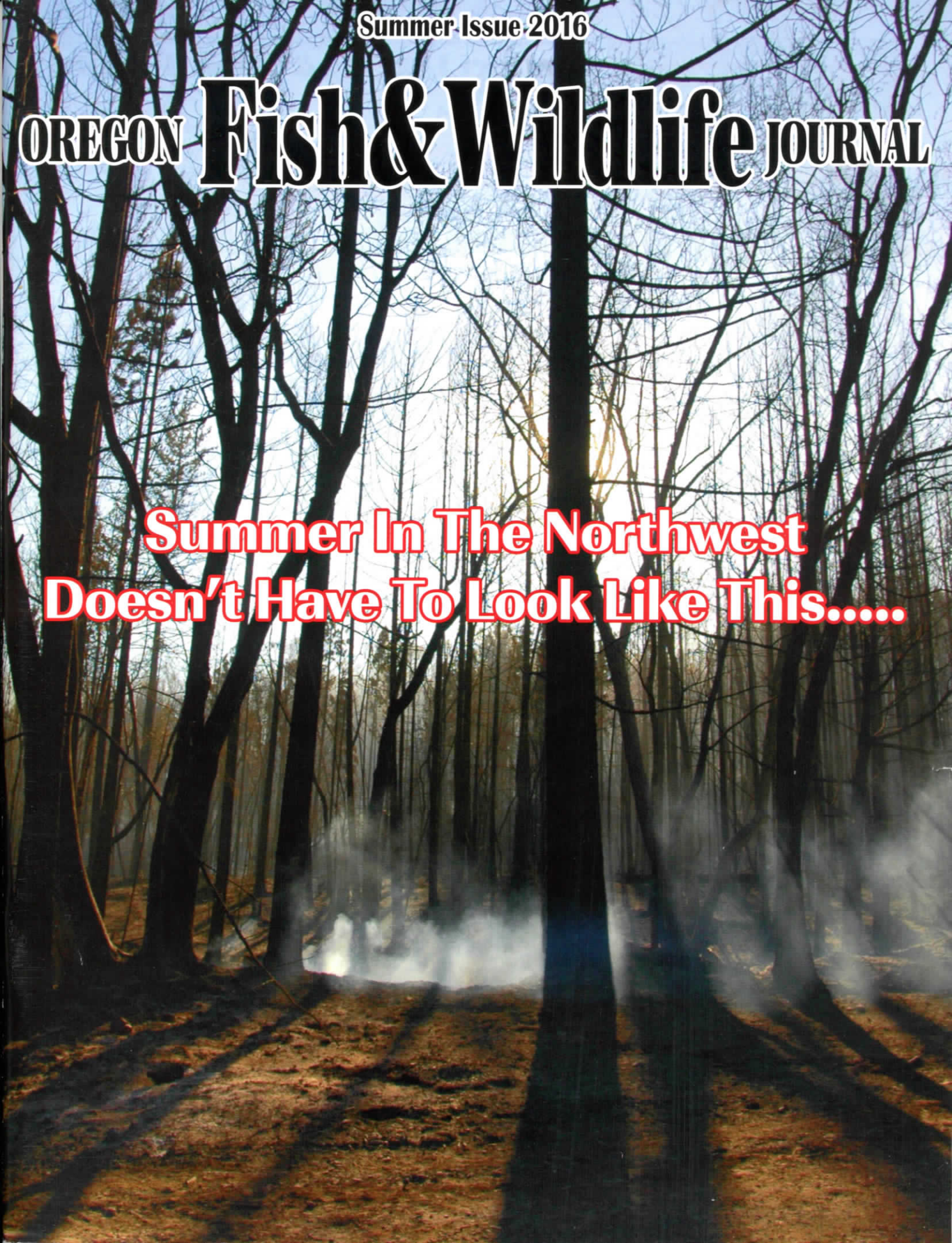


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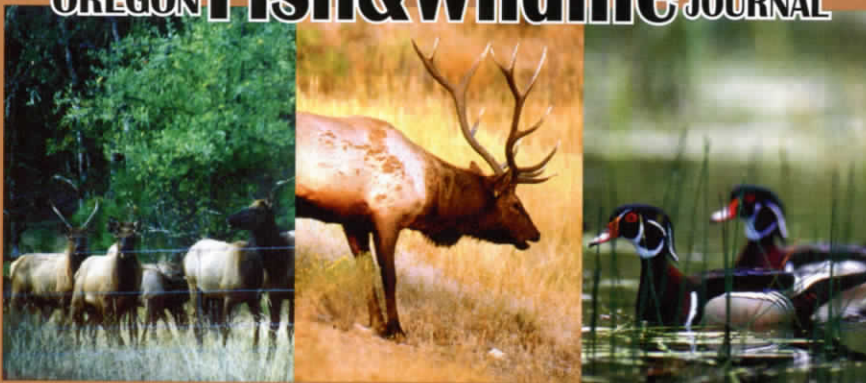
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Doesn't Have To Look Like This.....**



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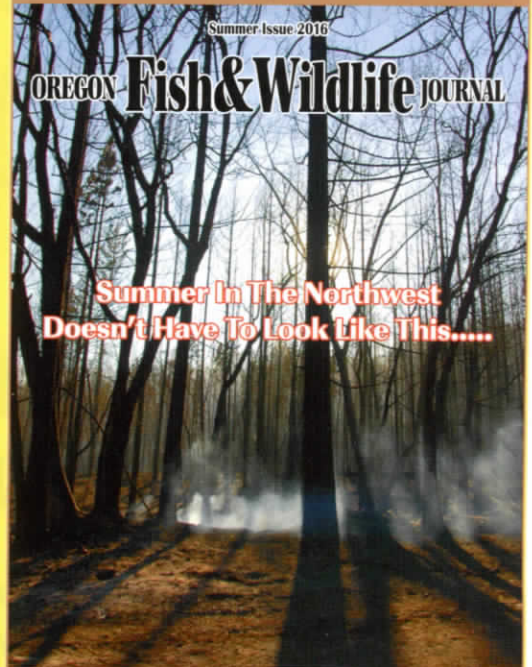


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This issue's cover shows the Deer Creek Fire from 2005 in Southern Oregon.
Photo by Mickey Bellman.

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Let There Be Light: Oregon Board of Forestry Chooses Arbitrary EPA Regulation over Fish and Facts

By Dr. Bob Zybach PhD

Note: This article is about government-funded science, so there will be a lot of acronyms. The most important are EPA, ESA, BOF, DEQ and PCW. Sorry.

The Oregon Board of Forestry (BOF) is a seven member citizen Board charged with directly supervising the State Forester and Oregon Department of Forestry (ODF), implementing policies, and adopting rules and regulations that “promote sustainable management of Oregon’s public and private forests.”

The BOF is also charged with implementing, through the Oregon Forest Practices Act (FPA), water quality standards established by the Oregon Department of

Environmental Quality (DEQ) and approved by the National Oceanic and Atmospheric Administration (NOAA) and the Environmental Protection Agency

(EPA). The current focus of their assignment is the EPA Protecting Cold Waters Rule (PCW, of course) that was adopted in 2003 by the Environmental Quality Commission (EQC) on a 3 to 2 vote.

The DEQ criterion for applying the PCW is when: 1) the ambient temperature in a stream is below 64 degrees F.; and 2) salmon, steelhead, or bull trout are present; then 3) there can be no human caused increases in a stream’s “seven-day moving average of daily maximum temperatures” of 0.5 degrees F. or more. This would apply downstream of logging operations. A major problem is that the 0.5 degrees

F. variation is the minimum increment that can be technically measured – and there is speculation this may have been the primary reason that number was chosen.

Despite this difficulty, the BOF voted 4-3 on November 5, 2015 to adopt new riparian rules to meet the PCW standard when regulating streamside buffers on

private and state forestlands. “Buffers” are vegetation – preferably trees – maintained along creeks and rivers in order to minimize water temperature gains.

They are regulated as either a fixed minimum width beyond the high water mark of a stream or a fixed mini-

imum number and size of trees that must be retained during a harvest operation.

Regulated buffers in western Oregon contain some of the potentially most valuable timberlands in the world, and border some of the world’s finest fishing streams.

PURPOSE

Ostensibly, the adoption of rules to meet the PCW by the BOF is intended to protect local salmon, trout (steelhead) and char (bull trout) species (“salmonids”) listed by the Endangered Species Act of 1973 (ESA). Yet, this decision was apparently reached in part by purposefully ignoring ODF’s own scientific studies of the past 20 years that directly challenge the need for an arbitrary EPA/EQC/DEQ/BOF/FPA PCW Rule requirement in the first place.

In addition to this suspect “one size fits all” regulatory approach to homogenizing western Oregon streams and fish, much of the public discussion by BOF members and multiple “expert witness” EPA and NOAA representatives seemed based on a number of erroneous assumptions and beliefs contradicted by previous research: e.g., that salmonids are very sensitive to minute changes in water temperature; that

direct sunlight is bad for fish; that trees on the north side of a stream somehow contribute to cooling its waters; that warming of headwater streams is cumulative downstream, rather than ephemeral.

That is how the BOF voted, 4-3 -- displaying all of their apparent beliefs, assumptions and biases -- after having been scientifically demonstrated to be wrong. At least four members must have simply been convinced to ignore facts for some reason and adopt a highly suspect and arbitrary PCW standard instead; one that would be extremely expensive to enact and likely counterproductive to the BOF’s stated intent (and legal obligation?) of protecting ESA fish with “the best scientific data available.”

At this time a “rule advisory committee” has been formed and has been meeting with ODF staff to write new rule language to bring to the BOF for approval, with a September target date. This expected “new rule,” when enacted, will predictably: 1) cost private sector jobs, 2) reduce potential income to landowners, 3) reduce tax revenues to state and federal governments, 4) increase government jobs and expenditures, and 5) likely reduce the size and numbers of fish within newly regulated forest streams.

Further, the newly adopted standard and supporting assumptions seem to have little logical or scientific value, despite all of the acronyms. How did this circumstance come about? And can it be fixed?

LOCAL PROBLEMS

In the 50+ years since enactment of the 1963 Clean Air Act and the 1964 Wilderness Act, several additional major bureaucracies have been created by the federal government to “protect the environment” by using the “best available science.”

EPA became law in 1970, ESA was created in 1973, the Clean Water Act (CWA) and the Department of Energy (DOE) in 1977, and the Northwest Forest Plan (NWFP) in 1994. As examples.

Computerized “models” of “habitat” and “climate” and “fire return intervals” and the numbers of government scientists, politicians, technicians and support teams and services needed to develop and implement these products into policies and management plans accelerated rapidly following the creation of these agencies.

These new squadrons of specially-trained federal bureaucrats seemingly had a mission. Everyone went to court over the new laws and regulations, “peer reviewed” publications became a cottage industry, and lawyers became wealthy on both sides. At least that’s how I remember it.

While these new bureaucracies focused on the environment and the management of the nation’s air, water,

minerals, forests, grazing lands and wildlife (ostensibly for the “benefit of all Americans”), rural Oregon businesses, counties, families and communities – in common with many others throughout the western US – were being directly affected by unemployment, bankruptcy, family problems, severely degraded infrastructures, and the increasing threat and frequency of catastrophic wildfires.

Meantime, national wealth, power and privilege have become increasingly centered on Washington DC. By



Native rainbow trout in full sunlight, Blue River headwaters, Lane County, August 24, 2013. Photo by Aaron L. Zybach

many estimates this circumstance has been due, in large part, to the myriad new federal laws, policies, regulations and passive resource management decisions of the past 50 years – based largely on legally required “best available science” approaches to the management, care and “wise use” of our nations’ common resources. West of the Rockies.

Many of these unfavorable situations have been brought about by insidious and incremental changes in federal and state environmental policies and the new rules and regulations that result -- an almost invisible process by which private landowners and businesses can be legally required to abandon the use of their own properties, to strictly adhere to contradictory resource management laws, and/or deal with exponential increases in required paperwork filings and tax payments needed to pay for

these changes.

The option is, of course, to “hire a lawyer and go to court” – where agency scientists, modelers and technicians will be paid by taxpayers to be “expert witnesses” for the government.

The recent BOF decision to use an arbitrary federal standard to somehow rationalize increasing streamside buffers on private forests and timberlands -- supposedly in order to protect endangered salmonids -- is a good illustration of this process. It is difficult to comprehend the great amount of time and resources that has made it possible, or the exact thinking of those who have promoted these results.

CURRENT RESEARCH

John Westall is an environmental and analytical chemist who taught at Oregon State University (OSU) almost 30 years and conducted research for EPA and DOE before his retirement. In 2014 he wrote a detailed and comprehensive 37-page analysis of the scientific basis for the PCW Rule. This work has been referenced by the Oregon Small Woodlands Association (OSWA), of which he is a member.

Westall’s studied conclusion: there was no apparent logical or scientific basis found in the documentation for the PCW Rule decision. There was only guidance

from the EPA with no specific reference to any scientific studies that justified their advice. Somebody apparently just made it up, maybe only because they could. The actual science that addresses these issues was ignored. Maybe because it contradicted the Rule (speculation is all mine, not necessarily Westall’s).

Most of what we know about salmonids and water temperature came from research on this topic conducted over a 40-year period by Geoffrey Green and J. R. Brett. The two scientists operated independent of one another, beginning about 1950 and continuing (Brett) until the 1990s. Their findings remain true to this time:

- The warmer the water, the more productive for well-fed salmonids, up to about 64 degrees F.; above which growth tends to decline.
- The “maximum steady temperature limit” for salmonids is about 77 degrees F., with prolonged exposure to higher temperatures increasingly lethal.
- Salmonids are very resilient to changes in water temperature and typically recover fairly rapidly and completely from non-lethal temperatures.

To summarize: most salmonids and other native fish species do best when the water temperature averages about 64 degrees F. Prolonged temperatures of 77 degrees F. and higher can be fatal; however, salmonids recover rapidly from higher (and lower) temperatures after being subjected to them. Naturally, fish can swim and moderate their own temperature in most streams when the sun is out, so localized stream temperatures are not the only factor in their survival and growth.

In 1995 ODF began increasing the size of required buffers along fish-bearing streams, mostly for reasons of keeping the water cool for the fish. About the same time they began hiring Mike Newton and others to study the effect of these buffers on water quality. This research demonstrated that minor temperature effects of sunlight directly heating water in clearcut logging units completely disappear within 500 feet of leaving the operation.

ODF RipStream. This study was implemented following the adoption of the PCW as a joint effort between State and private landowners “to address the potential for Small and Medium Type F Streams to experience ‘short-term temperature increases’ with the current forest practice rules.” A total of 33 western Oregon streams were studied with buffers on planned logging units following the existing FPA guidelines. Eighteen were private sites with planned clearcuts and 15 were State lands, with eight clearcuts and seven partial cuts. Temperatures were measured for two years before harvest and several years following harvest. A number of private sites showed no temperature gain, and average temperature gains were about 1.0 degree F. for all units.

Fish, oddly, were not evaluated. Stream reaches with some direct sun on them were the most productive for both the food chain and the fishery, as determined by Oregon Department of Fish & Wildlife (ODFW) biologists -- as long as they didn’t exceed 71 degrees F. So far as known, none of the 33 RipStream study area streams ever even reached that temperature.

The study was eventually found to be poorly designed and plagued with implementation and maintenance problems. Greg Peterson, an environmental engineer with 40 years’ experience as a civil engineer and project manager in water/wastewater systems, produced a highly detailed analysis of these problems for OSWA. His conclusion was that RipStream’s “study results and fundamentally flawed computer model have some major limitations.” His detailed assessment rightfully calls into question much of the value of the project’s published findings.

OSU WRC. In 2002 OSU collaborated with Roseburg Forest Products (RFP) and ODFW to conduct a 10-year paired watershed study on Hinkle Creek, a tributary of the Umpqua River in Douglas County. This work was part of the OSU Watershed Research Cooperative (WRC), an organization with two other large watersheds under close examination. Study streams ranged from eastern Douglas County to northern Lincoln County, all in western Oregon, in both the Coast and Cascade mountain ranges.

- Streams in the WRC study ranged from summer temperatures of 50 to 68 degrees F. -- all well within the desired range for salmonids.
- Paired watershed studies clearly show minor and temporary increases in stream temperature create no harm to fish and could likely be a benefit because of

the positive impact to organisms (“food”) fish feed on.

Cole/Newton 2013. The research design and methods developed by Newton and Liz Cole to conduct a seven-year study on four watersheds in western Oregon are the current gold standard by which stream temperatures are monitored in the Douglas Fir Region. Peterson openly praises the quality of their work and the reliability of their findings and conclusions.

The four streams studied by Cole and Newton were low to medium elevation headwater subbasins of 600 to 1000 acres each. Following two years of discharge, air and water temperature readings in the absence of harvest units, three treatments were made in each subbasin: a clearcut removing all vegetation to both edges of 1,000 feet of stream; a clearcut with a single 40-foot buffer on the south side of 1,000 feet of stream; and a clearcut with 50-foot buffers remaining on both sides of 1,000 feet of stream. Each harvest unit was separated from adjacent harvests by 1,000 feet of stream of untouched forest cover.

Between 24 and 32 thermistors were installed at intervals of 330 feet for about 8,000 feet along each stream and above and below every confluence to measure changes in air and water temperatures every 1/2 hour in summer and fall.

By good fortune, Cole and Newton were able to correlate their findings on temperature with fish biomass (total size and weight) measures on Brome Creek, collected under the direction and supervision of ODFW fish biologist Jim Brick. The histogram illustrates their findings: full sunlight on the un-buffered stream produced twice as much biomass as any unharvested unit; and each of all three harvested units produced more fish than any one of the uncut units. Predictably.

CONCLUSIONS

The DEQ standard of 64 degrees F. for most salmonids and their habitats in western Oregon fits neither the streams nor the fishery. The streams vary so much, and

the environments in which they flow vary so much, that one standard cannot be made to adapt the fisheries that are acclimated to those streams. Neither the streams nor the fish are as static or as homogeneous as the standards: they never have been and they never can be.



Dr. Mike Newton, Oregon State University forest scientist, attaches a thermistor one foot above Big Rock Creek, Polk County, July 7, 2003. These recorded air and water temperatures every 1/2 hour for seven years as the basis of the Cole/Newton 2013 study of forest management effects on stream temperatures. Photo by Liz Cole.

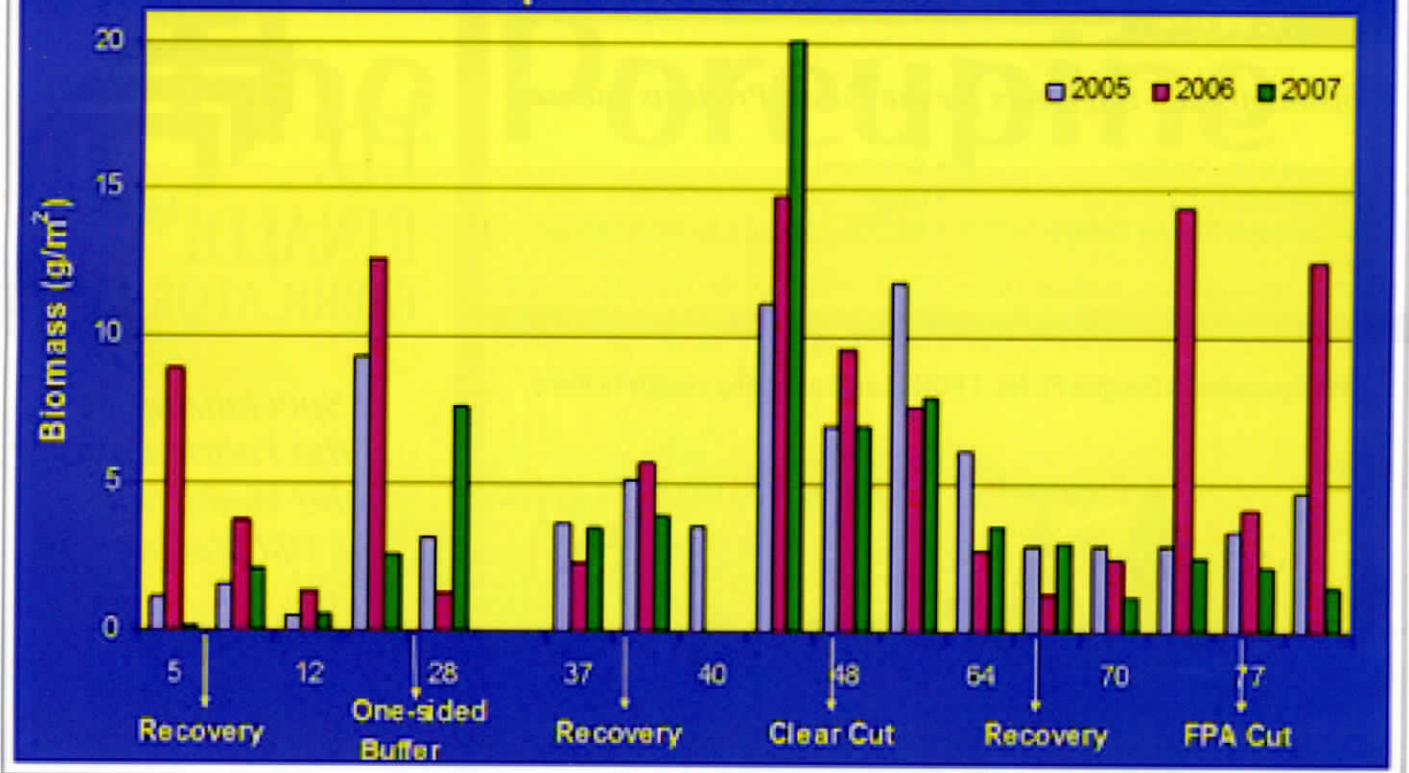
Observations of highest stream fish productivity occurred when streams were fully exposed to sun, sometimes when summer temperature peaks were well above standard criteria (64 degrees F.), revealing serious and costly flaws in the regulatory process. The occurrence of a brief period of relatively very high temperature may well be masked by the rapid growth fish may show before and after that event.

Stream reaches with some direct sun on them were the most productive for both the food chain and the fishery as long as they didn't exceed 71 degrees F. To this point, none of the 33 RipStream study area streams have reached that level.

The notion of requiring more shade when less shade equates to more biological productivity of streams represents a conflict between regulatory convenience (meeting a numerical criterion) and resource sensitivity (increasing fish biomass).

Many streams are far too cold for optimum fish me-

Brome Creek Cutthroat Trout Biomass per Pool September 2005 - 2007



ODFW histogram showing total weight of native cutthroat trout in pools along Brome Creek in Douglas County for each of three years following three kinds of harvests. The three harvests occupied 1000 feet of stream length for each unit and were individually separated by 1000 feet of unharvested forest (“Recovery”), where water cooled. The numbers along the horizontal axis are consecutively numbered pools along Brome Creek, of which three pools in each cut or uncut unit were inventoried. Pool 5 was at the downstream end of the study.

tabolism, yet the PCW prohibits operations that would provide both a more productive temperature range and more efficient harvesting operations.

The EQC’s adoption of the PCW as a state water quality standard was apparently driven by EPA’s guidance that suggested any human caused temperature increase in a forest stream will stay with the water downstream. This turns out to be incorrect. These studies show the increase temperatures from a timber harvest is ephemeral and temperatures recover downstream quickly because of the dynamics associated with water temperatures in forest streams.

POTENTIAL SOLUTIONS

What can be done to correct this systemic and largely self-inflicted problem? Some specific ideas have been suggested by several people close to this situation over the past few years:

Due Process. The BOF has the statutory option to petition the EQC if it feels a standard conflicts with research and monitoring findings. This is clearly such a

conflict. Is it worth the effort?

Common Sense. Greg Peterson recommends that any BOF policy “should be based on actual outcomes from scientific research, common sense and practical experience, to meet the PCW for forest streams.”

Logic. John Westall argues for a more logical approach to management of resources, to “consider the entire habitat carefully, evaluate the evidence, and make the best rational, scientifically based decision that we can.”

New Rules. Mike Newton believes science-based rules should be adaptable to “allow data-driven flexibility so that rules fit environments, and where management options and streamside vegetation management converge to improve both timber and fisheries.”

Last Word. My view is: “let there be light.” Both for the sake of the fish and for the transparent review of scientific research funded with taxpayer dollars. Then maybe this type of costly misdirection will stop happening. Or at least a little less often.



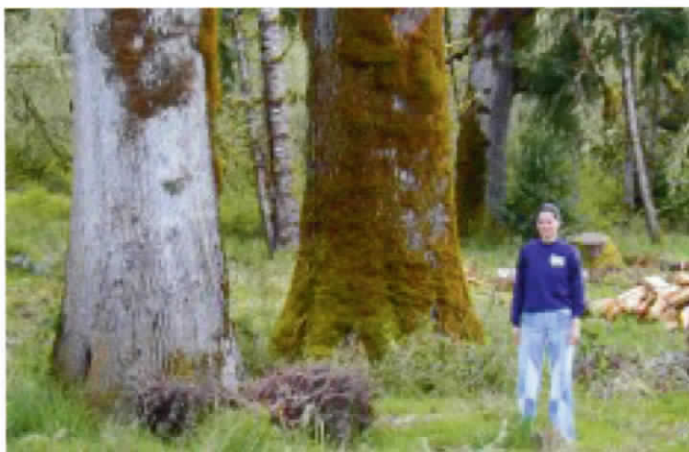
CORRECTION

In the previous Spring 2016 edition of Oregon Fish & Wildlife Journal, several errors were inadvertently made during the processing of the article titled “BLM Forest Planning: Putting the Quote Marks in “Scientific” Management” by Dr. Bob Zybach. These errors were somehow introduced between submitted draft to final print versions. Most of the problems were relatively minor: e.g., the changing of a date from 1841 to 1842; a number of bracketed editorial notes referring to italicized words that were not actually italicized; and the reformatting of a published table that didn't include the table's title – and which was then subsequently referenced at least twice in the text.

Two other errors were more concerning: the final statement of Dr. Zybach's article was cut off in mid-sentence, thereby making it senseless; and the wrong caption was substituted on an illustrative photograph, making it appear as if the author was mistaking an old-growth Douglas Fir tree for an Oregon white oak. The correct photos with their original captions are included below. The final sentence should have been completely printed as: *“The future management implication is, of course, that BLM should be far more selective in determining their sources of scientific information – and should also include a much wider range of expertise during data selection and review processes.”*



Old-growth Douglas Fir tree and Wayne Giesy, near Aalsea, Oregon, 2003. Tree is estimated to be 200 to 400 years of age. To date, no tree of this species in the Coast Range has been documented older than 550 years. B. Zybach photo.



Old-growth oak trees and Nana Lapham in Aalsea, Oregon, 2003. Age of trees is approximately 200 to 350 years. Similar sized trees in the Willamette Valley are thought to have occasionally exceeded 600 years of age. B. Zybach photo.

Portland School Board Schedules Book Burning Party

By John A. Charles, Jr.

The Portland Public School board recently voted to prohibit textbooks or classroom materials questioning the mainstream thinking about climate change.

The decision has sparked an outpouring of commentary, with many writers supportive of the School Board.

However, the wording of the Board resolution should greatly concern parents of Portland public school students. Resolution No. 5272 is two pages long, but the most chilling part is the final sentence:

“[Portland Public Schools] will abandon the use of any adopted text material that is found to express doubt about the severity of the climate crisis or its root in human activities.”

The primary purpose of education is to teach students how to be critical thinkers. Now that the School Board has declared that expressions of doubt about complex scientific topics will be banned, what is the point of going to school?

Regardless of the subject we should encourage students to be skeptical. The more questioning the better. They will be poorly prepared for adult living if they spend their childhood years being spoon-fed in schools where skepticism is prohibited.

Public education already faces a growing challenge from private schools, on-line learning, and home-based education. If Resolution 5272 is upheld, Portland Public Schools will give parents one more reason to leave.

John A. Charles, Jr. is President and CEO of Cascade Policy Institute, Oregon's free market public policy research organization.

