

# Newsplash

FALL 2015



## SALMON WATCHERS NEEDED!

It's almost that time of year again when salmon return to our local streams to spawn. Join us at the Salmon Watcher Workshop to learn about our local salmon and how you can help them. You can just attend the evening presentation to learn about local salmon or sign up afterwards to also volunteer to help watch for fish throughout the fall.

**Salmon Watcher Workshop**  
**September 15, 7:00–9:00pm**  
**Bellevue City Hall,**  
**Council Chambers**

The workshop will cover:

- How to identify the salmon species you may see in our region
- What salmon look for in stream habitat
- What you can do in your daily life to help salmon

Alumni, come for a refresher course!

Then, if you would like to sign up to watch for salmon and collect data during the fall spawning season, we'll help you



choose a site to watch. We ask you to try to visit your stream site twice a week for at least 15 minutes, record what you see, and mail in or enter your observations online from September through December. The information helps us learn more about how salmon use our local streams, monitor fish use of restoration sites, and support professional salmon monitoring and recovery efforts.

Registration appreciated! Contact Stream Team to register or ask questions at [streamteam@bellevuewa.gov](mailto:streamteam@bellevuewa.gov) or 425-452-5200.

“Climb the mountains and get their good tidings. Nature's peace will flow into you as sunshine flows into trees. The winds will blow their own freshness into you, and the storms their energy, while cares will drop away from you like the leaves of Autumn.”

John Muir  
(1838 - 1914)





# 2014 Salmon Spawning Summary

Given the low numbers of salmon returning naturally to Bellevue streams, Bellevue staff worked with staff from the Muckleshoot Indian Fisheries again in 2014 to release adult Issaquah hatchery coho into Kelsey and Coal Creeks. 643 coho were released into Kelsey Creek and 1573 coho were placed into Coal Creek.

## Coal Creek

Coal Creek was the highlight for salmon spawning in Bellevue in 2014. Coho were observed from November 3rd until Dec. 8th. The new culvert at Coal Creek Parkway allowed the salmon to migrate more easily upstream, expanding the spawning habitat by over a mile. 174 salmon redds (egg nests) were observed during surveys. Naturally returning salmon numbers were low; only two sockeye and one chinook were observed.

## Kelsey Creek

No salmon returned naturally to Kelsey Creek. There was no successful spawning from the 643 hatchery coho that were released.

It is believed that the salmon in Kelsey Creek fell victim to polluted urban runoff, similar to other urban streams in the Pacific Northwest. This problem is known as “prespawn mortality.”

Recent studies have shown that runoff from our highways is toxic to coho (“silver”) salmon. While a small percentage (<5%) of returning salmon may die before they can spawn, in urban areas



*Coho release into Coal Creek, 2014*



*This juvenile coho is offspring from the 2014 coho release*

with abundant roads and traffic, the number is much higher (40%-100%).

When coho eggs and juvenile salmon were exposed to highway runoff for 24 hours, 75% of the fish exposed were killed or had serious abnormalities. Urban runoff is a complex mixture of substances and researchers are still trying to understand what makes it so lethal to coho.

## The Good News

New treatments, known as Low Impact Development or Green Stormwater infrastructure, have been shown to be effective in stopping the toxic effects of urban runoff. Studies have shown that allowing highway runoff to percolate through a column of compost and sand can filter the toxic compounds and allow the coho to survive. Both adult and juvenile coho showed up to 100% mortality when exposed to unfiltered storm runoff from the Highway 520 Bridge. There was 100% survival for both juvenile and adult coho that were exposed to the same storm runoff after being filtered through compost and sand. Additional investigations show that the sublethal effects (like developmental abnormalities) are also virtually eliminated. Juvenile coho had no inflammation and swelling around their hearts, normal

eye size, and normal heart and jaw development. Genetic evidence shows that the filtration may not completely reduce exposure to oils and gas compounds, known as Polycyclic Aromatic hydrocarbons (PAH), but the remaining exposure does not appear to cause deformities.

In Washington State, Low Impact Development will be required to be the first approach to stormwater management, where feasible, starting in 2017. This is one case where we hope we will be able to turn the trend from extinction to abundant survival.

For more technical information about prespawn mortality, check out a presentation by Jenifer McIntyre, a research scientist with the WSU Stormwater Center, at the May 4, 2015 Sustainability TALKS: <https://www.youtube.com/watch?v=VcRarTU9yYA>.

For more information about low impact development, the WSU Stormwater Center has additional information: <http://www.wastormwatercenter.org/home>.

Bellevue staff will also be presenting new strategic initiatives to Bellevue Council this fall as part of the Storm and Surface Water System Plan that would provide additional focus on developing new approaches to improve the health of Bellevue streams.

## VOLUNTEER IN BELLEVUE'S WATERWISE DEMONSTRATION GARDEN

Why join? Adult volunteers keep the garden blooming for visitors and in return:

- Learn natural gardening techniques that can be used in their own garden.
- Get hands-on experience planting, soil building, composting, and caring for plants through the growing season.
- Meet people who share an interest in gardening and being outdoors.
- Have fun while contributing to resource conservation goals.

Volunteer days are the 1st and 3rd Wednesdays of each month from 1-3 p.m. from spring to fall. No experience necessary—just a willingness to dig in and have fun growing. The garden is located within the Bellevue Botanical Garden at 12001 Main Street. To learn more, contact Patricia Burgess at [pburgess@bellevuewa.gov](mailto:pburgess@bellevuewa.gov) or call 425-452-4127.





## Update on Little Red Fish

Kokanee are a native landlocked sockeye. Unlike their *anadromous*\* cousins, kokanee stay in big lakes instead of migrating out to saltwater. Bellevue's Lewis and Vasa Creeks are both important habitat for kokanee. While their numbers have been in decline, fins are crossed that we might see a strong return this year. Most kokanee spawn at 3 years of age. Last year, about 35% of the returning kokanee were 2 year olds which can be a signal of a strong return of 3-year old fish in the next run. Because 2012 was a great year for kokanee, we hope to see their offspring in abundance in 2015!

Google "King County Kokanee" for more information on local efforts to help kokanee. You can participate in the Run with the Kokanee fun run on October 17 <http://nwtrailruns.com/events/run-with-the-kokanee/>. And, if you geocache, be on the lookout for some special kokanee caches around Lake Sammamish later this year.

\**Anadromous* fish have a life history strategy where the spawning of adults and rearing of juveniles occurs in freshwater streams but larger juveniles migrate to the sea to feed, grow, and mature before returning to their home stream to spawn as adults. Coho, chinook, sockeye, chum, and pink salmon are anadromous. Some cutthroat trout are anadromous while others may only migrate to the large lakes or stay in our streams year-round.



## How Does the Drought Affect Bellevue's Fish?

Lack of rain has made difficult summer stream conditions even harder for local fish. Resident fish, such as cutthroat trout who live in our stream all year, must find refuge in pools and under large wood where it is deep and cool enough to survive. Warm water holds less oxygen and leaves fish more vulnerable to stress and disease.

Salmon trying to enter Lake Washington through the Hiram M. Chittenden Locks (Ballard Locks) this year also face an invisible but dangerous barrier: record high water temperatures and record low lake levels. Without much snowpack melting off from last winter, or rain this summer, the ship canal is a rather inhospitable place for our salmon trying to enter into Lake Washington. The number of salmon returning this year so far is low. They may be holding out in cooler saltwater hoping for conditions to change. The waiting in addition to high temperatures may also cause further stress on the salmon and their developing eggs.

If you happen to visit the salmon at the locks, or join Salmon Watchers this fall, be sure to cheer on any fish you see!



# Sculpin Project:

*How do salmon enhancement projects impact other fish?*

Prickly sculpin (*Cottus asper*) are being tagged and relocated into Kelsey Creek by the US Fish & Wildlife Service to determine whether recent stream passage improvements will allow sculpin to recolonize and persist in an area from which they have been missing. Sculpin are a native fish that live in freshwater year-round.

Culverts with a “waterfall,” log or concrete weirs, and other man-made structures have been recognized as a major limitation to salmon recovery. Fish passage guidelines are developed to reduce and remove salmon migration barriers. However, little evaluation has been conducted on how the barriers and salmonid improvements impact smaller fishes like sculpin. In fact, it has been found that some of the habitat and passage improvements for salmon have caused barriers to sculpin movement.



*Kelsey Creek Sculpin*

Larvae of prickly sculpin rear in wetlands, lakes, or estuaries for about a year before returning to the streams to mature. These small benthic (bottom dwelling) fishes are more likely to be blocked by instream barriers than the larger salmon and trout. Sculpin have not been observed in Kelsey Creek during summer resident fish surveys (fish who live in the stream year-round), since monitoring began in the



*A Mercer Slough sculpin is weighed before being tagged.*

1980s. The absence of sculpin and other small fish from their native streams could change the food web dynamics of the stream and reduce a prey source for trout and salmon.

Since 2000, numerous instream salmon migration barriers from Mercer Slough to NE 8th Street have been removed by the City of Bellevue. For example, the Mercer Slough Fish Ladder was designed for salmon but also proved to be a dramatic

advantage to the upstream migration of spawning peamouth minnows in the spring. US Fish & Wildlife (USFW) biologists are interested to learn whether these efforts will also allow sculpin to migrate within the stream corridor and reestablish persistent

populations in an historic area that has been blocked for decades.

In this experiment, Prickly sculpin have been captured in Mercer Slough and Lake Washington, then tagged with a small electronic tag and released into pools in Kelsey Creek below NE 8th Street. Continuous electronic tag readers were installed downstream of the release site to detect any movement of the fish. In addition, mobile tag readers are being used in nighttime surveys to see where the sculpin may have moved. Mobile reader surveys are done at night because that is when sculpin tend to be more active. Some of the

collections have been done at night as well.

USFW staff are planning to track the sculpin for at least 1.5-2 years to determine whether the new sculpin are able to persist within their new habitat in Kelsey Creek.



*Tags are about the size of a grain of rice.*



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Register at [streamteam@bellevuewa.gov](mailto:streamteam@bellevuewa.gov) or 425-452-5200.



**JOIN  
US!**

# **SALMON WATCHERS**

**Tuesday, September 15  
Bellevue City Hall, 7-9pm**

