



Eelgrass Network Participants heading out to do Field Mapping on a Bamfield beach

## *Moving Forward*

# **Report Summary of the Third Symposium of the B.C. Community Eelgrass Network 2007**

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## 1.0 Introduction

The BC Community Eelgrass Network has worked together for five years. During that time, the Network has posted their eelgrass maps (of over 12,000 hectares of *Zostera marina*) on the Community Mapping Network, developed and delivered public and school educational materials and programs, and made their voices heard on local, regional, provincial and federal government levels along the entire BC coast. We can safely say we have made eelgrass a household term.

A few years ago, for example, passers-by walking along the promenade of the Nanaimo shoreline witnessed SCUBA divers harvesting eelgrass shoots for a habitat compensation project. Several calls were put into the local Fisheries & Oceans office that day to complain about the alleged destruction of important fish habitat. Other pedestrians asked questions of the shore crew and revealed a high level of understanding of the federal Fisheries Act, which mandates that eelgrass be compensated on a 2:1 ratio. When they were informed this was a compensation project, they were very enthusiastic.

We have vowed since then to come well equipped with brochures when talking to the public about eelgrass restoration and compensation work. Knowledge about this valuable plant has increased undoubtedly because of the good work of now 23 coastal community groups.



In April 2007, twenty-two network members attended the Third Symposium for the BC Community Eelgrass Network. (See Appendix A for Symposium Attendees). Over three days, we focused on three issues based on the recommendations from the last gathering: **Research, Training and Outreach**. In the following pages, you will find a summary of our discussions, workshops and field sessions. This report is written for funders, attendees, and those who could not attend the Symposium. The budget for this Symposium is included in Appendix I.

Bamfield Marine Science Centre M. Deakin

*This forum could not have taken place without the generous support of Rudy North and the Pacific Salmon Foundation.  
Thank you.*

## 2.0 Objectives of the Third Eelgrass Symposium

The 2007 gathering based its objectives on the needs of the network. These were expressed to the symposium organizers in the questionnaires returned shortly after the last symposium held in January 2006 in Campbell River. The last Symposium focused on the priorities of the Eelgrass Network (mapping, monitoring, education and restoration), and the tools necessary for the effective conservation of eelgrass habitats (funding, outreach resources and education materials). This year, three issues were covered based on last year's feedback: **Research, Training and Outreach.**



Copper Rockfish Sharon Jeffery

### Accomplishments of the 2007 Symposium:

- Increased our capacity to effectively advise land use and nearshore planners, governing agencies and municipalities;
- Increased the network's capability for easier data entry onto the Community Mapping Network (CMN), and for using maps as communications tool;
- Increased our capacity to monitor for other species (forage fish spawning sites and *Spartina* spp.);
- Increased the network members' understanding of recent research of related topics;
- Increased our ability to raise funds locally;
- Improved coordination and partnership building among conservation groups;
- Improved liaisons between the Ministry of Environment (MOE), Parks Canada and conservation groups;
- Began work on a targeted communications tool for attracting new First Nations to the Network;
- Coordinated an integrated delivery of stewardship programs and messages, to avoid duplication of resources and minimize duplication of landholder and other contacts.

### 3.0 Symposium Proceedings

A Welcoming Ceremony by Trevor Little of the Huu-ay-aht First Nation community gave our gathering a graceful beginning. Trevor welcomed us warmly and told us stories of his family's connection to the local waters of Bamfield.

Appendix B includes the Symposium Agenda. For the purposes of summarizing the proceedings, a synopsis of the presentations under the topic headings follows.

**Research** topics included ecological relationships of marine species (pipefish and juvenile rockfish) within eelgrass beds and research on the health of eelgrass ecosystems within Parks Canada boundaries (Appendix C - a copy of the Report: *Monitoring for the Ecological Integrity of Eelgrass Beds (Zostera marina) in Canada's Coastal National Parks of British Columbia* is available on request on CD if you have not already received it). We discussed the year long mapping project undertaken for the Ministry of Environment. This included information about the on-the-ground eelgrass mapping that still needs to be done, as well as the location of possible restoration sites in former log storage areas along the entire coast.

**Training** workshops included subjects such as improving mapping methodologies and data entry and analysis, assessing monitoring and potential eelgrass restoration sites, clarification of nearshore and subtidal jurisdictions, invasive species identification and eradication strategies (*Spartina* spp.), "green" approaches to shoreline erosion control, and mapping of forage fish spawning sites.

**Outreach** sessions included discussions, workshops and presentations on different approaches to our community audiences: Municipalities, Regional Districts, Schools, Shoreline Residents, First Nations communities and naturalists. Community eelgrass project coordinators and trainers from the BC Community Network led the discussions and presentations.

We shared many resources developed over the last five years. As well, we started to develop new materials, such as a brochure for First Nations communities. Several project coordinators have extensive experience with school outreach programs and presentations to municipal and regional district agencies. They shared their expertise in workshop and field settings.

Several community groups have been added to the network since our last Symposium. At the same time, funds have been severely limited and government agencies have had their mandates and funding support either directed elsewhere or slashed, or both. This kind of community-based gathering is critical during this time to keep network participants engaged, connected to each others' work and successes, and well-trained for scientifically sound data collection. Quality of the mapping data is more assured when all project coordinators are in the field with our scientific advisor, Cynthia Durance. Collective brainstorming for effective community outreach is an excellent method for improving our stewardship capacity.

Many of the community project coordinators are isolated due to geographical constraints. This conference provided a much needed rejuvenation for the conservation work to continue on the entire coast. As the last symposium report reflected, the deliverables of this network far outweighs the resources consumed.



M. Deakin

### 3.1 Discussion Summaries

#### Research

*Evaluating Eelgrass as a Juvenile Habitat for Rockfish* - Sharon Jeffery of UBC and Parks Canada.

*Association of Ecological Connectivity of Eelgrass Habitats: A Pipefish Perspective-* Ramona de Graaf

*Monitoring for the Ecological Integrity of Eelgrass Beds in Canada's Coastal National Parks of BC* - Jennifer Yakimishyn, Clifford Robinson, Guy Martel (Parks Canada)

*Linking the Land and the Sea: Forage Fish Spawning Ecology and Nearshore Habitat Protection-* Ramona de Graaf

All Research presentations may be found in [Appendix C](#).

Scott Toews from the Bamfield Marine Science Centre (BMSC) reviewed the types of eelgrass projects undertaken by undergraduate students of BMSC. Their research is catalogued at BMSC, but it was suggested that their work be shared with the Network. With the authors' permission, pertinent chapters could be posted on the SCWG web site.



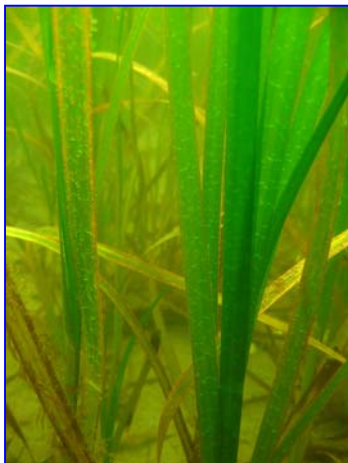
## Training

### Monitoring Strategies: Next Steps

**Cynthia Durance and Ramona de Graaf** presented a classroom session on eelgrass monitoring, outlining the points from the Eelgrass Mapping Manual (2002, from the SCWG web site: [www.stewardshipcentre.bc.ca/eelgrass/index.html](http://www.stewardshipcentre.bc.ca/eelgrass/index.html)) Group discussions followed on site-specific monitoring parameters in several communities. If any member group would like a copy of this training session, please contact [seachange@shaw.ca](mailto:seachange@shaw.ca) and we can send you a CD of this session. The major points that were covered were: eelgrass reproductive strategies, differences in densities according to seasons and weather cycles, monitoring schedules, monitoring continuous and patchy beds, measuring tide heights (good reference: <http://tbone.biol.sc.edu>), and details on appropriate sizes and best types of quadrats.

We discussed proper beach seining techniques. Protocols are posted on the BMSC web site [www.bms.bc.ca](http://www.bms.bc.ca) (under *Animal Care SOP*). Fish sampling requires a permit from Fisheries and Oceans (FAO).

Group discussion followed on the importance of accurately entering our mapping data onto the Community Mapping Network. We also discussed the efficacy of the eelgrass education campaigns occurring over the last five years because of the eelgrass network. Sample brochures from the network are included in Appendix D.



Sharon Jeffery

**Rob Waters**, of Castor Consultants Ltd. presented the regulatory and jurisdictional environment for eelgrass and foreshore development - regulations, guidelines, and policies. First Nations, municipal, regional, provincial and federal jurisdictions were reviewed. Topics of discussions included the complexity involved in balancing habitat values with jurisdictional responsibilities. When we empower ourselves by surveying and mapping the ecological values on the shore, we can empower ourselves to be effective voices in local government processes, such as the reviews of Official Community Plans.

“If you can show people what people are going to lose, they are more likely going to add”. (paraphrased quote by Clive Callaway of Living By Water Project). Land, Water and Fisheries Navigable Water Acts identify the responsibilities of government, but in the field there can be another story because of budgetary cutbacks. Best Management Practices might be taking the place of enforcement of existing legislation.

We discussed case examples of specific community foreshore issues. The Parksville shore served as a good example for discussion, as plans are before the municipality to change the substrate of the beach to decrease backshore erosion. It was suggested that more attention be paid to shoreline dynamics when changes to the foreshore are submitted. For example, the proponent for the change ought to be responsible for modelling the disturbance of sediment transport along the shore. A comprehensive understanding of these dynamics is needed on a regional level, as one dock may not make too much of a difference to shore dynamics, but several do.

We talked about how we can be proactive and integrate discussion by municipal, regional, provincial and federal government players in a way that can positively influence developments for shoreline health.

Jurisdiction (Transport Canada) and safe removal of derelict vessels was also discussed. As part of our work, we could make a GPS reading of these vessels and include them in our metadata. Forage fish spawning areas are important areas to include in a more integrated survey of valuable habitats on the shore. Several communities expressed interest for this training and a wish to map forage fish as a next step to protecting marine ecosystems and shorelines. Backshore mapping tools are available on the Coastal Sensitive Shoreline Inventory ([http://www.shim.bc.ca/pdf/CSIM\\_June21\\_2004.pdf](http://www.shim.bc.ca/pdf/CSIM_June21_2004.pdf))

Different types of mooring buoys were also discussed.

A hard copy of Rob Water’s power point presentation is included with this report (Appendix E). If anyone would like a CD of his presentation, please contact [seachange@shaw.ca](mailto:seachange@shaw.ca)

An excerpt of jurisdictional boundaries is included here from the resource: *Coastal Shore Stewardship: A Guide for Planners, Builders and Developers on Canada’s Pacific Coast*, available on the BC Stewardship website: [www.stewardshipcentre.bc.ca](http://www.stewardshipcentre.bc.ca) An illustration of jurisdictional boundaries is included in Appendix E.



## COASTAL SHORE STEWARDSHIP

### **Jurisdiction along the Coast**

Jurisdiction over coastal areas in B.C. is split among federal, provincial and local governments, depending on the location along the coast and the relationship to the shore. It is important to note that while the following points refer to ownership and jurisdiction, all B.C.'s coast is subject to aboriginal claims based on traditional use by First Nations.

### **Offshore waters**

The federal government has exclusive jurisdiction over the nearshore and seabed along the outer coast known as the "territorial sea", which extends from the low water mark out to 12 nautical miles. It also has jurisdiction (control but not ownership) over resources in the "exclusive economic zone," from the territorial sea boundary out to 200 nautical miles, as well as over mineral resources in the "continental shelf" beyond 200 nautical miles.

### **Inland waters**

The shore lands, seabed and waters located between the mainland and Vancouver Island are often referred to as B.C.'s "inland sea." This includes the Strait of Georgia, Juan de Fuca Strait, Johnstone Strait and Queen Charlotte Strait. The provincial government has exclusive jurisdiction over the seabed and its mineral and attached biological resources throughout this area. Provincial ownership also extends to embayed areas, fjords and inlets bounded by discrete headlands on the outer coast. There is currently some disagreement over which level of government has jurisdiction over the seabed in the areas north of Vancouver Island - Hecate Strait, Dixon Entrance and Queen Charlotte Sound.

### **Beaches and Foreshores**

On B.C.'s coast, the area between high tide and low tide is owned and controlled by the provincial government. This foreshore area is never privately owned, though the province may grant leases and licences for special uses of the foreshore - like gathering oysters or building docks and wharves. Use of this area is also subject to local government land use regulations.

## Spartina Training Workshop

Amber Smith (River Works Coordinator at the Vancouver Aquarium) described the ecology of *Spartina* and its effect on mudflats in the Delta and Vancouver Island. After their presentations, we “mapped” *Spartina* using our GPS units outside the Conference Centre. . Copies of their presentations are included in Appendix F.

Kim Houghton (Ducks Unlimited) gave a power point presentation on *Spartina Removal in the Fraser River Delta: A Partnership Approach*. She identified the species of concern (*Spartina anglica*, *densiflora* and *patens*) that have been located on the Delta and the eastern shores of Vancouver Island. Very successful partnerships among local stewardship groups, consultants, municipal, provincial and federal agencies have resulted in the removal of the invasive marshland plants.

## Data Entry Workshop

Ramona de Graaf and Leanna Boyer conducted this three hour training in front of BMSC computers. They led participants through a step - by - step process using mapping data the network members had brought with them to the symposium. All data forms with other pertinent resources were put onto CD's and distributed to all symposium participants. The procedures will be sent to all Eelgrass Network members.

## Field Mapping/Monitoring Session

We made our way to a local beach in the afternoon **following** the data entry workshop because of the timing of the low tide. Cynthia Durance led the hands-on training, using quadrats and a transect line to clarify details on intertidal eelgrass mapping and monitoring. Participants shared their experiences. This kind of training is immeasurably valuable, as new network members gain a grounded understanding of the methodology (*Methods for Mapping and Monitoring Eelgrass Habitat in BC*) while “older” members review their mapping and monitoring practices.



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M. Deakin

Cynthia demonstrates how to measure eelgrass shoot density



The youngest member of the Eelgrass Network, Niko, learns how to set up the underwater camera.  
Photos by M. Deakin

## Outreach

Michele Deakin gave a short overview of a power point presentation she developed for the Arrowsmith Naturalists in Parksville. She distributed a CD-R of images and the script to each participant. Each person can adapt the presentation to his or her own community. Some of the issues addressed in the presentation are *Spartina spp.*, climate change, economic benefits of eelgrass, hardening of the shore. Please refer to Appendix G.

## **Development of a First Nations Brochure**

Cynthia Durance and Lynn Lee will work on the text for a poster that will reflect First Nations values. This poster will then have photos and artwork added and be distributed as a gift to all First Nations Band offices along the coast. We also discussed the possibility of having First Nations regional art competitions to develop eelgrass designs for the poster.

## Teaching Techniques and Resources for Community Eelgrass Education

Project Coordinators discussed their environmental programs using eelgrass as a tool for marine education in coastal communities. Examples were the Sunshine Coast, Semiahmoo Bay/Boundary Bay and Victoria programs. Some of them include SCUBA divers collecting subtidal marine critters and placing them in habitat aquaria, the use of ID field



Elementary students in Sooke explore the underwater world guides, PVC viewers for investigation of shallow subtidal animals and plants, and plant pressers. Other examples were:

- Seaquaria in Schools program within the Capital Regional District ([www.seachangelife.net](http://www.seachangelife.net))
- Data sheets and rubber mat with green ribbon for practicing mapping densities
- Geocashers mapping eelgrass intertidally and school groups in Parksville/Qualicum,
- Artwork and Eelgrass Alphabet booklets, Fact Sheets and Creature Features displayed at the Cortes Community Museum,
- Three sided aluminum quadrats for dense eelgrass bed: (Sharon Jeffery) that can easily be aligned with the transect line.
- *Watershed Sentinel*: Excellent local publication on global and local conservation issues. Each network organization could subscribe and submit their stories and accomplishments,
- Gloria Sniveley's Identification cards and books (Kingfisher Press: [kingfisher@home.com](mailto:kingfisher@home.com))
- Project Wet classroom and field activities [www.hctf.ca/wild/resources/projectwild/history.htm](http://www.hctf.ca/wild/resources/projectwild/history.htm)
- *Coastal Shore Stewardship Guidebook. A Guide for Planners, Builders and Developers on Canada's Pacific Coast*. Download from: [www.stewardshipcentre.bc.ca](http://www.stewardshipcentre.bc.ca)
- *Living by Water* Project: [www.livingbywater.ca](http://www.livingbywater.ca)
- Waterproofed paper source: contact Tom Bird [diving@bms.bc.ca](mailto:diving@bms.bc.ca)



We reviewed the web site for the Seagrass Conservation Working Group ([www.stewardshipcentre.bc.ca/eelgrass/index.html](http://www.stewardshipcentre.bc.ca/eelgrass/index.html)). It includes the manual for *Mapping and Monitoring Eelgrass Habitats in BC* and other resources such as *Communities Connecting to Place* a document for network members to assess potential sites for eelgrass restoration, and research work by Masters students. We are collecting the names of locations as well for future restoration projects. So far we have the names of 40 sites. We developed a list of actions for our website coordinator to explore – See Appendix H.

## 3.2 Recommendations

We divided the group into four working groups to determine work priorities for the Network for the next year. These are summarized here:

### Group One Priorities

- ⇒ Technical support for data entry to CMN site – phone/personal (one-on -one)
- ⇒ Funding to support training and community groups, including mapping for new members, and assessment for restoration potential/need
- ⇒ Educational video about eelgrass meadows – conservation, values, ecology, etc.
- ⇒ Networking with groups like West Coast Environmental Law
- ⇒ Page for listing all groups and contacts and links to websites on eelgrass site
- ⇒ Possible message board on website
- ⇒ Link on website to find bet low tide sampling times; link to tide tables

### Group Two Priorities

- ⇒ Share existing outreach and educational materials/ideas (DFO Website: Education has lots of info)
- ⇒ Share info/materials you have gathered – i.e., when a geoduck licence is applied for
- ⇒ Alert emails sent to everyone when new material on website
- ⇒ Remember to network locally!

### Group Three Priorities

- ⇒ Training – Field and Date entry
  - Bring own data to training session
  - Working sessions
  - Goal to get more mapping on website

- ⇒ Involvement in OCPs – Coastal Use Plans, supported with data
- ⇒ Education
  - Own backyards – individuals (place-based environmental education)
  - Regional District/Electoral Areas
  - Municipalities
  - Real Estate Boards
  
- ⇒ Funding
  - Tourism Sector
  - Fines/Environment Canada, oil spills

## 4.0 Action Plan

Clearly the First Priority – without this the rest will not matter is **Data Entry**. For the short term project coordinators need to get their data on the maps and the attribute information inputted so it can be used.

Second priority is **Funding**. Project Coordinators should track in-kind hours of everyone and send to a central place so we can increase our funding potential and update fully the #hectares mapped.

These other priorities are about the same importance, but may differ in one location from another:

**Jurisdiction Work** – get involved, tools to support involvement, updated reports annual for government

**Network capabilities** – ideas from above, and identify gaps in mapping areas and increase network – informally through the Network

**Education** – tools, and tools



## 5.0 Conclusion

When eelgrass is newly transplanted into a suitable subtidal site, it is common to observe small crabs, seastars and juvenile fish migrate in large numbers into the shelter of the underwater forest. They seem to know that this three dimensional space will provide the refuge and nourishment needed for them to grow and flourish.

These Eelgrass Symposiums function in somewhat the same way: the Eelgrass Network thrives when its members are able to find the support they need (shared ideas, field experiences and equipment, training with data entry and mapping protocols, information about research and funding sources) so that they can return to their communities renewed. This third Network Symposium was another success because it provided them these rich opportunities.



Sharon Jeffery

Thank you to Rudy North, the Pacific Salmon Foundation, the Bamfield Marine Science Centre, Cynthia Durance, and especially to all the hard working members of the Network for keeping eelgrass front and centre in our coastal conservation work.

If there are questions or comments regarding this report, please send them to [seachange@shaw.ca](mailto:seachange@shaw.ca)