

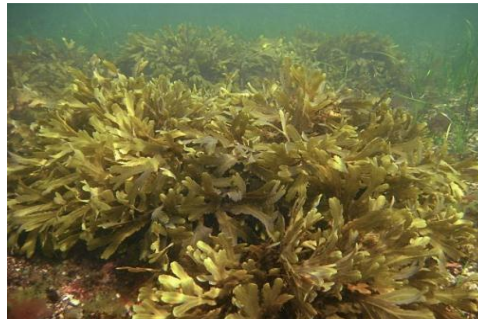
SPECIES INFORMATION SHEET

Fucus serratus

English name: Serrated or toothed wrack	Scientific name: <i>Fucus serratus</i>	
Taxonomical group: Class: Phaeophyceae Order: Fucales Family: Fucaeeae	Species authority: Linnaeus 1753	
Subspecies, Variations, Synonyms: –	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: –	HELCOM Red List Category:	LC Least Concern
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> protected as part of a §30 biotope (Federal Nature Conservation Act)/ 2 (Endangered), <u>Latvia</u> –/–, <u>Lithuania</u> –/–, <u>Poland</u> –/–, <u>Russia</u> –/–, <u>Sweden</u> –/LC		

Distribution and status in the Baltic Sea region

Fucus serratus is widely distributed in the northern Atlantic. In the western Atlantic it only occurs in the Gulf of St. Lorenz but along the European Atlantic coastline its distribution reaches from the White Sea south to northern Portugal. Within the Baltic Sea it occurs frequently in the western parts and to a limited degree in the central areas up the island of Gotland. Records are restricted to Sweden, Denmark and Germany.



Fucus serratus. Photos by Karin Fürhaupter, MariLim Aquatic Research GmbH.

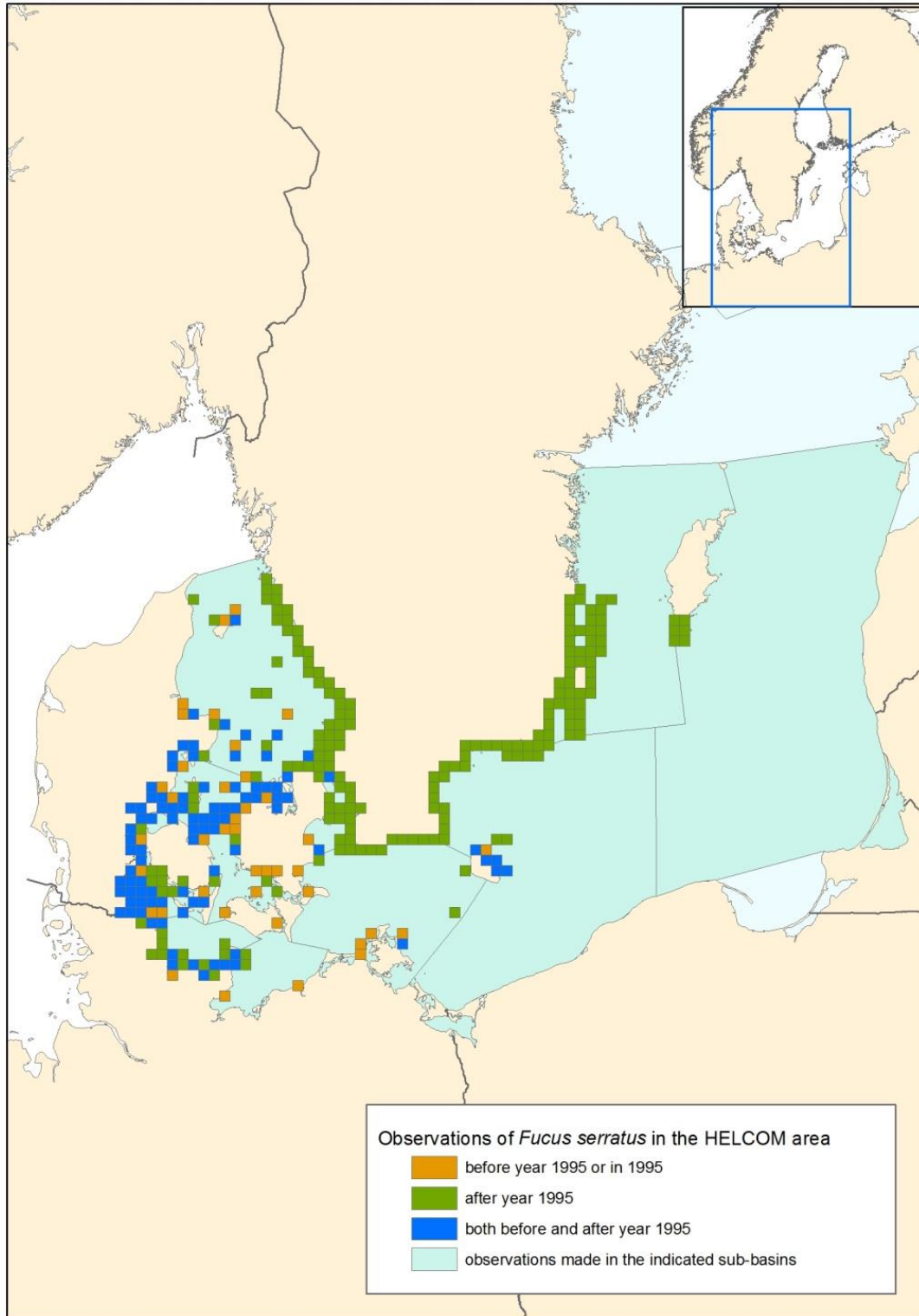
The species is widespread and common throughout its main distribution area. In recent decades the population appears to have been stable or even increasing in some areas. Population declines due to habitat destruction or reduced water transparency have been documented in several regions in the Baltic Sea but they occurred more than 30–60 years ago. In Sweden recent records indicate an increasing trend along the west-coast and stable occurrence in the rest of the Swedish distribution area. In Denmark the species was historically frequent on all stony bottoms and it can still be found in suitable habitats along almost the whole coast of Denmark. However, it appears to have disappeared from its former most southern locations in Denmark. In Germany the species occurred historically along the entire German Baltic coastline and on open water reefs down to 15 meters. Currently the vertical distribution is limited to about 6 m and the species has disappeared from most of the eastern locations in Mecklenburg Bay and Arkona Basin as well as from most open water reef areas. The decline started already in 1950s and the most drastic changes have probably happened during the 1970s. In Germany the overall historical decline in the area of occupancy is about 50%.

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Distribution map

The records of species compiled from the Danish national database for marine data (MADS), the German database for macrophyte occurrences (MARIDATA), the database of 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

Fucus serratus grows epilithic on stable hard substrates like stony bottoms, boulder fields and rocks. It is a perennial macroalgae with lifespan of 2–5 years. As a marine species, it can grow in salinities down to 8–10 psu. In the Baltic Sea, the species tends to grow deeper in the more northern areas due to the higher salinities occurring in deeper waters (submergence). In contrast to other marine regions (e.g. Helgoland), *F. serratus* does not grow in the intertidal or the uppermost sublittoral zone in the Baltic.

The lower depth limit of *F. serratus* is used as one of the indicators for the ecological status in the WFD (Water Framework Directive) in several countries. Historically the species was distributed vertically between 5 and 15 m. Reduced water transparency has eliminated the species from deeper areas with a remarkable loss in the total population. The decline is more pronounced in the east where *F. serratus* cannot shift to shallower areas due to too low salinities.

Usually *F. serratus* forms monotypic dense meadows but can also grow mixed with *F. vesiculosus*. Smaller red algae such as *Ahnfeltia plicata*, *Furcellaria lumbricalis* or *Coccotylus truncatus* can be found underneath the large brown algae, forming a kind of scrub. The surface of *F. serratus* thallus can be overgrown by filamentous epiphytes. Isopods are using the filamentous epiphytes as well as the *Fucus* itself as food source. The *Fucus* meadows form an important habitat for invertebrates and stationary fish, e.g. black goby and scorpion fish, and serve as spawning and nursery environment for many other fish species.

Description of major threats

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

Assessment justification

Fucus serratus is a widespread and in most areas a common and an 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 142 000 km². The area of occupancy (AOO) is more than > 4 000 km². Those values exceed clearly the thresholds given in the Red List criteria. For generation time the reference from Lüning (1985) for life span is used (2–5 year) to be sure that the evaluated time-period is long enough. Declines of *F. serratus* have been evidenced in many areas, but they took place already more than 30 years ago. During the last 10–20 years, the overall trend in the western Baltic Sea has been more or less stable or even increasing. Along the west-coast of Sweden the depth distribution has increased during the last few years. However, a large proportion of its former distribution area has been lost in Kiel Bay, Mecklenburg Bay and Arkona Basin. At the level of the whole Baltic Sea the species is categorized as Least Concern (LC).

Recommendations for actions to conserve the species

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Common names

Denmark: savtang, Estonia: –, Finland: sahalaitalevä, Germany: Säge tang, Latvia: –, Lithuania: šakotasis banguolis, Poland: morszczyn piłkowany, Russia: –, Sweden: sågtång

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References

- Lüning, K. 1985. Meeresbotanik. Verbreitung, Ökophysiologie und Nutzung der marinen Makroalgen. Thieme Verlag Stuttgart, 375 pp.
- Lindgarth, M. 2009. *Fucus serratus* (Linnaeus 1753), (Phaeophyta) Toothed wrack. HELCOM Fact sheets on threatened and/or declining species and biotopes/habitats.
- MADS, The Danish national database for marine data. NERI: University of Aarhus; National Environmental Research Institute. Downloaded in August–September 2010.
- MARIDATA, the database of MariLim GmbH including all German literature references given in Nielsen (1995), Blümel et al. (2002), Schubert et al. (2003), Kiel herbarium references and all occurrences of the German HELCOM, BSPA and WFD monitoring.
- MarLIN, The Marine Life Information Network - information to support marine species and habitat conservation, sustainable management, protection and planning (www.marlin.ac.uk)
- Schories, D., Härdle, E., Kaminski, E., Kell, V., Kühner, E. & Pankow, H. 1996. Rote Liste und Florenliste der marinen Makroalgen (Chlorophyceae, Rhodophyceae et Fucophyceae) Deutschlands. In: Merck, T. & H von Nordheim (eds.). Rote Listen und Artenlisten der Tiere und Pflanzen des deutschen Meeres- und Küstenbereichs der Ostsee. Schriftenreihe für Landschaftspflege und Naturschutz, 48. Bundesamt für Naturschutz (BfN): Bonn, Germany. ISBN 3-89624-104-4. 108 pp.