Northwest **Power** and **Conservation** Council

March 4, 2014

MEMORANDUM

TO: Council Members

FROM: Jim Ruff – Manager, Mainstem Passage and River Operations

SUBJECT: Briefing on Vulnerability Assessments and Rapid Response Preparedness for Quagga and Zebra Mussels in the Pacific Northwest

At the March 12, 2014, Council meeting in Portland, Stephen Phillips, who is the Senior Program manager for Pacific States Marine Fisheries Commission's (PSMFC) Aquatic Invasive Species Prevention Program, will provide the Council with the latest information on progress related to the Vulnerability Assessments and Rapid Response preparedness actions for quagga/zebra mussel prevention in the Pacific Northwest. These priority action items are an outgrowth of the "Preventing an Invasion" meeting in Vancouver, WA on May 15, 2013, that the Council co-sponsored with PSMFC, the Pacific Northwest Economic Region and Portland State University.

Vulnerability assessments itemize and inspect all hydropower facility structures and components that come into contact with raw water, and make an informed judgment on the degree to which Dreissenid mussels could impair the performance of the structures and its components. PSMFC has assembled a multi-agency Vulnerability Assessment Team and has surveyed hydropower project operators in the Columbia River Basin as to the status of their vulnerability assessments. Results from this survey, as well as possible next steps, will be presented.

The presentation will also discuss work conducted by the multi-agency Rapid Response Work Group (RRWG). The RRWG has updated control options and permitting requirements needed for eradicating Dreissenid mussels in Columbia River Basin states and in December 2013 conducted a rapid response exercise workshop. The main

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objectives of the workshop were to: a) discuss existing state and federal permitting processes (for the states of Oregon or Washington) associated with a potential management action in response to an invasive mussel introduction; b) identify and exercise actions that will need to be taken to implement a management response; and c) create a list of action items and associated timelines to address any unresolved issues to respond to an introduction of invasive Dreissenid mussels.

Vulnerability Assessments and Rapid Response Preparedness for Quagga/Zebra Mussels in the Pacific Northwest

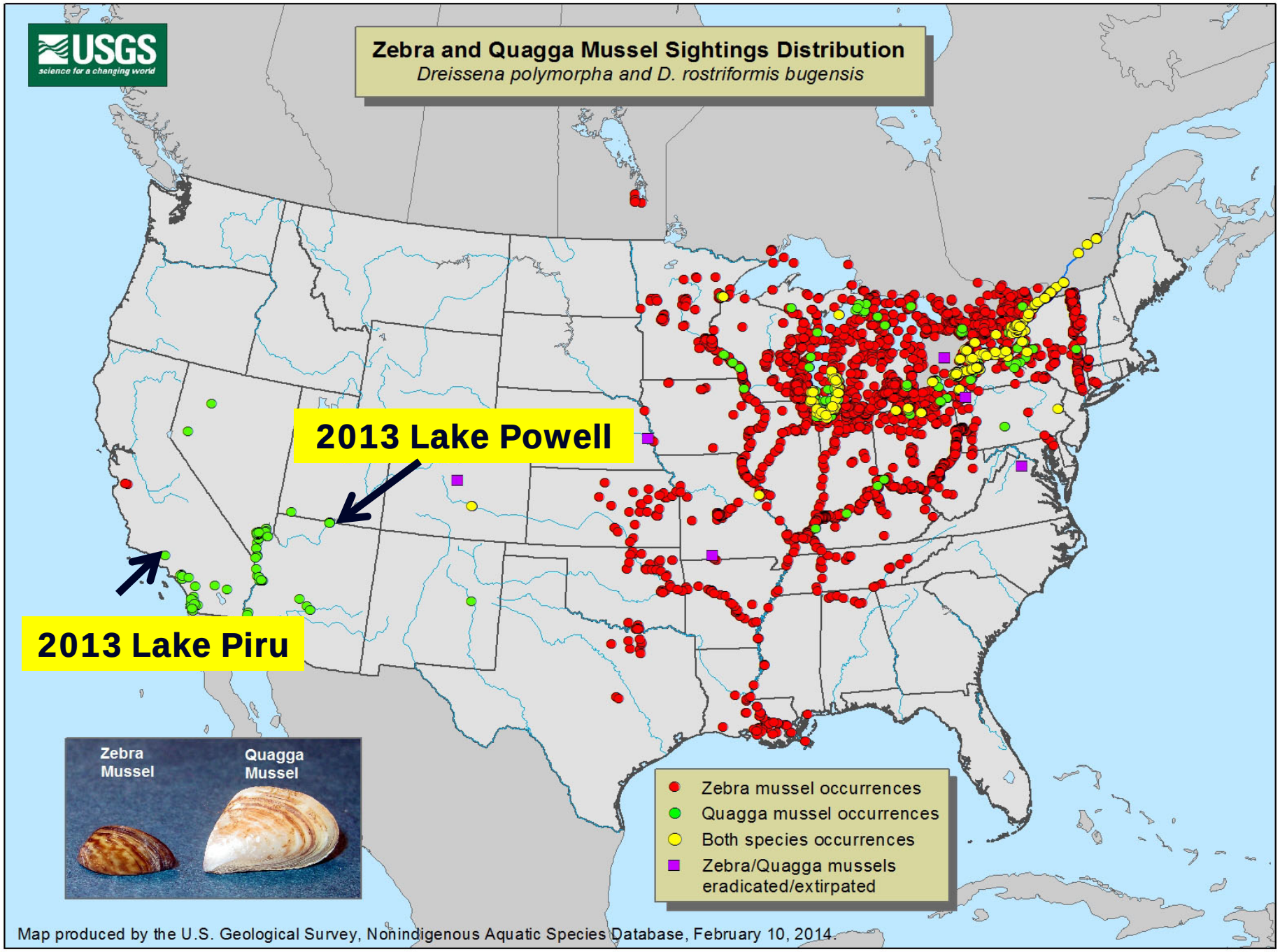
NPCC

March 14, 2014

Stephen Phillips, PSMFC
Lisa A. DeBruyckere, Creative Resource Strategies, LLC

Zebra and Quagga Mussels

- **Filter-feeding freshwater mussels - attach to hard surfaces with byssal threads**
- **Most economically damaging aquatic organism to invade the U.S.**
- **$5 billion in prevention and control since 80s**
- **Cost of QZ CRB Establishment - Tens of millions to hundreds of millions of dollars (See IEAB 2010 -- Economic Risk Associated with the Potential Establishment of Zebra and Quagga Mussels in the Columbia River Basin)**


USGS
science for a changing world
Zebra and Quagga Mussel Sightings Distribution
Dreissena polymorpha and D. rostriformis bugensis
2013 Lake Powell
2013 Lake Piru
Zebra Mussel
Quagga Mussel
Zebra mussel occurrences
Quagga mussel occurrences
Both species occurrences
Zebra/Quagga mussels eradicated/extirpated
Map produced by the U.S. Geological Survey, Nonindigenous Aquatic Species Database, February 10, 2014.

Preventing an Invasion: Building a Regional Defense Against Quagga/Zebra Mussels (May 2013)

- 90 individuals
- Canada and PNW irrigation and water districts, water suppliers, legislators, state and federal agencies, tribes, nonprofits, recreational boating interests, consortiums
- Goal: Develop regulatory/policy, outreach, funding and research action items to address challenges and barriers to preventing the introduction of invasive Quagga/Zebra (dreissenid) mussels to PNW
- http://preventinganinvasion.psmfc.org/

Meeting Outcomes

Declaration of Cooperation (24 signatories)

- **Declaration's Action Plan includes:**
  - Regulatory and policy
  - Outreach
  - Funding
  - Research
  - Coordination
- **Rapid Response Working Group**
  - Further planning for Dreissenid eradication
- **Vulnerability Assessment Team**
  - Coordinate/prioritize needed assessment and mitigation response efforts at hydro/raw water projects
  - Lisa DeBruyckere assisted with these two work groups
- **Funding to support these two efforts provided by BPA**

Rapid Response Working Group

Task: Update CRB Dreissenid Rapid Response Plan documents to ensure preparedness for Eradication

- Control options (CuSo4, ??zequanox ??)
- Permitting requirements (State and federal)

Task: Development of State Dreissenid RR Plans

- Oregon: Complete (October 2013)
- Washington: In progress (draft, spring 2014)
- Idaho: 2011 Contingency Plan: Plans to review for possible updates
- Montana: looking at a possible exercise in April

Task: Regulatory workshop

- December 2013 "eradication" planning workshop
  - Addressed permitting requirements and pesticide registration/efficacy issues for Oregon and Washington

DREISSENID ERADICATION WORKSHOP

Important – Eradication of a mussel population is only feasible in an isolated waters

Rapid Response Working Group

Options exist for how Columbia River Basin states could navigate through permitting requirements to respond to an introduction of invasive mussels, It is likely that any of these options would require EA information:

- Best Management Practices for the mainstem Columbia River and tributary watersheds.
- Inclusion of terrestrial species (in terms of potential effects of a control action).
- Identification of the pesticides that would most likely be used in a control action.
- Identification of sensitive, threatened, and endangered species in the control area (and downstream of the control area, if applicable).
- Addressing downstream habitats and how they might be affected by control actions.
- Setting goals and geographic scope to any likely eradication action.
- A joint programmatic opinion?? from NOAA and the USFWS.

Rapid Response Working Group

- a full-scale programmatic may not be the best approach on responding to an introduction of dreissenid mussels in Oregon and Washington (cost,staff time)

- might make more sense to look at other models that involve both NOAA and USFWS and have elements similar to a mussel response, e.g. oil spill response or the biological opinion the USFWS is currently working on for its restoration programs (covers Oregon, Washington, and Idaho).

- April meeting being planned with USFWS/NOAA to discuss path forward regarding consultation

- Funding/staff for this process will also need to be identified

Vulnerability Assessment Team

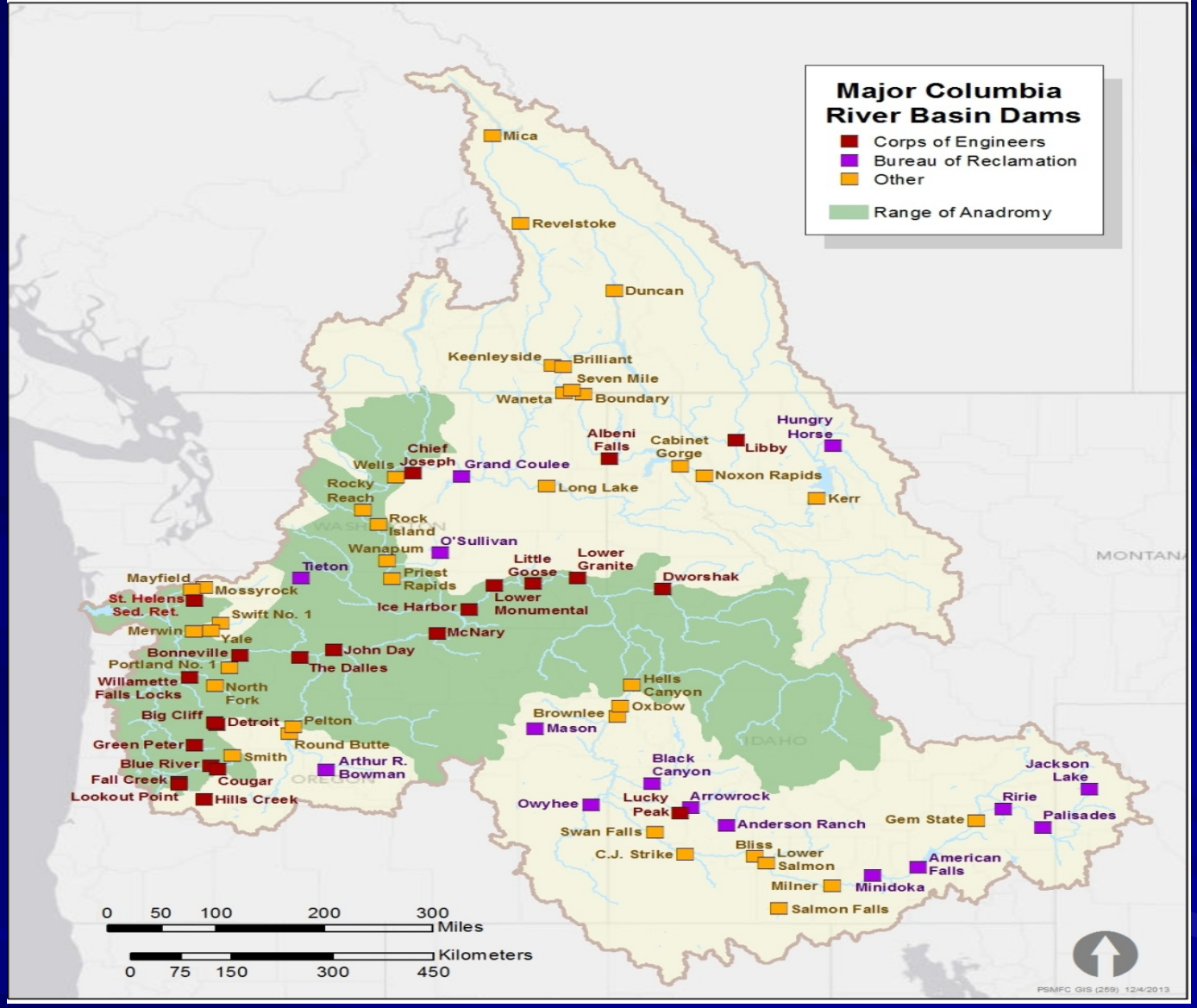
Team includes: USACE, BOR, BPA, FortisBC, Idaho Power, Seattle City Light, PUD's, etc

Goals:

1. Determine status of VAs at key Hydro projects in CRB

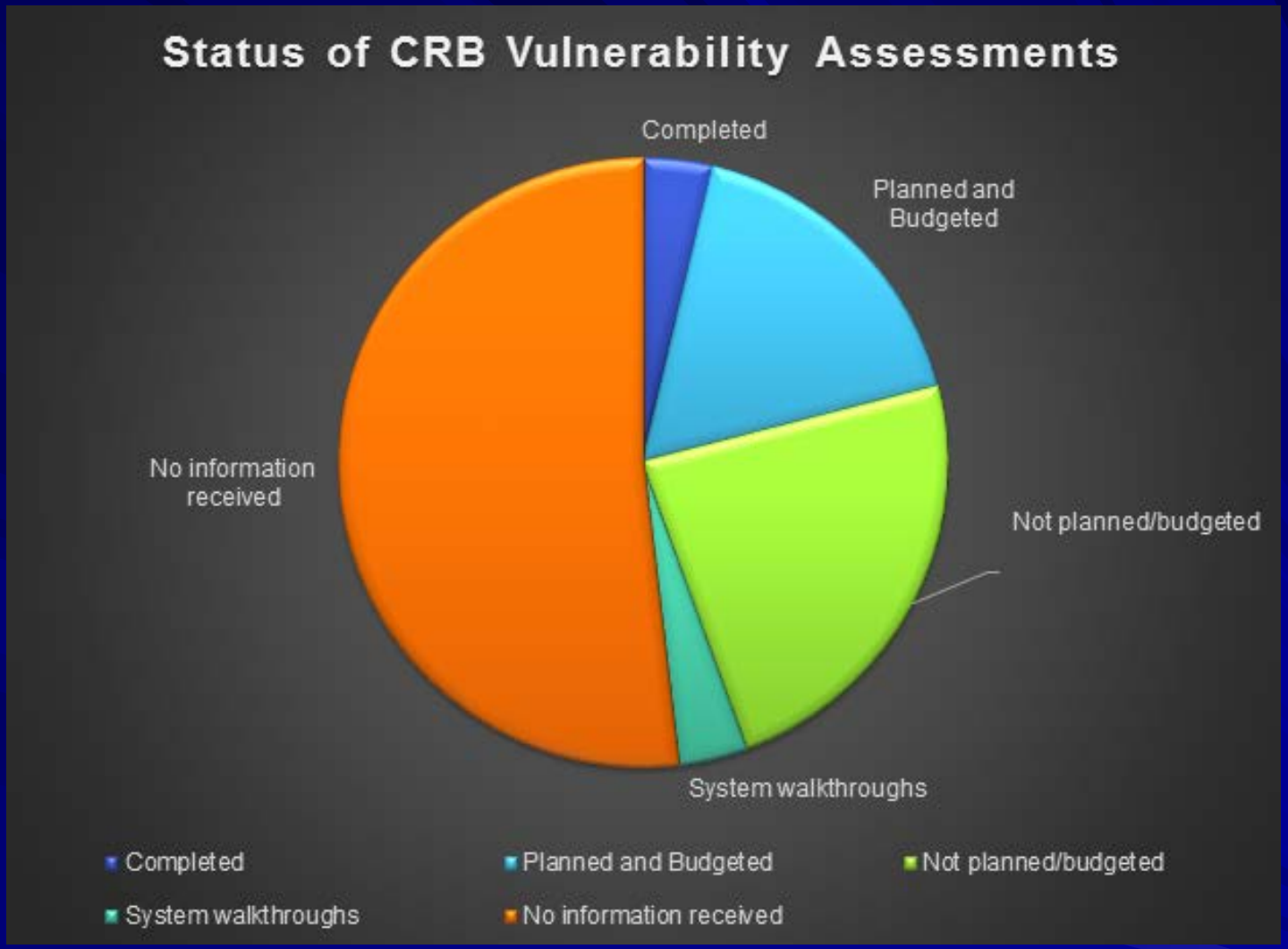
2. Determine risk of projects to dreissenid mussels

3. Recommend highest priority needs for VAs and associated costs



Locations of 75 of the most prominent dams in the CRB by ownership. (Source: Van Hare, PSMFC)

These projects were then surveyed as to VA status



UPDATE: USBR PN Region has indicated they will be will perform vulnerability assessments at Minidoka and Palisades power plants this FY.

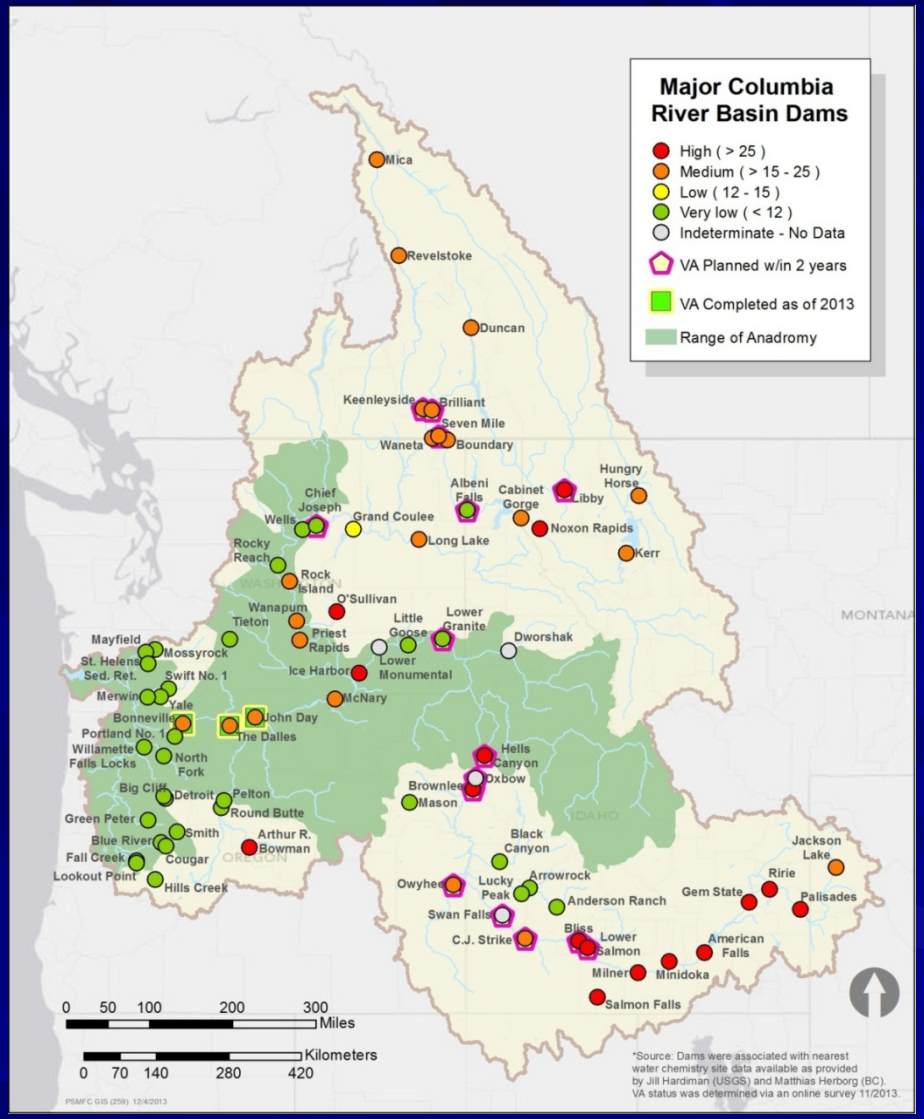
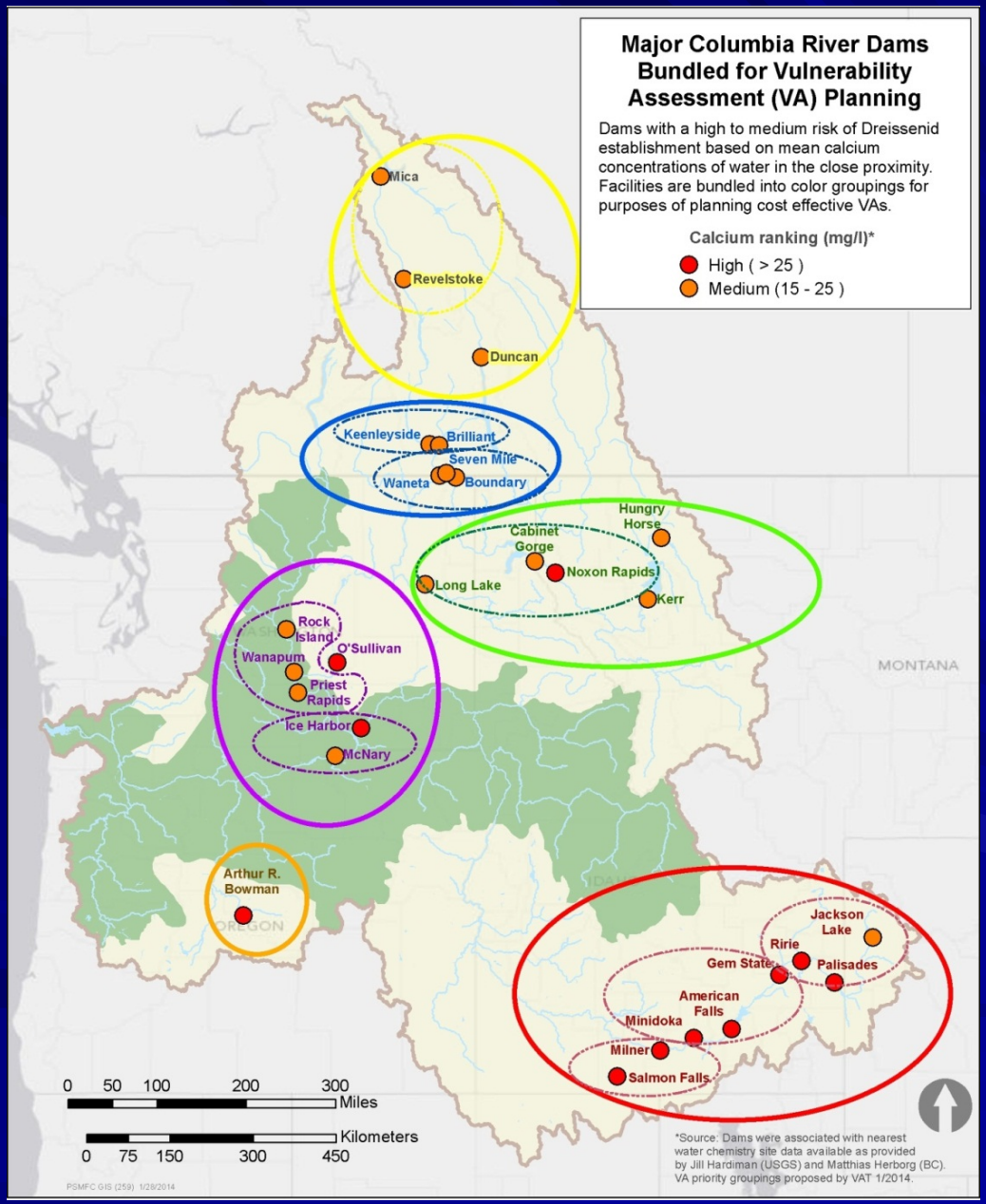


Figure 5. Risk of establishment of dreissenid mussels (based on dissolved calcium) for 75 of the most prominent hydropower facilities in the CRB.

Potential Cost Effective VA Strategy: Bundling of Higher Risk Facilities



Cost: Bundling Vulnerability Assessments

(size, anadromy, location dependent - $5,000 - $30,000

Bundled Hydropower Facilities	Total Cost
Milner and Salmon Falls	$30,000
Jackson Lake, Palisades, and Ririe	$45,000
American Falls, Gem State, and Minidoka	$45,000
Ice Harbor and McNary	$60,000
Priest Rapids, Rock Island, and Wanapum	$90,000
O'Sullivan	$30,000
Arthur R. Bowman	$10,000
Long Lake, Noxon Rapids, and Cabinet Gorge	$45,000
Kerr	$15,000
Hungry Horse	$15,000
Boundary, Seven Mile, and Waneta	$45,000
Brilliant, and Keenleyside	$10,000
Mica and Revelstoke	$20,000
Duncan	$15,000
TOTAL	$475,000

Next Steps Vulnerability Assessments

Information gathering

- **Continue to obtain info on VAs for 75 most prominent Hydro facilities**
- **Finalize report**

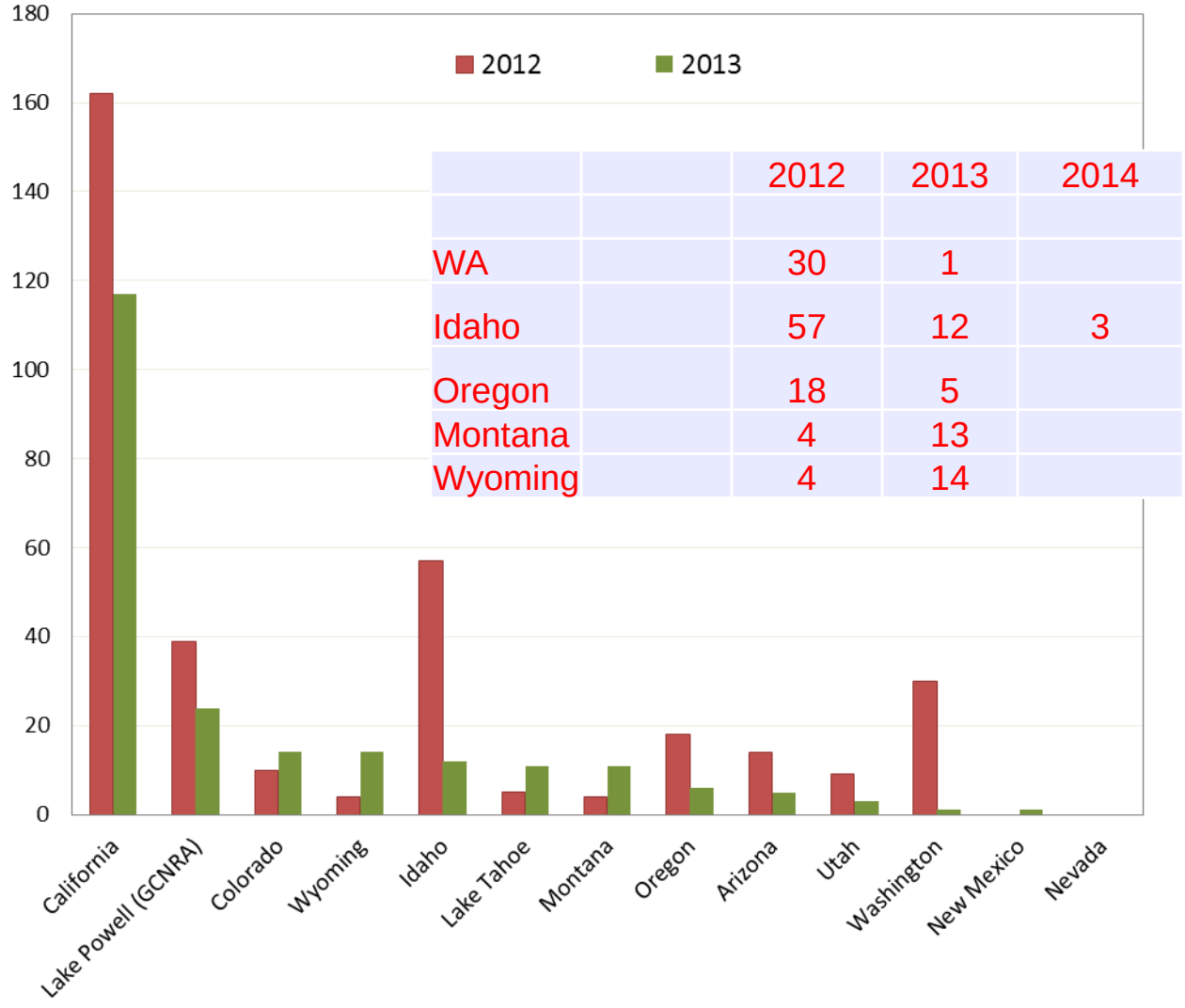
Funding for VA's

- **Water Resources Development Act ?**
  - **S. 601 Water Resources Development Act (Boxer and Vitter)… Sec 5007 Authorizes the Secretary to conduct AIS monitoring, watercraft inspections stations, facility risk assessments and expedited response in the CRB**
  - **Waiting on Conference report, NPCC has weighed in**
- **Encourage hydropower facility managers to budget for VA's**
- **Other ideas?**

Contaminated Dreissenid Watercraft Intercepted by State

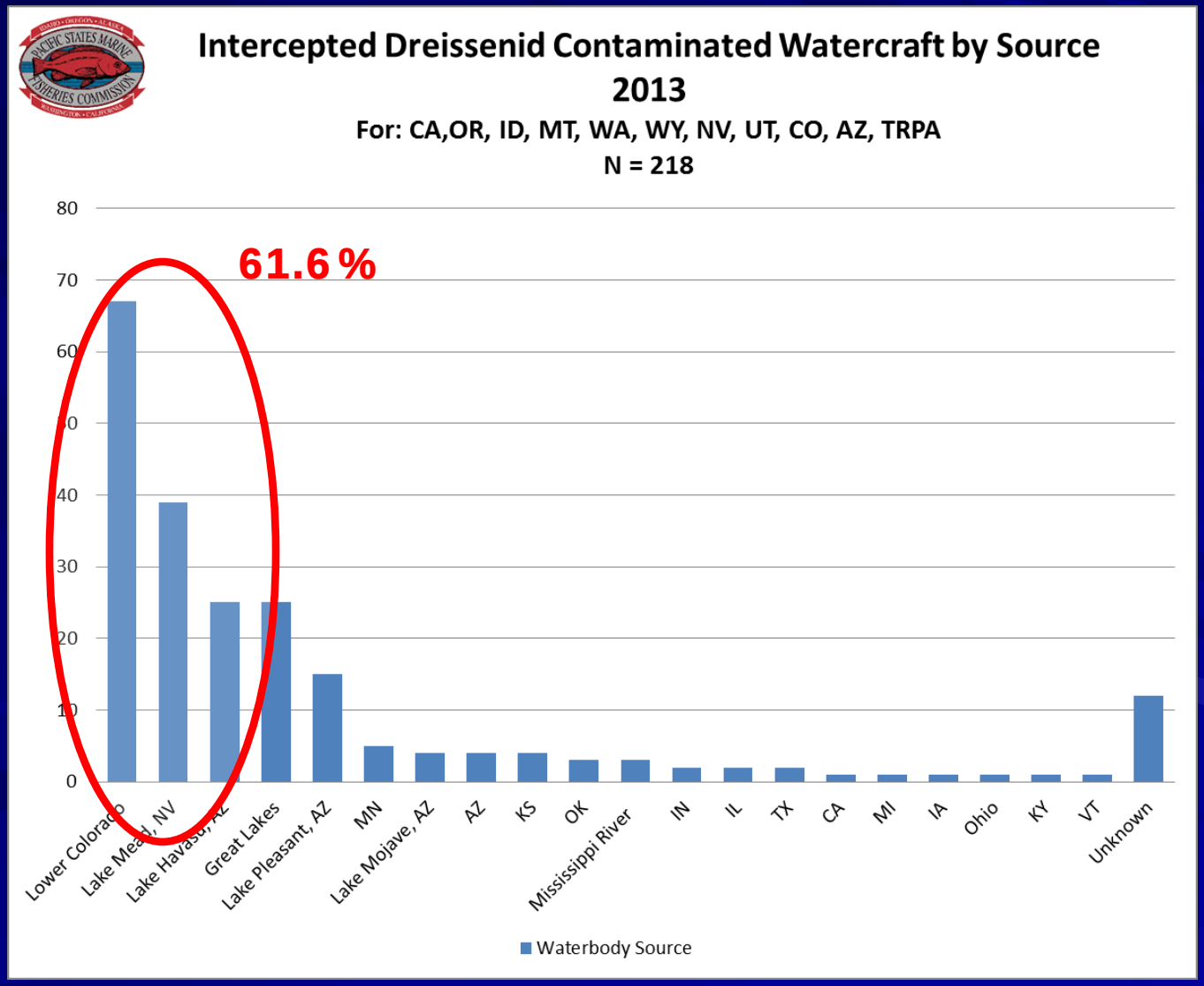
2012 vs. 2013

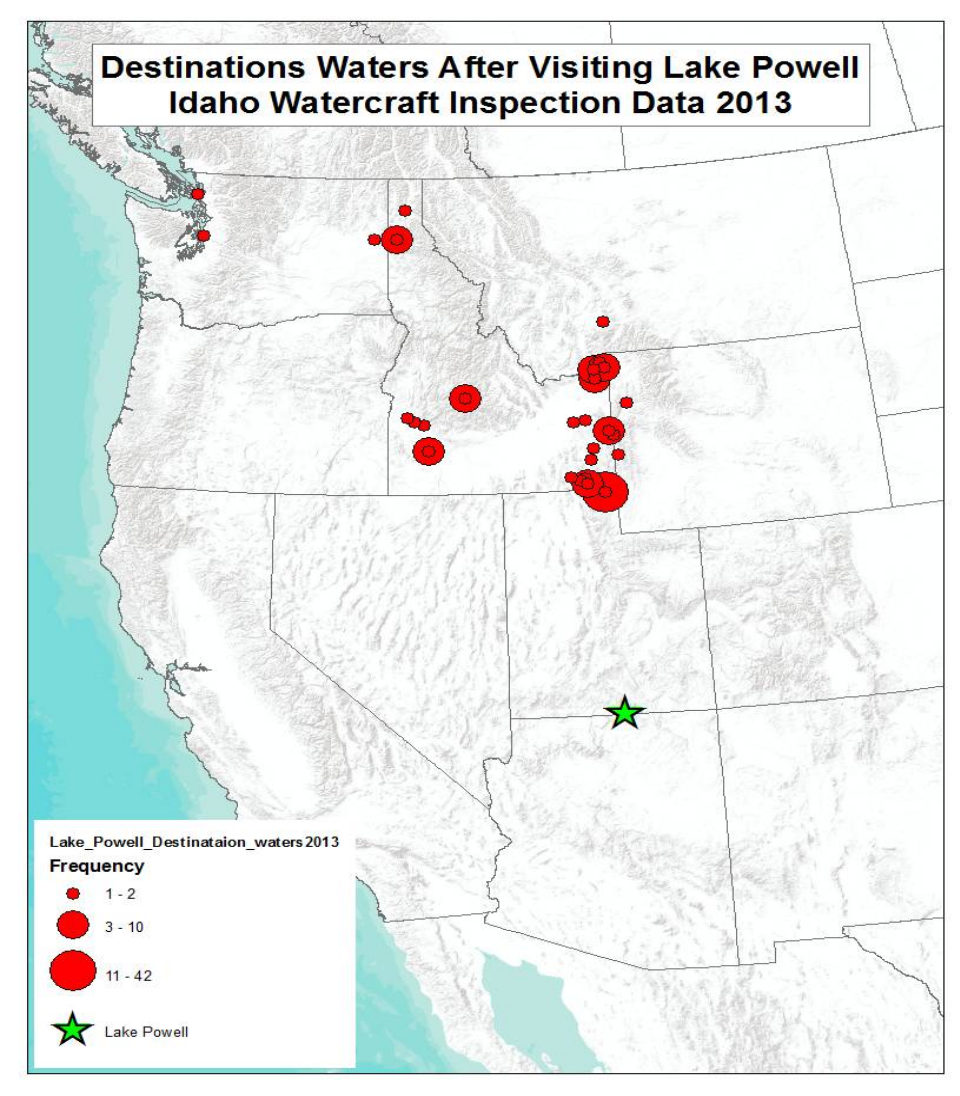
(N= 352) *(N= 219)*



	2012	2013	2014
WA	30	1	
Idaho	57	12	3
Oregon	18	5	
Montana	4	13	
Wyoming	4	14	

2013 Watercraft Inspections by State





Source: Idaho Dept. Agriculture

- NEPA (EA): Glen Canyon National Recreation Area Q/Z Mussel Management Plan
- Step 2/12 (3/7 scoping period public comment period ended)
- NPCC, PSMFC, WDFW, ISDA, others weighed in – decontamination of exiting boats a priority
- MARCH 11 – POWELL HOUSE BOAT BOAT INTERCEPTED AT Cotterell, ID Port of Entry inspection station, I-84, westbound, destined for "Seattle"… mussels moist and squishy ..stay tuned for details
- MARCH 11: Utah House voted 65-5 to approve SB212, and sent it to Gov. Gary Herbert …allows inspection stations

Thank you


Columbia River Basin
Pacific
Ocean
BRITISH COLUMBIA
ALBERTA
SASK
MONTANA
WYOMING
OREGON
CALIFORNIA
NEVADA
UTAH
IDAHO
ROCKY MOUNTAINS
CASCADE RANGE
COAST RANGE
PLATEAU