I. A Sense of Urgency

Overview

Salmon, steelhead and trout[1] have been, and continue to be, a critical part of Washington's history, culture, economy and recreational enjoyment. They are a basic and important natural resource, a symbol of the natural beauty of the state. Salmon are also valued for subsistence, for nutritional health and for the spiritual well-being of tribal people.

Salmon have been vital to the sport and commercial fishing industry. Fishing provides jobs, supports businesses, and provides quality recreational experiences for a significant number of families from Washington, around the country and the world. For example, the U.S. Department of Commerce estimates that in 1996 sport fishing contributed more than $704 million to Washington's economy. The decline of salmon is affecting families, communities, the state and the northwest region as a whole. The loss of salmon also means the loss of revenue for tribal economies historically dependent on salmon.

Much has been written on salmon biology and their environmental needs and the increasingly adverse impacts on salmon populations and habitats caused by human activities. (See Chapter VII. C for list of references.) Elsewhere in this document you'll find basic information on salmon problems and the potential consequences of the listing of the salmon as endangered or threatened under the federal Endangered Species Act. This chapter conveys the importance of taking actions now by preventing further harm to salmon populations and habitats, and by implementing long-term conservation measures and programs to reverse the decline and recover the salmon.

An Indicator of Quality of Life

Salmon life history takes them through many ecosystems - riverine to estuarine to marine and back again. Salmon are important indicators of the aquatic and riparian ecosystems they inhabit. The well-being of salmon is also an indicator of the health of many other species, as well as an indicator of the environmental quality and health of ecosystems. This includes indications of health for human uses, from drinking water to swimming.

Sustained salmon productivity can be maintained only if diverse biological communities and genetic diversity of salmon are maintained, and watersheds and ecosystems are healthy and properly functioning. The basic needs for salmon spawning, rearing and migration are:

- adequate amounts of cool, clean and well-oxygenated freshwater;
- fully functioning riparian corridors with large woody debris in the stream channel;

[1] For the purposes of the Strategy, the term "salmon" will be used to refer to all species of salmon, steelhead, trout and char native to Washington State.

- high quality estuarine, nearshore and marine habitats;
- adequate supply of food, cover and refuge from predators;
- unimpeded access to and from freshwater.

Unfortunately, human activities have altered most, if not all, of these basic needs. Salmon are battling for survival, with their populations and habitats either at critical levels or at risk. Many wild salmon stocks have been significantly depleted and are being driven to or near extinction.

A Symbol in Decline

Salmon populations were historically numerous and abundant in the rivers of the state and along the Pacific Coast. The Columbia River with 1,210 miles was the greatest producer of wild salmon in the nation, with 10 million to 16 million salmon produced annually. Salmon runs now range from 3.2 million to less than a million, 75% of which are from hatcheries.

Fluctuations in the abundance of salmon have been observed for several decades. While some of the declines are normal and reflect the natural variation in ocean, freshwater and estuarine environments, human activities have severely accelerated the rate of decline of several salmon populations. For more than two decades scientists and fisheries experts have warned of the decline of salmon and the degradation of their ecosystems. Various stock status reviews have noted the decline of salmon in Washington. For example, the 1993 Salmon and Steelhead Stock Inventory (SASSI) stated that less than 50% of Washington's salmon stocks were in a healthy state. As defined in SASSI, a healthy stock is one "experiencing production levels consistent with its available habitat and within the natural variations in survival for the stock." Generally, coastal populations currently tend to be better off than populations inhabiting interior drainages. Losses of stocks in inland areas of the Columbia River system have occurred over a greater percentage of their range than species primarily limited to coastal rivers.

Stress Factors

Declines of wild salmon closely parallel the settlement of the Pacific Northwest by Euro-Americans, starting in the early 1800s. For more than a century, people degraded and destroyed streams, rivers and estuaries by farming, logging and developing land and water; over-fished; introduced non-native species; and substituted hatchery-produced fish for wild fish.

Unfavorable natural conditions contributed additional stress. It is important to note that the effects of natural disturbances (e.g., droughts, fires, volcanic eruptions) are quite different from the effects of human-caused factors. Natural disturbances are usually relatively short in duration and occur on an infrequent basis. While human factors may contribute minimal impacts individually, the number, magnitude, duration, and cumulative impacts since settlement combine to form the primary cause of the decline of numerous salmonid stocks.

The degradation or modification of habitat conditions by human activities influences salmon growth, reproduction, migration, demand for food and other biological and physiological functions. For example, alteration of stream flows can interfere with upstream migration of adults, and reduce or eliminate stream rearing and spawning habitats. Many of the human impacts are interrelated and

are cumulative in their effect. For example, a heavily over-fished stock has fewer spawners and is far less able to adapt to changing habitat conditions related to land use practices, such as urbanization or logging. Dams that block access to large areas of upstream habitat may fragment and reduce the genetic and biological diversity of a species in a basin to the extent that it may be unable to withstand further impacts from fishing, poor land use practices or interbreeding with hatchery fish.

Human factors have taken place over a long period of time and have affected particular salmon stocks or watersheds to varying degrees. Future population growth - projected by the Office of Financial Management (OFM) to increase by 36% between now and 2020 - and its associated continued urbanization and land disturbances will more likely expand the geographical extent and intensity of habitat loss.

These human factors are addressed in the Statewide Strategy to Recover Salmon in terms of the "four H's" - habitat, hydropower, harvest and hatcheries. By keeping the strategy focused on key human activities and actions (e.g., forest practices, agricultural practices, fish harvest, etc.) we hope to focus attention on the effects of those activities and the changes we need to make to protect and restore salmon and watershed health.

ESA Listings of Salmon: Difficult Issue for All

The protection of salmon populations and habitat occurs under several federal and state laws. Unfortunately, the decline and continuing losses of salmon stocks, as well as diminished abundance and genetic diversity, is evidence that some of the laws are either inadequate or not fully implemented and enforced. The declining status of many salmon species and populations has resulted in their listing as either endangered or threatened under the federal Endangered Species Act (ESA).

The listings of anadromous fish present new and difficult issues for the state, particularly in the heavily populated Puget Sound area, and there is little historical precedence or experiences upon which to draw. Now, or in the very near future, key regulatory mechanisms of the ESA, such as prohibition against taking or harming a listed species, (which includes significant habitat modification or degradation), may be triggered. This will require all of us to change our behavior, from how we water our lawns to how we grant approval to new projects.

In summary, salmon play a critical role in our economy and way of life. But they are facing an uphill battle for survival. No specific factor is solely responsible for the salmon problem. Salmon have evolved to withstand natural disturbances such as floods, drought, predation and ocean cycles. However, these disturbances are often accelerated by human factors. Given that the stresses to fish populations posed by low points in natural ocean productivity cycles can occur over a decade or more, continually shrinking freshwater habitat presents very serious risks. In addition, many human factors contribute directly to the salmon problem, such as forest and agricultural practices, water use and development, intensive and continued urbanization, fish harvest and hatcheries. The listings across 75% of the state are cause for great concern, and will have direct consequences for any actions taken that might harm the species or its habitat.

Ultimately, sustaining Washington's healthy economy and quality of life will be tied to those natural resources the state's citizens hold most dear. Salmon, an icon for the region, are letting us know they need help. Table 1. shows the salmonids listed, proposed for listing, or likely to be listed under the ESA by Salmon Recovery Region.

Table 1. Washington Salmonids (salmon, trout, and steelhead) listed, proposed for listing, or likely to be listed under the Endangered Species Act

Salmon Recovery Region	Species of Concern
Puget Sound	• Chinook listed as "threatened" (3/24/99; 64 FR 14308) • Bull Trout proposed as "threatened" (6/10/98; 63 FR 31693) • Hood Canal Summer Chum listed as "threatened" (3/25/99; 64 FR 14508) • Coho designated as a candidate for listing under the ESA (7/14/97; 62 FR 37560)
Washington Coastal	• Bull Trout proposed as "threatened" (6/10/98; 63 FR 31693) • Lake Ozette Sockeye listed as "threatened" (3/25/99; 64 FR 14528) • SW WA Coho potential as "threatened;" Olympic Peninsula coho potential for re-opening status review. • Cutthroat Trout proposed as "threatened" 4/05/99; 64 FR 16397)
Lower Columbia River	• Steelhead listed as "threatened" (3/19/98; 63 FR 13347) • Chum listed as "threatened" (3/25/99; 64 FR 14508) • Chinook listed as "threatened" (3/24/99; 64 FR 14308) • Bull Trout listed as "threatened" (6/10/98; 63 FR 31647) • Cutthroat Trout proposed as "threatened" 6/05/99; 64 FR 16397) • Coho designated as a candidate for listing under the ESA (7/14/97; 62 FR 37560)
Upper Columbia River	• Steelhead listed as "endangered" (8/18/97; 62 FR 43937) • Spring run Chinook listed as "endangered" (3/24/99; 64 FR 14308) • Bull Trout listed as "threatened" (6/10/98; 63 FR 31647) • Westslope Cutthroat Trout high potential for listing as "threatened"
Mid Columbia River	• Steelhead listed as "threatened" (3/25/99; 64 FR 14517 • Bull Trout listed as "threatened" (6/10/98; 63 FR 31647) • Westslope Cutthroat Trout high potential for listing as "threatened"
Northeast Washington	• Bull Trout listed as "threatened" (6/10/98; 63 FR 31647) • Westslope Cutthroat Trout high potential for listing as "threatened"
Snake River	• Sockeye listed as "endangered" (11/20/91; 56 FR 58619) • Spring/summer Chinook listed as "threatened" (4/22/92; 57 FR 14653) • Fall Chinook listed as "threatened" (4/22/92; 57 FR 14653) • Steelhead listed as "threatened" (8/18/97; 62 FR 43937) • Bull Trout listed as "threatened" (6/10/98; 63 FR 31647)