

Northwest Region

Washington State Department of Transportation

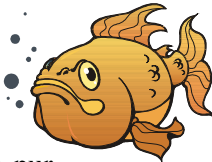
March 23, 2001

BULLETIN

No. 01-12

SIGNALS MAINTENANCE SHAPES SALMON SOLUTION

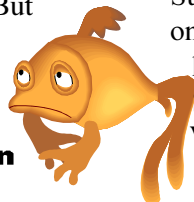
They hang on the light fixtures above the Cedar River Trail southwest of downtown Renton like black rubber lampshades. Users of the trail, which crosses above the river and under I-405, may wonder about the purpose of these pieces of rubber matting. The simple answer is that they are what they appear to be – black rubber lampshades. The more complex answer is in the river below. What does this have to do with WSDOT? Find out below.



The Cedar River is where the largest run of sockeye salmon in the lower 48 states begins. Each year between January and June, several million salmon fry migrate from their spawning grounds east of Maple Valley to Lake Washington. The 2000 run was one of the biggest in recent memory, but the year before that was one of the worst, according to Roger Tabor, a fishery biologist with the U.S. Fish and Wildlife Service. Tabor has been working with federal, state, local and tribal governments to determine the reasons for the decline in the sockeye run. His research brought him to the Cedar River underneath I-405, where he noticed a problem. The lights that WSDOT installed to help keep trail users safe posed a threat to the sockeye salmon fry.

“Light is basically a big stop sign,” Tabor said.

Sockeye like to migrate at night in the fastest part of the river channel and move to low velocity waters along riverbanks and river bottoms during the day. This way they avoid becoming the prey of fully-grown trout and sculpin, which like to forage at night. But the lights above the trail made the sockeye fry think it was daylight.

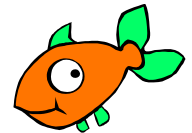


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“We were doing a great job of lighting the stream and an inadequate job of lighting the walkway,” said Northwest Region Signals Superintendent **Kurt Schleichert**.

The end result was that thousands of sockeye moved to shallow areas along the riverbank, making them easy prey for trout and sculpin looking for a late-night snack. Tabor estimated the lighting on the river resulted in several thousand salmon fry being eaten at this location in each spring migration period.

Word of the problem reached Gary Davis, a biologist at Northwest Region headquarters in Shoreline who has been working to coordinate WSDOT’s salmon recovery efforts with other agencies in King, Pierce, and Snohomish counties. Davis said the agency wanted to help in whatever way it could.



Schleichert, Tabor, Davis and a representative from the city of Renton visited the site last June. It was immediately obvious that the lighting system wouldn’t work as it was set up – too much light was shining on the river. One solution, a complete retrofit of the lighting system, wasn’t feasible. Schleichert estimates the retrofit would have cost in excess of \$100,000, mainly because it would have required drilling holes in the concrete pathway above an environmentally-sensitive river.

Another solution, at the extreme opposite end of the cost spectrum, beckoned to Schleichert as he examined the light fixtures above the pathway. Why not equip the fixtures with some kind of shield so the light would shine down on the path, but not on the river? Schleichert set South Signal Supervisor **John Merryman** to work on the task. Merryman enlisted the help of **Rich Loucks**, a Traffic Signal Technician 3 and **Mark Wolff**, a Traffic Signal Technician 2, who



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fabricated shields out of rubber matting. The shield had to be custom made for each fixture, because the lights were mounted in different locations in reference to the walkway and the river. Loucks and Wolff installed six shields in late January and two more this week for a total cost of less than \$100!

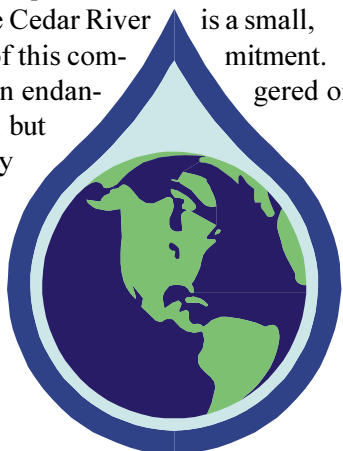
After the first six shields were mounted, it was necessary to see if they were doing the job for which they were designed. In early February Tabor and Loucks measured light levels on the river in the area of trail light fixtures. The results were dramatic. Light readings showed that levels were similar to other nearby areas of the Cedar River that have no direct lighting.

The next evaluation was to see if the reduction in light led to a reduction in salmon fry on the riverbank. Again, the results were remarkable. In late February, Tabor and others counted salmon fry along the shoreline. In one location they counted only 23 fry where there had been more than 1000 in 1998. The 2001 and 1998 counts were conducted under similar conditions and on similar dates and times of day. Tabor said the shields that WSDOT mounted on the light fixtures likely made the difference.

"The fry moved through the bridge quickly and were not delayed by the lights," he said. "Fry counts along the shore are usually related to the light intensity level."

The Northwest Region is committed to being a responsible environmental partner. Our effort to reduce lighting along the Cedar River is a small, but important example of this commitment. Sockeye salmon is not an endangered or even threatened species, but as the challenges posed by the Endangered Species Act loom, solutions like the one used on the Cedar River will become more common and more necessary.

—Greg Phipps



BUILDING TRUST 2001

On Monday, March 12, the Northwest Region hosted an all-day session with the staff from northwest regional offices of the Washington State Department of Ecology and the Washington State Department of Fish and Wildlife. Dubbed "Building Trust 2001", the meetings presented major 2001 construction projects with potential substantial erosion control and storm water issues. The strategic objective of this meeting was to jointly develop approaches to best address environmental issues that may emerge during the delivery of 2001 construction program. This gathering was in line with the region's business plan to deliver its products and services in such a way that it acts and is recognized as a responsible environmental partner.

WSDOT provided an overview of 32 projects and their unique challenges to the agencies. The meeting was also an opportunity for the department to listen to resource agencies' concerns about WSDOT projects and erosion control issues. Project offices and field staff heard firsthand management commitment to environmental compliance.

The session was a big hit with the two resource agencies. Reprinted below are excerpts from rave reviews they sent to Regional Administrator John Okamoto:

- John—The joint meeting between our staffs went very well I thought. Thank you for hosting it and all the work your crew put into the preparations. Our biologists were impressed with the discussion and really appreciated the heads up on each districts work plan. Please express my gratitude to Dave (Dye) and the rest of your staff for creating a very productive session. We are already looking forward to a follow up this fall.
Bob Everitt, Regional Director, WSDFW
- Thanks to you and DOT for hosting the gathering, John. And thanks to Dave (Dye) and Lorena (Eng) for setting the stage for a very open, inviting and positive meeting. Our staff appreciated the chance to meet with so many of your

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