

## Columbia River Basin Team Meeting

### Minutes

June 4-5, 2019

Northern Quest Resort Hotel, Spokane, WA

### Attendees

Eric Anderson (Washington Department of Fish and Wildlife), Martina Beck (BC Ministry of Environment and Climate Change Strategy), Dave Beedle (Seattle City Light), Rick Boatner (Oregon Department of Fish and Wildlife), Steve Bollens (Washington State University), Brent Broncheau (Nez Perce Tribe Fisheries Management), Elizabeth Brown (Colorado Parks and Wildlife), Stanley Burgiel (National Invasive Species Council), Justin Bush (Washington Recreation and Conservation Office), Aaron Canuel (BC Ministry of Environment and Climate Change Strategy), Marcie Clement (Public Utility District No. 1 of Chelan County), Janet Conlin (Cocolalla Lake Association), Danielle Costantini (Student Conservation Association), Tim Counihan (United State Geological Survey), Zach Crete (Montana Fish, Wildlife & Parks), Lori Curtis (Upper Columbia Conservation Commission), Lisa Debruyckere (Creative Resource Strategies, LLC), Robyn Draheim (Pacific States Marine Fisheries Commission), Leah Elwell (Invasive Species Action Network), Sarah Ganter (Upper Columbia Conservation Commission), Joanne Grady (US Fish and Wildlife Service), Keith Hatch (US Bureau of Indian Affairs), Catherine Hayes (Fortis BC), Thomas Herron (Idaho Department of Environmental Quality), Bruce Hinds (Washington Seaplane Pilots Association), Bryan Horsburgh (US Bureau of Reclamation), Betsy Hull (US Army Corps of Engineers), Rayola Jacobsen (Northwest Power and Conservation Council), Jenny Jarvis (AIS Solutions), Nicole Kimmel (Government of Alberta), Lloyd Knight (Idaho Department of Agriculture), Tamara Knudson (Spokane Tribal Fisheries), TyRee Lee, Shoshone-Paiute Tribes), Gordon Luikart (University of Montana-Flathead Lake Biological Station), Joe Marony (Kalispel Tribe), Phil Matson (University of Montana-Flathead Lake Bio Station), Craig McLane (Montana Fish, Wildlife & Parks), Holly McLellan (Colville Tribes), Heidi McMaster (US Bureau of Reclamation), Laura Megill (Nevada Department of Wildlife), Kenneth Merrill (Kalispel Tribe Natural Resources), Rich Miller (Portland State University), Deane Osterman (Kalispel Tribe Natural Resources), Nate Owens (Utah Department of Wildlife Resources), Blaine Parker (Columbia River Inter-Tribal Fish Commission), Mason Parker (Invasive Species Action Network), Stephen Philips (Pacific States Marine Fisheries Commission), Allen Pleus (Washington Department of Fish and Wildlife), Michael Porter (Yakama Nation Fisheries), Anthony Prisciandaro (US Bureau of Reclamation), Nick Ramsay (Washington Department of Fish and Wildlife), Erin Raney (Arizona Game and Fish Department), Jesse Schultz (Washington Department of Fish and Wildlife), Adam Sepulveda (US Geological Survey), Barak Shemai (US Fish and Wildlife Service), Gene Shippentower (Confederated Tribes of the Umatilla Indian Reservation), Marvin Shuttters (US Army Corps of Engineers), Hilary Smith (US Department of the Interior), Michael Stephenson (Idaho Power Company), Serina Swanson (Fortis BC), Mark Sytsma (Portland State University), Pam Taylor (Washington Department of Fish and Wildlife), Theresa Thom (US Fish and Wildlife Service), Bradley Trumbo (US Army Corp of Engineers), Bill Whitacre (Western Governors Association), Shay Wolvert (Colville Tribes), Tom Woolf (Montana Fish, Wildlife & Parks), Nic Zurfluh (Idaho State Department of Agriculture).

Stephen Phillips welcomed attendees and noted that all past minutes can be found on the Western AIS website. The [westernais.org](http://westernais.org) website also lists current AIS news and legislative information. Those not on the listserv should contact Stephen or Leah Elwell to be included.

### Introduction

Deane Osterman (Kalispel Tribe)

Kalispel tribal history with invasive species aims for recovery of bull trout and delisting of west slope cutthroat. Challenges to conservation are invasive species combined with human activity. Some priority species are northern pike,

brook trout, and flowering rush. How do we work better as agencies and sovereignties? Working together is key to success.

### [CRB Dreissenid Mussel Monitoring Forum Risk Assessment and Webinar Effort \(T. Counihan, USGS\)](#)

Current CRB meeting in Spokane, WA is happening one year after the kickoff meeting in Portland, OR. Since then, there has been one additional face-to-face meeting in Boise, ID. The identified goal of early detection is to enable the effective implementation of rapid response plans, treatment, and containment measures. Early detection is the detection of an introduced population that is limited in its spatial extent. This goal is consistent with current literature published on early detection. Some gaps need to be focused on and filled in. The goal/purpose of early detection is to enable the effective implementation of rapid response plans, treatment, and containment measures. Some of the metrics of risk are water quality parameters, and human behavior.

For the purpose of determining habitat sustainability, most use calcium levels, pH levels, and water temperature to measure. Work was done with Dr. McMahon to develop a matrix of risk (high, moderate, and minimal). Working toward developing a data confidence index for risk assessment. For instance, do we have data for all three risk factors? Ranges of data availability, replication, etc. Propagule pressure model in coordination with University of Alberta and USGS for road mapping, gravity model. There are plans to coordinate with WID database, but this will require new permissions. There will be efforts to facilitate model development in the future using machine learning and artificial intelligence.

### **Q and A**

Q: How far from updating development for computing the models and finding which bodies are most at risk?

A: Close. There are a range of levels that need to be evaluated. Standardizing different types of data collected. Extraction of information from water data portal.

Q: How you dealing with seasonality of data?

A: Working through it. Max water temperature happens in summer. There is not a lot of seasonal variability for calcium. Dealing with means is best way to go about it.

Q: What is the process for reporting out? Is there a possibility for ongoing application of this data?

A: You begin to see patterns jumping out where some things match up and some do not. Phone answer Adam: Things are updated through the water quality data portal daily. Automated update.

### [Monitoring in the Columbia River Basin, \(R. Draheim, PSMFC\)](#)

Map of Zebra and Quagga Mussel Monitoring Data are available online but need permission/password. There were 9 (<50%) respondents in the CRB Data Survey who were asked to consider timing, planning, barriers, and what we can do better. The survey results:

Field season planning: Nov-Apr

End of field season? Sept- Nov/Oct

Date entry: Real-time in Dec

Should planning tool be available online? 66.7% of respondents yes.

The most important criteria are: 1.) Legacy site and 2.) Boater destination data.

Biggest concern is too much staff time to report data (57.1%).

What can we do better? (Action items) Get more responses. Consider additional, shorter survey of participants with spatial data set. Use result to tweak timing of spreadsheet distribution, data call, and initial mapping. Tweak spreadsheet categories. Evaluate potential options for reducing burdens addressing data.

### **Q and A**

Q: Concerning criteria for selecting water body, would the chart shift to be more risk-based or coordinated?

A: Yes, as the data begins to show which sites are most at risk there would be a shift in criteria for site selection. Data would eventually be used to make more informed decisions.

### [WRP eDNA Committee Activities \(Adam Sepulveda, USGS\)](#)

The WRP eDNA committee kicked off in October 2018. There were three goals: develop educational resources, push white paper to inform about use of eDNA for mussel monitoring in the west, summarize questions, concerns, criticism on how eDNA is used in dreissenid surveillance. There is also a need to identify knowledge gaps to show decisions makers when and when not to use eDNA.

### **Q and A**

Q: Are we reaching out to private lab sources with eDNA subcommittee?

A: Yes, there are two members of private labs on the subcommittee. Both are very active.

Q: To what extent do you think the information coming out of the subcommittee is useful for other invasive species

A: We are working on writing a paper on eDNA addressing other invasive species applications. Focus on mussels but hoping to provide a framework for larger application outside of CRB and mussels.

### [Monitoring Forum Continued \(Stephen Philips, PSMFC et al.\)](#)

Mark Sytsma (PSU OR) began monitoring in the late 90s early 2000s. There was scant funding. This continued until 2016. There was \$300k total until WRDA, Tiber reservoir, and Safeguarding the West. Went from \$300k to 1 million for the CRB (four states). The new appropriation bill in the house is \$3 million, but there are many new partners. 14 states will split the \$3 million. Many questions with state agencies, tribes etc. concerning how much should be used for monitoring. There are many needs to ensure confidence in data samples. Moving forward it is important to know how much money is being spent where. Managers want to know where work was being done. There is potential with new WRDA language to do work to the east in the Missouri river Basin to prevent introductions in west.

### **Q and A**

Q: Will we see a future where as much funding exists as they spend on Asian carp?

A: The congressional delegation in the Great Lakes is strong, we might not get there, but we will make strides. Money did show up triggered by Tiber. Lucky so far with finding funding.

### [eDNA Monitoring Research](#)

#### [Discussion on CRB Agency Use of eDNA](#)

Tom Wolf (MT FWP) – MT Invasive Species Council formed a committee to look at eDNA and management implications. Tiber Reservoir --- veliger/tow results seem to be ideal for intensive eDNA sampling.

Jesse Shultz (WA DFW) – WA 3rd year of eDNA (this year analyzing for ZQ/NZMS/N pike), Doing analysis internally at WDFW genetics lab. If they get a positive hit they would initiate rapid response plan, and the waterbody would be labeled “suspect” but positive results would likely be kept internal while they sample for veligers/adults.

Martina Beck (BC) – BC not using eDNA for active monitoring for mussels.

It is being used for bullfrog and some fish species. Working with DFW to validate primer against native mussels. Working to add it in parallel to traditional monitoring but need to develop the management guidelines for what positive hits mean.

Rick Boatner (ODFW) – ODFW is not using eDNA, other entities in OR are using it.

Outside agency results would to spur additional monitoring to verify/validate results. OR needs microscopy confirmation to change status of waterbody.

Lloyd Knight (IDA) - Waiting for MT to solve the underlying issues/management questions

Working to expand conventional monitoring/monitoring coverage. Outside agency results would lead to additional sampling to verify but would be unlikely to use results from someone else’s process/effort to spur a management decision.

Blaine Parker – CRITFC

Not being done by the Commission. There is the potential that it may be used in specific areas, off the main stem Columbia in the future.

Spokane Tribe

Pilot project in Spokane arm of Lake Roosevelt. Got expected results with native mussels and ZQ

Looking to expand that into the main stem Columbia funding dependent.

Umatilla Tribes

Working with lab at Utah State with native freshwater mussels. Interested in learning more about adding dreissenids to the effort.

Colville Tribe

Currently using eDNA for N. pike. Working on sites to track the leading edge of the pike expansion. Did have a false positive with no protocols in place for how to respond to results (Banks Lake) working with UMontana lab. Initiated intensive traditional sampling. Found no pike. Looked at collection site and it was adjacent to ramp/tournament of anglers who commonly visit a pike positive water body. Looking at adding dreissenids to pike assay. There may be higher utility for areas (like lake arms) where traditional sampling methods are less effective, more expensive or just harder to get to.

Q: Can we compare this data? Between labs? Protocols?

Important to have in place a second lab for independent verification of results. Have in place a plan to deal with positives when they show up (i.e. additional sampling)

The pike example indicates that false positives happen (similar to carp), and could expect that type of scenario.

Anthony P. BOR is exploring a proposal to investigate potential sources for false positives (ex. anoxic sediments, less degradation of eDNA).

#### [eDNA monitoring Research, \(A. Sepulveda\)](#)

Two projects are being wrapped up 1.) USGS projects look at intra/inter lab variability of results. 2.) integrating eDNA data into the streamgage program. Are USGS streamgages adequately located? Big picture questions: how and where do we sample? Size of zebra mussels vs. size of CRB. Uncertainty associated with eDNA results. DNA presence does not mean species presence. It is often impossible to corroborate with direct methods. It is a new science with checkered early history. Used in aquatic environments since 2008. There are ways to reduce uncertainty of eDNA results. Lab-based

protocols need to provide repeatable and reproducible results. Lab environment can be totally controlled. In the approach, five assays were identified and are currently in use. Tests were carried out at four different USGS labs. Sampled from different water bodies with ZQ, Z, Q and negative for mussels. There was a double blind sample prep/lab sample. 3000 samples were processed, 8500 reps (3 per sample). Found 90% repeatability and reproducibility. This seems high confidence, but there are no established benchmarks. The next step is to evaluate eDNA field sampling protocol. Concerning the streamgage effort, to assess how USGS can integrate eDNA into streamgage program. Assess if streamgages are adequately distributed for early detection in large systems. There are 10,000+ stream gauges in US. Could USGS contribute to Safeguarding West with this network? These stream gages are often located below reservoirs (hot spots and high value) so that could help monitor for early detection. There were positive detections at gauges below reservoir with known dreissenids. No positives were detected in CRB locations. The cost of incorporating into other work results in \$400-500 per 3 samples. Locations of streamgages are adequate. For higher confidence there must be sampling at a higher frequency. Next steps: should we limit sampling to just streamgages or extend personnel trips to nearby reservoirs for sampling.

### [Invasive Species Management Can Benefit from eDNA \(Gordon Luikart\)](#)

Over ten collaborating agencies have sent samples to Flathead Lake Bio Station for eDNA analysis.

New journal defines eDNA as including ancient DNA, non-invasive sampling, diet analysis, metabarcoding, metagenomics, microbial ecology, and pathogens. The strength of evidence depends on frequency and consistency of positive eDNA samples which means more time if something does show up. Evidence is now extensive that eDNA results are reliable. Tow net samples are wash down to bottom of net with distilled water then preserved with ethanol. Filter samples clog after one liter. More eDNA samples from tow nets than filter samples. Use 50-micron net. Tow net filters over 3000 meter (64 micrometer pore size). Paired filter sample of 1 liter.

34 different locations. 3 qPCR results replicate samples for northern milfoil and mollusks. Most filter samples had negative results. Most tow net samples had positives. Tow net samples detect mollusks and milfoil more often. Tow nets detect more zebra mussel DNA than filters at Lake Winnipeg. Based on 13 locations, results indicate that tow nets detect more mussel DNA than filters (based on two filters and one tow net samples per site). Mussels have been at Lake Winnipeg for four years. Samples happened at North Star Lake where mussels are new. Mussels detected at low density in 2017. Based off of five tow nets and five filters, the tow nets copy numbers were in the hundreds but for filters there were only three samples above "background noise" (i.e. 10). 12 locations at Flathead Lake tested twice a year (2012-2015). 20 locations 3 times a year with no positives for ZM or QM, but positive for native taxa. Early detection offers hope.

The DNA tracker conducts quantitative, continuous PCR and is autonomous programmable eDNA sampling instrument. DNA concentration of invasive mussels increases as boat approaches colonies in Lake Mead. Goal: Provide manager with tools for AIS management. 1.) Cell phones apps for early detection and management. 2.) Improve and crowdsource databases for early detection and management. 3.) Predictive models for AIS hotspots. Future research and monitoring could develop decision tree with managers for interpreting and reporting. Test aliquots from existing veligers. Test tow nets for mussel DNA. Compare sensitivity of tow nets, filters, and DNA tracker near invasive colonies. Extend USGS round robin.

### **Q and A**

**Q:** From a state standpoint, different agencies trying to gain this knowledge, someone will want to publish result of eDNA. As state agency, we need to discuss what happens when eDNA is reported as discovery and have operational discussion concerning what happens when this is reported to agencies.

**A:** Scientists report presence/absence, but the management conversation needs to happen. If using same assay or protocols, there are often consistent results.

## Rapid Fire Updates from State and Provincial

### Eric Anderson, WDFW

Puddles the mussel sniffing dog just joined their team with assistance of BOR funding. They are increasing their program profile. In 2008, 3570 boats inspected. In 2018: doubled to 6000 with 8 mussel boat stops/2 quarantines. In 2019, 1024 inspections at 2 stations thus far.

### Allen Pleus, WDFW

Big issues: ZQ mussels, European green crab in Puget Sound, coordination on N. pike on Columbia River, VIDA/Ballast water and state consultation. Did not get their full state legislature budget request, and therefore ballast water inspection position at risk next year.). African clawed frog resources have been spent out. The WA Invasive Species Council is facilitating an enhanced RR exercise (funded by BOR) at Lake Roosevelt this fall. Plans are for a command center, field work with boom, boat containment, and 2 new decontamination stations for the exercise.

### Rick Boatner, ODFW

6 WID stations up and running but not all 7 days. So far 7000 inspect this year, 2 interceptions (Lake Powell and Lake Erie). A drain plug rule passed legislature, and authorization to turn around motorists who go past check stations.

### Tom Wolf, MFWP

2019 new legislation approved \$5.3 million in funding (FWP – 4.6M). Of this ½ funding from hydropower, angler prevention pass, out of state motorized vessel fee, bed tax, general funds (from fee on brokers) with stipulations for on-going funding. HB 608 created mandatory ballast boat decontamination. There are seasonal changes: moving stations, staff reorganization, and added staff for prevention program. Expanded partner participation in station operations and monitoring. Early detection app for partners and public. There is new 310 permit language regarding AIS and equipment. Updating data systems, and the WIT database for 2019. For WID effort there are 120 FWP staff, 60 partners, 9 mussel fouled boats, other partner stations up and running. Exploring additional stations in remote locations using conservation district partners. Monitoring is on-going. On Tiber they are doing aggressive plankton tows, dogs, divers, using UM Flathead eDNA team. If no detection they will ask to lift suspect designation from Tiber/Canyon Ferry. FWP is doing targeted outreach, and coordinated messaging. AIS advisory group to take in stakeholder input and integrating that into the system. There will be a MT AIS Summit in the fall, and production of new Strategic Plan update. Ballast Tank decon – MT has an agreement from ID and WA but will likely not accept because of the complexity of the issue.

### Lloyd Knight, IDA

Up and running for the season. Online dashboard with real time WID station data. Inspected >21000 boats, fouled watercraft data online as well. Just conducted a RR exercise in ID which was a targeted effort at Hells Canyon/Oxbow Dam. Veliger sampling just began, however there is lots of runoff this season. Aggressive effort on aquatic weeds (flowering rush, Eurasian watermilfoil). Ballast boats in some lakes/irrigation districts have started banning ballast boats (shoreline erosion, AIS) but the state doesn't feel like it currently has enough information to weigh in on ballast boat issue. Communication from fouled waters has increased and haven't had a live mussel boat in 4 years. Getting lots of communications about boats headed to/through ID from infested waters. Know that the boats are getting inspected multiple times, and appreciated communications from source waters.

### Martina Beck, BC MECCS

Environmental law enforcement has taken over day to day operation of inspection stations. Aaron Canuel is the inspector in charge. 12 stations running, 4500 inspections thus far, and lake monitoring efforts up and running. Notifications of mussel fouled boats that are shared by partners -- 80% of mussel fouled boats have come with advance notification; a sign that perimeter defense is working. Working on how to address "new" boats (may have been tested in infested waters, etc.) that are being commercially hauled. Develop list/database of info on manufacturers and where they test their boats. This would be a resource for inspectors, help streamline the process, consistency across provinces. Currently, there is a shared form between BS, AB, SK to survey boat manufactures. Other priorities: work with Canadian

border agents, some notifications from ports but some not. This Spring, a federal auditor general report on federal AIS regulations (8 recommendations) was released.

**->> to do: Compile list from states of boat manufactures and if/where they test in mussel fouled boats**

### Q and A

Q: MT regulation of fishing tournament and live bait?

A: We work closely to make sure incoming boats are inspected. Live bait used in E. MT, but there are ongoing discussion concerning how to push regulations on use of live bait.

Q: Does MT have to do ballast tank decontamination?

A: MT will accept Idaho and Washington decontaminations. But soon those coming in will be told to find a decontamination station in MT to use.

Q: Has Idaho looked at boats unloading water for skiers (ballast boats)?

A: Water bodies owned and operated by local districts have banned ballast boats. Ballast boats carefully inspected. Pieces not in place to set up protocol concerning ballast boats. Agency does not have authority to ban ballast boats.

Q: Are lines of communication about found boats open (Lakes Powell and Mead)?

A: Communication has improved. We are hearing more communications concerning found boats coming from out of state. Boats are getting looked at 5-6 times after leaving water bodies and there is interstate communication along the way. Roving crews used at places where you usually wouldn't see inspections.

Allen stated the success in addressing the issue of invasive species since 2006 is commendable.

### Northern Pike Invasion in the CRB

(Holly Mclellan, Colville Tribes)

Lake Roosevelt northern pike suppression work plan includes activities classified as suppression, research/monitoring, and preventative measures. Northern pike expanded and is monitored through predator bites on salmonids and captures. CPUE collected since 2015 and has increased by 2.5 fish. Spoke with regional stakeholders on collaborative effort to address spread of northern pike. 10 boats, 5 agencies, 475 nets and removed 339 pike including 220 females and 2.2 million eggs. 200 meter between each net divided in sections allocated to different agencies. Multiple size classes were caught. Since 2015, 10341 pike have been removed from Lake Roosevelt, 62% via gillnetting. Cannot set gillnets in anadromous zones. There are a number of ways to set up a setline and it does not catch white sturgeon, burbot, or suckers. There are experiments with steel leader, hook size, and bait. Moving forward, pike require plants to spawn so CCT/Okanagan County Noxious Weed Board teamed up to implement herbicide treatment. Set up reward program for pike heads. Ongoing program includes research, monitoring, and suppression (i.e. reservoir wide survey, microchemistry research, eDNA monitoring, DNA studying, public outreach, and securing funding).

### Q and A

Q: Any calculations concerning cost of suppression effort?

A: It is about a million dollars a year. We expect it to cost more.

Q: What management efforts are happening on Lake Rufus?

A: eDNA sampling but no gillnetting. Creel survey are happening.

#### Flowering Rush in the CRB

(Justin Bush, Washington Invasive Species Council)

WA IS Council was successful at securing a “Pulling together initiative” grant. It is designed to address invasive species in cooperative weed management areas. Most CWMA’s geographic scope is only 2-5 counties. There was a need for a more basin-wide approach to dealing with flowering rush, so the council was asked to create a regional or statewide approach for dealing with flowering rush. In 2016, a \$66K grant was designated for the regional need to address flowering rush. The grant was intended to create a group that would exist beyond the funding. There are a number of agencies involved in the group to create a management plan for flowering rush. Tasked with holding a regional flowering rush summit. It was held in February of 2018 and brought people from around the world. Discussion of where and when action needs to be taken within the basin. Following the summit, the group came together to publish a region wide management plan. The plan should be available in July 2019. There are numerous opportunities to get involved. The intention is for this to be a model for other regions. Planning to put together a webinar concerning the CWMA’s actions and the management plan.

#### WRDA Discussion

Stephen Philips (PSMFC) and Marvin Shutters (Walla Walla USACE)

#### Water Resources Development Act: Aquatic Invasive Species

USACE is primary agency for dealing with water resources. Over 130 million dollars a year on expenditure coming from USACE. WRDA aquatic plant control program established in Rivers and Harbors Act of 1958. \$6-8 million in total funding. Recently 14 changes language and broadened scope of WRDA. WRDA FY16 included flowering rush control. WRDA FY18 language added more basins. Authorized for up to \$110 million annually, but with \$12 million appropriated in FY19. Increase for watercraft inspection stations. Implementations of flowering rush control efforts and dreissenid rapid response waiting on NEPA and ESA, and agreements with PSMFC. Basin states were only ones to access the money until later when a national program was added for flowering rush. \$15 million for watercraft inspection and \$3 million for monitoring. In 2017, 3.7 million for watercraft inspections and \$37K for monitoring. In 2018, there was \$4 million for watercraft and \$692k for monitoring. In 2019, \$4.9 million watercraft, \$720,00 monitoring flowering rush added with \$186K. In 2018 there were an increase in inspections and interceptions. In 2018 there were 93 water bodies and 225 sites for monitoring. This should all increase in 2019.

#### Q and A

Q: NEPA compliance and mussel control?

A: Environmental assessment should be out in couple of weeks.

Q: With rapid response, there are tools that the USACE can use, but there are concerns where the 50% match going to come from. Is there an opportunity when going back to congress if when it comes to rapid response there is no match required?

A: We have had partners talk about USACE money that is 75-25 match. There are other agencies. We have a template for going back to congress but WRDA was heavy lifting.

Nearly every USACE program is cost sharing. It varies from program to program (75-25, 30-70, 50-50, etc.)

## CRB Rapid Response Plan Revision

(Lisa DeBruyckere, CRS)

Current content similar to older version, but some areas have been streamlined. States and others have access to latest info and science, plan is focused on CRB. The original plan was put together with help from those in the wildfire emergency response sector, however this emergency response may not be well-suited for AIS response. A complete overhaul proposed to incorporate realistic outcomes, pare down incident command and CRB MAC structures, roles, responsibilities, better align with existing resources and approaches used by states, include a declaration of commitment. Canadian provinces are now included. Agencies involved and criteria used for activating the plan is captured. The revised plan will incorporate the ESA Manual. There is a new graphic to outline the consultation process. Next part of the plan is about implementation using an incident management toolkit.

(Leah Elwell, ISAN)

Historically, incident command has been used in rapid response, which was based on wildland fire protocols. Many resource currently exist to train-up on ICS principles and methods which can be accessed through FEMA site. The revised plan looked to modify the incident command to help it work more smoothly for invasive species rapid response (i.e. we can anticipate that there would be containment and eradication pieces).

(Robyn Draheim, PSMFC)

The revised plan and ICS-AIS structure proposed should still be a seamless segue to ICS. Some of the changes proposed are language and title related, such as unified command structure is now lead action agency representative. Other aspects include some of the familiar roles such as; public information officer, safety liaison, and inter-agency liaison. The proposed structure would include a response team, monitoring team, and containment team. Revision included the creation of incident briefing form to be filled out to identify key information needed concerning RR incident. Equipment inventory, operation and planning worksheet, communications contact list, among others. All forms will be available online, able to be filled out paperless. Hoping that in a general response situation these forms will cover all possible information needed. Tightened up the appendices with sample declaration of emergency and potential resources. Narrowed down to a 65-page document.

## Q and A

Q: Have you considered logistical problems of international and interstate borders?

A: This decision will be up to the responders. There may be an inclusion of RR details based on agreements with shares jurisdictions. This will happen as plan matures. This is not a binding document. It is a mutual agreement. There could be a spreadsheet for shared resources.

Q: Has there been conversation about presenting this to WRP. This information seems like it could be applicable elsewhere.

A: Yes, there is conversations concerning presenting to RR plan revision to the larger interests in the west at the annual meeting. At some point the RR plan will be circulated for comments, but there is no timeline in place.

## ESA Manual Status

(L. DeBruyckere, CRS and T. Thom, USFWS)

Manual focuses on the ESA emergency consultation actions. It is difficult to define an action area. It could be anything within the CRB. Agencies with obligations to ESA cannot give permission for blanket requests. The document provides information concerning potential effects on certain listed species in impacted CRB areas. Manual includes best management practices with regard to certain goals. It contains information on post emergency consultation. Hoping that

both ESA Manual and RR Revision will be available in a single online source. Still working with USFWS Ecological Services. Goal is for manual completed by July.

## Q and A

Q: Is NOAA going to be consulted? Anadromous fish are in the basin.

A: This part is US Fish and Wildlife focused.

Q: To test BMPS we are going to use rhodamine dye. Will that be considered within this document? It is technically considered non-toxic.

A: Yes, we can add a section on that.

## Status of Vulnerability Assessments in the CRB and Status of WID Station Planning in the CRB

(L. Debruyckere, CRS)

Set out to determine vulnerability based on water characteristic of those within the CRB. There was a strategy with energy providers, to do vulnerability assessments in groups. New online map shows current status with vulnerability assessments. Southeast portion of CRB, which is particularly vulnerable, is complete. Working toward completing some in BC. Some of the older assessment could be subject to a new rapid assessment to see if they are still ranked the same. Inter-jurisdictional efforts of Canadian provinces shows presence of mussels from Winnipeg west.

Online map available at [westerais.org](http://westerais.org) shows the location of inspection stations including their hours. There is access to contact information for particular stations and a graph that shows number of interceptions in states/provinces. Looking to produce collected information on sources of fouled boats.

## CRB Team Discussion

Future Meetings, (S. Phillips)

Leah Elwell from ISAN will be point of contact and organizer for CRB Team. Save the date sent out 4-6 weeks before the Annual Meeting. Join the list serv for updates and invites.

## Goals Discussion (T. Woolf)

Identifying common issues to move forward. He suggests agenda items to each meeting based on shared interest among AIS stakeholders. There are more and more inspection stations popping up, so it is imperative that there be more communications between states. A number of states and provinces have information on boat manufacturers. If there are records concerning whether boats have been previously inspected, this information could be shared.

More resources could be pushed toward containment. This works better if people share information and data. More communication with the southwest on mussel fouled boats.

- Martina: Many people are coming from a biology perspective but we are having conversations about enforcement. The conversation could be moving more in that direction. Having a dialogue between division of biology and enforcement increases efficiency. We know which manufacturers are testing in mussel infested waters. This could be a good venue to ask questions of these manufacturers.
- Joanne: We have a boat industry committee at the AIS level. There is a partnership with boat manufacturers. This is a great starting point for asking questions of the manufacturers via ABYC.

- Allen P: Where do boaters go to find information on AIS, decon, and inspection stations? Is there something that we can do to make a centralized hub for boaters to access the information they need. We need to promote clean boaters. This is interstate and this is regional, can we look toward federal partners?
- Lisa: where the best place to look toward to get the issues resolved? Which entity or form are we looking to resolve it? Every state has somewhere for boaters to go to figure out state information on boating. We could create a portal that consolidates access to all of these sites.
- This is a conversation on public outreach. WRP is going to tackle this. How do we engage with boaters on other species outside of mussels? We must also engage tribes in deal with AIS issues.
- Leah: ISAN currently has cleanboater.org that houses this information but targets non-motorized boaters.
- Stephen: This group has been focused on quagga/zebra mussels, but we are going to sprinkle in other species. There needs to be a conversation about where this group is going in the future. We can look at a different structure for discourse within the group. We need action items to figure out how to maximize bang for buck. We may need to figure out what the primary entity is. All information is on the westerais.org website not 100<sup>th</sup> meridian website.
- Mark: we could benefit from a single larger meeting.
- Anthony: What is the most efficient way to do sampling? We could use this group as a combined effort to better coordinate sampling practices. A lot of sampling time is travel time. Better coordination could increase the number of samples and sampling efficiency.
- Stephen: There are only two active basin committees the Columbia and the Missouri.
- Blaine: There are three new representatives from tribes are at this meeting. I want to assure them that there is a vision for the future of our organization. We need to synergize state, feds, and tribes. Thank you to the tribes for being at the conference and we hope you will continue to come.
- Leah: do you see value in a biannual meeting structure? Yes, twice a year is good.
- There is a commonality in this group. We all deal with inspections. We should have targeted meetings. Could be drain hole regulations, etc. These things could sync up our focuses and help us to progress as a region. Just since we started the interstate inspection process has become more efficient.
- There are regulations in some states about having your drain plug pulled. It may be helpful to have people from other basins where there are stricter regulations on pulling your plug.
- What would a meeting look like that combine all of the AIS focuses?
- Flag issues of interest and send them to Leah or Stephen.

#### National and Regional Brief Updates

##### Western Governors Association, (B. Whitacre)

Incoming chair launched key initiatives on AIS. It will be wrapping up next week. After a year, it culminated in four workshops across the west and a series of webinars, five total. Over the last month, we are working to absorb the information and roll it up in WGA policy. Monday the report will be released on the initiative. There are approximately thirty recommendations. This will be of interest to the AIS crowd. A digital copy of the report will be sent around. There

will be a new resolution. Within the report there will be a directive of the leadership forum that will look at the management plans for AIS in the west. This is scheduled for Aug 27-28. Field trip to Lake Mead to look at inspection and decon practices. We hope to have an agenda and registration up soon. May 23rd a letter was sent to DOI, about rapid response and invasive mussels. Looking at how the feds can help state governments when formulating RR programs.

#### H. Smith, DOI, Safeguarding the West

FY2019 budget for invasive species is an estimated \$113 million, of which \$13.3 million for QZ mussels. Looking at all taxa and all types of activities (prevention, control, research, etc.). FY19 Omnibus referred to Committee report direction for federal partners and WGA and states to address rapid response and the Incident Command System (ICS) for mussels. Agencies have formed a federal committee to look at ICS and enhancing capacity for response. Federal participants are invited to participate. WGA and states were also invited to participate. The plan is to build on existing efforts done by CRB such as their rapid response plan, mock exercises, the ESA manual, the WRP rapid response plan, QZAP, etc. An interim report will be delivered to Congress in August.

John D. Dingell Jr. Conservation Management and Recreation Act was enacted 3/12/2019, and contains provisions on invasive species management. DOI is in the process of determining next steps to address those provisions.

Safeguarding the West progress report: Invested \$13.8m in FY2018 to address invasive mussels. Involved 6 bureaus. 32 actions are complete, four changed focus, one on hold and 16 still in progress. There are monthly internal coordination calls. Conversation is also happening concerning how to improve coordination and leverage of investments where appropriate.

#### B. Horsburg, BOR

The BOR Technical Services Center will assess vulnerability of high priority facilities. Nearly all of the high priority facilities in the BOR region have been accessed.

BOR is supporting the detailed rapid response exercise with Washington State.

#### S. Burgiel, NISC

NISC 2016-2018 Management Plan has brought in some priorities including EDRR Assessments, assessment of impacts on federal infrastructure, data mobilization, advanced, biotechnology, a digital makerspace, and transition toward future management plans on a smaller budget. Management plan revision timeline is for fall 2019. There will be a two-part structure, focusing on short and long-term aims. The core priorities for the revision are capacity, coordination, and flexibility.

#### L. Elwell, ISAN

One of the primary documents is the QZAP for Western Waters, developed in 2009. There is now discussion of revision, or revised strategic implementation. A QZAP status report was completed in May 2019. The WRP is in the process to determine next steps. WRP Coastal Committee is finalizing biofouling BMPS guidelines. The Annual Meeting will be October 9-11, 2019 in Missoula, MT with discussions and presentations culminating in a field trip. Join the list serv to stay updated. Mason Parker is new ISAN hire. He will be shifting into some of the WRP responsibilities.

#### B. Shemai, USFWS

An overview of the USFWS Southwest Region's plan for mussel management was provided. Federal funding for QZAP come from grants. Funding requests for FY 2019 criteria were containment and outreach. The diversity of grants that have gone out from FY10-FY17 was shared. QZAP was put into place by Senator Feinstein in late 2000 to get money into the West. Concerning the issue of contaminated watercraft leaving infested waters, we will continue to push for regulation on federal waters. They are supposed to decontaminate boats but there is no law prohibiting it. Every park is different. At many parks it is required that boats get decontaminated upon leaving. There are also state laws that require decontamination. If drones can be banned in parks, we are hoping to similarly tighten up regulations on decontamination. There are now partnerships between National Park Service and states.

#### J. Grady, USFWS

An overview of USFWS Region 6 funding for AIS. The following are most recent past supported projects; long term grant with National Sea Grant Law Center; biosecurity with regard to fish hatcheries; collaboration with ISAN on Don't Let It Loose; ABYC to have industry telling industry about the spread of AIS. There is internal funding of projects as well included eDNA for Blackfeet Nation, non-native trout removal in Rocky Mountain NP, diving team in R6, and working with the National Wildlife Refuge system to develop a panel on AIS. We are still processing grant applications for FY19.

#### N. Owens, Improving Containment at Lake Powell

In early June 2018, due to low water level we encountered floating mussels in the water column, some live and some dead. Adult mussels got trapped in sea strainers. This increased decon and inspection times. Ended in quarantine of boats throughout Utah. We put more staff on ramps and increased staff. Sent letter to every boater in Utah. If adults were being sucked into engines, then they were like getting stuck in ballast tanks. Mussels smaller than adults can be sucked through ballast tubes. 137 boats were placed in quarantine. In marina areas where water is confined, we are starting to see mussels that are floating in the debris. We have to look at washing and removing mussels for all boats coming off the water. Some of the options are cleaning the marina areas. We have found mussels on non-motorized watercraft coming on and off of beaches. We have to remove the shells and fragments before allowing watercraft to leave. Shop vacuums are used to remove mussels while further inspection happens. Live adult mussels are being found on the inside of outboard motors. Technicians were thorough enough to detect mussels on the inside of these engines. Things are being seen at Lake Powell that were not expect and that have not been documented in other places. In the process of contacting businesses and a hiring supervisor position. Also, creating new decon stations along the highways around Lake Powell. There are new dip tanks for decon that we are looking into. We are working with NPS and BOR to go over the efficacy and efficiency of decon protocols. To other states: we are see new things a Lake Powell, but we may need to work with you to distribute this workload.

#### L. Megill, Legislative Changes from NV

NV has a regulation from 2007 that it is illegal to import, export or transport live QZ mussels. NV has been working with NPS to reduce number of infested vessels leaving Lake Mead. We recently implement a pilot program with local boat dealers to look for infested vessels and decon them. This program was successful. There have been other obstacles. Recently, we had many mechanics that would release infested vessels, because they believed they returned to Lake Mead. This is a violation of state regulation. NDOW began working with law enforcement and game wardens to enforce state regulations with mechanics and marina concessionaires. Law enforcement is spread thin, so they cannot keep up with boats that skip inspection stations. Began working in-house to come up with the mechanic's wash. Visited mechanic shop and marina concessionaires that were of particular concern. Offered a mechanic's wash, where they do not have to wait in line. Mechanic wash moves faster than other decon stations (15-20 min). It washed only the exterior. Then information is taken from the vessel to follow up. When vessel returns to Lake Mead the provided seal will be removed and it will be inspected before getting back into the water. There have been fourteen mechanic washes so far with six having checked back into Lake Mead. Satisfied with the results from the mechanic wash pilot program. There is a push for this to become an official part of AIS program at Lake Mead. An update will be sent out if pilot program becomes official.

#### E. Raney, Management Perspectives from AZ

It is important to find a law enforcement champion. There has been an effort to address loop holes, but there are still issues concerning what can and cannot be done. Some of it in regards to legality and some it just practicality. It would be considered illegal search and seizure to have law enforcement at inspection stations. Cannot hire temporary inspectors. We work with partners concerning resources. We highlight our partnership with Lake Powell. Though there are disagreements, they are used as an opportunity to grow and adapt. We keep the disagreement in the family. We had a partner undermining our efforts to contain AIS. It resulted in a delay in implementing inspection stations. Undermining

partners publicly causes delays. Boaters experience at one waterbody can have a ripple effect down the road. If the decon and inspection process is made difficult for boaters, they will be incentivized to do the wrong thing. We don't have a great economic estimate for impact to our region.

#### Seaplanes and AIS

##### Elizabeth Brown, WRP Seaplane Committee Status

Objectives are to provide seaplane pilots with easy access to contact information for western states and infested waters data. The Committee has also discussed the specific risk of different makes and models of seaplanes. In terms of protocol, there is a detailed self-inspection protocol in UMPSIII. When the time is right it can be bolstered. The committee developed a mandatory inspection protocol which went through six drafts. It has not yet been submitted to WRP Ex Comm for approval but will likely be in October. The seaplane pilot could be provided with methods for communicating with states in the form of an app and data forms.

##### Eric Anderson, WDFW

The Pacific Northwest region went forward with a self-certification process for seaplanes. Seaplanes are a vector but we believe the risk is fairly low. Seaplane pilots are not your regular boaters. They are a highly professional group. They have licenses and ratings. Seaplanes cannot fly into inspection stations. Is there authority or time and money? Worked with Bruce Hinds and WA Sea Plane Pilots Association to create annual qualification requirement for self-certifications. Seaplaneaistraining.com provides a number of resources for AIS management and seaplane use. Self-inspection certification and being evaluated by US Fish and Wildlife for including the Stop Aquatic Hitchhikers! logo.

#### Q and A

Q: What are the next steps?

A: We are continually working with WRP on this. There is an informal agreement with states for self-certification process. Seaplane association identified AIS as an issue in 2006. They have been proactive in working with us. Next steps are education. As pilots we would like to know and fix everything. At the WRP meeting last fall one of the key issues that focused on is the panic among water managers. We keep our airplanes clean. We have an app call the water landing directory. Working with USGS to get information needed. Another thing to do with app is early detection and RR, if we identify something else that hasn't been seen, we can use app to report it. We are working in parallel with CRB Team.

Q: How much are you working with pilots in Canada?

A: Not much crossover, but there is communication with group from BC.

#### Development of an AIS Action Plan for Lake Tahoe (L. DeBruyckere)

Retaining the integrity within the Tahoe Basin is important for the economy of Lake Tahoe and as a water source. During last decade there has been a management issue within the Tahoe Keys. It has been labeled an environmental disaster. It has more than 99% infestation of aquatic invasive species. The Lake Tahoe AIS Action Plan is the third in a trilogy of documents. The core elements of the action plan are meant to have a clear understanding of success.

A survey was given to regional stakeholders to meant to better understand how they define success.

The most uncertainty is associated with those species over which we have little control. They feel better about those AIS that have been better controlled. Large numbers of people are but satisfied and dissatisfied with funding going toward AIS. Most funding should come from government on every level. Fair amount of dissatisfaction about the current metrics for invasive species management. Therefore, there was the creation of new proposed metric. There is a level of details needed to get funding for future projects. There are two phases based on first five years and second five years. To administer this plan, it will cost over \$72 million over ten years. Looking at the status of infestations and update annually.

### Legislative Update (S. Phillips)

FY2020 appropriations has kicked off with a lot of good news for many agencies. Two spending bills have already been passed. FY2019 was \$21,748,00 and FY2020 is \$26,301,000. Service is encouraged to pursue technologies to aid in the elimination, mitigation, or control of aquatic nuisance species. Specifically: NPS \$3,000,000, USGS \$21,392,000, BOR \$1,632,849,000 (?), BIA \$8,773,000. In VIDA there is a grant program for coastal invasive species. USACE \$18,000,000. The democrats and republicans work closely on water projects. Aquatic Plant Control Program. \$3 million for monitoring. \$15m for watercraft inspection stations this include rapid response funding. Aquatic Nuisance Research Program: Money for harmful algal bloom. The house language takes the lead. Flowering rush is senate language not house language. The party has to agree to come up with an amount. Go to congress budget section in AIS news westernais.org website. Passed legislation: 106<sup>th</sup> congress S 47 John D. Dingell, Jr. Conservation, Management, and Recreation Act. Coming up with another strategic plan to address this legislation. DOI talking with budget department. There is a cross budget put together for invasive species. When there was an intentional look at cross categories we were in compliance with legislation, but there is some concern about being locked in in the future if there is additions or reductions to appropriations. USGS is 100% research so it is out of compliance for the recommended spending guidelines. Still in the process of interpreting the language.

### VIDA Vessel Incidental Discharge Act (A. Pleus)

Covers multiple types of discharges including ballast water. Here are multiple places that discharges can come off of a boat/vessel. There are issues with invasives and water quality. There are a number of risks in ballast water. There are mussels but also bacteria, larvae, viruses, phytoplankton, and zooplankton. There are different players involved with VIDA and they have played different roles over time. There will be no immediate change. EPA will begin to implement over the course of two years. Coastal AIS Mitigation Act funding is going through the National Fish and Wildlife Foundation.

Next steps and timeline: Communicate with ANSTF to request information. There is a lack of understanding what the Intergovernmental Response Framework provision is. It is concerning when the Coast Guard becomes an advocate of a private industry and deny FOIA requests. They are saying it meets the standard, trust us, but they are not giving number concerning how well they meet the standards. We would like to know how well people are meeting the standard so we can see the standard to set.

### Night inspection stations and Brokers discussion

Washington did a pilot night inspections 3-4 years ago. They found it was helpful, but there is less bang for your buck the later it gets. After 11pm-4am, there are far fewer people. There are logistics such as safety and lighting, there are new dimensions to checking a boat in the dark. Late evening and night patrols aren't getting interstate travel but more local boaters.

In BC there was a pilot program in 2016 and they ran 24/7 inspections in 2017. There were concerns about health and safety including snow storms. It was put into a well-lit rest stop. To add new inspection stations where there is not current infrastructure would require lots of money and resources. Inspectors caught napping overnight. It is hard to keep people focused when there is less traffic. There is pressure from stakeholders to expand the 24/7 inspection stations. BC will likely expand these stations, but there are ongoing problems that need to be addressed. In some places there is not infrastructure to support these inspection stations. Need 12 officers to run a 24-hour inspection site. It requires advanced signage. It looks good on paper, but it is more difficult in practice.

Idaho can echo many of the concerns voiced by BC. Started a pilot that lasted two months. The demographic was interesting, people are tired and it gets quiet between 12-4. Encountered 5 mussel fouled boats overnight. All came in between 6am and midnight. Running the site 24/7 this year. There is pressure from different angles that have interest in running all stations 24 hours/365 days. Could capture some data for jurisdictions interested in opening overnight inspection. Dawn to dusk means the period where there is enough light to start inspecting. They begin shutting down when it begins to get unsafe to take down cones and signage. It is two 8 hour shifts. Usually 15-15 ½ hours a day total. It is more expensive to run at night. They have been spending \$50 dollars a day for lighting unit. Higher costs for law enforcement and labor. There is a higher per hour cost to run at night. Idaho also got 95% of traffic caught during their pilot.

Confederated Salish Kootenai Tribe uses construction lights. 95% of the traffic would have been caught in 15-hour day. Idaho also got 95% of traffic caught during their pilot.

-> **to do: Compile information from Idaho, BC, Alberta, CSKT and any others on night station information.**

Jenny Jarvis, Geofencing and Mobile Technologies for Watercraft

AIS Solutions was started by a boater from Canada man who experienced many frustrations at boat inspection stations, and another man who was an inspector at Glacier. CleanPass works with some of the same elements as TSA's pre-check. You pay for the privilege of being streamlined through inspection stations. The watercraft owner registers within the system, and a device is attached to the boat. It is a low energy GPS beacon. Visited bodies of water have been geofenced. The owner can utilize a device to track where they have visited and if they AIS in the area. The device is scanned by inspector's devise. It is all encrypted information. The inspector sees a display detailing where the boat has been (i.e. an infested body of water), which leads to a green or red light. The technology is waterproof, and it should last a year, possibly two. It communicates to inspector app using Bluetooth technology. The tracking aspect will work anywhere through GPS. There needs to be wifi access at the inspection stations. The inspector app can be on tablet or phone. Some places have had trouble with sensitive firewalls, so the tech would be provided. It will track forever as long as battery runs. It will have more than the thirty-day history. It is customizable for the needs of different regions. How are inspectors supposed to be able to identify all AIS? All of this information would be available digitally through the app. This helps things move faster at inspection stations. The boat owner pays for device. There has to be an incentive for boat owners to want to invest. Moving through inspection stations quicker would be that incentive. Rapid response aspect is important because information is shared seamlessly between inspection stations and those working them. This takes away the burden of sharing information and data. It is done automatically. Looking to do a pilot study with volunteer inspection stations in Whitefish, MT this summer. Information is available at [www.aissolutions.org](http://www.aissolutions.org).

## Q&A

Q: Could express lines at inspection stations be an issue?

A: Whitefish has a smaller operation, but we would need to evolve with an express lane.

Q: Can devise be tampered with?

A: There has been issues with people tampering with devices. There are other methods being looked at for attachment (i.e. metal ties).

Q: What is the cost?

A: The target price is \$20-30 for each unit. \$30-50/yr. for monitoring. It is totally free for the pilot study.

Q: Where is AIS information coming from? If battery dies does history transfer?

A: History is transferred through registration number. AIS information is being pulled from official websites for Montana.

Q: Linking to watercraft registration... what about non-motorized?

A: It would be easier to come up with a way to use registration across the board.

Q: Focus groups?

A: Haven't gone as far as formal focus groups, but have talked to people and legislators. Also in communication with boats manufacturers. Also real estate owner because of potential impact on property values. There are typically concerns about tracking.

Q: At what point do boaters want to buy into it? State, regional national?

A: The bigger the better. We would like it to be voluntary. Some people would start then there may be a snowball effect. It is most effective if many people do it. It is also helpful for inspectors to more people that do it.