

Summary

The shoreline between the beach access point at 18th Street and McDonald Creek had historically experienced heavy erosion, leaving a low-profile cobble beach. The purpose of this pilot project was to provide protection for the Seawalk, create upper shore riparian habitat and intertidal habitat trap sediments on the upper shore to increase the beach profile and improve public access to the foreshore. Conceived 2006. Major works 2007-2008 and 2011. There is ongoing habitat monitoring.

Status

Habitat Development

- Riparian Habitat
- Habitat Boulders



Public Amenities

- Public Access



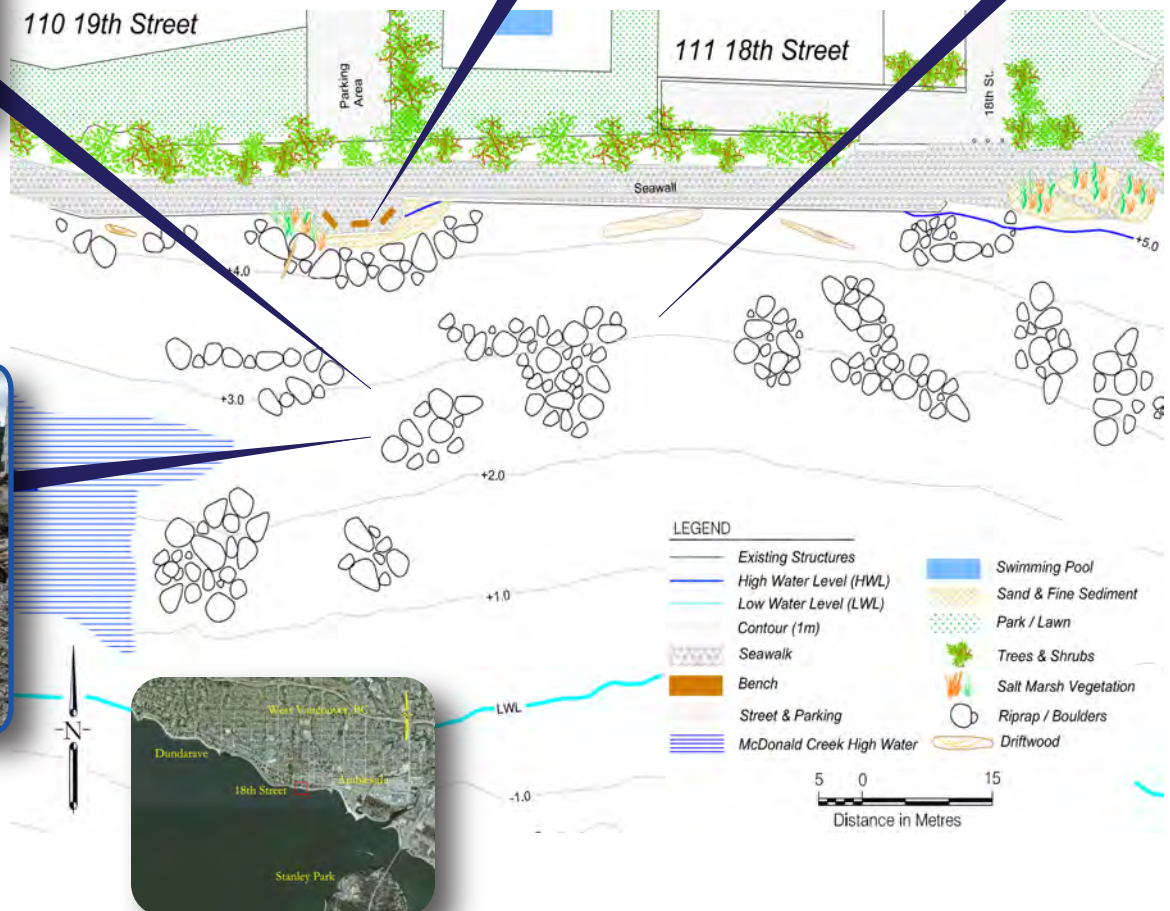
Shoreline Protection

- Sediment Transport
- Wave Trips



Economic Benefits

- Beach Stabilisation



West Vancouver would like to thank the following organizations for their support:

Opportunities

- Prevent small, unstable substrate from being swept out to sea by waves.
- Encourage natural deposition of sediments; replenishing and building the beach profile.

2006



Small and unstable cobble substrate is vulnerable to erosion as it is easily carried along the beach and out to sea by waves. By using boulders and riprap to 'roughen' and stabilize the shore, sediments can be trapped on the upper shore, replenishing the beach using natural coastal processes.

Achievements

- Patches of boulders create tombolas which guide and trap sediments on the beach.
- Tombolas increase the beach profile and provide long term benefits, including better access.

2011



Strategically placed patches of boulders, called tombolas, guide and trap sediments that are swept along the beach. Tombolas were created to trap fine sediments on the upper shore, elevating the beach profile and recreating a natural sloping shoreline. By working with natural coastal processes, tombolas offer a long term and sustainable solution to erosion.

Opportunities

- Prevent erosion by reducing the power and suction load of waves reaching the beach.
- Implement natural sea defences that will have long term benefit.

2006



A low profile, loose cobble beach with a hard-faced concrete sea wall is exposed to increased erosion. Waves that reach the sea wall are reflected back down the beach full strength, where they gain momentum with gravity and sweep sediments out to deeper water. Erosion would be greatly reduced by disrupting waves on the lower shore

Achievements

- Boulders positioned along the lower shore trigger waves early and diffuse their energy.
- These 'wave trips' act like a natural rocky shore and provide long-term protection.

2011



Large boulder 'wave trips' were placed along the shore line. As waves travel inshore they strike the wave trips and 'break'; wave energy is disrupted on the lower shore, protecting the beach and seawall.



Wave trips act like a natural rocky shore or reef. They provide sustainable protection from erosion and create habitat for algae, invertebrates and fishes.

Opportunities

- Improve the existing habitat for more marine species by stabilising beach sediments.
- Increase biodiversity by creating new habitats and colonisation opportunities.

2006



There was green algae growth across the cobble beach, however large, stable boulders provide colonisation opportunities for a wider range of marine species, including rockweed, mussels, barnacles, amphipods and limpets; creating a more diverse habitat and increasing the productive capacity of the site.

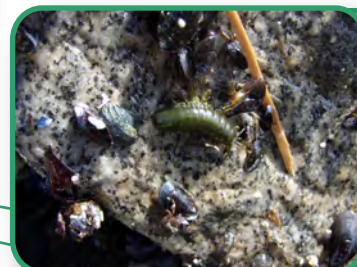
Achievements

- Large boulders were positioned along the shoreline to provide attachment sites and habitat for a range of marine plants and animals.

2011



Riprap placed along the lower shore provides colonisation and attachment opportunities for a variety of algae, kelp, barnacles, mussels and other marine species.



As the new habitat matures, more species - like this rockweed isopod - will colonise.

These algae and invertebrates are an important source of food for fishes.