

Wild Salmon Recovery in the Western United States: *Four Facts and a Corollary*

by

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Despite a few recent newspaper headlines heralding several “record” salmon runs, most salmon runs in California, Oregon, Washington, and Idaho are a mere shadow of their pre-1848 levels. Further, even most of these relatively small remaining runs are largely maintained by releases of hatchery-raised fish. *Wild* salmon — typically defined as those whose parents spawned naturally in natural habitat — comprise only a small portion of most runs and their overall abundance is a sliver of [historical levels](#).

The decline has been well known and for more than [160 years](#) there have been concerted efforts to recover salmon runs. Especially during the past three decades, the number and cost of formal recovery efforts for *wild* salmon have substantially increased in large part in response to requirements of the Endangered Species Act (ESA).

While using hatcheries to sustain relatively large salmon runs is plausible — although technically challenging — the requirements of the ESA relative to *wild* salmon has made the role of hatcheries in sustaining or increasing runs legally contentious.

In my interactions with professional colleagues over many years, they agree — [usually only when speaking unofficially](#) — that current efforts will not successfully recover *wild* salmon to abundances that would assure self-sustainability and support sizable sport and commercial harvest. Such a level of abundance would need to be at least a third or more of the typical pre-1848 run size.

Even with the very large expenditures to recover *wild* salmon, what is it that pushes the [most knowledgeable people](#) to the stunning conclusion that these well-meaning efforts will fail?

To succeed, a wild salmon recovery strategy must address several overarching and undisputed realities about the West Coast that have developed over many years. Without addressing these realities, any wild salmon recovery strategy will fall far short of expectations.

It will be added to a long list — well over a century in the making — of noble, but failed salmon recovery strategies. Even if society continues to spend billions to restore wild salmon runs, these efforts ultimately will be only marginally successful.

What are these realities and how must they be changed to recover *wild* salmon to even a third of their historical level? Let's look at the four key ones.

Fact 1: Overall, [wild salmon abundance](#) south of the Canadian border, is very low and has been so for a long time. Most spawning runs are far less than 10% of their pre-1850 levels. Over two dozen Endangered Species Act “species” (distinct population segments) are now listed as threatened or endangered. Many runs have already disappeared and more will follow unless there is a reversal of the long-term downward trajectory.

Fact 2: We have been well aware for a long time of the main [causes](#) of the dire state of salmon runs along the West Coast. These causes are well documented scientifically and include mining, dams, water pollution, habitat alteration, over-fishing, irrigation water withdrawals, predation on salmon by many species, competition with hatchery-produced salmon and other, often non-native fish species, and many other causes.

Fact 3: Anywhere wild salmon were once plentiful (Europe, Asian Far East, Eastern North America), the decline in their abundance is roughly inversely related to the [growth in the human population](#). Over decades and centuries, as the human population expanded in these regions, the size of salmon runs declined to miniscule levels. Since 1848, the West Coast is playing out similarly for wild salmon. For example, from a pre-1848 human population level of a few hundred thousand, California, Oregon, Washington, and Idaho are now home to 50 million people. Over the same time period, wild salmon abundance in the four States has declined from roughly 50 million to a few million. And the future? Assuming expected human population growth in these four States, by 2100 they will be home to somewhere between 150 and 200 million people — a tripling or quadrupling by the end of this century — less than 90 years from now.

Fact 4: It is not just the sheer number of humans (Fact 3), but their [individual and collective life-styles](#) that reduce the abundance of wild salmon. In the absence of dramatic changes in economic policies and life-styles, [future options](#) for restoring salmon runs to significant, sustainable levels will be greatly constrained. For example, by 2100, with 150-200 million people living in the 4 West Coast states, consider the *additional* demand for houses,

roads, Costcos, Starbucks, air conditioning, drinking water, office buildings — the list is a very long one.

Corollary 1: To succeed, a wild salmon recovery strategy must change the four facts or that strategy will fail. If society only continues to spend billions of dollars in quick-fix efforts to restore wild salmon runs, then in most cases these efforts will be only marginally successful and the long-term downward trajectory of wild salmon will continue. It is money spent on activities not likely to achieve recovery of wild salmon, however it helps people feel better as they continue the behaviors and choices that preclude the recovery of wild salmon. As important, it also sustains a jobs program for scientists and other technocrats by funding the [salmon recovery industry](#). This industry has become is a multibillion dollar enterprise and collectively forms an influential advocacy group.

Turning to the future to assess what is realistically plausible, maintaining sustainable populations of many highly valued *non-native* West Coast fish species (*e.g.*, bluegill, walleye, smallmouth bass, largemouth bass, brook trout, and striped bass) is feasible, because these species, unlike salmon, are well adapted to the [greatly altered](#) West Coast aquatic environments. Overall with a drastically altered aquatic environment, and not at all surprising, many nonnative fish species are doing well. Nor should it be surprising that wild salmon are struggling to hang on in environments for which they are poorly adapted.

In conclusion, if society continues to ignore these four facts and the corollary, no one should be surprised by the lack of long-term success of wild salmon recovery efforts. Perhaps these billions of dollars being spent to recover wild salmon should be considered “guilt money” — modern-day indulgences — a tax society and individuals willingly endure to alleviate collective and individual remorse about the sorry state of wild salmon. After all, it is money spent on activities unlikely to achieve the recovery of wild salmon, but it perhaps helps many people feel better as people continue the behaviors and choices that essentially preclude wild salmon recovery.

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