

The Science and Management of *Zostera japonica* in Washington

A state agency meeting, June 18-19, 2013

Lacey Community Center

POLICY DISCUSSION NOTES – June 19, 2013

Summarized by Jane Dewell, Governor's Office of Regulatory Assistance

The information below was captured during the 'Policy Discussion for State Agencies' portion of the meeting on June 19, 2013. These notes are not verbatim and may not accurately reflect statements or positions of attendees. The topics of discussion were:

How do we move forward collaboratively to gain clarity, consistency, and improve coordination across state agencies regarding the management of *Z. japonica*?

- What additional information needs to be gathered?
- What are our next steps?
- When and how will we check back to evaluate the effectiveness of this approach?

Agency representatives formed a panel at the front of the room and shared ideas in reaction to the technical sessions that preceded the policy session. Following the agency representatives statements, the other program attendees contributed ideas on the discussion topics.

AGENCY PANEL

Puget Sound Partnership (PSP) – Kevin Anderson

We should allow the changes proposed by the Noxious Weed Control Board (Weed Board) to go forward, and wait to see what happens with the new listing expected in 2014, and we should allow the natural resource agencies to move do their work.

Z. japonica is listed as a Class C noxious weed but we need more science to move forward on control. We need a collaborative process, adaptive management, and then allow work to proceed.

An economic cost analysis will help us understand more (of the problem). Dr. Fred Short (DNR) is working on strategies for eelgrass. As a result of his work we may come up with a process to manage these species. Dr. Short's research should be completed next year.

We share a body of water with British Columbia, and whatever we do we will affect British Columbia and other regions. If we are managing a species we need to make sure to talk to British Columbia and share research and management strategies.

We need to consider the costs of managing invasive species. With management of *Spartina* as an example, we have to ask ourselves whether we can afford that level of management. We need to determine what money is available and who pays.

People say this species has been here for 55 years. Is it time to say it's here, it's naturalized, and it's going to stay here?

WA State Noxious Weed Control Board (Weed Board) – Alison Halpern

Z. japonica has been different because it's really hard to pinpoint how to put it on the weed list. We were trying to find balance, since it clearly has an economic impact on shellfish growers, and we recognize there are positive, negative, neutral, and unknown ecological impacts. In 2011 it was proposed as a noxious weed, but the Weed Board did not add it due to policy conflicts. In 2012 we added it as a Class C noxious weed on commercially managed shellfish beds only. In 2013, we removed the modification and listed it as a Class C noxious weed, and now for 2014 we have been asked to remove it entirely or to roll back the listing. We are again grappling with how to put it on the weed list.

For upcoming listing, please provide examples of why *Z. japonica*, as well as its listing, is bad or good. We will be accepting testimony between September 20 and November 5, 2013. When the Weed Board votes on proposals we will let people know how we will move forward and will issue a press release. Go to our website or e-mail us. (Website link for *Z. japonica*: <http://www.nwcb.wa.gov/detail.asp?weed=173>).

If we are using *Spartina* as an example for management, I would ask two questions: how is *Z. japonica* similar to *Spartina*, and equally important, why they are different?

If Japanese eelgrass is not listed as a Class C (weed), that doesn't preclude management. Also, if it continues to be listed as a Class C (weed), this doesn't necessarily require control of it unless a county weed board selects it for control.

WA Department of Fish and Wildlife (DFW) – David Price

Japanese eelgrass is proposed for removal from the hydraulic code (hydraulic project approval, HPA). Also, aquaculture is exempt for the hydraulic code.

We should examine the distribution of *Z. japonica* in Puget Sound. There are different questions for Willapa Bay and Puget Sound:

- Rates of infestation?
- Ecosystem detriments/benefits?
- Ecosystem health indicators?
- Decreases in native eelgrasses?
- Would *Z. japonica* contribute to increase in Puget Sound eelgrasses?

The movement north and south is uncertain, and there are unanswered questions on the distribution in Puget Sound. We know there is a big impact in Willapa Bay, but outside of there what is *Z. japonica* doing? Would *Z. japonica* help by replacing loss of *Z. marina*? More science needs to be focused on Puget Sound.

On the outer coast there are discussions regarding green sturgeon, and in the Puget Sound there are numerous species listed and an immense amount of money. Would *Z. japonica* provide benefits?

DFW can support science, plot data, make observations, and participate in work groups.

We support some type of ongoing forum for dialogue, possible annual forum, to document detriments (impacts) from *Z. japonica*. I also believe we need to have more observation studies to help make decisions about managing *Z. japonica*.

This is the first chance I have had to strongly weigh the positive aspects of *Z. japonica*. I don't think this is a clear-cut species for eradication or one that need rapid attention. I think we need more research and discussion. I think there is time to proceed with caution instead of hast.

WA Department of Natural Resources (DNR) – Blain Reeves

We believe that more scientific information is needed to credibly assess whether concerns related to *Z. japonica* outweigh both the ecological benefits of *Z. japonica*, and the ecological and monetary costs of trying to control it.

The 2010 DNR/WA Sea Grant white paper identified clear research gaps, and DNR has begun to implement ecological research including *Z. japonica* mapping and monitoring in Willapa Bay and Puget Sound to address. We expect to make these results available through a new online nearshore aquatic vegetation atlas expected to be published and available to external users within the next six months.

In the future, DNR plans to collaborate with DFW and other partner natural resource agencies on comments to the Weed Board regarding the management of *Z. japonica*. A joint agency response may hold more weight than our individual comments.

WA Department of Ecology (Ecology) – Tom Clingman

The natural resource managers need to come together. Willapa Bay was a managed system; we do have an altered ecosystem that needs to be managed. We need to make decisions about *Z. japonica*: What is the problem? How do we decide how to treat, how to manage?

Can we use past examples for management approach? Ex. Spartina. Spartina was a small infestation and as time went by, it became a huge infestation. Let's compare *Z. japonica* to Spartina management; can we spring board upon that decision?

Consider control for ecological reasons (not just economic reasons – Ex. Weed Board). We may want to control *Z. japonica* for non-economic reasons.

There have been dramatic changes to tide flats (Willapa Bay): alternation to various functions and *Z. japonica* as a threat to shellfish beds. Changes include sedimentation, which affects the currents.

COMMENTS FROM MEETING PARTICIPANTS

Dr. Debra Shafer, USACE-ERDC

Z. japonica meets criteria as ‘naturalized’ or ‘established’ species. Control is possible, but eradication is probably not. Look at the California efforts as an example: there were high costs and time commitments. They began management when they had the best chance, and after 20 years of drastic removal *Z. japonica* has expanded. That suggests that control is going to be very extensive and expensive.

The Spartina effort was a successful program. Around forty to fifty year ago Spartina was being planted for shoreline stabilization and cow grazing so that shows you how our time has changed.

Zach Hughes, NOAA

Control is a ‘forever’ prospect (long-term endeavor). *Z. japonica* has a long history in WA. When it was found in the 1970s and 1980s it had been here a long time. It has had many decades to affect large areas and become stabilized.

Laura Hendricks, Coalition to Protect Puget Sound Habitat

Long-term management must be ecosystem based. The Weed Board needs to undo what they’ve done (listing *Z. japonica* as noxious weed) and allow everyone the time to do it right.

Science studies need to be prioritized and then move forward. Control methods – hand control or spray control – need to be studied, especially in Puget Sound.

Dr. Kim Patten, WSU Extension

Use a programmatic approach for aquatic weed control: by species, and site-by-site. We need clarity: on economic analysis, significance (level of impact) to ecosystems, and amount of money needed. What does one have to show for one to make a decision what constitutes a significant level (of impact)?

We look forward to the NPDES permit pesticide issuance. It provides an invitation to analyze plots and examine effects. We would love to have a collaborative effort on the (treated) sites.

Dr. Fred Short, DNR

Z. japonica is extensive and well established, and it’s too late to get a jump on control. Large-scale eradication is impossible – proceed with caution.

There are some areas that don’t have *Z. japonica*, such as the Straits. This seems to depend on the beach slopes. There is extensive *Z. japonica* in Padilla and Sammamish Bays, and many other areas along the shoreline.

Diane Cooper, PCSGA (Taylor Shellfish)

From listening to the comments and science information, it is clear that we have an invasion of *Z. japonica*; it is non-native, causes harm. It is also had federal attention through Federal Executive Order 13112 on invasive species (<http://www.gpo.gov/fdsys/pkg/FR-1999-02-08/pdf/99-3184.pdf>).

In Washington, the Invasive Species Council needs to be involved to recommend, coordinate and take an active role.

Spending time (and money) studying the problem causes economic impacts (delays in management). It's hard to not get defensive when you have to walk away from hundreds of acres (of shellfish beds). Let's proceed with caution but let's proceed.

Take lessons from other parts of the country and around the world. It's complex but that doesn't mean we can't do it. We need more coordination amongst agencies and need the messages to be clear.

Dr. Jim Kaldy, USEPA

We should look at the ends (edges) of *Z. japonica* distribution: British Columbia to Humboldt, CA. When we talk about baselines it strikes me there is an opportunity to get to our baselines by looking at the ends of distribution in places like BC where there isn't a lot of *Z. japonica*, and then look at areas that are highly infested.

Rick Mraz, Ecology

Action thresholds and decisions to act: Have we reached? What are the areas of focus – economic? How much *Z. japonica* is there and where?

We need to think collectively of action thresholds, in Puget Sound or Willapa Bay. When is the decision to act on thresholds, have we reached action thresholds, and are there action thresholds that can be adapted in other areas?

Bruce Wishart, Sierra Club

Z. japonica is not a clear-cut problem, but provides some benefits (filling niche of depleted native species). Many ecological functions are performed by eelgrass, and we want to see the native species expand but wonder if *Z. japonica* can replace it for the time being.

Research is appropriate, such as compare/relationship of *Z. japonica* and *Z. marina*. If manage *Z. japonica*, do it in a way that doesn't damage natives. We are concerned about control; if we are going to control we want to make sure it is done in a way that protects the native eelgrass.

Learn from Asian operations (shellfish, eelgrass interactions). Am curious how Koreans managed to have aquaculture areas in high *Z. japonica*.

Dr. Brett Dumbauld, OSU Marine Science Center

Z. japonica is changing ecosystems, changing the tidal flats. It impacts native clams, and impacts salmon and sturgeon. Clams could go away, and questions about salmon haven't been entirely answered.

Tidal height is important – possible changes due to *Z. japonica*. When we talk about concerns over control, we need to know tidal patterns are changing. We need to think about bathymetry and how that is changing.

Debra Shafer, USACE-ERDC

As climate changes, and there are continuing changes to nearshore environments, from what we know of the two plants, we can expect to see a decline in distribution of *Z. marina* range, and favoring of *Z. japonica*. I think the question on whether *Z. japonica* takes on some of the functions as *Z. marina* is valid for this discussion.

Dr. Christian Grue, UW, WA Cooperative Fish & Wildlife Research Unit

Scale of areas (plots versus bays) studied are different; we need to keep this in perspective for management options.

Remember that ecologists were split on whether/how to manage Spartina. Examine history of that effort. Agencies didn't take an adaptive management approach and were not together in their approval of Spartina control, and litigation became the control. The costs and chemical use ended up being higher than if control had been allowed to go forward. This time we have an opportunity to control.

Precautionary Principle – look at management both ways, it's not unidirectional. Adaptive management – requires partnership between agencies and stakeholders:

- Hard to do and rarely done.
- Create framework and work as a group.
- Look at scale of management.

We may have to do it differently in different ways, but if we can come up with a framework to do it and do it as a group, we are going to be successful. We won't be able to eradicate *Z. japonica* but we can manage it. We need to come together and look at the scale; there is a difference in control of shellfish beds and control in all of Willapa Bay.

David Price, DFW

I second the call in scale consideration on adaptive management. Proceeding with an application for a limited scope in Willapa Bay was a chance to provide monitoring.

Brian Sheldon, Willapa-Grays Harbor Oyster Growers Assoc.

I've seen *Z. japonica* parallel the experience with *Spartina*. *Spartina* wasn't a direct threat to the shellfish estuaries at the time, it was a future threat. But *Z. japonica* is killing us now, and we really need to move forward on this. I find it hard that we have all these policies and procedures, but it's not a collaborative effort from the state agencies. For my business I need to control this now or I am going to lose my farm. I am encouraging you guys to be objective.

Alison Halpern, Weed Board

We are trying to coordinate the weed listing and look forward to coordinated agency responses. Ecology was been proactive in initiating the NPDES permit for Willapa Bay in response to the listing.

Gordon White, Ecology

Ecology will convene a work group. We will report back to this group on next steps and adaptive management approach.

Ross Barkhurst, Washington Waterfowl (*Provided the following in written form during the discussion, rather than reading it into the notes*)

WHAT TO DO?

1. Require an accurate, independent, peer reviewed determination of carrying capacity for waterfowl and salmonids before proposing any eelgrass control. Take no action that would lower carrying capacity for any species not regularly meeting management goals. Do not lower the goals. At least three species of waterfowl and two species of salmon do not meet this criteria in Willapa Bay, for example.

2. Take a "REAL ESTATE" approach to any impacts on eelgrass beds. That is Location,

Location, location. All eelgrass beds are not equal in ecological value. High value areas for areas for waterfowl, salmonids, and forage-fish need not be defoliated. Especially on public tidelands, there would be no excuse for such defoliation.

3. Insist that the "no net loss" requirement for *zostera marina* be strictly followed throughout the state. Return of historical beds prior to *spartina* spraying or other impacts should not be impeded. Be aware that the natural as well as man-caused annual variability of *zostera marina* beds would result in "ratcheting" these beds permanently out of existence under a regular poorly located and or poorly monitored program.

4. Do not spray eelgrass of either species on public tidelands.

5. Ensure forage fish production is maintained at healthy levels, and that eelgrass removal cannot impact this. Again an independent peer reviewed analysis must be done and utilized before any estuary would be subjected to chemical duckgrass (*zostera japonica*) removal.