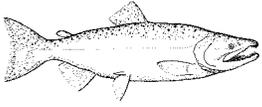
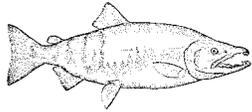


ENDANGERED SPECIES ACT



Chinook

Proposal Expected to List
as "Threatened" Under ESA



Chum

Depressed; Proposal to List
Expected for Hood Canal



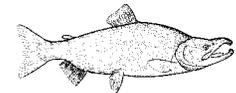
Coho

At Risk of Future Listing



STEELHEAD/RAINBOW

At Risk of Future Listing



Sockeye

Depressed; Listing Unlikely



Pink

Some Runs Extinct;
Others Still Healthy



Sea-Run Cutthroat

Unknown Status

Status descriptions are
for Puget Sound runs.



King County, WA

The Endangered Species Act and HCPs: A Summary

The purposes of the Endangered Species Act are “to provide a means whereby the ecosystems upon which endangered and threatened species depend may be conserved, and to provide a program for the conservation of these species.” The Act defines three fundamental terms as follows:

- **Endangered** means a species of fish, animal or plant is “in danger of extinction throughout all or a significant portion of its range”. (For salmon and other vertebrate species, this may include subspecies and distinct population segments.)
- **Threatened** means a species “is likely to become endangered within the foreseeable future”. Regulations for a threatened species may be less restrictive than if it were endangered; the difference is likely to be minor for Puget Sound Chinook salmon.
- **Critical habitat** means “specific geographical areas that are...essential for the conservation and management of a listed species, whether occupied by the species or not”.

Five sections of the Act are of critical importance:

Section 4: Listing of a species

The National Marine Fisheries Service is responsible for listing Chinook salmon and other sea-going and marine species; the U.S. Fish and Wildlife Service is responsible for listing terrestrial and freshwater aquatic species. The agencies may initiate reviews for listings; citizens may also petition for them. A listing must be made “solely on the basis of the best scientific and commercial data available”. After proposing a listing, agencies receive comment and conduct further scientific reviews for 12 to 18 months, after which they must decide if a listing is warranted. Economic impacts cannot be considered in this decision, but it may include an evaluation of the adequacy of local and state protections. Critical habitat for the species may be designated at the time of listing.

Section 7: Consultation

Even when a listing has only been proposed, all federal agencies must insure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species nor adversely modify its critical habitat. This includes private and public actions that require a federal permit. Once a final listing is made, non-federal actions are subject to the same review, termed a “consultation”. If the listing agency finds that an action will “take” a species (see Section 9 below), it must propose mitigations or “reasonable and prudent” alternatives to the action; if the proponent rejects these, the action cannot proceed.

Section 9: Prohibition of Take.

It is unlawful to “take” an endangered species, including killing or injuring it or modifying its habitat in such a way that interferes with essential behavioral patterns including breeding, feeding or sheltering.

Section 10: Permitted Take

Through voluntary agreements with the federal government that provide protections to an endangered species, a non-federal applicant may commit a take that would otherwise be prohibited as long as it is incidental to an otherwise lawful activity (such as developing land or building a road). A “Habitat Conservation Plan” (HCP) is the most likely such agreement that King County may pursue (see opposite side of this page).

Section 11: Citizen Lawsuits

Civil actions initiated by any citizen can require the listing agency to enforce the Act’s prohibition of taking or to meet the requirements of the consultation process.

Habitat Conservation Plans (HCPs)

As discussed in the summary of the ESA on the opposite page, a non-federal entity (such as a business, landowner or government) may incidentally “take” (harm) a listed species through an approved Habitat Conservation Plan (HCP). In an HCP, a set of actions that protect and benefit a listed species serve as mitigation for takes of that species that are incidental to otherwise lawful activities, such as harvesting trees, constructing roads or permitting development. Through an approved HCP, the applicant receives legal assurance that it can conduct its business without disruption by regulatory action under the ESA. In return, the federal government receives assurance that protection of the species occurs on a more sustained, systematic and cost-effective basis than is possible through individual consultations and enforcement actions under the ESA. HCPs have become widespread, particularly under the Clinton administration, since they were created as an option for non-federal entities in 1982.

HCPs are approved based on the following criteria:

- Impacts on habitat are minimized and mitigated to the maximum extent practicable;
- The applicant has adequate authority and funding to implement the plan;
- The approved take “will not appreciably reduce the likelihood of survival” of the species; and
- Other criteria determined by the responsible federal agency, which may include consistency with a recovery plan for the species developed by the agency; this would have a goal of reversing the endangered or threatened status of the species, rather than merely not reducing the likelihood of its survival. (NMFS is unlikely to have completed such a plan for Puget Sound Chinook for several years.)

The legal outcome of an approved HCP is the issuance of an incidental take permit (see Section 10, opposite page). Recent incidental take permits have been issued for as long as 50 to 100 years, but the length of the permit is subject to negotiation between the applicant and the responsible federal agency. In the scientific and environmental communities, there is growing concern about such long permits, given how little is known with certainty about what is necessary for the survival of most listed species.

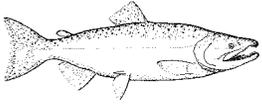
Between the time the final listing decision is made and an incidental take permit is issued, the applicant is fully bound by the ESA: all actions that might “take” a listed species are subject to federal consultation and regulatory action under Section 7 of the ESA (see opposite page); they are also subject to third party lawsuits seeking such action. However, if the responsible federal agency believes that an applicant is pursuing an HCP in good faith, it may choose to be lenient in applying regulatory restrictions during this period, though it is not required to do so.

Multi-species HCPs, which typically address whole ecosystems (such as watersheds) are encouraged by the federal government and provide advantages to applicants. They allow for the incidental take of all species for which they are approved—including species that may not have been listed at the time the permit is issued.

Some lessons learned from HCPs that have been approved or are under development include:

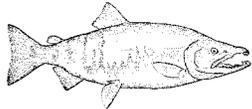
- Satisfactory HCPs are expensive and time-consuming to develop and are typically even more expensive to implement (a multi-species HCP in San Diego County has taken more than seven years to develop and will cost more than \$400 million over 20 years to implement);
 - Key stakeholders must participate in the development of an HCP to ensure their support when the HCP is being considered for approval;
 - HCPs must be guided by the best independent science available;
 - A strong yet flexible central administration is critical to development of an acceptable HCP;
- HCPs should have a long-term outlook but provide opportunities for incremental action.

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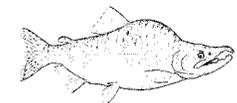
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Unknown Status

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King County, WA

Ecology of Pacific Salmon and Chinook; the status of Puget Sound Stocks

Salmon Life Cycle

Salmon hatch in freshwater from eggs laid in the gravel beds of rivers and streams (and in some cases along lake shorelines). Except for steelhead and cutthroat, adults die after spawning a single time. Upon hatching, juveniles spend from hours to years in the freshwater environment before migrating to the sea to grow to adulthood. Oceanic migrations typically take them northward along the continental shelf as many as thousands of miles, often into the Gulf of Alaska and beyond. On reaching maturity, they migrate from the ocean back to the rivers and streams of their birth to spawn.

Range and Adaptation

All Pacific salmon are members of the genus *Oncorhynchus*, meaning "bent snout". Their home streams range from southern California to northern Alaska and from Siberia southward to Hokkaido, Japan. Salmon are well-adapted to gravel-bedded rivers and streams with clear, well-oxygenated waters that remain cold throughout the year (42-58° F). Gravels must be relatively free from silts and fine sands to allow free flow of water and oxygen to eggs deposited in the inter-gravel spaces. Various salmon species assort themselves by stream size, gravel size, flow and depth of water, and timing of return. Watershed-specific variations in these characteristics have produced populations that are "fitted" to these environments and that differ in subtle ways from adjacent populations. This **local adaptation** is a fundamental characteristic of salmon. Seven species are represented in the waters of King County and Puget Sound: Chinook; coho; pink; chum; sockeye; steelhead/rainbow; and cutthroat.

Oncorhynchus tshawytscha—Chinook, or "King" Salmon

Chinook are the most likely salmon species in King County to be affected soon by listings proposed under the ESA. Chinook are found in the Snoqualmie, Cedar, Green and White river systems. Some basic facts about Chinook salmon include:

- Chinook are the largest of all Pacific salmon, averaging 36 inches in length and 22 pounds in weight; they also are the least abundant species.
- Chinook spawn mostly in large streams and are found in all major watersheds in Puget Sound. The largest runs in the Sound are on the Skagit, Stillaguamish and Snohomish (including the Snoqualmie/Skykomish) rivers. Chinook are also present in smaller tributaries, including Bear Creek, North Creek and Newaukum Creek in King County. Virtually all Puget Sound populations are far below what are believed to be their historic numbers; most have declined from 18% to more than 90% since the 1960s.
- There are spring, summer and fall runs of Chinook in Puget Sound; fall runs, which migrate up parent streams from late July through September, tend to be the most abundant.
- Adult Chinook die within 2-5 days of spawning; their eggs hatch in about 60 days. Newly hatched salmon, called "alevins", remain in the gravel for about 3 weeks; upon emerging, the "fry" or "parr" remain in freshwater for about 3-6 months (in the Lake Washington system, some may reside in the lake for 2-3 years), feeding on stream and terrestrial insects. Now called "smolts", they migrate downstream to Puget Sound, where they feed and grow for several weeks to over a year; they then migrate northward to the Gulf of Alaska, where they feed on small fishes and krill for 2-4 years before migrating homeward to spawn.

The Status of Wild Salmon in Puget Sound; Chinook to be Listed?

In 1991, the Endangered Species Committee of the American Fisheries Society (AFS) published an article reviewing the status of Pacific Salmon stocks from California, Oregon, Idaho and Washington in *Fisheries* magazine¹. The article was later corroborated independently by the National Research Council². The AFS committee found that:

- **More than 75% of Pacific salmon populations were severely depleted and at some risk of extinction;**
- **Eighteen of the 214 stocks reviewed appeared to be extinct; 101 were found to be at high risk of extinction; and**
- **Salmon had disappeared from more than 40% of their historic range.**

Generally speaking, the health of salmon stocks worsened the further south they were found along the Pacific Coast, with the trend being even worse in areas heavily influenced by dams and urban development. The healthiest stocks were in Alaska and northern British Columbia.

These findings led the National Marine Fisheries Service (NMFS) to initiate a coast-wide assessment of sea-going salmon and trout in 1992, consistent with its responsibility under the Endangered Species Act; NMFS is now completing this assessment. In Puget Sound, NMFS has focused its concerns on coho and Chinook populations and on chum populations in Hood Canal. Virtually all Puget Sound populations of Chinook salmon are far below what are believed to be their historic numbers; most have declined from 18% to more than 90% since the 1960s. NMFS has determined that for Chinook—and possibly coho—the populations that inhabit the various rivers of the Sound are genetically related and thus share a common destiny; for chum, two population segments in Hood canal are closely related. Such related populations are termed **Evolutionarily Significant Units** (ESUs) and are the biological unit for listing salmon species under the ESA.

NMFS is expected to propose to list Puget Sound Chinook and Hood Canal chum under the ESA in February 1998; Puget Sound coho might soon follow. The ESU for Puget Sound Chinook includes stocks from all rivers in Puget Sound and Hood Canal, including the Elwha and Dungeness rivers on the Strait of Juan de Fuca.

In 1992, the Washington Department of Fish and Wildlife conducted a status survey of salmon and steelhead in Washington waters. Published in 1993, the Salmon and Steelhead Stock Inventory (SASSI) reviewed 148 stocks in Puget Sound. The review found 11 stocks that were “critical”—that is, subject to permanent harm or extinction; these included stocks of Chinook, chum and steelhead. It found 44 that were “depressed”—that is, whose production was below expected levels; these included stocks of coho and, in Hood Canal, pink salmon. It found 93 stocks to be “healthy”—though even these did not distinguish between fish of hatchery or natural origin, only that they returned to spawn in the wild.

The best available information suggests that freshwater habitat loss and modification has been the most significant cause of decline for stocks in Puget Sound, particularly for Chinook and coho. Poor ocean conditions and a failure to curtail fishing pressure have accelerated the decline.

1. Pacific Salmon at the Crossroads...*Fisheries*: (16):2. March 1991
2. Upstream: Salmon and Society in the PNW. NRC, 1996