



THE OSPREY

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Federation of Fly Fishers



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The Politics of Wild and Farmed Salmon A brief update on the mess in British Columbia

by Craig Orr, Ph.D.

— Watershed Watch Salmon Society, Coquitlam, British Columbia —

The salmon farming industry off the Coast of British Columbia has been an ongoing threat to wild salmon and steelhead stocks for years. In this article, Craig Orr, executive director of the Watershed Watch Salmon Society brings us up to date on the current situation.

You can learn more about the Watershed Watch Salmon Society at www.watershed-watch.org.

Regular readers of *The Osprey* know that wild salmon face many threats. And judging by past articles, many *Osprey* supporters spend inordinate amounts of time reacting to one threat after another. While all this reacting is tiring — and too infrequently leads to lasting and positive change — it does provide valuable perspective on the depths of those threats.

When it comes to the politics of mixing wild and farmed salmon, I would need several *Ospreys* to fully describe the mess we currently wallow in here in British Columbia. We're not talking

minor-league teenage or office mess, either. We're talking adult mess with all the trimmings: science trumped by myopic ideology and communications spin; a calculated campaign to maintain the *status quo* using smothering

The politics of mixing wild and farmed salmon sets new standards for the betrayal of public and ecological values.

uncertainty and massive fortifications of denial; the failure to learn and apply lessons; personal attacks and dirty tricks; and change so stupefyingly glacial, it sets new standards for betrayal of public and ecological values.

All this mess is firmly rooted in the recent and massive expansion of salmon aquaculture in the world's coastal waters — waters also still harboring a priceless-but-fragile legacy of wild salmon. Some 1,323,000 tons of farmed salmon (2005 figures) are now grown annually in the world, including a 'modest' 67,000 tons in the coastal waters of British Columbia. Numbers of farmed Atlantic salmon in Norway now outnumber wild Atlantics by 100:1.

In the past decade, resource scientists and managers have also learned that the millions of farmed salmon now residing year-round in the world's coastal waters, often in concentrations approaching one million fish in a single bay, are effective hosts for diseases and parasites. The biological amplification of sea lice in particular has triggered one of the greatest resource management challenges — ever.

Farmed salmon now produce 78-97% of all parasitic sea lice (mainly *Lepeophtheirus salmonis*) in marine

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FROM THE PERCH — EDITOR'S MESSAGE

Déjà vu all over again

by Jim Yuskavitch

As readers peruse this issue of *The Osprey* they may find themselves recalling one of Yogi Berra's famous remarks involving "déjà vu all over again." From our cover story on Atlantic salmon farming off the coast of British Columbia and its deadly impacts on wild salmon to the last page of our final story describing yet another Biological Opinion on the Columbia and Snake river dams about to be released by the federal government, this issue is filled with subjects we have covered before — and often more than once. But we are not repeating ourselves out of a lack of new subject matter or editorial laziness. As every wild fish advocate knows, the war is a protracted one and we must often fight the same battles over and over again. And so it is that those of us who report on those issues must revisit them again and again.

That's the bad news. There is good news as well. Despite the fact that salmon farms are still out there, the U.S. government still doesn't have a scientifically viable plan for restoring Columbia basin wild salmon and steelhead, and the commercial fishing fleet is ruining the wild runs of British Columbia's Skeena River; the science is squarely on the side of the fish. The trick is to keep those wild steelhead and salmon hanging on while the fight rages in both the courts of law and of public opinion.

That's where *The Osprey* comes in. We will continue to cover the important stories and issues that are critical to restoring and protecting wild runs of steelhead and salmon — even when it means repeating ourselves from time to time.



Letters to the Editor

Dear Editor:

I much enjoyed the writing in the 20th Anniversary Issue. Conversely, the next, May 2007, infuriates me.

You, your biased writers, nor even Al Gore (sic) can prove that global warming is anything more than normal weather fluctuation. It is moronic to say any warming is man-caused. Such ideas are based on consensus as were the more whole-sale beliefs in the earth being flat and the sun revolving around the earth. Consensus is not fact, nor even science. Science is provable. Do-gooders, even those well intentioned, always need bogeymen to scare the gullible, keep them donating and wringing their hands as they worship their green-god. God Almighty is in control of the earth He created. Resources He placed here, including salmon and steelhead, are for our use but not abuse. That's why I fight to protect them.

Come to reality in your articles or at least give the other, "correct" side. Maybe something about how all of New Zealand's fifty glaciers are growing or even those in Washington State — in the face of "global" warming — would get you to the truth.

John Waite
Spokane, Wash.

The Osprey On-Line

www.fedflyfishers.org/conOsprey.php

THE OSPREY



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The Federation of Fly Fishers is a unique non-profit organization concerned with sport fishing and fisheries

The Federation of Fly Fishers (FFF) supports conservation of all fish in all waters. FFF has a long standing commitment to solving fisheries problems at the grass roots. By charter and inclination, FFF is organized from the bottom up; each of its 360+ clubs, all over North America and the world, is a unique and self-directed group. The grass roots focus reflects the reality that most fisheries solutions must come at that local level.





A Washington Steelhead Draft Plan

by Bill Redman

— Steelhead Committee —

After a decade of delay, the Washington Department of Fish and Wildlife (WDFW) has developed in the last year a draft Statewide Steelhead Management Plan (SSMP). The process has included substantial interaction with interested “stakeholders,” and to their credit, the WDFW people developing the Plan have listened carefully to the comments of the stakeholders and incorporated a number of improvements into the Plan as it has progressed.

As a result the draft Plan makes significant departures from the failed status quo management to a more conservative management strategy based more on wild, naturally spawned steelhead, improved measurements of stock health, and habitat protection and restoration. Specific improvements include the following:

1. Placing highest priority on natural production, especially compared to harvest and hatcheries, which have been at the heart of WDFW steelhead management for almost a half century.
2. Calling for more aggressive WDFW involvement in habitat protection decisions.
3. Moving away from the failed Maximum Sustained Harvest (MSH) fisheries management model toward more conservative (higher) buffers for escapement.
4. Hatchery management that follows some of the recommendations of the Hatchery Scientific Review Group, along with aggressive monitoring and scientific study to understand hatchery/wild spawning issues and the impacts of hatchery operations on wild fish.

WDFW has now written a Draft Environmental Impact statement (DEIS) for the draft Management Plan

and invited and received the first round of public comments. The DEIS describes four alternative approaches to statewide steelhead management:

Alternative 3 would continue the current status quo management, which nominally tries to balance wild fish conservation and harvest, but is heavily dependent on hatcheries to support the Maximum Sustained Harvest model.

Alternative 2, the preferred alternative of WDFW, is more conservative

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than the status quo and would set conservation goals for the four Viable Salmonid Population (VSP) parameters (abundance, productivity, diversity, and spatial structure), focus more on habitat protection, and reduce the impacts of harvest and hatchery programs on wild fish.

Alternative 1, the most conservative, would manage for maximum natural production with the goal of reaching the carrying capacity of rivers and would eliminate most hatchery programs and restrict harvest much more than MSH does.

Alternative 4, the least conservative, would attempt to maximize harvest with increased hatchery production even more than the status quo.

With that background, what follows are parts of the FFF Steelhead Committee's comments to WDFW on the DEIS alternatives and the

Statewide Steelhead Management Plan.

Given the fact that five of the seven Distinct Population Segments of Washington steelhead are ESA listed as threatened or endangered, as well as the depressed state of all Washington steelhead populations compared to historic abundance, WDFW has made a wise decision to abandon its current Alternative 3 management. Indeed, the current sad state of the steelhead should persuade the Department to dismiss all further consideration of Alternatives 3 and 4 out of hand as not compatible with the highest priority goal of protecting and restoring wild steelhead stocks. These alternatives simply are not up to the daunting challenges ahead. The discussion needs to focus on the relative merits of Alternatives 1 and 2.

NATURAL PRODUCTION

This DEIS for the SSMP begs the question: If “Steelhead Management shall place the highest priority on the protection of wild steelhead stocks and restoration of these stocks to healthy levels” as stated in the Plan, then why not go for Alternative 1, the most aggressive in protection and restoration of these stocks?

The new management approach should allow WDFW to try a series of scientific experiments with more conservative management approaches. There should not be a requirement that all watersheds be managed at the same Alternative level.

One of the most dramatic examples of the need to focus on natural production is the comparison of current wild steelhead abundance with historic records. Current wild steelhead populations statewide are mostly in the range of 1% to 6% of historic levels, the latter as estimated primarily from commercial harvest and canning

Farmed Salmon

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waters of Scotland, Ireland, and Norway. Most troubling, lice on farmed salmon lay lots of eggs during late winter and early spring—just before uninfected wild juvenile salmon pass farms. Norwegian researcher Peter Heuch calculated that the nearly 100 million salmon in Norway's 800 or so farms collectively produced an estimated 1.45 billion lice eggs during one 2-month spring migration period. Since these findings became public, Norway has valiantly tried to reduce spring levels of lice to protect wild salmon. British Columbia, on the other hand, remains mired in denial and inaction.

Please allow me to pause to ensure we're clear on some vital points. First, scientists and layman alike know that lice are common on adult salmon. Most of us also know or suspect that a few lice don't cause a lot of harm to an adult salmon. We also know that, historically, juvenile salmon entering the sea didn't encounter many lice-bearing wild salmon, most of which normally return in the fall. Now they encounter thousands, and until the recent advent of salmon farming, we rarely saw infections of lice on juvenile fish—or suspected what those infections might do to whole populations.

Today, we regularly witness extensive outbreaks of lice on seaward migrating juvenile salmon (see Orr 2007 for a list of locations). These outbreaks are not 'natural'. They coincide with the expansion of salmon farming—worldwide. No such outbreaks had been reported on juvenile salmon in the north Pacific until 2001, until after the expansion of farming. Every spring since 2001, 36 to 98% of all juvenile pink salmon have been infected with lice (often many per individual) in the heavily farmed area of BC known as the Broughton Archipelago.

Instead of focusing on the obvious links, or responding proactively, a senior Fisheries and Oceans aquaculture manager greeted the 2001 outbreaks by assuring the public "that lice are common on salmon" and that the media reports were presenting "a biased picture." No mention was made of the novelty of the outbreaks. No apparent learning was gleaned from

the European Union experience. Instead, these words marked the first salvo in a protracted and still-unresolved battle over the impacts of farm-source lice on BC's wild salmon.

Not that we should be surprised by any of this. Only a few short years earlier, three Canadian academics reviewed the collapse of one of the greatest biomasses in marine history: the Atlantic cod. Their published paper, disturbingly entitled, "Is scientific research incompatible with government information control?" concluded that "non-science influences can interfere [destructively] with the dissemination of scientific information and the conduct of science in the Canadian Department of Fisheries and Oceans."

Those non-science influences are also extremely prominent in the promotion of aquaculture in Canada, where aquaculture has been a development priority since the 1995 *Federal Aquaculture Development Strategy*. The policy was supported by an initial \$75 million sub-

into the support gears when lice outbreaks became regular media fodder in 2001, all thanks to Alexandra Morton, a persistent and passionate researcher who, happily for us, just happened to prefer living in out-of-the-way places. Since 2001, Morton has been at the epicenter of both the political and scientific battle over the impacts of sea lice. A cetacean researcher and long-time resident in the heavily-farmed Broughton Archipelago, Morton's life and career were forever altered that spring day in 2001 when tourism operator Chris Bennett brought her dead juvenile pink salmon bearing parasites neither had seen on juvenile salmon.

Alarmed and needing answers, Morton turned to a Norwegian sea lice researcher whose first question was, "Do you have salmon farms in the area?" When Morton said yes, she was advised that the situation was much too political, so avoid getting involved.

But the Broughton was where Alex lives. For her this breathtakingly beau-



Sea lice attached to a juvenile pink salmon. Photograph by Alexandra Morton.

tiful and productive place was much more than just a convenient locale to make money by growing lots of non-native salmon. (Aquaculture in BC began with native Chinook and coho salmon, but has since switched almost

But a monkey wrench was pitched

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exclusively to easier to grow and more profitable Atlantic salmon.) Morton began systematically collecting juvenile salmon at measured distances from active farms, and honed the rigor of her analyses by teaming up with statistical ecologist Rick Routledge. Their published paper, the first of many, showed sea lice were nine times more abundant on wild fish near farms than in areas distant from salmon farms, and that 90% of juvenile pink and chum salmon sampled near salmon farms in the Broughton Archipelago were infected with more than 1.6 lice per one-tenth gram host weight (a likely lethal load).

Based on what she found, Morton also predicted fewer returning adult pink salmon in 2002. And when only 147,000 adults showed — when 3.6 million had been expected — BC had a ‘situation’ on its hands ultimately amplified into a crisis through the media.

And if ever there was a perfect fish for manifesting such a crisis, it’s the lowly pink. Along with chum salmon, pinks emerge from the gravel of natal Pacific streams and immediately head to nearshore marine areas where they can feed and grow. Yet this strategy means they are exceptionally small (less than half a gram) and vulnerable to things like hard-to-miss lice epizootics. And because pinks return as spawning adults the following year — usually in the millions — one never has to wait long from outbreak to crisis.

Much has been published about how people deal with crises — especially, it seems, people with vested interests wishing to maintain comfortable *status quo* leanings. Denial is the usual response. Denial that a problem exists, of causes and culpability, that the problem is severe enough to prompt action (or personal or economic inconvenience), that we can do anything, anyway. These various forms of denial even have names such as *existential*, *consequential*, and *fatalistic* denial.

Reactions to crises and *status quo* threats — especially in resource extraction and management cases — can also be much more active, with the deliberate promotion of uncertainty the weapon of choice. Adaptive ecologists like the great Buzz Holling have spent careers examining how resource managers, politicians, bureaucrats and

others “deliberately exploit the complexity of ecosystems” to foster uncertainty (e.g. on cause and effect) to maintain *status quo* practices and policies (Gunderson and Holling 2002). In these cases, the often plodding but effective weight of evidence approach that serves science well fails us all, particularly when those with power demand absolute proof of connections and impacts, before any action (other than more studies) is deemed necessary.

This is the situation in which British Columbians currently find themselves ensnared, as vested interests wield uncertainty like some righteous claim

***Though the weight of
evidence continues to
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for science and
conservation.***

against those who dare question the sustainability of open net-cage aquaculture. One day the details may make an interesting case study in what Gunderson and Holling call the ‘pathology of regional resource management and development.’ But right now, it’s all just too damned depressing.

Fisheries and Oceans’ initial response to the 2001 outbreak was to wait 10 weeks until sending an oversized seiner to sample surviving salmon. The five-page anonymous report (since removed from the web) makes no mention of the timing of the survey relative to reported outbreaks, of Morton’s findings, or of extensive EU observations. It was, however, accompanied by a media release saying that “despite the appearance of some lice...pink salmon appeared to be in good condition.” Hardly cutting edge science, but apparently adequate to obfuscate and delay.

Most of the science was left up to Morton and her academic and NGO colleagues. In a series of published papers they built on the EU literature

linking farms and lice outbreaks on juvenile salmon. Up and coming stars such as Marty Krkosek mapped farm-source lice footprints, and the results didn’t sit well with fans of uncertainty and *status quo*. Infection pressures near farms were 73 times above background levels, and lice levels remained elevated 30 km ‘downstream’ of farms. In the meantime, BC’s NGOs and academics organized five international workshops in which EU scientists were forthright on describing interactions between wild and farmed salmon.

All in all, it has been a remarkable ride for what Holling and colleagues have identified as the “shifting” of the “burden of proof,” in which it has been largely left up to non-agency scientists to prove that massive lice outbreaks: 1) originate with farmed salmon, and 2) impact wild fish.

Though the weight of evidence continues to build, consensus and action remain elusive, a sad indictment for science and conservation. People such as Morton and Krkosek have become special targets for personal and ‘scientific’ attacks intended to generate doubt. (For some examples see <http://www.math.ualberta.ca/~mkrkosek/Criticisms&Responses.htm>.)

Morton has been unethically mocked for using dipnets “that only captured sick fish” (not so, say academics and peer reviewers), and was initially denied further collection permits. A ‘freedom of information request’ revealed a detailed Fisheries and Oceans Canada sea lice communications plan which labeled some NGOs as ‘anti-aquaculture’ and which urged government spokespersons to focus messaging on the complexity of the situation and the need for more research.

Sometimes the attacks and obfuscation are more subtle. Watershed Watch published a professionally-researched report on lice and salmon that prompted an angling club to raise concerns with the provincial minister of agriculture. When I arrived at the meeting, an assistant deputy minister was already busy handing out an official looking but suspiciously anonymous critique of the report.

Meanwhile, EU scientists continued to visit BC, where they: expressed amazement at the exceptionally large size of BC’s fish farms (700,000-plus

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fish) and extremely small size of our wild fish; gently chided us to get past the denial and on with solving our problems; and helped craft consensus statements that said the evidence linking lice to farms and declines in wild fish was unequivocal. Three of those visiting scientists also testified at a special legislative panel on aquaculture, reiterating these messages, presenting evidence that salmon farming leads to a 1% decline in the survival of wild fish per 1,000 tons of farmed salmon, and sharing lessons on how EU countries reduce lice numbers and impacts through fallowing of farms, whole bay management, separation of age classes, and other techniques not consistently used in BC.

In the meantime, agency spokespersons told the same committee that much previous research was flawed, that more research was needed on the tentative links between farms and lice outbreaks on wild fish, and that the evidence of population level impacts was weak and not to be trusted. The agency media wonks also had a field day when lice were found on marine sticklebacks. Media releases proclaimed sticklebacks to be the likely source of lice infecting wild salmon. Lost in the hype (besides the scientific process, and public confidence) was the fact that marine sticklebacks have an armored skin which likely makes them poor lice hosts; to date, not a single gravid (egg-bearing) louse has been found on any.

Also lost—but only made more blatant through its omission—was the fact that agency personnel (both federal and provincial) were saying little about lice on farmed salmon.

British Columbians knew next to nothing about how many lice were being produced on the area's farmed salmon, in stark contrast to more open reporting requirements in EU countries (a difference made even more curious by the fact that several international industries operated in both Canada and the EU but under different rules).

Then in September 2004, following

intense public scrutiny, Stolt Sea Farms—now Marine Harvest, the largest aquaculture company in the world—belatedly released data on numbers of lice on its Broughton fish. Though averaged by farm, the data appeared robust enough to offer us the first glimpse of farm-related louse production in the Pacific. Falling once again into the alluring burden of proof trap, Watershed Watch took on the task of analyzing the data which showed that 10-12 active farms in the Broughton were capable of producing billions of eggs and infectious larvae each year. These totals vastly outstripped any other potential source, and louse production peaked ominously



A salmon farm owned by Marine Harvest located at the eastern entrance to the Broughton Archipelago. Photograph by Craig Orr.

ly in spring months, just prior to when wild juvenile salmon passed near these farms.

Even so, we still only knew (and still know) what was happening on a fraction of the 80 or so active farms on the coast. Available data were also limited by how they were reported (averaged), so the NGO community listened intently when Stolt Sea Farms approached us in 2004 requesting a parlay.

Some two dozen face-to-face meetings later, I can't help but wonder just how much farther ahead we are. While we did visit farms and systematically count lice, we still see strong production of lice in spring. No cohesive plan exists to assess and reduce impacts. Industry and government continue to be over-reliant on costly (environmental and economic) chemical controls that EU scientists tell us have begun to

fail. And denial and obfuscation still regularly rear their stubborn maws, as witnessed in a recent letter to a national newspaper from a senior DFO official claiming certain published researchers were presenting “questionable extrapolations” and that “sea lice are an unlikely cause of [the] variability” we see in pink salmon escape-ments.

No mention that agencies spend megabucks searching unsuccessfully for alternate explanations. No mention that Canada's own Auditor General regularly reports Fisheries and Oceans to be in a conflict of interest as “both a regulator and promoter” of aquaculture. And in the bizarre dance of wild-farmed fish interests, several respected academics helping coordinate government-funded sea lice research recently resigned — very publicly — when industry refused to share lice data. Just another day in the politics of farmed and wild salmon.

Fortunately for the environment and our sanity, there is some good news. Canada recently enacted a progressive wild salmon policy (WSP) that pledges to conserve salmon biodiversity, and even suggests ways to do so. Unfortunately, the impacts of lice — and some other impacts I have not touched on—rob the ecosystem of the very adaptive capacity the WSP pledges to conserve. The legislative committee report was also remarkably honest and progressive in its assessment of the damage and the need to transition the industry, though its recommendations don't bind government. Thankfully, the public is increasingly savvy and concerned, and the importance of the public was never more evident than in the last provincial election, when voters turfed most coastal members of the provincial government who supported the expansion of salmon farming. Introducing farms to the Central and North coasts of British Columbia has also been fiercely and successfully (so far) resisted by a coalition of First Nations, conservationists, fishermen and others, mainly

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under the banner of the Friends of Wild Salmon. Thankfully, too, several foundations and individual donors have stepped in to help groups like Watershed Watch and the nine-member Coastal Alliance for Aquaculture Reform push for sound science and sustainable choices.

Last but not least, the weight of evidence, that old plodder unable to react quickly enough to crisis, never rests in its quest to overrun the fortresses of denial and inaction. The only question that remains is: How many more wild salmon will be sacrificed, before we dig ourselves out of this mess?



Further reading

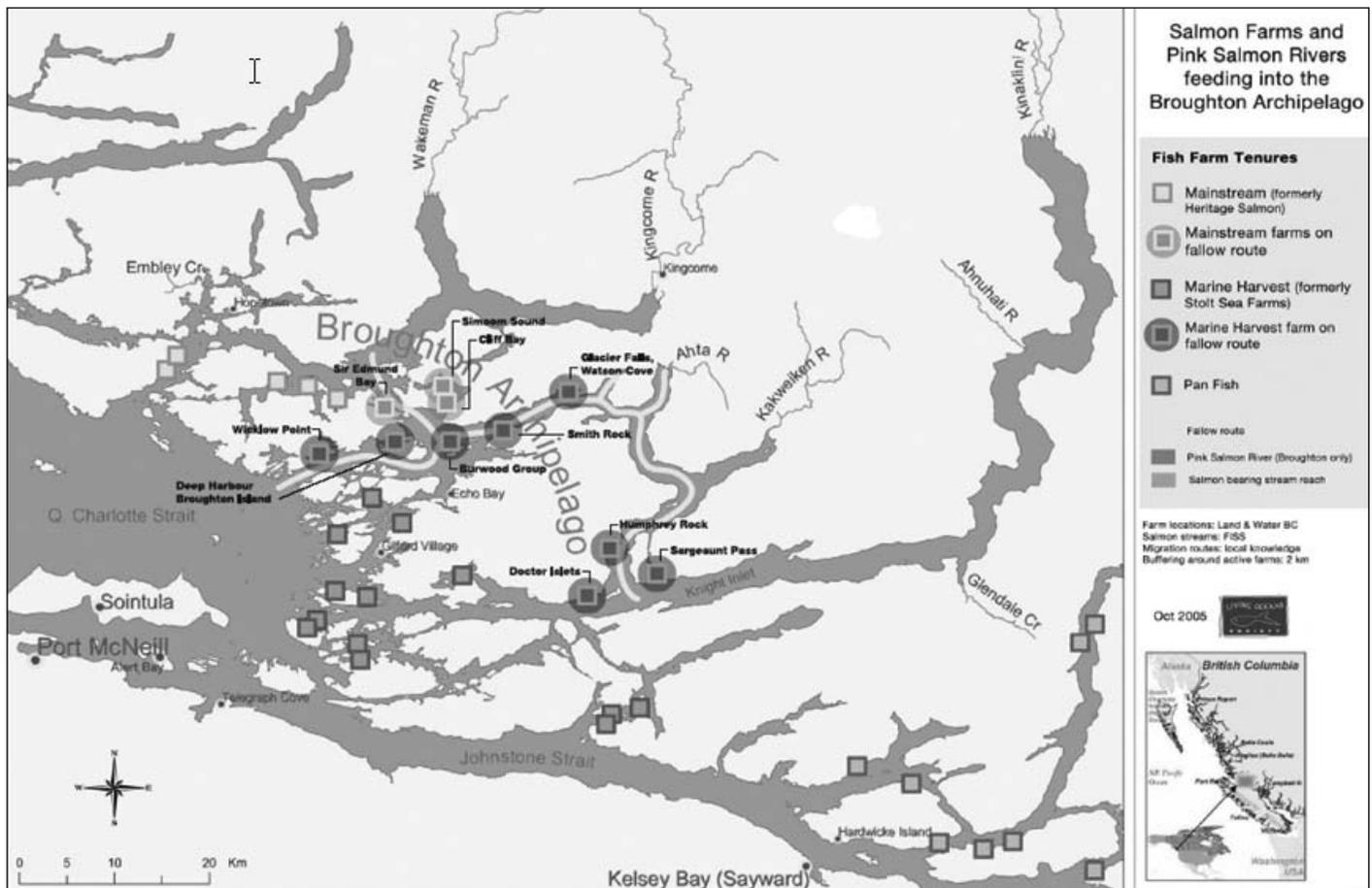
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Map courtesy Watershed Watch Salmon Society



Reminiscing About Connections

by John Sager

— Steelhead Committee —

John Sager, a 20-year veteran of the FFF Steelhead Committee and one of the newsletter's earlier editors, took a degree in Russian studies from the University of Washington in 1951. After serving as a Soviet specialist in the U.S. Foreign Service and in Washington, D.C., he "got smart" (his words) and returned to his beloved Pacific Northwest. This reminiscence is a substantial re-write of a piece he did for The Osprey in Issue No. 40, six years ago.)

Everyone has connections, many of them lead to very unexpected happenings. Looking back, my experiences as a steelheader, both as a fisher and conservator, owe much to those unexpected connections.

I suppose my only regret about steelhead fly fishing is that I got started much too late, as a fifty-something who had been into other kinds of fishing for a long time. The lessons, and connections, came quickly.

One of the first things I learned — on joining the Washington Fly Fishing Club in 1985 — was to be cautious when talking with the old veterans. Some of those guys no longer were able to wade their favorite steelhead streams — bad knees, hips, eyes, whatever — and it was easy enough to evoke a reluctant admission that they weren't fishing like they used to. Twenty-plus years later I find myself in the same part of that river.

I might not have joined the WFFC had it not been for Jack de Yonge. I used to write political pieces to the editors of Seattle's major newspapers, usually on Soviet-American cold-war issues, relying in part on my service at the U.S. embassy in Moscow. Jack de Yonge was then the editorial page editor for the Seattle Post-Intelligencer and he decided to use one of my offerings. This led to lunch and I learned that Jack was a steelhead flyfisher. Among other things, he gave me some useful tips on fishing clubs, naming the WFFC and the Washington Steelhead Flyfishers as groups I would enjoy.

I joined both clubs and soon got involved in the WFFC's trout conservation programs which in turn led to a growing acquaintance with fish politics in Washington's state capital. And a few years later, at a meeting of the Washington Steelhead Flyfishers, I learned about a Moscow State University research team that was doing work on steelhead on the Kamchatka Peninsula in the Soviet Far East. For me, this was a particularly fascinating discovery as I had never imagined that steelhead would exist in such a place. Little did I know.

Another connection almost never happened. I had heard of a steelhead

My only regret about steelheading is I got started much too late.

flyfisher named Stan and thought it was Stan Jones, a WFFC member. Stan told me I had the wrong guy and after some inquiries the man turned out to be Stan Young. I called Stan (then the newsletter's editor) and after meeting each other he invited me to a meeting of the then-nascent FFF Steelhead Committee. We met in Bob Arnold's home in North Seattle and I quickly found myself feeling very uninformed about steelhead: Why, some of them were wild and others came from hatcheries!

And it wasn't long before Stan and I were driving together to Olympia to testify before one of the state legislative committees about steelhead fishing regulations or other conservation issues, or going to the Game Department to listen to hearings. I quickly learned what Stan had long known, that there were a lot of fishermen who wanted to kill and eat every steelhead they could lay their hands on, that catch and release was a very dirty word, and that, in their view, there were no important differences

between hatchery and wild fish.

One of Stan's connections paid off in a very big way. He had met recently a U.S. Navy captain along the Skykomish River and learned that this steelheader had been having a great season, with lots of multiple-fish days. This turned out to be Pete Soverel, then the commanding officer of the University of Washington's naval ROTC program. As it happened, Pete was soon to retire from the Navy and Stan and I went to his decommissioning ceremony, with the dress whites and ceremonial sword and the whole thing. Very impressive, as was Pete soon to show himself.

In 1990 Pete became the chairman of the FFF Steelhead Committee. It was under his 8-year leadership that the group acquired its hard-won reputation as a non-nonsense handful of dedicated fishers who recognized the mounting perils to wild steelhead stocks up and down the entire Pacific Coast. And their little newsletter, *The Osprey*, carried the message clearly and honestly, three times a year, at virtually no cost to its readership. With Jack de Yonge as its new editor and Pete as the Committee's chairman, this small group of guys began to have influence that mattered, especially with members of the state's wildlife commission and a few key legislators.

Probably my most satisfying connection helped bring about the Committee's cooperation with Russian steelhead scientists and what later became the Kamchatka Steelhead Project, sponsored by (again) Pete Soverel's Wild Salmon Center. I had written a totally fanciful piece in the newsletter's January 1991 issue about fishing for steelhead in Kamchatka, imagining what some of the conservation and political problems might be for the natives of the region and their Russian fisheries managers. With the Soviet Union in very recent collapse, anything was possible.

Another connection. Serge Karpovich, an American foreign service colleague of mine for many years, and then a new steelhead flyfisher, read

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that piece in his Cambridge, Mass home one day and telephoned me to ask if we, the Steelhead Committee, were serious about helping the Russians protect their Kamchatka steelhead populations. "Absolutely," I told him. In his understated manner, Serge responded that he already had scheduled a trip to Moscow, on personal business, and "I'll see what I can do."

What he did was to stride into Moscow State University's ichthyology offices and ask a very surprised senior steelhead scientist if she and her co-workers would be interested in talking to their Pacific Northwest counterparts about a cooperative conservation venture: You have the fish, we have the money.

Those Russian scientists eventually came to Seattle and with the Committee as their hosts visited University of Washington fisheries scientists and Washington State wildlife conservation officials. John Aalto, another connection and my oldest of fishing buddies, did the Russian-English interpreting for both sides. John would later lead the first expedition to Kamchatka, in September 1994, where he served as camp boss, interpreter, expeditor and go-between for the first joint Russian-American steelhead data-collection program.

The Kamchatka project was much too large for the Steelhead Committee to manage and was a natural for Pete's new Wild Salmon Center to adopt. Now well into its second decade, the WSC is doing a marvelous job of putting together steelhead conservation programs that are actually working. The WSC has shown the local authorities, and the bureaucrat-scientists in Moscow, what needs to be done. The Russians now see in their own self-interest how to avoid the mistakes we Americans have made. The scientific data, now more than ten years' worth, supports these conclusions, no doubt at all, and the Russians recognize this. There is real hope for wild steelhead in Kamchatka and it is immensely satisfying to all of us who helped make it happen.

By now I've been to Kamchatka myself, twice in the late 1990s, first as a client and the following year as camp boss on the Kvachina River. This is

real wilderness with great fish; and the rough edges, inevitable in Russia, were more than worth it. Indelible memories: Watching a startled and enormous brown bear swim to shore, outdistancing a jet sled. Or a Steller's Sea Eagle watching warily from atop the tallest tree as I fished downriver beneath him.

I admit to looking back on my own conservation efforts with some disappointment. Those of us in the eighties and nineties who saw and published the warnings were certainly ahead of our time. The conservationist literature nowadays, accepted by nearly everyone as illuminating the key issues and arguments, at that time was considered by too many as outrageous overkill. We were largely unheard and unread but we were right.

Unfortunately, just "being right" isn't saving the fish. I would love to be wrong about this but I believe that "Steelhead Bob" York was probably right when he predicted some 20 years ago that wild steelhead are doomed because "it is not in our culture" to save them. Those words of Bob's struck me as odd when I heard them — on an October day on British Columbia's Thompson River — but now I get it, for sure.

Notwithstanding the disappointments, my love affair with wild steelhead will persist long after it has become too embarrassing to struggle into my waders. The memories will see to that.

Twenty-five years ago the Green River was always good for a winter fish or two and it was close to home. The few guys I knew who fished steelhead were bait slingers so I followed suit. But before long I switched. And my first fly-caught steelhead came too easily, quite literally on the first cast. I was with Joe Stone on the Kalama River, at the Gobar Creek mouth, and a 16-pound buck grabbed a very standard Woolly Worm and I've never looked back.

It was Stan Young who introduced me to my first winter steelhead, near the Sky's Two-Bit hole. And I once had a February six fish day on the Carbon River, using nothing but small nymphs, fishing for about four hours in the middle of a weekday, with no witnesses.

Since then I've been fortunate enough to fish some of B.C.'s major

steelhead rivers, with some success and always with wonderful company. Anyone who has floated the Kispiox on a golden-leaved autumn afternoon can relate to the inexpressible joy of such places. Or the Thompson River as it once was, home to probably the strongest steelhead on our planet.

I fished the Dean River in August 1993 with John Aalto. We helicoptered in to Giant Pool and fished and floated down to the falls, an incredible 12-day trip made possible by Dean Regular Sean Gallagher's very generous provision of a river map which he drew by hand, showing all the pools along the way. Now *that's* a fishing friend! Highlight, meeting and chatting with fly fisherman and former Secretary of Defense Dick Cheney as he was waiting at the fixed-wing airstrip for the first leg of his trip out.

I repeated the Dean adventure the following year with Howard Johnson, the Steelhead Committee chairman who replaced Pete Soverel. Howard took a picture of me and an about-to-be-released 15-pound wild buck, a precious prize that still adorns my office wall.

Back to Bob York's dire prediction. I've recently shared my gloominess with other Committee members. Bill Redman, our current chairman who may soon top Pete Soverel's record for tenure, has been an admirable leader and probably knows more about winning the important battles, in our federal courts and with the help of the Endangered Species Act, than any other steelhead flyfisherman alive. Bill, and his associates at FFF headquarters in Livingston, recognize that manpower is our problem, not enough young blood coming up who have the passion. The passion to try to *change* the culture that Bob York feared.

But there may be hope. The Steelhead Committee now has two young college students, Will Atlas and Schuyler Dunphy, who are products of the University of Washington's School of Fisheries. These young men love to fish steelhead and they know all the science. They are fervent wild fish promoters. And they know others of their kind who may also wish to join the fray. They know, too, that time is not on the steelhead's side; but they are willing to try.

And that is all anyone can ask.



Skeena River in Crisis

Commercial salmon fisheries still decimate wild steelhead

By Rob Brown

— Terrace, British Columbia —

Rob Brown, author of this report on British Columbia's Skeena River, has been an environmentalist since the days when they were called conservationists. He is a spokesman for fish and has written about them for many magazines, newspapers, and journals. Rob currently divides his time between fishing the Skeena and teaching guitar. He can be reached at angler1@telus.net.

Responding to a prompt embedded in the core of its being, a steelhead leaves its hunting grounds in the north Pacific and begins the last leg of a peregrination that began hundreds of miles inland and three years earlier. It's been a perilous journey from fry to juvenile to adult, dodging the beaks of birds and the maws of bigger fish. There were snares in the fish's salt-water residence too, but the steelhead survived them, feeding voraciously until it was 34 inches long and weighed 13 pounds.

Following the primordial pulse of a natural global positioning system honed by thousands of years of evolution, it slips through coastal waters toward another threat to its survival. As it nears the coast the fish is joined by great schools of migrating salmon, sockeye, chum, pink, and coho, all responding to the same siren call.

The Alaskan fleets are working the waters off Noyes Island and Tree Point. Many hundreds are taken in the nets. The steelhead escapes the Alaskan nets and runs the gauntlet again a week later as it swims past the mouth of the Nass River where the Department of Fisheries and Oceans (DFO) has granted an opening to the Canadian gill net fleet.

Two weeks later the steelhead enters Chatham Sound, nearing the approaches to the Skeena River. Topside, a fisherman is paying out his net into the shallow waters near the river mouth. The area is a funnel. Fish are concen-

trated there. That's what makes it a productive place to fish. It's also a place where summer steelhead are more easily intercepted.

The fisherman doesn't want steelhead. He wants sockeye. Sockeye are the money fish, although at the buck a pound the processors are paying for them these days they aren't the money fish they used to be. To him, steelhead and coho are a pain in the ass. The dwindling number of the latter led to total fishing closures in past seasons,

The commercial fisherman doesn't want steelhead. Sockeye are the money fish. To him, steelhead and coho are a pain in the ass.

and the former are the reason he has been forced to adopt conservation measures that he knows don't work.

The net the gill-netter is soaking is woven from monofilament nylon dyed so that fish can't see it. The net is 60 mesh, or 23 feet, deep. The distance from the first cork that hits the water to the last cork needed to suspend it is 200 fathoms or 1,200 feet, a little longer than three football fields.

The steelhead hits the net moments after it's fully extended. The mesh slides over its head, past the operculum and lodges behind its gill plate in the delicate membrane that acts as its lungs. The fish fights for its freedom with the power that makes sports fishermen prize the species.

There is a splash. The fisherman sees a disturbance near the end of his cork

line. He curses. He can tell by the commotion that he's got a steelhead. He knows this because steelhead fight harder and longer than sockeye or pinks, even harder than coho. To increase the steelhead's chance of survival he could pull in his net immediately. He doesn't. He won't until he believes it's caught enough fish. When this point arrives he starts the hydraulic drum. As the net comes aboard he pulls fish from it. He is wearing rubber gloves. He's quick and rough. He's a fisherman, not a surgeon. After twisting a dozen sockeye from his net, he reaches the steelhead. He pries it free and tosses it in the recovery box.

He's one of the few gillnetters who have a workable blue box with water flowing through it. All skippers are supposed to use them; they're supposed to use shorter nets and make shorter sets, but the enforcement presence on the fishing grounds is nearly non-existent, the effectiveness of the boxes and the other so-called "selective fishing" techniques are really questionable, so there has been no buy-in on the part of gill netters for the most part.

The fisherman makes another set. He looks in the recovery box. The fish is upright. He waits a while then he pitches it over the side. There is no guarantee that the fish won't expire from the trauma it has recently endured. The fisherman knows this. He also knows that his is not the only boat on the grounds. On this particular day there are 250 others, each with 200 fathoms of net. Tied end-to-end that's enough netting to stretch halfway from Vancouver B.C. to Seattle Washington, but the netting configuration of the fleet is not linear. It's a labyrinth made by men all jockeying for the most productive spot. The steelhead, dazed after his first encounter, must find its way through

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this maze. Steelhead are a hardy species, but to think that they can stand being gilled in one or more nets then survive long enough to spawn 6 to 8 months after that is pure fantasy. Skeena fish have been running this gauntlet for over a century. A couple of decades ago the gauntlet consisted of well over a thousand boats.

Clearly, the only way a Skeena bound steelhead or any other Skeena salmon species can withstand the killing force of the various fleets it must pass to reach fresh water – as well as additional fishing pressure it faces from in-river sport fisheries and native fisheries once it has – is by having a sizeable enough population to survive the attrition. A mixed stock fishery is a management challenge. Managing the Skeena mixed-stock fishery is a nightmare.

The crux of the problem is quickly understood by understanding the term harvest. When a farmer is only capable of taking half the crop he has planted to market, his harvest rate is 50%. Though it does some injury to the agrarian sense of the word, fisheries managers and scientists use the same term when referring to the slaughter of fish. So, taking an estimated quarter of the specific salmon run in a given season would yield a harvest rate of 25%. When several species of salmon migrate at the same time through a gill net fleet incapable of discriminating between them, they are all subject to the same rate of harvest. If the harvest rate is 25%, the less abundant species suffers a greater impact since, in ecological terms slaughtering 25% of 1,000 fish causes considerably more damage than slaughtering 25% of a million.

Further complicating this issue in Skeena is the fact that some Skeena salmon are the product of artificial enhancement. During the techno fix era of the 60's, the DFO built spawning channels in the Babine Lake tributaries of Pinkut Creek and Fulton River, thereby creating two mega races of sockeye. The construction of those channels was a grand government subsidy to the commercial fishing industry and a huge ecological disaster. By enhancing the stocks of two Babine streams, the DFO fish culturists greatly aggravated a mixed stock

interception problem that persists to this day.

More boats caught more sockeye for decades, but since a Kitwanga River sockeye or a Morice River sockeye is indistinguishable from a Pinkut or Fulton sockeye, all were, and are, subject to the same harvest rate. The unenhanced wild sockeye were fished down year after year. This goes a long way to explain why a shadow run of about a thousand sockeye – the remnant of a run estimated to have been somewhere between 25,000 and 75,000 fish – returns to the Kitwanga River these days. And why the sockeye of the upper Morice drainage are flagging, and why the sockeye bound for the streams flowing into Babine Lake other than Pinkut and Fulton are dramatically reduced.

Coho, chinook, and steelhead paid the same price for having migratory times that overlap that of BIG Sockeye. After over a century of heavy exploitation at the hands of an industry that has really only paid lip service to selective fishing methods, the Skeena fishery is less biologically diverse and less sustainable, and the problem grows each season.

Largely as a result of the coho crisis, the Skeena fishery had taken some small halting steps away from poor fishing practices of yore, but in 2006 the North Coast Division of DFO proved the bad old days had just been on hold. In the face of evidence that the steelhead returns were low, DFO gave the commercial fishing fleet more fishing time.

Speaking of Skeena steelhead, eminent fisheries scientist, Dr. Carl Walters, said that letting a large fleet fish for a short time was not good, but having a small fleet fish day in day out was the worst possible scenario. In 2006 250 fishers fished weeks on end, including 11 straight days during the peak migration time for summer steelhead.

Five years earlier DFO had published, and presumably adopted, *A Policy for Selective Fishing in Canada's Pacific Fisheries*. The policy is smart stuff. For example its fourth principle states:

Four fundamental strategies in fishing selectively to minimize mortalities and maximize chances for survival of

non-target fish, invertebrates, seabirds and marine mammals will be adopted through increased knowledge of fishing gear and practices. In order of preference they are:

1. *avoidance of non-target species and stocks through time and area restrictions;*
2. *avoidance through gear design;*
3. *release alive and unharmed before being brought aboard or ashore, through gear design; and*
4. *release alive and unharmed from the deck of the vessel or landing site (e.g., shore or fishing pier).*

In all but two days late in the season there were no fisheries officers on the fishing grounds, and internal document sobtained through Freedom of Information legislation proves that compliance with the selective fishing techniques mentioned earlier was poor.

In 2005, DFO published another policy paper entitled *The Wild Salmon Policy*, which reflected the ecological Zeitgeist heralded by the findings of the Brundtland Commission.

The Health of Pacific salmon, it stated, "depends not only on their abundance but also on their biological diversity. That diversity includes the irreplaceable lineages of salmon evolved through time, the geographic distribution of these populations, the genetic differences and life history variations observed among them, and the habitats that support these differences. Diversity of Pacific salmon represents their legacy to-date and their potential for adaptation to future changes in climate, fishing, and habitat. Protecting diversity is the most prudent policy for the future continuance of wild salmon as well as the ecological processes that depend on them and the cultural, social, and economic benefits drawn from them."

In complete disregard of this ideal and the fact that Canada is a signatory to the United Nations Treaty on Bio Diversity, the Department of Fisheries and Oceans, the putative stewards of

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the resource, continued to manage the fishery in response to one run of fish, Babine Sockeye. No one should be surprised. This is the same government institution that was charged with the well being of the cod populations of the Grand Banks off Newfoundland, the same bureaucracy that allowed the collapse of the world's largest pelagic fishery, one that had been providing the world fish since the Renaissance.

The mandate of the west coast arm of Canada's Department of Fisheries is to take care of fish, then the needs of aboriginal fishers, and only then the demands of sportsmen and commercial fishers. In practice they've done the opposite. For more than a century DFO's actions have shown it to be the servant of commercial fishermen and the processing industry at the expense of all the upstream First Nations, recreational fishers, and the freshwater sportfishing industry. To make matters worse, the commercial fishing industry couldn't stay afloat without government subsidies. On average, a gillnet skipper made fifteen thousand dollars in 2006. Without a special deal under Canadian Employment Insurance (which is really unemployment insurance or, more simply, the dole) most fishers couldn't survive. Canadians embrace the social safety net, but the idea that taxpayers are paying a segment of society to extirpate a resource at the expense of their fellow citizens is viewed by those who have witnessed this debacle unfold for years and years as downright stupid and obscene.

Sportfishing guides are quick to point out that the steelhead that winds up on the barbecue of a commercial fisherman or is pitched over the side dead might have paid \$250 for each time he was caught and released to spawn had it been allowed to reach its home river.

The Selective Harvest and Wild Salmon policies were the product of much deliberation over the course of many meetings. The tab for these was paid out of government revenues. These policies reflect the biological reality of the times. They need to be implemented and adhered to. They aren't worth spit if they're not. Concerned citizens have the right to expect and demand that they are, and have every right to demand the

removal of those entrusted with that implementation.

The operative word in the industry is exploitation. The processors, who now own most of the fishing licenses, are happy to continue exploiting fishermen who, for the most part, are nothing more than marine sharecroppers. The fishermen desperately trying to earn enough money to stay at sea and earn

The market fishery at the mouth of the Skeena is a relic of the century before last. But like all old outmoded institutions, it resists change.

enough stamps to qualify for the dole in a sunset industry are forced to exploit the fish. The market fishery at the mouth of the Skeena is a relic of the century before last. It is desperately in need of radical change, but like all old outmoded institutions it resists change. But, how can this change be effected?

The Skeena fishery was skillfully and intensively – and successfully – managed before the appearance of Europeans. Understanding and emulating the underlying principles of that fishery will enable us to go back to the future.

Just as the miracle of natural selection produced salmon ideally suited to their cold-water habitats, the First Nations fishery evolved to suit the salmon. Their relationship was a good fit.

First Nations saw things in cycles. They understood that salmon were at the hub of a living wheel, essential for the well being of all things, necessary for sustaining commerce and culture. The Tsimshians of the coast and the canyons, the Gitksan and the Wet'suwet'en farther upriver, and the Ned'u'ten Nations of the Babine all conducted and managed fisheries more complex, more sensitive to the needs of fish and the environment, and many times more successful than the dazed and confused fishery operating in Skeena today.

The managerial structure of the First Nations fishery was part of their societal weave. The codex of laws governing the resource was based on deeply held beliefs embedded in a conceptual framework that had taken shape over

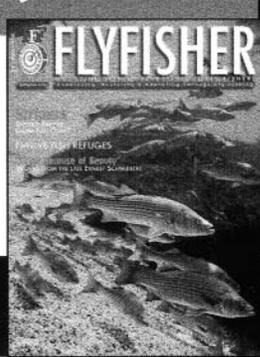
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thousands of years of practice. As a result, self-enforcing fishing laws and regulations were part of the community values.

The native fisheries were large. Their management was hierarchical. The first area chiefs in Skeena were the hereditary chiefs who were responsible for the managerial tasks that included the allocation of access, control of the harvesting techniques, the determination of site ownership, the timing of the fisheries, the egalitarian distribution of fish, and the processing processes.

The day-to-day operations of the fisheries were delegated to the individual chiefs or sub chiefs of various houses. Waste was strictly forbidden, a prohibition that surfaces again and again in the stories of First Nations. The size and structure of the smoke houses and the time taken to dry and smoke the fish ensured that salmon were killed at a sustainable rate.

Live capture gear was predominant in First Nations fisheries. On canyon and rock outcrops, aboriginal fishers used large woven baskets and lashed wooden strip traps to take salmon pressed close to the rock walls by strong currents. At a few locations in the main stem Skeena, but mostly in its tributaries, the native fishers used weirs inset with barrel traps that were ingeniously built so as to herd fish into awaiting traps. In smaller tributaries, weirs were placed just upstream of the main stem. On larger systems they were located just downstream of lakes. In both cases this was done as a hedge against floods.

When the daily quota of fish had been taken, the fishers removed the traps from the water, allowing the fish to continue upstream. The live capture gear made it easy to fish selectively and avoid by-catch. Aboriginal fisheries were fine tuned for optimal utilization and escapement on a stock-by-stock basis; as such they had the flexibility to adapt to rapidly changing natural conditions, and ensure habitat protection at the same time.

In 1877 the first commercial cannery appeared on the Skeena to serve a growing Euro-Canadian fleet that had burgeoned to 870 boats. By 1907 the canneries had metastasized and the fleet had mechanized. There were 14

canneries in all. That year alone they processed 7,632,000 pounds of fish flesh.

Wanting a larger share of fish and a steady supply of cannery workers, the cannery operators launched a successful campaign that persuaded a compliant government not much concerned about heathen Indians to pass legislation that enabled the progenitors of



Department of Fisheries and Oceans Test Fishery at Tyee on the lower Skeena River. Photograph courtesy of the North Coast Steelhead Alliance.

DFO, the Department of Marine and Fisheries, to eviscerate the First Nations fishery.

The campaign stuck a knife in the heart of First Nations' economy and culture. Weirs and traps were banned and fishing stations were removed despite laws dating back to British Columbia's first factor, James Douglas, that guaranteed native title to their fisheries.

In a great multilayered tragedy whose long term effects still play out in the form of suicides, substance abuse, and poverty, a sustainable fishery that had evolved to fit the mighty Skeena, and whose success was demonstrable and proven insofar as it had sustained many thousands of people for thousands of years, was destroyed and replaced by a subsi-

dized commercial fishery that can't support its labor force, is a conduit for public funds into private hands, and continues to wreck salmon because it still operates according to nineteenth century principles.

And what of the First Nations? A few individuals have obtained boats and joined the fleet; others are using gill nets in the river; and others have given up fishing rights to protect upriver stocks on the promise they would be given welfare in the form of fish.

The key to the success of the aboriginal fisheries was selectivity. Selective harvest techniques like in-river beach seining; fish wheels and dip netting have been used successfully on the Skeena and Nass rivers. There is no reason why government money couldn't be used to construct weirs and fish traps to be used in inland freshwater fisheries.

To trigger a sea change in the commercial fishery would require the realization on the part of the managing agency that they are the boss, and that they should obey their mandate and put the welfare of salmon over all else in their management regime. And, it would require the passage of one law making any fishing method that results in the interception and injury of non-target species, or by-catch, illegal. Mark Petrunia and Fred Hawkshaw have shown that modified nets that tangle rather than gill can meet this test, the passage of this law would hasten their adoption by other fishers and possibly stimulate other sensitive models of net.

The principle of bio-diversity recognizes that things work best with all their parts. The Skeena salmon resource still has most of its parts, save for Babine Sockeye from Pinkut and Fulton, but all of them are in decline. The situation is even worse on the Fraser. The Wild Salmon Policy demonstrates that there is a willingness to change within Fisheries and Oceans Canada, but nothing is likely to happen until the Federal Fisheries minister and prominent members of the Cabinet push it.

Without this kind of change Canada's Pacific salmon will go the way of Atlantic cod.



Giving a 'Dam' for Salmon

A new BiOp offers another chance for wild Snake River fish

By Joseph Bogaard

— Save Our Wild Salmon Coalition —

With the federal government soon to release yet another Biological Opinion for Columbia and Snake river salmon and steelhead, shifting politics and stakeholder conversations offer salmon and steelhead advocates a critical window of opportunity to push for recovery. Joseph Bogaard, Outreach Director for the Save Our Wild Salmon Coalition outlines the current situation and how you can provide critical help.

As any Northwest resident knows, our wild salmon and steelhead populations are having a “dam” hard time surviving these days. In the Columbia and Snake Rivers, once home to the world’s greatest salmonid populations, the federal dam system has made life near-impossible for our fish and the communities that have historically relied on and enjoyed them.

Snake River stocks have been among the hardest hit. Coho salmon was declared extinct in the 1980s. Last year, just three Snake River sockeye reached their Idaho spawning grounds. This year, at press time, two males and two females had arrived; perhaps a few more may trickle in. All remaining Snake River stocks are “protected” as threatened or endangered under the Endangered Species Act (ESA).

So far, that “protection” has meant very little in the real world. Over the last fifteen years, since the ESA was first invoked for Snake River salmon, the federal government has spent more than \$8 billion U.S. taxpayer and Northwest ratepayer dollars on failed “recovery” plans: lots of expensive and ineffective techno-fixes on the dams and programs like barging and trucking juvenile fish down the river to the ocean. In other words, lots of money, but little to show for it. During this same time, the number of endangered fish stocks has shot up (there are now 13 listed stocks in the Columbia Basin

— half of the total on the west coast) as the populations have plummeted.

These plans have been routinely rejected by the courts. Since 1993, federal judges have ruled four plans as “arbitrary and capricious”, inadequate, and illegal under the requirements of the Endangered Species Act, and sent them back to the federal agencies to be rewritten. The need for the repetitive litigation reflects a shameful failure of leadership and example of government run amok. With each successive plan, however, the pressure on the federal government has intensified as its options to dodge and weave have narrowed.

The most recent plan, crafted by the Bush Administration in late 2004, was punted back to the agencies by Judge James Redden in United States District Court in Portland, who ordered it again rewritten. The plan sought to redefine dams as part of the natural environment, thus arguing that they were not subject to ESA requirements. It also tried to blame fishermen for population declines, despite the irrefutable scientific evidence that dams are the big killers, in many cases by orders of magnitude.

Under court order, this latest plan is due out this fall in draft form, and it offers salmon and fishing advocates a new opportunity to demonstrate strong public support for a legal, scientifically sound plan that actually protects and restores endangered wild salmon and steelhead to healthy abundant populations.

What we know about the soon-to-be-released draft plan so far is disappointing, but not surprising, given this Administration’s dismal track record on salmon policy. Federal agencies

recently released the upcoming plan’s framework, called a “proposed action”. It reflects an approach in many ways identical to the previous illegal plan, with some very modest habitat restoration improvements, but likely even more harmful dam operations. Judge Redden was not impressed. After reviewing the draft framework in May, he warned the Administration



In the spring of 2004, hundreds of people involved in recreational, sport, commercial and tribal fishing rallied in Portland, Ore. to support lower Snake River dam removal. Photograph courtesy of Save Our Wild Salmon.

that another illegal plan would result in very “serious consequences,” suggesting his willingness to intervene again in managing the federal hydro-system during the upcoming spring-summer migration to assure some min-

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Snake River Salmon and Steelhead Facts

- Snake River stocks have been among the hardest hit in the Columbia Basin.
- 1986:** Snake River Coho was declared extinct.
- 2002:** Only 19 percent of the total Snake River steelhead were wild, self-sustaining fish.
- 2006:** *Just three Snake River sockeye* reached their Idaho spawning grounds.
- 2007:** Two male and two female sockeye have arrived at Redfish Lake at press time.
- All remaining Snake River stocks are listed as threatened or endangered under the ESA.
- The Snake River supported more than half of the total steelhead and spring/summer Chinook production from the entire Columbia Basin.
- NOAA Fisheries estimates that steelhead recovery will be achieved with returns of 54,000 adults for eight consecutive years. Steelhead returns have not met that figure in a single year since the 1980s.
- Number of large dams in the Columbia-Snake basin: 220
- Total number of dams in the Columbia-Snake basin: 440
- Number of dams salmon and fishing advocates seek to remove: 4 (on the lower Snake River)

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imal protections for salmon and steelhead populations until a legal, science-based plan can be ultimately crafted, adopted, and implemented.

At the heart of this debate, of course, are the federal dams of the Columbia Basin — and the lower Snake River dams in particular. Of course, there are some improvements that can and should occur in hatchery, harvest and tributary habitat management. But the government has been unwilling to confront “Hydro” — the primary killer of wild salmon and steelhead in the Columbia basin. As many as **92 percent** of some Snake River salmon are killed as juveniles by the dams on their downstream migration — before they ever reach the ocean. Dams kill 50 percent of the Snake River’s steelhead and spring/summer Chinook smolts on their way to the ocean, and 10-25 percent of the returning adults. The numbers are only slightly lower for Upper Columbia River steelhead and spring Chinook.

For reasons both scientific and economic, the four lower Snake River

dams have long been targeted for removal by salmon and fishing proponents. Roughly 70 percent of the remaining recovery potential in the entire Columbia Basin — more than 5,000 stream miles — exists upstream from the lower Snake River dams. These dams effectively block salmon and steelhead from accessing this habitat in eastern Washington, eastern Oregon and throughout central Idaho. Dam removal would reconnect endangered salmon and steelhead populations to this historic habitat.

Our government is spending huge sums of taxpayer and ratepayer money to operate these dams and pay for the extravagant and ineffective salmon workarounds. Roughly \$600 million is being spent each and every year — barging and trucking fish, gold-plating the dams with all sorts of devices, bounties for northern pikeminnows, and maintenance and operations.

Further, these four federal dams are among the least valuable in the region. In fact, for more than twenty years in the middle of last century, the Army Corps of Engineers discouraged

“The federal government’s old approach has repeatedly failed the Nation’s citizens and our Northwest salmon and steelhead. Right now, people want leadership and solutions and we have a window of opportunity to make a difference. Congress needs to hear from fishermen this fall. These fisheries and these rivers need us now — or we may lose them forever.”

— R.P. Van Gytenbeek
Chief Executive Officer/President
Federation of Flyfishers

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Columbia and Snake River Salmon and Steelhead Need Your Support Today

The upcoming DRAFT Federal Salmon Plan for the Columbia Basin gives salmon and steelhead advocates an opportunity to demonstrate public support for salmon recovery and political leadership. The 2007 plan's framework (Biological Opinion) has been released, and unfortunately its "déjà vu all over again." The Administration's "new" 2007 approach looks just like the old failed and illegal 2004 approach.

So we need to speak up! The plan's release gives the public an opportunity to voice our strong support for salmon recovery and leadership from Congress. Make sure your voice is heard!

Please join forces with conservationists, fishing men and women, taxpayer and clean energy advocates, businesses, scientists, and others. This diverse alliance is working together to demonstrate strong public support for salmon and steelhead recovery to Congress and the next Administration. But we can't do it without you. Visit the web site, submit your comments, and tell your friends.

We will be compiling the names of citizens across the country and delivering them to the federal agencies, members of Congress, and Presidential candidates — the people who will be making the decisions *after* 2008. Our fish need us. Contact your elected officials today.

Please visit www.GiveaDamForSalmon.org to register your official comments for our endangered salmon and steelhead, our rivers, and our communities.

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Congressional efforts to build these dams, arguing that they didn't pencil out. But Congress finally had its way, and the Corps ultimately complied. Construction began late in the 1950s.

Completed in the 1970s, these dams were built primarily to facilitate a subsidized barge-shipping corridor on the Snake River between its confluence with the Columbia River and Lewiston, Idaho. The turbines that today produce a small amount of energy in the spring were added as an afterthought. The dams have virtually no flood control functions.

Snake River salmon and steelhead now have to pass through eight dams and eight reservoirs as they migrate to and from the ocean — four on the lower Snake and four on the lower Columbia. This cumulative impact has simply overwhelmed them. In contrast, however, the fall Chinook of the 51-mile Hanford Reach — the last remaining free-flowing stretch of Columbia River — are doing quite well. Adult returns to the Hanford Reach in the last few years have ranged between 100,000 and 200,000 fish —

after ocean and river harvests by commercial, recreational, and tribal fishermen, and the impacts from migrating through the four lower Columbia River dams. Evidence that, when done right, salmon and dams can co-exist under the right conditions. But there are limits to the amazing adaptability and resilience of our wild salmon and steelhead. And we have dramatically exceeded those limits for Snake River salmonids.

For years, this issue has proved contentious in the Pacific Northwest states. The conflict over endangered salmon and steelhead and the lower Snake River dams has been cast by dam proponents as a divisive east-west, rural-urban issue with most of the region's political leaders studiously avoiding it. Today, however, these lines are blurring. This conflict-based characterization is giving way to stakeholder conversations, fracturing politics, and a sincere search for lasting solutions.

In the last several years for example, fishermen, farmers, and conservationists have begun discussions in search of solutions that can keep our Northwest communities moving for-

ward together. A few farmers who use the 140-mile shipping corridor created by these reservoirs are open to a discussion about potential alternatives to barge transportation as long as feasible, affordable alternatives are available.

While more data is still needed, these types of conversations are bolstered by a new report that compiles existing economic information on the costs of removing the dams and substituting their current services with alternatives such as railroads for barging, and wind turbines and energy conservation for lost hydroelectricity. *Revenue Stream*, an economic analysis of the lower Snake River dams, was released last fall and shows how removing those dams will cost less than the current approach — even when the cost of replacing the dams' benefits is included. *Revenue Stream* adds economic support to the scientific case that dam removal is the best, and perhaps only, way to protect endangered Snake River salmon and steelhead from extinction. (The report is available at: www.wildsalmon.org/pressroom/revenue-stream.cfm)

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Green River Gains FFF Endangered Fishery Status with Threat of Proposed Mine

Federation of Fly Fishers

— Livingston, Montana —

Copper and salmon don't mix. Or rather when copper and wild salmon do mix, the effects are disastrous to salmon. With the threat of a proposed copper mine on the Green River of Skamania County Washington, the Chinook, Coho salmon and steelhead trout have been listed as an Endangered Fishery by the Federation of Fly Fishers. This important river provides valuable fishing and recreation opportunities, irrigation water for agriculture and is a candidate for "Wild and Scenic River" designation. Every year, the Federation of Fly Fishers (FFF) highlights important fisheries that are under threat, and the proposed mine on the Green River warrants Endangered Fishery status. The Federation of Fly Fishers designates fisheries that are under undue environmental stress. The act of listing a fishery as endangered brings attention to a threatened resource and motivates others to help us protect these fisheries.

"Salmon and copper, other heavy metals, and sulfur don't mix", says Richard Kennon of the Native Fish Society, "it will mean certain death for our endangered salmon. The mine will be the beginning of the end for four rivers and their endangered fish: the Green, the Toutle, the Cowlitz River, and the Lower Columbia River to the Pacific Ocean

The American firm, Idaho General Mines, has plans to construct a copper mine, straddling the Green River in the Gifford-Pinchot National Forest. Throughout the West, communities have experienced the devastating impacts on the environment, the economy and human health of failed hardrock mines. The Green River watershed with its intact old-growth forests and clean waters is important for the persistence of these threatened trout and salmon. Spring and fall Chinook salmon, Chum salmon, and summer and winter steelhead of the

Green River are federally listed as Endangered Species. The impacts from this mine will be enough to destroy these fish.

"The salmon and trout of the Green River rely on undeveloped and clean waters to survive. Pollution created from a mine like this could have irreparable harm upon these fish populations," states Leah Elwell of the Federation of Fly Fishers.

Copper mining has obvious risks with the creation of toxic metals and acids that can enter ground and surface waters, but the problems don't

Mine pollutants could hurt not only the fish in the Green River, but also in the Toutle, Cowlitz and Columbia.

stop there. The development of the Margaret Copper Deposit is likely to result in a mine that produces acid mine drainage, posing a significant risk to aquatic life, human health, and the region's agricultural economy. Such development in the Mount St. Helens area would also pose a significant risk of accidents, leaks, and tailings dam failure resulting in the release of potentially large quantities of toxic waste into the environment. The pollutants could hurt not only the fish of the Green River, but the downriver waters of the Toutle, Cowlitz, Columbia rivers could also see toxic waste from the mine. Any economic benefits gained by mine development will likely be far outweighed by development's economic and environmental costs.

The Margaret Copper Deposit project is in the lease approval phase. In the coming months the US Forest Service will make a final decision on the proposed lease that could give Idaho General Mines Company the go-ahead to develop a plan for exploration. Let federal officials know that not only is this mining proposal highly flawed, but it is not in sync with the said purposes to preserve the integrity of Green River.

To learn more about the mine approval process and other information regarding the permitting of this mine, go to this link: <http://www.blm.gov/or/news/files/IGMI%20EA%203-07.pdf>. You can submit your comments to U.S. Forest Service (USFS).

The Federation of Fly Fishers (FFF), founded in 1965, is an international membership organization dedicated to conserving, restoring and educating through fly fishing. With more than 300 clubs around the country and affiliates in 14 countries, the FFF supports fisheries conservation and educational programs for all fish and all waters where fly fishers have an interest.

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records. In one specific Puget Sound stream, the Stillaguamish River steelhead run in 1895 has been estimated at 60,000 to 90,000 wild returning adults, compared to a recent five year average of 593. The current WDFW escapement goal is 1,800, 2% to 3% of historic abundance. No one claims that today's habitat conditions are equivalent to those of a century ago, but there is no possible way that habitat loss can account for a 97% to 98% loss of steelhead stocks. This is an undammed watershed, and something else must be going on. That leaves harvest and hatcheries, two major causes of decline largely under the control of WDFW.

WILD SALMONID REFUGIA

WDFW will miss a superb opportunity if it fails to thoroughly test Alternative 1 in high potential watersheds around the state over the next five to ten years. This can best be done with a variety of carefully chosen wild salmonid refugia.

The only mention in the draft SSMP of anything close to a wild refuge is the strategy to "Establish Network of Wild Stock Gene Banks," which is found in the Artificial Production policy, as if its primary purpose is to provide emergency (i.e. hatchery) backup for failing populations. This mostly misses the point of a refuge.

Full fledged wild salmonid refugia would go well beyond emergency backup. The refugia should be the flagship experiments of Alternative 1 in all eight management categories, both operational and administrative. Each would be a true wild salmonid (not just steelhead) refuge, with no hatchery stocking. Refugia selected should have a reasonable foundation of wild steelhead, at least modestly intact habitat, and substantial likelihood that the habitat will remain intact. All fishing, including that for juvenile steelhead and resident rainbow trout, would be prohibited until monitoring shows that the stock is recovering. Then limited season, catch and release, selective gear (single barbless hook artificial lures and flies) sport fishing for adult wild steelhead should be allowed. If stray hatchery steelhead are caught,

they should be retained.

The Department can no longer discount the sea change in angling preferences that has occurred in the last 50 years, from almost entire emphasis on harvest to catch and release of wild fish. Catch and release has been proven in many places as a successful strategy to provide angling opportunity, while minimizing mortality and supporting the primary goal of wild, natural production.

Increased scientific analysis and regulatory enforcement, careful monitoring, and adaptive management would complete the suite of strategies for the refugia. These refugia would serve as base lines for comparison with all other approaches to steelhead recovery

Examples of successful steelhead recovery in wild fish refugia are found in British Columbia, Alaska, Oregon and Washington.

ery and would be the best way to determine the approximate carrying capacity of rivers with today's habitat.

Examples of successful steelhead recovery in wild fish refugia are found in British Columbia, Alaska's Situk River, a small number of Oregon coastal streams, parts of Eastern Oregon's John Day River basin, and in Washington after commercial fishing for steelhead was banned. They give us the highest confidence that this is the surest way to achieve the objectives of the draft SSMP.

Watershed refuge candidates in Washington should include the post dam removal Elwha, the Hoh in cooperation with the Hoh River Trust and the Wild Salmon Center, at least one North Puget Sound stream, and in the interior Columbia Basin, one or more among the Klickitat, the Wenatchee, and the Grande Ronde.

Conversely, conservation and/or integrated hatcheries have not been proven as strategies to recover

depressed populations of wild fish, and can not be until the cycle is completed by terminating the hatchery infusions, and then monitoring how the stocks do. To our knowledge there have been no examples to date of success with steelhead recovery through this complete cycle. And the science is not hopeful. The Salmon Recovery Science Panel (SRSP), which advises NOAA Fisheries on salmon and steelhead recovery, has written that even hatchery salmon spawned from locally adapted wild stocks decline in fitness at the rate of about 20% per generation. Therefore, these hatchery programs must also be treated as scientific experiments and tightly monitored against VSP criteria and, especially, the impacts of wild/hatchery spawning on wild stock health.

IMPLEMENTATION OF THE PLAN

Among the issues we worry about most in the implementation of the SSMP is the long term, deep running WDFW allegiance to hatchery programs, which have used a large amount of WDFW human resources and budgets over the years. Although this Plan points the way to significantly improved steelhead management, there continue to be worrisome marks of the continuing influence of the hatchery culture, some of them pointed out in these comments, on the SSMP. This influence could detract from and possibly even derail achievement of the highest objective, Natural Production. One of the tragedies of salmon management in the last century has been the almost complete absence of science based monitoring of hatchery operations and results. Monitoring can not be allowed to be cut from the bottom of the budget priorities.

Finally, this Plan will require strong executive leadership deeply committed to steelhead recovery based on wild natural production, if it is to succeed in implementation. Without this kind of leadership, the SSMP will do little more than gather dust, and management may continue pretty much "business as usual."





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Another sign of shifting politics came with the editorial by the Spokesman Review in eastern Washington endorsing legislation introduced in Congress to undertake scientific and economic studies that will update information and increase our understanding of the costs and benefits of removing these four dams. In *Facts over furor: Lawmakers right to seek data on salmon recovery*, the newspaper long opposed to dam removal shifted course dramatically. The editorial urged the region to move past the emotion and get the facts on the table as a first step toward solving this intensifying crisis in the Columbia Basin. The Lewiston Tribune took a similar position in support of the legislation as well.

A broad and growing alliance of salmon and fishing advocates, treaty tribes, taxpayer and clean energy advocates, and businesses has been working together over the last 15 years to protect and restore this magnificent public resource. This fall, they are joining forces to educate and activate the public to ensure that we work together to spread the word and ensure that a strong collective voice for salmon recovery is heard loudly and clearly in the Pacific Northwest and in the halls of Congress.

We have a critical window of opportunity to make our voices heard as the new draft plan is released this fall. While the "official" target may be the Administration, recent history has taught us that public sentiment often has little impact on its decision-making. It is nevertheless extremely important that salmon and steelhead advocates deliver a strong call for salmon recovery and demand for leadership from the elected officials who *will* be making the decisions after 2008 — Congress and the *new* Administration.

Snake and Columbia River Salmon and Steelhead Need YOU!

Go to www.giveadamforsalmon.org and submit your public comments today. Email, photo, video, or phone! Anyway you like it!
Send an email to your colleagues and networks and ask them to go to www.giveadamforsalmon.org and sub-

mit their public comments.

Call your United States Senators and Representative today. Urge their leadership to find lasting solutions to the Pacific Salmon crisis.

For more information:
Flyfisher Magazine, Summer 2007, Cover article by Ed Chaney:
Snake River Fisheries in Crisis.

www.wildsalmon.org

www.giveadamforsalmon.org

New York Times Article, May 13, 2007. On the Snake River, Dams' Natural Allies Seem to Have a Change of Heart.
Revenue Stream Economic Report (www.wildsalmon.org)

For more information or to get involved please contact:
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