

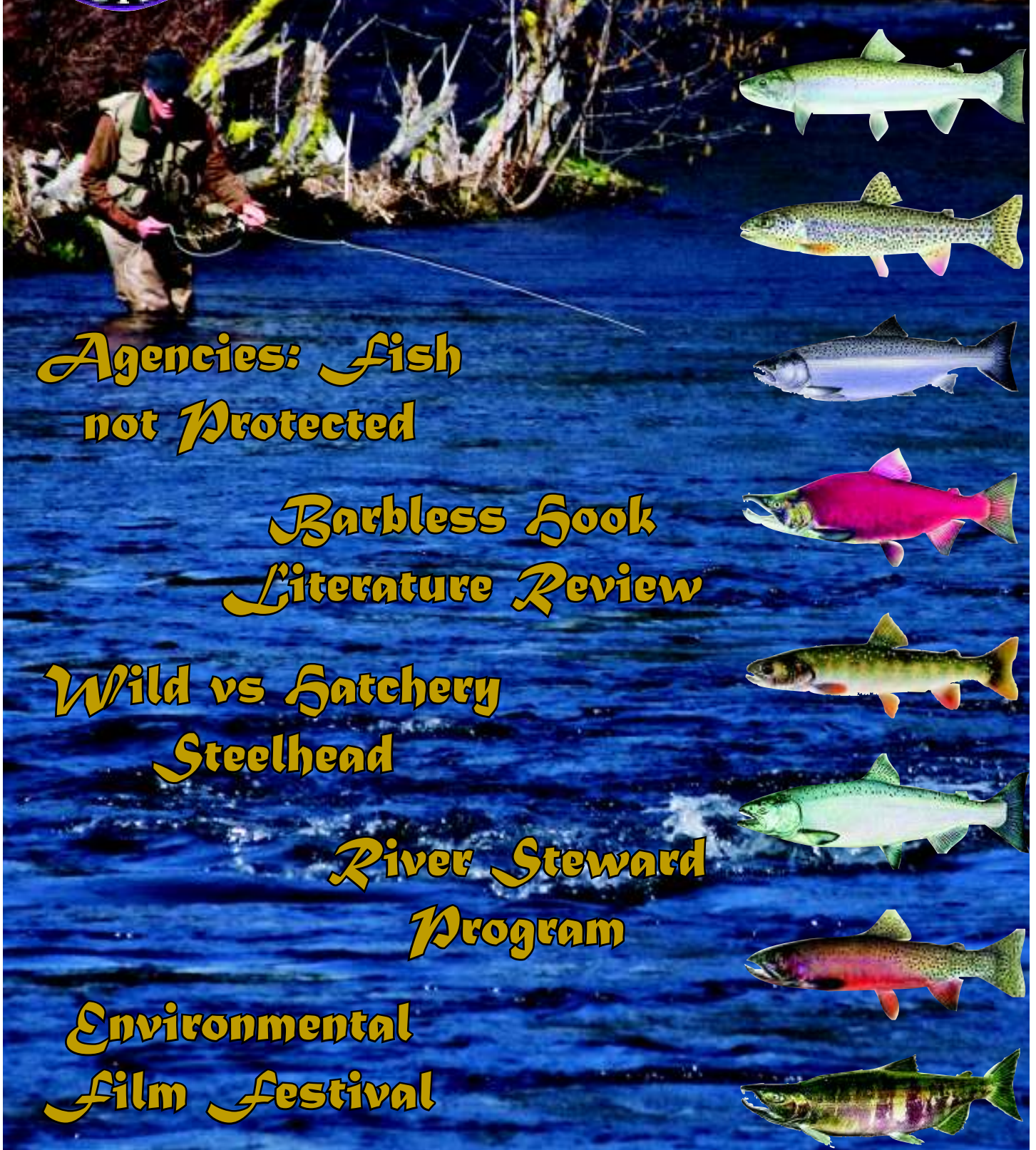


Strong Runs

Wild is the Future

Newsletter of the Native Fish Society

Summer 2008



**Agencies: Fish
not Protected**

**Barbless Hook
Literature Review**

**Wild vs Hatchery
Steelhead**

**River Steward
Program**

**Environmental
Film Festival**



Oregon fish not protected

Agencies acknowledge that not enough is being done to prevent collapse of Oregon watersheds

by **Tom Davis, P.E.**
NFS Upper Deschutes Steward

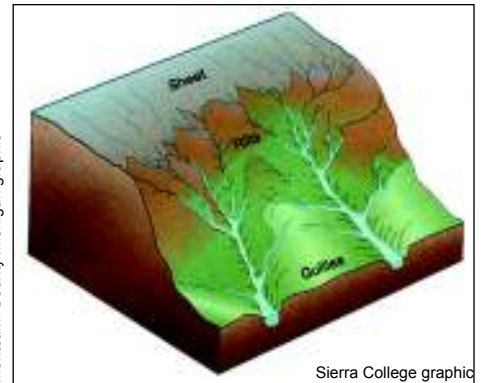
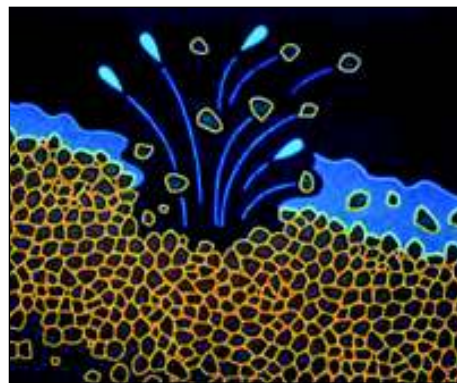
It may come as no surprise that Oregon's native fish are inadequately protected. But the nature, extent and seriousness of the problem may come as a surprise. It was to me.

For many of us the decisive fish issues have revolved around hatchery versus wild-native fish, commercial fishing and kill or release of the sport fishing catch. The current collapse of some of our West Coast salmon populations has justifiably heightened our concern about what our state and federal fish management agencies are doing in or along the river. However, the problems often, if not usually, originate in the watersheds, and our attention to those aspects of comprehensive aquatic health must be significantly increased.

Our insufficient interest in watershed and instream protection and recovery issues originates in the illusion that Oregon is a "green" state and that we have strong fish protection laws regarding water quality, forest and agricultural practices, land use, instream flows and threatened or endangered species. The laws may be strong, but the truth about implementation is quite different, as interagency revelations that have received little public attention point out.

This article explains the problems and suggests solutions. It also provides quotes from official and expert sources that may come as surprises when placed into a comprehensive context focusing on fish.

The bottom line is that while the laws per se may be adequate if applied in ways that protect and restore aquatic ecosystems, the implementation programs have been anemic. The primary causes are political intimidat-



Erosion has three basic components, mass (e.g. landslides), channel and surface/sheet. The first two are easily observed, but surface erosion, which usually begins with rain (left), is difficult to see and understand. The resulting rivulets and rills are more easily observed (right).



Surface erosion can result in serious sedimentation problems, but since it's easily dismissed or overlooked it is seldom dealt with. A good example of Deschutes watershed surface erosion occurs from a trail at Three Creek Meadow as shown above.

tion, timid public agencies that often depend on those they regulate for funding, and insufficient political backbone.

The programs involve water quality related to numerous nonpoint pollution threats, soil exposure and damage at construction or other disturbance sites, forest practices, agricultural practices, aquatic and riparian habitat protection and restoration, instream flows and species needing special protection. The Oregon Departments of Environmental Quality (DEQ), Water Resources (OWRD), Agriculture (DOA), Forestry (ODF), and Fish and Wildlife (ODFW) administer the programs.

Administrative oversight of our land use laws is by the Department of Land

Conservation and Development (DLCD). The implementation is by cities, counties and special districts and is insufficient for aquatic life protection throughout most of the State.

One underlying weakness is the inability of Oregon's agencies to "just say no" to obvious threats. Another is the unwillingness to take action on obvious threats until the cause-effect relationships are undeniable. For the types of out-of-sight, out-of-mind problems usually involved, that means waiting until the damage has occurred, i.e. after it's too late or too expensive to prevent or restore.

See Not Protected, Page 8

On the cover: A fisherman tries to catch a wild trout on the Metolious River, one of only a handful of Oregon rivers designated for single, barbless hooks only.

Photo by Tom Davis

Literature Review: Barbless hooks have clear conservation benefit

by **Bill Bakke**
NFS Executive Director

When there is a conservation concern for a wild salmonid population such as one listed as threatened under the Endangered Species Act, each fish is valuable for its potential contribution to recovery of the population. The loss of juvenile steelhead and salmon can negatively affect adult abundance several years later. It is important to consider all sources of mortality and take appropriate action over those that can be affected by management. Reducing the mortality associated with angling by requiring single barbless hooks is an important policy decision. Doing so can increase survival of juvenile and adult fish by reducing handling time required to take out the hook, and injury from handling as well as exposure to the air.

The following peer-reviewed studies provide a scientific basis for angling regulations to include barbless hooks as a factor important to conservation of native, wild salmonids. While there is ample justification to use barbless hooks on adult fish as required in ocean commercial fisheries to promote easy release with less handling and a goal of reducing mortality, there is also a measurable conservation benefit from using barbless hooks when adult salmonids are captured by angling in freshwater. These studies provide the verification for this conclusion. Using barbless hooks to reduce injury and mortality for juvenile salmon and steelhead is often overlooked when setting angling regulations. Steelhead juveniles rear in freshwater for two to three years and are exposed to angling mortality in fisheries targeted on trout and adult steelhead and salmon. It only makes sense to include juvenile fish protection as a benefit of barbless hook fisheries.

With a few exceptions such as the Metolius River, the Oregon Department of Fish and Wildlife has adopted a position opposed to the use of barbless hooks as a conservation tool for vulnerable wild salmonid populations. They base this policy on a scientific literature review done by staff in 2001. Oregon stands alone among entities that are concerned about recovery and protection of wild salmon, trout and steelhead. British Columbia requires single barbless hooks province wide, Washington requires single-point barbless hooks in areas designated as "fly fishing only" or "selective gear rules;

California requires single barbless hooks on most trout and steelhead fisheries; Idaho says only barbless hooks may be used when fishing for steelhead in the Salmon and Clearwater river drainages and the Snake River below Hells Canyon Dam.

The studies provided below provide the scientific justification for the Oregon Department of Fish and Wildlife and Commission to adopt single barbless hooks as a management tool to protect native, wild salmonids throughout the state. In waters where these fish are threatened, a more precautionary management approach is appropriate to reduce mortality. In waters where wild fish harvest is allowed, a barbless hook regulation would provide a conservation benefit for those that are released. For example, in some rivers a limit of one wild steelhead per day and five per year is allowed.



Photo by Russell Bassett

This wild steelhead smolt was caught earlier this summer on a barbed treble hook spinner and then released. The hook damaged the fish's right eye, ruining its chances of survival into adulthood. The Oregon Dept. of Fish and Wildlife did a literary review and determined that there was no conservation benefit to single, barbless hooks but science and common sense say otherwise.

In those fisheries a hatchery fish may also be taken. This means that the angler may release one or more wild fish in order to take a legal limit that includes a hatchery fish. There is also evidence that wild steelhead contribute more to the fishery than their numbers would suggest, so single barbless hooks would not only help prevent mortality, they could contribute to more angler satisfaction through multiple hookings.

The point of this paper is to provide the Department and the Commission with information that provides the scientific justification and benefit of using barbless single hooks in Oregon waters for adult and juvenile fish.

Wright, Sam. 1992. Guidelines for selecting regulations to manage open-access fisheries for natural populations of anadromous and resident trout in stream habitats. North American Journal of Fisheries Management 12:517-527.

Adding restrictions requiring single hooks, barbless hooks or flies can provide only relatively small incremental improvements in trout survival. However, managers have realized that these can become important in situations where individual fish are hooked many times.

The chance of mortality from a single hooking event was examined for various unweighted combinations of terminal gear from our compilation of research results. The categories and single-event losses were as follows:

See **Barbless**, Page 6

Perspective on hatchery and wild steelhead

Wild steelhead not only have a higher spawning success rate than hatchery steelhead, but are also more prolific biters

by **Bill Bakke**
NFS Executive Director



Wild steelhead spawners are 270% more effective than hatchery spawners in contributing to juvenile abundance and have 600% greater reproductive fitness than hatchery fish (Chilcote et al. 1984).

Wild steelhead also contribute more to fisheries than do hatchery steelhead. According to an Idaho study wild steelhead contribution to the fishery was 7 fish for every 1 hatchery fish even though only 25% of the run was made up of wild origin steelhead (Stonebraker personal communication).

A similar result was noted by Oregon biologists on the Deschutes River. The hatchery steelhead also cost the state more because they have to be produced in hatcheries using primarily public funds, whereas, wild steelhead cost is near zero for they are produced naturally by their watershed naturally. The cost to catch for hatchery steelhead is \$453 per fish from Irrigon Hatchery (IEAB 2002).

Irrigon Hatchery summer steelhead are known to stray into Deschutes and John Day rivers where they were not released. Wild steelhead in these rivers are listed as a threatened species under the Endangered Species Act. The Technical Recovery Team assessment for the Mid-Columbia ESU states the Expert Panel found that “out-of-basin hatchery steelhead are a key *threat* to the populations” in these rivers (Carmichael 2006). Stray steelhead can and do interbreed with wild steelhead and reduce reproductive fitness of wild origin fish. Strays that spawn

naturally produce juveniles that compete with wild steelhead for rearing space and food. This ecological impact reduces the number of wild steelhead smolts produced naturally and wild adults returning to the river. According to ODFW “Juveniles per spawner decrease at a rate equal to or greater than the proportion of hatchery fish in the natural spawning population.

In other words, a spawning population with 20% hatchery strays had the net survival rate (recruits per spawner) that was 20% less than a population comprised entirely of wild fish (0% hatchery strays). Likewise, a population with 40% hatchery strays had a population survival rate that was 40% lower than a population comprised entirely of wild fish” (ODFW 2008).

Anglers have also noted that hatchery fish are often not equal to wild fish in their aggression and performance. The impact of hatchery steelhead on angling quality, in terms of their contribution and sporting value, is lower when compared to wild steelhead.

Hatchery steelhead cannot replace or make up for the decline of wild steelhead from the perspective of the angler and the biologist. Recognizing this has not made an impression on managers as they press for more hatchery production.

To protect the abundance and productivity of wild steelhead anglers have an obligation to kill all hatchery fish landed. By choosing not to do so one is not only damaging quality

angling, but the capacity of his favorite river to grow wild steelhead in the future.

Recognizing this problem, the Native Fish Society initiated a project to construct hatchery steelhead exclusion weirs on two important tributaries of the Deschutes River so that only wild steelhead have access to the spawning and rearing grounds. This project will produce more wild steelhead and improve the Deschutes fishery. This project is in cooperation with the Oregon Department of Fish and Wildlife with funding from Oregon Wildlife Heritage Foundation, NFS members and Scott Richmond of Westfly.com.

References

Carmichael, R.W. et al. 2006. *Recovery plan for Oregon's Middle Columbia River steelhead. Progress Report, Oregon Department of Fish and Wildlife, La Grande, Oregon.*

Chilcote, M.W., S.A. Leider, and J.J. Loch. 1984. *Kalama River salmonid studies: 1983 progress report. Washington State Department of Game, Fishery Management Division, Research Section, Olympia.*

IEAB. 2002. *Artificial Production Review – Economic Analysis Phase 1. Part 1. Research approach, findings, and recommendations. Northwest Power Planning and Conservation Council, Portland, Oregon.*

ODFW. 2008. *Recovery Strategies to close the conservation cap, methods and assumptions. Lower Columbia River Recovery Plan Stakeholder Team for Oregon.*

Steward Update

by **Russell Bassett**
NFS River Steward Coordinator

The Native Fish Society's River Steward Program has come a long way in the four years since its conception. The program began as a way to ensure fish management agencies complied with the Native Fish Conservation Policy, and to help ODFW develop conservation plans for native fish in watersheds throughout Oregon.

NFCP compliance remains a strong focus of the program, but now NFS Stewards work to conserve, protect and restore native fish populations on their watersheds through a variety of ways, including identifying threats to recovery and developing solutions, creating coalitions to stop threats to native fish, habitat enhancement, nutrient enrichment, fish surveys, education, angling regulation changes and community outreach, among others.

There are currently more than 26,000 square miles of Oregon and Washington watersheds covered by 15 NFS River Stewards. Rivers that currently have Stewards include the Deschutes, John Day, Lower Columbia, Mid-Oregon Coast rivers, Molalla, Nestucca, North Oregon Coast rivers, North Umpqua, Sandy Rogue and Yachats.

NFS River Stewards have had numerous accomplishments in the never-ending, up-hill battle to protect and restore native fish. Some of these accomplishments include:

The Rogue River now has a scientifically sound wild spring Chinook management plan, and the killing of wild winter steelhead has been stopped on the Umpqua River thanks in large part to the efforts of NFS' Rogue Steward.

Two exclusion weirs to separate stray hatchery steelhead from wild steelhead will be in place before the spring spawning season. Hatchery steelhead will no longer be able to access the important wild spawning tributaries Bakeoven and Buck Hollow, meaning many more wild fish in the Deschutes.

NFS Molalla River Stewards were instrumental in stopping a proposed gravel mine on the river and settling a lawsuit with the city of Molalla over Clean Water Act violations for its wastewater outflow. The settlement brought more than \$100,000 for fish enhancement to the river. The Stewards have also been successful in engaging the local community in the health of the Molalla watershed, forming the Molalla River Alliance that includes federal, state and municipal participation along with local citizens, conservation groups and businesses.

NFS's Mid-Oregon Coast Steward facilitated the purchase of land on the Oregon coast which was designated as a state park, creating excellent fish habitat for threatened native fish species.

Russell Bassett, who recently returned from a tour in Iraq with the Oregon National Guard, has moved into the newly-created River Steward Coordinator position, and is now working full time to help the Stewards with their conservation efforts.

"We've got a great group of Stewards in place, doing some outstanding work to protect native fish and their watersheds," Bassett said. "As we look to the future, we will have more support for our



Courtesy photo

NFS River Steward Walt Weber (right) and others provide nutrient enrichment in the form of carcass placement in the Clatskanie River after the December flood.

existing Stewards and put new Stewards on watersheds where they are most needed."

There are many challenges to native fish restoration, and each edition of Strong Runs will highlight Stewards' efforts to overcome these challenges. This edition features Stewards' efforts to protect sea-run cutthroats and restore fish passage on the North Umpqua River.

NFS Stewards Walt Weber, Shane Stewart and others are working tirelessly to protect Oregon sea-run cutthroat from angling pressure. Weber's angling regulation proposal was one of only seven proposals originally rejected by ODFW staff that was moved forward to the Sept. 19 ODFW Commission hearing. At the Aug. 8 hearing, the Commission listened to the numerous supporters of the proposal and voted to move the proposal forward for more consideration.

"Sea-run cutthroat are a sensitive species that we perceive to be in a depressed position," said Weber, a retired ODFW biologist. "It makes all sorts of biological sense to protect these fish. Harvest and the use of bait are killing smolts. This proposal does not take any opportunity away, except the opportunity to kill smolts, and actually increases opportunity because you will catch those adult sea-run cutthroats time after time.

Weber pointed to the 2006 Oregon Angler Survey as support for the proposal.

"The survey indicates that Oregon anglers want a quality fishing experience," he said. "They want to catch a 12-inch fish and they want to make sure there are restrictive regulations to get to that point. Most of them will enjoy the fishing experience whether they kill a fish or not. ODFW conducted the survey, but they are ignoring it because the results do not fit with their agenda."

North Umpqua Steward Rob Bowler is working closely with other concerned groups to ensure fish passage at Soda Springs Dam. Bowler met with a group of concerned citizens (many of whom are experts in various aspects of the river, fishery, dam construction and maintenance, etc. and have been involved with the PacifiCorp Soda Springs issues since the early 1990s,) on Aug. 12 to review

See Stewards, Page 13

Barbless, from Page 3

Barbless hooks with flies: 1.76%
All barbless hooks (with flies or lures): 2.16%
Barbless hooks with lures: 3.00%
All hooks with flies: 3.34%
Barbed hooks with flies: 3.88%
All barbed hooks: 5.86%
Barbed hooks with lures: 6.86%

“The most fundamental rule to remember in managing any open-access trout fishery is that effective regulatory control must be applied to every individual fish (Hunt 1970). Fishing seasons and daily bag limits, when used by themselves, are not effective management tools, because they do not apply to each fish that is captured.”

Meka, Julie, M. 2004. The influence of hook type, angler experience, and fish size on injury rates and duration of capture in an Alaskan catch-and-release rainbow trout fishery. North American Journal of Fisheries Management 24:1309-1321.

“Recent studies have emphasized a holistic approach to evaluating the effects of catch-and-release angling on fish by evaluating both sublethal and lethal effects. When fish are subjected to angling stress, they are affected by stressors that may not cause immediate mortality; in fact, some may influence ultimate survival. These stressors include physiological disruptions from landing time, handling time, and exposure to air during the hook removal process or when photographed, as well as the potentially confounding effects of nonlethal hooking injuries.”

“...fishing methods and whether J hooks were barbed or barbless significantly influenced new overall injury rates. Fish caught by spin-fishing had similar injury rates as those caught by fly-fishing; thus, significance was from higher injury rates with barbed hooks for both fishing methods as well as higher injury rates for barbed hooks between fishing methods.”

“...novice anglers injured proportionally more fish than experienced anglers. The number of new injuries per capture was more significant in small fish. Small fish were hooked in more than one location more frequently than large fish (small fish <440

mm or 17-inches)...small fish were injured more frequently, and bleeding was most significant in fish hooked in sensitive areas and in small fish...small fish had higher bleeding rates. Bleeding was more prevalent in small fish. This presumably was because they were injured in sensitive areas more often as well as injured more often.”

“...hook removal time was significantly longer when barbed J hooks were used compared to barbless J hooks. Mortality was also higher for fish caught with treble hooks compared with single hooks, presumably because the increase in hook-point penetrations increased the probability of injury to critical locations and associated bleeding. My results indicate that smaller fish (<17-inches) may be more vulnerable to mortality.”

“In this study, barbed J hooks caused significantly more new hooking injuries, took longer to remove, and were more efficient at catching fish than barbless hooks. Higher

“...the mortality rate for fish caught with barbed flies or lures is almost double the mortality rate of fish caught with barbless flies or lures.”

injury rates and longer handling times for barbed hooks were mostly likely due to difficulty in hook removal and hooks becoming tangled in landing nets, both of which were observed to intensify injuries and bleeding. Barbless hooks have been found to cause a lower incidence of injury and bleeding than barbed hooks and decrease the amount of time fish are handled and exposed to air while removing hooks.”

“The results of this study indicate that the use of barbless J hooks may minimize injury and reduce the amount of time fish are handled during hook removal and that angler experience can contribute to hooking injury.”

“However, a slight reduction in hooking injuries and less handling time are two important benefits to consider in support of a regulation change or promotion of angler education programs for catch-and-release trout fisheries.”

“...focus future research on the prolonged sublethal effects of hooking injury on trout populations, and develop angler education

programs and gear restrictions to minimize injury.”

Schreer, Jason, F., Dayna M. Resch, and Malachy L. Gately. 2005. Swimming performance of brook trout after simulated catch-and-release angling: looking for air exposure thresholds. North American Journal of Fisheries Management 25:1513-1517.

“Air exposure has been hypothesized as one of the primary stressors present during catch-and-release angling. However, there are few studies that systematically vary air exposure duration and evaluate the consequences on individual fish. Here we evaluated the short-term sublethal effects of exercise (to simulate angling) and air exposure on the swimming performance of hatchery brook trout at 10 degrees C. (50 degrees F.). Nearly half of the fish held out of the water for 120 seconds were unwilling or unable to swim at all. This work suggests that fish possess air exposure thresholds

that, once exceeded, result in performance impairments. Fish released after extended air exposure may become easy prey for predators or could be displaced downstream. We conclude that air exposure should be restricted to less than 60 seconds and ideally should

be avoided entirely.”

(Note: Barbless hooks decrease the amount of time fish are handled and exposed to air while removing hooks in the study by Meka.)

Taylor, Mathew, J., and Karl R. White. 1992. A meta-analysis of hooking mortality of nonanadromous trout. North American Journal of Fisheries Management 12:760-767.

“...fish caught on barbed hooks had higher mortality rates than fish caught on barbless hooks.

“...the mortality rate for fish caught with barbed flies or lures is almost double the mortality rate of fish caught with barbless flies or lures.

“...the effects of handling on hooking mortality have been sparsely investigated. It would be nice to know about variables such as net use, resuscitation techniques, time out of water, and the effect of barbs on handling time. Research on these variables would give a clearer understanding of how to increase survival rates.

The overall average mortality rate in these 18 studies was just under 12%. Under the best conditions, with barbless flies or lures, the percentage dropped to under 3%.

Reingold, Melvin. 1979. Mortality and catch rates of juvenile steelhead trout caught on single versus treble barbless hooks. Idaho Department of Fish and Game.

"...even at the low level of mortalities observed, losses from treble barbless hooks were 4.5 times that of losses from single barbless hooks. In an intensive catch-and-release fishery, this could be meaningful... anglers hooked and released 75,000 cut-throat trout on the Middle Fork Salmon River in 1978. Applying the percent mortality observed, single barbless hooks would account for 428 deaths versus 1,928 for treble barbless hooks, a difference of 1,500 trout; predominately spawner size individuals. This is 83% of the estimated season trout harvest in that stream in 1969 (1,800) when it was catch and keep."

Pollard, Herbert, A., and Ted C. Bjornn. 1973. The effects of angling and hatchery trout on the abundance of juvenile steelhead trout. Transactions of the Americana Fisheries Society No. 4: 745-752

"A large proportion of juvenile steelhead trout in a stream can be removed with a moderate amount of angling. Age II-plus steelhead are especially susceptible to harvest by angling and 70 to 100% of those present in a 122 m (400 ft) section of stream were removed with 4 angler hours of effort. The normal sport fishery may take as many as half of the catchable size (age II-plus) juvenile steelhead from a stream such as the Crooked Fork each year, and thus may reduce the number of smolts produced."

"Hatchery reared, catchable sized rainbow trout did not act as a buffer to reducing the angling harvest of juvenile steelhead..."

"Removal of the larger pre-smolts by angling could decrease adult returns due to fewer smolts and decreased survival of the remaining, small smolts."

(Note: This study was included to show how vulnerable juvenile steelhead are to a trout fishery and the impact of a fishery on the future abundance of adult returns. Angling with barbed hooks increases tissue damage, handling time, exposure to air, and causes smolt and adult return reductions.)

Cowen, Laura. 2007. Effects of angling on chinook salmon for the Nicola River, British Columbia, 1996-2002. North Americana Journal of Fisheries Management 27:256-267

"Gjernes (1990) found that barbed hooks caused higher hooking mortality rates. Bartholomew and Bohnsack (2005) reported three studies that showed increased mortality when using barbed versus barbless hooks. We did not use barbed hooks in this study."

"The optimal angling gear and techniques used in our study included soft, knotless-mesh landing nets, suitable hook sizes, barbless hooks, short playtime, short handling time, little or no air exposure, angling only at water temperatures less than or equal to 20 degrees C, and leaving deep hooks in or removing them gently with pliers. In addition, Bartholomew and Bohnsack (2005) advocate fishing actively and setting the hook as soon as possible, use of dehooking

"... there is compelling evidence that barbless hooks are easier to remove than barbed hooks. Ease of removal results in reduced handling time and tissue damage, thereby decreasing associated mortality."

tools, and avoidance of touching gills and handling the soft underbelly of the fish."

Pelletier, Christine, Kyle C. Hanson, and Steven J. Cooke. 2007. Do Catch-and-release guidelines from state and provincial fisheries agencies in North America conform to scientifically based best practices. Environ Manage 39:760-773

"Barbless hooks were recommended by 34 (or 69%) agencies as an alternative to barbed hooks."

"However, there is compelling evidence that barbless hooks are easier to remove than barbed hooks. Ease of removal results in reduced handling time and tissue damage, thereby decreasing associated mortality."

"The Ontario Ministry of Natural Resources and the Utah Division of Wildlife Resources explained that replacing treble hooks with single hooks makes live release easier. Because air exposure tends to occur when anglers remove hooks, these agencies have taken a positive approach in stressing the importance of a timely live release."

"Air exposure was the most widely discussed catch-and-release issue among agencies. It was found that 44 of 49 agencies provided advice on the subject. The most common recommendation (64%) was to keep the fish in the water at all times. This is consistent with studies showing that air exposure is extremely harmful in fish that have experienced physiological disturbances associated with angling. Tufts (1992) found that when rainbow trout were exposed to air for either 30 or 60 seconds after exhaustive exercise, mortality increased from 38% to 72%, receptively ... removing hooks (in deeply hooked fish) often results in mortality associated with increased handling time and air exposure."

"Considering that water temperature is regarded as the 'master factor' in the biology of fishes, it is surprising that angling at extreme temperatures was not incorporated into all agency guidelines."

"...mortality among Atlantic salmon is minimal when angled at water temperatures between 8 degrees C and 18 degrees C., but as water temperatures increased to greater than 18 degrees C, the risk of angling-induced mortality increases considerably."

"...we believe that natural resource agencies are the appropriate target of initial attempts to ensure that catch-and-release guidelines are consistent with the best scientific information."

In recent angler surveys by Oregon and Washington fish management agencies, a larger proportion of the respondents practiced catch-and-release fishing. Anglers are embracing live release fishing as a conservation measure. It also does not substantially deplete fish numbers like a kill fishery, and provides at least the expectation that the fish will survive to reproduce or be caught again. The use of single barbless hooks complements the growing interest in catch-and-release fisheries. As these studies show, their use reduces sublethal and lethal impacts on juvenile and adult fish.

The Oregon Department of Fish and Wildlife and the Commission ought to review their opposition to the use of barbless hooks in selective fisheries. The goal of selective fisheries is to allow angling opportunity while achieving conservation objectives. Barbless hooks advance the conservation objectives of selective fisheries.

Not Protected, from Page 2

The problems were brought to the surface by letters from DEQ, ODFW and OWRD to Governor Kulongoski regarding Oregon's program sufficiency for protecting the world-class Metolius River from destination resorts; a Dec. 14, 2005, letter from the U.S. Environmental Protection Agency (EPA) to ODFW on the Coastal Coho Plan (CCP); and recent news coverage of landslide problems. Let's take a look.

Water Quality

The EPA letter summarizes the insufficiencies for Oregon's water quality programs.

"... continued implementation of the existing regulatory framework in Oregon does not adequately address widespread water quality problems and will not meet the goals in the CCP"... "there is a significant body of science demonstrating that regulatory programs in Oregon do not adequately protect water quality and associated beneficial uses (e.g., salmonid spawning and rearing, public water supply)."

WOW! Thanks EPA.

ODFW had this to say about groundwater discharges and the impact on surface water quality in the Metolius.

"If the development relies on septic systems there would likely be an impact to groundwater quality which in turn could affect surface water quality through groundwater discharge to surface water".

DEQ's Nov. 2, 2007, letter to the Governor on the Metolius stated the following.

"Subsurface discharge to shallow soils or land application to the surface of soils may be allowed. Even with substantial removal of nutrients and other constituents from this wastewater prior to discharge, small amounts of nutrients may reach the Metolius River or its tributaries through runoff or seepage to groundwater that flows into the Metolius. The river is sensitive to nutrients, and small increases in nutrients could result in some degradation of water quality, such as decreased dissolved oxygen, increased aquatic plant growth, and changes in pH, among others."

As DEQ acknowledges, even small concentrations of nitrate can cause serious problems in small streams like the Metolius tributaries, and possibly the Metolius itself, so this level of protection is inadequate. The Oregon standard for drinking water



Photo by Tom Davis

Runoff from urban construction and post-development in urban areas can have severe impacts on stream habitat and fish. The photo above shows urban street/gutter runoff with an oil sheen and street debris in Portland. The phenomena is universal.

is 10 mg/L, but the EPA guidance for total nitrogen in freshwater ecosystems is much lower at 0.12 mg/L (1/80th). This is critical for salmon, trout and steelhead streams.

DEQ points out that estimating the potential water quality effects from developments before the specifics are proposed, "is very difficult", and that the implementation of the Total Maximum Daily Loads (TMDL) program may impose more effective controls. But DEQ also points out that the TMDL program for many of Oregon's watersheds are on hold, including for the Deschutes, which has been on hold for about five years. DEQ states "we do not anticipate returning to work on these TMDLs in this biennium". In closing, DEQ makes an accurate and candid statement: "... there are significant sources of pollutants that are comparatively uncontrolled, and the potential effects of these discharges, along with potential decreases in instream flow from development could have a measurable impact on an outstanding water such as the Metolius River. Because DEQ does not have a regulatory framework for stormwater management after construction, we believe these developments could pose a significant risk to water quality."

Note the term "regulatory framework". The federal and state laws are in place, but not the "regulatory framework". This means for 35 years the fish related goals of the Federal Clean Water Act have not been met because the nonpoint provisions have not been adequately implemented.

How long can this dodge go on?

Soil Disturbance

Regarding construction and land disturbances DEQ states that its permits require

"practices and control technologies" but that these "do not always result in complete control." For post construction the letter continues, "In general, DEQ does not have a regulatory framework for controlling stormwater from these developments once they are constructed. Local governments may exercise control". How do your local governments perform on such control?

Erosion, or the detachment of soil by water, is followed by the transport (routing) of the eroded soil through the watershed, sometimes over long time periods.

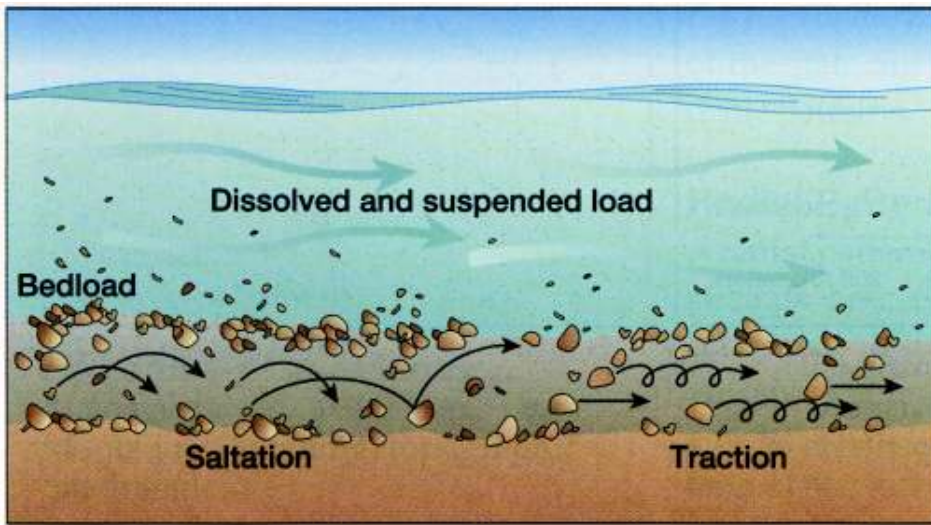
Erosion has three basic components, mass (e.g. landslides), channel and surface/sheet. The first two are easily observed, but surface erosion, which usually begins with raindrop splash, is difficult to see and understand. The resulting rivulets and rills are more easily observed.

Even forest professionals seem to forget the large body of research on surface erosion done by the US Forest Service (FS). Surface erosion can result in more sedimentation problems than mass or channel depending on conditions, but since it's easily dismissed or overlooked it is seldom dealt with.

A January 20, 2008 article in "The Oregonian" (quotes below) summarized the property damage aspect of the mass erosion problem, but stream sedimentation damage from such erosion is also usually severe.

"State geologists predicted the landslide that crushed homes and severed U.S. 30 west of Clatskanie, but the state shelved the information partly because of concerns it would interfere with land development.

The prediction was spelled out in the form of landslide hazard maps that state geologists drew up for all of western Oregon after landslides killed five people in 1996. The maps labeled most of the area involved



UCSB Graphic

Spawning gravel impacts are usually severe from sediment caused by all types of accelerated, or human-caused, erosion. Primarily "bedload" movement of sediment causes the damage. Such movement and damage is difficult to see, monitor or fit within an elementary water quality "regulatory framework", but it is a major threat to healthy salmonid populations. The water may be very clear while bedload damage is occurring. Bedload movement is represented in the above graphic.

in last month's U.S. 30 slide as posing "very high" or "extreme" landslide hazard -- the highest possible categories of risk.

They showed the danger extending from Oregon State University clear-cuts where the destructive chain of events began, downhill to an old earthen railroad crossing that allowed mud and debris to collect for more than a week, forming a lake. The debris finally broke loose Dec. 11, releasing a muddy torrent into homes that sat in the danger zone.

But people living in those homes never knew the maps existed -- even though the state spent nearly \$250,000 developing them to help protect life and property.

State foresters who reviewed logging more than a mile above the homes knew about the maps but did not refer to them, they said."

The spawning gravel impacts are usually severe from sediment caused by all types of accelerated, or human-caused, erosion. Primarily "bedload" movement of sediment causes the damage.

Such movement and damage is difficult to see, monitor or fit within an elementary water quality "regulatory framework", but it is a major threat to healthy salmonid populations. The water may be very clear while bedload damage is occurring.

Some professionals believe that for erosion to result in stream sedimentation problems the erosion has to be relatively close to the stream, but such problems originate in erosion throughout the watershed. Eroded

soil particles move beyond the initial erosion plume. Only the time needed for the soil particles to arrive, or routing time, is affected by location. One of the FS's top erosion specialists stated in e-mail correspondence that:

"When we have a large risk of erosion in a watershed, like a wildfire or logging practices 100 years ago, massive amounts of sediment get deposited in the watershed. Caspar Creek in N. CA is a forest example of this when they first removed the redwoods a century ago. It is still delivering unusually large amounts of sediment even though the forest is now regrown."

Forest Practices

The EPA letter on the Coastal Coho Plan summarizes Oregon's forest practice rules succinctly: "EPA does not believe the CCP's use of the existing Oregon Forest Practice Act regulations will achieve the desired status goal for the Coastal Coho ESU."

"... there is a substantial body of science demonstrating that Oregon's existing forest practice rules and best management practices do not consistently meet water quality standards or fully provide riparian functions important to water quality, public water supplies and fish. Expert reviews and research have identified the need for increased protection of riparian management areas and landslide prone slopes in Oregon for both fish and non-fish streams to provide functions important for fish and water qual-

ity. ... additional revisions to the rules are needed to ensure water quality standards will be met and that beneficial uses such as salmonid spawning and rearing will be fully protected."

"EPA believes the existing FPA and SB 1010 plans do not adequately support the desired CCP goals for Coastal Coho habitat."

As planned, the FS's "Glaze Forest" project near Black Butte Ranch promises to set some good precedents for forest thinning linked to protection/enhancement of stream and riparian conditions. The area is treated as an integrated land and water ecosystem targeted for improvement. It ties forest operations in the area to the stream system receiving its runoff.

Agricultural Practices

Senate Bill 1010, enacted in 1993, provides for local water quality planning for agriculture that is updated periodically. The basic SB 1010 planning has been done but according to EPA effective implementation for stream and fish recovery has not been accomplished. EPA said this about the program:

"The agricultural water quality management plans and associated rules prepared pursuant to SB 1010 are not linked to salmonid conservation and restoration. ... we have not seen an established, clear commitment to salmonid recovery or meeting TMDL targets on agricultural lands."

"We are also concerned that SB 1010 plans fall short of Coastal Coho conservation and recovery."

Spawning and Alevin Habitat

Natural amounts of fresh gravel moving in a stream can benefit spawning and alevin-rearing beds, but accelerated soil erosion supplies excessive volumes of damaging sediment to streams.

Fine silt and sand-sized sediment are particularly damaging. Much of the damage occurs to eggs and alevin through bedload movement, i.e. the sliding and bouncing of soil particles along the gravel substrate.

"The eggs lie in the gravel through the winter, as the embryos within develop. In early spring, yolk-sac fry, or alevins, hatch.

See Not Protected, Page 12

patagonia

presents the

Wild &
Scenic

ENVIRONMENTAL FILM FESTIVAL
the largest environmental film festival in the United States

NFS to host Environmental Film Festival

NFS plans to inspire local activism by hosting the Wild & Scenic Environmental Film Festival Nov. 8, at the Hollywood Theatre in Portland.

"Everybody likes movies, so we can't think of a better way to raise awareness and to encourage activism," said Director of Development Tom Derry.

The festival is presented by Patagonia, the environmentally active clothier whose founder, Yvon Chouinard, is an active member and supporter of NFS.

The tour brings together a selection of seven films ranging in length from 2 minutes to 53 minutes.

"The films include narratives coming directly from people throughout the world engaged in protecting our natural resources and wild places," said Tour Manager Susie Sutphin. "The films highlight the 'tipping points' that the planet is reaching. Yet portrays the 'Turning of the Tides,' as communities realize what needs to change and how they are responding with creativity, resolve and heart."

The Wild & Scenic Environmental Film Festival was started by the watershed advocacy group, the South Yuba River Citizens League (SYRCL). The festival's namesake is in celebration of achieving Wild & Scenic status for 39 miles of the South Yuba River in 1999. By partnering with grassroots organizations, SYRCL is sharing their success as an environmental group with other organizations nationwide. It is building a network of grassroots organizations connected by a common goal: to use film to inspire activism.

The festival is a natural extension of Native Fish Society's work to inspire people to act on behalf of the environment.

"In addition to working specifically to restore, conserve and protect wild salmon and steelhead, NFS wants to also motivate people in general to the challenges and concerns that lead to the threat of native fish," Derry said. "We think this film festival motivates people to become involved and become members of NFS to assist us in our grass roots efforts."

EVENT DETAILS:

When: 7 p.m. Saturday, Nov. 8, 2008

Where: Hollywood Theatre, 4122 NE Sandy Blvd. Portland

Ticket Price: \$10 admission at the door (to offset cost of event)

The Film Fest Line Up:

Climate: A Crisis Averted

Free Range Studios

Looks back from the year 2056 and recounts how ordinary

citizens in 2006 -- realizing that global warming was a scientific fact and not a climatic theory -- take action to demand clean energy and other planet-friendly options. Produced by Free Range Studios in Washington, DC and Berkeley, CA, the piece describes how a movement called RenewUS effected real change with an action plan, a 'call-to-arms' about global warming. (4 min)

Against The Current

Kathy Kasic

Growing towns and cities, sustained drought, the quest for national energy independence, and climate change are all putting new pressures on dwindling water supplies. In the face of such water demand, fish and wildlife are often left out. And there is one simple fact: fish need water. Told through the wisdom of four people, two ranchers, a biologist, and an environmental lawyer, this film brings together unexpected partners restoring a river. Silver Telly, Bronze Telly (USA, 2007, 19 min)

Bugs of the Underworld

Ralph Cutter

Aquatic insects live secretive lives beneath the quicksilver mirror. Their transformation into a winged adult, particularly when viewed from underwater, is a marvel of grace and beauty. Upon viewing Bugs of the Underworld the universal statement among flyfishers is, "I didn't know that!" These insects are far more than simply trout bait; they profoundly influence the aquatic ecosystem and their presence is an accurate measurement of stream health and water quality. (USA, 2007, 35min)

Carpa Diem

Sergio Cannella

Before sleeping, a child in her apartment is lovingly watching a fish in the aquarium. In the meantime her younger brother is being mindless of the open tap the water flowing out of the washbasin ... a waste that could turn into a tragedy. Many awards, including: Best Short, Vatavaran FF; Best Spot, Festival International Du Film Sur L'Énergie de Lausanne. (Italy, 2006, 2min)

Fish and Cow

Rick Smith

The Big Hole Valley lies in the southwest corner of Montana. High, cold and remote, it is home to one of the last surviving populations of a unique and sensitive species of fish, the fluvial Arctic grayling. This film is a story about a group of dedicated

ranchers and biologists finding common ground, not only to try and save this fish, but also to try and preserve the ecological health of the Big Hole Valley itself. Newcomer Finalist Jackson Hole Wildlife Film Festival (USA, 2007, 17min)

Owens Lake

Channel G

In 1913 water diversions by the city of Los Angeles, 250 miles away, turned the largest lake in California into an alkali dry lake-bed and dust bowl; last year the city of L.A. was forced to control the dust for violating the federal Clean Air Act and as a result of water being released onto the lake bed, thousands upon thousands of migratory birds have returned, some traveling from southern South America to Arctic breeding grounds; 62 miles of the Lower Owens River has also been restored; quite possibly the largest (and certainly unintentional) restoration project in North America

and the world. (USA, 2007, 4min)

A Land Out of Time

Marc Harvey

The US Forest Service and Bureau of Land Management are leasing millions of acres to the gas and oil industry and issuing tens of thousands of permits to drill for natural gas all over the heart of the West. The wild places of America's Western geography are being rendered into an industrial landscape. And for what? A few days or weeks supply of natural gas, spread over the next couple of decades. This film introduces you to the faces and unconventional partnerships behind the fight to save the landscapes of the West. Best Environmental Documentary, Taos MountainFilm, Spirit of Activism Award, Wild & Scenic Film Festival. (USA, 2006, 53min)

Thank you for your support!

Our work to conserve, protect and restore the native fish species of the Pacific Northwest is made possible by our generous members and donors. We are grateful to each and every one of you. The following individuals and organizations donated \$25 or more to NFS in 2008 as of Aug. 20. Thank you!!!

Tom Alkire	Richard Cline	William Govin	Dennis Lassuy	Robert Noyes	Ethan Seltzer
Ken Anderson	Thomas Cody	Dale Greenley	Dick Law	Mike Ogle	Jon Sewell
Anglers Club of Portland	Jack Cook	Rich Gross	William Lenheim	Kathryn O'Halloran	Dan Shively
Lyell Asher	Harvey Cornett	John Hammond	Hiram Li	Brian Oliver	Mark Schmidt
Bailard, Inc	Douglas Cramer	Keith & Lisa Hansen	Brian Light	Jeff Osmundson	John & Karen Smeraglio
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Hamilton Budge	George Farr	Tom Kelly	McKenzie FlyFishers	Scott Richmond	Jim Van Loan
Al Buhr	Robert Feldhausen	Richard Kennon	Jackson Meadows	Michael Rice	Harry Wagner
Gavin Bush	Ian Fergusson	Mike Kerr	Mark Metzdorff	Geoff Roach	David Wang
Raymond Calkins	Jim Foote	Charles Kimmel	Pat Micek	Richard Robbins	Robert Watzke
Frank Cammack	Dale Forster	Mary Kinney	Barton Mills	Gerald Robillard	Robert Weatherill
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Yvon Chouinard	Ryan Goldsmith	Tom Larimer	Neil Kelly Co.	James Satterfield	Steve Zink
	Scott Goodwin	Christopher Larsen	Chuck Newport		
	Whitney Gould	Kenyon Larsen	Bill Nightengale		

Not Protected, from Page 9

The tiny fish carry a food supply (a sac of egg yolk) attached to their bellies. They will not leave the protection of the gravel until the yolk is used up, 12 weeks or more. At that time, the young salmon, now called fry, swim up to the surface, gulp air to fill their swim bladders, and begin to feed.”

Field personnel doing fish surveys and redd counts in Oregon coastal streams have explained the problem to me this way (paraphrasing).

It's all about the habitat upstream. The fish don't have a chance with most of the logging operations. At low water you observe sediment that has filled in the gravel beds, choking eggs and alevins. The rains come, and because there is no retention ability in the forest floor due to logging and logging roads, the water rushes down so fast that scouring occurs and more sediment is loaded into the stream covering and moving along the redds, spawning gravel, eggs and alevin habitat.

Instream Flows

Inadequate flows are among the most serious problems for many Oregon fisheries. This is particularly acute for the Deschutes below Wickiup Dam where, before Wickiup, natural, spring-fed flows in an alluvial channel varied from 700 to 900 cfs and created a native fish Nirvana.

Low flows are very important and the Wickiup releases are often 20 to 30 cfs in the winter.

Flow has been essentially zero when repairs were being made.

In addition to dams and diversions, groundwater pumping can also significantly reduce flows.

In OWRD's letter to the Governor regarding the providing of adequate protection against flow depletion for the Metolius, three options were described. Two would have provided the needed protection against the Metolius springs and river flows being depleted from groundwater pumping at the proposed destination resorts. OWRD rejected all three and stated:

“It is the department's view that the Deschutes Mitigation Program has been successful at balancing streamflow protection with economic development in the Deschutes Basin. For this reason, we recommend this program continue as it is currently administered.”



U.S. Fish and Wildlife Service graphic

Natural amounts of fresh gravel moving in a stream can benefit spawning and alevin-rearing beds, but accelerated soil erosion supplies excessive volumes of damaging sediment to streams. Fine silt and sand-sized sediment are particularly damaging. Much of the damage occurs to eggs and alevin (illustrated above) through bedload movement, i.e. the sliding and bouncing of soil particles along the gravel substrate.

Species Requiring Special Protection

The federal-state maze of process and regulations is very complex for protecting species that are of special concern, threatened or endangered. The net result is that if the species isn't listed by the feds as “Endangered” not much protection is provided. And by that time it's often too late with too little. A few quotes from ODFW's letter to the Governor about the Metolius follow.

“Even with the best mitigation actions there will be loss of fish and wildlife habitat through habitat fragmentation, incremental reductions in stream flow, increased human interaction, road development, etc.”...

“Groundwater extraction for development use would likely have some effect on instream flows and fish habitat, which could affect bull trout (a listed species), redband trout, kokanee salmon and other aquatic life.”...

“ODFW has tracked fish spawning through good and bad water years and has observed that reductions in spring flows brought on by dry climatic conditions have translated into reduced spawning rates. ODFW would expect that reductions in stream flows from springs through groundwater withdrawal would have similar effects on spawning and fish populations only it would be a more permanent reduction because of the continuing nature of the groundwater withdrawals.”...

“There have been a number of problems

with implementation of mitigation requirements for destination resorts. These issues include lack of follow through by developers to implement agreed-upon mitigation actions; lack of county oversight to ensure agreed-upon mitigation measures are implemented; wildlife impacts are only assessed on site (adjacent off-site impacts are not included in any wildlife habitat impact analysis); and lack of cumulative impact assessment. The result has been a net loss of fish and wildlife habitat from all destination resorts in the state.”...

“One of the unintended consequences of destination resorts is that the area around them is managed substantially differently by federal land management agencies. For example, federal land managers are in the process of significantly altering wildlife habitat adjacent to destination resorts to protect them from wildfire. This dramatically increases the effective footprint of the destination resort.”

Land Use Law and Implementation

Special watersheds and rivers like the Metolius should be designated as critical areas of state concern under ORS 197. ORS 197.040(g) states in regard to the duties of the Land Conservation and Development Commission (LCDC): (g) Review and recommend to the Legislative Assembly the designation of areas of critical state concern;

It does not appear that LCDC has des-

ignated any areas of state concern under this section of the ORS since the '70s. Agricultural land, forestland (primarily for timber), Willamette River Greenway, ocean resources and estuaries were all recognized as areas of "state concern", and provided with goals and administrative rules. But our rivers and other water resources have been neglected by LCDC and other state agencies in terms of providing adequate protection from land use and development that damages fisheries.

Many Oregon watersheds and rivers should be established as areas of critical concern as soon as possible. If LCDC is unable or unwilling to take up such designations, the Legislature should do it. Without doubt, the legislative authority under ORS 197 is there to make the designation.

Conclusions

The implementation of state and federal water quality laws leaves most nonpoint sources inadequately controlled. This includes wastewater systems that discharge high nitrate loads to the groundwater, and eventually the streams and lakes. It also includes forest, agricultural and construction activities, which cause erosion and the sedimentation of spawning and alevin habitat. High pollutant loads are discharged by runoff from streets, parking areas and buildings, and these sources are poorly controlled, if at all. The state and local land use rules should protect the public's water and fish, but are inadequate to prevent habitat damage and loss. EPA states that Oregon's forest practice requirements are inadequate for protecting salmonids.

Riparian cover that maintains cool water needed by salmonids is poorly protected and seldom restored. This is the major cause for thousands of miles of Oregon streams being



Photos by Tom Davis

The above photos illustrate erosion that resulted from logging road construction in Winchuck Area on the Oregon South Coast (left) and the Ashland Watershed (right).

in violation of temperature standards under federal and Oregon water laws. ODWR's top priorities for water and water rights appear to be economic development and more municipal and agricultural water use.

Currently, the remaining top quality streams and watersheds that Oregon's fish depend on are not adequately protected. Numerous changes to state and federal implementation of fish, flow, water quality and land use laws, and possibly to the laws themselves, are essential on many fronts. Statements from EPA, DEQ, ODFG, ODWR and recent newspaper articles make this clear. Good will, weak regulations and voluntary efforts have failed to protect fish for decades. It's time for enforceable requirements and the public agencies to "just say no".

Such changes take time and our fish should not continue to assume the risk dur-

ing the interim period. New land disturbances and water uses that have the potential to negatively impact aquatic resources should be put on hold until changes are made that adequately protect fish and aquatic habitat. ODFW, in concert with DEQ, should be given the authority to stop proposals that have such potential. As it now stands, ODFW is left holding the bag for fish and wildlife losses that are caused by numerous federal, state, local and private activities ODFW has no control over. ODWR requirements should be changed to always protect fish.

Habitat restoration, native-wild versus hatchery fish policies and removing or mitigating barriers such as dams are essential. And if the watershed activity regulations that are possible under existing laws aren't implemented we'll shamefully continue to lose our native salmon, trout and steelhead.

Stewards, from Page 5

PacifiCorp's "new science" prepared by Stillwater Sciences, which called for mitigation downstream from the dam, rather than dam removal or construction of fish passage.

"We thought the 'new science' might just have some substance, but instead, we found these proposals not credible, inaccurate, incomplete, ineffective and inconsistent with the management direction of the Umpqua Forest Plan," Bowler said. "Essentially the proposals are not new and are not scientific. As a matter of fact, the proposals underline the fact that dam removal remains the best option. No dam equals no reservoir, which thus lessens predation and opens up some of the best spawning areas now inundated by the reservoir. No dam results in lots of spawning gravel naturally

washed downstream. No dam also results in fish passage. However, as we all know, fish passage via ladder is mandated by the Settlement Agreement and thus salmonids would then be able to reach their historic spawning grounds including 30-40 miles of excellent habitat that steelhead utilized above the Fish Creek barrier over 50 years ago. There are historical records that prove steelhead were able to get above this barrier.

"We are closely following the Resource Coordination Committee vote on Sept. 8," Bowers continued. "We urge PacifiCorp to stop their delaying tactics and get on with the task of designing and building the fish passage at Soda Springs Dam.

"Better yet, we strongly support the only economically viable and environmentally sustainable position that PacifiCorp should remove Soda Springs Dam.

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