

## SPECIES INFORMATION SHEET

## *Fucus vesiculosus*

English name: <b>Bladder wrack</b>	Scientific name: <i>Fucus vesiculosus</i>	
Taxonomical group: Class: Phaeophyceae Order: Fucales Family: Fucaceae	Species authority: Linnaeus 1753	
Subspecies, Variations, Synonyms: <i>Fucus vesiculosus</i> f. <i>balticus</i> (C. Agardh) Dannenberg 1927 (special unattached form of the Baltic)	Generation length: 2–5 years (Lüning 1985)	
Past and current threats (Habitats Directive article 17 codes): –	Future threats (Habitats Directive article 17 codes): –	
IUCN Criteria: –	<b>HELCOM Red List Category:</b>	<b>LC</b> <b>Least Concern</b>
Global / European IUCN Red List Category NE/NE	Habitats Directive: –	
Protection and Red List status in HELCOM countries: <u>Denmark</u> –/–, <u>Estonia</u> –/–, <u>Finland</u> –/–, <u>Germany</u> 3 (Vulnerable), part of a §30 biotope (Federal Nature Conservation Act), <u>Latvia</u> –/–, <u>Lithuania</u> –/4( Indeterminate), <u>Poland</u> –/–, <u>Russia</u> –/red-listed in Leningrad Region as EN, <u>Sweden</u> –/LC		

### Distribution and status in the Baltic Sea region

*Fucus vesiculosus* is widely distributed in the North Atlantic. Along the eastern Atlantic coastline it occurs from southern Greenland and White Sea down to North Africa. The distribution area within the Baltic extends from Kattegat into the Bothnian Bay and the species has been found in all riparian countries. The species has two different morphological forms in the Baltic: a typical epilithic and a special unattached form, which occurs in sheltered lagoons e.g. in Germany and Poland.

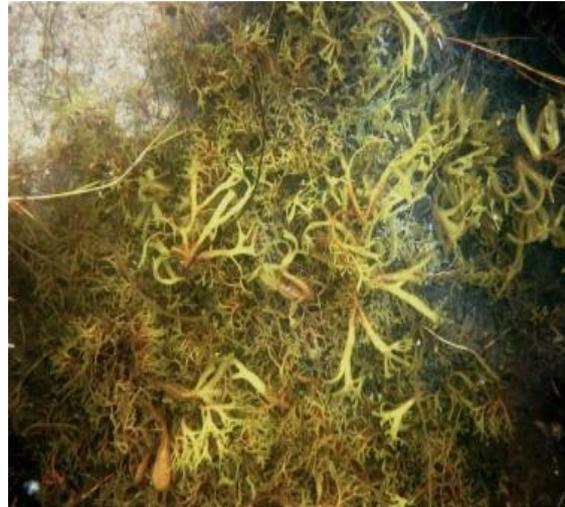
The bladder wrack is a widespread and common species throughout its distribution area. The current population in the Baltic Sea appears to be stable but population reductions have been documented in some regions 30–60 years ago. The declines were caused primarily by habitat destruction or reduced water transparency. In Sweden the species occurs frequently from the west coast up to the area of Umeå at the east coast, where the species can be found down to 14 m. In Denmark the species occurred historically frequently along the whole coastline on suitable substrate and can still be found at nearly all locations. In Germany the species occurred historically on stony bottoms down to 10 meters, but currently the species is never found deeper than 5–6 m, which has resulted in a remarkable decline in the area of occupancy. The decline started already in 1950s. The bladder wrack still occurs in a narrow band along most of the German coast but is missing today in some of the highly eutrophicated inner parts of bays and lagoons, such as the Schlei Fjord and the Darß-Zingst Bodden Chain, as well as in most of the eastern outer coastlines. In Poland *F. vesiculosus* existed as unattached specimens within the Puck Bay in the 1950s but got lost due to decreasing water transparency after that. In the 1980s it was not found anymore and it has not returned in the area since then. The bladder wrack has not been found from the outer coast of Poland and is also missing in the Kaliningrad area. For Lithuania only one record exist for *Fucus vesiculosus* in 1998 (Labanauskas, 2000), however, it is not clear whether it refers to attached specimens or just drifting individuals that may originate also outside of Lithuania. The bladder wrack has not been detected in any other survey after 1998. From the Latvian coastline some references exist for the Gulf of Riga. In Estonia *F. vesiculosus* can be found along the whole coastline. All historically known locations of bladder wrack still exist, except for some locations in the Gulf of Riga. Also in Estonia *Fucus* disappeared from the deepest areas about 30 years ago but currently there is no trend. The

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bladder wrack is also distributed in the inner Gulf of Finland at the Leningrad Region and the Berezovye Islands in Russia but there is no data on possible trends. In Finland the species occurs in the Gulf of Finland and the Archipelago Sea. In the distribution map the Finnish occurrence data is newer than 1995 as historical references could not be collected. The *Fucus* records from the Finnish Quark have been mainly classified to *Fucus* sp. and/or *Fucus radicans* and though *F. vesiculosus* exists there, it is uncommon compared to *F. radicans*.

From the Gulf of Riga *Fucus* almost disappeared but has reappeared more recently (Martin 2000, Torn et al. 2006). In Kaliningrad region the species has also occurred, but it is not known when it disappeared (most likely rather long time ago).



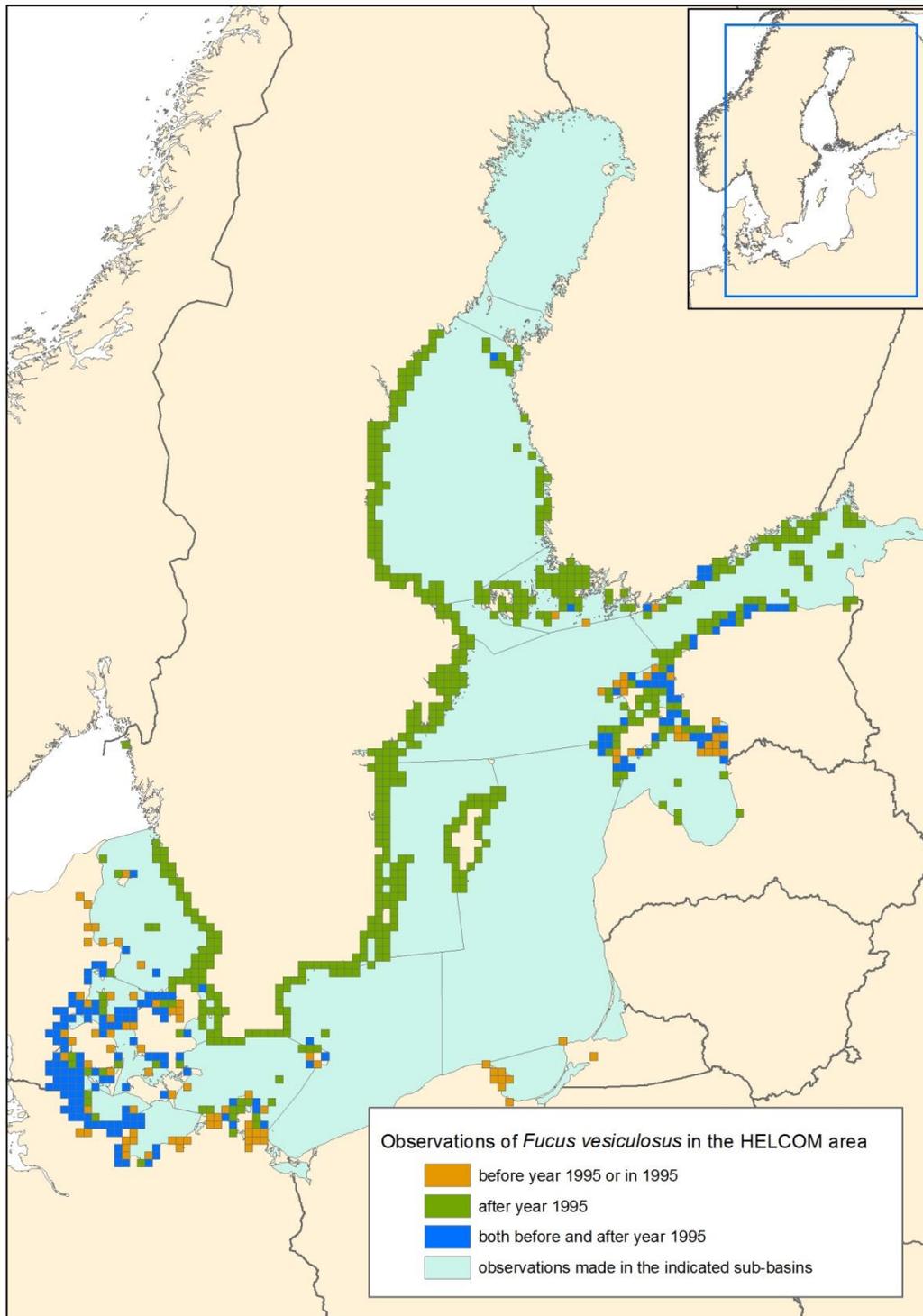
*Fucus vesiculosus* under water habitus of epilithic and special unattached form of the Baltic. Photos by Karin Fürhaupter, MariLim Aquatic Research GmbH.

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### Distribution map

The records of species compiled from the Danish national database for marine data (MADS), the database of Estonian Marine Institute (EMI), the German database for macrophyte occurrences (MARIDATA), the Finnish database for aquatic macrophytes (Finnish Environment Institute), data from the Finnish Metsähallitus and Alleco, Polish and Russian literature, the database of the Swedish Species Information Centre, Botanical Museum Lund (LD), and Uppsala Museum of Evolution Herbarium (UPS). For the Swedish coastline the continuous distribution area is mainly based on expert view.



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### Habitat and Ecology

The ecology of *Fucus vesiculosus* is very similar to *F. serratus* for the typical attached form. It grows epilithic on stable hard substrates like stony bottoms, boulder fields and rock. In contrast to *F. serratus* it can also be found on *Mytilus* shells and smaller mobile stones. It is a perennial macroalgae with a lifespan of 2–5 years and can grow in salinities down to about 2–3 psu. Compared to *F. serratus* it grows in shallower habitats (hydrolittoral), which may also become dry temporarily. Thus the species tolerates icing and drying to a certain degree. The lower depth limit of *F. vesiculosus* is set by light intensity and is used as an indicator for the ecological status in the EU Water Framework Directive (WFD) in several countries. The bladderwrack was previously found down to 15 m depth in the Baltic. However, at present dense meadows occur in such depths (down to 14 m) only in Sweden but in other Baltic Sea countries the maximum depth limit has shifted considerably upwards. In Germany it is currently seldom found deeper than 2–4 m, although single individuals occur down to 6 m depth. In Estonia the bladder wrack has also disappeared from the deepest parts of its habitats. Similar to *F. serratus* the *F. vesiculosus* meadows also form an important biotope for invertebrates and stationary fish (e.g. black goby or scorpion fish) and serve as spawning and nursery ground for other fish species. As *F. vesiculosus* is more widely distributed, grows taller and has erect canopy structure in contrast to *F. serratus*, its relevance in habitat forming can be regarded higher.

The unattached form *Fucus vesiculosus* f. *balticus* can be found on soft bottom (sand to muddy sand) in very sheltered bays, lagoons and inlets at depth ranges between 0.25 and 2 m. It coexists with attached *F. vesiculosus*, unattached *Furcellaria lumbricalis* and the characteristic rooted vegetation of bays and lagoons (e.g. *Ruppia* spp., *Zannichellia palustris*, *Potamogeton pectinatus*, *Zostera* spp. and several charophytes) and serves as an important habitat for invertebrates. However, if abundances of the unattached form are very high the sediment below becomes deoxygenated and the associated infauna may die.

### Description of major threats

Not a threatened species at the scale of the whole Baltic Sea. Local and regional historic declines have been caused by e.g. habitat destruction (stone fishing on the German and Poland coast) and decreasing water transparency due to eutrophication.

### Assessment justification

The bladder wrack is a widespread, common and abundant species. However, it was included in the previous HELCOM list of threatened and/or declining species (HELCOM 2007). The extent of occurrences (EOO) is estimated to 702 000 km<sup>2</sup>. The area of occupancy (AOO) exceeds very clearly the threshold of 4 000 km<sup>2</sup> given in the criteria. For generation time the estimate of Lüning (1985) for life span was used (2–5 year) to be sure that the evaluated time-period is long enough. Reductions of bladder wrack have been reported from all riparian countries. However, the declines occurred already 30–100 years ago and thus clearly predate the time-period of the population decline evaluation. Over the last 10 years the overall population appears to have remained stable. The species is categorized as Least Concern (LC).

### Recommendations for actions to conserve the species

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### Common names

Denmark: blæretang, Estonia: põisadru, Finland: rakkolevä, Germany: Blasentang, Latvia: –, Lithuania: pūslėtasis guveinis, Poland: morszczyzn pęcherzykowaty, Russia: –, Sweden: blåstång

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