



Conservation Report

NATIVE FISH SOCIETY
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By Bill Bakke, Director

REVERSING THE PATTERN: ARE WE DOING RISK MANAGEMENT FOR WILD STEELHEAD AND SALMON? Salmon and steelhead have been in decline since before 1850 and several studies have shown the runs in the Columbia River have declined by approximately eight million fish annually during this time. As early as 1878, the Columbia River salmon canners financed the construction and operation of the first hatchery in the Columbia Basin. They were concerned about the declining of the salmon runs and their profits. If something was not done to increase the salmon runs the state may have even regulated their fishery. Based on Oregon Department of Fish and Wildlife records, wild coho salmon have been declining for at least 83 years and agency plans to reverse this trend have been ineffective. There are other indicators of decline too, for example, most wild salmon and steelhead on the West Coast are now listed as protected species under the ESA. There is evidence that the current Northwest salmon supporting ecosystem is only 3%-5% of its historic productivity. If salmon decline was the purpose of fish management one would have to say we have been very successful and it took us only 156 years to accomplish it.

Declining salmon runs are the pattern in the Northwest and we have been unable to change that pattern. The trajectory for salmon is from considerable abundance in the mid 1800s toward extinction in 2007.

The pattern of salmon decline is periodically obscured by a strong return. There was an increase in the number of salmon returning in 2002-2003 and one could hear people saying the salmon are recovered. The agencies were quick to say that everything they did to help salmon paid off. The increased return was so encouraging to the fish managers they got busy with plans to harvest more fish, saying the improvement in the runs meant more fish could be killed, even those protected by the ESA. They chose to ignore the fact that none of the wild

runs were viable and that the increase was due primarily to a short-term improvement in ocean survival. Since then the runs have continued to decline and there have been few words of optimism.

What happened was not a change in the pattern of decline; it was only a short lived variation in survival. Salmon decline created a new biological condition and the annual variability in abundance does not indicate a change in the underlying pattern. This situation should create a lot of uncertainty about the pace of change not the change itself. In other words we should not use short-term improvements to justify increasing harvest; we should pass the temporary abundance of wild salmon to the spawning grounds. Doing so may not change the pattern of decline, but it may do a lot to moderate its effects. Because the fish management agencies are not managing to reverse the pattern of salmon decline they are free to ignore it. But when there is a brief period of increased salmon survival fishermen and fishery managers turn an optimistic eye toward more harvest.

Salmon and steelhead management agencies ought to be very concerned about the pattern of decline and uncertainty about the pace of change. They should not be distracted by the noise of annual variation in abundance, using it to justify more kill fisheries when the runs increase.

The fact that Oregon has documented coho salmon decline for 83 years and all efforts to reverse that decline have been ineffective, indicates that the state is not organized to solve the problem. It has not focused on the primary issue, the pattern itself, the historic trajectory of decline. They have invested in hatcheries to boost harvestable fish, created volunteer groups to work on habitat, pumped millions of dollars into habitat restoration, written plans to change reality, but none of it has worked. It has not worked because Oregon has not organized itself to resolve the factors causing the decline.

When there is an underlying pattern of salmon decline along with annual variations, and uncertainty it is important to conduct a risk assessment of all factors contributing to the pattern of salmon decline. This means all agencies, not just fish and wildlife, for it will take all of them to solve the problems created by their management actions.

Do decision makers for the Department of Forestry read a staff risk assessment for a logging operation in a salmon watershed and do they get feed back from a monitoring program to tell how their decision affected coho? No. The same could be said for any hatchery or harvest program approved by the fish and wildlife department and all other agencies that have an effect on watersheds.

The historic underlying pattern of declining salmon abundance and productivity ought to be the factor of greatest concern for the public and for government agencies invested with the authority to protect the ecological services a salmon population provides society. Until we reorganize our thinking and our institutional response to solve this problem it will only get worse until West Coast wild salmon become an historic foot note just as Atlantic salmon have in East Coast rivers of America.

STEELHEAD STATUS SUMMARY
2006 PACIFIC COAST STEELHEAD MEETING
FORT WARDEN, WASHINGTON

CALIFORNIA

6 distinct populations
Populations range from stable to declining
Monitoring program is inadequate to assess population abundance and trends

(California does not have a management program that can describe the status or to establish a recovery program for wild steelhead)

OREGON

76 steelhead populations
49 winter steelhead populations
30 summer steelhead populations

Winter Steelhead Status

Coastal	23 populations, potentially at risk, ESA candidate species since 1998
Rogue R	8 populations, not at risk
L Columbia	9 populations, at risk, ESA-listed threatened
Willamette	9 populations, potentially at risk, ESA-listed threatened

Summer Steelhead Status

Coastal	2 populations, potentially at risk, ESA candidate for listing since 1998
Rogue R	2 populations, not at risk
L Columbia	1 population, at risk, ESA-listed threatened (Hood R)
Mid Columbia	11 populations, at risk, ESA-listed threatened
Snake R	5 populations, not at risk, ESA-listed threatened
Klamath R	2 populations, at risk, not ESA-listed

WASHINGTON

141 populations
36 healthy
44 depressed
1 critical
60 unknown status
0 extinct

Puget Sound	Proposed ESA-listed species
L Columbia	ESA-listed threatened
Mid Columbia	ESA-listed threatened
Snake R	ESA-listed threatened
Upper Columbia	ESA-listed threatened (Status changed from endangered and is being legally contested.)

IDAHO

4 Wild steelhead populations
4 ESA-listed as threatened

Assessment of Status

1960s	100% wild	averaged 70,000 steelhead
1975-1979	59% wild	
1985-1986	24% wild	
1995-1999	11% wild	8,200
2001-2005	16% wild	31,000 (improved ocean conditions)

Hatchery steelhead spawning naturally in Idaho streams = 15%

Recovery run size = 60,000 wild steelhead (Sharma and Yuen 2006)

1990-2001 smolt to adult survival rate (SAR) ranged from 0.1% to 3.1% naturally produced steelhead at Lower Granite Dam (Bill Horton IDFG 2006)

Estimated naturally produced smolts since 1989 = <1 million

Carrying capacity in Idaho streams has not been reached in recent decades

The smolt to adult survival rate (SAR) needed for consistent spawner replacement is 2% to 6% and this level of survival has not been attained on a regular basis.

Sixty percent of the historic habitat is still available for steelhead and 30% is in wilderness areas or scenic river corridors. Sixty nine percent of the habitat is on federal managed lands.

BRITISH COLUMBIA

400 to 630 wild steelhead populations.

85% are winter steelhead

12% are interior summer steelhead

3% are coastal summer steelhead

Southern BC wild steelhead populations are depressed and some are near extinction. There is a northward trend in depression of stocks.

ALASKA

Southeast Alaska stocks are stable.

COMMENT ON BARGING SALMON AROUND DAMS ON THE COLUMBIA RIVER: *The following comment on the January 2006 Conservation Report on a study of homing rates for barged salmon and steelhead on the Columbia River.* It should be noted that barging and trucking (good lord can you believe we still truck these fish?!) are cheaper than spilling (or so the number crunchers at BPA would have you think). A good, unified front from the multiple fish groups and stakeholders would be great.

Everyone should care that barged fish (lots of money spent on barges and employees) and trucked fish are not making it home. With all the money spent on salmon recovery, this is an area we could address immediately.

Instead, the region is considering building a fish truck release site at Bonneville Dam. Dam bios don't want it but there is a push for it.

How much will that cost and how successful will those fish be in returning to the Snake River? (Comment supplied by an insider whose identity is protected)

GULLS EATING COHO IN CALIFORNIA:

Santa Cruz Sentinel

February 4, 2007

Chance discovery sheds light on fate of young endangered fish

By Roger Sideman
Sentinel staff writer

ANO NUEVO — Efforts to restore populations of endangered coho salmon and steelhead trout are being undermined by predatory sea gulls, but scientists never realized how much — until now.

A chance discovery on Ano Nuevo State Reserve has researchers taking a harder look at the role gulls play in slowing efforts to restore the population of endangered fish. Scientists think hungry gulls are consuming more of the fish than they had previously thought.

"Our suspicion is that it's sea gulls doing more of the eating," said Morgan Bond, a researcher with the Salmon Ecology Team at the National Oceanic and Atmospheric Administration Fisheries lab in Santa Cruz.

Those suspicions began in May when UC Santa Cruz biologist Patricia Morris found tiny microchip tags while crawling across a gull nesting area at the island reserve, which sits a half-mile out to sea north of Santa Cruz.

While trying to avoid disturbing the nearby sea lions she was there to study, an unusual object caught Morris' eye — a flat, black hexagonal piece of plastic about half an inch across.

A week later, she found a glass object the size and shape of an uncooked grain of rice. The second object turned out to be a microchip similar to the kind pet owners put in dogs and cats.

Morris traced the chip to Bond and Sean Hayes of the Salmon Ecology Team at the NOAA Fisheries lab in Santa Cruz, who had been planting them in hatchery-raised salmon to track the fishes' progress from creeks to the open ocean.

After Morris got in touch with the salmon team, they went to the island and recovered about 60 tags, some as recently as last week.

The black hexagonal tag Morris discovered was theirs, too. It was a temperature logger designed to monitor the body temperature of the tagged fish.

The logger found at Ano Nuevo Island indicated that a hatchery-raised coho salmon being tracked by Bond and Hayes had lived at the mouth of Scotts Creek for just 13 days before being eaten by a warm-blooded predator. The data provided the closest thing to a smoking gun that the coho were consumed by birds before they left the relative safety of the creek for the open ocean, where many more predators lurk.

Now, Hayes and Bond hope to raise money to study whether gulls in fact are eating the salmon and steelhead before they leave creeks by observing gull behavior near creek mouths.

Some researchers are skeptical that gulls are eating the fish since some were a foot long when consumed.

It's been a tough road to recovery for the fish — especially the coho, since it was listed as an endangered species more than a decade ago — and the discovery could help, Bond said.

"Since many fish are being reintroduced to coastal creeks, and so few come back, being able to attribute their survival to one source is a good first step in understanding why they're not persisting," Bond said.

Washington state officials have been gathering data on sea lion predation at dams for decades, trying to make a case to the federal government that sea lions need to be controlled in order to help fish restoration efforts.

"It's the same kind of thing here — everyone wants to know which birds eat which fish," said Kevin Shaffer, a fisheries biologist with the state Department of Fish and Game. "Until you know what's happening, you can't determine any plan of action"

The Monterey Bay Salmon and Trout Project hatchery near Davenport has been working to restore steelhead and salmon populations in area creeks for 25 years, releasing up to several thousand juvenile fish in each creek in any given year.

Volunteer Larry Wolf, who raised the young fish before their release, said species recovery doesn't mean that people need to interfere with the food chain.

"It's a vicious jungle out there, and that's why we're lucky to get a 5 to 8 percent return on the fish we release," Wolf said. "It's sad to see that's where our money is going but that's nature"

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