



Hood River
WATERSHED GROUP

Hood River Watershed Group

*"...to sustain & improve the
Hood River Watershed through
education, cooperation, & stewardship"*

MAY 24TH, 2022 MEETING MINUTES

Watershed Group Members Present

Chuck Gehling	Cindy Thieman	Alix Danielsen	Ryan Gerstenberger	Megan Saunders
Brian Nakamura	Chuti Fiedler	Greg Short	Dick Iverson	Patrick Hayden
Heather Hendrixson	Kevin Liburdy	Kate Conley	Gary Asbridge	Smita Mehta
Lisa Naas Cook	Larry Teeter	Dan Ball	Dan Mason	Lauretta Burman
Les Perkins	Kathryn Arendt	Sam Doak		

** This meeting was conducted virtually via Zoom.

Welcome and Introductions

At 6:03pm, Chuck Gehling welcomed everyone to the May meeting. There were 22 people in attendance. Cindy introduced the speaker.

Monthly Informational Presentation

Dan Mason from the USDA National Genomics Center presented on *Using eDNA to understand fish distribution in the Hood River Watershed and across the Western U.S.*

The National Genomics Center for Wildlife and Fish Conservation was established in 1998 to focus on genomics, phylogenetics, phylogeography, population genetics, landscape genetics, non-invasive (forensic) genetics, and environmental DNA for fish and wildlife research. Dan explained that these tools are used to study rare species that are the most sought after for research but the hardest to track. As a result, these species are often studied infrequently and in small sample/geographic sizes.

Since 2015, the Center has used eDNA for aquatic species of concern. eDNA is DNA that has been shed from the cells of an animal into the environment. Researchers recover this media from many different mediums in the environment and analyze it a laboratory.

eDNA assays are used to isolate and amplify the DNA of a specific species. The process used is a quantitative PCR test, similar to what is used to test for COVID. These tests are extremely sensitive and can detect a single copy of a DNA fragment, or a single fish the size of your pointer finger if the sample is located within 100 meters. This is more than enough sensitivity to detect population level data.

eDNA samples can be collected cheaply and simply, and collection does not require much training. On the other hand, eDNA can't provide absolute abundance information or identify a specific animal. It can identify relative abundance information, and fin clips can be used for specific identity information. It's particularly useful for large sample areas (like a state or range).

The data is being put into context using the Aquatic eDNA Atlas, which is an ArcGIS online platform. Dan walked the group through the Atlas for the Hood River Watershed, pointing out detections for Bull Trout and other fish.

Once the bull trout assay was established, the Center was able sample for and detect bull trout throughout their range much more effectively and efficiently, and the Atlas now has a very robust data set for bull trout detections and non-detections.

Dan also introduced the Climate Shield Cold-Water Refuge tool, which is used to predict the probability that a stream will be able to support rearing of cold-adapted species across several different climate scenarios. Dan walked the group through several scenarios for bull trout in the Hood River Watershed.

Dan also showed the group Pacific lamprey results for the Hood River Watershed. They have been detected in the Bonneville Pool and other tributaries, but otherwise the Hood data is limited. This may be because of the Powerdale Dam removal over 10 years ago and the population reestablishment over time.

The bull trout and lamprey surveys are very large scale, range-wide efforts, but eDNA methods can be useful on small-scales too, including detections above and below a barrier, invasive species detections after eradication efforts, and for other species (frogs, turtles, mussels, and even terrestrial mammals over snow tracks).

Dan is currently working on expanding the number of species that the Center has assays validated for and looking for opportunities to increase analysis efficiency and decrease costs in the lab.

Cindy asked about the process for determining relative abundance. Dan explained that quantitative PCR methods allow for the estimation of the initial concentration of DNA in a sample. If samples are run with a reference curve of different concentrations, the unknown environmental concentration can be identified. Dan showed an example of relative abundance data for brook trout and cutthroat trout.

Dick Iverson asked about the technology of zeroing in on specific genomes when many of the species being studied may have a large portion of overlapping genomes. Dan explained the PCR stands for polymerase chain reaction and the process uses an enzyme called polymerase to make a lot of copies of DNA from a few initial copies. If there is existing DNA sequence data from a particular species (cutthroat or bull trout), a short piece of DNA called a primer can be designed to match whatever sequence you would want it to – a perfect match for bull trout in a section of the DNA sequence that does not overlap with cutthroat trout DNA, for example. Dan noted that you don't need to have a full genome sequence to use eDNA, and instead can have as few as 500 base pairs out of millions.

Dan Ball asked whether this technique has been used for aquatic weeds. Dan mentioned that it has been used for Eurasian milfoil and maybe others, but not as much due to cost and priority. The technology can be used for this purpose, as long as the species (animal or plant) puts off enough DNA into the environmental medium.

Cindy asked about using eDNA for mussels. Dan noted that the Center is doing a lot of analysis for Western Ridged Mussels and others, and eDNA works very well for detecting them.

Kate Conroy asked about the Pacific lamprey data and her impression that there were more detections than what the eDNA data had shown. Ryan Gerstenberger noted that the CTWS lamprey program has shown a much wider distribution which is likely a result of only conducting eDNA sampling on Forest Service lands and the reestablishment after the Powerdale Dam removal. The Center will be doing another round of sampling with a more focused survey.

Cindy noted that the Forest Service and the Tribes are interested in continuing with eDNA sampling and asked about summer steelhead sampling when snorkel surveys aren't ideal. Ryan also asked how eDNA can be used to tell different subspecies apart, or the difference between summer and winter steelhead. Dan answered that you can tell different subspecies apart but cannot distinguish between different run times. Run timing markers rely on genomic-scale data, requiring hundreds of thousands of base pairs, which is outside of the eDNA capability.

Greg Short asked whether eDNA can be used for aquatic birds. Dan noted that the Center has used the method for Harlequin ducks but determined that it's easier and more efficient to use visual surveys.

Dan Mason: daniel.mason1@usda.gov

eDNA Program: <https://www.fs.usda.gov/rmrs/ngc/ednaAquatic>

eDNA Atlas: <https://usfs.maps.arcgis.com/apps/webappviewer/index.html?id=b496812d1a8847038687ff1328c481fa>

Cold-water Climate Shield:

<https://www.fs.fed.us/rm/boise/AWAE/projects/ClimateShield.html#:~:text=The%20Climate%20Shield%20website%20h,Trout%20across%20the%20American%20West.>

Review and Approval of Last Meeting Minutes

Chuck asked if there were any corrections to the April meeting minutes. The group approved the minutes.

Old Business

A. Extend existing SWCD/HRWG fiscal & employment agreement until new agreement is signed (second consensus)

Cindy shared the suggested amendment with the group, which was developed with the SWCD. The amendment notes that the HRWG staff would remain employees of the SWCD until staff become employees of the HRWG, and the SWCD will remain responsible for fiscal management, reporting and accounting, and invoicing and payment for the HRWG until grants and contracts are closed, completed, or transferred to the HRWG.

The group provided second consensus to extend the existing agreement with the proposed amendment until a new agreement is signed.

B. Founding HRWG board members (second consensus): Chuck Gehling, Les Perkins, Greg Short, Sam Doak, Chuti Fiedler, Ryan Gerstenberger

Cindy noted the Kate Conley has decided that now is not a good time to commit to the board, and Gary Asbridge declined a board position but is interested in the Board Development Committee.

The founding board list is as follows:

Chuck Gehling
Sam Doak
Chuti Fiedler
Greg Short
Les Perkins
Ryan Gerstenberger

The group provided second consensus to establish the founding board as listed above.

Cindy noted that the board will need a chair, a secretary, and a treasurer, and asked the founding board to think about their interest in any of those positions for the next meeting.

New Business

A. Review of timeline and steps for 501(c)(3) start-up

Cindy shared the working timeline and walked the group through the details of the draft monthly plan (see timeline for full details).

Cindy shared that the contract has been signed with the Center for Nonprofit Law (CNL). CNL is poised to file articles of incorporation ASAP, likely by June 1st. After the articles of incorporation are filed, there will be a bylaws design meeting with CNL, forms will be filed with the IRS for the EIN, and then the organizational meeting will take place (late June). This is the first official meeting of the board and includes the adoption of the bylaws.

Sam Doak asked about whether there was a limit on the number of board trainings that CNL will provide, and Cindy noted that it would be useful to record the training to share with future board members. Cindy will ask CNL about this.

Heather Hendrixson asked if she could attend some of the bylaws development and other CNL meetings to ask questions, etc. Cindy noted that an extra 10 hours was approved for additional help outside of their usual process, including questions and MOU development.

Brian Nakamura suggested that new board members should consider other CNL recording offerings for board members.

Sam Doak suggested having a discussion about and perhaps even a training about officer responsibilities as part of the initial organizational meeting. Cindy agreed and mentioned she would be developing position descriptions ASAP.

Cindy suggested a potential board/public meeting format, with the board meeting starting at 5:00, serving dinner at 6:00pm, updates starting at 6:15, (6:50: set-up speaker), and a public presentation starting at 7:00. Chuti Fiedler and Dick Iverson expressed support for the idea. Sam Doak noted that with this structure the board meeting would have to stick to the schedule to not run into the presentation. Les Perkins noted that a business meeting should be kept to an hour, and if dinner follows, that would lead to a 3-hour commitment. Dick likes the idea of the presentation at 7pm and wondered about separating the presentation from the board meeting. Megan Saunders expressed support for the proposed structure.

B. June HRWG meeting: Restoration field trip or Zoom presentation?

Cindy suggested a tour of the West Fork at Red Hill project in place of a public presentation. The group was in support of a tour leaving at 5:30pm.

Reports

Cindy shared that the HRWG was awarded a \$30,000 grant from the Jubitz Family Foundation. The Network of Oregon Watershed Councils is the fiscal sponsor for the grant. The grant is awarded as a lump sum with a final report at the end of the grant period.

Alix shared that the HRWG was awarded ODFW \$97,000 in design funding for the Tony Creek Fish Passage Project and the project is underway.

Announcements

Les reported that the Kingsley campground should be open July 1st.

Summary of Consensus Items and Establishment of Next Meeting

Items that Received First Consensus:

None.

Items that Received Second Consensus:

Approval to extend the existing agreement with the proposed amendment until a new agreement is signed.
Approval to establish the founding board as listed above.

There will be a project tour in place of a presentation/meeting on June 28th at 5:30pm.

Adjournment

Chuck thanked the group for attending and adjourned the meeting at 8:12 pm.

Reported by Alix Danielsen.