

Wireweed

(*Sargassum muticum*)



Family name: Sargassaceae
Common name/s: Wireweed, Japanese Wireweed, Asian Seaweed



Wireweed (*Sargassum muticum*) is an invasive brown seaweed known for its rapid growth and ability to form dense underwater forests. In Ireland, it poses a significant threat to native marine ecosystems by outcompeting local seaweed species and altering the structure of marine habitats. The plant primarily spreads through fragmentation and human activities, making management difficult.

Control measures include mechanical removal, monitoring for early detection, and preventative actions to limit its spread. If left unmanaged, Wireweed can significantly impact biodiversity, disrupt marine ecosystems, and affect coastal activities.

Description - Wireweed is a large, fast-growing brown seaweed noted for its long, wire-like fronds and air-filled bladders that help it float. It has become an invasive species in many parts of the world, including Ireland.

Wireweed can grow rapidly and form dense underwater forests that outcompete native seaweeds, disrupt local ecosystems, and impede water activities.

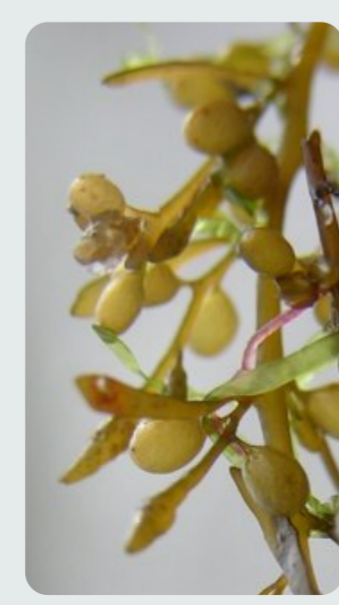
Key characteristics include:

Size: Can grow up to 10 metres in length, although more commonly reaches 1-3 metres in most regions.



Fronds: The fronds are long, narrow, and wiry, with a branching structure that can form dense, tangled mats.

The main frond arises from a central axis and can have numerous side branches.



Air Bladders: The plant has small, round air bladders attached along the fronds, which provide buoyancy and help the plant float towards the water surface for maximum light exposure.

Holdfast: The holdfast is a root-like structure that anchors the seaweed to rocks or other hard surfaces, allowing it to withstand strong currents.



Reproductive Structures: Reproduces through small, oval reproductive structures located on the branches. These structures release reproductive cells (gametes) directly into the water.

Habitat - Wireweed is native to the northwest Pacific Ocean, including the coastal regions of Japan, Korea, and China. In its introduced range, it can be found in various coastal habitats:

- **Rocky Shores and Reefs:** Commonly grows on subtidal rocky substrates, attaching to rocks, reefs, and artificial structures such as piers, boat hulls, and aquaculture equipment.
- **Sheltered Bays and Harbours:** Thrives in sheltered coastal areas, such as bays and harbours, where the water is calm and nutrient levels are high.
- **Forests:** Can invade areas occupied by native kelp and other seaweed species, potentially disrupting local ecosystems.

The species prefers temperate waters, with temperatures ranging from 5°C to 25°C, and can be found from the intertidal zone down



to depths of 20 metres or more.
Status in Ireland - In Ireland, Wireweed is considered an invasive species, having been introduced through shipping, aquaculture, and recreational boating.

It poses a threat to native marine ecosystems by forming dense underwater forests that outcompete native seaweeds, alter the structure of marine habitats, and affect local biodiversity.

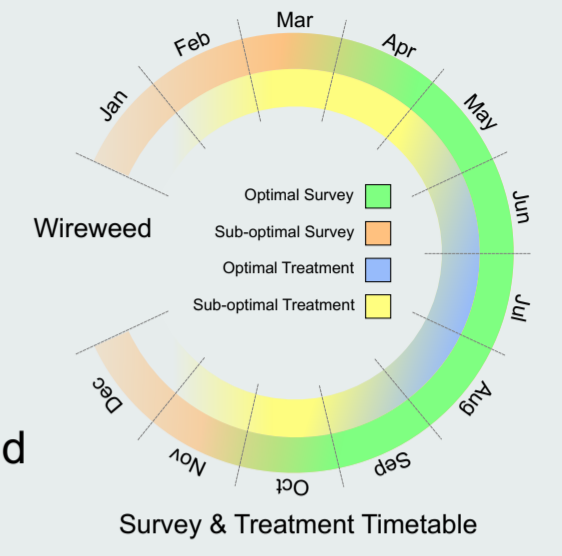
Reproduction and Spread - Wireweed spreads through both sexual reproduction and vegetative fragmentation, with high dispersal potential:

- **Fragmentation:** The plant can easily break into fragments, and even small pieces can regenerate into new individuals, aiding its spread.
- **Reproductive Structures:** Releases reproductive cells into the water, which settle and grow into new plants, allowing it to rapidly colonise new areas.

- **Human Activity:** The species can spread via hull fouling, ballast water, and aquaculture equipment, leading to colonisation in new regions.

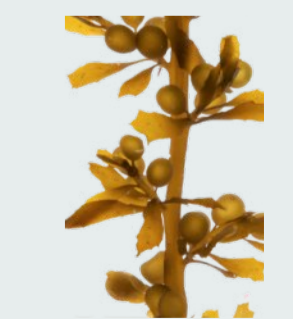
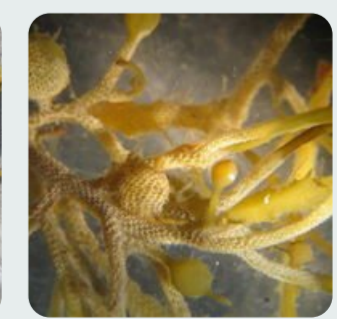
Management and Control - Controlling Wireweed is challenging due to its rapid growth, ability to reproduce from fragments, and widespread distribution. Management strategies include:

- **Mechanical Removal:** Manual removal or cutting can help reduce biomass in small infestations, but all fragments must be removed to prevent regrowth. Regular monitoring is required to manage regrowth and maintain control.
- **Preventative Measures:** Cleaning boats, aquaculture equipment, and fishing gear before moving between coastal areas can help prevent the spread of Wireweed fragments. Monitoring high-risk areas, such as harbours and aquaculture facilities, can help detect early infestations.
- **Biological Control and Chemical Methods:** There are currently no widely accepted biological or chemical control methods for Wireweed.



Ecological Impact - Wireweed can have significant ecological impacts, especially in areas where it becomes invasive:

- **Competition with Native Species:** Forms dense underwater forests that outcompete native seaweeds and marine flora, leading to a reduction in biodiversity.
- **Alteration of Marine Habitat:** The dense growth can disrupt local ecosystems, affecting species that rely on native seaweed for food, habitat, and breeding grounds.
- **Impact on Aquaculture and Recreation:** Can foul aquaculture structures, boat hulls, and other submerged surfaces, increasing maintenance costs and interfering with recreational water activities.



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