

## **Instream Flow Management**

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The City manages the Cedar River water supply: (1) to provide its customers in the region with a high quality, reliable, and adequate supply of drinking water; (2) to protect fish resources in the Cedar River and Lake Washington; and (3) to provide a measure of flood protection compatible with the City's primary water supply mission. The HCP instream flow management strategy commits the City to a number of measures designed to protect habitat conditions for chinook, coho, sockeye, and steelhead in the regulated portion of the Cedar River.

The instream flow management regime is based on more than 10 years of study and analysis conducted in collaboration with state, federal and tribal natural resource managers. Development of the various components of the regime was guided by commitments to: 1) substantially and demonstrably improve habitat conditions for the various life stages of all anadromous salmonids in the Cedar River; 2) use the best available scientific information; 3) use the pattern of the natural hydrograph to help inform the prescribed guaranteed flows; 4) integrate the regime with flood control needs, Lake Washington water management practices, and efforts to protect bull trout, pygmy whitefish and nesting loons in Chester Morse Lake; 5) preserve existing water supply capacity and maintain an appropriate level of flexibility to address potential future water supply needs; and 6) preserve management flexibility so that instream flow management could be further improved as additional information becomes available in the future.

Implementation of the instream flow management regime includes, and will be guided, by substantial commitments to research and monitoring. These commitments will be most effective if they are well-integrated with other regional salmon recovery research efforts.

### *Guaranteed Flows*

The guaranteed flow commitments are designed to ensure the protection of all life stages of each of the four anadromous fish species in the Cedar River. The commitments are comprised of *minimum flows*, or levels below which the river is never allowed to drop, and *supplemental flows*. *Supplemental flows* are provided to augment minimum flows as certain times of the year depending upon actual hydrologic conditions and biological need. The application of specific supplemental flow elements is linked to real-time monitoring elements provided by the research and monitoring component of the regime. The guaranteed flow commitments also include provisions to help minimize the risk of fish stranding by limiting the rates at which stream flows may be reduced.

### *Flexibility*

For much of the year, actual flows in the Cedar are often well above the levels required to meet municipal water supply needs and the guaranteed flow schedule. To help ensure that this additional water remains available to address potential new and emerging needs for stream habitat, the HCP dedicates 1/3 of Seattle's existing water claim to the river and commits to manage the system to maintain annual diversions at present levels for the next 10 years.

### *Research and Monitoring*

The instream flow regime provides a number of research and monitoring commitments to support the application of supplemental flows and to help guide the management of stream flows in excess of the guaranteed flow schedule. Ongoing and expected areas of study includes 1) steelhead spawning and

incubation; 2) chinook spawning and incubation; 3) chinook early life history; 4) sockeye spawning, incubation and fry migration; 5) the effects of stream flow on the ecological processes that shape and maintain aquatic habitat in altered stream systems and; 6) effects of reservoir management practices on bull trout, pygmy whitefish and common loons. A number of research and monitoring projects are presently underway including studies of steelhead spawning and incubation, chinook spawning, sockeye fry migration and the effects of reservoir management on bull trout and common loons. Several aspects of juvenile chinook early life history are scheduled to be studied in 2002. The Cedar River Instream Flow Commission is continuing to scope efforts that will address the remaining areas of study.

### *Oversight*

The HCP established the Cedar River Instream Flow Commission that is comprised of representatives from federal, tribal, state and county resource agencies. The Commission meets at least monthly to monitor compliance with the instream flow management regime, guide the implementation of the guaranteed flow schedule, guide the management of stream flows in excess of guaranteed levels and direct the development and implementation of the instream flow monitoring and research program.

### *Capital projects*

The instream flow regime provides funding for a number of capital improvement projects including: 1) support for USACOE projects to improve fish passage conditions and improve water efficiency at the Hiram Chittendam Locks; 2) improved fish protection facilities at Seattle City Light's Cedar Falls hydroelectric power station; 3) enhance and operate stream gauging system throughout the Cedar River basin.