



March 9, 2012

Ms. Kathy Hamel
Washington State Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Dear Ms. Hamel:

The Washington Department of Natural Resources (DNR) received notice that the Washington State Department of Ecology (DOE) is considering the need for, and merits of, developing a National Pollutant Discharge Elimination System (NPDES) permit to address application of the herbicide imazamox to control *Zostera japonica* on commercial shellfish beds.

DNR manages state-owned aquatic lands (SOAL) for the citizens of Washington State under Articles 15 & 17 of the Washington State Constitution and Chapter 79 of the Revised Code of Washington (RCW). As the manager and Steward of SOAL, DNR does not support issuance of a NPDES permit to allow imazamox to be broadly used to control *Zostera japonica* on aquaculture farms at this time. DNR offers the following specific comments and suggestions for your consideration as you move forward with your process:

- **The scope of the NPDES permit and treatment of mixed beds of *japonica* and *marina*** – If DOE chooses to move forward with a NPDES permit for the application of imazamox on commercial shellfish beds, we recommend that DOE and the shellfish industry develop a pilot research program, first targeted to shellfish aquaculture lands where *Zostera japonica* is known to exist in a monoculture and has significantly reduced shellfish productivity. These pilot studies should, at a minimum, include careful documentation and monitoring of the impacts of imazamox, including response of targeted and non-targeted species. Results should be used to inform future decisions about permitting the application of imazamox on commercial shellfish beds.
- **Undetermined and potentially beneficial habitat functions of *Zostera japonica*** – Research (including research funded by DNR - Mach et al. 2010) has found that *Zostera japonica* may provide some of the same basic habitat functions as *Zostera marina*. We recommend additional research to fill the data gaps on the structural and habitat functions of *Zostera japonica*, interactions between *Zostera japonica* and *Zostera marina*, and the response of both species to limited application of imazamox. DNR is currently designing research to address some of the key data gaps and would be happy to work with DOE.
- **Complexities in identifying and discerning *japonica* from *marina*** – Frequently overlapping distributions and complex patterns of both species suggest that it will be difficult to identify and target *japonica* for selective imazamox treatment. If DOE issues NPDES permits for imazamox, we recommend careful identification, planning, and

Ms. Kathy Hamel
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Page 2 of 2

implementation on a case by case basis to avoid unintended consequences to non-target species. Additionally, we recommend that DOE incorporate into its permitting process how it will avoid and mitigate unintended consequences and appropriate conditions under which chemical treatments should and should not be applied.

- **Remaining questions about the chemical components and effectiveness of imazamox**
– The most common aquatic formula for imazamox includes unknown chemical components, which prevents DOE from effectively evaluating the potential effects of the herbicide. Additionally, DOE has acknowledged that imazamox may not be selective for aquatic vegetation nor may it retain its effectiveness over time, as targeted vegetation can build rapid resistance. Given these significant unknown factors, we recommend a more limited pilot approach or significantly limiting the scope of a NPDES permit to include small treatment sites and required monitoring.

DNR appreciates this opportunity to comment prior to issuance of a general NPDES permit and we agree that any decision to permit the use of herbicide for treatment of *Zostera japonica* should require this separate process and permit. We have significant eelgrass expertise on my staff and I would like to be involved with development of monitoring or permit conditions if you choose to move forward. You can contact me either at blain.reeves@dnr.wa.gov or at (360) 902-1731.

Sincerely,



Blain Reeves, Assistant Manager for
Science, Shellfish, and Invasive Species
DNR Aquatic Resources Division