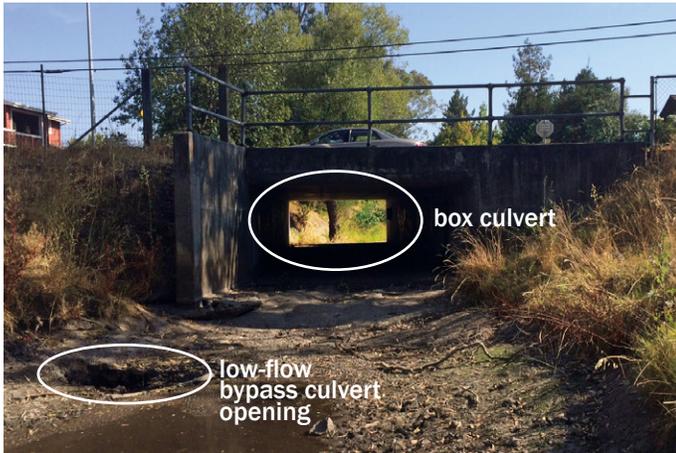


What happened to the water in Fryer Creek?



In 1977, in support of flood risk reduction, the Sonoma County Water Agency (Water Agency) deepened the channel upstream of the MacArthur Street box culvert on Fryer Creek. An 18-inch circular low-flow bypass culvert was installed approximately two feet below the floor of the existing MacArthur Street box culvert to channel low, dry season water flows from the upstream side to the downstream side of the MacArthur Street box culvert on Fryer Creek.

This bypass culvert was not operating as intended because it was plugged by rocks and debris for numerous years, causing water to pond behind the MacArthur Street box culvert.

On the night of July 23, 2014 the culvert partially opened under natural circumstances and drained the ponded water behind MacArthur Street.

Based on conversations with Sonoma County Water Agency biologists, the City of Sonoma public works department, Sonoma Ecology Center, California Department of Fish and Wildlife and the National Marine Fisheries Service, it appears that a functioning bypass culvert should help improve the long-term health of the creek.

Why should the water flow to the downstream side of the creek rather than pond behind the culvert?

The previously ponded water behind the MacArthur Street box culvert created an artificially warm water habitat with poor water quality.

The ponded water created ideal habitat for the invasive aquatic weed *Ludwigia hexapetala* (water primrose, already seen in the channel upstream), which can clog the channel, result in sedimentation, out-compete native vegetation, increase mosquito breeding habitat, and be detrimental for

flood control maintenance. While manually removing some *Ludwigia* may be part of the solution, it can re-sprout from any fragments and roots that remain. Changing the supporting habitat to favor the native vegetation is a better alternative in the long term.

Removing stagnant water in this area will reduce conditions that allow the invasive *Ludwigia* to proliferate. Additionally, the Water Agency, working with the Sonoma Ecology Center, has been working on a long-term project to establish a tree canopy over Fryer Creek to shade and cool the water. This should also help the native salmon, as they prefer cool water.

Over time this approach will increase the likelihood that native grasses will be able to out compete and displace *Ludwigia* on the channel bed and banks thereby providing better habitat for many riparian plant, animal, bird and fish species. This will take several years but the photos below show a similar transformation in another creek.



Hinebaugh Creek in 2004 before restoration



Hinebaugh Creek in 2014 after restoration

The Water Agency does not have the authority to “re-plug” the low flow bypass under existing stream maintenance permits since that is counter to its intended purpose. The Water Agency permits can be used to clean out the bypass but not to deliberately disable the intended function.

Why didn't the Water Agency clear the low-flow bypass before?

The Sonoma County Water Agency has been maintaining Fryer Creek as part of its Stream Maintenance Program. The culvert became clogged at a time when regulations changed. Steelhead trout were federally listed as endangered in the Sonoma Creek watershed in 1999, and the Sonoma County Water Agency needed to apply for new permits from regulatory agencies in order to update the way stream maintenance work was conducted. The permit application process and an

accompanying Environmental Impact Report (EIR) for the Water Agency's programmatic stream maintenance program was completed in 2010.

Sediment removal occurred on the Fryer Creek main channel near Arroyo Way in 2011 and on the East Fork of Fryer Creek in 2012. At that time, maintenance of the low-flow culvert was evaluated by the Water Agency in conjunction with the City of Sonoma.

The relatively small size of the culvert (18") meant that the clogged bypass culvert didn't affect flood risk reduction to a great degree and the excavation required to unplug it would entail a moderately large project. Any project to clear the culvert would likely include excavating the channel bed upstream of the culvert to an average depth of approximately three feet to align with the existing 18-inch culvert.

Additionally, it was determined that replacing or modifying the MacArthur Street box culvert to restore a more naturally free-flowing stream would be a preferable solution. For these reasons, the Water Agency elected not to clear the low flow bypass culvert at that time and instead concentrate on a more integrated solution.

What will happen to the ducks that live there?

Because water continues to flow in Fryer Creek downstream of the MacArthur Street box culvert, a short distance away from the previously ponded section, ducks and other wildlife continue to have available habitat in the immediate area.

Moving the ducks could prove more stressful for them than leaving them where they are. Wild ducks and waterfowl rely on natural food sources such as aquatic plants, seeds, grasses and insects and, having viewed the site, our biologists feel they can move to other areas with relative ease.

Additionally, the Water Agency doesn't hold the regulatory permits that would allow us to move the ducks. The nesting ducks are protected under the Migratory Bird Treaty Act and permissions for those kinds of actions come from the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service.

Ponded, warm water conditions provide poor quality habitat for ducks to forage and thrive. The return of flow will allow for the removal of invasive *Ludwigia* and restore this section of Fryer Creek with native grasses and a tree canopy. This should help provide better quality riparian habitat over the long term for fish and wildlife, including ducks.

Is anything being planned to improve conditions?

In the near term, the Water Agency's plans are to plant native plants adjacent to the channel and in-stream to replace the *Ludwigia*, clean the culvert inlet, install a grate to reduce the potential for re-clogging, and plant trees to shade the channel.

Separate from the natural opening of the low flow bypass culvert, a project called the City Watersheds of Sonoma Valley Fryer Creek Project (Fryer Creek Project) includes a project component to reduce downstream flood risks by replacing or modifying the box culvert at West MacArthur Street.

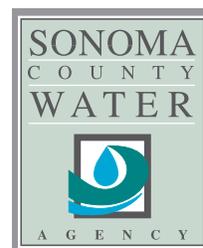
The Fryer Creek Project would render the low flow bypass obsolete. The project concept is to lower the Fryer Creek channel at the MacArthur Street box culvert, thereby eliminating the need for the low flow bypass culvert. Fryer Creek would then flow in a more natural, free-flowing condition without backing up which would reduce flood risks, accommodate low flows, and provide more beneficial habitat for native wildlife and vegetation.

The Fryer Creek Project is currently at the concept stage. Any future work on the existing MacArthur Street box culvert is subject to permitting and California Environmental Quality Act (CEQA) requirements.

A public meeting for the project was held in January 2014 and additional public input will be solicited, likely in winter 2014/2015. More information about the Fryer Creek Project is available online at www.sonomacountywater.org/svflood.

How can I learn more?

Representatives from the Water Agency, Sonoma Ecology Center and the City of Sonoma are reaching out and meeting with concerned residents to examine the site, hear their views, and explain the approach to stream maintenance. If you have questions or comments, please contact pamela.kuhn@scwa.ca.gov. Additionally, information about the Water Agency stream maintenance program is located online at www.sonomacountywater.org/stream-maintenance-program.



Find us at
www.sonomacountywater.org



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in our Water Resources,
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