

WDFW Reply to Skagit River Cooperative on Invasive Cattail Control

From: Heimer, David M (DFW)
Sent: Friday, October 11, 2013 4:53 PM
To: Tim Hyatt
Cc: Rotton, Belinda (DFW); Williams, Brian W (DFW); SEPADesk (DFW)
Subject: Invasive Cattail Control Project SEPA Response

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Tim,

Thank you for reviewing our Invasive Cattail Control Project. In response to your comments, we feel that it is prudent to reduce the acreage of our project to 65 acres over the four years and increase our monitoring of the treatment response over time and tidal ranges. By reducing the scale of the project we hope to address your concerns regarding undesired outcomes and still fulfill the need to move the project forward at a scale that is meaningful for our land management responsibilities. We would welcome a chance to meet with you to discuss and improve elements of the project as we move forward.

I have responded to the comments in your letter, based on the original scale (650 acres) of the project. Please take into account the scale of the project has been reduced by 90% when reading them.

Comment 1: According to the SEPA checklist and the JARPA for the project, up to 5000 gallons of herbicide mix could be applied in any treatment season (June-October). The treatments are proposed to go for four seasons, from 2013-2016. This represents a potentially very significant impact if native species to not re-colonize the site as intended.

Response: Using mechanical methods, such as crushing and cutting, to treat monotypic meadows will reduce the cover of invasive cattail, reducing the need for herbicide applications. Herbicide treatments will occur throughout the site, but will be focused on areas of low invasive cattail density and discrete patches (e.g. individual or small patches, fringing infestations) where efficacy is the highest. Experience with *Spartina* indicates that herbicide treatment does not impede the establishment of natives.

The figure of 5,000 gallons per year of mix was used as a worst-case, spray only approach, which we do not intend to implement. It is important to understand that water represents 97% of the 5,000 gallons of mix and that figure is a probably a better estimate for the total needed for the four years of the project. Over the four years of the project, approximately 150 gallons of herbicide will be used which includes: Imazapyr (0.75%), glyphosate (1%); Agridex (1%) and a marker dye (0.25%). All of the products used have been approved by Ecology for aquatic applications and will be applied under the NPDES permit for aquatic noxious weeds.

Comment 2: Will the treatments work as intended in all or only some of the sites? Will the proposed treatments result in native species re-colonization, or will eradication result in a mudflat, or in colonization by another invasive? Hood's model was designed to shed light on exactly these questions, although it has not been applied yet to the SWA cattail project.

Response: We anticipate that the treatments will be successful to some degree on all sites, resulting in a transition to a more diverse native marsh over time and potentially the generation of some mudflat. There is some concern that extensive treatment area could provide an increased area for colonization by other invasive species. We are currently treating the main weeds of concern, which include purple loosestrife and yellow flag iris, and we do not expect another invasive species to dominate the treatment areas. The post-treatment monitoring of the area will allow us to detect and treat these invasives.

Depending on factors such as substrate, salinity and tidal elevation, the type of native plants that colonize the site may vary. Therefore, we plan to adapt Hood's model of elevation and native vegetation distribution to help predict the transition of treatment.

Comment 3: It is difficult to predict the extent to which soil erosion in the more exposed SWA areas will affect re-colonization by native species, or if the herbicide treatments will favor native re-colonization to the same extent. Despite the favorable findings in the Hood research, there are many, many unknowns in what is being proposed by WDFW for the SWA area. A vigorous monitoring program of what treatments are used, where, and at what elevations, and the results from those treatments, would not only provide assurance that the treatments are working as planned (and permitted), but could guide future work in cattail eradication elsewhere in the state.

Response: Wave action and its affect on erosion and the ability for native plants to colonize treatment sites are not thought to be a factor for several reasons. First, the marsh is located in a relatively sheltered location from winter storms originating from the south. The shallow water, short fetch and presence of untreated vegetation in the project area lead us to believe wave action will continue to be attenuated. In addition:

1. Crushed cattail will be left in place, creating a layer that will reduce the potential of erosion and suspended sediment.
2. Cattail roots will remain intact and bind sediments.
3. Some cattail resprouting will occur and native vegetation will colonize the site over time. The transition will bind sediment and attenuate wave action.
4. A ten foot standing cattail buffer will be left around crushed site to contain crushed cattail and reduce wave energy and sedimentation.
5. Vegetation outside of the treatment area will be left untreated and attenuate wave action.
6. Impacts to existing tidal marsh channels will be minimized through implementing the best management practices outlined in the SEPA.

A record of treatments will be maintained and monitoring plan will be implemented.

Comment 4: Our primary concerns about herbicide use are the potential toxicity of such a large amount (5000 gallons per year) of herbicide mix, the surfactant used with the mix, and the ecological impacts of removing large swaths of vegetation in such a sensitive area. Again, the SRSC research on cattail eradication involved only mowing.

Response: As stated in the Response for Comment 1, the amount of herbicide mix estimated to be used will be 75% less than the 5,000 gallons. The toxicities of the herbicides and adjuvants have been researched and those findings can be reviewed at Ecology's website:
http://www.ecy.wa.gov/programs/wq/pesticides/seis/risk_assess.html.

Herbicide residue sampling conducted during *Spartina* control showed very little herbicide entered surface waters and the residence times were short. The fact that cattail is 2-3 times as tall as *Spartina* makes it even less likely that tidal inundation will wash herbicide off the plants.

Comment 5: The other unanswered question is what will happen at the extensive tidal flats waterward of the protective levees if a substantial amount of the vegetation is killed by herbicide? Will the herbicide-treated *Typha* root strength diminish rapidly and result in large-scale erosion under wave action, or will native plants re-colonize quickly and re-establish a vegetative cover, or some other result?

Response: Large-scale application of herbicides is not expected to occur. The areas treated with herbicide will primarily be the cattail buffers surrounding mechanical treatment and smaller infestations where mechanical treatment is impractical, or unwise. The herbicides used are slow-acting and degradation of the root will not occur rapidly. The root system of invasive cattail will continue to bind sediment as native marsh plants colonize the site.

In addition, no single treatment of any type results in 100% control. We anticipate a mosaic-type pattern of invasive cattail throughout the treatment area that will diminish in abundance over time being replaced by natives, but will still provide erosion control. For these reasons, the tide flats waterward of the levee are not expected to change quickly.

Seeding of treated areas by adjacent infestations *Typha angustifolia* will be managed by identifying and treating any new invasive cattail infestations. *T. x glauca* may not produce viable seeds and would therefore not pose a great risk.

Comment 6: It is precisely this colonization by native species that the cattail eradication is meant to encourage, yet the crushing and herbicide treatments may disrupt native colonization if LWD in the inter-tidal areas is not carefully avoided. The SWA cattail project needs to plan the efforts by elevation zone and avoid disturbing LWD and the vegetation growing on it.

Response: WDFW is concerned about non-target impacts to native vegetation and large organic debris (LOD). To the extent possible, native vegetation will be avoided by equipment and herbicide applications. It is important for us to retain as much native vegetation as possible in the treatment areas to facilitate the transition back to native marsh.

In most cases, LOD will be avoided and left in place where crushing activity is being implemented. Cattail fringes left around LOD can be either mowed, or treated with herbicide at a later time, avoiding natives growing on it. To reduce impacts to LOD the following best management practices will be implemented:

1. Existing LOD in tidal channels with widths greater than 4 feet or within the 10 vegetation buffer described above in item 3 will be left undisturbed.

2. Existing LOD outside of the 10 foot vegetation buffer described in item 3 of Tidal Channel BMPs may be set aside to allow crushing activity but will maintain on the marsh plain in the immediate vicinity of its original location.

Again, thank you for your time commenting on the project. Please let me know if you have further questions as the project develops.

Dave

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