

A seawall created at Bobbin Head, Hawkesbury River estuary, which has a gentle slope and a variety of habitats including pool areas.



A seawall at McMahon's Point, Sydney Harbour, with pools built into the wall for added habitat.

How to make your **Seawall** more environmentally friendly



Are you planning to build a new seawall
or to upgrade an existing one along an
estuary foreshore?

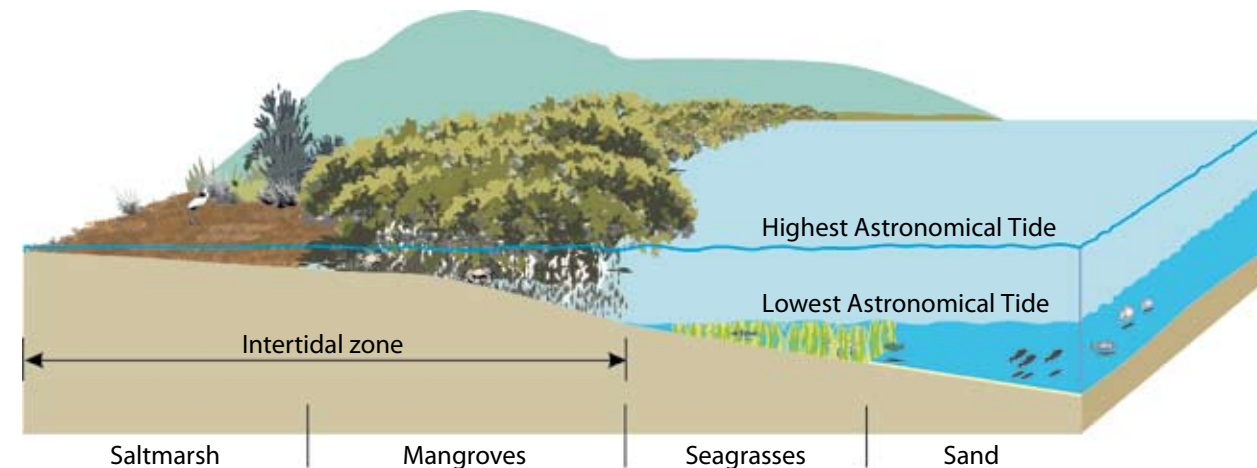
Find out how you can design your seawall
to reduce erosion while improving its value
to plant and animal life.
Your seawall could be fish habitat!

Impacts of seawalls

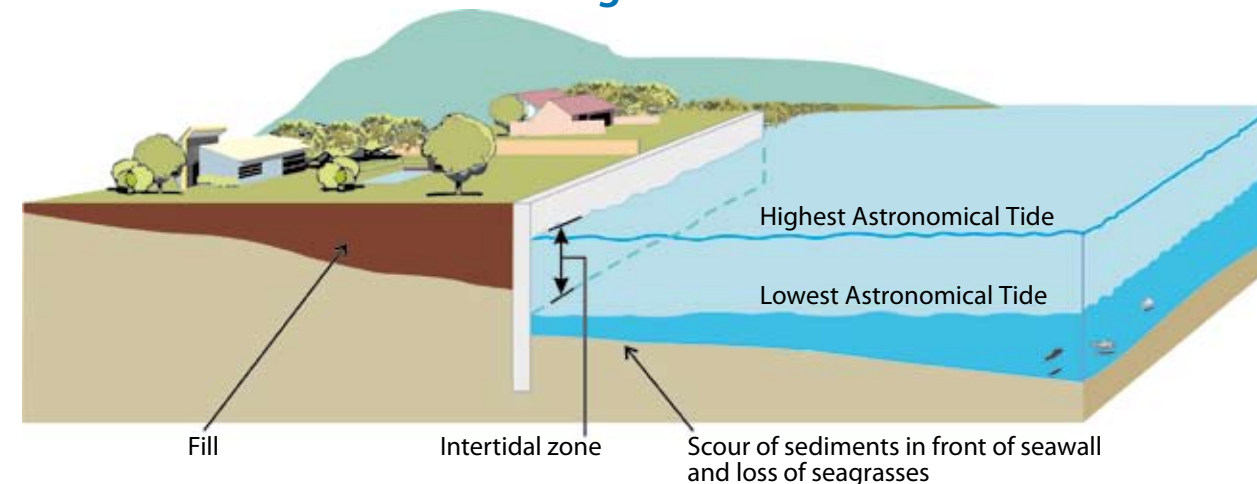
When seawalls are built using traditional methods, they typically result in damage to or loss of important habitats such as saltmarsh, mangroves and seagrass beds. These habitats are vital to many animals, such as fish and shorebirds, providing food and shelter. Seawalls are also poor replacements for natural foreshores because:

- the types of habitat and area available to plant and animal life are reduced dramatically (see diagrams below)
- the ability to filter pollutants from runoff is lost, leading to poorer water quality
- they can change flow and wave patterns, resulting in deepening in front of the seawall and erosion further along the shore.

Natural intertidal foreshore



Intertidal foreshore after building a seawall



Do you even need a seawall?

If you have an eroding bank, start by investigating ‘softer’ options to stabilise it. These can include the use of native foreshore and estuarine vegetation, with or without temporary structures to protect it during establishment.

As an example, use temporary wave barriers and estuarine vegetation such as mangroves to stabilise the shore. The wave barriers provide a protected area for mangroves or other suitable species to grow. When the mangroves are established, they protect the bank from waves and currents that cause erosion. Temporary fencing can then be removed. Native foreshore vegetation planted on the bank provides further bank stabilisation.



Mangrove seedlings planted in front of an eroding bank along the Shoalhaven River, with the use of temporary mesh fencing as a wave barrier. **Photo:** Allan Lugg, Department of Primary Industries.

Before you begin

Consider your options and seek advice
Design options required to create an environmentally friendly seawall will vary from site to site and will require a combination of site-specific approaches. Always seek professional advice from government agencies and environmental engineering consultants to determine which option is best for your situation, or whether other options besides a seawall would be more appropriate.

Get approval to build
Approval to build or upgrade a seawall will be required from your local council and relevant government agencies. Contact your local council in the first instance.

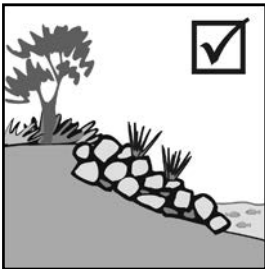
Access more information
A detailed guideline on Environmentally Friendly Seawalls can be obtained by contacting the Sydney Metropolitan Catchment Management Authority (Ph: 9895 7898) or the Department of Environment and Climate Change NSW (Ph: 131 555).

Environmentally friendly seawall design principles

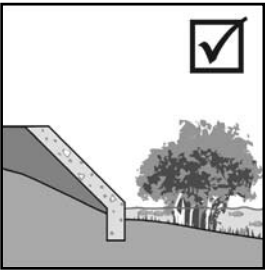
If a seawall is necessary, the design must always aim to protect and enhance habitats while minimising disruption to natural processes. Always consider using natural materials such as rock before concrete. Other key principles to design seawalls to more closely copy natural foreshores include:

Principle 1 Maximise the use of native foreshore and estuarine vegetation

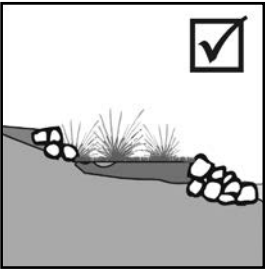
Include estuarine vegetation such as saltmarsh in the seawall



Plant native foreshore vegetation behind the seawall and in the gaps of rock seawalls

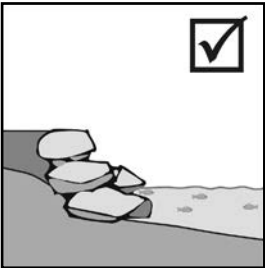


Establish mangroves in front of the seawall

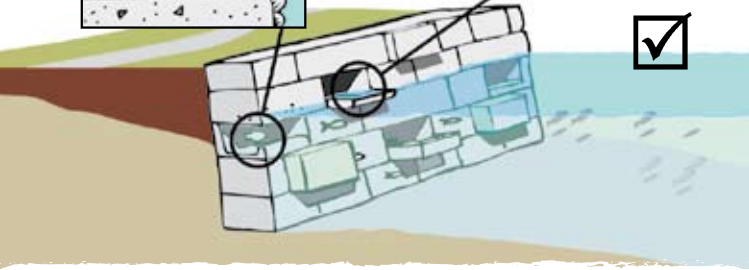
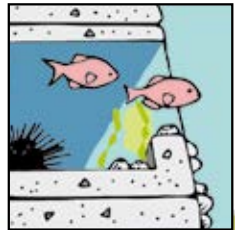


Principle 2 Maximise habitat diversity and complexity

Create walls of boulders of varying sizes and shapes, or irregularly shaped and weathered blocks

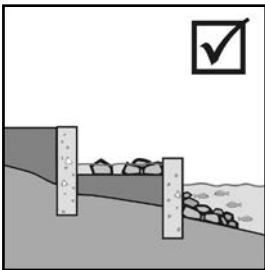
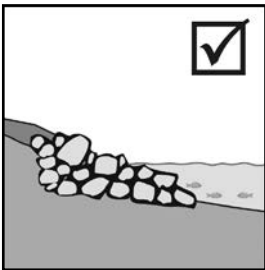


Include pool or crevice areas that retain water at low tide, and create seawalls with blocks that extend outwards



Principle 3 Create low-sloping seawalls or include changes of slope

Build the seawall with a gentle slope using boulders



Use benches or steps to break up and vary the slope

Do not build vertical seawalls

