

Stakeholder's Workshop Synopsis

SPARTINA PATENS IN Burrard Inlet 2015 AND BEYOND

Overview

Spartina patens is an intertidal cordgrass that has been identified in several salt marshes in Burrard Inlet. *S. patens* is known to out compete native vegetation thereby reducing diversity of native saltmarsh habitat. It is listed on the provincial noxious weed list.

Between February 27th and March 11th, 2015 Burrard Inlet Stakeholders and the general public contributed to the development of a management plan for the eradication of *Spartina patens* in Burrard Inlet. The management plan is an ongoing adaptive strategy that will increase stakeholder and public engagement, improve the monitoring of Burrard Inlet shorelines for new and existing infestations and implement control measures to prevent expansion and reduce the total population until it is eradicated.

Baseline Monitoring and Mapping



Continuing to map Burrard Inlet shoreline that is at risk for *S. patens* invasion is critical to effective management for eradication. Improving the existing mapping methods is a priority. *S. patens* is a difficult invasive to identify without a botany background or training. The brownish-red seedheads of *S. patens* found from late summer to early fall help to distinguish it more easily. For this reason mapping is conducted during late summer and early fall. A series of hands-on training sessions will be held as required.

Both the 2013 and 2014 records of shoreline searched, in addition to existing maps, are being compiled to categorize the entire Burrard Inlet shoreline for risk of *S. patens* invasion. Shoreline risk classification will factor in tidal action, ocean currents, proximity to existing known locations of *S. patens* and viable habitat for invasion (ie. Excluding seawalls and rockfaces). Upon completion of shoreline risk classification multiple stakeholders and volunteers with the capacity to conduct shoreline searches will cooperate to ensure systematic mapping of the Inlet. Higher risk shoreline areas will be mapped annually and medium to low risk sites will be mapped every 3 years. Division of shoreline searches to smaller areas by the same parties will allow changes in shoreline habitat to be readily recognized by parties that have familiarized themselves with their area. As well it will increase overall mapping efficiency and

effectiveness by mapping all critical shoreline every year from August to early September rather than only being able to map a portion of critical areas each year between August and October. The mapping efforts will be centrally recorded for reporting by the BC Spartina Group including entry into the provincial Invasive Alien Plant Program (IAPP) application.

Control Measures for Burrard Inlet

Since 2014 a detailed literature review of control measures for *S. patens* and habitat restoration methods post-eradication have been underway by the BC Spartina Working Group. Two primary control methods are within the capacity of the BC Spartina Working Group and associated stakeholders: cover plots and herbicide application.

Cover plots involve placing a thick material over the infested area to block the sunlight, thereby preventing photosynthesis and killing the plant. Two separate preliminary trials using cover material to control *S. patens* have been underway since 2012 providing some initial conclusions. Complete kill of a plant has been found to take a minimum of two years with one layer of cover material. The exploration of two layers and combinations of different types of cover materials is currently underway. Installation from late summer to early fall appears to initially protect the plant during winter months; installation in early spring is recommended while root energy reserves are lowest. Pre-treating by applying steam or mowing had no significant effect, suggesting that stressing *S. patens* prior to covering does not reduce the length of time required for covering to be effective. However, mowing made installation easier. *S. patens* was found to recover quickly anywhere the cover material was damaged and sunlight could penetrate. Re-establishment of native vegetation is currently being monitored. Early results indicate that using cover material to control *S. patens* in Burrard Inlet can be used as part of the integrated pest management approach of the management plan.



To date, herbicide has not been used on *S. patens* in BC. Washington State has successfully demonstrated control using herbicide application since 1997. The selected herbicides for Spartina control in Washington State include both Rodeo (active ingredient- glyphosate) and Habitat (active ingredient- imazapyr). In BC the same herbicides were selected for application based on the success of partners in Washington. In BC only imazapyr has been used at

an operational scale on *Spartina anglica* in Boundary Bay and Robert's Bank. Detailed environmental monitoring studies were conducted to include laboratory testing for residual imazapyr in water and plant tissue samples. No imazapyr was found in water samples 24 hours post-treatment. Plant tissue samples taken 5 metres away from a treated plant contained no imazapyr within detectable limits at any time period including immediately post treatment. Studies also included testing efficacy of multiple application rates and combinations of imazapyr and glyphosate on *S. anglica* control. *S. anglica* treated with any half label rates had poor to moderate control while all full label rates and combinations had good control. As well, monitoring for the effect and re-establishment of native vegetation found no significant long-term effects of any treatment.

Currently, a decision-making tool is being developed that will aid in the selection of control measures at the site level. The criteria will include but is not limited to aesthetic and environmental impacts, long-term versus short-term duration of impacts, as well as logistical and resource constraints.

Control Measures Action Plan

Control of *S. patens* in Burrard Inlet will include monitoring methods for effectiveness and general impacts. Existing cover trials will be monitored for effectiveness and re-establishment of native vegetation. The 2015 action plan will continue using cover plots that will be installed in early spring. Proposed pilot sites for herbicide control will provide a context for comparison of covering and herbicide control measures. Overall impact including ecological and aesthetic measures will be compared and weighed against effectiveness and cost-efficiency. This will aid in further development of control measure selection criteria for infested areas.

In order to proceed with all proposed actions for 2015 further consultation is required. Action plan proposals with multiple options for type and extent of control over the next 3 years are being drafted for the District of North Vancouver and City of Port Moody. The BC Spartina Working Group will work with all stakeholders to meet the requirements of the BC Weed Control Act and reduce the risk of degradation of salt marsh ecosystems in Burrard Inlet by *Spartina patens*.