Evidence for Non-native Seaweeds in Wales

Katherine Slade
Twitter: @lthtree Email: katherine.slate@museumwales.ac.uk
Amgueddfa Cymru–National Museum Wales, Cathays Park, Cardiff, CF10 3NP

Seaweeds as key species in marine ecosystems

Often the dominant intertidal lifeforms, seaweeds act as primary producers, forming habitats and physically shaping the shore. They are environmental indicators for climate change - their distributions affected by sea temperatures and ocean acidification.

Non-native species are established in British waters at an increasing rate, especially in the last 50 years, due to climate change, shipping and aquaculture:

- In 1997 15 non-native seaweeds had been recorded (Eno et al., 1997).
- By 2012 42 non-native seaweeds or 6% of the flora were known (Brodie et al., 2012).

Their effects range from insignificant to highly invasive (with a detrimental effect on the environment or species).

Arrival of non-native Species in Wales

- Invasive species are shaded.
- Non-native species for which further data are needed have been excluded.

[Table showing spread of non-native seaweeds in Wales]

Documenting threats to marine habitats

Seaweeds are under-recorded, good quality data are urgently needed to catalogue the fast changing marine flora:

- Records with voucher specimens are verifiable evidence of species' existence in space and time.
- This helps evaluate species' native and invasive status, its taxonomy and distribution.

Non-native seaweeds in Wales

Wales’ unique biogeographical position, where warm southern waters and cold nutrient-rich northern waters meet, makes it an excellent region to study changes in species distribution.

Wales has:

- over 80% of the 650 British seaweed species
- 22 non-native seaweeds
- 8 invasive non-native seaweeds
- 3 new non-native seaweeds since 2009:
  - Caulerpa racemosa
  - Dasyphyllia japonica
  - Undaria pinnatifida

Early Walsh records in Amgueddfa Cymru-National Museum Wales (NMW)

revealed by the Seaweed Collections Online Project

Cadmium fragile subsp. fragile (tomentosides strain)

This specimen collected in 1987 predates the previously known first Welsh record of 1993. However, a study of herbarium material makes the introduction date to Britain and Ireland from 1939 to 1945 (Provan, 2007). Specimens in NMW need reinvestigation to inform on its arrival and spread in Wales.

References

[List of references]

[Diagram showing spread of Sargassum muticum in Wales]

[Table showing arrival of non-native species in Wales]

[Map showing sites of first Welsh records for non-native species]

Help fill the gaps in the NMW collection

If you are interested in contributing records and depositing voucher specimens, especially Welsh and non-native species, please contact katherine.slate@museumwales.ac.uk.

References

[List of references]