We Remember.

The Naked Fish

We dare to print the naked truth!

July 2002

Inside "The Fish"

Special Edition

The photograph on this page shows one of the large logs and rootballs called large woody debris (LWD) that King County Department of Natural Resources and Parks (DNRP) placed in the Cedar River. On June 20, 2002, thirteen-year-old Summer Stone became entrapped under this LWD installation while swimming with friends in the river. She lies in Children's Hospital fighting for her life.

DNRP thinks that LWD is the neatest thing since fish hatcheries in the fight to save commercial salmon fishermen. They continue to place LWD in King County streams even though they have known the dangers to humans since 1997. In June of 1997 King County Hearing Examiner Titus upheld the public safety portion of a SEPA appeal championed by Kirkland engineer Roger Lowe. That portion of the appeal asked the question, "Will the proposed installation [of large woody debris] endanger boaters, anglers, swimmers, inner-tubers, mattress rafters, other river users or any person who may accidentally find her/himself in the water?" The answer was "Yes!"

But since commercial fishing is more important than children, the LWD installations went ahead. Mr. Titus forced some procedural and design guidelines on DNRP but did not stop the project. In hindsight, those guidelines certainly didn't help Summer Stone. Even those requirements expired on April 15, 2002.

Fish Habitat or Human Deathtrap?

DNRP is now busy loading May Creek with large woody deathtraps. Several pieces have been placed on the County-owned property where 164th crosses May Creek in May Valley. That property is DNRP's half million dollar flood project for May Valley. They are placing LWD there to trap more silt in that reach to replace the silt and garbage that Chuck Pillon removed last year. With help from the beaver dam on that site they may be able to get the water back over the road by this winter.

They also have a project about to start that will place up to 90 logs in the upper part of May Creek Canyon (between Coal Creek Parkway and the mouth of Honey Creek). Even though DNRP admits that the LWD will increase erosion in the canyon they want to try to improve the habitat for the three king salmon that sometimes come there from the Cedar River. Their intention (see the King County Environmental Checklist—May Creek Canyon Stream Restoration Project prepared by Senior Engineer Kathryn

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What Makes LWD a Deathtrap?

By Rodney McFarland

Habitat evangelists believe that LWD makes a stream more "natural." Any stream that has trees growing by it will have trees in it at some point. Water flow typically erodes the banks on the outside of turns in the stream because of the faster flow found there. That erosion will eventually cause the trees growing there to lose their footing and fall into the water. Those trees will get swept downstream and eventually hang up on the typically shallower, slower inside of a curve.

Summer Stone's trap as viewed from downstream

In an attempt to prevent that bank erosion, LWD is often placed on the outside bank of curves where the water is both faster and deeper than the inside of the curve. Because of that fast flow, anything in the water including humans, will get swept to the outside of the curve and right into the LWD. Other trees will also be swept there and hang up on the LWD and can eventually form a full dam across the waterway.

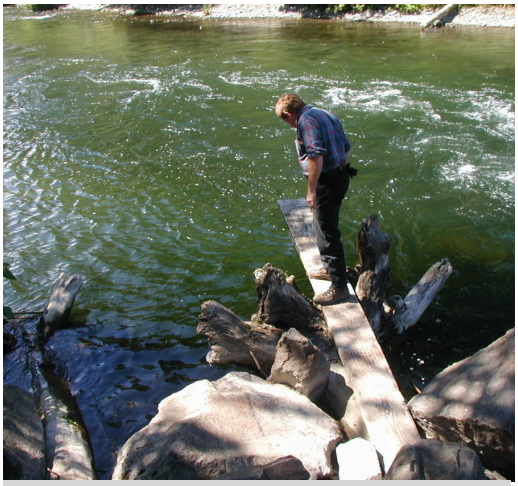
In an effort to provide fish with shade and shelter from flying predators the LWD is often held above the streambed to provide room for the fish. The fast moving water is forced under the log or root ball with great force. When I was a young man I was on a fairly large raft that was sucked under a log on an Alaskan river similar in size to the Cedar River. I assure you it was a terrifying event. Miraculously everyone made it to shore okay but I don't recommend the experience.

If the space under the log is not large enough for you to pass through, the full force of the current holds you there. It took four Sheriff's Deputies to pull Summer Stone out of the water.

Growing logjam by swimming hole

Just downstream from where Summer was trapped there are several County-placed LWD installations that are part of their bank stabilization and habitat project. One of them that was placed at a traditional swimming hole even has a 2" X 12" diving board attached to the log. The altered current heads directly downstream to the next deathtrap. Sadly, LWD is considered cutting-edge fish habitat by King County DNRP even though recent studies discount its value.

This sign is directly above the diving board



Chuck Pillon contemplates a swim

Habitat or Deathtrap?

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Neal) is to create logjams in the canyon. It is unclear how the coho and sockeye on their way to May Valley will get past those logjams. That particular stretch of May Creek is probably the least human-impacted, most "natural" stream in urban King County. Yet DNRP will use a bunch of Renton and Newcastle taxpayer's money to "restore" it.

Some of the other articles in this special edition point out that the most recent science on LWD shows that it is ineffective at improving fish stocks. Are we doomed to repeat Summer Stone's tragedy or is there some intelligent adult in the King County bureaucracy with the power to stop this experiment gone awry?

LWD is it Large Woody Debris or Let's Waste Dollars?

By Rodney McFarland

Drowning victim Summer Stone, age 13, lies unconscious because of Large Woody Debris placed in the Cedar River by King County. Roger Lowe's partial win in 1997 of a SEPA appeal, which pointed out the dangers of LWD (see sidebar this page), didn't save her. Hearing Examiner Titus issued strong words but allowed the placement of the LWD that trapped Summer. It is time to renew the battle in an effort to save the next victim. That victim could easily be one of our neighbors here in May Valley.

The war in May Valley has heated up recently as King County DNRP Water and Land Resources Division (WLRD)[1] has begun work mandated by DDES on Pioneer Park to abate/restore the site after Chuck Pillon's volunteer efforts of last summer. It depends on which King County employee you talk to whether the work is restoration or abatement. Every definition of restoration I can find would have them putting the silt, tires and other garbage (the junk Mr. Pillon removed) back into the creek but that is not their plan. Since abate means to reduce or minimize I guess that makes sense. They are taking steps to reduce and minimize the reduction in flooding that Mr. Pillon caused (in other words – they need to increase flooding). I guess that is fitting for the County department invented to reduce flooding in May Valley.[2] Government works in mysterious ways.

Large Woody Debris (LWD) is the County's weapon of choice even though we were promised no LWD in May Valley during Basin Plan crafting. At every meeting since they have implored us to trust them. Yeah, right!

LWD, or logging trash depending on your point of view, is logs and/or stumps placed in the stream. Ostensibly LWD provides the following benefits:

- Causes pools and meandering (often stated as increased complexity).
- Retains sediment.
- Provides velocity refuge and overhead cover for fish.
- Creates habitat for aquatic invertebrates.
- Becomes nutrients as it decays.

This article will take a look at each of these items to determine if the alleged benefits exist and if they outweigh the negative aspects of LWD in light of the most recent scientific studies. You might want to keep Summer Stone in mind as you read. Renton and Newcastle residents may want to pay special attention. King County is about to bomb your reach of May Creek with LWD via helicopter. Newcastle's share of the cost could buy them another police officer for the next year.

Whether pools and meanders are benefits or not depends on where your house or barn is in relation to that pool or meander. Most residents of May Valley aren't too fond of pools around their house. Pools are caused by scour (the politically correct word for erosion) as water meanders (detours) around the dam created by the LWD. WLRD is working on a separate project to drop LWD by helicopter in May Creek Canyon west of Coal Creek Parkway. See the SEPA document prepared by Kathryn Neal for a discussion of the expected erosion around the LWD that is to be placed in May Creek Canyon. May Valley residents have been told repeatedly that no discharge of sediment (the product of erosion) can come from May Valley because it will destroy the canyon. We've been told we can't even walk across our creek. Don't you just love double standards?

Meanders will cause confusion in May Valley where property lines are the center of the ditch. The environmentalists never understand the problems that causes since they think they own 200 feet on both sides of the ditch and they love meanders on "their" property. As long as their own house isn't close by, of course.

Speak Loudly Carry a Small Stick

"My review of this hearing record with respect to public recreationalist safety, leaves a clear, unabiding, definite and **firm conviction that a mistake has been committed**. Relying upon the various Federal, State, and Tribal advisories and guidelines cannot provide justification for disregarding public safety. By the Department's own admission, these are guidelines intended to enhance the fisheries habitat potential for stream management public works and thus do not address the public safety concerns raised by the appellant. The Department's reliance upon vague and undefined professional judgement to be applied on a case-by-case basis does not adequately address the potential adverse effects upon public safety. No public agency has such freedom or latitude where the public safety is concerned."

R. S. Titus
Deputy Hearing Examiner

From SEPA Threshold Determination Appeal of King County River Maintenance Program, file 089574, June 20, 1997.

Pools are good for fish since it gives them a place to rest and heal after scarring up their bellies jumping over all the LWD and beaver dams (Small and Medium Woody Debris). Pools also provide a place for all that wonderful sediment that comes off the rich folks' properties in the hills to settle out. That way the fish get a nice wide shallow pool that overheats in the summer and DNRP has

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an excuse to plant lots of lovely shade willows to keep the salmon cool. Back when May Valley residents were allowed to clean the ditch we had narrow, deep pools which provided thermal protection from the hot air of summer. In fact we had two major 3,000 foot long pools that have since filled in and been destroyed by county-mandated neglect.

The fish certainly don't need velocity refuge in May Valley as they fight their way against the roaring current as the ditch drops 14 feet in three miles. On a clear day you can almost see it move. I did a little research on how much LWD slows down the water. Michael Manga at the University of Oregon and James W. Kirchner of the University of California studied that very thing.[3] I quote from their study, "Our measurements show that even though large woody debris cover less than 2% of the streambed, they provide roughly half of the total flow resistance." If you increase the flow resistance, you increase the duration and volume of the flood, increase the amount of sediment deposited in the channel, and raise the temperature of the water. Isn't it three strikes and you're out?

Another researcher, C. J. Gippel, says that "hydraulically, debris acts as large roughness elements that provide a varied flow environment, reduce average velocity, and locally elevate the water surface profile."[4] For those of you with property upstream of the County property at 164th Avenue, "locally elevate the water surface profile" is the politically correct way to say flooding.

As the channel fills with sediment it widens and the water gets shallow. The poor little fish become visible to the blue heron and Rocky the Raccoon. So you have to add a few more stumps for the fish to hide under which takes us back to the beginning of an endless loop from which we never recover. As the water gets shallower and hotter, junk fish like suckers and carp and bass move in and eat all the little salmon and trout.

Seegrist and Gard hypothesized that eggs and young-of-the-year fishes of some species are readily displaced and killed during flooding due to the turbulence of the flood flows.[5] LWD has been promoted as one way to decrease such losses but researchers Jowett and Richardson[6] found that only extreme events in relatively large channels cause significant displacement of post-young-of-the-year salmonids. Harvey, Nakamoto and White[7] found that "… **extreme turbulence downstream of large woody debris appeared to render those areas uninhabitable**." Nickelson et al hypothesized that high turbulence may have accounted for their finding that the addition of brush to plunge pools in Oregon streams did not increase the density of coho salmon.[8] So LWD either doesn't help or makes the turbulence problem worse.

LWD provide half the flow resistance which increases the duration and volume of the flood

Harvey et al state in their report that "the study reach of Little Jones Creek contained several pools with large areas of low water velocity during flood conditions. This observation weakens the hypothesis that cutthroat trout in the study reach would be habitat limited during floods if large woody debris were absent. Low overall movement by cutthroat trout in open habitat during the flood, and their use of the floodplain along straight sections of channel, also do not support the hypothesis that cutthroat trout are limited by the abundance of woody debris during flooding."[9] It sure seems clear to me that placing LWD in May Valley for velocity refuge is a waste of more of our money.

Hypothesis has it that LWD increases the habitat for aquatic invertebrates, the bugs and worms that fish eat. Lemly and Hilderbrand in a study titled "Influence of large woody debris on stream insect communities and benthic detritus"[10] studied that issue. They found an increase in benthic detritus (organic stuff on the bottom that the bugs eat) but they also determined that "Retention of benthic detritus was a function of channel morphology and only indirectly influenced by LWD." So more benthic detritus (bug food) should lead to more bugs to feed the fish, right?

Wrong! A study (Effectiveness of Large Woody Debris in Stream Rehabilitation Projects in Urban Basins by Marit Larson)[11] conducted right here in our back yard found that LWD didn't lead to more bugs. Ms. Larson studied six Western Washington creeks (Forbes, Thorton, Swamp, Hollywood Hills, Laughing Jacob's and Soosette) that had LWD projects. Benthic invertebrate samples were collected by Morley (1999) and King County (1995 & 1998) and analyzed according to the Benthic Index of Biological Integrity (B-IBI). The B-IBI is a multimetric index that uses 5 different categories of measures of macro-invertebrate samples (taxa richness, community composition, feeding groups, tolerance/ intolerance, dominance) to assign a score for the biological health of the stream. Ms. Larson concluded that "the sites showed no significant improvement in B-IBI score. Local physical channel characteristics, such as LWD frequency or pool spacing, generally had no relation to the B-IBI score." The first paragraph of Ms. Larson's conclusions is instructive.

> "This work evaluates the effectiveness of in-stream projects using LWD in urban streams where no systematic effort had

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been made to reduce degradation at the watershed scale. These types of projects are increasingly popular, particularly in the Pacific Northwest, where LWD is recognized as an important element in physical habitat important for salmonids. Yet **there is little evidence that these in-stream projects can reverse even the local expressions of watershed degradation in urban channels**."

J. Craig Fischenich and James V. Morrow, Jr.[12] cover the down side of LWD pretty well.

> "The negative impacts of adding LWD should be carefully assessed. Heavy equipment can damage riparian habitat, and felling or uprooting streamside trees for construction materials can cause loss of shade and decreased bank stability. Large woody debris can increase flow resistance and thus, flooding potential. Studies by the authors have shown increases in resistance coefficient values of greater than 50 percent due to LWD (Fischenich 1996).
>
> "Loosely anchored or improperly placed LWD can increase bank erosion. **Large woody debris** structures can also impede navigation and **can be a safety hazard under certain conditions**. Failure to consider negative impacts can lead to extremely undesirable and possibly hazardous conditions."

Most studies judge the worth of LWD by the increase in habitat that humans think is good for the fish. In studying the actual fish production of streams listed by humans as poor, fair or good habitat,[13] Dr. William McNeil of Oregon State University studied 23 tributaries of the Columbia River and found that "**poor" habitat streams produced twice as many salmon as "good" streams. "Fair" streams produced three times as many salmon as "good" habitat streams**. Seems the fish must know something about their streams that your above average biologist doesn't.

"Poor" habitat streams produced twice as many salmon as "good" streams. "Fair" streams produced three times as many salmon as "good" habitat streams

Solazzi, Nickelson, Johnson and Rodgers actually studied juvenile coho and trout populations in four Oregon rivers over an eight year period. Though they found some increase in numbers after restoration work they state in their report that, **"A review of literature reveals a lack of quantitative information on whether habitat restoration affects the fresh water production of anadromous salmonid populations."**[14] There are hundreds, if not thousands, of articles and studies on various aspects of LWD in streams. While most extol the virtues of "improved habitat" they are silent on the numbers of new fish living in that habitat.

In a study titled "Density and size of juvenile salmonids in response to placement of large woody debris in western Washington and Oregon streams" researchers Philip Roni and Thomas P. Quinn state **"Numerous authors have reported no significant biological response or even decreases in salmonid abundance following restoration."**[15]

Failure to consider negative impacts can lead to extremely undesirable and possibly hazardous conditions

Researchers in Australia found that fish did indeed congregate near LWD but that the overall population did not increase. Harvey, Nakamoto and White[16] found that cutthroat trout moved less distances in streams with LWD than in streams without it which would probably make the population look larger if you only surveyed near the LWD dams.

There has been a very interesting test of LWD and other stream restoration procedures on the north end of Vancouver Island. Two similar rivers, the Keogh and the Waukwaas were chosen to study. The Keogh received LWD and other alleged habitat improvements starting in 1997. The Waukwaas was untouched and provides a control river for the study. Data was collected for both rivers starting in 1995. By 1998 both steelhead and coho populations were down in the "improved" Keogh while numbers for both fish were up dramatically on the untouched Waukwaas. Numbers on the Keogh improved in 1999 after a program of stream fertilization was started while numbers on the Waukwaas declined but the coho smolt yield on the Waukwaas was still double that of the "restored" Keogh. Coho fry in the fertilized areas of the Keogh had weights 100% greater and lengths 20% greater than their cousins in the unfertilized sections.[17] This data would seem to strengthen Dr. McNeil's conclusion in his Columbia River study that **making streams pristine starves the fish**.[18]

LWD in urban streams does not improve the biology of the stream or improve fish yields. It only allows the habitat evangelists to pretend they are doing something useful while significantly increasing the danger to

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anyone falling into the ditch during a flood. See the July 10, 1997, order by King County Hearing Examiner R. S. Titus which set guidelines for King County when using LWD because of the public safety problems associated with LWD use. The web site at http://www.main.net has a lot of good material on the dangers of LWD in our streams and rivers.

LWD definitely adds nutrients as it decays but at a **cost in King County of $120 to $580 per meter**[19] of project. Salmon carcasses would add those nutrients if we could ever get enough depth to the ditch so the salmon don't need hiking boots to get up it. Throwing fertilizer pellets in the water would accomplish more with far less money and could easily be done by the 350 WLRD employees on their lunch hour. Or we could just let our animals pee in the water like the old days when we had lots of fish.

There is one aspect of LWD about which I simply could find no studies. King County and the US Corps of Engineers do not consider LWD fill. If you shred it and call it hog fuel it is fill, but intact logs are not fill. Somehow intact logs have no volume. If we cut them into 4" X 4" posts and propose to use them to hold up our front steps, they suddenly become fill and take up room in the floodplain thus causing our upstream neighbors to flood more. Perhaps they are not fill if they are free to float because then only part of them is taking up space in the water during the flood. But that doesn't make sense either since hog fuel floats and it is verboten! Maybe it works like silt taken out of the channel and placed on the bank. While taking up space full time under the water in the channel it is wonderful stuff and cannot be removed. But if it gets moved from the channel to high ground (where it only takes up space in the water part of the time) to make room for more floodwater then it is as bad as a 4" X 4" post and suddenly becomes illegal fill. Would the government scientist who understands this phenomenon please contact me? I really would like to understand.

If LWD is the M1A2 Abrams tank for King County, riparian plantings are the Bradley Fighting Vehicles. WLRD will plant 95 new trees and bushes[20] at Pioneer Park to go along with the ones they have planted earlier this year to restore the four or five seedlings that Mr. Pillon drove over. The new plantings are designed to provide new LWD as the trash the County crews are placing now decays. The only effect of the LWD at Pioneer Park will be the trapping of new sediment to refill the channel and increased flooding of upstream neighbors.

a cost in King County of $120 to $580 per meter of project

Someone please tell me the purpose of the **May Creek Basin Action Plan 2001**.[21] I thought that when the King County Council passed it unanimously it became the law and the document that was to guide actions in May Creek Basin**. Primary Recommendation 5 states, "Reduce flood durations in May Valley by removing flow obstructions from May Creek channel. Types of obstructions most frequently encountered are beaver dams, stream reaches choked with vegetation, and sediment deposits."** There is absolutely no question that LWD will increase flood durations as well as volumes above the County property at Pioneer Park. The beaver dam at the property was not removed as part of the recent work even though beaver dams are the first obstruction listed for removal. Daryl Grigsby, the manager of WLRD, in a recent letter to MVEC President Rick Spence stated, '**County Senior Engineer Kathryn Neal's statement** in Tuesday's article [in the South County Journal] **("We would rather not spend public money on something that has to be redone and that won't have a lot of benefit,"**) accurately reflected WLR's position on drainage problems in general, beaver dams included.' County bureaucrats regularly ignore with impunity the laws they don't like (basin plans and search warrant requirements) while prosecuting to the hilt anyone violating any of their favorite agency-generated rules.

WLRD staff in conjunction with MVEC has identified two stretches of ditch between 148th and 164th as the reaches most needing work. They have promised action on the downstream one this year with work on the tougher upstream obstruction next year. The channel in the upper reach has completely filled in with sediment and willow. The water simply braids across the surface as it tries to find a path through the vegetation. It looks like what the ditch at Pioneer Park will look like in 5 to 10 years. And yet Kathryn Neal says she doesn't want to spend money on something that will have to be redone. She can say that with a straight face because she knows (but won't admit) that the County has no intention of ever cleaning any reach of May Creek Ditch. She is confident there will never be any further cleaning at Pioneer Park no matter how much flooding occurs upstream.

Meanwhile WLRD continues the lie that they are going to clean obstructions from the channel as called for by the basin plan. They have spent three months on preliminary surveys of the obstruction on my stretch of creek that was to be removed this year. They have stalled long enough that **Daryl Grigsby is now telling reporters that the fish window may close without any work done this year**. How convenient! Kind of like the beaver dams they promised to remove last year and the year be-

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LWD

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fore and didn't.

While they will protest questions about their sincerity mightily, the bureaucrats simply can't have it both ways. If they were sincere about cleaning obstructions in May Valley they would not be leaving beaver dams on their reach and they wouldn't be adding new obstructions in the form of LWD. That would be a **L**arge **W**aste of **D**ollars on something they would simply have to remove later. It is time to hold the major players in this charade personally accountable. Every bureaucrat from Ron Sims on down knew the dangers of LWD because of Roger Lowe's SEPA appeal.

It is time to hold the major players in this charade personally accountable

They lecture us that they have to obey the law and then don't. **Where is the civic minded attorney who wants to make a name for him or herself** that will help us trade in our King County mandated swamp for the homes of the obstructionists at DNRP, WLRD, and DDES? Triple damages, here we come!

How Much are Three Fish Worth?

By Reggie Hopper

Three fish! No babies! Paid for by the tears of a generation and millions of taxpayer dollars. Could this be what was intended by Nixon when he signed the ESA? I hope not. I dread not. If this is what we have come to, it is time to start anew. The three fish are the Chinook seen in the lower May Creek channel circa 1994. This is what Katherine Neal says in her determination of non-significance dated June 6, 2002. But perhaps she was wrong when she wrote, "A peak density of about one adult Chinook salmon per mile of surveyed stream was counted in the lower three miles of May Creek during spawner surveys in 1993." Three miles upstream puts you at the high bridge of Coal Creek Parkway. This is the upstream limit of any possible Chinook salmon run.

Three salmon, you say? How many bucks? How many does? A lot of water, not enough sperm, few children to no children. This is not a salmon run. The fish in May Creek are lost fish. They were supposed to go up the Cedar River but they got lost and ended up here. The NMFS doesn't care about them; the tribes don't care either. Because this Chinook run is not a viable population. The only ones who care about these fish are the King County green team. People like Clint Loper and Katherine Neal care. To these people those three fish are incredibly important, and they are willing to spend your last dollar and destroy all our land in name of those fish.

In the name of those three fish, King County has destroyed or is in the process of destroying fifty-five homes and properties and the lives of those who live in the way. In addition, King County has spent at least $1,000,000 directly and untold thousands on studies (at least four since 1979), meetings, postage, more meetings, studies, and so on. The net result of this has been to create increasingly radical conditions in the May Creek Basin for both man and fish. Now King County is proposing to drop another $240,000 to save those three fish. Their current proposal is to drop ninety logs from a helicopter into May Creek Canyon. Those logs' sole purpose is to cause logjams, which in turn will make the stream change channels, with ensuing bank erosion. There is also the certainty of flash floods with the logjam and the resulting sluicing of the bank, some of which is as steep as 75%. All this because of those fish!!! Of course when the log jam breaks the ensuing flood will most likely destroy any fish in the lower canyon including those three fish.

This kind of insane activity by pseudo scientists reminds me of the Vietnam War and the saying "in order to save the village it was necessary to destroy it."

[1] WLRD started life as Surface Water Management but changed names when King County Council members started asking where the surface water money had gone.

[2] Coughlin, Dan, "Revelle's new plan may control water runoff in county," *Seattle Post-Intelligencer*, August 25, 1983, p. D12.

[3] Manga, Michael and James W. Kirshner, "Stress partitioning in streams by large woody debris," *Water Resources Research*, Vol. 36, No. 8, August 2000, pp. 2373-2379.

[4] Gippel, C. J., "Environmental hydraulics of large woody debris in streams and rivers," *Journal of Environmental Engineering*, I21, 1995, pp. 388-395.

[5] Seegrist, D.W. and R. Gard, "Effects of floods on trout in Sagehen Creek, California," *Transactions of the American Fisheries Society*, 101, 1972, pp. 478-482.

[6] Jowett, I.G. and J. Richardson, "Effects of a severe flood on instream habitat and trout populations in seven New Zealand rivers," *Journal Mar. of Freshwater Resources*, 23, 1989, pp. 11-17.

[7] Harvey, Bret C., Rodney J. Nakamoto and Jason L. White, "Influence of large woody debris and a bankfull flood on movement of adult resident coastal cutthroat trout (Oncorhynchus clarki) during fall and winter," *Canadian Journal of Fish and Aquatic Science*, Vol. 56, 1999, pp. 2161-2166.

[8] Nickelson, T.E., Solazzi, M.F., Johnson, S.L., and Rodgers, J.D. "Effectiveness of selected stream improvement techniques to create suitable summer and winter rearing habitat for juvenile coho salmon (Oncorhynchus kisutch) in Oregon coastal streams," *Canadian Journal of Fisheries and Aquatic Science*, 49, 1992, pp. 790-794.

[9] Harvey et al., 1999, p. 2165.

[10] Lernly, A. Dennis and Robert H. Hilderbrand, "Influence of large woody debris on stream insect communities and benthic detritus," *Hydrobiologia*, (Kluwer Academic Publishers, Netherlands, 2000), pp. 179-185.

[11] Larson, Marit, "Effectiveness of Large Woody Debris in Stream Rehabilitation Projects in Urban Basins," http://depts.washington.edu/cuwrm/research/effeclwd.pdf.

[12] Fishenich, J. Craig and James V. Morrow, "Streambank Habitat Enhancement with Large Woody Debris," *EMRRP*, May 2000,

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Open Letter to DNRP

By Jim Osborne

I have been an electrician for almost 20 years and spent the first 10 years just doing the daily routine. One Friday I went to work, got my list of service calls and went upon my way, just like normal. My last call was to unbury a dryer plug the sheet rockers had covered. I cut out the rock, reached back into the box and **WHAM**!

I woke up a minute later on the floor. It was a couple hours after that when I realized just how much liability my job carries. If I mess up, a house can burn or, worse yet, a person could die—something I don't think I could live with. I would take that hit, feel the ache in my joints and taste the copper a hundred times if it kept me from doing it to someone else.

You are probably wondering how this relates to DNR. From the research I have done and what our technical team has uncovered, Large Woody Debris (LWD) does little or nothing for salmon recovery. BEST AVAILABLE SCIENCE shows little to no change in salmon returns.

What LWD does do is create very dangerous whirlpools on our rivers and streams. I and most people I know have floated the Cedar River at least once but now with the placement of the LWD most don't think it's safe anymore. If you question the safety issue, just ask the parents of 13-year-old Summer Stone whose life is still in question.

My questions to DNR staff are:

- Do any of you feel bad or responsible for this little girl's mishap?
- Have any of you had a sleepless night knowing a project you designed or worked on might ultimately take a child's life?

Claiming ignorance will not work. You knew of the safety issues, as they are well documented. Yet I'm willing to bet none of you have visited this girl, sent flowers, or showed any signs of remorse. You might go back to the drawing boards and reconsider the balance of environment and humanity. How much liability is King County willing to assume? How much human suffering is it willing to accept in the pursuit of "enhancement" which is neither necessary nor effective?

Environmental Tragedy on the Green River

Observations of the Effect of Wood on Rivers and Fish, March 2001

By Roger Lowe, PE

INTRODUCTION

There have been two recent episodes of channel relocation on the Green River in King County Washington. Both are related to placement of wood in the river by King County. In both cases large amounts of silt and fine sand have been eroded and washed into important fisheries habitat and spawning areas.

The second of the two relocations resulted in the loss of approximately ½ mile of prime fish habitat. The river has cut a new channel eliminating an oxbow and significantly steepening and straightening the river channel. Erosion will continue to be severe in the new channel and adjoining portions of the river.

BACKGROUND

In the early 1900s, fisheries biologists and naturalists could directly observe the interaction of wood, river hydrology and fish. They concluded that wood in rivers was harmful to fish. Wood was observed to divert river flows and cause flooding and channel relocations. Until about 1970, State policy was to remove wood from rivers.

Construction of the Howard Hansen Dam on the Green River greatly reduced flood flows, and the amount of wood passing through the river. Since construction of Howard Hanson dam the Green River has been very productive of fish, particularly Chinook Salmon. The river was probably productive of Salmon before dam construction also. Representatives of the Washington Department of Fish and Wildlife (WDFW) state that of all the rivers discharging to Puget Sound, the Green was the only one with a healthy Chinook Salmon run.

Some observers believe that wood was once abundant in our rivers, and that this was favorable to Salmon. Wood can partly or completely obstruct the flow of water, creating pools and slowing the water so that gravel, sand and silt will accumulate.

Wood causes other changes to rivers, including bank erosion and channel relocation. Many fisheries specialists believe that these changes benefit fish. Further, several skilled fisheries specialists have observed that where there is wood, there are greater densities of juvenile and adult fish. Wood can provide a substrate for insects that are food for fish. Decaying wood adds nutrients to the water.

About 1970, some fisheries specialists concluded that the policy regarding wood was wrong. WDFW's current policy is to encourage or require placement of wood in rivers because of a belief that this was more "natural" and would benefit fish. There is no scientific or other evidence to support this conclusion. I have met with and talked with many of these specialists. I believe that most are intelligent, sincere in their belief and hard working.

The WDFW considers the Green to be deficient in wood. Regulators began requiring the addition of wood as a condition for approval of work in the river, including maintenance of bank protection. Beginning about 1995, King County's Department of Natural Resources began placing artificial LWD in many locations along the Green River. These installations were purported to protect the banks from erosion, slow river flow and benefit fish.

LWD does slow river flows and raise river levels. According to US Army Corps of Engineers' calculations, a

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single King County root wad installation in Tukwila increased river levels about 6 inches, with effects extending about 6 miles upstream.

There are now dozens of King County root wad installations between Tukwila and the channel relocations described below. The effects are partially cumulative. Slower river flow encourages the deposition of sand and gravel, aggrading, (building up) the river bottom and encouraging channel relocation.

also includes many gravel areas used by Salmon for spawning. Silt and fine sand covers spawning areas and smothers eggs and emerging fish. Silt and fine sand also damages the gills of fish, particularly juveniles. Because of these effects, there is extensive regulation of logging and farming to limit erosion.

A very large maple tree lodged in the river at the location of the Hamakami root wad installation. A very large log jam developed, anchored on the maple tree and the remaining portion of

A single King County root wad installation in Tukwila increased river levels about 6 inches, with effects extending about 6 miles upstream

TRADGEDIES
A major LWD bank protection project was constructed in 1995 on the Green River at a location called the Hamakami Strawberry Farm. This is approximately 3 ½ miles upstream of the Highway 18 bridge over the Green River. This installation consisted of tree boles, with the root wads intact. (Tree boles are the lower portion of a tree trunk.) The boles were buried in the river bank with the root wad projecting into the river a distance of about 12 feet. The boles and root wads were angled in the upstream direction. The project experienced failures during construction, apparently due to unanticipated scour around the root wads. The scour undermined part of the bank, and slope failure occurred.

During the winter of 1995-96, there were three major flood events. Approximately 1/3 or 200 feet of the downstream portion of the Hamakami root wad installation was washed away. Approximately 40 feet of land was lost, and about 10,000 Cubic Yards of silt and fine sand were washed downstream.

The Green River below the Hamakami Strawberry Farm includes about 40 miles of river channel extensively used as habitat by fish, and

the root wad installation. This jam completely spanned the river channel. Flow continued through and under the log jam until the river cut a new course through gravel deposits on the side away from the root wad installation. This gravel washed downstream.

According to King County personnel, after the failure at the Hamakami root wad installation, the river downstream began overflowing its banks. The downstream location is referred to as the "Auburn Narrows", and is about 4 miles downstream of the Hamakami location. At the Auburn Narrows there was a ½ mile long oxbow or meander in the river. The entrance of the oxbow was essentially blocked by accumulations of gravel in the channel and by woody debris at its entrance. This forced the river to overflow its banks and explore a new course.

The overflow began eroding a new and much shorter channel cutting across the base of the oxbow. As of this writing, approximately 25,000 CY of silt and fine sand has washed downstream into Salmon spawning and rearing areas.

The new channel is now well established. It is about 1/6th of a mile long, or 1/3 of the length of the oxbow. The new channel and existing channels are nearly straight for a mile, whereas the river formerly had a meandering pattern. The now straighter and steeper channel is continuing to cut downward and wash silt downstream. There likely will be other severe channel changes.

The new channel location was densely covered by logs and Alder and Cottonwood trees up to 3 feet in diameter. The trees and logs together with logs washed into the area have created an amazing jumble that is extremely hazardous to fishermen, swimmers and boaters.

LWD is well known as a hazard to people. In 1999, there were five accounts in the media of deaths in Washington State contributed to or caused by LWD. I do not know of any deaths caused by artificial LWD, but there have been accidents, and sooner or later there will be a death. The people most at risk of injury or death from LWD are children and adults who do not regularly use our rivers for recreation. They are not informed about the force of a river current or the possibility of being snagged by LWD or being pinned.

Because of the hazard to the public represented by the jumble of logs at the Auburn Narrows, King County has banned all floating, swimming or boating in approximately a mile of the Green River including and upstream of the log jumble.

FUTURE HAZARDS AND SCIENCE
The risks of flooding, injury and death posed by introducing or encouraging wood in rivers is so severe and intractable, that legislation was introduce last year in our legislature, (SHB 2719) that would give immunity from liability for flooding, injury or death to designers and sponsors of LWD constructions.

The City of Tacoma plans to dump a large number of whole trees, logs

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Environmental Tragedy on the Green River

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and other wood into the Green River below Howard Hansen dam. It is likely that some of this will form deadly hazards in the Green River Gorge or elsewhere on the river. There are many historical accounts of log jams forming on our rivers and causing the rivers to relocate or to overflow and flood surrounding areas.

A great deal of unanchored wood has accumulated in the Green River since the last flooding in 1995-96. If this wood moves during some future flood event, and a jam develops in the Auburn/Kent Valley or at Tukwila, severe flooding could occur.

Many factors, such as ocean conditions, habitat conditions and increased fishing pressure effect the productivity of our rivers. It is difficult to determine the relative importance of the many factors affecting Salmon abundance. However, the change in policy with regard to wood does coincide with the most severe declines of Salmon.

Our rivers are highly altered. Development and logging have altered runoff coefficients increasing peak flows and reducing low flows. The rivers have been dammed, diked, dredged, and diverted. The resulting environment is very different from the original. Wood is only one element of the very complex predevelopment river environment. It is folly to believe that adding wood to an environment unlike that which did exist, and which is not natural to the environment that exists now, will be beneficial.

My observations are that, in general, there is not and never has been significant accumulation of wood in the portions of our rivers where erosion is dominant, or where sediment is primarily transported, (neither erosion nor deposition dominates.) Wood is neutral or somewhat positively buoyant and is easily moved through these areas. My observations are confirmed by current practices by King County and others, who have found it necessary to use heavy anchors and cable or chain to retain wood in erosion or transport regimens of rivers.

Wood does accumulate in flood plains where fine sediments also accumulate. Pictures, historical accounts and other evidence show that this is true. There is a great deal of variation in rivers. There are exceptions and unusual occurrences. But these do not prove that wood is beneficial.

Bob Aldrich of Snohomish County is responsible for several LWD constructions on the North Fork of the Stilliquamish River. I have asked him to provide evidence that these constructions improve the occurrence of pools and riffles in the section of the river where they have been placed. He has not responded.

Belief or hypothesis should be the starting place for scientific examination, not the basis for action

I have asked dozens of fisheries specialists for references to any scientific research showing that wood improves fish production or survival. Most recently I have made this request to the University of Washington's Center for Streamside Studies, and to Kurt Beardslee of Washington Trout. Only Scott, a habitat specialist for the Yakima tribe has responded, writing to say that it is impossible to prove that wood benefits fish.

I have reviewed nearly 100 fisheries research reports. Some show that wood causes changes in river conditions that some people believe benefit fish. None provide evidence that wood in rivers improves the production or survival of Salmon. Belief is not a substitute for science. Doing so is a recipe for disaster. After all, it was once believed that the oceans had an inexhaustible supply of fish. And, it was once believed that hatcheries would provide an abundance of larger and more vigorous fish. Both beliefs were false. Belief or hypothesis should be the starting place for scientific examination, and not the basis for action.

There have been prior attempts to protect riverbanks and improve fish habitat using logging trash, car bodies, and tires. They are similar to wood and LWD in form and function. They have been tried and found to be failures.

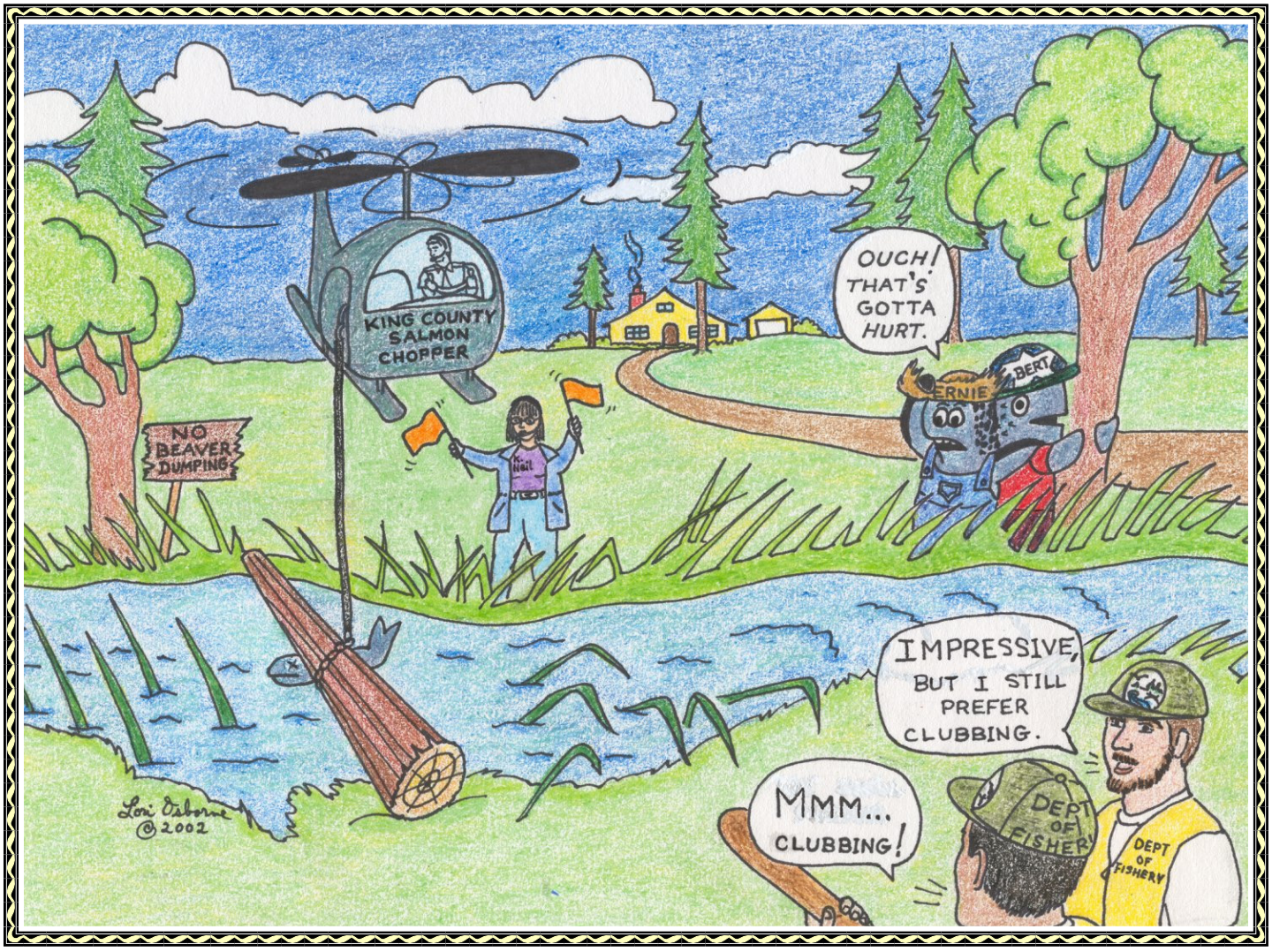
There are others who have noted serious discrepancies between science and practice with respect to our rivers. Please see the article by James Fallows, "Saving Salmon, or Seattle?" in the October 2000 issue of the *Atlantic Monthly*. This is available on line at www.theatlantic.com/issues/2000/10/fallows. Also see the book *The Great Salmon Hoax* by James Buchal, available on line at www.buchal.com. Many examples of rapid failure of LWD and "bio-engineering" attempts at stream improvement are available at www.tostreams.org, and www.main.net.

I will soon make additional information and photographs available on line supporting the observations made here. These will be available at www.main.net/Green River.

I have over 60 years of experience fishing, hiking and boating on our rivers. I am professionally trained in Engineering and Geology, and have practiced professionally for 40 years in fields applicable to understanding river behavior. In my opinion, current practice and policy with respect to wood in our rivers is harmful to fish, and is severely and unnecessarily harmful to people. It is a "red herring" that obstructs attention to the dominant factors harming our Salmon and river environments. We deserve better. Salmon deserve better.

"A peak density of about one adult chinook salmon per mile of surveyed stream was counted in the lower 3 miles of May Creek during spawner surveys in 1993."

Senior Engineer Kathryn Neal
May Creek Canyon Stream Restoration Project
June 2002



LWD

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For Sale

Approximately 3 cords premium firewood for sale. You cut, you haul. $100 per cord. Paid $2,600 per cord. Located at 11205 164th Avenue SE. Help yourself.

Send check to Senior Engineer Kathryn Neal, Department of Natural Resources & Parks, Water & Land Resources Division, 201 S. Jackson Street, Suite 600, Seattle, WA 98104.

A Message from the President

When we formed May Valley Environmental Council it was to fight the May Creek Basin Plan of 1998 which was designed to ensure the continued flooding of May Valley. At that time we insisted that if King County was going to intentionally flood us then they should have the courtesy to say so and give us the option to sell out to them.

Then the Basin Plan of 2001 was passed with changes we had fought for that would provide flood relief. Recent events such as the placing of large woody debris and riparian plantings at the County property at 164th Street indicate that King County is really proceeding with the original 1998 plan to continue flooding the valley. There is no other logical explanation of their change of approach from the initial work they did on that property in 2001 to the work they are doing now or of their inability to get a project going this year.

As we all know, King County now has a voluntary buy-out program in place. Recently King County has showed that valley property is more valuable as wetlands than it is with human occupancy in the calculations used to purchase the Bruce property. The regular value of the house and property was set at a modest $150,000 with an additional value of $173,350 ($86,675 per acre) for the wetland's water storage function.

We of May Valley are encouraged by the County's assessment of our land's worth as swamp and eagerly anticipate the County's speedy purchase of all our properties. They will get their much-desired swamp honestly and fairly and we will have the means to relocate to a county more in tune with the rural lifestyle.

The Naked Fish, published by
May Valley Environmental Council

Editor: KP Jones
15125 SE May Valley Road
Renton, WA 98059
(425) 917-9944 Email: mvec@mayvalley.com

Protect Historic May Valley!

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