

What is beach wrack?

Beach wrack or beach-cast wrack commonly found along beaches is a natural phenomenon that occurs all around the world. Beach wrack is the accumulation of organic material that is washed up onto the beach by the tides, wind and waves that eventually breaks down and is recycled back into the system (Macredie et al. 2017).

Whilst the majority of the wrack found includes seagrass or algae, it also includes various other marine organisms both dead and alive including sponges and crustaceans of all sizes. Marine and land based debris is also commonly found amongst beach wrack that is found washed up on South Australian beaches.

The composition and amount of beach wrack that is found on your local beach is a result of what is growing in the near-shore environment. For example in the South-East near Kingston, the large amounts of beach wrack on the beach during the winter months is a result of the vast seagrass meadows that occur offshore. In contrast, the relatively closed beaches near Robe typically have beach wrack which is dominated by macroalgae.

Whether it is part of their natural cycle or dislodgement as a result of recent storm activity, any loose material can get transported onshore by local current and swells where significant proportions may end up being cast upon beaches.

Ecological importance

Beach wrack is considered to be an essential component of the coastal ecosystem and provides many ecosystem services. When the organic material decomposes and breaks down it contributes to the coastal and marine food web systems by supplying essential nutrients. It also supports microbes and other smaller organisms that are utilised by plants and fish including important commercial fishery species.

Wrack also supports other important animal communities including resident and migratory shorebirds. In South Australia, 40 species of birds have been recorded utilising beach-cast wrack in some way including for nesting, shelter and food (McCulloch 1996). Shorebirds such as the hooded plover (*Thinornis rubricollis*), pied oyster catcher (*Haematopus longirostris*) and the migratory ruddy turnstone (*Arenaria interpres*)

are often found foraging on the exposed beaches during low tide and sheltering amongst the abundant beach wrack deposits during high tide (Christie and Jessop 2007, Campbell and Anderson 2007).

The presence of beach wrack on the beach also contributes to the protection and stabilisation of the shoreline and coastal dunes by serving as a physical barrier between the sea and the dune system. This is achieved by effectively reducing the amount of wave energy that reaches the toe of the dune and providing a degree of protection to the foreshore. In particular, the seagrass component of the beach wrack due to its fibrous composition is thought to contribute to and enhance the formation and stabilisation of coastal sand dunes by acting as a trap that binds drifting sands and reduces sand erosion during winter (PIRSA 2014).

The cycle

Although large amounts of beach wrack can occupy much of the beach at certain times of the year, accumulations are considered to be highly transient. Often being removed from the beach by natural processes within a relatively short period of time and back into the system to contribute to the complex ecological chain in the coastal and marine environments.



Image: Beach wrack accumulation at Kingston, South-East Australia
Source: DEWNR



Current management

It is generally preferred that beach wrack is left in place in the coastal environment. However, it is acknowledged that in some situations the presence of large amounts of wrack may create a hazard or negatively affect the amenity of an area. Consequently, local councils or land owners may wish to move or remove wrack from those beaches.

In these cases, the Department of Environment, Water and Natural Resources (DEWNR) will work with the third party to ensure that the proposed management strategy is sustainable and will not negatively impact on the surrounding environment and its inhabitants.

Community members also occasionally express interest in collecting wrack for their own purposes including for fertiliser or mulch. Councils generally have care, control and management of beaches and some have by-laws regarding the collection of material from beaches or public land. Community members are encouraged to contact their local government authority to request approval for this activity. Similarly, council staff are encouraged to contact DEWNR for advice on any proposals to ensure that the proposed activity is appropriately managed and any potential impacts on threatened species or coastal processes are effectively managed and mitigated.

It is important to note that the harvesting of beach wrack for commercial purposes is regulated and requires permission and licensing from the Department of Primary Industries and Regions, South Australia (PIRSA).

Sources

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Image: Beach wrack accumulation in Robe, South-East Australia
Source: DEWNR

For more information

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