

Sustainability

Marine Debris, Pollution & Other Human Impacts

Marine debris and pollution are harmful rubbish and substances that can be found in oceans and coastal environments. They can originate either from land-based sources such as beach users, sewage outlets and landfill sites or from marine-based sources such as recreational and commercial fishing vessels and marine related industries. This is a huge threat to the world's oceans with plastics representing the majority of marine debris found. Marine debris and pollution is hazardous to marine life, swimmers, ships, beach users and divers. It affects marine life directly due to entanglement and ingestion which can be fatal and in turn impacts severely on marine food webs.

It is important to maintain Western Australia's marine and coastal environments as they are very unique, diverse and fragile. They have also highly influenced and shaped our culture, lifestyle and economy. Sustainability practices are vital for maintaining a balance of the marine ecosystem due to human impact. Marine sustainability is defined as using the ecosystem and its resources to satisfy human needs without damaging the needs or options for future generations. Within Western Australia there is high opportunity and demand for aquaculture companies to achieve productivity level whilst ensuring natural resources are healthy and resilient. Sustainability practices can include fishing for the future management strategies and disposing of harmful substances and debris in an environmentally friendly way.



Always dispose of your rubbish correctly!



Mandurah Examples

A large threat to our waterways and marine life is habitat deconstruction by human impact. Mandurah has made big changes to its waterways in recent years. Both the marine life and the environment have been affected. An example where this has occurred is the development of the Mandurah Ocean Marina. This area was previously called 'Dolphin Pool' because the local dolphins would go there to herd up the fish into the shallow little beaches where they couldn't get away. It was an easy way for them to get their meals, however there are now a few more obstacles in their way. In this case unfortunately the dolphins' feeding grounds were affected due to human activities and they were forced to adopt new feeding locations.



Mandurah Examples Continued...

Mandurah's Creery Wetlands cater to a variety of plants, invertebrate, reptiles, fish and birds. One bird in particular, the osprey, was affected directly by human activities. Their large nest was located on the water's edge near construction for new housing. Instead of demolishing the nest, a substitute tree (a tall pole) was placed nearby and their nest carefully moved to on top of this pole, away from human intervention. This sustainable move was important to minimise environmental destruction, maintain the osprey population in the area and maintain the ecosystem biodiversity.

Erosion & Tide

Erosion

Erosion can be caused by natural factors or human actions and is described as the permanent loss of land formations. Natural causes include increases in wave height and angle towards the shore line, reduction of sediment delivered to the coastline and rising sea levels that can result in greater wave energy. Human-created causes of erosion include the misuse of pathways along the coastline, taking large amounts of sand or vegetation from beaches, boat wash, removal of coral from reefs and construction of man-made structures. As South Western Australian coastlines are prone to erosion, various measures are being taken to minimise its short and long term effect on the environment. Measures include the removal of buildings, paths and roads too close to the coastline as well as the build-up of the coastline using large amounts of sand or rocks. The Port Bouvard development built an effective long-term strategy to minimise erosion which included the construction of a training wall and permanent sand bypassing system. On the Mandurah coastline a number of groins were constructed to prevent beach erosion and to trap sand that would otherwise drift along the beach. These long, narrow sand and rock structures work efficiently although don't stop coastal erosion entirely. In Mandurah's waterways there are speed restrictions, not only for safety reasons in high traffic areas, they are also to prevent bank erosion from boat wash and loss of fringing vegetation.

Tide

Tides are the rise and fall of sea levels in response to the forces applied by the moon and sun and the rotation of the earth. Tides are known as very long-period waves and can influence marine life and human activities. Life cycles, feeding patterns and habitats for marine animals are all affected by tidal changes. Humans are negatively affected by tidal movements that leave boats stranded on shores at low tides and flooding of buildings, bridges and wharfs, as well as positively affected with tides generating energy.

In Mandurah, the change of tides is evident by stains visible on canal walls and rock walls along the waterways as well as the enforcement of strict building regulations to avoid flooding of homes on the canals. Boating maps and documented tidal patterns and tide tables are also available for people to avoid their boats becoming stranded. In the past the entrance to the Mandurah estuary would get bogged up with sand due to tidal flow. To prevent this from occurring large sand bypassing machines are used to keep the channel entrance open and prevent any accidents occurring there.

