

Straight Talk About the Future of Wild Salmon

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Abstract

An evaluation of the history of efforts to reverse the long-term decline of Pacific salmon in California, Oregon, Washington, and Idaho provides instructive policy lessons for their recovery. From California to southern British Columbia, wild runs of Pacific salmon have universally declined and many have disappeared. Billions have been spent in so-far failed attempts to reverse the decline. The annual expenditure of hundreds of millions of dollars continues, but a sustainable future for wild salmon in this region remains elusive. Despite documented public support for restoring wild salmon, the long-term prognosis for a sustainable future appears problematic. Fisheries biologists and others continue to craft restoration plans, but an easy, effective approach has yet to emerge that will actually restore and sustain most runs of wild salmon in the region. For wild salmon, restoration options exist that offer both ecological viability and appreciably lower social disruption, but these options also tend to have more modest restoration objectives.

Wild salmon in California, Oregon, Washington, and Idaho are in serious trouble. South of the Canadian border, most runs are less than 10% of their pre-1850 levels and over two dozen are listed as threatened or endangered under the Endangered Species Act . Similarly, several runs in British Columbia are listed under the Canadian Species at Risk Act. Worse, from California to British Columbia, many runs have disappeared, and more will follow unless there is a reversal of the long-term downward trajectory.

The decline in west coast wild salmon numbers started with the California gold rush in 1848; the causes include water pollution, habitat loss, over-fishing, dam construction, irrigation projects, predation, competition with hatchery-produced salmon and non-native fish species, and many others.

In political terms, the aspiration to restore decimated wild salmon abundance has long enjoyed broad support, yet wild salmon numbers continue to dwindle. The decline is not due to a lack of knowledge. Scientifically, salmon are an intensively studied group of fishes and arguable we know more about salmon than any other group of fishes.

The social dynamics surrounding salmon restoration create what political scientists describe as a wicked, messy policy problem. For salmon recovery, the policy problem is characterized by competing societal priorities, a large and expanding human population (and the resulting pressure on natural resources), the expectation that “experts” can solve the problem with technology, and confusion caused by the unwillingness of salmon scientists and other technical experts to remain neutral in policy debates.

Given the widespread support, is there a politically viable solution to reversing the decline of wild salmon in California, Oregon, Washington, Idaho, and southern British Columbia? Enter the Salmon 2100 Project.

The project was launched around a restaurant table in downtown Seattle, Washington in 2002, where a group of us veteran fisheries scientists mulled over the conference we had attended that day.

We had been assembled to discuss policy and management options for restoring wild salmon along the west coast. The atmosphere at the conference was the usual mixture of policy complexity and scientific uncertainty, overlaid with a public veneer of optimism. As always, the unspoken premise seemed to be: “if the experts could just solve the *scientific* challenges, or if we could just get sufficient *money* for fixing this or that obstacle to migrating salmon, runs could be brought back to sustainable levels.”

In contrast to the *public* conference, however, the tone around the table that evening was markedly gloomy. Yes, everyone agreed, salmon recovery was technically complex and scientifically uncertain, but the challenges were not primarily scientific. Rather, dramatic and far-reaching public policy changes were needed. Everyone sitting around the table was skeptical that such dramatic changes were likely to occur.

Many of the conference participants were the same people now sitting around the table, yet the tenor of the two discussions was as different as night and day. It was as if two parallel worlds existed: the public one, with a fairly optimistic perspective, and a private one, with a highly skeptical assessment of the recovery strategies under consideration.

Why the dichotomy? Are fisheries biologists and salmon advocates creating a “conspiracy of optimism”? If the technical experts are truly pessimistic, it is not being communicated to decision-makers responsible for developing and implementing salmon policy nor to the public. To confuse matters further, the fact that most salmon caught in the region are *hatchery* fish renders the status of *wild* salmon essentially invisible to the public. As if to erase any remaining public concern about the sorry state of *wild* salmon, *farm* raised salmon are abundant in grocery stores, available year-round, and relatively inexpensive.

The Way Forward?

The overarching goal of the Salmon 2100 Project was to develop a variety of policy options that could, if adopted, protect and restore wild salmon runs from southern British Columbia southward.

My co-project leaders and I enlisted 33 salmon scientists, salmon policy analysts, and salmon advocates; participants who often disagreed, to put it mildly, and several who only grudgingly conceded each other’s right to an opinion. Nonetheless, all their views enrich the policy debate and all were invited to participate in the project.

Each Salmon 2100 Project participant was asked the same question:

What specific policies must be implemented in order to have a high probability of sustaining significant runs of wild salmon through 2100 in California, Oregon, Washington, Idaho, and southern British Columbia?

Surprisingly, while nearly all participants concluded that current recovery efforts are largely ineffectual, none of them considered salmon recovery hopeless. Each author formulated at least one recovery strategy or policy prescription that could successfully restore wild salmon runs to significant levels.

What did they think would work? The policy prescriptions tended to fall into several broad approaches.

Employ Technological Intervention

Some authors openly accepted the reality that there would be a quadrupling of the human population along the west coast by 2100 and that most people will not drastically alter their life style to save wild salmon. Accepting such “facts of life”, several prescriptions focused on technological solutions: habitat improvement, including creation of new “engineered” streams to replace lost salmon habitat. Society could also reverse some causes of habitat loss by removing dams, restoring vegetation, and reducing logging and road building.

Similarly, several argued that supplemental stocking from salmon hatcheries would be required to sustain salmon production at fishable levels. Some suggested that the controversy over *wild vs. hatchery* salmon is misplaced, since the dispersal of hatchery fish to different streams over many decades has resulted in a massive mixing of the gene pool, making the goal of genetic purity impractical.

Many authors felt that supplemental stocking could be a useful tool to assist in salmon recovery, and if society desires salmon in harvestable numbers, improvements in hatchery practices will be critical.

Apply Ecological Triage

Six of the policy prescriptions called for focusing resources and recovery efforts on the most pristine and productive watersheds. The rationale is that, despite spending billions of dollars, it is nearly impossible to restore runs once they are threatened or endangered.

Some authors shared a common philosophy that at least some streams should be managed as refuges where no salmon harvest or other detrimental practices are allowed. One proposed the creation of a Wild Salmon National Park in the region, observing that one of the

most successful methods for protecting endangered species is to create national parks where citizens can experience the species in its habitat. Another proposal would create salmon sanctuaries in designated watersheds where salmon will be protected and restored.

With nearly all the triage strategies, there was reluctance to bluntly identify the downside: no one wanted to “write off” (from a wild salmon perspective) the watersheds that show little promise for maintaining wild salmon runs through the balance of the century.

Change Bureaucracy

Several authors assigned responsibility for the failure of wild salmon recovery to various government agencies or specific organizations. These authors feel that successful salmon recovery would require major changes in “the bureaucracy”. They observed that bureaucratic institutions are often built on practices and policies that do more to support the continued existence of the institution than to solve a particular problem.

Authors identified other examples of “institutional incompetence” in salmon recovery, such as applying inflexible rules, and allowing elected officials or citizens to make decisions not based on the best available science.

Policy prescriptions included moving toward a more decentralized recovery effort, with rural residents playing key roles, and the appointment of officials who will solve problems using the best available science rather than personal preferences or beliefs.

Domesticate the Policy Issue

Some prescriptions fell into a category that political scientists call “policy domestication”. Domestication is the political process of taking difficult, divisive issues off the table until a solution emerges, or the problem disappears on its own (e.g., the species is extirpated). The most common forms of domestication are funding more research, holding workshops and discussions, and tweaking current policies, to provide the illusion of action.

Clearly, offering policies that will domesticate the salmon decline issue is easier than developing policies to reverse the decline. Reversing the decline would require changing at least some of the following socio-economic realities:

(1) most rules of commerce and economic growth are barriers to salmon recovery;

(2) ecological options are limited by the increasing scarcity of key natural resources like water;

(3) the current trajectory for the region's human population precludes many recovery goals; and,

(4) life-style preferences speak louder than words when it comes to support for salmon recovery.

Instead of proposing ways to change these socio-economic realities, most authors suggested variations on existing policy options: revise the Endangered Species Act or the Species at Risk Act, protect more salmon habitat, create new hatchery practices, offer K-12 education programs, and change public attitudes.

The proposed domesticating strategies tacitly assume that at some future time we (society at large) will formulate and agree on a viable solution. In reality, the public may not even be sure what the problem is, much less know what possible solutions exist.

Our Choices

Like it or not, we are currently in a holding pattern since the salmon recovery problem has been largely domesticated politically. As a society, we appear to be waiting for something to change, something that will shake us into a place where the problem becomes so apparent that the way forward is both clear and acceptable.

Society may eventually decide that the best we can do is create large-scale salmon parks, as has been done for the buffalo in Yellowstone, for the enjoyment of our great-grandchildren. Historians of 2100 may wonder why we spent billions of dollars on salmon recovery when we had so many other pressing needs: poverty, defense, health care, drug abuse, crime, and disaster relief. Conversely, society may opt for making the difficult decisions to actually restore significant, sustainable runs of wild salmon.

Ultimately, of course, it is the general public that must become knowledgeably engaged in salmon policy debates if effective decisions are to be made. The policy debates that started

in the early 1850s in California as salmon runs were decimated by gold mining will continue as debate rather than effective action as long as we cling to the fantasy that we can recovery and sustain wild salmon runs without a dramatic change in our numbers and life style.

About the Author

Dr. Bob Lackey is professor of fisheries science and adjunct professor of political science at Oregon State University. In 2008 he retired from the Environmental Protection Agency's research laboratory in Corvallis where, over a 27 year career, he served in various senior science and leadership jobs. Since his very first fisheries job, mucking out raceways in a California trout hatchery, he has worked on an array of natural resource issues from various positions in government and academia. His professional assignments involved diverse aspects of natural resource management, but mostly you would find him working at the interface between science and policy. He has published over 100 articles in scientific journals and authored or edited 5 books. Dr. Lackey has long been an educator, having taught at 5 North American universities. He continues to teach a graduate course in ecological policy at Oregon State University. A U.S./Canada dual citizen, he was a Fulbright Scholar at the University of Northern British Columbia during the 1999-2000 academic year. Dr. Lackey holds a Doctor of Philosophy degree in Fisheries and Wildlife Science from Colorado State University and was selected as the 2001 Honored Alumnus by their College of Natural Resources. He is a Certified Fisheries Scientist and a Fellow in the American Institute of Fishery Research Biologists. In 2008 he was awarded the U.S. Environmental Protection Agency's highest honor — the Gold Medal — for exceptional contributions in strengthening the role of science in ecological policy.
