



Family farmed shellfish since 1934

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Dear Kathy,

I am writing in support of the development of an NPDES permit to allow the use of imazamox to control *Zostera japonica*. This invasive noxious weed is having large negative impacts directly on our farm in Willapa Bay, and is acting to greatly degrade our ability to maintain our shellfish beds, and crop yields. Beyond our farm I see *japonica* as having drastic negative impacts in all areas of Willapa Bay as it transforms the tidelands so as to displace native species, alter the natural food supply, etc. I have worked since 1998 to develop physical and mechanical control methods, and it's clear based on this work that an herbicide tool is required if we are to be able to successfully control *japonica*. I have reviewed the comments provided by the Willapa-Grays Harbor Oyster Growers Association, and those submitted by the Pacific Coast Shellfish Growers Association, and I concur with those comments. I would like to provide additional comments more based on what I see happening in and around our farm, and based on my history with noxious aquatic weeds in Willapa Bay.

Our family has spent many years working to assure that Willapa Bay is protected on all fronts beyond the boundaries of our 4th generation shellfish farm. To that end we participate in all levels of policy development as related to the health of Willapa, and follow that by working alongside many other stakeholders to actually address problems as they arise. Currently I serve on the Boards of the Pacific County Marine Resources Committee, Willapa-Grays Harbor Oyster Growers Association, North Beach Water District, Pacific Coast Shellfish Growers Association, and the Washington State Coastal Solutions Council. These are only a few of the groups we have served with over the years where protecting water and environmental quality is at the forefront of our efforts. Our commitment to Willapa Bay is well documented and goes back three

generations within our family. All of this effort has been invested in assuring the entire bay is protected, and not only in regard to our farm needs. Many of the benefits seen in the estuary are also shared by our farm, but this is not always the case. For example, there is a misconception that invasive Spartina was having direct impacts on shellfish farms and that's why shellfish growers worked so hard to assure a successful eradication program was pursued. The reality is that Spartina was not having significant direct impacts on shellfish beds, but was a future threat. The real impact was to the general bay ecology, and its ability to support the many native species that depend on clear tide flats. We also saw the future as one where Spartina would completely cover most of the Willapa tide flats, and that would have resulted in very severe flooding and other problems. In regard to japonica, it has been having large negative impacts directly to our farms for several years, and these impacts have increased dramatically over the past 5 years.

As much as we see japonica impacting our shellfish beds, we also see it having devastating effects on many other areas of the bay that we believe are in many ways in excess of the impact due to Spartina. While the damage from Spartina was mostly restricted to the clone areas, japonica has essentially carpeted all of the tidelands so the impact is much more widespread. Because it covers all the tidelands, it's displacing many species of birds. We spend a good amount of time watching the wildlife in Willapa, and japonica is affecting many species. We are seeing fewer birds, raccoons, crab, fish, etc. wherever japonica infests, and the decline is directly correlated to the infestation density. Because of the dense stem and root structure, birds can't feed through it, raccoons can't locate food, crabs can't burrow into the sand for cover, etc. It's also becoming more common to see salmon smolt and other fish, crab, and other species trapped on the tidelands clearly because the japonica is so dense that they can't find their way back to the deeper water at low tide. The impact to overall water chemistry due to the annual growth and die off of massive amounts of stem is clearly an issue that affects all species that rely on stable water conditions, and is a likely contributor to the failure of natural shellfish sets in Willapa Bay since 2004. We recently learned that japonica acts to convert high oxygen sandy tide flats that support major food sources for native species, into more anaerobic substrate where species diversity is reduced to mostly worm related species. Given the thousands of acres infested, this is clearly having an effect on the food web in the bay. This problem increases in severity year by year. As was documented for Spartina, Willapa Bay is acting as a major seed source for the west coast, so control here will provide a benefit beyond the bay by helping reduce seed spread along the west coast.

A clear parallel we see in regard to advancing a control program for japonica is what was experienced when the Spartina program was being developed. Initially the opposition to Spartina eradication made many claims about possible impacts that were clearly not based on any data or real world conditions. There were concerns expressed about loss of fish habitat, widespread damage to other species, impacts to human health, etc. None of these concerns were supported by relevant science, and in the end there was no basis for the concerns. It was clear that these concerns were used mostly to delay progress in hopes that the dedication of responsible land managers would fade, and

Spartina would be allowed to infest the entire bay. It's clear to me that we are seeing this same method used by those who are now working to oppose the control of japonica, and the issuance of an NPDES permit for imazamox. I see these actions as extremely irresponsible as far as a true concern for addressing invasive species issues. I also see many agendas at play that are more based in serving the interests of a few as compared to the many that are being affected by japonica. For instance, while data clearly shows that no bird species require japonica as a food source, we hear concerns about some waterfowl species having to have japonica available. The fact is that many of these individuals are bird hunters and having thick japonica close to shore brings birds closer to the shooting range so these hunters don't have to put as much effort into hunting waterfowl. These individuals seem willing to trade estuary health so they can have an easier hunt. I have been a hunter for 40 years, and I find this type self serving manipulation to be completely counter to all that I have learned from responsible hunters in regard to resource management. At the February 24, 2012 WSDA meeting on japonica I heard one duck hunter make a claim that native eel grass used to populate the tidelands up to the shoreline or approximate 8' MLLW elevation, and that japonica was now helping restore this habitat. Without any supporting data whatever, he referred to an unidentified "old timer" to support this claim. This was an extreme example of how a person will completely falsify factual history in an effort to preserve their self serving interests above and beyond the needs of the estuary. This same individual has made claims around large areas of eel grass being killed during the Spartina program due to drift or overspray when Spartina was treated. Again this is counter to the information generated from the Spartina program. While it's likely that there may have been some limited non-target impact mostly in regard to japonica, I worked on treating Spartina for many years and never witnessed any significant drift or overspray impact.

It's important to consider that imazamox was identified while work was being done to find an effective control tool for Spartina eradication. A key point here is that imazamox was not selected because it did not work on Spartina due to its relatively benign composition. The tool chosen was imazapyr, and this was because it was strong enough to eradicate Spartina. With imazamox being much more benign than imazapyr, and there being no known negative impact due to imazapyr, the conclusion is that imazamox will result in even less impact. This needs to be considered in regard to assessing any likely impact due to imazamox as compared to its ability to provide an effective tool for controlling japonica. The main area of control for japonica will be focused in the same areas where we saw the most Spartina infestation, so if the impacts from imazapyr are acceptable, then the reduced imazamox impacts should be more acceptable.

Our clam farm has between 5 and 10 employees depending on the season. Based on surveys we have completed of our seed recruitment, growth, yield, sediment deposition, and bed cultivation characteristics we will begin to reduce our workforce soon unless we can effectively control japonica. This will be the case for all clam farms in Willapa if we don't get an effective control program in place. Field studies have documented the magnitude of negative impact on all these crop and farm

characteristics. Our surveys indicate that the actual conditions of our clam beds are either aligned with, or in excess of research results. The areas we originally cultivated were chosen because they were free of vegetation and drained well at low tide. Japonica has acted to completely alter these positive bed characteristics, and the resulting negative effect on our clam crops and beds has been dramatic. Data shows that japonica acts to reduce seed recruitment up to 60%, reduce meat yield and shell growth, and act as artificial cover for increased predator populations. In addition, its documented that japonica slows current flow so sediments drop out and accumulate, and this alters the sediment from a high oxygen sand/shell/rock substrate, to a mud/muck and more anaerobic substrate. It's clear based on our observations that the impact to water chemistry where japonica exists is large, and this is reflected in the overall negative impact to our beds and the tide flats in general. We are experiencing similar impacts and losses to our oyster beds and crops, and expect these to increase if we can't get control of this noxious weed.

It is my understanding that all other plants included on the State's Noxious Weed List have a permitted herbicide allowed for their control. I also understand that imazamox was added to the state general permit for fresh water aquatic weed control in 2010. Like all other noxious weeds, I support adding imazamox to the state general permit for salt water use in controlling japonica. I ask that requirements for monitoring, reporting, and other permit related items not exceed those for any other noxious weed and that like other weed permits the state accept responsibility for the permit administration and cost. In order for a successful control program to be put in place the NPDES permit must be well thought out in regard to any best management practices. I'd suggest considering those in place for the use of imazapyr and glyphosate for controlling Spartina as a good place to start. There are established monitoring requirements, application controls, etc. that are already in place with a proven history of being adequate to provide necessary protections, and that are in line with normal permit requirements. The treatment area is essentially the same for both japonica and Spartina, so it should follow that permit requirements will be similar.

Shellfish growers working to control this invasive plant will be providing a public benefit by investing in labor, equipment, etc. in order to reduce japonica, and should not be burdened further with additional permit requirements and costs. For Spartina, it was WSDA who was assigned the responsibility for the permit, while individuals applied for coverage under this permit. I'd suggest this same approach for the japonica permit so we can focus our investment on actually doing control that provides many levels of public service from restoring tidelands, to protecting native species, to reducing seed transport, etc .

In closing I want to say that based on all my observations, japonica is having a massive negative impact in Willapa Bay. I have visited other areas of the state and talked to many individuals familiar with those areas and find that infestation levels in areas such as Puget Sound are increasing. In some areas of the Sound, such as Samish Bay, it sounds like infestation levels are quickly approaching the level we are seeing in Willapa. In other areas of the Sound, japonica is just beginning to establish its presence. In

regard to the level of infestation and density, it seems clear that Willapa Bay has unfortunately surpassed those in other areas at this time, but it's clear that the same large scale ecological damage we are seeing in Willapa will eventually be the result for all estuaries in the state. I encourage the development of the NPDES permit so that all areas of the state can pursue coverage so that we are prepared to provide effective control tools as needed. In referring to the Washington State Invasive Species Council web page the conclusion for Spartina was:

"Conclusion: If state and federal agencies had begun treating Spartina in the 1970s when the grass covered a mere 75 acres of Willapa Bay, the cost of eradication would have been significantly less. And, if land managers had known then what they know today, field crews battling the infestation likely could have destroyed the noxious weed in a matter of weeks. Instead, stemming the Spartina problem took a full 10 years and a significant financial investment. To date, the price tag associated with eradicating Spartina from Willapa Bay is about \$14 million. The lesson is clear: Despite agencies' lack of knowledge in how to best treat Spartina and inadequate early tools for stopping the infestation, a faster interagency response would have resulted in greater progress in less time and for less expense. Despite the early challenges tackling Spartina, the story of its eradication is considered a success today because Willapa Bay is nearly free of the invasive plant today."

I'm hopeful we will tackle the japonica issue with the same success as we've seen for Spartina, but without delays that allow all the estuaries to end up like Willapa. In many ways the focus should be on Puget Sound where there are still areas that can be protected, but I will leave that to those responsible to manage lands there to pursue. I find it extremely unfortunate that some of those who worked to oppose the control of Spartina years ago are still influencing land management decisions, and are resisting moving ahead with an effective control program for japonica using the same unfounded concerns to confuse the issue as they used years ago to delay the Spartina eradication program from moving ahead. Those with higher decision authority should read the lessons learned above and assure we don't allow the estuaries to suffer the consequences of poor decisions.

Again, I appreciate the opportunity to provide comment from our company and family on this important issue. I want to particularly note that I appreciate the ability you have demonstrated in regard to objectively considering all the information around japonica. I think that if we can move ahead in a process that is driven by relevant science, data, lessons learned, and real world conditions we will be able to develop a successful control program that yields very positive results.

Sincerely,



Brian Sheldon