



Restoring Coho Salmon In California

Background

In April 1997, the federal government declared coho salmon in California streams from Humboldt County north into southern Oregon as "threatened" under the federal Endangered Species Act. The listing expanded the geographical region in California for which the coho is categorized as threatened, affecting almost all areas in the state where the coho exists.

LAO Findings

- **Economic Impact of Listing Could Be Significant.** Beyond impacting commercial fishing, listing of the coho as a threatened species could have a significant impact on such economic activities in the affected area as timber harvesting, ranching, mining, urban development, and water delivery.
- **Restoration Could Take Years.** Restoring the coho will require the state to take a broad-based approach to coho habitat restoration, monitoring, and management and could take many years. The challenges to coho restoration include the size of the affected area, the amount of area in private ownership, and the variety of influences on coho habitat.

LAO Recommendations

- **Review Draft Agreement With Federal Government.** The Legislature should review a Memorandum of Understanding (MOU) being drafted by the Resources Agency and the federal government, which would define the state's role in restoring the coho, and direct the Resources Agency to provide an estimate of the likely costs of implementing the MOU.
 - **Identify Statutory Changes and Time Required for Restoration.** The Legislature should also direct the agency to identify how its plan to restore the coho will be implemented, including any necessary statutory changes, and how much time will be required to carry out restoration.
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Background

In April 1997, the federal government declared coho salmon in California streams from Humboldt County north into southern Oregon as "threatened" under the federal Endangered Species Act (FESA). (A threatened species is one that is likely to become an "endangered" species--a species in danger of extinction--within the foreseeable future throughout all or a significant portion of its geographical range.)

In designating the coho salmon as threatened, the National Marine Fisheries Services (NMFS) took into consideration various factors, including the current number of coho, historical population levels and trends, and the capacity of their habitat to sustain the coho population. The NMFS also considered natural and human-influenced factors that impact coho survival rates and recent events (such as drought) that have predictable short-term effects on the coho. Additionally, NMFS assessed the effectiveness of existing efforts to protect and conserve the coho in the area, and the likelihood that these efforts would prevent the coho from becoming endangered in the foreseeable future.

The April listing expanded the geographical region in California for which the coho is categorized as threatened. In October 1996, NMFS listed as threatened coho that return to streams in central California, from southern Humboldt County to Santa Cruz County. The two actions combined affect almost all areas in the state where the coho exists.

Decline of the Coho

Coho salmon were historically found throughout the North Pacific Ocean from central California to Point Hope, Alaska, and they inhabited most coastal streams in Washington, Oregon, and northern and central California. As an anadromous fish, coho spend most of their lives in the ocean and return to their native streams to spawn and die.

It is estimated that in the 1940s, between 200,000 and 500,000 coho returned to central and northern California streams each fall to spawn. Since then, the coho population has declined steadily. Today, coho populations in southern Oregon/northern California have fallen to approximately 10,000 naturally produced adults. This decline is reflected in the continued drop in the number of coho salmon caught commercially. Coho commercially caught off the California and Oregon coast ranged between 0.7 million and 3 million in the 1970s, were consistently below 1 million in the 1980s, and averaged less than 0.4 million in the 1990s.

Until the mid-1970s, coho accounted for nearly 25 percent of the commercial salmon fishery off the California coast and, in some years, up to 50 percent. (In 1987, the value of the commercial salmon fishery in California was an estimated \$33.3 million in 1995 dollars. By 1995, the value of the fishery had declined by 64 percent, to \$11.9 million.)

According to NMFS, a leading factor in the decline of the coho is the degradation of its habitat caused by various economic activities. These activities include timber harvesting, grazing and mining activities, urbanization, and road and dam construction. Other activities that adversely affect coho habitat include streambed alteration, unscreened diversion of water, and loss of wetlands. Overfishing also contributes to the species' decline.

Implications of Listing

The decline in coho populations has resulted in progressively broader state and federal restrictions to protect the species even prior to its being listed as threatened. For instance, commercial harvesting of coho has been

prohibited since 1994. This prohibition will most likely continue indefinitely given the "threatened" status of the species.

Beyond commercial fishing, listing of the coho as a threatened species could have a significant impact on the affected area's (and therefore, the state's) economic activities. This is because under the FESA, once a species is listed as threatened, harming of the species or the destruction of its habitat is prohibited. Consequently, timber harvesting, ranching, mining, urban development, and water delivery within the affected area could be impacted. These activities can continue only to the extent that they do not adversely affect the coho habitat. Because the latest listing will impact an area encompassed by 200 miles of coastline, from Humboldt County into southern Oregon, stretching up to 150 miles inland, the potential economic impact could be significant.

The state could retain greater regulatory control over activities that impact the coho, and thereby work to reduce the potential economic impacts of the listing, by reaching agreement with NMFS on a plan to conserve and restore the coho. In this case, there would also be costs to state and local governments to implement species and habitat conservation and recovery measures. Because about 46 percent of the land affected by the listing is privately owned, implementing these measures on private lands will be a key element of the total recovery and protection actions.

Restoration Efforts

Restoring the coho will require the state to take a broad-based approach to habitat restoration, monitoring, and management. To date, developing consensus among various interested parties and designing programs to recover coho has proved difficult. Challenges include the size of the affected area, the amount of area in private ownership, and the variety of influences on coho habitat. Given these factors, restoring coho populations to where coho can be removed from the threatened species list could take many years.

Currently, restoration efforts focus mainly on restoring some watersheds that are coho habitat. For example, the Department of Fish and Game has worked with landowners and public interests to develop a plan to restore the watershed of the Eel River, the third largest producer of salmon and steelhead trout in the state. The costs of implementing the plan will be significant--about \$65 million in one-time costs, based on the department's preliminary estimates, with ongoing annual costs exceeding \$1 million. We note, however, that watershed planning is a relatively new and unproven approach and its long-term effectiveness in restoring the coho has yet to be determined.

Current efforts also include a Memorandum of Understanding (MOU) being developed between the state and NMFS. Under the terms of the draft MOU, the state would develop plans to protect specified watersheds and appoint a scientific review panel to adopt guidelines to protect coho. In turn, NMFS would provide flexibility to permit incidental harming of coho if it resulted from activities conducted in accordance with a watershed protection plan.

While California's MOU with NMFS is still in the draft stage, Oregon has already developed a restoration plan approved by NMFS. Oregon has also provided \$30 million--half from state funds and half to be provided by the timber industry--to implement its plan. The measures required by the Oregon plan are largely voluntary. Nevertheless, NMFS found the Oregon plan to be a "comprehensive conservation plan" in that it contained the tools necessary to ensure that adequate habitat measures are adopted and implemented to protect the coho.

Role of the Legislature

Listing of the coho raises several issues for the Legislature. Most importantly, the Legislature will have to determine the state's role--particularly funding--in coho restoration efforts. To date, the administration has not

provided an estimate of the state costs to restore the coho. Neither has it requested funding specifically to implement the draft MOU. Because the affected area in the state is significantly larger than that in Oregon, the cost of restoring coho in California would most likely be higher than in Oregon.

In view of the cost implications, we believe that the Legislature should review the MOU and direct the Resources Agency to provide an estimate of the likely total implementation costs, including identification and justification for the state share of costs compared to costs borne by local governments and private entities. The Resources Agency should also identify how the restoration plan will be implemented, including any necessary statutory changes.

In the 1997 budget, the Legislature provided \$3 million for salmon (not limited to coho) and steelhead trout restoration in the state, and expressed its intent that \$8 million be provided on an annual ongoing basis. The Legislature should direct the Resources Agency to delineate what portion of these funds would be expended for coho restoration, what specific measures should be taken, and how much time will be required to carry out restoration.

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