Eelgrass

Seagrasses are flowering plants that live in the ocean. The native species of seagrass present in PNCIMA is *Zostera marina*, or eelgrass. Eelgrass meadows form in soft sediments such as sand and mud (although north of Campbell River they are also found in areas with rock), in lower intertidal and shallow subtidal zones. They are primarily located in sheltered areas.[1,2] Different "ecotypes", or variants, of the species occur at different depths.[3]

Eelgrass beds are sensitive and provide essential habitat for many marine organisms

Eelgrass is one of the most ecologically important aquatic plants in the PNCIMA region, and eelgrass beds are a major nearshore habitat.[4] Eelgrass beds stabilize sediment and prevent shoreline erosion; slow local currents, which increases the supply of drifting phytoplankton and algae (the basis of the marine food web); and play a role in nutrient cycling.[1]

Eelgrass beds are also very productive ecosystems; they provide complex and essential habitat for a large quantity of organisms. For example, waterfowl feed on eelgrass; a variety of invertebrates and microscopic organisms live on the blades; crustaceans feed on decomposing organic material within the beds; and invertebrates such as sea cucumbers, and fish such as herring and juvenile salmon, lingcod and pollock use the beds for cover and shelter.[1,4,5] The plant has also been used as food and a source of herring spawn by several First Nations.[6] The most ecologically significant eelgrass beds are those with the highest productivity, density and stability.[7]

Eelgrass beds are extremely sensitive to many types of human activities and environmental change,[1] including reduction of water clarity, smothering, uprooting, physical damage, shading and pollution.[8]

Juvenile copper rockfish in eelgrass bed. *Photo: Sharon Jeffery*

Eelgrass Mapping

Since 2000, eelgrass mapping efforts have been led by the BC Seagrass Conservation Working Group, a non-governmental organization. An eelgrass atlas is available through the Community Mapping Network. Various stewardship groups, First Nations, non-governmental organizations and private companies have carried out eelgrass survey activities in the province.[1] As of 2006, a complete dataset of seagrasses did not exist for the PNCIMA region.[5]

Data displayed on the accompanying map include eelgrass data compiled by the BCMCA in 2009 as well as data from the Province of BC's Shorezone Mapping System.BCMCA data were collected, merged, and dissolved by species from the following sources: Fisheries and Oceans Canada Quatsino Sound eelgrass data, Parks Canada Pacific Rim data, provincial shore-zone mapping and Land Use Coordination Office/Decision Support Services oil spill atlas data, Community Mapping Network eelgrass data, and Living Oceans Society eelgrass data. Data from the Province of BC's Shorezone Mapping System are displayed using bioband shoreline units where eelgrass was observed and coverage was rated as either patchy (visible in less than 50% of the shoreline unit) or continuous (visible in greater than 50% of the shoreline unit).

Data displayed in the map were collected over a wide date range (BCMCA: 1890 to 2008; Shorezone Mapping System: 1979 to 2008), by many people for different purposes, and using different survey techniques and methods. Survey effort is not consistent throughout all areas. Areas with no data may not have been surveyed; these data gaps are not necessarily indicative of an absence of eelgrass.[2]

Material presented is drawn from the following, including literature reviews which contain primary references:
1 Lucas, B.G., Johannessen, D. and Lindstrom, S. 2007. Appendix E: Marine plants. In Ecosystem overview: Pacific North Coast Integrated Management Area (PNCIMA). Edited by Lucas, B.G., Verrin, S., and Brown, R. Can. Tech. Rep. Fish. Aquat. Sci. 2667: iv + 23 p.
2 British Columbia Marine Conservation Analysis Project Team. 2011. Marine atlas of Pacific Canada: a product of the British Columbia Marine Conservation Analysis. Available from www.bcmca.ca (Accessed March 2011).
3 Precision Identification Biological Consultants. 2002. Methods for mapping and monitoring eelgrass habitat in British Columbia. Draft 4. Environment Canada, 41pp.
4 Lucas, B.G., Verrin, S., and Brown, R. (Editors). 2007. Ecosystem overview: Pacific North Coast Integrated Management Area (PNCIMA). Can. Tech. Rep. Fish. Aquat. Sci. 2667: xiii + 104p.
5 Butler, R. 2003. The Jade Coast: the ecology of the North Pacific ocean. Key Porter Books: Toronto.
6 Turner, N.J. 1995. Food plants of coastal First Peoples. UBC Press: Vancouver.
7 Clarke, C.L. and Jamieson, G.S. 2006. Identification of ecologically and biologically significant areas in the Pacific North Coast Integrated Management Area: Phase I – identification of important areas. Can. Tech. Rep. Fish. Aquat. Sci. 2678: vi + 89 p.
8 Short, F.T. and Wyllie-Echeverria, S. 1996. Natural and human-induced disturbance of seagrasses. Environmental Conservation 23(1): 17-27.

Eelgrass bed, Vancouver Island. *Photo: Ramona de Graaf*

15 Eelgrass Distribution