Washington Invasive Species Council
Meeting Agenda

September 24, 2015
Confluence Technology Center
285 Technology Center Way #102, Wenatchee, WA 98801
Join by phone: **1-719-359-9722**
Passcode: **699805**

Time: Opening session will begin as shown; all other times are approximate.

Public Comment:
If you wish to comment at a meeting, please fill out a comment card and provide it to staff. Please be sure to note on the card if you are speaking about a particular agenda topic. The chair will call you to the front at the appropriate time.

You also may submit written comments to the council by mailing them to the RCO, Attn: Cindy Gower at the address above or at cindy.gower@rco.wa.gov.

Special Accommodations:
If you need special accommodations to participate in this meeting, please notify us at 360/902-3013.

OPENING AND WELCOME

9:00 a.m. **Welcome and Call to Order** *Chair*

- Facilities and Safety Information
- Review Agenda
- Election of Vice Chair
- Welcome New Members Marc Daily of PSP and John Gamon of DNR

HOT TOPIC REPORTS

9:10 a.m. **1. Executive Coordinator's Report** *Raquel Crosier*

WISC Reauthorization Update
Citizen Science Programs – Green Crab, Master Gardner's
Outreach – Puyallup Fair, Society of Wetland Scientists, Pacific Marine Expo
Signs – Motorized and Non-motorized "clean, drain, dry" signs
Grants – Farm Bill, No Child Left Inside

9:15 a.m. **2. Revisions to Priority Species** *Bill Tweit*

9:25 a.m. **3. Prohibitions on AIS in National Forests** *Kimberly Conley, USFS*

9:35 a.m. **4. Atlantic Salmon Net Pen Policy and Stakeholder Opportunities** *Cedar Bouta, Ecology*

9:45 a.m. **5. AIS Funding Advisory Committee** *Bill Tweit and Raquel Crosier*

9:55 a.m. **6. Washington's Wild Future Initiative** *Bill Tweit*

DISCUSSIONS AND DECISIONS

10:00 a.m.	**7. Mid-Columbia PUD AIS Programs**	*Carson Keeler, Grant PUD and Marcie Steinmetz, Chelan PUD,* Chas Kyger, Douglas PUD
10:30 a.m.	**8. AIS in the Columbia River Basin: From A (Arthropods) to Z (Zebra/Quagga mussels)**	*Steve Bollens, WSU*
10:50 a.m.	**COFFEE BREAK**	
11:00 a.m.	**9. WDFW African Clawed Frog Response**	*Jesse Schultz, WDFW*
11:20 a.m.	**10. Don't Let It Loose Outreach**	*Bill Tweit*
11:30 a.m.	**11. WSDOT's Strategy for Balancing Pollinator Protection and Weed Control**	*Ray Willard*
11:50 p.m.	**12. Economic Analysis of Invasive Species in Washington State**	*Alison Halpern, Raquel Crosier*
12:20 p.m.	**13. Review and Approve Draft Strategic Plan** Vote to Release for Public Comment	*Raquel Crosier*
1:00 p.m.	**PUBLIC COMMENT**	
1:15 p.m.	**14. Council Business** Approval of March Minutes Approval to Release Strategic Plan for Public Comment Approval of 2016 Meeting Dates	*Raquel Crosier*
1:30 p.m.	**ADJOURN**	

WASHINGTON STATE
RECREATION AND CONSERVATION OFFICE
Washington Invasive Species Council

Executive Coordinator's Report

September 24th 2015

Raquel Crosier

WISC

WASHINGTON STATE
RECREATION AND CONSERVATION OFFICE
Washington Invasive Species Council

Reauthorization

- √ Sponsors
- √ Z-draft
- √ Letters of support collected
- √ Decision package submitted

Sec. 2. RCW 79A.25.370 and 2011 c 154 s 3 are each amended to read as follows:

(1) The invasive species council account is created in the custody of the state treasurer. All receipts from appropriations, gifts, grants, and donations must be deposited into the account. Expenditures from the account may be used only to carry out the purposes of the council. The account is subject to allotment procedures under chapter 43.88 RCW and the approval of the director of the recreation and conservation office is required for expenditures. All expenditures must be directed by the council.

(2) This section expires June 30, ((~~2017~~)) 2022.

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WISC

WASHINGTON STATE RECREATION AND CONSERVATION OFFICE
Washington Invasive Species Council

IS in Agency Policy

DNR
Trails Policy

Lists the risk of spread of invasive species as a factor to be considered when evaluating any new or existing trail or trail system.

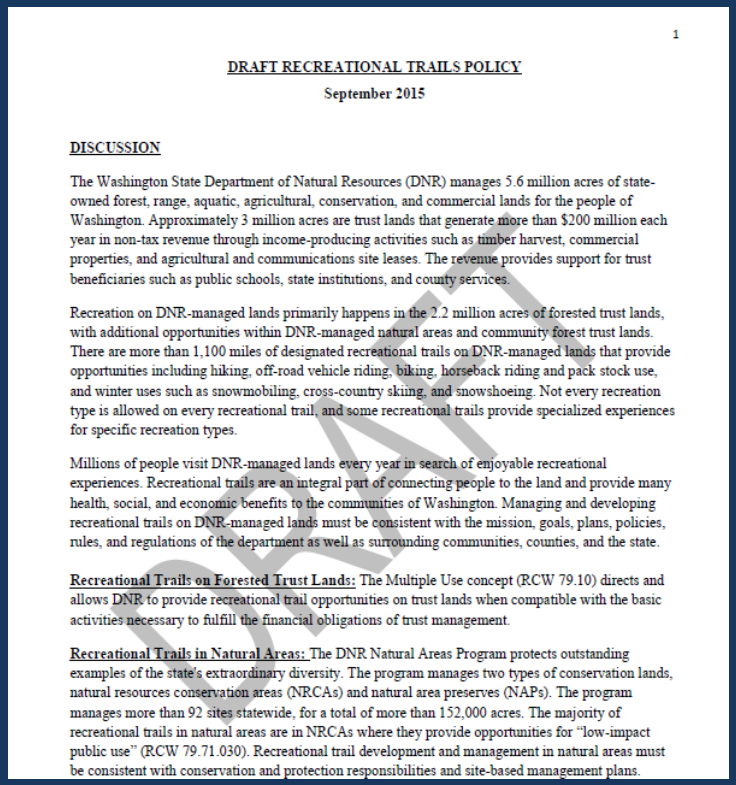
WSDOT
Standard Specifications

Discussions of incorporating decontamination protocols.

RCO
ALL RCO Grant Manuals

Qualifying project components: IS signage, decontamination stations, IS suppression/ eradication.

Information on decontamination protocols.



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DRAFT RECREATIONAL TRAILS POLICY

September 2015

DISCUSSION

The Washington State Department of Natural Resources (DNR) manages 5.6 million acres of state-owned forest, range, aquatic, agricultural, conservation, and commercial lands for the people of Washington. Approximately 3 million acres are trust lands that generate more than $200 million each year in non-tax revenue through income-producing activities such as timber harvest, commercial properties, and agricultural and communications site leases. The revenue provides support for trust beneficiaries such as public schools, state institutions, and county services.

Recreation on DNR-managed lands primarily happens in the 2.2 million acres of forested trust lands, with additional opportunities within DNR-managed natural areas and community forest trust lands. There are more than 1,100 miles of designated recreational trails on DNR-managed lands that provide opportunities including hiking, off-road vehicle riding, biking, horseback riding and pack stock use, and winter uses such as snowmobiling, cross-country skiing, and snowshoeing. Not every recreation type is allowed on every recreational trail, and some recreational trails provide specialized experiences for specific recreation types.

Millions of people visit DNR-managed lands every year in search of enjoyable recreational experiences. Recreational trails are an integral part of connecting people to the land and provide many health, social, and economic benefits to the communities of Washington. Managing and developing recreational trails on DNR-managed lands must be consistent with the mission, goals, plans, policies, rules, and regulations of the department as well as surrounding communities, counties, and the state.

Recreational Trails on Forested Trust Lands: The Multiple Use concept (RCW 79.10) directs and allows DNR to provide recreational trail opportunities on trust lands when compatible with the basic activities necessary to fulfill the financial obligations of trust management.

Recreational Trails in Natural Areas: The DNR Natural Areas Program protects outstanding examples of the state's extraordinary diversity. The program manages two types of conservation lands, natural resources conservation areas (NRCAs) and natural area preserves (NAPs). The program manages more than 92 sites statewide, for a total of more than 152,000 acres. The majority of recreational trails in natural areas are in NRCAs where they provide opportunities for "low-impact public use" (RCW 79.71.030). Recreational trail development and management in natural areas must be consistent with conservation and protection responsibilities and site-based management plans.

DRAFT

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Washington Invasive Species Council

Outreach

Events this Quarter

June 19th - Senate Natural Resources & Parks work session

July 13th – PNWER Invasive Species Workgroup

July 28th – Master Gardeners EDRR web training

August – September – Green Crab Monitoring

September 11th – Puyallup Fair

Caitlin Kenney – South Sound Green Crab Monitoring Team

Date	Show
8-9 May 2015	Northwest Paddling Festival
20-21 June 2015	Olympia Gold and Treasure Show
26 June 2015	Northwest Youth Conservation Fly Fishing Academy
TBD August 2015	Cabela's Fall Great Outdoor Days
11-27 Sept. 2015	Puyallup Fair
Sept.15-17 2015	Wenatchee Salmon Festival
18-20 Nov. 2015	Pacific Marine Expo
13-17 Jan. 2016	Portland Boat Show
27-31 Jan. 2016	WA Sportsman's Show
29 Jan. – 6 Feb. 2016	Seattle Boat Show

Tabling with TU at the Puyallup Fair

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Washington Invasive Species Council

Other fun stuff

Farm Bill grant application
- Partners – WSU, Skamania County, Columbia Gorge CWMA
- Objectives – BMPs for priority species in the Lower Columbia, development of outreach materials (app promotion, etc.)

No Child Left Inside grant
- Administered by RCO – WISC qualified to apply
- Objective – engage kids in outdoor recreation and education
- Potential for app outreach?

Coordination with other ISCs
- WA Invasives app
- Regional campaigns
- Regional IS policy priorities

Performance Measures
- # of the public reached through WISC outreach efforts (events, presentations, website, Facebook, app, etc.)
- # of IS reports received

WISC

BILL REQUEST - CODE REVISER'S OFFICE

BILL REQ. #: Z-0581.2/15 2nd draft

ATTY/TYPIST: ML:lel

BRIEF DESCRIPTION: Concerning the expiration date of the invasive species council and account.

AN ACT Relating to the expiration date of the invasive species council and account; and amending RCW 79A.25.310 and 79A.25.370.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON:

Sec. 1. RCW 79A.25.310 and 2011 c 154 s 2 are each amended to read as follows:

(1) There is created the Washington invasive species council to exist until June 30, ((~~2017~~)) 2022. Staff support to the council shall be provided by the recreation and conservation office and from the agencies represented on the council. For administrative purposes, the council shall be located within the office.

(2) The purpose of the council is to provide policy level direction, planning, and coordination for combating harmful invasive species throughout the state and preventing the introduction of others that may be potentially harmful.

(3) The council is a joint effort between local, tribal, state, and federal governments, as well as the private sector and nongovernmental interests. The purpose of the council is to foster cooperation, communication, and coordinated approaches that support local, state, and regional initiatives for the prevention and control of invasive species.

(4) For the purposes of this chapter, "invasive species" include nonnative organisms that cause economic or environmental harm and are capable of spreading to new areas of the state. "Invasive species" does not include domestic livestock, intentionally planted agronomic crops, or nonharmful exotic organisms.

Sec. 2. RCW 79A.25.370 and 2011 c 154 s 3 are each amended to read as follows:

(1) The invasive species council account is created in the custody of the state treasurer. All receipts from appropriations, gifts, grants, and donations must be deposited into the account. Expenditures from the account may be used only to carry out the purposes of the council. The account is subject to allotment procedures under chapter 43.88 RCW and the approval of the director of the recreation and conservation office is required for expenditures. All expenditures must be directed by the council.

(2) This section expires June 30, ((~~2017~~)) 2022.

--- END ---

WASHINGTON STATE RECREATION AND CONSERVATION OFFICE
Washington Invasive Species Council

Invasive Species Impact and Prevention/Early Action Assessment Tool

Species/Guild Name:

Through the Gate? Here Near Far

Summary of Scores

		Potential Max.	Score
Ecological Impacts		*40*	
Economic Impacts		*40*	
Human Health Impacts		*10*	
Invasive Potential		*33*	
Difficulty of Control		*10*	
	TOTAL IMPACT	*133*	
Feasibility of Prevention/Early Action		*50*	

Number of 'Unknown' Scores Recorded:
Level of Certainty in Assessment: High Medium Low

Invasive species – plants, animals, insects, and pathogens – are a threat to Washington's environment and economy, exacting a high price for their presence. These biological invaders can produce serious, often irreversible effects on our natural resources and natural resource-based industries; they may also harm the health of humans and livestock. While not all non-native species have aggressive or harmful traits, the sheer number of these species coming through our gates increases the risk of significant adverse impacts. With limited resources available to manage this problem, agencies and stakeholders must be strategic in their approach.

In response to this increasing threat, the Washington Invasive Species Council has developed a ranking system to evaluate the impacts and potential invasiveness of invasive species to our natural areas, natural resource-based industries, and public health. This ranking system has been designed to be a robust and transparent procedure to aid the Council in (1) **identifying the most problematic invasive species in or near to the state** and (2) **prioritizing Council actions**. We created an impact assessment process by incorporating components from other assessment models (e.g., Invasiveness Ranking System for Non-native Plants in Alaska, California Invasive Plant Inventory), in which species are ranked by a series of questions in five broad categories: ecological impacts, economic impacts, human health impacts, invasive potential, and difficulty of control. In addition, in keeping with the Council's strategic focus on prevention and early detection and rapid response as identified in *Invaders at the Gate*, we have included a separate assessment of how feasible it would be for Washington state agencies to take preventive measures or be effective with early action for a species.

The first three sections of the impact assessment pertain to the severity of a species' potential or actual impact on the natural environment, natural-resource based industries, and human health. These impacts may have been observed occurring in Washington or, if not yet here, in another state or region. The Invasive Potential section focuses on a species' biological characteristics associated with its potential to disperse, spread, and flourish into and within a new area. The questions in this section provide a measure of a species' potential to be invasive. The fifth section, Difficulty of Control, measures the financial and human investment needed to control a species. **A higher total impact score corresponds to a greater detrimental impact caused by a species.**

The second part of the assessment, the Current Ability to Prevent/Take Early Action section, asks questions related to entry and transport pathways, current distribution, and policy and outreach measures already in place to facilitate efforts to conduct prevention measures or an effective rapid response. **A higher score for Current Ability to**

Prevent/Take Early Action corresponds to a greater likelihood of Washington state agencies being able to effectively implement prevention measures or conduct early action on a species.

For most questions, scores range from 0 to 10 points. This numeric spread was adapted from Alaska's ranking system and chosen to highlight relative differences among species. Any score of 'unknown' is given a numeric score of 1 and incorporated into the overall score. The number of unknown responses are recorded and used to determine the level of certainty in the assessment (i.e., high, medium, low).

WORKSHEET

IS IT THROUGH THE GATE?

Here	Species has established populations in Washington.
Near	Species has established populations in western U.S. region and similar habitat exists in Washington or species has been identified entering Washington through pathways but is not yet established.
Far	Species has established populations in areas outside of western U.S. region that have climate conditions similar to Washington.

IMPACTS

A score of 'unknown' will be given a numeric score of 1.

1. ____ ECOLOGICAL IMPACT

____ Impact on ecosystem processes

A. No impact on ecosystem processes.	0
B. Influences ecosystem processes to a minor degree (e.g., has a perceivable but mild influence on soil nutrient availability).	3
C. Causes significant alteration of ecosystem processes (e.g., increases sedimentation rates along streams or coasts, reduces areas of open water important to waterfowl, alters water chemistry, alters rate of water retention, reduces ecosystem productivity).	7
D. Causes major, possibly irreversible, alteration or disruption of ecosystem processes (e.g., alters geomorphology, hydrology, or fire frequency; fixes substantial levels of nitrogen in the soil which favors non-native species).	10
U. Unknown	

Comments: _____

____ Impact on community composition, structure, and interactions

A. No impact on community composition, structure, and interactions.	0
B. Influences community composition, structure, and interactions (e.g., reduces the number of individuals in one or more native species).	3
C. Causes significant alteration of community composition, structure, and interactions (e.g., produces a significant reduction in the population size of one or more native species).	7
D. Causes major alteration in community composition, structure, and interactions (e.g., forms a complete monotype, results in the extirpation of one or more native species reducing biodiversity or changing composition towards exotic species).	10
U. Unknown	

Comments: _____

____ Impact on genetic integrity of native species/potential for hybridization

A. No impact on genetic integrity of native species/no potential for hybridization.	0
B. Known to hybridize with one or more native species and produce sterile offspring that lower the reproductive output of native species.	5
C. Known to hybridize with one or more native species and produce fertile offspring that can outcompete native species.	10
U. Unknown	

Comments: _____

_____

_____

____ Impact on federal or state species of concern (SOC) or high-value/rare ecological communities as defined by the Washington Natural Heritage Program

A. No impact on SOC or high-value/rare ecological communities.	0
B. Causes detrimental impact on SOC species or high-value/rare communities.	5
C. Causes extirpation of one or more SOC species or eradication of a high-quality/ rare ecological community.	10
U. Unknown	

Comments: _____

_____

_____

2. ____ ECONOMIC IMPACT

____ Impact on agricultural/aquaculture industry

A. No impact on agriculture or aquaculture.	0
B. Causes minor impact on agriculture or aquaculture (e.g., somewhat reduced production and crop yields, reduced forage for livestock).	3
C. Causes significant impact on agriculture or aquaculture (e.g., major reduction in production and crop yields, loss of livestock, loss of markets by contaminants, genetic integrity of crop species, damage to water diversion system).	7
D. Potential to shut-down portions of the industry (could be due to regulatory measure).	10
U. Unknown	

Comments: _____

_____

_____

____ Impact on forest products industry

A. No impact to forest products industry.	0
B. Causes minor impact to forest products industry (e.g., somewhat reduced timber and other forest products yields, small increase in susceptibility to fire).	3
C. Causes significant impact to forest products industry (e.g., major reduction in timber and other forest product yields, significant increase in susceptibility to fire).	7
D. Potential to shut-down portions of the industry (could be due to quarantine or other regulatory measure).	10
U. Unknown	

Comments: _____

_____

_____

____ Impact on physical infrastructure

A. No impact on physical infrastructure.	0
B. Causes minor impact on physical infrastructure (e.g., minor damage and/or impediments to dams, roads, railways, fences, power lines, flood control ditches, aquaculture equipment).	3
C. Causes significant impact on physical infrastructure (e.g., major damage and/or impediments to dams, roads, railways, power lines, aquaculture equipment).	7
D. Potential to render parts of physical infrastructure unusable, replacement costs would be extreme.	10
U. Unknown	

Comments: _____

____ Impact on recreational sector

A. No impact on recreational opportunities.	0
B. Causes detrimental impact on recreational opportunities (e.g., diminished opportunities for camping, biking, hiking, boating, fishing/shellfish gathering, birding, hunting).	5
C. Elimination of one or more recreational opportunities.	10
U. Unknown	

Comments: _____

3. ____ HUMAN HEALTH IMPACT

A. No impact on human health.	0
B. Causes physical injury (e.g., thorns, shells of zebra mussel) or provides habitat for a disease vector or organism.	5
C. Is a human disease vector or is a disease organism. May also cause individual mortality (e.g., accidental ingestion of poison hemlock, West Nile Virus).	10
U. Unknown	

Comments: _____

4. ____ INVASIVE POTENTIAL

____ Rate of spread with no management

A. Does not occur – species does not spread within suitable habitat.	0
B. Actual or potential slow rate of spread within suitable habitat.	3
C. Actual or potential moderate rate of spread within suitable habitat.	7
D. Actual or potential rapid rate of spread (doubling in < 10 years) within suitable habitat.	10
U. Unknown	

Comments: _____

____ Natural ability for dispersal beyond parent population

A. Does not occur.	0
B. Infrequent or inefficient dispersal (occurs occasionally despite lack of adaptations).	3
C. Efficient dispersal occurs but population remains within a natural boundary (such as a waterbody or natural area surrounded by human development).	7
D. Numerous opportunities for dispersal (species has ability to move across natural barriers or has adaptations such as wings or hooked fruit-coats that facilitate dispersal).	10
U. Unknown	

Comments: _____

_____

_____

____ Habitat specialization (How far-reaching can infestation become/potential distribution)

A. Highly specialized habitat requirements (species is found in only one ecotype or ecological niche).	0
B. Moderately specialized habitat requirements (species is found in 2-3 ecotypes or ecological niches).	5
C. General habitat requirements (species occupies a wide range of ecotypes or ecological niches).	10
U. Unknown	

Comments: _____

_____

_____

____ Other species in the genus invasive

A. No.	0
B. Yes.	3
U. Unknown	

Comments: _____

_____

_____

5. ____ DIFFICULTY OF CONTROL – LEVEL OF EFFORT REQUIRED

A. Management is not required (e.g., species does not persist).	0
B. Management is relatively easy and inexpensive; requires a minor investment in human and financial resources.	3
C. Management requires a major short-term investment of human and financial resources, or a moderate long-term investment.	7
D. Management requires a major, long-term investment of human and financial resources.	10
U. Unknown	

Comments: _____

_____

_____

Total Impact Score ____

CURRENT ABILITY TO PREVENT/TAKE EARLY ACTION

____ Potential for entry into and transport within Washington via human activities (both directly and indirectly – possible mechanisms include commercial sales, use as forage/ revegetation, aquaculture, biological supply, horticulture, transport on boats, etc.)

A. High - numerous pathways for entry into and transport within Washington exist and species is routinely identified traveling on these pathways.	0
B. Moderate - some entry into and transport pathways within Washington exist and species is occasionally identified on these pathways.	3
C. Low - entry and transport pathways are infrequent and inefficient.	7
D. Does not occur.	10
U. Unknown	

Comments: _____

____ Regulatory barriers to prevent entry into and transport within Washington

A. No or minor regulatory restrictions on organisms/host and no surveillance.	0
B. No or minor regulatory restrictions on organisms/host with surveillance.	3
C. Regulatory oversight on organisms/host with restricted trade.	5
D. Trade and/or transport of organisms/hosts illegal.	7
E. Strict prohibition on organisms/host and some infrastructure for interception.	10
U. Unknown	

Comments: _____

____ Current distribution in Washington

A. Widely distributed throughout state.	0
B. Regionally distributed.	3
C. More than one infestation known spread within one or multiple watersheds.	5
D. Isolated infestation, 1-3 known locations encompassing fewer than 50 acres.	7
E. Not present.	10
U. Unknown	

Comments: _____

____ Degree to which control is mandated

A. No regulatory barriers, voluntary control may or may not be encouraged.	0
B. Mandatory control at local level.	3
C. Mandatory containment of species where regionally established and mandatory control of species where not yet established.	7
D. Mandatory eradication of species.	10
U. Unknown	

Comments: _____

____ Current efforts for education and outreach

A. No education and outreach efforts are undertaken for this species.	0
B. Some education materials exist and passive outreach occurs (e.g., signs posted at public access points, information cards made available at public events).	3
C. Education materials exist and outreach occurs sporadically and/or after a new species or infestation is discovered.	7
D. Education and outreach materials and programs exist and are actively provided to targeted audiences before the species or a new infestation is discovered.	10
U. Unknown	

Comments: _____

_____

_____

____ **Total Current Ability to Prevent/Take Early Action Score**

WASHINGTON STATE
RECREATION AND CONSERVATION OFFICE
Washington Invasive Species Council

Invasive Species Management Priorities

Here

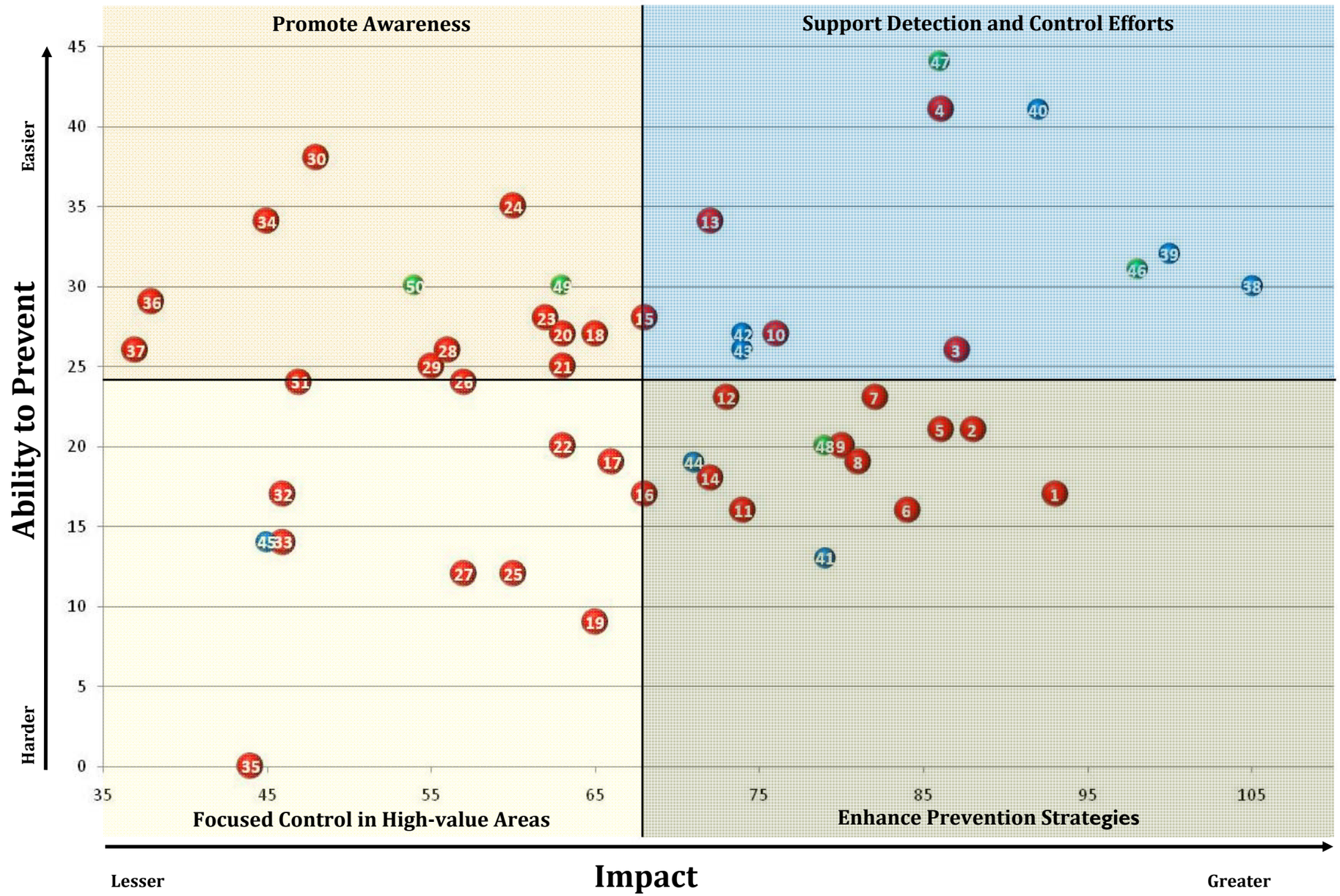
1. Feral swine
2. Variable leaf milfoil
3. Brazilian elodea
4. Hydrilla
5. Knapweeds
6. Nutria
7. Yellow starthistle
8. Common reed – non native genotypes
9. Leafy spurge
10. Eurasian watermilfoil
11. Tunicates
12. Parrotfeather
13. Spartina
14. Tamarix
15. Purple loosestrife
16. Dalmation toadflax
17. New Zealand mud snail
18. Himalayan blackberry
19. Knotweeds
20. Green crab
21. Rush skeletonweed
22. Scotch thistle
23. Red swamp/rusty crayfish
24. Bullfrog
25. Garlic mustard
26. Kochia
27. VHS type IVa
28. Exotic apple fruit pests
29. Mediterranean snail
30. Common crupina
31. Hawkweeds
32. Butterfly bush
33. Scotch broom
34. Tansy ragwort
35. Exotic leafrollers
36. Giant hogweed
37. Atlantic salmon

Near

38. Zebra/quagga mussel
39. Lymantriids
40. Kudzu
41. Caulerpa
42. SVCV/IHNV
43. Mitten crab
44. Marine clams
45. Bark-boring moths

Far

46. Wood-boring beetles
47. VHS type IVb
48. Water chestnut
49. Asian carp
50. Northern snakehead fish



Invasive Species Management Priorities

Invasive species constitute one of the gravest threats to Washington's plants, animals, and businesses dependent on the rich biodiversity here.

Two critical parts to managing invasions are:

1. Identifying the species that threaten resources
2. Prioritizing species for management action

To better manage invasions, the Washington Invasive Species Council developed an assessment process to provide a transparent, repeatable, and credible basis for the council and partner agencies to prioritize management actions for invasive species (see assessment tool for more details).

All taxonomic groups are represented in the council's assessment process, not just plants or marine species as seen in other assessments. **Based on best-professional judgment and science, this is a management tool to categorize invasive species of greatest threat to Washington and to guide council action.**

The Scores

The assessment provides two scores for each species:

- An **impact score** that relates to a species' environmental, economic, and human health threat
- A **prevention score** that relates to an agency's ability to take preventative or early action for that species

For example, the higher the impact score, the greater the threat is to Washington's environment, economy, human health, or a combination of them. The higher the prevention score, the greater the opportunity for an agency to prevent establishment of the species or the greater the agency's ability to respond quickly to new infestations.

Both of these scores are plotted on a management grid to inform the council on future actions to take and to track the effectiveness of those actions. The actual scores are less important than the relative difference among species and the change in score over time.

The scores also will serve as a baseline against which to measure how effective the actions of the council and other agencies are in reducing a species' impact and improving the ability of state agencies to prevent new species from establishing, and to conduct a rapid response. The movement of a species on the graph will be important to enable the council to be adaptive in implementing its actions.

Creating the List

A workgroup of invasive species professionals, each with expertise in a different taxonomic group (e.g., terrestrial plants, insects, aquatic animals), came together and identified species that pose the greatest threat to Washington's environment, economy, and human health. While most of the species on the list already live in Washington, some are in the western United States as well as outside the western United States but in areas with similar climate conditions.

This is a dynamic list, which will be revisited and re-evaluated annually. At that time, new species posing serious risk to Washington will be added to the list and new information will be incorporated into species assessments.

How the List will be Used

The grid will guide council action, such as looking at the current ability to prevent new infestations, making policy recommendations, and identifying where more management or education is needed.

Lower impact **Higher prevention ability** Management actions: Promote awareness and encourage citizen action.	**Higher impact** **Higher prevention ability** Management actions: Support detection and control efforts and prepare response plans.
Lower impact **Lower prevention ability** Management action: Focus control on species in high-value sites.	**Higher impact** **Lower prevention ability** Management actions: Prepare response plans, identify regulatory gaps, and enhance prevention strategies through policy, education, and funding.

It is intended also to:

- Provide a uniform methodology for categorizing invasive species.
- Provide a clear explanation of the process used to evaluate and categorize species.
- Provide flexibility so the criteria can be adapted to the needs of different regions or organizations.
- Identify where more information may be needed.
- Educate about the impacts of invasive species and the ability to prevent them.

Meanwhile, the graph is not intended to:

- Represent a scientifically-based risk assessment (this is an assessment based on best professional judgment).
- Produce a list that itself has regulatory force, though regulatory agencies may use the information to modify existing lists.
- Provide lists for any region because the invasiveness of species will differ from one region to another depending on geography, climate, ecosystems present, and other factors.

How to Read the Grid

The grid is divided into four sections based on high and low impact scores and high and low prevention scores. Management actions presented in the quadrants then pertain to the group of species falling there.

More information may be found at www.InvasiveSpecies.wa.gov.

WISC Priority Species List

Terrestrial Plants	Aquatic Plants	Terrestrial Animals	Aquatic Animals	Insects/Diseases
Butterfly bush	Caulerpa seaweed	Feral swine	Asian carp	Bark-boring moths
Common crupina	Eurasian watermilfoil	Mediterranean snail	Atlantic salmon	Exotic apple fruit pests
Dalmation toadflax	Hydrilla		Bullfrog	Exotic leafrollers
Garlic mustard	Parrotfeather		Green crab	Lymantriids
Giant hogweed	Common reed		Marine clam	Wood-boring beetles
Hawkweeds	Purple loosestrife		Mitten crab	VHS type IVa
Himalayan blackberry	Spartina		New Zealand mud snail	VHS type IVb
Knapweeds	Variable-leaf milfoil		Northern snakehead	SVCV
Knotweeds	Water chestnut		Nutria	
Kochia	Brazilian elodea		Red swamp/rusty crayfish	
Kudzu			Tunicates	
Leafy spurge			Zebra/quagga mussel	
Rush skeleton weed				
Scotch broom				
Scotch thistle				
Tamarix				
Tansy ragwort				
Yellow starthistle				

ORDER NO. 06-00-00-15-0001

OCCUPANCY AND USE

PACIFIC NORTHWEST REGION

Aquatic Invasive Species

Pursuant to 36 CFR 261.50 (a), the following acts are prohibited upon lands and waters within the National Forest System boundaries of the Pacific Northwest Region as described below.

1. **Possessing, storing or transporting any bird, fish or other animal or parts thereof, as specified in the order.** [36 CFR 261.58 (s)]

   For the purpose of this order, it is prohibited to possess, store, or transport any live aquatic invasive animal species within the boundaries of National Forest System lands in the Pacific Northwest Region. Examples of aquatic invasive animal species include, but are not limited to, zebra mussels, quagga mussels, New Zealand mudsnails, rusty crayfish, ringed crayfish, red swamp crayfish, Northern crayfish, nutria, bullfrogs, snakeheads, Chinese mystery snail, brook trout, walleye, bass, perch, goldfish, pike, catfish, and carp. Those species designated as gamefish or crayfish in the States of Oregon or Washington may be transported by anglers within National Forest System Boundaries of the Pacific Northwest Region if the animals are no longer living.

2. **Possessing, storing or transporting any part of a tree or other plant as specified in the order.** [36 CFR 261.58 (t)]

   For the purpose of this order, it is prohibited to possess, store or transport any live aquatic or riparian invasive plant species within the boundaries of National Forest System lands in the Pacific Northwest Region. Examples of aquatic and riparian invasive plant species include, but are not limited to, yellow flag iris, hydrilla, nonnative milfoils, yellow floating heart, purple loosestrife, Japanese knotweed, giant knotweed, salt cedar, and kudzu.

Additional information referencing Oregon and Washington State Laws pertaining to the transportation of aquatic invasive species can be found under the following State statutes:

Oregon:
- ORS 496.012, 496.138, 496.620, 496.645, 496.650, 498.002, 498.052, and 498.222
- HB 2220 (2009 OL Ch. 764) and HB 2583 (2009 OL Ch. 303)
- Oregon Administrative Rules Division 56 Prohibited species and Division 44 native species

Washington:
- RCW 77.15.253
- WAC 220-20-039(1); WAC 220-56-122(6); and WAC 232-12-016(2)(d) and (e).

Pursuant to 36 CFR 261.50 (e), the following persons are exempt from this order:

1. Persons with a permit specifically authorizing the otherwise prohibited act or omission.

2. Any Federal, State, or local officer, or member of any organized rescue or firefighting force in the performance of an official duty.

These prohibitions are in addition to the general prohibitions in 36 CFR Part 261, Subpart A and Subpart B.

Done at Portland, Oregon, this day __ of 2015.

JAMES PENA
Regional Forester
Pacific Northwest Region

Violations of these prohibitions are punishable by a fine of not more than $5,000 for an individual or $10,000 for an organization, or imprisonment for not more than 6 months, or both (16 USC 551 and 18 USC 3559 and 3571).

Commercial Salmon Net Pens: Policy and Stakeholder Opportunities

Commercial net pens of Atlantic salmon have operated in Washington waters for almost 40 years. The current eight pens are located in Puget Sound and are subject to federal, state and local government oversight. The Washington Department of Ecology's role in net pen management includes administering NPDES permits and the Shoreline Management Act.

Ecology's Coastal-Shoreline Management section is working to further our own and others' understanding of current net pen science and operations, and to refine management policies and tools with robust input from the public and stakeholders. Below are brief overviews of some upcoming opportunities for WISC involvement.

Shoreline Master Program Rulemaking (underway)

Commercial net pens are not mentioned in the Shoreline Management Act nor Ecology's rules related to development and implementation of local shoreline master programs required by the Act. This creates a lack of clarity for both Ecology and local governments. Ecology is updating the state rules with language relevant to commercial net pens. Public and stakeholder engagement will be part of the rule update process.
http://www.ecy.wa.gov/programs/sea/rules/1506ov.html

Update of state science documents (funding dependent)

State agencies published documents in 1986 and 1990 to guide management of commercial net pens.[1] These documents are outdated given today's current net pen operations and practices, technology and science. Ecology is seeking funding to update the state's net pen science and management guidelines in collaboration with other state agencies and NOAA's Center for Coastal Fisheries and Habitat Research. If funded, the process will engage stakeholders through technical and policy subcommittees, presentations, public workshops and comment periods.

[1] *Recommended Interim Guidelines for the Management of Salmon Net-Pen Culture in Puget Sound*, Science-Applications International Corp. for WA Department of Ecology in conjunction with the Departments of Fisheries, Agriculture and Natural Resources, December 1986; and *Final Programmatic Environmental Impact Statement - Fish Culture in Floating Net Pens – Final EIS*, Parametrix, Inc. for the WA Department of Fisheries, January 1990.

Commercial Salmon Net Pens: Policy and Stakeholder Opportunities

University of Washington Stakeholder Forum (tentatively late-November 2015)

At Ecology's suggestion, the UW's Northwest Environmental Forum (School of Environmental and Forestry Sciences) is sponsoring a two-day stakeholder forum (tentatively late-November) which will be followed by an online forum. The University has a long history of hosting these events for forestry topics and has Bullet Foundation funding to expand into other topic areas.

The net pen forum will be by invitation only given the importance of having all "stakes" represented, yet keeping the event a reasonable size for deliberative and constructive dialogue. A summary of the forum will be widely available and Ecology will use the results to inform both rulemaking and the update of state science documents.

Contact:

Cedar Bouta, Shorelands and Environmental Assistance Program

Cedar.bouta@ecy.wa.gov, 360.407.6406

WASHINGTON INVASIVE SPECIES COUNCIL
AQUATIC INVASIVE SPECIES
FUNDING ADVISORY COMMITTEE

DRAFT CHARTER

I. Background

The 2015 Legislature directed that part of the aquatic lands enhancement account be used to develop recommendations for future funding for the State aquatic invasive species program. Recommendations must be provided to the Governor and Legislature by June 1, 2016.

To fulfill this direction, the Washington Invasive Species Council, in partnership with the Department of Fish and Wildlife (WDFW) and the Recreation and Conservation Office, convened the Aquatic Invasive Species Funding Advisory Committee ("Committee") to consider potential funding mechanisms and make recommendations.

II. Purpose and Anticipated Outcomes

The Committee was established to fulfill the direction of the Legislature by providing recommendations on future funding mechanisms for the State aquatic invasive species program (including the prevention, enforcement, and ballast water programs). Recommendations will be sent to the Invasive Species Council and provided to the Legislature. WDFW, in consultation with the Invasive Species Council and the Governor's office, is responsible for development of a proposal to the Legislature.

It is expected that the Committee will deliberate on the following topics:

- Principles for funding recommendations
- Potential funding mechanisms
- Recommendations for aquatic invasive species program funding mechanisms

For purposes of this effort, the Committee should assume that the State's interest in aquatic invasive species control will continue in perpetuity; and the State ballast water program at its current level will be needed for at a minimum of five more years. The Committee will rely on estimates of program funding need prepared by WDFW.

III. Membership and Participation

The Invasive Species Council and WDFW identified potential Committee members by reaching out to individuals in the aquatic invasive species community including commercial and recreational boaters, ports, environmental interests, and other stakeholders, as well as county and tribal governments. Potential members were invited by the Invasive Species Council and WDFW.

Direct participation of all Committee members is essential to the success of the Committee. For that reason, members are asked to make every effort to attend in-person meetings and participate in conference calls. In the rare occasions that a member cannot be present, an alternate may be proposed to participate on his or her behalf. It is the responsibility of the member to ensure that any alternate is fully briefed and prepared to participate in deliberations.

All members are expected to participate throughout the duration of the process. Only members who participate fully in the process will be included in the Committee consensus.

Members are requested to:

- Represent their community/sponsoring organization
- Actively engage in discussion and bring constituent concerns to the table, as well as seek an increased understanding of others' views
- Speak candidly and bring their ideas and expertise to the deliberations to help inform the Committee's choices
- Communicate back to their communities/sponsoring organizations so representation is confident and surprises are minimized

State and federal agencies are participating as ex officio members and are present as resources to the Committee to offer perspectives and answer questions. They are not part of the Committee consensus.

IV. Decision Making and Consensus

Only funding mechanisms on which the Committee reaches consensus will be recommended. Consensus is defined as a funding mechanism that all members can "live with" even though it might not be the first, or even the preferred, choice of each. The Committee can expect that all consensus recommendations will be made available to the Legislature and given serious consideration by WDFW and the Invasive Species Council.

In the event consensus is not reached, the full range of perspectives expressed by Committee members will be described in the Committee report and considered by the Invasive Species

Council, WDFW, and the Governor's office in developing a proposal to take forward to the Legislature.

Consensus will be evaluated through a variety of techniques, including one-on-one conversations with Committee members, straw polling, and other methods. Throughout the process there will be documentation of Committee deliberations in meeting notes, the draft Committee report, and other documents (if needed); the primary purpose of these documents is to summarize Committee deliberations and explore and describe emerging and final Committee consensus.

V. Tentative Work Flow, Meeting Topics, Schedule, and Duration

The Committee will meet four or five times between September 1, 2015 and January 31, 2016, with the possibility of additional meetings if needed and if resources are available. Preliminary meeting topics are described below. In addition, Committee members will be offered a telephone interview with the Committee facilitator before the first meeting. The purpose of the interview is to gather information on each Committee member's individual perspectives and to begin to understand potential areas of consensus and information needed to support Committee deliberations.

Before first meeting:

- Telephone interviews with Committee members.

September 22 – First Meeting

- Overview of current aquatic invasive species programs.
- Overview of program funding need.
- Discussion of principles for identification of funding recommendations.

Between first and second meetings:

- Address any questions to ensure clarity on current program elements and funding need.
- Refine principles for identification of funding recommendations.

October 20 – Second Meeting

- Complete discussion of program elements and funding need, as necessary.
- Complete discussion of principles for identifying funding recommendations.
- Review initial list of potential funding mechanisms and brainstorm additions/clarifications.

Between second and third meeting

- Address any questions on potential funding mechanisms to ensure clarity.
- Review initial sections of draft Committee report.
- Straw poll or survey Committee members on potential funding mechanisms.

November 17 – Third Meeting

- Deliberation on potential funding mechanisms and potential recommendations.
- Deliberation of draft Committee report.

Between third and fourth meeting

- Refine potential funding recommendations.

December 15 – Fourth Meeting (potential)

- Continue to refine and complete potential funding recommendations and draft Committee report.

January 19 – Fifth Meeting (potential)

- Continue to refine and complete potential funding recommendations and draft Committee report.

AQUATIC INVASIVE SPECIES FUNDING ADVISORY COMMITTEE
GROUND RULES FOR MEETINGS

1. All members have equal opportunities to participate.

2. Discussions will stay within the objectives and scope of the Charter.

3. Members will strive for honest and direct communication, allow open discussion and the right to disagree, and look for opportunities to find common interests, agreements, and solutions.

4. Members will focus on clarifying their own views and interests; rather than on characterizing the views of other members.

5. Members and/or the facilitator may request a caucus break at any time during a meeting. In order to keep the flow of meetings on track, individual caucus breaks may not exceed 15 minutes.

6. The facilitator is a neutral third party with no stake in the outcome of the project. Ross Strategic will structure meetings to support a respectful atmosphere and the development of trust among members.

7. Meetings are expected to start and end on time.

NEWS RELEASE

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE
600 Capitol Way North, Olympia, Washington 98501-1091
Internet Address: http://wdfw.wa.gov

August 27, 2015 Contact: Joe Stohr, 360-902-2650
Bruce Botka, 360-902-2262

WDFW invites public to help identify conservation and recreation priorities

OLYMPIA – State fish and wildlife leaders are asking people to share their views on the values and priorities that should drive the Washington Department of Fish and Wildlife (WDFW) over the next several years.

The opportunity is part of WDFW's new multi-year initiative, "Washington's Wild Future: A Partnership for Fish and Wildlife," an effort to strengthen the department's relationships with communities, increase support for conservation and outdoor recreation, and to help ensure WDFW programs and services meet the public's needs.

People can talk with WDFW managers at six regional forums in September and October. Comments will also be accepted through Oct. 31 on WDFW's website at http://wdfw.wa.gov/wildfuture/ and by email to WildFuture@dfw.wa.gov. People may also participate in the conversation through the WDFW Facebook page: https://www.facebook.com/WashingtonFishWildlife.

Public comments and proposals will help determine priorities for conserving and managing Washington's fish and wildlife in the coming years, said WDFW Director Jim Unsworth, who was hired to lead the agency in January.

"Since I joined WDFW, I have been asking people, 'If you could tell the director of Fish and Wildlife one thing, what would you say?'" Unsworth said. "This is a great opportunity for people across the state to do just that. I want to hear about what we are doing right, where we need to improve, and where we should focus our efforts and our funding over the next five to 10 to 20 years."

Unsworth, senior WDFW managers, and regional staff are scheduled to attend the meetings, where people can discuss fishing and hunting and other outdoor recreation opportunities, as well as habitat protection and restoration, licensing, enforcement, and other fish and wildlife management issues.

The meetings are scheduled for 6 to 8 p.m. at the following dates and locations:

DRAFT

- Sept. 10 – Selah Civic Center, 216 1st St., Selah.
- Sept. 30 – Center Place, 2426 N. Discovery Place, Spokane Valley.
- Oct. 6 – WDFW Mill Creek Office, 16018 Mill Creek Blvd, Mill Creek.
- Oct. 8 – Saint Martin's University, Norman Worthington Conference Center, 5300 Pacific Ave. SE, Lacey.
- Oct. 14 – Water Resources Education Center, 4600 SE Columbia Way, Vancouver.
- Oct. 20 – Port of Chelan County Confluence Technology Center, 285 Technology Center Way, Wenatchee.

Each meeting will include a brief presentation from a WDFW regional director about the importance of fish and wildlife management to Washington's quality of life and the economies of local communities throughout the state. Participants will then be invited to talk in small groups with representatives of the department's Fish, Wildlife, Enforcement, Licensing, and Habitat programs, as well as Unsworth and his staff.

Later this year, WDFW will summarize the comments and suggestions from the public, as well as input from outdoor organizations, advisory groups, tribes, and state and local elected officials. The information will be used to help identify potential changes in WDFW's operations and services, and to develop future policy, budget and fee proposals.

"We face major management challenges over the next several years, and for us to be successful we need the public's support and assistance," Unsworth said. "That can only happen if the department has strong relationships with anglers, hunters, outdoor recreation groups, and others interested in fish and wildlife in Washington."

More information about WDFW is available at http://wdfw.wa.gov.

# # #

Editors: A high-resolution photo of Jim Unsworth is available at http://wdfw.wa.gov/about/director/.

Persons with disabilities who need reasonable accommodations to participate in the public meetings are invited to contact Dolores Noyes by phone at 360-902-2349, TTY at 360-902-2207, or email at dolores.noyes@dfw.wa.gov. Reasonable accommodation requests should be made at least three business days before the meeting to ensure availability. Please provide two weeks' notice for requests for ASL/ESL interpretation services. For more information, see *http://wdfw.wa.gov/accessibility/reasonable_request.html*.

DRAFT

Douglas County PUD Aquatic Nuisance Species Management Plan

- One of six management plans that make up the Wells Project Aquatic Settlement Agreement

1. Best management practices during recreational improvement activities
2. Coordination with state and regional entities
3. Monitor bycatch in other resource management activities
4. ANS outreach information and education
5. Monitor and Address ANS effects on aquatic communities related to changes in project operations

Updated ANS Management Plan in 2013

FERC license required updates to the ANSMP in 2013:

- Best management practices for in-water construction
- Rapid response protocols in the event of new ANS detection.

Updated ANS Management Plan in 2013

- In-water construction BMPs
  - Inspection/cleaning of construction equipment
    - WDFW Invasive Species Management Protocols
    - Contractors required to keep record of inspections/cleanings
    - Special protocols for any equipment previously used in areas where zebra and quagga mussels are present

Updated ANS Management Plan in 2013

- Rapid response protocols
  - Notify Ecology, WDFW, upstream and downstream stakeholders (USACOE, Chelan PUD, Grant PUD)
  - Extensive project-wide monitoring
    - Developed in consultation with Aquatic SWG
  - Contain
    - Boat inspections
    - Boat launch closures
    - Columbia River Basin Team rapid response actions
    - 100th Meridian Initiative containment protocols
  - Control/Eradication
    - Assist Columbia River Basin Team in implementing control/eradication actions in consultation with the Aquatic SWG

Coordination - Monitoring

- Zebra and quagga mussels
- Crayfish (Ecology 401 Certification)
- Aquatic Macrophytes (Euarasion watermilfoil)

Zebra & Quagga

1. Veliger plankton tows
   - Three samples taken each month July-October
   - Downstream of Pateros, Brewster and Bridgeport boat launches
   - Samples analyzed for presence of veligers

2. Settlement substrates
   - Examined monthly July-October
   - Pateros, Brewster, and Bridgeport docks

Results of sampling/analysis provided to WDFW each year

No Zebra or Quagga mussels in Wells Project to date

Crayfish

Native Signal Crayfish (Pacifasticus leniusculus)

2012 Study

- Traps set at 44 sites – fished 48 hours
  - No crayfish captured
- Active capture – (flipping rocks) – 20 sites
  - Northern crayfish captured at one site

2013-2015

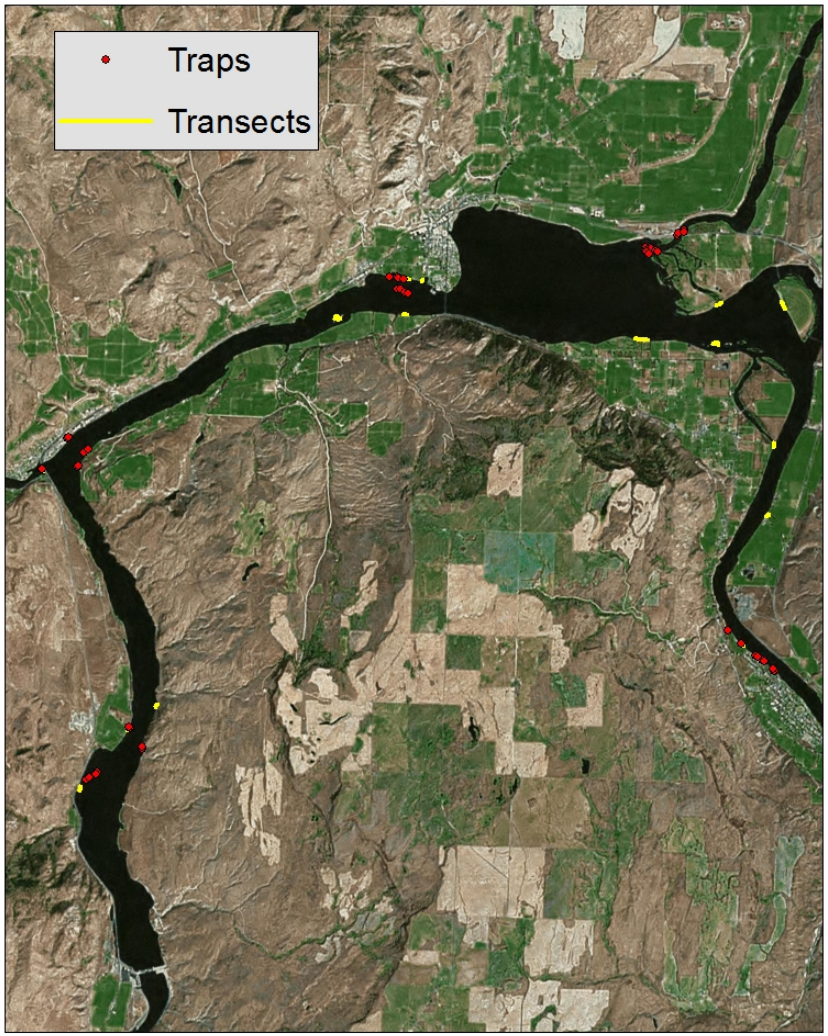
- Active Capture 2013-2014
  - Northern crayfish most abundant at sites sampled
  - Signal crayfish most abundant incidental encounter
- Electrofishing 2015
  - 9 sites – 30 northern crayfish, 0 signal crayfish

Non-native Northern Crayfish (Orconectes virilis)

Crayfish

- Annual monitoring
  - Active capture
  - Electrofishing – most effective method

- Maintain database of incidental encounters
- Destroy non-native crayfish when encountered



Macrophytes

- 2011 evaluated spp. dominance
  - EWM: not dominant in any of the samples. Sub-dominant in 15% of the samples, absent 85%; n=26
  - Continued monitoring during other activities
  - EWM still subdominant with patchy distribution

Douglas Rec. Management Plan requires management of aquatic vegitation in rec. areas: Pateros, Brewster, and Bridgeport

- Herbicide application in swimming areas

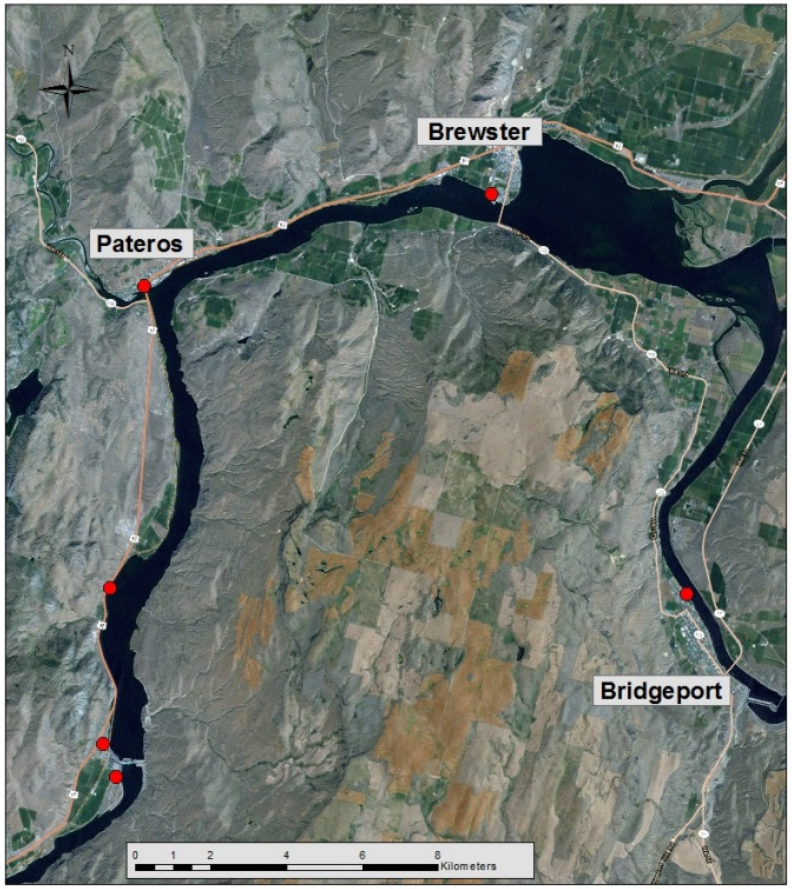
Monitor bycatch

- Predator removal program
  - Northern pikeminnow
    - Setlines

- Resident fish studies
  - 2014 Resident fish assemblege study
    - Major focus on non-native predator species (smallmouth bass)
- Crayfish and other species
  - Wherever they turn up
    - Fish ladder dewatering and maintenance

Outreach and Education

- Outreach materials at boat launches and visitor overlook
  - Signs
  - Pamphlets
  - Boater surveys



Changes in Project Operations: Monitor and Address ANS effects on Aquatic Communities

- No major changes in Project operations

Going forward

- Continued veliger tows, and substrate samples for Z and Q mussels
- Aquatic veg. control
- Crayfish monitoring
- Stay informed about emerging ANS issues; NZ mudsnails, Northern pike, etc.

Aquatic Invasive Species Monitoring and Control Plan

Rocky Reach Hydroelectric Project

Mid-Columbia River, WA

P.U.D.
CHELAN COUNTY
POWER
www.chelanpud.org

Aquatic Invasive Species Monitoring and Control Plan (AIS monitoring plan)

2009 Rocky Reach Federal Energy Regulatory Commission (FERC) License

- Develop and implement - AIS monitoring and control plan
- Consultation
  - Rocky Reach Fish Forum
  - Washington State Department of Ecology Freshwater Aquatic Weed Control Program
  - Washington Department of Fish and Wildlife Aquatic Invasive Species Program

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Development of the Plan

- Consultation in January 2010
- AIS monitoring plan submitted to FERC on February 19, 2010 and approved January 14, 2011
- Implementation began 2011

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Objectives of the Plan

- Monitor for presence of new invasive species within the Project area
- Components of the plan
  - Education
  - Monitoring
  - Annual reporting

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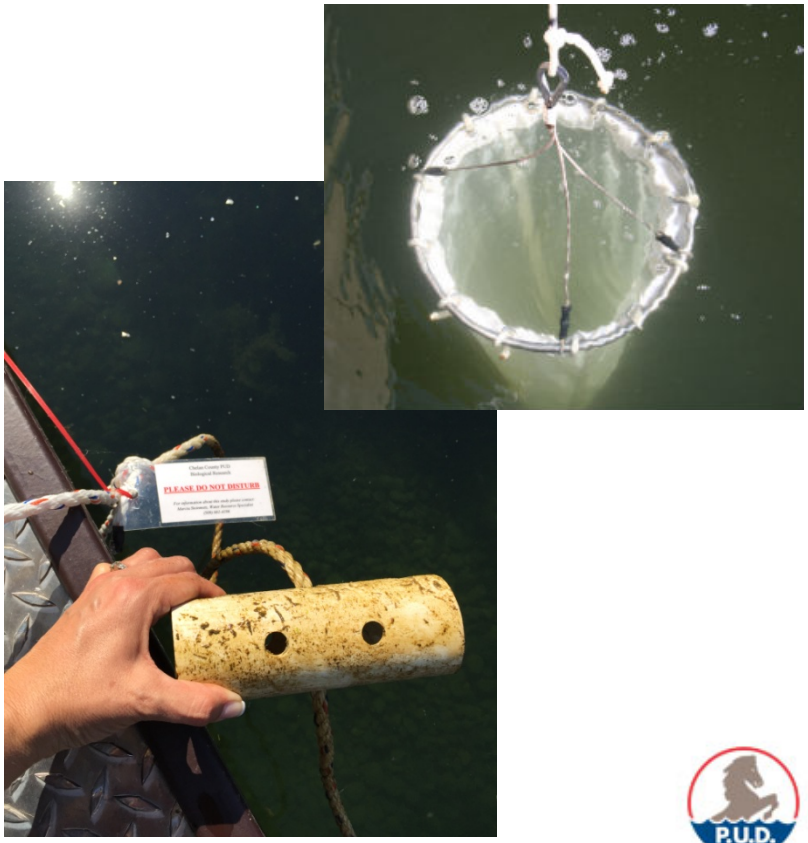
Education

- Signage at boat launches
- Distribution of materials and boater questionnaires
- Local and regional coordination

Monitoring

Aquatic Animals

- Zebra/Quagga veliger sampling
  - Zooplankton tow net
  - 3 locations, vertical and horizontal (Aug – Sept)
  - WDFW Protocols
- Artificial substrate (Zebera/Quagga as well as other animals)



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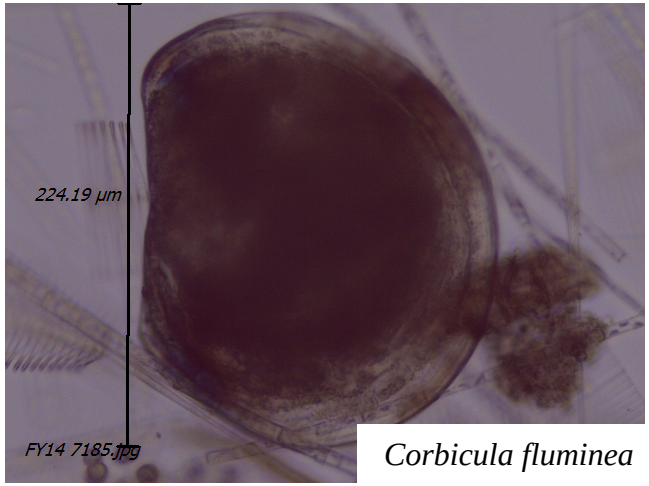
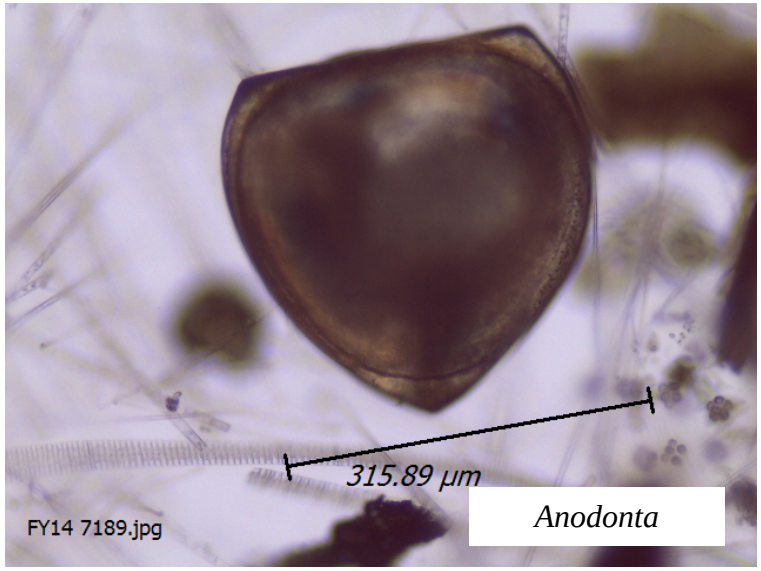
Samples - plankton tow net

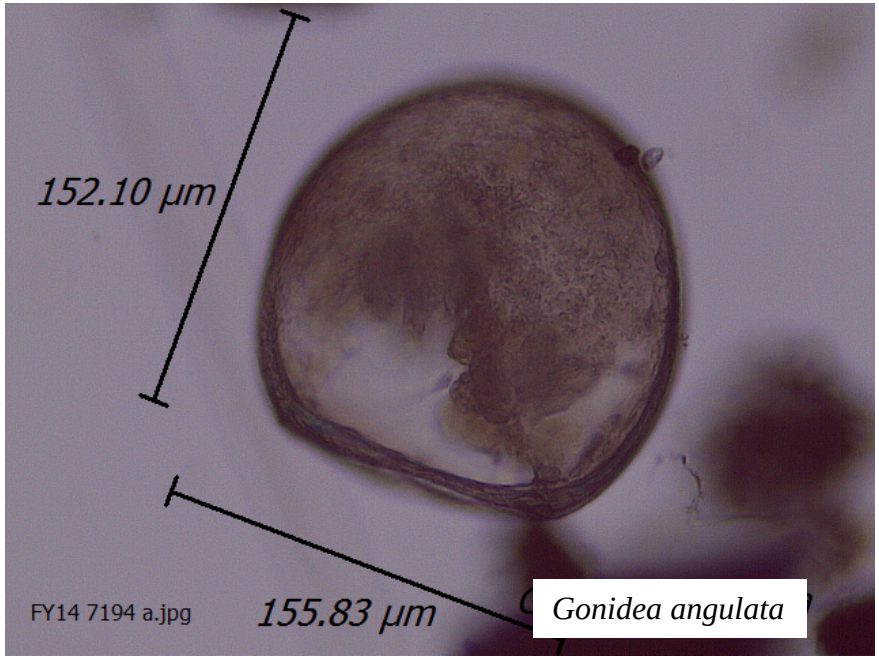


Corbicula fluminea

Steve Wells
Western Biological Services LLC



Anodonta



Gonidea angulata

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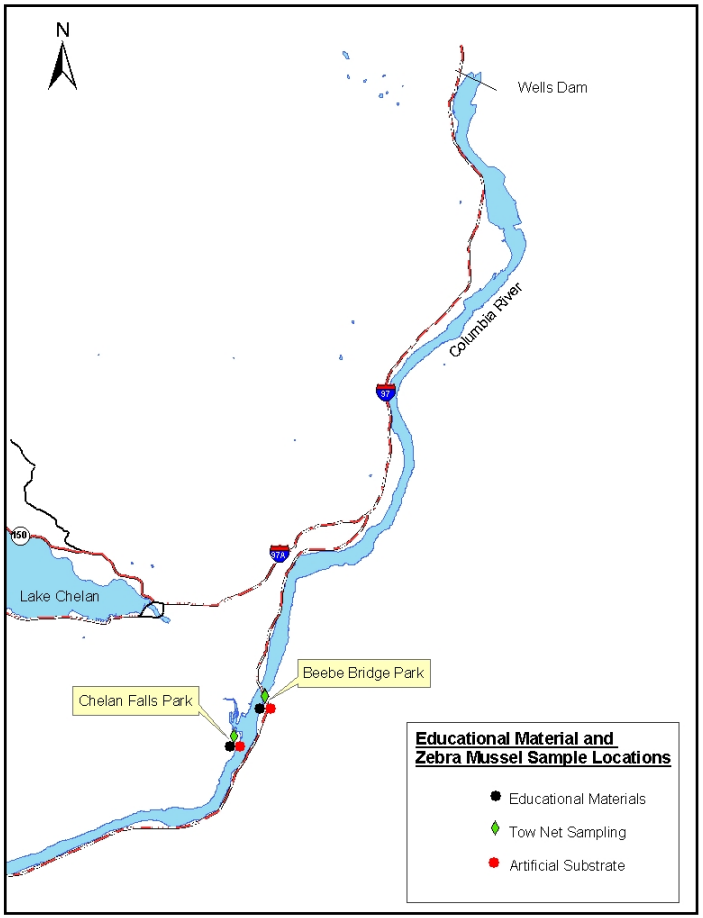
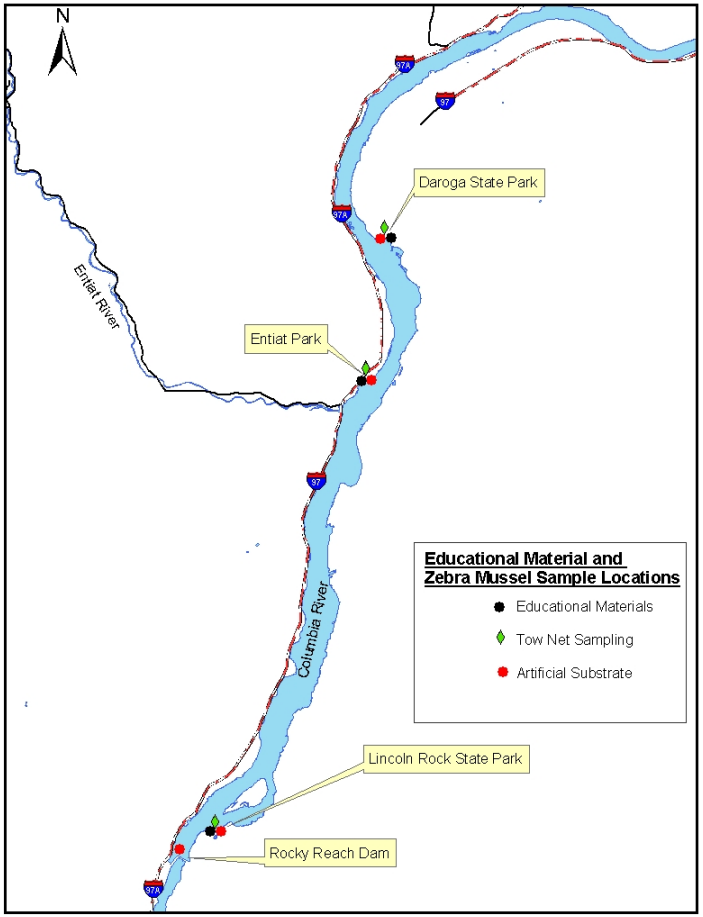
Educational Materials and Sample Locations





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Monitoring Cont.

Aquatic Vegetation

- Aquatic invasive plants on the Washington State noxious weed list
  - Annually at sample boat launches
  - Every other year - Columbia River shoreline within Rocky Reach Project

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Local and Regional Coordination

- GCPUD annual AIS meeting
- Chelan County Noxious Weed Board
- Columbia River Basin Team
- Washington State Weed Conference
- Washington Invasive Species Council
- Aquatic Invasive Species Funding Advisory Committee
- Pacific Northwest Economic Region
- Northwest Power & Conservation Council

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Questions?

Marcie Steinmetz
Water Resource Specialist
Public Utility District No. 1 of Chelan County
(509) 661-4186
marcie.steinmetz@chelanpud.org

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Aquatic Invasive Species Control and Prevention Plan (AISP)

Priest Rapids Hydroelectric Project
Mid-Columbia River, WA

Outline

- Introduction
  - Plan Development
  - Objectives
- Education
- Monitoring
- Aquatic/Riparian Vegetation Surveys
  - Preliminary Mapping
  - Aerial Survey Analysis
  - Boat-based surveys
  - Aquatic Vegetation Mapping
  - Riparian/Emergent Vegetation Mapping
  - Boat Launch Transects

Development

- AISP went through two consultations with the Priest Rapids Fish Forum (PRFF), Washington Department of Ecology Aquatic Weed Program, and the Washington Department of Fish and Wildlife Aquatic Invasive Species Program
- AISP was submitted to FERC on March 3, 2010 and approved on July 7, 2010
- Implementation began in 2011

Objectives

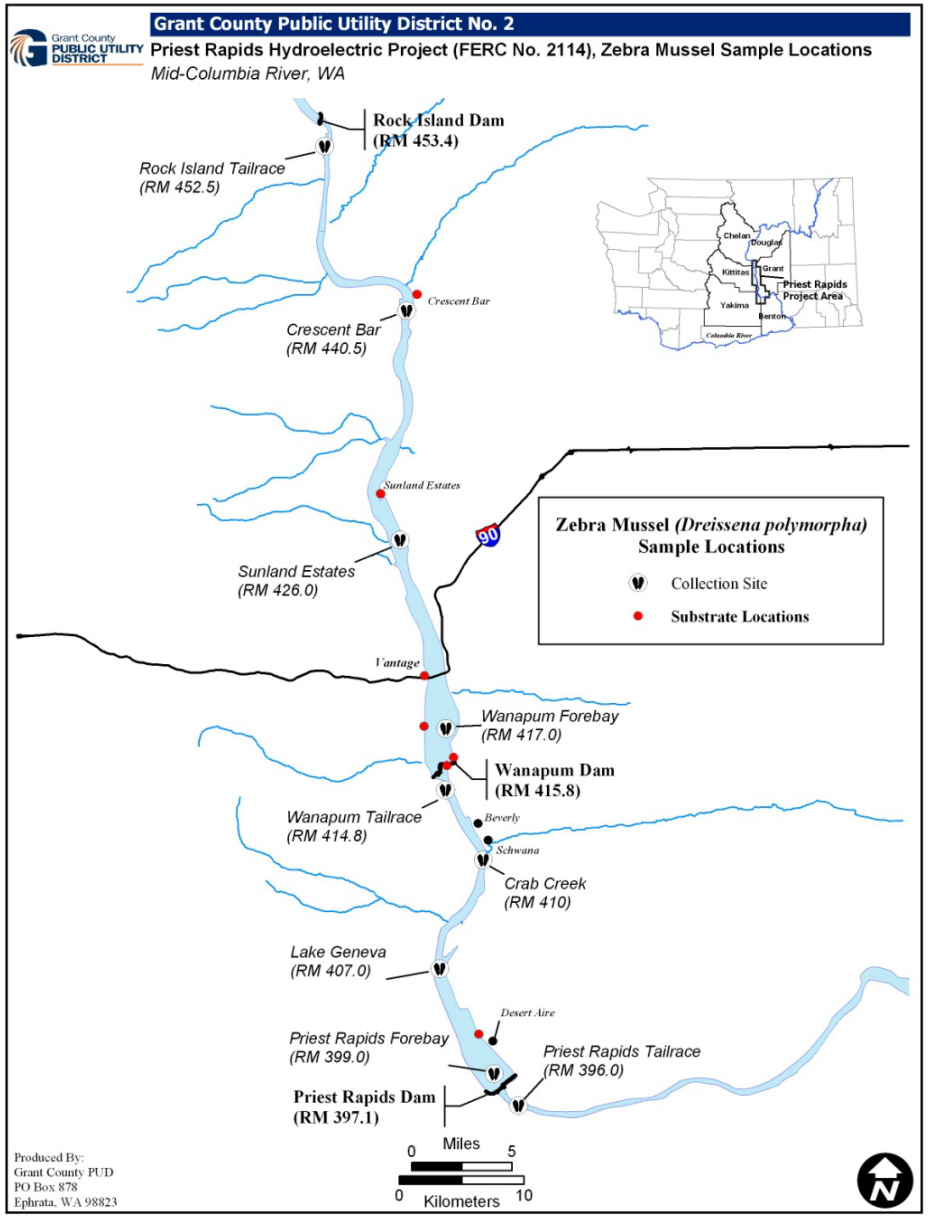
- Primary Objective
  - Monitor and manage aquatic invasive flora and fauna within the Project
    - Key components
      - Education
      - Monitoring
      - Local and Regional Coordination
  - These components are designed to help manage, control, and ***potentially*** prevent introduction and spread of new AIS within the Project and to monitor and manage existing AIS within the Project

Education

Grant County
PUBLIC UTILITY DISTRICT
Welcome to
Wanapum Dam Upper Boat Launch
Grant PUD Recreation
...experience the power of the Columbia River!
This boat launch was built during construction of Wanapum Dam, in the early 1960s. This is one of many renovation projects that will be completed prior to 2015, as part of Grant PUD's renewed license from the Federal Energy Regulatory Commission (FERC). This site was completed in 2012 to improve public recreation and access on the Priest Rapids Project - another benefit of hydropower.
Public Use Rules
Recreate Responsibly
Enjoy your visit!
STOP
It is ILLEGAL to transport or spread Aquatic Invasive Species!
Before Launching & Before Leaving
You Must Remove ALL
Plants & Animals from Watercraft, Trailer and Gear.
You Must Drain ALL
Water from Fish/Live Wells, Holds and Bilges.
ALERT!!
These waters contain
Eurasian Water-milfoil
Under Washington law transport or distribution of this species is
PROHIBITED
PLEASE! Clean your boat and trailer before leaving the area:
Remove ALL aquatic plants and animals
Drain ALL water
NEVER empty aquariums or bait
Boats and trailers carrying this species is subject to criminal and civil penalties.
KEEP IT CLEAN
Tips for Clean Boating
Keep oil, fuel, antifreeze, oil bilge water, sewage, soaps, and food waste out of the river
Use absorbent pads to soak up oil and oil bilge
Report oil and fuel spills immediately to Washington State's hotline at 1-(800)-OILS-911
Stop any fuel or oil spills at their source; use absorbent pads and containment of the spill to cleanup, but not soaps
Don't top off or overfill fuel tanks to keep fuel out of the river

Monitoring

- Zebra/Quagga veliger sampling
  - Zooplankton Tow Net
    - Eight locations
    - Monthly sampling (July-Sept.)
    - Vertical and Horizontal methods
    - WDFW Protocols
  - Artificial substrate
    - High traffic boat areas



Monitoring Cont.

- Aquatic Vegetation Shoreline Surveys
  - Looking for aquatic invasive plants listed on the Washington State noxious weed list including but not limited to:
    - Eurasian watermilfoil
    - curlyleaf pondweed
    - Hydrilla
    - variable-leaf milfoil
    - Brazillian elodea
    - flowering rush
    - water hyacinth
    - parrotfeather
    - floating primrose-willow
    - water primrose
    - yellow floating heart
    - fanwort
    - fragrant water lily
    - greater bladderwort

Boat Launch Transects

Grant County PUBLIC UTILITY DISTRICT

GeoEngineers

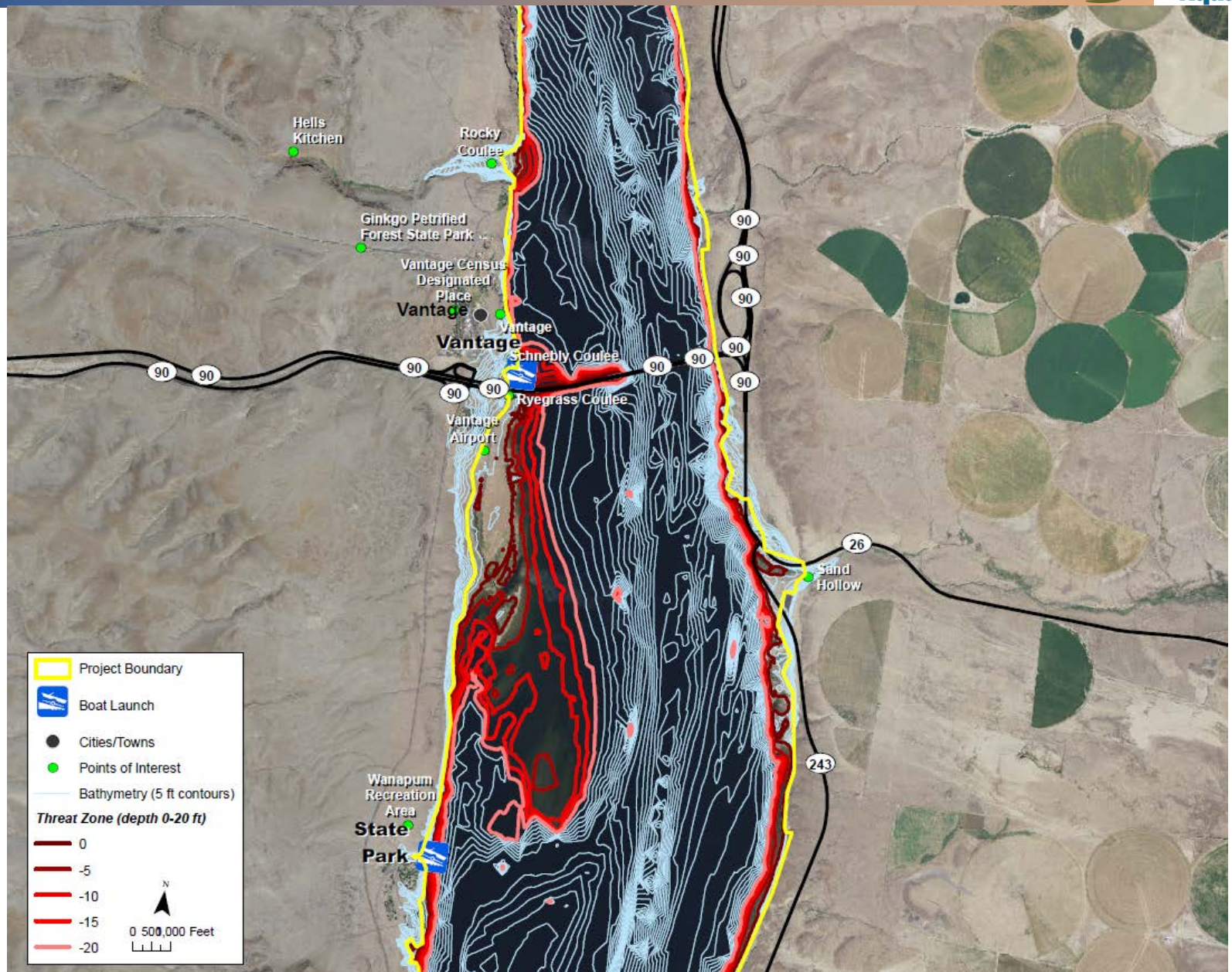
AquaTechnex

Aquatic/Riparian Vegetation Surveys

Grant County PUBLIC UTILITY DISTRICT
GeoEngineers
AquaTechnex

- Develop focal species list
- Preliminary mapping
- Aerial Shoreline Analysis (Aquatechnex)
- Boat-based surveys
  - Aquatic vegetation mapping
  - Riparian/emergent vegetation mapping
  - Boat launch transects

Preliminary Mapping



Aerial Shoreline Analysis

Grant County PUBLIC UTILITY DISTRICT

GeoEngineers

AquaTechnex

Boat-Based Surveys

Grant County PUBLIC UTILITY DISTRICT

GeoEngineers

AquaTechnex

Aquatic Vegetation Mapping

Grant County PUBLIC UTILITY DISTRICT

GeoEngineers

AquaTechnex

areas
reas
mall)

Shoreline Invasive Species

Areas of Extensive Distribution

- Common Reed
- Purple Loosestrife
- Reed Canarygrass

Point Locations

Scaled by Patch Size (Small, Medium, Large)

- Himalayan Blackberry
- Common Reed
- Purple Loosestrife
- Reed Canarygrass
- Yellowflag Iris
- Other Species (with label)

Scale: 1:24,000
1" = 2,000 ft.

2,000 0 2,000
Feet

2013 Shoreline Survey Data:
Page 6 of 2 of 10

Aquatic Invasive Species Mapping
Priest Rapids Project

Projection: NAD 1983 StatePlane Washington South FIPS 4602 Feet

Prepared by GeoEngineers, Inc.

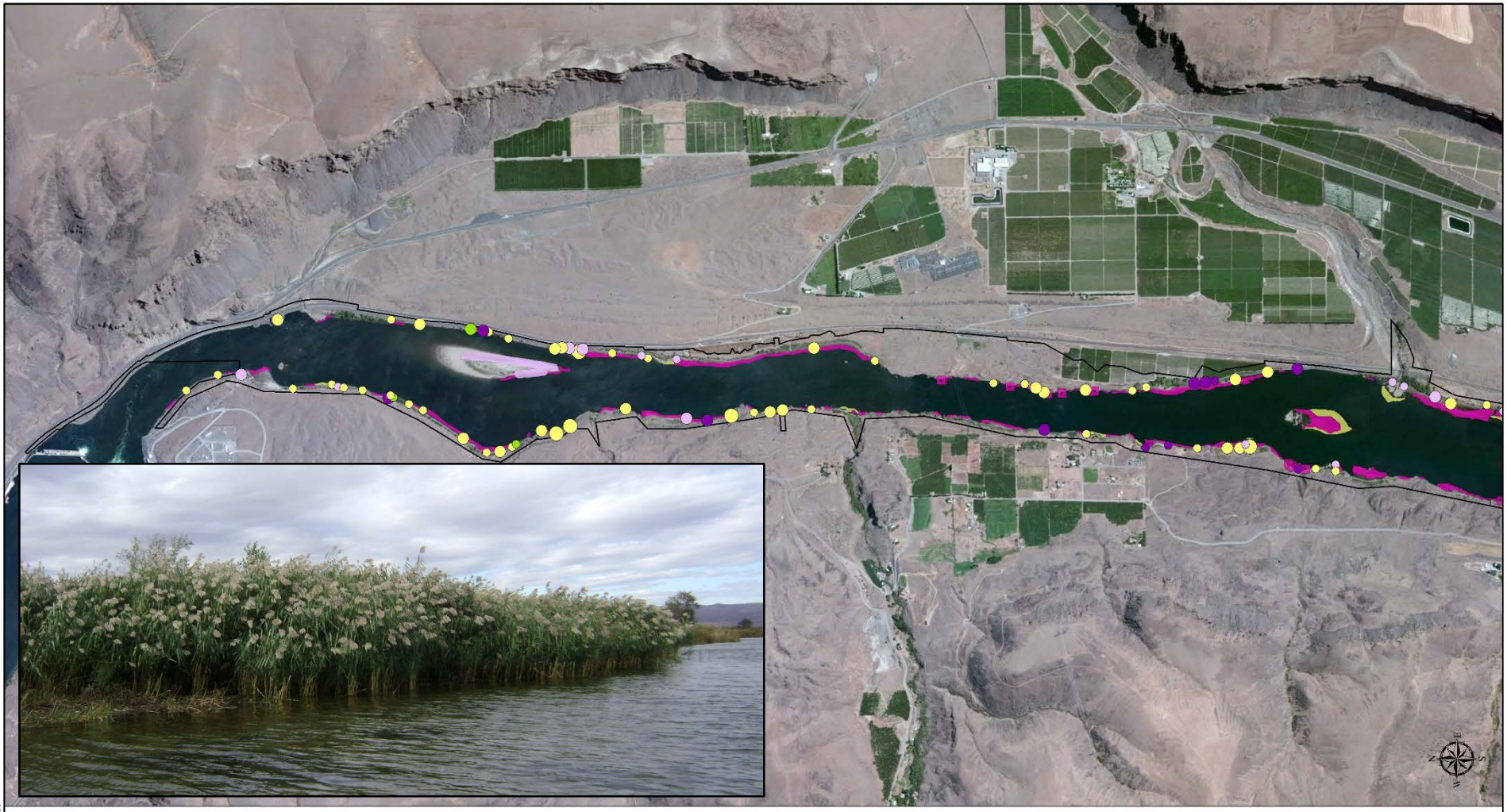
Map Revised: 19 February 2014 cgonzales

Riparian/Emergent Vegetation Mapping

Grant County PUBLIC UTILITY DISTRICT

GeoEngineers

AquaTechnex



Grant PUD

Base Data
- Project Boundary
- Boat Launches

Aquatic Vegetation
- Eurasian Milfoil dominant areas
- Native species dominant areas
- Eurasian Milfoil patches (small)

Shoreline Invasive Species
Areas of Extensive Distribution
- Common Reed
- Purple Loosestrife
- Reed Canarygrass

Point Locations
Scaled by Patch Size (Small, Medium, Large)
- Himalayan Blackberry
- Common Reed
- Purple Loosestrife
- Reed Canarygrass
- Yellowflag Iris
- Other Species (with label)

Data Sources: Aerial image from ESRI; Project Boundary provided by Grant PUD; field data collected by GeoEngineers, Inc. and Aquatechnex.
Projection: NAD 1983 StatePlane Washington South FIPS 4602 Feet

Prepared by GeoEngineers, Inc.

Map Revised: 19 February 2014 cgonzales

Scale: 1:24,000
1" = 2,000 ft.

2,000 0 2,000
Feet

2013 Shoreline Survey Data: Page 1 of 10

Aquatic Invasive Species Mapping
Priest Rapids Project

Questions?

Grant County
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GeoEngineers

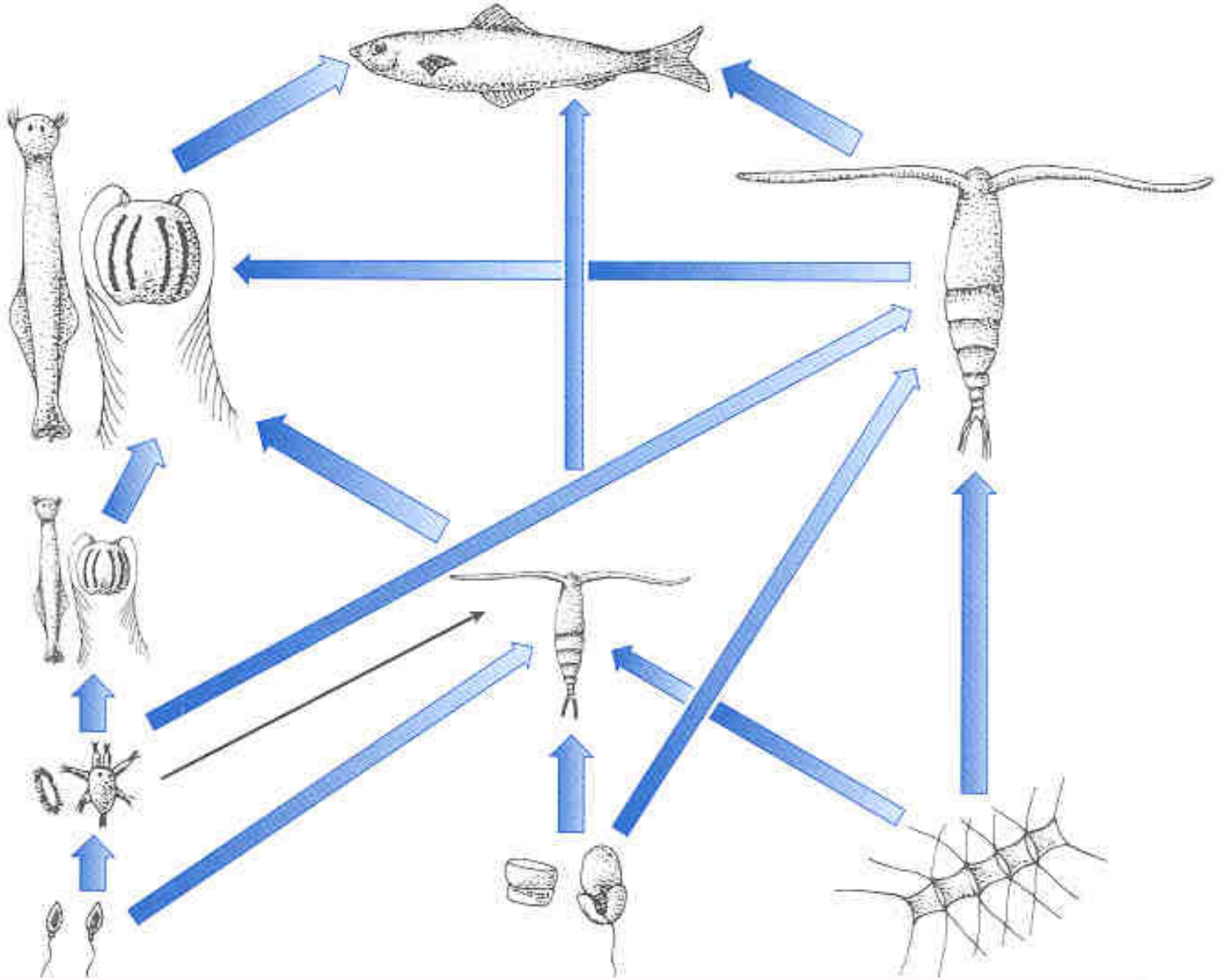
AquaTechnex

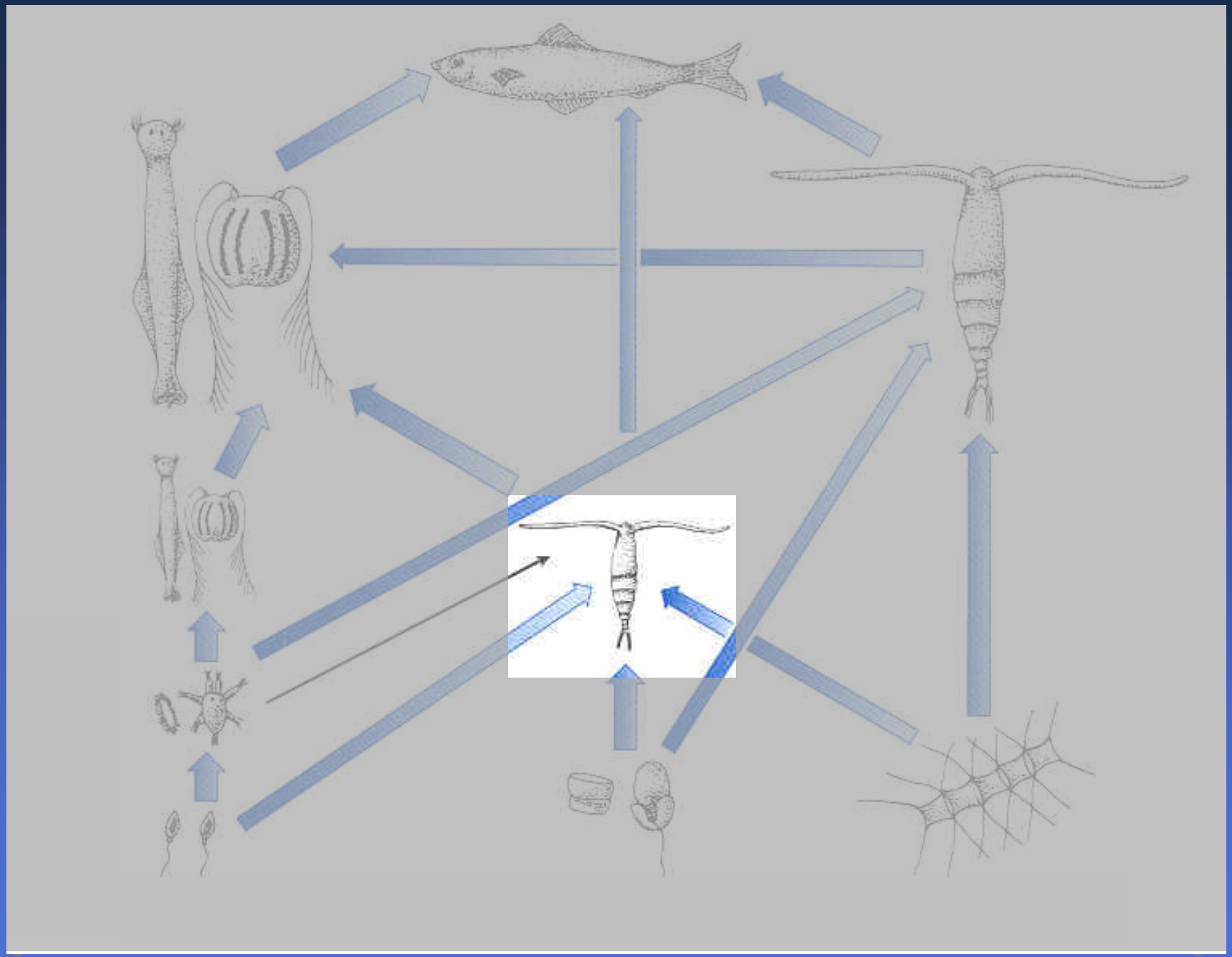
AIS in the Columbia River Basin: From A (Arthropods) to Z (Zebra/Quagga Mussels)

Stephen M. Bollens, Gretchen Rollwagen-Bollens,
Julie Zimmerman, and Caren Goldberg
School of the Environment and School of Biological Sciences
Washington State University

Tim Counihan
USGS Western Fisheries Research Center
Columbia River Research Laboratory

WASHINGTON STATE UNIVERSITY

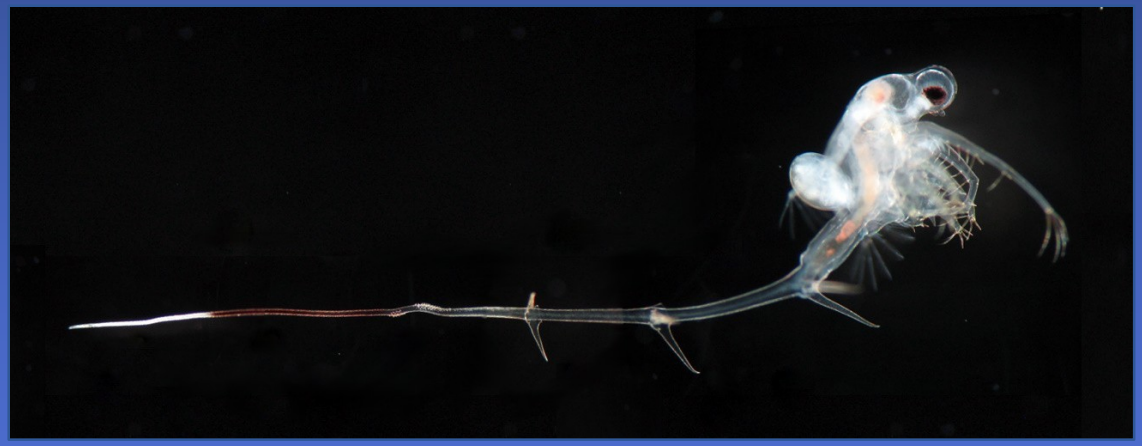




Invasive zooplankton

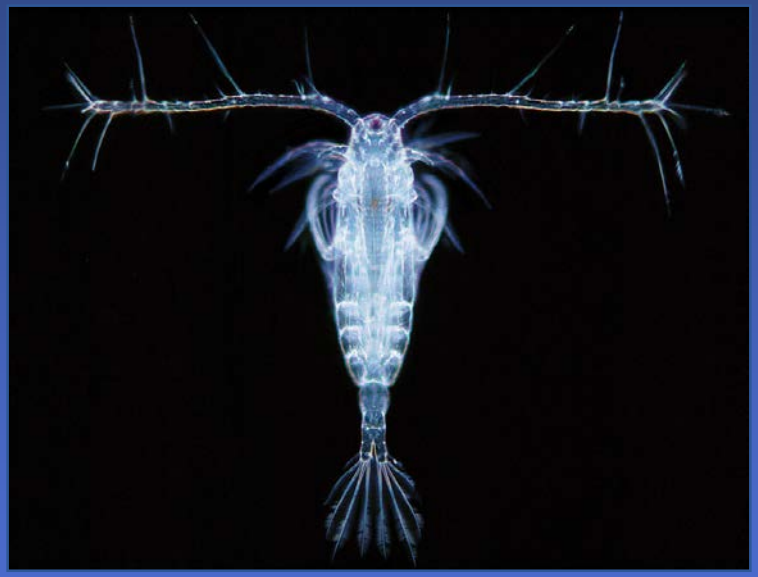
Mnemiopsis leidyi
(Black and Caspian Seas)

Bythotrephes longimanus
(Great Lakes)

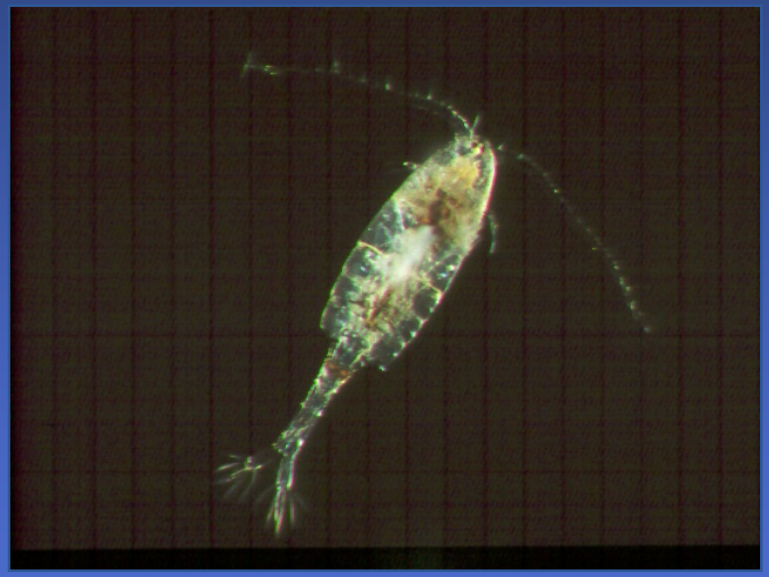


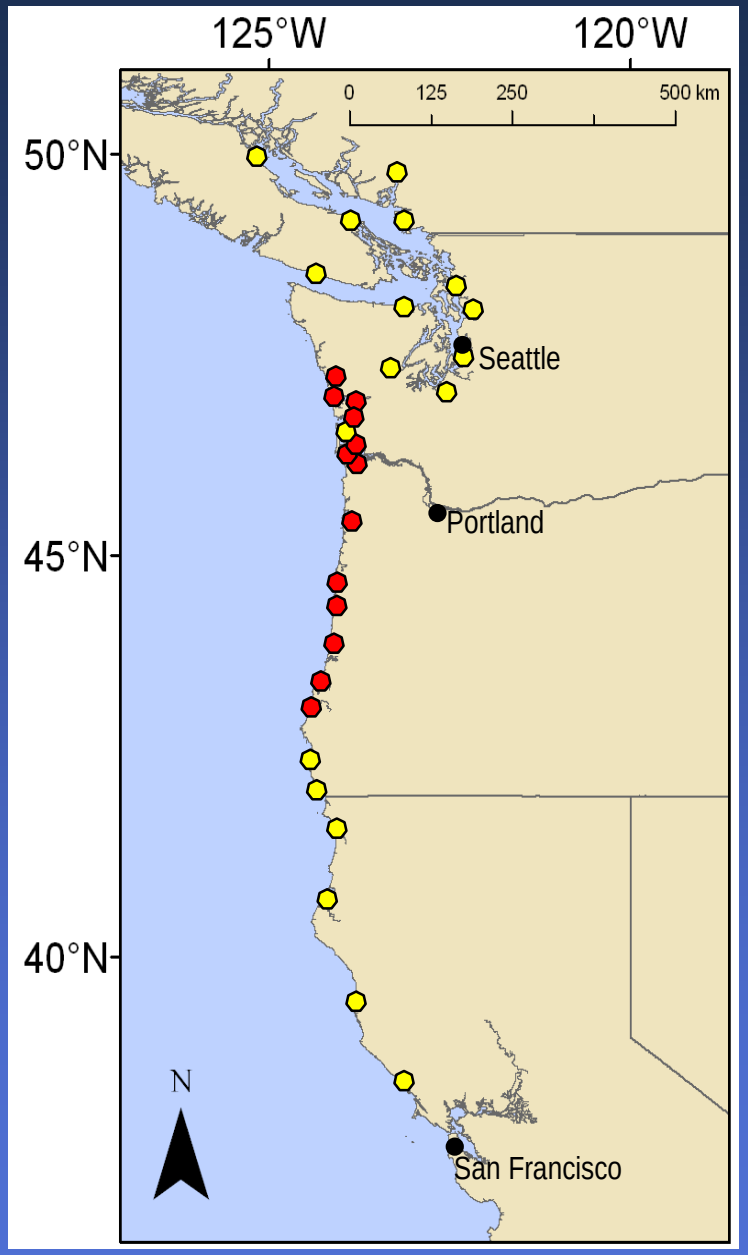
Part I: Invasive Zooplankton in Washington and Oregon Estuaries

Acartia sp.



Pseudodiaptomus inopinus





The Asian copepod *Pseudodiaptomus inopinus* is broadly distributed in WA & OR Estuaries

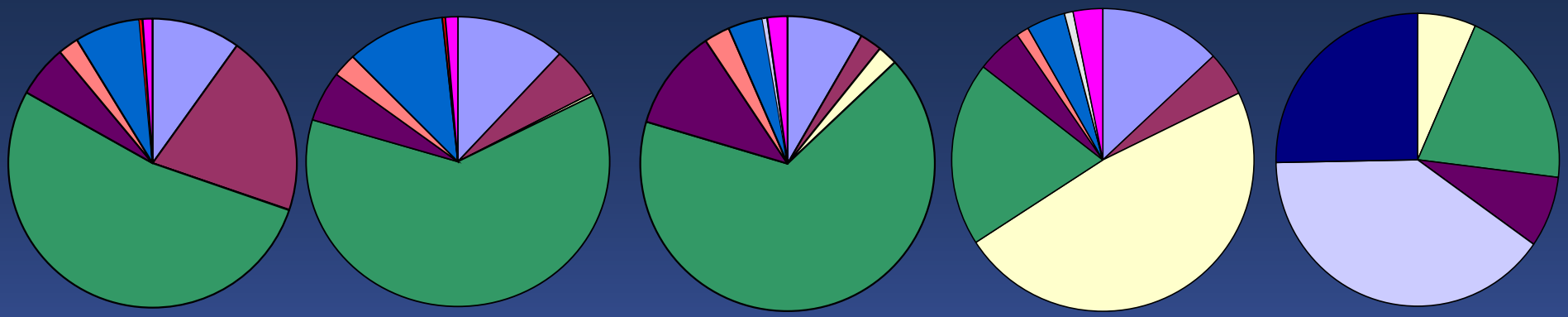
But what are the consequences for:

* *community ecology?*
* *trophic interactions?*
* *ecosystem productivity?*

P. inopinus

- present
- absent

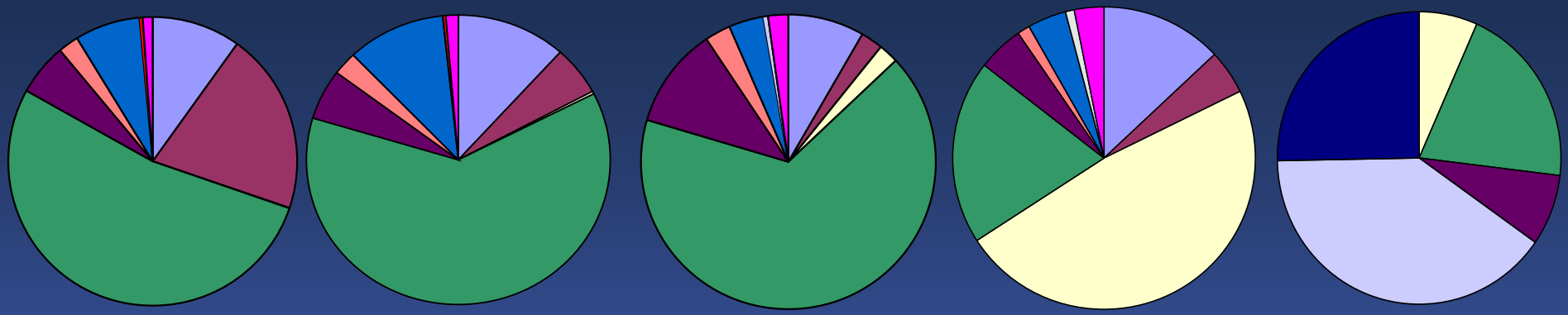
Percent numerical composition of copepods across salinity gradient in 14 west coast estuaries without *P. inopinus*



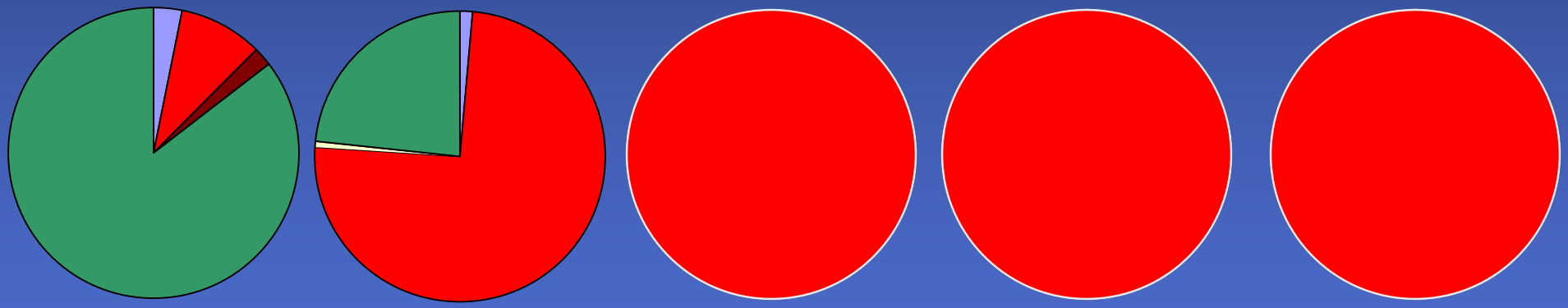
> 10 psu → 0 psu

- *Paracalanus* sp.
- *E. americana*
- Cyclopidae
- *Corycaeus* sp.
- *P. inopinus*
- *Acartiura* spp.
- *Acartia tonsa*
- *E. affinis*
- *Oithona similis*
- Other Copepods

Percent numerical composition of copepods across salinity gradient in 14 west coast estuaries without *P. inopinus*



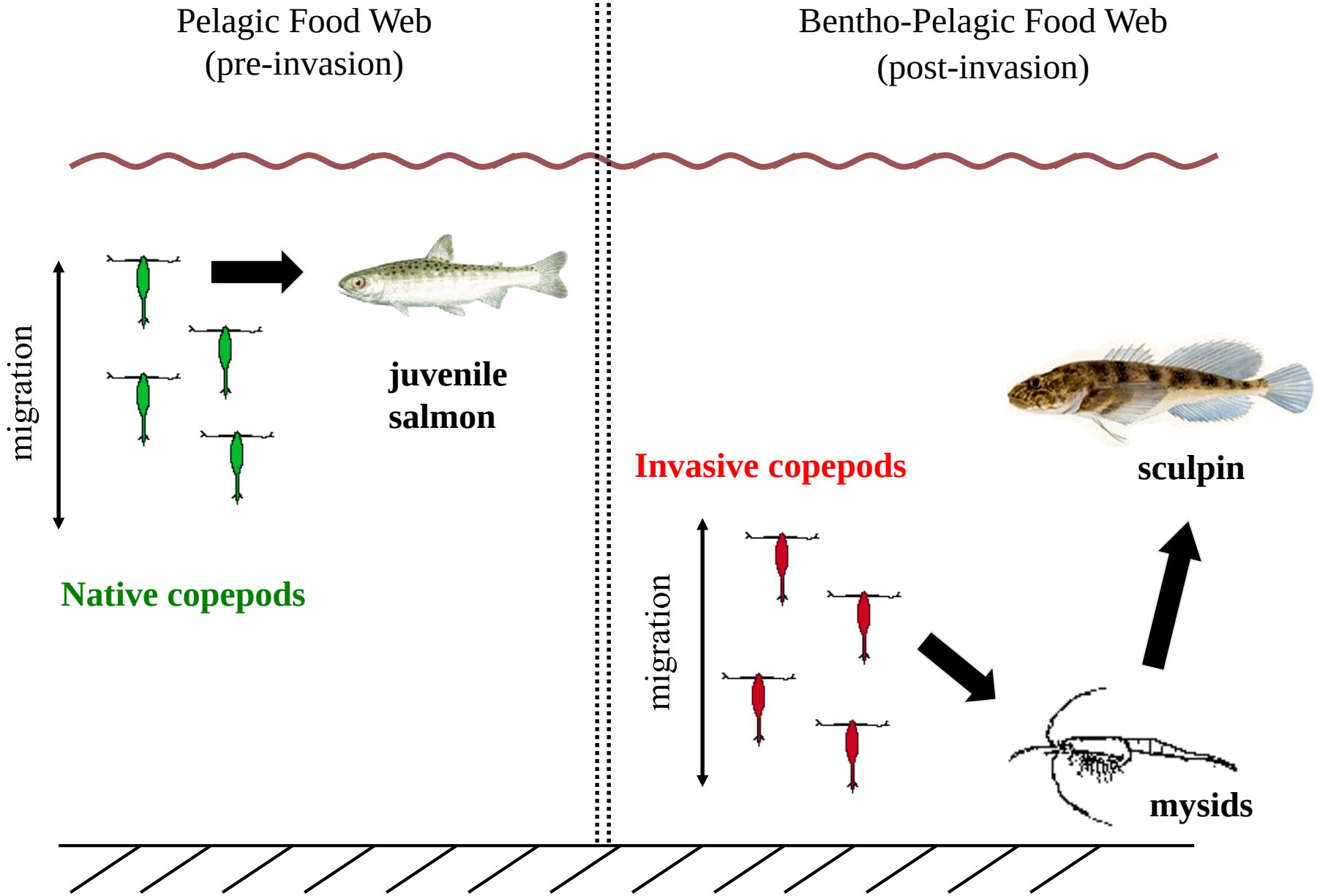
in 7 west coast estuaries with *P. inopinus*



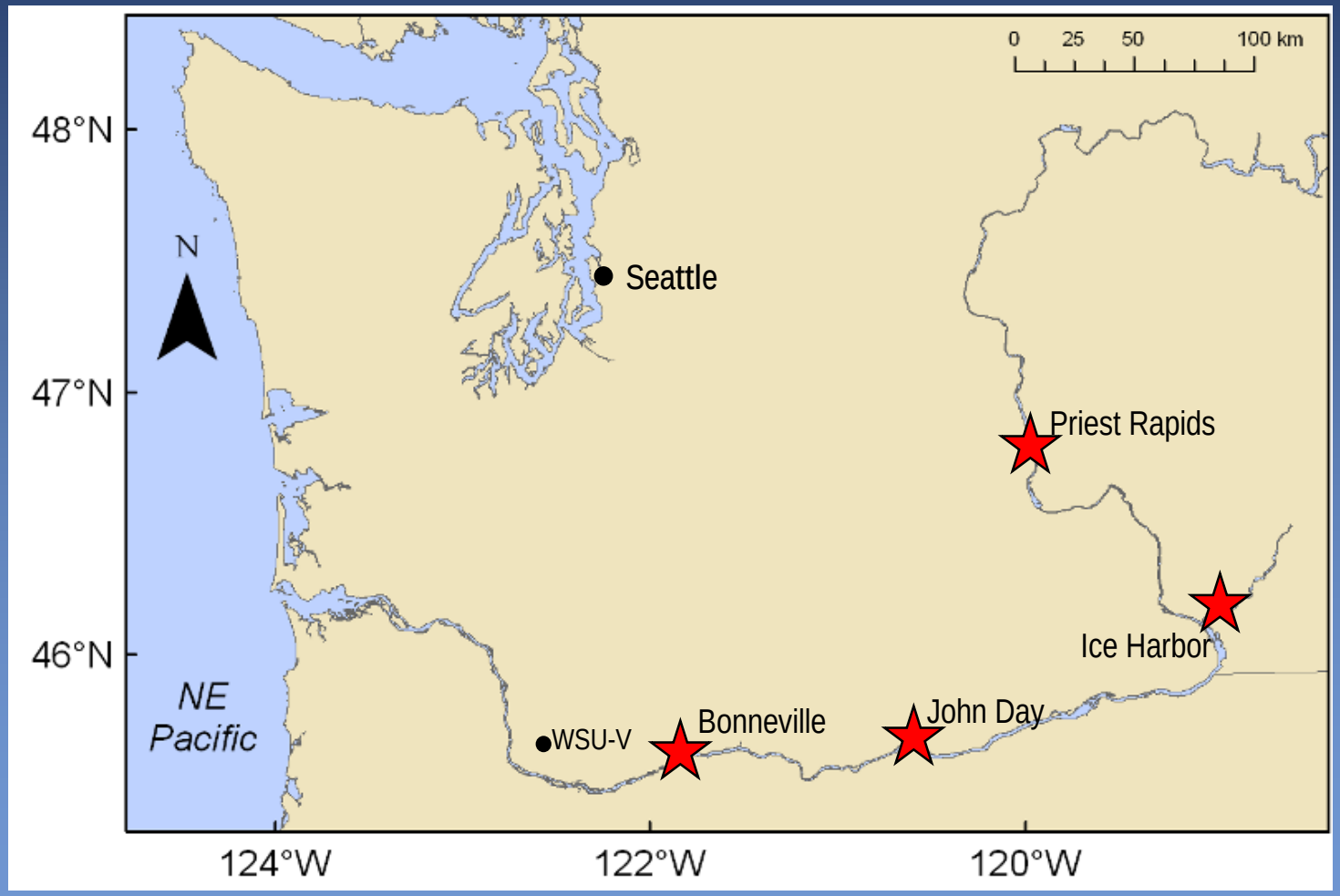
> 10 psu → 0 psu

- *Paracalanus* sp.
- *E. americana*
- Cyclopidae
- *Corycaeus* sp.
- *P. inopinus*
- *Acartiura* spp.
- *Acartia tonsa*
- *E. affinis*
- *Oithona similis*
- Other Copepods

Hypothesized Changes in Estuarine Food Web

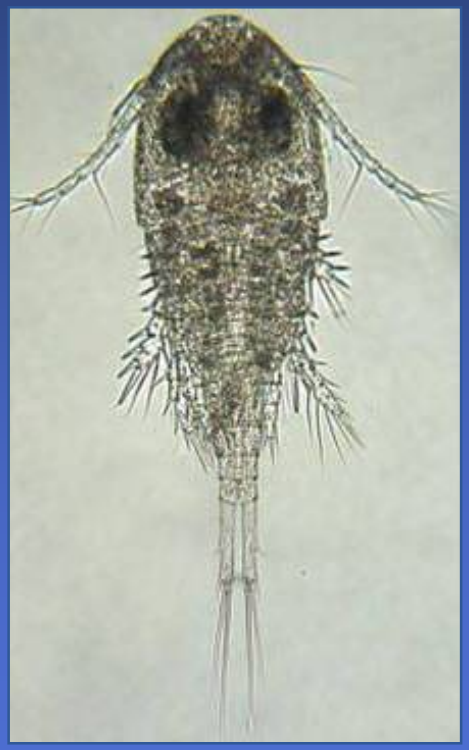


The Asian copepod *Pseudodiaptomus forbesi* in Columbia/Snake River Reservoirs

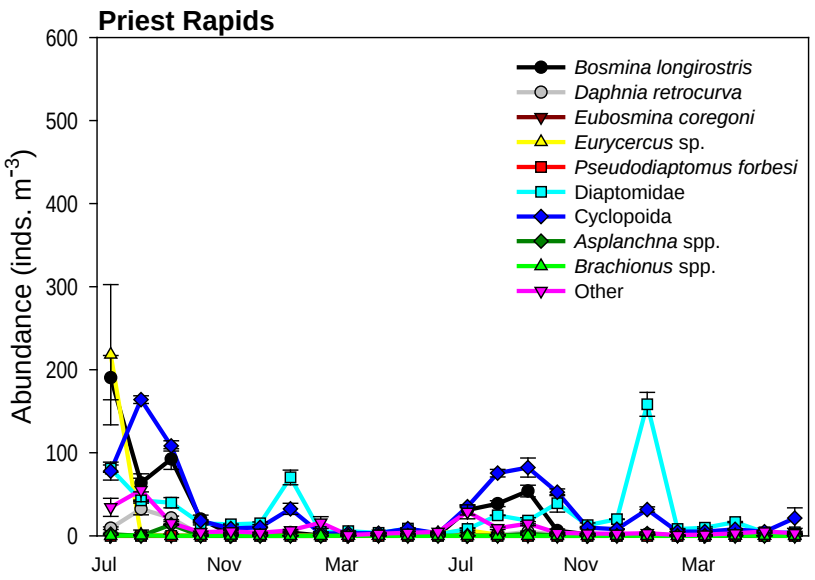


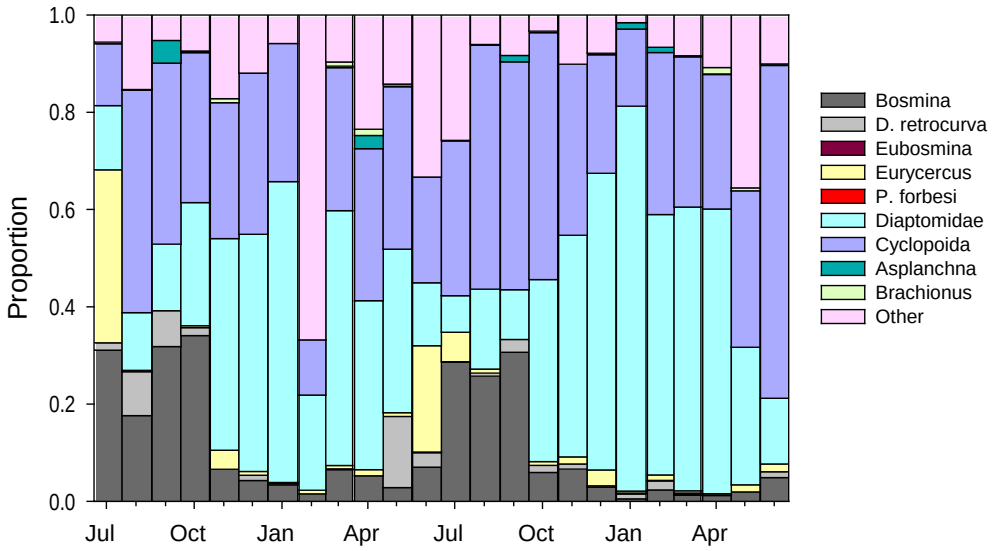
Columbia River Copepods

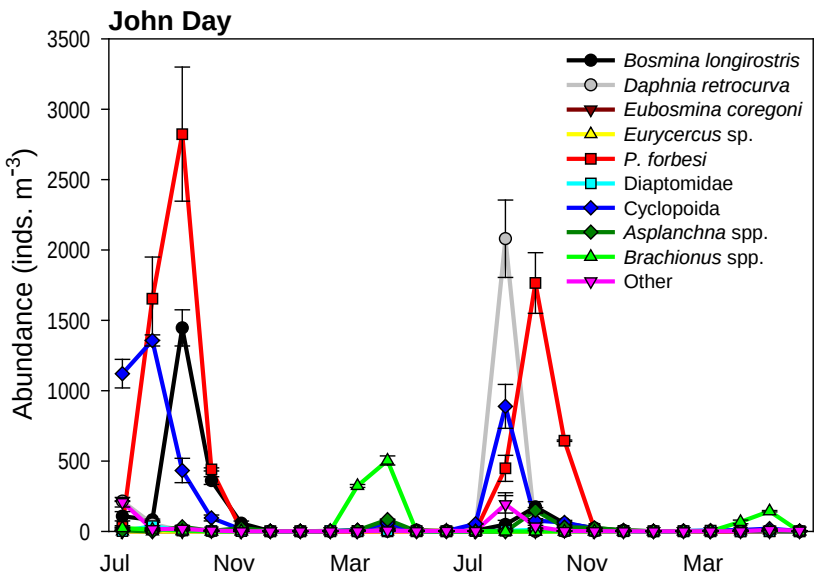
Diacyclops thomasi

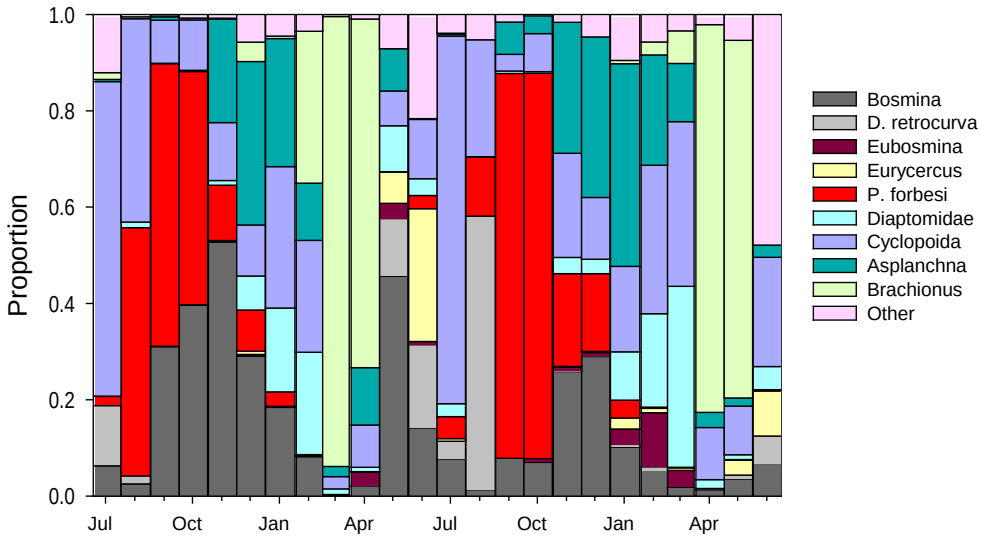


Pseudodiaptomus forbesi

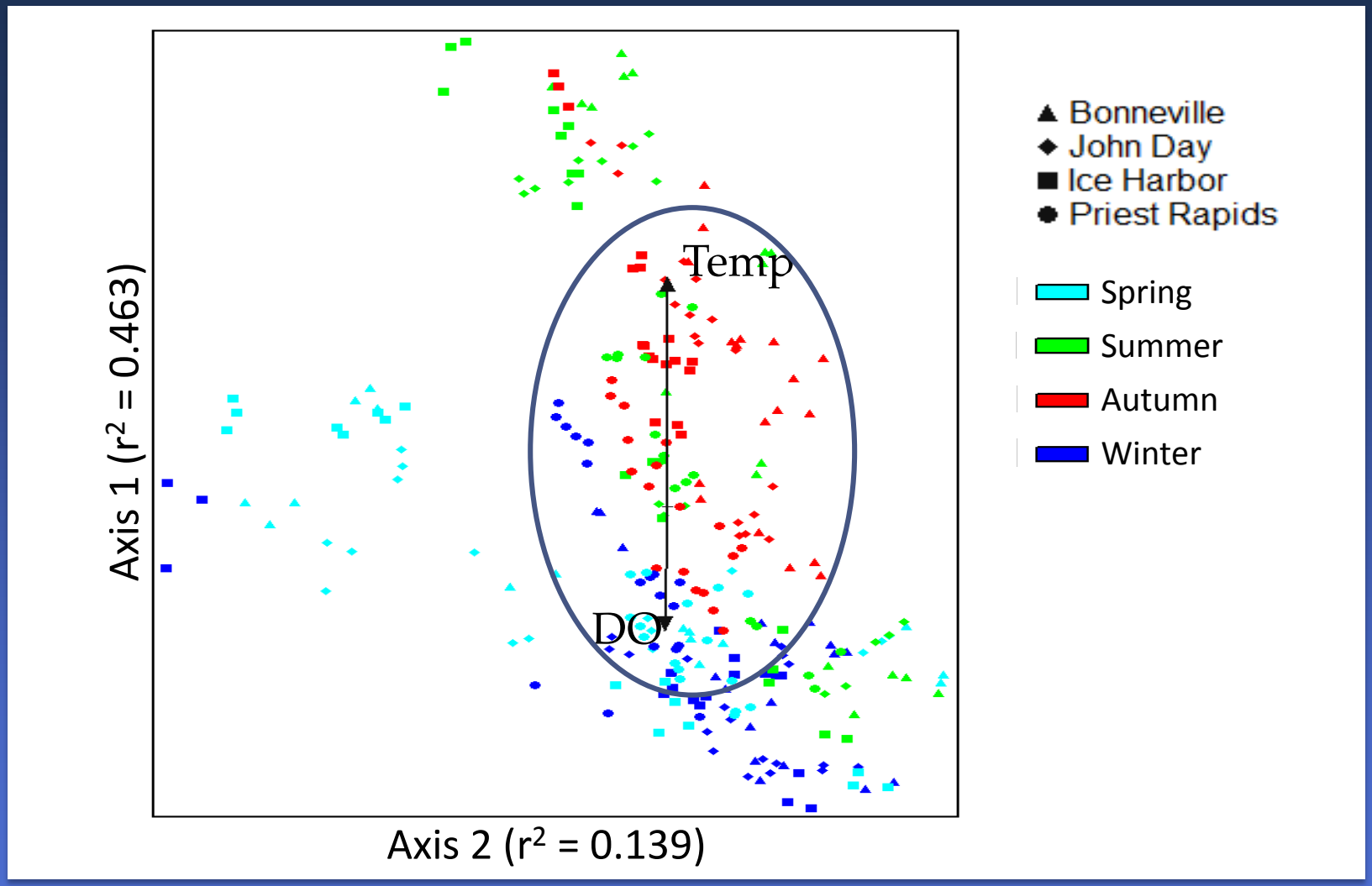

Priest Rapids
Abundance (inds. m-3)
600
500
400
300
200
100
0
Jul
Nov
Mar
Jul
Nov
Mar
Bosmina longirostris
Daphnia retrocurva
Eubosmina coregoni
Eurycercus sp.
Pseudodiaptomus forbesi
Diaptomidae
Cyclopoida
Asplanchna spp.
Brachionus spp.
Other


Proportion
1.0
0.8
0.6
0.4
0.2
0.0
Jul
Oct
Jan
Apr
Jul
Oct
Jan
Apr
Bosmina
D. retrocurva
Eubosmina
Eurycercus
P. forbesi
Diaptomidae
Cyclopoida
Asplanchna
Brachionus
Other


John Day
Abundance (inds. m-3)
3500
3000
2500
2000
1500
1000
500
0
Jul
Nov
Mar
Jul
Nov
Mar
Bosmina longirostris
Daphnia retrocurva
Eubosmina coregoni
Eurycercus sp.
P. forbesi
Diaptomidae
Cyclopoida
Asplanchna spp.
Brachionus spp.
Other


Proportion
1.0
0.8
0.6
0.4
0.2
0.0
Jul
Oct
Jan
Apr
Jul
Oct
Jan
Apr
Bosmina
D. retrocurva
Eubosmina
Eurycercus
P. forbesi
Diaptomidae
Cyclopoida
Asplanchna
Brachionus
Other

Relationship to Environmental Variables



Joint plot of zooplankton samples from Middle Columbia and Snake River reservoirs, July 2009 – June 2011. Vector cutoff is r^2 = 0.3. Stress = 7.02. NMS explains 67.4% of variation between samples

Summary of Invasive Copepods

- Invasive copepods form Asia have established themselves within the Columbia River Estuary and several hundred miles inland
- Competition with native copepods, based on habitat overlap as well as similarity of diets, seems likely
- Overall food web impacts (e.g. higher trophic levels such as fish) remain uncertain

Part II: Enhanced monitoring and investigation of the spread and potential impact of aquatic invasive mussels in the Columbia River Basin

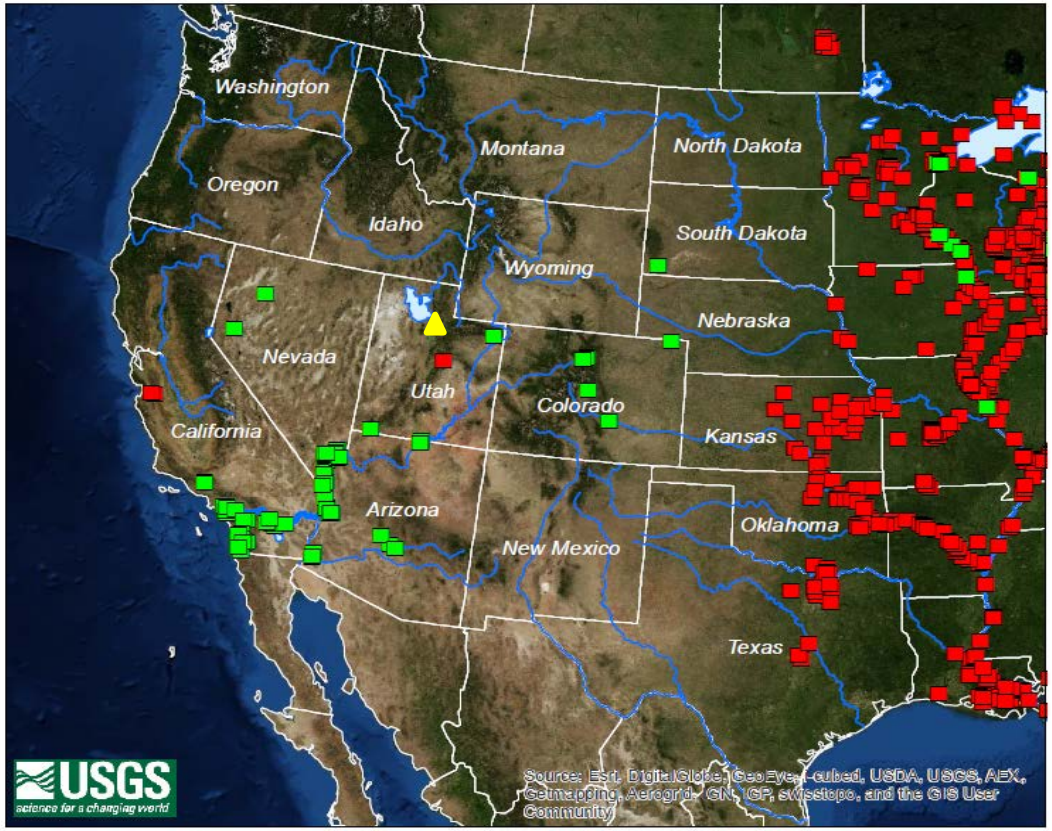
Zebra mussel (*Dreissena polymorpha*)

Quagga mussel (*Dreissena bugensis*)

Washington State University Vancouver

USGS science for a changing world

QUAGGA AND ZEBRA MUSSEL SIGHTINGS DISTRIBUTION IN THE WESTERN UNITED STATES, 2007 - 2014



Quagga mussel sightings Zebra mussel sightings

New veliger detection Dec. 12, 2014

Background

- Funding cost shared by BPA Technology Innovation Program, WSU, and USGS
- BPA must adequately maintain and update hydropower equipment in the FCRPS
- Colonization by aquatic invasive species in the Columbia River Basin – in particular zebra and quagga mussels – poses a critical potential challenge to effective operation of the FCRPS
- The Columbia River Basin has yet to be invaded; BPA benefits from methods to prevent introduction and potential spread

Objectives

- Enhance and help to further coordinate existing **regional early detection efforts**
- Compile information (GIS) describing boat ramps – first step to understand what needs to be done to create a framework for prioritizing placement of **boat cleaning stations**
- Evaluate efficacy of new **FlowCam** technology to process samples from ongoing WSUV-USGS veliger monitoring
- Conduct pilot study of the efficacy of **eDNA** technology for monitoring quagga/zebra mussels in the CRB – *2015 only*
- Provide opportunities to **train young professionals** in assessing the effects of AIS on food webs

Benefits to BPA

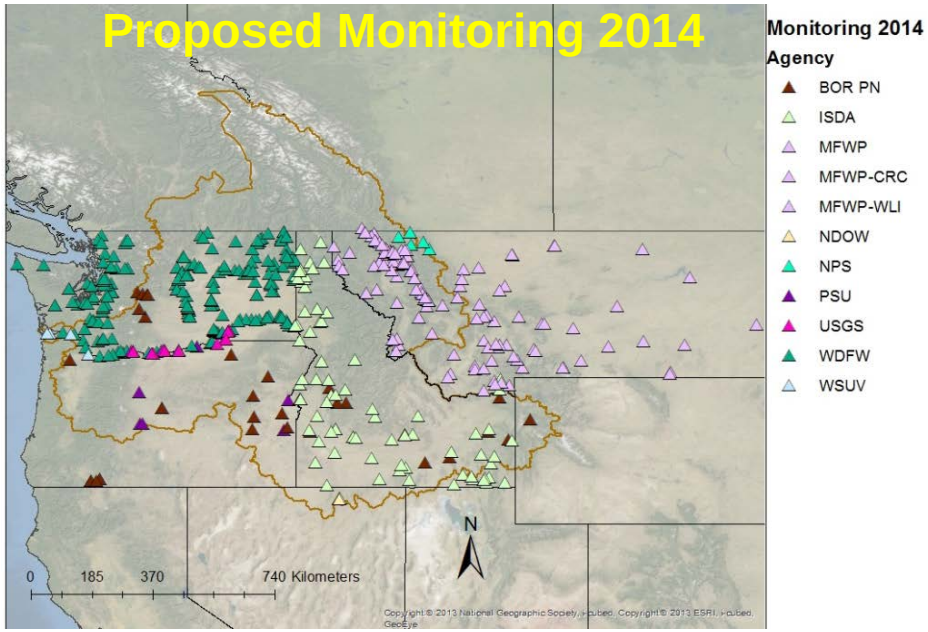
- Early warning system through regional monitoring, using traditional microscopy and novel detection tools (FlowCam, eDNA), will improve likelihood of early detection of veligers

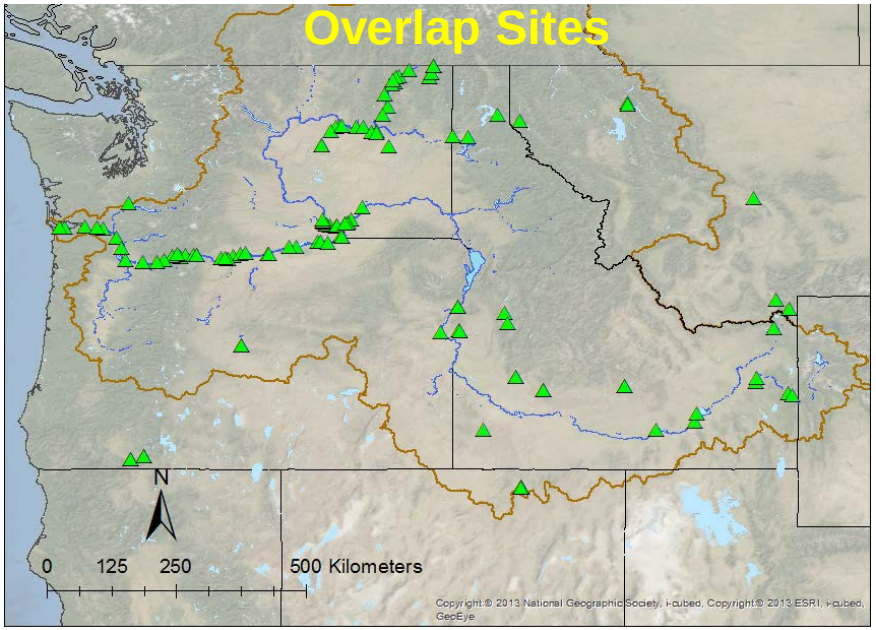
- Improved framework for assessing risk of introduction of mussels will help minimize spread of other AIS in the CRB

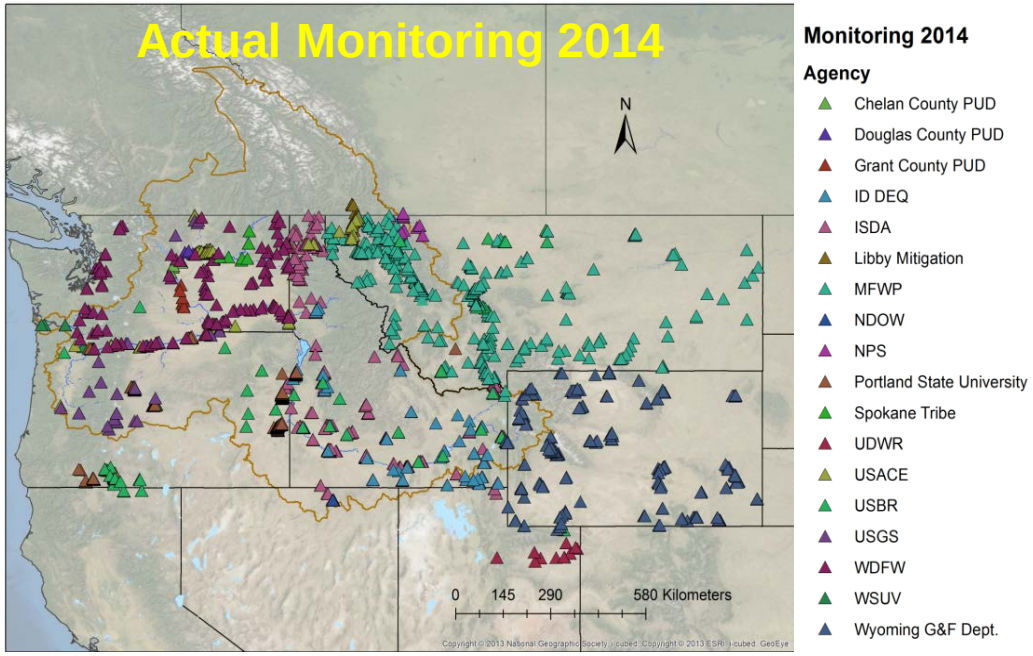
- Enhanced monitoring will improve likelihood of control and mitigation of zebra mussels in BPA's mainstem hydroelectric projects, if mussels get introduced

Regional coordination: Zebra and Quagga Mussel Monitoring

- Published “planned” 2014 and 2015 zebra/quagga mussel monitoring
- Identified overlap sites - Opportunities for collaboration
- Developed comprehensive database describing 2012, 2013, and 2014 monitoring locations and risk of introduction and establishment
- Developed boat ramp database/GIS
- Conduced early detection monitoring
- Estimated probability of detecting rare taxa in 3 Columbia River and 1 Snake River Reservoirs







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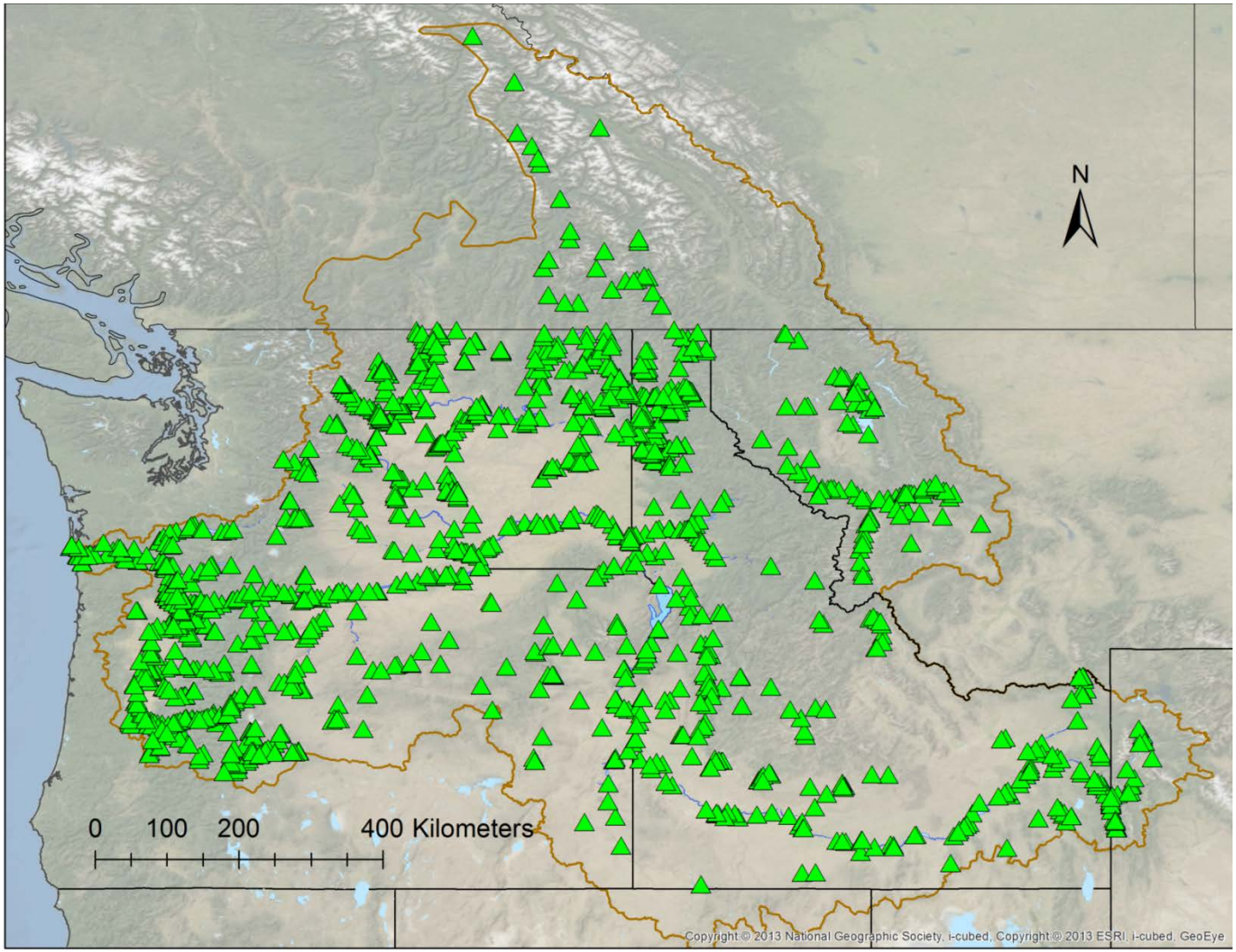
Boat Ramp Database



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Estimated effort required for high-probability early detection of non-native planktonic taxa

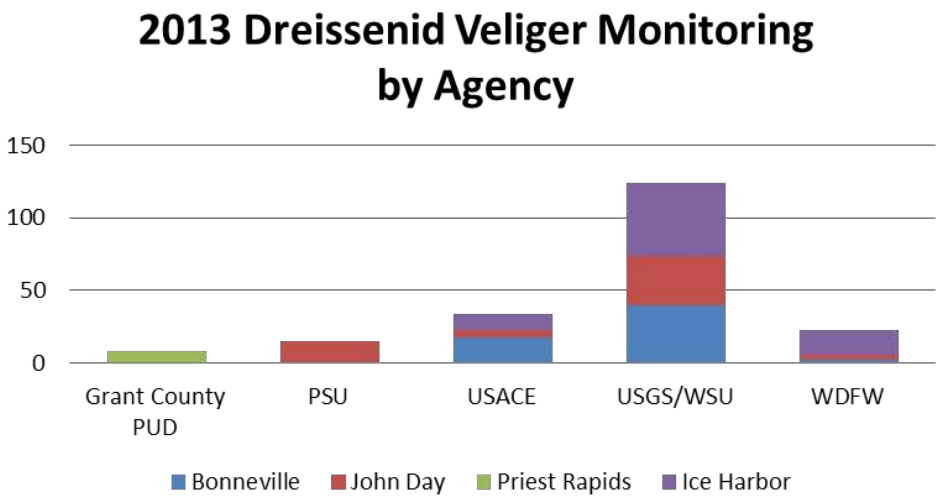
- **Analytical approach based on methods in:**

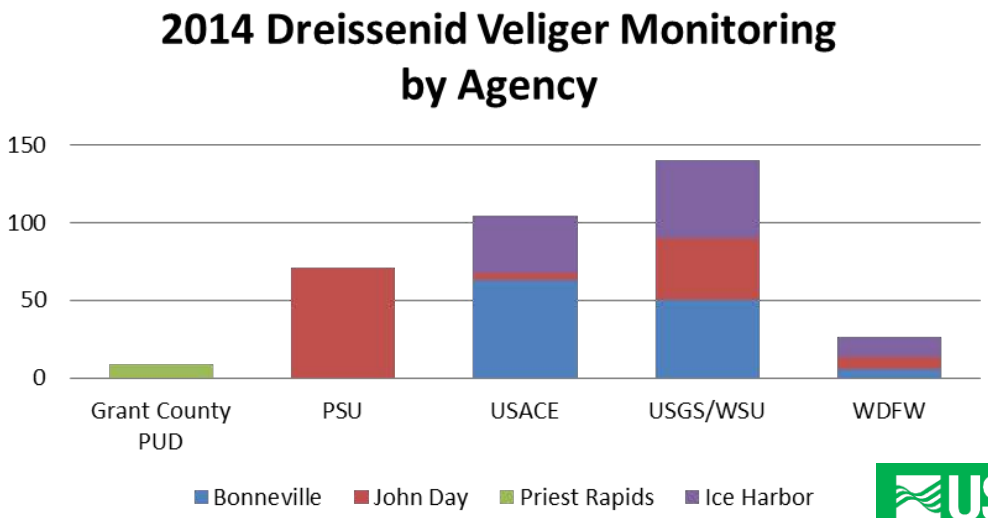
  Hoffman et al. 2011. Effort and potential efficiencies for aquatic nonnative species early detection. Can. J. Fish. Aquat. Sci., 68: 2064–2079

- **Zooplankton data from Joint USGS/WSU field study, April-September 2010** (funded jointly by USGS and WSU):

  Emerson, J.E., Bollens, S.M., Counihan, T.D. 2015. Seasonal dynamics of zooplankton in Columbia–Snake River reservoirs, with special emphasis on the invasive copepod *Pseudodiaptomus forbesi*. Aquatic Invasions, 40: 25-40.

Effort by Agency
Columbia and Snake River Reservoirs





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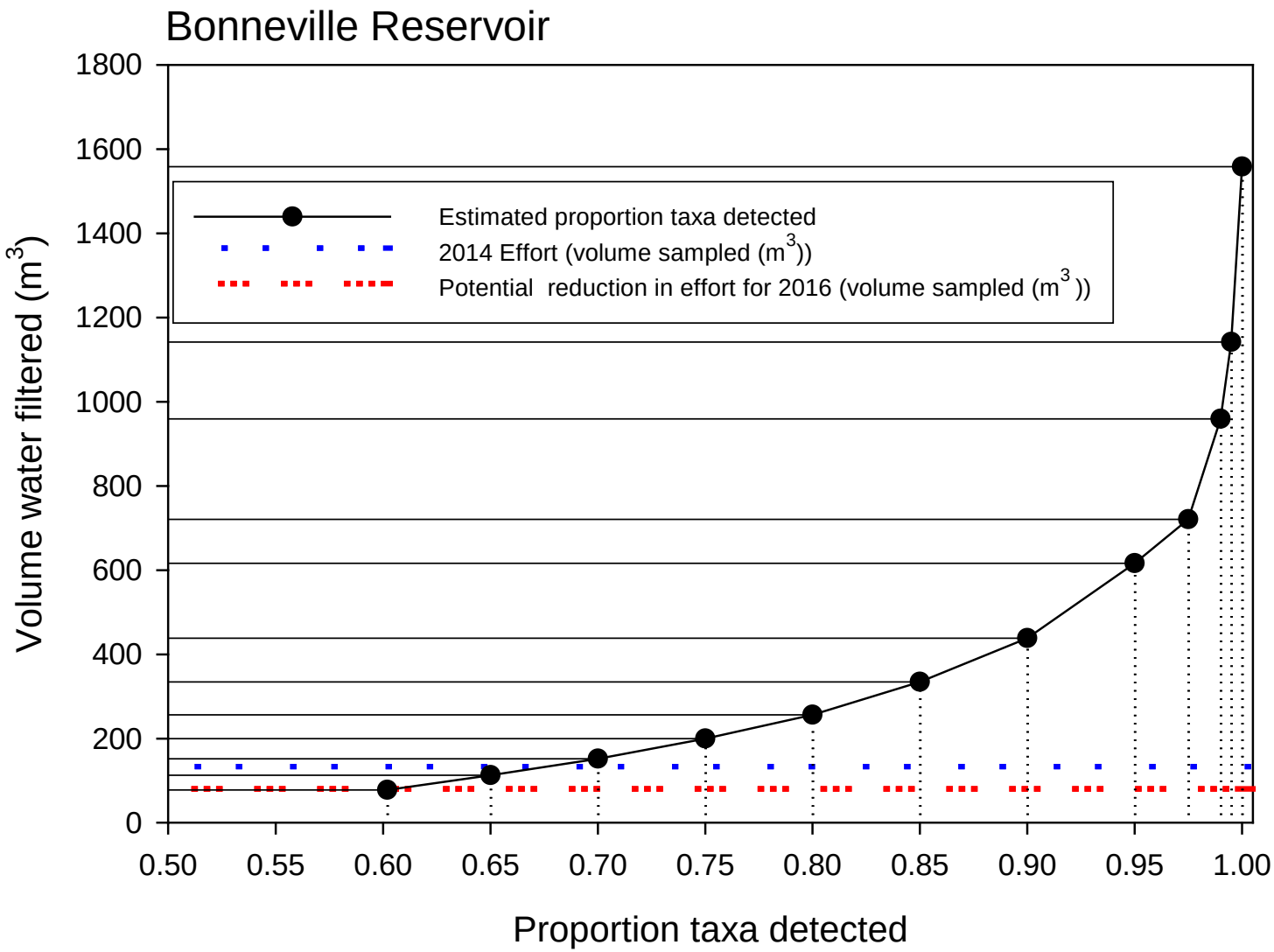
Draft results 8/31



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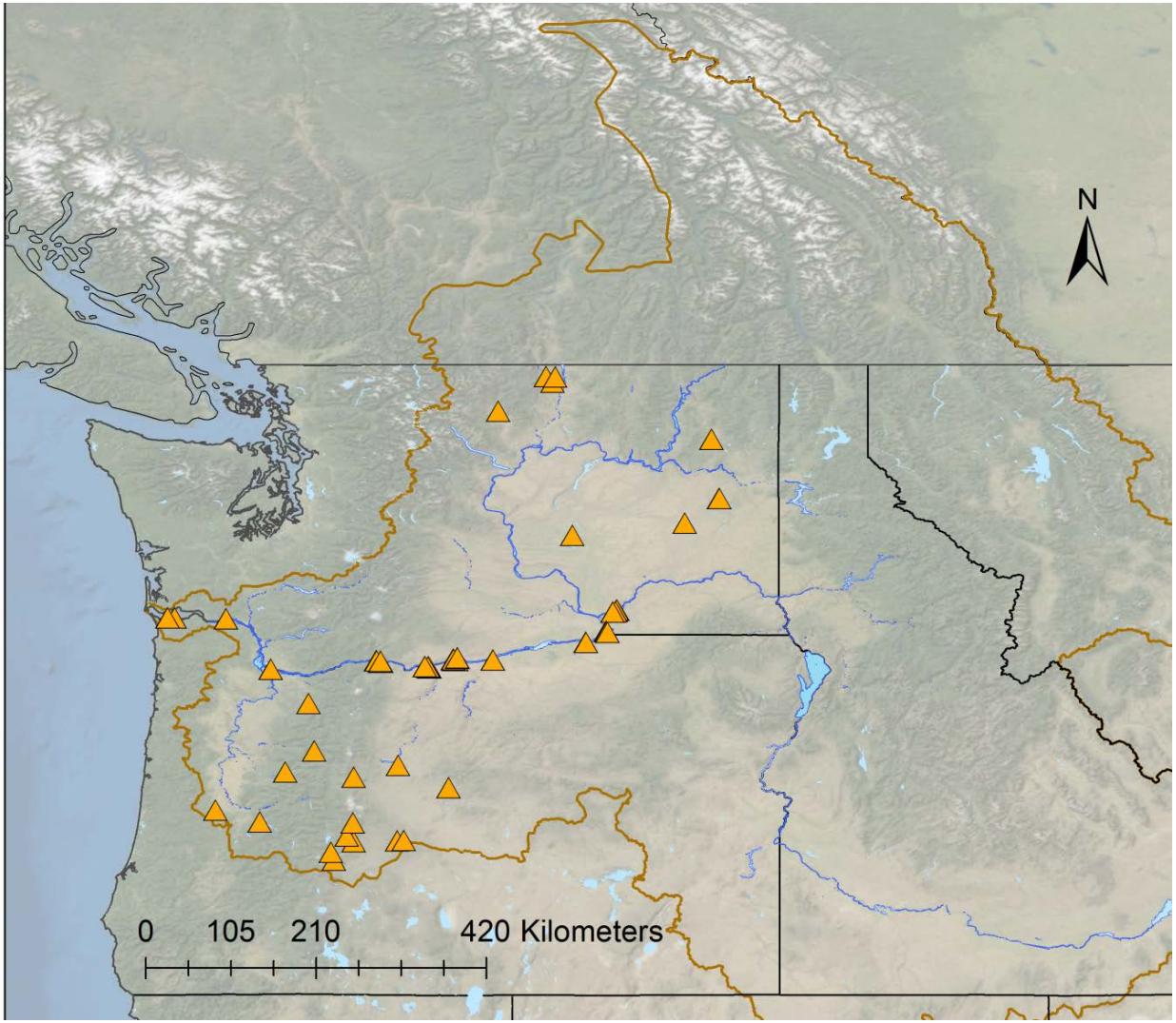
2015 USGS-WSUV Early Detection Monitoring



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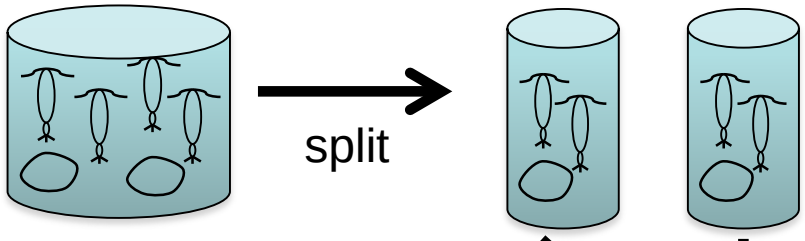
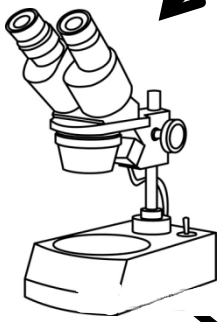
Early Detection Monitoring

Sample Processing

Analysis of field samples



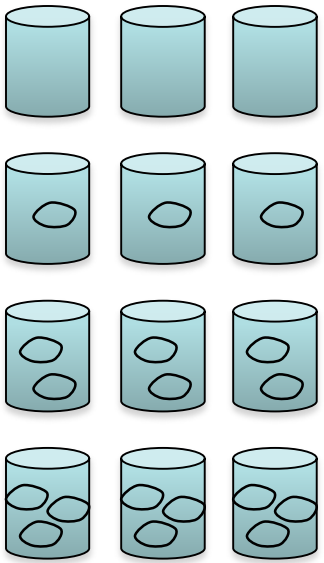
Net sample from field



Enumeration via traditional microscopy

Archived for plankton community analysis

Veliger "Spiking" Experiments



Control CRB water

CRB water + 10 veligers

CRB water + 50 veligers

CRB water + 100 veligers

Enumeration via FlowCAM

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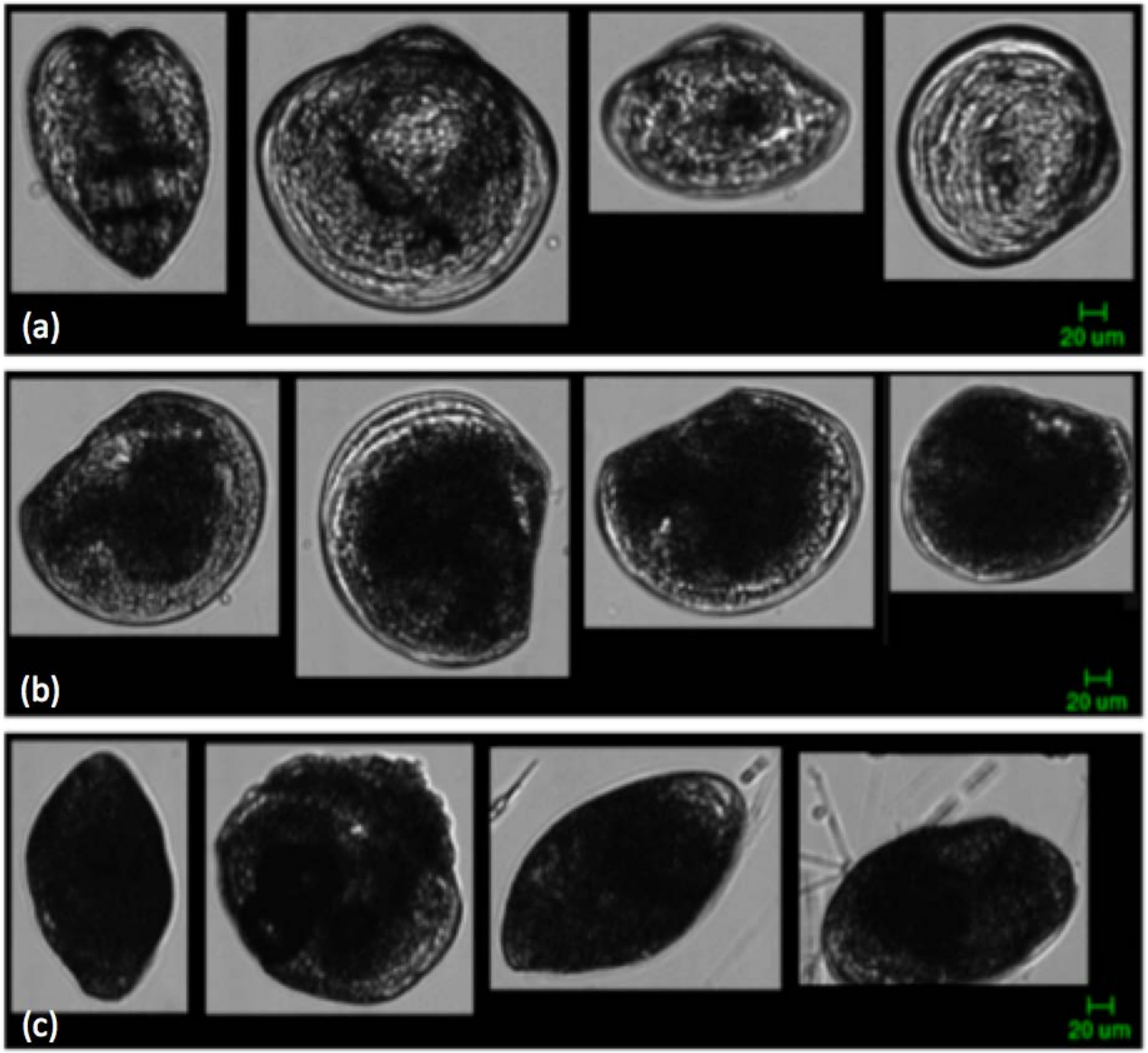


FlowCam digital images of veligers classified as:
(a) dreissenid, (b) corbiculid, and (c) indeterminate.

Veliger sample analyses

- 2014 – 290 samples from 5 Columbia and Snake River reservoirs and 25 high risk sites processed using traditional microscopy and FlowCAM
- 2015 – 275 samples from same locations nearly complete
- **No dreissenid veligers detected in any CRB samples**

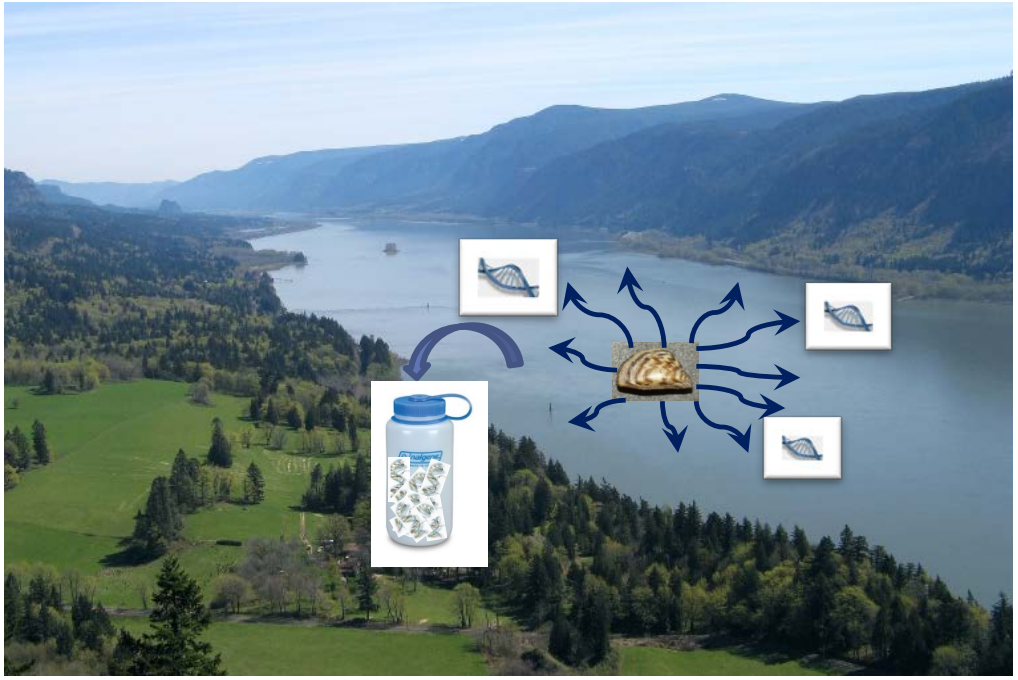
Assessment of FlowCAM

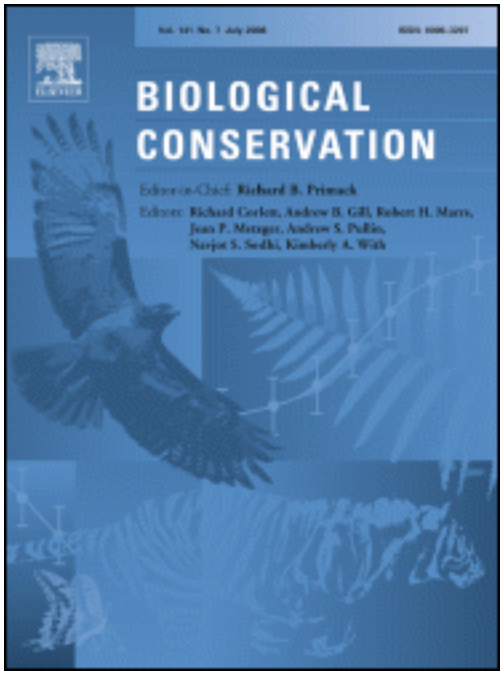
- **Potential strengths of FlowCAM for veliger enumeration**
  - Speed of sample processing relative to microscopy
  - Volume of sample processed per collection site
  - Accuracy of organism identification

- **Potential weaknesses of FlowCAM for veliger enumeration**
  - Accuracy of organism identification (effectiveness of image analysis "filters" to detect individual dreissenid veligers)
  - Training and support of instrument operator

Conducted eDNA pilot study - 2015 only

- **Zebra and Quagga mussels release copies of their DNA into the environment through natural behavior = "Environmental DNA"**



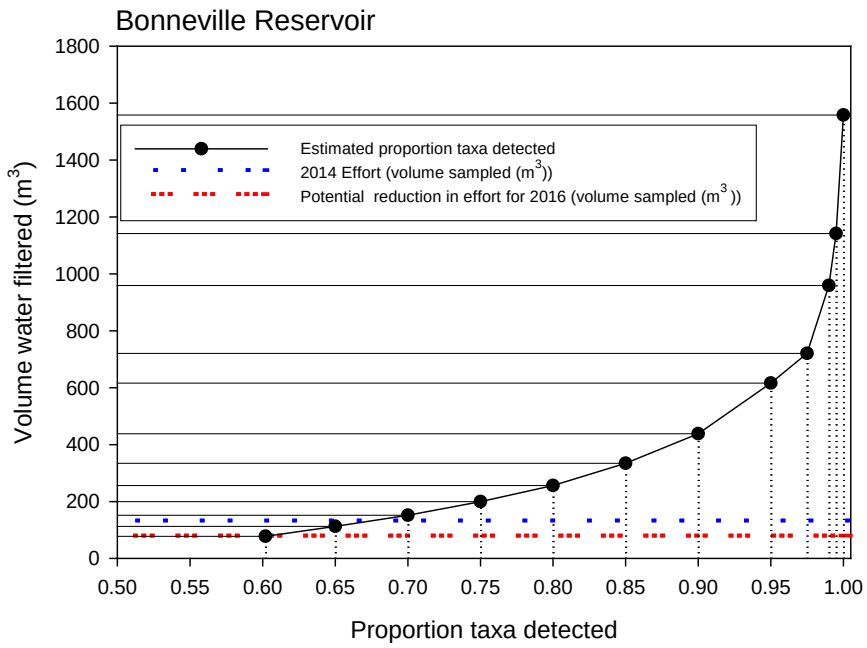


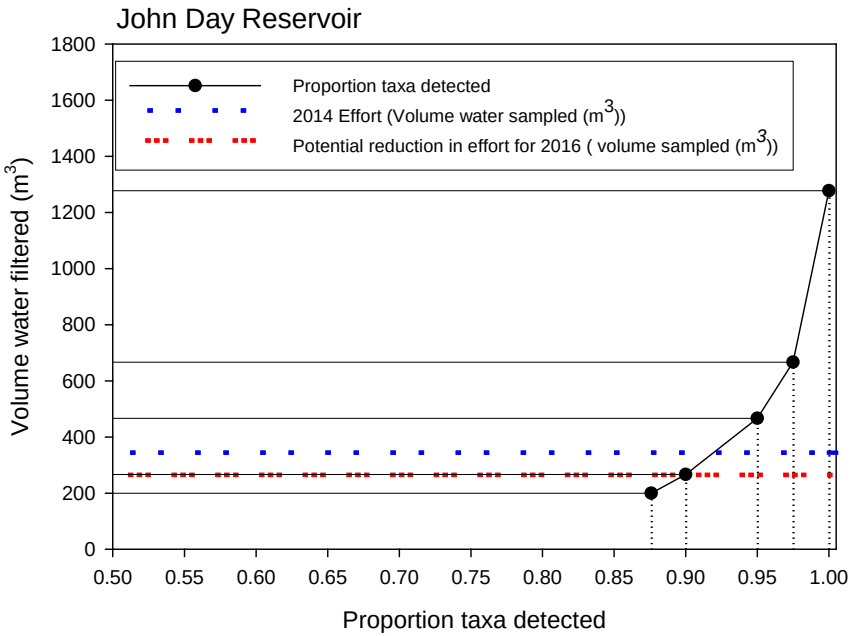
Next Steps

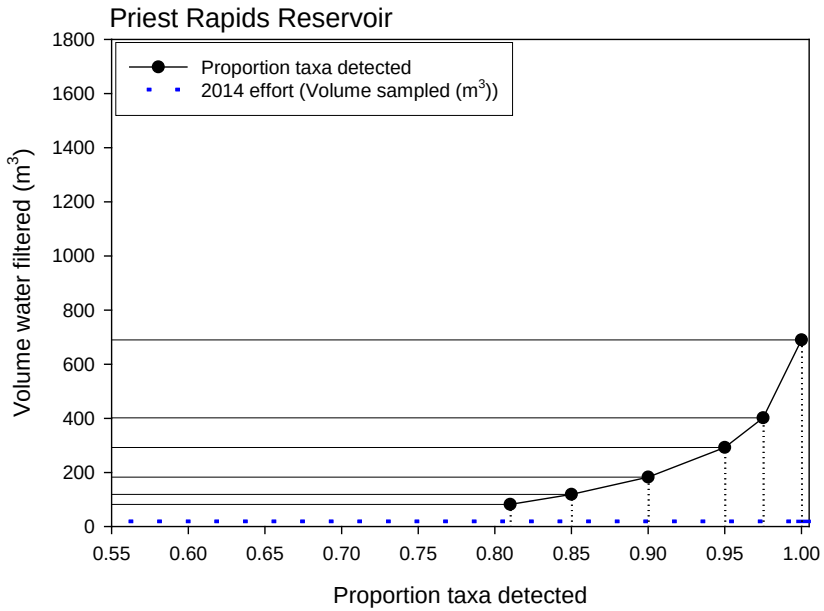
- BPA Technology Innovation Program funding ending; alternative BPA funding being discussed
- Several scientific journal articles (plus BPA-TIP final report) describing our early detection and research findings are in preparation
- Additional sources of funding for early detection of AIS in the Columbia River (especially quagga and zebra mussels) are being sought

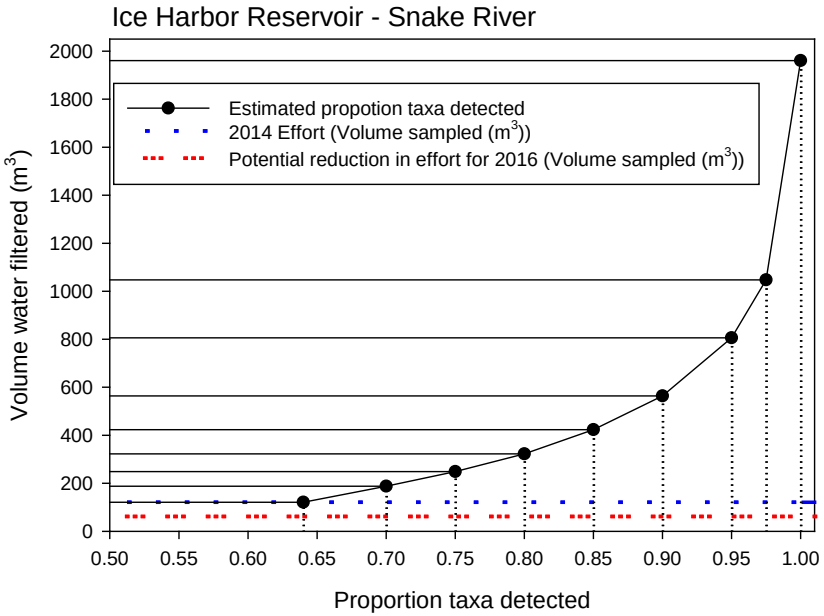
Q&A

Draft results 8/15



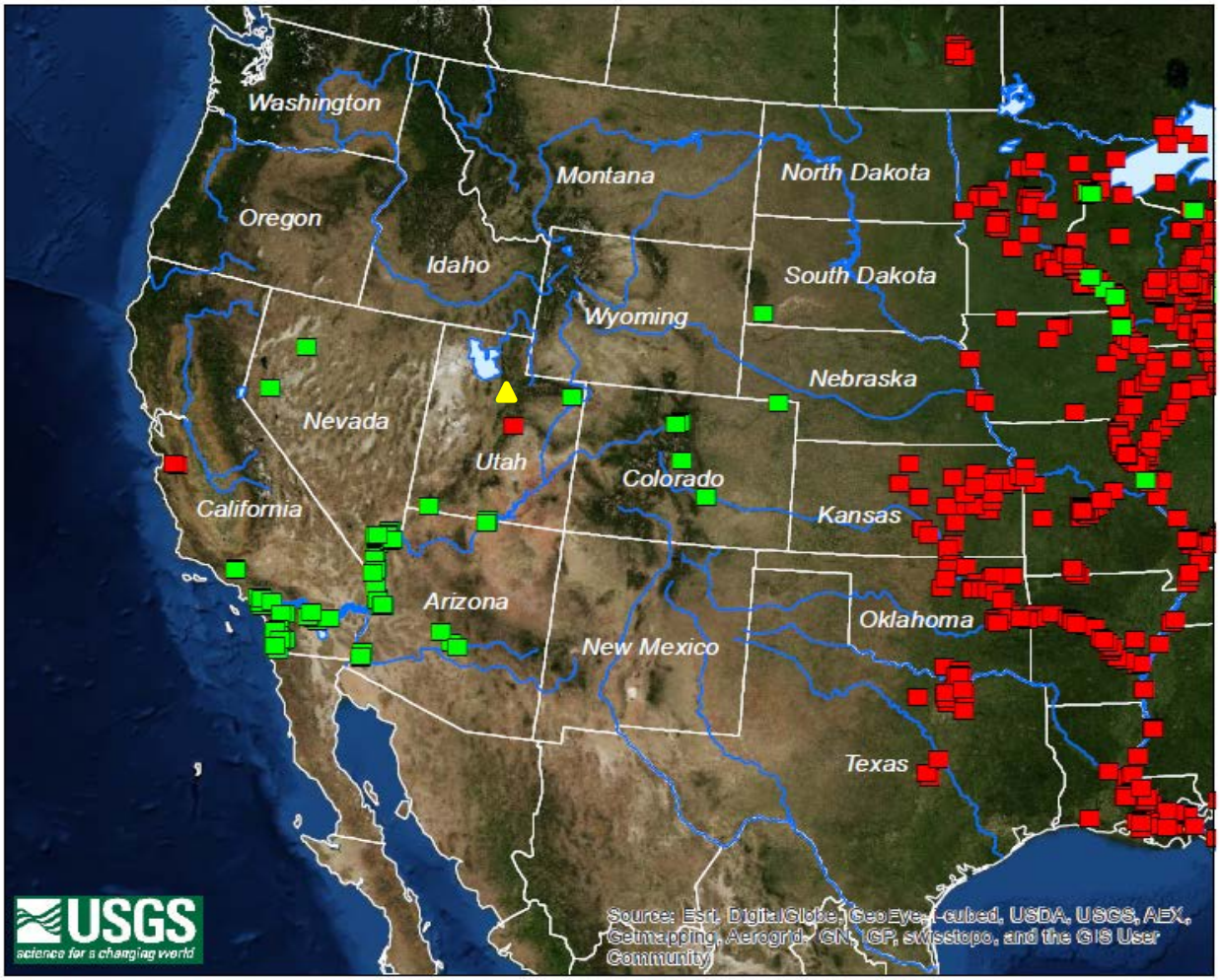






Project Synopsis - Need

QUAGGA AND ZEBRA MUSSEL SIGHTINGS DISTRIBUTION IN THE WESTERN UNITED STATES, 2007 - 2014



Quagga mussel sightings Zebra mussel sightings

New veliger detection Dec. 12, 2014

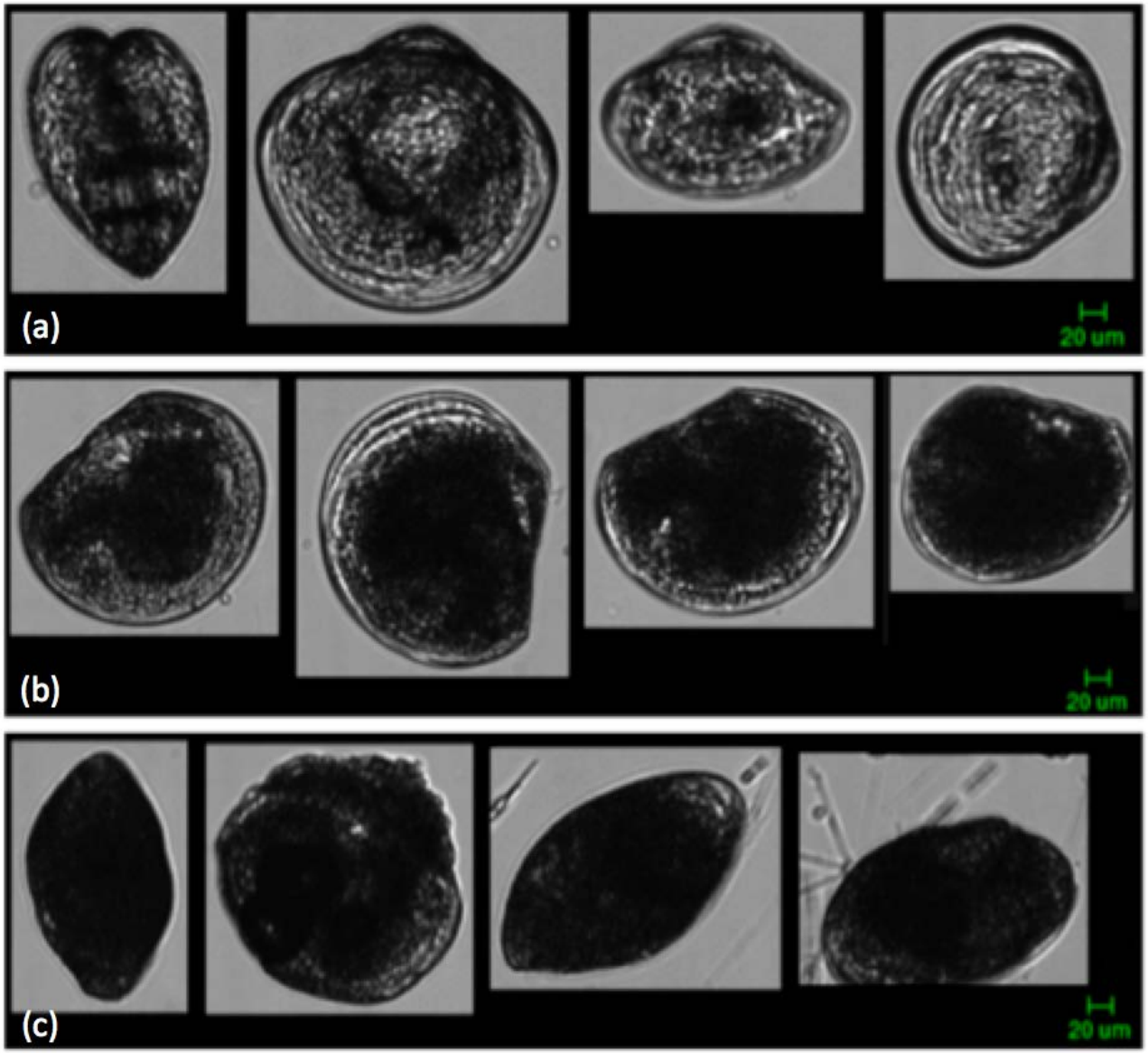
New Zealand mud snail
(*Potamopyrgus antipodarum*)

Nutria
(*Myocastor coypus*)

Asian copepod
(*Pseudodiaptomus forbesi*)

Asian clam
(*Corbicula fluminea*)

Eurasian watermilfoil
(*Myriophyllum spicatum*)



FlowCam digital images of veligers classified as:
(a) dreissenid, (b) corbiculid, and (c) indeterminate.

African Clawed Frogs (*Xenopus laevis*) in City of Lacey Stormwater Ponds Management

Washington Department of Fish & Wildlife
Aquatic Invasive Species Unit
September 24, 2015

ACF Identification Tadpole

- Translucent, has a tentacle on each side of its mouth, and a slender tail ending in a filament

ACF Identification Adult

- Dorsoventrally flattened with relatively small head
- Fore feet have slender unwebbed fingers
- Males hind feet are large, fully webbed, and have sharp black claws
- No tongue, skin very smooth, dorsal coloration of X, color olive to brown

ACF Ecology

- Primarily aquatic, highly adaptable, and tolerates sewage and relatively saline (up to 14 ppt) waters
- Tends to avoid large water bodies with predatory fish
- In Africa often migrates over land in hundreds or thousands of individuals sometime stimulated by droughts.

ACF Nutrition

- Omnivore preying on aquatic invertebrates, amphibians, and fish
- Cannibalism of larvae is thought to be important for adult nutrition
- Can survive starvation conditions for at least 12 months
- Tadpoles feed on planktonic organisms

ACF Reproduction

- External sexual fertilization to produce eggs which are deposited singly in water
- Breeding season is noted to be year round in California
- Gravid females range from 1,000 to 27,000 eggs

ACF Lifecycle Stages

- Sexual maturity within one year is possible
- Tadpoles typically take 3 months to metamorphosis
- Average lifespan is 12 years with a record of 30

ACF Invasive Risks

- Decimate native species especially amphibians
- Carriers of amphibian fungus Batrachochytrium dendrobatidis (chytrid) and ranavirus disease.

AIS Management Regulations

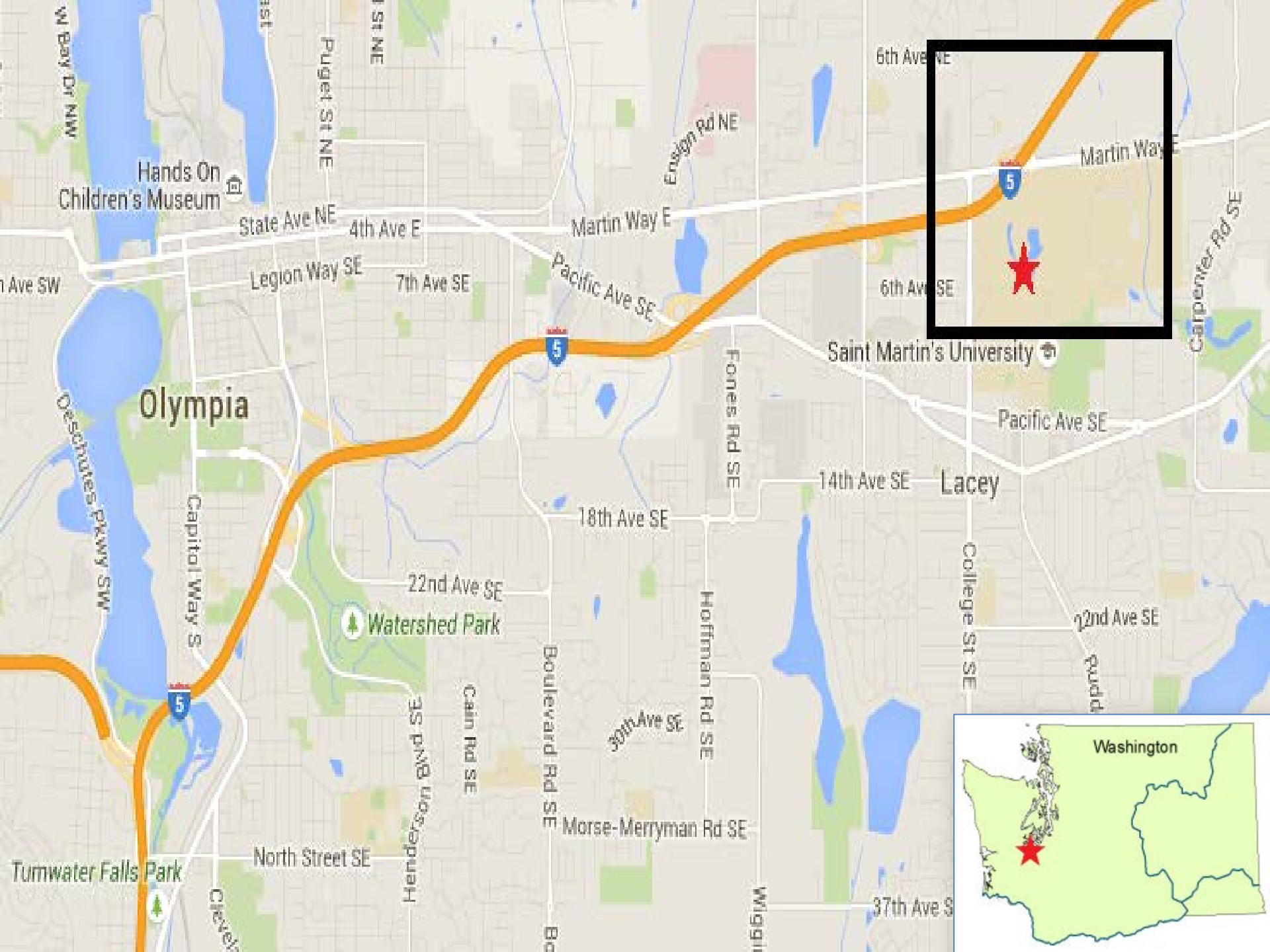
African clawed frogs (all members genus *Silurana* and *Xenopus*) are classified as "Prohibited level 3" species under RCW 77.135.030 (1)(c) and WAC 220-12-090(1)(a)(iii) for non-native aquatic animal species considered to pose a "moderate to high invasive risk" and which may require management by the department or other affected landowner. Prohibited level 3 species, under RCW 77.135.040(1), "may not be possessed, introduced on or into a water body or property, or trafficked, without department authorization, a permit, or as otherwise provided by rule."

Management Response Structure

- Establish stakeholder group
- Determine extent of infestation
- Conduct prevention, containment, control, and eradication actions
- Long-term monitoring

ACF Detection

- July 15, 2015 WDOE staff reported on the WISC reporting site and contacted WDFW
- Confirmed by WDFW amphibian and independent expert

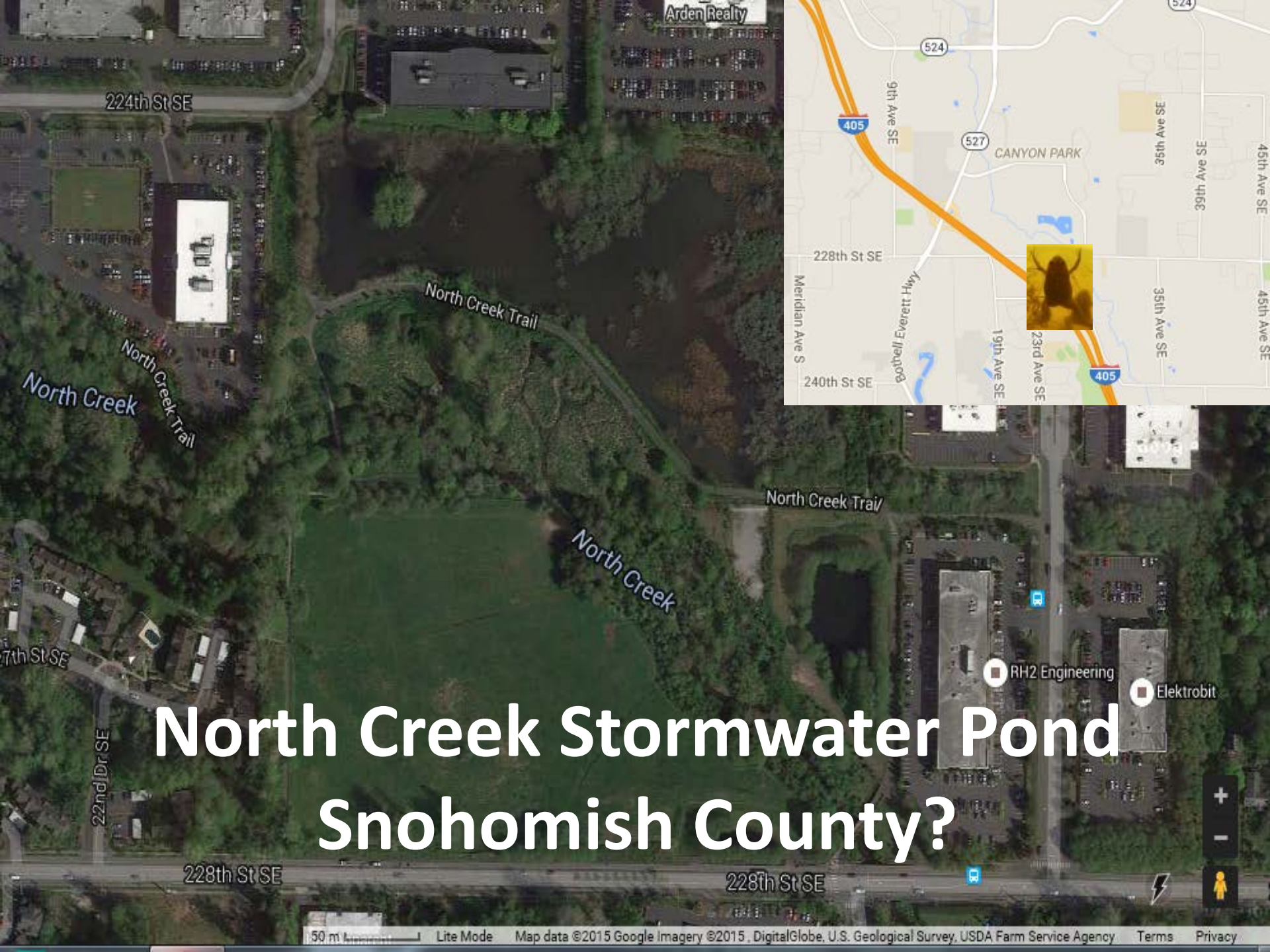

Hands On Children's Museum
State Ave NE
4th Ave E
Legion Way SE
7th Ave SE
Puget St NE
Martin Way E
Ensign Rd NE
Pacific Ave SE
6th Ave NE
6th Ave SE
Martin Way E
Saint Martin's University
Carpenter Rd SE
Olympia
Deschutes Pkwy SW
Capitol Way S
Fones Rd SE
Pacific Ave SE
14th Ave SE
Lacey
18th Ave SE
22nd Ave SE
Watershed Park
Boulevard Rd SE
Hoffman Rd SE
College St SE
22nd Ave SE
Cain Rd SE
30th Ave SE
Henderson Blvd SE
Morse-Merryman Rd SE
North Street SE
Tumwater Falls Park
37th Ave S
Washington

WDOE
ACF
USFWS
Woodland Creek
109
College St SE
Saint Martin's University
St Martins Park

Count as of 9/21/2015

(374 ACF; 48 Bullfrogs in Mega Trap)

Site	ACF	Bullfrog	Native	Goldfish	Total
Pond 1	2,484	148	7	117	2,756
Pond 2	1,241	1,309	16	0	2,565
Pond 3	479	569	96	0	1,144
Total	4,204	2,026	119	117	6,466



North Creek Stormwater Pond Snohomish County?

Thanks

WDFW AIS Biologist

Jesse Schultz- (360) 902-2184

Jesse.Schultz@dfw.wa.gov

“Don’t Let it Loose”

Regional Outreach Campaign

Objective: prevent the illegal movement of prohibited invaisve species such as: African Clawed Frogs, Slider Turtles, Carp, Goldfish, Caleurpa, Hydrillla, Water Hyacinth, Northern Pike, etc.

Potential Actions:

1. **Outreach Materials:** Produce outreach materials (brochures, stickers, etc.) for distribution to pet stores, classrooms (via PEI), univeristies, festival/ fair companies, etc.
2. **Website:** Develop a regional website with information on the impacts of releasing aquarium pets/ moving aquatic species between waterbodies.
3. **Signage:** Develop and deploy signage at high-incident waterbodies (Greenlake, Lacey Stormwater Facility, etc.).
4. **Communications:** Develop press releases, short videos, etc.
5. **Citizen Science:** Engage citizen scientists in early detection and reporting of commonly dumped species.
6. **Conference:** Help coordinate a regional invasive fish symposium to discuss best management, rapid response, prevention and outreach.
7.

Examples of Current “Don’t let it Loose” Outreach

Alberta: media push, factsheet with resources for aquarium owners, factsheet with information on regulations for anglers.

British Columbia: brochures, website, factsheet, themed youth activity book.
http://bcinvasives.ca/resources/programs/dont-let-it-loose/

Montana: dedicated “don’t let it loose” website, factsheets, media push in angler newsletters, local newspapers, etc., developed a reporting line for reporting bucket biologists.
Website: http://www.dontletitloose.com/
Bucket Biologist Reporting Line: Witness an illegal fish introduction? Report it immediately by calling 1-800-TIP-MONT.

Oregon (adopting Montana’s website)
http://www.oregoninvasivespeciescouncil.org/dont-let-it-loose

DON'T LET IT LOOSE!

It's bad for your pets. It's bad for the environment.

DISPOSE OF CLASSROOM PLANTS AND ANIMALS PROPERLY!

WHY SHOULDN'T I RELEASE CLASSROOM PLANTS AND ANIMALS INTO THE WILD?

Common aquatic plants and animals can become invasive when released into the wild, including:

- ✔ goldfish and other aquarium fish
- ✔ Chinese mystery snail
- ✔ elodea, hydrilla, and other aquarium plants
- ✔ crayfish
- ✔ red-eared slider turtle

WHAT SHOULD I DO WITH UNWANTED CLASSROOM PLANTS AND ANIMALS?

PLANTS: Completely dry or freeze aquatic plants, then put them in your garbage. Composting should be avoided, as seeds can still sprout.

Adopting a Classroom Animal

Pledge Form

DON'T LET IT LOOSE!

By adopting this classroom animal, I hereby pledge to:

1. Never release or allow this animal to escape into the environment;
   (Releasing an animal can be harmful to both the animal and the environment. It may be illegal to release animals and plants in your state.*)
2. Provide and properly care for the animal's essential needs (see animal care sheet on back);
3. Share this pledge with anyone wishing to adopt this or another animal.

Date: _____

Species being adopted: _____

Student (print name): _____

Student Signature: _____

Parent/Guardian (print name): _____

Parent/Guardian Signature: _____

Teacher (print name): _____

Teacher Signature: _____

*Please check with your state wildlife agency/local natural resource agency or visit www.ilseagrant.org/speciesregs regarding the regulation for your state.

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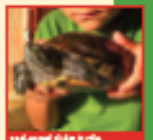
- red-eared slider turtle

chinese mystery snail



red-eared slider turtle

WHAT DAMAGE DO INVASIVE SPECIES CAUSE?

- Degrade aquatic habitats
- Outcompete desirable native species
- Decrease biodiversity
- Alter food chains
- Introduce diseases
- Limit recreation
- Damage infrastructure
- Contaminate water resources
- Necessitate expensive controls

WHAT IF MY CLASSROOM PLANT OR ANIMAL IS NATIVE TO MY REGION?

Even if your plant or animal is native to your region, it may carry diseases and should never be released into the wild.

WHAT SHOULD I DO WITH UNWANTED CLASSROOM PLANTS AND ANIMALS?

PLANTS: Completely dry or freeze aquatic plants, then put them in your garbage. Composting should be avoided, as seeds can still sprout.

FISH, INVERTEBRATES, AND REPTILES: Return to the seller or find them a home with a friend or another classroom. Ask the new owner to take a pledge** not to release. If you cannot find a new home for your animal and you want to consider euthanasia as an option, consult a veterinarian.

WATER: The water that contained your aquatic plant or animal could be contaminated and should be sterilized. To sterilize, add 5 drops of bleach for each quart (about 1 liter) of water, 1/4 teaspoon for each gallon, or 5 teaspoons for 10 gallons of water. Put the sterilized water down the toilet or sink—never down a storm drain.

PACKAGING: Invaders can also hitchhike on packaging. Inspect packaging and remove any visible plants or animals. Rinse containers with a bleach solution that contains 2 fluid ounces of bleach per quart of water (or 1/4 cup bleach per gallon of water). Dispose of it in your garbage.

LEARN HOW YOU CAN TAKE ACTION ON THESE WEBSITES!

Fun ways for teachers and students to learn about aquatic invaders:
www.iisegrant.org/Habitmaker

Educational Toolkit on Aquatic Invasive Species:
http://iisegrant.oregonstate.edu/invasive-species-toolkit

*Classroom animal adoption pledge:
www.iisegrant.org/Habitmaker&abouraidmin/classroom.html

**Aquatic species regulations database:
www.iisegrant.org/species/regs

Ways you can prevent invasions:
www.protectyourwaters.net/prevention

The Urban Ocean Program at USC Sea Grant:
http://www.usc.edu/org/iisegrant

Information from Canada about invasive species:
www.InvadingSpecies.com

THINKING OF GETTING A CLASSROOM PLANT OR ANIMAL?

- Plan ahead and research the best species to use in your classroom. Select species that are native or non-invasive.
- Use the aquatic species regulations database** as a resource.
- Develop a plan for future care or disposition of the animal or plant in case it can no longer be held in your classroom.

Sea Grant
Illinois-Indiana Sea Grant
University of Southern California Sea Grant
Oregon Sea Grant
Washington Sea Grant

RAILROAD
CROSSING
R R

Pollinators and Highways

It's Bigger than Just Bees

Lynn Peterson
Secretary of Transportation

Ray Willard
Roadside Maintenance Program Manager

Pasco Bakotich
Director of Maintenance Operations

It's Bigger than Just Bees...

Folio/Communication
Tie a lot of together

- 100,000+ Acres

Reduced
Acres
Costs

M
Mowing Policy
- 10,000 → 6500 Acres
Zone 3 mowing
- Meadow Encouragement
- Possible Increased Herbicide Use

IVM Plans

Roadside Policy
- Grass + Trees Initially
- Managed Succession
- Diversity of Veg

Ponds, Swales, Wetland Mitigation Sites
What type of things should we plant?
Permitting?

Surplus Property - Sell?

Homeless Issues

Proactive
- Less Nuisance Control?

Reactive
- Adopt-A-Bee Hive

Bee Hives - DOT ROW
- Bee Kill
- Vehicles Hitting Hives
- Visually Unobtrusive

What is the Financial Interest/Benefit?

Common Acre
Dept Ag
INSDOT

Federal Pollinator Habitat + Protection Exec. Order

Bee Habitat

Monarch Butterflys + Others

Pollinators

Diversity of Veg/Food Sources Needed

More Acres of Bee Habitat

Lyan
- Bob Redmond
- Ag Interests
- New Ideas
- Added Benefits
- Less Mowing
- More Cost Saving
- Less Emissions ☺
- DNR
- DOFW

Geographic Location of Hives vs. Ag?

Societal Agricultural Issue
"More Than Honey"

GMO/Herbicides/Insecticides

Carbon
- It's incor. into The Roadside Policy
- Cap + Trade
- Carbon Tax
Awareness

More Forest Less Flowers?

Diverse Understory

Goats

No Nionicotinoids

Our Chemical Usage

Allison Halpern
State + County

Nuisance Weeds

Noxious Weeds (Legally Required)

Noxious Weed Board

Purple Loostrife
Knotweed
Yellowstar Thistle

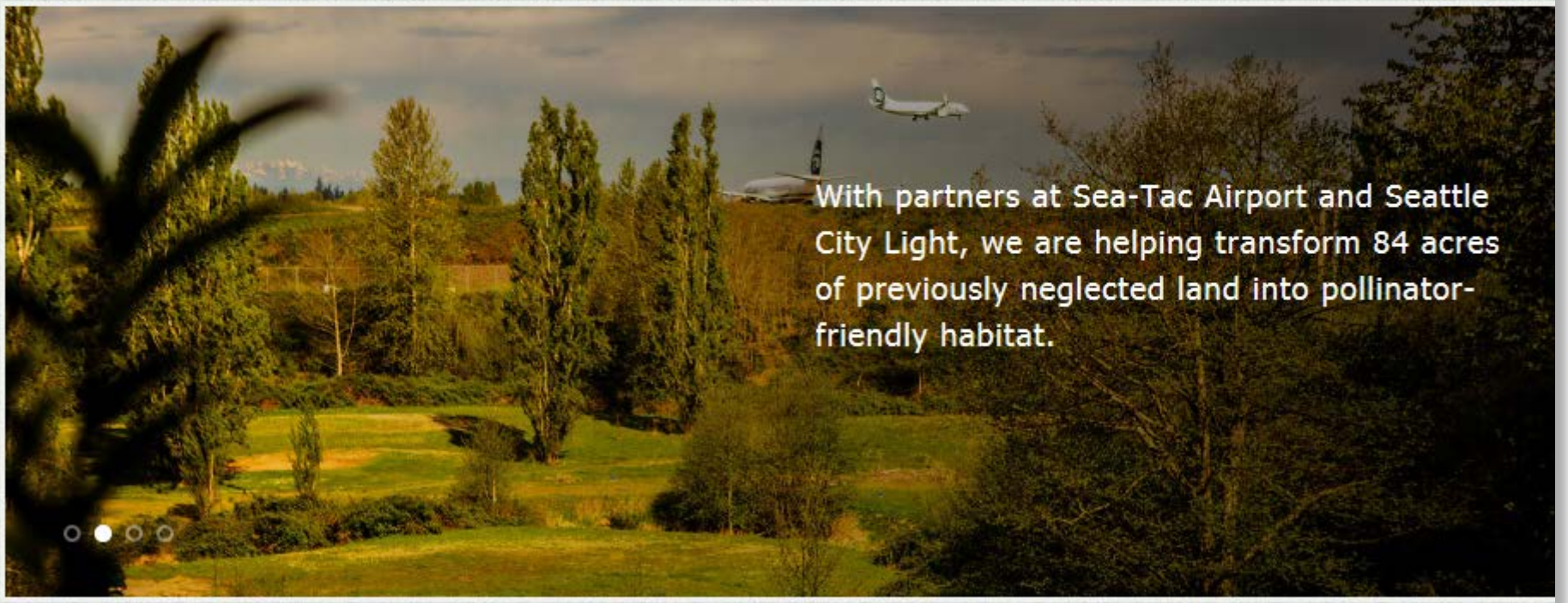
But Make Good Honey

THE COMMON ACRE

CULTURE & AGRICULTURE

FIELD WORK CULTURE WORK ABOUT

ALMANAC



Roadside & Site Development

- Roadside and Site Development
- Roadside and Site Development - Resource Links
- Roadside and Site Development - About Us
- Americans with Disabilities Act (ADA)
- Environmental Mitigation
- Erosion Control
- Green Infrastructure
- **Pollinators and the Roadside**
- Restoration Materials
- Roadside Restoration
- Soil Bioengineering
- Stormwater Management
- Vegetation Resources
- Visual Quality
- Working with Resource Conservation Areas

Partnerships during

- Environmental Compliance
- Design
- Construction
- Maintenance
- Policy Development

Other Useful Sites

- Adapting to Changing Climate
- Context Sensitive Solutions
- Development Division

Pollinators and the Roadside

Managing WSDOT Roadsides to Benefit Pollinators

What is Pollination?

Pollination is the act of transferring pollen grains from the male anther of a flower to the female stigma. The goal of every living organism, including plants, is to create offspring for the next generation. One of the ways that plants can produce offspring is by making seeds. Seeds contain the genetic information to produce a new plant. Flowers are the tools that plants use to make their seeds.

Photo Credit: Kelly McAllister

Seeds can only be produced when pollen is transferred between flowers of the same species. A species is defined as a population of individuals capable of interbreeding freely with one another but because of geographic, reproductive, or other barriers, they do not interbreed with members of other species.

Flowers must rely on vectors to move pollen. These vectors can include wind, water, birds, insects, butterflies, bats, and other animals that visit flowers. We call animals or insects that transfer pollen from plant to plant "**pollinators**".

Pollination is usually the unintended consequence of an animal's activity on a flower. The pollinator is often eating or collecting pollen for its protein and other nutritional characteristics or it is sipping nectar from the flower when pollen grains attach themselves to the animal's body. When the animal visits another flower for the same reason, pollen can fall off onto the flower's stigma and may result in successful reproduction of the flower. (Source: USDA Forest Service)

Meet the Pollinators
Why are pollinators important?
The supporting science
How is WSDOT helping pollinators?
Roadside Policy
Integrated Vegetation Management (IVM)
Prairie Species Guidance
Any specific examples of how WSDOT is helping pollinators?
Guidance to promote and protect pollinators
Resources
Contact

http://www.wsdot.wa.gov/Design/Roadside/Pollinators.htm

WSDOT Strategies for Minimizing Pollinator Impacts and Enhancing Habitat

It’s really about protecting ecosystems

WSDOT Strategies for Minimizing Pollinator Impacts and Enhancing Habitat

Creating and Maintaining Healthy Roadsides

Approximately **100,000 acres** of vegetated right of way in the state highway system

Design/Project Development

Investing in the creation of naturally self sustaining roadsides

Approximately $6,000,000/year

Statewide for:

- Soil Preparation
- Planting
- Multi-Year Plant Establishment

Roadside Maintenance/IVM

Integrated Vegetation Management

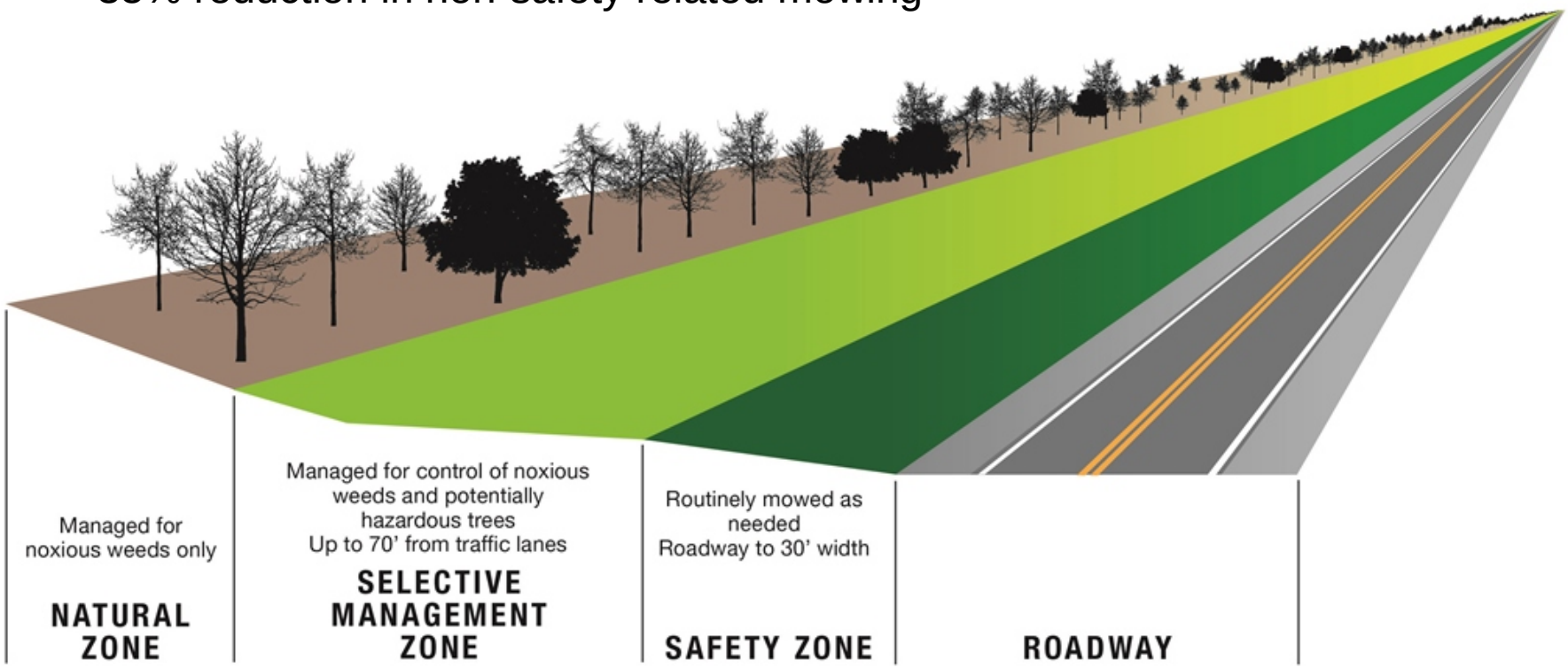
Less Mowing

Washington State Department of Transportation

Reduced Mowing = More Natural Roadsides

WSDOT's Revised Roadside Policy 2015

35% reduction in non-safety related mowing



Ray Willard

www.wsdot.wa.gov/maintenance/roadside/vegetation
ray.willard@wsdot.wa.gov

(360)705-7865

DRAFT

Economic Analysis of Invasive Species in Washington State

September 3rd, 2015

I. Purpose & Background

Invasive plants and animals are significantly impacting Washington's landscape, ecosystems, agricultural production, development, commerce and recreation. Though the adverse impacts of invasive species are well documented qualitatively there has been no effort to date to quantify the impacts of invasive species on Washington's economy. This information is critically important to evaluating the costs and benefits associated with managing and preventing the spread of invasive species throughout the state. It is particularly useful information to have on hand in communications with policy makers, grant authorities and various stakeholder groups as it helps to demonstrate the impacts invasive species do and can have on various industries as well as state and federal investments.

The Oregon Department of Agriculture created a detailed economic impact analysis for noxious weeds in 2000, which they updated in 2014. The report was well-received and cited frequently by the noxious weed community in Washington. In 2007, the Washington State Noxious Weed Control Board, the Washington State Department of Agriculture, and the U.S. Forest Service (Region 6) discussed the possibility of working together to create an updated economic impact analysis in Washington, based on Oregon's report. Unfortunately, staffing changes and reductions in resources due to the economic downturn, prevented the report from being produced.

In early 2015 the State Noxious Weed Control Board, the Washington Invasive Species Council and the State Department of Agriculture began seeking funding for a meta-analysis of the economic impacts of invasive species in Washington. In early August David Tonkin, co-founder of the Scotch Broom Working Group, reached out to various state and federal agencies along with legislators and industry groups to seek support for a bill which would fund a statewide economic assessment of noxious weeds. On August 17th, the Washington Invasive Species Council coordinated an interagency meeting to discuss these parallel proposals.

The group included representatives from the Washington Invasive Species Council, the State Noxious Weed Control Board, the Department of Agriculture, the Department of Transportation, the Department of Ecology, the Department of Fish & Wildlife, and the Department of Natural Resources. The interagency team voiced support for conducting a meta-analysis on the economic impacts of invasive species in Washington and established components of an effective report. These components include:

1. *Accessible:* The report should be accessible to a large audience that includes policy-makers, managers and citizens alike.

2. *Demonstrates broad impacts:* The report should showcase the broad geographic distribution of invasive species and their economic impact on nearly every industry in Washington; agriculture, forestry, energy generation, fisheries, conservation, recreation, etc.

3. *Focuses on high risk species:* The report should focus on those invasive species which pose a serious threat to the state economy.

4. *Cost-efficient:* The report should be produced as efficiently as possible.

II. Scope of Work

Coordination

The State Noxious Weed Control Board and the Washington Invasive Species Council will co-lead this interagency effort. As co-leaders they are responsible for coordinating with the agency partners, seeking and managing the work of a

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contractor, and keeping stakeholder organizations informed on the scope and timeline of the final report.

Project Scope

The economic analysis is not intended to be a comprehensive accounting of the overall costs of invasive species management in Washington State but instead will focus on the impacts of 15-20 of the most harmful invasive species in the state. Focal species for inclusion in this study were determined by a group of interagency invasive species coordinators, based on the following criteria:

- They are included on the Washington Invasive Species Council's priority species list or are a listed noxious weed
- They are a known threat to at least one industry in Washington, and economic impacts can be quantified.
- The costs associated with controlling this species can be significant

Focal Species

The species selected for inclusion in this meta-analysis are listed below. The partner agencies will assist in gathering data for this meta-analysis by providing expertise and resources on species that fall under their management authority.

Plants	**Animals**
Yellow starthistle	Zebra/quagga mussels
Knapweed suite	Apple maggot
Leafy Spurge	Asian and European gypsy moth
Scotch broom	Emerald Ash Borer
Himalayan Blackberry	Nutria
Rush skeletonweed	Feral swine
Purple loosestrife	
Spartina alterniflora	
Japanese Knotweed	
Eurasian milfoil	

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Timeline

Since many of the agency partners have obligations during the field season, the bulk of the work on this economic analysis will take place during the late fall and winter of 2015. The project is expected to follow the timeline below:

Deliverable	Due Date
WSNWCB will post RFQQ to seek a contractor	September 30th, 2015
Contractor will begin work	November 9th, 2015
Agency partners will provide resources, data and modeling support to contractor	November 9th – January 29th 2015
Draft economic analysis distributed to agency partners for review	February 8th 2015
Final comments due from partner agencies	March 11th 2015
WSNWCB and WISC will incorporate feedback into final report	March 25th 2015

III. Costs

The Legislature established the WISC and the WSNWCB in order to encourage coordination between the agencies, local governments, other invasive species managers and stakeholders. This economic analysis is a valuable opportunity for our agencies to work collaboratively to accomplish an initiative of mutual and statewide interest by pooling agency resources to produce this important report. Below is a breakout of the estimated costs of this project:

Meta-Analysis of Economic Impact of Invasive Species in WA	
COSTS	
Contract (assumes 10+ hrs per week, $150/hr, 3.5 months)	$21,000
TOTAL Estimated Costs	**$21,000**
CONTRIBUTIONS	
WISC	$3,000
WSNWCB	$3,000
WDFW	$3,000

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WSDA	$3,000
WSDOT	$3,000
WDNR	$3,000
WDoE	$3,000
TOTAL Contributions	**$21,000**

IV. **Existing Resources**

There are various reports on the economic impacts of individual species in specific geographic regions throughout the state. There is also an economic impact analysis of the impacts of noxious weeds in Oregon. This project will be a meta-analysis which utilizes those existing economic analyses. The available resources include but are not limited to:

Economic Impact of Noxious Weeds in Oregon
Specific to Oregon but Washington has many of the same noxious weed species and similar control challenges. The modeling used to develop this report could be used to generate numbers for Washington.
http://www.oregon.gov/oda/shared/documents/publications/weeds/ornoxiousweedeconomicimpact.pdf

Economic Risk of Zebra and Quagga Mussels in the Columbia River Basin
Includes estimates of the cost to keep mainstem Columbia River Hydropower system dams operating if mussels were to become established. Also includes cost to keep fish ladders and irrigation systems clear of mussels.
http://www.nwcouncil.org/media/6876409/ieab2013-2.pdf

Oregon Feral Swine Response Plan
Includes estimates of control costs, restoration costs and maintenance costs (maintenance costs which are close to what WA spends annually on monitoring and responding to swine reports)
http://pdxscholar.library.pdx.edu/cgi/viewcontent.cgi?article=1013&context=centerforlakes_pub

Coastwide Nutria Control Program 2013-2014
This report accounts the control costs, bounty program and restoration from wetland loss from nutria in Louisiana. Some of the acreage information may be able to be transferred to get a sense of wetland losses in Washington.
http://www.nutria.com/uploads/1314CNCPfinalreport_final.pdf

National Economic Reports on Invasive Species
The Cost of Invasive Species. US Fish & Wildlife Service.
http://www.fws.gov/verobeach/PythonPDF/CostofInvasivesFactSheet.pdf
Aquatic Invasive Species Factsheet. National Oceanic and Atmospheric Administration.
http://www.habitat.noaa.gov/pdf/best_management_practices/fact_sheets/Aquatic%20Invasive%20Species%20Overview.pdf

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Incentivizing the Public to Support Invasive Species Management: Eurasian Milfoil Reduces Lakefront Property Values.
Olden JD, Tamayo M (2014) PLoS ONE 9(10): e110458. doi:10.1371/journal.pone.0110458
http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0110458

Invasive plants of range and wildlands and their environmental, economic and societal impacts.
Weed Science Society of America.
Duncan, C. A., & Clark, J. K. (2005).

Bioeconomics of invasive species: integrating ecology, economics, policy, and management.
Oxford University Press.
Keller, R. P. (2009).

Summary of a Survey of the Literature on the Economic Impact of Aquatic Weeds. Rockwell, H. W. (2003).
The Economic Impact of Aquatic Weeds.
http://www.aquatics.org/pubs/economic_impact.pdf

Economic Impacts of Invasive Species in the Pacific Northwest Economic Region. PNWER (2012).
http://www.aquaticnuisance.org/wordpress/wp-content/uploads/2010/06/economicimpacts_pnwer_2012.pdf

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2015

Strategic Plan

WASHINGTON INVASIVE SPECIES COUNCIL

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WASHINGTON STATE
RECREATION AND CONSERVATION OFFICE
Washington Invasive
Species Council

INVASIVE SPECIES COUNCIL MEMBERS

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BACKGROUND

The Invasive Species Council

In recognition of the tremendous economic and environmental impact caused by invasive species, the Legislature created the Washington Invasive Species Council in 2006. The council is tasked with providing policy level direction, planning, and coordination to the various public and private entities working throughout Washington State in order to prevent and control the spread of harmful invasive species.

The council is comprised of members from state, federal, local, regional and tribal government agencies, non-governmental organizations, and industry groups. The council meets quarterly and provides a venue for regular communication between our members, partners and the public. This ongoing coordination results in consistent statewide priorities, efficient management approaches and common messaging to prevent the introduction and spread of invasive species in Washington State.

Vision Statement

Sustain Washington's human, plant, and animal communities and our thriving economy by preventing the introduction and spread of harmful invasive species.

Mission Statement

Provide policy level direction, planning, and coordination in order to empower those engaged in the prevention, detection, and eradication of invasive species. Serve as a forum for invasive species education and communication and develop a statewide invasive species strategy in order to coordinate and focus local, state, tribal and regional management efforts.

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WASHINGTON STATE
RECREATION AND CONSERVATION OFFICE
Washington Invasive
Species Council

INTRODUCTION

Protecting Washington's Natural Resources

Washington State is known for its diverse landscapes, abundant natural resources, rich recreational opportunities and strong economy.

From the marine waters of the Puget Sound and temperate rainforests of the Olympic Mountains, to the shrub-steppe and grassland habitats bordering the mighty Columbia River, Washington's diverse ecosystems support an abundance of wildlife. Washington has nearly 300 endangered and threatened plants,[1] and more than 70 endangered and threatened animal species,[2] as well as many others that are vulnerable with changing climate conditions, fragmented landscapes, and competition from invasive species.

The state's rich soil and plentiful water supply make Washington one of the most productive growing regions in the world; with agricultural production valued at more than $10 billion dollars a year. The rivers and lakes provide electricity for cities, habitat for five species of Pacific salmon, and recreational opportunities for the people who live here and love to play outside. Outdoor recreation in Washington State contributes an estimated $22.5 billion annually to the state economy.[3] Invasive Species threaten our resources, ecosystems and our very way of life here in Washington State.

Invasive insects such as gypsy moth, apple maggot, and wood-boring beetles threaten crop production, apple orchards, and timber harvest. Controlling these invasive insects costs the state millions of dollars annually but saves the state hundreds of millions in economic impacts to agricultural and forestry production.[4] Zebra and quaqqa mussels threaten hydropower generation, irrigation facilities, and this state's water supply, and are expected to cost the Northwest region hundreds of millions of dollars annually to control if they arrive.[5] Invasive fish such as northern pike, bass, and walleye threaten Washington's fisheries, reducing fishing opportunities and the success of the multi-billion dollar investment in salmon restoration.

Invading species arrive here through a variety of pathways – in the ballast water of ships, on vehicles, on recreational equipment, through the nursery and pet trades, and many other modes of travel. Though most invasive species introductions are unintentional, they can do irreversible harm; decimating native species and quickly degrading ecosystems and landscapes.

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[1]Washington Department of Natural Resources. 2014. Natural Heritage Program Rare Plant List.
[2]Washington Department of Fish and Wildlife. 2013. Threatened and Endangered Wildlife in Washington: 2012 Annual Report. Listing and Recovery Section, Wildlife Program, Washington Department of Fish and Wildlife, Olympia. 251 pp.
[3]Washington State Recreation and Conservation Office. 2015. An Analysis of Outdoor Recreation in Washington State.
[4]Washington State Department of Agriculture. 2012. Pest Program Frequently Asked Questions on Gypsy Moth.
[5]Northwest Power and Conservation Council Independent Economic Advisory Board. 2013. Economic Risk of Zebra and Quagga Mussels in the Columbia River Basin.

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INTRODUCTION

It may not be possible to prevent all invasive species from entering Washington, nor to completely eradicate those already here. However, by working together, the council can decrease significantly the economic and environmental impacts posed by invasive species.

Statewide Strategy

After 7 years of implementing its original strategy, *Invaders at the Gate*, the council recognized a need to update its statewide strategic plan. This revised plan provides new priorities and policy direction, and formalizes the council's commitment to working towards the common goal of preventing the introduction and spread of invasive species in Washington State.

The council's 2015 strategic plan identifies 14 objectives and 29 specific actions within 5 major areas of work:

- Leadership and Coordination
- Education and Outreach
- Prevention
- Early Detection and Rapid Response
- Containment, Eradication and Control

The council and its partners and stakeholders are committed to achieving the bold objectives outlined in this plan with the goal of reducing the adverse impacts of invasive species on Washington's human, plant, and animal communities as well as our thriving economy.

Council Action Agenda

Developed in conjunction with this statewide strategic plan, is a 2-year work plan for the council that will focus attention on urgent and priority actions critical to its mission and the work of its members, partners, and stakeholders. Progress towards the goals and objectives outlined in this plan will be acknowledged and described in detail in the council's annual reports. This 2-year work plan is included in Appendix 1.

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LEADERSHIP AND COORDINATION

A. Promote adequate and sustainable funding from the Washington State Legislature, Governor's Office, and state, federal and tribal agencies for invasive species response and prevention.

Problem Statement

The State lacks stable funding for invasive species management and prevention. Long-term, sustainable funding is essential to adequately monitor, research, prevent, and manage invasive species. With the help of its members and partners, the council has talked with legislators, legislative staff, Congress, and the Governor's Office about invasive species funding. This outreach has resulted in small victories but a long-term, adequate, and sustainable funding structure for invasive species management has yet to be established.

The council will continue to seek adequate and sustainable funding for invasive species management through the following actions:

Actions

1. Collaborate with partners to support requests for adequate, stable funding and enhanced statutory authority to sustain effective invasive species programs.
2. Work with partner agencies, legislators, and legislative staff to promote the creation of a state emergency response fund, which can be used to fund response activities for particularly harmful invasive species.
3. Continue to work with regional partners to do outreach to Congress on the impacts of invasive species and the need for federal support for state invasive species management and prevention efforts.
4. Collaborate with partners to improve efficiencies in spending and operations across state, federal, local, regional, and tribal government agencies.

B. Promote enhancements to state and federal invasive species policy.

Problem Statement

Many state and federal invasive species policies are outdated which limits the council's ability to respond quickly on the ground. Streamlined policy, clear management authority and agreed upon species classification and risk levels make rapid response more efficient. State, federal and tribal invasive species policies should evolve alongside management needs in order to provide the necessary regulatory guidance for response. The council

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works with its partners to develop policy that promotes efficiency, clarifies authority, helps prioritize species, enhances coordination and addresses resource concerns.

The council will continue to support the development and enhancement of invasive species policy through the following actions:

Actions

1. Collaborate with partners to gain legislative support for reauthorization of the council before the sunset date in 2017.
2. Assist regional entities (invasive species council's, Pacific States Marine Fisheries Commission, 100th Meridian Initiative-Columbia Basin Team, the Western Regional Panel and the Pacific Northwest Economic Region, etc.) in developing and promoting legislation that will prevent the introduction and control the spread of invasive species.
3. Seek opportunities for review of state, federal, tribal, and local government policies (classification of game fish, use of non-natives for bioenergy, use of non-natives for mitigation, etc.).
4. Conduct outreach on and support initiatives at both the state and national level that assess the effects of climate change on the distribution of invasive species and their impact on ecosystems.

C. Coordinate with partners from state, federal, local, regional, and tribal government entities to ensure that the council's actions are advance its statewide management objectives.

Problem Statement

There are diverse organizations working to control invasive species throughout Washington State. This makes coordination critical for statewide management to be both efficient and effective. Coordination at the council level has been highly effective at bringing the critical managers and stakeholders to the table to work on strengthening prevention efforts. For example, thanks to council coordination, the Department of Transportation has implemented much stronger prevention protocols, such as using clean fill materials, cleaning equipment, and ensuring that field crews are trained in how to decontaminate gear and prevent the spread of invasive species on project sites.

Council coordination also has helped to organize response activities and develop tools and simple messages for public outreach. The council has been successful at coordinating with partners to advance regional invasive species initiatives such as the "Don't Move Firewood" campaign, the "Clean, Drain, Dry" campaign, and the "Swine Line" feral swine reporting line.

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The council will continue to coordinate with partners on the following statewide initiatives:

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Actions

1. Identify additional opportunities to incorporate language on invasive species management and prevention into policy documents.
2. Continue to assist with regional communication, coordination, and public outreach efforts; facilitate regional science and policy forums on invasive species issues; and by facilitate an industry advisory group.
3. Develop an updated contact list for local, state, federal, and tribal on the ground staff responsible for invasive species detection, prevention, and control.

PREVENTION

A. Identify and address new and existing pathways in order to prevent the entry and movement of invasive species.

Problem Statement

New invasive species are arriving in Washington State through multiple pathways, such as through global shipping, the nursery trade, and on private vehicles and boats. The rate of new introductions is predicted to increase as climate change alters habitat conditions and species' native ranges. Preventing an invasion is far less expensive than trying to control or eradicate a species once it arrives. Through the Baseline Assessment project, the council has done extensive work to analyze the most common pathways for species introduction and spread in the Puget Sound basin. The council also has provided information to industry groups (recreational boaters, nursery trade, etc.) to distribute to their members about how to reduce the likelihood of transporting invasive species.

The council will take the following actions to prevent the entry and spread of invasive species:

Actions

1. Encourage Bonneville Power Administration and other federal agencies to assist the Northwest states' in preventing the establishment of aquatic invasive species, particularly quagga and zebra mussels.
2. Encourage environmental risk assessments to be conducted when non-native species are being used as a mitigation alternative for native species.
3. Strengthen communication between agencies, tribes, cities, counties, universities, and other regional organizations to share information on new introductions and new pathways for introduction.

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4. Determine pathways of introduction for all priority invasive species and convene an interagency working group to develop prevention protocols.

B. Work with state, federal, local, regional and tribal agencies as well as regional partners to identify opportunities for enhanced, coordinated, standardized, and complimentary prevention approaches.

Problem Statement

There is a need for continued coordination between the entities involved in managing and preventing the spread of invasive species in Washington State. Standardized messaging, decontamination protocols and best management practices help to promote both efficient and consistent prevention efforts.

The council plays an important role in helping coordinate agencies development of best management practices and decontamination protocols, and in developing informational materials on prevention for state, federal and tribal employee training. Due to the evolving nature of science, agency policy and leadership there is a need for continued support from the council to ensure that consistent protocols and best management practices are being used statewide.

The council will focus our coordinating capacity on the following preventative actions.

Actions

1. Encourage the use of existing decontamination videos and brochures for agency training to ensure consistency in decontamination protocols throughout the state.

2. Identify opportunities to develop and incorporate language on invasive species prevention and best practices into state, federal, and tribal policy; permitting; contracting; and grant documents (Hydraulic Project Approvals, restoration programs, Recreation and Conservation Office's grant manuals, etc.) and follow up on their use.

C. Engage stakeholders, partners and the public in managing invasive species pathways and preventing the introduction and spread of invasive species into terrestrial, riparian, and aquatic ecosystems.

Problem Statement

Coordination among the invasive species managers, partners and stakeholders is essential to increasing public awareness on invasive species, their impacts and effective prevention measures. One of the greatest successes of the council in the past 7 years has been its ability to engage and coordinate with new stakeholder groups on prevention campaigns. The

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council has been successful at helping develop common messaging that can be used by all of its partners, allowing it to reach more people and have a greater influence on behavior.

The council will continue to promote invasive species education, outreach and prevention through the following actions:

Actions

1. Develop and provide outreach materials and tools to stakeholder groups (WA Invasives app, information on decontamination protocols, reporting line information, boat ramp stencil, etc.).
2. Coordinate with federal, state, and tribal entities, and regional organizations to gather data and encourage regional data sharing on existing invasive species, their distribution, and population status and trends.

EDUCATION AND OUTREACH

A. Increase and enhance communication across partner entities in order to support coordinated outreach to the public, private sector and policymakers.

Problem Statement

Prevention and early detection of invasive species introductions requires the help of the public, industry partners, and policymakers. The council has helped develop tools and regional messaging that has been successful in raising public awareness about invasive species, their impacts on native ecosystems, and the steps people can take to prevent the spread of invasive species. In collaboration with regional partners, the council developed common prevention-focused messages and outreach materials (brochures, signs, etc.). The council's smart phone app WA Invasives provides education to citizen scientists and helps in the early detection of new invasive species. The council also works to raise invasive species awareness by supporting regional conference and workshops; presenting to students, agencies, and industry groups; and participating in National Invasive Species Awareness Week.

The council will continue to support targeted education and outreach through the following actions:

Actions

1. Work with partner agencies to find funding to conduct an analysis of the economic impacts of invasive species in Washington State.

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2. Develop a communication and outreach plan that outlines strategies for outreach; promotion of the WA Invasives app, and opportunities to revise council messages on the Web site, printed publications, and signs.

3. Establish priorities and common messages for council member agencies and others to use when conducting outreach at boat shows and other events.

B. Support the development of education and outreach materials that encourage the use of native and non-invasive species in restoration, gardening, landscaping and science kits.

Problem Statement

Invasive species often are spread across the landscape due to misidentification and misinformation. Focused outreach to nurseries, soil and gravel distributers, the pet trade, landscapers and restoration ecologists has proven successful at raising awareness and reducing the harmful impacts caused by invasive species. The council works with its member agencies and industry partners to provide training, education, and outreach to agency staff, science teachers, nurseries, master gardeners, and many other audiences. The council also developed creative alternatives such as pollinator-friendly, non-invasive seed packets – a collaborative project sponsored by the council, the Department of Agriculture and the State Noxious Weed Control Board.

The council will continue to develop education and outreach materials that promote the use of native species through the following actions:

Action

1. Support the development of curriculum on invasive species to include in kindergarten through high school science classes and science competitions such as the Science Olympiad.

EARLY DETECTION AND RAPID RESPONSE

A. Continue to compile information and conduct a baseline assessment of invasive species information and programs in Washington. This baseline would serve as an initial step towards coordinating a statewide, strategic response to the threat of invasive species.

Problem Statement

Invasive species management in Washington State is complex due to the number and types of pathways through which species are introduced and dispersed and also by the number of entities involved in management. There is a diverse array of organizations working to

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prevent the introduction and spread of invasive species, physically control or eradicate them, monitor their distribution, and understand their characteristics.

The 2008 State Strategic Plan, *Invaders at the Gate*, identified a need to centralize invasive species data to inform managers on the status and potential future impact of these species and promote coordination across programs. Since 2008 the council has done significant work to centralize data and promote coordination between programs in the Puget Sound basin through its Baseline Assessment project. The council needs to expand this work into the rest of Washington State.

The council will continue to compile information on invasive species distribution through the following actions:

Actions

1. Search for grants to expand the Baseline Assessment work.
2. Incorporate WA Invasives smart phone app data into EDDMAPS invasive species mapping program.

B. Promote a dedicated fund for emergency response to new invasive species in Washington.

Problem Statement

Responding to an introduction of particularly harmful invasive species such as dreissenid mussels, to prevent their spread throughout Washington State will require resources above and beyond what is available. A dedicated emergency response fund is an essential part of adequately funding invasive species management in the state.

The council will promote the creation of a dedicated emergency response fund through the following action:

Action

1. Explore opportunities to establish a dedicated invasive species emergency response fund in Washington State.

C. Improve detection of invasive species by training field biologists, foresters, highway maintenance crews, citizen-scientists, and other land and water stewards to identify and report priority invasive species and support the use of information technology.

Problem Statement

There are limited resources dedicated to invasive species detection in Washington State. That said, the state has a largely untapped resource with thousands of trained ecologists,

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botanists, biologists, entomologists, foresters, citizen scientists and other field crews. If provided with training and tools, these individuals could identify invasive species, assist in early detection and significantly increase the council's capacity. The WA Invasives app is an example of one tool developed by the council that can be used by both trained and untrained people to monitor and detect invasive species.

The council will continue to develop and promote innovative tools to engage the public in invasive species management with the following action:

Action

1. Conduct trainings on the WA Invasives app and provide information on decontamination protocols and best practices.

D. Support rapid response planning for high risk species by providing technical support to managers and by facilitating coordination across state and federal regulatory processes.

Problem Statement

Quick and organized response is key to controlling a new invasive species infestation. Precious time can be lost while determining authority, and identifying funding and permitting requirements. The council has played an important role in assisting with agency coordination and development of response plans for priority species such as feral swine and dreissenid mussels.

The council will continue to provide coordination and technical support for response planning efforts through the following actions:

Actions

1. Support the development of rapid response plans and regional rapid-response efforts by identifying gaps in management authority and providing technical support.
2. Align State, Federal and Tribal regulatory processes to facilitate rapid response efforts by creating a sub-committee to address regulatory coordination and compliance with environmental regulatory processes, (National Environmental Protection Act, State Environmental Protection Act, Endangered Species Act, and the National Pollutant Discharge Elimination System).

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CONTAINMENT, CONTROL, AND ERADICATION

A. Support the containment of invasive species that are established in Washington State to prevent greater spread and support the control and eradication of smaller or newly-discovered infestations.

Problem Statement

In the case of particularly harmful invasive species such as gypsy moth and dreissenid mussels, it is important to move rapidly to contain an infestation and prevent further spread throughout the state. The council coordinates with state, federal and tribal agencies to determine priority, high-risk species that require rapid response and containment measures. Changing climate conditions and increased global movement of people and goods is expected to amplify new invasive species introductions.

The council will continue to support invasive species managers in containment, control and eradication efforts through the following actions:

Actions

1. Select priority species and assist agencies and other groups to search for funding for eradication.
2. Support research to make new control tools available and improve the efficacy and specificity of existing tools.

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WASHINGTON INVASIVE SPECIES COUNCIL MEETING SUMMARY
June 18, 2015

Natural Resources Building, Room 172
Olympia, Washington

Washington Invasive Species Council Members Present:

Bill Tweit, Chair	Washington State Department of Fish and Wildlife
Pene Speaks, Vice Chair	Washington State Department of Natural Resources
Lizbeth Seebacher	Washington State Department of Ecology
Diane Cooper	Taylor Shellfish, WISC Industry Advisory Panel Representative
Curtis Tanner	U.S. Fish and Wildlife Service
Shawna Bautista	U.S. Forest Service
Vicki Yund	U.S. Customs and Border Protection
Jim Marra	Washington State Department of Agriculture
Kendall Farley	Northwest Power and Conservation Council
Anna Lyon	Okanogan County
Lisa Younger	The Nature Conservancy
Ray Willard	Washington Department of Transportation
Clinton Campbell	U.S. Department of Agriculture
Mike Schwisow	Washington State Water Resources Association, WISC Industry Advisory Panel Representative
Lt. Eric Young	U.S. Coast Guard
Mark Taylor	Trout Unlimited
Rob Fimbel	Washington State Parks and Recreation Commission

Guests and Presenters:

Marcus Reaves	Washington State Department of Fish and Wildlife

Recreation and Conservation Office Staff:

Raquel Crosier	Coordinator
Wendy Loosle	Board Liaison

Opening and Welcome

Bill Tweit, Chair, opened the meeting at 9:07 a.m. with welcome, announcements, facility logistics, safety information, introductions, and a review of the agenda. Public comment will be heard after the hot topics issues are presented.

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Hot Topic Reports

Item 1: Executive Coordinator's Report / Raquel Crosier

Raquel Crosier updated the group on the "Clean, Drain, Dry" boat stencil pilot. The Department of Transportation, Department of Fish & Wildlife, Department of Ecology and the Invasive Species Council contributed staff and resources to make the project possible. The stencil was painted at the Kenmore boat launch and a boater survey was conducted in order to see whether the messaging was successful at increasing boater awareness of aquatic invasive species (AIS) issues.

Ms. Crosier reported that the WISC was receiving increasing reports of feral swine in various counties across the state. She noted that she is working with USDA to respond to each report, conducting site visits where appropriate. An inter-agency feral swine response plan is currently being developed and a draft is expected by December 2015.

In April, the Council helped to develop and proctor an exam on invasive species for the Science Olympiad a state-wide science competition for middle and high school students. The event was really successful and the council was asked to participate again next year. The council also led an invasive species hike with girl scouts from Issaquah during which they used the invasive species mobile app to learn about invasive species and their impact on native ecosystems.

Ms. Crosier participated in several presentations regarding invasives in May, including the Salmon Recovery Conference and the Pest and Pesticide Forum.

Ms. Crosier concluded by sharing upcoming events, including another boat launch stencil painting and the next Pacific Northwest Economic Region (PNWER) meeting in July.

Ms. Crosier introduced Kendall Farley, the new representative from the Northwest Power and Conservation Council. Chair Tweit announced the retirement of vice chair, Pene Speaks and thanked her for her service.

Item 2: Gypsy Moth Control / James Marra

James Marra provided information about the Department of Agriculture's gypsy moth management efforts. Mr. Marra shared statistics, locations of traps and infestations for both gypsy moth and Asian defoliator moth. Gypsy moths are transported primarily through their egg masses deposited on trailers, vehicles, etc. Mr. Marra concluded by sharing the Department's 2014 survey results and their plans for 2015 surveys.

Item 3: New Zealand Mud Snail Conference / Lizbeth Seebacher

Lizbeth Seebacher provided an update on the recent New Zealand Mud Snail (NZMS) Conference held June 16-17 in Seattle. She provided general information about the issues discussed on the first day and described some of the highlights from the regional management planning session which took place on the second day of the conference.

Chair Tweit added that he hopes to build on the work completed on the NZMS action plan to supplement the council's plans and initiatives. He thanked the contributing planning members for their efforts in planning and hosting a successful conference.

Curtis Tanner commented on his observations regarding the improved progress and rigor of NZMS protocols within Washington State and in the Pacific Northwest region. Raquel Crosier added that one of

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the goals of the group was to incorporate best practices in other agency plans and protocols; especially the Department of Transportation's construction manual. She suggested that a WISC workgroup may need to be developed in order to take on this issue.

Item 4: Listing of Glyphosate / Alison Halpern

Alison Halpern shared information about the re-classification of glyphosate to a Class 2-A, naming it as a probable carcinogen. One concern is that there is no new data, and the classification includes non-agricultural activities. This may effect current weed control efforts as glyphosate is a primary ingredient in Round-Up.

Shawna Bautista added context regarding the classification, noting that it does not address the potential side effects and impacts. The classification was established by International Agency for Research on Cancer, a division of the World Health Organization (WHO).

Item 5: DNR Trail Policy Update / Pene Speaks

Representatives from DNR, USFWS and the Recreation and Conservation Office (RCO) met to discuss potential draft language for the DNR trails policy.

Pene Speaks provided an update on the trails policy development process. She noted that invasive species language will be inserted, specifically language which encourages the consideration of invasive species when selecting trail construction materials and design plans.

Item 6: Aquatic Plant and Algae Management Permit / Lizbeth Seebacher

Lizbeth Seebacher provided an update on the aquatic plant and algae management permit, including updates to the application and use restrictions. More information, including contact details for feedback, is included in the council materials.

Item 7: Analysis of Pollinator Issues and Roadside Maintenance / Ray Willard

Ray Willard shared that the Washington Department of Transportation (WSDOT) will be working with contractors to assess roadside pollinator impacts. Management techniques are being expanded to include more careful planning and a focus on promoting ecosystems and native species along roadsides in order to reduce pollinator impacts. This requires education of both the public and WSDOT crews.

Alison Halpern updated the group on legislation that addressed pollination issues in the past session.

Clinton Campbell pointed out that it is National Pollinator Week, and conservation materials are available on the U.S. Department of Agriculture website at: http://blogs.usda.gov/2015/06/15/its-national-pollinator-week-celebrate-bees-bats-and-other-pollinators-on-friday-june-19-at-usdas-pollinator-festival/. Ray Willard added that roadside pollinator information is also available at: http://www.xerces.org/pollinator-conservation-roadsides/.

Item 8: Economic Analysis of the Impact of Invasive Species in Washington / Raquel Crosier, Alison Halpern

Raquel Crosier explained that she and Alison Halpern were working to develop a scope of work for a study on the economic impacts of invasive species in Washington State. Unfortunately, efforts to come up with end-of-year funding for this project were not successful. They will continue looking for resources and grants for this project in the next fiscal year.

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Public Comment

Fritzy Cohen, Willapa Bay resident, addressed the council regarding pesticide use and policy on invasive species. She expressed concerns about how policy is keeping pace with current science and understanding of invasive issues. Recommending several books on how to keep current, she expressed deep concern regarding pesticide use, particularly glyphosate. She urged that the current re-classification of glyphosate is an important issue that should be incorporated into the consideration of pesticide use and current policies. She shared concerns about referencing studies on glyphosate and that these should be acknowledged in the council's practices and areas of focus.

Keith Stavren, shared stories about pesticide use and invasive species management. As a cancer survivor, he expressed deep concern about pesticide use and its correlation with cancer and carcinogenic effects. He discussed the practices of shellfish growers in Willapa Bay and the potential for detrimental poisons in Washington estuaries. He asked that public input be considered more fully when considering and implementing pesticide use policies.

Diane Cooper responded to a clarification regarding her representation to the council, as an industry panel member. She shared that Taylor Shellfish is dedicated to using current science and addressing tradeoffs in a balanced and equitable manner. She thanked Mr. Stavren for his comments.

Industry Advisory Panel (IAP) Update

Diane Cooper provided an update on the IAP progress. She told the group that she would be relieving her rotating seat as IAP representative to Shaun Seaman of Chelan Public Utilities District.

Discussions and Decisions

Item 9: Legislative Updates / Raquel Crosier, Roundtable

Raquel Crosier described a budget proviso included in the Department of Fish and Wildlife budget regarding the development of a funding taskforce. The group is tasked with developing recommendations to the Legislature on a long-term funding structure for AIS management by June 30th 2016. If this proviso passes, the Council is expected to be asked to facilitate this process.

Item 10: Japanese Tsunami Marine Debris / Marcus Reaves

Marcus Reaves, WDFW, provided a brief history of the marine debris found in Washington State since the March 2011 Japanese tsunami. The western coast of the U.S. began seeing debris in early 2012; it is unknown how much debris currently remains and may come ashore. Mr. Reaves served on the rapid response team as a field responder, an element of the Marine Debris Response Plan of 2012.

Mr. Reaves shared information about his work in the field, including sampling and invasive species identification. He concluded by sharing slides of his collection efforts in the field this year.

Shawna Bautista asked about other shoreline areas that need to be re-surveyed. Mr. Reaves reported that monitoring efforts extend up the coast of Washington.

Curtis Tanner asked about continued support for on-the-ground positions. Raquel Crosier explained that the Department is seeking an extension of funding for this position.

Break: 10:54 a.m. – 11:07 a.m.

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Anna Lyons, Noxious Weed Coordinator of Okanogan County, introduced herself to the council as the new east-side County representative.

Item 11: WA Invasives App Demonstration / Todd Slind, Spatial Developers

Todd Slind demonstrated the iPhone and Android app for general public use, and the quality assurance / quality control (QA/QC) app for administrative use. He walked the council through the app's collection features, allowing users to report sightings that are identified geospatially using a smart phone or other mobile device. Mr. Slind also demonstrated the app's filtering features for ease of viewing and higher-level reporting needs.

The council discussed concerns regarding data integrity and access, and incorporating other data sources. Concerns also surround how the data collected on the app will be used, especially with regard to private land or other privacy issues.

Pene Speaks asked about the current usage statistics. Raquel Crosier reported that since the end of April there have been 133 new reported sightings.

Chair Tweit commented on the updated version, stating that now is the time to begin building awareness of the app more broadly. Ms. Crosier concurred, also addressing the need for potential prioritization and additional approval staff to support increased reports. She will draft an announcement that council members can share with their respective agencies and organizations.

Ms. Crosier stated that the ongoing maintenance and support for the app will need to be a council discussion, as the grant which funded the initial development has expired.

Item 12: Discussion of Outreach / Raquel Crosier

Curtis Tanner shared information about Seattle boat show outreach. In the past the U.S. Fish and Wildlife Service (USFWS) has received a complimentary booth at the event which has been staffed by USFWS, WDFW, WISC and other city and county volunteers. In the future USFWS will not be able to coordinate outreach at this event so the WISC is taking over and will be seeking volunteers from council member agencies.

Raquel Crosier segued into the larger need for council participation at various outreach venues. She discussed the potential establishment of a workgroup to prioritize outreach efforts, perhaps divided between aquatic and terrestrial issues. From a list of events, the council discussed prioritization of events to participate in or to attend based on key messaging goals. Events may be prioritized by the outreach impact (how many individuals are expected to attend certain events), key messages, materials distribution versus presence at an event, and travel logistics.

Chair Tweit suggested revisiting the list of potential outreach events after the strategic planning session, as priorities will be identified during that activity.

Item 13: Council Business / Raquel Crosier

No additions or corrections were requested for the previous meetings minutes from the March 2015 meeting.

Action Item: Approval of March 2015 Minutes
Vicki Yund moved to APPROVE the March 2015 minutes. Pene Speaks SECONDED. The Council unanimously APPROVED the March 2015 minutes.

Lunch Break: 12:00 p.m. – 12:40 p.m.

Item 14: Work Session on Strategic Plan Update / Raquel Crosier

The council is required by statute to update their strategic plan, "Invaders at the Gate," (2008) once every three years. Raquel Crosier presented the latest draft strategic plan which was updated with actions provided by council members. Ms. Crosier shared a timeline for completing the update, with adoption of a final plan by December 2015. Ms. Crosier introduced a strategic planning activity which allowed each council member to vote on their top 5 priority actions and 1 action they thought could be dropped from the list. The goal of the activity was to determine council priorities for a two-year action plan.

The council then discussed the results of the activity – talking about each action. During the discussion the group identified areas for revision, reorganization, streamlining and re-categorization.

Under the Leadership and Coordination section, the council decided to keep the majority of items, and moved one item to the Early Detection and Rapid Response section.

Under the Early Detection and Rapid Response section, the council discussed an item regarding rapid response plans, specifically regarding whether the council should be tasked with writing plans or reaching out to respective agencies/organizations to encourage the development of plans. The council combined some action items in order to streamline processes.

Under the Education and Outreach section, the council discussed the importance of outreach at various federal, state, and local levels, as well as drafting communication and outreach plans.

Under the Containment Control and Eradication section, the council discussed removal of some items that were of lower priority. Chair Tweit noted that the items under this section are largely dependent upon funding which limits potential feasibility of many items.

Under the Prevention section, the council discussed streamlining duplicative items. Consideration of using existing materials to support several of the action items was discussed, including training material, videos, existing data, etc. in order to economize current staff and resources.

Ms. Crosier will summarize the groups feedback into a final set of priority actions and share those results the council.

Public Comments

No further public comment was provided at this time.

Next Steps

Ms. Crosier will follow the proposed timeline to compile council member comments and draft a revised strategic plan for executive committee review, scheduled for July 17, 2015. The council anticipates approving a draft plan that will go out for public comment at their September meeting.

Adjourn

The meeting adjourned at 4:30 p.m.

DRAFT

Next meeting

September 24, 2015
Confluence Technology Center
Wenatchee, WA

Minutes approved by:

_____ _____

Bill Tweit, Chair Date

DRAFT