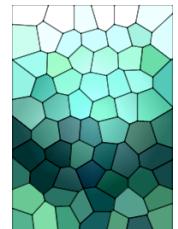


T'aanu Telegram

A NEWSLETTER ABOUT EELGRASS CONSERVATION IN BRITISH COLUMBIA

Issue No.3

December 2004



T'aanu is Haida for eelgrass

The Seagrass Conservation Working Group (SCWG) has been working to conserve and protect seagrasses in British Columbia since 2001. We are a consortium of stewardship groups, government agencies, First Nations and consultants:..

13 meetings over 3 years
90 people attended

Training manuals and maps are available on the Community Mapping Network website:
www.shim.bc.ca

Contact the SCWG the SCWG Chair at
seachange@shaw.ca

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SCWG is in its Third Year!

Welcome to the third *T'aanu Telegram* of the Seagrass Conservation Working Group. Since its inception in October 2001, the SCWG has met 13 times. Ninety people have attended, representing government, community and private consulting businesses. We have worked steadily, with nearly 1,000 volunteers mapping over 10,000 hectares of eelgrass habitat along the entire coast of BC (a copy of the mapping project is available through seachange@shaw.ca). We have adding valuable training manuals to the Community Mapping Network website, and continuing to make connections with other

groups, such as the Heron Working Group and the Ministry of Water Air and Land Protection's Branch that is publishing the State of the Environment Report in 2005. We have presented posters at the Species at Risk conference held in March 2004, In April 2004 posters and maps and videos on eelgrass habitats were displayed at the first ever Eelgrass Festival concurrent with the annual Brant Festival in Parksville. A new SCWG web site will soon be posted on the BC Stewardship Centre site (www.stewardshipcentre.bc.ca) Presently we are creating a catalogue of potential eelgrass restoration sites within the Strait of Georgia for off site compensation projects.

Eelgrass Festival Plans Underway

An **Eelgrass festival** is being planned for April, 2004 in conjunction with the annual **Brant Wildlife Festival** in Parksville. Members from the Seagrass Conservation Working Group (You!) and twenty stewardship groups are invited to present achievements and convene to plan for the coming year.

Keep posted for more details as the plans unfold!
For more information about the Brant Festival see:
www.brantfestival.bc.ca



Spartina News Update

DISCOVERY OF A NEW SALT MARSH INVASIVE TO BRITISH COLUMBIA, ENGLISH CORDGRASS (*SPARTINA ANGLICA* C.E. HUBB.) AND MANAGEMENT INITIATIVES IN 2003

From: Gary Williams, GL Williams & Associates Ltd., 2907 Silver Lake Place, Coquitlam, BC Canada V3C 6A2 e-mail: [glwill@telus.net]

I am sorry to add a very aggressive salt marsh grass, *Spartina anglica* C.E. Hubb. (English cordgrass) to the growing list of invasive plants in British Columbia. I discovered it in August 2003 while conducting intertidal habitat surveys on Roberts Bank (Vancouver, British Columbia) in the Fraser River estuary.

Spartina anglica is a naturally formed amphidiploid, derived from *S. x townsendii* H. & J. Groves, both originating from the hybridization of *S. maritima* (M.A. Curtis) Fern. (small cordgrass), indigenous to England and Europe, and *S. alterniflora* Loisel. (smooth cordgrass), indigenous to eastern North America (Gray et al. 1991; Barkworth 2003). The latter species is thought to have been introduced to England in the early 1800's from shipping (Gary et al. 1991).

In the Pacific Northwest, *Spartina anglica* was introduced into Puget Sound in 1961 to Port Susan Bay, just south of Stanwood, Washington State, to be used for dyke stabilization and to provide forage for cattle (Hacker et al. 2001). The plants thrived and expanded to 2.7 ha in mid 1970's. *Spartina anglica* was surveyed there in 1997 and had spread to 73 sites affecting 3,311 ha of marine intertidal habitat, equivalent to approximately 400 ha solid habitat. One of the heaviest infestations is in Willapa Bay where it covers approximately 2,000 ha and is spreading at a rate of 16 % annually. It appears to be transported to new areas by three pathways: nearshore currents, water birds, or ships (e.g. ballast water). The source or pathway for the Roberts Bank infestation is unknown. However, it now has a circumpolar distribution being recorded in over 130 sites around the world!

Spartina anglica is a very aggressive species that will spread over the mudflat, displacing existing habitat and moving upwards into natural salt marsh. Of particular concern in the Fraser estuary is the conversion of large, productive mudflats, which are rich in invertebrates used by shorebirds, waterfowl, and fish, to monotypic stands of cordgrass. Washington State has spent several millions of dollars and years trying to eradicate *Spartina*, using a range of approaches including manual labour, mechanical equipment, and chemical control, many with mixed success (Murphy 2003). Because the infestation in the Fraser estuary is in the early stages, estimated to have begun 3-5 years ago, aggressive management and removal may control further spreading and eliminate the need to use herbicides and more damaging eradication techniques.

Following discovery of the infestation on Roberts Bank, I contacted Vancouver Port Authority (VPA) and they agreed to sponsor a control program on Roberts Bank. In September, with the assistance of the Department of Fisheries and Oceans (DFO), seed heads were clipped and extent of the infestation was mapped using GPS. Data collected indicated plants averaged 1 m in height and clones were dense, over 800 stalks per square metre. In October, the Fraser Spartina Busters, comprised of 21 volunteers from VPA, DFO, Canadian Wildlife Service, Ducks Unlimited, Water Land and Air Protection, Tsawwassen First Nations, and Langley Environmental Partners Society, removed all but three clones from Roberts Bank and sent the plants to the Burnaby incinerator.

In December, an inventory was funded by Ducks Unlimited and the Greater Vancouver Regional District, Regional Parks, to conduct an inventory of the outer estuary. DFO provided the Canadian Coast Guard hovercraft to survey the Boundary Bay and the banks south of Sea Island. Foot surveys of the Sea Island and Iona Island shorelines followed. More *S. anglica* was found in Boundary Bay off Beach Grove and over a 3 km section of shoreline between 96th and 112th Streets.

Following two meetings in December, including participation by Washington State Spartina control agencies, DFO is leading an inter-agency initiative to develop an action program for the summer and fall of 2004 to remove the existing *Spartina anglica* from Boundary Bay and Roberts Bank. The initiative will involve DFO, CWS, DU, VPA, City of Delta and several NGO's. The program will also involve annual follow-up surveys, inventory of shoreline areas, and preparation of fact sheets to increase awareness of the problem and assist in identifying the plant in the field. An outreach program has also been initiated to make presentations and provide information to interested parties, which have included the Vancouver Natural History Society and City of Delta.

References:

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Hacker S.D., D. Heimer, C.E. Hellquist, T.G. Reeder, B. Reeves, T.J. Riordan, and M.N. Dethier. 2001.

A marine plant (*Spartina anglica*) invades widely varying habitats: potential mechanisms of invasion and control. *Biological Invasions* 3: 211-217.

Murphy, K.C. 2003.

Report to the Legislature: progress of the 2003 - Spartina eradication program. Washington State Department of Agriculture, Pub. 805-110 (N1/04), Olympia, WA: 58 p.

Eel – grasss

No matter what I say,
All that I really love
Is the rain that flattens on the bay
And the eel-grass in the cove;
The jungle-shells that lie and bleach
At the tide-line, and the trace
Of higher tides along the beach:
Nothing in this place.

Edna St. Vincent Millay

♣ “Ask Cynthia” ♣

Dear Cynthia,

1. Is there a time of year that is best for mapping and/or monitoring eelgrass in British Columbia?

Sincerely, A Curious Mapper

The two species of *Zostera* that occur in our area have very different life histories; therefore I'll answer your question individually for each species.

Our native eelgrass (*Zostera marina*) is a perennial and may be mapped at any time. The visibility is often best in the winter, which could facilitate mapping. However, it may be easier to have volunteers participate during the spring and summer when the weather is warmer. Annual populations of *Z. marina*, that die back completely in the winter are common in the Atlantic, and several were recently discovered in California. Although I'm not aware of any that have been documented in Oregon, Washington, BC, or Alaska it is possible that they exist. In BC and Washington we have recently found a couple of areas where the intertidal eelgrass growing on tidal flats dies back in the winter and regenerates from seed the following spring, these areas are all located adjacent to perennial eelgrass beds and are rare. I would suggest mapping the *Z. marina* beds whenever human resources are available.

In some areas *Z. marina* is significantly shorter with narrower leaves during winter than in the summer. The density may also be quite different in winter, either much greater or much lower. There is a population that I've been studying where the shoot leaf length and width are significantly less in winter but the density is much greater, resulting in a similar leaf area index between the two seasons. Since these parameters vary seasonally it is best to restrict comparisons (monitoring) within season, I'd recommend with two calendar weeks whenever possible.

Japanese eelgrass (*Zostera japonica*) is an annual species, the meadows regenerate from seeds each spring, although a few shoots may overwinter in some areas. Therefore, *Z. japonica* may only be mapped and/or monitored during the growing season from late spring through the summer. In most areas the density peaks sometime in either July and August, as with *Z. marina*, monitoring surveys should be conducted within two calendar weeks of the initial monitoring whenever possible.

2. Dear Cynthia. When trying to identify flowering shoots, I noticed that there are different stages of flowering. Do I count it when it's just starting to become round or when it's branched? Does it have to have a seed pod?

Sincerely, Flower Challenged

The reason for counting the reproductive shoots is to obtain an estimate of how many were becoming reproductive at that point in time. The reproductive shoots break off at maturity (when the seeds are ripening) and float away, this could, in theory lead to a drop in shoot density. For this reason any shoot that is either developing into a flowering shoot, currently flowering, or in seed should be included in the reproductive shoot tally.

Sincerely,
Cynthia

T'aanu News from Squamish

It's hard to believe that the Squamish River Watershed Society attended the first Seagrass meeting way back in January 2002. Since that first meeting and introduction to the world of eelgrass, the Watershed Society has been busy raising awareness in the Upper Howe Sound region. We are working with stewardship groups to undertake some rudimentary mapping and collecting anecdotal information. One of the key sources of information has been Squamish Nation who continue to provide their support to the project. Eelgrass has particularly important significance to Squamish Nation as it provides vital habitat for herring to spawn upon which is then collected and dried as a food source. Equally important is the role eelgrass plays in providing a vital food source for the waterfowl that frequents this important migratory stop. The migratory birds feed off of the small epiphytes that grow on the eelgrass blades.

Information on eelgrass in this area is not well known. One of the first steps was to provide stewardship and education activities including an introduction presentation from Cynthia Durance to our enthusiastic *Sea to Sky Streamkeepers* (consisting of representatives from Lions Bay, Furry Creek, Britannia Beach, and Squamish). Apart from some initial GPS mapping very little actual "on the ground" work would have occurred if not for the infusion of fresh energy in the form of an eager Master's student from Queen's University, Margot Hessing-Lewis, who decided to take on the daunting task of studying eelgrass transplants in Upper Howe Sound within the Municipality of Squamish.

The Watershed Society looks forward to the continued support and involvement with the Seagrass Conservation Working Group and is enthusiastically preparing to assist Margot in her endeavours. Whether due to human impacts or as a result of the infusion of such a large source of fresh water from the Squamish River, Upper Howe Sound has not proven to be an area in which eelgrass thrives. There is much that remains to be done, and our first priority is getting out in the New Year to videotape with the help of volunteer snorklers the location and densities of eelgrass beds.

This summer, test plots of eelgrass plants were transplanted to the Squamish Estuary. A gang of local volunteers from the Squamish Watershed Society helped Margot Hessing-Lewis to secure eelgrass shoots in Cattermole Slough and the Stawamus River delta. It is believed that eelgrass plants once grew in this area, supporting a host of important estuarine creatures, including herring stocks. The goal of this project is to determine if these eelgrass beds can be re-established in portions of the estuary that have changed due to industrial development



It's Alive! Eelgrass beds after 6 months!

Research Room

Margot Hessing-Lewis' Master's work has involved, apart from planting the eelgrass, an analysis of the different variables that affect whether or not eelgrass can grow in a given area. Water column properties are being monitored, such as temperature, salinity and turbidity. Sediment characteristics, such as grain size and the amount of organic material present are also being measured. Other fieldwork associated with this project, in collaboration with DFO, involves underwater videography work in other areas of Howe Sound. An underwater video will be lowered to depth in other shallow areas in search of eelgrass plants. If other locations are found with living eelgrass plants, the physical characteristics of these areas can then be compared to the Squamish Estuary. Furthermore, using results from Margot's Master's project, the potential for other eelgrass restoration projects in Howe Sound can be assessed.

Leanna Boyer doing, a Master's student at the University of Victoria, has been working with SeaChange and other groups who participated in the B.C. Coastal Eelgrass Stewardship Project. She is interested in how groups and the network (collective) as a whole are able (or unable) to influence changes in human behaviour that are detrimental to the marine environment.



News Bulletins: Updates on the Activities of the SCWG

- ♣ (Zostera japonica) has been added to the Community Mapping Network web site (www.shim.bc.ca). The manual is downloadable and ready to use in the field. Thank you Cynthia Durance!
- ♣ Also new on the CMN site is the draft manual: *Mapping Eelgrass Using the Garmin 12SL GPS: A Manual for the West Coast of British Columbia*, Thank you to Katrina Bennett of Geostreams Consulting and Brad Mason of Fisheries & Oceans!
- ♣ Ramona's kayaking website
- ♣ East coast report on eelgrass

A Tool Kit for the Beach



Leanna Boyer is a Master's student at the University of Victoria. She has been working with SeaChange and other groups who participated in the B.C. Coastal Eelgrass Stewardship Project. She is interested in how groups and the network (collective) as a whole are able (or unable) to influence changes in human practices that are detrimental to the marine environment. She also seeks to understand how people learn to map eelgrass or carry out other activities related to conservation. Leanna plans on writing a report for the SCWG on the successes/challenges of the project.