

***Zostera Japonica* Management on Commercial Clam Beds in Willapa Bay General Permit**

Addendum to the Fact Sheet
Appendix C: Response to Comments

April 2025



Summary of major permit changes

In finalizing this permit, the Washington State Department of Ecology (Ecology) considered all of the public comments received during the public comment period. Ecology received written and verbal comments. Verbal comments were received at the in-person hearing on January 7th, 2025, in South Bend, Washington, and at the virtual hearing held on Zoom on December 30th, 2024.

This is a summary of the significant changes made to the *Zostera japonica* management on commercial clam beds in Willapa Bay general permit (permit) in response to the public comments received between November 21st, 2024, and January 14th, 2025.

Section	Summary of Revisions
S4.A.1	Revised language describing the requirements for direct supervision by a licensed pesticide applicator.
S4.A.2	Revised language regarding aerial application of imazamox, allowing the use of unmanned aerial vehicles.
S4.D	Revised the requirements for posting signage, limiting tideland signs to within ¼ mile of a public access point and adding shoreline signs.
S5.B	Revised the requirements for buffer effectiveness monitoring, requiring it to be done during the first treatment conducted under the 2025 ZJ permit.
S7.B	Added written notification of adjacent property owners prior to treatment.

A list of all significant changes to the permit is available on page 6 of the Fact Sheet.

Additional minor changes to permit wording and punctuation have been made to correct formatting, grammar and improve clarity.

Comments and Responses

Ecology published a draft of the *Zostera japonica* management on commercial clam beds in Willapa Bay general permit on November 20, 2024, for public comment. The public comment period ended January 14th, 2025, at 5 PM. During the comment period, Ecology conducted two public hearings (one virtually on December 30th, 2024, and one in person at the community center in South Bend, WA, on January 7th, 2025) and one in-person town hall on November 6th, 2024. Ecology also accepted public comments via comment form on the permit website and email.

Ecology considered all comments when preparing the final permit. The response to comments document describes Ecology's response to each commenter and any changes to the permit that resulted from the comment. Ecology received comments from 12 individuals during the public comment period. Each comment is referenced with the letter associated with the given commenter. The comment number that corresponds to each commenter is given in Table 1. These numbers allow the commenter to find Ecology's response to their comments. Comments may be summarized; the full text of all comments received by Ecology can be found at the [Zostera japonica management on commercial clams beds in Willapa Bay general permit](#)¹ web page.

The response to comments is organized into two sections:

[Section 1](#): Table of Commenters

[Section 2](#): Ecology's Response to Comments on the Permit and Related Documents

¹ <https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Aquatic-pesticide-permits/Zostera-japonica-eelgrass-management>

Section 1: Table of Commenters and Comment Numbers

Table 1: Commenters

Commenter Name	Affiliation	Comment Topic Numbers
A. Apo Skye Cyr	Student, Green River College	7, 16, 18, 19
B. Marlisa Williams Dugan	Resident	1, 2, 7, 8, 10, 21
C. Margaret Pilaro, Executive Director	Pacific Coast Shellfish Growers Association	22, 5, 1
D. James Kaldy	Resident	1, 2, 6
E. Erica Proulx, Kampmeier&Knutsen, PLLC	Twin Harbors Waterkeeper	29, 23, 16, 14, 13, 11, 8, 6, 5, 4
F. David Beugli, Executive Director	Willapa-Grays Harbor Oyster Growers Association	6, 8, 14, 26, 28
G. Christine Barkhurst	Resident	12, 10, 8
H. Chase Metzger, Pesticide Applicator	Coastal Ag, LLC	4, 14, 26
I. Brian and Marilyn Sheldon	Northern Oyster Company	26, 25, 24, 14, 6, 5
J. Amy van Saun, Senior Attorney	Center for Food Safety	1, 3, 6, 7, 8, 9, 10, 12, 13, 15, 17, 27
K. Ross Barkhurst	Resident	20, 9, 8, 3
L. Lee First	Twin harbors Waterkeeper	3, 6, 8, 11, 14

Section 2: Comments on the Permit

Comments and Responses

Comment 1. Commenters submitted comments asking Ecology to reissue or deny reissuing the permit.

- I don't think we should be spraying at all.
- This permit should not be used.
- Opposes the use of herbicides in clam beds in Willapa Bay.
- Deny this permit.

Commenters: B, C, D, J

Ecology's Response:

[RCW 90.48.445](#)² directs Ecology to issue permits for the aquatic use of herbicides and surfactants registered under state or federal pesticide control laws for the control of aquatic noxious weeds. Noxious weed is a regulatory term defined in [RCW 17.10.010\(1\)](#)³. Plants are designated to be noxious weeds because of the plant's impact. A noxious weed is "a plant that, when established, is highly destructive, competitive, or difficult to control by cultural or chemical practices."

The [Washington State Noxious Weed Control Board \(WSNWCB\)](#)⁴ is provided authority in [RCW 17.10.080](#)⁵ to adopt, through rule-making, a list of plants designated to be noxious weeds. The process for designating a plant to be a noxious weed is public (following the Administrative Procedures Act – [Chapter 34.05 RCW](#)⁶) and set in [RCW 17.10.080](#)⁷ and [WAC 16-750-022](#)⁸. Ecology does not have the authority to override the WSNWCB's decision on whether a plant is designated as a noxious weed.

The State legislature created the noxious weed control boards "to limit the economic loss and adverse effects to Washington's agricultural, natural, and human resources due to the presence and spread of noxious weeds on all terrestrial and aquatic areas in the state ([RCW 17.10.007](#)⁹)." Based on that purpose, as stated by the legislature in [RCW 17.10.007](#)¹⁰, part of determining if a plant should be a noxious weed is the **economic impact** of the plant on agriculture, natural areas, and human resources.

² <https://app.leg.wa.gov/RCW/default.aspx?cite=90.48.445>

³ <https://app.leg.wa.gov/RCW/default.aspx?cite=17.10.010>

⁴ <https://www.nwcb.wa.gov/images/weeds/Zostera-japonica-written-findings2014.pdf>

⁵ <https://app.leg.wa.gov/RCW/default.aspx?cite=17.10.080>

⁶ <https://app.leg.wa.gov/rcw/default.aspx?cite=34.05>

⁷ <https://app.leg.wa.gov/RCW/default.aspx?cite=17.10.080>

⁸ <https://app.leg.wa.gov/wac/default.aspx?cite=16-750&full=true#16-750-022>

⁹ <https://app.leg.wa.gov/RCW/default.aspx?cite=17.10.007>

¹⁰ <https://app.leg.wa.gov/RCW/default.aspx?cite=17.10.007>

The WSNWCB determined it appropriate to designate *Z. japonica* as a noxious weed starting in 2012, partly because of the economic impacts on commercial clam culture (see [WSNWCB written findings for the listing](#)¹¹). The commercial shellfish grower community approached Ecology for a permit to use imazamox to control *Z. japonica* the same year.

Under [RCW 90.48.445](#)¹², Ecology must issue a permit for the use of registered herbicides for any aquatic noxious weed control where a permit is requested. Ecology's options for denying a permit request for aquatic noxious weed control using herbicides are limited by this statute. This means that the basic questions facing Ecology when such a permit is requested are not whether a permit should be issued, but generally include the following:

- a) Should Ecology issue an individual or general permit?
- b) Which EPA or WSDA-registered herbicides and adjuvants should Ecology conditionally authorize for use in the permit to control an aquatic noxious weed?
- c) What geographic area should be included in the permit for conditional authorization to use the registered herbicides and adjuvants?
- d) How does Ecology balance all competing designated uses of a waterbody (for example, habitat, industrial use, recreation, agriculture) while allowing herbicides to control an aquatic noxious weed?

Comment 2: 2 comments were submitted about the appropriateness of the Washington State Noxious Weed Control Board (WSNWCB) designating *Z. japonica* to be a noxious weed.

Commenters: B, D

- Re-evaluate *Zostera japonica* as a noxious weed.
- I am against the listing of *Zostera japonica* as a noxious weed.

Ecology's Response:

The [Washington State Noxious Weed Control Board \(WSNWCB\)](#)¹³ is provided authority in [RCW 17.10.080](#)¹⁴ to adopt, through rule-making, a list of plants designated to be noxious weeds. The process for designating a plant to be a noxious weed is public (following the Administrative Procedures Act – [Chapter 34.05 RCW](#)¹⁵) and set in [RCW 17.10.080](#)¹⁶ and [WAC 16-750-022](#)¹⁷. Economic impacts are one of the criteria that the WSNWCB uses to determine if a plant species should be categorized as a noxious weed. Ecology does not have the authority to override the WSNWCB's decision on whether a plant is designated as a noxious weed.

¹¹ <https://www.nwcb.wa.gov/images/weeds/Zostera-japonica-written-findings2014.pdf>

¹² <https://app.leg.wa.gov/RCW/default.aspx?cite=90.48.445>

¹³ <https://www.nwcb.wa.gov/images/weeds/Zostera-japonica-written-findings2014.pdf>

¹⁴ <https://app.leg.wa.gov/RCW/default.aspx?cite=17.10.080>

¹⁵ <https://app.leg.wa.gov/rcw/default.aspx?cite=34.05>

¹⁶ <https://app.leg.wa.gov/RCW/default.aspx?cite=17.10.080>

¹⁷ <https://app.leg.wa.gov/wac/default.aspx?cite=16-750&full=true#16-750-022>

Comment 3: 3 comments were received regarding the accountability and validity of Ecology's data used in this permit.

Commenters: J, K, L

- Ecology failed to conduct any review of the impacts on the ground after the last five years of spraying. While the additional monitoring and public comment period required in the proposed permit is an improvement, the permit, fact sheet, and Environmental Impact Statement fail to show how the use of synthetic herbicide complies with Washington's "no net loss" of eelgrass policy, water quality laws, or the principles of Integrated Pest Management (IPM), or how IPM principles (herbicide as a very last resort) will specifically be required through this permit
- There is no accountability to the public or Ecology to ensure that permit requirements are being met.
- We (Ecology) have put out false information, such as the (known) sediment load of Imazamox, an out-of-date eelgrass map, and the effects of Imazamox on rat livers.

Ecology's Response:

The previous issuance of the permit did not require monitoring if the permittee did not spray up to the edge of the 10-meter buffer, and during the 5-year cycle of the last permit period, no monitoring reports were submitted to Ecology. We have made changes to the new 2025 permit to reflect the need for data and now will require monitoring reports after spraying occurs. This will fill data gaps that currently exist.

Permittees are required to follow the permit conditions. If violations are reported to Ecology or a permittee doesn't follow their permit, inspection and enforcement can result. We have not had any indication that permittees under this permit have violated their permit conditions. The new pre-treatment notification requirements provide information needed for Ecology staff to inspect both treatments and monitoring activities.

The concept of "no net loss of ecological function" in the Shoreline Management Act (WAC 173-26-241) is relevant in the development of shoreline master programs and shoreline permits. Ecology addressed critical habitat and no net loss of eelgrass in the 2014 issuance and 2017 modification of this permit. No net loss of eelgrass outside of commercial clam bed parcels is one of the goals of the permit conditions to align with other agencies' regulations and policies. It does not prevent Ecology from issuing permits as required by state law (RCW 90.48.445). Please see our response to Comment 15 for more details.

Integrated pest management (IPM) is an approach that involves coordinating efforts and making decisions to control pests in an environmentally and economically effective manner. (RCW17.15.010). The EPA regards IPM as meeting technology-based-effluent limits for aquatic pesticide application (see the EPA general permit). Therefore, Ecology's permit requires that applicants develop Discharge Management Plans (DMPs) for the use of imazamox to manage *Z. japonica* on commercial clam beds. Appendix C of the permit sets out the minimum standards and guidelines for plan development. Because the EIS prepared for the issuance of this permit

covers many of the elements required in the DMP, Ecology will allow substitution of the EIS for some of the DMP plan elements, where appropriate.

The map showing locations of recent treatments in Willapa Bay did include older eelgrass data from WA DNR. Ecology contacted USDA and received more recent information on the extent of eelgrass cover in Willapa Bay. We will share the latest version of this map on our website when it is available. The 2014 final Environmental Impact Statement (EIS) states that Imazamox is highly water-soluble and adheres poorly to all soil types, particularly sediments with low organic content, such as those in Willapa Bay.

A 2018 study titled “An imazamox-based herbicide causes apoptotic changes in rat liver and pancreas” (Sevin et al., 2018) was reviewed for applicability to the data contained within the factsheet and EIS for the *Z. japonica* permit. We found that the study was not applicable for several reasons. The doses used on the animals in the study were much higher than that allowed within the permit, and injection studies are not good indicators of effects in a natural environment. These environmental conditions which lead to the breakdown of chemicals like Imazamox, in the env photolysis, dilution, and plant uptake. The authors of the study note that the effects observed may not be from the imazamox, but could be caused by other ingredients in the herbicide product they used. The herbicide product used in the study, Intervix Pro, has never been registered for use in Washington State.

Comment 4: Commenters suggested the following in regards to application methods used to apply imazamox onto *Z. japonica*:

Commenters: E, H

- Put into the permit that backpack sprayers are required for use in the permit and that the land being sprayed can only be done on foot and not via vehicle.
- Ecology should consider requiring the use of food-grade marker dye or temporary flagging to mark the boundaries of treatment areas so that permittees know where application on the clam bed must stop to maintain parcel edge boundaries.
- Ecology should specify what imazamox application methods are allowed to be used under a permit.
- Can we use drones for aerial applications?

Ecology’s Response:

Marker dyes are allowed for use in the permit to mark where treatment has occurred (special condition S1) and are now required if using an unmanned aerial vehicle for treatment. (special condition S4.A.2)

Application methods are specified by the product label, including handling instructions to avoid spills into surface water. The permit prohibits aerial applications using a fixed-wing aircraft or helicopter because those methods are not accurate enough to comply with other permit requirements. The new permit allows precision applications with unmanned aerial vehicles. Over the last 10 years, all imazamox treatments have been done using ground-based application methods such as backpack sprayers or vehicles. The product label allows both

broadcast and spot treatments. Ecology does not have a technical basis to further limit ground applications to only backpack sprayers. No applications are allowed when the wind speed exceeds 10 miles per hour, to help prevent off-target impacts due to drift. See special condition S4.A.2.h.

Ecology may limit or prohibit aerial applications through the issuance of an administrative order (RCW 90.48.120) on a case-by-case basis if it is concerned that this application method will result in impacts to water quality or noncompliance with this permit or state and federal law. And if unmanned aerial vehicles are used in the application of pesticides, the federal requirements of 14 CFR Part 137 apply. This section governs the use of aircraft, including drones, to dispense or spray substances used for pest control.

Comment 5: Ecology received comments about changing or modifying the treatment timing window and dry times between tides.

Commenters: C, E, I

- Ecology should increase the amount of dry time required after application of Imazamox to 6 hours.
- Ecology should only allow the application of imazamox from April through early July when treatment is most effective. See Patten, K. 2015. Imazamox Control of invasive Japanese eelgrass (*Z. japonica*): Efficacy and non-target impacts. Journal of Aquatic Plant Management. Vol 53, pgs 185-190. <http://www.apms.org/wp/wp-content/uploads/japm-53-02-185.pdf>
- Does the treatment timing window impact herring spawning?
- We support the treatment timing window adjustment

Ecology's Response:

The amount of dry time included in the permit is the minimum necessary for imazamox to be effective at controlling *Z. japonica* before tidal inundation occurs. See the 2014 EIS for a discussion of the necessary dry time and plant uptake of Imazamox.

The 2014 EIS discusses the timing of herring spawning with the proposed treatment as well as the suitability of *Z. japonica* as a substrate for herring spawn.

Ecology modified the work window to be May 15th-July 30th. This revised work window was established in consultation with WDFW and DNR staff and is in line with the data we have that shows when Imazamox is most effective at treating *Z. japonica*. Also, the imazamox application window is within the in-water work window (March 2-October 14) allowed by WDFW in their Hydraulic Project Approval program to avoid sensitive life cycles of fish (such as herring spawning) within Willapa Bay.

Comment 6: Comments about treatment locations and buffers on commercial clam beds:

Commenters: D, E, F, I, J, L

- Ecology should require that permittees avoid harm to *Z. marina* by not allowing treatment near or over pools or drainages/swales containing *Z. marina*. When treatment is occurring, who is responsible for determining where such areas are located on the commercial clam bed, and how do they make this determination?
- How do we enforce Imazamox not flowing into areas containing native eelgrass?
- Are we allowing over-spraying on Imazamox? Or is the small amount of acreage being sprayed justifying that we don't need the permit any longer?
- Establishing a buffer prohibits clam farmers from fully utilizing their land for growing their crops. They lose approximately 30,000 sq.ft of usable land to ZJ that can establish itself in the buffer. Please eliminate the setback buffers due to the economic burden it creates and because of the extensive studies done that show Imazamox is safe for use and a buffer is not needed.
- Mark buffer boundaries at least by photo and advanced notice to the public when farms are spraying, 2 weeks in advance.
- Supports the 10-foot buffer.
- While Ecology lists several areas of uncertainty, it also states that a determination of the necessary buffer distance to protect *Z. marina* is still “needed.” If Ecology still has not validated to a reasonable certainty the 10m buffers it has imposed in the last two permits, how can Ecology claim that this permit will uphold the state’s “no net loss” policy for eelgrass or comply with state and federal water quality laws?

Ecology’s Response:

The Permittee is responsible for compliance with permit conditions, including determination of where swales and drainages occur during treatment, and not applying imazamox into drainages that contain *Z. marina* and transporting water off-site. See special condition S4.A.2.j.

Permittees are also required to “immediately take action to minimize potential pollution, stop, contain, clean up unauthorized discharges” and report noncompliance to Ecology within 24 hours. The new monitoring requirements will likely increase the detection of any off-site impacts. Ecology has the authority to conduct compliance inspections and take enforcement actions when necessary.

A permittee may only use imazamox on their commercial clam beds. No treatment off of commercial clam beds is allowed, and treatment within the 10-meter buffers is not allowed. Treatments are also prohibited when the wind speed exceeds 10 miles an hour. This is to reduce the risk of overspray or drift.

Buffers do limit some of the area available for clam production. They were established during development of the initial permit in 2014, and are necessary to prevent off-site impact. To make this requested change Ecology would need a technical justification and further studies prior to implementation.

Where two or more parties' commercial clam beds share boundaries, the parties may cooperate on treatment and only use buffers on the outside of the treated commercial clam beds. See special condition S4.B.

As discussed in our response to Comment 3, the concept of “no net loss of ecological function” in the Shoreline Management Act (WAC 173-26-241) is relevant in the development of shoreline master programs and shoreline permits. No net loss of eelgrass outside of commercial clam bed parcels is one of the goals of the permit conditions to align with other agencies' regulations and policies. It does not prevent Ecology from issuing permits as required by state law (RCW 90.48.445). Please see our response to Comment 15 for more details.

Comment 7: Comments submitted and remarks on whether the permit complies with the Clean Water Act, water quality standards, or sediments management standards, including impacts to sediment bacteria:

Commenters: A, B, D, J

- To protect its current integrity and to prevent deterioration, Ecology may only issue a permit that will protect water quality and must show how this permit will be effective at doing that but instead provides no analysis.
- Are we evaluating the effects of Imazamox in salmon habitats, given that over 1,500 acres of eelgrass are dead within the last 10 years? If we don't understand these effects, the permit should not be used.
- There is a reduction in *Z.marina*. We shouldn't be spraying at all. Studies are suspect. Residuals are in the mud where ducks feed. There are overlapping layers of chemicals. Killing the invasive is killing the native species. 1005 acres of eelgrass that have been killed over the years.

Ecology's Response:

As discussed in the response to Comment 1, Ecology is required to issue a permit to allow the use of one or more registered herbicides for the control of aquatic noxious weeds. Conditionally authorizing the use of herbicides for the control of aquatic noxious weeds is a balancing act for Ecology. Ecology must balance the requirement to allow herbicide use with the impacts on the often competing designated uses of a waterbody (for example, habitat, recreation, and industrial use). Ecology balances these priorities by developing an environmental impact statement (EIS) for each active ingredient conditionally authorized for use in a permit. The EIS then informs Ecology as to which active ingredients are acceptable for use because the impacts to designated uses can be mitigated. Ecology also relies on the short-term modification of surface water quality standards (see the fact sheet page 42 for a discussion). This acknowledges that in the short term, a designated use may be degraded, but over the long term, the designated use will not be degraded.

A review of the 2014 EIS did not indicate the potential for the buildup of imazamox in tideland sediments. However, because of ongoing concerns from other potential treatment types (imidacloprid for burrowing shrimp for which no discharge permit is available) in Willapa Bay, Water Quality Program staff requested a review by the Toxics Cleanup Program (TCP), which

would oversee any potential sediment impact zones. Based on the TCP review, no potential for sediment impacts was noted. TCP did note an area of uncertainty related to impacts on sediment bacteria. As part of developing the draft *Z. japonica* permit, the Water Quality Program staff investigated available scientific literature about the potential impacts of imazamox on bacteria. This investigation was documented in the 2019 fact sheet on pages 43 to 47 (which includes references). The summary of conclusions in the factsheets states:

“Based on the limited information available, the fact that the information is related to terrestrial and/or laboratory environments, extrapolation to effects on bacteria in a marine sediment environment is challenging. Literature is unclear on actual effects, with some bacteria species being affected by one ALS/ASHS inhibiting herbicide but not another. Some bacteria species appear to be affected negatively, others positively. No information directly addressed the rebound of bacteria population diversity or density, though some literature noted inhibition in growth and shifts in population. Additionally, some bacteria are known to break down pesticides (Nayak et al., 2018)(Lui et al., 2016). Bacteria have generation times (growth and cell fission) ranging from minutes to hours, depending on species and environmental characteristics (e.g., temperature and nutrient sources) (Brock, 1970)(Rheinheimer, 1985). It is unclear if short-term growth inhibition or shifts in bacteria population could occur in the marine sediment environment or how fast populations may rebound.

Current information does not appear to support a reasonable potential for unacceptable impacts to marine sediment bacteria. The permit limits the number of imazamox applications to a commercial clam bed to one time per year in Willapa Bay. Literature indicates short chemical half-life, short bacteria generation periods, uncertainty if bacteria will be affected by imazamox, and the likelihood that some bacteria will contribute to the breakdown of imazamox. Therefore, at this time, the information does not support the requirement for a SIZ.”

The acreage treated since 2014 shown in Table 1 on page 10 of the Fact Sheet is not cumulative. The acres treated are all commercial clam beds, and most of these areas have been treated multiple times over the years to effectively control *Z. japonica*.

Ecology relies on WDFW and DNR staff to provide information, expertise and guidance so we can establish permit requirements which allow for the effective control of designated noxious weeds while adequately protecting eelgrass habitat and fish populations.

Comment 8: Comments regarding concerns with how Ecology is dealing with off-site (tideland that is not a commercial clam bed) impacts and monitoring for said impacts:

Commenters: B, D, E, F, G, J, K, L

- The permit doesn't go far enough with monitoring and public notice.
- No monitoring means we don't know what has been sprayed. Crazy that we don't monitor, no other study has no monitoring. I would like to see pre and post-spraying monitoring as a requirement of compliance.

- The permit lacks any meaningful monitoring of off-site impacts or oversight by Ecology. Eelgrass has been lost on a much larger area than characterized by permit reports.
- The permit does not have sufficient reports and monitoring requirements, which results in a lack of transparency and accountability.
- Require proof treatment does not cause or contribute to further impairment of Willapa Bay.
- Require proof treatment does not cause harm to sensitive, threatened, or endangered species.
- The birds, such as the swallows and hermit thrushes, are gone. There were plenty before spraying began. The EIS didn't address the effects of Imazamox on birds living in the Willapa Bay area. There has been a reduction in herring spawning beds. WDFW has not properly advised Ecology on the effects of Imazamox on herring spawning beds. The EIS did not account for the Endangered Species Act or the effects on species of concern. The EIS is faulty and needs to be redone. We (the state) have taken a "no baseline, no monitoring, no problem" approach.
- The new monitoring requirements are over the top and take away resources from other farm work. We request that monitoring occur every 30 to 60 days post-application and consist of providing a statement of the conditions observed.
- Ecology has no monitoring data to inform the next reissuance of this permit.
- Ecology should not continue this approach of spraying now, evaluating later without better information on the actual impact of using this herbicide in the Bay.

Ecology's Response:

The 2025 *Zostera japonica* permit contains requirements for increased monitoring, reporting, and public notice. The new permit now requires permittees to monitor any observed impacts to the buffer zone around treatment areas and report those to Ecology. This monitoring is required 4-6 weeks after treatment, which reflects when changes to plants are most likely visible and provides flexibility for permittees to conduct monitoring during varying low tide cycles.

The permit also requires additional public notice by posting signs at nearby public shoreline access points and boat launches, and providing written notice to adjacent landowners. Information about permit reports and submittals is available through Ecology's [Permitting and Reporting Information System \(PARIS\)](#)¹⁸ which provides transparency and accountability.

A study on the annual variation of eelgrass in Willapa Bay published in 2003 looked at shoot density and aboveground biomass at five locations in Willapa Bay between 1998 and 2001. This study concluded that biomass of eelgrass can change significantly from one year to the next, largely due to climate variation. (Thom et al. 2003) Further data on the location and extent of eelgrass in Willapa Bay has been collected by DNR and USDA.

¹⁸ <https://apps.ecology.wa.gov/paris/PermitLookup.aspx>

Ecology relies on WDFW and DNR staff to provide information, expertise, and guidance so we can establish permit requirements that allow for the effective control of designated noxious weeds while adequately protecting eelgrass habitat, birds, and fish populations. Ecology staff have asked these agencies to collect and share data that addresses these questions.

(Ronald M. Thom, Amy B. Borde, Steven Rumrill, Dana L. Woodruff, Gregory D. Williams, John A. Southard, and Susan L. Sargeant. 2003. Factors Influencing Spatial and Annual Variability in Eelgrass (*Zostera marina* L.) Meadows in Willapa Bay, Washington, and Coos Bay, Oregon, *Estuaries*, 26: 1117-1129.)

Comment 9: Comments regarding tidewater movement within Willapa Bay. Two commenters referred to this in the following comments:

Commenters: J, K

- Mitigation relies on tidal flushing of Imazamox. However, recent studies indicate this happens much slower than previously assumed.
- Tidal exchange doesn't happen in the sediment, it doesn't get diluted in the tidal flow previously thought. Residues will stick around longer at higher concentrations, causing off-site impacts.

Ecology's Response:

We are not led to different conclusions than those discussed in the 2014 EIS or the appeal of the 2014 permit (PCHB 14-047 Findings of Fact, Conclusions of Law, and Order). The determination that treatment would not lead to off-site impacts in 2014 was based upon dilution, use of buffers, short chemical half-life, and only allowing one treatment per clam bed per season (multiple application times/days may be used to cover one clam bed with one treatment). Longer tidal mixing cycles do not change the initial dilution of imazamox after treatment to a level that is not herbicidal.

Concentration calculations discussed in the 2014 permit appeal (PCHB 14-047 Findings of Fact, Conclusions of Law, and Order) were based upon the 3000 acres of commercial clam beds and static water (no tidal exchange). The concentration of imazamox active ingredient was calculated as 0.5 ppb. Extrapolation to 6,000 acres of treatment would result in a one ppb imazamox active ingredient concentration.

We developed three worst-case scenarios using the same calculations as those used in the 2014 appeal for a concentration of imazamox after treatment based on the past 5 years of permit reports. For the three worst-case scenarios, we assume:

- No photodegradation (which is a primary degradation pathway for imazamox)
- Static water - no tidal mixing at all (not just slower tidal mixing as predicted by Wheat et al.)
- Static water volume from 2014 PCHB appeal information: 90×10^9 liters
- No 10-meter buffer requirement
- Maximum application rate allowed by permit (1.4 oz/acre imazamox active ingredient, not acid equivalent)

- All imazamox from treatment is contained in the water column
- All imazamox treatments are occurring simultaneously so that there is no degradation of imazamox between treatments

Scenario 1:

All parcel acreage (clam bed acreage under coverage on the parcel, plus all parcel acreage not included in the commercial clam bed) – **Note: such a treatment is not allowed by the permit, only commercial clam bed acreage on a parcel may be treated under permit coverage.**

- Acreage: 4,256.61
- Total ounces of imazamox applied: 5,959.3 oz
- Concentration of imazamox active ingredient after first tidal flush: 1.88 ppb

Scenario 2:

Maximum proposed treatment amount of commercial clam bed acreage based on permit Pre-treatment reports. **Note: Based upon the maximum proposed treatment acreage, which is the proposed treatment of 1,942 acres in 2015.**

- Acreage: 1,942
- Total ounces of imazamox applied: 2,718 oz
- Concentration of imazamox active ingredient after first tidal flush: 0.86 ppb

Scenario 3:

Maximum treated amount of commercial clam bed acreage based on permit annual reports. **Note: Based upon maximum actual treatment acreage, which is the treatment of 315.5 acres in 2018.**

- Acreage: 315.5
- Total ounces of imazamox applied: 441.7 oz
- Concentration of imazamox active ingredient after first tidal flush: 0.14 ppb

When we take into consideration that imazamox has a photolytic half-life of approximately 7 hours, some amount of imazamox will be temporarily retained in the plant material and surface sediments, all treatments are not occurring on the same date, and that Willapa Bay is not a static water system; the concentration of imazamox expected in the water column after treatment should not result in off-site impacts to vegetation. We expect that actual water column concentrations will be less than those estimated in scenarios 2 and 3.

Comment 10: Commenters submitted comments regarding *Z. japonica* as a critical habitat for salmon (Southern Resident Orca prey species) and other species:

Commenters: B, G, J

- Concerns that ZJ shouldn't be sprayed because it provides habitat.
- There are numerous species in decline.

Ecology's Response:

Zostera japonica does provide habitat, and research in that area is ongoing. Protecting eelgrass habitat in areas outside commercial clam beds is one goal of the permit requirements. As discussed in our response to comment one, [RCW 90.48.445](#)¹⁹ directs Ecology to issue permits for the aquatic use of herbicides and surfactants registered under state or federal pesticide control laws for the control of aquatic noxious weeds.

Ecology relies on WDFW and DNR staff to provide information, expertise and guidance so we can establish permit requirements which allow for the effective control of designated noxious weeds while adequately protecting eelgrass habitat, birds and fish populations. We have requested they gather data to help address these questions.

Comment 11: Some commenters felt that Ecology should be exercising more oversight on the treatment of *Z. japonica* on commercial clam beds in Willapa Bay or conduct routine inspections during treatment:

Commenters: D, E, L

- Ecology needs to provide more accountability for this permit. There is no accountability to the public or ecology to ensure permit requirements are being met.
- How do we enforce Imazamox not flowing into areas containing native eelgrass?
- The permit does not have sufficient reports and monitoring requirements, which results in a lack of transparency and accountability.
- Have permittees require a discharge management plan and proof they followed it. Have an annual pre-treatment plan and an annual post-treatment report. Require monthly reporting of compliance during the treatment timing window and make that info available via PARIS.
- Reporting should include proof that WQ standards were not violated. Proof of compliance with the product label. Proof that the permittee maintained the required buffer and that the permittee measured the buffer distance. Photographs should be made available. Proof permittee followed posting requirements.
- The fact sheet should include whether permit holders have complied and are in compliance with their permit.
- Have any enforcement actions taken place?
- Ecology should do regular inspections. THW wants two inspections per permittee per year. How do we ensure compliance with the permit? Who is liable for compliance with the permit? They believe it should be the owners/operators of the commercial clam operation.

Ecology's Response:

Two agencies have regulatory authority over aquatic herbicide applications. One is the Washington State Department of Agriculture under state and federal pesticide laws, and the other is Ecology through discharge permits under state and federal clean water laws. A central component of both state and federal clean water laws is the requirement for self-monitoring

¹⁹ <https://app.leg.wa.gov/RCW/default.aspx?cite=90.48.445>

and reporting. Though monitoring and reporting vary by type of discharge, these components are included in every discharge permit that Ecology issues. Self-monitoring and reporting are necessary because Ecology has limited resources to apply to over 6000 different dischargers in Washington. Due to limited resources, Ecology oversight of *Z. japonica* permit coverages is limited to complaint response. Ecology staff only responded to one complaint during the 2014-2019 permit cycle. The complaint was determined to be related to Spartina control activities.

When Ecology becomes aware, or is made aware, of potential permit violations, the situation is treated seriously and considered on a case-by-case basis to determine potential enforcement actions to bring a permittee back into compliance. The new permit requirements include pre-treatment notices to Ecology, which will enable us to conduct periodic inspections.

The permit currently requires a discharge management plan, an annual pre-treatment plan, and an annual post-treatment report. All these documents are available to the public in our Permit and Reporting Information System database (PARIS), which can be accessed online: <https://apps.ecology.wa.gov/paris/PermitLookup.aspx>.

Comment 12: The Environmental Impact Statement (EIS) completed in 2014 when this permit was originally issued was the subject of comments:

Commenters: G, J

- If Ecology still has not validated to a reasonable certainty the 10m buffers it has imposed in the last two permits, how can Ecology claim that this permit will uphold the state's "no net loss" policy for eelgrass or comply with state and federal water quality laws?
- While the additional monitoring and public comment period required in the proposed permit is an improvement, the permit, fact sheet, and EIS fail to show how the use of synthetic herbicide complies with Washington's "no net loss" of eelgrass policy, water quality laws, or the principles of Integrated Pest Management (IPM), or how IPM principles (herbicide as a very last resort) will specifically be required through this permit.
- The EIS did not account for the Endangered Species Act or the effects on species of concern. The EIS is faulty and needs to be redone. We (the state) have taken a "no baseline, no monitoring, no problem" approach.

Ecology's Response:

The 2025 permit requires monitoring to determine whether the 10-meter buffers and other permit requirements are adequate to prevent off-site impacts on adjacent eelgrass. See Ecology's response to comment 3 for a discussion of IPM, and comment 15 for our detailed response to "no net loss".

As part of the permit reissuance process, Ecology staff performed a search for new scientific documents (for example, journal articles) that contain information about the effects of imazamox on marine ecosystems (for example, benthic organisms and off-site movement). No documents were located that would cause Ecology to update the 2014 EIS.

One new journal article addressing tidal water exchange within Willapa Bay was noted in the public comments. It is addressed in the response to Comment 9. However, this article does not change Ecology's assessment of the potential impacts of imazamox use on commercial clam beds. Please see the response to comments 7, 8, and 9.

Permit special condition S3.D addresses the protection of sensitive, threatened, or endangered animal species and rare plant populations.

Comment 13: Comments about the use of All Known, Available, and Reasonable Technologies (AKART) in the permit:

Commenters: E, J

- Was AKART used?
- It is unclear how this permit meets AKART, including how the integrated pest management plan is followed.

Ecology's Response:

The permit defines what actions are considered AKART for the discharge of imazamox to control *Z. japonica* on commercial clam beds in Willapa Bay in section S3 part 2: "Permittees must use All Known, Available, and Reasonable methods of prevention, control, and Treatment (AKART) when applying imazamox. Compliance with this permit, the Washington Pesticide Control Act and rules adopted thereunder, the Washington Pesticide Application Act and rules adopted thereunder, the requirements of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), and the product label currently registered and approved for use in Washington State constitute AKART."

See Ecology's response to comment 3 for a discussion of integrated pest management (IPM).

Comment 14: Comments about the public availability of required permit submittals and documents such as Discharge Management Plans (DMP) and public notices:

Commenters: E, F, H, I, L

- Does not support signage posted 24 hours before application. Signage may not stay put due to tidal inundation twice daily and other natural conditions.
- Require monthly reporting of compliance during the treatment timing window and make that info available via PARIS.
- Provide signage only in places that have public access. Anyone would have to trespass across private property to see the marked corners of the treatment area.
- It makes little sense to post on private property if no one is there to see the postings.
- WGHOGA proposes to provide public notice of the treatment season window for two consecutive weeks before the beginning of the treatment window by either publishing a notice in the local newspaper or on a public website.
- Requiring an electronic notification in addition to a pre-treatment notification is redundant, overly burdensome, and unnecessary.
- Require permittees to post signs near treatment sites for 24 hours before treatment, especially near Leadbetter Point, the state park, and the Willapa National Wildlife

Refuge. The posting should include the dates, applicator contact info, and permit number in addition to the location of the application, including a written and map description. The amount of imazamox applied, number of acres, and name of commercial clam bed operator and owner.

- The fact sheet should include whether permit holders have complied and are in compliance with their permit.
- Require public notice for permit renewals
- Why does PARIS state that permittees under this permit are out of compliance?

Ecology's response:

Ecology is requiring signage to be posted at all public shoreline access points within 400 feet, and boat launches within a quarter mile of treated areas. With the addition of shoreline signage to improve public notice, we have modified the requirements to post signage at each corner of the treatment area and now only require them at those locations that are within a quarter mile of a public shoreline access point. These signs must include the treatment dates, treatment location, permit number and contact information for the permittee or licensed pesticide applicator doing the work. Shoreline signs must be posted at least 24 hours before treatment. Tideland signage at each corner of the treated area can be posted on the day of treatment.

The pre-treatment plans have listed where treatments may happen, but not when they will happen or which specific locations. This information will now be provided through the shoreline signs and written notification to adjacent landowners. The email notifications to Ecology are not redundant with these other types of required plans and notifications.

All reports and other documents required to be submitted for permit compliance or in support of permit compliance are available to the public. Ecology has moved the permit documents and information into our Permit and Reporting Information System database (PARIS), which the public can access using this portal: <https://apps.ecology.wa.gov/paris/PermitLookup.aspx>. All submittals required by the permit are now available through the public PARIS portal, which may be accessed by the public at any time online without a public disclosure request. There are also links on the permit web page to records in PARIS for each permittee.

The violations shown in PARIS are for annual reports or other documents that have been submitted and are accessible in PARIS, but either were received after the due date or not logged into the database.

Comment 15: We received one comment about the adequacy of the buffer validation study conducted as part of the 2014 version of the permit and finalized through a major modification in 2017.

Commenter: J

- The buffer validation study was fatally flawed. It did, however, show impacts to native eelgrass populations.

Ecology's Response:

The buffer validation study was conducted during the 2014-2019 permit cycle. The study requirements were included in the original 2014 version of the permit. Ecology finalized the buffers in the permit during the 2017 major modification. The major modification had a public comment period and was an appealable action. Ecology notified all interested parties about the major modification and no parties appealed the finalized buffer conditions in the modified permit.

Though DNR staff did have some disagreement over the study design, no agency disagreed with the results of the study. DNR was included in the buffer validation study scoping and design process before permit issuance in 2014. Ecology maintains that the interpretation of the buffer validation study results are valid and the existing buffers are appropriate.

As part of the permit modification in 2017, the maximum allowable rate for imazamox was reduced to match the application rate used in the buffer validation study. The maximum application rate allowed by the permit is less than the maximum application rate allowed on the product (Clearcast) label. Permittees may not use more imazamox than the maximum application rate allowed by the permit, even though the label allows a higher application rate.

The final report on the buffer validation study initially listed an application rate of 11.5 – 11.7 oz. Active ingredient per acre. However, later communication with the report author (Dr. Christian Grue, UW School of Aquatic and Fisheries Sciences) confirmed that this amount of active ingredient was stated in error. The amount reported was the amount of product (Clearcast) applied. Based on the amount of active ingredient stated on the Clearcast label (12.1%), 11.5 – 11.7 oz of Clearcast product is equivalent to 1.39 – 1.41 oz imazamox active ingredient. The 2014-2019 permit, after modification in 2017, lists 1.4 oz per acre of imazamox active ingredient as the maximum application rate allowed by the permit.

Ecology addressed critical habitat and no net loss of eelgrass in the 2014 issuance and 2017 modification of this permit. No net loss of eelgrass outside of treated commercial clam beds is one of the goals of the permit conditions to align with other agencies' regulations and policies. It does not prevent Ecology from issuing permits as required by state law (RCW 90.48.445).

Further information on this topic from our 2014 Response to Comments:

- Comment 53 on page 20:

“WDFW defines no net loss as: No-net-loss = (a) Avoidance or mitigation of adverse impacts to fish life; or (b) Avoidance or mitigation of net loss of habitat functions necessary to sustain fish life, or (c) Avoidance or mitigation of loss of area by habitat type. Mitigation to achieve no-net-loss should benefit those organisms being impacted (WAC 220-110-020(56)). The conditions of the permit set out the mitigation and avoidance requirements to achieve the goal of no net loss to *Z. marina* off of the treatment site due to direct effects from imazamox. Ecology agrees that there may be a reduction of off-site *Z. marina* due to the indirect effects of imazamox treatment. The phrase “no net loss” is not used in the permit and is not part of the conditions outlined in the permit.”

Further information on this topic from our 2017 Response to Comments:

- Comment seven on page 8, partial Ecology response:
“Please see the EIS sections 2.6.2 and 2.6.3 for a discussion on how WDFW’s Priority Habitat and Species designation and Hydraulic Project Approval (HPA) permitting interacts with this activity.”
- Comment 28 on page 13, Ecology response:
“There are no regulations in place that require commercial clam growers to protect or mitigate for non-target vegetation within commercial clam beds in Willapa Bay. Further, Ecology feels that this permit will provide the appropriate herbicide application restrictions to protect offsite vegetation. Please see the EIS, sections 2.6.2 and 2.6.3, for a discussion on how WDFW’s Priority Habitat and Species designation and Hydraulic Project Approval (HPA) permitting interacts with this activity.”
- Comment 41 on page 16, partial Ecology response:
“Though the goal is no net loss of native eelgrass off of the treatment site, the permit and buffer validation study is not designed to ensure zero impacts off of the treatment site. The study was designed to look at measurable impacts on native eelgrass at the 10 m buffer distance. Based upon WDFW Hydraulic Project Approval Permit monitoring guidance and the validation of the study design (see the response to comment # 26), Ecology determined that measurement of a 20% reduction in native eelgrass stem density allows standard survey methods a chance of detecting a change at a level of effort that is not prohibitively expensive.”

Comment 16: We received two comments on the experimental use of other pesticides under this permit.

Commenters: A, E

- Has the permit been issued for experimental use?
- Experimental use should not be allowed under this permit. If experimental use continues to be allowed, the permit should require that the permittee report any experimental use or related permits and allow the public to comment. If Ecology declines these changes, explain why.

Ecology’s response:

Experimental Use Permits are allowed under existing state and federal law. Permittees may apply other pesticides on a limited basis in the context of a research and development effort under the jurisdictions of the Environmental Protection Agency (EPA) and WSDA through the issuance of a federal Experimental Use Permit (federal EUP) (40 CFR 172) and/or a [Washington State Experimental Use Permit](#)²⁰ (state EUP). Permittees may be required to obtain a federal EUP before obtaining a state EUP. Permittees may apply pesticides either not registered in Washington State, or registered but in a manner not currently allowed by the Product Label, for experimental purposes with an approved federal and/or state EUP.

²⁰ <https://agr.wa.gov/departments/pesticides-and-fertilizers/pesticides/pesticide-registration/product-registration/special-registrations/experimental-use-permit>

Any treatments done under an EUP must also have coverage under Ecology's *Zostera japonica* permit, be conducted by a properly licensed pesticide applicator, and the results reported to Ecology. If this process involves Ecology issuing a new coverage under the *Zostera japonica* permit, then a 30 public comment period will also be required.

Comment 17: A commenter questioned whether Ecology had complied with the State Environmental Policy Act (SEPA):

Commenter: J

- Ecology should update SEPA based on more recent science. Ecology's use of Kim Patten's data and the continued use of a 44% decrease in clam yields in beds that contain ZP do not conform to SEPA. Ecology can deny the permit under SEPA authority.

Ecology's Response:

Ecology interprets RCW 43.21C.0383 (1) as applicable to the reissuance of the *Z. japonica* permit, so SEPA review is not required. Though there are no federal effluent guidelines published in the Code of Federal Regulations for imazamox use on tidelands, EPA does issue the federal Pesticides General Permit. In the absence of published effluent limit guidelines, we have used federal permits as a baseline in the past on other aquatic pesticide permits. Based on a review of the federal Pesticides General Permit, this permit is at least as stringent as the federal equivalent. Please see sections 5.1 and 6.8 of the Fact Sheet for more detailed information on Ecology's SEPA review process for this permit.

Additionally, Ecology staff performed a search for new credible data (for example, scientific journal articles) that contain information about the effects of imazamox on marine ecosystems (for example, benthic organisms, off-site movement). No documents were located that would cause Ecology to update the 2014 EIS. One new journal article addressing tidal water exchange within Willapa Bay was noted in the public comments. It is addressed in the response to Comment 9. However, this article does not change Ecology's assessment of the potential impacts of imazamox use on commercial clam beds.

Comment 18: Would two permits be issued if Imazamox is used with another herbicide?

Commenter: A

Ecology's Response:

This permit only allows the use of Imazamox. If an entity wants to use another pesticide they need to contact Ecology for permit requirements, and potentially get an experimental use permit.

Comment 19: Comments related to Temporary Exceedance of Water Quality Standards.

Commenter: A, E

- How long can water quality standards be exceeded?
- Show compliance with WAC 173-201A-410.

Ecology's Response:

As described in permit Special Condition S3.B, temporary exceedances of water quality standards are governed by WAC 173-201A-410. Activities covered under this permit are allocated a temporary zone of impact on beneficial uses, but the impact must be transient (hours or days, not weeks or months). The half-life for Imazamox is 6.8 hours before it is no longer considered herbicidal.

Comment 20 Concerns about the persistence of imazamox in sediment. The Patten study looked at 2 cm of sediment and said imazamox didn't collect in the sediment. The rhizome of the *Z japonica* goes down 10 inches.

Commenter: K

Ecology's Response:

The persistence of imazamox in water and sediment is discussed in section 5.6 of the ZJ Permit Fact Sheet. Studies suggest that imazamox does persist longer in sediments than in the water column. The buffer validation study published by UW in 2015 included an analysis of imazamox in sediments 48 hours after treatment. They collected sediment cores 10 cm deep at three treated beds, and found concentrations of imazamox ranging from <0.50 ppb to 3.2 ppb wet weight. However, the buffer validation studies do not report measurements of imazamox in sediments outside the treated areas, or of imazamox transport through sediments. Monitoring requirements in the 2025 *Zostera japonica* permit will help address this question by documenting any observed impacts in the buffer zones adjacent to treated areas.

Comment 21: Why are we allowed to spray Imazomox in Willapa Bay but not in Puget Sound?

Commenter: B

Ecology's Response:

Ecology decided to revise the scope of the original draft *Zostera japonica* general permit from all shellfish beds statewide to only commercial clam beds in Willapa Bay in response to public comments. This was reflected in the *Zostera japonica* permit issued in 2014.

Comment 22: The Pacific Coast Shellfish Growers Association supports and strongly encourages the renewal of the General Permit for *Z. japonica* Management on Commercial Clam Beds in Willapa Bay.

Commenter: C

Ecology's Response:

Thank you for your comment.

Comment 23: Add permit language to describe how wind speed should be measured. Require permittees to record how they measured wind speed.

Commenter: E

Ecology's Response:

RCW 90.48.445 (1.b) states that "...applications may not be made when the wind speed exceeds ten miles per hour." This is consistent with the imazamox product label, which states "DO NOT apply when wind speed is greater than 10 mph." Neither of these sources specify how the wind speed should be measured, and the WSDA Pesticide Compliance staff do not require a specific method. Ecology does not have the authority to exceed these requirements.

Comment 24: Multiple permittees who band together to treat under a single DMP should only be charged one permit fee (as a group). Also, can they combine records managed by one coordinator?

Commenter: I

Ecology's Response:

It is possible for multiple shellfish growers to get one permit coverage, as long as they are operating under a single business license. Permit special condition S2.B requires that sponsors operating under separate business licenses must obtain separate permit coverages.

Comment 25: A licensed applicator should only need to maintain visual contact with an unlicensed applicator under the supervision of the licensed applicator. No voice contact. Take out the word certified in S4.A.1.a.

Commenter: I

Ecology's Response:

Ecology has revised the permit language and removed the word certified in special condition S4.A.1.a. However the statement that "Direct supervision means the licensed applicator is physically present on the site and in voice and visual contact with the noncertified applicator at all times during the application" is based on RCW 17.21.020 (13). This permit requirement has to be in compliance with applicable state law.

Comment 26: We received several comments about the challenges associated with signage posted on private property.

Commenters: H, I, F

- Does not support signage posted 24 hours before application. Signage may not stay put due to tidal inundation twice daily and other natural conditions.
- It makes little sense to post on private property if no one is there to see the postings.
- Posting signs 24 hours before treatment. Not necessary on private property. Suggest the following language:
 - *Post signs at all corners of the treatment site if the site is within 1/4 mile of a public access point.*
 - *Post signs at all public access areas on the waterbody that are within 400 feet of a treated area and at all public boat launches on the waterbody within one-quarter mile of a treated area.*
 - *Post signs at public access points at least 24 hours before treatment*

Ecology's Response:

Ecology has revised special condition S4.D so it is very similar to the language suggested in this public comment.

Comment 27: In less than heavy-density *Z. japonica* beds, mechanical or manual removal methods should be used first. Only when these methods are ineffective at keeping the *Z. japonica* a density moderate to low should *Imazamox* control be employed.

Commenter: J

Ecology's Response:

Ecology writes NPDES permits for discharges into surface waters. Mechanical or manual control methods are outside the scope of this water quality permit. However, those options are evaluated in the Discharge Management Plan (DMP) that permittees are required to develop. If clam growers want to use physical methods to control *Z. japonica* then they would need to consult with the Washington State Department of Fish and Wildlife or the Army Corps of Engineers for approval.

Comment 28: This language needs to reflect the fact that adjacent landowners may or may not both be permittees but just adjacent cooperating landowners who agree to forego a buffer between parcels. We suggest the following language:

Commenter: F

- *When adjacent landowners are treating clam beds on properties that share a common border, and both parties agree, a buffer is not required on the connecting parcel boundary. The permittee must indicate in their annual Pre-Treatment Plan whom they are cooperating with and on which parcel(s) (Special Condition S7.A). See Appendix D, Figure 2 for an example of this situation.*

Ecology's Response:

Ecology has revised the language in S4.B so that permittees who have clam beds on properties that share a common border, and both parties agree, a buffer is not required on the connecting parcel boundary. They are no longer required to be actively treating clam beds on both properties.

The proposed language would require that both landowners be actively treating clam beds on their properties, and so would be more restrictive than the current permit. Since permit coverage would be required for adjacent landowners to both be treating their clam beds, both landowners would still need to be permittees.

Comment 29: Twin Harbors Waterkeeper wants the following language changes made to the permit.

Commenter: E

- Special Condition S2.A should state: *“Coverage under this permit is for individuals or entities in the business of commercial production or sale of clams that have the legal authority to decide to apply herbicide to owned or leased commercial clam beds and want to use imazamox to control Z. japonica within commercial clam beds in Willapa Bay (“Permittees”). Coverage under this permit must be obtained before imazamox treatment begins. Permittees are required to apply with a pesticide applicator licensed by the Washington State Department of Agriculture with an aquatic pest control category endorsement (“Sponsors”).”*
- Applicant should be defined as: *“The individual or entity in the business of commercial production or sale of clams applying for permit coverage and the WSDA-licensed Pesticide Applicator with an aquatic pest control category endorsement acting as their Sponsor.”*
- A permittee should be defined as: *“An individual or entity in the business of commercial production and sale of clams that has the legal authority to decide to apply herbicide to its owned or leased commercial clam beds.”*
- Sponsor should be defined as: *“Any WSDA-licensed Pesticide Applicator with an aquatic pest control category endorsement applying with a Permittee under this Permit.”*
- Changes should be made throughout the Permit to reflect these revisions (e.g., current uses of “permittee” to describe pesticide applicators should be changed to “sponsor,” and current uses of “sponsor” to describe clam bed owners/operators should be changed to “permittee”).

Ecology’s Response:

Ecology issues coverage under this general permit to pesticide applicators licensed by the Washington State Department of Agriculture under chapters 17.21 RCW and chapter 16-228 WAC to apply pesticides. Shellfish growers, or an individual or entity in the business of commercial production and sale of clams that has the legal authority to decide to apply herbicide to its owned or leased commercial clam beds, act as Sponsors. This approach is consistent with Ecology’s other aquatic pesticide permits. The written comment includes the statement that “The draft Permit fails to make clear who is liable for compliance with the Permit.” Several sections of the permit state the permittee is responsible for compliance with permit requirements.