

Eelgrass The Superhero

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What do you love most about the ocean? It provides us with so much: food, leisure, connections, oxygen, and carbon storage. With 70% of the planet covered by the ocean, there are a lot of diverse ways to appreciate it. We can appreciate a freshly caught salmon cooked to perfection on the barbeque on a hot summer day. We can revel in the wonder of splashing around in bioluminescent water in the moonlight, the first cannonball of the season, or catching the perfect wave. After a year of shipping delays, more of us than ever before appreciate how the ocean is an important corridor for goods to travel between continents, or for people to get to their favourite island getaway.

Still, for occupying such a large area, we know relatively little about the world's oceans. Carbon sequestration for example, something discussed more and more frequently, is importantly tied to the sea. People might not realize that the ocean contains ecosystems that capture around 10 times more carbon than rainforests. In fact, 83% of the world's carbon is circulated through the ocean. This ability of marine and coastal ecosystems to capture and hold onto carbon is called "Blue Carbon" and it is important because loose carbon can oxidize to become carbon dioxide, which is a greenhouse gas that will trap heat in earth's atmosphere and contribute to climate change. Carbon dioxide is produced by humans through burning coal, gas, or oil to create energy, and also from forest fires, decomposing organic material or other changes in land-use. The most important blue carbon habitats are considered to be mangroves, tidal marshes, seagrass meadows, and kelp forests. Unfortunately, when these ecosystems are destroyed, the carbon dioxide is released into the atmosphere creating a cascade of negative impacts. Globally, seagrasses, one of these important marine habitats, are declining in area by 1.5% per year and so far, 30% of their historical numbers have been lost.

In temperate seas, seagrass ecosystems are represented by eelgrasses. These marine plants grow in harbours, estuaries and protected bays and are common throughout the Barkley and Clayoquot Sounds. The Ucluelet harbour is home to many eelgrass beds, and through them, supports and sustains life and all the economies that allow us to reside here on the west coast. The harbour supports local species such as salmon, rockfish, lingcod, scallops, and endangered abalone. It also provides a medium of transportation to and from communities and to and from marine harvesting locations. As with many environmental features, the health of the harbour has been taken for granted for a long time, and while the resident population of Ucluelet may be small, the user group of the Ucluelet Harbour is made up of a much larger network of people and industries.

The Ucluelet Aquarium Society is partnering with a number of the area's organizations to start mapping the eelgrass meadows in the Ucluelet harbour. There are two species of eelgrass here that we will focus on: *Zostera marina* and *Zostera japonica*. In the Ucluelet harbour the eelgrass provides important nurseries and habitats for a variety of marine species, from hooded nudibranchs to small-eye shrimp, as well as more culturally and economically cherished species such as herring and salmon. As mentioned earlier, they are also fantastic at sequestering excess carbon and other nutrients that would otherwise contribute to an unhealthy ocean. Those lucky to own waterfront should also be grateful for eelgrass beds, as they play vital roles in erosion control. Without them, storms would batter the coastline and wipe out docks, houses, and beaches.

Our harbour is an active one, with things such as dredging, docks, pollution from boats and wastewater, and invasive species such as the European green crab posing risks to the health of our eelgrass gardens. Our goals with mapping these important habitats is to learn more about the ecosystems here. Salmon returns have been poorer than historical runs, and fishing is a way of life for many people here. We are curious how local eelgrass health is impacting our human lives. Our small community continues to grow, so with increased activity comes increased pollution. It is important to keep tabs on these ecosystems to ensure we are all flourishing together. Depending on the findings from the surveys, we may go forward with restoration work which will mean planting new shoots in diminished or depleted areas or looking for ways to reduce or eliminate what is harming them.

We are all connected to this place, and this World Oceans Day, consider ways to help our ocean thrive. Whether you choose to walk or bike to destinations, purchase locally grown or caught food and goods, write letters to companies about their environmental policies, repair items instead of replacing them, or reduce the amount of plastic you use, every little bit helps and the ocean will thank you!

