

Bruce A. Measure
Chair
Montana

Rhonda Whiting
Montana

W. Bill Booth
Idaho

James A. Yost
Idaho



Dick Wallace
Vice-Chair
Washington

Tom Karier
Washington

Melinda S. Eden
Oregon

Joan M. Dukes
Oregon

January 28, 2010

MEMORANDUM

TO: Council members

FROM: James Ruff -- Manager, Mainstem Passage and River Operations

SUBJECT: Panel discussion of federal agencies' quagga and zebra mussel actions

This will be an informational briefing to provide an opportunity for the three regional federal action agencies and NOAA Fisheries to address what they are doing to monitor, prevent, prepare for and/or control a quagga or zebra mussel infestation should they become established in Columbia River Basin waters. No decision by the Council is necessary.

The federal interagency panelists will include:

- Jim Clune, Acting Manager of Federal Hydro Projects for the Bonneville Power Administration
- Scott Lund, Integrated Pest Management Coordinator for the Bureau of Reclamation
- Robert Willis, Environmental Team Lead for the Northwestern Division of the Corps of Engineers
- Scott Rumsey, Regional RM&E Coordinator for NOAA National Marine Fisheries Service

Background Information

The following background information was provided by each of the federal agencies.

Bonneville Power Administration

Realizing the threat to both fish and power resources, Bonneville has been actively supporting Aquatic Nuisance Species (ANS) prevention actions over the past ten years, with a focus on quagga and zebra mussels. Bonneville supports program activities implemented by the Pacific States Marine Fisheries Commission (PSMFC) ANS prevention program. The Bonneville-funded PSMFC ANS program elements include support for:

- Coordination and planning activities, including support for and active participation in the 100th Meridian Initiative-Columbia River Basin Team, the *Columbia River Basin*

Interagency Invasive Species Response Plan: Zebra Mussels and Other Dreissenid Species, and the Quagga-Zebra Mussel Action Plan for Western U.S. Waters;

- Mussel monitoring actions, including Portland State University's (PSU) veliger (larval) microscopy and substrate monitoring activities;
- Educational information and outreach targeting recreational anglers, boaters, boat haulers, marinas, state and county law enforcement, and hydropower operators; and
- Research projects, including the Technology Innovative Grants Program.

Bonneville continues to work closely with the Corps of Engineers and Bureau of Reclamation focusing on mussel prevention and actions to address the need for rapid response should it arise.

Bureau of Reclamation

Reclamation continues to advance research at its facilities in the southwestern United States. This research includes the evaluation of effective coatings which will repel or restrict growth of zebra/quagga mussels on treated surfaces, evaluation of biocides, pesticides and non-toxic treatments such as ultraviolet light, and the evaluation of cleaning technologies including underwater high pressure jetting. Ongoing mussel activities in Reclamation's Pacific Northwest Region include partnering with other Federal, state and local agencies and associations for public outreach and education. In 2009 the Pacific Northwest Region Water Chemistry Laboratory included quagga/zebra veliger sampling with its reservoir water quality monitoring program and has developed veliger analytical capability. Thirty five samples collected from 27 reservoirs were analyzed by the Pacific Northwest Region Lab. The quagga/zebra veliger monitoring program will be increased in 2010 to include 29 reservoirs and 64 discrete samples. A facility assessment program will be established this year with the assistance of Reclamation's Technical Services Center in Denver, CO. This program will be initiated through pilot assessments to train regional personnel following a "train the trainer" concept.

Corps of Engineers

The Corps has been monitoring for adult quagga and zebra mussels at all of its facilities in the Columbia River Basin. Monitoring includes monthly visual inspections at facilities and substrate sampling for mussel settlement at fish ladders and forebays, and at boat ramps and marinas on Corps lower Snake River reservoirs. Working with PSU and PSMFC, additional priority veliger sampling sites were identified for the Corps to monitor, which enhances regional mussel monitoring efforts and helps to potentially identify larval stage mussels at Corps facilities. Beginning in 2010, ten sites in the Columbia River Basin will be monitored from weekly to monthly frequency through the spring and summer months.

As part of the *Columbia River Basin Interagency Invasive Species Response Plan: Zebra Mussels and Other Dreissenid Species* (2008), the Corps has prepared vulnerability assessments for the Bonneville Hydropower Project and the John Day fish passage facilities. These assessments included mitigative measures to either eradicate or reduce the potential for spread of mussels at the facility and currently serve as templates for vulnerability assessments and responses for other hydropower projects in the basin. In addition, the Corps' Engineering and Research Development Center is engaged in researching treatments to control quagga and zebra mussels, as well as developing mitigative measures for Corps infrastructure.

The Corps plans to initiate and complete vulnerability assessments for John Day and The Dalles dams and related facilities, with other assessments following. Once all the project assessments

are completed, a full range of mitigative measures that could be applied to address the threat of mussels at all Corps infrastructure in the Columbia River Basin will be developed.

The Corps is also actively participating in several regional forums to address aquatic invasive species issues, collaborate on response planning and monitoring, and developing solutions and strategies for addressing invasive aquatic species, including quagga and zebra mussels. Interagency forums include the Western States Water Council, the 100th Meridian Initiative-Columbia River Basin Team, and state Invasive Species Councils (ID, OR and WA). The Corps also has developed internal teams, including the Invasive Species Leadership Team, to address the threat of invasive species and provide solutions for treatment.

The Corps is also working to provide public education and awareness of aquatic invasive species, including distributing literature, posters and pamphlets at Corps facilities for public use. Corps boat ramps and reservoirs have signs posted, as well as Corps rangers and staff, to alert the public to the threat of invasive mussels and how to remove them from boats or equipment prior to launching.

Finally, the Corps has updated its requirements for all its contractors who would launch equipment into open water, including guidelines for contractor inspection and decontamination of all equipment. The Corps also has standard requirements for its field staff to prevent the spread of invasive species during field work and monitoring.

NOAA Fisheries

NOAA Fisheries shares the concern of the Council and our federal partners concerning the potentially severe ecological and economic implications if quagga or zebra mussels were to invade the Columbia River Basin. NOAA Fisheries, however, does not have direct regulatory jurisdiction over quagga or zebra mussels, nor does it have devoted funding to support work on this important issue.

Our involvement on quagga/zebra mussel issues has largely been in the context of our statutory and regulatory responsibilities for marine and anadromous species under the Endangered Species Act (ESA). In the 2008 FCRPS Biological Opinion, we recommended that the Bonneville Power Administration, Corps of Engineers and U.S. Bureau of Reclamation (the Action Agencies) participate in regional efforts to develop a Zebra Mussel Rapid Response Plan. In the event that the zebra mussel or other species of *Dreissena* genus are detected in the Columbia River Basin, we recommended that the Action Agencies participate and provide support to implement the response plan(s). In addition, the prevention of the spread of invasive species, and the development of plans for timely and appropriate responses in such an event, are important elements of NOAA Fisheries' ESA Recovery Plans for salmon and steelhead.

NOAA Fisheries is supportive of signing onto the *Columbia River Basin Interagency Invasive Species Response Plan: Zebra Mussels and Other Dreissenid Species* prepared by the 100th Meridian Initiative-Columbia River Basin Team. We are currently working with the Plan coordinators to implement changes to the Plan's language to be consistent with our statutory and regulatory obligations under the ESA. Once these changes are made, we will formally sign onto the regional Response Plan.

To date involvement by our Regional Office staff in invasive species forums has been constrained by pressing statutory responsibilities and limited staff resources. We are reinvigorating our participation in regional forums such as the 100th Meridian Initiative Columbia River Basin team. Dr. Scott Rumsey (503-872-2791; scott.rumsey@noaa.gov) and Ritchie Graves (503-231-6891; ritchie.graves@noaa.gov) will serve as co-leads on invasive species issues.

Dr. Blake Feist (with NOAA's Northwest Fisheries Science Center) has been an active participant in the Western Regional Panel on Aquatic Nuisance Species, including contributing to the development of the *Quagga-Zebra Mussel Action Plan for Western U.S. Waters*. Additionally, there is active research by scientists at NOAA's Northwest and Alaska Fisheries Science Centers on the distribution and ecological impacts of invasive fishes in the Columbia River Basin and of West Coast marine invasive species.

B O N N E V I L L E
P O W E R A D M I N I S T R A T I O N

Aquatic Nuisance Species Program Activities



Jim Clune, Bonneville Power Administration
February 9, 2010

PSMFC-BPA ZEBRA/QUAGGA Prevention Program Components

BPA has supported ANS prevention efforts for the past 10 years, primarily through the Pacific States Marine Fisheries Commission ANS prevention program. With a focus on quagga and zebra mussels, program elements include:

- **Coordination and Planning:** Support and participation in the Columbia River Basin Quagga/Zebra Rapid Response Plan, 100th Meridian Initiative, and Quagga/Zebra Action Plan
- **Monitoring:** Portland State University veliger microscopy and substrate monitoring programs
- **Educational Outreach:** Targeting recreational anglers, boaters, haulers marinas, state and county law enforcement, hydro operators
- **Research:** Technology Innovation Grants Program



Coordination and Planning

- **Columbia River Basin Interagency Rapid Response Plan, Zebra/Quagga Mussels:**
 - Developed by PSMFC and USFWS, the purpose of the Plan is to coordinate a rapid, effective, and efficient interagency response in order to delineate, contain, and when feasible, eradicate zebra, quagga, and other dreissenid mussel populations if they are introduced in CRB waters. Rapid Response Exercises, with partial support from BPA, were held in 2007, 2008 and 2009 to test the Plan.

- **100th Meridian Initiative:**
 - BPA is an active member and provides support along with the USFWS for the Initiative's Columbia River Basin Team, comprised of federal, provincial state, tribal and local government entities. The Columbia River Basin Team helps coordinate ANS (mostly mussel) prevention in the region.

- **Uniform Watercraft Decontamination Protocols:**
 - In 2009, the PSMFC, with support from BPA, completed the document Recommended Uniform Minimum Protocols (UMPs) and Standards for Watercraft Interception Programs for Dreissenid Mussels in the Western United States. This document, adopted by the Western Regional Panel on Aquatic Nuisance Species, serves as a regionally accepted manual for watercraft decontamination.





Monitoring

- Portland State University Monitoring Programs:
 - Effective response to a quagga mussel invasion will require a robust monitoring program to detect an infestation rapidly. BPA has supported the veliger microscopy and substrate monitoring program at Portland State University (PSU) since 2002.
 - In 2010, BPA is supporting partnering between Portland State University and the US Army Corps of Engineers to significantly increase monitoring efforts at Corps projects in the Columbia River Basin.



Educational Outreach

- BPA (and USFWS) is supporting PSMFC in a broad array of projects targeting recreational boaters, including:
 - Watercraft Inspection Training (WIT): Over the past 5 years this project has delivered over 40 training courses delivered in eleven western states to over 2000 individuals representing over eighty state, federal, local, private, and tribal agencies, organizations and businesses so that they can successfully intercept, inspect, identify, contain and decontaminate trailered watercraft suspected of carrying zebra mussels.
 - Don't Move a Mussel" Video: Over 4000 copies of this video have been distributed to date. The video includes a watercraft inspection and decontamination training section.
 - Booths at sport shows/boat shows in OR,WA,ID, MT, and CA.
 - Marina and commercial boat hauler outreach and education.
 - Publications (e.g. "Zap the Zebra"), radio PSA's, signage.
 - Presentations to hydro/fish/boating groups throughout the region including Public Power Council, Public Generating Pool, Joint Operating Committee, Pacific Fisheries Legislative Task Force, Pacific Fishery Management Council, and Western States Boating Administrators Association.



Research

- **Antifouling Coatings: Investigation of the Feasibility of Mitigating Dreissenid Mussel Fouling in Raw Water Systems:**
 - This recently completed PSU study provides a review of the factors that influence coating efficacy, evaluates coatings currently on the market, and recommends actions needed to identify coatings that could be applied to hydropower facilities in the CRB as part of an integrated mitigation strategy.

- **Prioritizing Zebra and Quagga Mussel Monitoring in Columbia River Basin:**
 - The soon to be released report will generate the information needed to improve and expand our ability to identify water bodies likely to support dreissenid mussels and our ability to target monitoring efforts in the future for early detection.

- **Quagga Mussel Survival and Growth:**
 - This PSU study is attempting to grow Quagga mussels in Columbia River water and see how well they will survive. The information obtained in this study will help in the prediction of quagga growth rates and could help in the planning for schedule and cost associated with maintenance of hydropower facilities in the Columbia Basin.

