

PNW Native Freshwater Mussel Workgroup
Quarterly Meeting
Monday, December 7 at 1:00 Pacific Time

Attendees: Emilie Blevins, Kris Schidel, Jennifer Poirier, Michele Weaver, Patty Morrison, Al Smith, Jodi Bluhm, Rebecca Paradis, Dave Cowles, Laura Johnson, Joel Sauder, Ali Helmig, Elizabeth Torrey, Kevin Aitkin, RD Nelle, Marie Winkowski, Sarina Jepsen, John Hineburg, Fred Haskell, Teal Waterstrat, John Erhardt, Alexa Maine, Courtney Newlon, Julie Tyson, Celeste Mazzacano, Trevor Griffiths, Barbara Kelly

1. An update on the FMCS virtual symposium (Patty Morrison)

Alexa and Patty are on the planning committee for the 2021 FMCS virtual symposium, following the postponement of the Portland meeting until 2023. The symposium will be April 12-14, 2021. It will include a combination of live presentations and asynchronous presentations that can be viewed on your own time. Presentation formats include traditional 12 minute, 5 minute lightning, and recorded poster presentations. The goal is to share information among the freshwater mollusk community. The FMCS newsletter provides information, and Patty has some additional updates she can share with the listserv. Registration will be \$20 for members and \$5 for students. This is a great opportunity for folks to join FMCS. Laura asked: if someone had submitted an abstract to present to the PNW mussel symposium, would they need to submit a new abstract. Patty said that this is a completely different meeting and the process will be different. Folks should submit abstracts following guidelines for the new symposium call for abstracts.

2. USFWS email issue (Emilie Blevins)

During the 2020 transition of USFWS email providers, it appears that workgroup members with USFWS emails lost access. It looks like re-subscribing these email addresses to the listserv is working. Workgroup members should check that listserv emails are not being marked as spam. Also, if you think you may no longer be receiving workgroup emails or would like to subscribe using a different email address, just email the workgroup chair.

3. A recap of the recent USFWS staff internal agency mussel meeting (Courtney Newlon)

Following the petition for listing *Gonidea angulata*, USFWS wanted to increase internal communication about Service-led mussel projects, expertise, or information. Courtney Newlon, Doug Nemeth, Teal Waterstrat, and Miranda Plumb of USFWS collaborated to form an internal FWS workgroup. The goals are to identify priorities and share information among Region 9 USFWS staff interested in freshwater mussels. The group had its first brief meeting September 29. Some people in the group are new to mussels while others may have been working with them for years. Down the road, the intent is to collaborate on setting USFWS regional priorities and plans. There is also a national USFWS mussel working group as part of the fisheries program. Ann Gannam and Doug are contacts for this in the region. The national USFWS mussel workgroup has a strong propagation (hatchery and culture) focus. The plan for the Region 9 group is to meet at least annually, and otherwise as needed.

Rob asked about the differences between the USFWS group and the PNW native mussel group. Courtney clarified that it is an internal agency group for OR, WA, and ID (DOI Region 9/Legacy Region 1). Because it is internal, she can report out from those meetings but it is aiming for FWS staff. Rob also

asked if it is affiliated with the webinar series. Courtney said that it is not affiliated with the series, as that is through the FMCS and USFWS NCTC. However, she agreed that they are a great resource. Rob is pleased to hear about this and there's a lot of interest in his area. Courtney can connect Rob to who in FWS in Snohomish might be working on mussels. Teal said he is probably the closest geographically to the Snohomish and could talk with Rob more.

4. Introduction of new WA state mussel biologist (Marie Winkowski)

Marie has a new role at WDFW as of March: Washington's native freshwater fish and shellfish specialist in the fish management division. For people who knew Molly Hallock, this is a version of her position. Marie will be helping to coordinate freshwater mussel work within WDFW. Similar to the USFWS effort, she is looking to coordinate with agency staff and review at data collection efforts. She will share her email address with workgroup members. Teal said congratulations on the new job!

Rob brought up the topic of recreational mussel harvest in Washington and wondered if it is an issue or allowed since he is aware of crayfish harvest. Teal and Kevin said it is prohibited in WA and OR. Sarina pointed out from Xerces' petition that recreational harvest of western freshwater mussels by the general public is prohibited in Washington and Oregon's fishing regulations. Nevada, Idaho, and California do not prohibit recreational harvest. Ali said in Nevada she doesn't know of any recreational harvest issues. Emilie brought up the workgroup's discussion last year about recreational mussel harvest in Idaho and about reaching out to the state-may want to revisit this.

5. Discussion of past (Elwha) and future (Enloe) dam removals and mussels (Teal Waterstrat, Rebecca Paradis, Dave Cowles)

Elwha: Dave became interested in mussels around the time that the Elwha dams were being taken out. Pre-removal surveys found no mussels in the river above the lower dam, which could be due to the fact that the Elwha dam has blocked salmonid migration for so long or because flow of fine sediments has been restricted by the Glines Canyon dam upstream so there was not much habitat for them. There are not many side tributaries above the lower dam (Little River, Indian Creek). No mussels were found in a survey of several miles of Little River, although *Anodonta* mussels were present in Lake Sutherland, which is drained by Indian Creek. His surveys found a few hundred western pearlshell mussels in the lower river scattered over several spots between the Elwha Dam and a water diversion by a fish raising facility. They also found ~5,000 mussels near the river, in and around the water diversion in an area that was going to be bulldozed and dewatered. This area is just north of the WDFW Chinook hatchery. Fisheries biologists were unsure of moving the mussels into the upstream tributary, so volunteers could only move them near the mouth of the river. Those assisting included NPS, FWS and WDFW staff, Lower Elwha Klallam tribal fisheries biologists, Peninsula College students, and others. Mussels were transported to some of the side channel areas and were tagged and measured. Dave's group found one year later that there was high predation in the shallow transplant area. Additionally, in the second winter there was a major flood that obliterated the habitat the mussels were in and they were wiped out. The waterworks are now quite different than they were (dry most of the time now). Dave is interested if mussels are left there and would like to survey there and below the dams.

Rebecca is a biologist with the Lower Elwha Klallam Tribe and actually helped as a student with the translocation. She has not found live western pearlshell in Indian Creek, just shells. She has not seen any live western pearlshell anywhere in the watershed. She has seen floaters in Lake Sutherland and in a

beaver pond below the lake. She has also seen western pearlshell in the nearby Lyre River, which drains Lake Crescent and is not directly connected to the Elwha watershed. Pat Crain and his crew from NPS are also keeping their eyes open for mussels. Rebecca is applying for a tribal wildlife grant to look for mussels, to do eDNA, and is interested in translocation efforts if they are not found. She and Dave discussed collaborating on future efforts.

Teal said it is exciting that mussels have been refound in the watershed and is an interesting opportunity to study what has happened since dam removal. He asked if Rebecca works with Mike McHenry (she said yes).

Dave asked about how thoroughly Indian Creek has been surveyed. Rebecca said she has been up and down many times and seen lots of otters. Habitat is really slow, fine sediment. She commented it seems like strange habitat for western pearlshell. She has not surveyed below the Elwha dam or a few hundred yards above the diversion, where they used to be. One of the places where mussels were relocated ended up being inundated with feet of sediment.

Dave commented on an emergency salvage of 200 mussels in the river at the diversion where they had dewatered, although the mussels may not have survived. Rebecca mentioned she is curious if there were mussels above the dam. If they live a long time, why wouldn't there be a remnant population?

Dave said he surveyed between the dams but didn't survey above Glines Canyon Dam before the dam removal. The river bed between the dams was mostly coarse cobble with little fine sediment, so they could have been washed out. He was hoping to find them near the upper end of Lake Aldwell where the highway crosses the river because some watered side channels, but did not find any there either. He has not conducted any surveys above Lake Mills. Rebecca may target that with eDNA.

Enloe: There is renewed interest in the removal of Enloe Dam on the Similkameen River, Okanogan County WA. Previously, WDFW investigated the impacts suction dredging on freshwater mussels in Similkameen River and sampled sites above and below Enloe Dam. The dam may be removed in the future. The study was 15 years ago but it is possible no one has returned to visit those sites. Teal thought it would be a unique opportunity to look above and below, as well as to implement post-dam removal monitoring and provide conservation recommendations for the removal itself. Teal did contact the authors of the paper ([Kruger et al. 2007](#)) to let them know. He is unsure when the dam removal would occur.

RD said that his office is engaged in work in the area. He has done a fair bit of bull trout sampling in that area. His group will try to be engaged in the project. John said he is familiar with the Sinlahekin, which flows into Palmer Lake then into the Similkameen. He said there are healthy populations of all 3 genera of freshwater mussel further upstream. The dam was built on top of an existing waterfall, and it would be important to track sediment moving from the site. There is not much of a reservoir, and it is mostly filled in. In the past there were proposals to consider increasing the height instead of removal, although those proposals may not be on the table anymore. There are native fish above the dam, and during glaciation, the river had many different courses. Unsure how long the river has taken its current course, but probably thousands of years. Rob said the dam was built in 1923. He thinks one of the things we are missing is age class information to understand whether mussel communities are self-sustaining. Dave said he tried to do that at the Elwha by looking at shell rings. They used other estimates correlating length to age of mussels and found a wide range of sizes. At the hatchery, there was an abrupt cutoff at

a particular size. The site had been dewatered in 1970, and that seemed to correlate with the size distribution. They also found what they thought were 110-year-old mussels in the river. However, western pearlshell can grow much faster in some warmer streams.

Laura said that it's important to look at recent reproduction and smaller age classes. The size to age ratio is best for those smaller age classes. For juvenile *Anodonta* and *Margaritifera* she found this to be consistent. Growth seems very dependent on food and temperature, and that differs across rivers. Rob said that Celeste's talk at PNW SFS suggested that different basins may have different age/shell length correlations, and Celeste agreed that it needs additional study. Laura measured mussels in the Umpqua basin and especially the South Umpqua. She found that the North Umpqua is much colder but that mussels trended old and small. In warmer and more nutrient rich water, the better growth rates. Emilie mentioned that Oregon State has some equipment that is useful for aging mussels.

Rob also brought up the Kettle River, which he called the twin to the Similkameen. Someone has studied mussels there from a BC research group. It doesn't have a dam but does have falls that are impassible part of the year. He thought it might be good to study in the future.

6. Emilie shared the following City of Boise update, provided to her by Dorene MacCoy

Dorene is working with Dave Hopper from FWS in Idaho to develop a statewide mussel group to deal with issues in our political jurisdiction. She is also hoping to plan additional monitoring (both visual and eDNA data collection) on the Boise River next year. She is working on a monitoring plan with Matt Laramie with USGS Forest and Rangeland Ecosystem Science Center (FRESC) and David Pilliod, the local eDNA experts in Boise.

7. An update on PNW/FMCS affiliation (Emilie Blevins)

Emilie provided an update from the last discussion regarding the PNW Native Freshwater Mussel Workgroup/Freshwater Mollusk Conservation Society (FMCS) affiliation. During 2020, members of the FMCS ad hoc "Chapters" committee, representatives from the ExCom and interested regional mussel groups met on various occasions to review possible structures for developing regional subunits under the FMCS umbrella. These included interviews with representatives of the American Fisheries Society (AFS) (national and Western Division), the International Association of Landscape Ecology, and a nonprofit lawyer, Michelle Anderson. The issues considered include liability, fiscal agency, administrative burden, independence of units, and participation. Five legal and fiscal structures were evaluated for these issues. The recommendation of the committee is to pursue establishment of committees, referred to as "Divisions," to parallel the AFS unit structure, rather than to establish legally separate "Chapters" that would be subject to IRS scrutiny. If it is agreed upon by the FMCS board to proceed with Division formation and if regional groups are amenable to the approach, the Chapters ad hoc committee could next draft language for the Society's bylaws using the AFS template constitution as a template: <https://fisheries.org/about/governance/constitution-and-rules/>.

Emilie discussed the next steps for developing the affiliation, which includes developing the specific by-laws and structure for both the workgroup as a Division and for the parent society of FMCS. She requested feedback from workgroup members on the approach, including the discussion of becoming dues-paying members of FMCS (the plan, but perhaps with an "introductory rate") and in maintaining the listserv for people to keep up to date on mussel news, even if they do not intend to become FMCS members.

Rob asked about how aligned the Division's regional goals would be with FMCS. Emilie replied that they are interested in our region, and we would work to collaborate on issues. Michele also brought up that FMCS also covers freshwater snails. She asked if we become a regional division, would that mean we expand our focus to include snails. Emilie said that yes, this would expand the focus, although we could have subgroups within the Division focused on specific topics or issues.

Kevin brought up how transitioning is important because we have had challenges with being able to accept and hold money to support our initiatives, including holding meetings. He thinks that we should consider incorporating terrestrial mollusks, too. Patty commented that there are some people in FMCS working on land snails. One of the workshops they hosted in Alabama included a session on land snail ID. Folks with those interests are more than welcome.

Kevin brought up that it has been at least 4 years since we started working on this transition, and he thinks this is a good path forward. Emilie will provide more information after following up with the FMCS board. The workgroup can start collaborating on the specifics of the Division affiliation. More information soon.

8. Other business

Dave asked if anyone is aware of an eDNA test for *Corbicula*. Someone mentioned that WSU might have an assay. The contact suggested was Karen Goldberg. Kelly Careem from RMRS was also suggested.