Behind the Scenes

August 2019

Friends of the LWC
LUCKIAMUTE WATERSHED COUNCIL

Dear Friend,

As the fall season approaches and our waterways are at their lowest levels, in-stream work is now ramping up for many of our restoration projects. For our South Fork Pedee Creek project, large logs are now being prepared for placement into the stream channel. These logs will provide food, shelter and rearing habitat not only for salmon, trout and lamprey, but also for a wide variety of aquatic insects, amphibians, birds and mammals.

And a BIG thank you goes to all of you who filled out our Love Your Watershed community survey! A total of 76 responses were recorded, all of which will give us ideas for some new topics and venues, and help us continue to improve our event line-up. Speaking of our events, this is a great time of year to explore some of the beautiful natural areas found within our watershed. Be sure to check out our 2019 - 2020 series of Love Your Watershed events at https://www.luckiamutelwc.org/loveyourwatershed.html for some terrific opportunities to get outside, and to learn more about our watershed!

Happy reading,

--Suzanne Teller, LWC Outreach Coordinator (contact me at Outreach@LuckiamuteLWC.org or 503-837-0237)

Upcoming *Love Your Watershed* Events

Community Crush!

September 14 @ 10:00am - 5:00pm
Spiritopia (720 NE Granger Ave Bldg B, Corvallis)

Join us for a free, family-friendly apple harvest and pressing day at Spiritopia Distillery and E.E. Wilson Wildlife Refuge! All apple-pickers will enjoy the fruits of the day's labor with a free glass of fresh cider or, for those 21 and over, a sample of pommeau (cider plus brandy). Better yet, you'll be sipping that apple-y goodness knowing that donations and a portion of additional sales will go to the Luckiamute Watershed Council in support of watershed conservation! Get more details at ***http://www.spiritopia.com/1st-annual-community-cider-crush-91419-10-5pm/***

Fall Bird Walk at Talking Water Gardens

September 29 @ 8:00am - 12:00pm
Talking Water Gardens (577 Waverly Dr NE, Albany)

Join the LWC and local bird expert Joel Geier as we explore the City of Albany's water treatment wetland, and the many types of birds that live or migrate through here. Natural Treatment System Specialist Joe Deardorff will also talk about the history and creation of Talking Water Gardens, and the many benefits it provides to watershed health. Early-bird registration open for ***Friends only*** *at* ***https://www.luckiamutelwc.org/fallbirdwalk-friends.html***

Luckiamute Lamprey Survey Goes Hi-Tech with eDNA

by Kristen Larson

The Pacific lamprey is a 650-million year old, anadromous fish that lives in the Luckiamute watershed.

Aquatic ecosystems are vibrant and diverse. Even if we only consider the macro-organisms – those we can see with our naked eyes – there is a dizzying array of life. Immature stages of aquatic insects such as caddisflies and dragonflies, freshwater mussels and other invertebrates, plants, amphibians, reptiles, fish, birds, and mammals all depend on each other for food, nutrients, habitat, and in some cases, transportation.

For organizations working to manage and restore these ecosystems, knowing what is present and what is not present is very important. For example, a watershed council might be interested in collecting information about the presence and distribution of steelhead or cutthroat trout in their watershed. Another focus could be screening for invasive species we hope we don't find - one example might be the aquatic invasive plant water primrose (*Ludwigia spp.*) currently invading the Willamette River.

Traditionally, field crews would gather this type of species distribution information through stream surveys – using visual observations, electro-shocking, fish traps, snorkeling, seining, or some other method. For example, from 2008 to 2011, the LWC contracted with a fish biologist, Steve Trask, and his team to conduct "rapid bioassessment" snorkel surveys in many parts of the Luckiamute watershed. The team snorkeled every fifth pool they found during summer months, recording counts of steelhead, coho, cutthroat, and salmonid juveniles too young to be identified. This method gives us numbers for about 20 percent of the area of interest, which are then used to estimate the total numbers for each area. This type of survey provides valuable data on where fish are hanging out and in what numbers, but it is also very time and labor intensive.

Enter Environmental DNA or "eDNA." This new and exciting tool can provide more precise information about the distribution of species of interest, and often with less time and cost. The approach takes advantage of the vast quantities of DNA that are sloughed off or released from aquatic organisms and are present in the water for weeks or months. A common method to capture these bits of genetic information is to pump water from a stream through a fine filter, catching DNA material present in the water. The sample is preserved and sent to a lab that analyzes the filter and compares the captured DNA to a pre-existing genetic marker for the species of interest. Research has shown remarkable detection abilities with this technique, which can identify the presence of a single organism miles downstream. There is still much to learn about range of detection, how changes in flow can impact results, and other challenges, but the technology is advancing rapidly and already providing a lot of useful information.

This past summer, staff from the Bureau of Land Management (BLM) shared an opportunity with the LWC to partner and contribute to the **e**DNA **B**asinwide **L**amprey **I**nventory and **M**onitoring **P**roject or ***eBLIMP***. Pacific lamprey *(Lampetra tridentata)* are an ancient fish, anadromous (migrating up rivers from the sea to spawn), and known to be present in the Luckiamute watershed. Lamprey were not a species of focus during the 2008 to 2011 snorkel surveys, so this presented an opportunity to better understand where Pacific lamprey are in the watershed. You can find out more about these unique and fascinating fish by viewing our January 2019 Sips 'n' Science pub talk in which Kelly Dirksen from the Confederated Tribes of Grand Ronde taught us all about the life history and conservation status of Pacific lamprey. Just head to https://youtu.be/x789W-Ecyes to view a recording of this event.

While not listed under the Endangered Species Act, the numbers of Pacific lamprey are known to have seriously declined in recent decades and the research community has a lot to learn still about their life cycle, habitat needs, and the threats to they face. Employing eDNA is one way the LWC and BLM and many other groups are working to contribute to local knowledge of a fish species of concern and inform future management decisions. Over this summer, BLM -- with the help of the LWC -- conducted 36 eDNA sample sites across the watershed. Results from this survey will take a few months to process, and will be used by the BLM and LWC to characterize how and where Pacific lamprey are using our local streams and rivers, and to continue learning more about the incredible diversity of life harbored within our watershed.