemmelmark Lake, Great Inland Lake, Northern Inland Lakes of Fehmarn)

Ecology	
Substrate	soft bottom – mainly sandy bottoms, occasionally in coarser sediments and only very rarely in mud
Attachment	rooted
Salinity	freshwater to $\beta$ -oligohaline ( $\alpha$ -oligohaline) – up to a maximum of 4 psu, but mainly below 3 psu
Vertical zone	hydrolittoral to upper infralittoral (only literature information available)
Exposure	extremely sheltered to sheltered (moderately exposed) – records at moderately exposed sites only because of inaccurate geographical allocation
Conservation	
Red List	<b>NE</b> (Baltic Sea), * (DE), * (SH), * (MV)
Threats	–
Remarks	
few records in marine monitoring, borderline species to freshwater; references of higher salinity regions in front of freshwater inflow or because of inaccurate geographical allocation	
References	
3 13 75 80 81 82 114 160 196 223 228 230	



## Lamprothamnium papulosum (K. Wallroth) J. Groves, 1916

Taxonomy	
Phylum	Charophyta
Class	Charophyceae
Order	Charales
Family	Characeae
Subspecies	<i>Lamprothamnium papulosum</i> var. <i>hansenii</i> (C. Sonder) Raam, 2010
Synonyms	<i>Chara alopecuroidea</i> (Delile ex A. Braun) J. Wallman orth. muth., 1853 <i>Chara papulosa</i> K. Wallroth, 1833 <i>Lamprothamnus papulosus</i> (K. Wallroth) A. Béguinot & L. Formiggini, 1907
Distribution	
Baltic Sea	only western Baltic Sea – from Kattegat to Arkona Sea (DE, DK, SE)
German Baltic Sea	recently in very few coastal bays and lagoons and two coastal lakes – Kiel Bay (Orth Bay, Small Salt and Fasten Lake on Fehmarn), Wismar Bay (Kirch Lake) and Salt Lagoon; historically also in Flensburg Fjord (Holnis Lagoon, Gelting), Kiel Bay (Great Inland Lake, Heiligenhafen), Bay of Mecklenburg (Großenbroderfähre, Grömitz, Neustadt), Darß-Zingst-Lagoon-Chain (Bodstedt, Barth Lagoon), Greifswald Lagoon (Koos Lake)

Ecology	
Substrate	soft bottom – mud to sand, mainly muddy sand and sand
Attachment	rooted
Salinity	$\beta$ -mesohaline to $\alpha$ -mesohaline (polyhaline) – between 8 and 25 psu, but mainly below 20 psu
Vertical zone	upper infralittoral – from 0,2 to about 1 m depth, historically down to 4 m
Exposure	extremely sheltered to sheltered (moderately exposed) – records at moderately exposed sites only because of inaccurate geographical allocation
Conservation	
Red List	<b>EN</b> (Baltic Sea), <b>1</b> (DE), <b>1</b> (SH), <b>1</b> (MV)
Threats	E, Co, T, To, OT, Cc
Remarks	
a genuine, rare brackish water species; often overgrown by ephemeral algae towards late summer and then difficult to recognize	
References	
3 52 53 59 75 81 82 85 91 114 115 153 190 223 229 230	

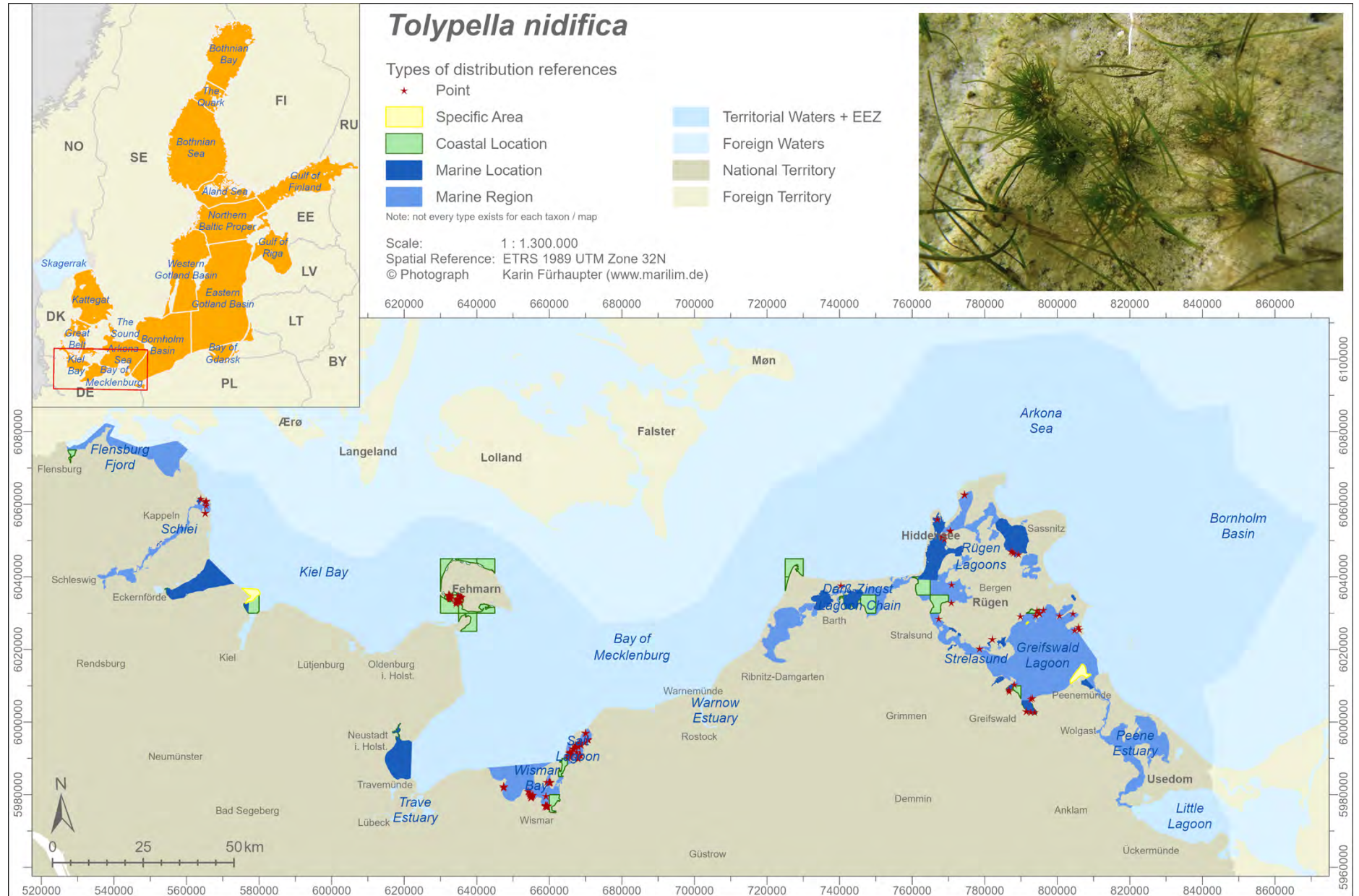




## *Tolypella nidifica* (O.F. Müller) Leonhardi, 1864

Taxonomy	
Phylum	Charophyta
Class	Charophyceae
Order	Charales
Family	Characeae
Subspecies	–
Synonyms	<i>Conferva nidifica</i> O.F. Müller, 1778 <i>Nitella nidifica</i> (Müller) C. Agardh, 1824 <i>Tolypella nidifica</i> var. <i>stenhammariana</i> (Wallman) Raam, 2010
Distribution	
Baltic Sea	entire Baltic Sea coastline – from Kattegat to Bothnian Bay (all neighbouring countries)
German Baltic Sea	in all coastal bays, estuaries and lagoons with exception of Warnow Estuary and Little Lagoon – from Flensburg Fjord in the west to Peene Estuary in the east; not in coastal lakes

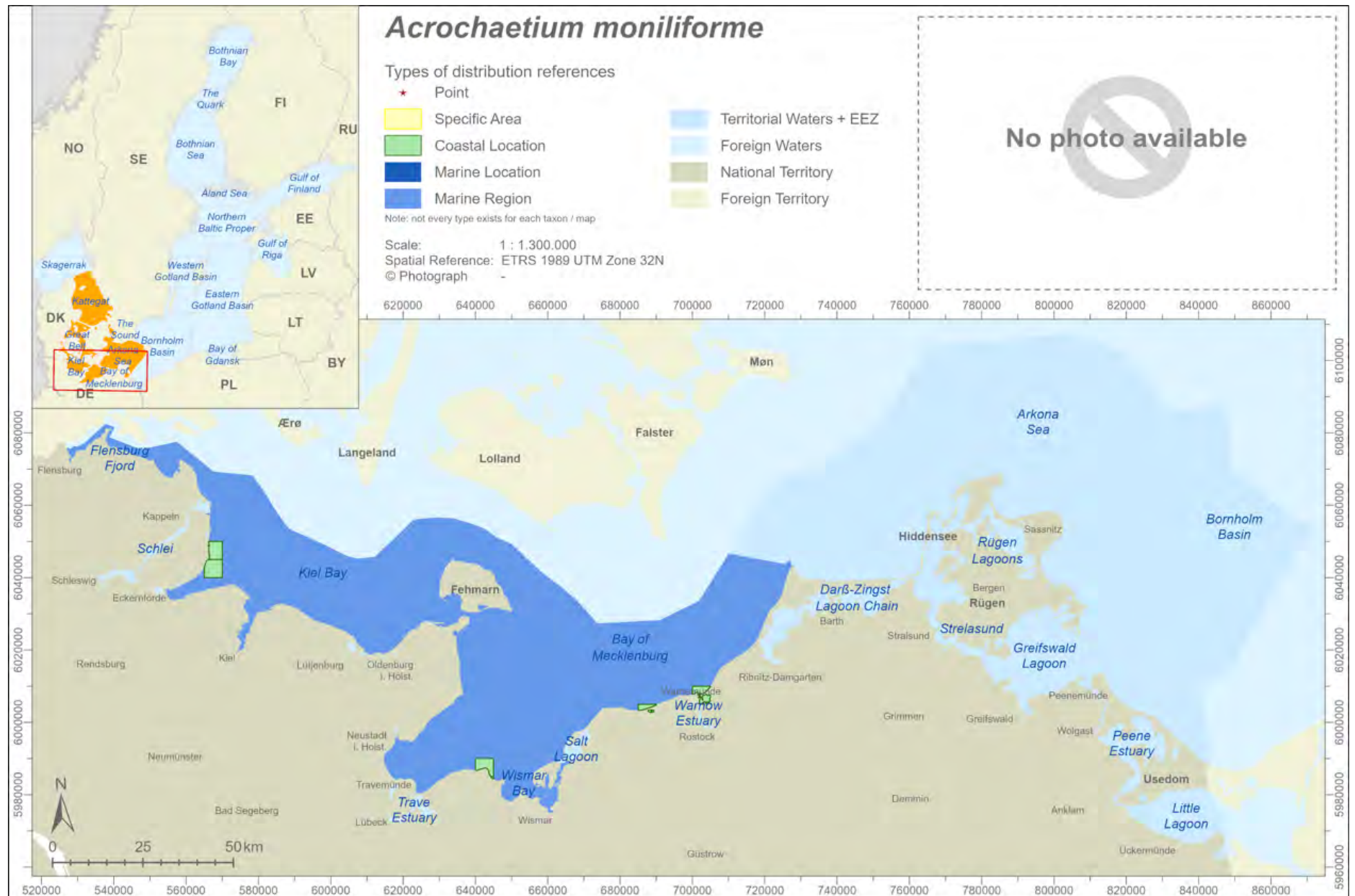
Ecology	
Substrate	soft bottom – mud to coarse sediment, mainly sandy mud and muddy sand
Attachment	rooted
Salinity	( $\alpha$ -oligohaline) $\beta$ -mesohaline to $\alpha$ -mesohaline – between 4 and 18 psu, but mainly above 8 psu
Vertical zone	upper infralittoral – from 0,5 to about 4 m depth, historically down to about 10 or even 15 m (but maybe only due to drifting material, see remarks)
Exposure	very sheltered to moderately exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>2</b> (DE), <b>1</b> (SH), <b>3</b> (MV)
Threats	–
Remarks	
an early summer charophyte, which may have already disappeared during the usual monitoring period in summer/ late summer; can easily be torn off and thus be detected as part of drift algae mats in sediment trays of deeper lagoons	
References	
3 17 40 44 52 53 54 59 75 81 85 86 91 104 106 113 114 115 121 129 131 145 149 153 159 160 165 172 191 211 223 227 229 230 232 239 249	



## Acrochaetium moniliforme (Rosenvinge) Børgesen, 1915

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Acrochaetiales
Family	Acrochaetiaceae
Subspecies	–
Synonyms	<i>Audouinella moniliformis</i> (Rosenvinge) Garbary, 1979 <i>Chantransia moniliformis</i> Rosenvinge, 1909 <i>Chromastrum moniliforme</i> (Rosenvinge) Papenfuss, 1945 <i>Kylinia moniliformis</i> (Rosenvinge) Kylin, 1944 <i>Rhodochorton moniliforme</i> (Rosenvinge) Drew, 1928
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Arkona Sea (DE, DK); records for Bornholm Basin and Bay of Gdansk in Nielsen 1995 (148) could not be verified
German Baltic Sea	five records at four locations along the western and more open part of the coastline – Kiel Bay (Boknis Eck), Wismar Bay (Boltenhagen), Bay of Mecklenburg (Börgerende, Warnemünde); all records from the 1960ies and 1970ies

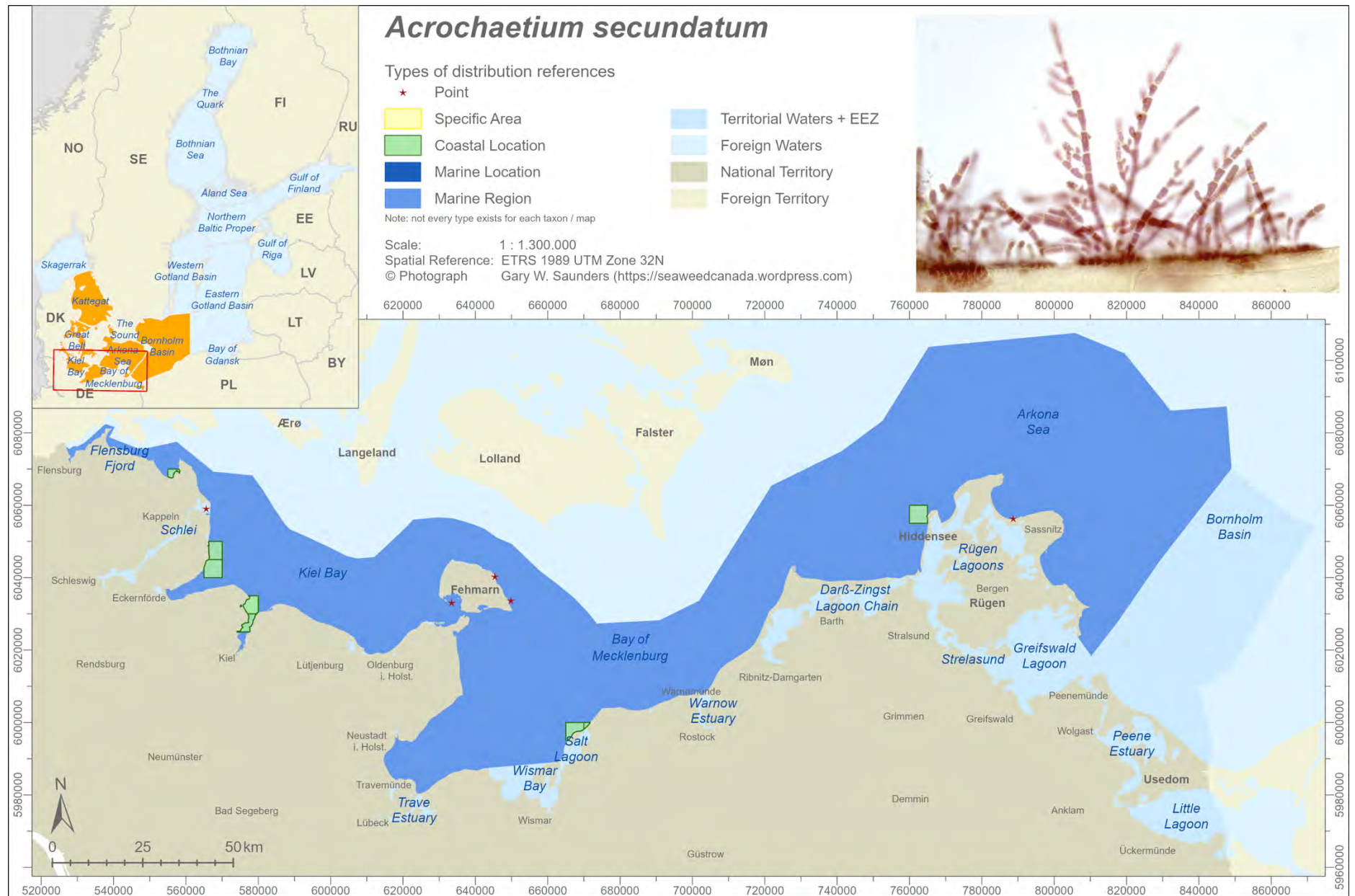
Ecology	
Substrate	plants – on <i>Polysiphonia</i> and various other algae
Attachment	epiphytic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	upper infralittoral – from 2 to about 10 m depth
Exposure	moderately exposed to very exposed
Conservation	
Red List	<b>NE</b> (Baltic Sea), <b>D</b> (DE)
Threats	–
Remarks	
possibly unnoticed in many surveys because of its tiny size; unfertile specimens difficult to identify on species level	
References	
46 53 81 82 111 149 169 206	



## Acrochaetium secundatum (Lyngbye) Nägeli, 1858

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Acrochaetiales
Family	Acrochaetiaceae
Subspecies	–
Synonyms	<i>Acrochaetium virgatulum</i> (Harvey) Batters, 1902 <i>Audouinella secundata</i> (Lyngbye) P.S. Dixon, 1976 <i>Chantransia secundata</i> (Lyngbye) Thuret, 1863 <i>Colaconema secundatum</i> (Lyngbye) Woelkerling, 1973 <i>Kylinia secundata</i> (Lyngbye) Papenfuss, 1947
Distribution	
Baltic Sea	western to (western-)central Baltic Sea – from Kattegat to Bornholm Basin (DE, DK, SE); records for Western Gotland Basin in Nielsen 1995 (148) could not be verified
German Baltic Sea	along the open coastline with several locations at the western part and two records east of the Darß – Flensburg Fjord (Gelting Bay), Kiel Bay (Boknis Eck, Kiel Fjord, Orth Bay), Bay of Mecklenburg (eastcoast of Fehmarn, Rerik), Arkona Sea (Hiddensee, Glowe)

Ecology	
Substrate	plants or animals – various algae, <i>Zostera marina</i> , blue mussels
Attachment	epiphytic/epizoic
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – down to about 10 psu (only a single record from lower salinities)
Vertical zone	upper infralittoral – from 2 to 10 m
Exposure	sheltered to very exposed
Conservation	
Red List	<b>NE</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
possibly unnoticed in many surveys because of its tiny size; unfertile specimens difficult to identify on species level	
References	
52 54 64 81 82 95 111 153 180 186 190 206	

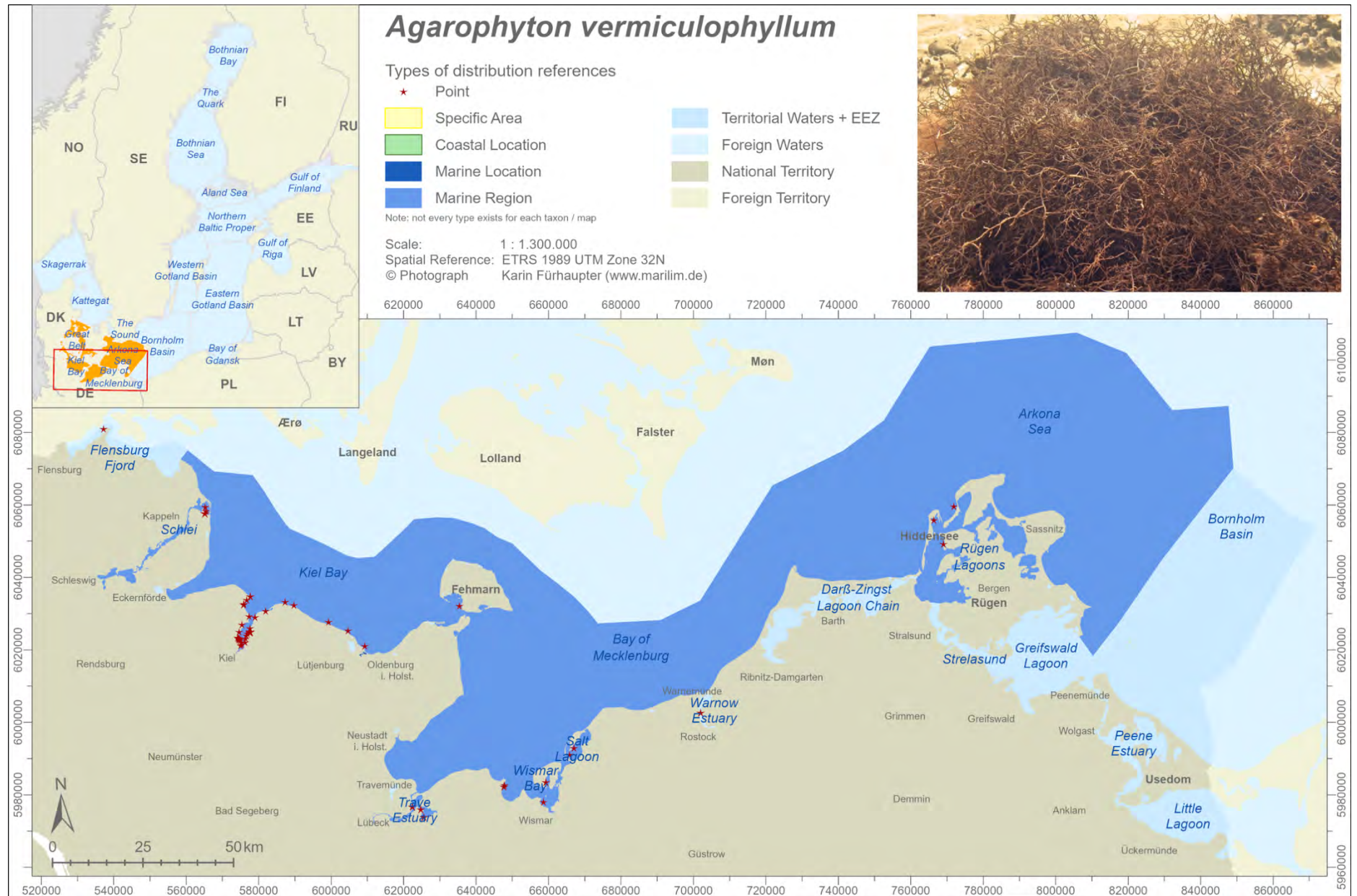


## *Agarophyton vermiculophyllum* (Ohmi) Gurgel, J.N. Norris & Fredericq, 2018

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Gracilariales
Family	Gracilariaceae
Subspecies	–
Synonyms	<i>Gracilaria asiatica</i> C.F. Zhang & B.M. Xia, 1985 <i>Gracilaria vermiculophylla</i> (Ohmi) Papenfuss, 1967 <i>Gracilariopsis vermiculophylla</i> Ohmi, 1956
Distribution	
Baltic Sea	western Baltic Sea – from Belt Sea to Arkona Sea (DE, DK)
German Baltic Sea	as neophyte only recent records in coastal bays, estuaries and coastal lagoons; records east of the Darß only from drifting specimens – Schlei (Maasholm), Kiel Bay (various records in Kiel Fjord, Wisch Kalifornien, Hohenfelde, Behrendsdorf, Hohwacht, Sehlendorf Inland Lake, Strukkamphuk), Trave Estuary (Dassow Lake), Wismar Bay (Tarnewitz, Wendorf), Salt Lagoon (Bojensdorfer Werder), Arkona Sea (Dranske), Rügen Lagoons (Kloster, Schaprode)

Ecology	
Substrate	soft bottom and plants or animals – overlaying sand and on blue mussels (live mussels) and various plants ( <i>Zostera</i> , <i>Fucus</i> )
Attachment	epiphytic/epizoic and drifting (at the bottom) – often entangled in <i>Zostera</i> and on mussel beds
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	hydrolittoral to upper infralittoral – attached specimens always shallower than 1 m depth
Exposure	very sheltered to moderately exposed
Conservation	
Red List	<b>NA</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
neophyte, first record for the German Baltic Sea in 2005 as drifting specimen; since then, spreading primarily in or near marinas and along shipping routes; most records as drifting specimens, only in Schlei and Kiel Fjord apparently established stands with attached/entangled specimens	
References	
13 53 81 82 196 203 206 240	

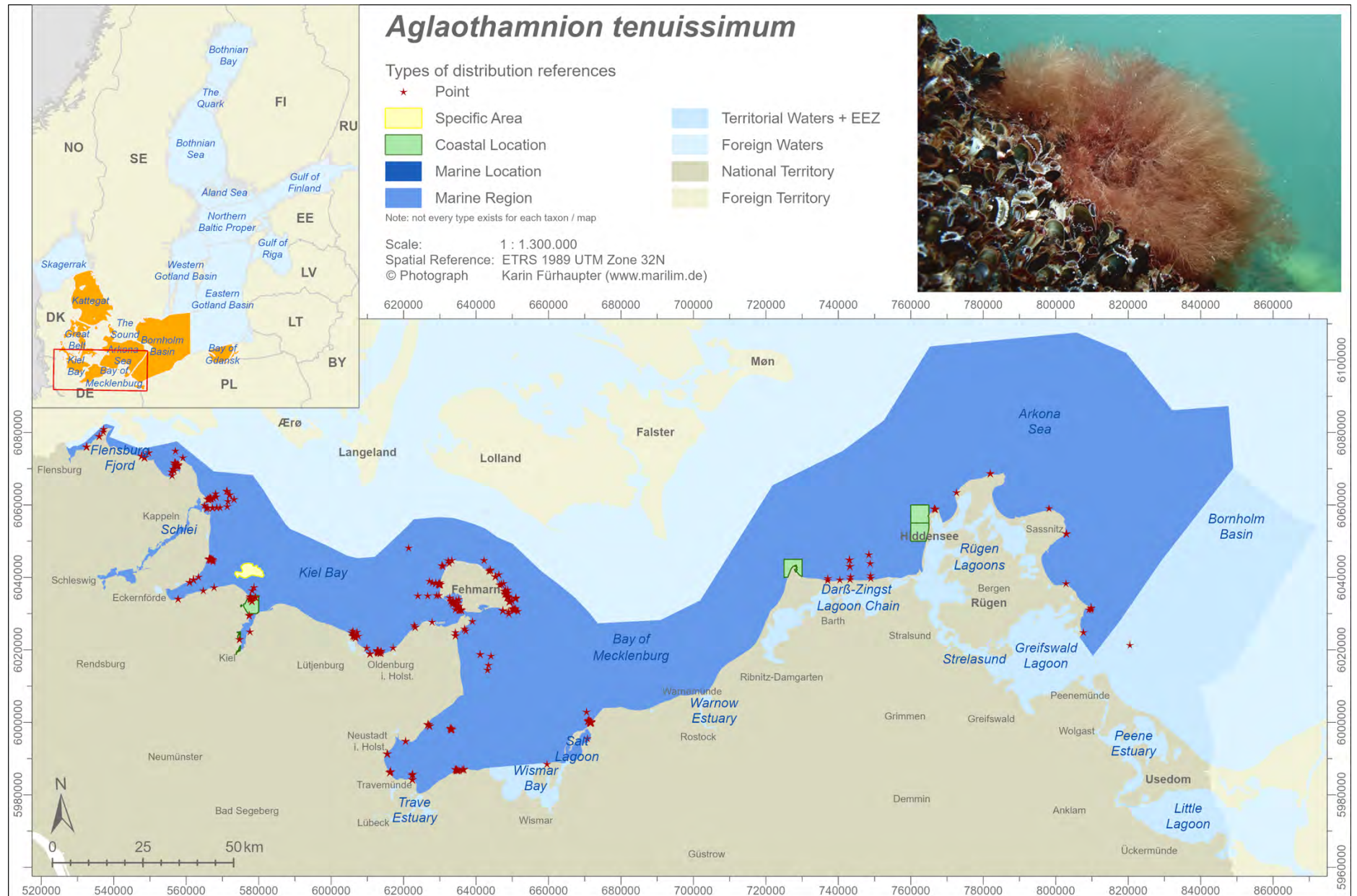




## *Aglaothamnion tenuissimum* (Bonnemaison) Feldmann-Mazoyer, 1941

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Ceramiales
Family	Callithamniaceae
Subspecies	–
Synonyms	<i>Aglaothamnion byssoides</i> (Arnott ex Harvey) C.F. Boudouresque & M. M. Perret-Boudouresque, 1987 <i>Aglaothamnion furcellariae</i> (J. Agardh) Feldmann-Mazoyer, 1941 <i>Callithamnion byssoides</i> Arnott ex Harvey, 1833 <i>Ceramium tenuissimum</i> Bonnemaison, 1828
Distribution	
Baltic Sea	western Baltic Sea and parts of the central Baltic Sea – from Kattegat to Bay of Gdansk (DE, DK, PL, SE); records from Western Gotland Basin in Nielsen 1995 (148) could not be verified
German Baltic Sea	numerous records primarily along the open coastline and on offshore stony bottoms – from Flensburg to the east coast of the Island Rügen (Thiessow); rarely in coastal bays, estuaries or lagoons – Schlei (near Schleimünde), Orth Bay, Salt Lagoon

Ecology	
Substrate	plants or animals – on eelgrass, blue mussels and various algae ( <i>Delesseria</i> , <i>Furcellaria</i> , <i>Poly-siphonia</i> )
Attachment	epiphytic/epizoic
Salinity	$\beta$ -mesohaline to euhaline (fully marine)
Vertical zone	upper to lower infralittoral – from 3 to about 30 m depth
Exposure	very sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
recently no records in higher salinities, possibly a side effect of high turbidity and particular sensitivity at the upper ecological occurrence range	
References	
5 13 17 28 30 40 41 42 49 50 52 62 63 65 66 72 80 81 82 86 92 103 109 112 113 129 130 131 147 156 166 172 180 181 191 196 211 220 228 229 232 237 239	



## Ahnfeltia plicata (Hudson) Fries, 1836

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Ahnfeltiales
Family	Ahnfeltiaceae
Subspecies	–
Synonyms	<i>Ahnfeltia plicata</i> f. <i>tenuior</i> (Lyngbye) Rosen- vinge, 1931 <i>Fucus plicatus</i> Hudson, 1762 <i>Sphaerococcus plicatus</i> (Hudson) C. Agardh, 1817
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of northeasternmost and eastern central part – from Kattegat to Bothnian Sea (DK, DE, FI, PL, SE); records for Gulf of Riga/Finland and Åland/Archipelago Sea in Nielsen 1995 (148) could not be verified
German Baltic Sea	numerous records along the western open coastline and on offshore stony rises – between Flensburg and Warnemünde; few, historical ref- erences along the eastern coastline and one more recent record on an eastern offshore rise – Bay of Mecklenburg (Ahrenshoop), Arkona Sea (Hiddensee, Adlergrund); two (doubtful) records in inland lakes– Greifswald Lagoon (Koos Lake), Little Lagoon (Usedom Lake)

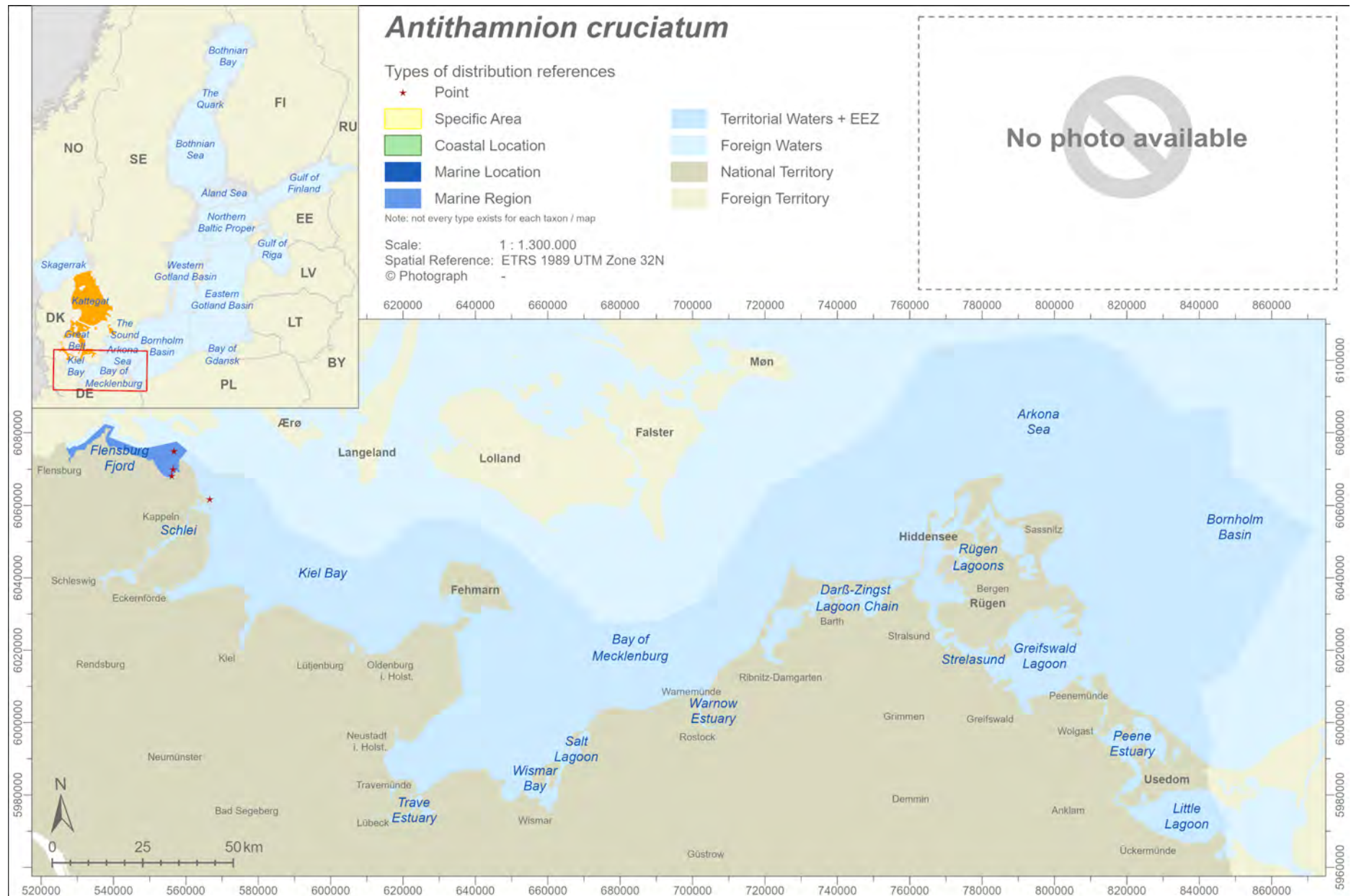
Ecology	
Substrate	hard bottom and animals – stones, boulders and blue mussels (dead shells and live mussels)
Attachment	epilithic and epizoic
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – only few records from lower salinities
Vertical zone	upper to lower infralittoral – from 2 to about 20 m depth
Exposure	sheltered to very exposed – records from ultra- sheltered inland lakes apparently drifting spec- imens or misidentifications
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>G</b> (DE)
Threats	–
Remarks	
can be easily confused with claw-like holdfasts or pieces of the drifting variety/morphotype of <i>Furcellaria lumbricalis</i>	
References	
11 15 19 33 46 48 52 53 54 81 82 86 90 93 95 111 125 127 132 133 139 148 149 151 153 170 190 204 206	



## *Antithamnion cruciatum* (C. Agardh) Nägeli, 1847

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Ceramiales
Family	Ceramiaceae
Subspecies	–
Synonyms	<i>Callithamnion cruciatum</i> C. Agardh, 1827 <i>Callithamnion dubium</i> Zanardini, 1840 <i>Callithamnion imbricatum</i> Schousboe ex Suhr, 1840 <i>Callithamnion pumilum</i> Harvey, 1833
Distribution	
Baltic Sea	northwesternmost parts of the Baltic Sea – from Kattegat to Belt Sea (DK, DE)
German Baltic Sea	only four most recent records along the westernmost part of the German coastline with highest salinities – Flensburg Fjord (Gelting Bay, Kalkgrund)

Ecology	
Substrate	plants or animals – primarily on other algae ( <i>Coccotylus</i> , <i>Phycodrys</i> )
Attachment	epiphytic/epizoic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine) – above 15–18 psu
Vertical zone	upper infralittoral – between 3 and 6 m depth
Exposure	moderately exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>0</b> (DE)
Threats	–
Remarks	
borderline species to fully marine conditions, probably only occasional part of the German Baltic Sea flora	
References	
53 81 82 149 153 206	

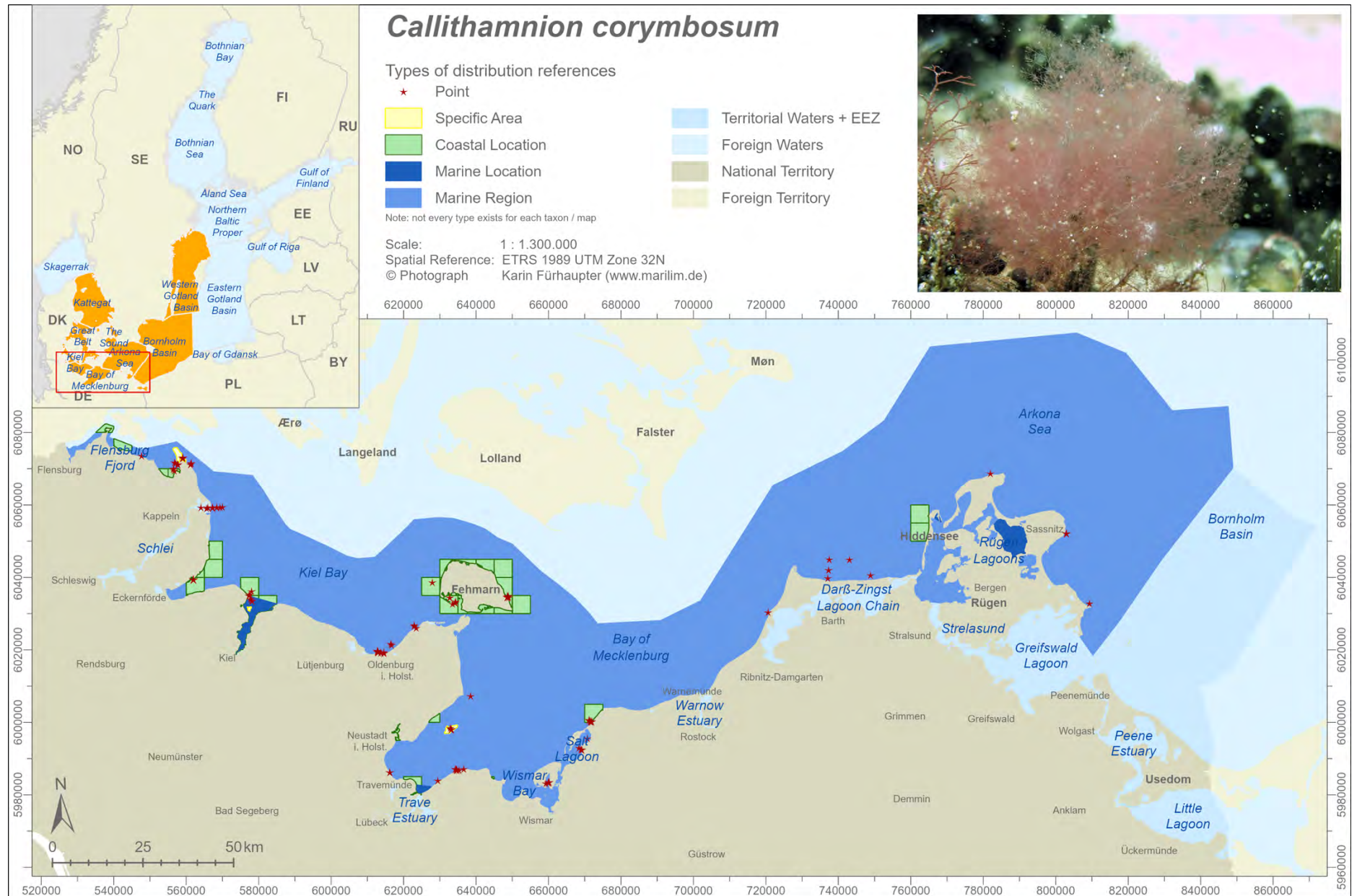


## *Callithamnion corymbosum* (Smith) Lyngbye, 1819

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Ceramiales
Family	Callithamniaceae
Subspecies	–
Synonyms	<i>Callithamnion versicolor</i> (C. Agardh) C. Agardh, 1828 <i>Ceramium pedicellatum</i> Hornemann, 1818 <i>Ceramium versicolor</i> C. Agardh, 1824 <i>Conferva corymbosa</i> Smith, 1812
Distribution	
Baltic Sea	western and central Baltic Sea – from Kattegat to Western Gotland Basin (DK, DE, SE)
German Baltic Sea	along the open coastline – from Flensburg to the east coast of the Island Rügen (Göhren); few records in coastal bays or lagoons – Schlei (near Schleimünde), Orth Bay, Neustadt Inland waters, Wismar Bay, Salt Lagoon, Rügen Lagoons

Ecology	
Substrate	hard bottom and plants or animals – stones, wooden piles, blue mussels (dead shells and live mussels), on eelgrass and various algae ( <i>Fucus</i> , <i>Furcellaria</i> , <i>Polysiphonia</i> )
Attachment	epilithic and epiphytic/epizoic
Salinity	$\beta$ -mesohaline to euhaline (fully marine)
Vertical zone	upper to lower infralittoral – from 1 to about 12 m depth (20 m in other marine areas)
Exposure	very sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>G</b> (DE)
Threats	–
Remarks	
few records in marine monitoring programs, borderline species to freshwater	
References	
28 52 66 81 82 147 156 180 237	





## *Carradoriella elongata* (Hudson) A.M. Savoie & G.W. Saunders, 2019

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Ceramiales
Family	Rhodomelaceae
Subspecies	–
Synonyms	<i>Conferva elongata</i> Hudson, 1762 <i>Hutchinsia elongata</i> (Hudson) C. Agardh, 1817 <i>Polysiphonia elongata</i> (Hudson) Sprengel, 1827 <i>Polysiphonia robusta</i> Kützing, 1843 <i>Polysiphonia rosea</i> Greville, 1824 <i>Rhodomela elongata</i> (Hudson) Fries, 1835
Distribution	
Baltic Sea	western and central Baltic Sea – from Kattegat to Northern Baltic Proper with exception of Eastern Gotland Basin and Gulf of Riga (DE, DK, PL, SE)
German Baltic Sea	numerous findings along the western open, exposed coastline and on offshore stony rises – between Flensburg and Rerik, Kalkgrund, Mittelgrund, Stollergund, Sagasbank, Walkyriengrund; few (recent) references along the eastern open coastline – Arkona Sea (east coast of Rügen Island)

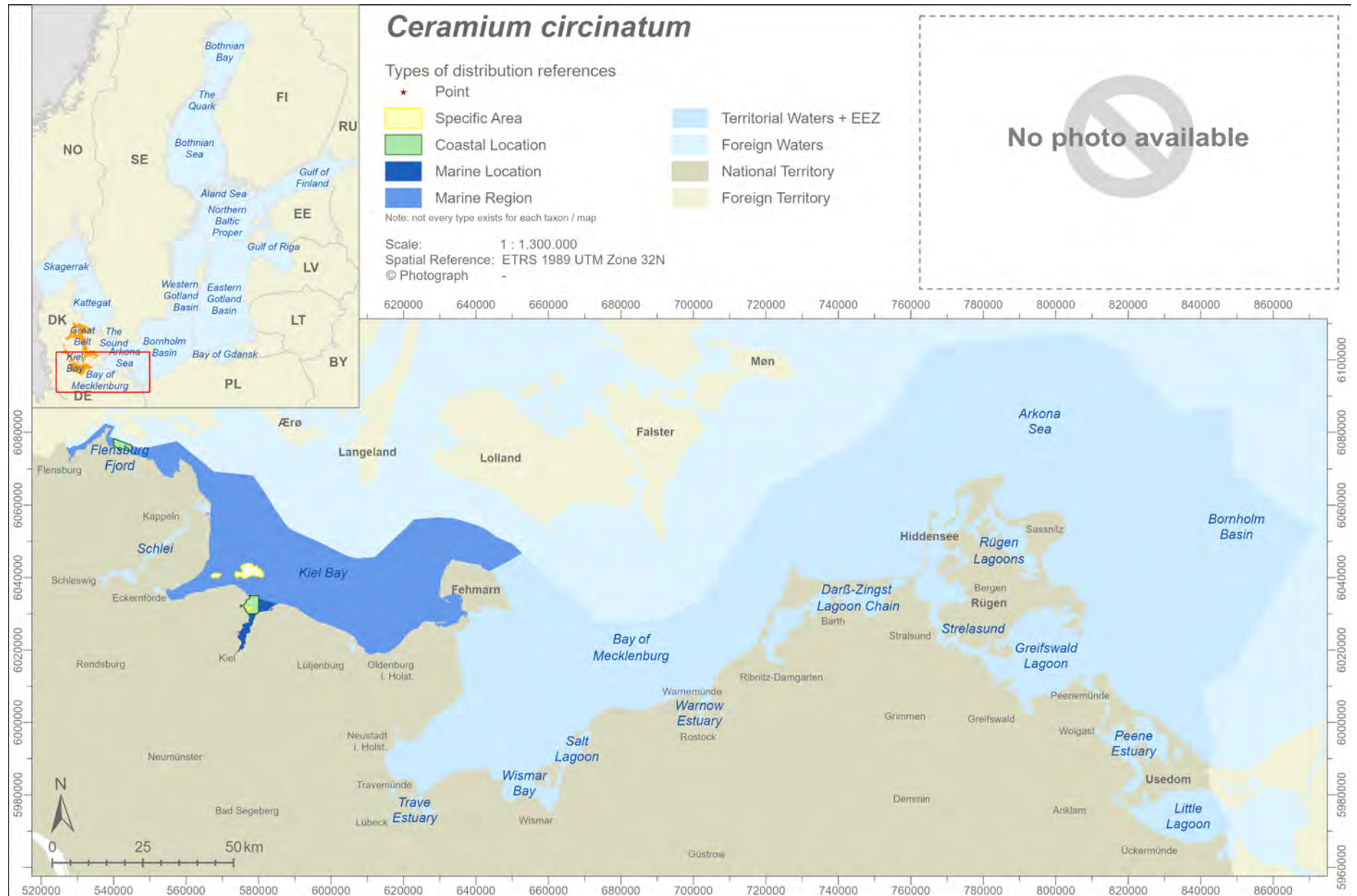
Ecology	
Substrate	hard bottom and plants or animals – larger and smaller stones, blue mussels (live mussels) and (rarely) algae
Attachment	epilithic and epiphytic/epizoic
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) –only above 8–10 psu (brackish water submergence) when considering vertical zonation
Vertical zone	upper to lower infralittoral – between 6 and 20 m depth (two records from shallower waters)
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
	–
Remarks	
References	
	11 40 52 53 54 81 82 89 95 111 132 133 141 149 151 153 178 190 203 204 206



## *Ceramium circinatum* (Kützinger) J. Agardh, 1851

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Ceramiales
Family	Ceramiaceae
Subspecies	–
Synonyms	<i>Ceramium biasoethianum</i> (Kützinger) Ardissoni <i>Ceramium circinnatum</i> <i>Ceramium ramulosum</i> Meneghini <i>Hormoceras circinatum</i> Kützinger, 1842 <i>Hormoceras decurrens</i> Kützinger, 1842
Distribution	
Baltic Sea	only records in the German Baltic Sea area – Belt Sea (DE), Kiel Bay (DE)
German Baltic Sea	exclusively historical records along the western open coastline and on three stony offshore rises – Flensburg Fjord (Langballigau), Kiel Bay (Bülk, Strande, Kiel Fjord, Mittelgrund, Stollergrund, Grasberg)

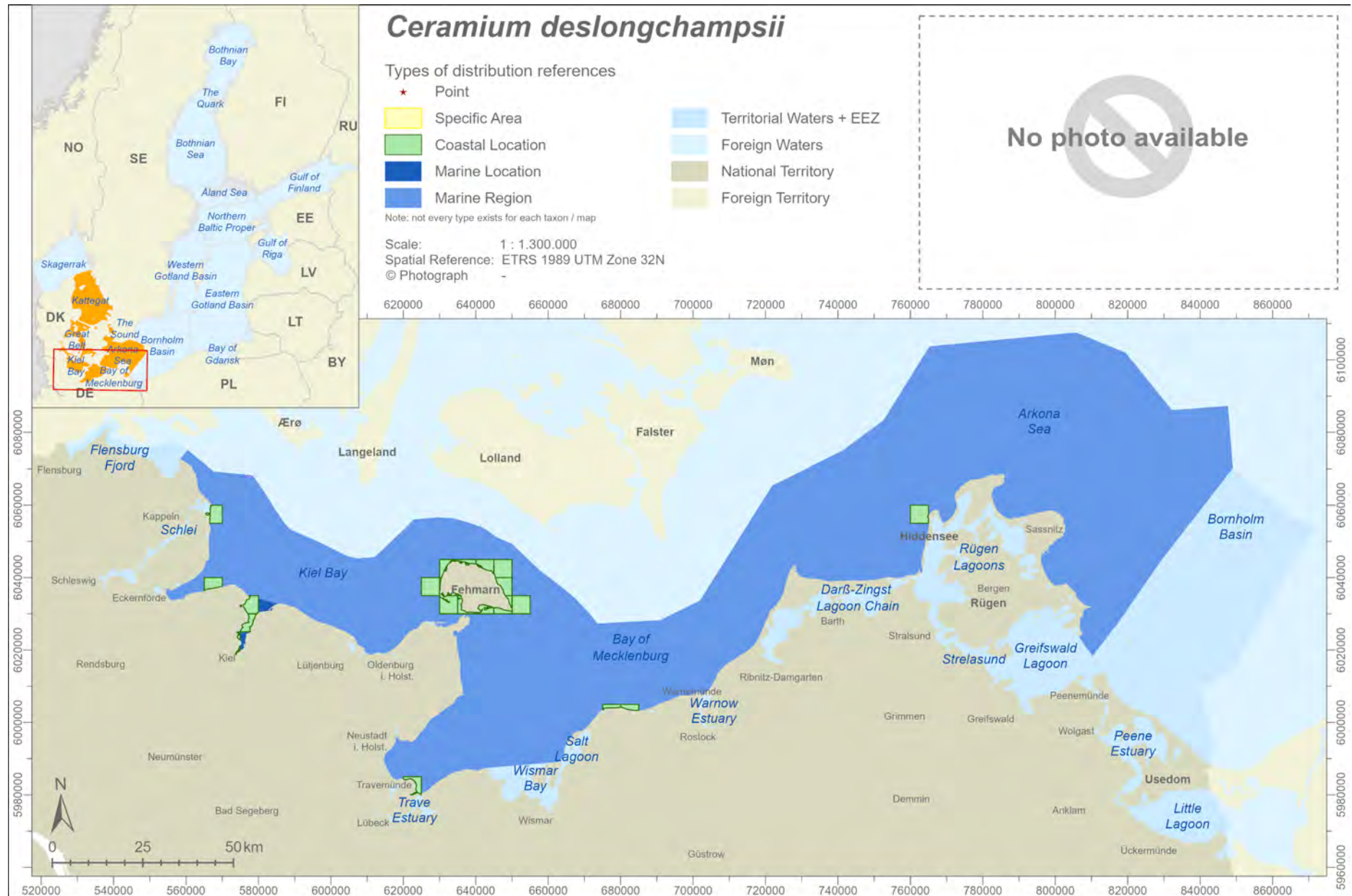
Ecology	
Substrate	plants – on various (larger) algae ( <i>Furcellaria</i> )
Attachment	epiphytic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	upper infralittoral (to lower Infralittoral) – between 6 and 8 m (in literature between 5 to 16 m)
Exposure	sheltered to exposed
Conservation	
Red List	– (Baltic Sea), – (DE)
Threats	–
Remarks	
likely to be confused with other <i>Ceramium</i> species particular as no evidence of occurrence exists from other Baltic Sea neighbouring countries	
References	
81 82 95 206	



## *Ceramium deslongchampsii* Chauvin ex Duby, 1830

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Ceramiales
Family	Ceramiaceae
Species	–
Synonyms	<i>Ceramium diaphanum</i> var. <i>strictum</i> (Kützing) Feldmann-Mazoyer, 1941 <i>Ceramium pellucidum</i> (Kützing) Rabenhorst, 1847 <i>Ceramium strictum</i> (Kützing) Harvey, 1849 <i>Ceramium strictum</i> (Kützing) Rabenhorst, 1847 <i>Gongroceras pellucidum</i> Kützing
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Arkona Sea (DE, DK); records from Bornholm Basin, Bay of Gdansk and Western Gotland Basin in Nielsen 1995 (148) could not be verified
German Baltic Sea	exclusively historical records along the open exposed coastline – Kiel Bay (Surendorf, Kiel Fjord, around Fehmarn), Bay of Mecklenburg (Priwall, Kühlungsborn), Arkona Sea (Hiddensee)

Ecology	
Substrate	hard bottom and plants – wood and on eel-grass
Attachment	epilithic and epiphytic
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – only a single record from lower salinities
Vertical zone	upper Infralittoral – from the shoreline to about 3 m depth
Exposure	sheltered to very exposed
Conservation	
Red List	– (Baltic Sea), * (DE)
Threats	–
Remarks	
a marine <i>Ceramium</i> species not entering further into the Baltic Sea or into low salinity areas along the German Baltic Sea (coastal lagoons, estuaries, coastal lakes)	
References	
46 64 81 82 95 206	

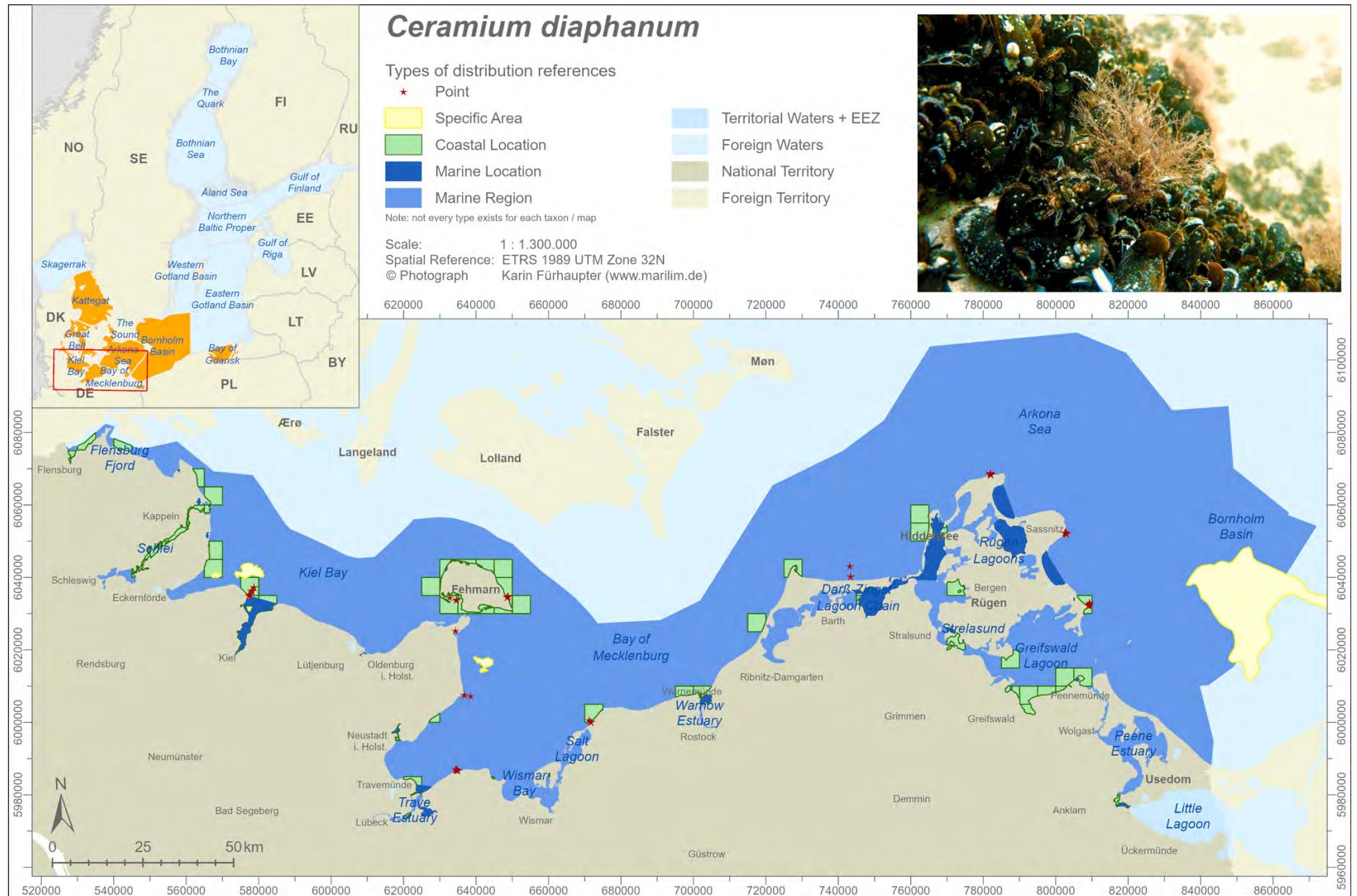


## *Ceramium diaphanum* (Lightfoot) Roth, 1806

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Ceramiales
Family	Ceramiaceae
Subspecies	–
Synonyms	<i>Ceramium gracillimum</i> (Kützinger) Zanardini, 1847 <i>Ceramium nodiferum</i> (Kützinger) P.L. Crouan & H.M. Crouan, 1878 <i>Ceramium nodosum</i> (Kützinger) Griffiths & Harvey, 1847 <i>Ceramium pygmaeum</i> Schiffner, 1933 <i>Ceramium tenuissimum</i> (Roth) Areschoug, 1847
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Bornholm Basin and Bay of Gdansk (DK, DE, PL); records from Western Gotland Basin in Nielsen 1995 (148) could not be verified
German Baltic Sea	along the entire open exposed coastline and on several offshore rises – from Flensburg to the island Usedom and to the offshore rise Adlergrund at the German/Polish offshore border; in most coastal bays, estuaries and lagoons with exception of Little Lagoon; rarely in inland lakes

Ecology	
Substrate	hard bottom and plants or animals – boulders, stones, wood, blue mussels (dead shells and live mussels) and on various plants ( <i>Zostera</i> , <i>Potamogeton</i> , <i>Chara</i> , <i>Fucus</i> , <i>Polysiphonia</i> , ...)
Attachment	epilithic and epiphytic/epizoic
Salinity	( $\beta$ -oligohaline) $\alpha$ -oligohaline to euhaline (fully marine) – from about 3 psu upwards with only one historical record from lower salinities
Vertical zone	upper infralittoral – from the shoreline to about 10 m depth
Exposure	(ultra) very sheltered to very exposed – only a single record from an ultra-sheltered site
Conservation	
Red List	<b>NE</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
can be confused with <i>Ceramium tenuicorne</i> ; additionally, nomenclature in the "diaphanum" group is complex and confused making it difficult to allocate historical records precisely	
References	
13 18 19 40 46 48 60 61 63 64 66 81 82 86 90 95 100 112 113 121 127 129 131 132 133 141 142 145 149 151 152 159 164 165 172 190 191 196 204 206 229 232 239	

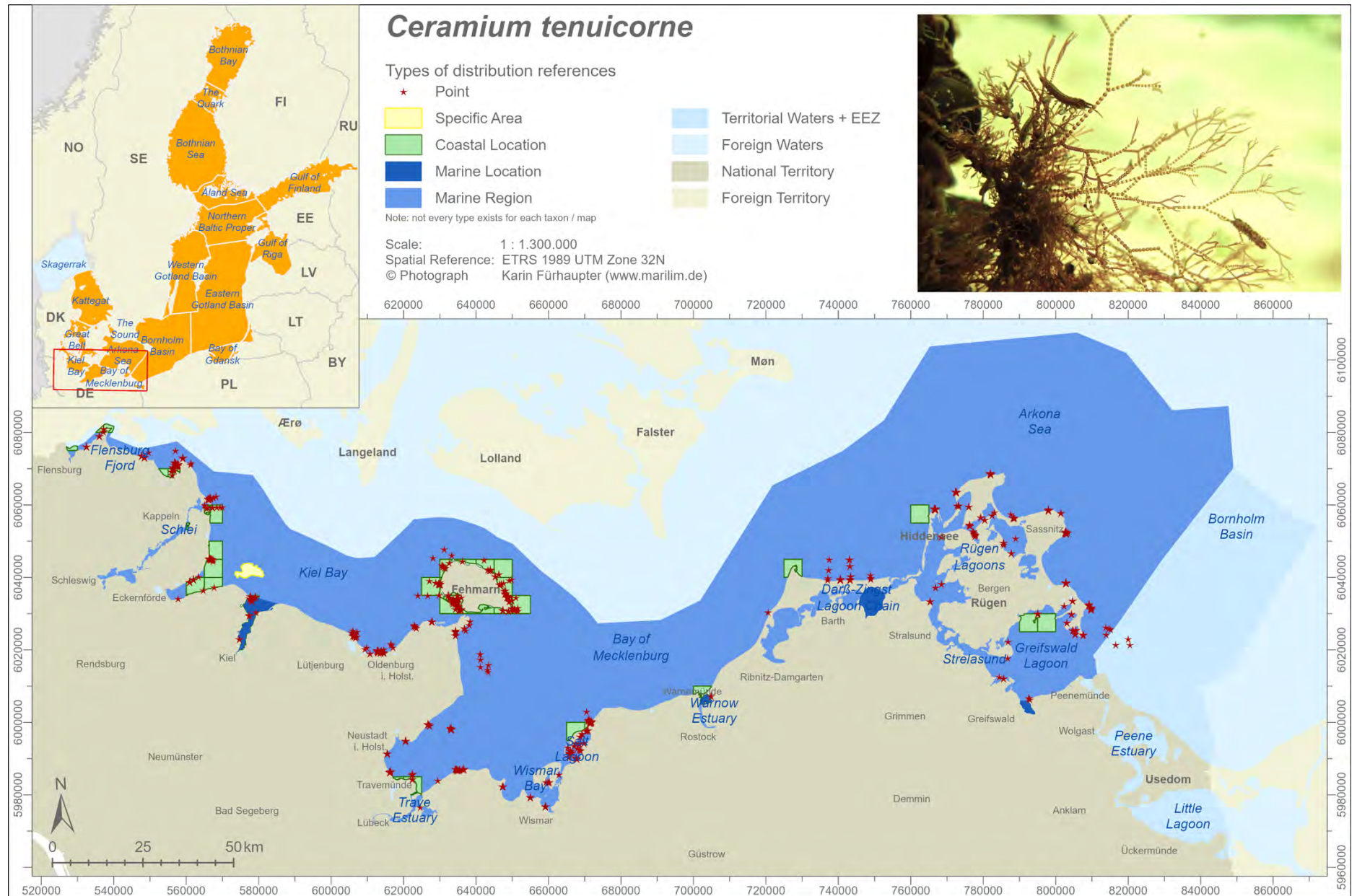




## *Ceramium tenuicorne* (Kützinger) Waern, 1952

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Ceramiales
Family	Ceramiaceae
Subspecies	–
Synonyms	<i>Ceramium arachnoideum</i> (C. Agardh) J. Agardh, 1851 <i>Ceramium diaphanum</i> f. <i>strictum</i> (Harvey) Foslie, 1893 <i>Ceramium gobii</i> Waern, 1992 <i>Ceramium gracillimum</i> Gobi, 1877 <i>Ceramium strictum</i> Greville & Harvey, 1846 <i>Gongroceras tenuicorne</i> Kützinger, 1841
Distribution	
Baltic Sea	entire Baltic Sea coastline – from Kattegat to Bothnian Bay (all neighbouring countries)
German Baltic Sea	numerous records along the entire open coastline with exception of the Island Usedom – from Flensburg to the east coast of the Island Rügen; in most coastal bays, estuaries and lagoons with exception of Peene Estuary and Little Lagoon, very rarely in inland lakes or offshore rises

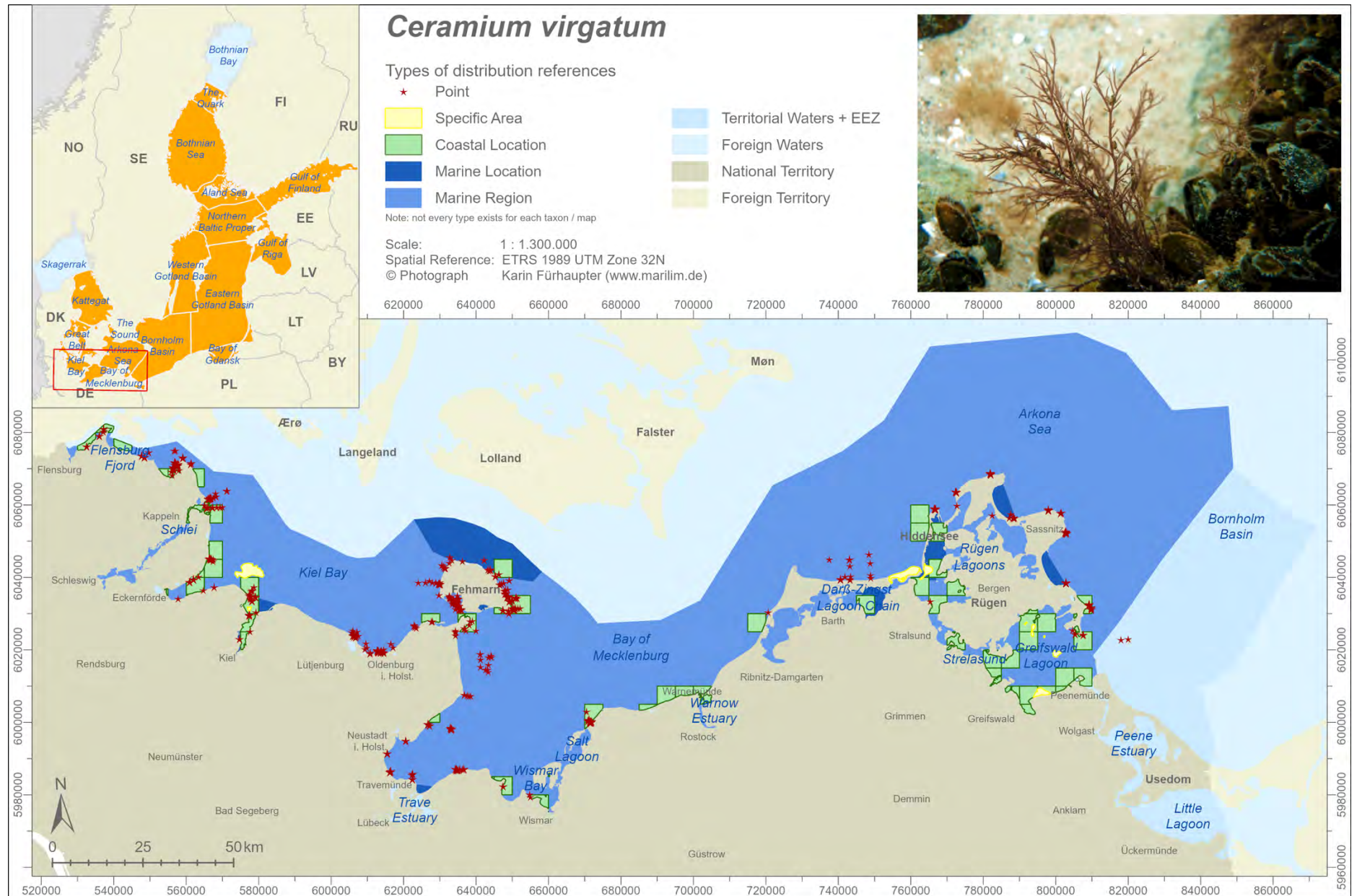
Ecology	
Substrate	hard bottom and plants or animals – stones, blue mussels (dead shells and live mussels) and on various macrophytes ( <i>Zostera</i> , <i>Phragmites</i> , <i>Chara</i> , <i>Fucus vesiculosus</i> , ...)
Attachment	epilithic and epiphytic/epizoic
Salinity	( $\alpha$ -oligohaline) $\beta$ -mesohaline to euhaline (fully marine) – from about 3 psu upwards, but without verified records between 3 and 5 psu
Vertical zone	upper Infralittoral (lower Infralittoral) – from the shoreline to about 10 m depth (in literature also down to 30 m)
Exposure	very sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
can be confused with <i>Ceramium diaphanum</i> ; the most common ceramial red algae with a great ecological, particularly salinity range and many morphological ecotypes with regard to node cortication and amount/degree of incurving apices.	
References	
11 15 31 45 52 53 54 64 81 82 89 92 95 106 111 126 139 149 151 152 153 154 167 178 180 190 191 206	



## Ceramium virgatum Roth, 1797

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Ceramiales
Family	Ceramiaceae
Subspecies	–
Synonyms	<i>Ceramium flabelliferum</i> Kützting <i>Ceramium nodulosum</i> (Lightfoot) Ducluzeau, 1806 <i>Ceramium pedicellatum</i> J. Agardh, 1894 <i>Ceramium rubrum</i> C. Agardh, 1811 <i>Ceramium rubrum</i> f. <i>balticum</i> Petersen, 1908
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of the northeasternmost part – from Kattegat to Bothnian Sea / The Quark (all neighbouring countries)
German Baltic Sea	numerous records along the entire open, exposed coastline with exception of the Island Usedom – from Flensburg to the east coast of the Island Rügen (Thiessow); in outer parts of many coastal bays, estuaries and lagoons with exception of Trave, Peene Estuary and Little Lagoon, very rarely in inland lakes and on off-shore rises

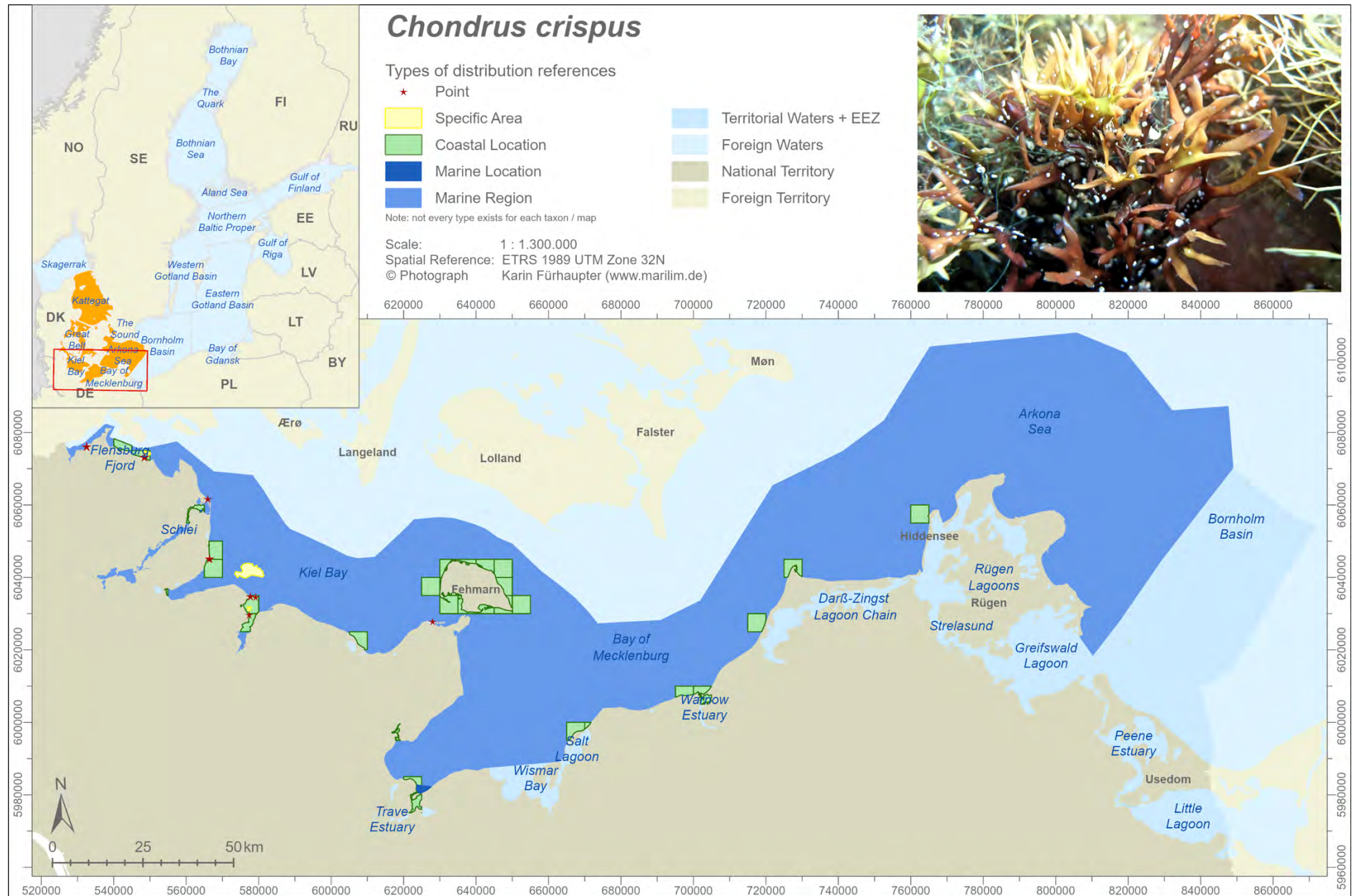
Ecology	
Substrate	hard bottom and plants or animals – boulders, stones, wood, blue mussels (dead shells and live mussels) and on various macrophytes ( <i>Zostera</i> , <i>Fucus</i> )
Attachment	epilithic and epiphytic/epizoic
Salinity	$\beta$ -mesohaline to euhaline (fully marine)
Vertical zone	upper to lower infralittoral – from the shoreline to about 25 m depth
Exposure	very sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
broad ecological range similar to <i>Ceramium tenuicorne</i> , but with a narrower salinity range	
References	
11 15 19 40 45 48 49 52 53 54 60 61 64 65 68 81 82 86 89 90 92 95 111 115 116 121 126 127 129 131 132 133 139 141 149 151 152 153 159 164 165 167 171 172 178 180 191 203 204 206 239	



## *Chondrus crispus* Stackhouse, 1797

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Gigartinales
Family	Gigartinaceae
Subspecies	–
Synonyms	<i>Chondrus norvegicus</i> (Gunnerus) Lyngbye, 1819 <i>Fucus ceranoides</i> var. <i>lacerus</i> (Linnaeus) Light-foot <i>Polymorpha crispa</i> (Stackhouse) Stackhouse, 1809
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Arkona Sea (DE, DK, SE)
German Baltic Sea	historical and recent records along the western open coastline – from Flensburg to Fehmarn; only historical records (mainly unattached specimens east of the Island Fehmarn – Bay of Mecklenburg (Neustadt, Travemünde, Priwall, Rerik, Warnemünde, Fischland), Arkona Sea (Darßer Ort, Hiddensee); rarely at offshore rises (Stollergrund, Grasberg)

Ecology	
Substrate	hard bottom and animals – stones, blue mussels (live mussels)
Attachment	epilithic and epizoic
Salinity	( $\beta$ - mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – from about 15 psu upwards with few historical records from lower salinities, probably drifting specimens
Vertical zone	upper infralittoral (lower infralittoral) – between 0,5 and 20 m depth (only historical records in lower Infralittoral)
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
a marine species, which has recently only records on very shallow hard bottoms (< 3 m) with higher salinities	
References	
19 25 53 64 81 82 95 104 115 126 127 132 133 139 141 164 167 190 206	

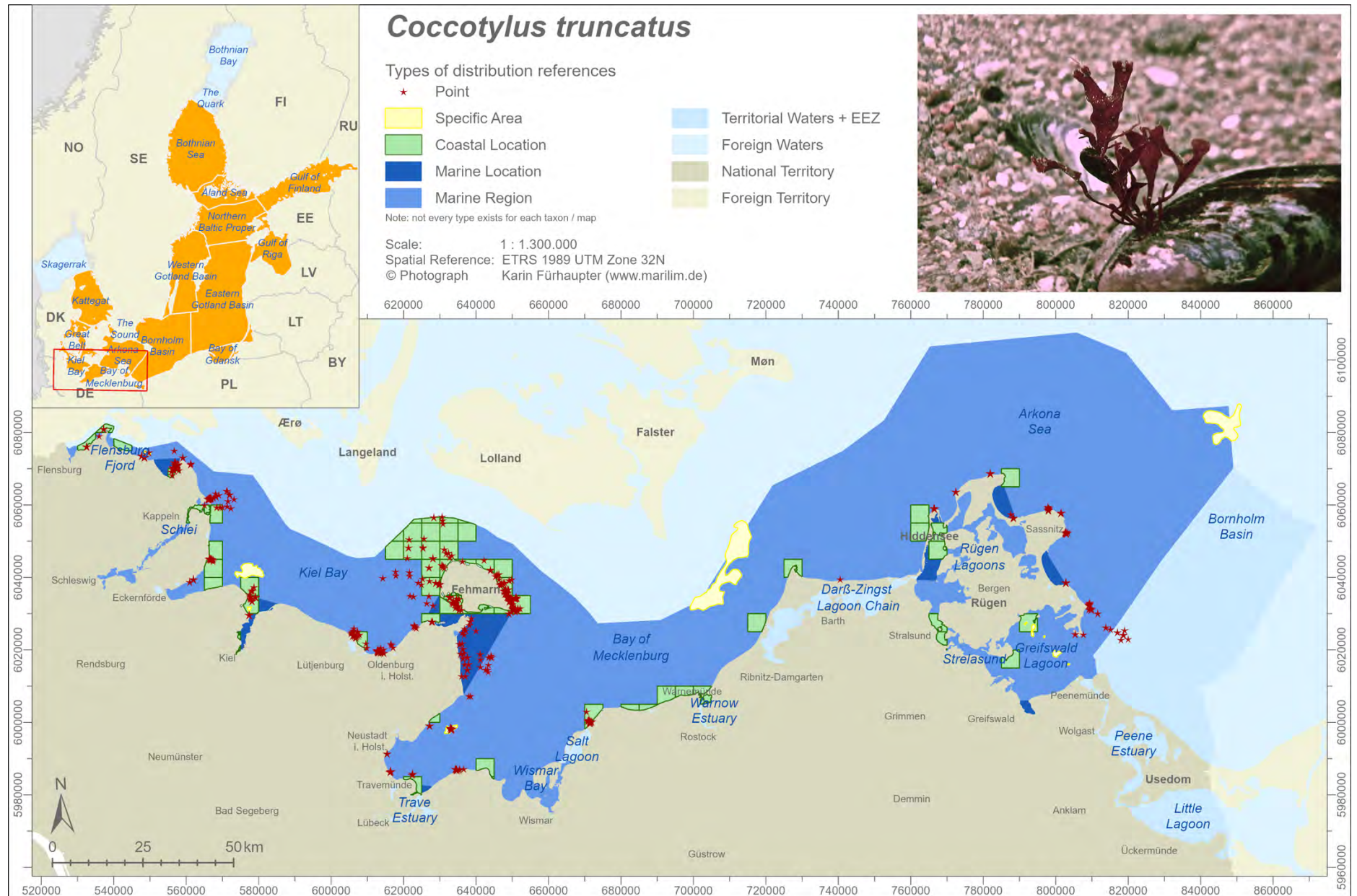


## *Coccotylus truncatus* (Pallas) M.J. Wynne & J.N. Heine, 1992

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Gigartinales
Family	Phylloporaceae
Subspecies	–
Synonyms	<i>Chondrus truncatus</i> Postels & Ruprecht, 1840 <i>Phyllophora brodiei</i> f. <i>baltica</i> Areschoug ex Gobi, 1877 <i>Phyllophora truncata</i> (Pallas) A.D. Zinova, 1970 <i>Sphaerococcus interruptus</i> Greville, 1829
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of northeasternmost part – from Kattegat to Bothnian Sea (all neighbouring countries); records from Bothnian Bay in Nielsen 1995 (148) could not be verified
German Baltic Sea	numerous records along the open coastline and on many offshore stony shallows/rises – from Flensburg to the east coast of the Island Rügen (Thiessow), from the rise Neukirchengrund in Flensburg Fjord to Adlergrund at the German/Polish offshore border; in many coastal bays, estuaries and lagoons with exception of Trave and Peene Estuary and Little Lagoon (probably only unattached specimens)

Ecology	
Substrate	hard bottom, overlaying soft bottom and on animals – boulders, stones, blue mussels (live mussels) and unattached on sandy sediments
Attachment	epilithic, drifting (at the bottom) and epizoid
Salinity	$\beta$ -mesohaline to euhaline (fully marine)
Vertical zone	upper to lower infralittoral – between 3 and 30 m depth (unattached also in shallower water (> 0,5 m))
Exposure	(very) sheltered to very exposed – only unattached specimens at very sheltered sites
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
can be confused with <i>Coccotylus brodiei</i> , <i>Phyllophora pseudoceranooides</i> and in coastal lagoons also with the unattached ecomorphological variety of <i>Fucus vesiculosus</i> ; serves as most abundant basiphyte in the species rich red seaweed biotope, often completely overgrown and covered by other red algae	
References	
11 15 19 24 33 40 46 48 52 53 54 64 81 82 86 90 93 95 106 111 115 121 126 127 132 133 139 141 144 148 149 151 153 164 165 170 190 191 204 206 229	

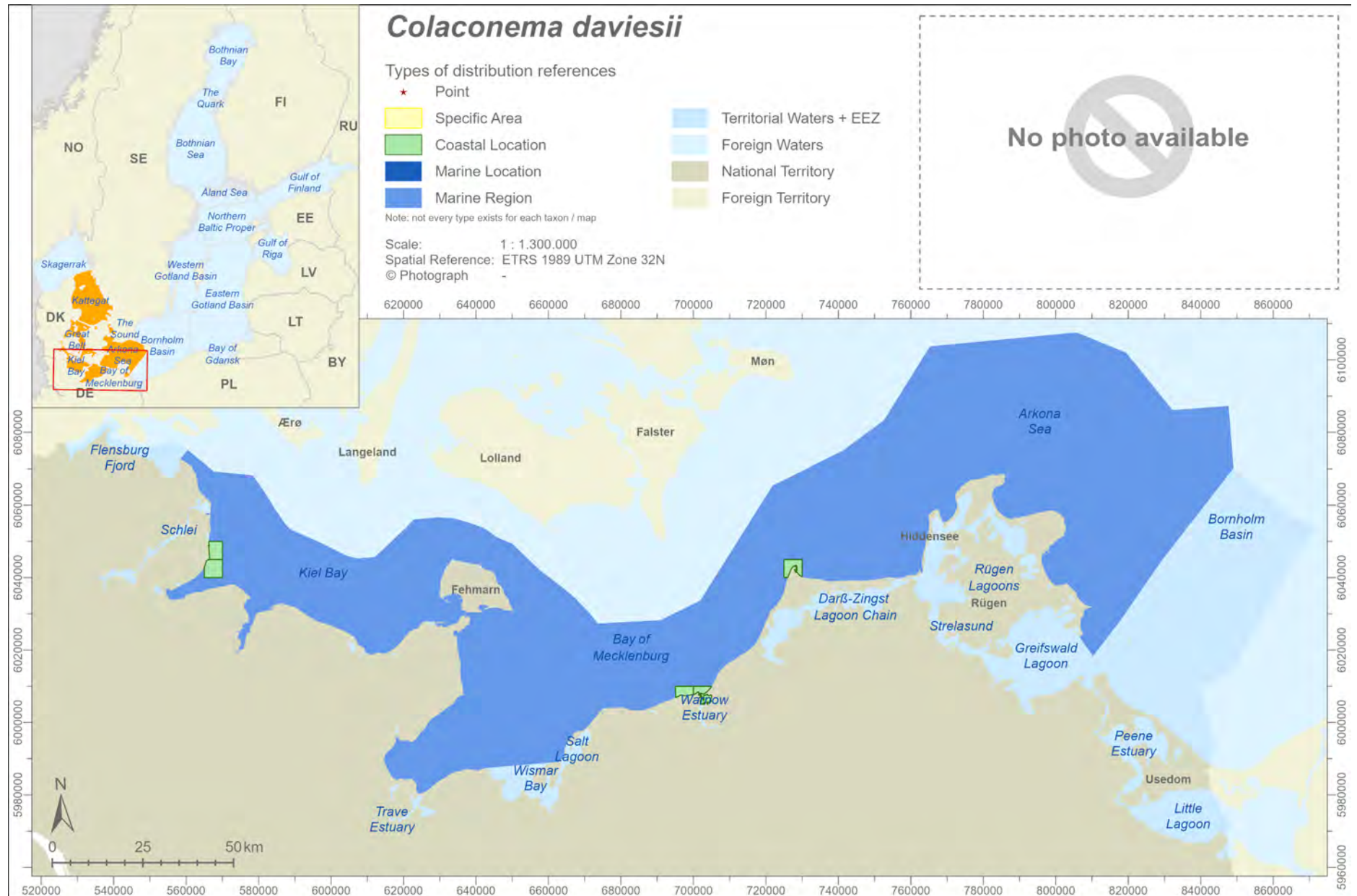




## *Colaconema daviesii* (Dillwyn) Stegenga, 1985

Taxonomy	
<i>Phylum</i>	Rhodophyta
<i>Class</i>	Florideophyceae
<i>Order</i>	Colaconematales
<i>Family</i>	Colaconemataceae
<i>Subspecies</i>	–
<i>Synonyms</i>	<i>Acrochaetium daviesii</i> (Dillwyn) Nägeli, 1862 <i>Callithamnion daviesii</i> (Dillwyn) Lyngbye, 1819 <i>Chantransia daviesii</i> (Dillwyn) Thuret, 1863 <i>Rhodochoron daviesii</i> (Dillwyn) K.M. Drew, 1928
Distribution	
<i>Baltic Sea</i>	western Baltic Sea – from Kattegat to Arkona Sea (DE, DK, SE); records from Bornholm Basin in Nielsen 1995 (148) could not be verified
<i>German Baltic Sea</i>	four records along the open exposed coastline – Kiel Bay (Boknis Eck), Bay of Mecklenburg (Stoltera, Warnemünde), Arkona Sea (Darßer Ort)

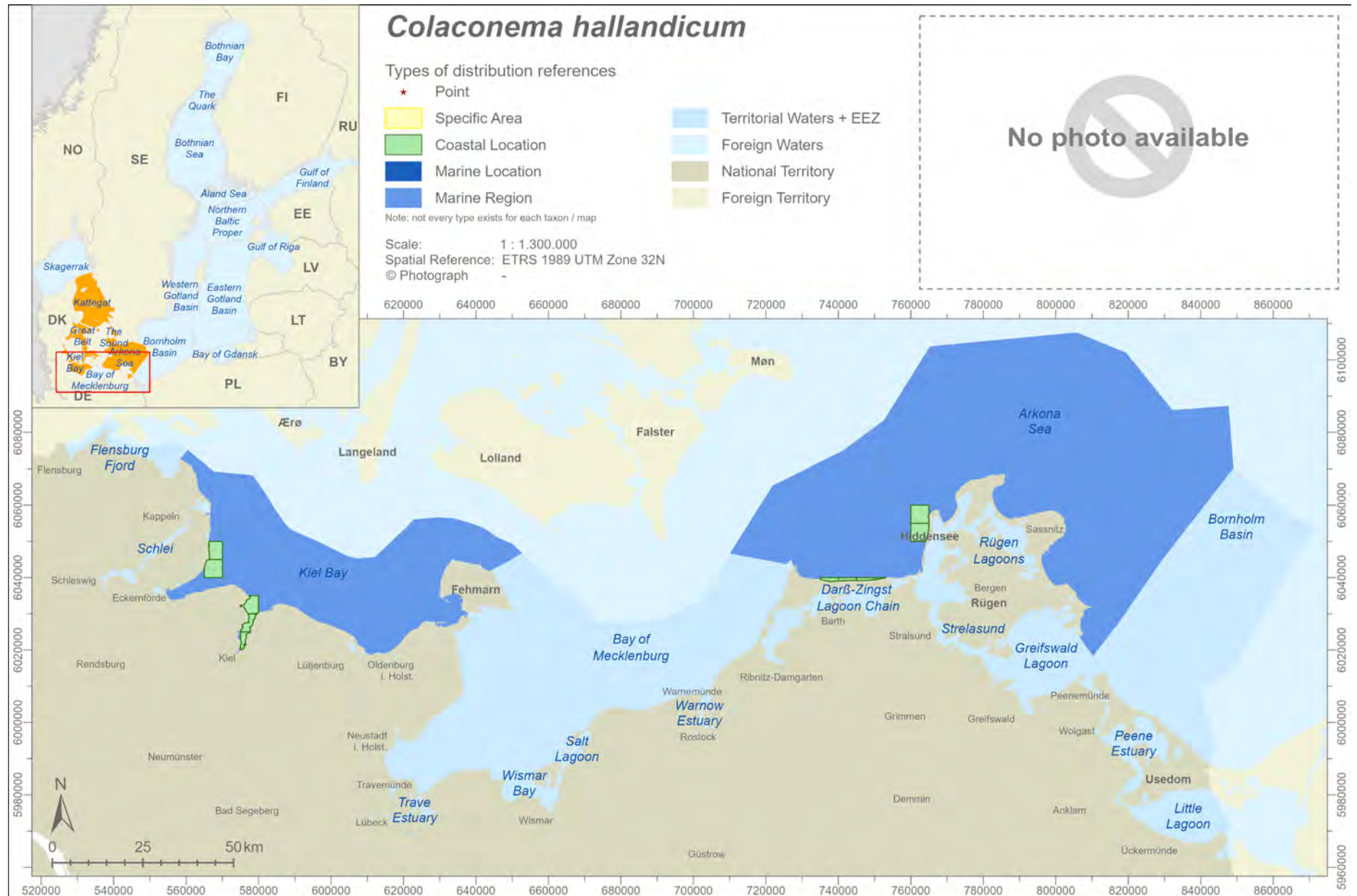
Ecology	
<i>Substrate</i>	hard bottom and plants – boulders and on various algae
<i>Attachment</i>	epilithic and epiphytic
<i>Salinity</i>	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – only one historical record from lower salinities
<i>Vertical zone</i>	supralittoral to upper infralittoral (lower Infralittoral) – from the splash zone to about 8 m depth (in literature down to 11 m)
<i>Exposure</i>	exposed to very exposed
Conservation	
<i>Red List</i>	<b>LC</b> (Baltic Sea), <b>D</b> (DE)
<i>Threats</i>	–
Remarks	
possibly unnoticed in many surveys because of its tiny size; unfertile specimens difficult to identify on species level	
References	
46 64 81 82 111 206	



## *Colaconema hallandicum* (Kylin) Afonso-Carillo, Sanson, Sangil & Diaz-Villa, 2007

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Colaconematales
Family	Colaconemataceae
Subspecies	–
Synonyms	<i>Acrochaetium hallandicum</i> (Kylin) Hamel, 1927 <i>Audouinella hallandica</i> (Kylin) Woelkerling, 1973 <i>Chantransia hallandica</i> Kylin, 1906 <i>Kylinia hallandica</i> (Kylin) Kylin, 1944 <i>Rhodochoron hallandicum</i> (Kylin) Drew, 1928
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Arkona Sea (DE, DK, SE); records from Bornholm Basin and Northern Baltic Proper in Nielsen 1995 (148) could not be verified
German Baltic Sea	at six locations with unevenly distribution along the open, exposed coastline – Kiel Bay (Boknis Eck, Strande, Möltenort, Kitzeberg) and Arkona Sea (Zingst, Hiddensee)

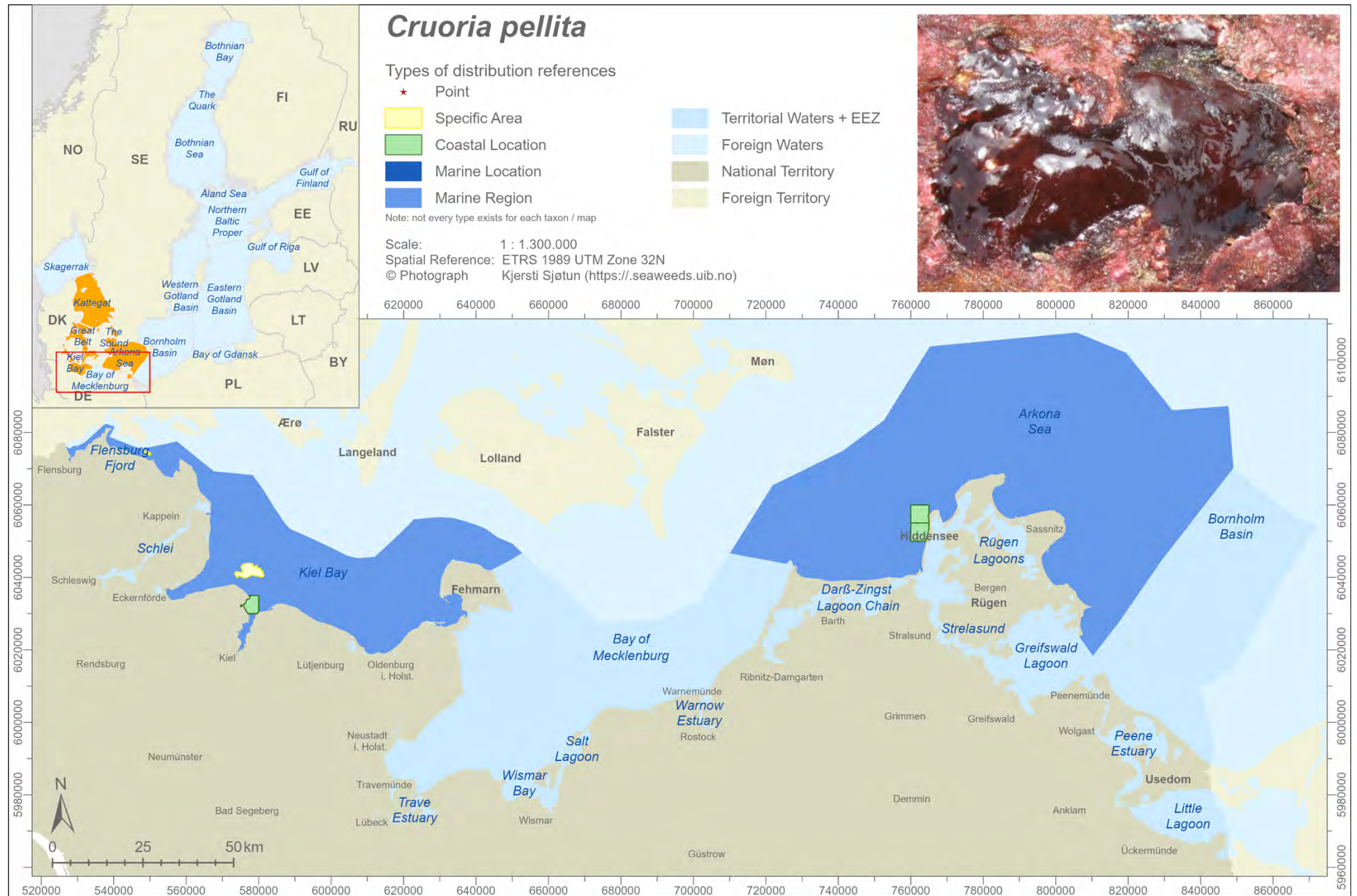
Ecology	
Substrate	plants – on various other algae ( <i>Ceramium</i> )
Attachment	epiphytic
Salinity	$\beta$ -mesohaline to euhaline (fully marine)
Vertical zone	upper Infralittoral to lower Infralittoral – between 0,5 and 12 m depth (in literature down to about 25 m)
Exposure	exposed to very exposed
Conservation	
Red List	<b>NE</b> (Baltic Sea), <b>D</b> (DE)
Threats	–
Remarks	
possibly unnoticed in many surveys because of its tiny size; unfertile specimens difficult to identify on species level	
References	
64 81 82 88 111 121 206	



## *Cruoria pellita* (Lyngbye) Fries, 1835

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Gigartinales
Family	Cruoriaceae
Subspecies	–
Synonyms	<i>Chaetoderma pellitum</i> (Lyngbye) Kützing, 1843 <i>Chaetophora pellita</i> Lyngbye, 1819 <i>Cruoria adhaerens</i> P.L. Crouan & H.M. Crouan ex J. Agardh, 1851 <i>Cruoria schousboei</i> (Liebmann) J. Agardh, 1851
Distribution	
Baltic Sea	only northwesternmost parts of Baltic Sea – from Kattegat to Kiel Bay and Arkona Sea – (doubtful record) (DE, DK, SE)
German Baltic Sea	at four locations (all historical records) with unevenly distribution along the open, exposed coastline and on offshore rises – Flensburg Fjord (Neukirchengrund), Kiel Bay (Stollergrund, Bülk) and Arkona Sea (Kloster)

Ecology	
Substrate	hard bottom (plants or animals) – stones (in literature also mussels and algae)
Attachment	epilithic (epiphytic/epizoic)
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – only a single historical record from lower salinities
Vertical zone	upper to lower infralittoral – between 7 and 12 m depth (in literature between 1 and 25 m)
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>1</b> (DE)
Threats	–
Remarks	
a marine species, occurring only randomly in eastern, lower salinity areas	
References	
81 82 95 141 190 206	

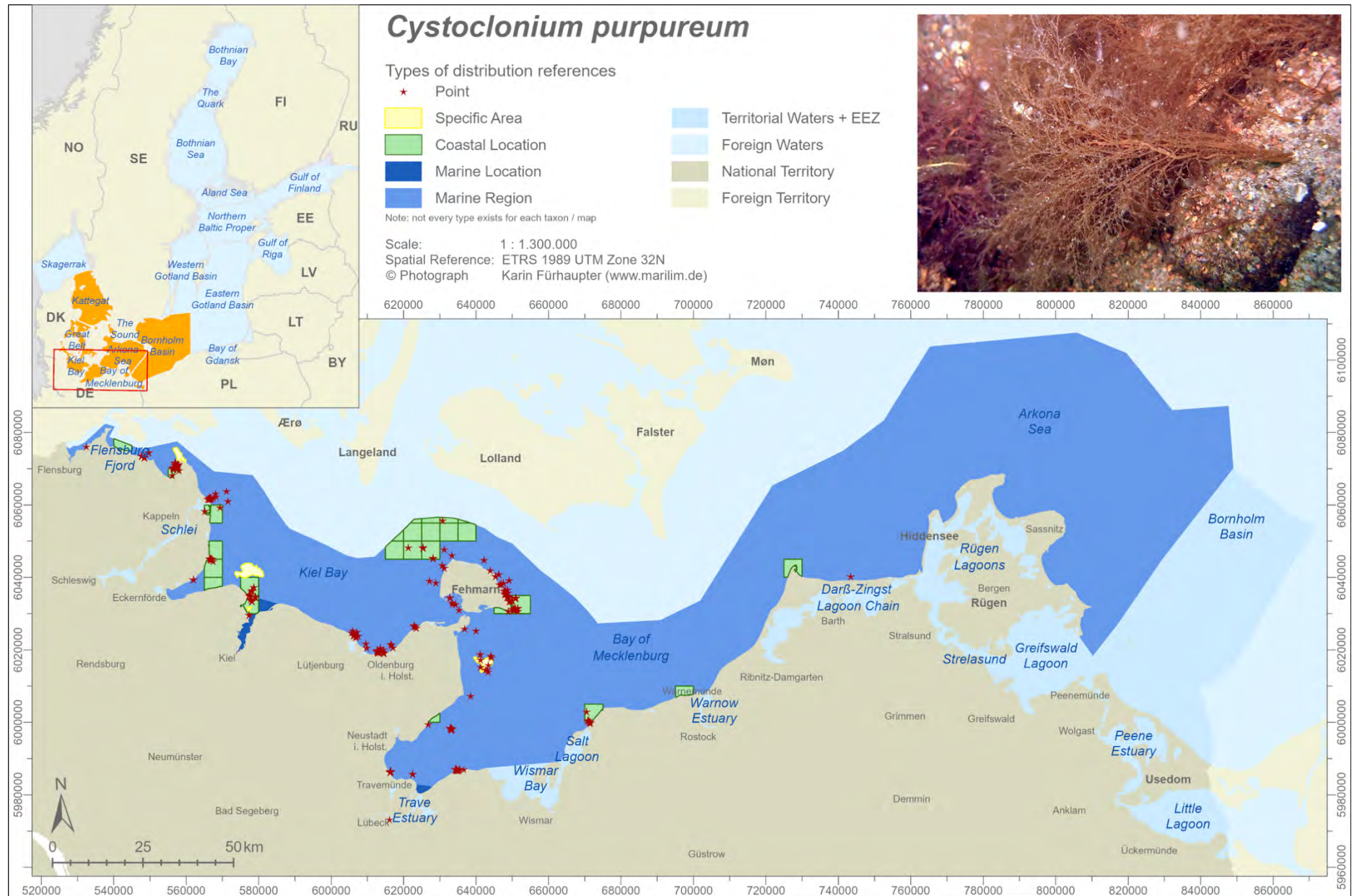


## *Cystoclonium purpureum* (Hudson) Batters, 1902

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Gigartinales
Family	Cystocloniaceae
Subspecies	–
Synonyms	<i>Cystoclonium purpurascens</i> (Hudson) Kützing, 1843 <i>Fucus corallinus</i> O. F. Müller, 1777 <i>Fucus scorpioides</i> O. F. Müller, 1782 <i>Gigartina purpurascens</i> (Hudson) J.V. Lamouroux, 1813
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Bornholm Basin (DE, DK, SE)
German Baltic Sea	numerous findings along the western part of the open, exposed coastline and on offshore stony rises and bottoms – between Flensburg and Börgerende (Flensburg Fjord, Kiel Bay, Bay of Mecklenburg); very few records along the eastern open coastline – Arkona Sea (Darßer Ort, Zingst)

Ecology	
Substrate	hard bottom and plants – stones and on various algae
Attachment	epilithic and epiphytic
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – only two records from lower salinities
Vertical zone	upper to lower infralittoral – between 5 and 20 m depth (in literature also shallower)
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
References	
11 33 52 53 54 81 82 95 104 111 127 132 133 141 149 151 153 164 190 203 204 206	





## *Dasya baillouviana* (S.G. Gmelin) Montagne, 1841

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Ceramiales
Family	Dasyaceae
Subspecies	–
Synonyms	<i>Dasya elegans</i> (G. Martens) C. Agardh, 1828 <i>Dasya mazei</i> (P. L. Crouan & H. M. Crouan) G. Murray, 1888 <i>Dasya pedicellata</i> (C. Agardh) C. Agardh, 1824 <i>Sphaerococcus pedicellatus</i> C. Agardh, 1822
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Bay of Mecklenburg (DE, DK, SE)
German Baltic Sea	as neophyte only recent records, attached specimens along the western open coastline – between Flensburg and Staberhuk (east coast of the Island Fehmarn); unattached specimens also in western coastal bays, estuaries, lagoons (Schlei, Gelting Lagoon)

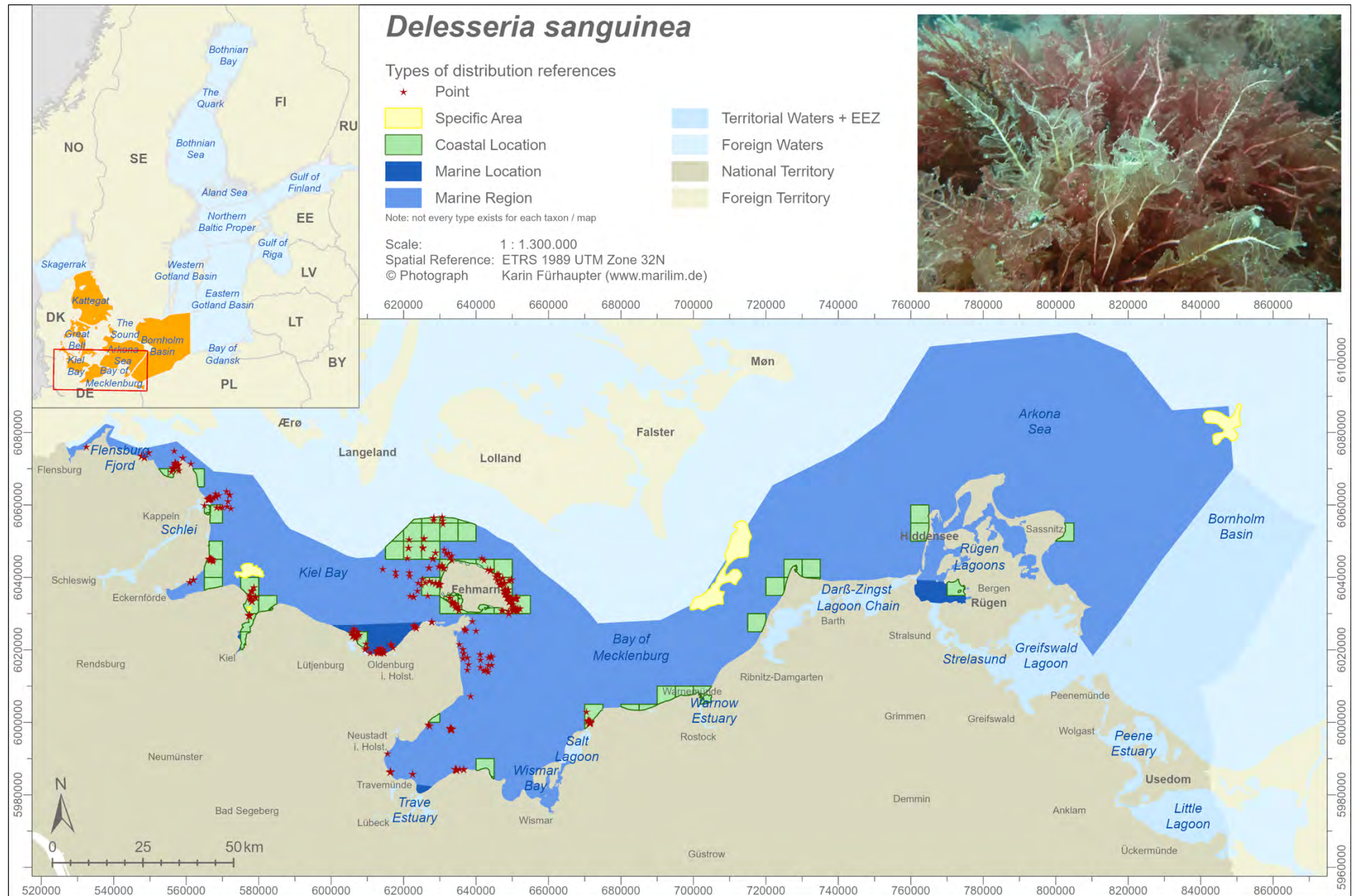
Ecology	
Substrate	hard bottom, soft bottom and plants or animals – stones, overlaying sandy sediments, on blue mussels (live mussels) and other algae ( <i>Fucus</i> , <i>Coccotylus</i> )
Attachment	epilithic, epizoic/epiphytic and drifting (at the bottom) – often entangled in <i>Zostera</i> , <i>Fucus</i> stands and mussel beds
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	upper (to lower) infralittoral – between 1 and 15 m depth, but only two records from > 10 m depth
Exposure	sheltered to very exposed
Conservation	
Red List	<b>NA</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
Neophyte introduced around the 1990ies to the Baltic Sea with a first record in 2002 for the German Baltic Sea as a drifting specimen (in Gelting Bay); since then, slowly spreading along the open coastline in eelgrass and <i>Fucus</i> biotopes; many records from drifting specimens, but also various records of attached/entangled specimens particularly in late summer	
References	
11 53 54 81 82 95 126 145 149 153 203 206	



## *Delesseria sanguinea* (Hudson) J.V. Lamouroux, 1813

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Ceramiales
Family	Delesseriaceae
Subspecies	–
Synonyms	<i>Delesseria sanguinea</i> f. <i>filiformis</i> Levring, 1940 <i>Delesseria sanguinea</i> var. <i>lanceolata</i> (Hornemann) Hudson, 1762 <i>Hydrolapathum sanguineum</i> (Hudson) Stackhouse, 1809
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Bornholm Basin (DE, DK, PL, SE)
German Baltic Sea	numerous records along the western open, exposed coastline and on offshore stony rises – between Flensburg and Warnemünde; fewer, mainly historical references along the eastern open coastline and in deep channels – Bay of Mecklenburg (Kadett Channel, Fischland, Darß), Arkona Sea (Hiddensee, Sassnitz, Adlergrund on the offshore German/Polish border); a single record in a coastal lagoon – Rügen Lagoons (Kubitz Lagoon) probably a drifting specimen or misidentification

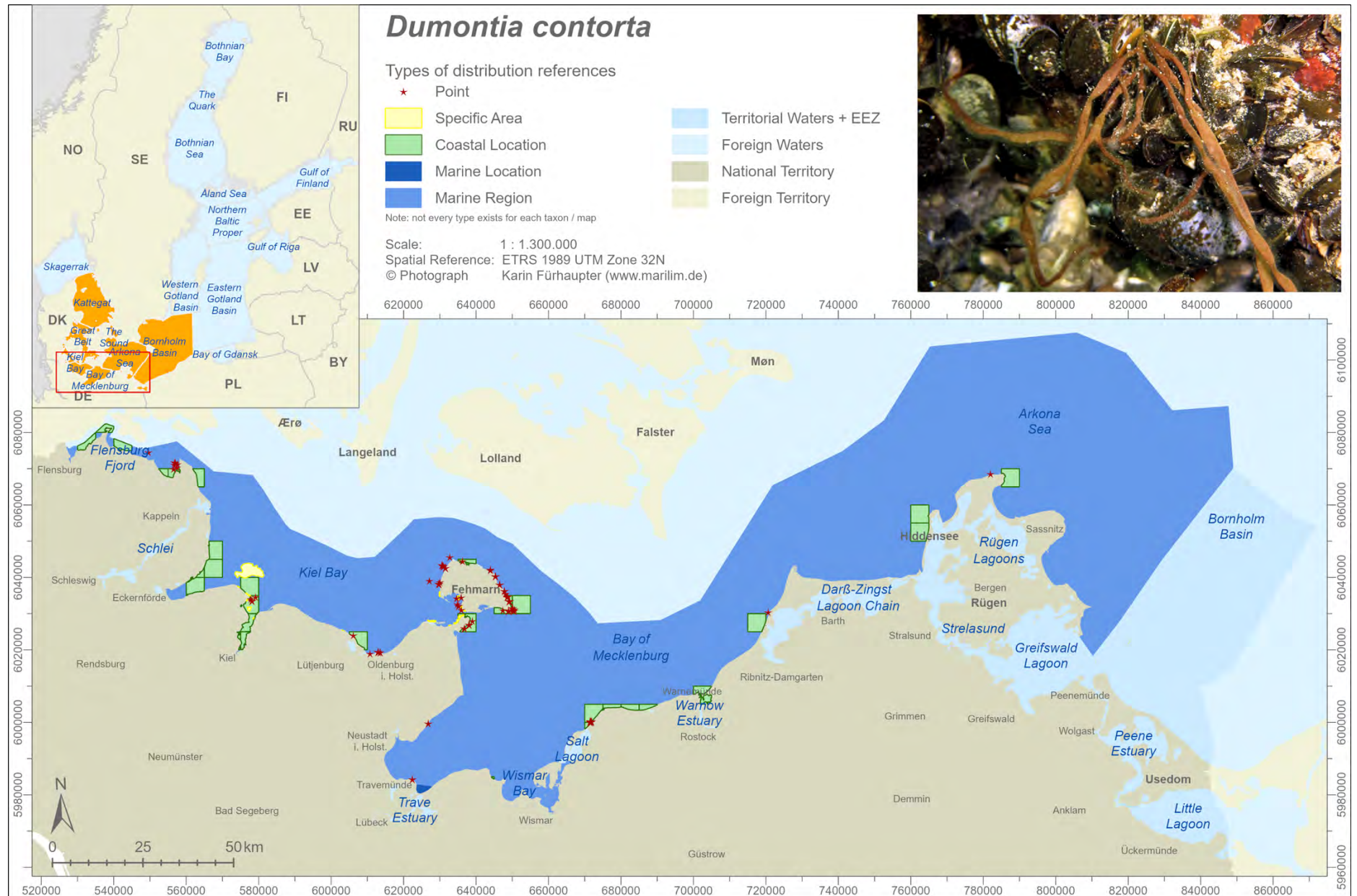
Ecology	
Substrate	hard bottom and plants or animals – stones, blue mussels (live mussels) and on various algae ( <i>Furcellaria</i> )
Attachment	epilithic and epiphytic/epizoic
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – only above 8–10 psu when considering vertical zonation (brackish water submergence)
Vertical zone	upper to lower Infralittoral – from 4 to about 25 m depth
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
a marine, open water species, which occurs only randomly in coastal lagoons	
References	
11 15 19 30 33 34 40 46 48 52 53 54 61 64 65 68 81 82 90 95 104 111 115 121 126 127 132 133 141 144 148 149 151 153 164 170 178 190 197 204 206	



## *Dumontia contorta* (S.G. Gmelin) Ruprecht, 1850

Taxonomy	
<i>Phylum</i>	Rhodophyta
<i>Class</i>	Florideophyceae
<i>Order</i>	Gigartinales
<i>Family</i>	Dumontiaceae
<i>Subspecies</i>	–
<i>Synonyms</i>	<i>Conferva filiformis</i> Hornemann, 1813 <i>Dumontia filiformis</i> (Hornemann) Greville, 1830 <i>Dumontia incrassata</i> (O.F. Müller) J.V. Lamouroux, 1813
Distribution	
<i>Baltic Sea</i>	western Baltic Sea – from Kattegat to Bornholm Basin (DE, DK, SE)
<i>German Baltic Sea</i>	many records along the western open, exposed coastline – between Flensburg and Warnemünde; respectively fewer references along the eastern open coastline – Bay of Mecklenburg (Ahrenshoop), Arkona Sea (Hiddensee, Arkona); a single record on an offshore rise (Kiel Bay – Stollergrund)

Ecology	
<i>Substrate</i>	hard bottom and animals – boulders, stones, blue mussels (dead shells and live mussels)
<i>Attachment</i>	epilithic and epizoic
<i>Salinity</i>	$\beta$ -mesohaline to euhaline (fully marine)
<i>Vertical zone</i>	hydrolittoral to upper infralittoral – from the shoreline down to 10 m
<i>Exposure</i>	sheltered to very exposed
Conservation	
<i>Red List</i>	<b>LC</b> (Baltic Sea), * (DE)
<i>Threats</i>	–
Remarks	
a characteristic species on mussel beds	
References	
45 46 52 53 54 64 81 82 89 93 95 127 132 133 145 149 151 153 164 178 186 204 206 207	

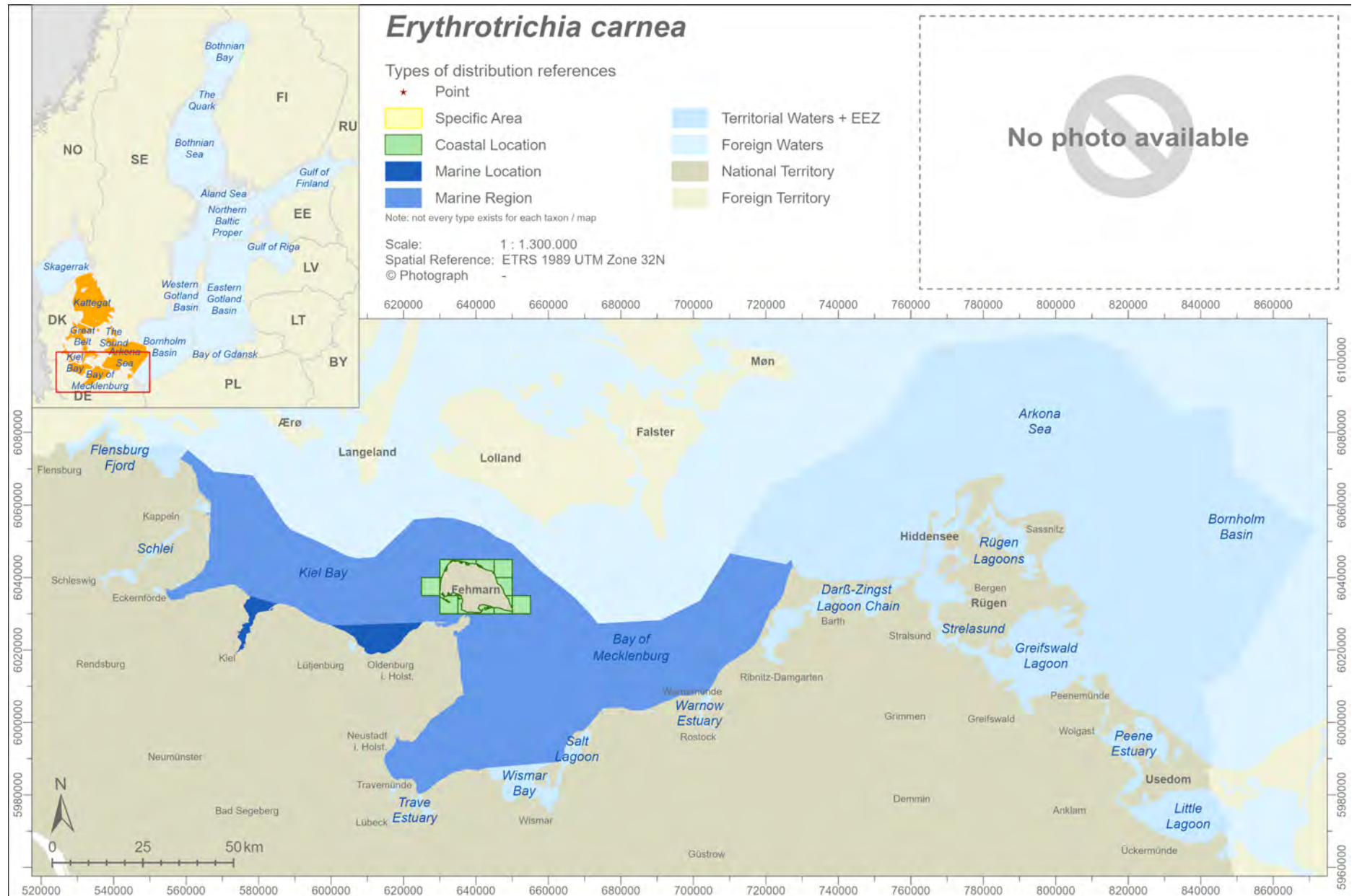


## *Erythrotrichia carnea* (Dillwyn) J. Agardh, 1883

Taxonomy	
Phylum	Rhodophyta
Class	Compsopogonophyceae
Order	Erythropeltidales
Family	Erythrotrichiaceae
Subspecies	–
Synonyms	<i>Bangia pulchella</i> Harvey, 1859 <i>Ceramicola rubra</i> Ørsted, 1844 <i>Conferva carnea</i> Dillwyn, 1807 <i>Erythrotrichia ceramicola</i> (Lyngbye) Areschoug, 1850 <i>Porphyra ceramicola</i> (Lyngbye) P.L. Crouan & H.M. Crouan, 1867
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Arkona Sea (DE, DK, SE)
German Baltic Sea	very few and only more recent records along the westernmost part of the German coastline with highest salinities – Flensburg Fjord (Gelting Bay, Kalkgrund)

Ecology	
Substrate	plants – on various algae ( <i>Furcellaria</i> )
Attachment	epiphytic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	upper to lower infralittoral – between 5 to about 15 m depth (in literature only in shallow waters)
Exposure	exposed to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
taxonomy of uniseriate forms of <i>Erythrotrichia</i> is complex and nomenclature particularly for <i>Erythrotrichia carnea</i> is confusing, making it difficult to allocate historical records precisely; additionally, species might remain undetected in many surveys	
References	
81 82 190 206	

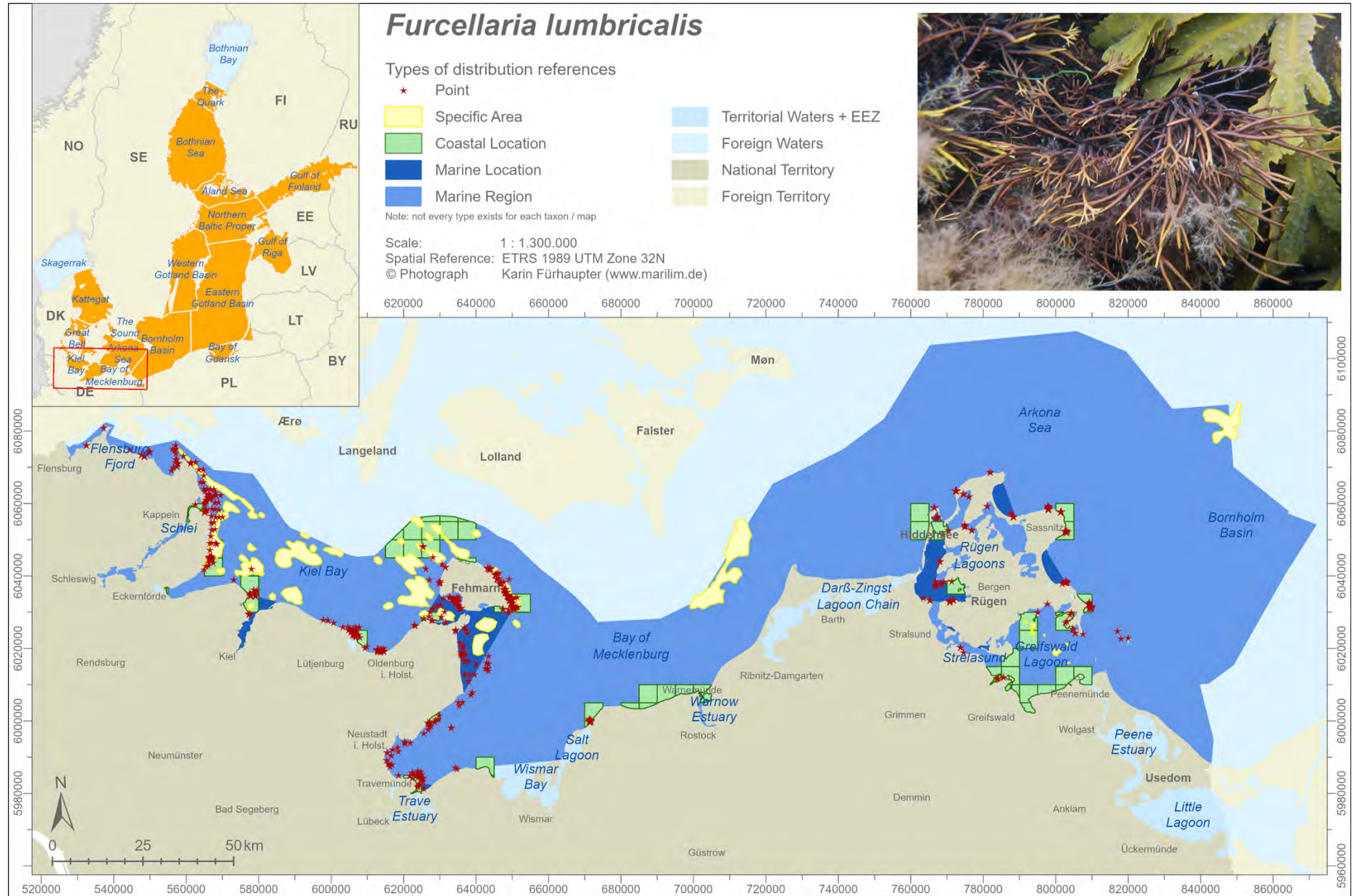




## *Furcellaria lumbricalis* (Hudson) J.V. Lamouroux, 1813

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Gigartinales
Family	Furcellariaceae
Subspecies	<i>Furcellaria fastigiata</i> f. <i>aegagropila</i> Reinke, 1889
Synonyms	<i>Fastigiaria furcellata</i> (Linnaeus) Stackhouse, 1809 <i>Furcellaria fastigiata</i> (Turner) J.V. Lamouroux, 1813 <i>Polyides rotunda</i> f. <i>fastigiatus</i> (C. Agardh) Duby, 1830
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of northeasternmost part – from Kattegat to Bothnian Sea / The Quark (all neighbouring countries apart from RU); records from Bothnian Bay in Nielsen 1995 (148) could not be verified
German Baltic Sea	numerous records along the open coastline and on many western offshore stony bottoms – from Flensburg to the east coast of the Island Rügen (Thiessow) and Adlergrund; in various coastal bays, estuaries and lagoons (Schlei, Orth Bay, Trave and Warnow Estuary, Rügen Lagoons, Strelasund, Greifswald Lagoon) but not always clear if records belong to the attached form or the unattached “morphotype”

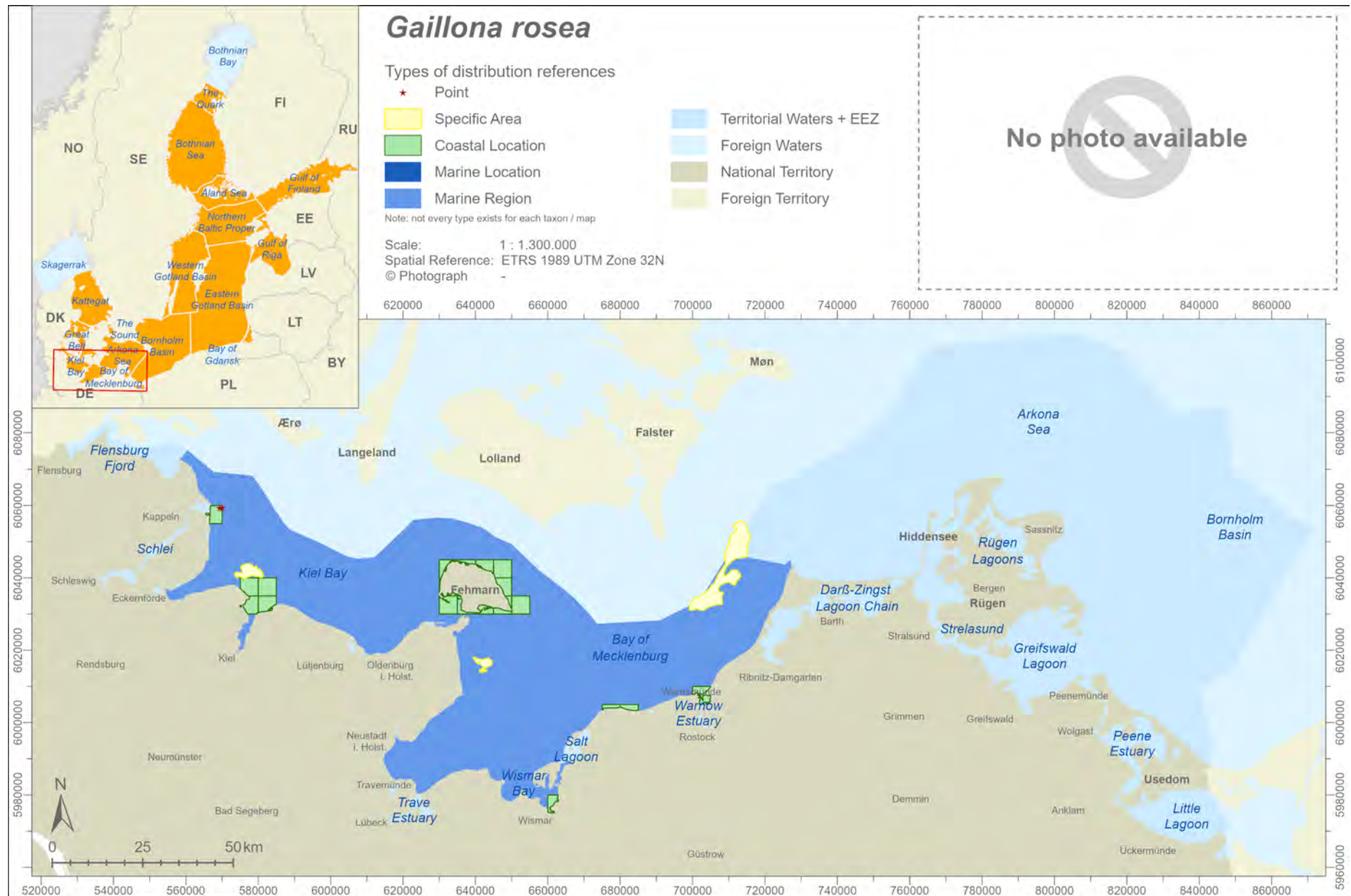
Ecology	
Substrate	hard bottom, soft bottom and animals – boulders, stones, coarse sediment, blue mussels (live mussels) and above mud and sand
Attachment	epilithic, epizoic and drifting (at the bottom)
Salinity	$\beta$ -mesohaline to euhaline (fully marine)
Vertical zone	upper to lower infralittoral – from 3 to about 25 m depth (unattached morphotype also shallower: 1 – 3 m)
Exposure	(ultra) sheltered to very exposed – only unattached morphotype in ultra and very sheltered sites
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
specific “ball-like” morphotype of unattached specimens ( <i>Furcellaria fastigiata</i> f. <i>aegagropila</i> Reinke, 1889) in coastal lagoons – clear evidences of this morphotype are illustrated in a separate map ( <a href="#">Section Distribution maps (below species level)</a> , p. 368)	
References	
5* 11 15 19 33 46 52* 53* 54 61 63 64 65 68 76 81 82 86 87 90 95 106 111 113* 115 116 121* 127 132 133 137 139 141 148 149 151 152 153 164 165 166 167 180 191 204 206 211* 217 229 239	
*referencing also the unattached morphotype	



## Gaillona rosea (Roth) Athanasiadis, 2016

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Ceramiales
Family	Callithamniaceae
Subspecies	–
Synonyms	<i>Aglaothamnion roseum</i> (Roth) Maggs & L'Hardy-Halos, 1993 <i>Callithamnion roseum</i> (Roth) Lyngbye, 1819 <i>Ceramium roseum</i> Roth, 1798 <i>Conferva rosea</i> (Roth) J.E. Smith, 1802
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of northeasternmost part – from Kattegat to Bothnian Sea with exception of Bay of Gdansk (all neighbouring countries with exception of PL, RU)
German Baltic Sea	few records along the western open coastline, on two stony rises and in a deep channel – Kiel Bay (Bülk, Strande, Kiel Fjord, Mittelgrund, Stollergrund, Grasberg)

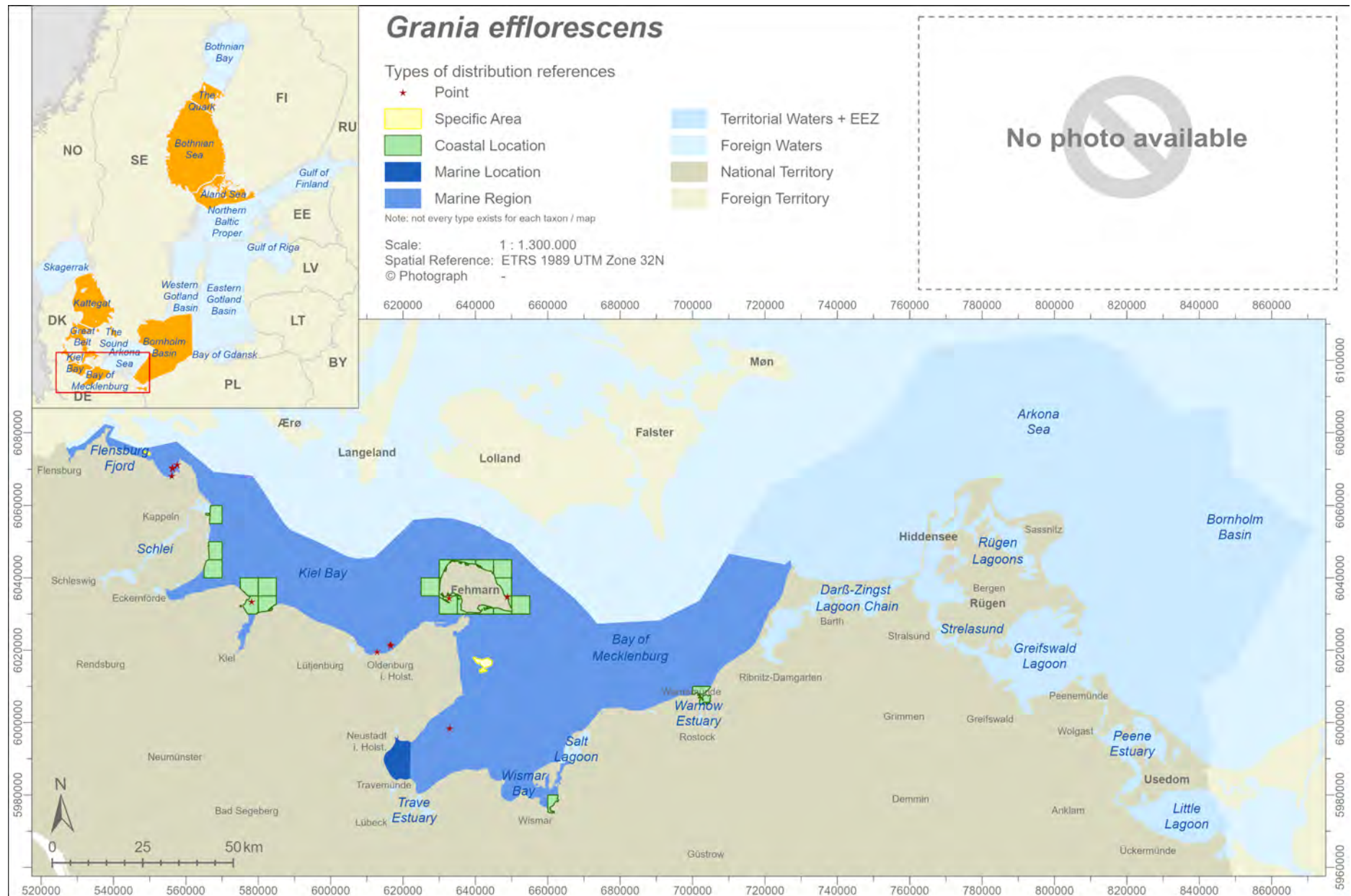
Ecology	
Substrate	plants – various algae ( <i>Chorda filum</i> , <i>Desmarestia aculeata</i> , <i>Furcellaria</i> , <i>Fucus vesiculosus</i> , <i>Phycodrys rubens</i> )
Attachment	epiphytic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	lower Infralittoral (upper Infralittoral)– from 10 to 20 m (on record from about 2 m depth)
Exposure	moderately exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>G</b> (DE)
Threats	–
Remarks	
low number of records along the German coastline compared to the broad distribution range in the Baltic Sea suggests an ambiguity for species determination; confusion with <i>Aglaothamnion tenuissimum</i> , <i>Callithamnion corymbosum</i> possible	
References	
46 81 82 95 190 206	



## *Grania efflorescens* (J. Agardh) Kylin, 1944

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Acrochaetiales
Family	Acrochaetiaceae
Subspecies	–
Synonyms	<i>Acrochaetium efflorescens</i> (J. Agardh) Nägeli, 1861 <i>Audouinella efflorescens</i> (J. Agardh) Papenfuss, 1945 <i>Audouinella thuretii</i> (Bornet) Woelkerling, 1971 <i>Chantransia efflorescens</i> (J. Agardh) Kjellman, 1875
Distribution	
Baltic Sea	unevenly distributed in western and central parts – from Kattegat to Bornholm Basin except Arkona Sea and Bay of Gdansk (DE, DK) and in Archipelago and Bothnian Sea / The Quark (FI); records from Western Gotland Basin, Northern Baltic Proper, Gulf of Finland in Nielsen 1995 (148) could not be verified
German Baltic Sea	locations along the western open coastline and on two stony rises – Flensburg Fjord (Geltling, Neukirchengrund), Kiel Bay (Schleimünde, Boknis Eck, Bülk, Kiel Fjord, Eitzgrund, around Island Fehmarn), Bay of Mecklenburg (Sagabank, Walkyriengrund, Neustadt Bay, Warnemünde), Wismar Bay (Wismar)

Ecology	
Substrate	(hard bottom) plants or animals – on <i>Flustra foliacea</i> and various plants ( <i>Zostera</i> , <i>Cystoclonium</i> , <i>Delesseria</i> , <i>Laminaria</i> ) (in literature also on stones)
Attachment	(epilithic) epiphytic/epizoic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	(upper to) lower infralittoral – between 8 and 30 m depth (only few records shallower than 10 m depth)
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
possibly unnoticed in many surveys because of its tiny size; unfertile and/or specimens of frozen samples difficult to distinguish from other Acrochaetiales ( <i>Acrochaetium</i> , <i>Colaconema</i> or <i>Rhodochorton</i> )	
References	
81 82 95 111 149 153 186 190 206	

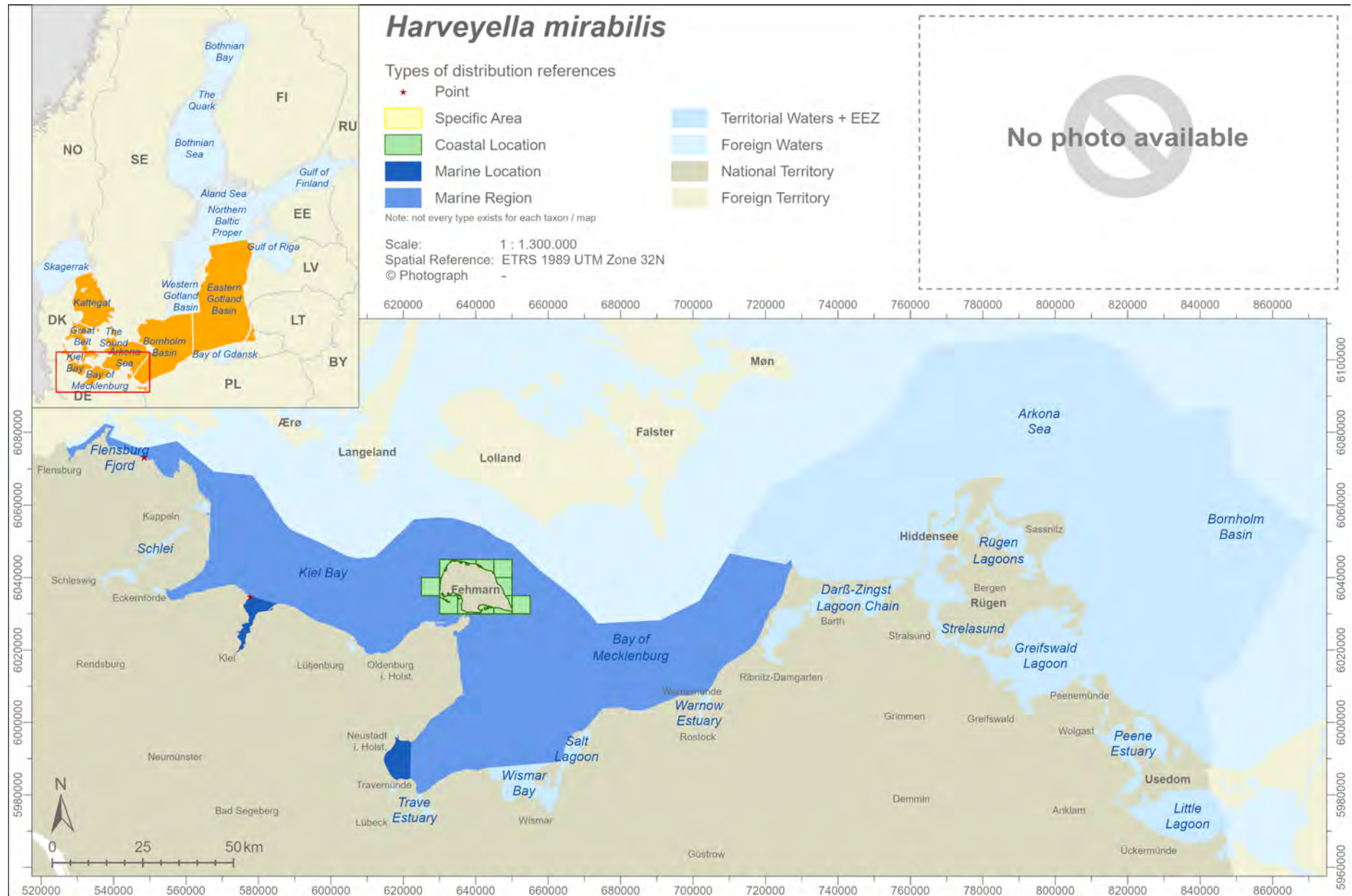


## Harveyella mirabilis (Reinsch) F. Schmitz & Reinke, 1889

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Ceramiales
Family	Rhodomelaceae
Subspecies	–
Synonyms	<i>Choreocolax albus</i> Kuckuck, 1894 <i>Choreocolax mirabilis</i> Reinsch, 1875 <i>Choreocolax odonthaliae</i> Levring, 1935
Distribution	
Baltic Sea	western Baltic Sea and in one central part – from Kattegat to Bornholm Basin (DE, DK) and Eastern Gotland Basin (LT); records from Western Gotland Basin in Nielsen 1995 (148) could not be verified
German Baltic Sea	few locations along the western open coastline – Flensburg Fjord (Nieby), Kiel Bay (Bülk, Kiel Fjord, around the Island Fehmarn), Bay of Mecklenburg (Neustadt Bay)

Ecology	
Substrate	plants – on various algae ( <i>Ahnfeltia</i> , <i>Rhodome-la</i> )
Attachment	epiphytic, endophytic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	upper infralittoral
Exposure	sheltered to
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>D</b> (DE)
Threats	–
Remarks	
References	
53 81 82 190 206	

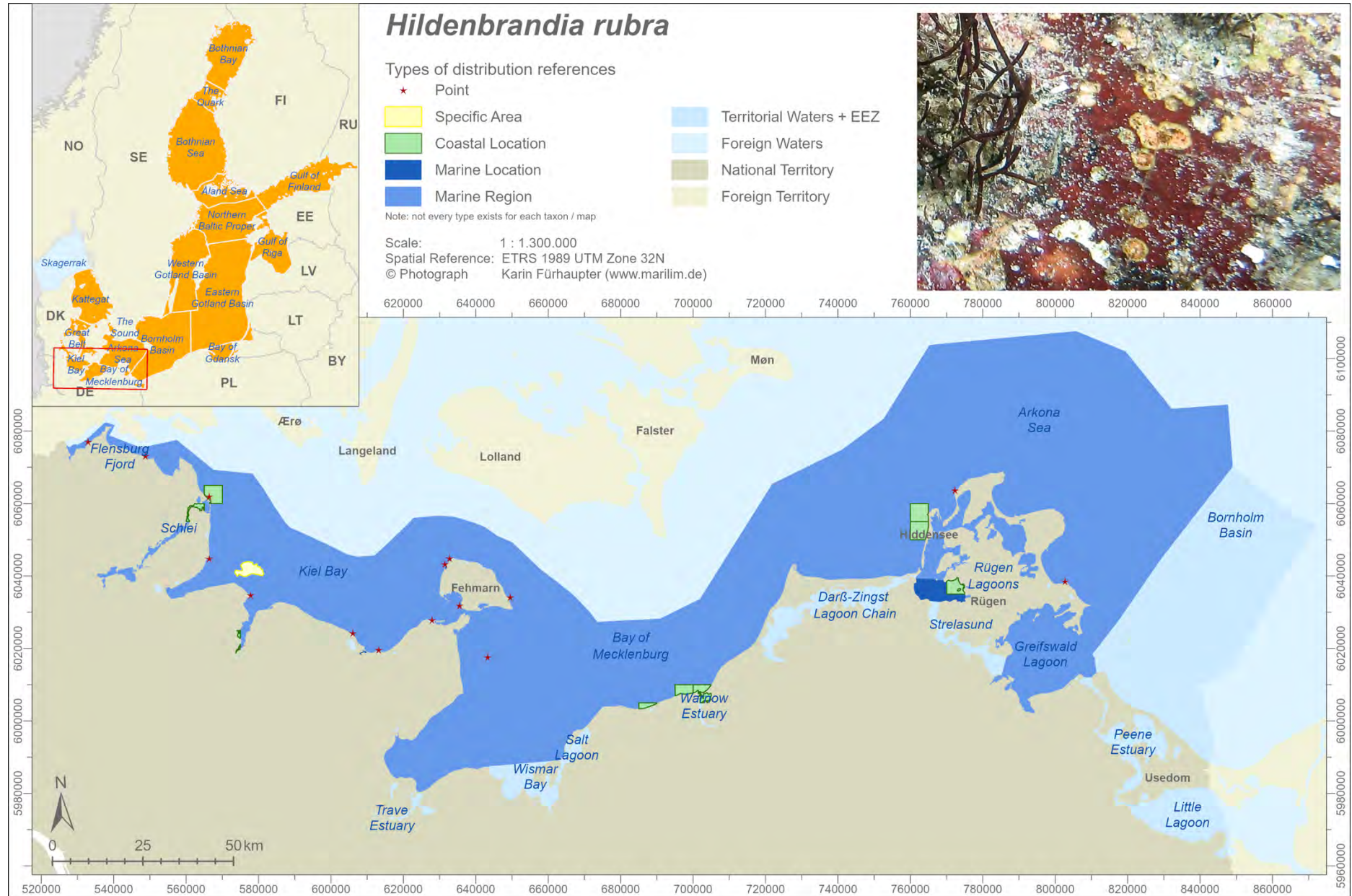




## *Hildenbrandia rubra* (Sommerfelt) Meneghini, 1841

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Hildenbrandiales
Family	Hildenbrandiaceae
Subspecies	–
Synonyms	<i>Hildenbrandia nardoii</i> Zanardini, 1840 <i>Hildenbrandia prototypus</i> Nardo, 1834 <i>Hildenbrandia rosea</i> Kützing, 1843 <i>Hildenbrandia sanguinea</i> Kützing, 1843 <i>Rhododermis drummondii</i> Harvey, 1844 <i>Verrucaria rubra</i> Sommerfelt, 1826
Distribution	
Baltic Sea	entire Baltic Sea coastline – from Kattegat to Bothnian Bay (all neighbouring countries)
German Baltic Sea	various records along the open coastline – Flensburg Fjord (Winzigerhuk, Nieby), Kiel Bay (Oehe-Schleimünde, Boknis Eck, Stollergrund, Bülk, Düsternbrook, Behrendsdorf, Eitzgrund, Westermarkelsdorf, Heiligenhafen, Strukkamphuk), Bay of Mecklenburg (Katharinenhof, Sa-gasbank, Börgerende, Stolteraa, Warnemünde), Arkona Sea (NW Hiddensee, Dranske); rarely in coastal lagoons or lakes – Schlei (Maasholm to Kappeln), Sehlendorf Inland Lake, Fasten and Salt Lake/Fehmarn, Rügen Lagoons (Kubitz, Kubitz Lagoon)

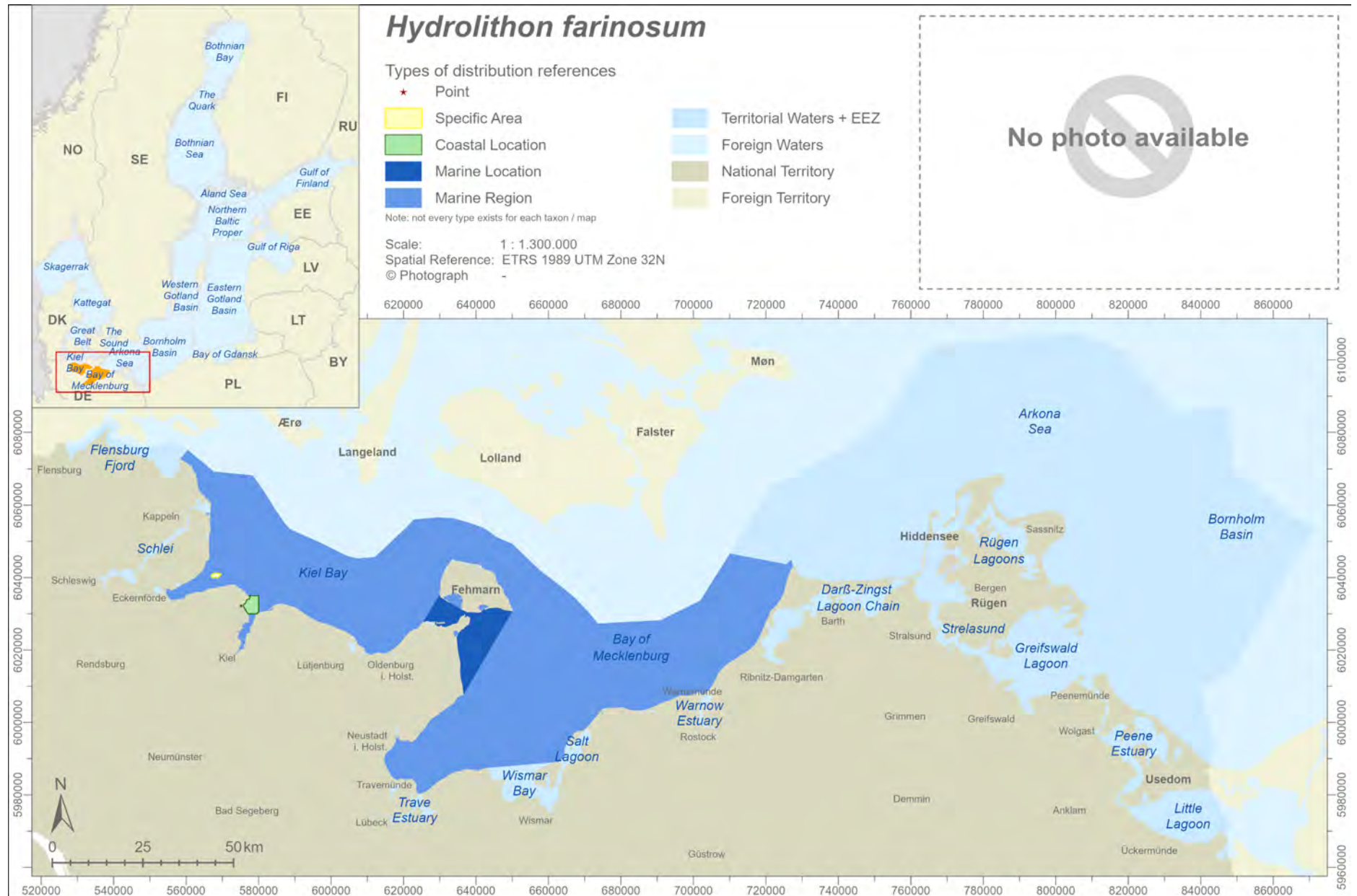
Ecology	
Substrate	hard bottom and animals – boulders, stones and blue mussels (live mussels)
Attachment	epilithic and epizoic
Salinity	$\beta$ -mesohaline to euhaline (fully marine) – down to about 5 psu
Vertical zone	supralittoral to lower infralittoral – from the splash zone down to 30 m (in literature only shallower than 12 m)
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
crustose algae are not the focus of recent macrophyte monitoring programs, may remain unnoticed and are therefore underrepresented in datasets	
References	
13 40 46 60 61 64 65 81 82 121 126 141 142 164 165 170 190 191 196 206	



## *Hydrolithon farinosum* (J.V. Lamouroux) D. Penrose & Y.M. Chamberlain, 1993

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Corrallinales
Family	Corrallinaceae
Subspecies	–
Synonyms	<i>Fosliella farinosa</i> (J.V. Lamouroux) M. Howe, 1920 <i>Melobesia farinosa</i> J.V. Lamouroux, 1816 <i>Melobesia granulata</i> (Meneghini) ex Kützing, 1849
Distribution	
Baltic Sea	only records in the German Baltic Sea area – Kiel Bay and Bay of Mecklenburg (DE)
German Baltic Sea	three historical records along the western open coastline and on one stony rise – Kiel Bay (Eckernförder Mittelgrund, Strande), Bay of Mecklenburg (Fehmarnsund)

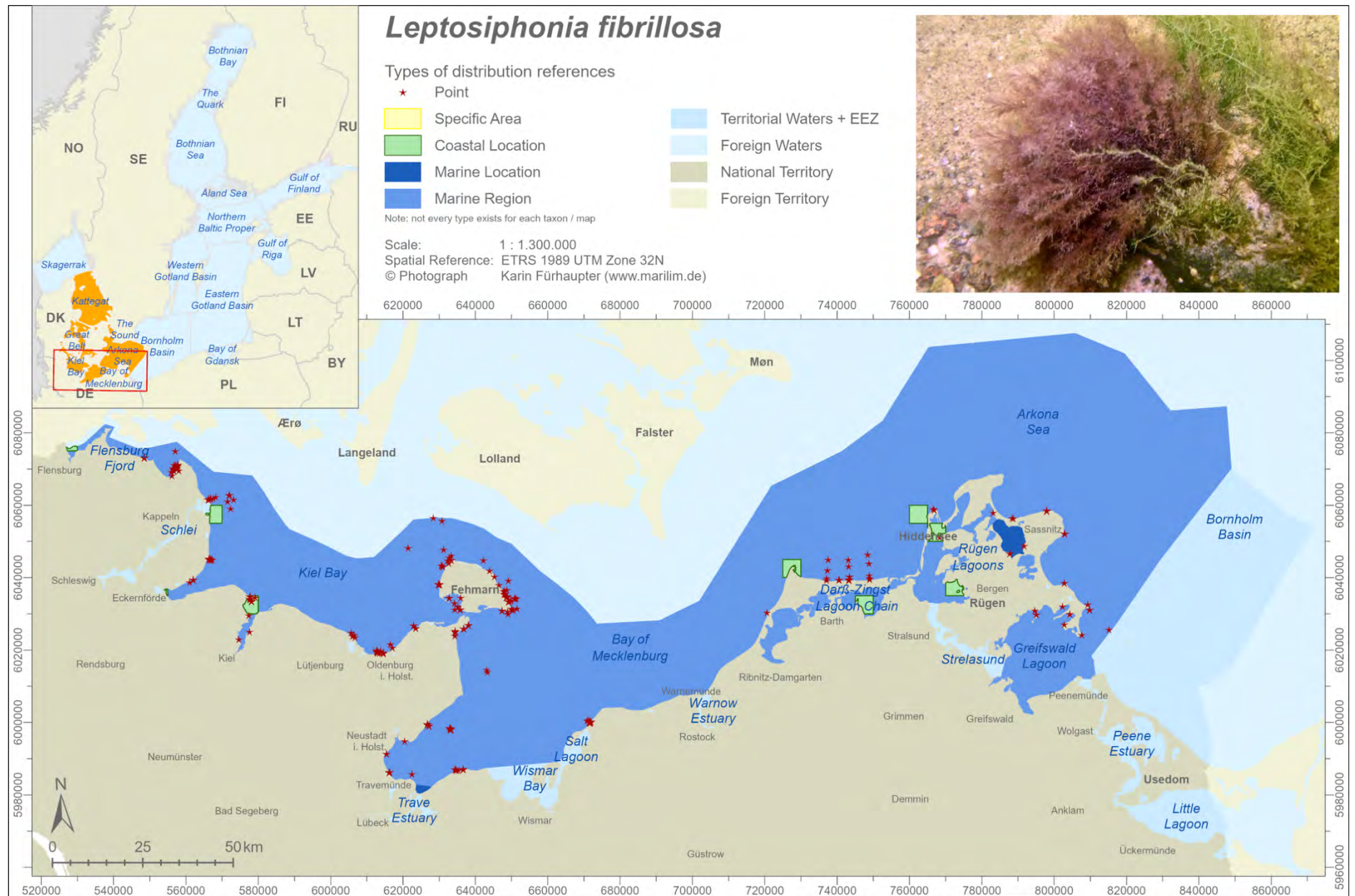
Ecology	
Substrate	plants or animals – on <i>Zostera</i>
Attachment	epiphytic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	upper infralittoral – derived from vertical zone of the basiphyt <i>Zostera</i> as no direct information available
Exposure	moderately to very exposed
Conservation	
Red List	<b>NE</b> (Baltic Sea), <b>0</b> (DE)
Threats	–
Remarks	
likely to be confused with other coralline/crustose species particular as no evidence of occurrence exists from other Baltic Sea neighbouring countries	
References	
81 82 190 206	



## *Leptosiphonia fibrillosa* (Agardh) A.M. Savoie & G.W. Saunders, 2019

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Ceramiales
Family	Rhodomelaceae
Subspecies	–
Synonyms	<i>Conferva fibrillosa</i> Dillwyn, 1809 <i>Hutchinsia divaricata</i> C. Agardh, 1817 <i>Polysiphonia fibrillosa</i> (C. Agardh) Sprengel, 1827 <i>Polysiphonia fibrillosa</i> (Dillwyn) J Agardh, 1842 <i>Polysiphonia violacea</i> f. <i>fibrillosa</i> (C. Agardh) Rosenvinge, 1924
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of northeasternmost part – from Kattegat to Bothnian Sea (DE, DK, EE, FI, LT, SE); records from Bay of Gdansk in Nielsen 1995 (148) could not be verified
German Baltic Sea	many (recent) records along the entire open coastline – from Flensburg to Thiessow (east-coast of the Island Rügen); fewer records in coastal bays, estuaries and lagoons with salinities above 5 psu – Darß-Zingst-Bodden-Chain (Grabow Lagoon), Rügen Lagoons (Great Jasmund Lagoon, Schaprode Lagoon, Kubitz Lagoon), Greifswald Lagoon (Vilm, Having Lagoon, Hagen Bight)

Ecology	
Substrate	hard bottom and plants – stones and on various algae ( <i>Fucus</i> , <i>Nemalion</i> )
Attachment	epilithic and epiphytic
Salinity	$\beta$ -mesohaline to euhaline (fully marine)
Vertical zone	upper infralittoral – from 0,5 to about 3 m depth
Exposure	very sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
due to nomenclature confusion, it is difficult to allocate historical records precisely; recently the species seems to be more common compared to historical data	
References	
11 52 53 54 61 64 81 82 95 126 127 131 141 149 151 152 153 190 206 211	

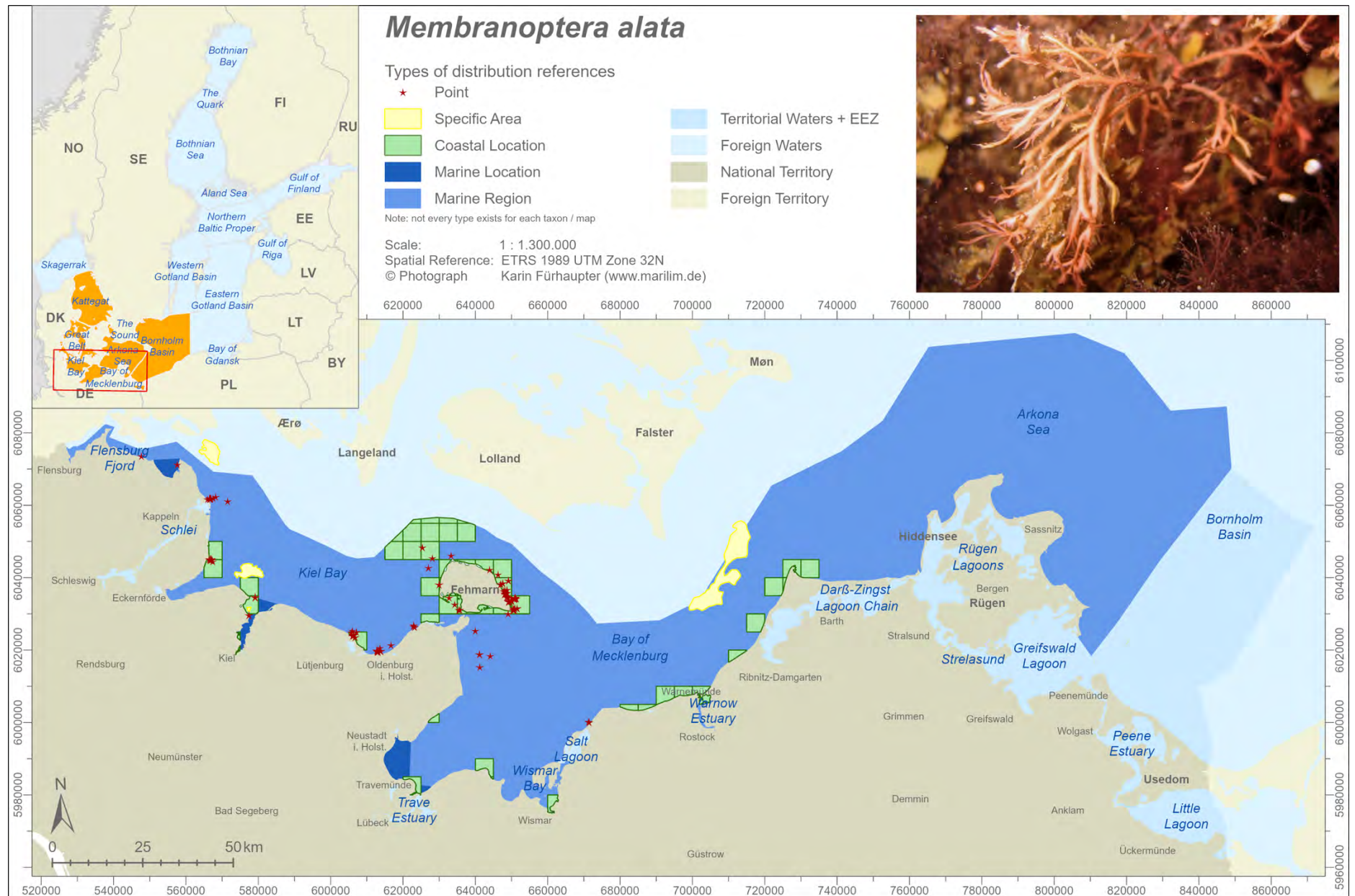


## Membranoptera alata (Hudson) Stackhouse, 1809

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Ceramiales
Family	Delesseriaceae
Subspecies	–
Synonyms	<i>Delesseria alata</i> (Hudson) J.V. Lamouroux, 1813 <i>Delesseria alata</i> var. <i>dilatata</i> (Turner) C. Agardh, 1822 <i>Hypoglossum alatum</i> (Hudson) Kützing, 1843 <i>Hypophylla alata</i> (Hudson) Stackhouse, 1816
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Bornholm Basin (DK, DE, SE)
German Baltic Sea	many records along the western open, exposed coastline and on offshore stony bottoms – from Flensburg to Darß (border between Bay of Mecklenburg and Arkona Sea); records east of Rerik primarily from drifting material washed ashore; this is likely as well the case for the single record in an inner coastal bay – Wismar Bay (Wismar)

Ecology	
Substrate	hard bottom and plants or animals – stones, blue mussels (live mussels) but mainly on various algae
Attachment	epilithic and epiphytic/epizoic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine) – only above 12 psu when considering vertical zonation (brackish water submergence)
Vertical zone	upper to lower Infralittoral – from 4 to about 25 m depth
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>G</b> (DE)
Threats	–
Remarks	
a characteristic open water species from deeper red seaweed biotopes	
References	
11 15 19 33 46 53 54 81 82 90 95 115 121 127 132 133 141 149 153 164 170 180 190 204 206	

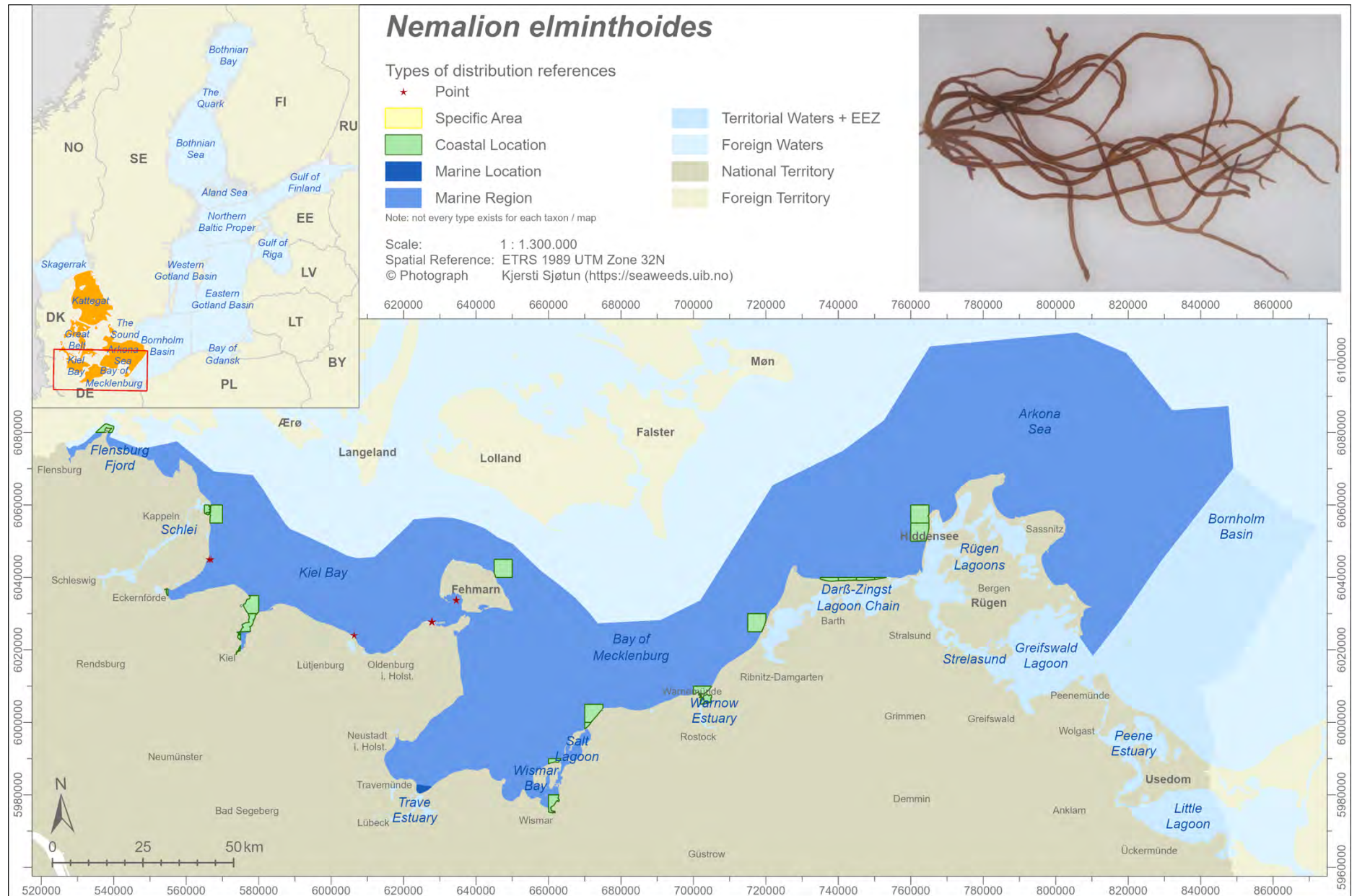




## *Nemalion elminthoides* (Velley) Batters, 1902

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Nemaliales
Family	Nemaliaceae
Subspecies	–
Synonyms	<i>Fucus elminthoides</i> Velley, 1792 <i>Mesogloia rubra</i> (Hudson) Areschoug, 1840 <i>Nemalion multifidum</i> var. <i>simplex</i> Harvey, 1846 <i>Rivularia rubra</i> (Hudson) Wahlenberg, 1826
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Arkona Sea (DK, DE, SE)
German Baltic Sea	few records along the open coastline, recent records only along the western part – Flensburg Fjord (Holnis), Kiel Bay (Schleimünde, Boknis, Eckernförde, Kiel Fjord, Heiligenhafen, Struckamphuk), Bay of Mecklenburg (Marienleuchte, Travemünde, Island Langenwerder, Kägsdorf, Rerik, Warnemünde), Arkona Sea (Zingst, northwest coast of Hiddensee); single record in an inner coastal bay – Wismar Bay (Wismar)

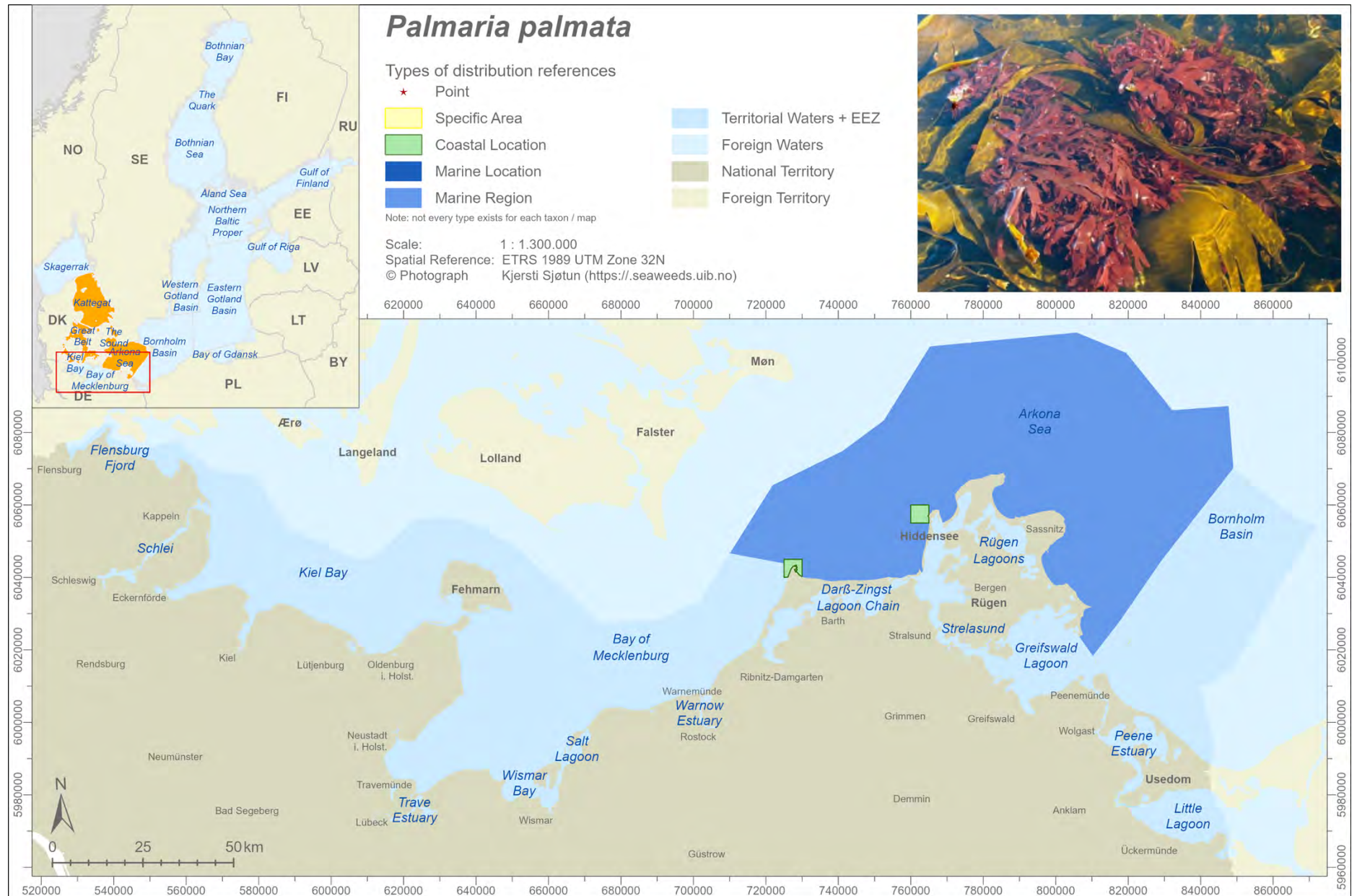
Ecology	
Substrate	hard bottom and animals – stones, wood and blue mussels (live mussels)
Attachment	epilithic and epizoic
Salinity	$\beta$ -mesohaline to euhaline (fully marine)
Vertical zone	hydrolittoral to upper infralittoral – down to about 4 m but mainly below 1 m
Exposure	sheltered to very exposed
Conservation	
Red List	<b>DD</b> (Baltic Sea), <b>0</b> (DE)
Threats	–
Remarks	
many findings on shallow, exposed stony harbour piers and coastal protection structures, which are recently hardly part of macrophyte surveys	
References	
19 46 53 64 81 82 89 90 93 95 115 121 126 127 132 133 139 149 170 172 186 190 206	



## *Palmaria palmata* (Linnaeus) F. Weber & D. Mohr, 1805

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Palmariales
Family	Palmaraceae
Subspecies	–
Synonyms	<i>Callophyllis soboliferus</i> (M. Vahl) Kützing, 1849 <i>Delesseria palmata</i> (Linnaeus) J.V. Lamouroux, 1813 <i>Halymenia palmata</i> (Linnaeus) C. Agardh, 1817 <i>Palmaria lanceolata</i> Stackhouse, 1809 <i>Sphaerococcus palmatus</i> (Linnaeus) Wahlenberg, 1826
Distribution	
Baltic Sea	northwesternmost Baltic Sea –Kattegat to Belt Sea (DK, SE) and Arkona Sea (doubtful) (DE)
German Baltic Sea	very few and only historical records in Arkona Sea; probably all records from drifting specimens

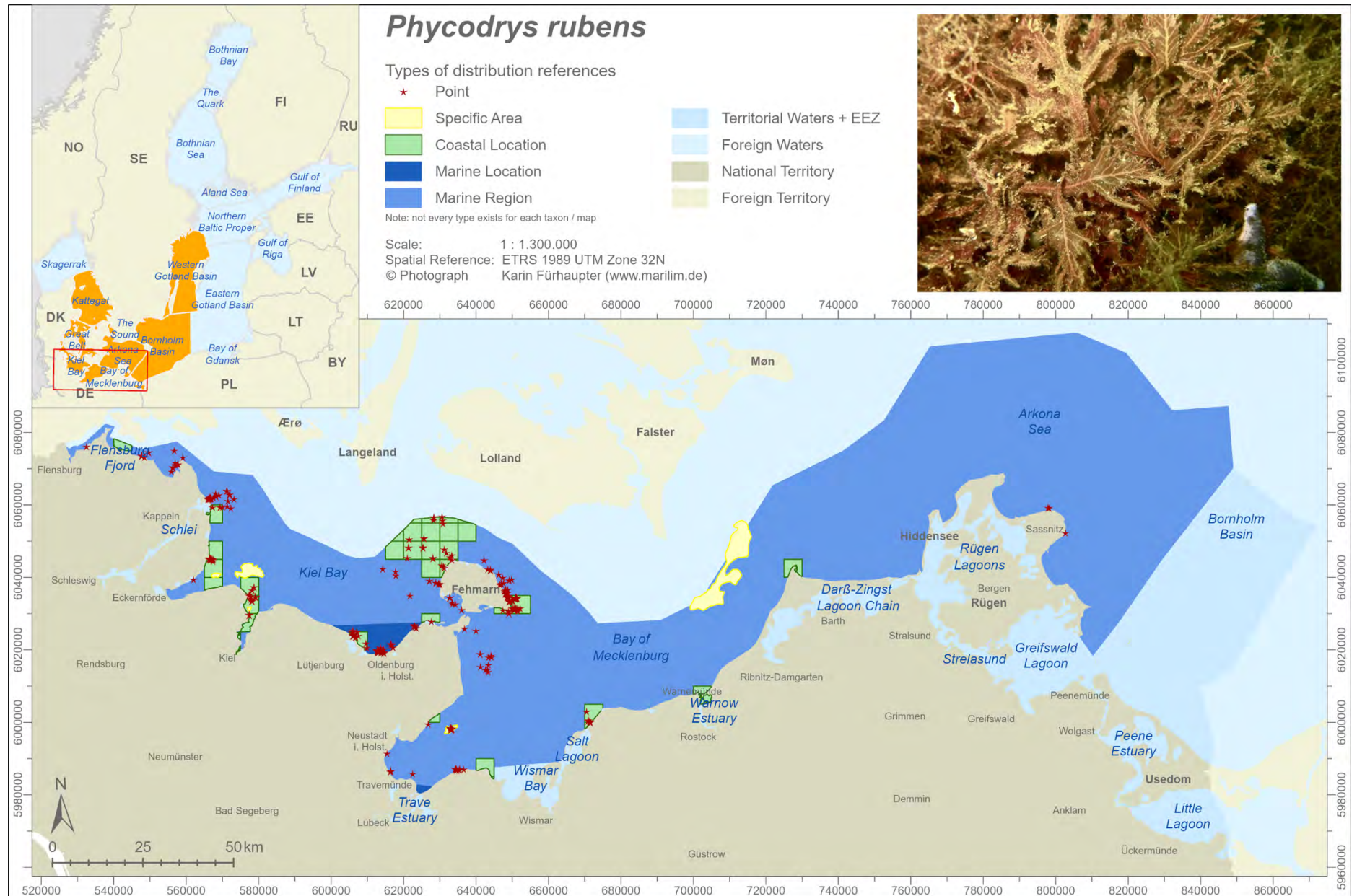
Ecology	
Substrate	hard bottom and plants – stones and on various algae ( <i>Laminaria</i> )
Attachment	epilithic and epiphytic
Salinity	( $\beta$ -mesohaline) polyhaline to euhaline (fully marine) – only drifting in lower salinities
Vertical zone	lower Infralittoral – below 20 m depth (in other marine regions even shallower (> 1 m))
Exposure	very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), – (DE)
Threats	–
Remarks	
borderline species to fully marine conditions, missing occurrences in Kiel Bay and Mecklenburg Bay indicate that drifting material could have been transported to the coasts of the Island Rügen via The Sound	
References	
81 82 93 95 124 141 206	



## *Phycodrys rubens* (Linnaeus) Batters, 1902

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Ceramiales
Family	Delesseriaceae
Subspecies	–
Synonyms	<i>Delesseria crenata</i> (S.G. Gmelin) Ruprecht, 1850 <i>Delesseria rubens</i> (Linnaeus) J.V. Lamouroux, 1813 <i>Delesseria sinuosa</i> J.V. Lamouroux, 1813 <i>Phycodrys crenata</i> (S.G. Gmelin) P.C. Silva, 1996 <i>Phycodrys sinuosa</i> (Goodenough & Woodward) Kützing, 1843
Distribution	
Baltic Sea	western and parts of central Baltic Sea – from Kattegat to Western Gotland Basin (DE, DK, SE)
German Baltic Sea	numerous records along the western open coastline and on western offshore stony bottoms – from Flensburg to Warnemünde; very few (deep) records from the eastern open coastline – Arkona Sea (Daßer Ort, Lohme, Saßnitz); in one outer area of a coastal bay – Wismar Bay (Boltenhagen)

Ecology	
Substrate	(rarely) hard bottom and plants or animals – smaller stones, stones, blue mussels (live mussels) and mainly on various algae ( <i>Coccotylus</i> , <i>Delesseria</i> , <i>Furcellaria</i> , <i>Phyllophora</i> )
Attachment	epilithic and epiphytic/epizoic
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – only above 10–12 psu when considering vertical zonation (brackish water submergence)
Vertical zone	upper to lower Infralittoral – from 3 to about 25 m depth, easternmost records below 15 m
Exposure	(sheltered) moderately exposed to very exposed – only few records from sheltered sites
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
specimens at the east coast of Rügen with uncharacteristic morphology: extremely small habitus with narrow blades and few, irregular proliferation at the blade margins	
References	
11 15 19 33 34 40 46 52 53 54 81 82 95 104 111 126 127 132 133 139 141 144 148 149 151 153 204 206	

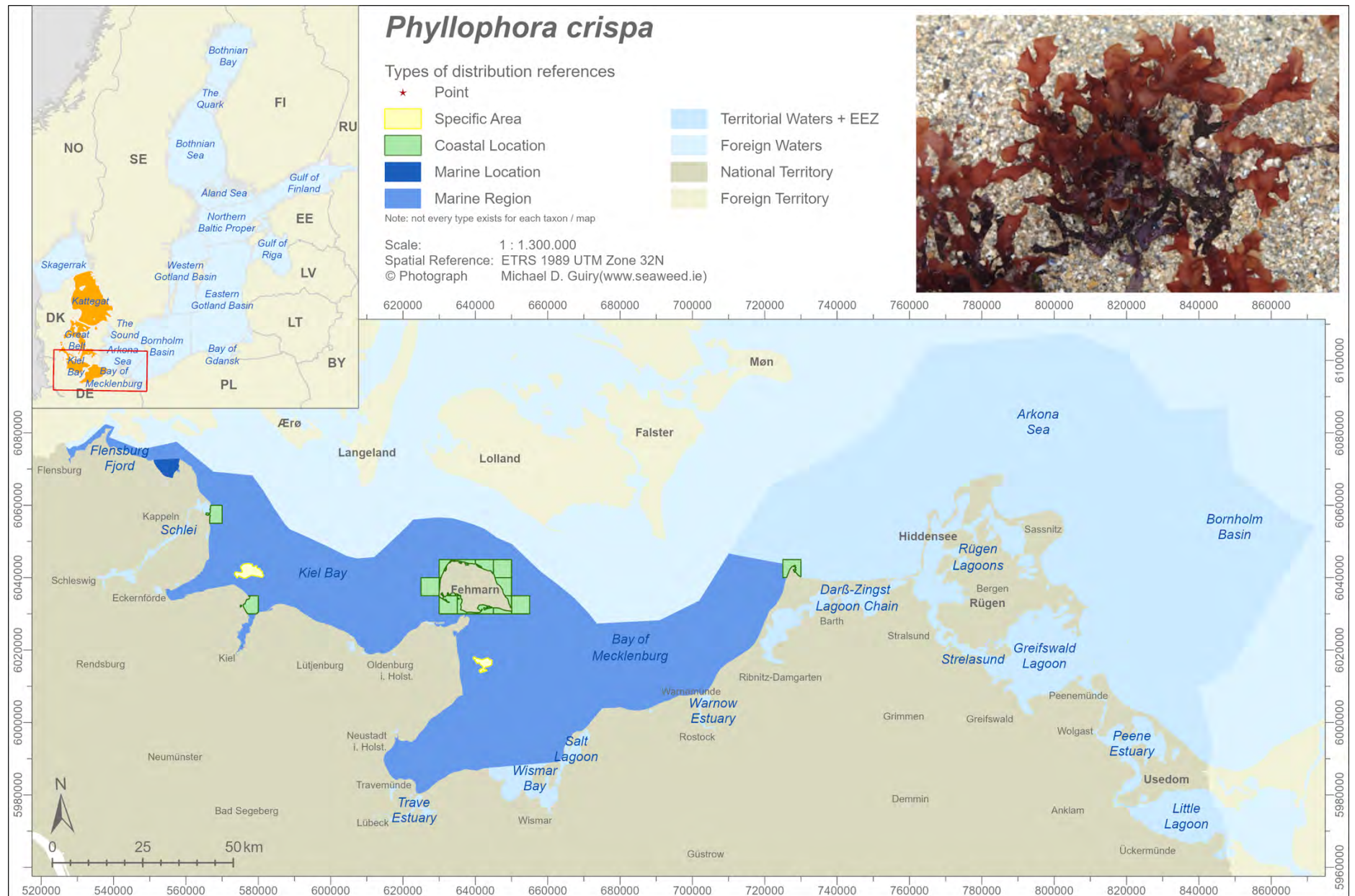


## *Phyllophora crispa* (Hudson) P.S. Dixon, 1964

Taxonomy	
<i>Phylum</i>	Rhodophyta
<i>Class</i>	Florideophyceae
<i>Order</i>	Gigartinales
<i>Family</i>	Phylloporaceae
<i>Subspecies</i>	–
<i>Synonyms</i>	<i>Chondrus bangii</i> (Hornemann) Lyngbye, 1819 <i>Phyllophora bangii</i> (Hornemann) J.E. Areschoug, 1845 <i>Phyllophora nervosa</i> (A.P.de Candolle) Greville, 1830
Distribution	
<i>Baltic Sea</i>	western Baltic Sea – from Kattegat to Bay of Mecklenburg (DE, DK, SE); records from The Sound in Nielsen 1995 (148) could not be verified
<i>German Baltic Sea</i>	only historical records from 1889, a total of seven locations along the western open coastline and on offshore rises – Flensburg Fjord (Gelling Bay), Kiel Bay (Schleimünde, Stollergrund, Bülk, around the Island Fehmarn), Bay of Mecklenburg (Sagasbank, Darßer Ort)

Ecology	
<i>Substrate</i>	hard bottom – stones (often hard bottom silted up)
<i>Attachment</i>	epilithic
<i>Salinity</i>	$\alpha$ -mesohaline to euhaline (fully marine)
<i>Vertical zone</i>	upper to lower Infralittoral – from 5 to about 25 m depth
<i>Exposure</i>	moderately exposed to very exposed
Conservation	
<i>Red List</i>	<b>LC</b> (Baltic Sea), <b>1</b> (DE)
<i>Threats</i>	–
Remarks	
can be confused with <i>Coccotylus truncatus</i> or <i>Phyllophora pseudoceranoïdes</i>	
References	
81 82 95 190 206	

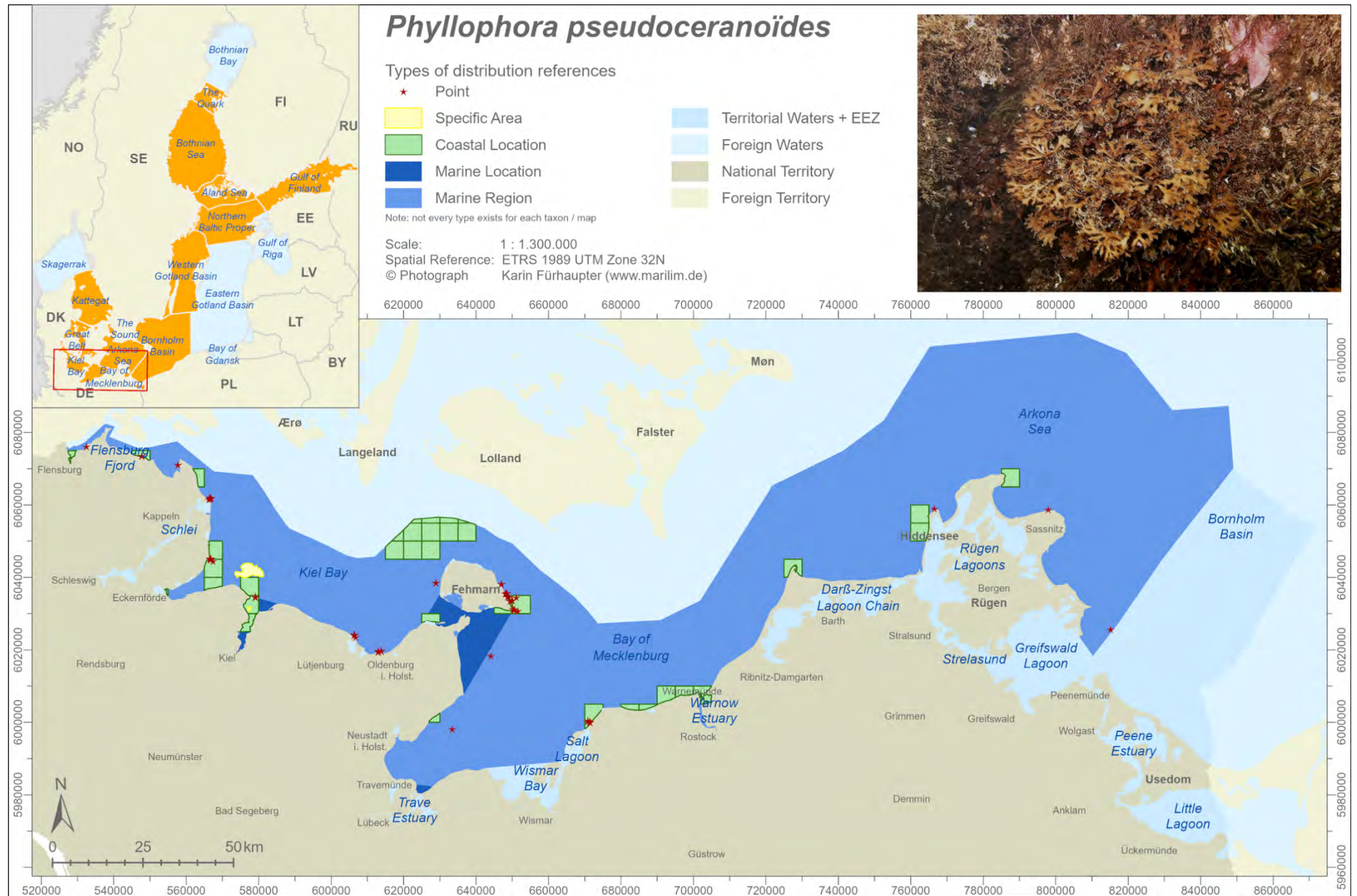




## *Phyllophora pseudoceranoïdes* (S.G. Gmelin) Newroth & A.R.A. Taylor ex P.S. Dixon & L.M. Irvine, 1977

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Gigartinales
Family	Phylloporaceae
Subspecies	–
Synonyms	<i>Chondrus membranifolius</i> Greville, 1830 <i>Phyllophora membranifolia</i> (Goodenough & Woodward) J. Agardh, 1842 <i>Phyllophora membranifolia</i> f. <i>angustissima</i> (C. Agardh) Sjöstedt, 1920 <i>Phyllophora membranifolia</i> f. <i>baltica</i> J.E. Areschoug
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of northeasternmost parts, Bay of Gdansk, Gulf of Riga and Eastern Gotland Basin – from Kattegat to Bothnian Sea (DE, DK, FI, SE); records from Åland/Archipelago Sea and Bothnian Bay in Nielsen 1995 (148) could not be verified
German Baltic Sea	various records along the western open, exposed coastline and on offshore stony bottoms – from Flensburg to Warnemünde; only four locations along the eastern open coastline – Arkona Sea (Darß, west-coast of the Island Hiddensee, Arkona, Lohme)

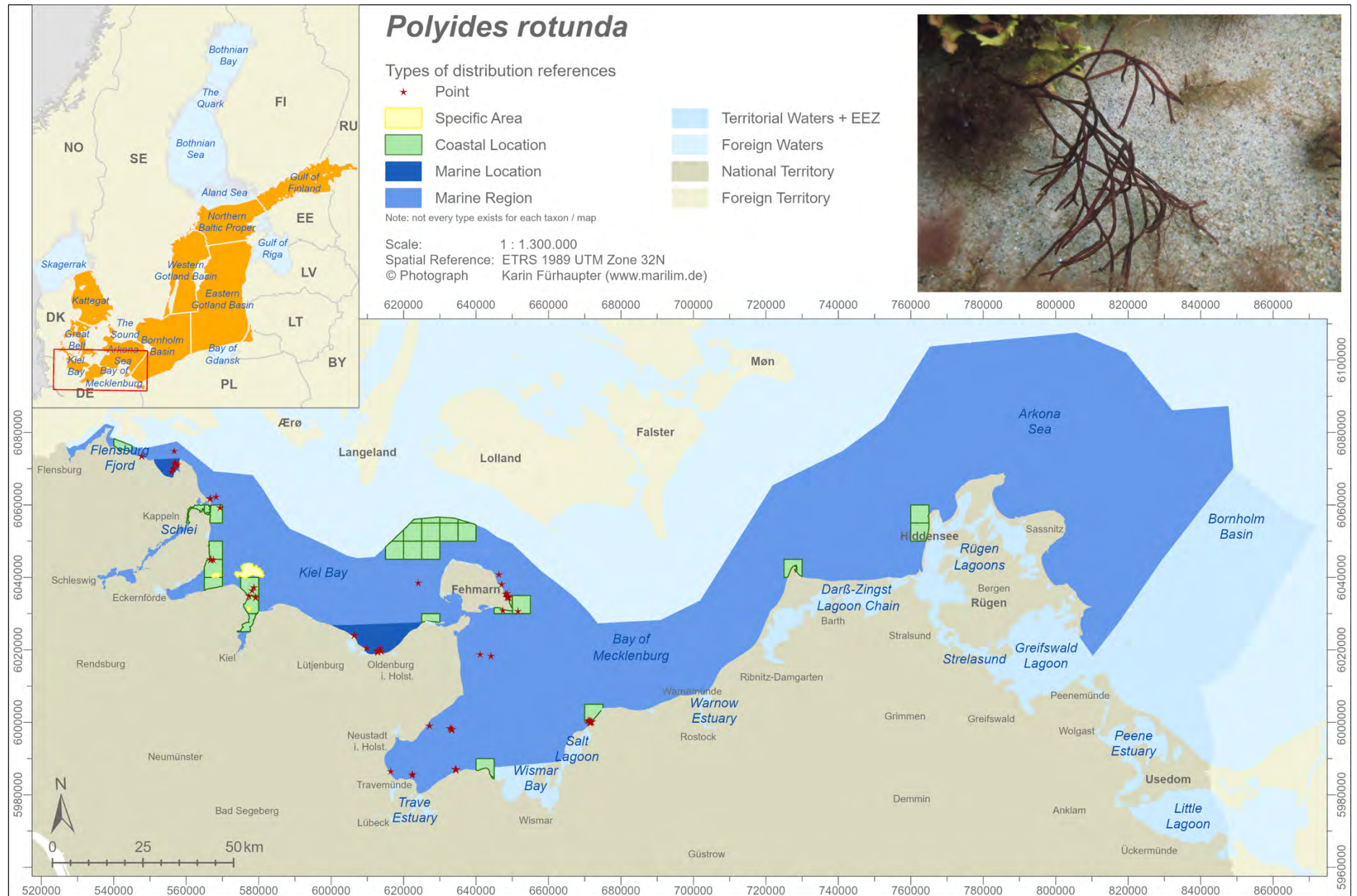
Ecology	
Substrate	hard bottom and animals – stones, blue mussels (live mussels)
Attachment	epilithic and epizoic
Salinity	$\beta$ -mesohaline to euhaline (fully marine)
Vertical zone	upper to lower Infralittoral – from 3 to about 14 m depth (a single record shallower than 3 m)
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
can be confused with <i>Coccotylus truncatus</i>	
References	
15 33 46 48 53 81 82 90 93 95 111 115 121 127 132 133 141 148 170 180 203 206	



## *Polyides rotunda* (Hudson) Gaillon, 1828

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Gigartinales
Family	Polyidaceae
Subspecies	–
Synonyms	<i>Bifurcaria rotunda</i> (Hudson) Papenfuss, 1950 <i>Chordaria rotunda</i> (Hudson) C. Agardh, 1817 <i>Fucus rotundus</i> Hudson, 1762 <i>Furcellaria rotunda</i> (Hudson) Lyngbye, 1819 <i>Polyides lumbricalis</i> C. Agardh, 1822
Distribution	
Baltic Sea	western and central Baltic Sea – from Kattegat to Gulf of Finland with exception of Bay of Gdansk; records from Gulf of Riga and Archipelago Sea in Nielsen 1995 (148) could not be verified
German Baltic Sea	various records along the western open, exposed coastline and on stony offshore bottoms – from Flensburg to Rerik; only two locations along the eastern open coastline – Arkona Sea (Darß, northwest coast of Hiddensee); a single record in outer Wismar Bay (Boltenhagen)

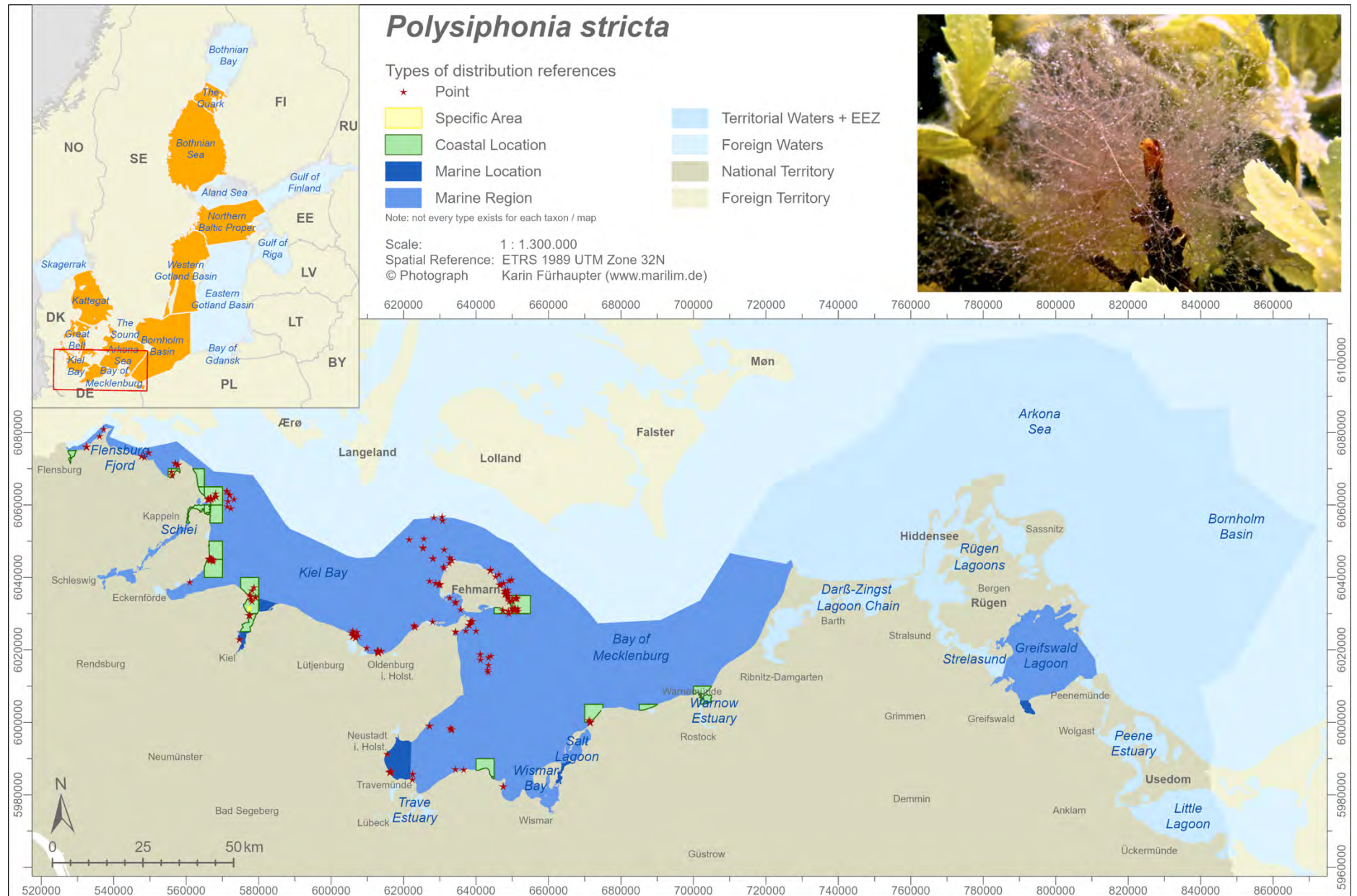
Ecology	
Substrate	hard bottom – stones
Attachment	epilithic
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – only very few records from $\beta$ -mesohaline, possibly drifting material or misidentification
Vertical zone	upper to lower Infralittoral – from 2 to about 25 m depth
Exposure	(sheltered) moderately exposed to very exposed – only a single record from a sheltered site
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
can be confused with attached <i>Furcellaria lumbricalis</i>	
References	
33 52 53 54 81 82 93 95 104 111 133 149 151 153 167 190 203 204 206	



## *Polysiphonia stricta* (Mertens ex Dillwyn) Greville, 1824

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Ceramiales
Family	Rhodomelaceae
Subspecies	–
Synonyms	<i>Ceramium strictum</i> (Mertens ex Dillwyn) Poiret, 1811 <i>Conferva stricta</i> Mertens ex Dillwyn, 1809 <i>Conferva urceolata</i> Lightfoot ex Dillwyn, 1809 <i>Hutchinsia stricta</i> (Mertens ex Dillwyn) C. Agardh, 1817 <i>Polysiphonia urceolata</i> (Lightfoot ex Dillwyn) Greville, 1824
Distribution	
Baltic Sea	northwestern to western central Baltic Sea – from Kattegat to Northern Baltic Proper and Bothnian Sea (DE, DK, SE)
German Baltic Sea	frequent records along the western, exposed coastline and on offshore stony areas – from Flensburg to Warnemünde; only four locations at the eastern open coastline – Arkona Sea (Zingst, north of Island Hiddensee, Lohme, Binz); few records in inner coastal waters – Flensburg Fjord (Schausende), inner Kiel Fjord, Wismar Bay (Tarnewitz), Salt Lagoon, Greifswald Lagoon (Danish Bight)

Ecology	
Substrate	hard bottom and mainly plants or animals – stones, wood, blue mussels (dead shells and live mussels) and on various algae ( <i>Fucus</i> , <i>Polysiphonia fucoides</i> )
Attachment	epilithic and epiphytic/epizoic
Salinity	$\beta$ -mesohaline to euhaline (fully marine) – only above 8–10 psu when considering vertical zonation (brackish water submergence)
Vertical zone	upper to lower Infralittoral – from 2 to about 18 m depth (in literature down to 25 m, a single record from 0,5 m depth)
Exposure	very sheltered to vey exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
References	
11 45 46 52 53 54 60 81 82 89 95 106 111 115 132 133 139 142 149 151 152 153 190 204 206 229	

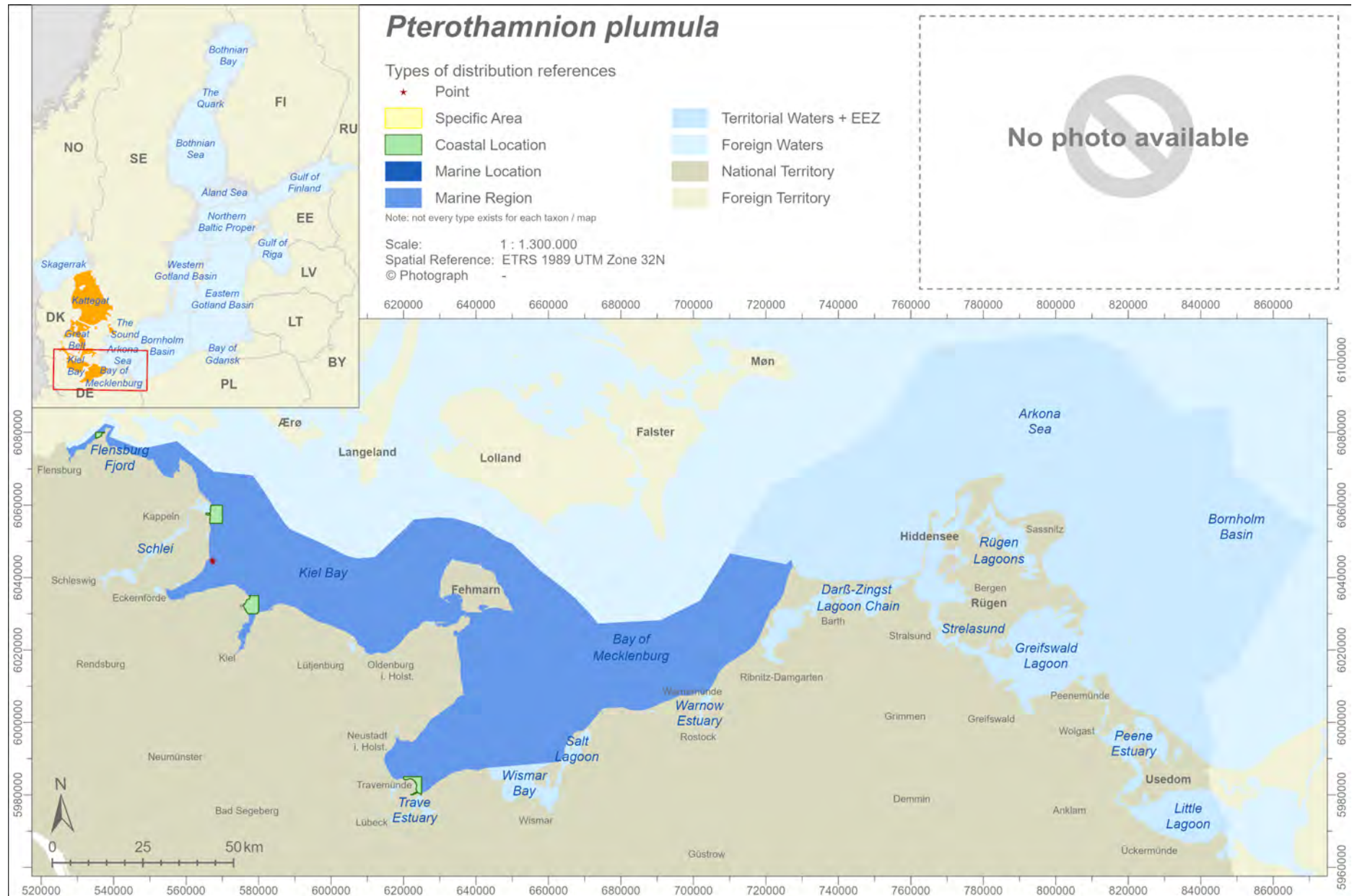


## *Pterothamnion plumula* (J. Ellis) Nägeli, 1855

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Ceramiales
Family	Ceramiaceae
Subspecies	–
Synonyms	<i>Antithamnion plumula</i> (J. Ellis) Thuret, 1863 <i>Callithamnion plumula</i> (J. Ellis) Lyngbye, 1819 <i>Ceramium plumula</i> (J. Ellis) C. Agardh, 1817 <i>Conferva plumula</i> J. Ellis, 1768 <i>Platythamnion plumula</i> (J. Ellis) Boudouresque, Belsher & Marcot-Coqueugniot, 1977
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Bay of Mecklenburg (DE, DK, SE)
German Baltic Sea	only five locations along the western open coastline – Flensburg Fjord (Schausende), Kiel Bay (Schleimünde, Boknis Eck, Bülk), Bay of Mecklenburg (Travemünde)

Ecology	
Substrate	hard bottom and plants or animals – stones, blue mussels (dead shells and live mussels) and on various algae
Attachment	epilithic and epiphytic/epizoic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine) – only above 15 psu (when considering vertical zonation (brackish water submergence))
Vertical zone	(upper to) lower Infralittoral – from 10 to about 20 m depth (in literature also shallower waters)
Exposure	(sheltered) moderately exposed to exposed – only a single record from a sheltered location
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>R</b> (DE)
Threats	–
Remarks	
borderline species to fully marine conditions, probably only occasional part of the German Baltic Sea flora	
References	
53 81 82 126 190 206	

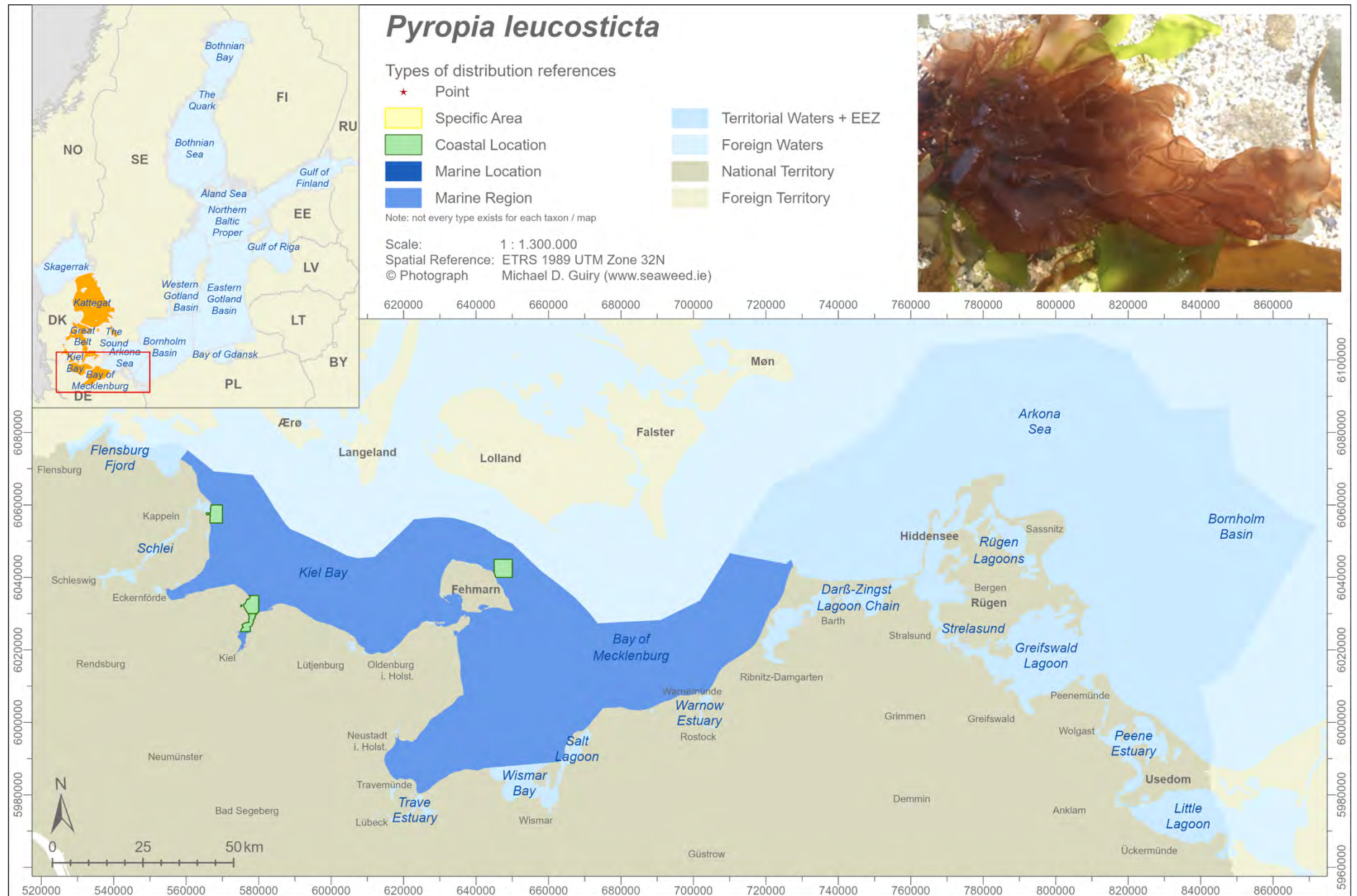




## *Pyropia leucosticta* (Thuret) Neefus & J. Brodie, 2011

Taxonomy	
Phylum	Rhodophyta
Class	Bangiophyceae
Order	Bangiales
Family	Bangiaceae
Subspecies	–
Synonyms	<i>Phyllona atropurpurea</i> (Olivi) Kuntze, 1898 <i>Phyllona coriacea</i> (Zanardini) Kuntze, 1891 <i>Porphyra leucosticta</i> Thuret, 1863 <i>Porphyra vermicellifera</i> Kützing, 1843
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Bay of Mecklenburg (DE, DK); records from Arkona Sea in Nielsen 1995 (148) could not be verified
German Baltic Sea	only five records along the western open coastline, all date back to 1970ies and 1980ies – Kiel Bay (Schleimünde, Bülk, Friedrichsort, Heikendorf), Bay of Mecklenburg (Marienleuchte)

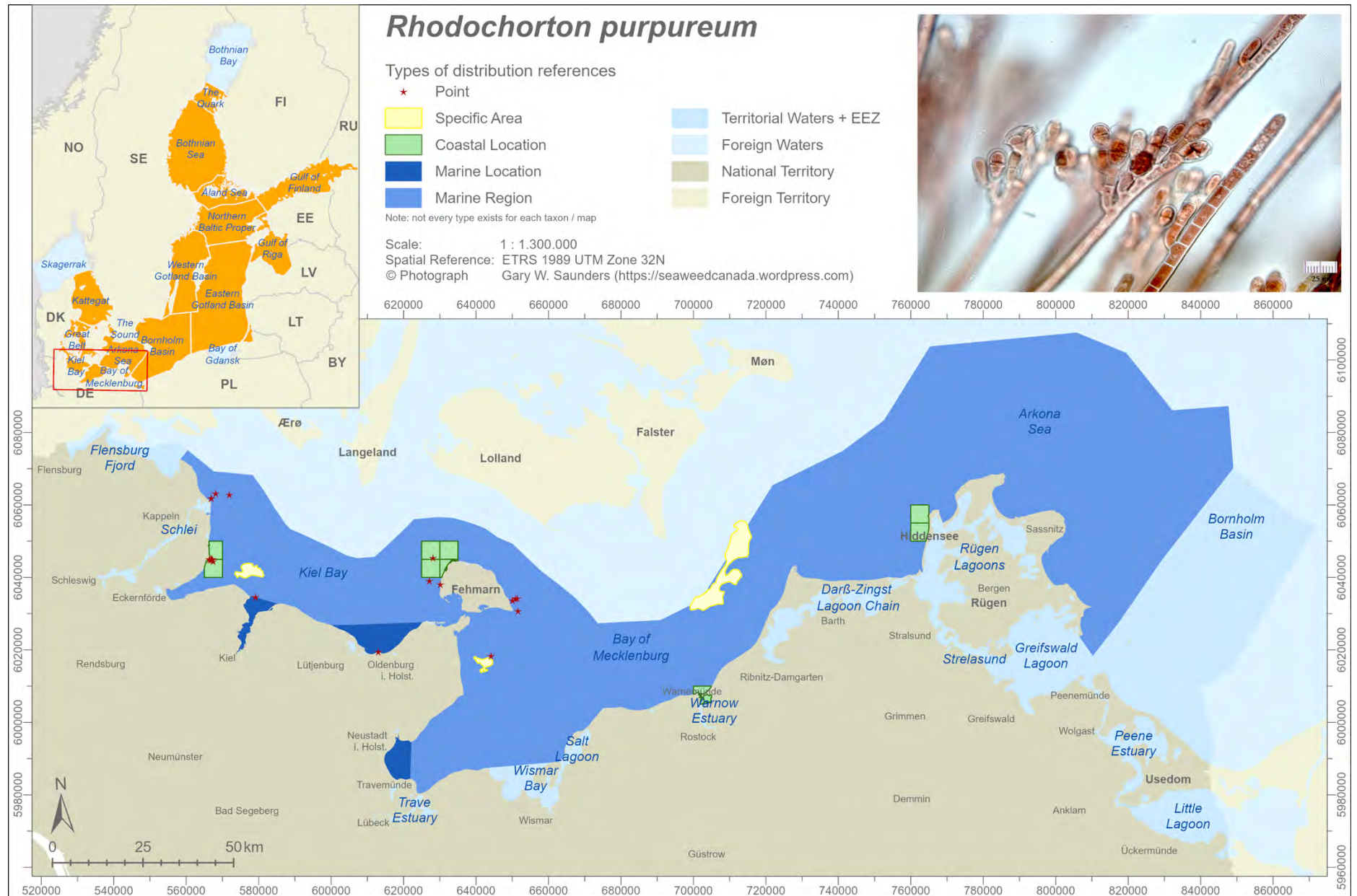
Ecology	
Substrate	hard bottom and plants – wood and on various algae ( <i>Fucus vesiculosus</i> )
Attachment	epilithic and epiphytic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	hydrolittoral – from shoreline to 0,5 m
Exposure	(sheltered) moderately exposed to exposed – only a single record from a sheltered location
Conservation	
Red List	<b>NE</b> (Baltic Sea), <b>D</b> (DE)
Threats	–
Remarks	
findings on shallow, exposed stony harbour piers and coastal protection structures, which are recently hardly part of macrophyte surveys	
References	
31 45 81 82 89 95 132 133 180 183 196 206	



## *Rhodochorton purpureum* (Lightfoot) Rosenvinge, 1900

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Acrochaetiales
Family	Acrochaetiaceae
Subspecies	–
Synonyms	<i>Audouinella purpurea</i> (Lightfoot) Woelkerling, 1973 <i>Callithamnion purpureum</i> (Lightfoot) Harvey, 1841 <i>Callithamnion rothii</i> (Turton) Lyngbye, 1819 <i>Conferva violacea</i> Roth, 1797 <i>Rhodochorton rothii</i> (Turton) Nägeli, 1862
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of northeasternmost part and Bay of Gdansk – from Kattegat to Bothnian Sea (all neighbouring countries but PL); records from Bothnian Bay in in Nielsen 1995 (148) could not be verified
German Baltic Sea	various records along the western, exposed coastline and on offshore rises or deeps – Kiel Bay (Schleimünde, Boknis Eck, Stollergrund, Bülk, Kiel Fjord, Hohwacht Bay, Island Fehmarn), Bay of Mecklenburg (Sagasbank, Neustadt Bay, Warnemünde, Kadettrinne); only one historical record along the eastern part – Arkona Sea (northwest coast of the Island Hiddensee)

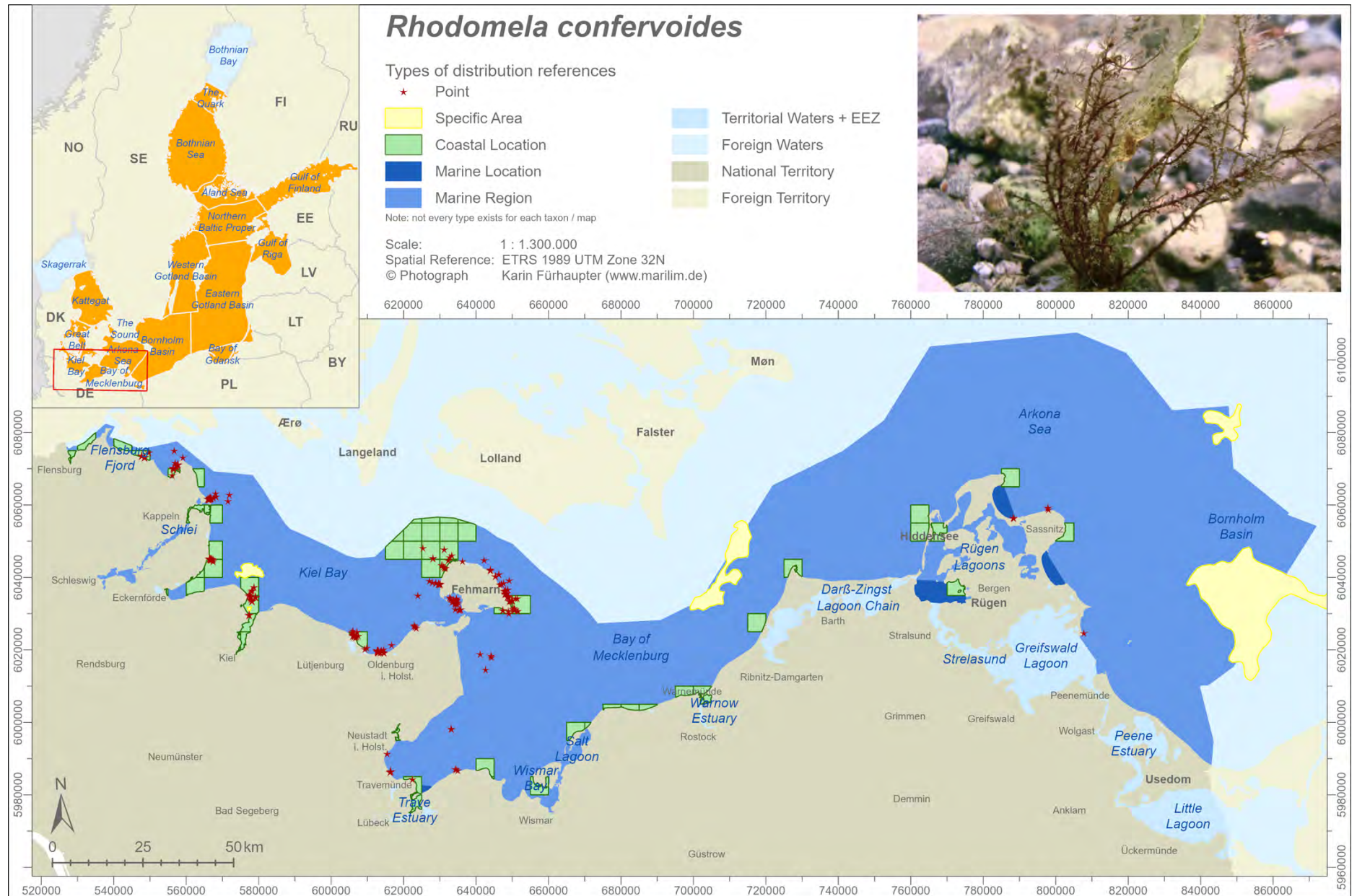
Ecology	
Substrate	hard bottom and plants or animals – boulders, stones, blue mussels (dead shells and live mussels) and on various algae ( <i>Furcellaria</i> )
Attachment	epilithic and epiphytic/epizoic
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – only a single record from $\beta$ -mesohaline, probably from a host plant washed ashore
Vertical zone	upper to lower Infralittoral – from 4 to about 25 m depth (a single record from supralittoral, but probably drifting material)
Exposure	moderately to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>D</b> (DE)
Threats	–
Remarks	
possibly unnoticed in many surveys because of its tiny size; unfertile and/or specimens of frozen samples difficult to distinguish from other Acrochaetiales ( <i>Acrochaetium</i> , <i>Colaconema</i> or <i>Grania</i> )	
References	
53 54 81 82 95 111 121 165 190 206	



## *Rhodobryopsis confervoides* (Hudson) P. C. Silva, 1952

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Ceramiales
Family	Rhodobryopsidaceae
Subspecies	–
Synonyms	<i>Rhodobryopsis subfusca</i> (Woodward) C. Agardh, 1822 <i>Rhodobryopsis rochei</i> Harvey, 1853 <i>Sphaerococcus confervoides</i> (Hudson) C. Agardh, 1817
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of northeasternmost part – from Kattegat to Bothnian Sea (all neighbouring countries but RU); records from Archipelago Sea in in Nielsen 1995 (148) could not be verified
German Baltic Sea	numerous records along the western open, exposed coastline and on offshore rises – from Flensburg to the eastcoast of the Island Fehmarn; fewer records along the eastern coastline but up to the offshore rise Adlergrund/Oderbank at the German/Polish offshore border; scarce records in outer areas of coastal bays, estuaries and lagoons – Schlei (Maas-holm), Wismar Bay (Brandhusen), Warnow Estuary (Breitling), Rügen Lagoons (Schaprode, Kubititz)

Ecology	
Substrate	hard bottom and plants or animals – boulders, stones, blue mussels (dead shells and live mussels) and on various (larger) algae ( <i>Furcellaria</i> , <i>Phyllophora</i> )
Attachment	epilithic and epiphytic/epizoic
Salinity	$\beta$ -mesohaline to euhaline (fully marine)
Vertical zone	upper to lower Infralittoral – from 2 to about 30 m depth (some records also from shallower areas)
Exposure	very sheltered to very exposed
Conservation	
Red List	LC (Baltic Sea), * (DE)
Threats	–
Remarks	
late summer, autumn specimens can be confused with <i>Vertebrata fucoides</i> , which is often growing on top of <i>Rhodobryopsis confervoides</i>	
References	
11 19 25 33 45 48 52 53 54 61 64 65 81 82 86 89 90 95 108 111 115 121 127 132 133 141 149 151 153 164 165 180 190 204 206	

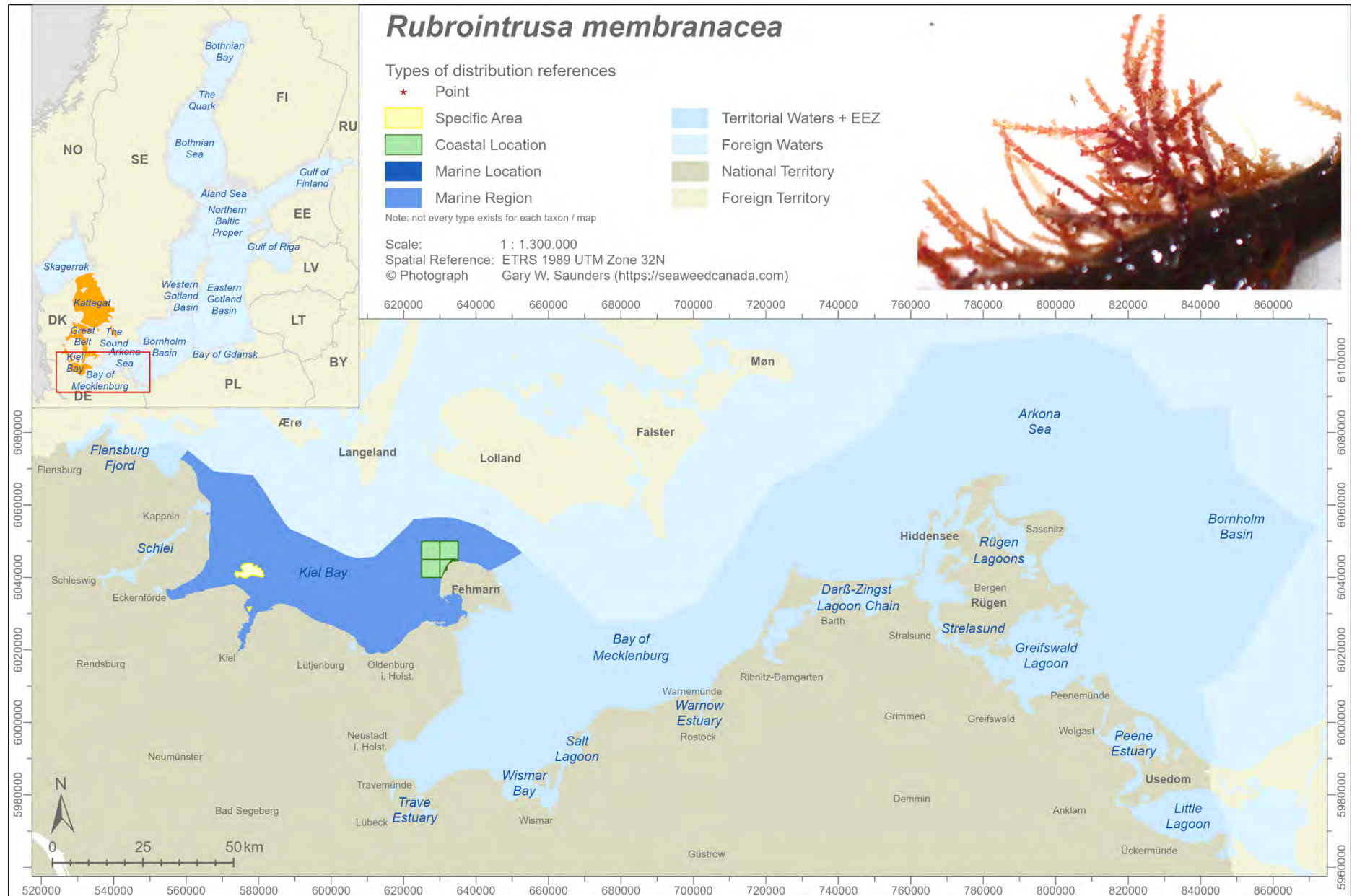


## *Rubrointrusa membranacea* (Magnus) S.L. Clayden & G.W. Saunders, 2010

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Palmariales
Family	Meiodiscaceae
Subspecies	–
Synonyms	<i>Audouinella membranacea</i> (Magnus) Papenfuss, 1945 <i>Callithamnion membranaceum</i> Magnus, 1875 <i>Colaonema membranaceum</i> (Magnus) Woelkerling, 1973 <i>Rhodochorton membranaceum</i> (Magnus) Hauck, 1883
Distribution	
Baltic Sea	only records in the German Baltic Sea area – Kiel Bay (DE)
German Baltic Sea	only at three locations from two references along the open, exposed coastline and on off-shore stony areas – Kiel Bay (Stollergrund, Grasberg, north-west of Fehmarn)

Ecology	
Substrate	plants or animals – on algae and bryozoans ( <i>Sertularia</i> )
Attachment	endophytic/endozoic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine) – only above 15 psu when considering vertical zonation (brackish water submergence), depending on requirements of hosts
Vertical zone	upper to lower Infralittoral – from 7 to about 20 m depth (in literature and other marine regions also shallower)
Exposure	moderately exposed to exposed – depending on requirements of hosts
Conservation	
Red List	– (Baltic Sea), <b>D</b> (DE)
Threats	–
Remarks	
species is probably overlooked in most surveys as the characteristic host species <i>Sertularia</i> is restricted to deep areas with no or very scarce vegetation	
References	
81 82 133 190 206	

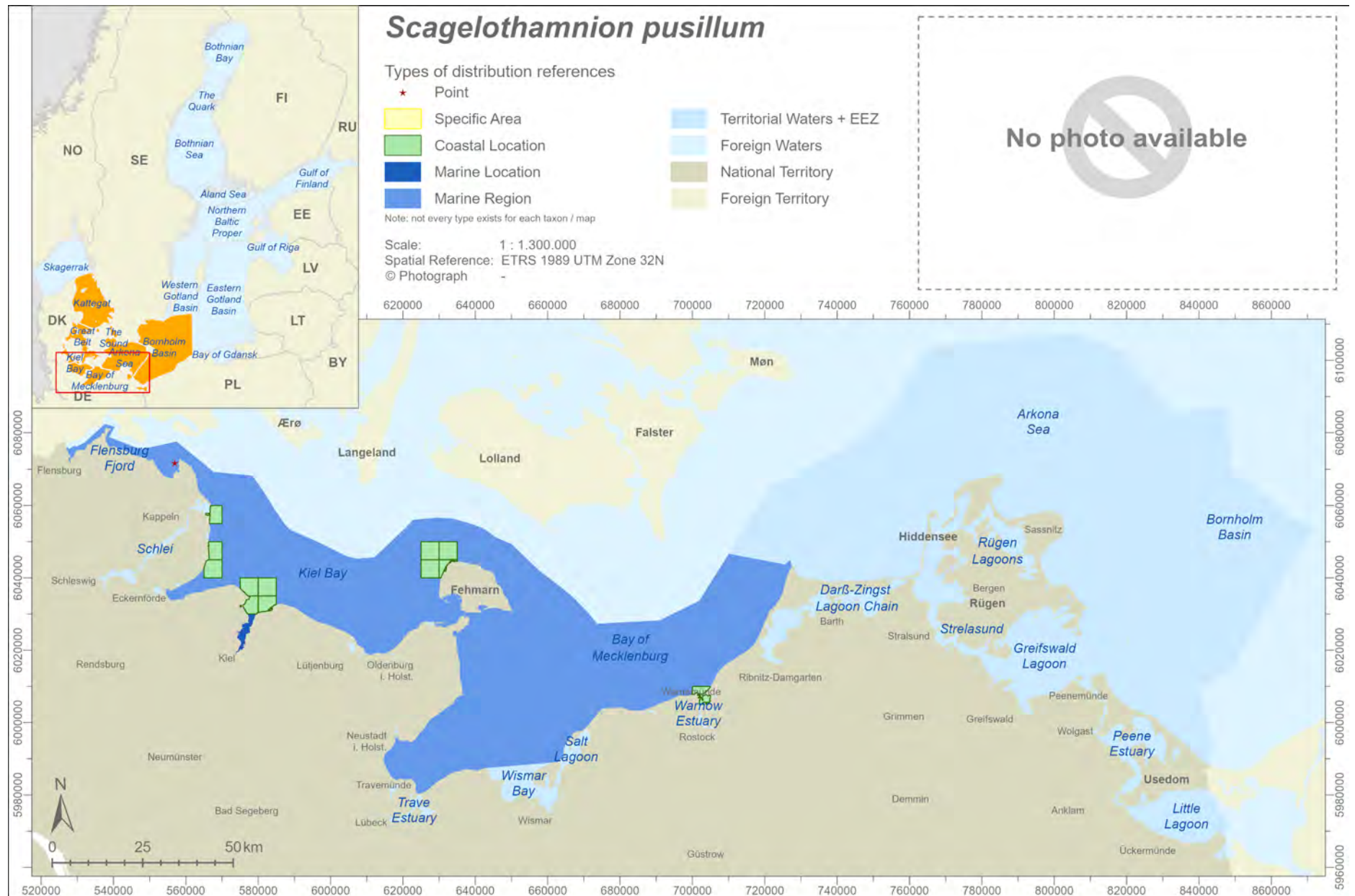




## Scagelothamnion pusillum (Ruprecht) Athanasiadis, 1996

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Ceramiales
Family	Ceramiaceae
Subspecies	–
Synonyms	<i>Antithamnion boreale</i> (Gobi) Kjellmann, 1883 <i>Callithamnion pusillum</i> Ruprecht, 1850 <i>Pterothamnion pusillum</i> (Ruprecht) Nägeli, 1862 <i>Scagelia pusilla</i> (Ruprecht) Athanasiadis ex Maggs & Hommersand, 1993
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Bornholm Basin (DE, DK)
German Baltic Sea	few records all along the western open coastline – Flensburg Fjord (Gelting), Kiel Bay (Schleimünde, Boknis Eck, north of Kiel Fjord, northwest of Fehmarn)), Bay of Mecklenburg (Warnemünde); the latter record probably washed ashore

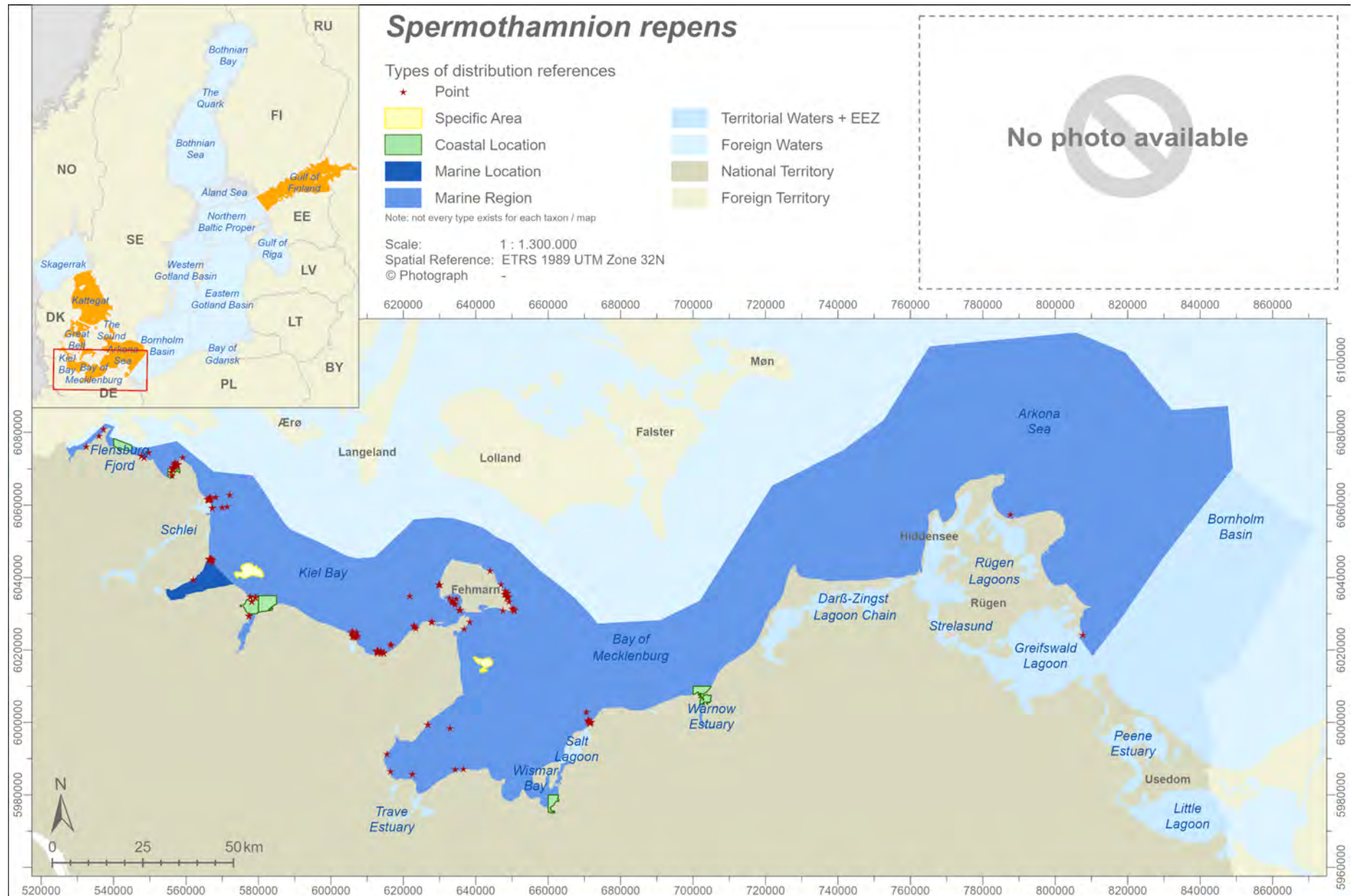
Ecology	
Substrate	plants or animals – on blue mussels (live mussels), bryozoans ( <i>Flustra</i> ) and on algae
Attachment	epiphytic/epizoic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine) – only above 15 psu when considering vertical zonation (brackish water submergence)
Vertical zone	lower Infralittoral – between 10 and 20 m depth
Exposure	moderately exposed to very exposed
Conservation	
Red List	<b>NE</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
borderline species to fully marine conditions, probably only occasional part of the German Baltic Sea flora	
References	
53 81 82 95 164 190 206	



## *Spermothamnion repens* (Dillwyn) Magnus, 1873

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Ceramiales
Family	Wrangeliaceae
Subspecies	–
Synonyms	<i>Callithamnion repens</i> (Dillwyn) Lyngbye, 1819 <i>Callithamnion roseolum</i> (C. Agardh) C. Agardh 1828 <i>Ceramium repens</i> (Dillwyn) C. Agardh, 1817 <i>Ceramium roseolum</i> C. Agardh, 1824 <i>Spermothamnion repens f. roseolum</i> (C. Agardh) Rosenvinge, 1924 <i>Spermothamnion roseolum</i> (C. Agardh) Pringsheim, 1862
Distribution	
Baltic Sea	western and one eastern part of the Baltic Sea – from Kattegat to Arkona Sea (DE, DK, SE) and Gulf of Finland (EE)
German Baltic Sea	frequent records along the western open, exposed coastline and on offshore rises – from Flensburg to Rerik; only three locations along the eastern open coastline – Bay of Mecklenburg (Warnemünde), Arkona Sea (Glowe, Thiessow); only three records in inner coastal waters – Flensburg Fjord (Schausende), Wismar Bay (Wismar), Warnow Estuary (Breitling)

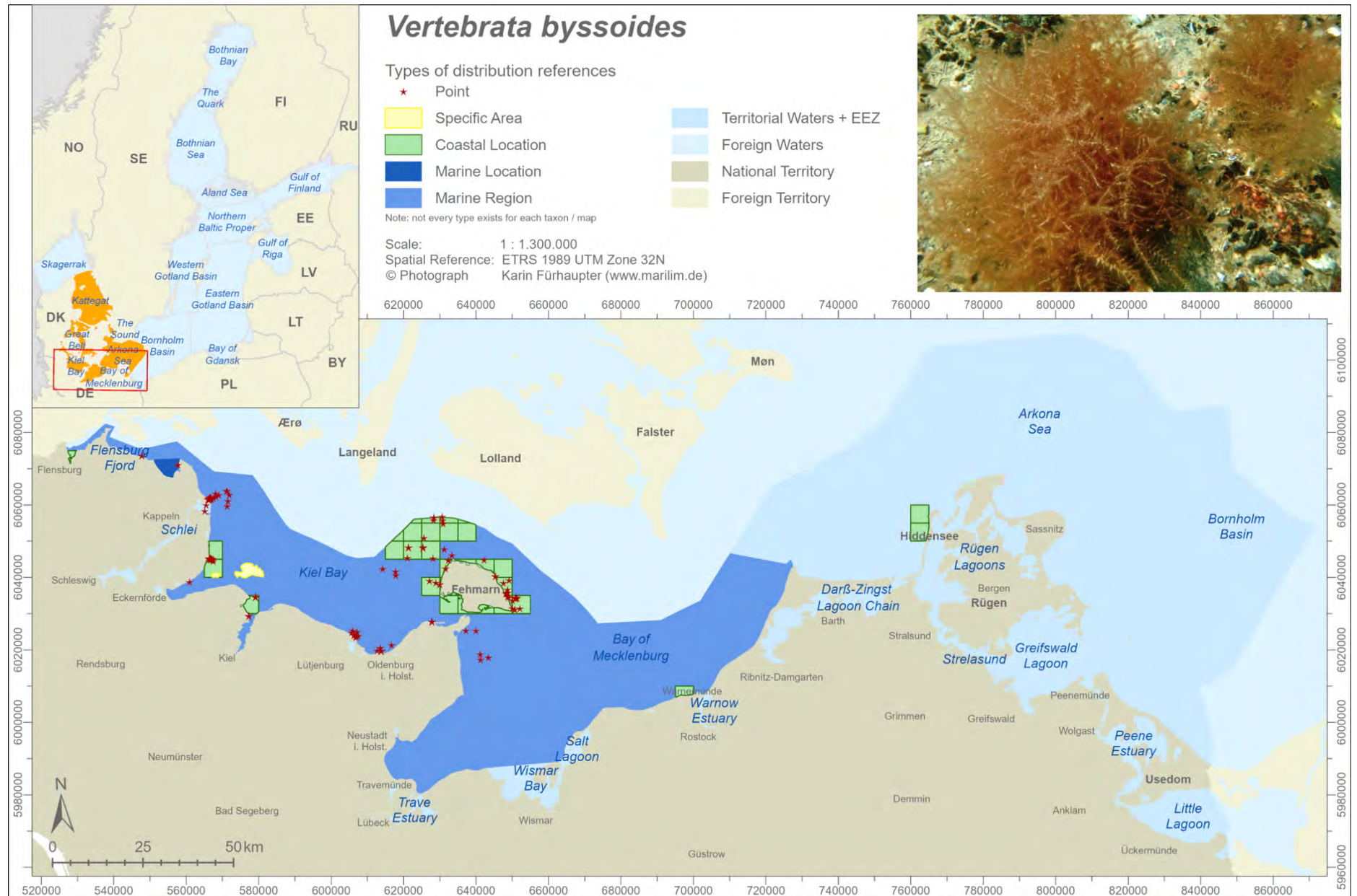
Ecology	
Substrate	plants – on algae (particularly <i>Coccotylus stipes</i> and <i>Furcellaria</i> )
Attachment	epiphytic
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – only above 12 psu when considering vertical zonation (brackish water submergence)
Vertical zone	upper to lower Infralittoral – from 1 to about 17 m depth with a distribution focus in waters below 5 m depth
Exposure	(very sheltered and sheltered) moderately exposed to very exposed – findings in more sheltered areas possibly from displaced, drifting basiphytes
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>G</b> (DE)
Threats	–
Remarks	
very few historical references; recent specimens show rarely opposite branching but the typical rhizoidal structures and grow in dense turf-like stocks around round, cartilaginous stipes of plant hosts	
References	
11 52 53 54 81 82 95 139 149 151 153 164 180 190 206	



## *Vertebrata byssoides* (Goodenough & Woodward) Kuntze, 1891

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Ceramiales
Family	Rhodomelaceae
Subspecies	–
Synonyms	<i>Brongniartella byssoides</i> (Goodenough & Woodward) F. Schmitz, 1893 <i>Ceramium byssoides</i> (Goodenough & Woodward) C. Agardh, 1811 <i>Hutchinsia byssoides</i> Goodenough & Woodward) C. Agardh, 1817 <i>Polysiphonia bangi</i> Kützing, 1849 <i>Polysiphonia byssoides</i> (Goodenough & Woodward) Greville, 1824
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Arkona Sea (DK, DE, SE)
German Baltic Sea	frequent records along the western open coastline and on offshore stony bottoms – from Flensburg to the eastcoast of the Island Fehmarn; only three records from two locations along the eastern open coastline – Bay of Mecklenburg (Stolteraa), Arkona Sea (north-west of Hiddensee), possibly drifting material

Ecology	
Substrate	hard bottom and plants or animals – smaller stones, blue mussels (dead shells and live mussels) and on various algae ( <i>Furcellaria</i> )
Attachment	epilithic and epiphytic/epizoic
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – only above 12 psu (when considering vertical zonation (brackish water submergence))
Vertical zone	upper to lower Infralittoral – from 2 to about 25 m depth with a distribution focus in waters below 8 m depth
Exposure	moderately exposed to exposed (very exposed) – possibly only specimens washed ashore from very exposed areas
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>G</b> (DE)
Threats	–
Remarks	
References	
33 53 54 81 82 93 95 111 121 132 133 139 149 153 164 190 206	

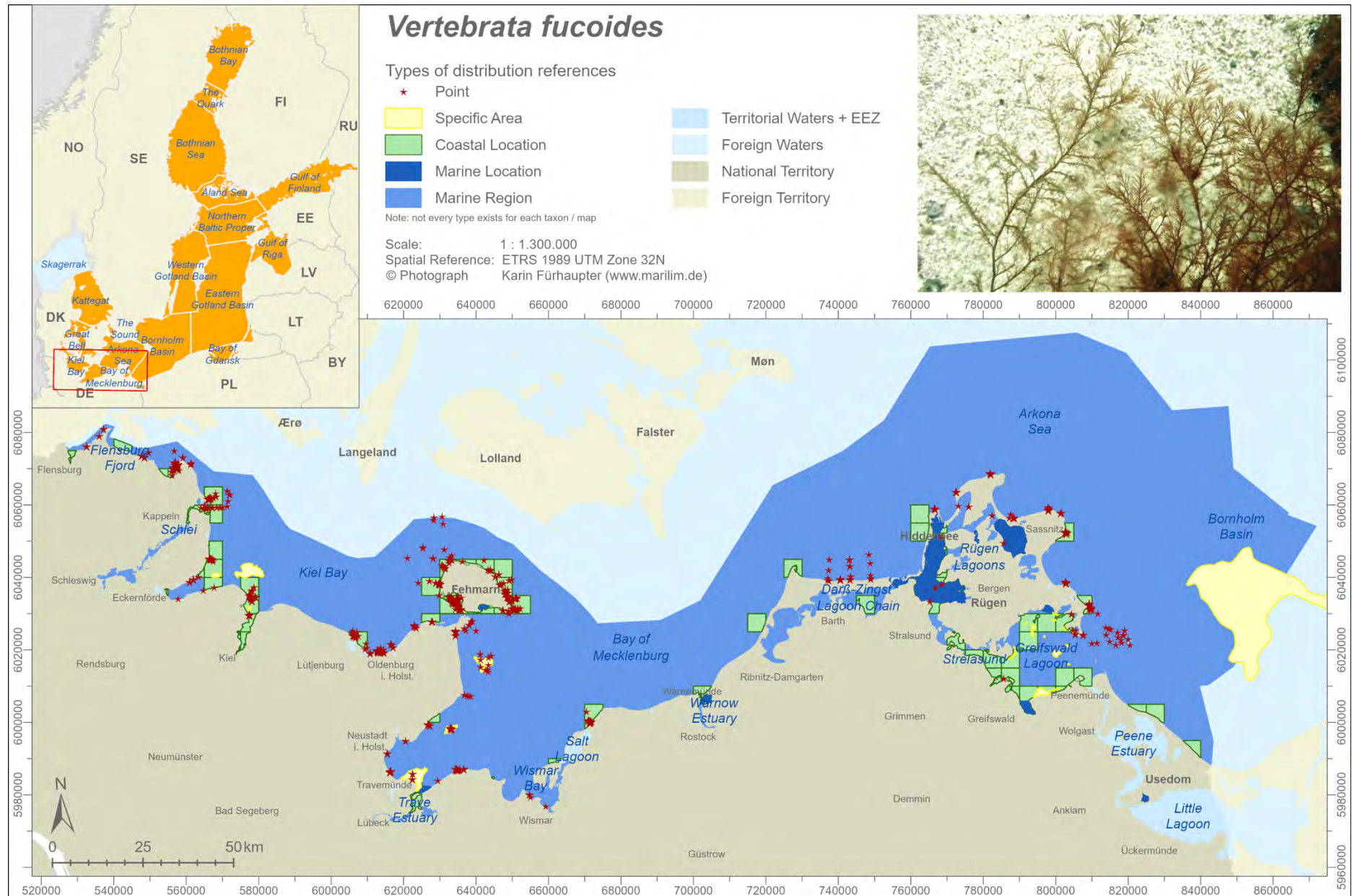


## *Vertebrata fucoides* (Hudson) Kuntze, 1891

Taxonomy	
Phylum	Rhodophyta
Class	Florideophyceae
Order	Ceramiales
Family	Rhodomelaceae
Subspecies	–
Synonyms	<i>Conferva fucoides</i> Hudson, 1762 <i>Hutchinsia nigrescens</i> (Hudson) Lyngbye, 1819 <i>Polysiphonia fucoides</i> (Hudson) Greville, 1824 <i>Polysiphonia nigrescens</i> (Hudson) Greville ex Harvey, 1833 <i>Polysiphonia violacea</i> (Roth) Sprengel, 1827 <i>Polysiphonia urceolata</i> f. <i>fucoides</i> (Hudson) J. Agardh, 1863
Distribution	
Baltic Sea	entire Baltic Sea coastline – from Kattegat to Bothnian Bay (all neighbouring countries but RU)
German Baltic Sea	numerous records throughout the open coastline and on all offshore rises – from Flensburg to the Island Usedom; numerous records also in all coastal bays, estuaries and lagoons with salinities above 5 psu; a single record in a low salinity inland lake area probably not from an attached specimen or a misidentification

Ecology	
Substrate	hard bottom and plants or animals – boulders, stones, wood, blue mussels (dead shells and live mussels) and on various plants ( <i>Zostera</i> , <i>Fucus</i> , <i>Furcellaria</i> )
Attachment	epilithic and epiphytic/epizoic
Salinity	$\beta$ -mesohaline to euhaline (fully marine) – a single record from $\alpha$ -oligohaline probably a misidentification or a displaced specimen (e.g. by anchoring and ship transportation)
Vertical zone	upper to lower Infralittoral – from the shoreline to about 25 m depth (in literature also down to 30 m)
Exposure	very sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
the most common polysiphonial red algae with a great ecological range and many morphological ecotypes (strong cortication at exposed sites and thin or lacking cortication at sheltered sites)	
References	
4 11 19 25 34 40 45 46 48 52 53 54 58 60 61 63 64 65 81 82 86 89 90 92 95 106 111 113 115 121 127 129 131 132 133 139 141 142 149 151 152 153 159 164 165 172 178 180 191 204 206 211 229 239	





## *Ascophyllum nodosum* (Linnaeus) Le Jolis, 1863

Taxonomy	
<i>Phylum</i>	Heterokontophyta
<i>Class</i>	Phaeophyceae
<i>Order</i>	Fucales
<i>Family</i>	Fucaceae
<i>Subspecies</i>	–
<i>Synonyms</i>	<i>Ascophylla laevigata</i> Stackhouse, 1809 <i>Ascophylla nodosa</i> (Linnaeus) Kuntze, 1894 <i>Chordaria scorpioides</i> (Hornemann) Lyngbye, 1819 <i>Fistularia nodosa</i> (Linnaeus) Stackhouse, 1816 <i>Fucus scorpioides</i> Hornemann, 1813 <i>Halidrys siliquosa</i> var. <i>minor</i> Lyngbye, 1819
Distribution	
<i>Baltic Sea</i>	western Baltic Sea – from Kattegat to Bay of Mecklenburg (DE, DK, SE)
<i>German Baltic Sea</i>	few, exclusively historical records along the western coastline – Flensburg Fjord (Langballigau, Gelting Bay, north of Kalkgrund – border to DK territorial sea), Kiel Bay (Falkenstein, Kiel Harbour), Bay of Mecklenburg (Haffkrug, Pri-wall)

Ecology	
<i>Substrate</i>	hard bottom
<i>Attachment</i>	epilithic
<i>Salinity</i>	$\alpha$ -mesohaline to euhaline (fully marine)
<i>Vertical zone</i>	hydrolittoral to upper infralittoral (derived from literature data of other marine regions)
<i>Exposure</i>	sheltered to exposed
Conservation	
<i>Red List</i>	<b>LC</b> (Baltic Sea), * (DE)
<i>Threats</i>	–
Remarks	
some of the historical records explicitly mention drifting specimens washed onshore; borderline species to fully marine conditions, only randomly part of the German Baltic Sea flora	
References	
23 81 82 95 169 190 206	



## *Asperococcus fistulosus* (Hudson) W.J. Hooker, 1833

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Ectocarpales
Family	Chordariaceae
Subspecies	–
Synonyms	<i>Ascocyclus reptans</i> (P.L. Crouan & H.M. Crouan) Reinke, 1889 <i>Asperococcus echinatus</i> (Mertens ex Roth) C. Agardh, 1817 <i>Ectocarpus repens</i> Reinke, 1889 <i>Phycocelis reptans</i> (P.L. Crouan & H.M. Crouan) Kjellman, 1890 <i>Scytosiphon fistulosus</i> (Hudson) C. Agardh, 1811
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Arkona Sea (DE, DK); records from Bornholm Basin in Nielsen 1995 (148) could not be verified
German Baltic Sea	few records along the open coastline and on one offshore rise – Kiel Bay (Kiel Harbour, Strande, Eckernförde Mittelgrund), Bay of Mecklenburg (Börgerende, Warnemünde), Arkona Sea (Zingst)

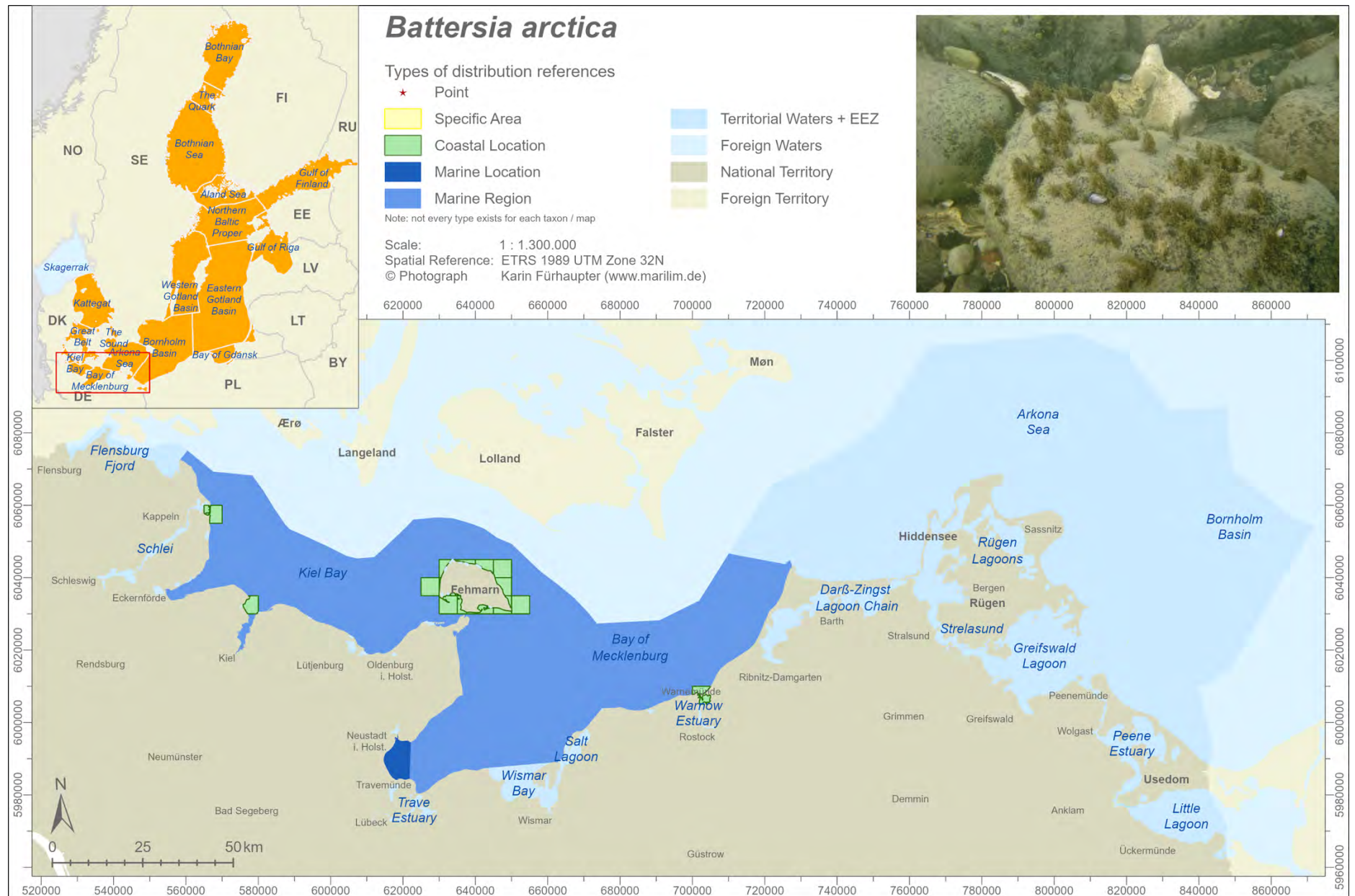
Ecology	
Substrate	hard bottom and plants – stones and on various plants ( <i>Zostera</i> , <i>Fucus</i> )
Attachment	epilithic and epiphytic
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – only a single record from lower salinities
Vertical zone	upper infralittoral – from 4 to about 10 m depth
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>D</b> (DE)
Threats	–
Remarks	
References	
46 79 81 82 95 151 164 180 190 206	



## *Battersia arctica* (Harvey) Draisma, Prud'homme & H. Kawai, 2010

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Sphacelariales
Family	Sphacelariaceae
Subspecies	–
Synonyms	<i>Sphacelaria arctica</i> Harvey, 1858 <i>Sphacelaria clevei</i> Grunow, 1874 <i>Sphacelaria intermedia</i> Gobi, 1877 <i>Sphacelaria notata</i> (C. Agardh) Kjellman, 1890 <i>Sphacelaria racemosa</i> f. <i>notata</i> (C. Agardh) Svedelius, 1901 <i>Sphacelaria racemosa</i> var. <i>arctica</i> (Harvey) Reinke, 1889
Distribution	
Baltic Sea	entire Baltic Sea coastline – from Kattegat to Bothnian Bay (all neighbouring countries)
German Baltic Sea	few, exclusively historical records along the western open coastline – Kiel Bay (Schleimünde, Bülk, around Island Fehmarn), Bay of Mecklenburg (Neustadt Bay, Warnemünde)

Ecology	
Substrate	hard bottom and animals – stones, gravel, blue mussels (dead shells and live mussels)
Attachment	epilithic and epizoic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	upper to lower infralittoral – from 2 to about 20 m depth
Exposure	moderately to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>D</b> (DE)
Threats	–
Remarks	
low number of records along the German coastline compared to the generally broad distribution range in the Baltic Sea suggests ambiguity in species determination; unfertile specimens can be confused with other Sphacelariaceae	
References	
81 82 95 121 190 206	



## ***Battersia racemosa* (Greville) Draisma, Prud'homme & H. Kawai, 2010**

<b>Taxonomy</b>	
<i>Phylum</i>	Heterokontophyta
<i>Class</i>	Phaeophyceae
<i>Order</i>	Sphacelariales
<i>Family</i>	Sphacelariaceae
<i>Subspecies</i>	–
<i>Synonyms</i>	<i>Sphacelaria racemosa</i> Greville, 1824
<b>Distribution</b>	
<i>Baltic Sea</i>	only German part of Kiel Bay, Bay of Mecklenburg and Arkona Sea (DE)
<i>German Baltic Sea</i>	six, exclusively historical records along the open coastline – Kiel Bay (Schleimünde, Bülk, Kiel Fjord), Bay of Mecklenburg (Neustadt Bay, Warnemünde), Arkona Sea (Kloster – open west coast of Island Hiddensee)

<b>Ecology</b>	
<i>Substrate</i>	hard bottom and animals – stones, blue mussels (dead shells and live mussels)
<i>Attachment</i>	epilithic and epizoic
<i>Salinity</i>	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – only a single record from lower salinities
<i>Vertical zone</i>	upper to lower infralittoral – from 8 to about 20 m depth
<i>Exposure</i>	sheltered to very exposed
<b>Conservation</b>	
<i>Red List</i>	– (Baltic Sea), <b>D</b> (DE)
<i>Threats</i>	–
<b>Remarks</b>	
likely to be confused with other Sphacelariaceae particular as no evidence of occurrence exists from other Baltic Sea neighbouring countries	
<b>References</b>	
81 82 95 121 190 206	

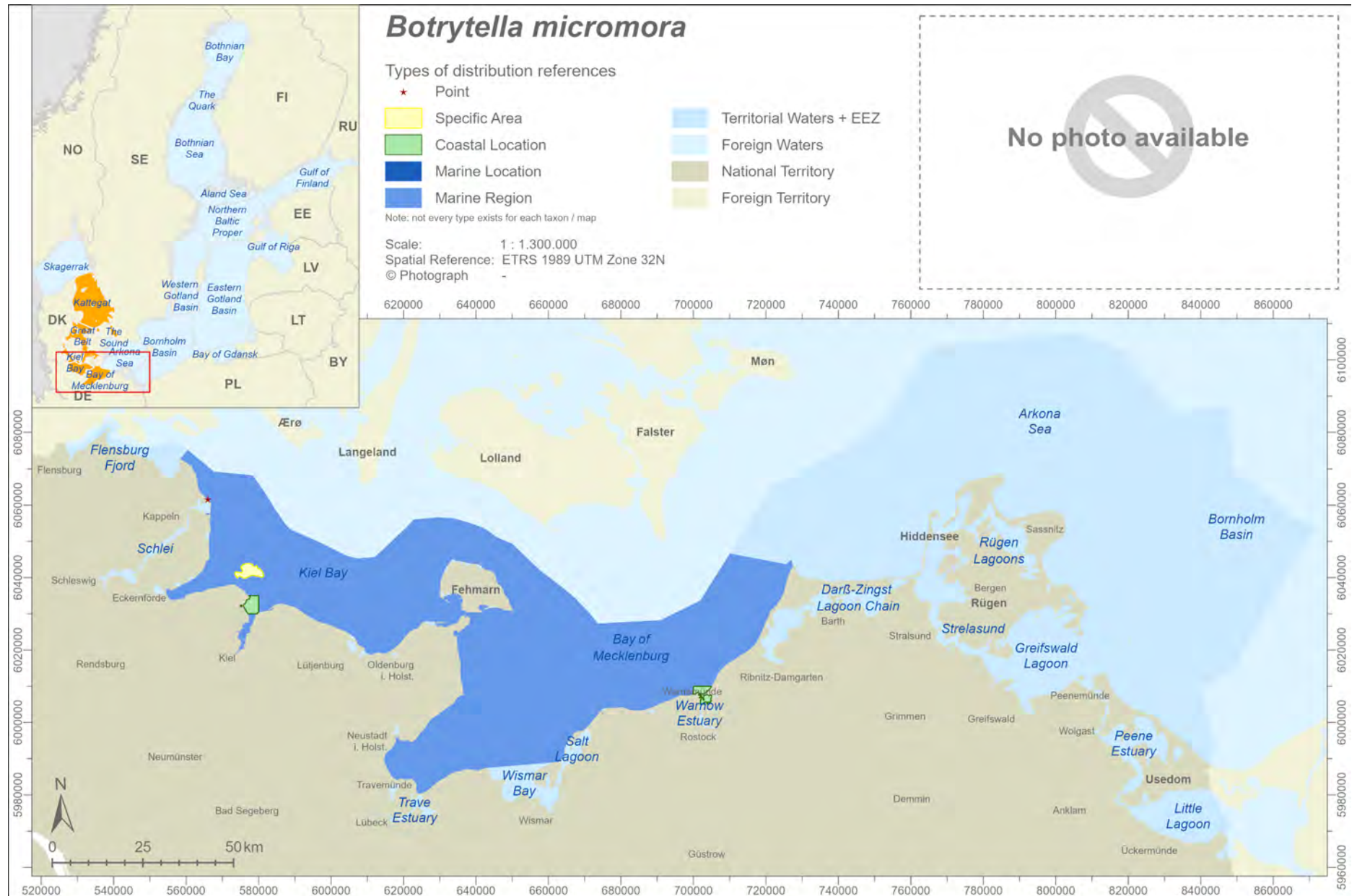




## *Botrytella micromora* Bory, 1822

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Ectocarpales
Family	Chordariaceae
Subspecies	–
Synonyms	<i>Botrytella uvaeformis</i> (Lyngbye) Kornmann & Sahling, 1988 <i>Ectocarpus siliculosus</i> var. <i>uvaeformis</i> Lyngbye, 1819 <i>Sorocarpus micromorus</i> (Bory) P.C. Silva, 1950 <i>Sorocarpus uvaeformis</i> (Lyngbye) Pringsheim, 1862
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Bay of Mecklenburg (DE, DK); records from Bornholm Basin and Bay of Gdansk in Nielsen 1995 (148) could not be verified
German Baltic Sea	three records along the western open coastline and one stony rise – Kiel Bay (Oehe-Schleimünde, Stollergrund, Bülk), Bay of Mecklenburg (Warnemünde)

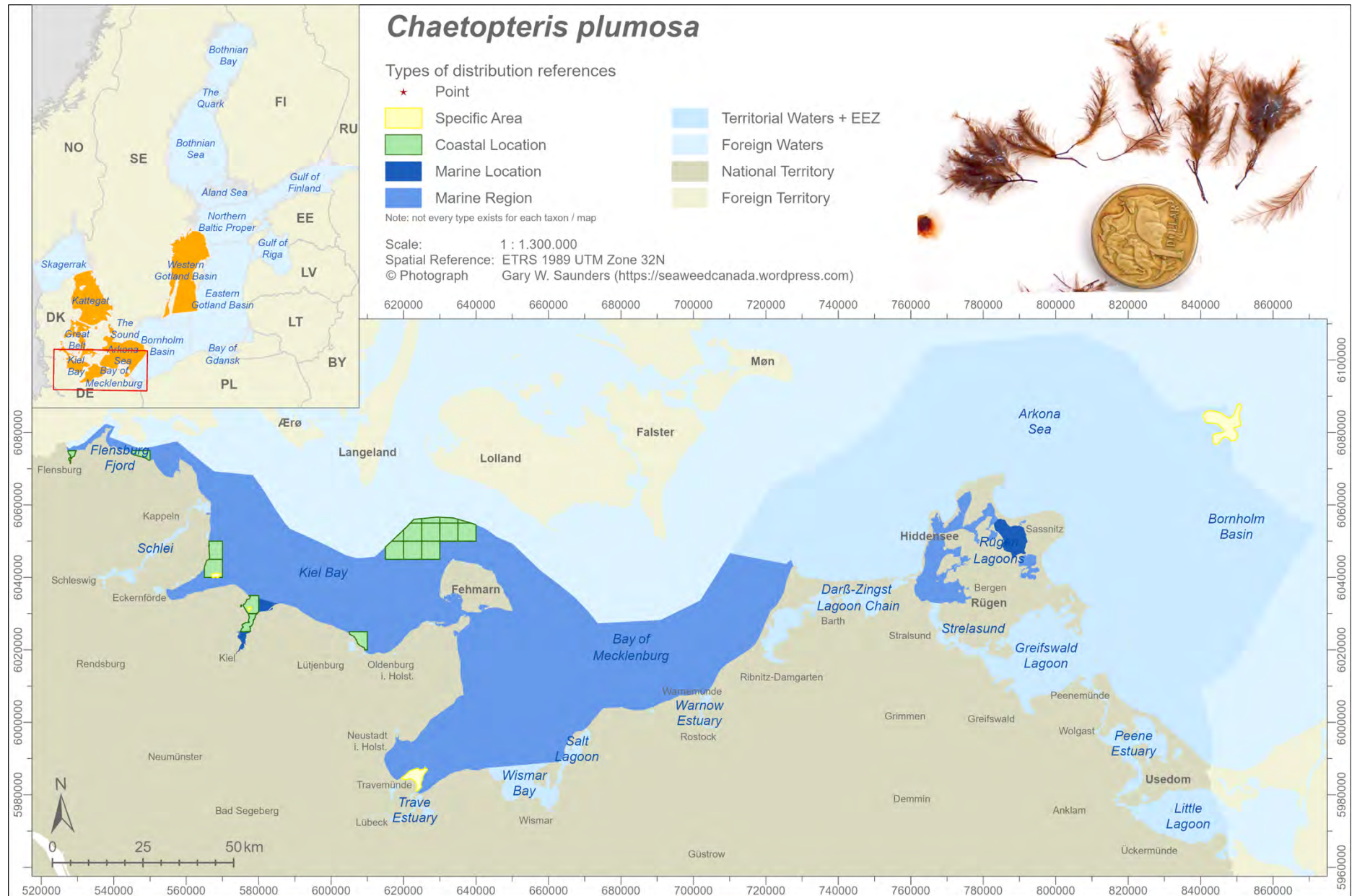
Ecology	
Substrate	hard bottom and plants – stones and on various algae
Attachment	epilithic and epiphytic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	upper infralittoral – only a single depth value (2 m depth) available
Exposure	moderately to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>D</b> (DE)
Threats	–
Remarks	
References	
53 81 82 95 164 206	



## *Chaetopteris plumosa* (Lyngbye) Kützing, 1843

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Sphacelariales
Family	Sphacelariaceae
Subspecies	–
Synonyms	<i>Ceramium pennatum</i> Hornemann, 1813 <i>Cladostephus plumosus</i> (Lyngbye) Fries, 1835 <i>Sphacelaria heteronema</i> Postels & Ruprecht, 1840 <i>Sphacelaria plumosa</i> Lyngbye, 1819 <i>Sphacelaria plumosa</i> var. <i>divaricata</i> Lyngbye, 1819
Distribution	
Baltic Sea	western and parts of central Baltic Sea – from Kattegat to Arkona Sea and Western Gotland Basin (DE, DK, SE)
German Baltic Sea	several records along the western open coastline and on some offshore rises and stony bottoms – Flensburg Fjord (Flensburg Harbour, Neukirchen), Kiel Bay (Boknis Eck, Eckernförde Mittelgrund, Friedrichsort, Strande, Grasberg, Hohwacht, Fehmarnbelt), Bay of Mecklenburg (Niendorf Stony Reef); a single record in an eastern coastal lagoon – Rügen Lagoons (Jasmund Lagoon) and an eastern offshore rise – Arkona Sea (Adlergrund)

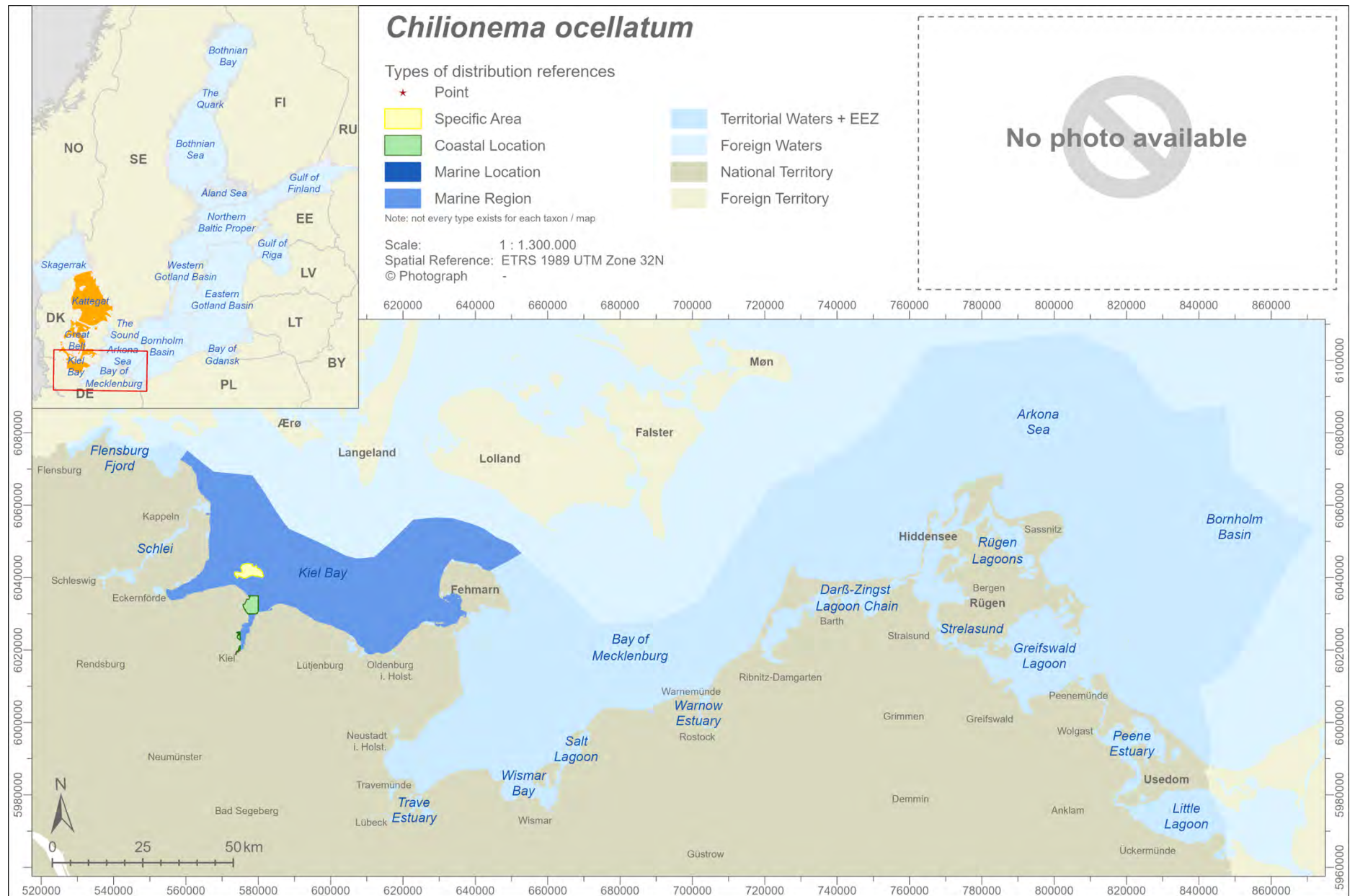
Ecology	
Substrate	hard bottom and plants or animals – stones, blue mussels (dead shells and live mussels) and (rarely) on various algae ( <i>Fucus</i> )
Attachment	epilithic and epiphytic/epizoic
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – down to about 12 psu (only two records from lower salinities)
Vertical zone	upper to lower infralittoral – from 5 to about 25 m depth
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>D</b> (DE)
Threats	–
Remarks	
an open water species, which has only random occurrences in coastal lagoons	
References	
33 65 81 82 95 190 206	



## *Chilionema ocellatum* (Kützing) Kornmann, 1953

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Ectocarpales
Family	Chordariaceae
Subspecies	–
Synonyms	<i>Ascocyclus ocellatus</i> (Kützing) Reinke, 1889 <i>Chilionema nathaliae</i> Sauvageau, 1897 <i>Myrionema ocellatum</i> (Kützing) Kützing, 1849 <i>Phycocelis ocellatus</i> (Kützing) Athanasiadis, 1996 <i>Phyllactidium ocellatum</i> Kützing, 1843
Distribution	
Baltic Sea	only northwesternmost parts of Baltic Sea – from Kattegat to Kiel Bay (DE, DK)
German Baltic Sea	three, historical records along the western open coastline and on one offshore stony rise – Kiel Bay (Stollergrund, Strande, Kiel Harbour)

Ecology	
Substrate	plants – on larger algae ( <i>Laminaria</i> )
Attachment	epiphytic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	upper to lower infralittoral
Exposure	sheltered to exposed
Conservation	
Red List	<b>NE</b> (Baltic Sea), <b>D</b> (DE)
Threats	–
Remarks	
borderline species to fully marine conditions, probably only occasional part of the German Baltic Sea flora	
References	
81 82 95 190 206	

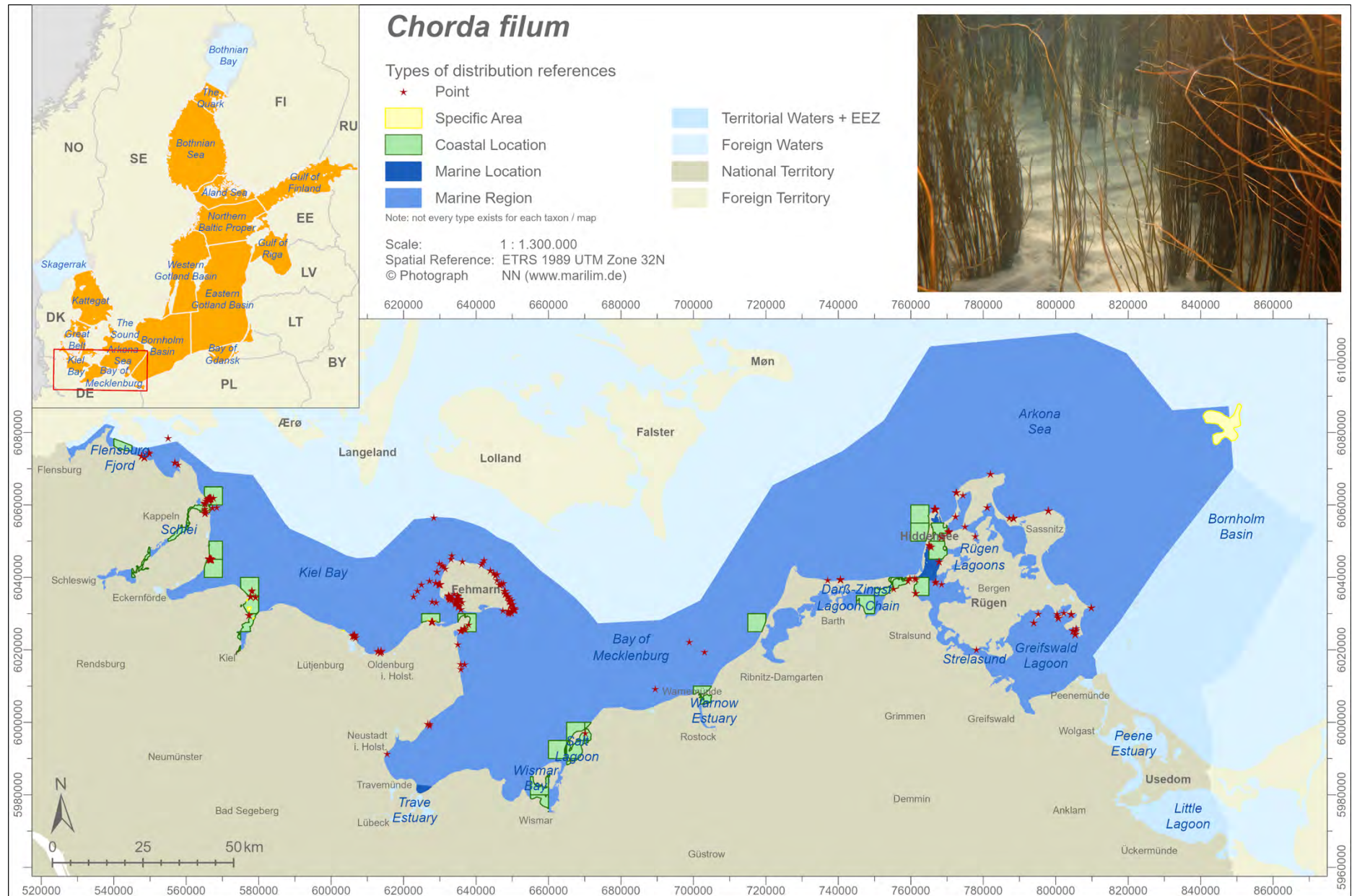


## *Chorda filum* (Linnaeus) Stackhouse, 1797

Taxonomy	
<i>Phylum</i>	Heterokontophyta
<i>Class</i>	Phaeophyceae
<i>Order</i>	Laminariales
<i>Family</i>	Chordaceae
<i>Subspecies</i>	–
<i>Synonyms</i>	<i>Ceramium filum</i> (Linnaeus) R.H. Wiggers, 1780 <i>Chondrus filum</i> (Linnaeus) J.V. Lamouroux, 1824 <i>Chordaria filum</i> (Linnaeus) C. Agardh, 1817 <i>Fucus filum</i> Linnaeus, 1753 <i>Fucus filiformis</i> Strøm, 1762 <i>Scytosiphon filum</i> (Linnaeus) C. Agardh, 1820
Distribution	
<i>Baltic Sea</i>	entire Baltic Sea coastline with exception of the northeasternmost part – from Kattegat to Bothnian Sea / The Quark (all neighbouring countries)
<i>German Baltic Sea</i>	numerous records along the entire open coastline with exception of the Island Usedom – from Flensburg to the east coast of the Island Rügen (Südperd/Thiessow); in outer parts of coastal bays, estuaries and lagoons with exception of Peene Estuary and Little Lagoon – Schlei (up to Missunde Strait), Kiel Bay (Orth Bay), Wismar Bay (Walfisch), Salt Lagoon, Darß-Zingst-Lagoon Chain (up to Grabow Lagoon), Rügen Lagoons (up to Kubitz and Wittower Fähre), Greifswald Lagoon (up to Island Vilm)

Ecology	
<i>Substrate</i>	hard bottom and plants or animals – stones, smaller stones, gravel, wood, mussels (dead shells and live mussels) and on various plants ( <i>Zostera</i> )
<i>Attachment</i>	epilithic and epiphytic/epizoic
<i>Salinity</i>	$\beta$ -mesohaline to euhaline (fully marine)
<i>Vertical zone</i>	upper to lower Infralittoral – from 0,5 to about 15 m depth; but only few records from >10 m depth exist
<i>Exposure</i>	very sheltered to very exposed
Conservation	
<i>Red List</i>	<b>LC</b> (Baltic Sea), * (DE)
	–
Remarks	
smaller stones and mussel shells are often sedimented which makes it appear that <i>Chorda filum</i> settles on soft bottom	
References	
5 11 15 19 33 48 49 50 52 53 54 60 64 68 81 82 86 89 90 92 95 108 111 113 115 116 118 121 127 129 131 132 133 139 140 142 145 149 151 153 164 165 166 167 171 172 173 180 190 191 206 207 229	

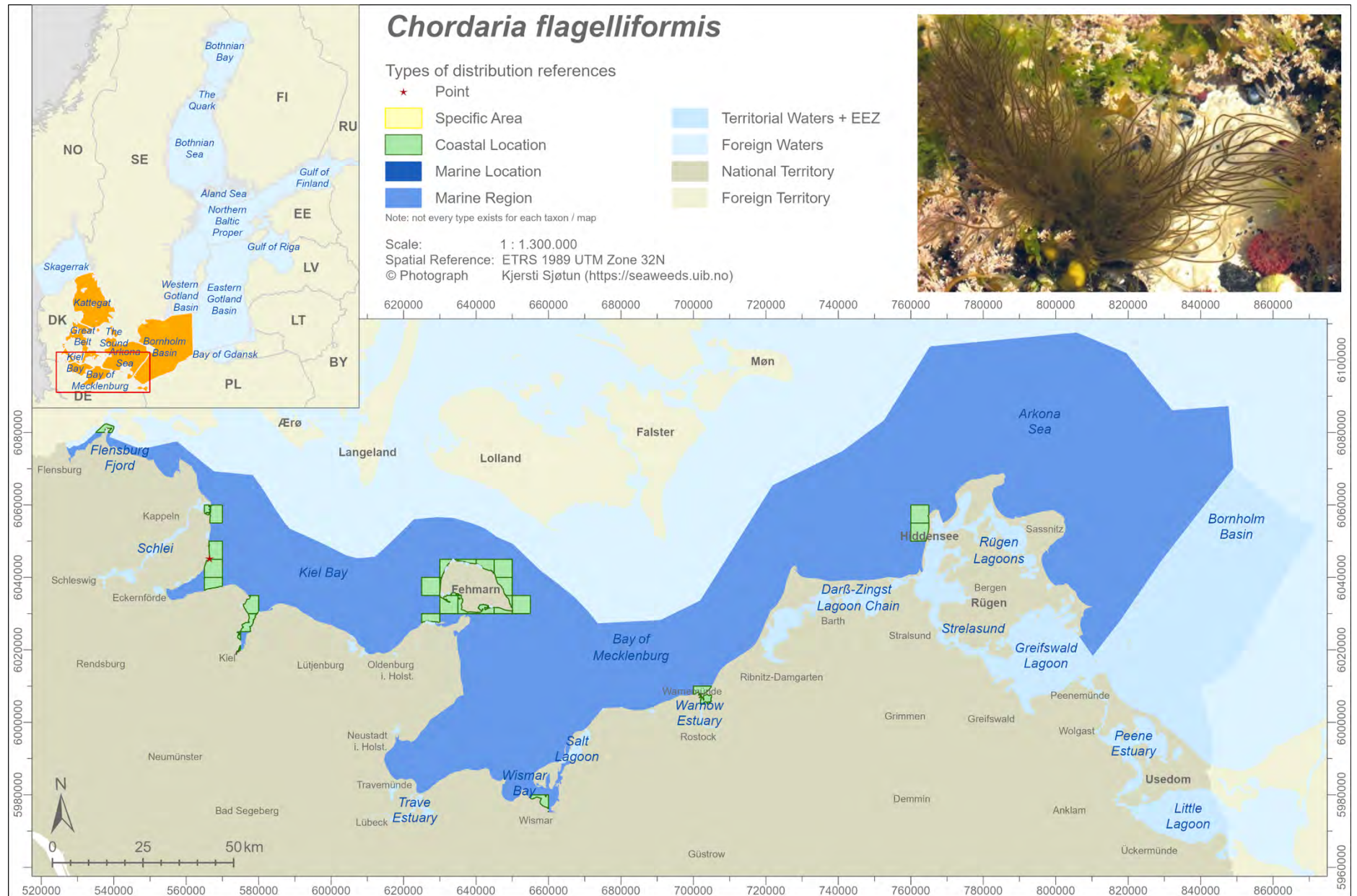




## *Chordaria flagelliformis* (O.F. Müller) C. Agardh, 1817

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Ectocarpales
Family	Chordariaceae
Subspecies	–
Synonyms	<i>Chordaria flagelliformis</i> var. <i>minor</i> C. Agardh, 1817 <i>Conferva flagelliformis</i> Gunnerus, 1772 <i>Dichosporangium chordariae</i> Wollny, 1886 <i>Fucus corneus</i> Zoega, 1772 <i>Fucus flagelliformis</i> O.F. Müller, 1775 <i>Streblonema chordariae</i> (Wollny) A.D. Cotton ex Lily Newton, 1931
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Bornholm Basin (DE, DK, SE); records from Bay of Gdansk, Eastern Gotland Basin and Gulf of Riga in Nielsen 1995 (148) could not be verified
German Baltic Sea	several records along the western open coastline – Flensburg Fjord (Holnis), Kiel Bay (Schleimünde, Boknis Eck, Surendorf, various locations in Kiel Fjord, Heiligenhafen, around the Island Fehmarn), Bay of Mecklenburg (Warnemünde), Wismar Bay (Walfisch); a single record along the eastern open coastline – Arkona Sea (Kloster – open west coast of Island Hiddensee)

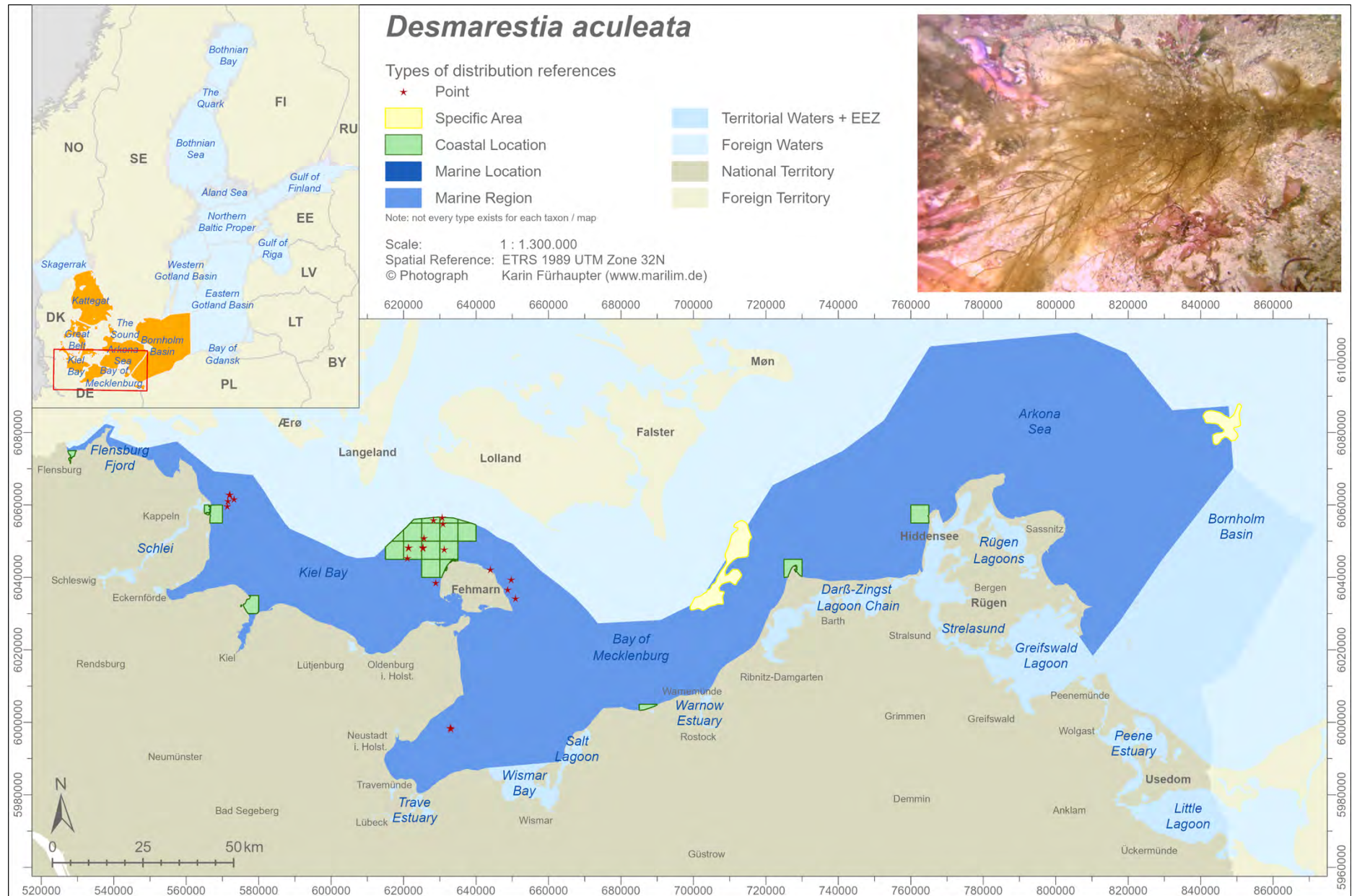
Ecology	
Substrate	hard bottom and plants or animals – stones, smaller stones, wood, blue mussels (dead shells and live mussels) and on various larger algae ( <i>Fucus</i> )
Attachment	epilithic and epiphytic/epizoic
Salinity	$\beta$ -mesohaline to euhaline (fully marine)
Vertical zone	hydrolittoral to upper infralittoral – shallower than 10 m depth
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>D</b> (DE)
Threats	–
Remarks	
References	
25 53 81 82 89 90 93 95 115 116 133 190 206	



## *Desmarestia aculeata* (Linnaeus) J.V. Lamouroux, 1813

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Desmarestiales
Family	Desmarestiaceae
Species	–
Synonyms	<i>Desmia aculeata</i> (Linnaeus) Lyngbye, 1819 <i>Ectocarpus densus</i> Lyngbye, 1819 <i>Fucus aculeatus</i> Linnaeus, 1763 <i>Fucus muscoides</i> Hudson, 1762 <i>Hippurina aculeata</i> (Linnaeus) Stackhouse, 1809 <i>Sporochnus aculeatus</i> (Linnaeus) C. Agardh, 1817
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Bornholm Basin (DE, DK, SE)
German Baltic Sea	some records along the western open coastline and several records on offshore stony rises and bottoms – Flensburg Fjord (Flensburg Harbour), Kiel Bay (Schleimünde, stony bottoms offshore Oehe-Schleimünde, deeper stony bottoms around Island Fehmarn and in Fehmarnbelt), Bay of Mecklenburg (Walkyriengrund, Börgerende); two records along the eastern open coastline – Arkona Sea (Darß, Kloster – open west coast of Island Hiddensee, Adlergrund)

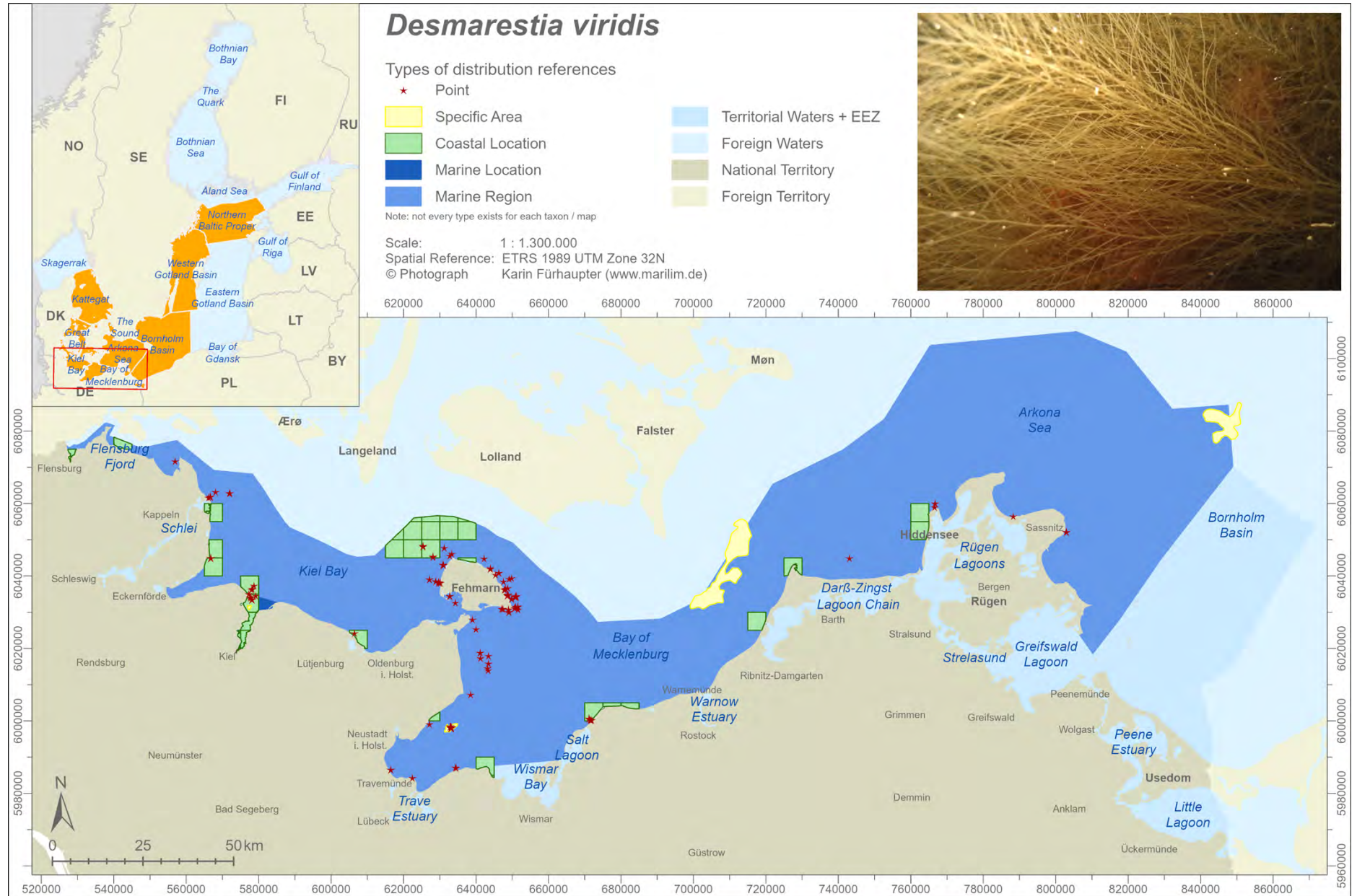
Ecology	
Substrate	hard bottom and animals – stones, gravel, blue mussels (dead shells and live mussels)
Attachment	epilithic and epizoic
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – only above 12–15 psu when considering vertical zonation (brackish water submergence)
Vertical zone	lower infralittoral – between 10 and 30 m depth; records from shallower areas probably from drifting specimens washed to the shoreline
Exposure	moderately to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
a typical species of deep offshore, stony areas with higher salinities	
References	
33 46 53 54 64 81 82 90 95 141 149 190 206	



## *Desmarestia viridis* (O.F. Müller) J.V. Lamouroux, 1813

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Desmarestiales
Family	Desmarestiaceae
Subspecies	–
Synonyms	<i>Chordaria viridis</i> (O.F. Müller) C. Agardh, 1817 <i>Dichloria viridis</i> (O.F. Müller) Greville, 1830 <i>Fucus viridis</i> O.F. Müller, 1782 <i>Gigartina viridis</i> (O.F. Müller) Lyngbye, 1819 <i>Hyalina viridis</i> (O.F. Müller) Kuntze, 1891 <i>Spinularius viridis</i> (O.F. Müller) Ruprecht, 1850 <i>Sporochnus viridis</i> (O.F. Müller) Greville, 1830
Distribution	
Baltic Sea	western and central Baltic Sea – from Kattegat to Northern Baltic Proper (DE, DK, SE) with exception of Bay of Gdansk, Eastern Gotland Basin and Gulf of Riga
German Baltic Sea	many records along the western open coastline and onoffshore stony rises and bottoms – from Flensburg to Kühlungsborn (Flensburg Fjord, Kiel Bay, Bay of Mecklenburg); east of Kühlungsborn respectively lesser records – Bay of Mecklenburg (Fischland, Kadett Channel), Arkona Sea (Darß, Zingst, Kloster – open west coast of Island Hiddensee, north of Hiddensee, Arkona, Jasmund, Adlergrund)

Ecology	
Substrate	hard bottom and plants or animals – stones, blue mussels (dead shells and live mussels) and on larger algae ( <i>Fucus</i> )
Attachment	epilithic and epiphytic/epizoic
Salinity	$\beta$ -mesohaline to euhaline (fully marine) – only above 8 psu when considering vertical zonation (brackish water submergence)
Vertical zone	upper to lower infralittoral – from 1 to about 30 m depth
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
a characteristic spring/early summer species, which may have already disappeared during the usual monitoring period in summer/ late summer	
References	
19 33 40 46 52 53 54 81 82 93 95 104 111 121 132 133 149 151 203 204 206	

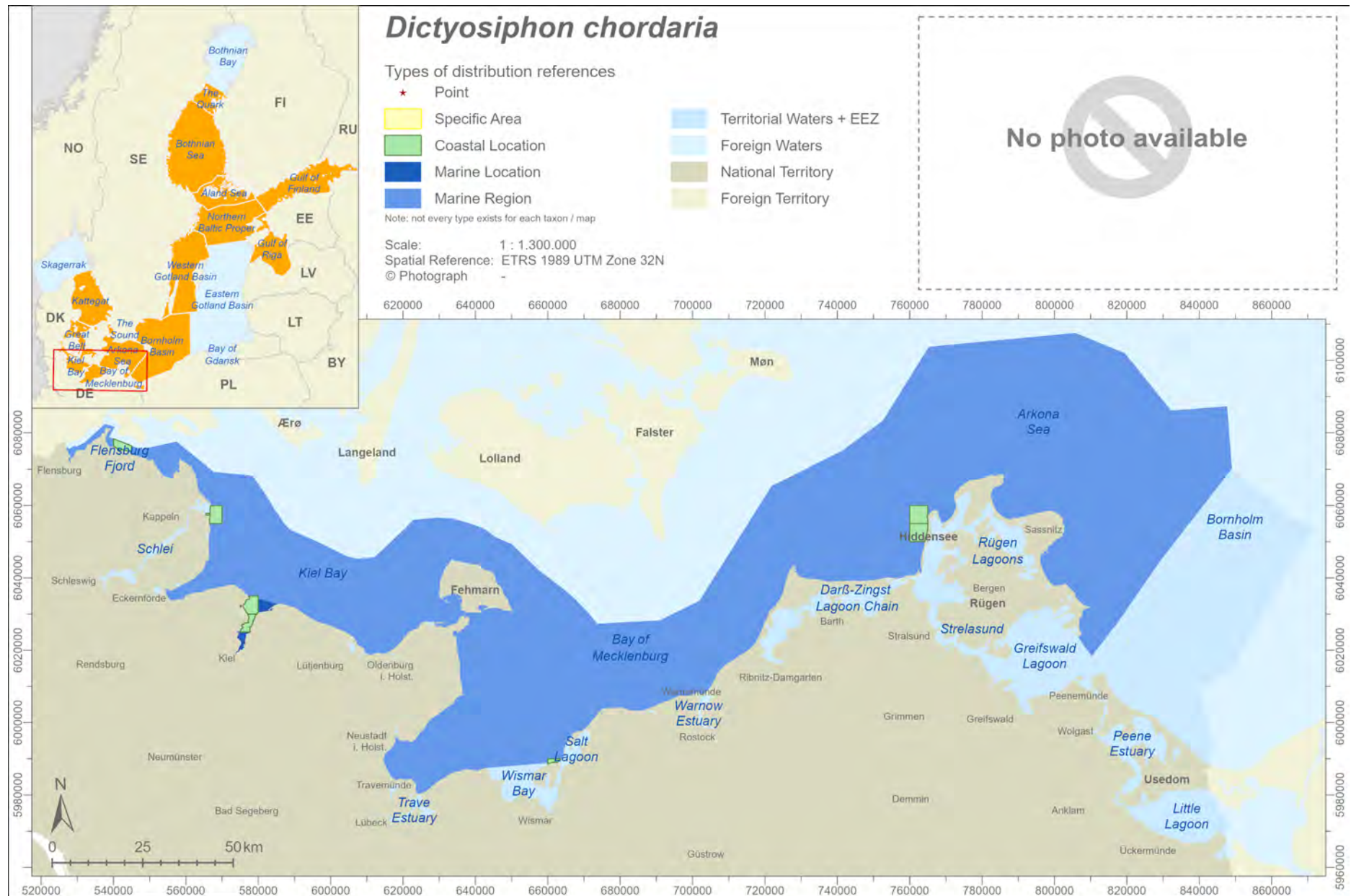


## *Dictyosiphon chordaria* Areschoug, 1847

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Ectocarpales
Family	Chordariaceae
Subspecies	–
Synonyms	<i>Chordaria baltica</i> (Gobi) Gobi, 1879 <i>Cladosiphon balticus</i> Gobi, 1874 <i>Coilonema chordarium</i> (Areschoug) Areschoug, 1882 <i>Dictyosiphon balticus</i> (Gobi) Du Rietz, 1930 <i>Gobia baltica</i> (Gobi) Reinke, 1889 <i>Scytosiphon chordarius</i> (Areschoug) Fries, 1845
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of northeasternmost part and some central parts – from Kattegat to Bothnian Sea / The Quark with exception of Bay of Gdansk, Eastern Gotland Basin (all neighbouring countries apart of LT, PL); records from Bothnian Bay in Nielsen 1995 (148) could not be verified
German Baltic Sea	few, exclusively historical records along the open coastline – Flensburg Fjord (Langballigau), Kiel Bay (Friedrichsort, Bülk, Strande, Kiel Fjord), Bay of Mecklenburg (west coast Island Langenwerder), Arkona Sea (Kloster – open west coast of Island Hiddensee)

Ecology	
Substrate	hard bottom and plants or animals – smaller stones, blue mussels (dead shells and live mussels) and on various algae ( <i>Furcellaria</i> )
Attachment	epilithic and epiphytic/epizoic
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – only a single record from lower salinities
Vertical zone	upper to lower Infralittoral – from 2 to about 25 m depth
Exposure	(very) sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
References	
81 82 95 121 141 172 190 206	

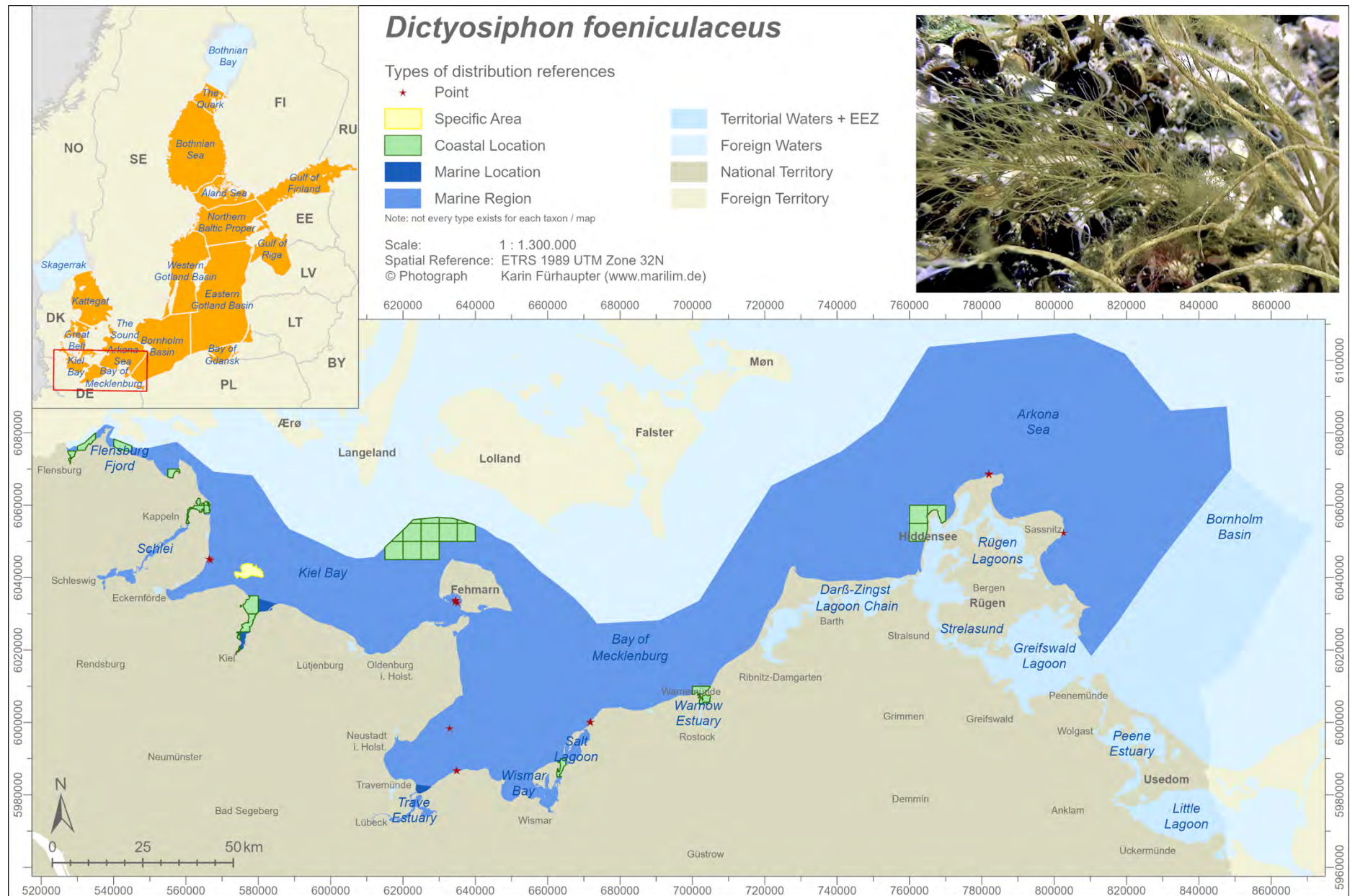




## *Dictyosiphon foeniculaceus* (Hudson) Greville, 1830

Taxonomy	
<i>Phylum</i>	Heterokontophyta
<i>Class</i>	Phaeophyceae
<i>Order</i>	Ectocarpales
<i>Family</i>	Chordariaceae
<i>Subspecies</i>	–
<i>Synonyms</i>	<i>Conferva foeniculacea</i> Hudson, 1762 <i>Dictyosiphon corymbosus</i> Kjellman, 1883 <i>Dictyosiphon hippuroides</i> (Lyngbye) Kützing, 1856 <i>Scytosiphon foeniculaceus</i> (Hudson) C. Agardh, 1811
Distribution	
<i>Baltic Sea</i>	entire Baltic Sea coastline with exception of northeasternmost part – from Kattegat to Bothnian Sea / The Quark (all neighbouring countries); records from Bothnian Bay in Nielsen 1995 (148) could not be verified
<i>German Baltic Sea</i>	several records along the open coastline and offshore rises – Flensburg Fjord (Flensburg, Glücksburg, Gelting), Kiel Bay (Boknis Eck, Stollergrund, various locations in Kiel Fjord, Fehmarnbelt), Bay of Mecklenburg (Walkyrjengrund, Travemünde, Rerik, Warnemünde), Arkona Sea (west and north of Island Hiddensee, Arkona, Jasmund); few records in coastal bays – Schlei (Schlei-münde to Kappeln, Orth Bay, Wismar Bay/Salt Lagoon (east coast Island Langenwerder)

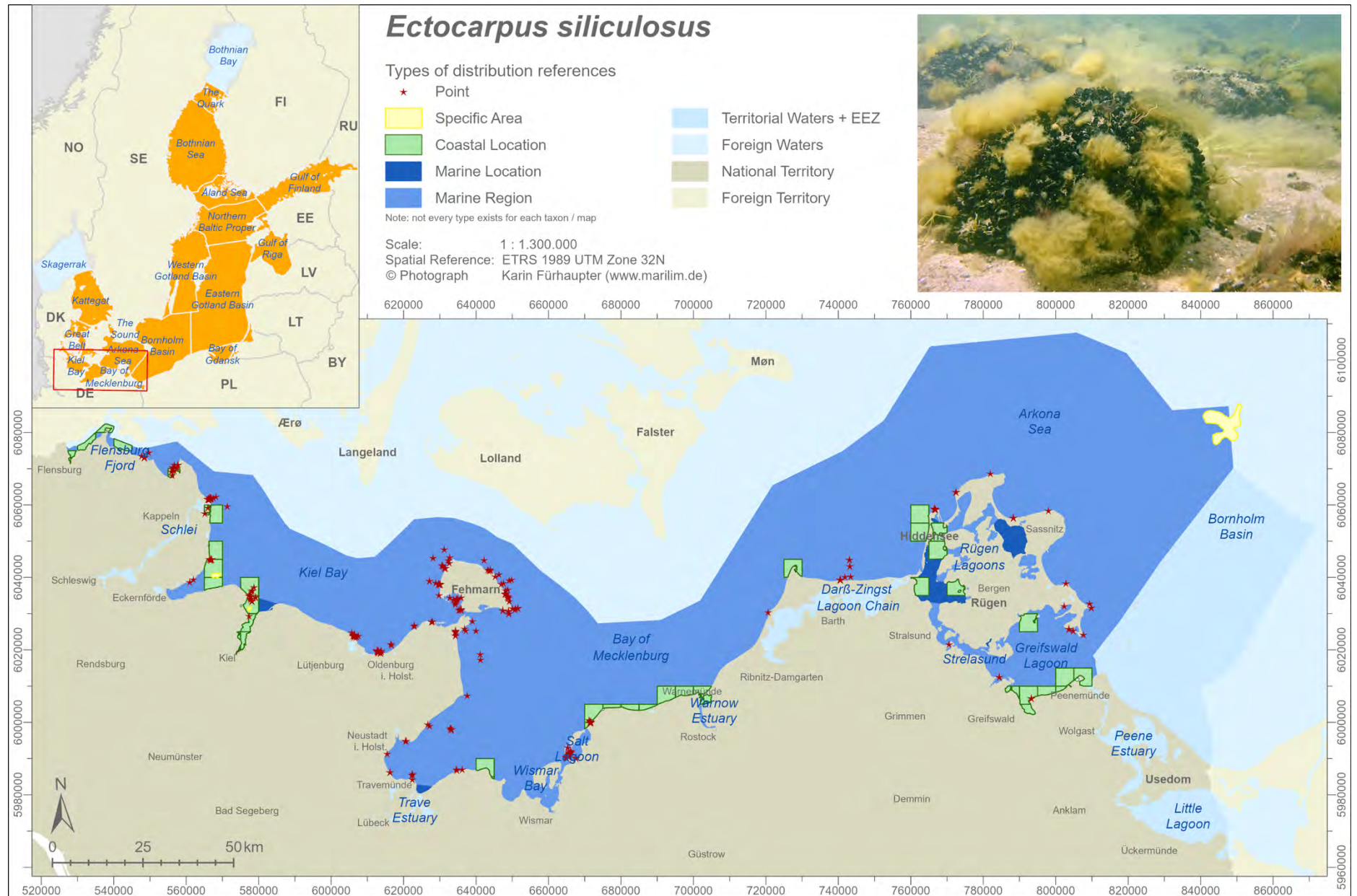
Ecology	
<i>Substrate</i>	hard bottom and plants or animals – boulders, stones, wood, blue mussels (dead shells and live mussels) and on various larger algae ( <i>Coccotylus</i> , <i>Fucus</i> )
<i>Attachment</i>	epilithic and epiphytic/epizoic
<i>Salinity</i>	$\beta$ -mesohaline to euhaline (fully marine)
<i>Vertical zone</i>	hydrolittoral to upper infralittoral – from 0,5 to about 4 m depth; two records from stony rise in deeper areas
<i>Exposure</i>	very sheltered to very exposed
Conservation	
<i>Red List</i>	<b>LC</b> (Baltic Sea), <b>2</b> (DE)
<i>Threats</i>	–
Remarks	
many (older) records on shallow, exposed stony harbour piers and coastal protection structures, which are recently rarely part of macrophyte surveys	
References	
25 33 46 53 81 82 95 121 127 141 142 149 151 153 159 164 165 172 190 206	



## *Ectocarpus siliculosus* (Dillwyn) Lyngbye, 1819

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Ectocarpales
Family	Ectocarpaceae
Subspecies	<i>Ectocarpus siliculosus</i> var. <i>dasycarpus</i> (Kuckuck) Gallardo, 1992
Synonyms	<i>Ceramium confervoides</i> Roth, 1797 <i>Ceramium siliculosum</i> (Dillwyn) C. Agardh, 1811 <i>Ectocarpus confervoides</i> Le Jolis, 1863 <i>Ectocarpus confervoides</i> var. <i>siliculosus</i> (Dillwyn) Farlow, 1881
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of northeasternmost part – from Kattegat to Bothnian Sea / The Quark (all neighbouring countries); records from Bothnian Bay in Nielsen 1995 (148) could not be verified
German Baltic Sea	along the entire open, exposed water coastline and on several offshore rises – from Flensburg to the Island Rügen and to the offshore rise Adlergrund at the German/Polish offshore border; in several outer parts of coastal bays, estuaries and lagoons – Schlei (only Maas-holmer Breite), Wismar Bay/Salt Lagoon, Rügen Lagoons, Strelasund, Greifswald Lagoon

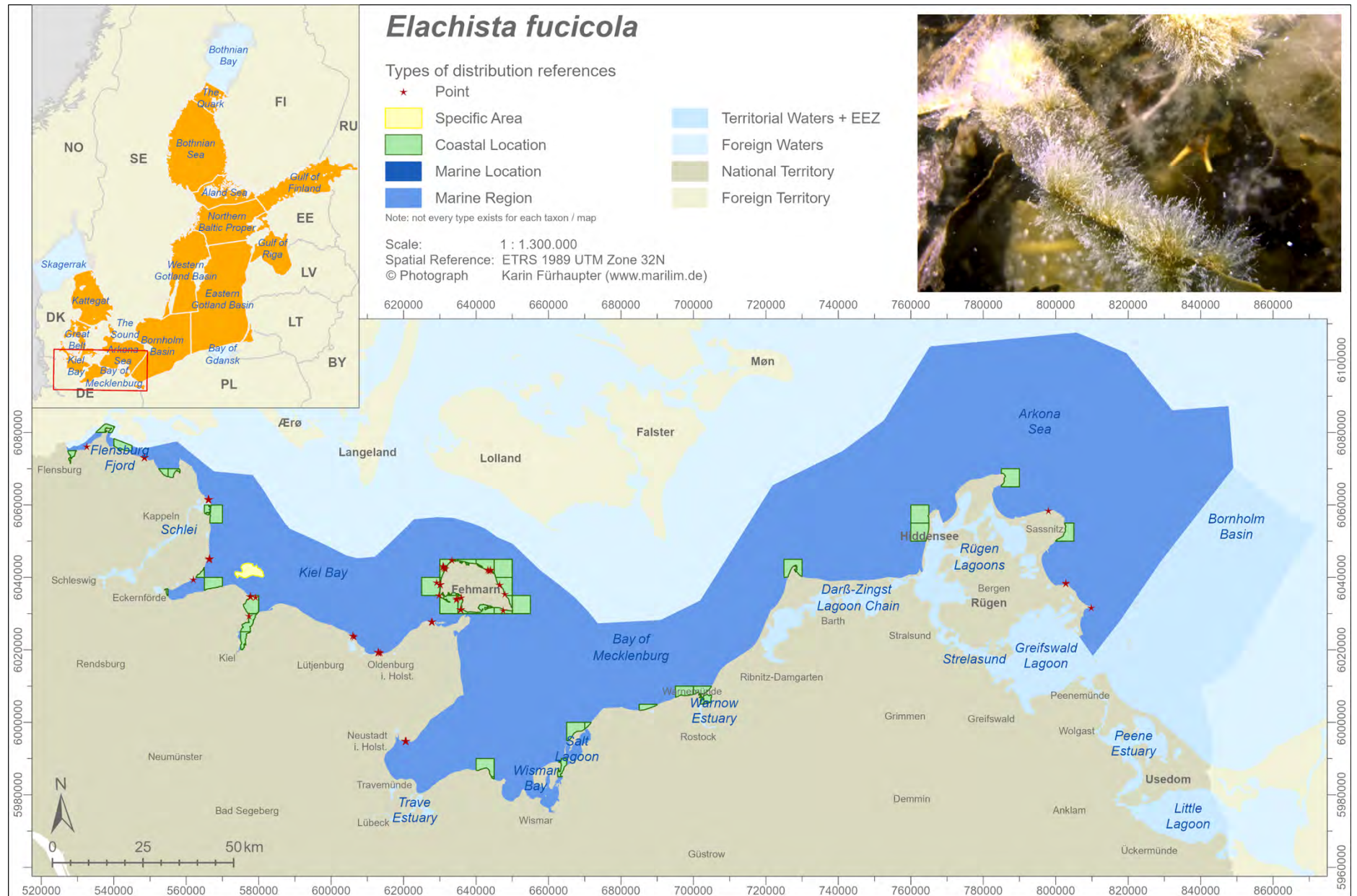
Ecology	
Substrate	hard bottom and plants or animals – boulders, stones, pebbles, gravel, wood, blue mussels (dead shells and live mussels) and on various plants ( <i>Zostera</i> , <i>Chorda</i> , <i>Fucus</i> )
Attachment	epilithic and epiphytic/epizoic
Salinity	$\beta$ -mesohaline to euhaline (fully marine) – probably above 7–8 psu when considering locations in coastal lagoons
Vertical zone	hydrolittoral to upper and lower infralittoral – from 1 to about 30 m depth; only few and exclusively historic records from deeper than 10 m
Exposure	very sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
unfertile specimens can be confused with <i>Pylaiella littoralis</i>	
References	
11 31 34 40 46 48 52 53 54 61 63 64 65 68 81 82 90 92 95 113 121 126 127 131 132 133 139 149 151 152 153 159 164 165 170 180 187 191 206 211 239	



## *Elachista fucicola* (Velley) Areschoug, 1842

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Ectocarpales
Family	Chordariaceae
Subspecies	–
Synonyms	<i>Conferva flaccida</i> Hornemann, 1827 <i>Conferva flaccida</i> Dillwyn, 1809 <i>Conferva fucicola</i> Velley, 1795 <i>Elachista globosa</i> Ørsted, 1844 <i>Elachista grevillei</i> Arnott ex Harvey, 1857 <i>Elachista lubrica</i> Ruprecht, 1850
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of northeasternmost part – from Kattegat to Bothnian Sea / The Quark (all neighbouring countries but PL); records from Bay of Gdansk in Nielsen 1995 (148) could not be verified
German Baltic Sea	many findings along the western part of the open, exposed coastline and onoffshore stony rises – between Flensburg and Warnemünde (Flensburg Fjord, Kiel Bay, Bay of Mecklenburg); few records along the eastern open coastline – Arkona Sea (Darß, Kloster – open west coast of Island Hiddensee, Arkona, Jasmund); rarely in outer parts of coastal bays, estuaries, and lagoons (Schlei, Wismar Bay, Salt Lagoon)

Ecology	
Substrate	plants – larger algae, predominantly <i>Fucus</i>
Attachment	epiphytic
Salinity	$\beta$ -mesohaline to euhaline (fully marine) – only few records from lower salinities
Vertical zone	upper Infralittoral – <i>Fucus</i> zone
Exposure	(very) sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>V</b> (DE)
Threats	–
Remarks	
a decrease in abundance of the basiphyt <i>Fucus</i> (particularly <i>Fucus serratus</i> ) in the eastern part likely explains the lack of recent records east of Fehmarn	
References	
11 31 40 45 46 48 53 54 64 81 82 90 95 115 121 132 133 139 141 149 153 159 164 170 172 178 187 192 206	



## *Eudesme virescens* (Carmichael ex Berkeley) J. Agardh, 1882

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Ectocarpales
Family	Chordariaceae
Subspecies	–
Synonyms	<i>Aegira virescens</i> (Carmichael ex Harvey) Setchell & N.L. Gardner, 1924 <i>Castagnea virescens</i> (Carmichael ex Harvey) Thuret, 1863 <i>Helminthocladia virescens</i> (Carmichael ex Berkeley) Harvey, 1841 <i>Mesogloia virescens</i> Carmichael ex Berkeley, 1833
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of northeastern and a central part – from Kattegat to Bothnian Sea / The Quark (all neighbouring countries apart from LT, PL); records from Bay of Gdansk in Nielsen 1995 (148) could not be verified
German Baltic Sea	several records along the open, exposed coastline and onoffshore stony rises – Flensburg Fjord (Neukirchengrund, Gelting), Kiel Bay (vari- ous locations in Kiel Fjord), Bay of Mecklenburg (Kühlungsborn, Warnemünde), Arkona Sea (NW Island Hiddensee, Adlergrund); a single record in a coastal bay – Wismar Bay (Wal- fisch)

Ecology	
Substrate	hard bottom and plants or animals – boulders, stones, smaller stones, blue mussels (dead shells and live mussels) and on algae and <i>Zos- tera marina</i>
Attachment	epilithic and epiphytic/epizoic
Salinity	$\beta$ -mesohaline to euhaline (fully marine) – prob- ably above 8 psu when considering vertical zo- nation (brackish water submergence)
Vertical zone	hydrolittoral to upper and lower infralittoral – from 0,5 to about 15 m depth
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>3</b> (DE)
Threats	–
Remarks	
a characteristic spring/early summer species, which may have already disappeared during the usual monitoring pe- riod in summer/ late summer	
References	
33 40 46 64 81 82 90 95 104 121 133 164 165 190 206	

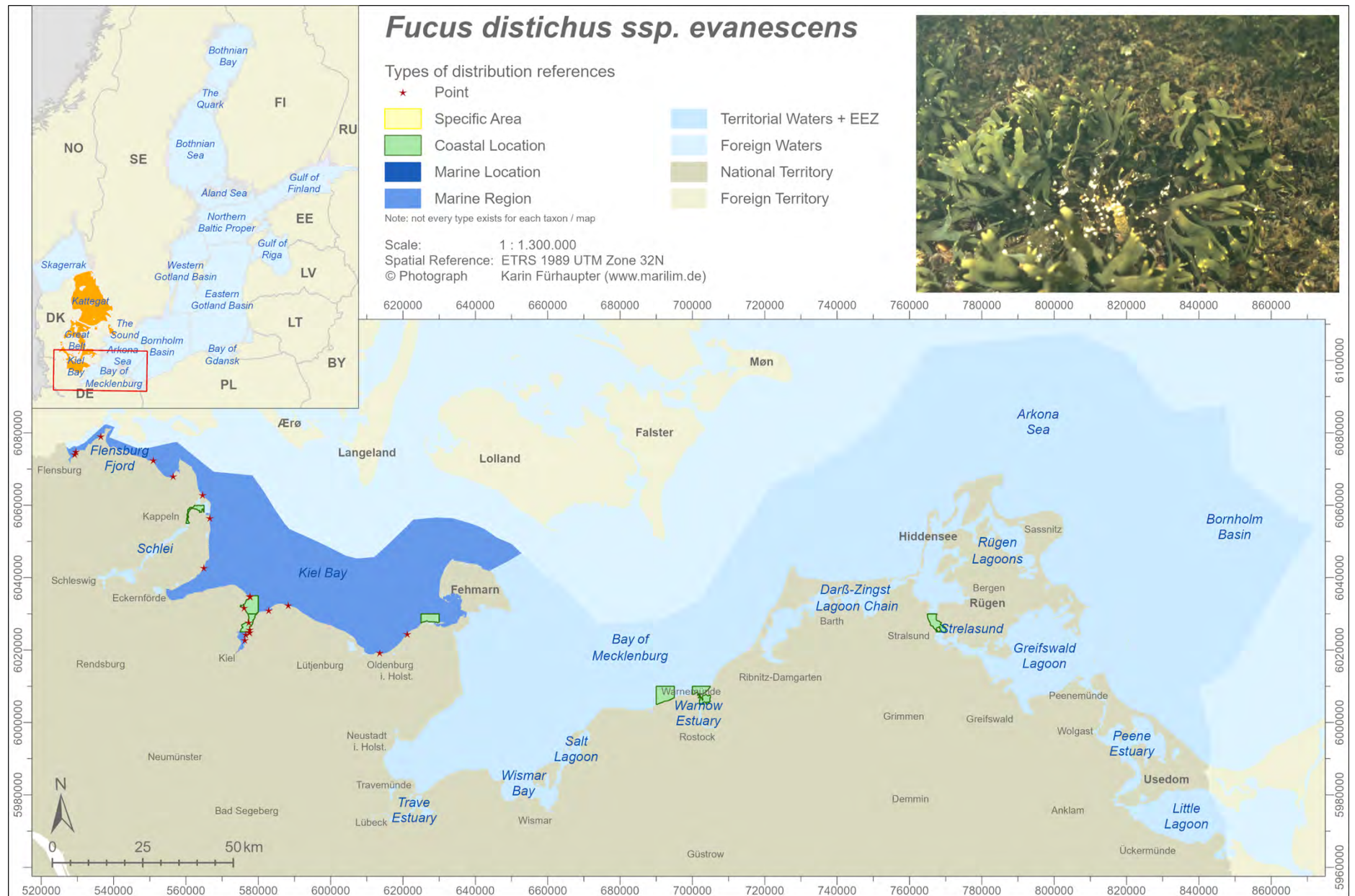




## *Fucus distichus* ssp. *evanescens* (C. Agardh) H.T. Powell, 1957

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Fucales
Family	Fucaceae
Subspecies	–
Synonyms	<i>Fucus bursigerus</i> J. Agardh, 1868 <i>Fucus distichus</i> f. <i>latifrons</i> (Foslie) Petrov, 1965 <i>Fucus edentatus</i> f. <i>angustior</i> Bachelot de la Py-laie, 1829 <i>Fucus evanescens</i> C. Agardh, 1820 <i>Fucus vesiculosus</i> var. <i>inflatus</i> (Linnaeus) C. Agardh, 1810
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Kiel Bay (DE, DK)
German Baltic Sea	as neophyte only recent records along the western open coastline up to Fehmarn – Flensburg Fjord (Flensburg, Fahrensodde, Holnis, Habernis, Gelting), Kiel Bay (Oehe-Schleimünde, Schönhagen, Waabs, various locations in Kiel Fjord, Eitzgrund, Blankeck, Heiligenhafen); a single record in an outer coastal lagoon – Schlei (Olpenitz); specimens without clear assignment to subspecies level were recorded within the last decade also east of Fehmarn – Bay of Mecklenburg (Warnemünde, Börgerende) and a single record in an eastern coastal lagoon (Strelasund),

Ecology	
Substrate	hard bottom and animals – stones, blue mussels (live mussels) and artificial hard bottoms
Attachment	epilithic and epizoic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	hydrolittoral to upper infralittoral – shallower than 1,5 m
Exposure	(very) sheltered to exposed
Conservation	
Red List	<b>NA</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
neophyte with a first record for the German Baltic Sea in 1990 in Flensburg Fjord; since then, slowly spreading eastwards with some “suspected specimens” east of Fehmarn; remaining taxonomic uncertainties (with <i>F. edentates</i> ), as well as phenological and morphological variabilities (39) and possible hybridisation in <i>Fucus</i> species impede a clear assignment of the distribution status for this species	
References	
39 53 55 81 82 122 123 177 194 206 213	



## *Fucus serratus* Linnaeus, 1753

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Fucales
Family	Fucaceae
Subspecies	–
Synonyms	<i>Fucus serratus</i> f. <i>abbreviatus</i> Kjellman, 1883 <i>Fucus serratus</i> f. <i>angustus</i> Kjellman, 1883 <i>Fucus serratus</i> f. <i>arcticus</i> (J. Agardh) Kjellman, 1880 <i>Fucus serratus</i> f. <i>elongatus</i> Kjellman, 1890 <i>Fucus serratus</i> f. <i>laciniatus</i> Kjellman, 1890 <i>Halidrys serrata</i> (Linnaeus) Stackhouse, 1809
Distribution	
Baltic Sea	western and one area of the central Baltic Sea – from Kattegat to Western Gotland Basin (DE, DK, SE); records from Eastern Gotland Basin in Nielsen 1995 (148) could not be verified
German Baltic Sea	numerous findings along the western open, exposed coastline and onoffshore stony rises – between Flensburg and Travemünde (Flensburg Fjord, Kiel Bay, Bay of Mecklenburg); few records along the eastern open coastline – Bay of Mecklenburg (Boltenhagen, Warnemünde), Arkona Sea (north and west of the Island Hiddensee, Dranske, Saßnitz, Tromp and Pror Bight); very rarely in outer parts of coastal bays – Schlei (Maasholm), Wismar Bay (Wal-fisch), Salt Lagoon

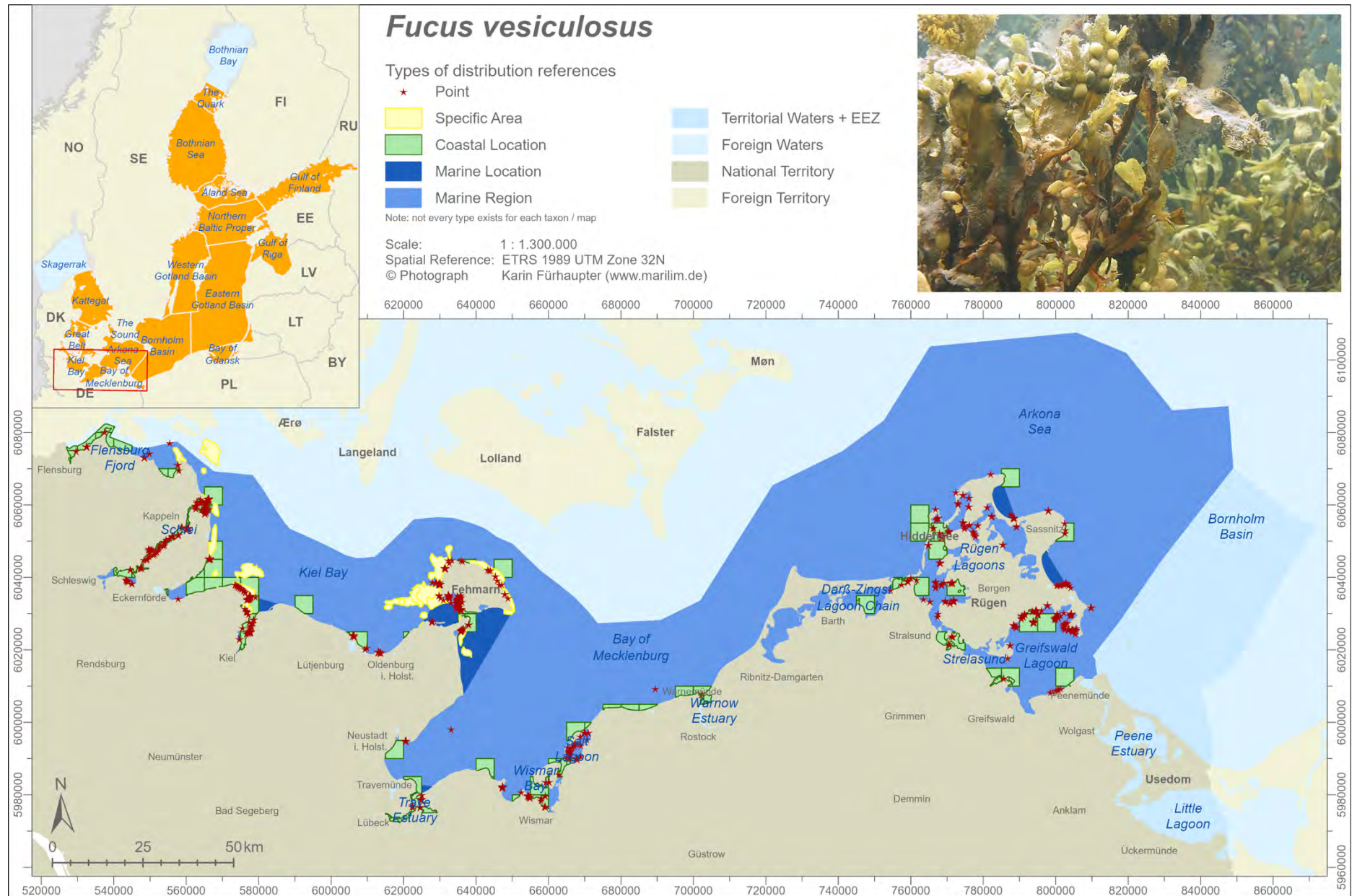
Ecology	
Substrate	hard bottom and animals – boulders, stones, blue mussels (live mussels) and artificial hard bottoms
Attachment	epilithic and epizoic
Salinity	$\beta$ -mesohaline to euhaline (fully marine) – only above 8–10 psu when considering vertical zonation (brackish water submergence)
Vertical zone	upper to lower Infralittoral – from 0,5 to about 15 m depth
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>G</b> (DE)
Threats	–
Remarks	
historical references in the eastern part primarily from deeper areas (brackish water submergence), which recently lack any records of <i>Fucus serratus</i> ; presently only few shallow records remain around the Island Rügen	
References	
5 11 15 19 33 46 53 54 55 64 81 82 86 87 89 90 95 111 115 118 121 127 132 133 139 140 141 149 150 151 153 159 164 165 167 170 171 193 197 206 214 218 227 235 236	



## *Fucus vesiculosus* Linnaeus, 1753

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Fucales
Family	Fucaceae
Subspecies	–
Synonyms	<i>Fucus balticus</i> C. Agardh, 1814 <i>Fucus divaricatus</i> Linnaeus, 1753 <i>Fucus inflatus</i> Linnaeus, 1753 <i>Fucus vesiculosus</i> f. <i>balticus</i> (C. Agardh) Dan- nenberg, 1927 <i>Fucus vesiculosus</i> f. <i>filiformis</i> (C. Agardh) Kjell- man, 1890 <i>Fucus vesiculosus</i> f. <i>pseudoceranoides</i> (Areschoug) Kleen, 1874
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of northeasternmost part – from Kattegat to Both- nian Sea / The Quark (all neighbouring coun- tries); records from Bothnian Bay in Nielsen 1995 (148) could not be verified
German Baltic Sea	numerous records along the open coastline and on many western offshore stony bottoms – from Flensburg to the east coast of Rügen (Granitz); in all coastal bays, estuaries and la- goons with exception of Peene Estuary, and Little Lagoon; in eastern lagoons a mixture of attached specimens and unattached “mor- photype”

Ecology	
Substrate	hard bottom, soft bottom, animals – boulders, stones, wood, blue mussels (live mussels), artifi- cial hard bottom; specific unattached “mor- photype” type also on sandy mud
Attachment	epilithic and epizoic; unattached type loosely anchored or drifting/rolling at the bottom
Salinity	( $\alpha$ -oligohaline) $\beta$ -mesohaline to euhaline (fully marine); unattached type – $\beta$ -mesohaline
Vertical zone	hydrolittoral to upper infralittoral – from shore- line to about 10 m depth; recently mainly be- tween 0,5 and 3 m
Exposure	(extremely) very sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>V</b> (DE)
Threats	–
Remarks	
particular unattached “morphotype”, partly “ball-like” in eastern coastal lagoons – clear evidence of this morphotype is illustrated in a separate map ( <a href="#">Section Distribution maps (below species level), p. 368</a> )	
References	
5* 11 15 22 31 34 37 40 44 45 46 48 49 51 52* 53* 54 55 58 60 61 63 64 65 68 69 76 81 82 86 87 89 90 92 95 100 104 105 106 108 111 113* 115 116 118 121 126 127 128 129 131 132 133 137 139 140 141 142 145 149 150 151 153 159* 164 165* 166 167 170 171 172 173 178 180 188 190 191 192 193 194 197 204 206 211 218 220 227 229 235 236 239* 244 247 *referencing also unattached type	

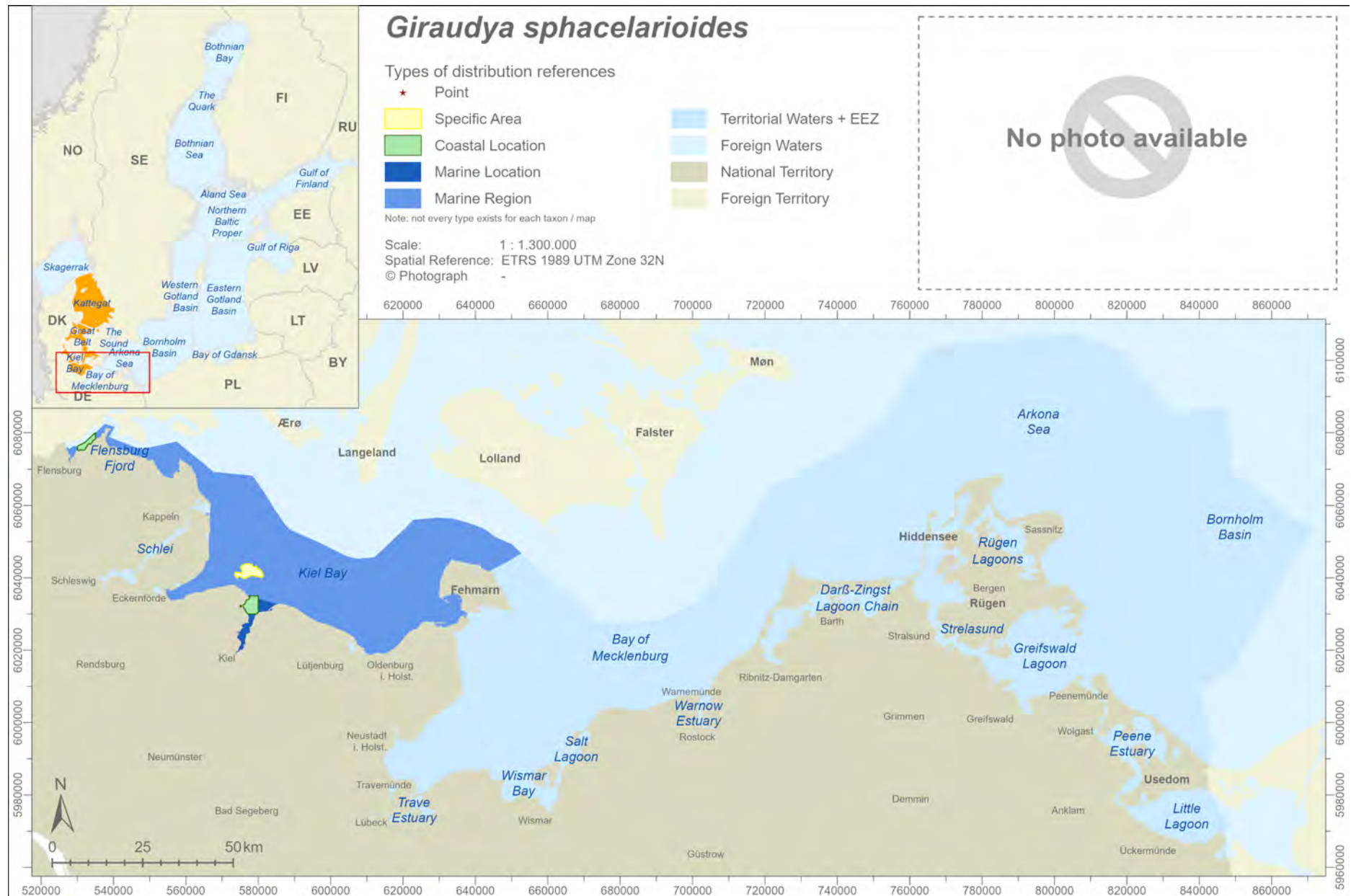


## *Giraudya spachelarioides* Derbes & Solier, 1851

Taxonomy	
<i>Phylum</i>	Heterokontophyta
<i>Class</i>	Phaeophyceae
<i>Order</i>	Ectocarpales
<i>Family</i>	Chordariaceae
<i>Subspecies</i>	–
<i>Synonyms</i>	
Distribution	
<i>Baltic Sea</i>	western Baltic Sea – from Kattegat to Kiel Bay (DE, DK)
<i>German Baltic Sea</i>	five, exclusively historical records along the westernmost part of the German coastline with highest salinities – Flensburg Fjord (Glücksburg), Kiel Bay (Stollergrund, various locations in Kiel Fjord)

Ecology	
<i>Substrate</i>	hard bottom and plants – stones and on various algae and <i>Zostera marina</i>
<i>Attachment</i>	epilithic and epiphytic
<i>Salinity</i>	$\alpha$ -mesohaline to euhaline (fully marine)
<i>Vertical zone</i>	upper to lower infralittoral – from 2 to about 12 m depth
<i>Exposure</i>	sheltered to exposed
Conservation	
<i>Red List</i>	<b>LC</b> (Baltic Sea), <b>D</b> (DE)
<i>Threats</i>	–
Remarks	
borderline species to fully marine conditions, only randomly part of the German Baltic Sea flora	
References	
81 82 95 190 206	





## *Halidrys siliquosa* (Linnaeus) Lyngbye, 1819

Taxonomy	
<i>Phylum</i>	Heterokontophyta
<i>Class</i>	Phaeophyceae
<i>Order</i>	Fucales
<i>Family</i>	Sargassaceae
<i>Subspecies</i>	–
<i>Synonyms</i>	<i>Cystoseira siliquosa</i> (Linnaeus) C. Agardh, 1820 <i>Fucus siliculosus</i> Stackhouse, 1796 <i>Fucus siliquosus</i> Linnaeus, 1753 <i>Halidrys siliquosa</i> ssp. <i>siliculosus</i> (Stackhouse) Batters, 1902 <i>Halidrys siliquosa</i> var. <i>denudata</i> Lyngbye, 1819 <i>Halidrys siliquosa</i> var. <i>evesiculosa</i> J. Agardh, 1836
Distribution	
<i>Baltic Sea</i>	western Baltic Sea – from Kattegat to Arkona Sea (DE, DK), German records from Kiel Bay to Arkona Sea only drift material; records from Bornholm Basin in Nielsen 1995 (148) could not be verified
<i>German Baltic Sea</i>	various records along the open coastline up to Hiddensee, but most records from specimens washed ashore or in dredge samples

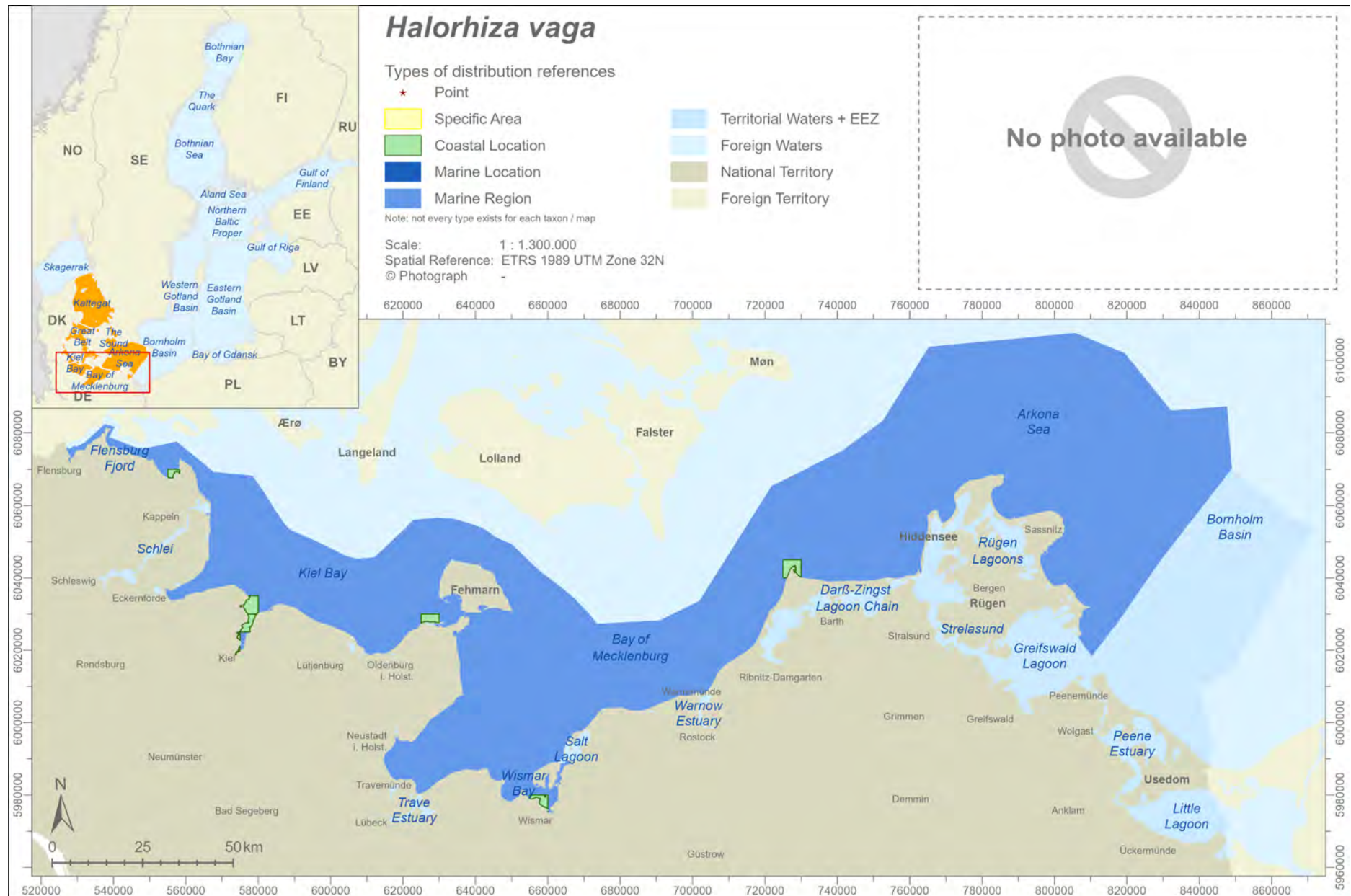
Ecology	
<i>Substrate</i>	hard bottom – boulders, stones
<i>Attachment</i>	epilithic
<i>Salinity</i>	polyhaline to euhaline (fully marine)
<i>Vertical zone</i>	upper (to lower) infralittoral – from 1 to 5 m depth; only a single record from 10 m depth
<i>Exposure</i>	sheltered to very exposed
Conservation	
<i>Red List</i>	<b>LC</b> (Baltic Sea), <b>1</b> (DE)
<i>Threats</i>	–
Remarks	
some of the historical records explicitly mention drifting specimens washed onshore; borderline species to fully marine conditions; only randomly part of the German Baltic Sea flora	
References	
23 46 64 81 82 95 104 115 121 127 169 190 206	



## Halorhiza vaga Kützing, 1843

Taxonomy	
<i>Phylum</i>	Heterokontophyta
<i>Class</i>	Phaeophyceae
<i>Order</i>	Ectocarpales
<i>Family</i>	Chordariaceae
<i>Subspecies</i>	–
<i>Synonyms</i>	
Distribution	
<i>Baltic Sea</i>	western Baltic Sea – from Kattegat to Arkona Sea (DE, DK)
<i>German Baltic Sea</i>	six, exclusively historical records along the western open coastline – Flensburg Fjord (Gelt-ing), Kiel Bay (various locations in Kiel Fjord), Bay of Mecklenburg/Arkona Sea (Darßer Ort); a single record in a coastal bay – Wismar Bay (Walfisch)

Ecology	
<i>Substrate</i>	plants – on <i>Fucus</i>
<i>Attachment</i>	epiphytic
<i>Salinity</i>	$\alpha$ -mesohaline to euhaline (fully marine)
<i>Vertical zone</i>	hydrolittoral to upper infralittoral
<i>Exposure</i>	sheltered to very exposed
Conservation	
<i>Red List</i>	<b>NE</b> (Baltic Sea), <b>D</b> (DE)
<i>Threats</i>	–
Remarks	
borderline species to fully marine conditions, only occasional part of the German Baltic Sea flora	
References	
81 82 95 187 190 206	



## *Halosiphon tomentosus* (Lyngbye) Jaasund, 1957

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Tilopteridales
Family	Halosiphonaceae
Subspecies	–
Synonyms	<i>Chorda abbreviata</i> Areschoug, 1875 <i>Chorda filum</i> f. <i>abbreviata</i> (Areschoug) A.D. Zinova, 1953 <i>Chorda filum</i> var. <i>tomentosa</i> (Lyngbye) Areschoug, 1847 <i>Chorda tomentosa</i> Lyngbye, 1819 <i>Scytosiphon filum</i> var. <i>tomentosus</i> (Lyngbye) C. Agardh, 1820
Distribution	
Baltic Sea	western and central Baltic Sea – from Kattegat to Gulf of Finland with exception of Bay of Gdansk, Eastern Gotland Basin (DE, DK, EE, SE); records from Åland and Archipelago Sea in Nielsen 1995 (148) could not be verified
German Baltic Sea	many records along the western part of the open coastline up to the east coast of Fehmarn and Dahme; fewer records along the eastern open coastline up to the east coast of Rügen (Arkona Sea – Nordperd/Göhren) and at two offshore sites (Arkona Sea – Kadett Channel, Adlergrund; only a single record in an outer part of a coastal lagoon – Schlei (Maasholm)

Ecology	
Substrate	hard bottom and animals – stones, smaller stones, gravel, wood, mussels (dead shells and live mussels)
Attachment	epilithic and epizoic
Salinity	$\beta$ -mesohaline to euhaline (fully marine) – down to 6–7 psu
Vertical zone	upper to lower Infralittoral – from 0,5 to about 15 m depth; only few records from deeper 10 m depth
Exposure	(very) sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
can be confused with <i>Chorda filum</i>	
References	
11 15 19 33 44 45 52 53 54 64 81 82 89 90 95 121 132 133 139 140 145 151 204 206	

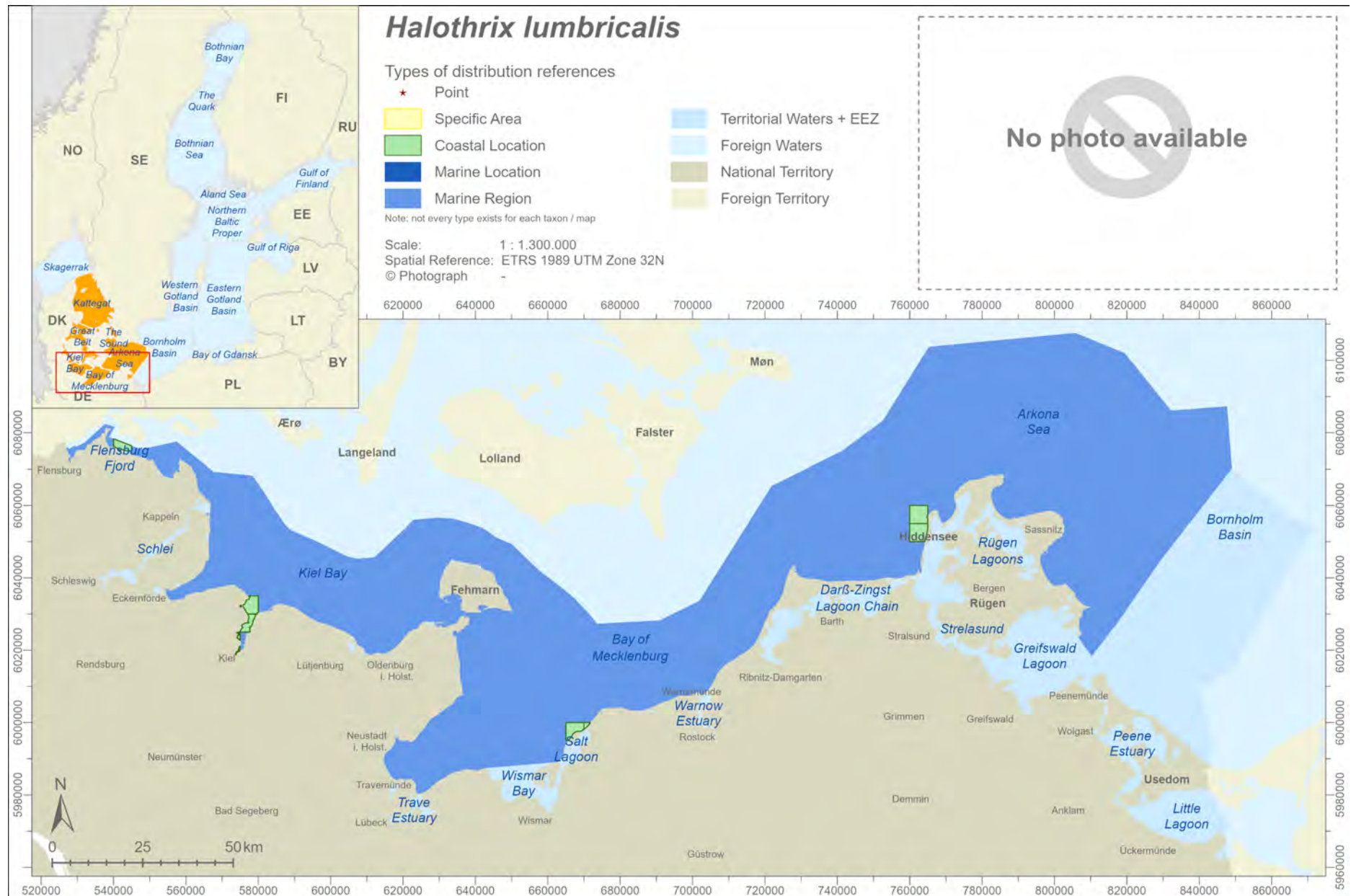


## *Halothrix lumbricalis* (Kützinger) Reinke, 1888

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Ectocarpales
Family	Chordariaceae
Subspecies	–
Synonyms	<i>Ectocarpus lumbricalis</i> Kützinger, 1845 <i>Elachista lumbricalis</i> (Kützinger) Hauck, 1883 <i>Halothrix rectiuscula</i> Y.-P. Lee, 2001
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Arkona Sea (DE, DK)
German Baltic Sea	few, with one exception historical records along the open coastline – Flensburg Fjord (Langballigau), Kiel Bay (various locations in Kiel Fjord), Bay of Mecklenburg (Rerik), Arkona Sea (north-west coast of Hiddensee)

Ecology	
Substrate	plants – on <i>Fucus</i> and <i>Zostera marina</i>
Attachment	epiphytic
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – a single record from lower salinities
Vertical zone	upper infralittoral
Exposure	sheltered to very exposed
Conservation	
Red List	<b>NE</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
borderline species to fully marine conditions, only occasional part of the German Baltic Sea flora	
References	
64 81 82 95 121 180 187 190 206	





## *Haplospora globosa* Kjellman, 1872

Taxonomy	
<i>Phylum</i>	Heterokontophyta
<i>Class</i>	Phaeophyceae
<i>Order</i>	Tilopteridales
<i>Family</i>	Tilopteridaceae
<i>Subspecies</i>	–
<i>Synonyms</i>	<i>Capsicarpella speciosa</i> Kjellman, 1872 <i>Scaphospora arctica</i> Kjellman, 1887 <i>Scaphospora speciosa</i> (Kjellman) Kjellman, 1878
Distribution	
<i>Baltic Sea</i>	western Baltic Sea – from Kattegat to Bay of Mecklenburg (DE, DK, SE)
<i>German Baltic Sea</i>	few, exclusively historical records along the western open coastline – Flensburg Fjord (Neukirchengrund), Kiel Bay (Schleimünde, Bülk, northwest of Fehmarn), Bay of Mecklenburg (Niendorf stony reef, Warnemünde)

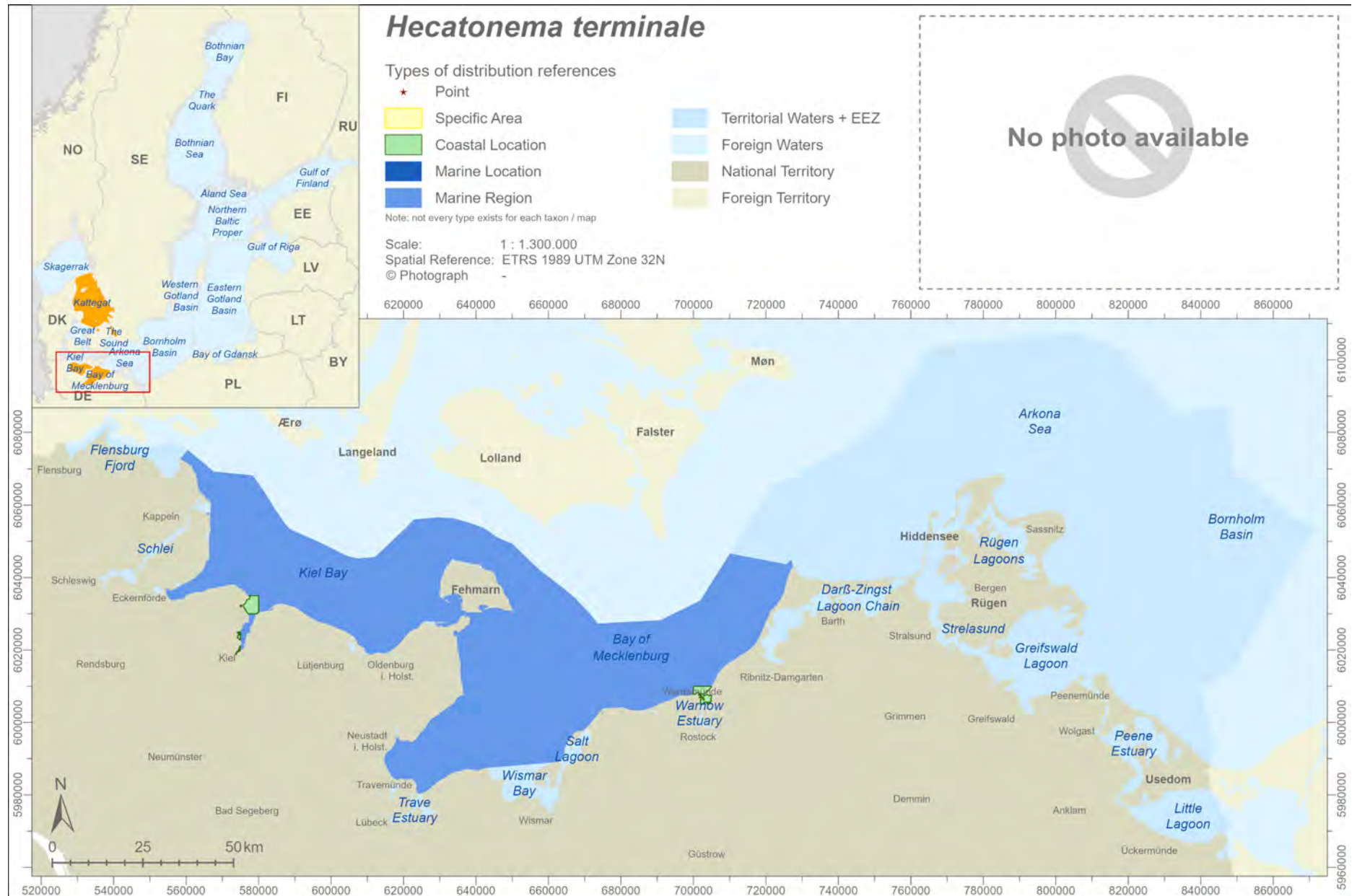
Ecology	
<i>Substrate</i>	hard bottom and rarely plants or animals – stones, blue mussels and algae
<i>Attachment</i>	epilithic and epiphytic/epizoic
<i>Salinity</i>	$\alpha$ -mesohaline to euhaline (fully marine)
<i>Vertical zone</i>	upper to lower Infralittoral – from 5 to about 15 m depth
<i>Exposure</i>	sheltered to very exposed
Conservation	
<i>Red List</i>	<b>LC</b> (Baltic Sea), <b>D</b> (DE)
<i>Threats</i>	–
Remarks	
borderline species to fully marine conditions, only occasional part of the German Baltic Sea flora	
References	
81 82 95 190 206	



## *Hecatonema terminale* (Kützinger) Kylin, 1937

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Ectocarpales
Family	Chordariaceae
Subspecies	–
Synonyms	<i>Ascocyclus major</i> Foslie, 1891 <i>Ectocarpus terminalis</i> Kützinger, 1845 <i>Hecatonema maculans</i> (F.S. Collins) Sauvageau, 1897 <i>Myrionema majus</i> Foslie, 1894 <i>Phycocelis maculans</i> F.S. Collins, 1896
Distribution	
Baltic Sea	unevenly distributed in the transition area to North Sea and western Baltic Sea – Kattegat, The Sound, Kiel Bay, Bay of Mecklenburg (DE, DK); records from Bornholm Basin in Nielsen 1995 (148) could not be verified
German Baltic Sea	three locations along/on the western open coastline up to Warnemünde – Kiel Bay (Kiel, Bülk), Bay of Mecklenburg (Warnemünde); two records from 1889 and one from 1969

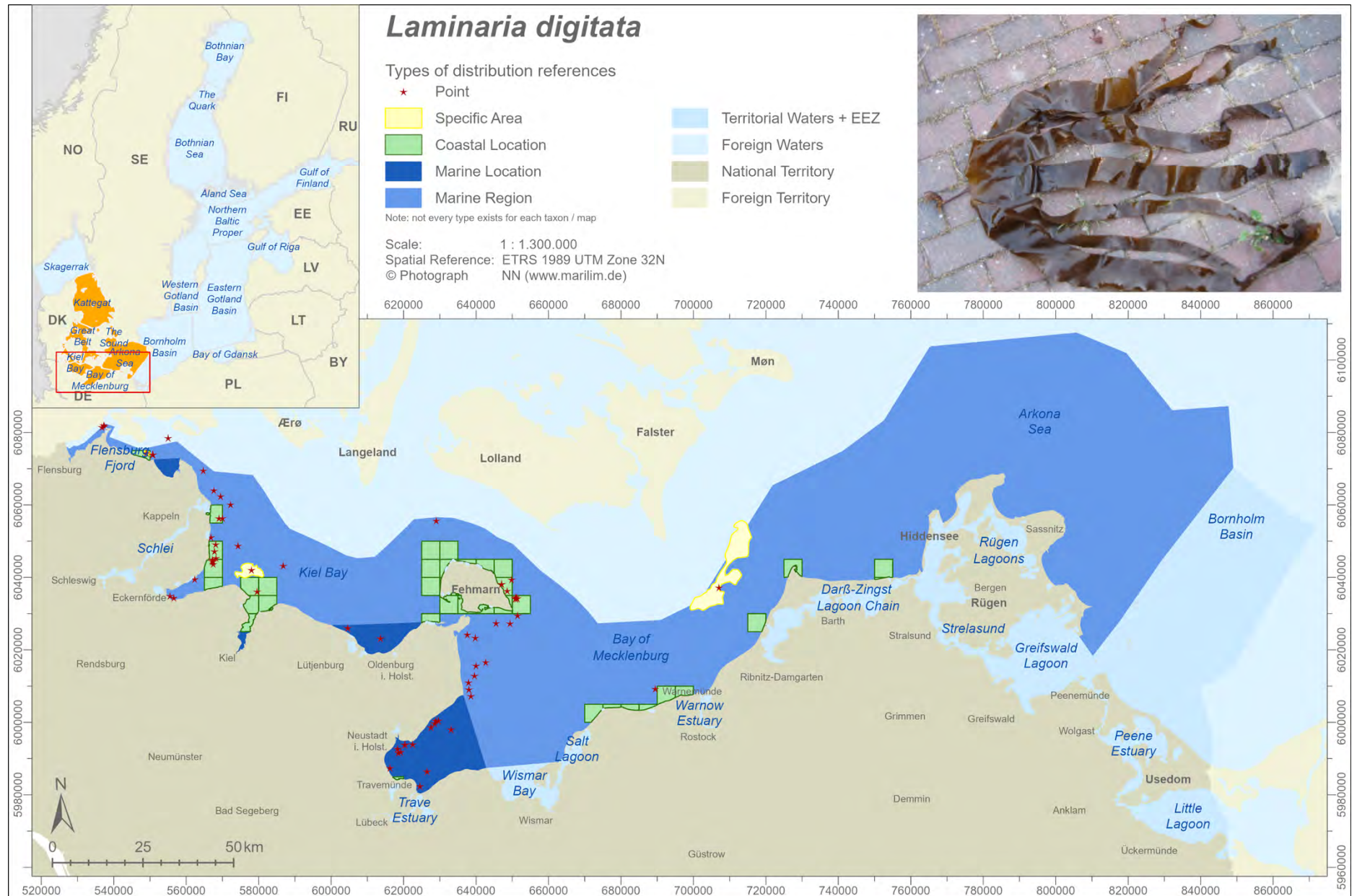
Ecology	
Substrate	hard bottom and plants or animals – stones, blue mussels (dead shells and live mussels) and on various algae ( <i>Fucus</i> )
Attachment	epilithic and epiphytic/epizoic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	upper infralittoral – shallower than 10 m
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>G</b> (DE)
Threats	–
Remarks	
borderline species to fully marine conditions, only randomly part of the German Baltic Sea flora	
References	
81 82 90 95 190 206	



## *Laminaria digitata* (Hudson) J.V. Lamouroux, 1813

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Laminariales
Family	Laminariaceae
Subspecies	–
Synonyms	<i>Fucus digitatus</i> Hudson, 1762 <i>Gigantea digitata</i> (Hudson) Stackhouse, 1816 <i>Laminaria ensifolia</i> Kützinger, 1843 <i>Laminaria flexicaulis</i> Le Jolis, 1855 <i>Laminaria latifolia</i> C. Agardh, 1820 <i>Laminaria phycodendron</i> De la Pylaie, 1824 <i>Saccharina digitata</i> (Hudson) Kuntze, 1891
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Arkona Sea (DE, DK, SE)
German Baltic Sea	many records along the western open, exposed coastline and some offshore stony rises and bottoms up to Darß; only two records east of Darß; observations at coastal sites primarily from drifting specimens washed ashore

Ecology	
Substrate	hard bottom and animals – stones, blue mussels (dead shells and live mussels)
Attachment	epilithic and epizoic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine) – only above 12-15 psu when considering vertical zonation (brackish water submergence)
Vertical zone	upper to lower Infralittoral – from 7 to about 30 m depth
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
some historical maps did not distinguish between <i>Saccharina latissima</i> and <i>Laminaria digitata</i> , in such cases locations were assigned to both taxa	
References	
15 19 46 53 54 64 73 81 82 90 95 104 115 127 141 148 190 206	

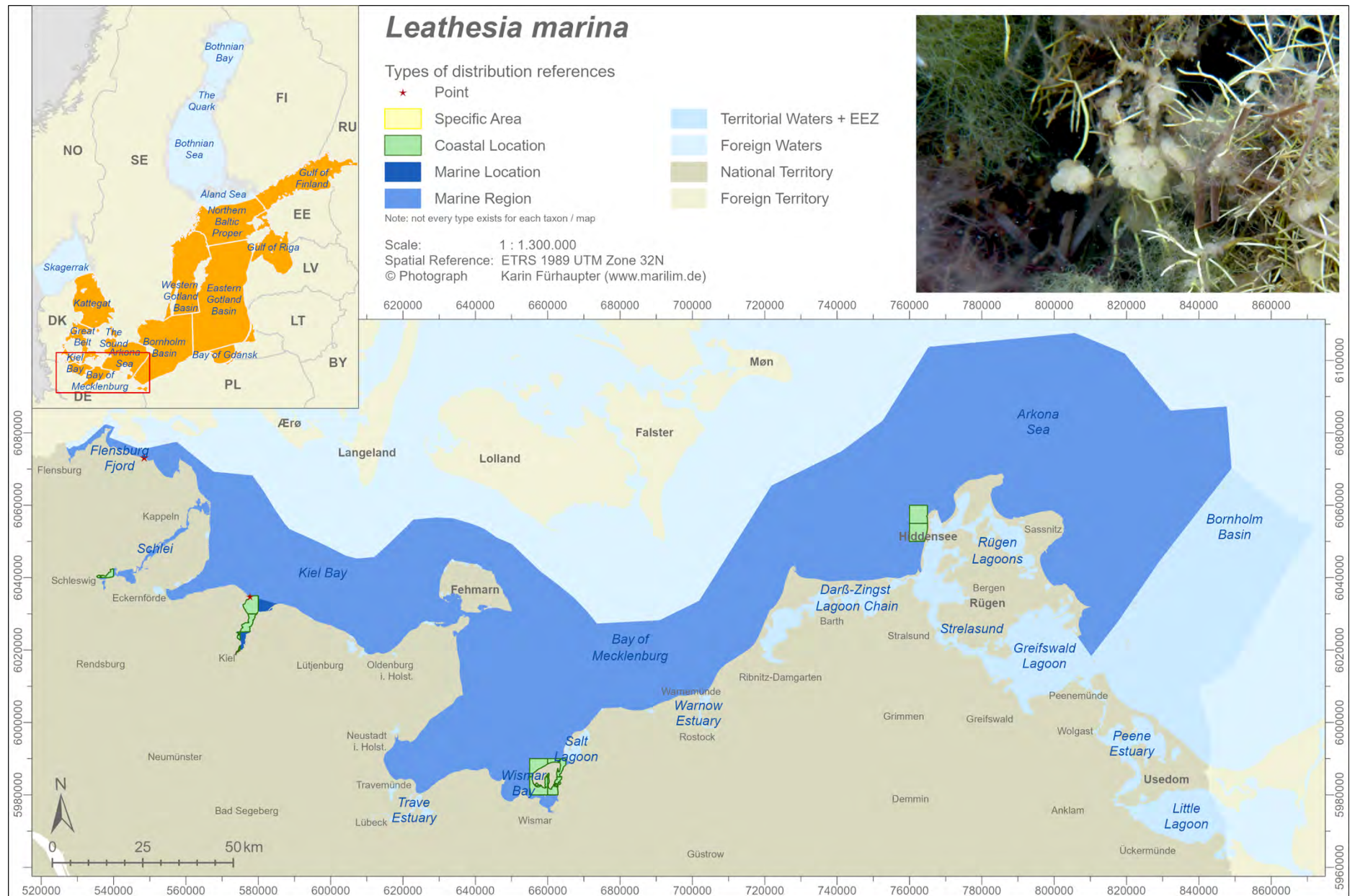


## *Leathesia marina* (Lyngbye) Decaisne, 1842

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Ectocarpales
Family	Chordariaceae
Subspecies	–
Synonyms	<i>Chaetophora marina</i> Lyngbye, 1819 <i>Clavatella difformis</i> (Linnaeus) Fries, 1835 <i>Leathesia difformis</i> Areschoug, 1847 <i>Leathesia tuberiformis</i> S.F. Gray, 1821 <i>Nostoc marinum</i> C. Agardh, 1810 <i>Rivularia tuberiformis</i> Smith, 1809 <i>Tremella difformis</i> Linnaeus, 1755
Distribution	
Baltic Sea	western and central Baltic Sea – from Kattegat to Gulf of Finland (DE, DK, EE, PL, SE); records from Åland and Archipelago Sea in Nielsen 1995 (148) could not be verified
German Baltic Sea	few records along the western open coastline – Flensburg Fjord (Neukirchen), Kiel Bay (various locations in Kiel Fjord), Bay of Mecklenburg/Wismar Bay (around Poel); a single record along the eastern coastline – Arkona Sea (northwest of Hiddensee), probably drifting material; one historical record in the innermost part of a coastal lagoon – Schlei (Schleswig), probably drifting material or misidentification

Ecology	
Substrate	plants – on various algae ( <i>Ahnfeltia plicata</i> , <i>Polysiphonia</i> ) and <i>Zostera marina</i>
Attachment	epiphytic
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – records from lower salinities doubtful
Vertical zone	upper to lower Infralittoral – from 2 to about 15 m depth
Exposure	(very) sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>3</b> (DE)
Threats	–
Remarks	
References	
25 64 81 82 95 104 121 190 206	

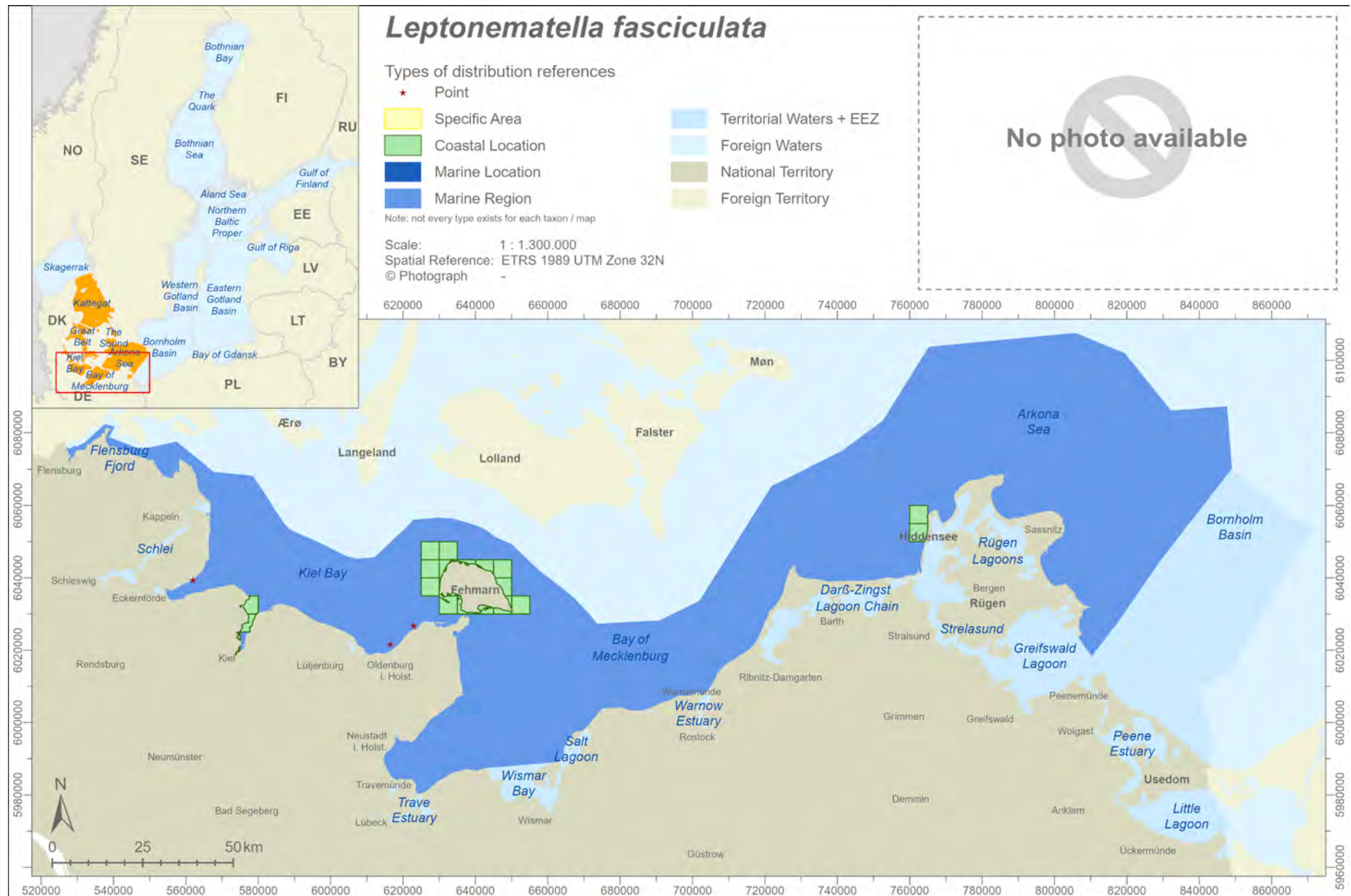




## *Leptonematella fasciculata* (Reinke) P.C. Silva, 1959

Taxonomy	
<i>Phylum</i>	Heterokontophyta
<i>Class</i>	Phaeophyceae
<i>Order</i>	Ectocarpales
<i>Family</i>	Chordariaceae
<i>Subspecies</i>	–
<i>Synonyms</i>	<i>Elachista fasciculata</i> (Reinke) H. Gran, 1893 <i>Leptonema fasciculatum</i> Reinke, 1888 <i>Leptonema fasciculatum</i> var. <i>flagellare</i> Reinke, 1889 <i>Leptonema fasciculatum</i> var. <i>majus</i> Reinke, 1889 <i>Leptonema neapolitanum</i> Schussnig, 1930
Distribution	
<i>Baltic Sea</i>	western Baltic Sea – from Kattegat to Arkona Sea (DE, DK); records from Bornholm Basin, Bay of Gdansk, Western Gotland Basin and Northern Baltic Proper in Nielsen 1995 (148) could not be verified
<i>German Baltic Sea</i>	few records along the western open coastline – Flensburg Fjord, Kiel Bay (Karlsminde, Weissenhaus, Blankeck, around Fehmarn), Bay of Mecklenburg (east coast of Fehmarn); only a single record along the eastern open coastline – Arkona Sea (north-west coast of Hiddensee)

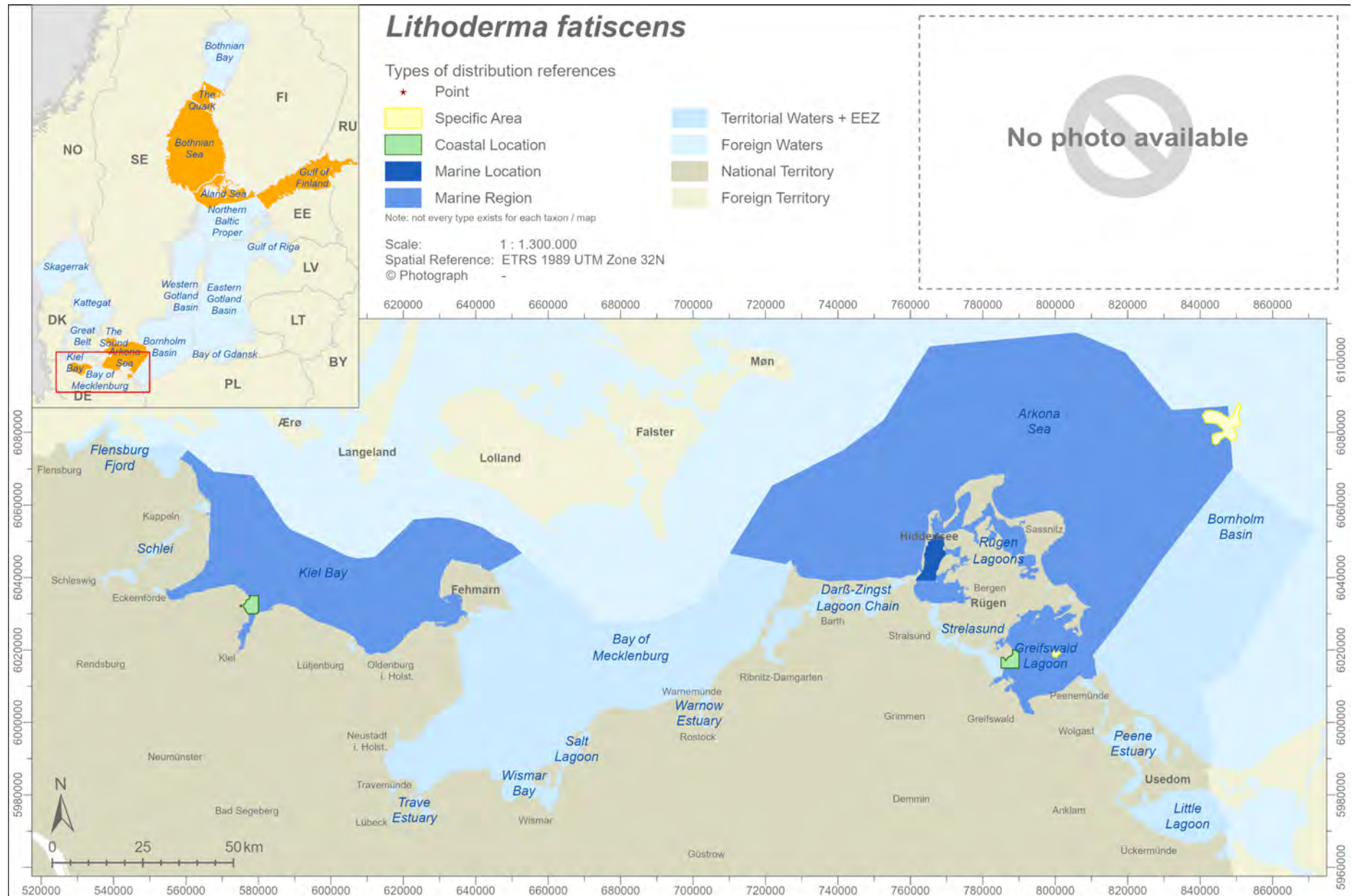
Ecology	
<i>Substrate</i>	plants or animals – blue mussels (dead shells and live mussels), bryozoans ( <i>Flustra</i> ) and on various algae ( <i>Fucus</i> )
<i>Attachment</i>	epiphytic/epizoic
<i>Salinity</i>	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – only a single record from lower salinities
<i>Vertical zone</i>	upper to lower Infralittoral – from 2 to about 25 m depth
<i>Exposure</i>	sheltered to very exposed
Conservation	
<i>Red List</i>	<b>LC</b> (Baltic Sea), * (DE)
<i>Threats</i>	–
Remarks	
References	
46 81 82 95 121 149 153 190 206	



## *Lithoderma fatiscens* Areschoug, 1875

Taxonomy	
<i>Phylum</i>	Heterokontophyta
<i>Class</i>	Phaeophyceae
<i>Order</i>	Ralfsiales
<i>Family</i>	Ralfsiaceae
<i>Subspecies</i>	–
<i>Synonyms</i>	<i>Ralfsia fatiscens</i> (Areschoug) Gobi, 1878
Distribution	
<i>Baltic Sea</i>	unevenly distributed in western and northeastern parts – Kiel Bay, Arkona Sea (only DE) and Gulf of Finland, Archipelago Sea and Bothnian Sea / The Quark (only FI)
<i>German Baltic Sea</i>	five, exclusively historical records unevenly distributed in German marine waters on/along the open coastline, one offshore rise and coastal bays and lagoons – Kiel Bay (Bülk), Arkona Sea (Adlergrund), Rügen Lagoons (Schaprode Lagoon), Greifswald Lagoon (Groß Stubber, Gelbes Ufer)

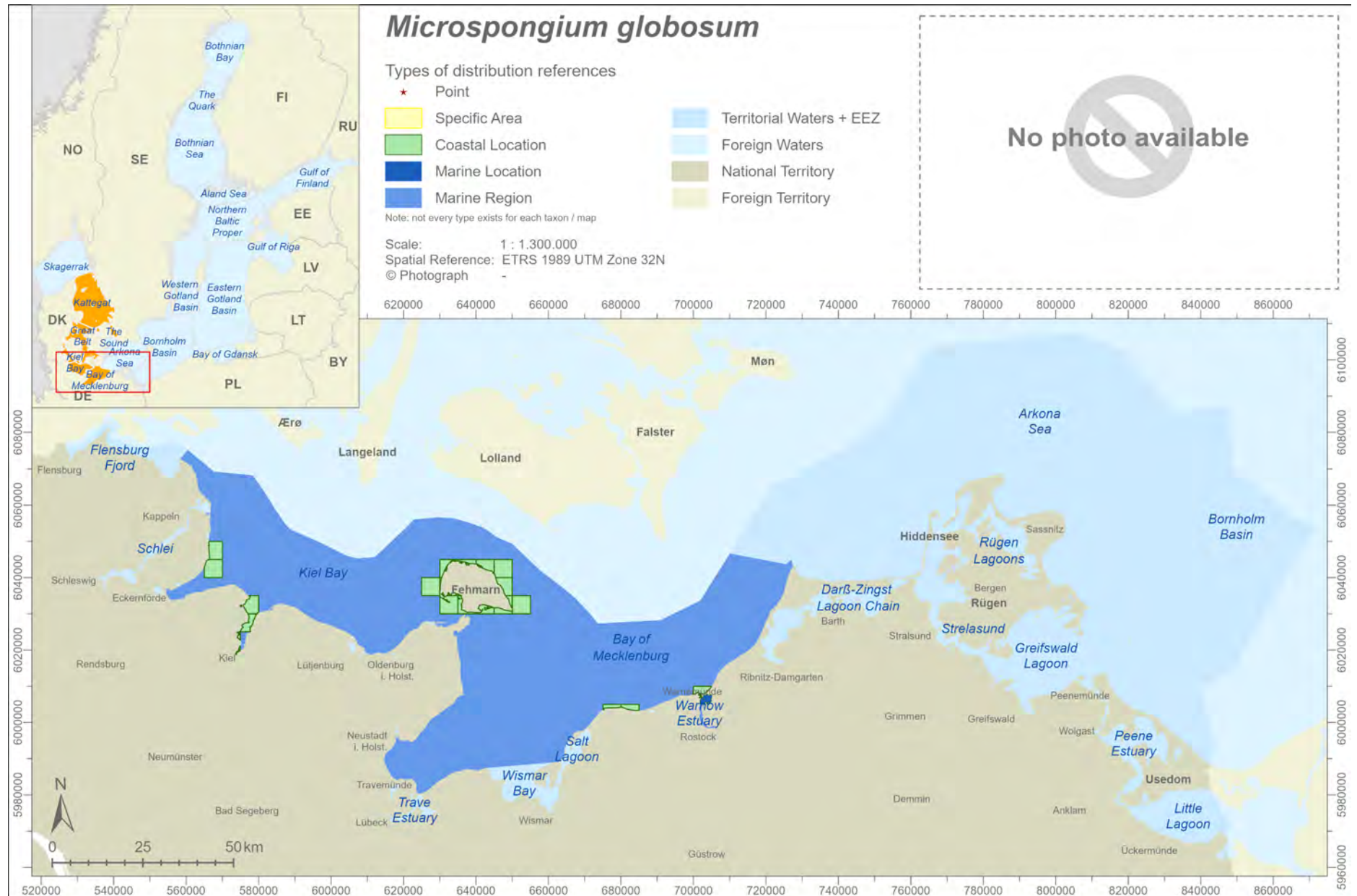
Ecology	
<i>Substrate</i>	hard bottom and animals – stones, blue mussels (dead shells and live mussels), snails
<i>Attachment</i>	epilithic and epizoic
<i>Salinity</i>	$\beta$ -mesohaline to euhaline (fully marine)
<i>Vertical zone</i>	upper to lower Infralittoral – from 3 to about 30 m depth
<i>Exposure</i>	sheltered to very exposed
Conservation	
<i>Red List</i>	<b>LC</b> (Baltic Sea), – (DE)
<i>Threats</i>	–
Remarks	
due to nomenclature confusion with <i>Pseudolithoderma extensum</i> it is difficult to allocate historical records precisely; only those records which explicitly mention the author/ publisher of the species name have been considered; in addition, crustose algae are not the focus of recent macrophyte monitoring programs, may remain unnoticed and are therefore underrepresented in datasets	
References	
48 81 82 190 191 206	



## *Microspongium globosum* Reinke, 1888

Taxonomy	
<i>Phylum</i>	Heterokontophyta
<i>Class</i>	Phaeophyceae
<i>Order</i>	Ectocarpales
<i>Family</i>	Chordariaceae
<i>Subspecies</i>	–
<i>Synonyms</i>	<i>Ascocyclus globosus</i> (Reinke) Reinke, 1889 <i>Ectocarpus pulvinatus</i> H. Gran, 1897 <i>Hecatonema globosum</i> (Reinke) Batters, 1902 <i>Myrionema globosum</i> (Reinke) Foslie, 1894 <i>Myrionema subglobosum</i> Kylin, 1907 <i>Phycocelis alariae</i> Norum, 1913 <i>Phycocelis globosus</i> (Reinke) De Toni, 1895
Distribution	
<i>Baltic Sea</i>	western Baltic Sea – from Kattegat to Bay of Mecklenburg (DE, DK); records from Bornholm Basin, Bay of Gdansk, Western Gotland Basin, Gulf of Finland in Nielsen 1995 (148) could not be verified
<i>German Baltic Sea</i>	few records along the western open coastline – Kiel Bay (Boknis Eck, various records in Kiel Fjord, around Fehmarn), Bay of Mecklenburg (Kühlungsborn, Warnemünde), Warnow Estuary (Breitling)

Ecology	
<i>Substrate</i>	plants or animals – blue mussels (dead shells and live mussels) and on various algae ( <i>Fucus</i> ) and <i>Zostera marina</i>
<i>Attachment</i>	epiphytic/epizoic
<i>Salinity</i>	$\alpha$ -mesohaline to euhaline (fully marine)
<i>Vertical zone</i>	hydrolittoral to upper infralittoral – from 0,5 to about 4 m depth
<i>Exposure</i>	sheltered to very exposed
Conservation	
<i>Red List</i>	<b>LC</b> (Baltic Sea), * (DE)
<i>Threats</i>	–
Remarks	
borderline species to fully marine conditions, but possibly unnoticed in many surveys because of its tiny size	
References	
46 81 82 95 111 180 190 206	



## *Microspongium stilophorae* (P. Crouan & H. Crouan) A Cormaci & G. Furnari, 2012

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Ectocarpales
Family	Chordariaceae
Subspecies	–
Synonyms	<i>Ectocarpus stilophorae</i> P. Crouan & H. Crouan, 1867 <i>Microspongium tenuissimum</i> (Hauck) A.F. Peters, 2003 <i>Streblonema stilophorae</i> (P.L. Crouan & H.M. Crouan) Kylin, 1908 <i>Streblonema tenuissimum</i> Hauck, 1884
Distribution	
Baltic Sea	western Baltic Sea – Kattegat, Belt Sea and Bay of Mecklenburg (DE, DK)
German Baltic Sea	four locations along the western open coastline up to Warnemünde – Kiel Bay (Kiel), Bay of Mecklenburg (Staberhuk, Kühlungsborn), Warnow Estuary (Breitling); two records from 1880ies and 1890ies, one from 1969 and one from 2007

Ecology	
Substrate	plants – on various algae ( <i>Ceramium</i> )
Attachment	epiphytic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	upper infralittoral – around 2 m depth
Exposure	sheltered to very exposed
Conservation	
Red List	<b>NE</b> (Baltic Sea), <b>D</b> (DE)
Threats	–
Remarks	
due to nomenclature confusion, it is difficult to allocate historical records precisely; possibly unnoticed in many surveys because of its tiny size	
References	
46 81 82 180 206	

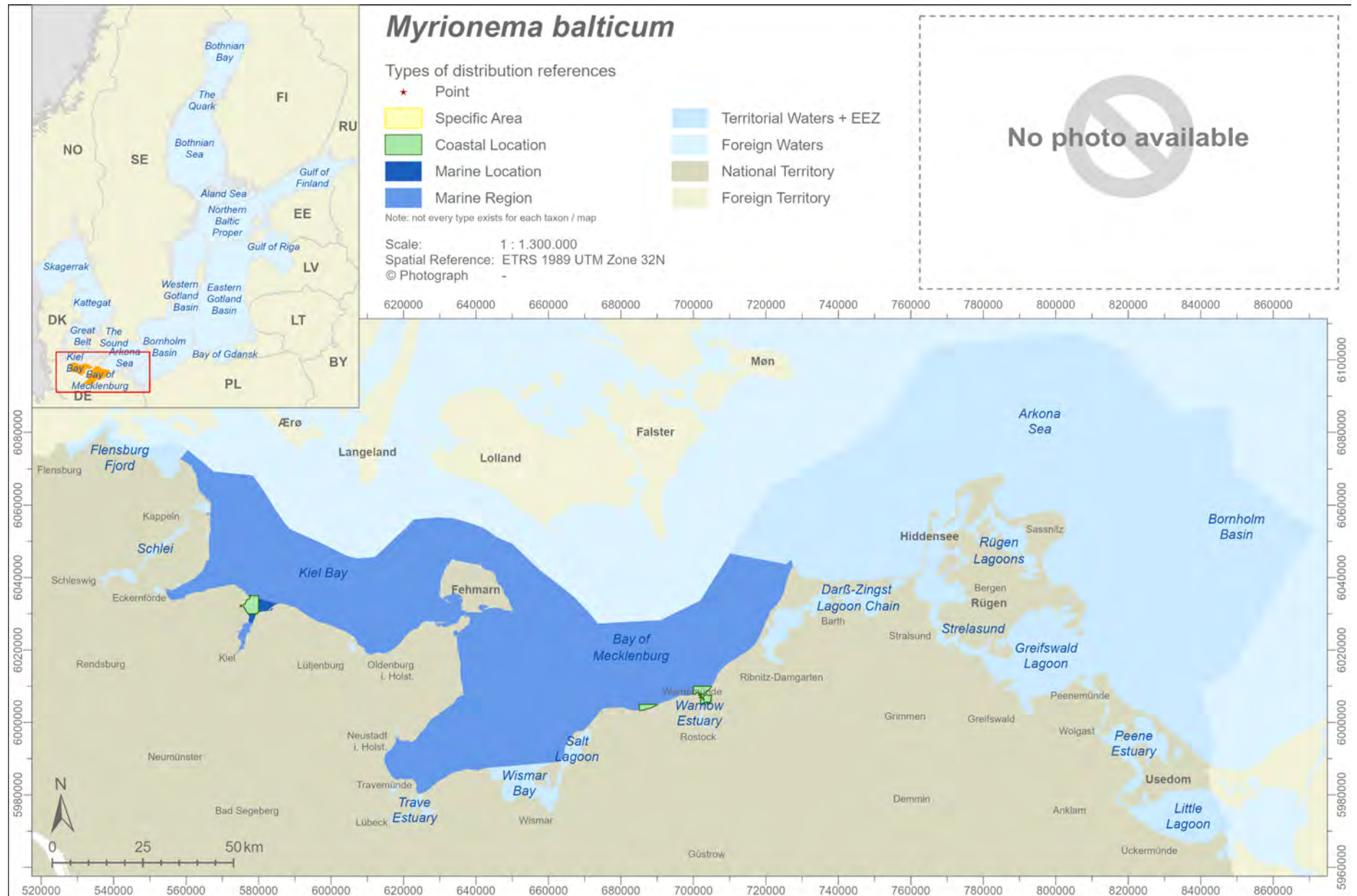




## *Myrionema balticum* (Reinke) Foslie, 1894

Taxonomy	
<i>Phylum</i>	Heterokontophyta
<i>Class</i>	Phaeophyceae
<i>Order</i>	Ectocarpales
<i>Family</i>	Chordariaceae
<i>Subspecies</i>	–
<i>Synonyms</i>	<i>Ascocyclus balticus</i> Reinke, 1889 <i>Myrionema attenuatum</i> Setchell & N.L. Gardner, 1922 <i>Myrionema attenuatum</i> f. <i>doliiforme</i> Setchell & N.L. Gardner, 1922 <i>Myrionema balticum</i> f. <i>californicum</i> Setchell & N.L. Gardner, 1922
Distribution	
<i>Baltic Sea</i>	only German part of Kiel Bay and Bay of Mecklenburg (DE); records from Kattegat, Bornholm Basin, Gulf of Finland, Bothnian Sea and Bay in Nielsen 1995 (148) could not be verified
<i>German Baltic Sea</i>	six records from five location along the western open coastline – Kiel Bay (outer Kiel Fjord, Strande), Bay of Mecklenburg (Börgerende, Warnemünde), Warnow Estuary (Breitling); three records from 1880ies and 1890ies, the others two from 1969

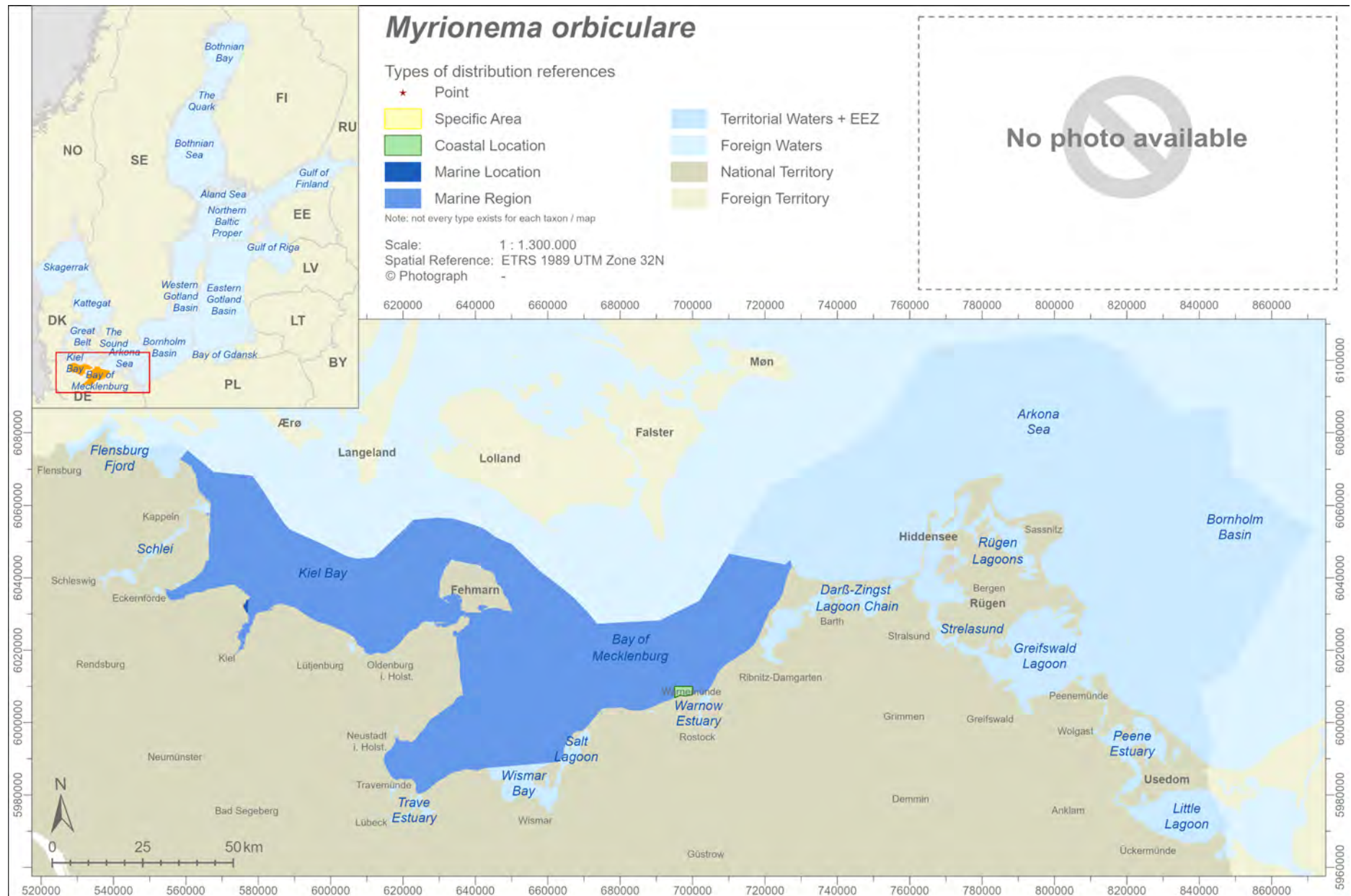
Ecology	
<i>Substrate</i>	plants – on various algae and vascular plants ( <i>Potamogeton</i> , <i>Zostera</i> )
<i>Attachment</i>	epiphytic
<i>Salinity</i>	$\alpha$ -mesohaline to euhaline (fully marine)
<i>Vertical zone</i>	hydrolittoral to upper infralittoral
<i>Exposure</i>	moderately to very exposed
Conservation	
<i>Red List</i>	<b>LC</b> (Baltic Sea), <b>D</b> (DE)
<i>Threats</i>	–
Remarks	
probably confused with other species particular as no evidence of occurrence exists from other Baltic Sea neighbouring countries	
References	
46 81 82 95 180 190 206	



## *Myrionema orbiculare* J. Agardh, 1848

Taxonomy	
<i>Phylum</i>	Heterokontophyta
<i>Class</i>	Phaeophyceae
<i>Order</i>	Ectocarpales
<i>Family</i>	Chordariaceae
<i>Subspecies</i>	–
<i>Synonyms</i>	<i>Ascocyclus orbicularis</i> (J. Agardh) Kjellman, 1890 <i>Ascocyclus ramosus</i> Waern, 1952 <i>Myrionema ramosum</i> Pankow, 1971
Distribution	
<i>Baltic Sea</i>	only German part of Kiel Bay and Bay of Mecklenburg (DE)
<i>German Baltic Sea</i>	three records from two location along western open coastline – Kiel Bay (Strande Bay), Bay of Mecklenburg (Stolteraa); a single record from 1906, the other two from 1969 and 1971

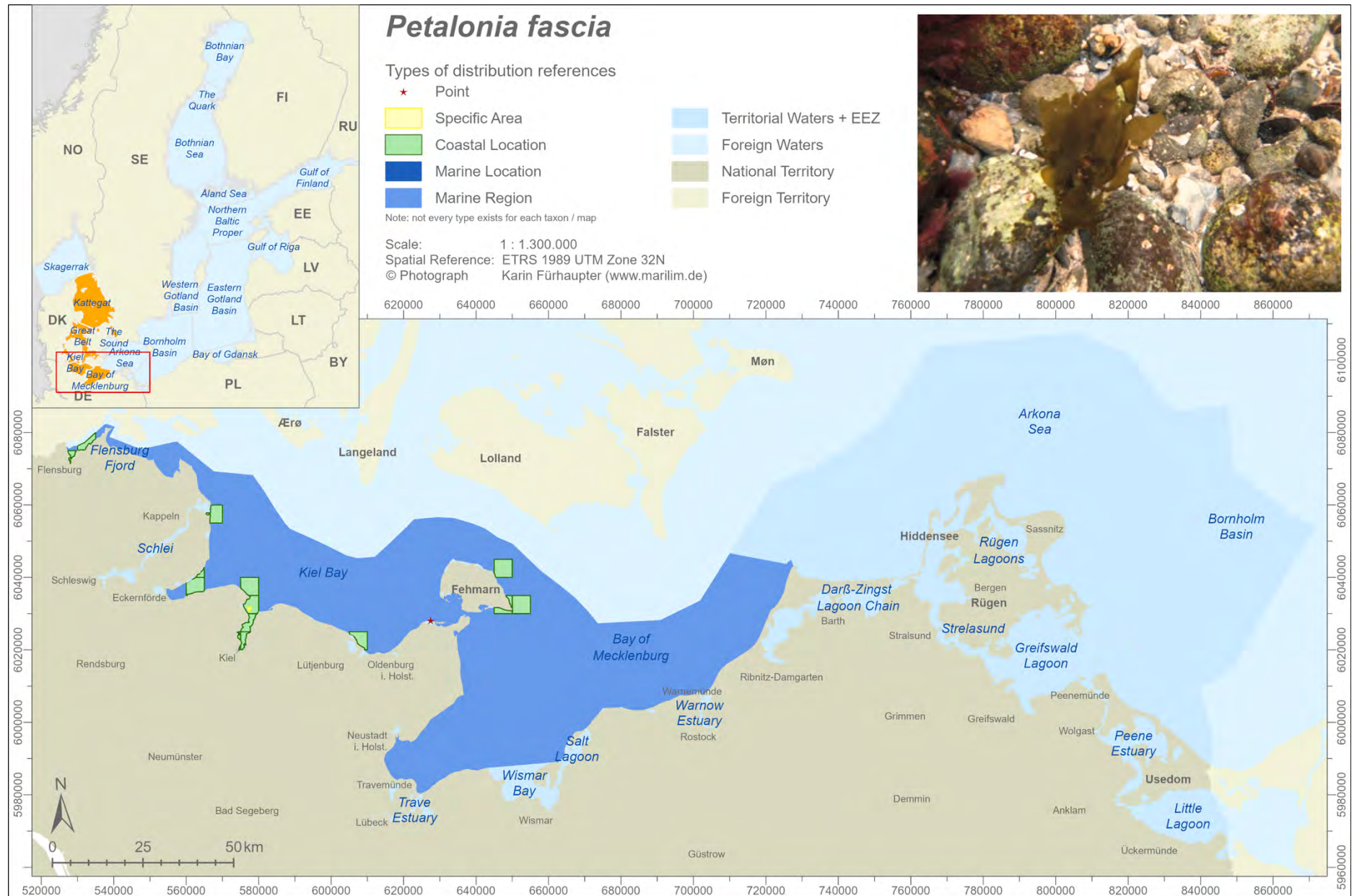
Ecology	
<i>Substrate</i>	plants – on various algae ( <i>Fucus</i> )
<i>Attachment</i>	epiphytic
<i>Salinity</i>	$\alpha$ -mesohaline to euhaline (fully marine)
<i>Vertical zone</i>	upper infralittoral – no direct information available, derived from vertical zone of the basiphyt <i>Fucus</i>
<i>Exposure</i>	moderately to very exposed
Conservation	
<i>Red List</i>	– (Baltic Sea), – (DE)
<i>Threats</i>	–
Remarks	
probably confused with other species, particular as no evidence of occurrence exists from other Baltic Sea neighbouring countries	
References	
81 82 90 170 206	



## *Petalonia fascia* (O.F. Müller) Kuntze, 1898

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Ectocarpales
Family	Scytosiphonaceae
Subspecies	–
Synonyms	<i>Fucus fascia</i> O. F. Müller, 1778 <i>Ilea fascia</i> (O.F. Müller) Fries, 1835 <i>Laminaria fascia</i> (O.F. Müller) C. Agardh, 1817 <i>Punctaria debilis</i> (Kützing) Trevisan, 1849 <i>Saccharina fascia</i> (O.F. Müller) Kuntze, 1891 <i>Scytosiphon fascia</i> (O.F. Müller) P.L.Crouan & H.M.Crouan, 1867 <i>Ulva fascia</i> (O.F. Müller) Lyngbye, 1819
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Bay of Mecklenburg (DE, DK, SE)
German Baltic Sea	frequently along the western open coastline up to the Island Fehmarn – Flensburg Fjord (Flensburg, Glücksburg), Kiel Bay (Schleimünde, Olpenitz, Langholz, Lindhöft, various locations in Kiel Fjord, Lippe, Heiligenhafen), Bay of Mecklenburg (Staberhuk); a single record on an offshore rise (Grasberg)

Ecology	
Substrate	hard bottom and animals – stones, gravel, wood, blue mussels (dead shells and live mussels)
Attachment	epilithic and epizoic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine) – above 12–15 psu
Vertical zone	hydrolittoral to upper infralittoral – from 0,25 to about 5 m depth
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
a characteristic autumn to early winter species, which in addition occurs at shallow stony bottoms and stony harbour piers, both rarely part of recent macrophyte monitoring programs	
References	
40 45 81 82 89 95 132 133 145 192 204 206	



## *Planosiphon zosterifolius* (Reinke) McDevit & G.W. Saunders, 2017

Taxonomy	
<i>Phylum</i>	Heterokontophyta
<i>Class</i>	Phaeophyceae
<i>Order</i>	Ectocarpales
<i>Family</i>	Scytosiphonaceae
<i>Subspecies</i>	–
<i>Synonyms</i>	<i>Ilea zosterifolia</i> (Reinke) Nordstedt, 1912 <i>Petalonia fascia</i> var. <i>zosterifolia</i> (Reinke) W.R. Taylor, 1937 <i>Petalonia zosterifolia</i> (Reinke) Kuntze, 1898 <i>Phyllitis zosterifolia</i> Reinke, 1889
Distribution	
<i>Baltic Sea</i>	western Baltic Sea – from Kattegat to Kiel Bay (DE, DK); records from Arkona Basin in Nielsen 1995 (148) could not be verified
<i>German Baltic Sea</i>	few, with one exception historical records along the western open coastline to the Island Fehmarn – Kiel Bay (Schleimünde, various records in inner Kiel Fjord), Bay of Mecklenburg (Burgstaaken in Burg Lake)

Ecology	
<i>Substrate</i>	hard bottom and animals – stones, blue mussels (dead shells and live mussels)
<i>Attachment</i>	epilithic and epizoic
<i>Salinity</i>	$\alpha$ -mesohaline to euhaline (fully marine)
<i>Vertical zone</i>	hydrolittoral to upper infralittoral
<i>Exposure</i>	very sheltered to sheltered
Conservation	
<i>Red List</i>	<b>LC</b> (Baltic Sea), * (DE)
<i>Threats</i>	–
Remarks	
borderline species to fully marine conditions, only randomly part of the German Baltic Sea area	
References	
81 82 95 133 190 206	

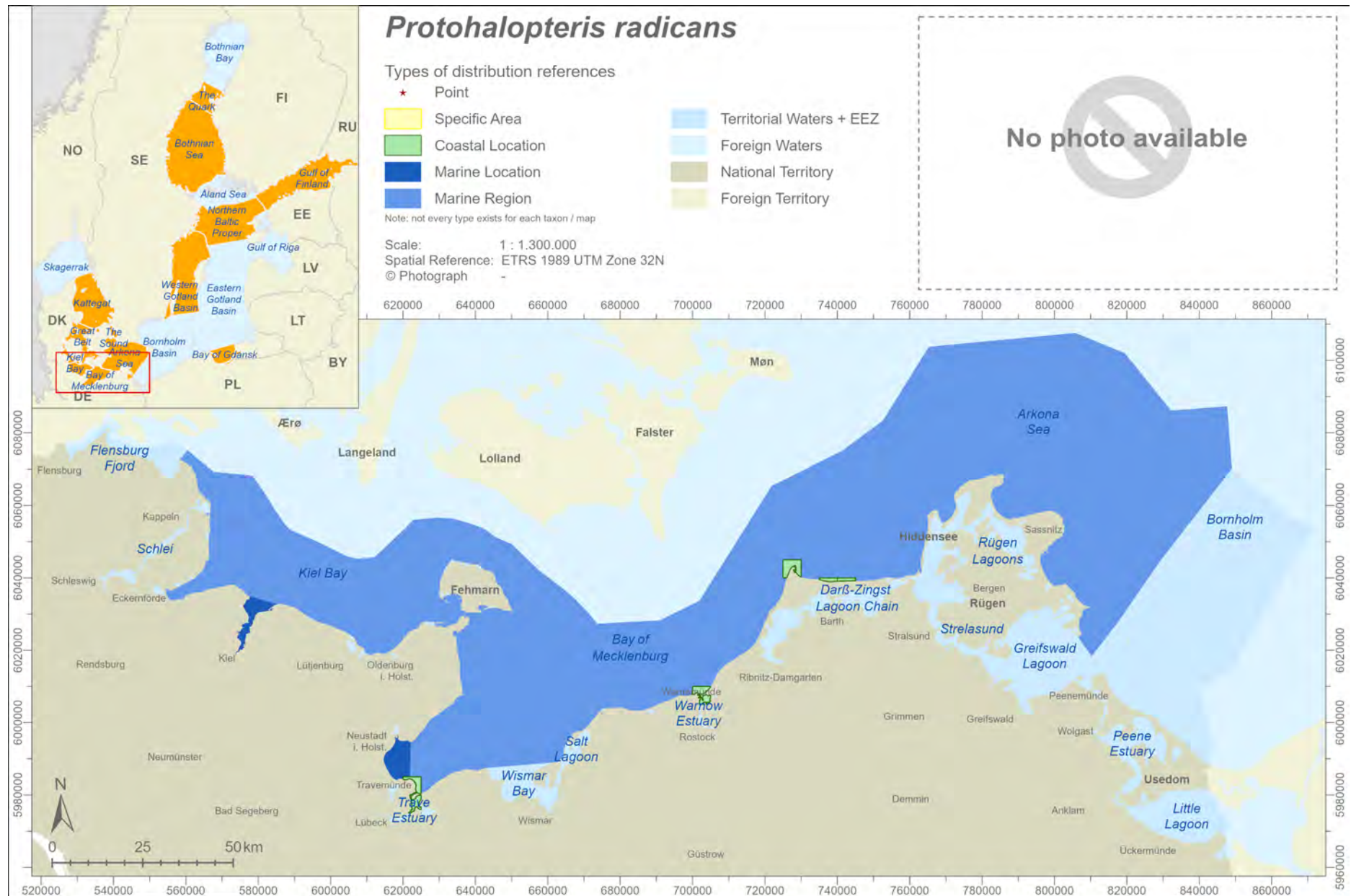




## *Protohalopteris radicans* (Dillwyn) Draisma, Prud'homme & H. Kawai, 2010

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Sphacelariales
Family	Stypocaulaceae
Subspecies	–
Synonyms	<i>Conferva olivacea</i> Dillwyn, 1809 <i>Sphacelaria (Sphacelaria) radicans</i> (Dillwyn) C. Agardh, 1824 <i>Sphacelaria olivacea</i> (Dillwyn) Greville, 1824 <i>Sphacelaria olivacea</i> var. <i>radicans</i> (Dillwyn) J. Agardh, 1848 <i>Sphacelaria radicans</i> (Dillwyn) C. Agardh, 1824
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of northeastern most part and Eastern Gotland Basin – from Kattegat to Bothnian Sea / The Quark (DE, DK, FI, PL, SE); records from Gulf of Riga, Åland and Archipelago Sea in Nielsen 1995 (148) could not be verified
German Baltic Sea	few, with one exception historical records along the open coastline – Kiel Bay (Kiel Fjord), Bay of Mecklenburg (Neustadt Bay, Priwall, Warne-münde); Arkona Sea (Darßer Ort, Zingst)

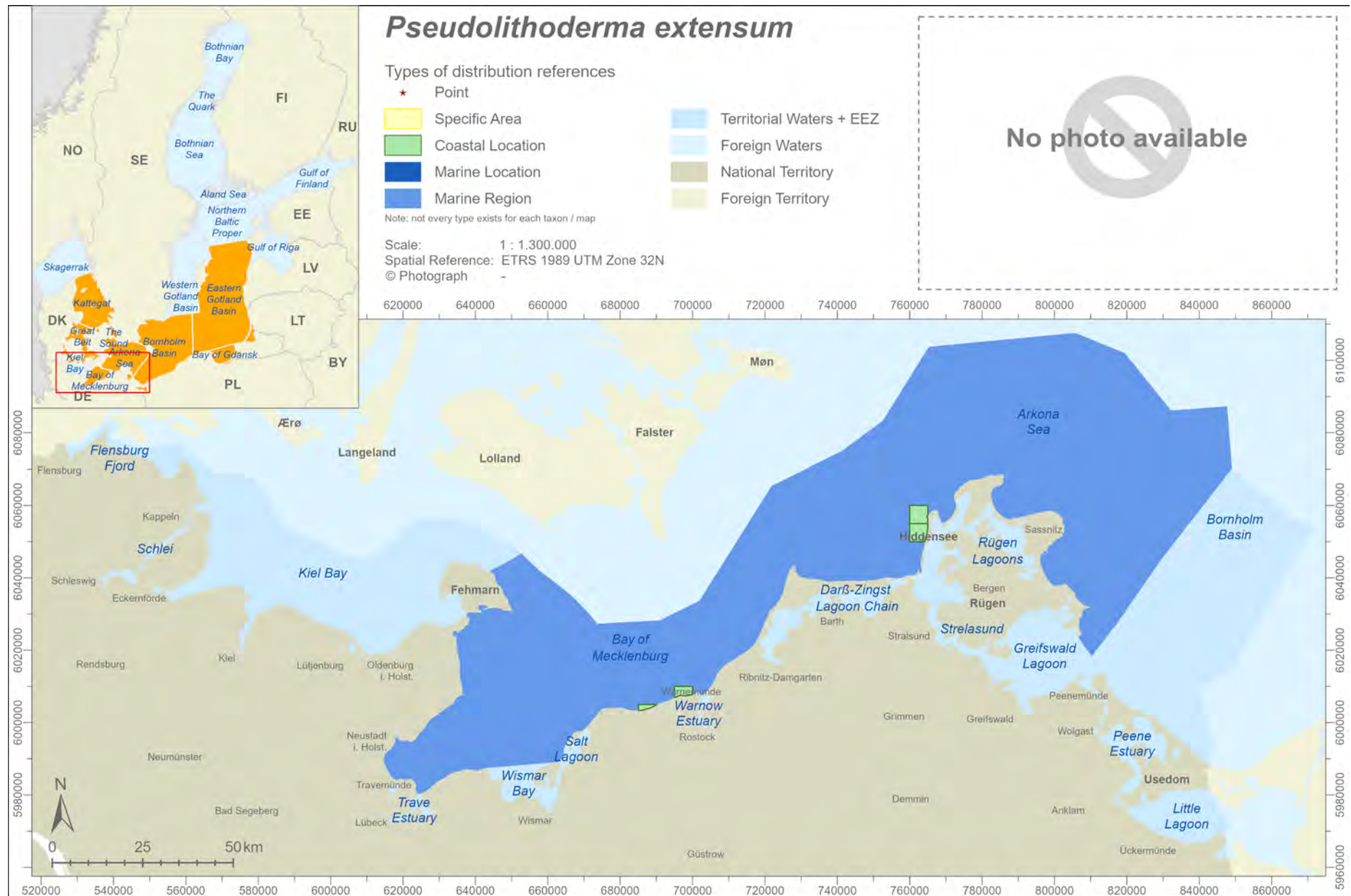
Ecology	
Substrate	hard bottom and plants or animals – stones, blue mussels (dead shells and live mussels) and on various algae ( <i>Fucus</i> , <i>Halidrys</i> )
Attachment	epilithic and epiphytic/epizoic
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – only a single record from lower salinities
Vertical zone	upper infralittoral – from 4 to about 10 m depth
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
low number of records along the German coastline compared to the broad distribution range in the Baltic Sea, suggests an ambiguity for species determination; unfertile specimens can be confused with species of the Sphacelariaceae	
References	
25 46 64 81 82 190 206	



## *Pseudolithoderma extensum* (P.L. Crouan & H.M. Crouan) S. Lund, 1959

Taxonomy	
<i>Phylum</i>	Heterokontophyta
<i>Class</i>	Phaeophyceae
<i>Order</i>	Sphacelariales
<i>Family</i>	Lithodermataceae
<i>Subspecies</i>	–
<i>Synonyms</i>	<i>Lithoderma extensum</i> (P.L. Crouan & H.M. Crouan) G Hamel, 1935 <i>Lithoderma fatiscens</i> Kuckuck, 1894 <i>Pseudolithoderma fatiscens</i> (Kuckuck) Svedelius, 1910 <i>Ralfsia extensa</i> P.L. Crouan & H.M. Crouan, 1867
Distribution	
<i>Baltic Sea</i>	western and parts of central Baltic Sea – from Kattegat to Eastern Gotland Basin (DE, DK, SE); records from Western Gotland Basin, Northern Baltic Proper, Bothnian Bay and Gulf of Riga in Nielsen 1995 (148) were assigned to <i>Lithoderma fatiscens</i> Aershoug, 1875
<i>German Baltic Sea</i>	three records along the open coastline – Bay of Mecklenburg (Heiligendamm, Stolteraa), Arkona Sea (northwest of Hiddensee); all records from the 1950ies and 1960ies

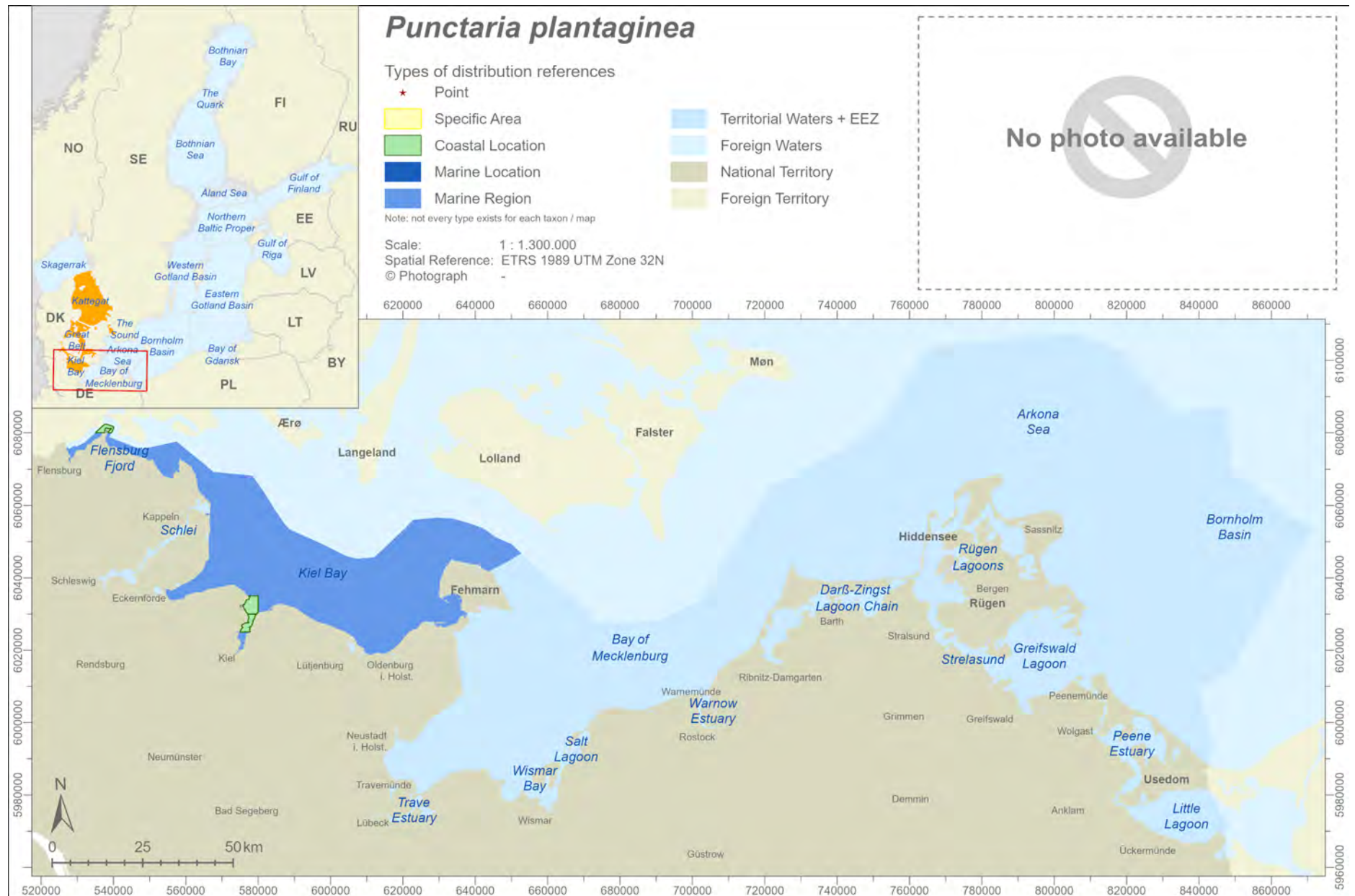
Ecology	
<i>Substrate</i>	hard bottom – stones
<i>Attachment</i>	epilithic
<i>Salinity</i>	$\beta$ -mesohaline to euhaline (fully marine)
<i>Vertical zone</i>	upper to lower Infralittoral – from 1 to about 30 m depth
<i>Exposure</i>	very exposed
Conservation	
<i>Red List</i>	<b>LC</b> (Baltic Sea), * (DE)
<i>Threats</i>	–
Remarks	
due to nomenclature confusion with <i>Lithoderma fatiscens</i> it is difficult to allocate historical records precisely if records of <i>Lithoderma fatiscens</i> lack the author/publisher of the species name; in addition, crustose algae are not the focus of recent macrophyte monitoring programs, may remain unnoticed and are therefore underrepresented in datasets	
References	
46 81 82 121 206	



## *Punctaria plantaginea* (Roth) Greville, 1830

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Ectocarpales
Family	Chordariaceae
Subspecies	–
Synonyms	<i>Asperococcus plantagineus</i> (Roth) Fries, 1835 <i>Homoeostroma plantagineum</i> J. Agardh, 1896 <i>Laminaria plantaginea</i> (Roth) C. Agardh, 1817 <i>Punctaria rubescens</i> (Lyngbye) J. Agardh, 1896 <i>Ulva plantaginea</i> Roth, 1800 <i>Ulva rubescens</i> Lyngbye, 1819 <i>Zonaria plantaginea</i> (Roth) C. Agardh, 1824
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Kiel Bay (DE, DK)
German Baltic Sea	three historical records along the western open coastline – Flensburg Fjord (Holnis), Kiel Bay (Friedrichsort, Strande)

Ecology	
Substrate	hard bottom – stones, wood
Attachment	epilithic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	hydrolittoral to upper infralittoral – from 0,5 to about 4 m depth
Exposure	sheltered to exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>D</b> (DE)
Threats	–
Remarks	
borderline species to fully marine conditions, probably only occasional part of the German Baltic Sea flora	
References	
81 82 95 190 206	



## *Punctaria tenuissima* (C. Agardh) Greville, 1830

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Ectocarpales
Family	Chordariaceae
Subspecies	–
Synonyms	<i>Desmotrichum balticum</i> Kützing, 1845 <i>Desmotrichum repens</i> Kylin, 1907 <i>Desmotrichum scopulorum</i> Reinke 1888 <i>Desmotrichum undulatum</i> (J. Agardh) Reinke, 1889 <i>Punctaria baltica</i> (Kützing) Batters, 1902 <i>Punctaria undulata</i> J. Agardh, 1836 <i>Streblonema effusum</i> Kylin, 1907
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Bornholm Basin (DE, DK, SE); records from Northern Baltic Proper in Nielsen 1995 (148) could not be verified
German Baltic Sea	various records along the open coastline – Flensburg Fjord (Langballigau, Gelting Bay), Kiel Bay (various locations in Kiel Fjord, around Fehmarn), Bay of Mecklenburg (Scharbeutz, Klützhöved, Kühlungsborn to Warnemünde), Arkona Sea (Kloster, open coast, Arkona); two records in coastal lagoons – Schlei (up to Kapeln), Rügen Lagoons (Schaprade Lagoon) – probably drifting specimens

Ecology	
Substrate	hard bottom and plants – stones and on <i>Zostera marina</i>
Attachment	epilithic and epiphytic
Salinity	$\beta$ -mesohaline to euhaline (fully marine)
Vertical zone	upper to lower Infralittoral – shallower than 15 m depth
Exposure	(very) sheltered to very exposed – probably drifting material in lagoons
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>D</b> (DE)
Threats	–
Remarks	
References	
45 46 48 60 64 81 82 86 89 93 95 142 149 151 164 180 187 190 206	

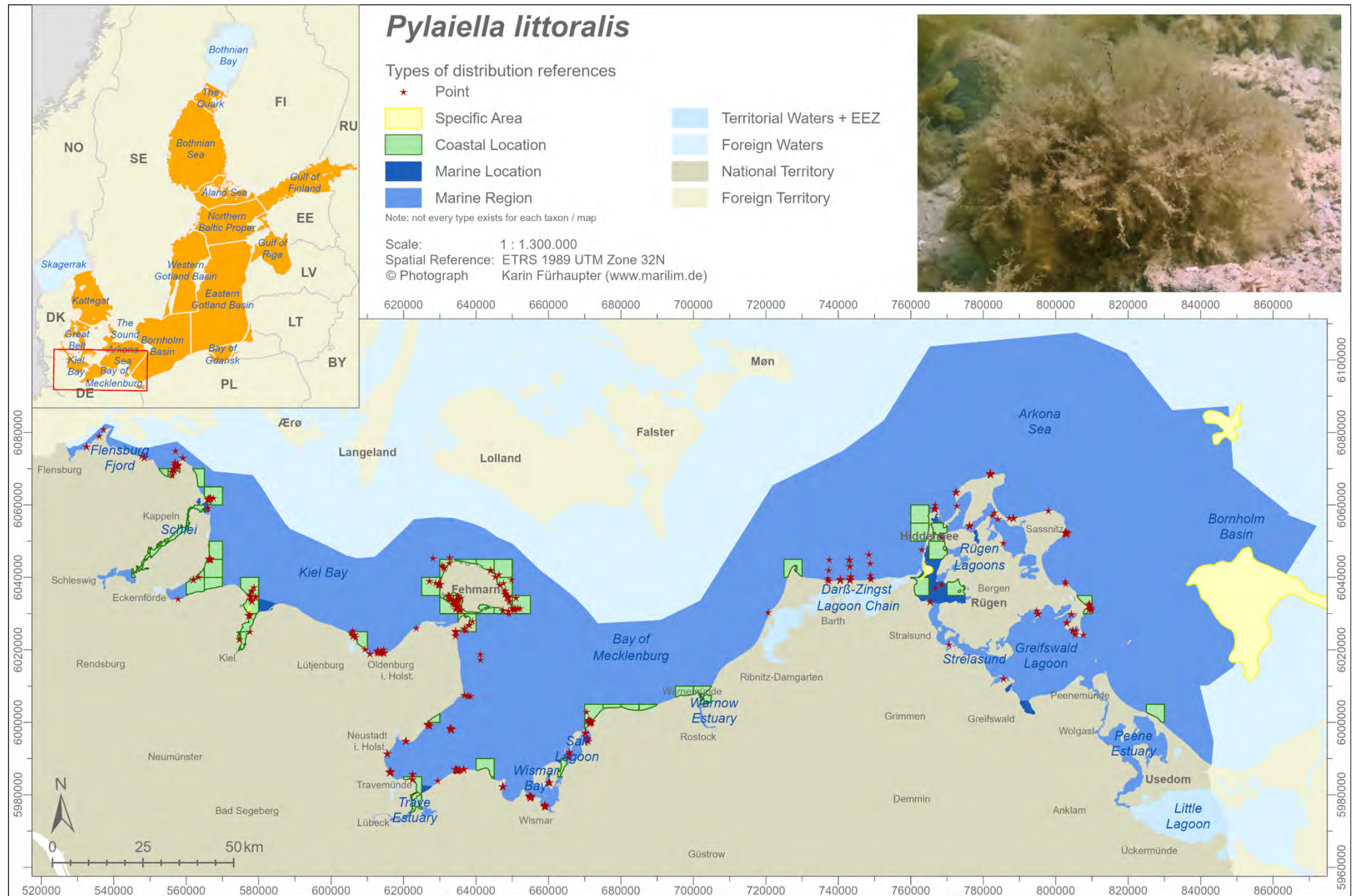




## *Pylaiella littoralis* (Linnaeus) Kjellman, 1872

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Ectocarpales
Family	Acinetosporaceae
Subspecies	–
Synonyms	<i>Ceramium littorale</i> (Linnaeus) Dillwyn, 1809 <i>Ectocarpus compactus</i> (Roth) C. Agardh, 1828 <i>Ectocarpus firmus</i> (C. Agardh) J. Agardh, 1848 <i>Ectocarpus littoralis</i> (Linnaeus) Lyngbye, 1819 <i>Pilayella littoralis</i> (Linnaeus) Kjellman, 1872 <i>Pylaiella kylini</i> Du Rietz, 1941 <i>Pylaiella ramellosa</i> (Kützting) Laing, 1927 <i>Pylaiella rupincola</i> (Areschoug) Kylin, 1937
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of northeasternmost part – from Kattegat to Bothnian Sea / The Quark (all neighbouring countries); records from Bothnian Bay in Nielsen 1995 (148) could not be verified
German Baltic Sea	numerous records along the entire open, exposed coastline up to the DE/PL border and oneastern offshore rises – from Flensburg to the Island Usedom (Koserow) and Oder Bank; in most coastal bays, estuaries and lagoons with exception of Little Lagoon, rarely onoffshore rises and not in enclosed inland and coastal lakes ("Strandseen")

Ecology	
Substrate	hard bottom and plants or animals – stones smaller stones, gravel, wood blue mussels (dead shells and live mussels) and on various plants ( <i>Chara</i> , <i>Chorda</i> , <i>Fucus</i> , <i>Zostera marina</i> )
Attachment	epilithic and epiphytic/epizoic
Salinity	( $\alpha$ -oligohaline) $\beta$ -mesohaline to euhaline (fully marine) – from about 3 psu upwards, but without verified records between 3 and 5 psu
Vertical zone	hydrolittoral to upper and lower infralittoral – from 0,5 to about 25 m depth
Exposure	very sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
unfertile specimens can be confused with <i>Ectocarpus siliculosus</i>	
References	
11 25 31 40 45 46 48 52 53 54 60 61 63 64 65 66 81 82 86 89 90 95 106 121 124 125 132 133 141 142 145 149 151 152 153 159 164 165 167 170 172 178 180 191 203 204 206 229	



## *Ralfsia verrucosa* (Areschoug) Areschoug, 1845

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Ralfsiales
Family	Ralfsiaceae
Subspecies	–
Synonyms	<i>Cruoria verrucosa</i> J.E. Areschoug, 1843 <i>Ralfsia verrucosa</i> var. <i>cochlearum</i> J.E. Areschoug, 1876 <i>Ralfsia verrucosa</i> var. <i>lignicola</i> J.E. Areschoug, 1847
Distribution	
Baltic Sea	western and some central, eastern parts of the Baltic Sea – from Kattegat to Bay of Mecklenburg (DE, DK, SE) and Eastern Gotland Basin (LT), Gulf of Finland (RU); records from Bornholm Basin, Western Gotland Basin and Northern Baltic Proper in Nielsen 1995 (148) could not be verified
German Baltic Sea	few historical records along the open western coastline and three newer records from Flensburg Fjord only – Flensburg Fjord (Fahrensodde, Holnis, Bockholmwiek), Kiel Bay (various locations in Kiel Fjord), Bay of Mecklenburg (Kühlungsborn to Warnemünde); a single record in a coastal bay – Wismar Bay (Walfisch)

Ecology	
Substrate	hard bottom animals – stones, wood, blue mussels (dead shells and live mussels)
Attachment	epilithic and epizoic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	hydrolittoral to upper infralittoral – from the shoreline to few meter depths
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
crustose algae are not the focus of recent macrophyte monitoring programs, may remain unnoticed and are therefore underrepresented in datasets	
References	
46 78 81 82 95 104 126 190 206	



## *Saccharina latissima* (Linnaeus) C.E. Lane, C. Mayes, Druehl & G.W. Saunders, 2006

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Laminariales
Family	Laminariaceae
Subspecies	–
Synonyms	<i>Ceramium phyllitis</i> (Stackhouse) Stackhouse, 1797 <i>Fucus saccharinus</i> Linnaeus, 1753 <i>Laminaria saccharina</i> (Linnaeus) J.V. Lamouroux, 1813 <i>Phycoseris latissima</i> (Linnaeus) Fraudenfeld, 1854 <i>Saccharina plana</i> Stackhouse, 1809
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Bornholm Basin (DE, DK, SE)
German Baltic Sea	numerous records along the western, exposed coastline and offshore stony bottoms – from Flensburg to Warnemünde and Kattegat Channel; only few locations along the eastern open coastline – Arkona Sea (Darß, northwest of Island Hiddensee, Arkona, Glowe, Lohme, Saßnitz)

Ecology	
Substrate	hard bottom and animals – stones, smaller stones, wood, blue mussels (dead shells and live mussels)
Attachment	epilithic and epizoic
Salinity	$\beta$ -mesohaline to euhaline (fully marine) – only above 8–10 psu when considering vertical zonation (brackish water submergence)
Vertical zone	upper to lower Infralittoral – from 3 to about 20 m depth
Exposure	sheltered to vey exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
some historical maps did not distinguish between <i>Saccharina latissima</i> and <i>Laminaria digitata</i> , in such cases locations were assigned to both taxa	
References	
15 19 33 46 53 54 64 73 81 82 87 89 90 95 111 115 121 127 132 133 141 148 149 150 151 170 190 202 204 206 218 229	



## Scytosiphon lomentaria (Lyngbye) Link, 1833

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Ectocarpales
Family	Scytosiphonaceae
Subspecies	–
Synonyms	<i>Asperococcus castagneus</i> Carmichael, 1833 <i>Asperococcus castaneus</i> W.J. Hooker, 1833 <i>Chlorosiphon shuttleworthianus</i> Kützing, 1843 <i>Chorda lomentaria</i> Lyngbye, 1819 <i>Chordaria attenuata</i> Foslie, 1887 <i>Microspongium gelatinosum</i> Reinke, 1888 <i>Scytosiphon pygmaeus</i> Reinke, 1888
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of northeastern most part – from Kattegat to Bothnian Sea / The Quark (DE, DK, SE); records from Bay of Gdansk, Åland and Archipelago Sea and Gulf of Finland in Nielsen 1995 (148) could not be verified
German Baltic Sea	frequent observations from the western open coastline and a single record east of Darß – from Flensburg to the Island Hiddensee; three records in inner coastal waters: two coastal lagoons – Rügen Lagoons (Vitt Lagoon), Strelasund (Stralsund) and an outer estuary – Warnow Estuary (Breitling), probably all drifting records

Ecology	
Substrate	hard bottom and plants or animals – stones, wood, blue mussels (dead shells and live mussels), bryozoans and on various plants ( <i>Fucus</i> , <i>Zostera marina</i> )
Attachment	epilithic and epiphytic/epizoic
Salinity	$\beta$ -mesohaline to euhaline (fully marine)
Vertical zone	hydrolittoral to upper infralittoral – from 0,1 to a few meters depth
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
a characteristic spring/early summer taxon, which may have already disappeared during the usual monitoring period in summer/ late summer; a common algae of open coasts, only randomly in coastal lagoons or estuaries	
References	
40 45 46 48 53 54 60 64 81 82 86 89 90 95 121 132 133 159 164 165 166 178 180 187 190 204 206	





## *Spermatochnus paradoxus* (Roth) Kützing, 1843

Taxonomy	
<i>Phylum</i>	Heterokontophyta
<i>Class</i>	Phaeophyceae
<i>Order</i>	Ectocarpales
<i>Family</i>	Chordariaceae
<i>Subspecies</i>	–
<i>Synonyms</i>	<i>Chordaria paradoxa</i> (Roth) Lyngbye, 1819 <i>Chordaria rhizodes</i> var. <i>paradoxa</i> (Roth) C. Agardh, 1817 <i>Conferva paradoxa</i> Roth, 1806 <i>Scytosiphon paradoxus</i> (Roth) Hornemann, 1818 <i>Stilophora lyngbyei</i> J. Agardh, 1841 <i>Stilophora paradoxa</i> (Roth) Areschoug, 1845
Distribution	
<i>Baltic Sea</i>	western Baltic Sea – from Kattegat to Arkona Sea (DE, DK, SE)
<i>German Baltic Sea</i>	few, exclusively historical records along the western open coastline – Flensburg Fjord (Gelt-ing), Kiel Bay (Eckernförde, various locations in Kiel Fjord, Heiligenhafen, around Fehmarn), Bay of Mecklenburg (Travemünde Bay, Rerik); a single record in a coastal bay – Wismar Bay (Walfisch)

Ecology	
<i>Substrate</i>	plants – on various algae ( <i>Fucus</i> )
<i>Attachment</i>	epiphytic
<i>Salinity</i>	$\alpha$ -mesohaline to euhaline (fully marine)
<i>Vertical zone</i>	upper Infralittoral – from 2 to about 10 m depth
<i>Exposure</i>	sheltered to very exposed
Conservation	
<i>Red List</i>	<b>LC</b> (Baltic Sea), <b>0</b> (DE)
<i>Threats</i>	–
Remarks	
References	
81 82 95 104 127 180 190 206	



## *Sphacelaria cirrosa* (Roth) C. Agardh, 1824

Taxonomy	
<i>Phylum</i>	Heterokontophyta
<i>Class</i>	Phaeophyceae
<i>Order</i>	Sphacelariales
<i>Family</i>	Sphacelariaceae
<i>Subspecies</i>	–
<i>Synonyms</i>	<i>Ceramium cirrosium</i> (Roth) C. Agardh, 1811 <i>Conferva cirrosa</i> Roth, 1800 <i>Sphacelaria bipinnata</i> (Kützinger) Piccone, 1884 <i>Sphacelaria hystrix</i> Suhr ex Reinke <i>Sphacelaria irregularis</i> Kützinger <i>Sphacelaria rhizophora</i> Kützinger <i>Stypocaulon bipinnatum</i> Kützinger, 1855
Distribution	
<i>Baltic Sea</i>	western Baltic Sea – from Kattegat to Bornholm Basin and Bay of Gdansk (DE, DK, PL, SE); records from Western Gotland Basin and Northern Baltic Proper in Nielsen 1995 (148) could not be verified
<i>German Baltic Sea</i>	few historical records, but regularly part of recent observations along the western open coastline and on shallow stony rises – from Neukirchen to Fehmarn and Fehmarnbelt; fewer records east of Fehmarn – Bay of Mecklenburg (Walkyriengrund, Neustadt, Brodten, Travemünde, Priwall, Heiligendamm), Arkona Sea (Zingst, west coast of Hiddensee, Arkona, Nordperd/Göhren at Island Rügen)

Ecology	
<i>Substrate</i>	(rarely) hard bottom and plants or animals – stones, blue mussels (dead shells and live mussels) and on various algae ( <i>Fucus</i> , <i>Phyllophora</i> , <i>Laminaria</i> )
<i>Attachment</i>	epilithic and epiphytic/epizoic
<i>Salinity</i>	$\beta$ -mesohaline to euhaline (fully marine)
<i>Vertical zone</i>	upper infralittoral – from 3 to about 10 m depth
<i>Exposure</i>	very sheltered to very exposed
Conservation	
<i>Red List</i>	<b>LC</b> (Baltic Sea), <b>G</b> (DE)
<i>Threats</i>	–
Remarks	
unfertile specimens can be confused with other species of the Sphacelariaceae; compared to historical records, apparently becoming more frequent as epiphyte during the last decades	
References	
25 33 53 54 81 82 121 127 149 151 153 165 190 206	



## *Sphaerotrichia divaricata* (C. Agardh) Kylin, 1940

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Ectocarpales
Family	Chordariaceae
Subspecies	–
Synonyms	<i>Castagnea divaricata</i> (C. Agardh) J. Agardh, 1882 <i>Chordaria divaricata</i> C. Agardh, 1817 <i>Nemacystus divaricatus</i> (C. Agardh) Hygen, 1934 <i>Sphaerotrichia divaricata</i> f. <i>typica</i> Inagaki, 1954 <i>Sphaerotrichia japonica</i> Kylin, 1904
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Bay of Mecklenburg (DK, DE)
German Baltic Sea	few historical records, but regularly part of recent observations along the western open coastline up to the Island Fehmarn – Flensburg Fjord (Neukirchen), Kiel Bay (Oehe-Schleimünde, Schleimünde, Boknis Eck, Karlsminde, various records in Kiel Fjord, Hohwacht, Eitzgrund, Strukkamphuk), Bay of Mecklenburg (southeast coast of Fehmarn, Großenbrode)

Ecology	
Substrate	hard bottom and plants – stones and on various algae ( <i>Fucus</i> )
Attachment	epilithic and epiphytic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	upper infralittoral – from 2 to 4 m depth
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>G</b> (DE)
Threats	–
Remarks	
compared to historical records apparently becoming more frequent during the last decades	
References	
53 54 81 82 95 153 190 206	

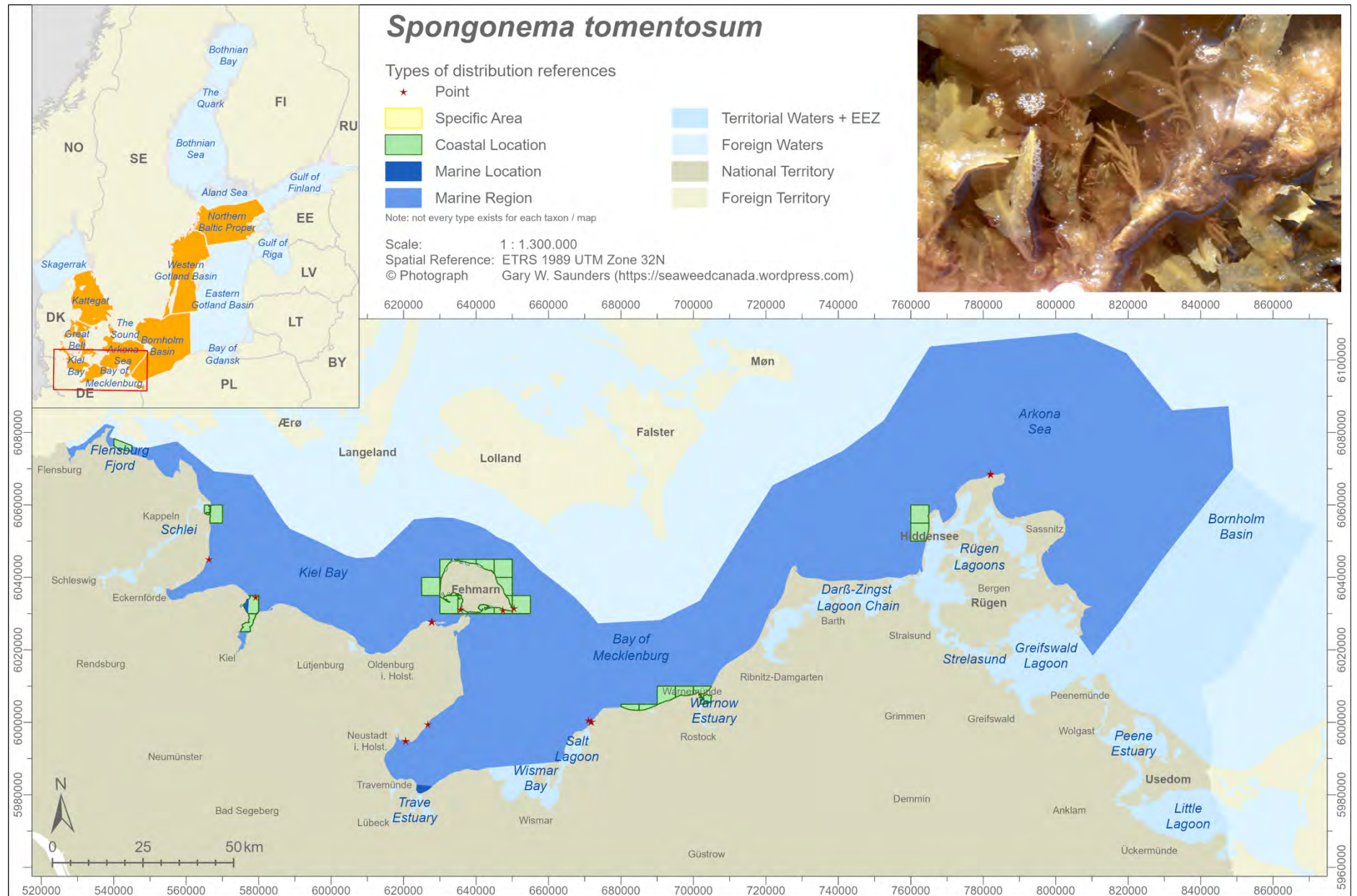


## *Spongonema tomentosum* (Hudson) Kützing, 1849

Taxonomy	
<i>Phylum</i>	Heterokontophyta
<i>Class</i>	Phaeophyceae
<i>Order</i>	Ectocarpales
<i>Family</i>	Ectocarpaceae
<i>Subspecies</i>	–
<i>Synonyms</i>	<i>Ceramium tomentosum</i> (Hudson) Roth, 1800 <i>Chordaria tomentosa</i> (Hudson) Fries, 1845 <i>Conferva tomentosa</i> Hudson, 1762 <i>Ectocarpus tomentosus</i> (Hudson) Lyngbye, 1819 <i>Scytosiphon tomentosus</i> (Hudson) J. Agardh, 1848
Distribution	
<i>Baltic Sea</i>	western and central Baltic Sea – from Kattegat to Northern Baltic Proper (DE, DK, SE)
<i>German Baltic Sea</i>	several records all along the open coastline – Flensburg Fjord (Langballigau), Kiel Bay (Schleimünde, various locations in Kiel Fjord, Heiligenhafen, around Fehmarn), Bay of Mecklenburg (Neustadt, Travemünde Bay, Rerik, Kühlungsborn to Warnemünde), Arkona Sea (northwest coast of Hiddensee, Arkona)

Ecology	
<i>Substrate</i>	(rarely) hard bottom and plants – stones and on various algae ( <i>Coccotylus</i> , <i>Fucus</i> )
<i>Attachment</i>	epilithic and epiphytic
<i>Salinity</i>	$\beta$ -mesohaline to euhaline (fully marine)
<i>Vertical zone</i>	upper infralittoral – from 0,5 to about 10 m depth
<i>Exposure</i>	sheltered to very exposed
Conservation	
<i>Red List</i>	<b>LC</b> (Baltic Sea), * (DE)
<i>Threats</i>	–
Remarks	
without sporangia confusion with <i>Pylaiella littoralis</i> possible, which may also show intertwined threads	
References	
11 46 52 53 64 81 82 95 115 121 127 139 151 159 165 170 187 190 206	

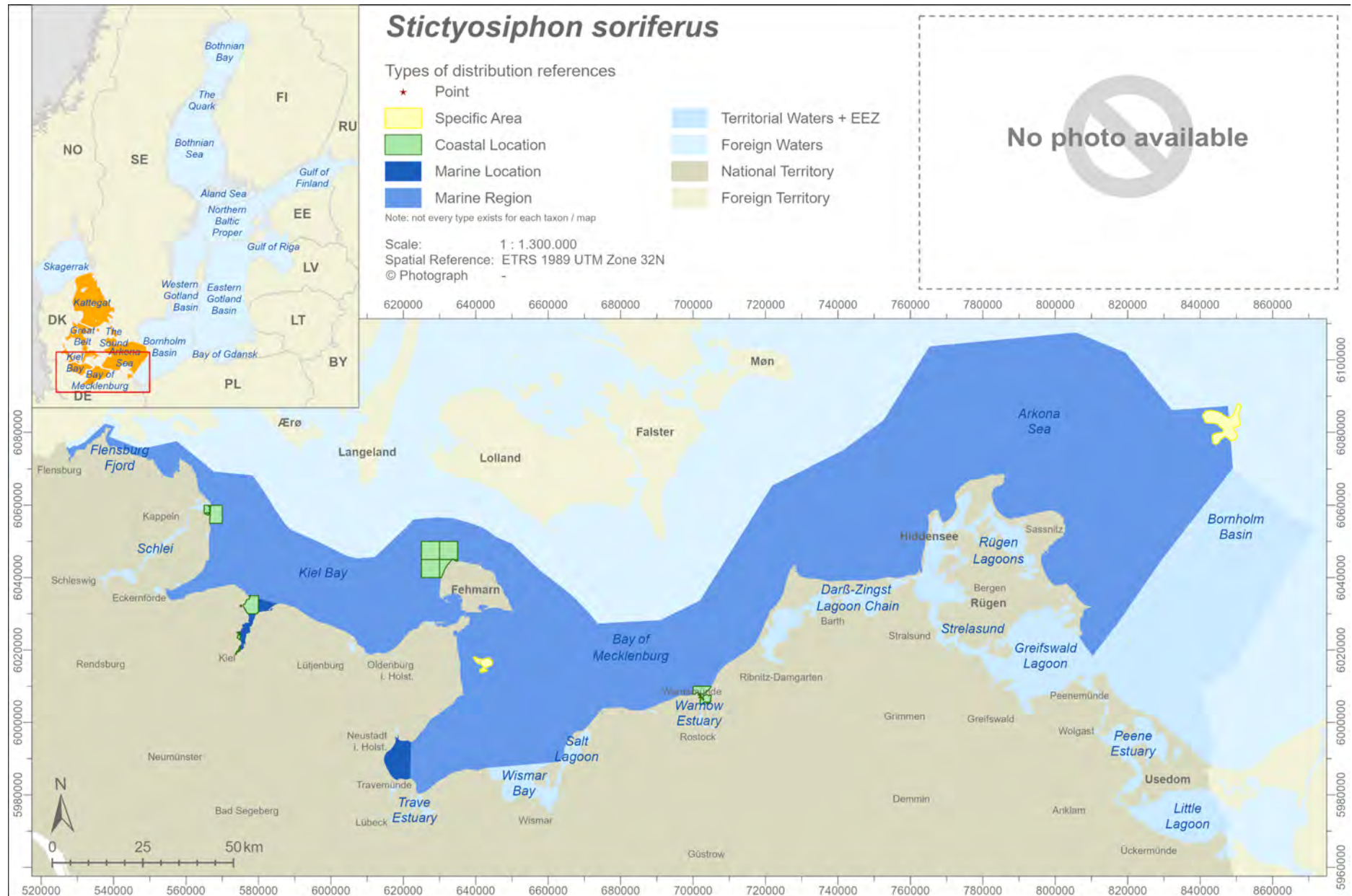




## *Stictyosiphon soriferus* (Reinke) Rosenvinge, 1935

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Ectocarpales
Family	Chordariaceae
Subspecies	–
Synonyms	<i>Kjellmania arasakii</i> Yamada, 1953 <i>Kjellmania sorifera</i> Reinke, 1889 <i>Kjellmania striarioides</i> Gran, 1897
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Arkona Sea (DE, DK, SE)
German Baltic Sea	few, exclusively historical records along the open, exposed coastline and two offshore stony rise – Flensburg Fjord, Kiel Bay (Schleimünde, various locations in Kiel Fjord, north-west of Fehmarn), Bay of Mecklenburg (Sagabank, Neustadt Bay, Warnemünde), Arkona Sea (Adlergrund at the offshore DE/PL border)

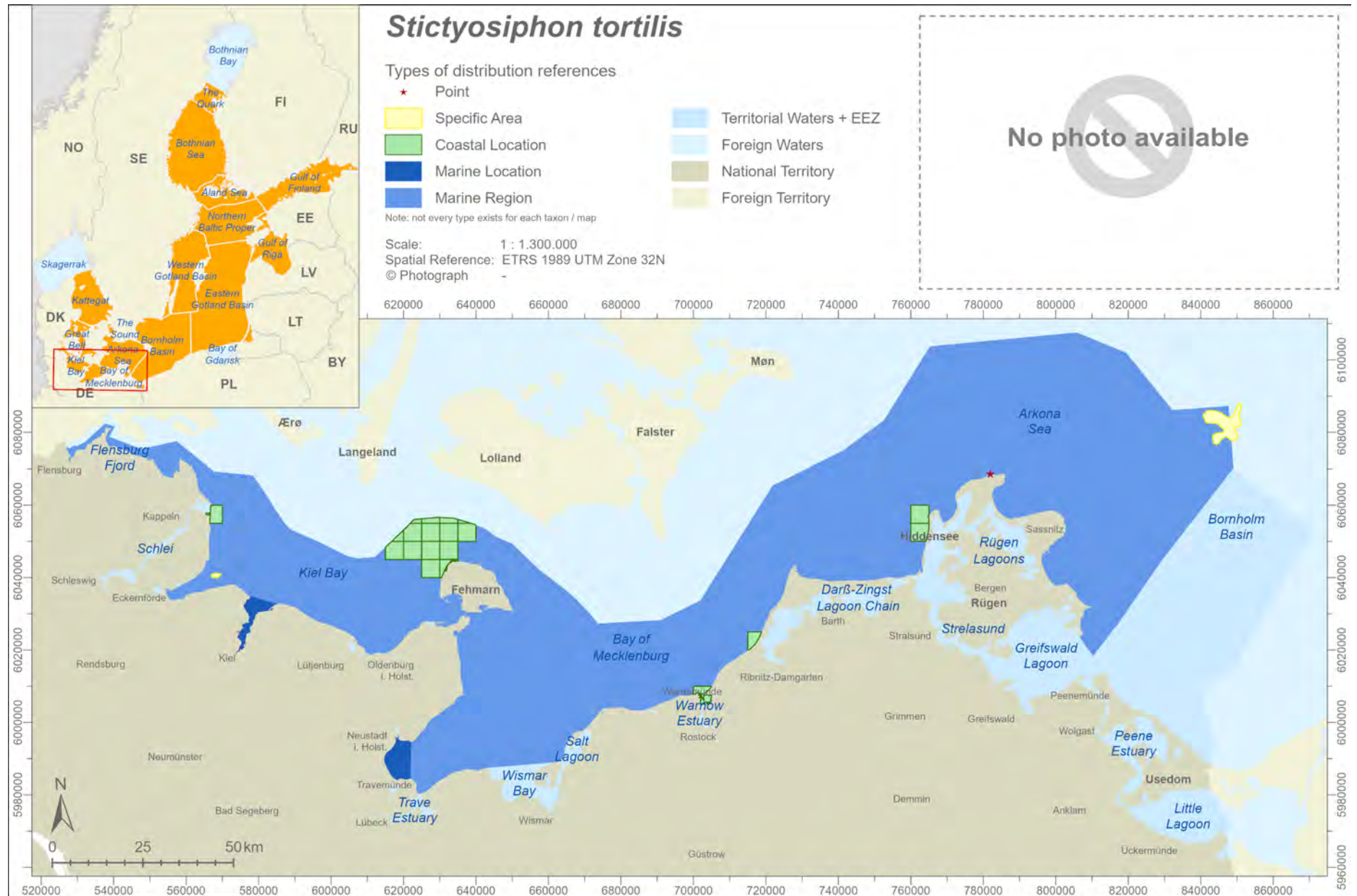
Ecology	
Substrate	hard bottom and plants or animals – stones, gravel, blue mussels (dead shells and live mussels) and on various larger algae ( <i>Fucus serratus</i> )
Attachment	epilithic and epiphytic/epizoic
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – only above 10 psu when considering vertical zonation (brackish water submergence)
Vertical zone	lower Infralittoral – from 10 to about 25 m depth
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>D</b> (DE)
Threats	–
Remarks	
References	
46 81 82 95 190 206	



## *Stictyosiphon tortilis* (Gobi) Reinke, 1889

Taxonomy	
<i>Phylum</i>	Heterokontophyta
<i>Class</i>	Phaeophyceae
<i>Order</i>	Ectocarpales
<i>Family</i>	Chordariaceae
<i>Subspecies</i>	–
<i>Synonyms</i>	<i>Dictyosiphon tortilis</i> Gobi, 1874 <i>Phloeospora pumila</i> Kjellman, 1877 <i>Phloeospora tortilis</i> (Gobi) J.E. Areschoug, 1876 <i>Scytosiphon tortilis</i> Ruprecht, 1850
Distribution	
<i>Baltic Sea</i>	entire Baltic Sea coastline with exception of northeastern most part – from Kattegat to Bothnian Sea / The Quark (all neighbouring countries apart from LT, PL); records from Bay of Gdansk and Bothnian Bay in Nielsen 1995 (148) could not be verified
<i>German Baltic Sea</i>	few records along the open, exposed coastline and onto offshore stony rises – Flensburg Fjord, Kiel Bay (Schleimünde, Eckernförder Mittelgrund, Kiel Fjord, northwest of Fehmarn), Bay of Mecklenburg (Neustadt Bay, Warnemünde, Dierhagen), Arkona Sea (northwest coast of Hiddensee, Arkona, Adlergrund)

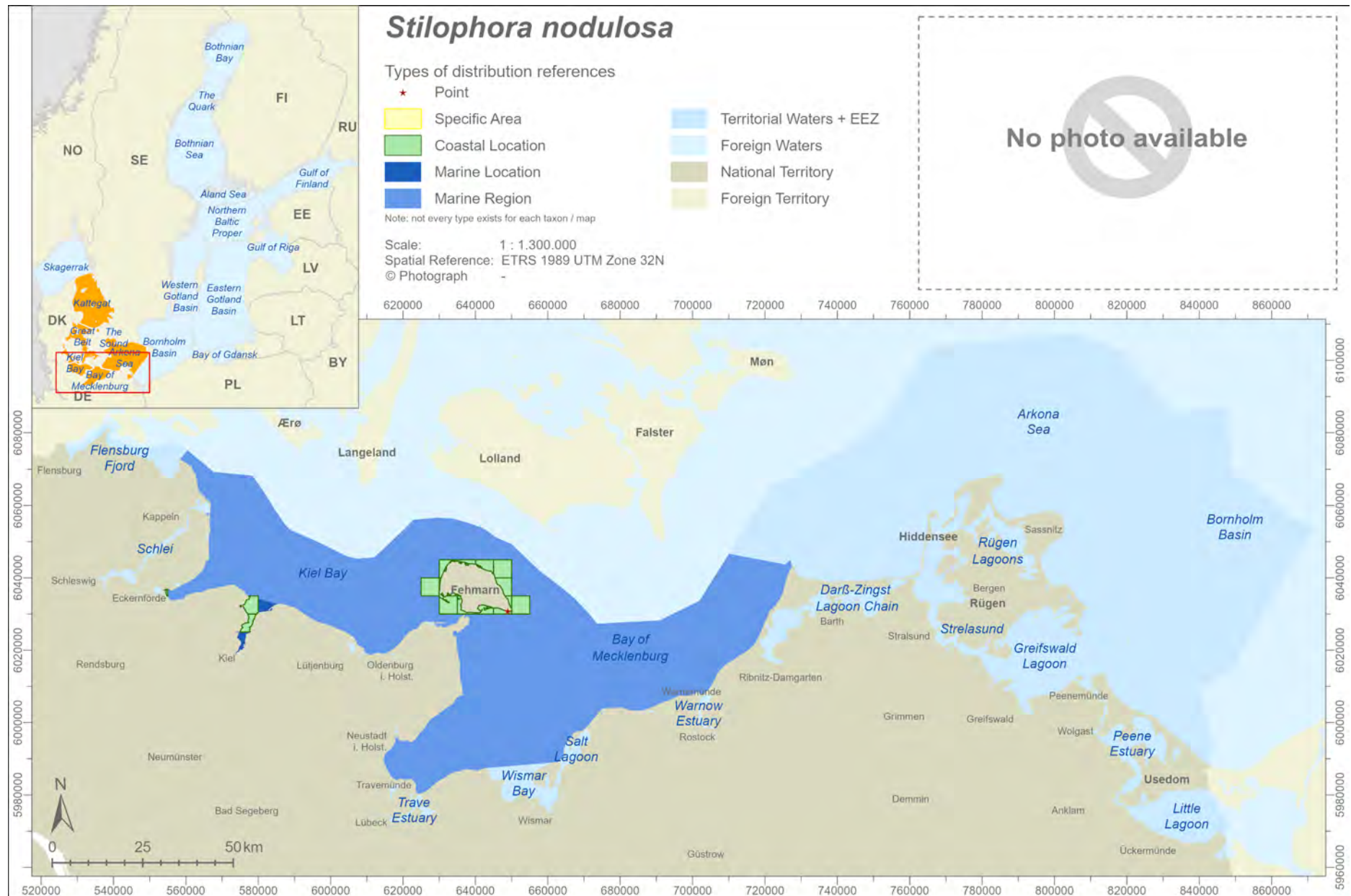
Ecology	
<i>Substrate</i>	hard bottom and plants or animals – stones, gravel, blue mussels (dead shells and live mussels) and on various larger algae ( <i>Fucus serratus</i> )
<i>Attachment</i>	epilithic and epiphytic/epizoic
<i>Salinity</i>	$\beta$ -mesohaline to euhaline (fully marine)
<i>Vertical zone</i>	upper to lower infralittoral – from 7 to about 20 m depth; a single record from 1m depth
<i>Exposure</i>	sheltered to very exposed
Conservation	
<i>Red List</i>	<b>LC</b> (Baltic Sea), * (DE)
<i>Threats</i>	–
Remarks	
References	
33 46 64 81 82 90 121 151 159 190 206	



## *Stilophora nodulosa* (C. Agardh) P.C. Silva, 1996

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Ectocarpales
Family	Chordariaceae
Subspecies	–
Synonyms	<i>Castagnea tuberculosa</i> Hornemann) J. Agardh, 1882 <i>Chaetophora nodulosa</i> C. Agardh, 1817 <i>Chordaria tuberculosa</i> (Hornemann) Lyngbye, 1819 <i>Stilophora tuberculosa</i> (Hornemann) Reinke, 1889
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Arkona Sea (DE, DK)
German Baltic Sea	six records along the western open coastline – Kiel Bay (Eckernförde, various locations in Kiel Fjord, Heiligenhafen), Bay of Mecklenburg (around Fehmarn, Staberhuk)

Ecology	
Substrate	plants – on <i>Fucus</i>
Attachment	epiphytic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	hydrolittoral to upper infralittoral
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
declines in abundance of the basiphyt <i>Fucus</i> could be the cause of the recent rarity of records	
References	
54 81 82 187 190 206	

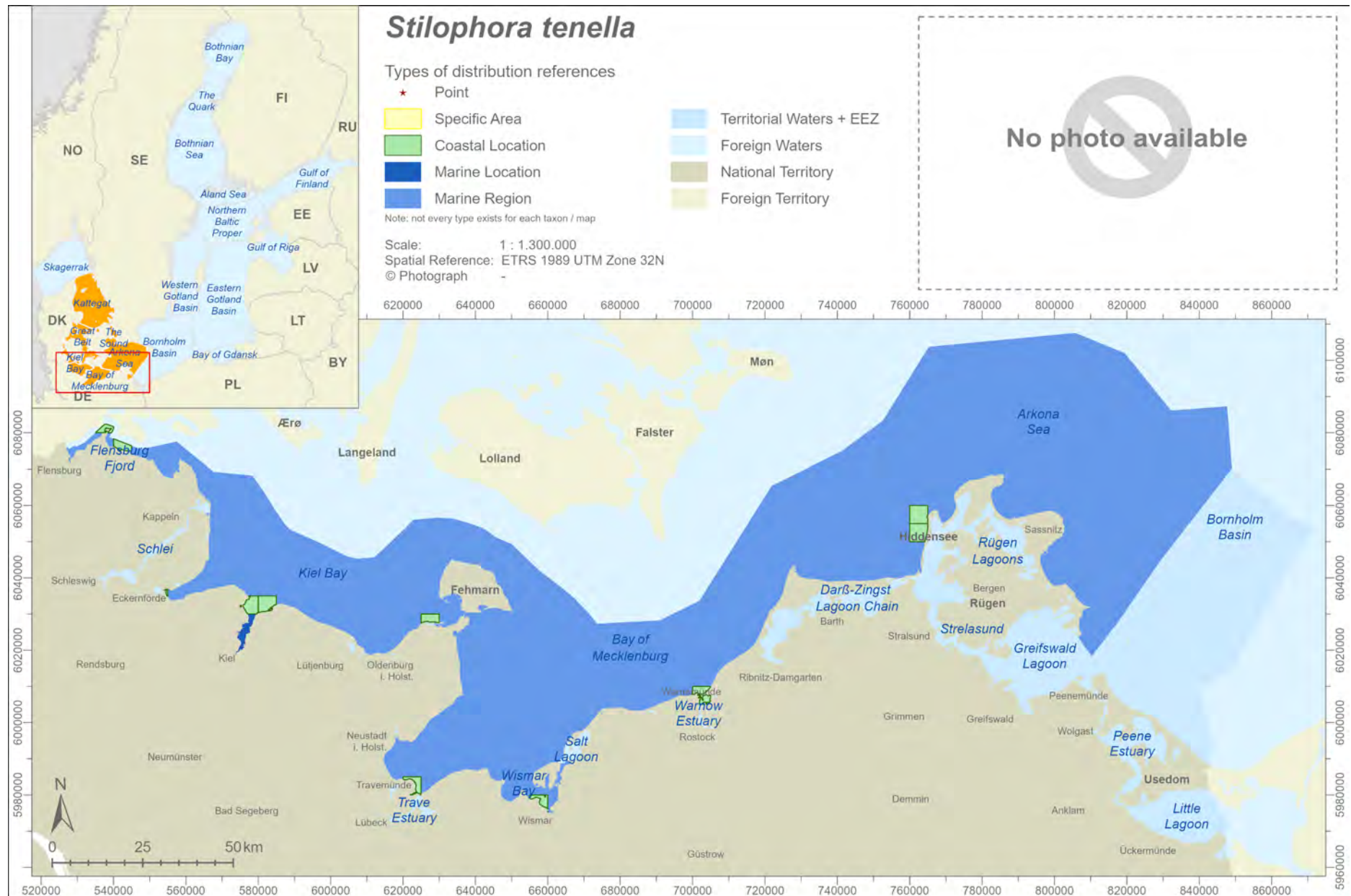


## *Stilophora tenella* (Esper) P.C. Silva, 1996

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Ectocarpales
Family	Chordariaceae
Subspecies	–
Synonyms	<i>Chordaria rhizodes</i> (C. Agardh) C. Agardh, 1817 <i>Dictyota rhizoides</i> (Turner) Lamouroux, 1824 <i>Sporochnus rhizodes</i> (C. Agardh) C. Agardh, 1820 <i>Stilophora rhizodes</i> (C. Agardh) J. Agardh, 1841
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Arkona Sea (DE, DK); records from Bornholm Basin in Nielsen 1995 (148) could not be verified
German Baltic Sea	few, exclusively historical records along the open, exposed coastline – Flensburg Fjord (Holnis, Langballigau,), Kiel Bay (Eckernförde, various locations in Kiel Fjord, Heiligenhafen), Bay of Mecklenburg (Travemünde, Warnemünde), Arkona Sea (northwest coast of Hiddensee); a single record in a coastal bay – Wismar Bay (Island Walfisch)

Ecology	
Substrate	plants – on <i>Fucus</i>
Attachment	epiphytic
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – only a single record from lower salinities
Vertical zone	upper infralittoral – from 2 to about 6 m depth
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
declines in abundance of the basiphyt <i>Fucus</i> could be the cause of the recent rarity of records	
References	
5 19 81 82 95 104 121 159 187 190 206	





## *Stragularia clavata* (Harvey) Hamel, 1939

Taxonomy	
Phylum	Heterokontophyta
Class	Phaeophyceae
Order	Ectocarpales
Family	Scytosiphonaceae
Subspecies	–
Synonyms	<i>Myrionema clavata</i> Harvey, 1833 <i>Myrionema henschei</i> Caspary, 1871 <i>Ralfsia bornetii</i> Kuckuck, 1894 <i>Ralfsia clavata</i> P.L. Crouan & H.M. Crouan, 1852 <i>Ralfsia tenuis</i> Kylin, 1947 <i>Stragularia adhaerens</i> Strömfelt, 1886
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Arkona Sea (DE, DK); records from Bay of Gdansk in Nielsen 1995 (148) could not be verified
German Baltic Sea	six records along the western, open part of the coastline – Kiel Bay (several locations in Kiel Fjord), Bay of Mecklenburg (Kühlungsborn to Warnemünde)

Ecology	
Substrate	hard bottom and plants or animals – stones, smaller stones, blue mussels (dead shells and live mussels) and on <i>Zostera marina</i>
Attachment	epilithic and epiphytic/epizoic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	upper infralittoral – from 0,2 to about 8 m depth
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>D</b> (DE)
Threats	–
Remarks	
crustose algae are not the focus of recent macrophyte monitoring programs, may remain unnoticed and are therefore underrepresented in datasets	
References	
46 81 82 95 187 190 206	



## *Acrosiphonia arcta* (Dillwyn) Gain, 1912

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ultrichales
Family	Ultrichaceae
Subspecies	–
Synonyms	<i>Acrosiphonia centralis</i> (Lyngbye) Kjellman, 1893 <i>Cladophora arcta</i> (Dillwyn) Kützting <i>Cladophora lanosa</i> (Roth) Kützting, 1843 <i>Cladophora radians</i> Kützting, 1863 <i>Cladophora rhizophora</i> Kützting <i>Spongomorpha centralis</i> (Lyngbye) Kützting
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of eastern central parts – from Kattegat to Bothnian Bay (DE, DK, FI, SE); records from Bay of Gdansk, Eastern Gotland Basin and Gulf of Finland in Nielsen 1995 (148) could not be verified
German Baltic Sea	few records along the western open coastline – Flensburg Fjord (Glücksburg, Langballigau, Gelting Bay), Kiel Bay (Boknis Eck, various records in Kiel Fjord, Orth Bay); a single record in a coastal lagoon – Bay of Mecklenburg (Burg Inland Lake – probably drift material or misidentification)

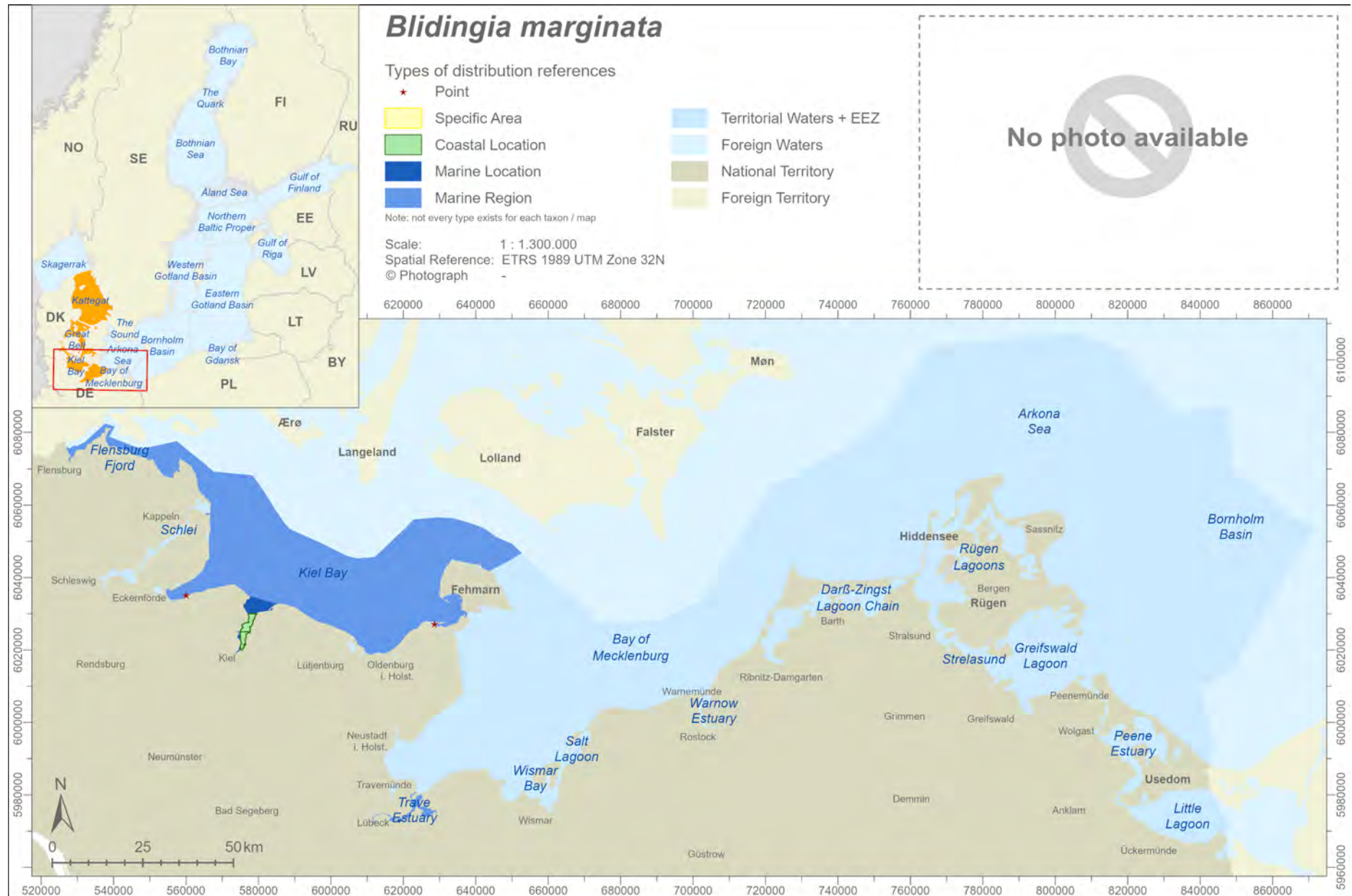
Ecology	
Substrate	hard bottom and plants – stones, wood and on various algae and <i>Zostera marina</i>
Attachment	epilithic and epiphytic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	upper to lower Infralittoral – from 2 to about 12 m depth
Exposure	(very) sheltered to exposed – very sheltered location in an inland lake probably drifting material or misidentification
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>D</b> (DE)
Threats	–
Remarks	
a characteristic seaweed of open coasts, only randomly in coastal lagoons or estuaries	
References	
45 53 81 82 89 95 133 149 190 192 206	



## *Blidingia marginata* (J. Agardh) P.J.L. Dangeard ex Bliding, 1963

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ulvales
Family	Kornmanniaceae
Subspecies	–
Synonyms	<i>Enteromorpha complanata</i> var. <i>confervacea</i> Kützinger, 1845 <i>Enteromorpha intestinalis</i> var. <i>micrococca</i> (Kützinger) Rosenvinge <i>Enteromorpha marginata</i> J. Agardh, 1842 <i>Enteromorpha micrococca</i> Kützinger, 1856 <i>Enteromorpha nana</i> var. <i>marginata</i> (J. Agardh) V.J. Chapman, 1956
Distribution	
Baltic Sea	only western Baltic Sea – from Kattegat to Bay of Mecklenburg (DE, DK); records from Bay of Gdansk in Nielsen 1995 (148) could not be verified
German Baltic Sea	few historic records from the open western coastline – Flensburg Fjord (without further geographical specification), Kiel Bay (various locations in Kiel Fjord); three records in coastal lagoons or estuaries – Kiel Bay (Aschau, Heiligenhafen Inland Lake), Trave Estuary (Schlutup Bight)

Ecology	
Substrate	hard bottom – stones, wood
Attachment	epilithic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	hydrolittoral – shoreline, sea surface level
Exposure	extremely sheltered to moderately exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
can be confused with <i>Blidingia minima</i> or other <i>Blidingia</i> species occurring in the Baltic Sea according to recent genetic analyses (225)	
References	
48 60 81 82 95 120 124 190 206 225	

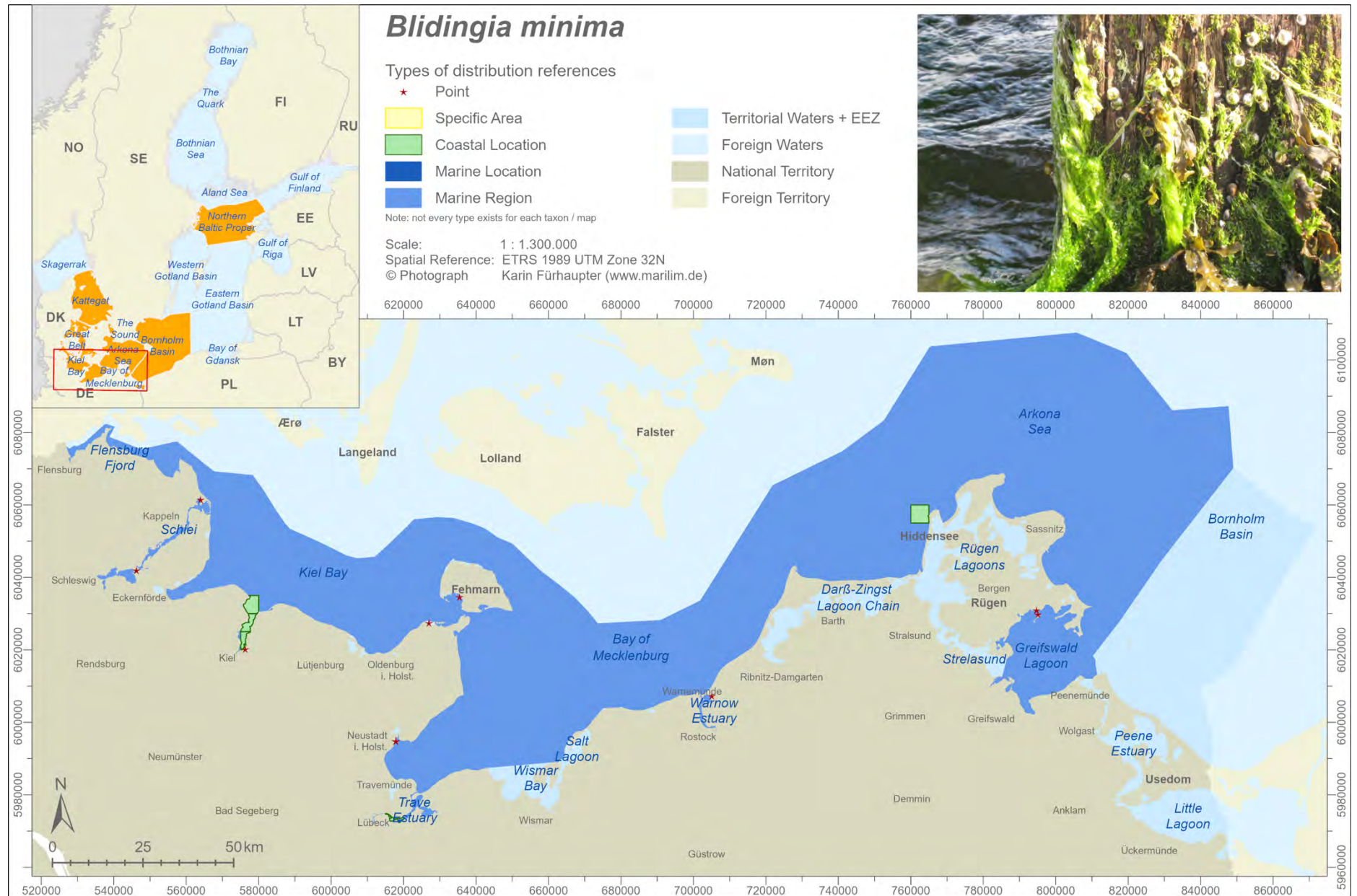


## *Blidingia minima* (Nägeli ex Kützing) Kylin, 1947

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ulvales
Family	Kornmanniaceae
Subspecies	–
Synonyms	<i>Blidingia minima</i> var. <i>capillaris</i> <i>Blidingia nana</i> (Sommerfelt) Bliding, 1963 <i>Enteromorpha minima</i> Nägeli ex Kützing, 1849 <i>Enteromorpha nana</i> (Sommerfelt) Sjöstedt, 1939 <i>Ulva intestinalis</i> var. <i>nana</i> Sommerfelt, 1826
Distribution	
Baltic Sea	western Baltic Sea and one central part – from Kattegat to Bornholm Basin and Northern Baltic Proper (DE, DK, SE); records from Bay of Gdansk, Gulf of Finland, Åland, Archipelago and Bothnian Sea in Nielsen 1995 (148) could not be verified
German Baltic Sea	historic records from Flensburg Fjord (no further specification), Kiel Bay (various locations in Kiel Fjord), Trave Estuary (Herrenbrücke), Arkona Sea (northwest of Hiddensee); several more recent records from coastal bays, lagoons and estuaries – Schlei (Missunde, Wormshöft), Kiel Bay (Wellingdorf, Heiligenhafen, Lemkenhafen), Bay of Mecklenburg (Neustadt), Warnow Estuary (Schnatermann), Greifswald Lagoon (Goos, Vilm)

Ecology	
Substrate	hard bottom – stones, concrete walls, wooden piles
Attachment	epilithic
Salinity	$\beta$ -mesohaline to euhaline (fully marine)
Vertical zone	supra- to hydrolittoral – shoreline, sea surface level
Exposure	very sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
<i>Blidingia minima</i> has more historical records compared to <i>B. marginata</i> ; however recently performed DNA analyses (225) showed a larger distribution range for other <i>Blidingia</i> species and no clear allocation of samples to <i>B. minima</i>	
References	
40 48 52 60 64 70 81 82 95 120 124 190 192 206 225	

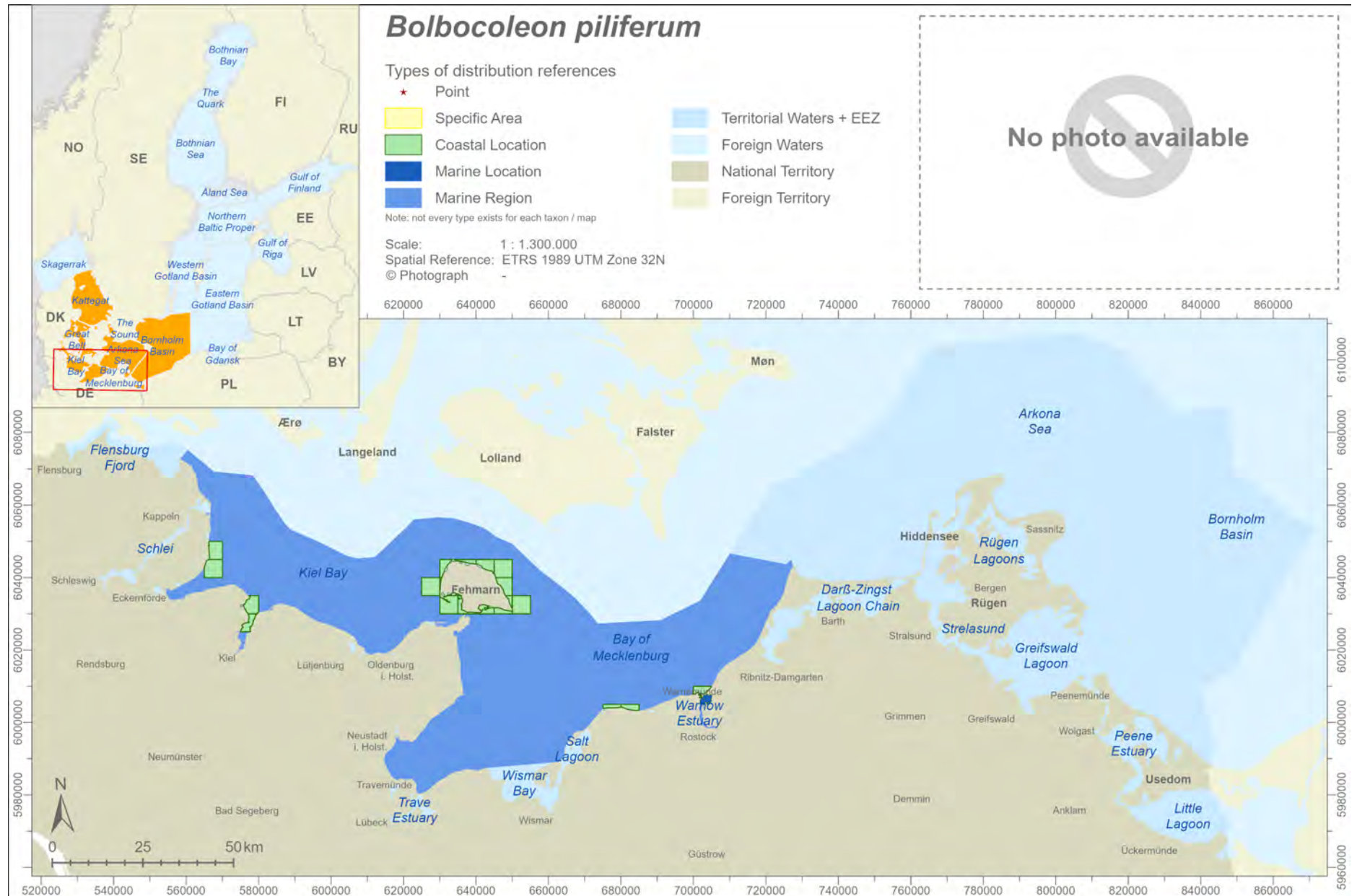




## *Bolbocoleon piliferum* N. Pringsheim, 1862

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ulvales
Family	Bolbocoleonaceae
Subspecies	–
Synonyms	<i>Bolbocoleau piliferum</i> N. Pringsheim
Distribution	
Baltic Sea	only western Baltic Sea – from Kattegat to Bornholm Basin (DE, DK); records from Western and Eastern Gotland Basin, Gulf of Finland, Åland and Archipelago Sea in Nielsen 1995 (148) could not be verified
German Baltic Sea	few records from 1979 or older from the western open coastline – Kiel Bay (Boknis Eck, various records in Kiel Fjord, around Fehmarn), Bay of Mecklenburg (Kühlungsborn, Warnemünde), Warnow Estuary (Breitling)

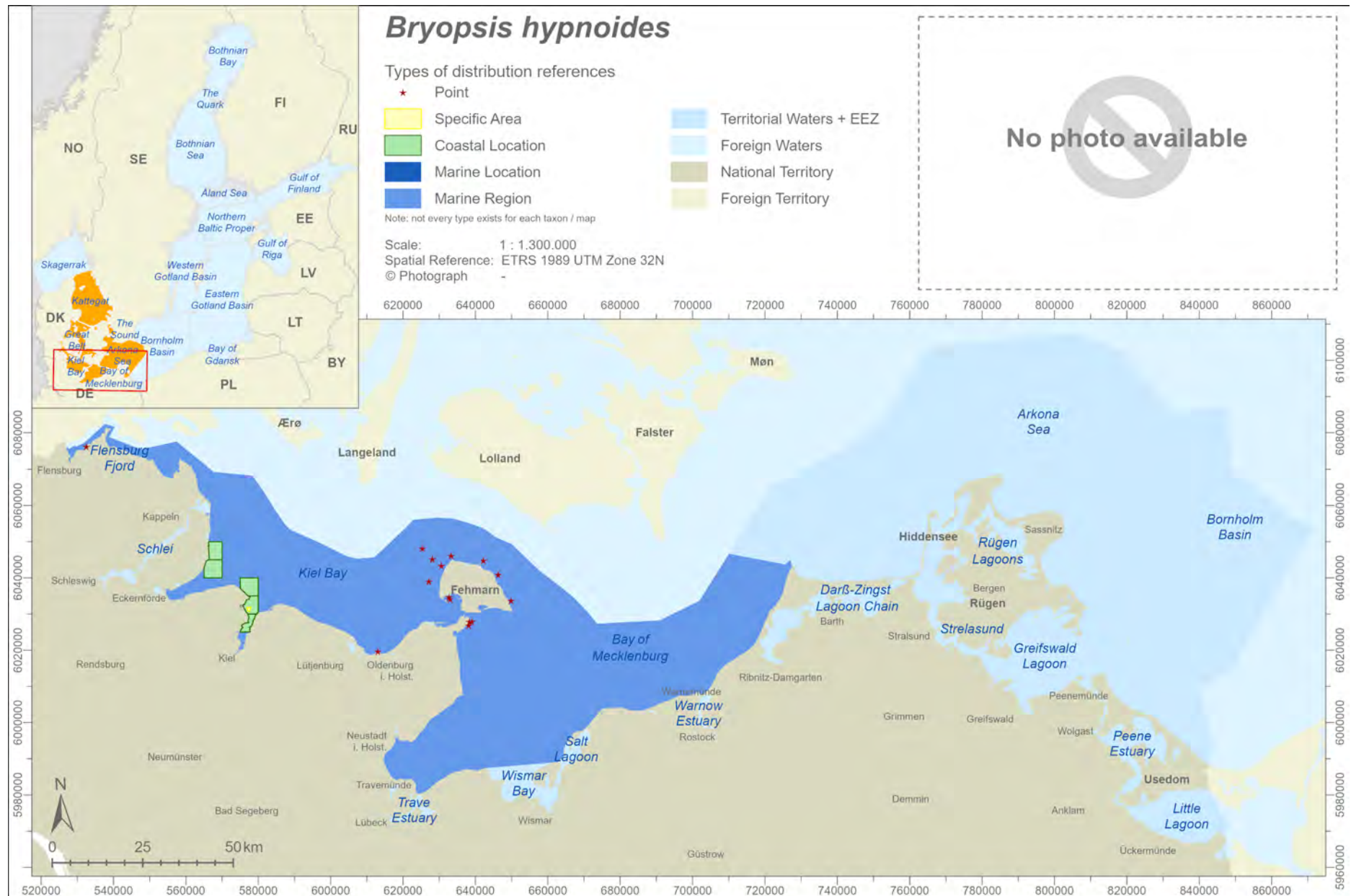
Ecology	
Substrate	plants – in and on various algae ( <i>Chorda filum</i> )
Attachment	endo- and epiphytic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	hydrolittoral to upper infralittoral – shallower than 4 m depth
Exposure	extremely sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>D</b> (DE)
Threats	–
Remarks	
possibly unnoticed in many surveys because of its tiny size	
References	
46 81 82 95 111 164 180 190 206	



## *Bryopsis hypnoides* J. V. Lamouroux, 1809

Taxonomy	
Phylum	Chlorophyta
Class	Bryopsidophyceae
Order	Bryopsidales
Family	Bryopsidaceae
Subspecies	–
Synonyms	<i>Bryopsis hypnoides</i> f. <i>atlantica</i> J. Agardh, 1887 <i>Bryopsis hypnoides</i> f. <i>praelongata</i> J. Agardh, 1887 <i>Bryopsis hypnoides</i> f. <i>prolongata</i> J. Agardh, 1887 <i>Bryopsis hypnoides</i> var. <i>occidentalis</i> <i>Bryopsis monoïca</i> Funk, 1927
Distribution	
Baltic Sea	only western Baltic Sea – from Kattegat to Arkona Sea (DE, DK, SE)
German Baltic Sea	along the western open exposed coastline and at offshore stony rises and bottoms up to east coast of Fehmarn and Wagrien – Kiel Bay (Boknis Eck, Stohl, various locations in Kiel Fjord, Eitzgrund, west and northwest of Fehmarn, Orth Bay), Bay of Mecklenburg (east coast of Fehmarn, northeast of Großenbrode)

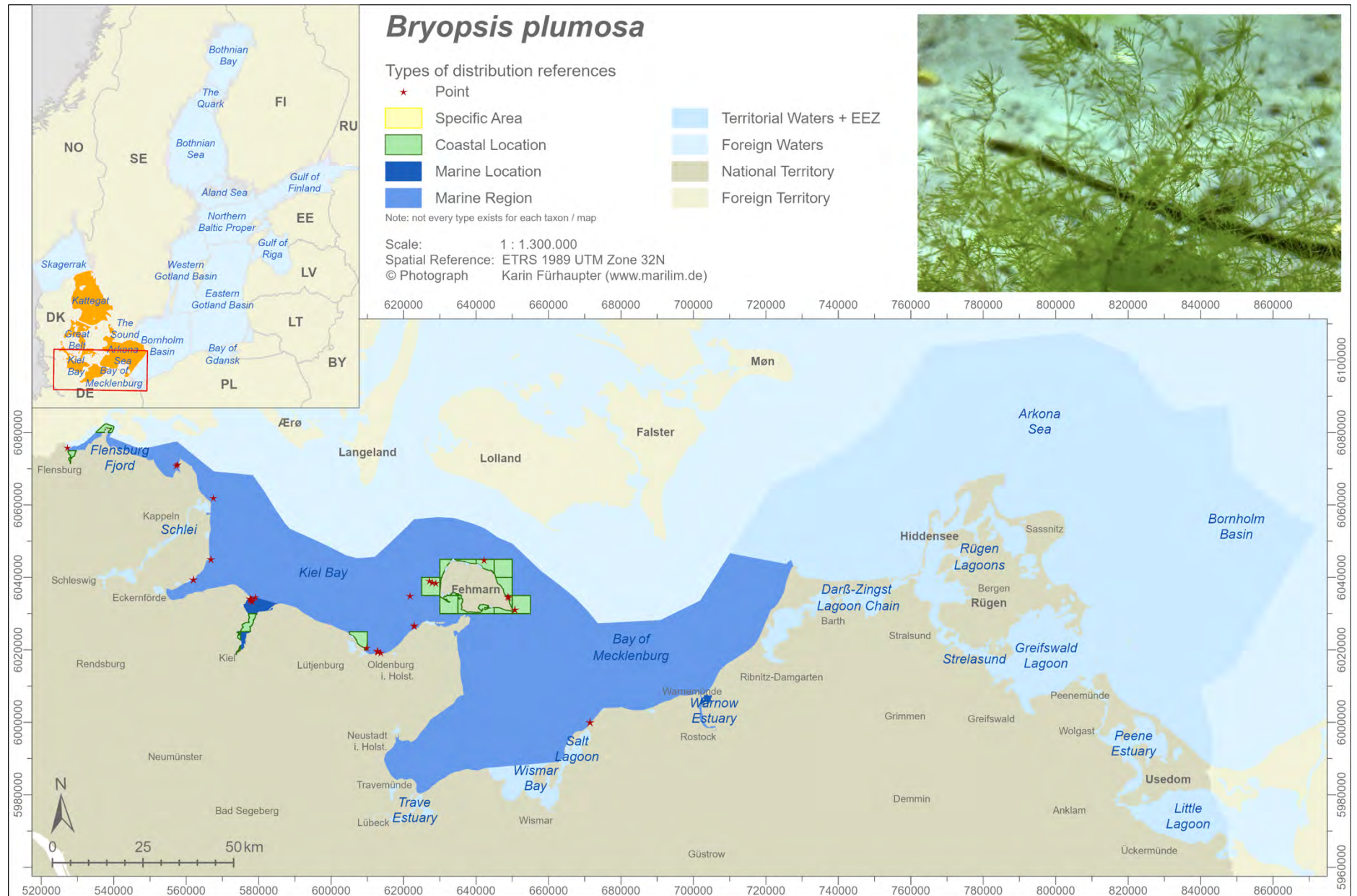
Ecology	
Substrate	hard bottom and animals – stones, wood, blue mussels (live mussels)
Attachment	epilithic and epizoic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	upper to lower infralittoral – between 2 and 12 m
Exposure	sheltered to exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
historically only <i>Bryopsis plumosa</i> was reported to occur in the Baltic Sea and listed in the relevant determination keys, which may have led to the comparable low number of records particularly in former surveys	
References	
53 54 81 82 95 126 132 133 206	



## *Bryopsis plumosa* (Hudson) C. Agardh, 1823

Taxonomy	
Phylum	Chlorophyta
Class	Bryopsidophyceae
Order	Bryopsidales
Family	Bryopsidaceae
Subspecies	–
Synonyms	<i>Bryopsis abietina</i> Kützing, 1845 <i>Bryopsis arbuscula</i> (A.P.de Candolle) J.V. Lamouroux, 1809 <i>Bryopsis hypnoides</i> var. <i>arbuscula</i> (De Candolle) Schiffner, 1935 <i>Bryopsis plumosa</i> var. <i>nuda</i> Homes <i>Conferva tenax</i> Roth, 1806 <i>Fucus arbuscula</i> A.P.de Candolle, 1805 <i>Ulva plumosa</i> Hudson, 1778
Distribution	
Baltic Sea	only western Baltic Sea – from Kattegat to Arkona Sea (DE, DK, SE)
German Baltic Sea	frequent observations from the western open coastline with few records east of Fehmarn – Flensburg Fjord (Wassersleben, Holnis, Gelting), Kiel Bay (Oehe-Schleimünde, Boknis Eck, Karlsmünde, various records in Kiel Fjord, Hohwacht, Eitzgrund, Blankeck, around Fehmarn), Bay of Mecklenburg (eastcoast of Fehmarn, Meschendorf), Warnow Estuary (Breitling)

Ecology	
Substrate	hard bottom and animals – stones, wood, blue mussels (live mussels)
Attachment	epilithic and epizoic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	upper (to lower) infralittoral – between 2 and 10 m, in literature records down to 15 m
Exposure	sheltered to exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
according to older literature and references (before 1990) the only <i>Bryopsis</i> species along the German Baltic Sea coastline	
References	
52 53 54 81 82 89 95 149 153 180 190 204 206	

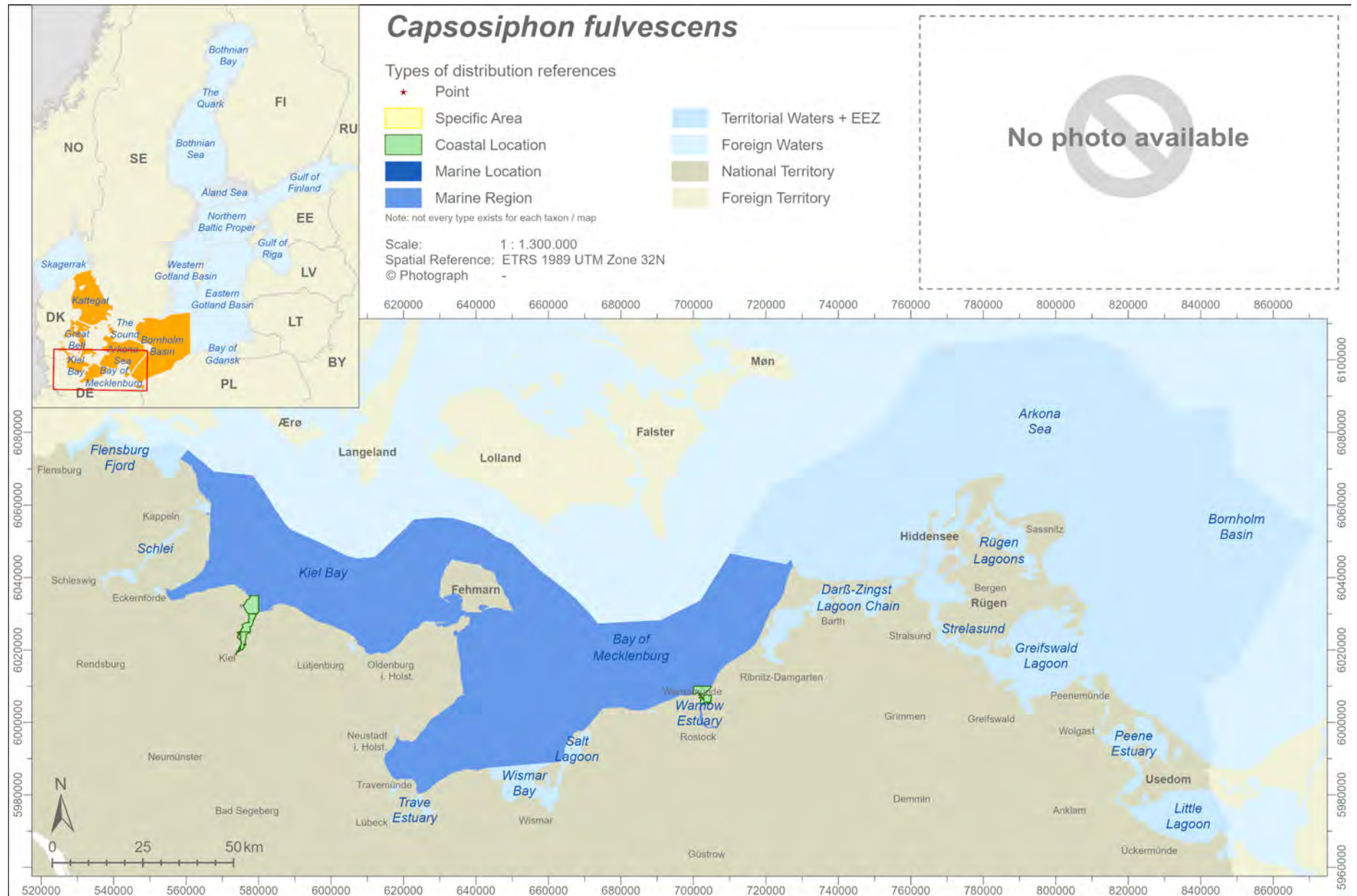


## *Capsosiphon fulvescens* (C. Agardh) Setchell & N.L. Gardner, 1920

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ulvales
Family	Capsosiphonaceae
Subspecies	–
Synonyms	<i>Bangia aureola</i> (C. Agardh) Endlicher, 1843 <i>Capsosiphon aureolus</i> (C. Agardh) Gobi, 1879 <i>Enteromorpha fulvescens</i> (C. Agardh) Greville, 1830 <i>Prasiola fulvescens</i> (C. Agardh) Trevisan, 1842 <i>Ulva aureola</i> C. Agardh, 1829 <i>Ulva fulvescens</i> C. Agardh, 1823
Distribution	
Baltic Sea	only western Baltic Sea – from Kattegat to Bornholm Basin (DE, DK); records from Bay of Gdansk, Riga and Finland as well as Northern Baltic Proper, Åland, Archipelago and Bothnian Sea in Nielsen 1995 (148) could not be verified
German Baltic Sea	various historical records but only from two geographically distinct regions – Kiel Bay (six different locations in Kiel Fjord) and Warnow Estuary (Warnemünde, Old Stream)

Ecology	
Substrate	hard bottom – stones, wood
Attachment	epilithic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	upper infralittoral
Exposure	extremely sheltered to exposed
Conservation	
Red List	<b>NE</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
References	
40 78 81 82 95 190 192 206	

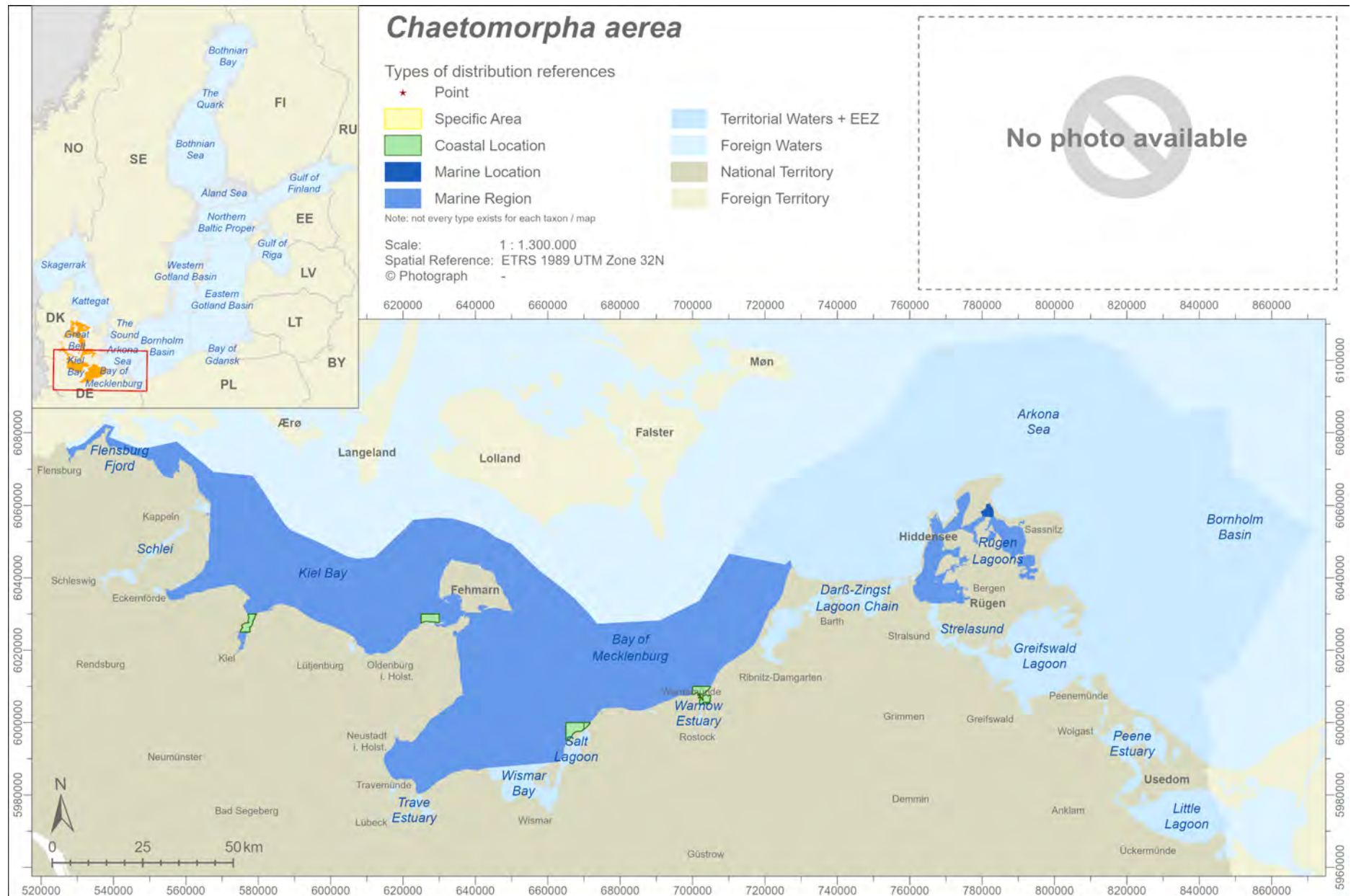




## *Chaetomorpha aerea* (Dillwyn) Kützing, 1849

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Cladophorales
Family	Cladophoraceae
Subspecies	–
Synonyms	<i>Chaetomorpha paucitatis</i> Gilbert, 1965 <i>Chaetomorpha variabilis</i> (Kützing) Kützing, 1845 <i>Chaetomorpha vasta</i> Kützing, 1849 <i>Conferva aerea</i> Dillwyn 1806
Distribution	
Baltic Sea	only along the German Baltic Sea coastline – from Belt Sea to Bay of Mecklenburg (DE); records from Kattegat in Nielsen 1995 (148) could not be verified
German Baltic Sea	six records at four locations along the western and more open part of the coastline – Kiel Bay (Möltenort, Heiligenhafen), Bay of Mecklenburg (Rerik, Warnemünde), historical records or from 1960ies, 1970ies; a single record in an inner part of a coastal lagoon from 1998 – Rügen Lagoons (Breege Lagoon)

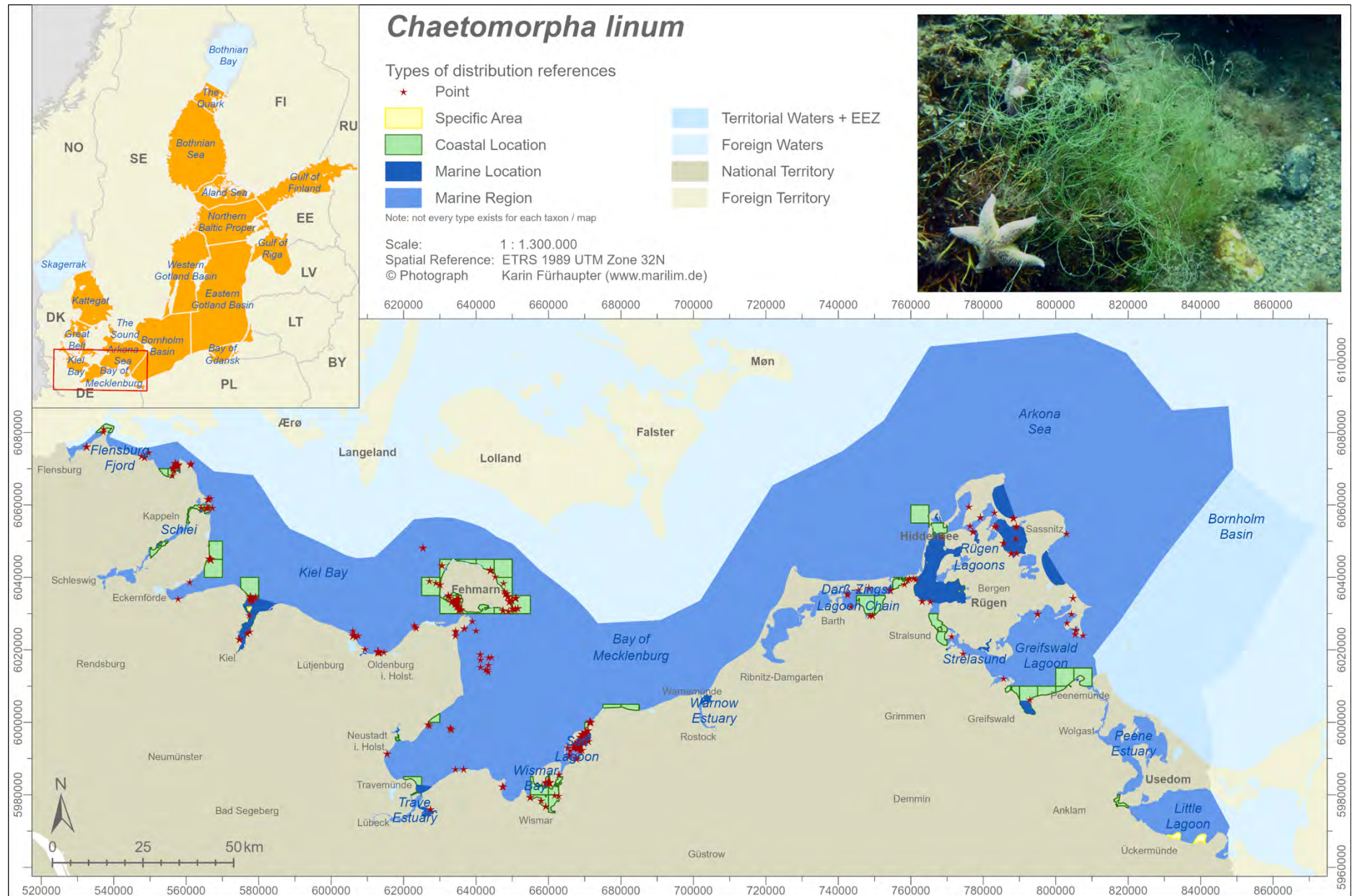
Ecology	
Substrate	hard bottom – stones, wood
Attachment	epilithic
Salinity	$\beta$ -mesohaline to euhaline (fully marine)
Vertical zone	upper infralittoral
Exposure	very sheltered to exposed
Conservation	
Red List	<b>NE</b> (Baltic Sea), – (DE)
	–
Remarks	
probably confused with other <i>Chaetomorpha</i> species as no evidence of occurrence exists from other Baltic Sea neighbouring countries	
References	
65 78 81 82 89 90 95 180 190 206	



## *Chaetomorpha linum* (O.F. Müller) Kützing, 1849

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Cladophorales
Family	Cladophoraceae
Subspecies	–
Synonyms	<i>Chaetomorpha baltica</i> Kützing <i>Chaetomorpha linum</i> f. <i>aerea</i> (Dillwyn) F.S. Collins <i>Chaetomorpha rigida</i> Kützing, 1845 <i>Chaetomorpha surtoria</i> (Berkeley) Harvey, 1858 <i>Rhizoclonium linum</i> (O.F. Müller) Thuret ex Bornet, 1892
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of northeastern part – from Kattegat to Bothnian Sea / The Quark (all neighbouring countries apart from FI, RU)
German Baltic Sea	numerous records along the entire open exposed coastline and at several offshore rises – from Flensburg to Rügen (Thiessow/ Südperd); in all coastal bays, estuaries and lagoons; rarely in coastal lakes – Kiel Bay (Sehlendorf Inland Lake), Bay of Mecklenburg (Neustadt Inland waters)

Ecology	
Substrate	soft bottom and plants or animals – overlaying sand, on blue mussels (live mussels) or various plants ( <i>Zostera</i> , <i>Fucus</i> )
Attachment	drifting (at the bottom) and epiphytic/epizoic – often entangled in mussel beds or vascular plants
Salinity	$\beta$ -oligohaline to euhaline (fully marine)
Vertical zone	upper (to lower) Infralittoral – from 0,5 to about 7 m depth (a single record from 11 m)
Exposure	extremely sheltered to (very) exposed – not at very exposed sites when considering vertical zonation
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
compared to <i>Chaetomorpha melagonium</i> not regularly deeper than 8 m, if so, drift transportation can be assumed; forming tangled balls of filaments entangled in mussel beds or plants; sometimes forming thick, decaying algae mats together with <i>Ulvaria</i> in costal lagoons in summer	
References	
13 25 40 46 48 52 53 54 60 61 63 64 65 66 68 77 80 81 82 86 92 95 100 106 108 112 113 121 126 127 129 131 133 145 149 151 152 153 165 166 167 178 180 190 196 204 206 211 227 229 232 239	



## *Chaetomorpha melagonium* (F. Weber & D. Mohr) Kützing, 1845

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Cladophorales
Family	Cladophoraceae
Species	–
Synonyms	<i>Chaetomorpha melagonium</i> f. <i>rupicola</i> Areschoug ex Kjellman, 1883 <i>Conferva malagonium</i> var. <i>rupicola</i> Areschoug <i>Conferva melagonium</i> F. Weber & Mohr 1804 <i>Ulva confervoides</i> Forsskål, 1775
Distribution	
Baltic Sea	western Baltic Sea and in one northeastern part of the Baltic Sea – from Kattegat to Bornholm Basin (DE, DK, SE) and Bothnian Sea / The Quark (SE); records from Western Gotland Basin, Northern Baltic Proper in Nielsen 1995 (148) could not be verified
German Baltic Sea	frequent records along the western open coastline and at offshore stony rises and bottoms – from Winzigerhuk in Flensburg Fjord to Meschendorf in Bay of Mecklenburg; two records for Warnow Estuary and a single record in Arkona Sea (northwest of Hiddensee) are assumed to be drifting material

Ecology	
Substrate	hard bottom and animals – stones, blue mussels (live mussels)
Attachment	epilithic and epizoic
Salinity	$\beta$ -mesohaline to euhaline (fully marine)
Vertical zone	upper to lower infralittoral – from 7 to about 20 m depth
Exposure	(extremely) sheltered to (very) exposed – only a single record at an extremely sheltered site, not at very exposed sites when considering vertical zonation
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
deepest (attached) growing green algae along the German Baltic Sea, occurring in singular filaments, not forming tangled balls of long filaments and drifting mats like <i>Chaetomorpha linum</i>	
References	
11 34 52 53 54 81 82 93 132 133 149 151 152 153 178 180 190 204 206	

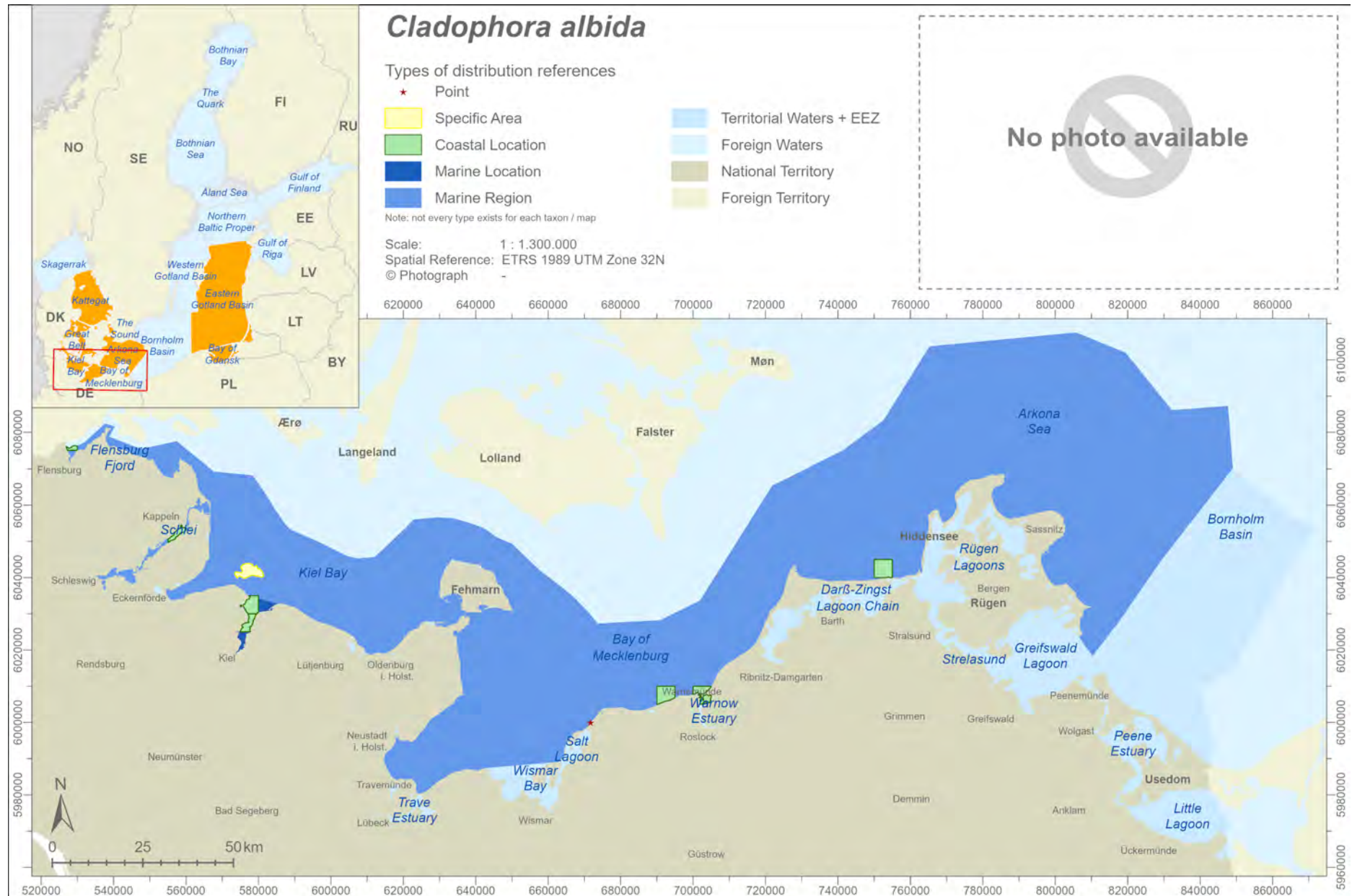


## *Cladophora albida* (Nees) Kützing, 1843

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Cladophorales
Family	Cladophoraceae
Subspecies	–
Synonyms	<i>Cladophora blidingiana</i> Kylin, 1949 <i>Cladophora curvula</i> Kützing, 1849 <i>Cladophora flexicaulis</i> Kützing, 1849 <i>Cladophora humilis</i> Kützing, 1849 <i>Cladophora lepidula</i> (Montagne) Kützing, 1849 <i>Cladophora neapolitana</i> Schiffner, 1926 <i>Cladophora reticulata</i> Kützing, 1849 <i>Cladophora tenuissima</i> Schiffner, 1931
Distribution	
Baltic Sea	western and eastern parts of central Baltic Sea – from Kattegat to Arkona Sea and Bay of Gdansk, Eastern Gotland Basin (DE, DK, EE, PL, SE); records from Western Gotland Basin in Nielsen 1995 (148) could not be verified
German Baltic Sea	few records along the western coastline and at one offshore stony rise – Flensburg Fjord (Fahrensodde), Schlei (Sieseby), Kiel Bay (Stollergrund, Bülk, Falkenstein, Kiel Fjord), Bay of Mecklenburg (Meschendorf, Nienhagen, Warnemünde)

Ecology	
Substrate	hard bottom – stones
Attachment	epilithic
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – only two records from lower salinities, misidentification assumed
Vertical zone	hydrolittoral to upper infralittoral – from the shoreline to 2 m depth
Exposure	(very) sheltered to very exposed – single record from very sheltered location, probably drifting material or misidentification
Conservation	
Red List	<b>NE</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
species in genus <i>Cladophora</i> are difficult to distinguish on the basis of morphological features; confusion with other <i>Cladophora</i> species, particularly <i>Cl. sericea</i> , can be assumed	
References	
52 64 81 82 90 95 126 206	

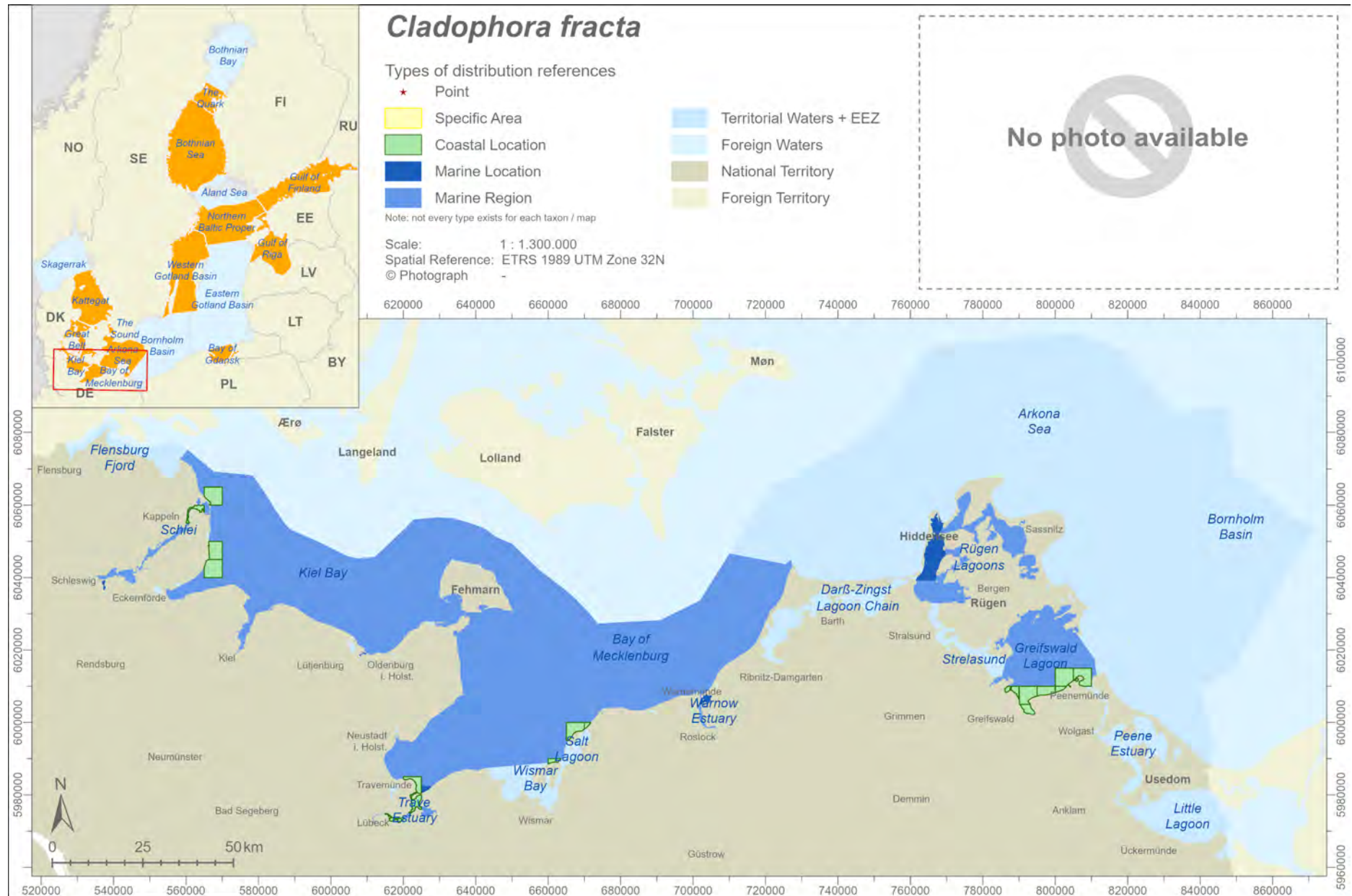




## *Cladophora fracta* (O.F. Müller ex Vahl) Kützing, 1843

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Cladophorales
Family	Cladophoraceae
Subspecies	<i>Cladophora fracta</i> var. <i>intricata</i> (Lyngbye) C. Hoek, 1963
Synonyms	<i>Aegagropila agardhii</i> Kützing, 1843 <i>Cladophora flavescens</i> (Roth) Kützing, 1843 <i>Cladophora funiformis</i> (Roth) Kützing, 1845 <i>Cladophora sudetica</i> Kützing, 1845
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of central eastern and some northeastern parts – from Kattegat to Bothnian Sea / The Quark (DE, DK, FI, LV, PL, SE); records from Bornholm Basin, Åland/Archipelago Sea and Bothnian Bay in Nielsen 1995 (148) could not be verified
German Baltic Sea	few records from the open coastline – Kiel Bay (Oehe-Schleimünde, Boknis Eck), Bay of Mecklenburg (Priwall, westcoast of Langenwerder, Rerik); several records in coastal lagoons and estuaries – Schlei (Maasholm to Kappeln, Haddeby and Selk Lagoon), Trave Estuary (Herenbrücke), Warnow Estuary (Breitling), Rügen Lagoons (Schaprode, Vitt Lagoon), Greifswald Lagoon (Wampen to Struck); a single record in a coastal lake – Kiel Bay (Sehlendorf Inland Lake)

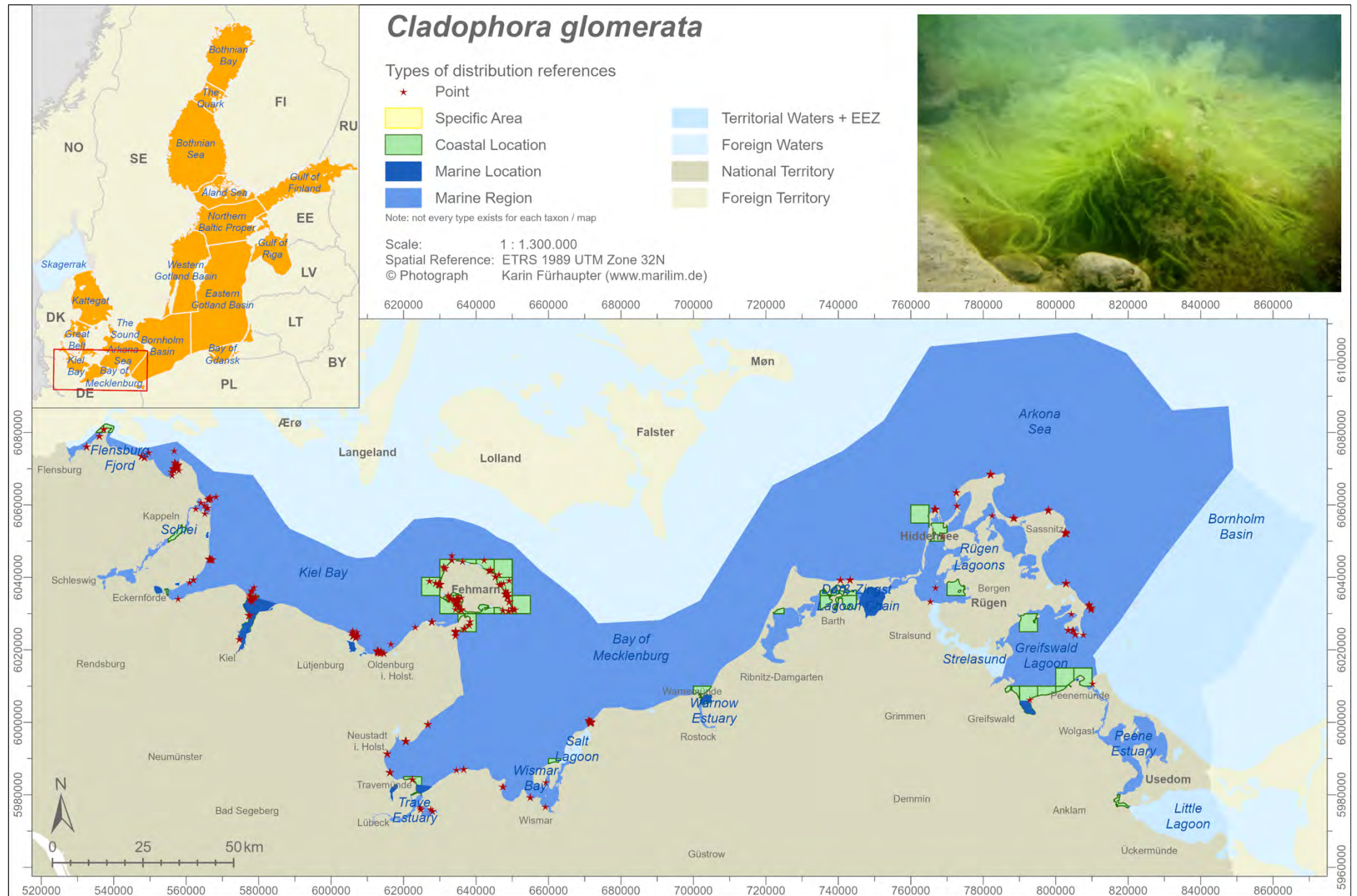
Ecology	
Substrate	hard bottom (stones) and overlaying various bottoms
Attachment	epilithic and primarily drifting (at the bottom)
Salinity	freshwater to $\beta$ -oligohaline ( $\alpha$ -mesohaline) – a single record mentions a maximum of 15 psu
Vertical zone	upper infralittoral – around 4 m depth
Exposure	extremely sheltered to sheltered (exposed) – records from exposed sites probably drifting material from sheltered areas
Conservation	
Red List	<b>NE</b> (Baltic Sea), <b>D</b> (DE)
Threats	–
Remarks	
a freshwater species – records along the outer coastline origin either from specimens drifted outwards of lagoons, estuaries with lower salinities or due to misidentification	
References	
13 25* 60 81 82 111 121 127 142 167 172 180 206 220 239	
*referencing the subspecies	



## *Cladophora glomerata* (Linnaeus) Kützing, 1843

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Cladophorales
Family	Cladophoraceae
Subspecies	–
Synonyms	<i>Chantransia flavicans</i> Desvaux, 1813 <i>Chantransia glomerata</i> (Linnaeus) de Lamarck & De Candolle, 1805 <i>Cladophora curvata</i> Kützing, 1845 <i>Cladophora declinata</i> Kützing, 1849 <i>Cladophora fasciculata</i> Kützing, 1845 <i>Cladophora fluitans</i> Kützing, 1845 <i>Cladophora intricata</i> Kützing, 1845
Distribution	
Baltic Sea	entire Baltic Sea coastline – from Kattegat to Bothnian Bay (all neighbouring countries)
German Baltic Sea	numerous records along the open coastline – from Flensburg to Thiessow/Südperd at the east coast of Rügen; in most coastal bays, estuaries and lagoons with exception of Salt Lagoon, Strelasund and Little Lagoon (but records of <i>Cladophora</i> sp. in those areas might belong also to <i>C. glomerata</i> ); also distributed in most enclosed inland and coastal lakes

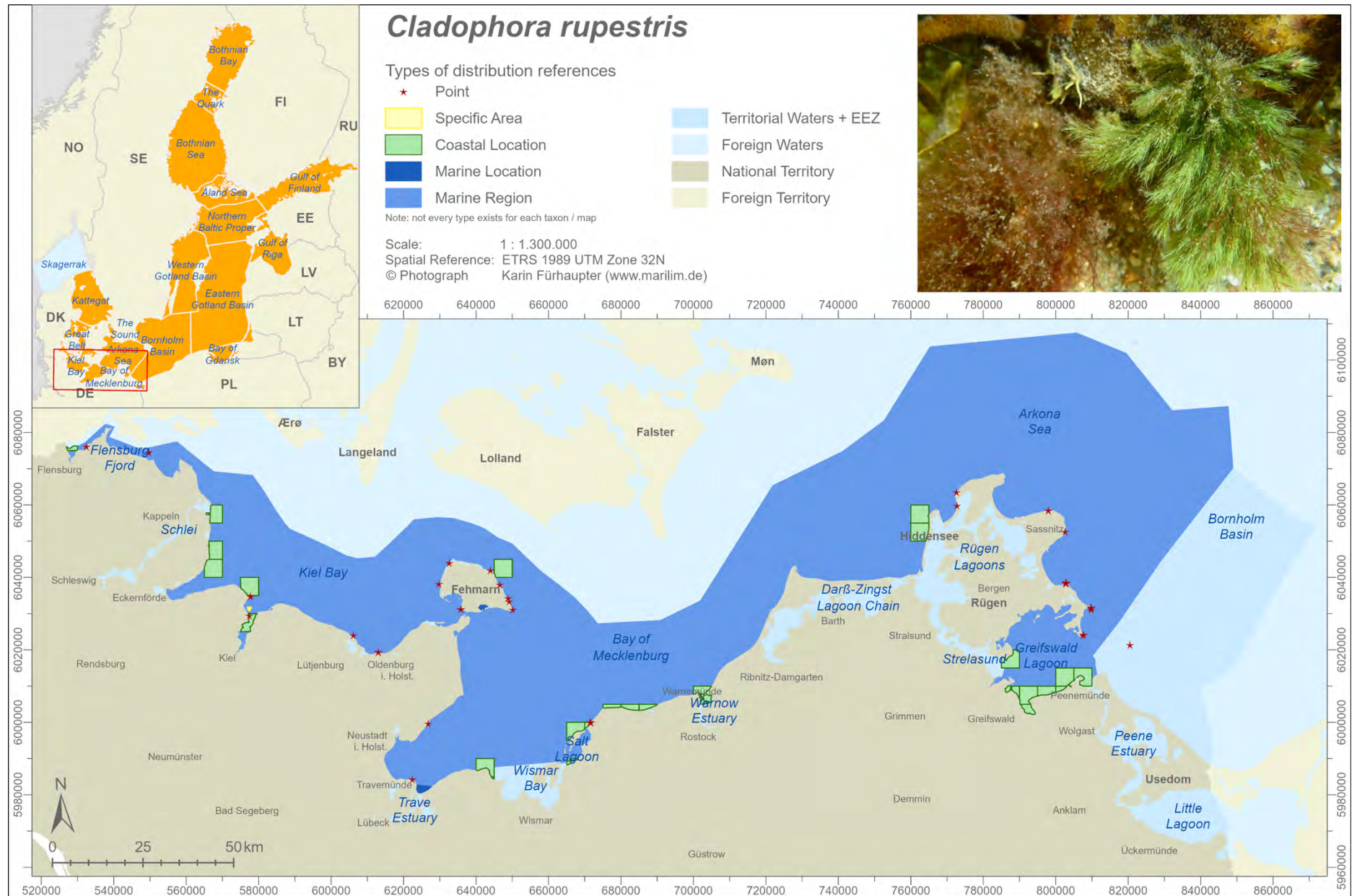
Ecology	
Substrate	hard bottom and plants or animals – stones, blue mussels (live mussels) and on various plants and overlaying soft bottom
Attachment	epilithic, epiphytic/epizoic and drifting (at the bottom)
Salinity	freshwater to $\alpha$ -mesohaline – up to a maximum of 15 psu
Vertical zone	upper infralittoral – from the shoreline to 3 m depth
Exposure	ultra-sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>D</b> (DE)
Threats	–
Remarks	
a freshwater species like <i>Cl. fracta</i> but with more potential to exist in higher salinity waters and a broad ecophysiological range; nevertheless, confusion with other <i>Cladophora</i> species, particularly <i>Cl. sericea</i> , can be assumed	
References	
7 11 13 25 52 53 54 60 61 64 66 81 82 89 92 95 106 115 116 127 129 131 139 149 151 152 153 168 172 180 191 196 206 220 239	



## *Cladophora rupestris* (Linnaeus) Kützing, 1843

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Cladophorales
Family	Cladophoraceae
Subspecies	–
Synonyms	<i>Aegagropila biformis</i> Wittrock, 1878 <i>Ceramium rupestre</i> (Linnaeus) de Lamarck & De Candolle, 1805 <i>Cladophora lyngbyana</i> Kützing, 1845 <i>Cladophora nuda</i> (Harvey) Harvey, 1849 <i>Cladophora plumosa</i> Kützing, 1843 <i>Cladophora ramosissima</i> (Draparnaud ex Kützing) Kützing, 1843
Distribution	
Baltic Sea	entire Baltic Sea coastline – from Kattegat to Bothnian Bay (all neighbouring countries)
German Baltic Sea	frequent records along the open coastline – from Wassersleben in Flensburg Fjord to Thiesow/Südperd at the east coast of Rügen; few records from coastal lagoons – Salt Lagoon (Bojensdorf), Greifswald Lagoon (Wampen to Struck, Zudar)

Ecology	
Substrate	hard bottom animals – stones, blue mussels (live mussels)
Attachment	epilithic and epizoic
Salinity	$\beta$ -mesohaline to euhaline (fully marine)
Vertical zone	hydrolittoral to lower Infralittoral – from 0,5 to about 20 m depth; records from below 10 m depth only historically
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
a typical open water species of exposed sites, records in coastal lagoons drifting material, at exposed sites of large coastal lagoons or misidentification	
References	
13 19 25 46 52 53 54 64 81 82 89 90 108 111 121 126 127 133 141 165 180 191 206 239	



## *Cladophora sericea* (Hudson) Kützing, 1843

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Cladophorales
Family	Cladophoraceae
Subspecies	–
Synonyms	<i>Ceramium sericeum</i> de Lamarck & De Candolle, 1805 <i>Cladophora hirta</i> Kützing, 1845 <i>Cladophora longicoma</i> Kützing, 1849 <i>Cladophora mediterranea</i> Hauck, 1885 <i>Cladophora nitida</i> Kützing, 1843 <i>Cladophora plumosa</i> Kützing, 1845 <i>Cladophora viridula</i> Kützing, 1849
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Arkona Sea and Bay of Gdansk (DE, DK, PL, SE); records from Bornholm Basin and Gulf of Riga in Nielsen 1995 (148) could not be verified
German Baltic Sea	numerous, but primarily older records along the open coastline – from Wassersleben in Flensburg Fjord to Thiessow/Südperd at the east coast of Rügen; many records also from coastal lagoons, nevertheless considered a marine species – Schlei, Trave Estuary, Wismar Bay, Salt Lagoon, Warnow Estuary, Darß-Zingst-Bodden Chain, Rügen Lagoons, Strelasund, Greifswald Lagoon

Ecology	
Substrate	hard bottom and plants or animals – stones, wood, blue mussels (live mussels) and on various plants ( <i>Chara</i> )
Attachment	epilithic and epiphytic/epizoic
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – as marine species not expected in salinities below 10 psu
Vertical zone	hydrolittoral to upper infralittoral – from the shoreline to about 9 m depth
Exposure	very sheltered to very exposed
Conservation	
Red List	<b>NE</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
with regard to the distribution range within the Baltic Sea a marine species; frequent records in coastal lagoons with low salinities indicate possible confusion with <i>Cladophora</i> species more characteristic for freshwater environments like <i>C. glomerata</i>	
References	
6 19 25 46 48 52 61 64 65 81 82 90 95 111 121 126 129 131 133 159 165 170 180 190 191 196 203 204 206 239	

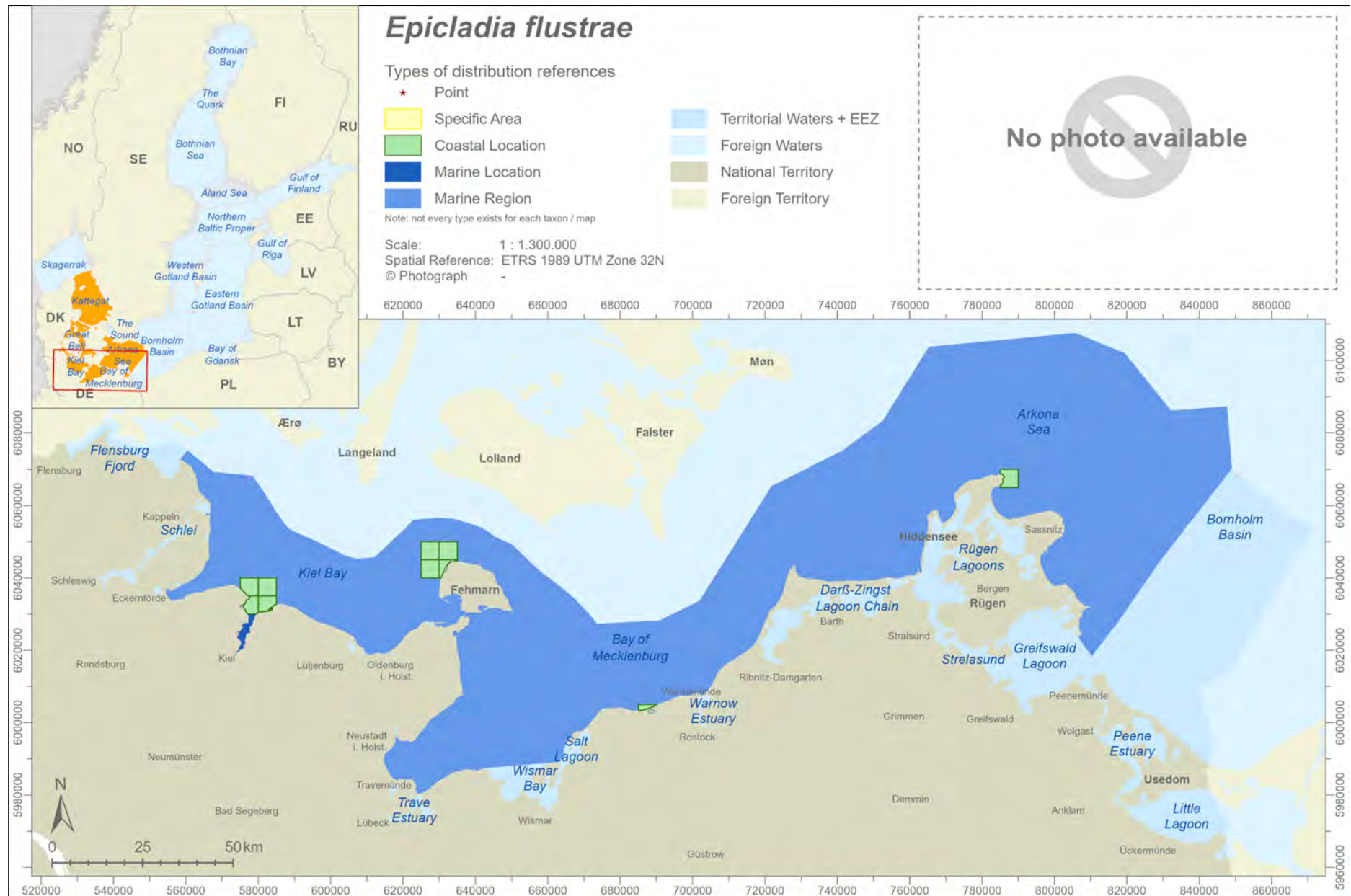




## *Epicladia flustrae* Reinke, 1889

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ulvales
Family	Ulvellaceae
Subspecies	–
Synonyms	<i>Acrochaete flustrae</i> (Reinke) O'Kelly, 2006 <i>Endoderma flustrae</i> (Reinke) Batters, 1902 <i>Entocladia flustrae</i> (Reinke) W.R. Taylor, 1937 <i>Entoderma flustrae</i> (Reinke) Hariot, 1912 <i>Epicladia halimeda</i> Hansgirg, 1893
Distribution	
Baltic Sea	only western Baltic Sea – from Kattegat to Arkona Sea (DE, DK, SE); records from The Sound, Bornholm Basin, Åland Sea and Gulf of Finland in Nielsen 1995 (148) could not be verified
German Baltic Sea	only four locations in three references along the open, exposed coastline – Kiel Bay (north of Kiel Fjord, Kiel Fjord, northwest of Fehmarn), Bay of Mecklenburg (Heiligendamm), Arkona Sea (Arkona)

Ecology	
Substrate	animals – on/in bryozoans ( <i>Flustra</i> , <i>Sertularia</i> )
Attachment	epi- and endozoic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine) – in depending on the salinity requirements of the respective host species
Vertical zone	lower Infralittoral – from 15 to about 30 m depth (following the distribution of the host species)
Exposure	sheltered to very exposed – not at very exposed sites when considering vertical zonation
Conservation	
Red List	<b>NE</b> (Baltic Sea), <b>D</b> (DE)
Threats	–
Remarks	
a characteristic marine, open water species on deep stony bottoms; its distribution range follows the distribution of the host species, the bryozoans <i>Flustra</i> or <i>Sertularia</i> ; the rarity of records may also be due to the fact that few macrophyte surveys have been carried out at these depths and rarity is therefore not real	
References	
46 81 82 95 190 206	



## *Gayralia oxysperma* (Kützing) K.L. Vinogradova ex Scagel et al., 1989

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ulvales
Family	Gayraliaceae
Subspecies	<i>Gayralia oxysperma</i> f. <i>wittrockii</i> (Bornet) P.C. Silva, 1996
Synonyms	<i>Monostroma oxyspermum</i> (Kützing) Doty, 1947 <i>Monostroma wittrockii</i> Bornet, 1880 <i>Ulva oxysperma</i> Kützing, 1843 <i>Ulvaria oxysperma</i> (Kützing) Bliding, 1969
Distribution	
Baltic Sea	only western Baltic Sea – from Kattegat to Arkona Sea (DE, DK); records from Bornholm Basin, Bay of Gdansk, Western Gotland Basin, and Northern Baltic Proper in Nielsen 1995 (148) could not be verified
German Baltic Sea	few historical records along the open coastline – Flensburg Fjord to Arkona Sea (locations often not further specified); few, partly recent references in coastal bays, estuaries and lagoons – Schlei (Schleswig), Kiel Bay (Kiel harbour and fjord), Wismar Bay (Kirch Lake, Breitling/Poel), Salt Lagoon, Warnow Estuary (Breitling), Rügen Lagoons (Wustrow), Strelasund, Greifswald Lagoon (Koos Lake)

Ecology	
Substrate	hard and soft bottom – stones and overlaying various soft bottoms and vascular plants
Attachment	epilithic and drifting at the bottom
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – records from lower salinities possibly from other monostromatic species
Vertical zone	upper infralittoral – down to 3 m depth
Exposure	very sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>D</b> (DE)
Threats	–
Remarks	
regarding the distribution range within the Baltic Sea a marine species; frequent records in coastal lagoons with low salinities indicate confusion with other monostromatic green algae like <i>Monostroma</i> or <i>Ulvaria</i>	
References	
40 64 81 82 95 121 124 125 206 211	



## *Kornmannia leptoderma* (Kjellman) Bliding, 1969

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ulvales
Family	Kornmanniaceae
Subspecies	–
Synonyms	<i>Kornmannia zostericola</i> (Tilden) Bliding, 1969 <i>Monostroma helgolandicum</i> Schmidt <i>Monostroma leptodermum</i> Kjellman, 1877 <i>Monostroma zostericola</i> Tilden, 1900
Distribution	
Baltic Sea	only German Baltic Sea coastline – from Kiel Bay, Bay of Mecklenburg (DE)
German Baltic Sea	only most recent records from a single survey from sheltered locations along the open coastline – Kiel Bay (Kiekut, Aschau, Strande, Falkenstein, Mönkeberg, Heiligenhafen), Bay of Mecklenburg (Wulfen, Großenbrode, Brodten); a single record from a coastal lagoon – Schlei (Lindaunis)

Ecology	
Substrate	hard bottom and plants – stones and on various plants ( <i>Fucus</i> , <i>Zostera</i> )
Attachment	epilithic and drifting (at the bottom)
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – only a single record from lower salinities
Vertical zone	hydrolittoral to upper infralittoral
Exposure	very sheltered to sheltered (very exposed) – records at higher exposure degrees only because of inaccurate geographical allocation
Conservation	
Red List	– (Baltic Sea), – (DE)
Threats	–
Remarks	
first record for <i>Kornmannia leptoderma</i> in the Baltic Sea by an investigation for monostromatic, sheetlike green seaweeds combining DNA, morphologic and ontogenetic analyses (242)	
References	
242	

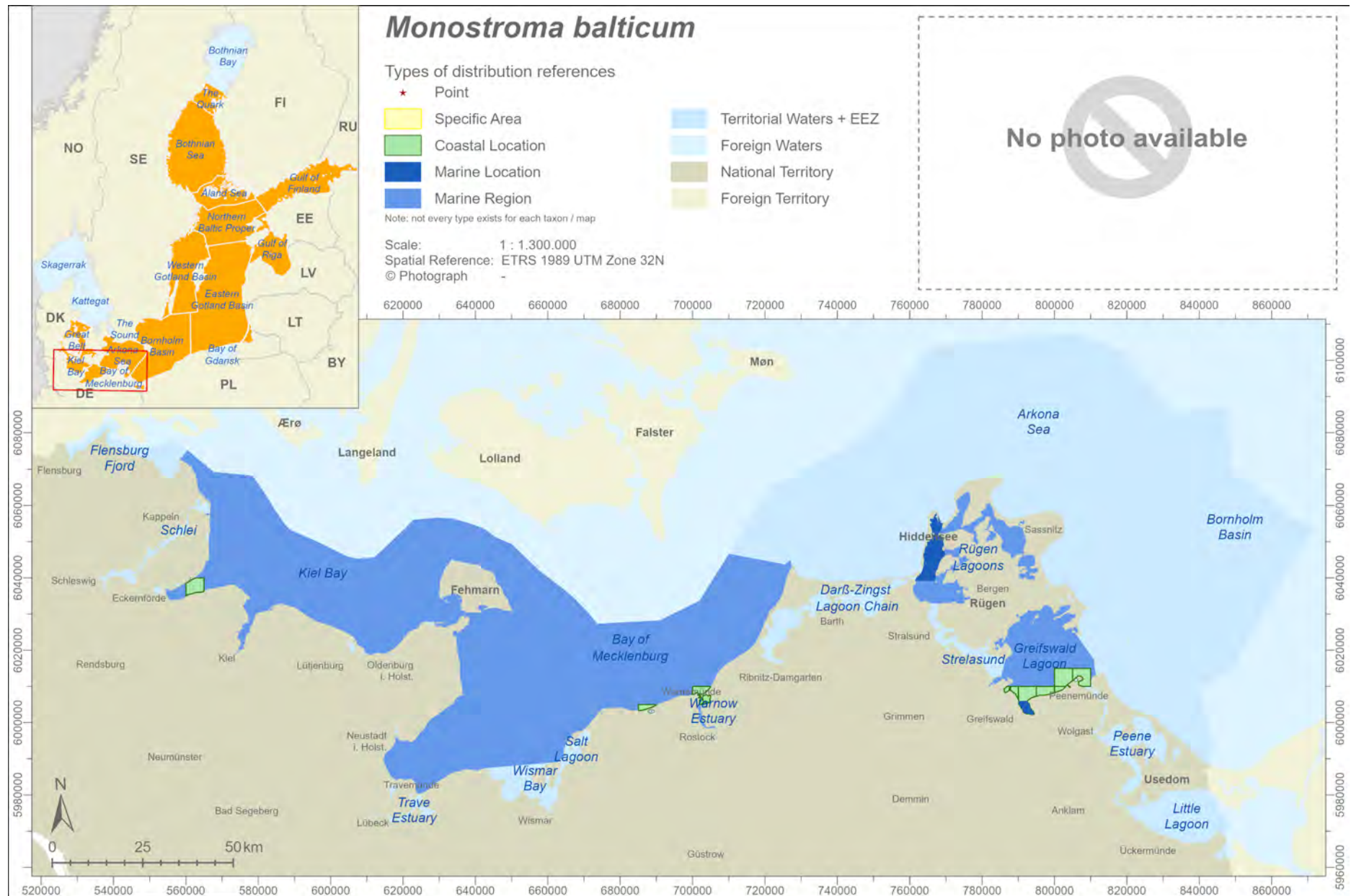


## *Monostroma balticum* Wittrock, 1866

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ulotrichales
Family	Monostromataceae
Subspecies	–
Synonyms	<i>Ulva baltica</i> Areschoug
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of western and northeasternmost part and Bay of Gdansk – from Kattegat to Bothnian Sea / The Quark (all neighbouring countries apart from LV, PL, RU); records from Bothnian Bay in Nielsen 1995 (148) could not be verified
German Baltic Sea	three records along the open, exposed coastline – Kiel Bay (Lindhöft), Bay of Mecklenburg (Börgerende, Warnemünde); three records from coastal lagoons – Rügen Lagoons (east coast of Hiddensee), Greifswald Lagoon (Danish Bight, Wampen to Struck)

Ecology	
Substrate	overlying various bottoms
Attachment	drifting (at the bottom)
Salinity	$\beta$ -mesohaline to euhaline (fully marine)
Vertical zone	upper infralittoral – from 1,5 to about 4 m depth
Exposure	very sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
an important German determination key (169) does not distinguish between <i>M. balticum</i> and <i>M. grevillei</i> , which may have led to the comparable low number of records compared to the broad distribution range in the Baltic Sea; additionally, confusion with other monostromatic, sheetlike green algae possible	
References	
44 46 79 81 82 106 121 165 206 229 239	

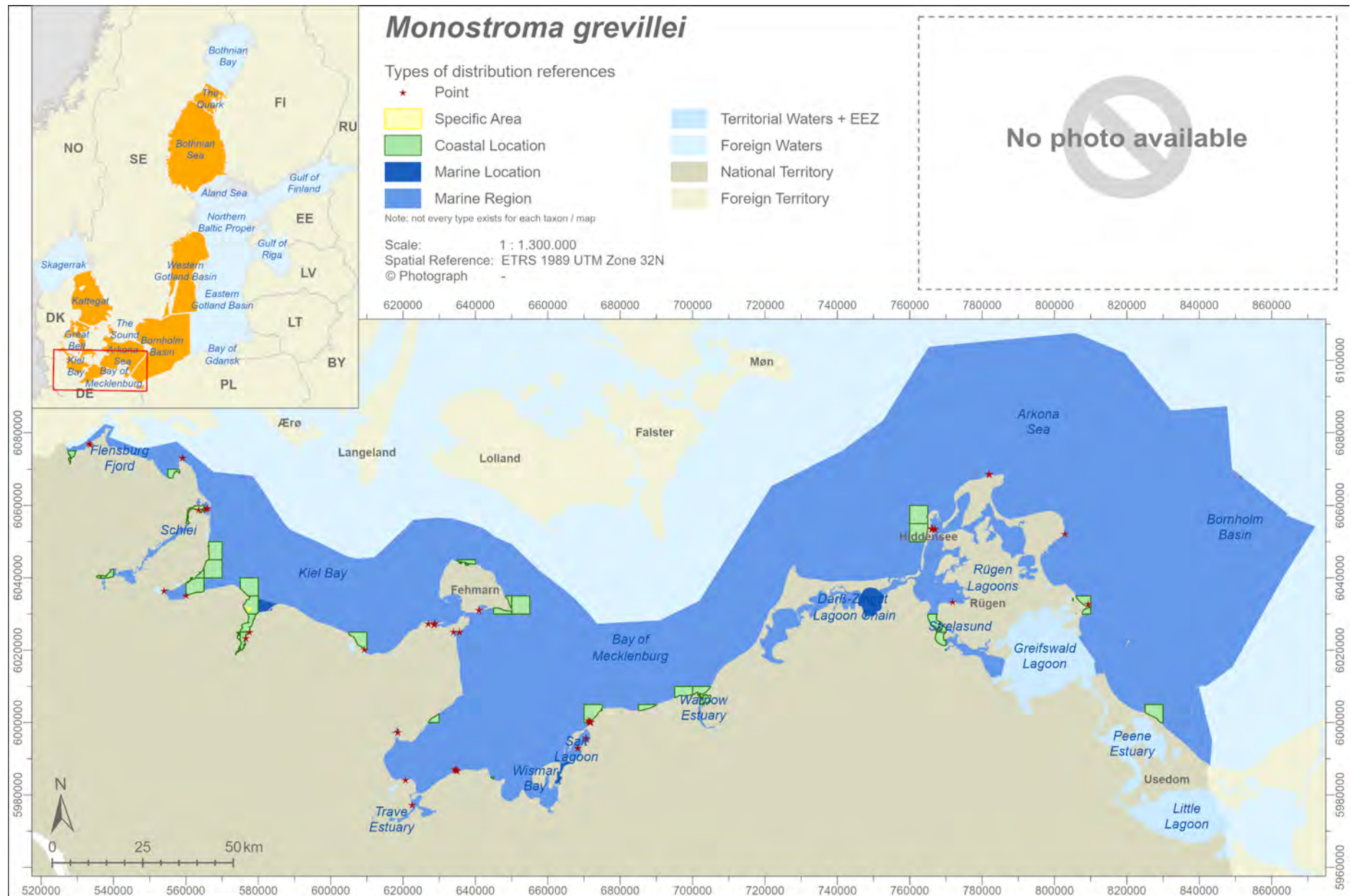




## *Monostroma grevillei* (Thuret) Wittrock, 1866

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ulotrichales
Family	Monostromataceae
Subspecies	<i>Monostroma grevillei</i> var. <i>lactuca</i> (J. Agardh) Hauck
Synonyms	<i>Enteromorpha grevillei</i> Thuret, 1854 <i>Ulva grevillei</i> (Thuret) Le Jolis, 1863 <i>Ulvopsis grevillei</i> (Thuret) Gayral, 1964
Distribution	
Baltic Sea	northwestern and west central Baltic Sea – from Kattegat to Western Gotland Basin and Bothnian Sea / The Quark (DE, DK, FI, SE); records from Northern Baltic Proper, Åland and Archipelago Sea and Gulf of Finland in Nielsen 1995 (148) could not be verified
German Baltic Sea	frequent records along the open coastline – from Flensburg to the Island Usedom (Koserow); also frequent records in many coastal bays, lagoons and estuaries – Schlei (Schleswig, Maasholm to Kappeln), Wismar Bay (Boltzenhagen, Breitling/Poel), Salt Lagoon, Warnow Estuary (Breitling), Darß-Zingst-Bodden-Chain (Grabow), Strelasund (Stralsund, Dänholm); a single record in an inland lake – Bay of Mecklenburg (Neustadt Inland Waters)

Ecology	
Substrate	hard bottom and plants – stones, wood, peat and on various plants ( <i>Fucus</i> , <i>Potamogeton</i> , <i>Zostera</i> )
Attachment	epilithic and epiphytic
Salinity	$\beta$ -mesohaline to euhaline (fully marine)
Vertical zone	hydrolittoral to upper infralittoral – from the shoreline to about 10 m depth
Exposure	(extremely sheltered) very sheltered to very exposed – only a single record from an extremely sheltered site
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
a characteristic spring taxon, which may have already disappeared during the main growing season/ usual monitoring period from summer to late summer	
References	
40 45 46 48 52 64 81 82 86 89 95 121 124 129 133 149 151 153 164 170 180 190 192 204 206 209 242	



## *Monostroma latissimum* Wittrock, 1866

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ulotrichales
Family	Monostromataceae
Subspecies	–
Synonyms	
Distribution	
Baltic Sea	only German Baltic Sea coastline – from Belt Sea to Arkona Sea (DE)
German Baltic Sea	six records overall, primarily historic and from 1969; four records from the open coastline – Flensburg Fjord (Flensburg), Kiel Bay (various locations in Kiel Fjord), Bay of Mecklenburg (Stolteraq), Arkona Sea (west coast Neuendorf at Hiddensee); two records from coastal lagoons – Schlei (Schleswig), Greifswald Lagoon (location unspecified); all records are historic or from 1969

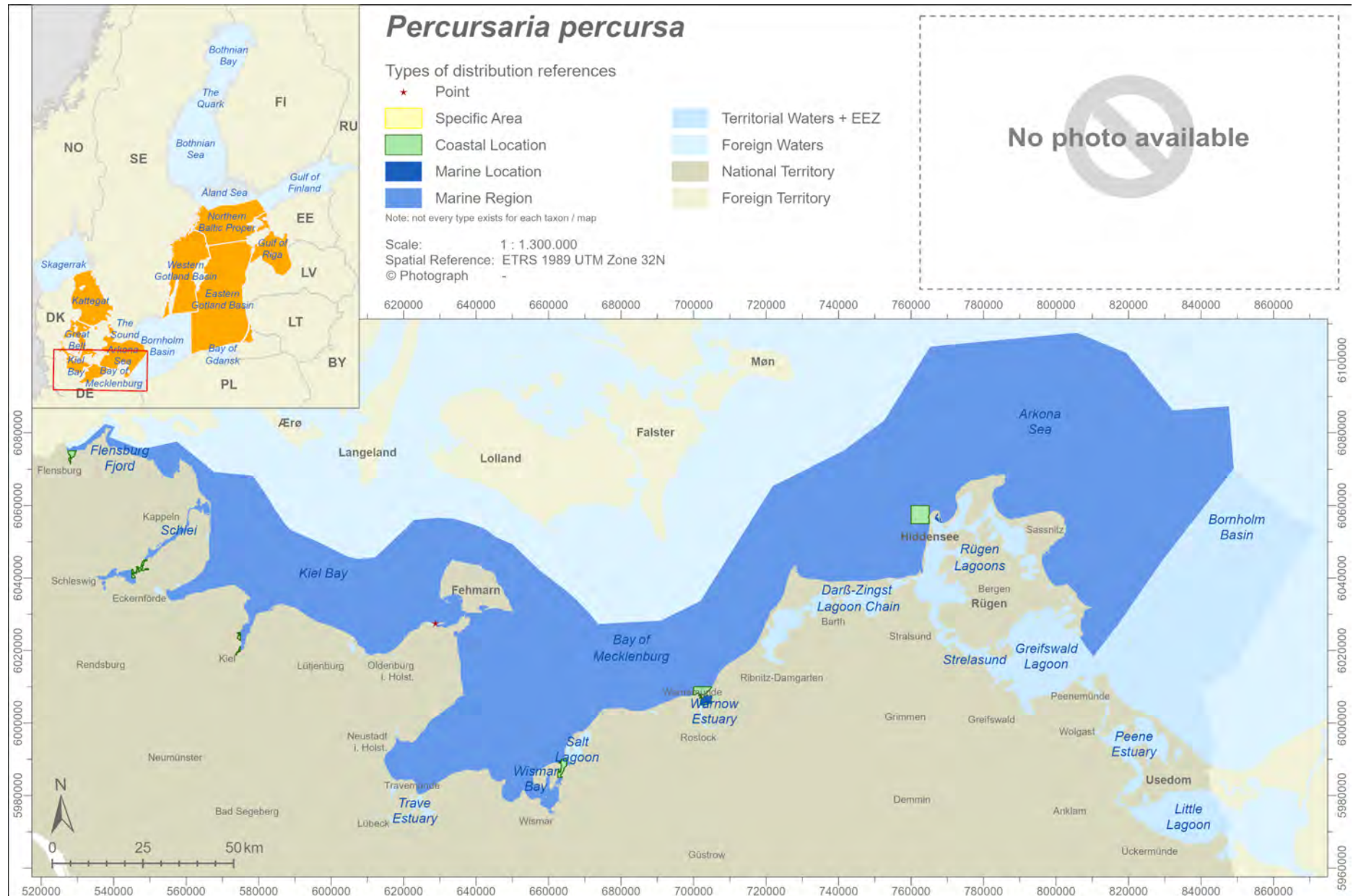
Ecology	
Substrate	hard bottom (stones) and overlaying various soft bottoms
Attachment	epilithic and drifting (at the bottom)
Salinity	$\beta$ -mesohaline to euhaline (fully marine)
Vertical zone	hydrolittoral to upper infralittoral
Exposure	very sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), – (DE)
Threats	–
Remarks	
probably confusion with other monostromatic green algae as no evidence of occurrence exists from other Baltic Sea neighbouring countries; in an important German determination key (169) it is assumed that <i>M. latissimum</i> and <i>Gayralia oxyspermum</i> could be one and the same	
References	
46 48 81 82 121 124 206 229	



## *Percursaria percursa* (C.Agardh) Rosenvinge, 1893

Taxonomy	
<i>Phylum</i>	Chlorophyta
<i>Class</i>	Ulvophyceae
<i>Order</i>	Ulvales
<i>Family</i>	Ulvaceae
<i>Subspecies</i>	–
<i>Synonyms</i>	<i>Conferva percursa</i> C.Agardh, 1817 <i>Enteromorpha percursa</i> (C.Agardh) J.Agardh, 1842 <i>Percursaria confervoidea</i> (Lyngbye) Foslie, 1891 <i>Scytosiphon percursus</i> (C.Agardh) Wallroth, 1833
Distribution	
<i>Baltic Sea</i>	western and central Baltic Sea – from Kattegat to Northern Baltic Proper (DE, DK, EE, LV, SE) with exception of Bornholm Basin and Bay of Gdansk; records from Northern Baltic Proper to Bothnian Sea in Nielsen 1995 (148) could not be verified
<i>German Baltic Sea</i>	rarely along the open coastline but several records in innermost parts of fjords or coastal bays, estuaries and lagoons – Flensburg Fjord (Flensburg), Schlei (Lindholm), Kiel Bay (Kiel Harbour, Heiligenhafen Inland Lake), Bay of Mecklenburg (Warnemünde), Wismar Bay (south of Langenwerder), Warnow Estuary (Breitling), Arkona Sea (northwest of Hiddensee), Rügen Lagoons (Bessin, Grieben)

Ecology	
<i>Substrate</i>	hard bottom and plants – stones and on various algae ( <i>Fucus</i> )
<i>Attachment</i>	epilithic, epiphytic and drifting (at the bottom)
<i>Salinity</i>	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – only a single record from lower salinities
<i>Vertical zone</i>	supra- to hydrolittoral
<i>Exposure</i>	very sheltered to sheltered (exposed) – records at exposed sites only because of inaccurate geographical allocation or drifting specimens
Conservation	
<i>Red List</i>	<b>NE</b> (Baltic Sea), * (DE)
<i>Threats</i>	–
Remarks	
References	
48 64 86 90 121 172 180 190 242	



## *Prasiola stipitata* Suhr ex Jessen, 1848

Taxonomy	
<i>Phylum</i>	Chlorophyta
<i>Class</i>	Trebouxiophyceae
<i>Order</i>	Prasiolales
<i>Family</i>	Prasiolaceae
<i>Subspecies</i>	–
<i>Synonyms</i>	<i>Prasiola cornucopiae</i> J. Agardh, 1883
Distribution	
<i>Baltic Sea</i>	western Baltic Sea – from Kattegat to Bornholm Basin (DE, DK, SE); records from Northern Baltic Proper to Bothnian Sea in Nielsen 1995 (148) could not be verified
<i>German Baltic Sea</i>	few locations along the open, exposed coastline – Flensburg Fjord (Flensburg), Kiel Bay (various locations in Kiel Fjord, around Fehmarn), Bay of Mecklenburg (Warnemünde), Arkona Sea (west coast Kloster/Hiddensee); three records in coastal lagoons – Rügen Lagoons (Wiek Lagoon, Kubitz Lagoon, Libitz)

Ecology	
<i>Substrate</i>	hard bottom – boulders, stones
<i>Attachment</i>	epilithic
<i>Salinity</i>	$\beta$ -mesohaline to euhaline (fully marine)
<i>Vertical zone</i>	supra- to hydrolittoral
<i>Exposure</i>	very sheltered to very exposed
Conservation	
<i>Red List</i>	<b>NE</b> (Baltic Sea), * (DE)
<i>Threats</i>	–
Remarks	
according to the distribution in the Baltic Sea a marine species, which possibly does not penetrate into eastern coastal lagoons, however supralittoral stones and boulders are recently not investigated by regular monitoring programs	
References	
40 46 61 65 81 82 95 121 165 190 206	

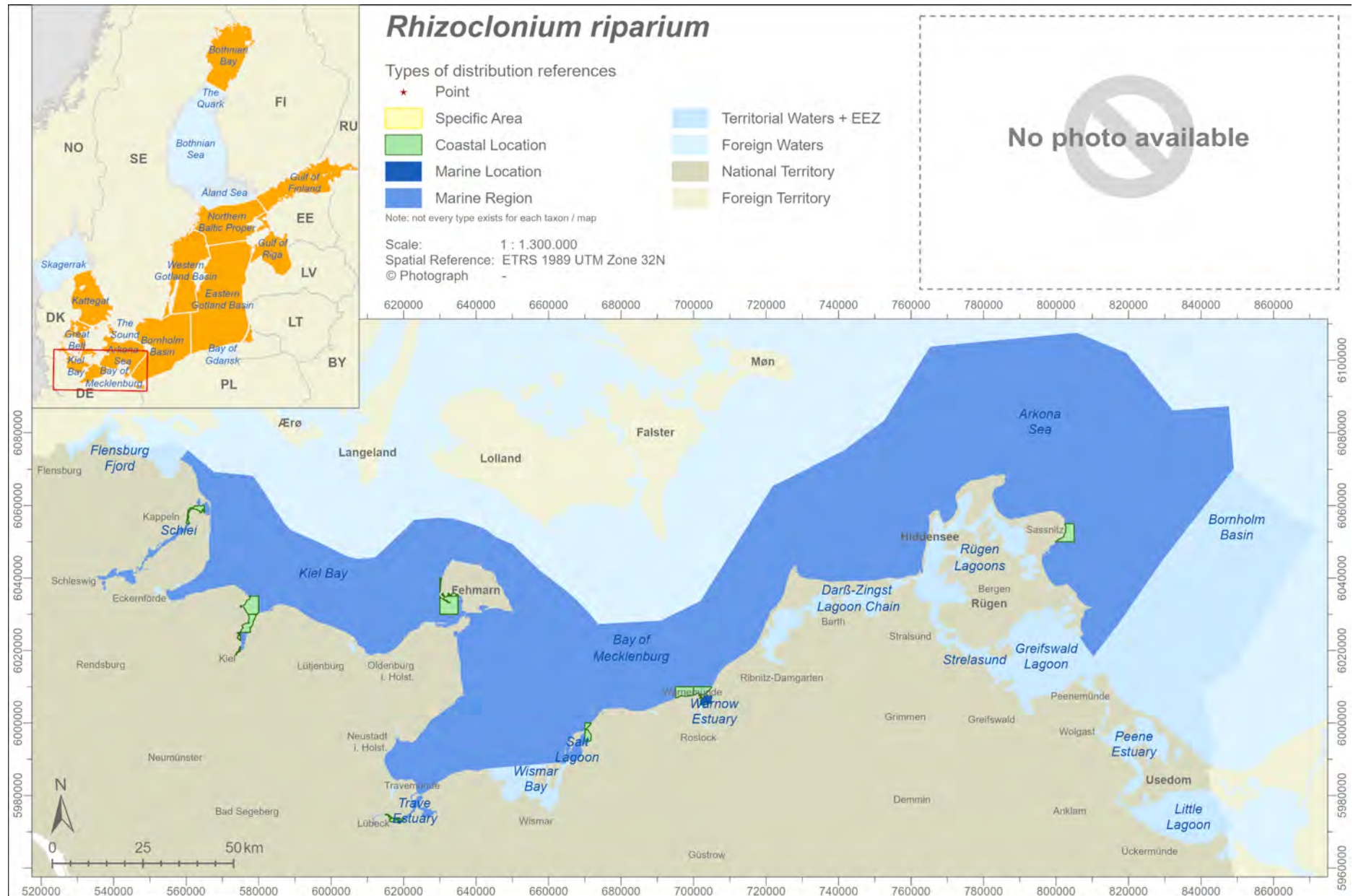




## *Rhizoclonium riparium* (Roth) Harvey, 1849

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Cladophorales
Family	Cladophoraceae
Subspecies	–
Synonyms	<i>Conferva riparia</i> Roth, 1806 <i>Rhizoclonium implexum</i> (Dillwyn) Kützing, 1845 <i>Rhizoclonium kochianum</i> Kützing, 1845 <i>Rhizoclonium riparium</i> var. <i>implexum</i> (Dillwyn) Rosenvinge, 1893 <i>Rhizoclonium salinum</i> Kützing
Distribution	
Baltic Sea	western and central Baltic Sea and in one northern part of Baltic Sea – from Kattegat to Gulf of Finland and Bothnian Bay (DE, DK, EE, FI, SE); records from Bay of Gdansk, Åland, Archipelago Sea and Bothnian Sea/The Quark in Nielsen 1995 (148) could not be verified
German Baltic Sea	few records along the open, exposed coastline – Kiel Bay (various records in Kiel Fjord, Orth Bay), Bay of Mecklenburg (Rerik, Stolteraa, Warnemünde), Arkona Sea (Saßnitz); four records from coastal lagoons and estuaries – Schlei (Maasholm to Kappeln), Trave Estuary (Schlutup Bight), Salt Lagoon (Rerik), Warnow Estuary (Breitling)

Ecology	
Substrate	hard bottom and plants – stones, wood and on various algae ( <i>Fucus</i> )
Attachment	epilithic and epiphytic
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – only a single record from lower salinities
Vertical zone	supra- to hydrolittoral
Exposure	sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
References	
40 46 48 60 64 77 81 82 86 90 95 180 190 206	



## *Spongomorpha aeruginosa* (Linnaeus) Hoek, 1963

Taxonomy	
<i>Phylum</i>	Chlorophyta
<i>Class</i>	Ulvophyceae
<i>Order</i>	Ulotrichales
<i>Family</i>	Ulotrichaceae
<i>Subspecies</i>	–
<i>Synonyms</i>	<i>Acrosiphonia pallida</i> Kjellman <i>Conferva aeruginosa</i> Linnaeus, 1753 <i>Spongomorpha congregata</i> (C. Agardh) Kützing, 1843 <i>Spongomorpha lanosa</i> (Roth) Kützing <i>Spongomorpha uncialis</i> (O.F. Müller) Kützing, 1843
Distribution	
<i>Baltic Sea</i>	unevenly distributed in several western and central Baltic Sea parts – from Kattegat to Bornholm Basin with exception of Bay of Mecklenburg (DE, DK, SE), Northern Baltic Proper, Åland Sea and Gulf of Finland (FI, SE); records from Western Gotland Basin, Archipelago Sea and Bothnian Sea in Nielsen 1995 (148) could not be verified
<i>German Baltic Sea</i>	unevenly distributed also along the German Baltic Sea along the open coastline – from Flensburg to Eitzgrund in Kiel Bay and north-west of Hiddensee, Bug outer coastline in Arkona Sea; a single record

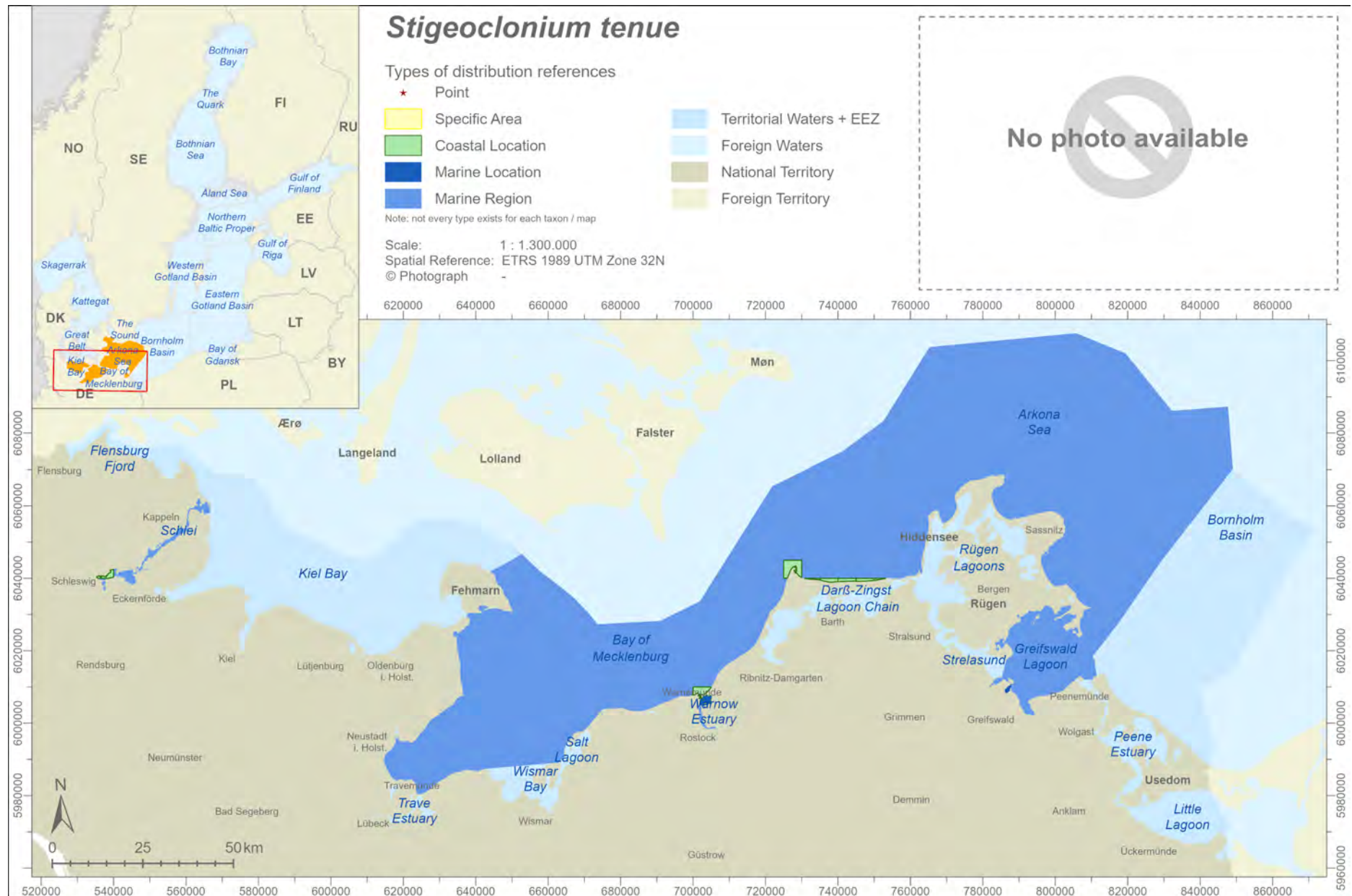
Ecology	
<i>Substrate</i>	hard bottom and plants – boulders, stones, wood and on plants
<i>Attachment</i>	epilithic and epiphytic
<i>Salinity</i>	$\beta$ -mesohaline to euhaline (fully marine)
<i>Vertical zone</i>	hydrolittoral to upper infralittoral
<i>Exposure</i>	sheltered to very exposed
Conservation	
<i>Red List</i>	<b>LC</b> (Baltic Sea), * (DE)
<i>Threats</i>	–
Remarks	
the uneven distribution in the Baltic Sea and along the German coastline indicates a possible confusion between two species with different salinity requirements	
References	
53 64 81 82 93 121 165 206	



## *Stigeoclonium tenue* (C. Agardh) Kützing, 1843

Taxonomy	
Phylum	Chlorophyta
Class	Chlorophyceae
Order	Chaetophorales
Family	Chaetophoraceae
Subspecies	–
Synonyms	<i>Draparnaldia tenuis</i> C. Agardh, 1814 <i>Myxonema tenue</i> (C. Agardh) Rabenhorst, 1847 <i>Stigeoclonium irregulare</i> Kützing, 1845 <i>Stigeoclonium longarticulatum</i> (Hansgirg) Heering, 1914 <i>Stigeoclonium pygmaeum</i> Hansgirg, 1886 <i>Stigeoclonium subsecundum</i> var. <i>tenuis</i> Nordstedt, 1880
Distribution	
Baltic Sea	only along the German Baltic Sea coastline – from Kiel Bay to Arkona Sea (DE); records from Bay of Gdansk, Gulf of Finland and Bothnian Sea in Nielsen 1995 (148) could not be verified
German Baltic Sea	uneven distribution at two locations along the open exposed coastline – Bay of Mecklenburg (Warnemünde), Arkona Sea (Darßer Ort to Zingst) and in innermost parts of coastal lagoons and lakes – Schlei (Schleswig), Warnow Estuary (Breitling), Greifswald Lagoon (Koos Lake)

Ecology	
Substrate	hard bottom – wood
Attachment	epilithic
Salinity	$\beta$ -mesohaline to $\alpha$ -mesohaline – but due to the scarce data only of limited reliability
Vertical zone	upper infralittoral – but due to the scarce data only of limited reliability
Exposure	very sheltered to very exposed – but due to the scarce data only of limited reliability
Conservation	
Red List	<b>NE</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
likely to be confused with other tiny green algae as no evidence of occurrence exists from other Baltic Sea neighbouring countries and ecological preferences of this species remain unclear	
References	
46 64 81 82 95 125 180 206	



## *Ulothrix flacca* (Dillwyn) Thuret, 1863

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ulotrichales
Family	Ulotrichaceae
Subspecies	–
Synonyms	<i>Conferva flacca</i> Dillwyn, 1805 <i>Hormotrichum fasciculare</i> Kützing <i>Lyngbya carmichaelii</i> Harvey, 1833 <i>Lyngbya flacca</i> (Dillwyn) Harvey, 1833 <i>Ulothrix consociata</i> Wille, 1901 <i>Ulothrix pseudoflacca</i> Wille, 1901 <i>Ulothrix scutata</i> H. Jónsson, 1904
Distribution	
Baltic Sea	unevenly distributed in western Baltic Sea, one central and one northeastern part of the Baltic Sea– from Kattegat to Bornholm Basin, Western Gotland Basin and Bothnian Sea/ The Quark (DE, DK, SE); records from Bay of Gdansk, Gulf of Finland, Northern Baltic Proper, Gulf of Finland and Archipelago Sea in Nielsen 1995 (148) could not be verified
German Baltic Sea	few records along the open, exposed coastline – from Flensburg in Flensburg Fjord to, northwest of Hiddensee in Arkona Sea; two records from outer parts of coastal lagoons and estuaries – Schlei (Olpenitz), Trave Estuary (Stülper Huk to Botte-Berg)

Ecology	
Substrate	hard bottom and plants – boulders, stones, gravel, wood and on algae ( <i>Fucus</i> )
Attachment	epilithic and epiphytic
Salinity	$\beta$ -mesohaline to euhaline (fully marine)
Vertical zone	hydrolittoral – at the shoreline
Exposure	(sheltered) moderately exposed to very exposed – records at sheltered sites only because of inaccurate geographical allocation
Conservation	
Red List	<b>NE</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
References	
45 46 60 81 82 86 88 89 90 95 121 165 206	





## *Ulothrix speciosa* (Carmichael) Kützing, 1849

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ulotrichales
Family	Ulotrichaceae
Subspecies	–
Synonyms	<i>Conferva speciosa</i> Carmichael ex Areschoug, 1850 <i>Hormotrichum speciosum</i> (Carmichael) P. Crouan & H. Crouan, 1852 <i>Lyngbya speciosa</i> Carmichael, 1833 <i>Ulothrix zonata</i> var. <i>speciosa</i> (Carmichael) Stockmayer <i>Urospora speciosa</i> (Carmichael) Leblond ex G. Hamel, 1931
Distribution	
Baltic Sea	only western Baltic Sea – from Kattegat to Bay of Mecklenburg (DE, DK); records from Bornholm Basin in Nielsen 1995 (148) could not be verified
German Baltic Sea	few records along the western open, exposed coastline – Kiel Bay (Schleimünde, Kiel Fjord, Möltenort), Bay of Mecklenburg (Großenbroderfähre, Marienleuchte, Kühlungsborn, Heiligendamm, Stolteraa, Warnemünde); a single record from a coastal bay and lagoon – Wismar Bay/Salt Lagoon (Breitling/Poel)

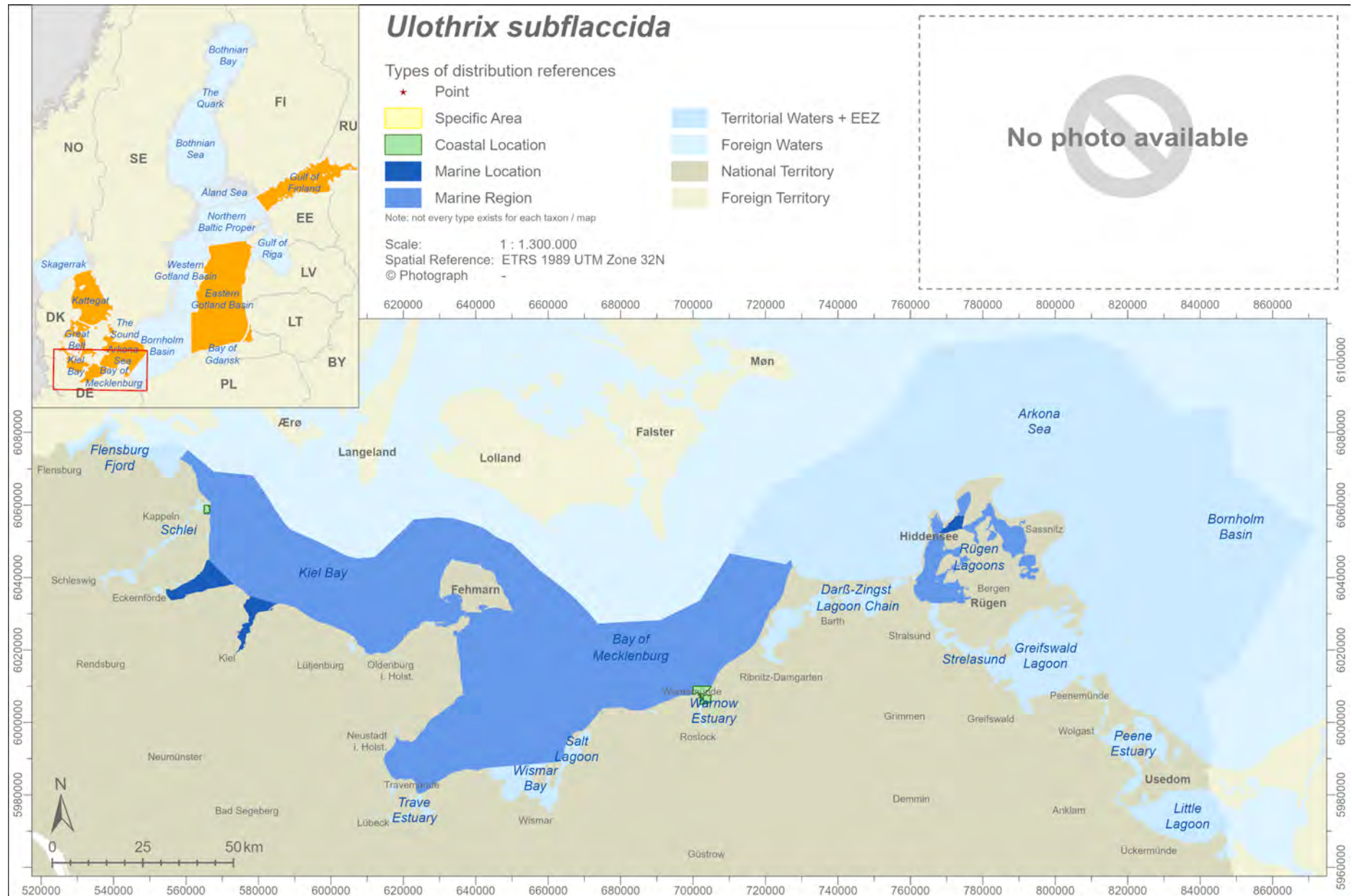
Ecology	
Substrate	hard bottom and plants – stones, wood and on algae ( <i>Fucus vesiculosus</i> )
Attachment	epilithic and epiphytic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	hydrolittoral
Exposure	very sheltered to very exposed
Conservation	
Red List	<b>NE</b> (Baltic Sea), <b>D</b> (DE)
Threats	–
Remarks	
due to nomenclature confusion, it is difficult to allocate historical records precisely; only records which explicitly mention the author/publisher of the species name have been considered; borderline species to fully marine conditions, only randomly part of the German Baltic Sea flora not penetrating in low salinity lagoons	
References	
46 81 82 89 90 95 206	



## *Ulothrix subflaccida* Wille, 1901

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ulotrichales
Family	Ulotrichaceae
Subspecies	–
Synonyms	
Distribution	
Baltic Sea	unevenly distributed in western and some central-eastern parts of Baltic Sea – from Kattegat to Arkona Sea (DE, DK) and Eastern Gotland Basin (LT) and Gulf of Finland (RU); records from Bornholm Basin, Northern Baltic Proper to Bothnian Bay in Nielsen 1995 (148) could not be verified
German Baltic Sea	four locations along the western open, exposed coastline (but some with low geographical preciseness) – Kiel Bay (Schleimünde, Eckernförde Bay, Kiel Fjord.), Bay of Mecklenburg (Warnemünde); a single record from a coastal lagoon – Rügen Lagoon (Rassow Stream)

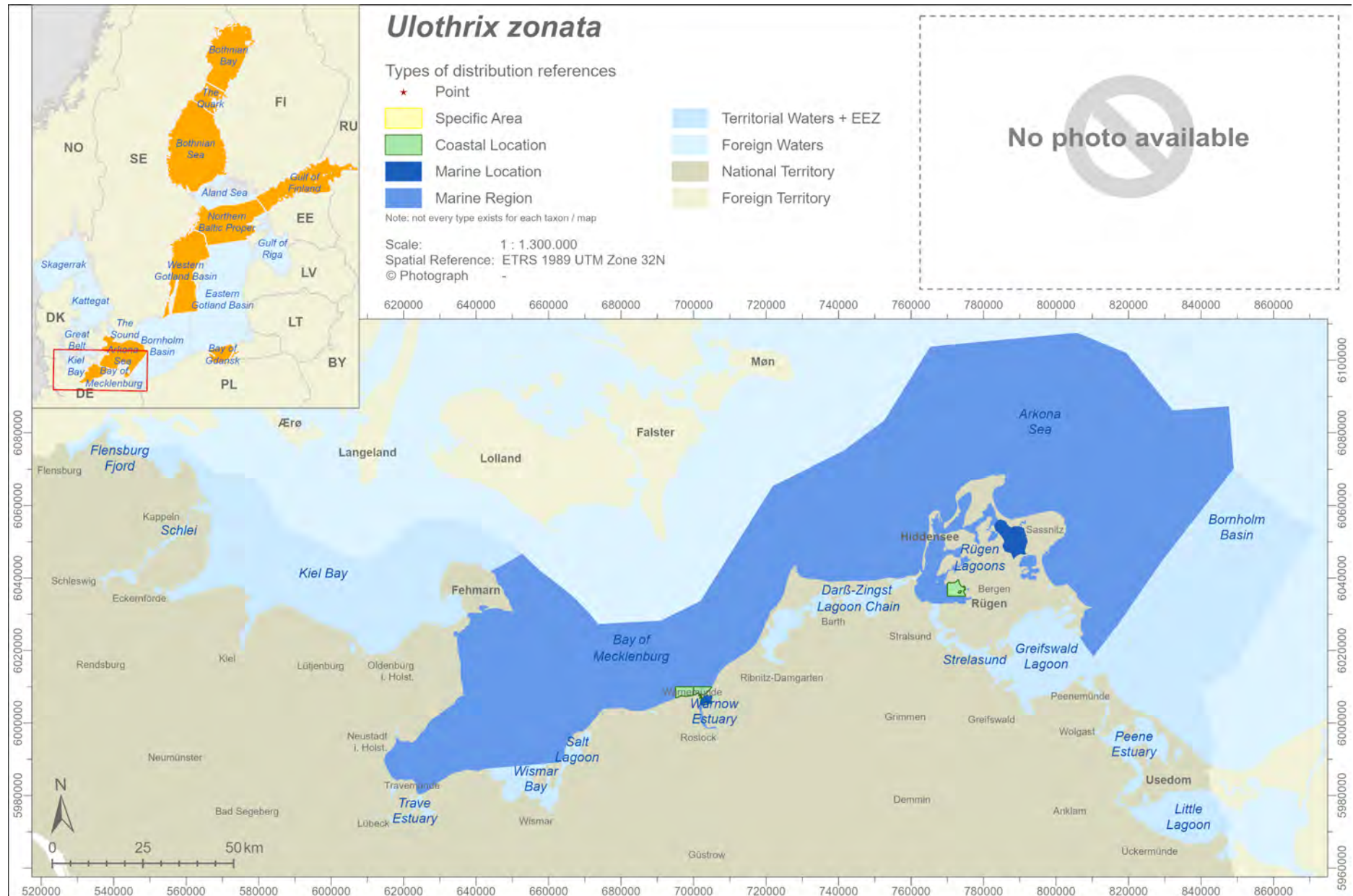
Ecology	
Substrate	hard bottom – stones, wood
Attachment	epilithic
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – only a single record from lower salinities
Vertical zone	hydrolittoral to upper infralittoral – from the shoreline to 2 m depth
Exposure	(very sheltered) sheltered to very exposed – only a single record from a very sheltered site
Conservation	
Red List	<b>NE</b> (Baltic Sea), <b>D</b> (DE)
Threats	–
Remarks	
an important German determination guide synonymizes <i>U. subflaccida</i> and <i>implexa</i> (169), which may have led to the comparable low number of records; <i>U. implexa</i> has an even lower number of records and the locations are almost identical to those of <i>U. subflaccida</i> (Section <a href="#">Rare Taxa</a> )	
References	
40 81 82 88 90 183 206	



## *Ulothrix zonata* (F. Weber & Mohr) Kützing, 1833

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ulotrichales
Family	Ulotrichaceae
Subspecies	<i>Ulothrix zonata</i> var. <i>rigidula</i> (Kützing) Hansgirg, 1886
Synonyms	<i>Conferva zonata</i> F. Weber & Mohr 1804 <i>Hormiscia zonata</i> (F. Weber & D.Mohr) Are-schoug, 1866 <i>Lyngbya zonata</i> (Weber & Mohr) Hassall, 1845 <i>Sphaeroplea crispa</i> Berkeley, 1832 <i>Ulothrix crispa</i> (Berkeley) Kützing, 1849
Distribution	
Baltic Sea	some western and central to northeastern part of Baltic Sea – Bay of Mecklenburg, Arkona Sea (DE), Bay of Gdansk (PL), Western Gotland Basin to Bothnian Bay (FI, RU, SE); records from Gulf of Riga, Åland and Archipelago Sea in Nielsen 1995 (148) could not be verified
German Baltic Sea	two locations along the open, exposed coast-line – Bay of Mecklenburg (Stolteraa, Warnemünde); three locations in coastal lagoons and estuaries – Warnow Estuary (Breitling), Rügen Lagoon (Libitz, Great Jasmund Lagoon)

Ecology	
Substrate	hard bottom and plants – stones and on algae
Attachment	epilithic and epiphytic
Salinity	freshwater to $\beta$ -mesohaline ( $\alpha$ -mesohaline) – only two records above 10 psu
Vertical zone	hydrolittoral – at the shoreline
Exposure	extremely sheltered to sheltered (very exposed) – records from exposed sites possibly misidentification
Conservation	
Red List	<b>NE</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
one of the few brackish water algae originating in freshwater; distribution range within the Baltic Sea indicates that this species is not distributed in salinities above 10 psu	
References	
46 61 64 65 81 82 90 180 206	

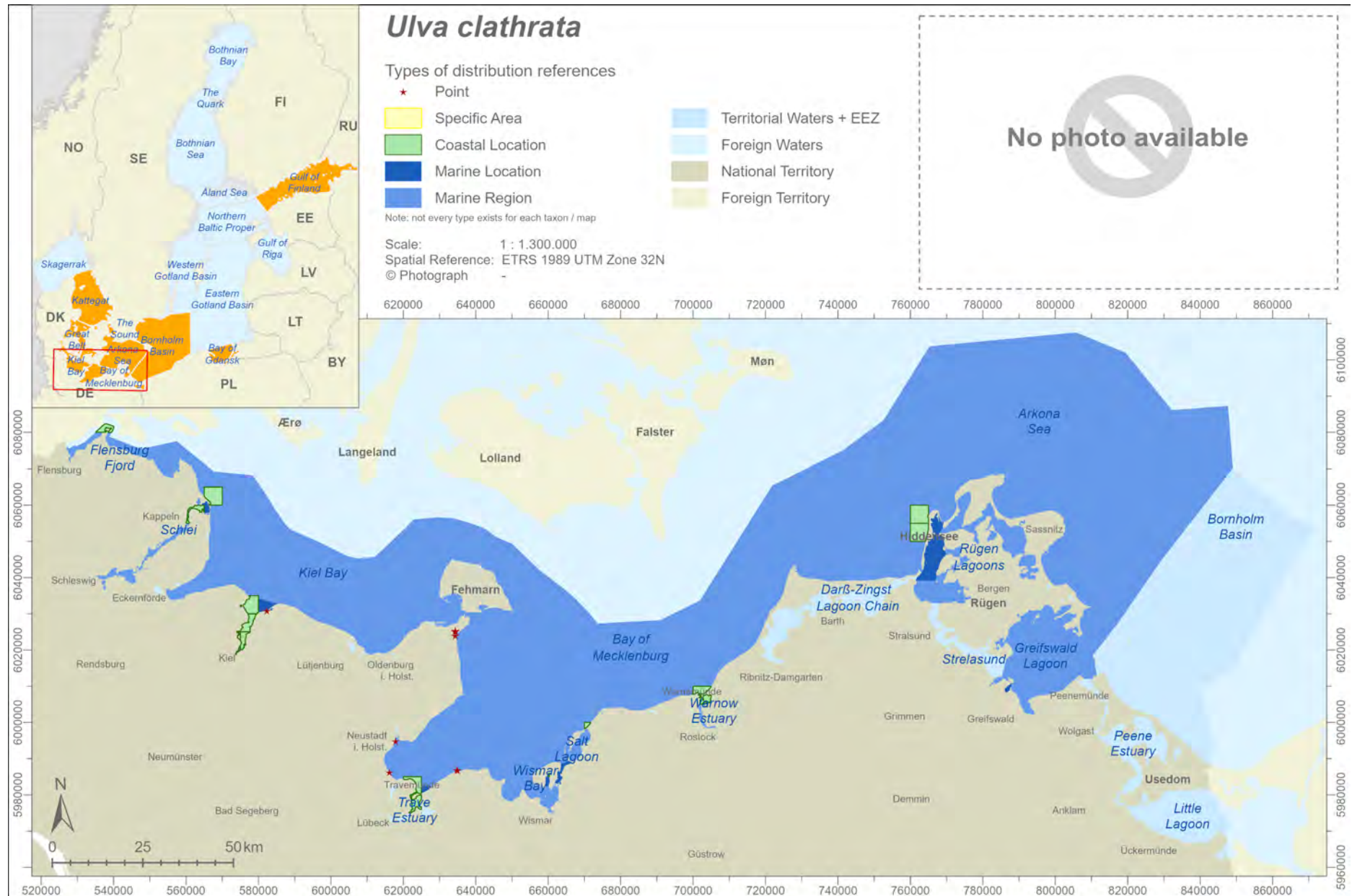


## *Ulva clathrata* (Roth) C. Agardh, 1811

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ulvales
Family	Ulvaceae
Subspecies	–
Synonyms	<i>Enteromorpha clathrata</i> (Roth) Greville, 1830 <i>Enteromorpha crinita</i> Nees, 1820 <i>Enteromorpha ramulosa</i> (J. E. Smith) Carmichael, 1833 <i>Enteromorpha spinescens</i> Kützinger, 1856 <i>Ulva muscoides</i> Clemente, 1807 <i>Ulva ramulosa</i> J. E. Smith, 1810
Distribution	
Baltic Sea	western Baltic Sea and one eastern part – from Kattegat to Bornholm Basin (DE, DK, SE) and Bay of Gdansk (PL) and Gulf of Finland (RU); records from Western/Eastern Gotland Basin to Bothnian Sea/The Quark in Nielsen 1995 (148) could not be verified
German Baltic Sea	few records along the open, exposed coastline – Flensburg Fjord (Holnis), Kiel Bay (Schleimünde, various locations in Kiel Fjord), Bay of Mecklenburg (Scharbeutz, Klützhöved, Rerik, Warnemünde); more records in coastal bays, lagoons and estuaries from a coastal bay and lagoon – Wismar Bay (Kirch Lake, Rügen Lagoon (Schaprode and Vitt Lagoon), Greifswald Lagoon (Kooos Lake)

Ecology	
Substrate	hard bottom and plants – stones, wood and on various plants ( <i>Zostera marina</i> )
Attachment	epilithic and epiphytic
Salinity	$\beta$ -mesohaline to euhaline (fully marine)
Vertical zone	hydrolittoral to upper infralittoral – from the shoreline to about 1 m depth
Exposure	very sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
<i>Ulva</i> spp. are difficult to determine by morphological features, particularly in brackish water, where morphological features tend to vary in different salinity ranges	
References	
25 40 46 81 82 95 116 120 121 124 125 126 127 142 149 151 152 167 172 180 190 206	

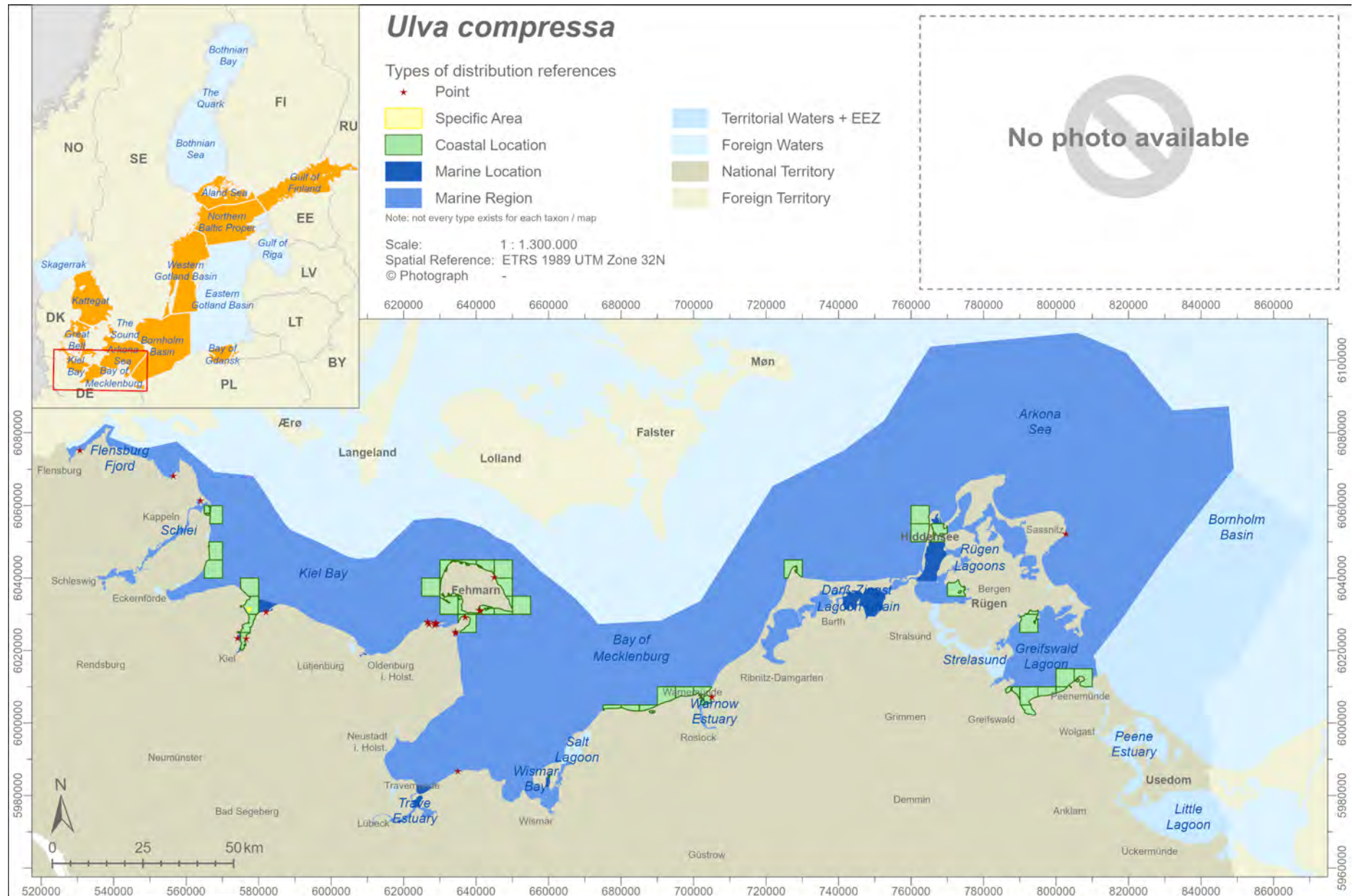




## *Ulva compressa* Linnaeus, 1753

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ulvales
Family	Ulvaceae
Subspecies	–
Synonyms	<i>Enteromorpha chlorotica</i> J. Agardh, 1883 <i>Enteromorpha complanata</i> Kützinger, 1845 <i>Enteromorpha compressa</i> (Linnaeus) Nees, 1820 <i>Enteromorpha intestinalis</i> var. <i>compressa</i> (Linnaeus) Rosenvinge, 1893 <i>Ulva enteromorpha</i> var. <i>compressa</i> (Linnaeus) Le Jolis, 1863
Distribution	
Baltic Sea	western and central Baltic Sea with exception of Eastern Gotland Basin, Gulf of Riga – from Kattegat to Gulf of Finland (DE, DK, FI, PL, SE); records from Åland Sea and Bothnian Sea in Nielsen 1995 (148) could not be verified
German Baltic Sea	frequent records along the open, exposed coastline – from Meierwik in Flensburg Fjord Saßnitz in Arkona Sea; also frequent records in coastal bays, lagoons and estuaries with exception of Salt Lagoon, Strelasund, Peene Estuary and Little Lagoon; no records in coastal lakes

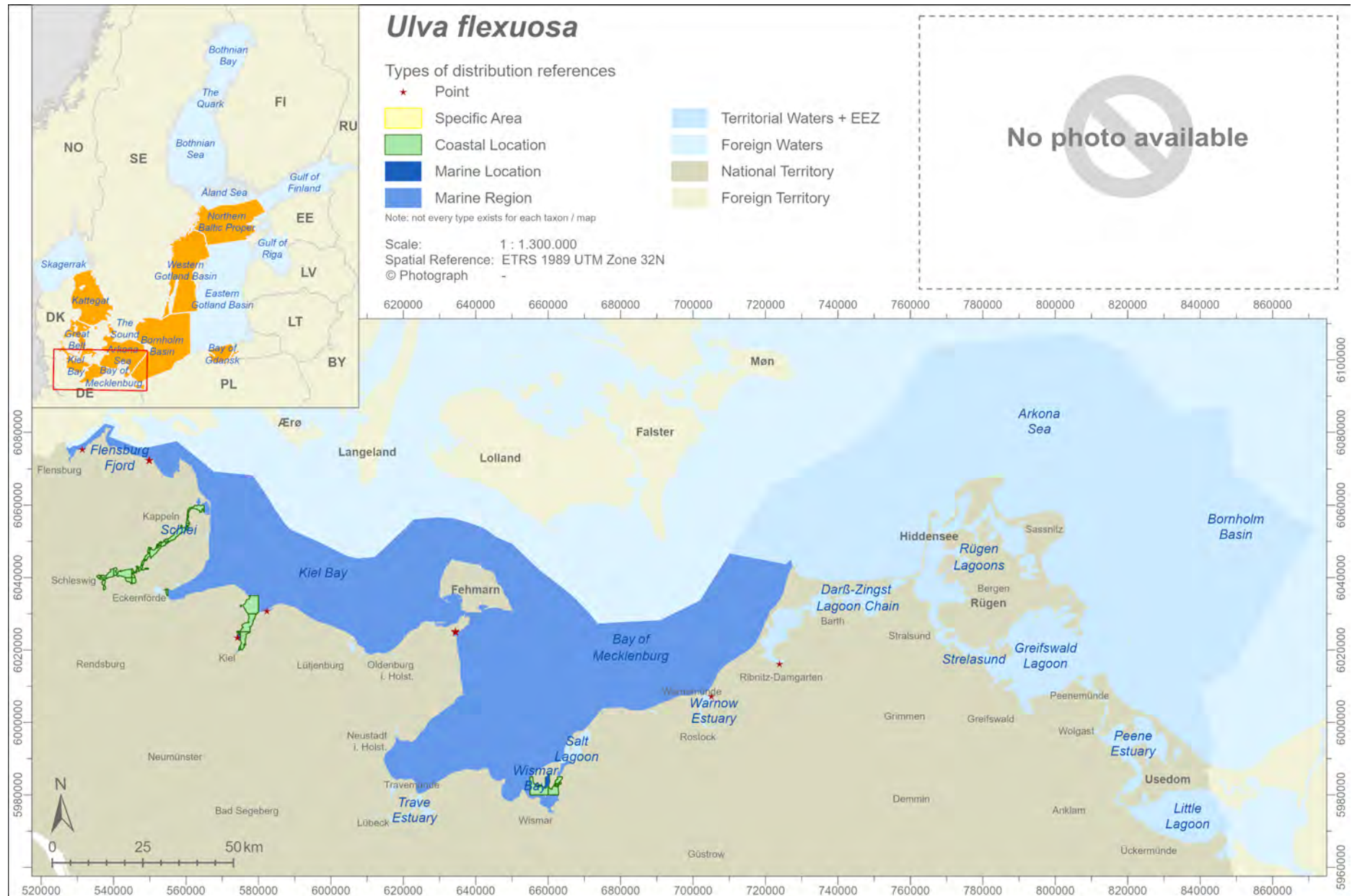
Ecology	
Substrate	hard bottom and plants or animals – stones, blue mussels (live mussels) and on plants ( <i>Phragmites</i> )
Attachment	epilithic and epiphytic/epizoic
Salinity	$\beta$ -mesohaline to euhaline (fully marine)
Vertical zone	supra- to hydrolittoral
Exposure	very sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
<i>Ulva</i> spp. are difficult to determine by morphological features, particularly in brackish water, where morphological features tend to vary in different salinity ranges	
References	
19 40 46 60 61 64 81 82 86 89 90 92 95 115 120 121 127 129 132 133 151 152 154 159 164 165 168 172 191 206 220 226 239	



## *Ulva flexuosa* Wulfen, 1803

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ulvales
Family	Ulvaceae
Subspecies	<i>Ulva flexuosa</i> ssp. <i>paradoxa</i> (C. Agardh) M.J. Wynne, 2005
Synonyms	<i>Conferva flexuosa</i> Roth, 1800 <i>Enteromorpha flexuosa</i> (Wulfen) J. Agardh, 1883 <i>Enteromorpha lingulata</i> J. Agardh, 1883 <i>Enteromorpha tubulosa</i> (Kützinger) Kützinger, 1856
Distribution	
Baltic Sea	western and central Baltic Sea – from Kattegat to Northern Baltic Proper with exception of Eastern Gotland Basin (DE, DK, PL, SE); records from Gulf of Riga to Bothnian Bay in Nielsen 1995 (148) could not be verified
German Baltic Sea	few records overall often without high geographically preciseness, nearly all of them only along the western sheltered coastline of fjords, bays, lagoons and estuaries – (Flensburg Fjord (Fahrensodde), Schlei (from Maasholm to Schleswig), Kiel Bay (Eckernförde, various locations in Kiel Fjord), Bay of Mecklenburg (Großenbrode Inland Lake); a single record in the inner part of Darß-Zingst-Lagoon-Chain at very low salinity

Ecology	
Substrate	hard bottom – stones
Attachment	epilithic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine) – a single record in $\beta$ -oligohaline (confusion with other sheetlike species assumed)
Vertical zone	upper infralittoral – between 1 and 4 m depth
Exposure	extremely sheltered to sheltered (moderately exposed) – records at moderately exposed sites only because of inaccurate geographical allocation
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
<i>Ulva</i> spp. are difficult to determine by morphological features, particularly in brackish water, where morphological features tend to vary in different salinity ranges	
References	
81 82 86 95 120 124 126 152 154 169 190 206 226	



## *Ulva intestinalis* Linnaeus, 1753

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ulvales
Family	Ulvaceae
Subspecies	–
Synonyms	<i>Enteromorpha compressa</i> var. <i>intestinalis</i> (Linnaeus) Hamel, 1931 <i>Enteromorpha intestinalis</i> (Linnaeus) Nees, 1820 <i>Enteromorpha intestinalis</i> var. <i>asexualis</i> Bliding, 1963 <i>Enteromorpha vulgaris</i> var. <i>lacustris</i> Edmondston, 1845 <i>Ulva enteromorpha</i> var. <i>intestinalis</i> (Linnaeus) Le Jolis, 1863
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of northeastern most part – from Kattegat to Bothnian Sea / The Quark (all neighbouring countries); records from Bothnian Bay in Nielsen 1995 (148) could not be verified
German Baltic Sea	numerous records along the entire open, exposed coastline – from Flensburg to the east coast of Rügen (Thiessow/Südperd); in most coastal bays, estuaries and lagoons with exception of Little Lagoon, various records also in enclosed inland and coastal lakes

Ecology	
Substrate	hard bottom and plants or animals – stones, wood, blue mussels (live mussels), on various algae ( <i>Fucus</i> ) and overlaying soft bottom
Attachment	epilithic, epiphytic/epizoic and drifting at the bottom
Salinity	(freshwater) $\beta$ -oligohaline to euhaline (fully marine)
Vertical zone	hydrolittoral to upper infralittoral – from the shoreline to 1 m depth
Exposure	extremely sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
by far the most common <i>Ulva</i> species in the Baltic Sea in all neighbouring countries, known to occur in various morphologies	
References	
31 34 40 45 46 52 53 54 60 61 64 66 77 78 81 82 86 89 90 92 95 106 108 120 121 125 127 129 139 140 141 145 149 151 152 153 164 167 170 172 180 191 192 196 206 211 220 226 232 239	

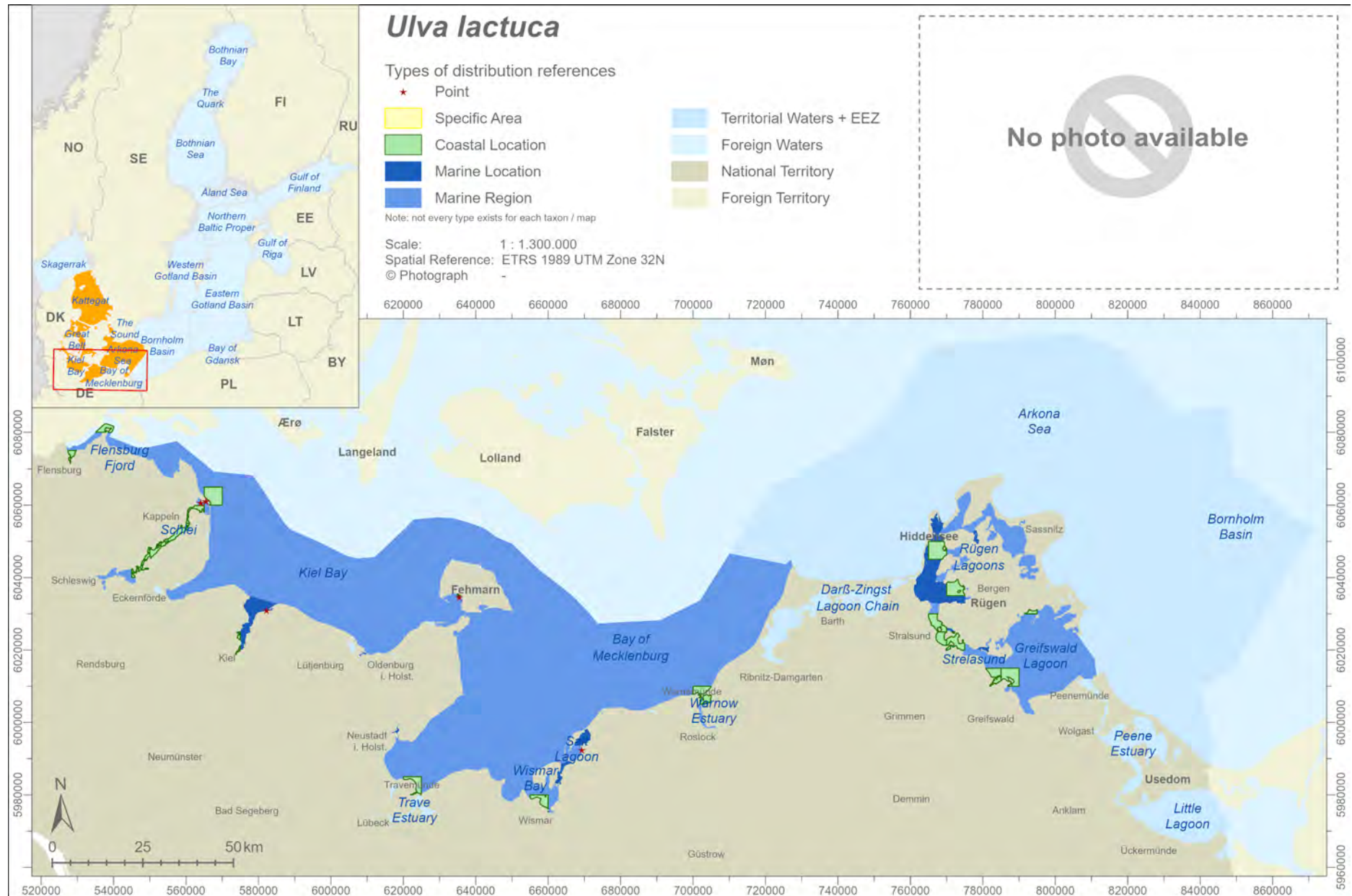


## *Ulva lactuca* Linnaeus, 1753

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ulvales
Family	Ulvaceae
Subspecies	–
Synonyms	<i>Monostroma lactuca</i> (Linnaeus) J. Agardh, 1883 <i>Phycoseris fasciata</i> (Delile) Montagne, 1856 <i>Phyllona lactuca</i> (Linnaeus) F.H. Wiggers, 1780 <i>Ulva crassa</i> Kjellman, 1877 <i>Ulva fasciata</i> Delile, 1813 <i>Ulva lactucaefolia</i> S. F. Gray, 1821
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Arkona Sea (DE, DK, SE); records from Bornholm Basin, Eastern Gotland Basin in Nielsen 1995 (148) could not be verified
German Baltic Sea	single records at the open, exposed coastline – Kiel Bay (Schleimünde), Bay of Mecklenburg (Brodten); various records in sheltered inner fjords, coastal bays, lagoons and estuaries and even two records in coastal lakes – Kiel Bay (Sehlendorf Inland Lake), Bay of Mecklenburg (Neustadt Inland waters), but all of those records with doubts (see Remarks)

Ecology	
Substrate	hard bottom and overlaying soft bottom – stones, mud
Attachment	epilithic and drifting (at the bottom)
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – records in lower salinities doubtful as this species is apparently not occurring in waters below 15–18 psu
Vertical zone	hydrolittoral to upper infralittoral – from the shoreline to about 2 m depth
Exposure	extremely sheltered to sheltered (moderately exposed) – records at moderately exposed sites only because of inaccurate geographical allocation
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
distribution in the Baltic Sea and DNA analyses raise doubts, if this marine species occurs along the German Baltic Sea, some authors may have assigned the name <i>U. lactuca</i> to all leaflike green seaweeds without further microscopic inspection; overall distribution and descriptions of algae mats in some reference fit better to <i>Ulvaria splendens</i>	
References	
5 40 48 52 53 61 63 65 68 81 82 86 95 100 113 118 120 121 124 126 142 164 167 171 173 180 190 191 196 206 220	





## *Ulva linza* Linnaeus, 1753

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ulvales
Family	Ulvaceae
Subspecies	–
Synonyms	<i>Enteromorpha ahlnieriana</i> Bliding, 1944 <i>Enteromorpha linza</i> (Linnaeus) J. Agardh, 1883 <i>Enteromorpha procera</i> K. Ahlner, 1877 <i>Ulva bertolonii</i> C. Agardh, 1823 <i>Ulva crispata</i> Bertoloni, 1810 <i>Ulva fasciata</i> S. F. Gray, 1821 <i>Ulva lanceolata</i> Linnaeus, 1767
Distribution	
Baltic Sea	unevenly distributed: western Baltic Sea and some eastern parts – from Kattegat to Arkona Sea (DE, DK, SE) and Åland/Archipelago Sea and Gulf of Finland (FI); records from Western/Eastern Gotland Basin, Northern Baltic Proper, Bothnian Sea and Bay in Nielsen 1995 (148) could not be verified
German Baltic Sea	frequent records along the open, exposed coastline – from Fahrensodde in Flensburg Fjord to northwest of Hiddensee in Arkona Sea; also frequent records in all sheltered coastal bays, lagoons and estuaries with exception of Salt Lagoon, Strelasund, Peene Estuary and Little Lagoon; no records in coastal lakes

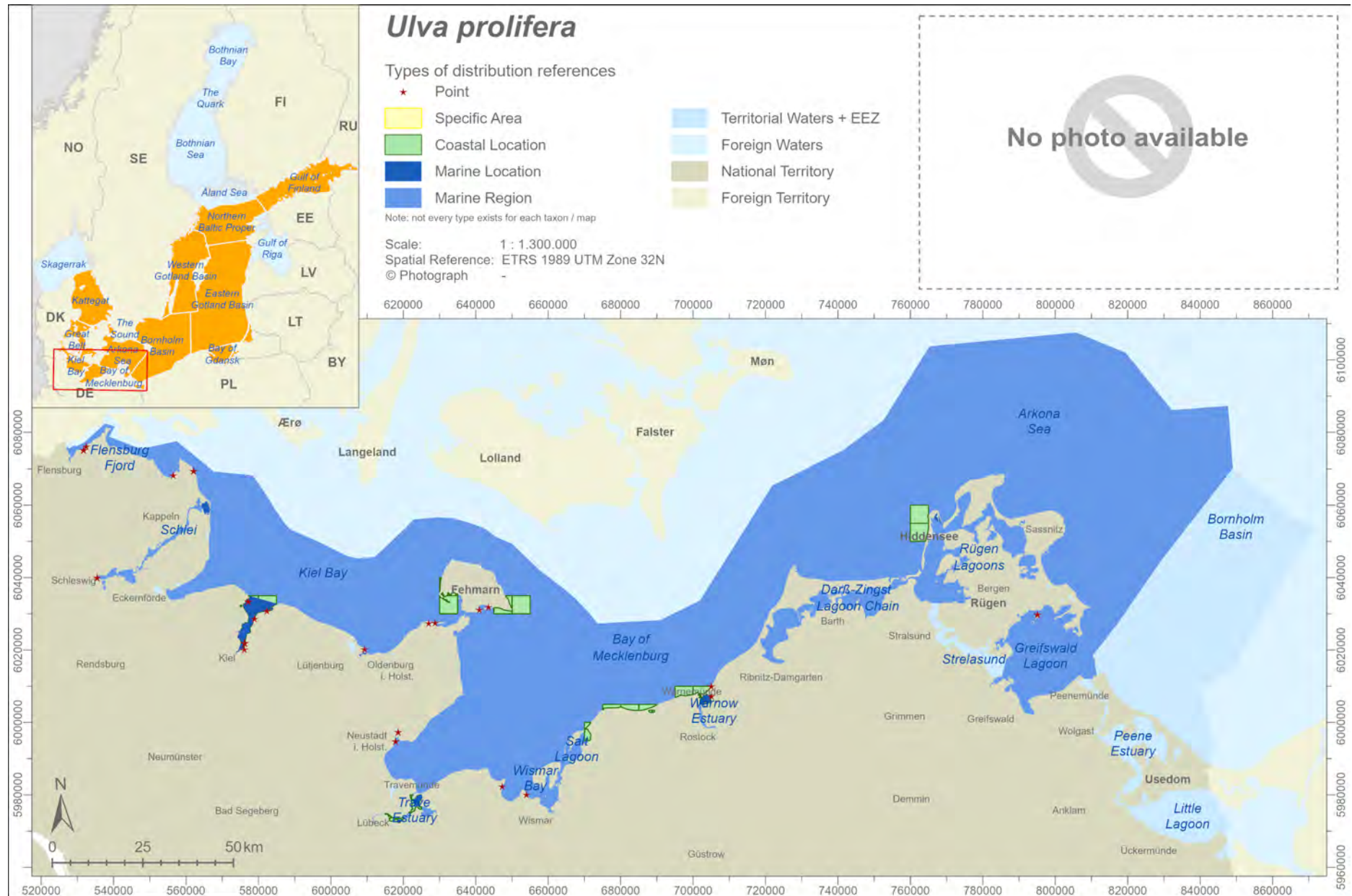
Ecology	
Substrate	hard bottom and plants or animals – stones, wood, blue mussels (live mussels) and on various plants ( <i>Phragmites</i> , <i>Zostera</i> )
Attachment	epilithic and epiphytic/epizoic
Salinity	$\beta$ -mesohaline to euhaline (fully marine)
Vertical zone	hydrolittoral (to upper infralittoral) – around the shoreline; a single record from 4 m depth
Exposure	extremely sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
<i>Ulva</i> spp. are difficult to determine by morphological features, particularly in brackish water, where morphological features tend to vary between different salinity ranges	
References	
19 31 40 45 46 60 64 65 81 82 88 89 90 95 106 115 120 121 126 129 132 133 152 165 167 170 172 173 192 206 226 234 239	



## *Ulva prolifera* O. F. Müller, 1778

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ulvales
Family	Ulvaceae
Subspecies	–
Synonyms	<i>Enteromorpha compressa</i> var. <i>prolifera</i> (O. F. Müller) Greville, 1830 <i>Enteromorpha prolifera</i> (O.F. Müller) J. Agardh, 1883 <i>Ulva procera</i> (K. Ahlner) H.S. Hayden, Blomster, Maggs, P.C. Silva, Stanhope & WaÅland, 2003 <i>Ulva simplex</i> (K.L. Vinogradova) H.S. Hayden, Blomster, Maggs, P.C. Silva, Stanhope & WaÅland, 2003
Distribution	
Baltic Sea	western and central Baltic Sea – from Kattegat to Gulf of Finland (DE, DK, FI, LT, PL, RU, SE); records from Gulf of Riga, Åland, Archipelago and Bothnian Sea in Nielsen 1995 (148) could not be verified
German Baltic Sea	several records along the open, exposed coastline – from Glücksburg in Flensburg Fjord to northwest of Hiddensee in Arkona Sea; frequent records in all sheltered coastal bays, lagoons and estuaries with exception of Strelasund, Peene Estuary and Little Lagoon; a single record in a coastal lake – Kiel Bay (Sehlendorf Inland Lake)

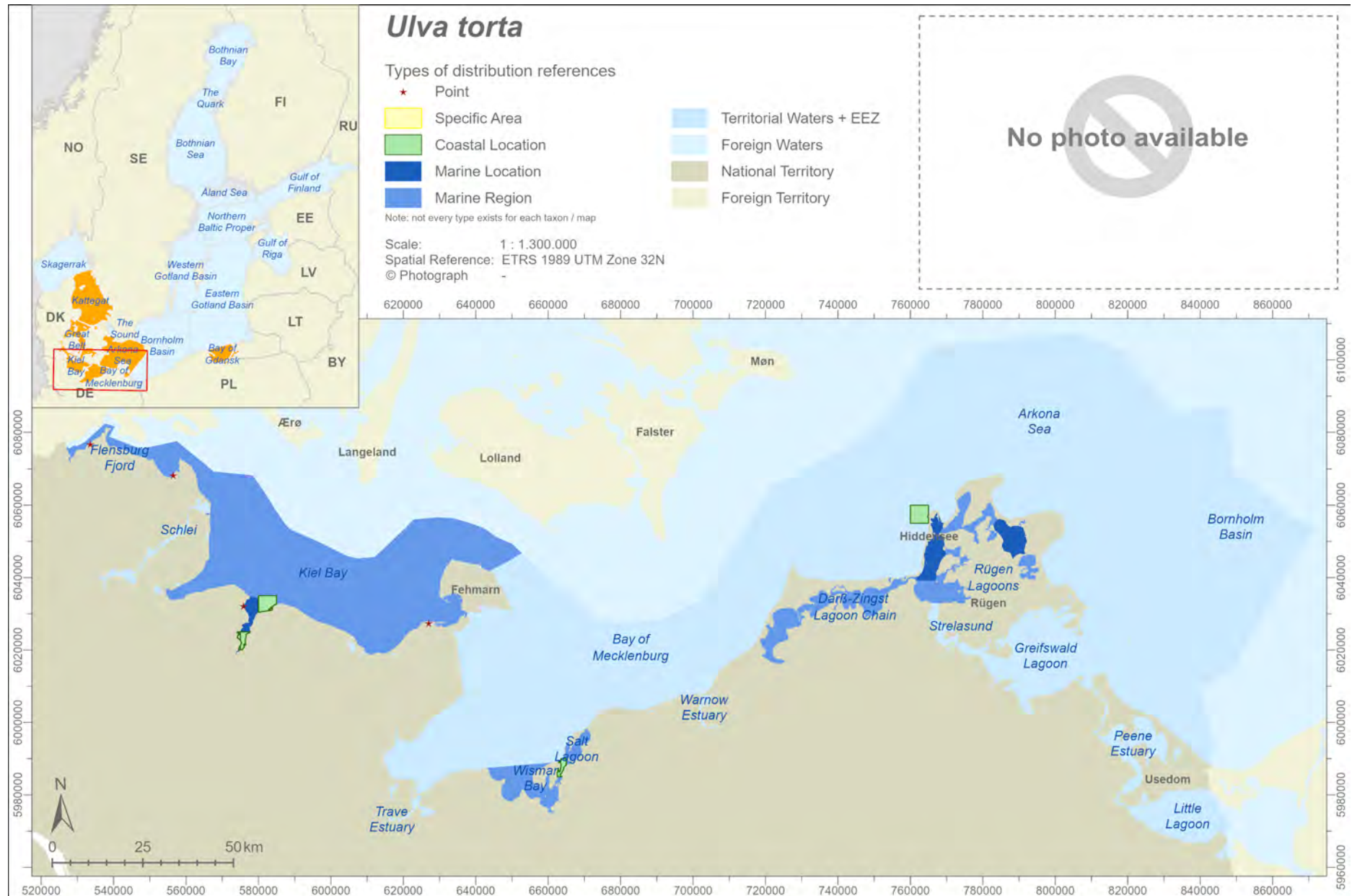
Ecology	
Substrate	hard bottom and plants or animals – stones, wood, blue mussels (live mussels) and on various algae ( <i>Fucus</i> )
Attachment	epilithic and epiphytic/epizoic
Salinity	$\beta$ -mesohaline to euhaline (fully marine)
Vertical zone	supra- to hydrolittoral
Exposure	extremely sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
<i>Ulva</i> spp. are difficult to determine by morphological features, particularly in brackish water, where morphological features tend to vary between different salinity ranges	
References	
40 45 46 52 53 60 77 81 82 90 95 120 121 124 129 154 167 192 206 220 226	



## *Ulva torta* (Mertens) Trevisan, 1842

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ulvales
Family	Ulvaceae
Subspecies	–
Synonyms	<i>Bangia torta</i> (Mertens) C. Agardh <i>Conferva torta</i> Mertens in Jürgens, 1822 <i>Enteromorpha torta</i> (Mertens) Reinbold, 1893 <i>Ilea torta</i> (Mertens) Trevisan, 1845 <i>Prasiola crispa</i> f. <i>torta</i> (Mertens) Brand <i>Schizogonium tortum</i> (Mertens) Kützing, 1843
Distribution	
Baltic Sea	western Baltic Sea – from Kattegat to Bay of Gdansk with exception of The Sound and Bornholm Basin (DE, DK, PL); records from Eastern Gotland Basin in Nielsen 1995 (148) could not be verified
German Baltic Sea	a single record from an exposed location – Arkona Sea (Kloster outer coast); all other records at sheltered locations in fjords, coastal bays and lagoons – Flensburg Fjord (Glücksburg, Wackerballig), Kiel Bay (Kiel Fjord, Strande, Wik, Diedrichsdorf, Stein, Heiligenhafen), Salt Lagoon (south of Langenwerder), Darß-Zingst-Bodden-Chain (without further geogr. specification), Rügen Lagoons (Grieben Bight, Vitt Lagoon, Schaprode Lagoon, Great Jasmond Lagoon)

Ecology	
Substrate	hard bottom – stones
Attachment	epilithic
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – records in lower salinities don't fit to the Baltic Sea distribution
Vertical zone	upper infralittoral – between 1 and 4 m depth
Exposure	very sheltered to sheltered (very exposed) –
Conservation	
Red List	<b>NE</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
distribution in the Baltic Sea indicates <i>U. torta</i> is a pure marine species not entering the Baltic Sea at salinity ranges below 8–10 psu	
References	
64 65 81 82 124 165 172 206 226	

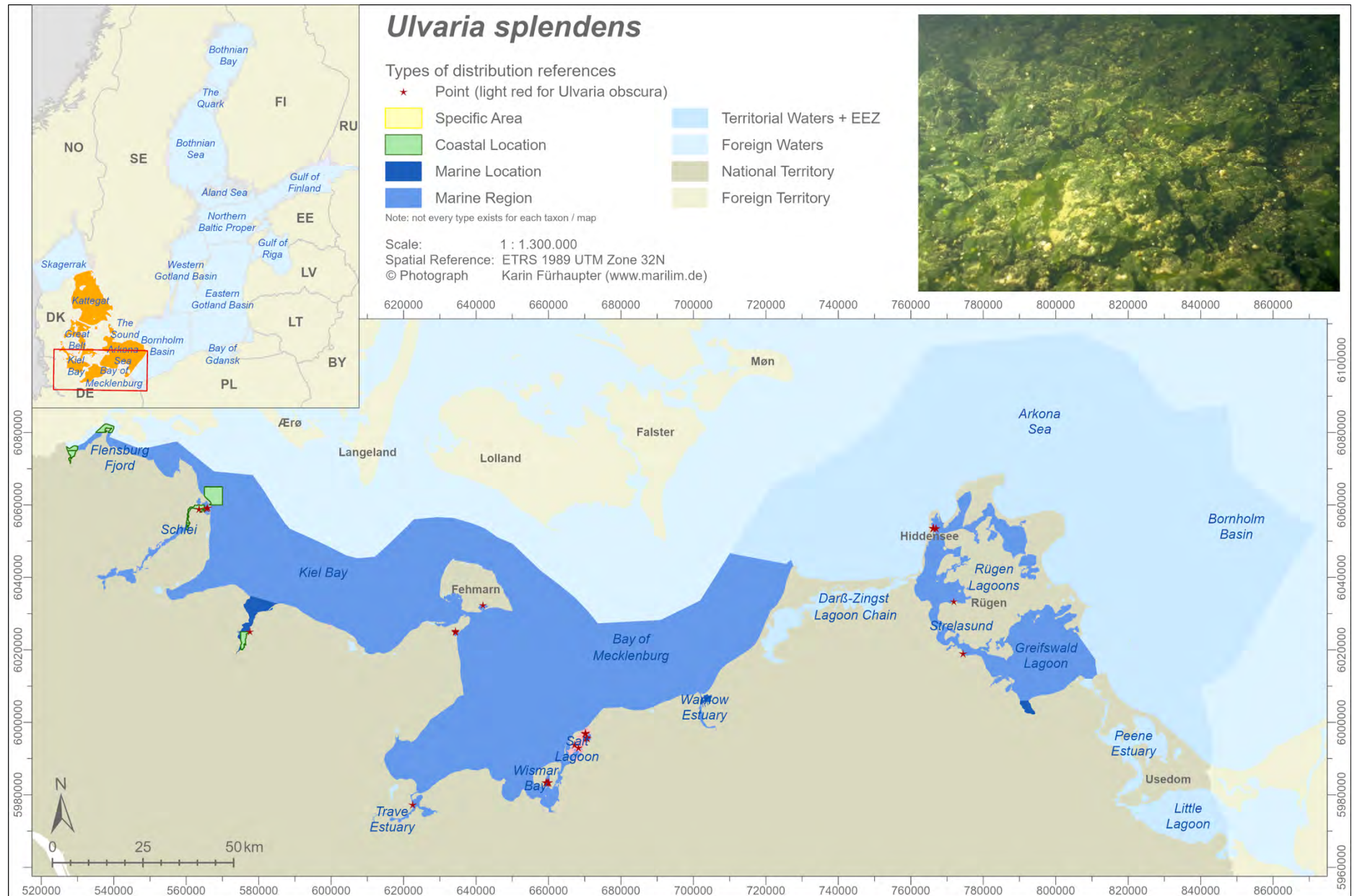


## *Ulvaria splendens* (Ruprecht) Vinogradova, 1979

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ulvales
Family	Ulvaceae
Subspecies	–
Synonyms	<i>Monostroma fuscum</i> Wittrock, 1866 <i>Monostroma fuscum</i> var. <i>splendens</i> (Ruprecht) Rosenvinge, 1893 <i>Ulva fusca</i> Postels & Ruprecht, 1840 <i>Ulva splendens</i> Ruprecht, 1850 <i>Ulvaria fusca</i> (Wittrock) Vinogradova, 1967
Distribution	
Baltic Sea	only western Baltic Sea – from Kattegat to Arkona Sea (DE, DK)
German Baltic Sea	few records from the open coastline – Flensburg Fjord (Flensburg Harbour, Holnis), Kiel Bay (Oehe-Schleimünde, Kiel Fjord, Schwentine); frequent records from coastal bays, lagoons and estuaries – Schlei (Maashom, Olpenitz), Bay of Mecklenburg (Burg Inland Lake, Großenbrode Inland Lake), Trave Estuary (Stülper Huk), Wismar Bay (Kirch Lake), Salt Lagoon, Warnow Estuary (Breitling), Rügen Lagoons (Vitt Lagoon, Kubitz Lagoon), Strelasund (Stahlbrode), Greifswald Lagoon (Danish Bight)

Ecology	
Substrate	hard bottom – stones and overlaying soft bottom
Attachment	epilithic and drifting (at the bottom)
Salinity	$\beta$ -mesohaline to euhaline (fully marine)
Vertical zone	upper infralittoral – between 1 and 3 m depth
Exposure	very sheltered to sheltered (exposed) –
Conservation	
Red List	<b>NE</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
a single reference lists <i>Ulvaria obscura</i> for Salt Lagoon (211) – these coordinates have been illustrated additionally in the distribution map in light red; forming very thick algae mats (often together with <i>Chaetomorpha linum</i> ) in coastal lagoons, which may lead to the death of sessile macrozoobenthos beneath, particularly during summer when the biomass is degraded bacterially	
References	
48 52 68 81 82 86 106 124 126 149 151 153 180 190 206 229 211*	
*referencing <i>Ulvaria obscura</i>	





## *Ulvela scutata* (Reinke) R. Nielsen, C.J. O'Kelly & B.Wysor, 2013

Taxonomy	
Phylum	Chlorophyta
Class	Chlorophyceae
Order	Chaetophorales
Family	Chaetophoraceae
Subspecies	–
Synonyms	<i>Pringsheimia scutata</i> Reinke, 1888 <i>Pringsheimiella scutata</i> (Reinke) Marchewi- anka, 1925
Distribution	
Baltic Sea	western and eastern Baltic Sea – from Kattegat to Bornholm Basin (DE, DK) and Gulf of Finland (RU); records from Western/Eastern Gotland Basin to Åland/Archipelago Sea and Bay of Gdansk in Nielsen 1995 (148) could not be verified
German Baltic Sea	four records along the open coastline – Kiel Bay (Boknis Eck, Kiel Fjord), Bay of Mecklenburg (Kühlungsborn, Warnemünde); a single record in a coastal bay/lagoon – Wismar Bay (Breitling/ Poel)

Ecology	
Substrate	plants – on various algae ( <i>Polysiphonia</i> , <i>Rhodomela</i> )
Attachment	epiphytic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	upper infralittoral – from 2 to about 10 m depth
Exposure	very sheltered to very exposed
Conservation	
Red List	<b>NE</b> (Baltic Sea), <b>D</b> (DE)
Threats	–
Remarks	
References	
46 81 82 86 111 190 206	



## *Ulve*lla viridis (Reinke) R. Nielsen, C.J. O'Kelly & B. Wysor, 2013

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ulvales
Family	Ulvellaceae
Subspecies	–
Synonyms	<i>Acrochaete viridis</i> (Reinke) R. Nielsen, 1979 <i>Endoderma viride</i> (Reinke) De Toni, 1889 <i>Entocladia viridis</i> Reinke, 1879 <i>Entoderma viridis</i> (Reinke) Wille, 1890 <i>Phaeophila viridis</i> (Reinke) Burrows, 1976
Distribution	
Baltic Sea	western and one central part of the Baltic Sea – from Kattegat to Arkona Sea (DE, DK) and Gulf of Finland (FI); records from Bornholm Basin, Bay of Gdansk and from Åland Sea to Bothnian Bay in Nielsen 1995 (148) could not be verified
German Baltic Sea	few records along the open coastline – Kiel Bay (Boknis Eck), Bay of Mecklenburg (Boltenhagen, Rerik, Kühlungsborn, Heiligendamm, Warnemünde); two records in coastal bays/lagoons – Wismar Bay (Breitling/Poel), Salt Lagoon (Rerik)

Ecology	
Substrate	plants – in various algae ( <i>Furcellaria</i> , <i>Polysiphonia</i> )
Attachment	endophytic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	upper to lower Infralittoral – from 2 to about 12 m depth
Exposure	very sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), – (DE)
Threats	–
Remarks	
References	
46 81 82 111 164 169 170 180 206	



## *Ulvea wittrockii* (Wille) R. Nielsen, C.J. O'Kelly & B. Wysor, 2013

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ulvales
Family	Ulvellaceae
Subspecies	–
Synonyms	<i>Acrochaete wittrockii</i> (Wille) R. Nielsen, 1983 <i>Chlorofilum ephemerum</i> P. A. Dangeard, 1965 <i>Ectochaete wittrockii</i> (Wille) Kylin, 1938 <i>Entocladia wittrockii</i> Wille, 1880 <i>Phaeophila wittrockii</i> (Wille) R. Nielsen, 1972
Distribution	
Baltic Sea	only western Baltic Sea – from Kattegat to Bornholm Basin (DE, DK); records from Bay of Gdansk, Åland and Archipelago Sea in Nielsen 1995 (148) could not be verified
German Baltic Sea	few records along the open coastline – Kiel Bay (Boknis Eck, Kiel Fjord), Bay of Mecklenburg (Rerik, Heiligendamm, Warnemünde); two records in a coastal bay/lagoon – Wismar Bay (Breitling/Poel), Salt Lagoon (Rerik)

Ecology	
Substrate	plants – in various algae ( <i>Polysiphonia</i> , <i>Pylaiella</i> )
Attachment	endophytic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	upper infralittoral – from 4 to about 8 m depth
Exposure	very sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
References	
46 78 81 82 111 164 170 180 190 206	

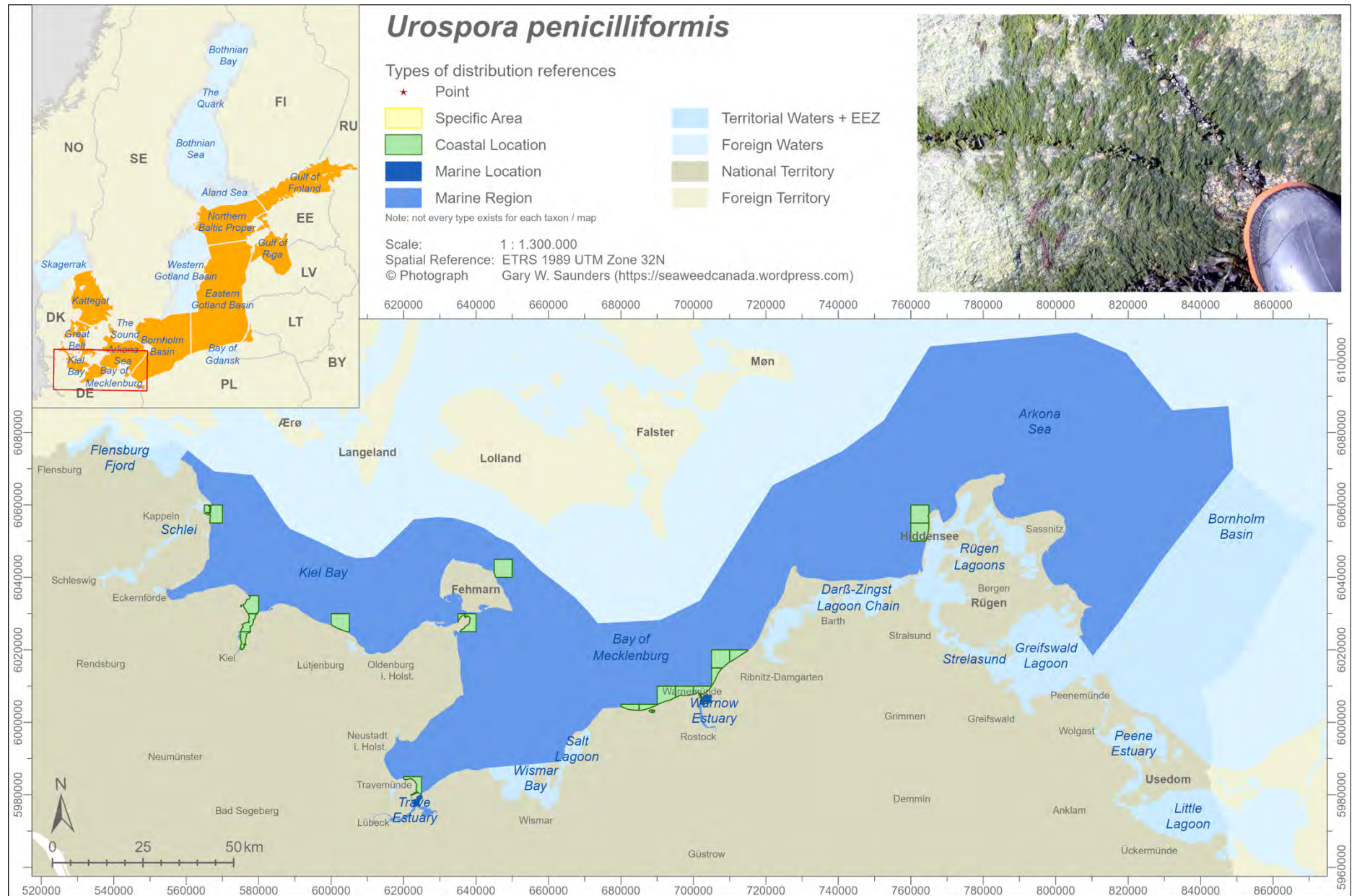


## *Urospora penicilliformis* (Roth) Areschoug, 1866

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ulotrichales
Family	Ulotrichaceae
Subspecies	–
Synonyms	<i>Codiolum gregarium</i> A. Braun, 1855 <i>Codiolum penicilliforme</i> (Roth) P.C. Silva, 1957 <i>Hormiscia penicilliformis</i> (Roth) Areschoug, 1866 <i>Hormiscia penicilliformis</i> (Roth) Fries, 1835 <i>Urospora isogona</i> (J. E. Smith) Batters <i>Urospora mirabilis</i> (J. E. Areschoug, 1866)
Distribution	
Baltic Sea	entire Baltic Sea coastline with exception of northeasternmost part – from Kattegat to Gulf of Finland (DE, DK, EE, LT, RU, SE); records from Bay of Gdansk, Western Gotland Basin, Åland, Archipelago and Bothnian Sea in Nielsen 1995 (148) could not be verified
German Baltic Sea	various records along the open, exposed coastline – Kiel Bay (Schleimünde, various records in Kiel Fjord, Hubertsberg), Bay of Mecklenburg (Großenbroderfähre, Marienleuchte, Kühlungsborn bis Graal, Warnemünde, Markgrafenhede,), Arkona Sea (northwest of Hiddensee); two records in outer areas of estuaries – Trave Estuary (Pötenitz Bight), Warnow Estuary (Breitling)

Ecology	
Substrate	hard bottom – boulders, stones, wood and on other algae
Attachment	epilithic and epiphytic
Salinity	$\alpha$ -mesohaline to euhaline (fully marine)
Vertical zone	supra- to hydrolittoral
Exposure	very sheltered to very exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), * (DE)
Threats	–
Remarks	
References	
46 60 64 81 82 89 90 95 121 165 180 192 206	

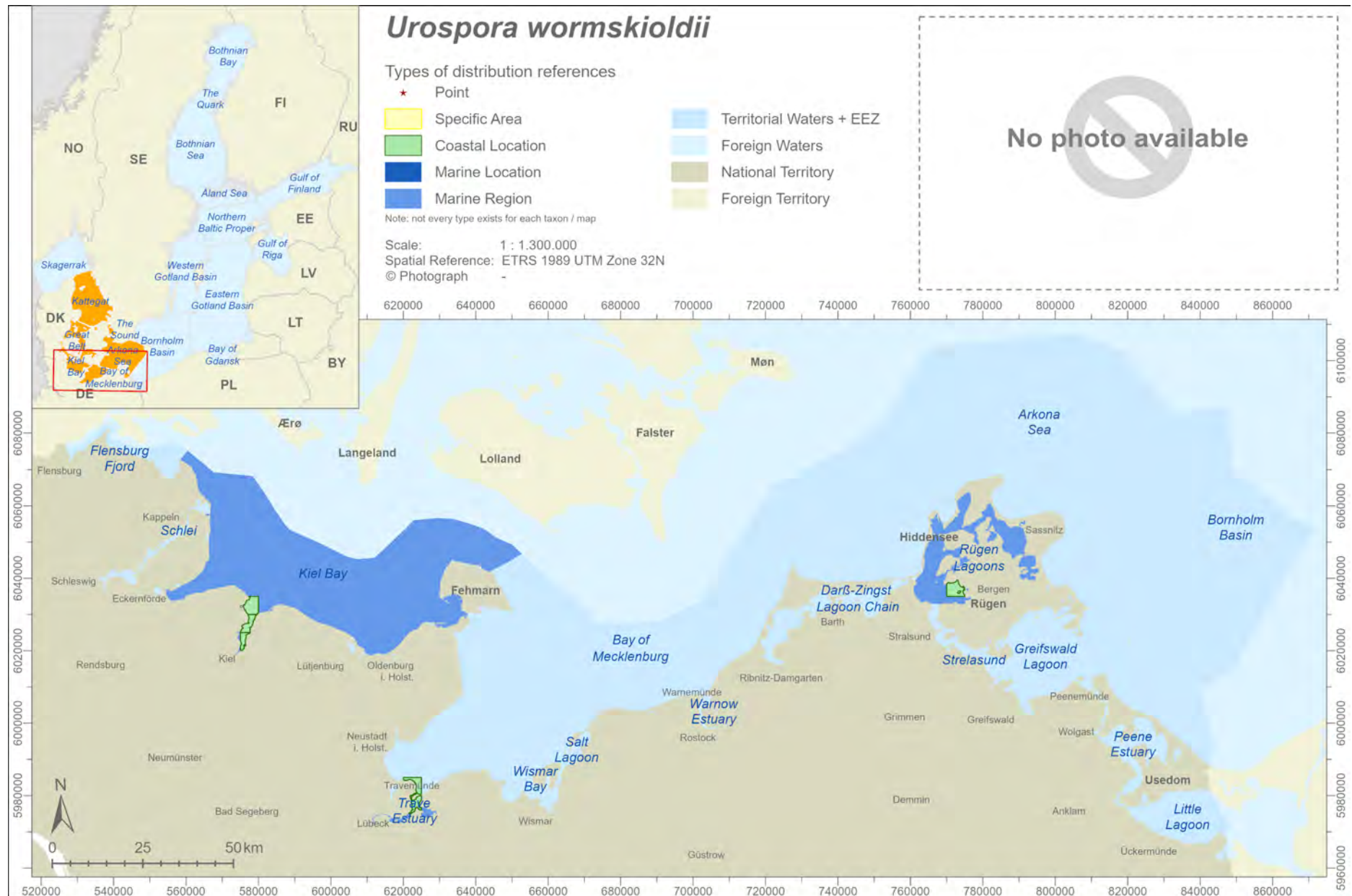




## *Urospora wormskioldii* (Mertens) Rosenvinge, 1893

Taxonomy	
Phylum	Chlorophyta
Class	Ulvophyceae
Order	Ulotrichales
Family	Ulotrichaceae
Subspecies	–
Synonyms	<i>Codiolum cylindricum</i> Foslie, 1887 <i>Codiolum nordenskjoldianum</i> Kjellman, 1877 <i>Urospora collabens</i> (C. Agardh) Holmes & Batters, 1890 <i>Urospora vancouveriana</i> (Tilden) Setchell & N. L. Gardner, 1919 <i>Urospora wormskioldii</i> f. <i>vancouveriana</i> Tilden, 1900
Distribution	
Baltic Sea	only western Baltic Sea – from Kattegat to Arkona Sea (DE, DK)
German Baltic Sea	few records overall, in fjords, coastal lagoons or estuaries – Kiel Bay (various records in Kiel Fjord), Trave Estuary (Priwall, Botte-Berg), Rügen Lagoons (Libitz)

Ecology	
Substrate	hard bottom and plants – stones and on various plants ( <i>Zostera</i> )
Attachment	epilithic and epiphytic
Salinity	( $\beta$ -mesohaline) $\alpha$ -mesohaline to euhaline (fully marine) – only a single record in lower salinities
Vertical zone	upper infralittoral
Exposure	very sheltered to moderately exposed
Conservation	
Red List	<b>LC</b> (Baltic Sea), <b>D</b> (DE)
Threats	–
Remarks	
considered a marine species not penetrating further into the Baltic Sea; single record in Rügen Lagoons with salinities lower 10 psu probably misidentification	
References	
60 61 81 82 88 190 192 206	



## Rare Taxa

Taxa with a maximum of three geographically distinguishable locations and not more than five records over time are listed alphabetically per taxonomic group with location(s) and reference(s).

### Vascular Plants

N°	Taxon Author(s)	Ref-N°
1	<b>Potamogeton berchtoldii</b> Fieber, 1838	
	A single record from 2007 in an inland lake – Kiel Bay (Great Inland Lake); most probably a transitional freshwater location	196
2	<b>Potamogeton friesii</b> Rupr.	
	A single record location in an inland lake with five records over time (2000, 2007, 2010, 2014, 2016) – Kiel Bay (Great Inland Lake); most probably a transitional freshwater location	13 196 228
3	<b>Utricularia vulgaris</b> L.	
	A single record from the 1960ies in an afterwards land claimed area – Darß-Zingst-Lagoon-Chain (Saal Lagoon - Polder Were); most probably a transitional freshwater location	50

### Stoneworts

N°	Taxon Author(s)	Ref-N°
1	<b>Chara aculeolata</b> Kützinger, 1832 (Syn: <b>Chara polyacantha</b> A. Braun, 1859)	
	Two records/two locations: A single record from the 1960ies in an afterwards land claimed area – Darß-Zingst-Lagoon-Chain (Saal Lagoon - Polder Were) and the second in an inland lake – Kiel Bay (Great Inland Lake); most probably transitional freshwater locations and/or confused with <i>Chara baltica</i> or <i>Ch. horrida</i>	50 196
2	<b>Nitella opaca</b> (C. Agardh ex Bruzelius) C. Agardh, 1824	

	A single historical record from 1896 – Schlei (Kleine Breite); most probably a freshwater location	223
3	<b>Nitella syncarpa</b> (J.L.Thuillier) Kützinger, 1845	
	A single historical record from 1890 – Schlei (geographically not further specified); most probably a freshwater location	223

### Red Seaweeds

N°	Taxon Author(s)	Ref-N°
1	<b>Acrochaetium immersum</b> (Rosenvinge) Hamel, 1927	
	A single record from 1979 – Kiel Bay (Boknis Eck); a specific study for tiny epi- or endobenthic algae at a single location; species possibly unnoticed in other surveys	111
2	<b>Acrochaetium kylinii</b> G. Hamel, 1927	
	Two records/two locations: A single record from 1979 – Kiel Bay (Boknis Eck) and a second from Bay of Mecklenburg (Warnemünde); a specific study for tiny epi- or endobenthic algae at a single location; species possibly unnoticed in other surveys	111 169
3	<b>Acrochaetium parvulum</b> (Kylin) Hoyt, 1920	
	Two records/two locations from the 1960ies in the same survey – Bay of Mecklenburg (Kühlungsborn, Warnemünde); a specific study for tiny epi- or endobenthic algae at a single location; species possibly unnoticed in other surveys	46
4	<b>Bangia atropurpurea</b> (Mertens ex Roth) C. Agardh, 1824	
	Five records in three inland lakes/lagoons between 2000 and 2018 – Kiel Bay (Hemmelsdorf Lake, Windeby Lagoon, Fasten Lake/Fehmarn); most probably all transitional freshwater locations	13 80 196
5	<b>Bangia fusco-purpurea</b> (Dillwyn) Lyngbye, 1819	
	Two records/two locations: A single record from the 1960ies – Bay of Mecklenburg (Kühlungsborn), Arkona Sea (northwest of Hiddensee); species possibly unnoticed in other surveys	46 64
6	<b>Bonnemaisonia hamifera</b> Hariot 1891	

	A single record from 1979 – Kiel Bay (Boknis Eck); a specific study for tiny epi- or endobenthic algae at a single location; species possibly unnoticed in other surveys	111
7	<b>Callithamium tetragonum</b> (Withering) S.F.Gray, 1821	
	Neophyte in the German Baltic Sea flora (records for Kattegat to Belt Sea from DK); Two records from 2008 – Kiel Bay (Olpenitz) both shallow water locations on rockfill ramps	155
8	<b>Ceramium arborescens</b> J. Agardh, 1894	
	A single record from the 1950ies – Arkona Sea (northwest of Hiddensee); confusion with <i>Ceramium tenuicorne</i> possible	121
9	<b>Ceramium echionotum</b> J. Agardh 1844	
	Two records/two locations: A single record from the 1960ies – Bay of Mecklenburg (west of Boltenhagen) and the 1998 – Rügen Lagoons (Kubitz Lagoon); most likely confused with <i>Ceramium tenuicorne</i>	46 65
10	<b>Ceramium penicillatum</b> Areschoug, 1849	
	A single record from the 1960ies – Bay of Mecklenburg (west of Boltenhagen); most likely confused with <i>Ceramium tenuicorne</i>	46
11	<b>Chondria capillaris</b> (Hudson) M.J. Wynne, 1991	
	A single historical record from 1884 – Bay of Mecklenburg (Warnemünde),	116
12	<b>Coccotylus hartzii</b> (Rosenvinge) L. Le Gall & G.W. Saunders, 2010	
	A single record from the 1970ies – Arkona Sea (northwest Hiddensee); only as drift material	93
13	<b>Colaconema gynandrum</b> (Rosenvinge) R. Nielsen, 1994	
	A single record from 1979 – Kiel Bay (Boknis Eck); a specific study for tiny epi- or endobenthic algae at a single location; species possibly unnoticed in other surveys	111
14	<b>Colaconema leptonema</b> (Rosenvinge) Alongi, Cormaci & G. Furnari, 2017	
	A single record from 1979 – Kiel Bay (Boknis Eck); a specific study for tiny epi- or endobenthic algae at a single location; species possibly unnoticed in other surveys	111
15	<b>Colaconema savianum</b> (Meneghini) R. Nielsen, 1994	

	A single record from 1979 – Kiel Bay (Boknis Eck); a specific study for tiny epi- or endobenthic algae at a single location; species possibly unnoticed in other surveys	111
16	<b>Coralina officinalis</b> Linnaeus 1758	
	Two records/two locations: A single historical record from 1889 – Flensburg Fjord (Neukirchengrund) and one from the 1970ies – Arkona Sea (northwest of Hiddensee); only as drift material	93 190
17	<b>Gaillona gallica</b> (Nägeli) Athanasiadis, 2016	
	Neophyte in the German Baltic Sea flora (records for Kattegat from DK); Two records from 2015 – Kiel Bay (Heiligenhafen, Puttgarden); both shallow water locations at rockfill ramps	11 139
18	<b>Gaillona hookeri</b> (Dillwyn) Athanasiadis, 2016	
	Two records from 1998 – Kiel Bay (Schleimünde); a deep, high salinity location; borderline species to marine areas	153
19	<b>Hildenbrandia rivularis</b> (Liebmann) J. Agardh, 1851	
	Five records in two inland lakes/lagoons between 2000 and 2018 – Kiel Bay (Hemmelsdorf Lake, Windeby Lagoon); most probably transitional freshwater locations	13 196
20	<b>Kylinia rosulata</b> Rosenvinge, 1909	
	Two records/two locations: A single record from 1979 – Kiel Bay (Boknis Eck), Bay of Mecklenburg (Warnemünde); species possibly unnoticed in many surveys	111 169
21	<b>Lithophyllum corallinae</b> (P.L. Crouan & H.M. Crouan) Heydrich, 1897	
	A single historical record from 1889 – Flensburg Fjord (Neukirchengrund)	190
22	<b>Mastocarpus stellatus</b> (Stackhouse) Guiry, 1984	
	A single historical record from 1887 – Kiel Bay (Hohwacht Bay)	48
23	<b>Melobesia membranacea</b> (Esper) J.V. Lamouroux 1812	
	Two historical records/two locations: A single record from 1889 – Kiel Bay (Bülk), and the second from 1874 – Schlei (geographically not further specified)	142 190
24	<b>Odonthalia dentata</b> (Linnaeus) Lyngbye 1819	

	A single record from 1983 (herbarium material) – Kiel Bay (Kiel)	95
25	<b>Phyllophora sicula</b> (Kützting) Guiry & L.M. Irvine, 1976	
	A single historical record from 1882 (herbarium material) – Bay of Mecklenburg (Boltenhagen)	95
26	<b>Phymatolithon calcareum</b> (Pallas) Adey & D.L. McKibbin 1970	
	Two records/two locations: A single historical record from 1871– Kiel Bay (Stollergrund), and a second one from 1970ies – Arkona Sea (northwest of Hiddensee)	93 141
27	<b>Phymatolithon lenormandii</b> (J.E. Areschoug) W. H. Adey, 1966	
	Two historical records: A single record from 1889 – Kiel Bay (Stollergrund) and a second one from 1871– Arkona Sea (Darßer Ort)	141 190
28	<b>Pneophyllum fragile</b> Kützting 1843	
	A single historical record from 1889 – Kiel Bay (Bülk)	190
29	<b>Rhodomela lycopodioides</b> (Linnaeus) C. Agardh, 1822	
	Two historical records from 1887 of the same taxonomic study (herbarium material) – Kiel Bay (Hohwacht Bay, Fehmarn)	95
30	<b>Sahlingia subintegra</b> (Rosenvinge) Kornmann 1989	
	A single record from 1979 – Kiel Bay (Boknis Eck); a specific study for tiny epi- or endobenthic algae at a single location; species possibly unnoticed in other surveys	111
31	<b>Titanoderma laminariae</b> (P.L. Crouan & H.M. Crouan) Y.M. Chamberlain	
	A single historical record from 1887 (herbarium material) – Kiel Bay (Schönberg)	95

### Brown Seaweeds

N°	Taxon Author(s)	Ref-N°
1	<b>Battersia plumigera</b> (Holmes ex Hauck) Draisma, Prud'homme & H. Kawai, 2010	

	Two records: A single record from 1980 (herbarium material) – Kiel Bay (Boknis Eck) and one from 1994 – Arkona Sea (Zingst)	64 95
2	<b>Ectocarpus fasciculatus</b> Harvey, 1841	
	Two records: A single historical record from 1881 – Bay of Mecklenburg (Warnemünde) and a second from the 1990ies – Arkona Sea (Pramort)	64 115
3	<b>Elachista stellaris</b> J.E. Areschoug, 1842	
	A single historical record from 1889 – Kiel Bay (Strande)	190
4	<b>Fucus ceranoides</b> Linnaeus, 1753	
	Two historical records from 1887 (herbarium material) – Kiel Bay (both in Kiel Fjord)	95
5	<b>Halopteris scoparia</b> (Linnaeus) Sauvageau 1904	
	Two historical records from 1880ies (herbarium material) – Kiel Bay (both in Kiel Fjord)	95 190
6	<b>Laminariocolax aecidioides</b> (Rosenvinge) A.F. Peters, 1998	
	A single record from 1979 – Kiel Bay (Boknis Eck); a specific study for tiny epi- or endobenthic algae at a single location; species possibly unnoticed in other surveys	111
7	<b>Litosiphon laminariae</b> (Lyngbye) Harvey, 1849	
	Two records from the 1970ies – Bay of Mecklenburg (Kühlungsborn), Rügen Lagoons (Rassow Stream)	46 170
8	<b>Mesogloia vermiculata</b> (Smith) S.F. Gray, 1821	
	A single historical record from 1860 – Bay of Mecklenburg (Fischland)	19
9	<b>Myrionema magnusii</b> (Sauvageau) Loiseaux, 1967	
	A single record from the 1990ies – Arkona Sea (Zingst)	64
10	<b>Myrionema seriatum</b> (Reinke) Kylin, 1947	
	Two records: A single historical record from 1989 (herbarium material) – Kiel Bay (Kiel) and one from 1969 – Bay of Mecklenburg (Rerik to Warnemünde)	46 95
11	<b>Myrionema strangulans</b> Greville, 1827	
	Two records: A single historical record from 1989 – Kiel Bay (Möltenort) and one from 1969 – Bay of Mecklenburg (Börgerende)	46 190

## Rare Taxa

12	<b>Myriotrichia clavaeformis</b> Harvey, 1834	
	A single historical record from 1889 – Kiel Bay (Kiel Fjord)	190
13	<b>Petroderma maculiforme</b> (Wollny) Kuckuck, 1897	
	Two records from 1960ies of the same taxonomic study – Bay of Mecklenburg (Börgerende, Warnemünde)	46
14	<b>Porterinema fluviatile</b> (H.C. Porter) Waern, 1952	
	Two records: A historical one from 1894 – Warnow Estuary (Breitling) and one from 1959 – Rügen Lagoons (Rassow Stream)	180 183
15	<b>Pylaiella varia</b> Kjellman, 1883	
	Two historical records from 1880ies (herbarium material) – Kiel Bay (both in Kiel Fjord)	95
16	<b>Sphacelorbis nanus</b> (Nageli ex Kützing) Draisma, Prud'homme & H. Kawai, 2010	
	Two historical records from 1887 (herbarium material) – Kiel Bay (both in Kiel Fjord)	95
17	<b>Streblonema fasciculatum</b> Thuret, 1863	
	Two historical records from the 1880ies – Kiel Bay (both in Kiel Fjord)	187 190
18	<b>Striaria attenuata</b> (C. Agardh) Greville, 1828	
	Two historical records from 1880ies (herbarium material) – Kiel Bay (both in Kiel Fjord)	95

## Green Seaweeds

N°	Taxon Author(s)	Ref-N°
1	<b>Aegagropila linnaei</b> Kützing, 1843	
	Two records: A single historical record from 1881 – Bay of Mecklenburg (Warnemünde) and a second from the 1990ies – Arkona Sea (Pramort)	19 64
2	<b>Aphanochaete repens</b> A. Braun, 1850	
	A single historical record from 1894 – Warnow Estuary (Breitling)	180
3	<b>Blastophysa rhizopus</b> Reinke, 1889	
	Two historical records from the 1880ies – Kiel Bay (both in Kiel Fjord)	95 190

4	<b>Chaetomorpha ligustica</b> (Kützing) Kützing, 1849	
	Three records / two locations (plus one region) from 1880 to 1906 – Kiel Bay (Kiel Fjord), Bay of Mecklenburg (Warnemünde) and one newer but geographically unspecific record for Bay of Mecklenburg	40 48 180 190
5	<b>Chlorochytrium cohnii</b> E.P. Wright, 1877	
	A single historical record from 1894 – Warnow Estuary (Warnemünde)	164
6	<b>Cladophora flexuosa</b> (O.F. Müller) Kützing, 1843	
	Three records – Kiel Bay (Kiel Fjord), Arkona Sea (northwest of Hiddensee), Rügen Lagoons (south of Seehof)	95 121
7	<b>Cladophora lehmanniana</b> (Lindenberg) Kützing, 1843	
	Two historical records from the 1880ies – Kiel Bay (Kiel Fjord), Bay of Mecklenburg (Warnemünde)	115 116 190
8	<b>Cladophora refracta</b> Kützing, 1843	
	Two historical records from the 1880ies – Schlei (Schleimünde), Kiel Bay (Kiel Fjord)	190
9	<b>Cladophora vagabunda</b> (Linnaeus) Hoek, 1963	
	Two historical records from the 1880ies and 1890ies – Schlei/ Kiel Bay (Schleimünde), Kiel Bay (Wik Bay)	95 190
10	<b>Epicladia perforans</b> (Huber) R. Nielsen, 1980	
	Two historical records from the 1880ies – Bay of Mecklenburg (Rerik), Warnow Estuary (Breitling)	180
11	<b>Gomontia polyrhiza</b> (Lagerheim) Bornet & Flahault, 1888	
	Two records: A historical one from 1888 – Kiel Bay (Kiel Fjord) and from 1969 – Bay of Mecklenburg (Heiligendamm)	46 190
12	<b>Hormotrichum vermiculare</b> Kützing, 1849	
	A single historical record from 1887 (herbarium material) – Kiel Bay (Möitenort)	95
13	<b>Lychaete pygmaea</b> (Reinke) M.J. Wynne, 2017	
	A single historical record from 1889 – Kiel Bay (geographically not further specified)	190
14	<b>Ochlochaete hystrix</b> Thwaites ex Harvey, 1849 incl. <b>Ochlochaete hystrix</b> var. <b>ferox</b> (Huber) R. Nielsen, 1978	

	A single record from the 1960ies – Rügen Lagoons (Rassow Stream)	183
15	<b>Ostreobium queckettii</b> Bornet & Flahault, 1889	
	A single historical record from the 1880ies – Kiel Bay (geographically not further specified)	187
16	<b>Phaeophila dendroides</b> (P.L. Crouan & H.M. Crouan) Batters, 1902	
	Two historical records from 1880ies (herbarium material) – Kiel Bay (Kiel Fjord), Warnow Estuary (Breitling)	180 190
17	<b>Prasiola crispa</b> (Lightfoot) Kützing, 1843	
	A single record from the 1990ies – Rügen Lagoons (Wiek Lagoon)	65
18	<b>Pseudendoclonium fucicola</b> (Rosenvinge) R. Nielsen, 1980	
	Two records from 1960ies – Bay of Mecklenburg (Kühlungsborn, Warnemünde)	46 90
19	<b>Pseudendoclonium marinum</b> (Reinke) Aleem & E. Schulz, 1952	
	A single record historical from 1889 – Kiel Bay (Kiel Fjord), and two locations in one reference from the 1960ies – Bay of Mecklenburg (Rerik, Kühlungsborn)	46 190
20	<b>Rhizoclonium hieroglyphicum</b> (C. Agardh) Kützing, 1845	
	A single historical record from 1914 – Greifswald Lagoon (Danish Bight), and two recent records from 2016 – Kiel Bay (Hemmelsdorf Lake, Windeby Lagoon); most probably transitional freshwater locations	13 106
21	<b>Rhizoclonium tortuosum</b> (Dillwyn) Kützing, 1845	
	Two historical records from 1880ies (herbarium material) – Kiel Bay (both in Kiel Fjord)	95
22	<b>Ruthnielsenia tenuis</b> (Kyllin) C.J. O'Kelly B. Wynsor & W.K. Bellows, 2004	
	A single record from 1960ies – Bay of Mecklenburg (Kühlungsborn)	46
23	<b>Spongomorpha tomentosa</b>	
	A single record from 1960ies (herbarium material) – Kiel Bay (Möltenort)	95

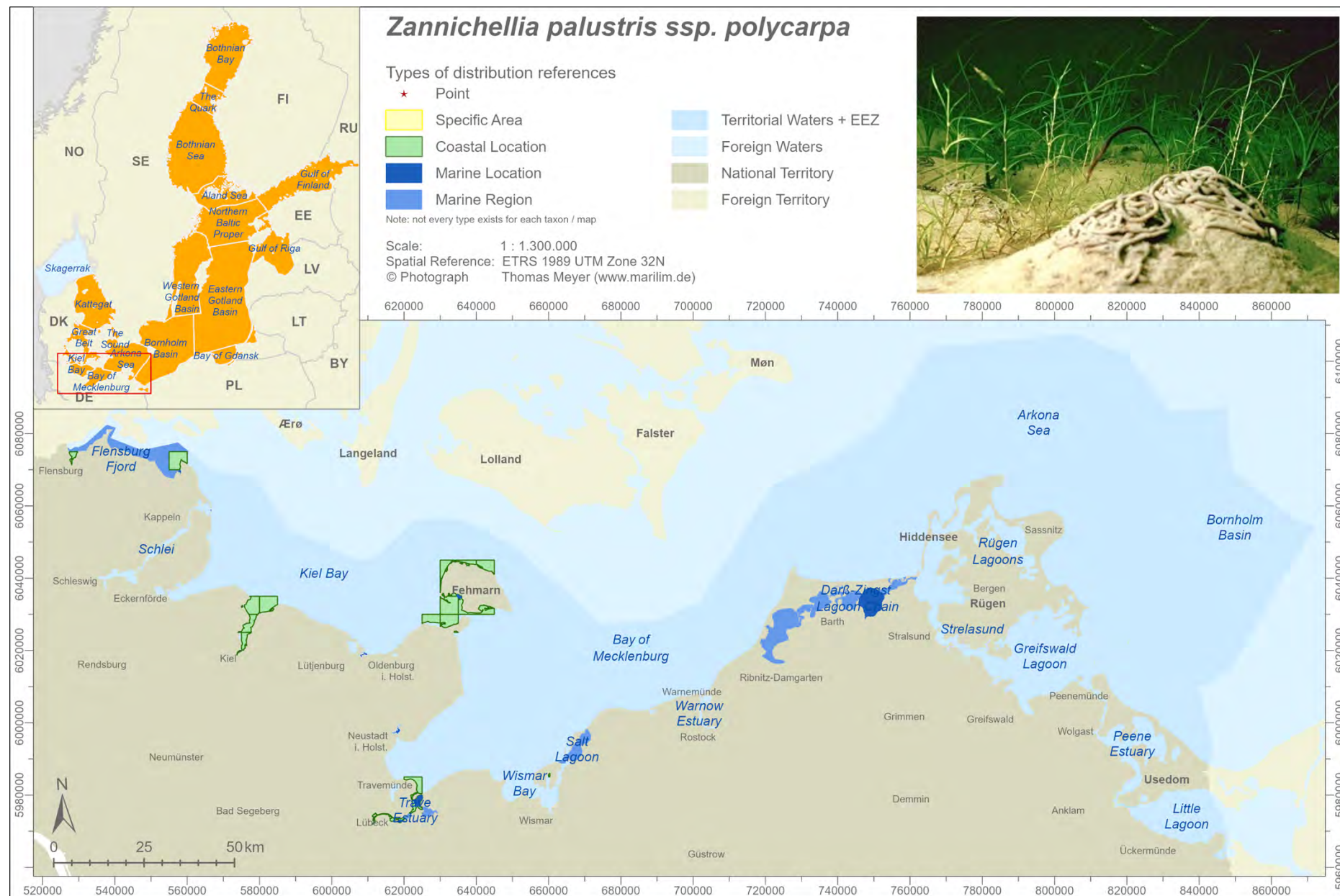
24	<b>Ulothrix implexa</b> (Kützing) Kützing, 1849	
	three geographically distinct locations with five reference – Kiel Bay (both in Kiel Fjord), Warnow Estuary (Breitling), Arkona Sea (Pramort)	48 64 78 95 180
25	<b>Ulothrix tenerrima</b> (Kützing) Kützing, 1843	
	A single record from 1960ies from an inland lake – Kiel Bay (Sehlendorf Inland Lake); most probably a transitional freshwater location	220
26	<b>Ulva radiata</b> (J. Agardh) Hayden, Blomster, Maggs, P.C. Silva, M.J. Stanhope & J.R. Waaland, 2003	
	Two historical records from 1889 (herbarium material) – Kiel Bay (both in Kiel Fjord)	95
27	<b>Ulva ralfsii</b> (Harvey) Le Jolis, 1863	
	A single record from 1920ies in an inland lake – Greifswald Lagoon (Koos Lake); most probably a transitional freshwater location	125
28	<b>Ulvella lens</b> P.L. Crouan & H.M. Crouan, 1859	
	A single historical record from 1889 – Kiel Bay (Kiel Fjord) and one record from the 1960ies – Bay of Mecklenburg/Warnow Estuary (Warnemünde)	46 190
29	<b>Ulvella repens</b> (Pringsheim) R. Nielsen, C.J. O'Kelly & B. Wynsor, 2013	
	Two geographical distinct and separated locations – Kiel Bay (Boknis Eck), Bay of Mecklenburg/Warnow Estuary (Warnemünde, Breitling)	90 111 164 169 180

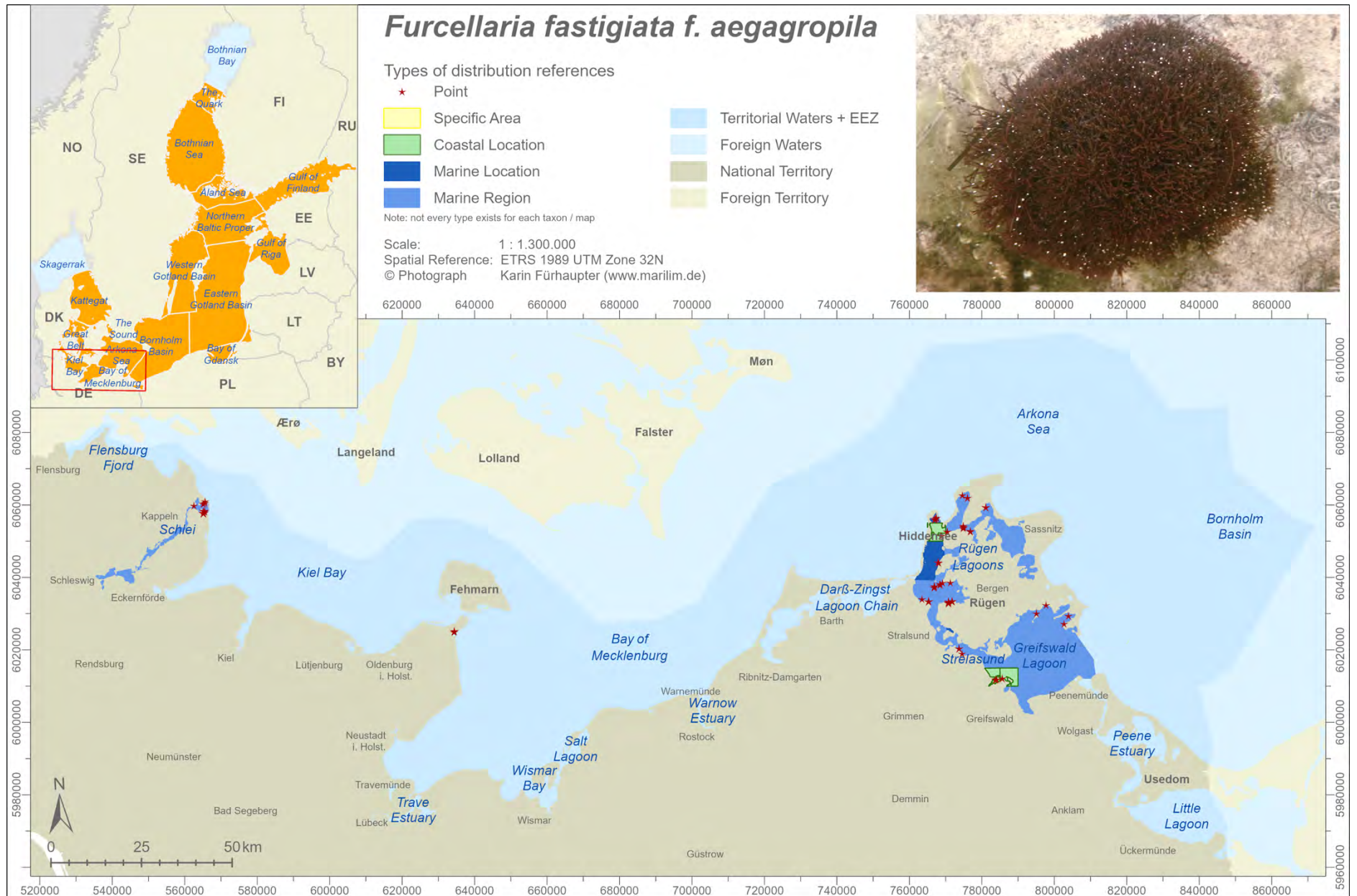
## Distribution maps (below species level)

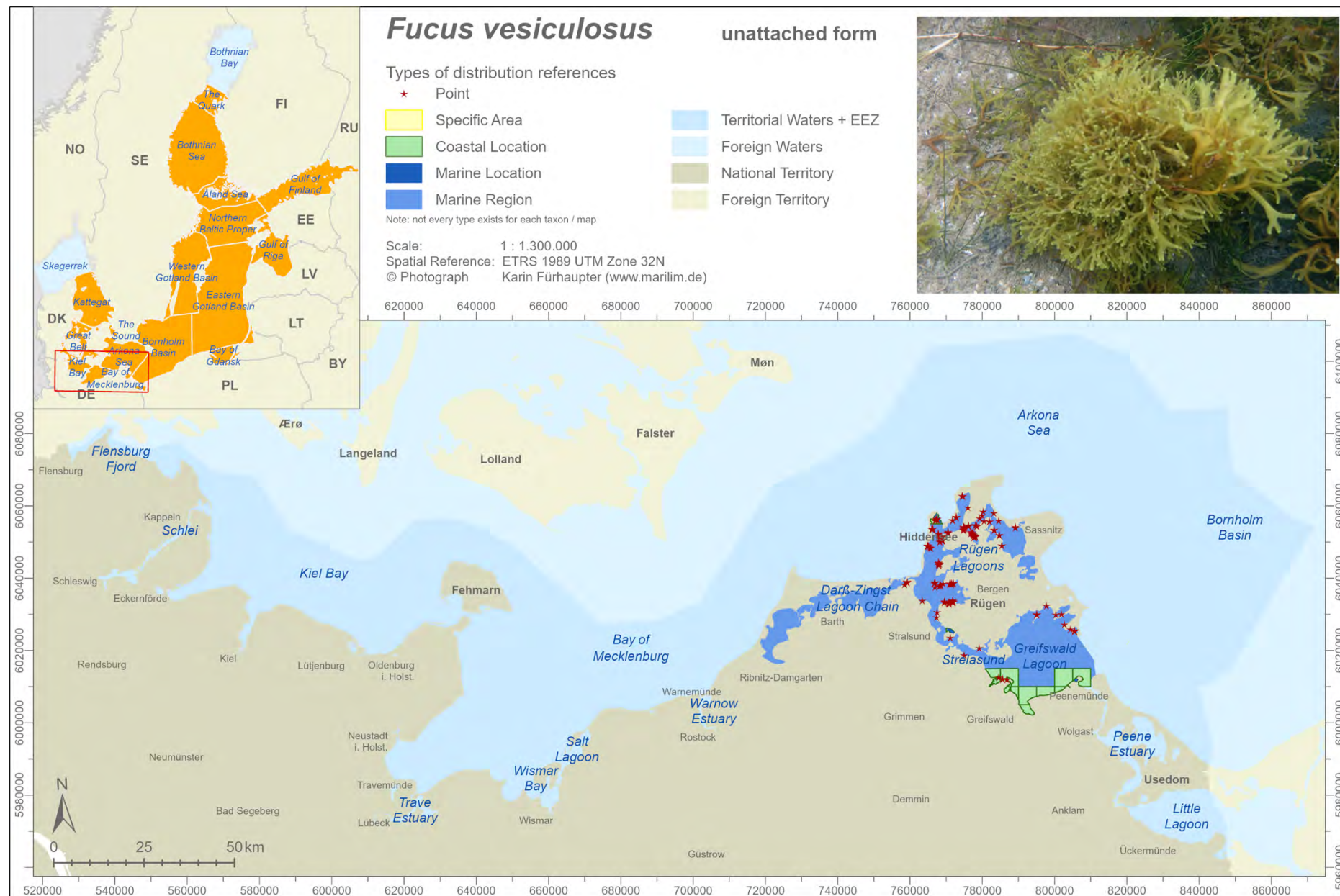
- Vascular Plants: *Zannichellia* ssp. *pedicellata*, *Zannichellia* ssp. *polycarpa*
- Red Seaweeds: *Furcellaria fastigiata* f. *aegagropila* Reinke, 1889, unattached form on softbottom
- Brown Seaweeds: *Fucus vesiculosus*, unattached morphotype on softbottom











## References

Numbered references\* for taxonomical, ecological information as well as conservation and distribution data given in background, methodology, species factsheets and distribution maps.

\*An alphabetical list of checked, but not considered references (with short reasoning for not considering) can be obtained from the authors.

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## Taxon List

Taxon names with respective authors and year of description/publication (if applicable) are listed in alphabetical order and numbered (Tax-N°). Colour codes highlight the taxonomic group affiliation (vascular plants, stoneworts, red seaweeds, brown seaweeds, green seaweeds). The taxon list includes valid names (in bold type) and synonyms. Linkage between synonyms and valid taxon names are made by valid Tax-N° (the N° of the valid taxon name in this taxon list). The page for the taxon description in this publication is also represented. The taxonomical source database for validation is given in Ref-N°, the DV-N° represents the specific Taxon-IDentifier in the German list of taxa, BTL (200). However, the German list of taxa represents only a few species in the current publication, as it is based primarily on freshwater species lists. An expansion to include marine taxa is planned by 2023.

Tax-N°	Taxon Author(s)	Page	valid Tax-N°	Ref-N°	DV-N°
1	Acrochaete flustrae (Reinke) O'Kelly, 2006	306	523	248	
2	Acrochaete parasitica Oltmanns, 1894	368	1093	248	
3	Acrochaete repens Pringsheim, 1862	368	1093	248	
4	Acrochaete viridis (Reinke) R. Nielsen, 1979	356	1095	248	
5	Acrochaete wittrockii (Wille) R. Nielsen, 1983	358	1096	248	
6	Acrochaetium daviesii (Dillwyn) Nägeli, 1862	106	363	248	
7	Acrochaetium efflorescens (J. Agardh) Nägeli, 1861	126	593	248	
8	Acrochaetium gynandrum (Rosenvinge) G.Hamel, 1927	365	364	248	
9	Acrochaetium hallandicum (Kyllin) Hamel, 1927	108	365	248	

10	<b>Acrochaetium immersum (Rosenvinge) Hamel, 1927</b>	364	10	248	
11	<b>Acrochaetium kylinii G. Hamel, 1927</b>	364	11	248	
12	<b>Acrochaetium moniliforme (Rosenvinge) Børgesen, 1915</b>	76	12	248	
13	<b>Acrochaetium parvulum (Kyllin) Hoyt, 1920</b>	364	13	248	
14	<b>Acrochaetium secundatum (Lyngbye) Nägeli, 1858</b>	78	14	248	
15	Acrochaetium virgatulum (Harvey) Batters, 1902	78	14	248	
16	<b>Acrosiphonia arcta (Dillwyn) Gain, 1912</b>	276	16	248	
17	Acrosiphonia centralis (Lyngbye) Kjellman, 1893	276	16	248	
18	Acrosiphonia pallida Kjellman	324	998	248	
19	Aegagropila agardhii Kützing, 1843	298	321	248	
20	Aegagropila biformis Wittrock, 1878	302	346	248	
21	<b>Aegagropila linnaei Kützing, 1843</b>	367	21	248	41049
22	Aegira virescens (Carmichael ex Harvey) Setchell & N.L. Gardner, 1924	200	528	248	
23	<b>Agarophyton vermiculophyllum (Ohmi) Gurgel, J.N. Norris &amp; Fredericq, 2018</b>	80	23	248	
24	Aglaothamnion byssoides (Arnott ex Harvey) C.F. Boudouresque & M.M. Perret-Boudouresque, 1987	82	29	248	
25	Aglaothamnion furcellariae (J. Agardh) Felmann-Mazoyer, 1941	82	29	248	
26	Aglaothamnion gallicum (Nägeli) Halos ex Ardré, 1970	365	576	248	
27	Aglaothamnion hookeri (Dillwyn) Maggs & Hommersand, 1993	365	577	248	
28	Aglaothamnion roseum (Roth) Maggs & L'Hardy-Halos, 1993	124	578	248	
29	<b>Aglaothamnion tenuissimum (Bonnemaison) Feldmann-Mazoyer, 1941</b>	82	29	248	
30	<b>Ahnfeltia plicata (Hudson) Fries, 1836</b>	84	30	248	
31	Ahnfeltia plicata f. tenuior (Lyngbye) Rosenvinge, 1931	84	30	248	

## Taxon List

32	<i>Anacharis canadensis</i> (Michx.) Planch., 1849	20	476	47	
33	<i>Anacharis nuttallii</i> Planch.	22	479	47	
34	<i>Antithamnion boreale</i> (Gobi) Kjellmann, 1883	162	941	248	
35	<b><i>Antithamnion cruciatum</i> (C. Agardh) Nägeli, 1847</b>	<b>84</b>	<b>35</b>	<b>248</b>	
36	<i>Antithamnion plumula</i> (J. Ellis) Thuret, 1863	152	869	248	
37	<i>Aphanochaete confervicola</i> (Nägeli ex Kützing) Rabenhorst	367	38	248	
38	<b><i>Aphanochaete repens</i> A. Braun, 1850</b>	<b>367</b>	<b>38</b>	<b>248</b>	
39	<i>Ascocyclus balticus</i> Reinke, 1889	234	714	248	
40	<i>Ascocyclus globosus</i> (Reinke) Reinke, 1889	230	697	248	
41	<i>Ascocyclus major</i> Foslie, 1891	220	611	248	
42	<i>Ascocyclus ocellatus</i> (Kützing) Reinke, 1889	182	271	248	
43	<i>Ascocyclus orbicularis</i> (J. Agardh) Kjellman, 1890	236	722	248	
44	<i>Ascocyclus ramosus</i> Waern, 1952	236	722	248	
45	<i>Ascocyclus reptans</i> (P.L. Crouan & H.M. Crouan) Reinke, 1889	172	53	248	
46	<i>Ascophylla laevigata</i> Stackhouse, 1809	170	48	248	
47	<i>Ascophylla nodosa</i> (Linnaeus) Kuntze, 1894	170	48	248	
48	<b><i>Ascophyllum nodosum</i> (Linnaeus) Le Jolis, 1863</b>	<b>170</b>	<b>48</b>	<b>248</b>	
49	<i>Asparagopsis hamifera</i> (Hariot) Okamura, 1921	365	89	248	
50	<i>Asperococcus castagneus</i> Carmichael, 1833	256	951	248	
51	<i>Asperococcus castaneus</i> W.J. Hooker, 1833	256	951	248	
52	<i>Asperococcus echinatus</i> (Mertens ex Roth) C. Agardh, 1817	172	53	248	
53	<b><i>Asperococcus fistulosus</i> (Hudson) W.J. Hooker, 1833</b>	<b>172</b>	<b>53</b>	<b>248</b>	
54	<i>Asperococcus plantagineus</i> (Roth) Fries, 1835	246	873	248	
55	<i>Audouinella efflorescens</i> (J. Agardh) Papenfuss, 1945	126	593	248	
56	<i>Audouinella gynandra</i> (Rosenvinge) Garbary, 1979	365	364	248	
57	<i>Audouinella hallandica</i> (Kyllin) Woelkerling, 1973	108	365	248	
58	<i>Audouinella immersa</i> (Rosenvinge) G.R. South & Tittley, 1986	364	10	248	
59	<i>Audouinella membranacea</i> (Magnus) Papenfuss, 1945	160	924	248	
60	<i>Audouinella moniliformis</i> (Rosenvinge) Garbary, 1979	76	12	248	
61	<i>Audouinella parvula</i> (Kyllin) P.S.Dixon, 1976	364	13	248	
62	<i>Audouinella purpurea</i> (Lightfoot) Woelkerling, 1973	156	913	248	
63	<i>Audouinella secundata</i> (Lyngbye) P.S. Dixon, 1976	78	14	248	
64	<i>Audouinella thuretii</i> (Bornet) Woelkerling, 1971	126	593	248	
65	<b><i>Bangia atropurpurea</i> (Mertens ex Roth) C. Agardh, 1824</b>	<b>364</b>	<b>65</b>	<b>248</b>	<b>7850</b>
66	<i>Bangia atropurpurea</i> f. <i>fuscopurpurea</i> (De Toni) Preda, 1901	364	69	248	
67	<i>Bangia aureola</i> (C. Agardh) Endlicher, 1843	288	129	248	
68	<i>Bangia crispa</i> Lyngbye, 1818	364	69	248	
69	<b><i>Bangia fusco-purpurea</i> (Dillwyn) Lyngbye, 1819</b>	<b>364</b>	<b>69</b>	<b>248</b>	
70	<i>Bangia fuscopurpurea</i> var. <i>atropurpurea</i> (Roth) Lyngbye, 1819	364	65	248	
71	<i>Bangia pulchella</i> Harvey, 1859	120	526	248	
72	<i>Bangia torta</i> (Mertens) C. Agardh	350	1087	248	
73	<i>Bangiadulcis atropurpurea</i> (Mertens ex Roth) W.A.Nelson, 2007	364	65	248	
74	<i>Bangiella atropurpurea</i> (Mertens ex Roth) Gaillon, 1833	364	65	248	
75	<i>Bangiella fuscopurpurea</i> (Dillwyn) Gaillon, 1833	364	69	248	
76	<b><i>Battersia arctica</i> (Harvey) Draisma, Prud'homme &amp; H. Kawai, 2010</b>	<b>174</b>	<b>76</b>	<b>248</b>	
77	<b><i>Battersia plumigera</i> (Holmes ex Hauck) Draisma, Prud'homme &amp; H. Kawai, 2010</b>	<b>366</b>	<b>77</b>	<b>248</b>	

<b>78</b>	<b>Battersia racemosa (Greville) Draisma, Prud'homme &amp; H. Kawai, 2010</b>	<b>176</b>	<b>78</b>	<b>248</b>	
79	Bifurcaria rotunda (Hudson) Papenfuss, 1950	148	799	248	
80	Blastophysa arrhiza Wille, 1891	367	82	248	
81	Blastophysa polymorpha Kjellmann, 1897	367	82	248	
<b>82</b>	<b>Blastophysa rhizopus Reinke, 1889</b>	<b>367</b>	<b>82</b>	<b>248</b>	
<b>83</b>	<b>Blidingia marginata (J. Agardh) P.J.L. Dan-gearð ex Bliding, 1963</b>	<b>278</b>	<b>83</b>	<b>248</b>	
<b>84</b>	<b>Blidingia minima (Nägeli ex Kützing) Kylin, 1947</b>	<b>280</b>	<b>84</b>	<b>248</b>	<b>17526</b>
85	Blidingia minima var. <i>capillaris</i>	280	84	248	
86	Blidingia nana (Sommerfelt) Bliding, 1963	280	84	248	
87	Bolbocoleau piliferum N. Pringsheim	282	88	248	
<b>88</b>	<b>Bolbocoleon piliferum N. Pringsheim, 1862</b>	<b>282</b>	<b>88</b>	<b>248</b>	
<b>89</b>	<b>Bonnemaisonia hamifera Hariot 1891</b>	<b>365</b>	<b>89</b>	<b>248</b>	
<b>90</b>	<b>Botrytella micromora Bory, 1822</b>	<b>178</b>	<b>90</b>	<b>248</b>	
91	Botrytella uvaeformis (Lyngbye) Kornmann & Sahling, 1988	178	90	248	
92	Brongniartella byssoides (Goodenough & Woodward) F. Schmitz, 1893	166	1108	248	
93	Bryopsis abietina Kützing, 1845	286	102	248	
94	Bryopsis arbuscula (A.P.de Candolle) J.V. Lamouroux, 1809	286	102	248	
95	Bryopsis hypnoides f. atlantica J. Agardh, 1887	284	98	248	
96	Bryopsis hypnoides f. <i>praelongata</i> J. Agardh, 1887	284	98	248	
97	Bryopsis hypnoides f. <i>prolongata</i> J. Agardh, 1887	284	98	248	
<b>98</b>	<b>Bryopsis hypnoides J. V. Lamouroux, 1809</b>	<b>284</b>	<b>98</b>	<b>248</b>	
99	Bryopsis hypnoides var. <i>arbuscula</i> (De Candolle) Schiffner, 1935	286	102	248	
100	Bryopsis hypnoides var. <i>occidentalis</i>	284	98	248	
101	Bryopsis monoïca Funk, 1927	284	98	248	
<b>102</b>	<b>Bryopsis plumosa (Hudson) C. Agardh, 1823</b>	<b>286</b>	<b>102</b>	<b>248</b>	
103	Bryopsis plumosa var. <i>nuda</i> Homes	286	102	248	
104	Buccaferrea cirrhosa Petagna, 1787	38	926	248	

<b>105</b>	<b>Callithamnium tetragonum (Withering) S.F.Gray, 1821</b>	<b>365</b>	<b>105</b>	<b>248</b>	
106	Callithamnion affine Harvey, 1833	365	105	248	
107	Callithamnion baileyi Harvey, 1853	365	105	248	
108	Callithamnion byssoides Arnott ex Harvey, 1833	82	29	248	
<b>109</b>	<b>Callithamnion corymbosum (Smith) Lyngbye, 1819</b>	<b>88</b>	<b>109</b>	<b>248</b>	
110	Callithamnion cruciatum C. Agardh, 1827	84	35	248	
111	Callithamnion daviesii (Dillwyn) Lyngbye, 1819	106	363	248	
112	Callithamnion dubium Zanardini, 1840	84	35	248	
113	Callithamnion fruticosum J.Agardh, 1841	365	105	248	
114	Callithamnion imbricatum Schousboe ex Suhr, 1840	84	35	248	
115	Callithamnion membranaceum Magnus, 1875	160	924	248	
116	Callithamnion plumula (J. Ellis) Lyngbye, 1819	152	869	248	
117	Callithamnion pumilum Harvey, 1833	84	35	248	
118	Callithamnion purpureum (Lightfoot) Harvey, 1841	156	913	248	
119	Callithamnion pusillum Ruprecht, 1850	162	941		
120	Callithamnion repens (Dillwyn) Lyngbye, 1819	164	961	248	
121	Callithamnion roseolum (C. Agardh) C. Agardh 1828	164	961	248	
122	Callithamnion roseum (Roth) Lyngbye, 1819	124	578	248	
123	Callithamnion rothii (Turton) Lyngbye, 1819	156	913	248	
124	Callithamnion spiniferum Kylin, 1907	365	105	248	
125	Callithamnion versicolor (C. Agardh) C. Agardh, 1828	88	109	248	
126	Callophyllis soboliferus (M. Vahl) Kützing, 1849	140	751	248	
127	Capsicarpella speciosa Kjellman, 1872	218	607	248	
128	Capsosiphon aureolus (C. Agardh) Gobi, 1879	288	129	248	
<b>129</b>	<b>Capsosiphon fulvescens (C. Agardh) Setchell &amp; N.L. Gardner, 1920</b>	<b>288</b>	<b>129</b>	<b>248</b>	

<b>130</b>	<b>Carradoriella elongata (Hudson) A.M. Sa-voie &amp; G.W. Saunders, 2019</b>	<b>90</b>	<b>130</b>	<b>248</b>	
131	Castagnea divaricata (C. Agardh) J. Agardh, 1882	262	994	248	
132	Castagnea tuberculosa Hornemann) J. Agardh, 1882	270	1016	248	
133	Castagnea virescens (Carmichael ex Harvey) Thuret, 1863	200	528	248	
134	Ceramicola rubra Örsted, 1844	120	526	248	
135	Ceramium arachnoideum (C. Agardh) J. Agardh, 1851	98	179	248	
<b>136</b>	<b>Ceramium arborescens J. Agardh, 1894</b>	<b>365</b>	<b>136</b>	<b>248</b>	
137	Ceramium biasolettianum (Kützing) Ardissonne	92	139	248	
138	Ceramium byssoides (Goodenough & Woodward) C. Agardh, 1811	166	1108	248	
<b>139</b>	<b>Ceramium circinatum (Kützing) J. Agardh, 1851</b>	<b>92</b>	<b>139</b>	<b>248</b>	
140	Ceramium circinnatum	92	139	248	
141	Ceramium cirrosum (Roth) C. Agardh, 1811	260	967	248	
142	Ceramium confervoides Roth, 1797	196	463	248	
<b>143</b>	<b>Ceramium deslongchampsii Chauvin ex Duby, 1830</b>	<b>94</b>	<b>143</b>	<b>248</b>	
<b>144</b>	<b>Ceramium diaphanum (Lightfoot) Roth, 1806</b>	<b>96</b>	<b>144</b>	<b>248</b>	
145	Ceramium diaphanum f. <i>strictum</i> (Harvey) Foslie, 1893	98	179	248	
146	Ceramium diaphanum var. <i>strictum</i> (Kützing) Feldmann-Mazoyer, 1941	94	143	248	
<b>147</b>	<b>Ceramium echionotum J. Agardh 1844</b>	<b>365</b>	<b>147</b>	<b>248</b>	
148	Ceramium fastigiatum (Linnaeus) R.H. Wiggers, 1780	122	574	248	
149	Ceramium filum (Linnaeus) R.H. Wiggers, 1780	184	284	248	
150	Ceramium flabelliferum Kützing	100	185	248	
151	Ceramium gobii Waern, 1992	98	179	248	
152	Ceramium gracillimum (Kützing) Zanardini, 1847	96	144	248	
153	Ceramium gracillimum Gobi, 1877	98	179	248	
154	Ceramium littorale (Linnaeus) Dillwyn, 1809	250	878	248	
155	Ceramium nodiferum (Kützing) P.L. Crouan & H.M. Crouan, 1878	96	144	248	
156	Ceramium nodosum (Kützing) Griffiths & Harvey, 1847	96	144	248	
157	Ceramium nodulosum (Lightfoot) Du-cluzeau, 1806	100	185	248	
158	Ceramium pedicellatum Hornemann, 1818	88	109	248	
159	Ceramium pedicellatum J. Agardh, 1894	100	185	248	
160	Ceramium pellucidum (Kützing) Rabenhorst, 1847	94	143	248	
<b>161</b>	<b>Ceramium penicillatum Areschoug, 1849</b>	<b>365</b>	<b>161</b>	<b>248</b>	
162	Ceramium pennatum Hornemann, 1813	180	208	248	
163	Ceramium phyllitis (Stackhouse) Stackhouse, 1797	254	937	248	
164	Ceramium plumula (J. Ellis) C. Agardh, 1817	152	869	248	
165	Ceramium pygmaeum Schiffner, 1933	96	144	248	
166	Ceramium ramulosum Meneghini	92	139	248	
167	Ceramium repens (Dillwyn) C. Agardh, 1817	164	961	248	
168	Ceramium roseolum C. Agardh, 1824	164	961	248	
169	Ceramium roseum Roth, 1798	124	578	248	
170	Ceramium rubrum C. Agardh, 1811	100	185	248	
171	Ceramium rubrum f. <i>balticum</i> Petersen, 1908	100	185	248	
172	Ceramium rupestre (Linnaeus) de Lamarck & De Candolle, 1805	302	346	248	
173	Ceramium sericeum de Lamarck & De Candolle, 1805	304	347	248	
174	Ceramium siliculosum (Dillwyn) C. Agardh, 1811	196	463	248	
175	Ceramium strictum (Kützing) Harvey, 1849	94	143	248	
176	Ceramium strictum (Kützing) Rabenhorst, 1847	94	143	248	
177	Ceramium strictum (Mertens ex Dillwyn) Poiret, 1811	150	812	248	
178	Ceramium strictum Greville & Harvey, 1846	98	179	248	
<b>179</b>	<b>Ceramium tenuicorne (Kützing) Waern, 1952</b>	<b>98</b>	<b>179</b>	<b>248</b>	

180	<i>Ceramium tenuissimum</i> (Roth) Areschoug, 1847	96	144	248	
181	<i>Ceramium tenuissimum</i> Bonnemaison, 1828	82	29	248	
182	<i>Ceramium tetragonum</i> (Withering) C. Agardh, 1817	365	105	248	
183	<i>Ceramium tomentosum</i> (Hudson) Roth, 1800	264	1004	248	
184	<i>Ceramium versicolor</i> C. Agardh, 1824	88	109	248	
185	<b><i>Ceramium virgatum</i> Roth, 1797</b>	<b>100</b>	<b>185</b>	<b>248</b>	
186	<b><i>Ceratophyllum demersum</i> L.</b>	<b>18</b>	<b>186</b>	<b>248</b>	<b>2014</b>
187	<i>Ceratophyllum demersum</i> Sieber ex Cham	18	186	57	
188	<i>Ceratophyllum demersum</i> ssp. <i>demersum</i>	18	186	47	
189	<i>Ceratophyllum demersum</i> var. <i>demersum</i> L., 1753	18	186	47	
190	<i>Chaetoderma pellitum</i> (Lyngbye) Kützing, 1843	110	413	248	
191	<b><i>Chaetomorpha aerea</i> (Dillwyn) Kützing, 1849</b>	<b>290</b>	<b>191</b>	<b>248</b>	
192	<i>Chaetomorpha baltica</i> Kützing	292	194	248	
193	<b><i>Chaetomorpha ligustica</i> (Kützing) Kützing, 1849</b>	<b>367</b>	<b>193</b>	<b>248</b>	
194	<b><i>Chaetomorpha linum</i> (O.F. Müller) Kützing, 1849</b>	<b>292</b>	<b>194</b>	<b>248</b>	
195	<i>Chaetomorpha linum</i> f. <i>aerea</i> (Dillwyn) F. S. Collins	292	194	248	
196	<i>Chaetomorpha mediterranea</i> var. <i>crispa</i> (Feldmann) Gallardo et al., 1993	367	193	248	
197	<b><i>Chaetomorpha melagonium</i> (F. Weber &amp; D. Mohr) Kützing, 1845</b>	<b>294</b>	<b>197</b>	<b>248</b>	
198	<i>Chaetomorpha melagonium</i> f. <i>rupicola</i> Areschoug ex Kjellman, 1883	294	197	248	
199	<i>Chaetomorpha paucitatis</i> Gilbert, 1965	290	191	248	
200	<i>Chaetomorpha rigida</i> Kützing, 1845	292	194	248	
201	<i>Chaetomorpha surtoria</i> (Berkeley) Harvey, 1858	292	194	248	
202	<i>Chaetomorpha tortuosa</i> Kützing, 1849	367	193	248	
203	<i>Chaetomorpha variabilis</i> (Kützing) Kützing, 1845	290	191	248	
204	<i>Chaetomorpha vasta</i> Kützing, 1849	290	191	248	
205	<i>Chaetophora marina</i> Lyngbye, 1819	224	670	248	

206	<i>Chaetophora nodulosa</i> C. Agardh, 1817	270	1016	248	
207	<i>Chaetophora pellita</i> Lyngbye, 1819	110	413	248	
208	<b><i>Chaetopteris plumosa</i> (Lyngbye) Kützing, 1843</b>	<b>180</b>	<b>208</b>	<b>248</b>	
209	<i>Chantransia aegagrophila</i> (Linnaeus) Chevalier, 1836	367	21	248	
210	<i>Chantransia daviesii</i> (Dillwyn) Thuret, 1863	106	363	248	
211	<i>Chantransia efflorescens</i> (J. Agardh) Kjellman, 1875	126	593	248	
212	<i>Chantransia flavicans</i> Desvaux, 1813	300	324	248	
213	<i>Chantransia glomerata</i> (Linnaeus) de Lamarck & De Candolle, 1805	300	324	248	
214	<i>Chantransia gynandra</i> Rosenvinge, 1909	365	364	248	
215	<i>Chantransia hallandica</i> Kylin, 1906	108	365	248	
216	<i>Chantransia immersa</i> Rosenvinge, 1909	364	10	248	
217	<i>Chantransia moniliformis</i> Rosenvinge, 1909	76	12	248	
218	<i>Chantransia parvula</i> Kylin, 1906	364	13	248	
219	<i>Chantransia secundata</i> (Lyngbye) Thuret, 1863	78	14	248	
220	<b><i>Chara aculeolata</i> Kützing, 1832</b>	<b>364</b>	<b>220</b>	<b>1</b>	
221	<i>Chara alopecuroidea</i> (Delile ex A. Braun) J. Wallman orth. muth., 1853	72	666	248	
222	<b><i>Chara aspera</i> C.L. Willdenow, 1809</b>	<b>52</b>	<b>222</b>	<b>248</b>	<b>7486</b>
223	<i>Chara aspera</i> f. <i>brachyphylla</i> A. Braun ex W. Migula, 1897	52	222	248	
224	<i>Chara aspera</i> var. <i>subinermis</i> Kützing, 1849	52	222	248	7608
225	<b><i>Chara baltica</i> (C.J. Hartmann) Bruzelius, 1824</b>	<b>54</b>	<b>225</b>	<b>248</b>	<b>17609</b>
226	<i>Chara baltica</i> var. <i>fastigiata</i> J. Wallman, 1853	66	257	248	
227	<b><i>Chara baltica</i> var. <i>liijebladii</i> (J. Wallman) A. Braun, 1859</b>	<b>54</b>	<b>227</b>	<b>248</b>	
228	<i>Chara batrachosperma</i> J.L. Thuillier, 1799	70	269	248	
229	<b><i>Chara canescens</i> Loiseleur, 1810</b>	<b>56</b>	<b>229</b>	<b>248</b>	<b>17611</b>
230	<i>Chara ceratophylla</i> var. <i>inflatum</i> Wallroth, 1833	68	266	248	
231	<i>Chara ceratophylla</i> var. <i>macroptila</i> A. Braun, 1835	68	266	248	
232	<i>Chara ceratophylla</i> var. <i>microptila</i> A. Braun, 1835	68	266	248	

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233	<i>Chara ceratophylla</i> Wallroth, 1815	68	266	248	
234	<i>Chara concinna</i> M.C. Durieu & E. Cosson, 1859	58	235	248	
<b>235</b>	<b><i>Chara connivens</i> P. Salzmänn ex A. Braun, 1835</b>	<b>58</b>	<b>235</b>	<b>248</b>	<b>17612</b>
<b>236</b>	<b><i>Chara contraria</i> A. Braun ex Kützing, 1845</b>	<b>60</b>	<b>236</b>	<b>248</b>	<b>7170</b>
237	<i>Chara contraria</i> f. <i>macroteles</i> W. Migula, 1925	60	236	248	
238	<i>Chara crinita</i> f. <i>brachyphylla</i> W. Migula, 1897	56	229	248	
239	<i>Chara crinita</i> f. <i>hispida</i> Kützing, 1857	56	229	248	
240	<i>Chara crinita</i> F.G. Wallroth, 1815	56	229	248	
241	<i>Chara duriaei</i> (A. Braun) A. Braun, 1867	58	235	248	
242	<i>Chara elongata</i> K. Wallroth	70	269	248	
243	<i>Chara foetida</i> A. Braun, 1834	70	269	248	
244	<i>Chara foetida</i> var. <i>moniliformis</i> A. Braun, 1834	60	236	248	
245	<i>Chara fragilis</i> A.N. Desvaux, 1810	62	248	248	7490
246	<i>Chara galioides</i> C. Agardh, 1824	52	222	248	
247	<i>Chara globularis</i> f. <i>connivens</i> (P. Salzmänn ex A. Braun) R.D. Wood, 1962	58	235	248	
<b>248</b>	<b><i>Chara globularis</i> Thuiller, 1799</b>	<b>62</b>	<b>248</b>	<b>248</b>	<b>7467</b>
249	<i>Chara hirta</i> F. Meyen, 1827	62	248	248	
250	<i>Chara hispida</i> f. <i>elongata</i> N. Filarszky, 1930	64	252	248	
251	<i>Chara hispida</i> f. <i>fastigiata</i> (Wallman) R. D. Wood, 1962	66	257	248	
<b>252</b>	<b><i>Chara hispida</i> Linnaeus, 1753</b>	<b>64</b>	<b>252</b>	<b>248</b>	<b>7948</b>
253	<i>Chara hispida</i> ssp. <i>horrida</i> (Wahlstedt) A. Braun, 1876	66	257	248	
254	<i>Chara hispida</i> var. <i>baltica</i> (Bruzelius) R.D. Woods, 1962	54	225	248	
255	<i>Chara hispida</i> var. <i>baltica</i> C.J. Hartman, 1820	54	225	248	
256	<i>Chara hispida</i> var. <i>major</i> C.J. Hartmann, 1820	64	252	248	
<b>257</b>	<b><i>Chara horrida</i> L.J. Wahlstedt, 1862</b>	<b>66</b>	<b>257</b>	<b>248</b>	<b>17613</b>
258	<i>Chara liljebadii</i> J. Wallman, 1853	54	225	248	
259	<i>Chara major</i> Valliant ex Hy, 1913	64	252	248	
260	<i>Chara papulosa</i> K. Wallroth, 1833	72	666	248	
261	<i>Chara polyacantha</i> A. Braun, 1859	364	261	248	7469
262	<i>Chara pulchella</i> Wallroth, 1815	62	248	248	
263	<i>Chara pusilla</i> Floerke ex Kützing, 1849	56	229	248	
264	<i>Chara pusilla</i> G. Detharding ex Kützing, 1834	52	222	248	
265	<i>Chara refracta</i> Kützing 1834	70	269	248	
<b>266</b>	<b><i>Chara tomentosa</i> Linnaeus, 1753</b>	<b>68</b>	<b>266</b>	<b>248</b>	<b>7473</b>
267	<i>Chara trichophylla</i> Kützing, 1881	62	248	248	
268	<i>Chara vulgaris</i> f. <i>contraria</i> (A. Braun ex Kützing) R.D. Wood, 1962	60	236	248	
<b>269</b>	<b><i>Chara vulgaris</i> Linnaeus, 1753</b>	<b>70</b>	<b>269</b>	<b>248</b>	<b>7947</b>
270	<i>Chilionema nathaliae</i> Sauvageau, 1897	182	271	248	
<b>271</b>	<b><i>Chilionema ocellatum</i> (Kützing) Kornmann, 1953</b>	<b>182</b>	<b>271</b>	<b>248</b>	
<b>272</b>	<b><i>Chlorochytrium cohnii</i> E.P. Wright, 1877</b>	<b>367</b>	<b>272</b>	<b>248</b>	
273	<i>Chlorochytrium inclusum</i> Kjellman 1883	324	998	248	
274	<i>Chlorofilum ephemereum</i> P. A. Dangeard, 1965	358	1096	248	
275	<i>Chlorosiphon shuttleworthianus</i> Kützing 1843	256	951	248	
<b>276</b>	<b><i>Chondria capillaris</i> (Hudson) M.J. Wynne, 1991</b>	<b>365</b>	<b>276</b>	<b>248</b>	
277	<i>Chondrus bangii</i> (Hornemann) Lyngbye, 1819	144	783	248	
<b>278</b>	<b><i>Chondrus crispus</i> Stackhouse, 1797</b>	<b>102</b>	<b>278</b>	<b>248</b>	
279	<i>Chondrus filum</i> (Linnaeus) J.V. Lamouroux, 1824	184	284	248	
280	<i>Chondrus membranifolius</i> Greville, 1830	146	788	248	
281	<i>Chondrus norvegicus</i> (Gunnerus) Lyngbye, 1819	102	278	248	
282	<i>Chondrus truncatus</i> Postels & Ruprecht, 1840	104	357	248	
283	<i>Chorda abbreviata</i> Areschoug, 1875	214	603	248	
<b>284</b>	<b><i>Chorda filum</i> (Linnaeus) Stackhouse, 1797</b>	<b>184</b>	<b>284</b>	<b>248</b>	
285	<i>Chorda filum</i> f. <i>abbreviata</i> (Areschoug) A.D. Zinova, 1953	214	603	248	
286	<i>Chorda filum</i> var. <i>tomentosa</i> (Lyngbye) Areschoug, 1847	214	603	248	
287	<i>Chorda lomentaria</i> Lyngbye, 1819	256	951	248	
288	<i>Chorda tomentosa</i> Lyngbye, 1819	214	603	248	
289	<i>Chordaria attenuata</i> Foslie, 1887	256	951	248	

290	<i>Chordaria baltica</i> (Gobi) Gobi, 1879	192	442	248	
291	<i>Chordaria baltica</i> (Gobi) Gobi, 1879	192	442	248	
292	<i>Chordaria divaricata</i> C. Agardh, 1817	262	994	248	
293	<i>Chordaria filum</i> (Linnaeus) C. Agardh, 1817	184	284	248	
<b>294</b>	<b><i>Chordaria flagelliformis</i> (O.F. Müller) C. Agardh, 1817</b>	<b>186</b>	<b>294</b>	<b>248</b>	
295	<i>Chordaria flagelliformis</i> var. <i>minor</i> C. Agardh, 1817	186	294	248	
296	<i>Chordaria paradoxa</i> (Roth) Lyngbye, 1819	258	960	248	
297	<i>Chordaria rhizodes</i> (C. Agardh) C. Agardh, 1817	272	1019	248	
298	<i>Chordaria rhizodes</i> var. <i>paradoxa</i> (Roth) C. Agardh, 1817	258	960	248	
299	<i>Chordaria rotunda</i> (Hudson) C. Agardh, 1817	148	799	248	
300	<i>Chordaria scorpioides</i> (Hornemann) Lyngbye, 1819	170	48	248	
301	<i>Chordaria tomentosa</i> (Hudson) Fries, 1845	264	1004	248	
302	<i>Chordaria tuberculosa</i> (Hornemann) Lyngbye, 1819	270	1016	248	
303	<i>Chordaria viridis</i> (O.F. Müller) C. Agardh, 1817	190	433	248	
304	<i>Choreocolax albus</i> Kuckuck, 1894	128	608	248	
305	<i>Choreocolax mirabilis</i> Reinsch, 1875	128	608	248	
306	<i>Choreocolax odonthaliae</i> Levring, 1935	128	608	248	
307	<i>Chromastrum moniliforme</i> (Rosenvinge) Papenfuss, 1945	76	12	248	
308	<i>Chromastrum parvulum</i> (Kylin) Papenfuss, 1945	364	13	248	
309	<i>Cladophora aegagropila</i> (Linnaeus) Trevisan, 1845	367	21	248	
<b>310</b>	<b><i>Cladophora albida</i> (Nees) Kützing, 1843</b>	<b>296</b>	<b>310</b>	<b>248</b>	
311	<i>Cladophora arcta</i> (Dillwyn) Kützing	276	16	248	
312	<i>Cladophora blidingiana</i> Kylin, 1949	296	310	248	
313	<i>Cladophora curvata</i> Kützing, 1845	300	324	248	
314	<i>Cladophora curvula</i> Kützing, 1849	296	310	248	
315	<i>Cladophora declinata</i> Kützing, 1849	300	324	248	
316	<i>Cladophora fasciculata</i> Kützing, 1845	300	324	248	

317	<i>Cladophora flavescens</i> (Roth) Kützing, 1843	298	321	248	
318	<i>Cladophora flexicaulis</i> Kützing, 1849	296	310	248	
<b>319</b>	<b><i>Cladophora flexuosa</i> (O.F. Müller) Kützing, 1843</b>	<b>367</b>	<b>319</b>	<b>248</b>	
320	<i>Cladophora fluitans</i> Kützing, 1845	300	324	248	
<b>321</b>	<b><i>Cladophora fracta</i> (O.F. Müller ex Vahl) Kützing, 1843</b>	<b>298</b>	<b>321</b>	<b>248</b>	<b>7549</b>
<b>322</b>	<b><i>Cladophora fracta</i> var. <i>intricata</i> (Lyngbye) C. Hoek, 1963</b>	<b>298</b>	<b>322</b>	<b>248</b>	
323	<i>Cladophora funiformis</i> (Roth) Kützing, 1845	298	321	248	
<b>324</b>	<b><i>Cladophora glomerata</i> (Linnaeus) Kützing, 1843</b>	<b>300</b>	<b>324</b>	<b>248</b>	<b>7114</b>
325	<i>Cladophora gracilis</i> (Griffiths) Kützing, 1845	367	319	248	
326	<i>Cladophora hirta</i> Kützing, 1845	304	347	248	
327	<i>Cladophora humilis</i> Kützing, 1849	296	310	248	
328	<i>Cladophora intricata</i> Kützing, 1845	300	324	248	
329	<i>Cladophora lanosa</i> (Roth) Kützing, 1843	276	16	248	
<b>330</b>	<b><i>Cladophora lehmanniana</i> (Lindenberg) Kützing, 1843</b>	<b>367</b>	<b>330</b>	<b>248</b>	
331	<i>Cladophora lepidula</i> (Montagne) Kützing, 1849	296	310	248	
332	<i>Cladophora longicoma</i> Kützing, 1849	304	347	248	
333	<i>Cladophora lyngbyana</i> Kützing, 1845	302	346	248	
334	<i>Cladophora mediterranea</i> Hauck, 1885	304	347	248	
335	<i>Cladophora neapolitana</i> Schiffner, 1926	296	310	248	
336	<i>Cladophora nitida</i> Kützing, 1843	304	347	248	
337	<i>Cladophora nuda</i> (Harvey) Harvey, 1849	302	346	248	
338	<i>Cladophora plumosa</i> Kützing, 1843	302	346	248	
339	<i>Cladophora plumosa</i> Kützing, 1845	304	347	248	
340	<i>Cladophora radians</i> Kützing, 1863	276	16	248	
341	<i>Cladophora ramosissima</i> (Draparnaud ex Kützing) Kützing, 1843	302	346	248	
<b>342</b>	<b><i>Cladophora refracta</i> Kützing, 1843</b>	<b>367</b>	<b>342</b>	<b>248</b>	
343	<i>Cladophora reticulata</i> Kützing, 1849	296	310	248	
344	<i>Cladophora rhizophora</i> Kützing	276	16	248	
345	<i>Cladophora rigidula</i> Kützing, 1845	298	321	248	
<b>346</b>	<b><i>Cladophora rupestris</i> (Linnaeus) Kützing, 1843</b>	<b>302</b>	<b>346</b>	<b>248</b>	



<b>347</b>	<b>Cladophora sericea (Hudson) Kützing, 1843</b>	<b>304</b>	<b>347</b>	<b>248</b>	
348	Cladophora sudetica Kützing, 1845	298	321	248	
349	Cladophora tenuissima Schiffner, 1931	296	310	248	
<b>350</b>	<b>Cladophora vagabunda (Linnaeus) Hoek, 1963</b>	<b>367</b>	<b>350</b>	<b>248</b>	
351	Cladophora viridula Kützing, 1849	304	347	248	
352	Cladosiphon balticus Gobi, 1874	192	442	248	
353	Cladosiphon balticus Gobi, 1874	192	442	248	
354	Cladostephus plumosus (Lyngbye) Fries, 1835	180	208	248	
355	Clavatella difformis (Linnaeus) Fries, 1835	224	670	248	
<b>356</b>	<b>Coccotylus hartzii (Rosenvinge) L. Le Gall &amp; G.W. Saunders, 2010</b>	<b>365</b>	<b>356</b>	<b>248</b>	
<b>357</b>	<b>Coccotylus truncatus (Pallas) M.J. Wynne &amp; J.N. Heine, 1992</b>	<b>104</b>	<b>357</b>	<b>248</b>	
358	Codiolum cylindricum Foslie, 1887	362	1104	248	
359	Codiolum gregarium A. Braun, 1855	360	1101	248	
360	Codiolum nordenskjoldianum Kjellman, 1877	362	1104	248	
361	Codiolum penicilliforme (Roth) P.C. Silva, 1957	360	1101	248	
362	Coilonema chordarium (Areschoug) Areschoug, 1882	192	442	248	
<b>363</b>	<b>Colaçonema daviesii (Dillwyn) Stegenga, 1985</b>	<b>106</b>	<b>363</b>	<b>248</b>	
<b>364</b>	<b>Colaçonema gynandrum (Rosenvinge) R. Nielsen, 1994</b>	<b>365</b>	<b>364</b>	<b>248</b>	
<b>365</b>	<b>Colaçonema hallandicum (Kylin) Afonso-Carillo, Sanson, Sangil &amp; Diaz-Villa, 2007</b>	<b>108</b>	<b>365</b>	<b>248</b>	
<b>366</b>	<b>Colaçonema leptonema (Rosenvinge) Alongi, Cormaci &amp; G. Furnari, 2017</b>	<b>365</b>	<b>366</b>	<b>248</b>	
367	Colaçonema membranaceum (Magnus) Woelkerling, 1973	160	924	248	
<b>368</b>	<b>Colaçonema savianum (Meneghini) R. Nielsen, 1994</b>	<b>365</b>	<b>368</b>	<b>248</b>	
369	Colaçonema secundatum (Lyngbye) Woelkerling, 1973	78	14	248	
370	Conferva aerea Dillwyn 1806	290	191	248	
371	Conferva aeruginosa Linnaeus, 1753	324	998	248	
372	Conferva carnea Dillwyn, 1807	120	526	248	
373	Conferva cirrosa Roth, 1800	260	967	248	
374	Conferva corymbosa Smith, 1812	88	109	248	
375	Conferva elongata Hudson, 1762	90	130	248	
376	Conferva fibrillosa Dillwyn, 1809	134	677	248	
377	Conferva filiformis Hornemann, 1813	118	450	248	
378	Conferva flacca Dillwyn, 1805	328	1041	248	
379	Conferva flaccida Dillwyn, 1809	198	470	248	
380	Conferva flaccida Hornemann, 1827	198	470	248	
381	Conferva flagelliformis Gunnerus, 1772	186	294	248	
382	Conferva flexuosa O.F. Müller, 1782	367	319	248	
383	Conferva flexuosa Roth, 1800	340	1064	248	
384	Conferva foeniculacea Hudson, 1762	194	444	248	
385	Conferva fracta O.F. Müller ex Vahl, 1787	298	321	248	
386	Conferva fucicola Vellej, 1795	198	470	248	
387	Conferva fucoides Hudson, 1762	168	1109	248	
388	Conferva gracilis A.W. Griffiths ex Harvey, 1834	367	319	248	
389	Conferva malagonium var. <i>rupincola</i> Areschoug	294	197	248	
390	Conferva melagonium F. Weber & Mohr 1804	294	197	248	
391	Conferva nidifica O.F. Müller, 1778	74	1034	248	
392	Conferva olivacea Dillwyn, 1809	242	864	248	
393	Conferva paradoxa Roth, 1806	258	960	248	
394	Conferva percursa C. Agardh, 1817	318	753	248	
395	Conferva plumula J. Ellis, 1768	152	869	1	
396	Conferva riparia Roth, 1806	322	901	248	
397	Conferva rosea (Roth) J.E. Smith, 1802	124	578	248	
398	Conferva speciosa Carmichael ex Areschoug, 1850	330	1045	248	
399	Conferva stricta Mertens ex Dillwyn, 1809	150	812	248	
400	Conferva tenax Roth, 1806	286	102	248	
401	Conferva tomentosa Hudson, 1762	264	1004	248	
402	Conferva torta Mertens in Jürgens, 1822	350	1087	248	
403	Conferva urceolata Lightfoot ex Dillwyn, 1809	150	812	248	
404	Conferva violacea Roth, 1797	156	913	1	
405	Conferva zonata F. Weber & Mohr 1804	334	1048	248	
<b>406</b>	<b>Corallina officinalis Linnaeus 1758</b>	<b>365</b>	<b>406</b>	<b>248</b>	
407	Corallina anglica Ellis, 1755	365	406	248	

408	<i>Corallina calvadosii</i> J.V.Lamouroux, 1816 (synonym)	365	406	248
409	<i>Corallina compacta</i> P.L.Crouan & H.M.Crouan, 1867	365	406	248
410	<i>Corallina cretacea</i> Postels & Ruprecht, 1840	365	406	248
411	<i>Corallina nana</i> Zanardini, 1844 (synonym)	365	406	248
412	<i>Cruoria adhaerens</i> P.L. Crouan & H.M. Crouan ex J. Agardh, 1851	110	413	248
413	<b><i>Cruoria pellita</i> (Lyngbye) Fries, 1835</b>	<b>110</b>	<b>413</b>	<b>248</b>
414	<i>Cruoria schousboei</i> (Liebmann) J. Agardh, 1851	110	413	248
415	<i>Cruoria verrucosa</i> J.E. Areschoug, 1843	252	888	248
416	<i>Cystoclonium purpurascens</i> (Hudson) Kützing, 1843	112	417	248
417	<b><i>Cystoclonium purpureum</i> (Hudson) Batters, 1902</b>	<b>112</b>	<b>417</b>	<b>248</b>
418	<i>Cystoseira siliquosa</i> (Linnaeus) C. Agardh, 1820	210	596	248
419	<b><i>Dasya baillouviana</i> (S.G. Gmelin) Montagne, 1841</b>	<b>114</b>	<b>419</b>	<b>248</b>
420	<i>Dasya elegans</i> (G. Martens) C. Agardh, 1828	114	419	248
421	<i>Dasya mazei</i> (P. L. Crouan & H. M. Crouan) G. Murray, 1888	114	419	248
422	<i>Dasya pedicellata</i> (C. Agardh) C. Agardh, 1824	114	419	248
423	<i>Delesseria alata</i> (Hudson) J.V. Lamouroux, 1813	136	692	248
424	<i>Delesseria alata</i> var. <i>dilatata</i> (Turner) C. Agardh, 1822	136	692	248
425	<i>Delesseria crenata</i> (S.G. Gmelin) Ruprecht, 1850	142	772	248
426	<i>Delesseria palmata</i> (Linnaeus) J.V. Lamouroux, 1813	140	751	248
427	<i>Delesseria rubens</i> (Linnaeus) J.V. Lamouroux, 1813	142	772	248
428	<b><i>Delesseria sanguinea</i> (Hudson) J.V. Lamouroux, 1813</b>	<b>116</b>	<b>428</b>	<b>248</b>
429	<i>Delesseria sanguinea</i> f. <i>filiformis</i> Levring, 1940	116	428	248

430	<i>Delesseria sanguinea</i> var. <i>lanceolata</i> C. Agardh, 1822	116	428	248
431	<i>Delesseria sinuosa</i> J.V. Lamouroux, 1813	142	772	248
432	<b><i>Desmarestia aculeata</i> (Linnaeus) J.V. Lamouroux, 1813</b>	<b>188</b>	<b>432</b>	<b>248</b>
433	<b><i>Desmarestia viridis</i> (O.F. Müller) J.V. Lamouroux, 1813</b>	<b>190</b>	<b>433</b>	<b>248</b>
434	<i>Desmia aculeata</i> (Linnaeus) Lyngbye, 1819	188	432	248
435	<i>Desmotrichum balticum</i> Kützing, 1845	248	875	248
436	<i>Desmotrichum repens</i> Kylin, 1907	248	875	248
437	<i>Desmotrichum scopulorum</i> Reinke 1888	248	875	248
438	<i>Desmotrichum undulatum</i> (J. Agardh) Reinke, 1889	248	875	248
439	<i>Dichloria viridis</i> (O.F. Müller) Greville, 1830	190	433	248
440	<i>Dichosporangium chordariae</i> Wollny, 1886	186	294	248
441	<i>Dictyosiphon balticus</i> (Gobi) Du Rietz, 1930	192	442	248
442	<b><i>Dictyosiphon chordaria</i> Areschoug, 1847</b>	<b>192</b>	<b>442</b>	<b>248</b>
443	<i>Dictyosiphon corymbosus</i> Kjellman, 1883	194	444	248
444	<b><i>Dictyosiphon foeniculaceus</i> (Hudson) Greville, 1830</b>	<b>194</b>	<b>444</b>	<b>248</b>
445	<i>Dictyosiphon fragilis</i> Harvey ex Kützing, 1849	194	444	248
446	<i>Dictyosiphon hippuroides</i> (Lyngbye) Kützing, 1856	194	444	248
447	<i>Dictyosiphon tortilis</i> Gobi, 1874	268	1009	248
448	<i>Dictyota rhizoides</i> (Turner) Lamouroux, 1824	272	1019	248
449	<i>Draparnaldia tenuis</i> C. Agardh, 1814	326	1014	248
450	<b><i>Dumontia contorta</i> (S.G. Gmelin) Ruprecht, 1850</b>	<b>118</b>	<b>450</b>	<b>248</b>
451	<i>Dumontia filiformis</i> (Hornemann) Greville, 1830	118	450	248
452	<i>Dumontia incrassata</i> (O.F. Müller) J.V. Lamouroux, 1813	118	450	248
453	<i>Ectocarpus compactus</i> (Roth) C. Agardh, 1828	250	878	248
454	<i>Ectocarpus confervoides</i> Le Jolis, 1863	196	463	248
455	<i>Ectocarpus confervoides</i> var. <i>siliculosus</i> (Dillwyn) Farlow, 1881	196	463	248
456	<i>Ectocarpus densus</i> Lyngbye, 1819	188	432	248

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<b>457</b>	<b>Ectocarpus fasciculatus Harvey, 1841</b>	<b>366</b>	<b>457</b>	<b>248</b>	
458	Ectocarpus firmus (C. Agardh) J. Agardh, 1848	250	878	248	
459	Ectocarpus littoralis (Linnaeus) Lyngbye, 1819	250	878	248	
460	Ectocarpus lumbricalis Kützing, 1845	216	604	248	
461	Ectocarpus pulvinatus H. Gran, 1897	230	697	248	
462	Ectocarpus repens Reinke, 1889	172	53	248	
<b>463</b>	<b>Ectocarpus siliculosus (Dillwyn) Lyngbye, 1819</b>	<b>196</b>	<b>463</b>	<b>248</b>	
464	Ectocarpus siliculosus var. <i>uvaeformis</i> Lyngbye, 1819	178	90	248	
465	Ectocarpus stilophorae P. Crouan & H. Crouan, 1867	232	698	248	
466	Ectocarpus terminalis Kützing, 1845	220	611	248	
467	Ectocarpus tomentosus (Hudson) Lyngbye, 1819	264	1004	248	
468	Ectochaete wittrockii (Wille) Kylin, 1938	358	1096	248	
469	Elachista fasciculata (Reinke) H. Gran, 1893	226	676	248	
<b>470</b>	<b>Elachista fucicola (Velley) Areschoug, 1842</b>	<b>198</b>	<b>470</b>	<b>248</b>	
471	Elachista globosa Ørsted, 1844	198	470	248	
472	Elachista grevillei Arnott ex Harvey, 1857	198	470	248	
473	Elachista lubrica Ruprecht, 1850	198	470	248	
474	Elachista lumbricalis (Kützing) Hauck, 1883	216	604	248	
<b>475</b>	<b>Elachista stellaris J.E. Areschoug, 1842</b>	<b>366</b>	<b>475</b>	<b>248</b>	
<b>476</b>	<b>Elodea canadensis Michx.</b>	<b>20</b>	<b>476</b>	<b>47</b>	<b>2011</b>
477	Elodea latifolia Caspary, 1857	20	476	47	
478	Elodea minor (Engelm. ex Caspary) Farw.	22	479	97	
<b>479</b>	<b>Elodea nuttallii (Planch.) H. St. John, 1920</b>	<b>22</b>	<b>479</b>	<b>47</b>	<b>2270</b>
480	Elodea occidentalis (Pursh) H.St. John, 1920	22	479	47	
481	Elodea planchonii Caspary, 1857	20	476	47	
482	Endoderma flustrae (Reinke) Batters, 1902	306	523	248	
483	Endoderma viride (Reinke) De Toni, 1889	356	1095	248	
484	Enteromorpha ahlnieriana Bliding, 1944	346	1073	248	
485	Enteromorpha chlorotica J. Agardh, 1883	338	1054	248	
486	Enteromorpha clathrata (Roth) Greville, 1830	349	1053	248	
487	Enteromorpha complanata Kützing, 1845	338	1054	248	
488	Enteromorpha complanata var. <i>confervacea</i> Kützing, 1845	278	83	248	
489	Enteromorpha compressa (Linnaeus) Nees, 1820	338	1054	248	
490	Enteromorpha compressa var. <i>intestinalis</i> (Linnaeus) Hamel, 1931	342	1068	248	
491	Enteromorpha compressa var. <i>lingulata</i> (J. Agardh) Hauck, 1884	340	1064	1	
492	Enteromorpha compressa var. <i>prolifera</i> (O. F. Müller) Greville, 1830	348	1080	1	
493	Enteromorpha crinita Nees, 1820	349	1053	248	
494	Enteromorpha flexuosa ssp. <i>paradoxa</i> (C. Agardh) Bliding 1963	340	1063	1	
495	Enteromorpha flexuosa (Wulfen) J. Agardh, 1883	340	1064	248	7552
496	Enteromorpha fulvescens (C. Agardh) Greville, 1830	288	129	248	
497	Enteromorpha grevillei Thuret, 1854	314	703	248	
498	Enteromorpha intestinalis (Linnaeus) Nees, 1820	342	1068	248	7034
499	Enteromorpha intestinalis var. <i>asexualis</i> Bliding, 1963	342	1068	248	
500	Enteromorpha intestinalis var. <i>compressa</i> (Linnaeus) Rosenvinge, 1893	338	1054	248	
501	Enteromorpha intestinalis var. <i>micrococca</i> (Kützing) Rosenvinge	278	83	248	
502	Enteromorpha lingulata J. Agardh, 1883	340	1064	248	
503	Enteromorpha linza (Linnaeus) J. Agardh, 1883	346	1073	248	
504	Enteromorpha marginata J. Agardh, 1842	278	83	248	
505	Enteromorpha micrococca Kützing, 1856	278	83	248	
506	Enteromorpha minima Nägeli ex Kützing, 1849	280	84	248	
507	Enteromorpha nana (Sommerfelt) Sjøstedt, 1939	280	84	248	
508	Enteromorpha nana var. <i>marginata</i> (J. Agardh) V.J. Chapman, 1956	278	83	248	
509	Enteromorpha nana var. <i>minima</i> (Nägeli ex Hauck) Sjøstedt, 1939	280	84	248	

510	Enteromorpha percursa (C.Agardh) J.Agardh, 1842	318	753	248	
511	Enteromorpha procera K. Ahlner, 1877	346	1073	248	
512	Enteromorpha prolifera (O.F. Müller) J. Agardh, 1883	348	1080	248	7669
513	Enteromorpha ramulosa (J. E. Smith) Car- michael, 1833	349	1053	248	
514	Enteromorpha spinescens Kützing, 1856	349	1053	248	
515	Enteromorpha torta (Mertens) Reinbold, 1893	350	1087	248	
516	Enteromorpha tubulosa (Kützing) Kützing, 1856	340	1064	248	
517	Enteromorpha vulgaris var. <i>lacustris</i> Ed- mondston, 1845	342	1068	248	
518	Entocladia flustrae (Reinke) W.R. Taylor, 1937	306	523	248	
519	Entocladia viridis Reinke, 1879	356	1095	248	
520	Entocladia wittrockii Wille, 1880	358	1096	248	
521	Entoderma flustrae (Reinke) Hariot, 1912	306	523	248	
522	Entoderma viridis (Reinke) Wille, 1890	356	1095	248	
523	<b>Epicladia flustrae Reinke, 1889</b>	<b>306</b>	<b>523</b>	<b>248</b>	
524	Epicladia halimedae Hansgirg, 1893	306	523	248	
525	<b>Epicladia perforans (Huber) R. Nielsen, 1980</b>	<b>367</b>	<b>525</b>	<b>248</b>	
526	<b>Erythrotrichia carnea (Dillwyn) J. Agardh, 1883</b>	<b>120</b>	<b>526</b>	<b>248</b>	
527	Erythrotrichia ceramicola (Lyngbye) Are- schoug, 1850	120	526	248	
528	<b>Eudesme virescens (Carmichael ex Berke- ley) J. Agardh, 1882</b>	<b>200</b>	<b>528</b>	<b>248</b>	
529	Fastigiaria furcellata (Linnaeus) Stack- house, 1809	122	574	248	
530	Fistularia nodosa (Linnaeus) Stackhouse, 1816	170	48	248	
531	Fosliella farinosa (J.V. Lamouroux) M. Howe, 1920	132	639	248	
532	Fucus aculeatus Linnaeus, 1763	188	432	248	
533	Fucus arbuscula A.P.de Candolle, 1805	286	102	248	
534	Fucus balticus C. Agardh, 1814	206	569	248	
535	Fucus bursigerus J. Agardh, 1868	366	536	248	
536	<b>Fucus ceranoides Linnaeus, 1753</b>	<b>366</b>	<b>536</b>	<b>248</b>	

537	Fucus ceranoides var. <i>lacerus</i> (Linnaeus) <i>Lightfoot</i>	102	278	248	
538	Fucus corallinus O. F. Müller, 1777	112	417	248	
539	Fucus corneus Zoega, 1772	186	294	248	
540	Fucus digitatus Hudson, 1762	222	657	248	
541	Fucus distichus f. <i>latifrons</i> (Foslie) Petrov, 1965	366	536	248	
542	<b>Fucus distichus ssp. evanescens (C. Agardh) H.T. Powell, 1957</b>	<b>202</b>	<b>542</b>	<b>248</b>	
543	Fucus divaricatus Linnaeus, 1753	206	569	248	
544	Fucus edentatus f. <i>angustior</i> Bachelot de la Pylaie, 1829	366	536	248	
545	Fucus elminthoides Velley, 1792	138	739	248	
546	Fucus evanescens C. Agardh, 1820	366	536	248	
547	Fucus fascia O. F. Müller, 1778	238	754	248	
548	Fucus filiformis Strøm, 1762	184	284	248	
549	Fucus filum Linnaeus, 1753	184	284	248	
550	Fucus flagelliformis O.F. Müller, 1775	186	294	248	
551	Fucus inflatus Linnaeus, 1753	206	569	248	
552	Fucus muscoides Hudson, 1762	188	432	248	
553	Fucus plicatus Hudson, 1762	84	30	248	
554	Fucus rotundus Hudson, 1762	148	799	248	
555	Fucus saccharinus Linnaeus, 1753	254	937	248	
556	Fucus scorpioides Hornemann, 1813	170	48	248	
557	Fucus scorpioides O. F. Müller, 1782	112	417	248	
558	Fucus serratus f. <i>abbreviatus</i> Kjellman, 1883	204	563	248	
559	Fucus serratus f. <i>angustus</i> Kjellman, 1883	204	563	248	
560	Fucus serratus f. <i>arcticus</i> (J. Agardh) Kjell- man, 1880	204	563	248	
561	Fucus serratus f. <i>elongatus</i> Kjellman, 1890	204	563	248	
562	Fucus serratus f. <i>laciniatus</i> Kjellman, 1890	204	563	248	
563	<b>Fucus serratus Linnaeus, 1753</b>	<b>204</b>	<b>563</b>	<b>248</b>	
564	Fucus siliculosus Stackhouse, 1796	210	596	248	
565	Fucus siliquosus Linnaeus, 1753	210	596	248	
566	Fucus vesiculosus f. <i>balticus</i> (C. Agardh) Dannenberg, 1927	206	569	248	
567	Fucus vesiculosus f. <i>filiformis</i> (C. Agardh) Kjellman, 1890	206	569	248	

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568	<i>Fucus vesiculosus</i> f. <i>pseudoceranooides</i> (Areschoug) Kleen, 1874	206	569	248	
<b>569</b>	<b><i>Fucus vesiculosus</i> Linnaeus, 1753</b>	<b>206</b>	<b>569</b>	<b>248</b>	
570	<i>Fucus vesiculosus</i> var. <i>inflatus</i> (Linnaeus) C. Agardh, 1810	366	536	248	
571	<i>Fucus viridis</i> O.F. Müller, 1782	190	433	248	
572	<i>Furcellaria fastigiata</i> (Turner) J.V. Lamouroux, 1813	122	574	248	
573	<i>Furcellaria fastigiata</i> f. <i>aegagropila</i> Reinke, 1889	122	574	248	
<b>574</b>	<b><i>Furcellaria lumbricalis</i> (Hudson) J.V. Lamouroux, 1813</b>	<b>122</b>	<b>574</b>	<b>248</b>	
575	<i>Furcellaria rotunda</i> (Hudson) Lyngbye, 1819	148	799	248	
<b>576</b>	<b><i>Gaillona gallica</i> (Nägeli) Athanasiadis, 2016</b>	<b>365</b>	<b>576</b>	<b>248</b>	
<b>577</b>	<b><i>Gaillona hookeri</i> (Dillwyn) Athanasiadis, 2016</b>	<b>365</b>	<b>577</b>	<b>248</b>	
<b>578</b>	<b><i>Gaillona rosea</i> (Roth) Athanasiadis, 2016</b>	<b>124</b>	<b>578</b>	<b>248</b>	
<b>579</b>	<b><i>Gayralia oxysperma</i> (Kützinger) K.L. Vinogradova ex Scagel et al., 1989</b>	<b>308</b>	<b>579</b>	<b>248</b>	
580	<i>Gigantea digitata</i> (Hudson) Stackhouse, 1816	222	657	248	
581	<i>Gigartina plicata</i> (Hudson) J.V. Lamouroux	84	30	248	
582	<i>Gigartina purpurascens</i> (Hudson) J.V. Lamouroux, 1813	112	417	248	
583	<i>Gigartina viridis</i> (O.F. Müller) Lyngbye, 1819	190	433	248	
<b>584</b>	<b><i>Giraudya sphacelarioides</i> Derbes &amp; Solier, 1851</b>	<b>208</b>	<b>584</b>	<b>248</b>	
585	<i>Gobia baltica</i> (Gobi) Reinke, 1889	192	442	248	
<b>586</b>	<b><i>Gomontia polyrhiza</i> (Lagerheim) Bornet &amp; Flahault, 1888</b>	<b>367</b>	<b>586</b>	<b>248</b>	
587	<i>Gonatoblaste rostrata</i> Huber	367	38	248	
588	<i>Gongroceras pellucidum</i> Kützinger	94	143	248	
589	<i>Gongroceras tenuicorne</i> Kützinger, 1841	98	179	248	
590	<i>Gracilaria asiatica</i> C.F. Zhang & B.M. Xia, 1985	80	23	248	
591	<i>Gracilaria vermiculophylla</i> (Ohmi) Pa-penfuss, 1967	80	23	248	
592	<i>Gracilariopsis vermiculophylla</i> Ohmi, 1956	80	23	248	
<b>593</b>	<b><i>Grania efflorescens</i> (J. Agardh) Kylin, 1944</b>	<b>126</b>	<b>593</b>	<b>248</b>	
594	<i>Gymnogongrus plicatus</i> (Hudson) Kützinger	84	30	248	
595	<i>Halidrys serrata</i> (Linnaeus) Stackhouse, 1809	204	563	248	
<b>596</b>	<b><i>Halidrys siliquosa</i> (Linnaeus) Lyngbye, 1819</b>	<b>210</b>	<b>596</b>	<b>248</b>	
597	<i>Halidrys siliquosa</i> ssp. <i>siliculosus</i> (Stackhouse) Batters, 1902	210	596	248	
598	<i>Halidrys siliquosa</i> var. <i>denudata</i> Lyngbye, 1819	210	596	248	
599	<i>Halidrys siliquosa</i> var. <i>evesiculosa</i> J. Agardh, 1836	210	596	248	
600	<i>Halidrys siliquosa</i> var. <i>minor</i> Lyngbye, 1819	170	48	248	
<b>601</b>	<b><i>Halopteris scoparia</i> (Linnaeus) Sauvageau 1904</b>	<b>366</b>	<b>601</b>	<b>248</b>	
<b>602</b>	<b><i>Halorhiza vaga</i> Kützinger, 1843</b>	<b>212</b>	<b>602</b>	<b>248</b>	
<b>603</b>	<b><i>Halosiphon tomentosus</i> (Lyngbye) Jaasund, 1957</b>	<b>214</b>	<b>603</b>	<b>248</b>	
<b>604</b>	<b><i>Halothrix lumbricalis</i> (Kützinger) Reinke, 1888</b>	<b>216</b>	<b>604</b>	<b>248</b>	
605	<i>Halothrix rectiuscula</i> Y.-P. Lee, 2001	216	604	248	
606	<i>Halymenia palmata</i> (Linnaeus) C. Agardh, 1817	140	751	248	
<b>607</b>	<b><i>Haplospora globosa</i> Kjellman, 1872</b>	<b>218</b>	<b>607</b>	<b>248</b>	
<b>608</b>	<b><i>Harveyella mirabilis</i> (Reinsch) F. Schmitz &amp; Reinke, 1889</b>	<b>128</b>	<b>608</b>	<b>248</b>	
609	<i>Hecatonema globosum</i> (Reinke) Batters, 1902	230	697	248	
610	<i>Hecatonema maculans</i> (F.S. Collins) Sauvageau, 1897	220	611	248	
<b>611</b>	<b><i>Hecatonema terminale</i> (Kützinger) Kylin, 1937</b>	<b>220</b>	<b>611</b>	<b>248</b>	
612	<i>Helminthocladia virescens</i> (Carmichael ex Berkeley) Harvey, 1841	200	528	248	
613	<i>Herpoteiron repens</i> (A.Braun) Wittrock, 1872	367	38	248	
614	<i>Hildenbrandia nardo</i> Zanardini, 1840	130	618	248	
615	<i>Hildenbrandia prototypus</i> Nardo, 1834	130	618	248	
<b>616</b>	<b><i>Hildenbrandia rivularis</i> (Liebmann) J. Agardh, 1851</b>	<b>365</b>	<b>616</b>	<b>248</b>	<b>7073</b>
617	<i>Hildenbrandia rosea</i> Kützinger, 1843	130	618	248	

<b>618</b>	<b>Hildenbrandia rubra (Sommerfelt) Meneghini, 1841</b>	<b>130</b>	<b>618</b>	<b>248</b>	
619	Hildenbrandia sanguinea Kützing, 1843	130	618	248	
620	Hippurina aculeata (Linnaeus) Stackhouse, 1809	188	432	248	
621	Homoeostroma plantagineum J. Agardh, 1896	246	873	248	
622	Hormidium implexum Kützing, 1847	368	1042	248	
623	Hormiscia implexa (Kützing) Rabenhorst, 1868	368	1042	248	
624	Hormiscia penicilliformis (Roth) Areschoug, 1866	360	1101	248	
625	Hormiscia penicilliformis (Roth) Fries, 1835	360	1101	248	
626	Hormiscia zonata (F. Weber & D.Mohr) Areschoug, 1866	334	1048	248	
627	Hormoceras circinatum Kützing, 1842	92	139	248	
628	Hormoceras decurrens Kützing, 1842	92	139	248	
629	Hormotrichum fasciculare Kützing	328	1041	248	
630	Hormotrichum speciosum (Carmichael) P. Crouan & H. Crouan, 1852	330	1045	248	
<b>631</b>	<b>Hormotrichum vermiculare Kützing, 1849</b>	<b>367</b>	<b>631</b>	<b>1</b>	
632	Hutchinsia byssoides Goodenough & Woodward) C. Agardh, 1817	166	1108	248	
633	Hutchinsia divaricata C. Agardh, 1817	134	677	248	
634	Hutchinsia elongata (Hudson) C. Agardh, 1817	90	130	248	
635	Hutchinsia nigrescens (Hudson) Lyngbye, 1819	168	1109	248	
636	Hutchinsia stricta (Mertens ex Dillwyn) C. Agardh, 1817	150	812	248	
637	Hyalina viridis (O.F. Müller) Kuntze, 1891	190	433	248	
638	Hydrolapathum sanguineum (Hudson) Stackhouse, 1809	116	428	248	
<b>639</b>	<b>Hydrolithon farinosum (J.V. Lamouroux) D. Penrose &amp; Y.M. Chamberlain, 1993</b>	<b>132</b>	<b>639</b>	<b>248</b>	
640	Hypoglossum alatum (Hudson) Kützing, 1843	136	692	248	
641	Hypophylla alata (Hudson) Stackhouse, 1816	136	692	248	
642	Ilea fascia (O.F. Müller) Fries, 1835	238	754	248	
643	Ilea torta (Mertens) Trevisan, 1845	350	1087	248	

644	Ilea zosterifolia (Reinke) Nordstedt, 1912	240	795	248	
645	Kjellmania arasakii Yamada, 1953	266	1008	248	
646	Kjellmania sorifera Reinke, 1889	266	1008	248	
647	Kjellmania striarioides Gran, 1897	266	1008	248	
<b>648</b>	<b>Kormmannia leptoderma (Kjellman) Bli- ding, 1969</b>	<b>310</b>	<b>648</b>	<b>248</b>	
649	Kormmannia zostericola (Tilden) Bliding, 1969	310	648	248	
650	Kylinia gynandra (Rosenvinge) Kylin, 1944	365	364	248	
651	Kylinia hallandica (Kylin) Kylin, 1944	108	365	248	
652	Kylinia immersa (Rosenvinge) Papenfuss, 1947	364	10	248	
653	Kylinia moniliformis (Rosenvinge) Kylin, 1944	76	12	248	
654	Kylinia parvula (Kylin) Kylin, 1944	364	13	248	
<b>655</b>	<b>Kylinia rosulata Rosenvinge, 1909</b>	<b>365</b>	<b>655</b>	<b>248</b>	
656	Kylinia secundata (Lyngbye) Papenfuss, 1947	78	14	248	
<b>657</b>	<b>Laminaria digitata (Hudson) J.V. Lamouroux, 1813</b>	<b>222</b>	<b>657</b>	<b>248</b>	
658	Laminaria ensifolia Kützing, 1843	222	657	248	
659	Laminaria fascia (O.F. Müller) C. Agardh, 1817	238	754	248	
660	Laminaria flexicaulis Le Jolis, 1855	222	657	248	
661	Laminaria latifolia C. Agardh, 1820	222	657	248	
662	Laminaria phycodendron De la Pylaie, 1824	222	657	248	
663	Laminaria plantaginea (Roth) C. Agardh, 1817	246	873	248	
664	Laminaria saccharina (Linnaeus) J.V. Lamouroux, 1813	254	937	248	
<b>665</b>	<b>Laminariocolax aecidioides (Rosenvinge) A.F. Peters, 1998</b>	<b>366</b>	<b>665</b>	<b>248</b>	
<b>666</b>	<b>Lamprothamnium papulosum (K. Wallroth) J. Groves, 1916</b>	<b>72</b>	<b>666</b>	<b>248</b>	<b>17607</b>
<b>667</b>	<b>Lamprothamnium papulosum var. han- senii (C. Sonder) Raam, 2010</b>	<b>72</b>	<b>667</b>	<b>248</b>	
668	Lamprothamnium papulosum (K. Wallroth) A. Béguinot & L. Formiggini, 1907	72	666	248	
669	Leathesia difformis Areschoug, 1847	224	670	248	

<b>670</b>	<b>Leathesia marina (Lyngbye) Decaisne, 1842</b>	<b>224</b>	<b>670</b>	<b>248</b>	
671	Leathesia tuberiformis S.F. Gray, 1821	224	670	248	
672	Leptonema fasciculatum Reinke, 1888	226	676	248	
673	Leptonema fasciculatum var. <i>flagellare</i> Reinke, 1889	226	676	248	
674	Leptonema fasciculatum var. <i>majus</i> Reinke, 1889	226	676	248	
675	Leptonema neapolitanum Schussnig, 1930	226	676	248	
<b>676</b>	<b>Leptonematella fasciculata (Reinke) P.C. Silva, 1959</b>	<b>226</b>	<b>676</b>	<b>248</b>	
<b>677</b>	<b>Leptosiphonia fibrillosa (Agardh) A.M. Savoie &amp; G.W. Saunders, 2019</b>	<b>134</b>	<b>677</b>	<b>248</b>	
678	Lithoderma extensum (P.L. Crouan & H.M. Crouan) G Hamel, 1935	244	867	248	
<b>679</b>	<b>Lithoderma fatiscens Areschoug, 1875</b>	<b>228</b>	<b>679</b>	<b>248</b>	
680	Lithoderma fatiscens Kuckuck, 1894	244	867	248	
<b>681</b>	<b>Lithophyllum corallinae (P.L. Crouan &amp; H.M. Crouan) Heydrich, 1897</b>	<b>365</b>	<b>681</b>	<b>248</b>	
<b>682</b>	<b>Litosiphon laminariae (Lyngbye) Harvey, 1849</b>	<b>366</b>	<b>682</b>	<b>248</b>	
<b>683</b>	<b>Lychaete pygmaea (Reinke) M.J. Wynne, 2017</b>	<b>367</b>	<b>683</b>	<b>248</b>	
684	Lyngbya carmichaelii Harvey, 1833	328	1041	248	
685	Lyngbya flacca (Dillwyn) Harvey, 1833	328	1041	248	
686	Lyngbya speciosa Carmichael, 1833	330	1045	248	
687	Lyngbya zonata (Weber & Mohr) Hassall, 1845	334	1048	248	
<b>688</b>	<b>Mastocarpus stellatus (Stackhouse) Guiry, 1984</b>	<b>365</b>	<b>688</b>	<b>248</b>	
689	Melobesia farinosa J.V. Lamouroux, 1816	132	639	248	
690	Melobesia granulata (Meneghini) ex Kützing, 1849	132	639	248	
<b>691</b>	<b>Melobesia membranacea (Esper) J.V. Lamouroux 1812</b>	<b>365</b>	<b>691</b>	<b>248</b>	
<b>692</b>	<b>Membranoptera alata (Hudson) Stackhouse, 1809</b>	<b>136</b>	<b>692</b>	<b>248</b>	
693	Mesogloia rubra (Hudson) Areschoug, 1840	138	739	248	
<b>694</b>	<b>Mesogloia vermiculata (Smith) S.F. Gray, 1821</b>	<b>366</b>	<b>694</b>	<b>248</b>	
695	Mesogloia virescens Carmichael ex Berkeley, 1833	200	528	248	
696	Microspongium gelatinosum Reinke, 1888	256	951	248	
<b>697</b>	<b>Microspongium globosum Reinke, 1888</b>	<b>230</b>	<b>697</b>	<b>248</b>	
<b>698</b>	<b>Microspongium stilophorae (P. Crouan &amp; H. Crouan) A Cormaci &amp; G. Furnari, 2012</b>	<b>232</b>	<b>698</b>	<b>248</b>	
699	Microspongium tenuissimum (Hauck) A.F. Peters, 2003	232	698	248	
<b>700</b>	<b>Monostroma balticum Wittrock, 1866</b>	<b>312</b>	<b>700</b>	<b>248</b>	
701	Monostroma fuscum var. <i>splendens</i> (Ruprecht) Rosenvinge, 1893	352	1091	248	
702	Monostroma fuscum Wittrock, 1866	352	1091	248	
<b>703</b>	<b>Monostroma grevillei (Thuret) Wittrock, 1866</b>	<b>314</b>	<b>703</b>	<b>248</b>	
704	Monostroma helgolandicum Schmidt	310	648	248	
705	Monostroma lactuca (Linnaeus) J. Agardh, 1883	344	1070	248	
<b>706</b>	<b>Monostroma latissimum Wittrock, 1866</b>	<b>316</b>	<b>706</b>	<b>248</b>	
707	Monostroma leptodermum Kjellman, 1877	310	648	248	
708	Monostroma orbiculatum Thuret, 1854	308	579	248	
709	Monostroma oxyspermum (Kützing) Doty, 1947	308	579	248	
710	Monostroma wittrockii Bornet, 1880	308	579	248	
711	Monostroma zostericola Tilden, 1900	310	648	248	
712	Myrionema attenuatum f. <i>doliiforme</i> Setchell & N.L. Gardner, 1922	234	714	248	
713	Myrionema attenuatum Setchell & N.L. Gardner, 1922	234	714	248	
<b>714</b>	<b>Myrionema balticum (Reinke) Foslie, 1894</b>	<b>234</b>	<b>714</b>	<b>248</b>	
715	Myrionema balticum f. <i>californicum</i> Setchell & N.L. Gardner, 1922	234	714	248	
716	Myrionema clavata Harvey, 1833	274	1022	248	
717	Myrionema globosum (Reinke) Foslie, 1894	230	697	248	
718	Myrionema henschei Caspary, 1871	274	1022	248	
<b>719</b>	<b>Myrionema magnusii (Sauvageau) Loiseaux, 1967</b>	<b>366</b>	<b>719</b>	<b>248</b>	
720	Myrionema majus Foslie, 1894	220	611	248	
721	Myrionema ocellatum (Kützing) Kützing, 1849	182	271	248	
<b>722</b>	<b>Myrionema orbiculare J. Agardh, 1848</b>	<b>236</b>	<b>722</b>	<b>248</b>	

723	<i>Myrionema ramosum</i> Pankow, 1971	236	722	248	
724	<b>Myrionema seriatum (Reinke) Kylin, 1947</b>	<b>366</b>	<b>724</b>	<b>248</b>	
725	<b>Myrionema strangulans Greville, 1827</b>	<b>367</b>	<b>725</b>	<b>248</b>	
726	<i>Myrionema subglobosum</i> Kylin, 1907	230	697	248	
727	<b>Myriophyllum spicatum L.</b>	<b>24</b>	<b>727</b>	<b>248</b>	<b>2005</b>
728	<b>Myriotrichia clavaeformis Harvey, 1834</b>	<b>367</b>	<b>728</b>	<b>248</b>	
729	<i>Myxonema tenue</i> (C. Agardh) Rabenhorst, 1847	326	1014	248	
730	<i>Najas gracilis</i> (Morong) Small	26	732	97	
731	<i>Najas major</i> var. <i>angustifolia</i> A. Braun ex Schum.	26	732	97	
732	<b>Najas marina L.</b>	<b>26</b>	<b>732</b>	<b>248</b>	<b>2071</b>
733	<b>Najas marina ssp. intermedia (Wolfg. ex Gorski) Casper</b>	<b>26</b>	<b>733</b>	<b>47</b>	<b>2276</b>
734	<i>Najas marina</i> ssp. <i>major</i> (All.) Viinikka	26	732	47	
735	<b>Najas marina ssp. marina L.</b>	<b>26</b>	<b>735</b>	<b>47</b>	<b>12359</b>
736	<i>Najas marina</i> var. <i>recurvata</i> Dudley	26	732	97	
737	<i>Nanozostera noltei</i> (Hornemann) Tomlin- son & Posluszny, 2001	50	1124	248	
738	<i>Nemacystus divaricatus</i> (C. Agardh) Hy- gen, 1934	262	994	248	
739	<b>Nemalion elminthoides (Velley) Batters, 1902</b>	<b>138</b>	<b>739</b>	<b>248</b>	
740	<i>Nemalion multifidum</i> var. <i>simplex</i> Harvey, 1846	138	739	248	
741	<i>Nitella nidifica</i> (Müller) C. Agardh, 1824	74	1034	248	
742	<b>Nitella opaca (C. Agardh ex Bruzelius) C. Agardh, 1824</b>	<b>364</b>	<b>742</b>	<b>248</b>	<b>7905</b>
743	<b>Nitella syncarpa (J.L. Thuillier) Kützing, 1845</b>	<b>364</b>	<b>743</b>	<b>248</b>	<b>7478</b>
744	<i>Nostoc marinum</i> C. Agardh, 1810	224	670	248	
745	<b>Ochlochaete hystrix Thwaites ex Harvey, 1849</b>	<b>368</b>	<b>745</b>	<b>248</b>	
746	<b>Odonthalia dentata (Linnaeus) Lyngbye 1819</b>	<b>366</b>	<b>746</b>	<b>248</b>	
747	<i>Oscillatoria torta</i> C. Agardh, 1813	334	1048	248	
748	<b>Ostreobium quekettii Borneé &amp; Flahault, 1889</b>	<b>368</b>	<b>748</b>	<b>248</b>	
749	<i>Ostreobium reinecke</i> Borneé, 1896	368	748	248	
750	<i>Palmaria lanceolata</i> Stackhouse, 1809	140	751	248	

751	<b>Palmaria palmata (Linnaeus) F. Weber &amp; D. Mohr, 1805</b>	<b>140</b>	<b>751</b>	<b>248</b>	
752	<i>Percursaria confervoidea</i> (Lyngbye) Foslie, 1891	318	753	248	
753	<b>Percursaria percursa (C. Agardh) Rosen- vinge, 1893</b>	<b>318</b>	<b>753</b>	<b>248</b>	
754	<b>Petalonia fascia (O.F. Müller) Kuntze, 1898</b>	<b>238</b>	<b>754</b>	<b>248</b>	
755	<i>Petalonia fascia</i> var. <i>zosterifolia</i> (Reinke) W.R. Taylor, 1937	240	795	248	
756	<i>Petalonia zosterifolia</i> (Reinke) Kuntze, 1898	240	795	248	
757	<b>Petroderma maculiforme (Wollny) Ku- ckuck, 1897</b>	<b>367</b>	<b>757</b>	<b>248</b>	
758	<b>Phaeophila dendroides (P.L. Crouan &amp; H.M. Crouan) Batters, 1902</b>	<b>368</b>	<b>758</b>	<b>248</b>	
759	<i>Phaeophila viridis</i> (Reinke) Burrows, 1976	356	1095	248	
760	<i>Phaeophila wittrockii</i> (Wille) R. Nielsen, 1972	358	1096	248	
761	<i>Philotria angustifolia</i> (Muhl.) Bitt. ex Rydb.	22	479	97	
762	<i>Philotria canadensis</i> (Michx.) Britt.	20	476	47	
763	<i>Philotria nuttallii</i> (Planch.) Rydb.	22	479	97	
764	<i>Phloeospora pumila</i> Kjellman, 1877	268	1009	248	
765	<i>Phloeospora tortilis</i> (Gobi) J.E. Areschoug, 1876	268	1009	248	
766	<i>Phycocelis alariae</i> Norum, 1913	230	697	248	
767	<i>Phycocelis globosus</i> (Reinke) De Toni, 1895	230	697	248	
768	<i>Phycocelis maculans</i> F.S. Collins, 1896	220	611	248	
769	<i>Phycocelis ocellatus</i> (Kützing) Athanasia- dis, 1996	182	271	248	
770	<i>Phycocelis reptans</i> (P.L. Crouan & H.M. Crouan) Kjellman, 1890	172	53	248	
771	<i>Phycodrys crenata</i> (S.G. Gmelin) P.C. Silva, 1996	142	772	248	
772	<b>Phycodrys rubens (Linnaeus) Batters, 1902</b>	<b>142</b>	<b>772</b>	<b>248</b>	
773	<i>Phycodrys sinuosa</i> (Goodenough & Woodward) Kützing, 1843	142	772	248	
774	<i>Phycoseris fasciata</i> (Delile) Montagne, 1856	344	1070	248	
775	<i>Phycoseris latissima</i> (Linnaeus) Frauden- feld, 1854	254	937	248	
776	<i>Phyllacidium ocellatum</i> Kützing, 1843	182	271	248	
777	<i>Phyllitis zosterifolia</i> Reinke, 1889	240	795	248	



## Taxon List

778	<i>Phyllona atropurpurea</i> (Olivi) Kuntze, 1898	154	882	248	
779	<i>Phyllona coriacea</i> (Zanardini) Kuntze, 1891	154	882	248	
780	<i>Phyllona lactuca</i> (Linnaeus) F.H. Wiggers, 1780	344	1070	248	
781	<i>Phyllophora bangii</i> (Hornemann) J.E. Areschoug, 1845	144	783	248	
782	<i>Phyllophora brodiei</i> f. <i>baltica</i> Areschoug ex Gobi, 1877	104	357	248	
<b>783</b>	<b><i>Phyllophora crispa</i> (Hudson) P.S. Dixon, 1964</b>	<b>144</b>	<b>783</b>	<b>248</b>	
784	<i>Phyllophora membranifolia</i> (Goodenough & Woodward) J. Agardh, 1842	146	788	248	
785	<i>Phyllophora membranifolia</i> f. <i>angustissima</i> (C. Agardh) Sjöstedt, 1920	146	788	248	
786	<i>Phyllophora membranifolia</i> f. <i>baltica</i> J.E. Areschoug	146	788	248	
787	<i>Phyllophora nervosa</i> (A.P.de Candolle) Greville, 1830	144	783	248	
<b>788</b>	<b><i>Phyllophora pseudoceranoïdes</i> (S.G. Gmelin) Newroth &amp; A.R.A. Taylor ex P.S. Dixon &amp; L.M. Irvine, 1977</b>	<b>146</b>	<b>788</b>	<b>248</b>	
<b>789</b>	<b><i>Phyllophora sicula</i> (Kützinger) Guiry &amp; L.M. Irvine, 1976</b>	<b>366</b>	<b>789</b>	<b>248</b>	
790	<i>Phyllophora truncata</i> (Pallas) A.D. Zinova, 1970	104	357	248	
<b>791</b>	<b><i>Phymatolithon calcareum</i> (Pallas) Adey &amp; D.L. McKibbin 1970</b>	<b>366</b>	<b>791</b>	<b>248</b>	
<b>792</b>	<b><i>Phymatolithon lenormandii</i> (J.E. Areschoug) W. H. Adey, 1966</b>	<b>366</b>	<b>792</b>	<b>248</b>	
793	<i>Pilayella littoralis</i> (Linnaeus) Kjellman, 1872	250	878	248	
794	<i>Pilinia endophytica</i> F.S. Collins, 1908	368	1093	248	
<b>795</b>	<b><i>Planosiphon zosterifolius</i> (Reinke) McDevit &amp; G.W. Saunders, 2017</b>	<b>240</b>	<b>795</b>	<b>248</b>	
796	<i>Platythamnion plumula</i> (J. Ellis) Boudour- esque, Belsher & Marcot-Coqueugniot, 1977	152	869	248	
<b>797</b>	<b><i>Pneophyllum fragile</i> Kützinger 1843</b>	<b>366</b>	<b>797</b>	<b>248</b>	
798	<i>Polyides lumbricalis</i> C. Agardh, 1822	148	799	248	
<b>799</b>	<b><i>Polyides rotunda</i> (Hudson) Gaillon, 1828</b>	<b>148</b>	<b>799</b>	<b>248</b>	
800	<i>Polyides rotunda</i> f. <i>fastigiatus</i> (C. Agardh) Duby, 1830	122	574	248	
<b>801</b>	<b><i>Polymorpha crispa</i> (Stackhouse) Stack- house, 1809</b>	<b>102</b>	<b>278</b>	<b>248</b>	
802	<i>Polysiphonia bangi</i> Kützinger, 1849	166	1108	248	
803	<i>Polysiphonia byssoïdes</i> (Goodenough & Woodward) Greville, 1824	166	1108	248	
804	<i>Polysiphonia divaricata</i> (C. Agardh) Sprengel, 1827	134	677	248	
805	<i>Polysiphonia elongata</i> (Hudson) Sprengel, 1827	90	130	248	
806	<i>Polysiphonia fibrillosa</i> (C. Agardh) Sprengel, 1827	134	677	248	
807	<i>Polysiphonia fibrillosa</i> (Dillwyn) J Agardh, 1842	134	677	248	
808	<i>Polysiphonia fucoïdes</i> (Hudson) Greville, 1824	168	1109	248	
809	<i>Polysiphonia nigrescens</i> (Hudson) Greville ex Harvey, 1833	168	1109	248	
810	<i>Polysiphonia robusta</i> Kützinger, 1843	90	130	248	
811	<i>Polysiphonia rosea</i> Greville, 1824	90	130	248	
<b>812</b>	<b><i>Polysiphonia stricta</i> (Mertens ex Dillwyn) Greville, 1824</b>	<b>150</b>	<b>812</b>	<b>248</b>	
813	<i>Polysiphonia urceolata</i> (Lightfoot ex Dill- wyn) Greville, 1824	150	812	248	
814	<i>Polysiphonia urceolata</i> f. <i>fucoïdes</i> (Hud- son) J. Agardh, 1863	168	1109	1	
815	<i>Polysiphonia violacea</i> (Roth) Sprengel, 1827	168	1109	248	
816	<i>Polysiphonia violacea</i> f. <i>fibrillosa</i> (C. Agardh) Rosenvinge, 1924	134	677	248	
817	<i>Porphyra ceramicola</i> (Lyngbye) P.L. Crouan & H.M. Crouan, 1867	120	526	248	
818	<i>Porphyra leucosticta</i> Thuret, 1863	154	882	248	
819	<i>Porphyra vermicellifera</i> Kützinger, 1843	154	882	248	
<b>820</b>	<b><i>Porterinema fluviatile</i> (H.C. Porter) Waern, 1952</b>	<b>367</b>	<b>820</b>	<b>248</b>	
821	<i>Potamogeton acuminatus</i> Schumach., 1801	30	838	47	
822	<i>Potamogeton amplexicaulis</i> Kar.	32	847	97	
<b>823</b>	<b><i>Potamogeton berchtoldii</i> Fieber, 1838</b>	<b>364</b>	<b>823</b>	<b>47</b>	<b>2973</b>
824	<i>Potamogeton berchtoldii</i> var. <i>acuminatus</i> Fieber	364	823	47	

825	Potamogeton berchtoldii var. mucronatus Fieber	364	823	47	
826	Potamogeton bupleuroides Fern.	32	847	97	
827	Potamogeton crenulatus D. Don, 1825	28	829	47	
828	Potamogeton crispatus Wallmann ex Rchb., 1845	28	829	47	
<b>829</b>	<b>Potamogeton crispus L.</b>	<b>28</b>	<b>829</b>	<b>248</b>	<b>2002</b>
830	Potamogeton denticulatus Link, 1825	34	849	47	
831	Potamogeton fasciculatus Wolfg. 1827	42	1029	47	
832	Potamogeton fieberi Rouy	364	823	47	
833	Potamogeton filiformis Pers.	42	1029	248	2061
834	Potamogeton fluviatilis Roem. & Schult., 1818	30	838	47	
<b>835</b>	<b>Potamogeton friesii Rupr.</b>	<b>364</b>	<b>835</b>	<b>248</b>	<b>2668</b>
836	Potamogeton juncifolius A. Kern. 1896	42	1029	47	
837	Potamogeton longifolius Gay, 1816	30	838	47	
<b>838</b>	<b>Potamogeton lucens L.</b>	<b>30</b>	<b>838</b>	<b>47</b>	<b>2041</b>
839	Potamogeton macrophyllus Wolfg., 1827	30	838	47	
840	Potamogeton marinus Fr. 1828	42	1029	47	
841	Potamogeton marinus L., 1753.	44	1030	47	
842	Potamogeton maritimus Pohl, 1810	44	1030	47	
843	Potamogeton noltei A. Benn., 1890	34	849	47	
844	Potamogeton panormitanus Biv., 1838	34	849	47	
845	Potamogeton pectinatus L.	44	1030	248	2001
846	Potamogeton pectinatus var. scoparius Wallr. 1812	44	1030	47	
<b>847</b>	<b>Potamogeton perfoliatus L.</b>	<b>32</b>	<b>847</b>	<b>248</b>	<b>2023</b>
848	Potamogeton perfoliatus ssp. bupleuroides (Fern.) Hultén	32	847	97	
<b>849</b>	<b>Potamogeton pusillus L.</b>	<b>34</b>	<b>849</b>	<b>248</b>	<b>2664</b>
850	Potamogeton reichenbachii Löhr, 1853	34	849	47	
851	Potamogeton rotundifolius Schultz, 1819	30	838	47	
852	Potamogeton striatus Torr. ex Morong, 1886	34	849	47	
853	Potamogeton tenuissimus Rchb.	364	823	47	
854	Potamogeton tuberosus Roxb., 1820	28	829	47	
855	Potamogeton zosteraceus Fr., 1828	44	1030	47	
856	Prasiola cornucopiae J. Agardh, 1883	320	860	248	
<b>857</b>	<b>Prasiola crispa (Lightfoot) Kützing, 1843</b>	<b>368</b>	<b>857</b>	<b>248</b>	<b>7050</b>
858	Prasiola crispa f. torta (Mertens) Brand	350	1087	248	

859	Prasiola fulvescens (C. Agardh) Trevisan, 1842	288	129	248	
<b>860</b>	<b>Prasiola stipitata Suhr ex Jessen, 1848</b>	<b>320</b>	<b>860</b>	<b>248</b>	
861	Pringsheimia scutata Reinke, 1888	354	1094	248	
862	Pringsheimiella scutata (Reinke) Marchewianka, 1925	354	1094	248	
863	Protoderma marinum Reinke, 1889	368	866	248	
<b>864</b>	<b>Protohalopteris radicans (Dillwyn) Draisma, Prud'homme &amp; H. Kawai, 2010</b>	<b>242</b>	<b>864</b>	<b>248</b>	
<b>865</b>	<b>Pseudendoclonium fucicola (Rosenvinge) R. Nielsen, 1980</b>	<b>368</b>	<b>865</b>	<b>248</b>	
<b>866</b>	<b>Pseudendoclonium marinum (Reinke) Aleem &amp; E. Schulz, 1952</b>	<b>368</b>	<b>866</b>	<b>248</b>	
<b>867</b>	<b>Pseudolithoderma extensum (P.L. Crouan &amp; H.M. Crouan) S. Lund, 1959</b>	<b>244</b>	<b>867</b>	<b>248</b>	
868	Pseudolithoderma fatiscens (Kuckuck) Svedelius, 1910	244	867	248	
<b>869</b>	<b>Pterothamnion plumula (J. Ellis) Nägeli, 1855</b>	<b>152</b>	<b>869</b>	<b>248</b>	
870	Pterothamnion pusillum (Ruprecht) Nägeli, 1862	162	941	248	
871	Punctaria baltica (Kützing) Batters, 1902	248	875	248	
872	Punctaria debilis (Kützing) Trevisan, 1849	238	754	248	
<b>873</b>	<b>Punctaria plantaginea (Roth) Greville, 1830</b>	<b>246</b>	<b>873</b>	<b>248</b>	
874	Punctaria rubescens (Lyngbye) J. Agardh, 1896	246	873	248	
<b>875</b>	<b>Punctaria tenuissima (C. Agardh) Greville, 1830</b>	<b>248</b>	<b>875</b>	<b>248</b>	
876	Punctaria undulata J. Agardh, 1836	248	875	248	
877	Pylaiella kylini Du Rietz, 1941	250	878	248	
<b>878</b>	<b>Pylaiella littoralis (Linnaeus) Kjellman, 1872</b>	<b>250</b>	<b>878</b>	<b>248</b>	
879	Pylaiella ramellosa (Kützing) Laing, 1927	250	878	248	
880	Pylaiella rupicola (Areschoug) Kylin, 1937	250	878	248	
<b>881</b>	<b>Pylaiella varia Kjellman, 1883</b>	<b>367</b>	<b>881</b>	<b>248</b>	
<b>882</b>	<b>Pyropia leucosticta (Thuret) Neefus &amp; J. Brodie, 2011</b>	<b>154</b>	<b>882</b>	<b>248</b>	
883	Ralfsia bornetii Kuckuck, 1894	274	1022	248	
884	Ralfsia clavata P.L. Crouan & H.M. Crouan, 1852	274	1022	248	

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885	<i>Ralfsia extensa</i> P.L. Crouan & H.M. Crouan, 1867	244	867	248	
886	<i>Ralfsia fatiscens</i> (Areschoug) Gobi, 1878	228	679	248	
887	<i>Ralfsia tenuis</i> Kylin, 1947	274	1022	248	
<b>888</b>	<b><i>Ralfsia verrucosa</i> (Areschoug) Areschoug, 1845</b>	<b>252</b>	<b>888</b>	<b>248</b>	
889	<i>Ralfsia verrucosa</i> var. <i>cochlearum</i> J.E. Areschoug, 1876	252	888	248	
890	<i>Ralfsia verrucosa</i> var. <i>lignicola</i> J.E. Areschoug, 1847	252	888	248	
891	<i>Ranunculus baudotii</i> Godr., 1840	36	892	248	2214
<b>892</b>	<b><i>Ranunculus peltatus</i> Schrank</b>	<b>36</b>	<b>892</b>	<b>248</b>	<b>2872</b>
<b>893</b>	<b><i>Ranunculus peltatus</i> ssp. <i>baudotii</i> (Godr.) Meikle ex C.D.K. Cook</b>	<b>36</b>	<b>893</b>	<b>47</b>	<b>2368</b>
894	<i>Rhizoclonium arenosum</i> (Carmichael) Kützing, 1849	367	193	248	
<b>895</b>	<b><i>Rhizoclonium hieroglyphicum</i> (C. Agardh) Kützing, 1845</b>	<b>368</b>	<b>895</b>	<b>248</b>	<b>7115</b>
896	<i>Rhizoclonium hieroglyphicum</i> var. <i>riparium</i> (Roth) Stockmayer, 1889	322	901	248	
897	<i>Rhizoclonium implexum</i> (Dillwyn) Kützing, 1845	322	901	248	
898	<i>Rhizoclonium kochianum</i> Kützing, 1845	322	901	248	
899	<i>Rhizoclonium lacustre</i> Kützing, 1849	367	193	248	
900	<i>Rhizoclonium linum</i> (O.F. Müller) Thuret ex Bornet, 1892	292	194	248	
<b>901</b>	<b><i>Rhizoclonium riparium</i> (Roth) Harvey, 1849</b>	<b>322</b>	<b>901</b>	<b>248</b>	
902	<i>Rhizoclonium riparium</i> var. <i>implexum</i> (Dillwyn) Rosenvinge, 1893	322	901	248	
903	<i>Rhizoclonium riparium</i> var. <i>kochianum</i> (Kützing)	367	193	248	
904	<i>Rhizoclonium salinum</i> Kützing	322	901	248	
<b>905</b>	<b><i>Rhizoclonium tortuosum</i> (Dillwyn) Kützing, 1845</b>	<b>368</b>	<b>905</b>	<b>248</b>	
906	<i>Rhodochorton daviesii</i> (Dillwyn) K.M. Drew, 1928	106	363	248	
907	<i>Rhodochorton endophyticum</i> Kylin, 1907	364	11	248	
908	<i>Rhodochorton gynandrum</i> (Rosenvinge) Rosenvinge, 1935	365	364	248	
909	<i>Rhodochorton hallandicum</i> (Kylin) Drew, 1928	108	365	248	
<b>910</b>	<b><i>Rhodochorton membranaceum</i> (Magnus) Hauck, 1883</b>	<b>160</b>	<b>924</b>	<b>248</b>	
911	<i>Rhodochorton moniliforme</i> (Rosenvinge) Drew, 1928	76	12	248	
912	<i>Rhodochorton parvulum</i> (Kylin) K.M. Drew, 1928	364	13	248	
<b>913</b>	<b><i>Rhodochorton purpureum</i> (Lightfoot) Rosenvinge, 1900</b>	<b>156</b>	<b>913</b>	<b>248</b>	
914	<i>Rhodochorton rothii</i> (Turton) Nägeli, 1862	156	913	248	
915	<i>Rhododermis drummondii</i> Harvey, 1844	130	618	248	
<b>916</b>	<b><i>Rhodomela confervoides</i> (Hudson) P. C. Silva, 1952</b>	<b>158</b>	<b>916</b>	<b>248</b>	
917	<i>Rhodomela elongata</i> (Hudson) Fries, 1835	90	130	248	
<b>918</b>	<b><i>Rhodomela lycopodioides</i> (Linnaeus) C. Agardh, 1822</b>	<b>366</b>	<b>918</b>	<b>248</b>	
919	<i>Rhodomela rochei</i> Harvey, 1853	158	916	248	
920	<i>Rhodomela subfusca</i> (Woodward) C. Agardh, 1822	158	916	248	
921	<i>Rivularia rubra</i> (Hudson) Wahlenberg, 1826	138	739	248	
922	<i>Rivularia tuberiformis</i> Smith, 1809	224	670	248	
923	<i>Rothella fracta</i> (Müller ex Vahl) Gallion, 1833	298	321	248	
<b>924</b>	<b><i>Rubrointrusa membranacea</i> (Magnus) S.L. Clayden &amp; G.W. Saunders, 2010</b>	<b>160</b>	<b>924</b>	<b>248</b>	
925	<i>Ruppia brachypus</i> J. Gay, 1848	40	927	47	
<b>926</b>	<b><i>Ruppia cirrhosa</i> (Petagna) Grande, 1918</b>	<b>38</b>	<b>926</b>	<b>248</b>	<b>12378</b>
<b>927</b>	<b><i>Ruppia maritima</i> L., 1753</b>	<b>40</b>	<b>927</b>	<b>248</b>	<b>12379</b>
928	<i>Ruppia maritima</i> ssp. <i>spiralis</i> (Dumort.) Asch. & Graebn., 1913	38	926	47	
929	<i>Ruppia maritima</i> var. <i>brevirostris</i> C. Agardh, 1823	40	927	47	
930	<i>Ruppia occidentalis</i> S. Wats.	38	926	97	
931	<i>Ruppia pectinata</i> Rydb.	40	927	97	
932	<i>Ruppia rostellata</i> Koch, 1824	40	927	47	
933	<i>Ruppia spiralis</i> L. ex Dumort.	38	926	47	
<b>934</b>	<b><i>Ruthnielsenia tenuis</i> (Kylin) C.J. O'Kelly B. Wynsor &amp; W.K. Bellows, 2004</b>	<b>368</b>	<b>934</b>	<b>248</b>	
935	<i>Saccharina digitata</i> (Hudson) Kuntze, 1891	222	657	248	
936	<i>Saccharina fascia</i> (O.F. Müller) Kuntze, 1891	238	754	248	

<b>937</b>	<b>Saccharina latissima (Linnaeus) C.E. Lane, C. Mayes, Druehl &amp; G.W. Saunders, 2006</b>	<b>254</b>	<b>937</b>	<b>248</b>	
938	Saccharina plana Stackhouse, 1809	254	937	248	
<b>939</b>	<b>Sahlingia subintegra (Rosenvinge) Kornmann 1989</b>	<b>366</b>	<b>939</b>	<b>248</b>	
940	Scagelia pusilla (Ruprecht) Athanasiadis ex Maggs & Hommersand, 1993	162	941	248	
<b>941</b>	<b>Scagelothamnion pusillum (Ruprecht) Athanasiadis, 1996</b>	<b>162</b>	<b>941</b>	<b>248</b>	
942	Scaphospora arctica Kjellman, 1887	218	607	248	
943	Scaphospora speciosa (Kjellman) Kjellman, 1878	218	607	248	
944	Schizogonium tortum (Mertens) Kützing, 1843	350	1087	248	
945	Scytosiphon chordarius (Areschoug) Fries, 1845	192	442	248	
946	Scytosiphon fascia (O.F. Müller) P.L.Crouan & H.M.Crouan, 1867	238	754	248	
947	Scytosiphon filum (Linnaeus) C. Agardh, 1820	184	284	248	
948	Scytosiphon filum var. <i>tomentosus</i> (Lyngbye) C. Agardh, 1820	214	603	248	
949	Scytosiphon fistulosus (Hudson) C. Agardh, 1811	172	53	248	
950	Scytosiphon foeniculaceus (Hudson) C. Agardh, 1811	194	444	248	
<b>951</b>	<b>Scytosiphon lomentaria (Lyngbye) Link, 1833</b>	<b>256</b>	<b>951</b>	<b>248</b>	
952	Scytosiphon paradoxus (Roth) Hornemann, 1818	258	960	248	
953	Scytosiphon percursus (C.Agardh) Wallroth, 1833	318	753	248	
954	Scytosiphon pygmaeus Reinke, 1888	256	951	248	
955	Scytosiphon tomentosus (Hudson) J. Agardh, 1848	264	1004	248	
956	Scytosiphon tomentosus Hornemann, 1818	194	444	248	
957	Scytosiphon tortilis Ruprecht, 1850	268	1009	248	
958	Sorocarpus micromorus (Bory) P.C. Silva, 1950	178	90	248	
959	Sorocarpus uvaeformis (Lyngbye) Pringsheim, 1862	178	90	248	

<b>960</b>	<b>Spermatochnus paradoxus (Roth) Kützing, 1843</b>	<b>258</b>	<b>960</b>	<b>248</b>	
<b>961</b>	<b>Spermothamnion repens (Dillwyn) Magnus, 1873</b>	<b>164</b>	<b>961</b>	<b>248</b>	
962	Spermothamnion repens f. <i>roseolum</i> (C. Agardh) Rosenvinge, 1924	164	961	248	
963	Spermothamnion <i>roseolum</i> (C. Agardh) Pringsheim, 1862	164	961	248	
964	Sphacelaria (Sphacelaria) <i>radicans</i> (Dillwyn) C. Agardh, 1824	242	864	248	
965	Sphacelaria <i>arctica</i> Harvey, 1858	174	76	248	
966	Sphacelaria <i>bipinnata</i> (Kützing) Piccone, 1884	260	967	248	
<b>967</b>	<b>Sphacelaria cirrosa (Roth) C. Agardh, 1824</b>	<b>260</b>	<b>967</b>	<b>248</b>	
968	Sphacelaria <i>clevei</i> Grunow, 1874	174	76	248	
969	Sphacelaria <i>heteronema</i> Postels & Ruprecht, 1840	180	208	248	
970	Sphacelaria <i>hystrix</i> Suhr ex Reinke	260	967	248	
971	Sphacelaria <i>intermedia</i> Gobi, 1877	174	76	248	
972	Sphacelaria <i>irregularis</i> Kützing	260	967	248	
973	Sphacelaria <i>notata</i> (C. Agardh) Kjellman, 1890	174	76	248	
974	Sphacelaria <i>olivacea</i> (Dillwyn) Greville, 1824	242	864	248	
975	Sphacelaria <i>olivacea</i> var. <i>radicans</i> (Dillwyn) J. Agardh, 1848	242	864	248	
976	Sphacelaria <i>plumigera</i> Holmes ex Hauck, 1884 (synonym)	366	77	248	
977	Sphacelaria <i>plumigera</i> var. <i>patentissima</i> Sauvageau, 1903	366	77	248	
978	Sphacelaria <i>plumosa</i> Lyngbye, 1819	180	208	248	
979	Sphacelaria <i>plumosa</i> var. <i>divaricata</i> Lyngbye, 1819	180	208	248	
980	Sphacelaria <i>racemosa</i> f. <i>notata</i> (C. Agardh) Svedelius, 1901	174	76	248	
981	Sphacelaria <i>racemosa</i> f. <i>pinnata</i> Reinke, 1892	366	77	248	
982	Sphacelaria <i>racemosa</i> Greville, 1824	176	78	248	
983	Sphacelaria <i>racemosa</i> var. <i>arctica</i> (Harvey) Reinke, 1889	174	76	248	

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984	<i>Sphacelaria radicans</i> (Dillwyn) C. Agardh, 1824	242	864	248	
985	<i>Sphacelaria rhizophora</i> Kützing	260	967	248	
986	<i>Sphacelaria scoparia</i> (Linnaeus) Lyngbye, 1819	366	601	248	
<b>987</b>	<b><i>Sphacelorbis nanus</i> (Nageli ex Kützing) Draisma, Prud'homme &amp; H. Kawai, 2010</b>	<b>367</b>	<b>987</b>	<b>248</b>	
988	<i>Sphaerococcus confervoides</i> (Hudson) C. Agardh, 1817	158	916	248	
989	<i>Sphaerococcus interruptus</i> Greville, 1829	104	357	248	
990	<i>Sphaerococcus palmatus</i> (Linnaeus) Wahlenberg, 1826	140	751	248	
991	<i>Sphaerococcus pedicellatus</i> C. Agardh, 1822	114	419	248	
992	<i>Sphaerococcus plicatus</i> (Hudson) C. Agardh, 1817	84	30	248	
993	<i>Sphaeroplea crispa</i> Berkeley, 1832	334	1048	248	
<b>994</b>	<b><i>Sphaerotrichia divaricata</i> (C. Agardh) Kylin, 1940</b>	<b>262</b>	<b>994</b>	<b>248</b>	
995	<i>Sphaerotrichia divaricata</i> f. <i>typica</i> Inagaki, 1954	262	994	248	
996	<i>Sphaerotrichia japonica</i> Kylin, 1904	262	994	248	
997	<i>Spinularius viridis</i> (O.F. Müller) Ruprecht, 1850	190	433	248	
<b>998</b>	<b><i>Spongomorpha aeruginosa</i> (Linnaeus) Hoek, 1963</b>	<b>324</b>	<b>998</b>	<b>248</b>	
999	<i>Spongomorpha centralis</i> (Lyngbye) Kützing	276	16	248	
1000	<i>Spongomorpha congregata</i> (C. Agardh) Kützing, 1843	324	998	248	
1001	<i>Spongomorpha lanosa</i> (Roth) Kützing	324	998	248	
<b>1002</b>	<b><i>Spongomorpha tomentosa</i></b>	<b>368</b>	<b>1002</b>	<b>248</b>	
1003	<i>Spongomorpha uncialis</i> (O.F. Müller) Kützing, 1843	324	998	248	
<b>1004</b>	<b><i>Spongonema tomentosum</i> (Hudson) Kützing, 1849</b>	<b>264</b>	<b>1004</b>	<b>248</b>	
1005	<i>Sporochnus aculeatus</i> (Linnaeus) C. Agardh, 1817	188	432	248	
1006	<i>Sporochnus rhizodes</i> (C. Agardh) C. Agardh, 1820	272	1019	248	
1007	<i>Sporochnus viridis</i> (O.F. Müller) Greville, 1830	190	433	248	
<b>1008</b>	<b><i>Stictyosiphon soriferus</i> (Reinke) Rosenvinge, 1935</b>	<b>266</b>	<b>1008</b>	<b>248</b>	
<b>1009</b>	<b><i>Stictyosiphon tortilis</i> (Gobi) Reinke, 1889</b>	<b>268</b>	<b>1009</b>	<b>248</b>	
1010	<i>Stigeoclonium irregulare</i> Kützing, 1845	326	1014	248	
1011	<i>Stigeoclonium longarticulatum</i> (Hansgirg) Heering, 1914	326	1014	248	
1012	<i>Stigeoclonium pygmaeum</i> Hansgirg, 1886	326	1014	248	
1013	<i>Stigeoclonium subsecundum</i> var. <i>fenuis</i> Nordstedt, 1880	326	1014	248	
<b>1014</b>	<b><i>Stigeoclonium tenue</i> (C. Agardh) Kützing, 1843</b>	<b>326</b>	<b>1014</b>	<b>248</b>	<b>7066</b>
1015	<i>Stilophora lyngbyei</i> J. Agardh, 1841	258	960	248	
<b>1016</b>	<b><i>Stilophora nodulosa</i> (C. Agardh) P.C. Silva, 1996</b>	<b>270</b>	<b>1016</b>	<b>248</b>	
1017	<i>Stilophora paradoxa</i> (Roth) Areschoug, 1845	258	960	248	
1018	<i>Stilophora rhizodes</i> (C. Agardh) J. Agardh, 1841	272	1019	248	
<b>1019</b>	<b><i>Stilophora tenella</i> (Esper) P.C. Silva, 1996</b>	<b>272</b>	<b>1019</b>	<b>248</b>	
1020	<i>Stilophora tuberculosa</i> (Hornemann) Reinke, 1889	270	1016	248	
1021	<i>Stragularia adhaerens</i> Strömfelt, 1886	274	1022	248	
<b>1022</b>	<b><i>Stragularia clavata</i> (Harvey) Hamel, 1939</b>	<b>274</b>	<b>1022</b>	<b>248</b>	
1023	<i>Streblonema chordariae</i> (Wollny) A.D. Cotton ex Lily Newton, 1931	186	294	248	
1024	<i>Streblonema effusum</i> Kylin, 1907	248	875	248	
<b>1025</b>	<b><i>Streblonema fasciculatum</i> Thuret, 1863</b>	<b>367</b>	<b>1025</b>	<b>248</b>	
1026	<i>Streblonema stilophorae</i> (P.L. Crouan & H.M. Crouan) Kylin, 1908	232	698	248	
1027	<i>Streblonema tenuissimum</i> Hauck, 1884	232	698	248	
<b>1028</b>	<b><i>Striaria attenuata</i> (C. Agardh) Greville, 1828</b>	<b>367</b>	<b>1028</b>	<b>248</b>	
<b>1029</b>	<b><i>Stuckenia filiformis</i> (Pers.) Börner</b>	<b>42</b>	<b>1029</b>	<b>248</b>	
<b>1030</b>	<b><i>Stuckenia pectinata</i> (L.) Börner, 1912</b>	<b>44</b>	<b>1030</b>	<b>248</b>	
1031	<i>Stypocaulon bipinnatum</i> Kützing, 1855	260	967	248	
1032	<i>Stypocaulon scoparium</i> (Linnaeus) Kützing, 1843	366	601	248	
<b>1033</b>	<b><i>Titanoderma laminariae</i> (P.L. Crouan &amp; H.M. Crouan) Y.M. Chamberlain</b>	<b>366</b>	<b>1033</b>	<b>248</b>	

<b>1034</b>	<b>Tolypella nidifica (O.F. Müller) Leonhardi, 1864</b>	<b>74</b>	<b>1034</b>	<b>248</b>	<b>17618</b>
<b>1035</b>	<b>Tolypella nidifica var. stenhammariana (Wallman) Raam, 2010</b>	<b>74</b>	<b>1035</b>	<b>248</b>	
1036	Trailliella intricata Batters, 1896	365	89	248	
1037	Tremella difformis Linnaeus, 1755	224	670	248	
1038	Ulothrix acrorhiza Kornmann, 1964	368	1042	248	
1039	Ulothrix consociata Wille, 1901	328	1041	248	
1040	Ulothrix crispera (Berkeley) Kützing, 1849	334	1048	248	
<b>1041</b>	<b>Ulothrix flacca (Dillwyn) Thuret, 1863</b>	<b>328</b>	<b>1041</b>	<b>248</b>	
<b>1042</b>	<b>Ulothrix implexa (Kützing) Kützing, 1849</b>	<b>368</b>	<b>1042</b>	<b>248</b>	
1043	Ulothrix pseudoflacca Wille, 1901	328	1041	248	
1044	Ulothrix scutata H. Jónsson, 1904	328	1041	248	
<b>1045</b>	<b>Ulothrix speciosa (Carmichael) Kützing, 1849</b>	<b>330</b>	<b>1045</b>	<b>248</b>	
<b>1046</b>	<b>Ulothrix subflaccida Wille, 1901</b>	<b>332</b>	<b>1046</b>	<b>248</b>	
<b>1047</b>	<b>Ulothrix tenerrima (Kützing) Kützing, 1843</b>	<b>368</b>	<b>1047</b>	<b>248</b>	<b>7556</b>
<b>1048</b>	<b>Ulothrix zonata (F. Weber &amp; Mohr) Kützing, 1833</b>	<b>334</b>	<b>1048</b>	<b>248</b>	<b>7069</b>
1049	Ulothrix zonata var. speciosa (Carmichael) Stockmayer	330	1045	248	
1050	Ulva aureola C. Agardh, 1829	288	129	248	
1051	Ulva baltica Areschoug	312	700	248	
1052	Ulva bertolonii C. Agardh, 1823	346	1073	248	
<b>1053</b>	<b>Ulva clathrata (Roth) C. Agardh, 1811</b>	<b>349</b>	<b>1053</b>	<b>248</b>	
<b>1054</b>	<b>Ulva compressa Linnaeus, 1753</b>	<b>338</b>	<b>1054</b>	<b>248</b>	
1055	Ulva confervoides Forsskål, 1775	294	197	248	
1056	Ulva crassa Kjellman, 1877	344	1070	248	
1057	Ulva crispata Bertoloni, 1810	346	1073	248	
1058	Ulva enteromorpha var. compressa (Linnaeus) Le Jolis, 1863	338	1054	1	
1059	Ulva enteromorpha var. intestinalis (Linnaeus) Le Jolis, 1863	342	1068	248	
1060	Ulva fascia (O.F. Müller) Lyngbye, 1819	238	754	248	
1061	Ulva fasciata Delile, 1813	344	1070	248	
1062	Ulva fasciata S. F. Gray, 1821	346	1073	248	
<b>1063</b>	<b>Ulva flexuosa ssp. paradoxa (C. Agardh) M.J. Wynne, 2005</b>	<b>340</b>	<b>1063</b>	<b>47</b>	
<b>1064</b>	<b>Ulva flexuosa Wulfen, 1803</b>	<b>340</b>	<b>1064</b>	<b>248</b>	<b>41039</b>
1065	Ulva fulvescens C. Agardh, 1823	288	129	248	

1066	Ulva fusca Postels & Ruprecht, 1840	352	1091	248	
1067	Ulva grevillei (Thuret) Le Jolis, 1863	314	703	248	
<b>1068</b>	<b>Ulva intestinalis Linnaeus, 1753</b>	<b>342</b>	<b>1068</b>	<b>248</b>	<b>41040</b>
1069	Ulva intestinalis var. nana Sommerfelt, 1826	280	84	248	
<b>1070</b>	<b>Ulva lactuca Linnaeus, 1753</b>	<b>344</b>	<b>1070</b>	<b>248</b>	<b>17527</b>
1071	Ulva lactucaefolia S. F. Gray, 1821	344	1070	248	
1072	Ulva lanceolata Linnaeus, 1767	346	1073	248	
<b>1073</b>	<b>Ulva linza Linnaeus, 1753</b>	<b>346</b>	<b>1073</b>	<b>248</b>	
1074	Ulva muscoides Clemente, 1807	349	1053	248	
1075	Ulva oxysperma f. wittrockii (Bornet) Bliding	308	579	248	
1076	Ulva oxysperma Kützing, 1843	308	579	248	
1077	Ulva plantaginea Roth, 1800	246	873	248	
1078	Ulva plumosa Hudson, 1778	286	102	248	
1079	Ulva procera (K. Ahlner) H.S. Hayden, Blomster, Maggs, P.C. Silva, Stanhope & Waaland, 2003	348	1080	248	
<b>1080</b>	<b>Ulva prolifera O.F. Müller, 1778</b>	<b>348</b>	<b>1080</b>	<b>248</b>	<b>41042</b>
<b>1081</b>	<b>Ulva radiata (J. Agardh) Hayden, Blomster, Maggs, P.C. Silva, M.J. Stanhope &amp; J.R. Waaland, 2003</b>	<b>368</b>	<b>1081</b>	<b>248</b>	
<b>1082</b>	<b>Ulva ralfsii (Harvey) Le Jolis, 1863</b>	<b>368</b>	<b>1082</b>	<b>248</b>	
1083	Ulva ramulosa J. E. Smith, 1810	349	1053	248	
1084	Ulva rubescens Lyngbye, 1819	246	873	248	
1085	Ulva simplex (K.L. Vinogradova) H.S. Hayden, Blomster, Maggs, P.C. Silva, Stanhope & Waaland, 2003	348	1080	248	
1086	Ulva splendens Ruprecht, 1850	352	1091	248	
<b>1087</b>	<b>Ulva torta (Mertens) Trevisan, 1842</b>	<b>350</b>	<b>1087</b>	<b>248</b>	
1088	Ulvaria fusca (Wittrock) Vinogradova, 1967	352	1091	248	
1089	Ulvaria oxysperma (Kützing) Bliding, 1969	308	579	248	
1090	Ulvaria oxysperma f. wittrockii (Bornet) Bliding	308	579	248	
<b>1091</b>	<b>Ulvaria splendens (Ruprecht) Vinogradova, 1979</b>	<b>352</b>	<b>1091</b>	<b>248</b>	
<b>1092</b>	<b>Ulvella lens P.L. Crouan &amp; H.M. Crouan, 1859</b>	<b>368</b>	<b>1092</b>	<b>248</b>	
<b>1093</b>	<b>Ulvella repens (Pringsheim) R. Nielsen, C.J. O'Kelly &amp; B. Wysor, 2013</b>	<b>368</b>	<b>1093</b>	<b>248</b>	

## Taxon List

<b>1094</b>	<b>Ulvella scutata (Reinke) R. Nielsen, C.J. O'Kelly &amp; B. Wyszor, 2013</b>	<b>354</b>	<b>1094</b>	<b>248</b>	
<b>1095</b>	<b>Ulvella viridis (Reinke) R. Nielsen, C.J. O'Kelly &amp; B. Wyszor, 2013</b>	<b>356</b>	<b>1095</b>	<b>248</b>	
<b>1096</b>	<b>Ulvella wittrockii (Wille) R. Nielsen, C.J. O'Kelly &amp; B. Wyszor, 2013</b>	<b>358</b>	<b>1096</b>	<b>248</b>	
1097	<i>Ulvopsis grevillei</i> (Thuret) Gayral, 1964	314	703	248	
1098	<i>Urospora collabens</i> (C. Agardh) Holmes & Batters, 1890	362	1104	248	
1099	<i>Urospora isogona</i> (J. E. Smith) Batters	360	1101	248	
1100	<i>Urospora mirabilis</i> (J. E. Areschoug, 1866)	360	1101	248	
<b>1101</b>	<b>Urospora penicilliformis (Roth) Areschoug, 1866</b>	<b>360</b>	<b>1101</b>	<b>248</b>	
1102	<i>Urospora speciosa</i> (Carmichael) Leblond ex G. Hamel, 1931	330	1045	248	
1103	<i>Urospora vancouveriana</i> (Tilden) Setchell & N. L. Gardner, 1919	362	1104	248	
<b>1104</b>	<b>Urospora wormskjoldii (Mertens) Rosenvinge, 1893</b>	<b>362</b>	<b>1104</b>	<b>248</b>	
1105	<i>Urospora wormskjoldii</i> f. <i>vancouveriana</i> Tilden, 1900	362	1104	248	
<b>1106</b>	<b>Utricularia vulgaris L.</b>	<b>364</b>	<b>1106</b>	<b>47</b>	<b>2077</b>
1107	<i>Verrucaria rubra</i> Sommerfelt, 1826	130	618	248	
<b>1108</b>	<b>Vertebrata byssoides (Goodenough &amp; Woodward) Kuntze, 1891</b>	<b>166</b>	<b>1108</b>	<b>248</b>	
<b>1109</b>	<b>Vertebrata fucoides (Hudson) Kuntze, 1891</b>	<b>168</b>	<b>1109</b>	<b>248</b>	
1110	<i>Zannichellia dentata</i> Willd., 1805	46	1112	47	
1111	<i>Zannichellia major</i> Boenn. ex Rchb., 1829	46	1112	47	
<b>1112</b>	<b>Zannichellia palustris L.</b>	<b>46</b>	<b>1112</b>	<b>248</b>	<b>2007</b>
<b>1113</b>	<b>Zannichellia palustris ssp. palustris</b>	<b>46</b>	<b>1113</b>	<b>47</b>	<b>12391</b>
<b>1114</b>	<b>Zannichellia palustris ssp. pedicellata (Wahlenb. &amp; Rosén) Syme</b>	<b>46</b>	<b>1114</b>	<b>47</b>	<b>12392</b>
<b>1115</b>	<b>Zannichellia palustris ssp. polycarpa (Nolte ex Rchb.) K. Richt.</b>	<b>46</b>	<b>1115</b>	<b>47</b>	
1116	<i>Zannichellia repens</i> Boenn.	46	1112	47	
1117	<i>Zonaria plantaginea</i> (Roth) C. Agardh, 1824	246	873	248	
1118	<i>Zostera angustifolia</i> (Hornemann) Reichenbach, 1845	48	1120	248	

1119	<i>Zostera hornemanniana</i> Tutin, 1936	48	1120	248	
<b>1120</b>	<b>Zostera marina Linnaeus, 1753</b>	<b>48</b>	<b>1120</b>	<b>248</b>	<b>12393</b>
1121	<i>Zostera marina</i> var. <i>angustifolia</i> Hornemann, 1816	48	1120	248	
1122	<i>Zostera marina</i> var. <i>latifolia</i> Morong	48	1120	97	
1123	<i>Zostera nana</i> Roth, 1827	50	1124	248	
<b>1124</b>	<b>Zostera noltei Hornemann, 1832</b>	<b>50</b>	<b>1124</b>	<b>248</b>	
1125	<i>Zostera noltii</i>	50	1124	97	12394

# Authors

**Karin Fürhaupter** graduated in marine biology in 1996 and has been working for Marilim Aquatic Research with short interruptions ever since. As a research diver, the collection, processing and especially the species determination of macrophyte samples were among her main tasks for over 15 years and formed her expertise in marine macrophyte and biotope monitoring and assessment. She is active in numerous national and international marine expert groups. The idea for this distribution atlas came during her supplementary education in geoinformatics.

**Torsten Berg** graduated in marine biology in 1998 and started at Marilim the same year. He has done monitoring programmes and has processed benthos samples from the Baltic and the North Sea for over 10 years. He also has extensive expertise in software and database development, geographic information systems and statistical data analysis. His experience in handling large amounts of monitoring data of different formats, quality and geographical accuracy were crucial for the implementation of the publication.

**Thomas Meyer** founded Marilim Aquatic Research after his graduation in 1992. Since then, Marilim has become a thriving research and consultant company in the field of marine monitoring, applied research in marine conservation and environmental assessments. The atlas profits from the vast amount of monitoring data collected throughout the various projects Marilim has been involved in.

**Dr. Petra Schilling** graduated in biology in 1984 and has been working for the Federal Environment Agency as coordinator for quality assurance issues in marine monitoring since 1999. In this context, she is responsible for a variety of quality assurance measures such as taxonomic workshops and interlaboratory comparisons. Great attention is paid to the comparison of taxonomic results in surveys as well as to methodological approaches. Her interest in the distribution atlas was thus raised early on, especially as the person responsible for the common German list of marine taxa.

