

Asian Kelp

Undaria pinnatifida

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Pathway • Aquaculture • Ballast waters • Hull fouling

Impacts



Biodiversity

Can quickly form dense forests and displace native species and habitats. The kelp can reduce the available food for local grazers and impact native populations, but it can also repopulate areas that have been decimated by grazers or been harvested by seaweed farmers.



Human Health

None known.



Economy

Could increase operations costs for aquaculture through fouling of cages. It could also impact tourism through reduction of the aesthetics of areas which are frequently used by recreational divers.

Key ID Features



Description

This kelp has claw-like holdfasts that attach the plant to rocks. The stipe of the kelp, which is attached to the holdfast, has a corrugated, ruffled appearance due to the sporophylls, the reproductive organs of the kelp. The stipe bears the blade of the kelp, a broad lance shaped main blade with finger-like leaflets growing in pairs. The blade grows either side of the midrib, a central thickening that continues from the stipe. The midrib is up to 3 cm wide and the stipe is usually a paler colour than the blade.

Size

1 - 2 m but can reach up to 3 m in length.

Colour

Dark green-brown to brown.

*Note: Images not to scale



Distribution

Native range: : Countries that border the northwest Pacific including Japan, Korea, China and Russia.

Non-native range: The Mediterranean Sea, France, Italy, Spain, UK, New Zealand, Australia, California and Mexico.



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Habitat and Ecology

Habitat: Typically attaches to rocks in sheltered, temperate waters at depths of 8 - 20 m. This kelp can grow on any hard surfaces including rope, hulls, buoys, floating plastics, cobbles and shells. It can quickly form dense forests and displace native species and habitats.

Environmental preferences: It can tolerate temperatures 10 - 18°C and, unusually for kelps, the microscopic zoospores (see section below on reproduction) can become dormant in high temperatures to allow them to survive. It grows in salinities of 20 - 37 PSU although prefers higher salinity. Few species feed on this kelp, with a few species of fish, sea urchins and snails being the exceptions. If the conditions are favourable, the kelp can grow up to 3 m in a single year, with an average growth rate of 1 cm per day.

Reproduction: The Asian kelp has 2 distinct life stages. The adult kelp annually releases microscopic swimming zoospores. These microscopic zoospores then swim, settle on a hard substrate and begin to grow. When the temperature reaches 25°C they become dormant until the temperature drops again in the Autumn. At this point the microscopic male plants release the sperm which fertilise the eggs of the female plants. The large sporophytes develop directly from the fertilized eggs.

Confusion with similar species

There are no similar species within the south-east Atlantic region. Key distinguishing features are the wavy sporophyll and the midrib which is thicker than the stipe.

Images

Front: All images © Francis Bunker

If you think you have seen this species, please contact the person below who will confirm its identity.

Please also refer to the mitigation strategies guidance document, provided as part of the Marine Biosecurity Toolkit.

Further Information

- <http://issg.org/database/species/ecology.asp?si=68&fr=1&sts=%20ang=TC&ver=print&prtflag=false>
- http://www.seaweed.ie/descriptions/Undaria_pinnatifida.php
- [Bunker, F., Maggs, C., Brodie, A. \(2017\) Seaweeds of Britain and Ireland. Second edition. Wild Nature Press, Plymouth, UK.](#)

