Sargassum muticum
Japanese seaweed, wireweed

Potential Invader

Sargassum muticum underwater during high tide

Kevin Britton-Simmons

Sargassum muticum exposed on rocks during low tide

Luis A. Solorzano / californiabiota.com

PHYSICAL DESCRIPTION

- Golden-brown alga with alternating, leafy branches off central stipe
- Pea-size, air-filled floats (vesicles) on branches amid leaf-like blades
- Fertile branches have elongate reproductive organs (receptacles)
- Central stipe grows from a disc-shaped holdfast
- Floats upright when completely submerged, then drapes in thick mat across intertidal rocks at low tide
- Often grows over 3 ft (1 m)
- Reduced to holdfast structure during winter months

Sargassum muticum

Left: Stalk of mature individual
Below: Close-up of a fertile branch

alternating branches

central stipe

air-filled vesicles

reproductive organs (receptacles)

air-filled vesicles

disc-shaped holdfast

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HABITAT PREFERENCE

- Found attached to rocky or cobble surfaces in lower intertidal and shallow subtidal zones
- Prefers calm sheltered bays, particularly in physically disturbed areas

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INVASION STATUS & ECOLOGICAL CONCERNS

Sargassum muticum is a native of the Sea of Japan but now occupies most areas of North America's Pacific Coast and Europe's Atlantic Coast. Likely methods of introduction include ship ballast water, ship hull fouling, and hitchhiking on commercially transported shellfish. Once introduced, *S.muticum* spreads rapidly, largely a result of its very effective methods of reproduction. Each individual algae contains both male and female reproductive parts (within the receptacles), facilitating easy reproduction within a single season. This species is also quite resilient. Broken fronds can survive for months, often reproducing during this period. In fall, when waters become colder, *S. muticum* 's fronds die off, leaving behind the holdfast. This holdfast will over-winter and begin rapid growth again in early spring.

The ecological impact of *S. muticum* is not fully known. However, in places where this invader is well established, it reduces the abundance of native alga and eelgrass by shading. When attached to shellfish, the bouyancy of this algae has been strong enough to lift the molluscs and set them adrift, giving cause for some to describe this algae as an "oyster thief". Although *S.muticum* does provide cover for many species and serves as food for others, it is typically not eaten by sea urchins, a fact that aids its ability to outcompete many native algal species that sea urchins readily consume.

SIMILAR SPECIES   Other *Sargassum* species

Should this species be discovered on New England shores, it is most likely to be mistaken for ***Sargassum filipendula***, which is found in southern New England. Like *S. muticum*, *S. filipendula* is found attached to rocks and shells in the subtidal zone to 90 ft (30 m). However, *S. filipendula* has small dark spots on its blades and has longer blades than *S. muticum*.

Other *Sargassum* species include *S. natans* and *S. fluitans*, which comprise the algal rafts that occasionally drift into the Gulf of Maine's offshore waters, carried by currents from the warmer waters of the tropics. It is important to note that these free-floating species differ from *S. muticum* and *S. filipendia* in that the latter must be attached to the bottom by a holdfast to survive.

CZM