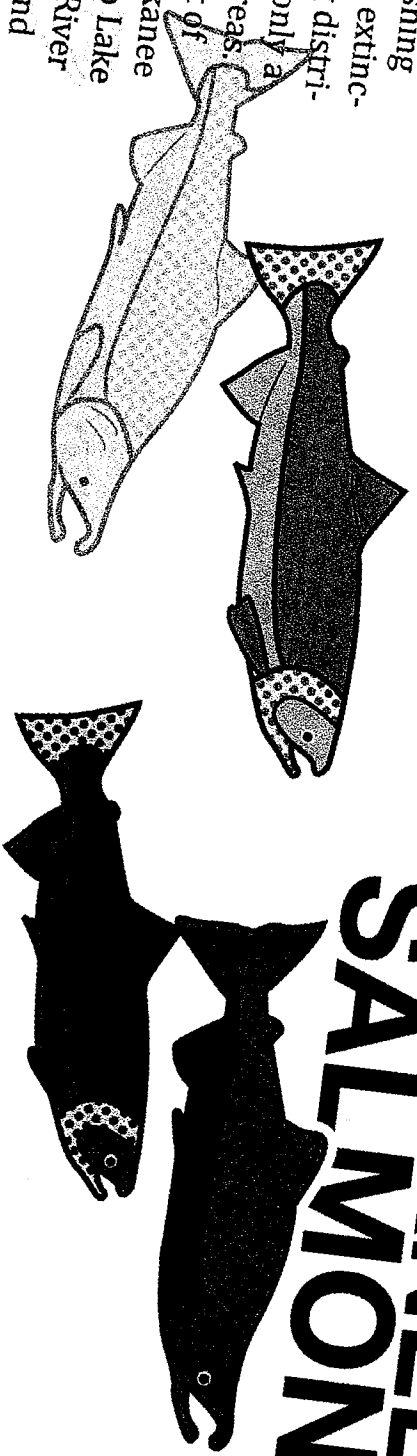


Adrian Tibbitts 2009-0375

Marked at @ 6/23/09 Rec

What is the Problem?

The kokanee population, which at one time provided significant sustenance and recreational opportunities, is verging on extinction. Their known spawning distribution has been reduced to only a few streams and shoreline areas. The estimated historic extent of spawning areas for native kokanee included several tributaries to Lake Washington, the Sammamish River and several of its tributaries, Lake Sammamish and several of its tributaries. Native kokanee are now known to spawn only in Lewis Creek, Laughing Jacobs Creek, Ebright Creek and Pine Lake Creek, and along some shoreline areas in Lake Sammamish. This drastic reduction in the geographic distribution of spawning areas significantly raises the potential for a single localized event, of natural or human origin, to result directly in the complete eradication of native kokanee from this watershed.



LAKE SAMMAMISH KOKANE SALMON

What are Kokanee Salmon?

Kokanee salmon (*Onchorhynchus nerka*) are native to the Lake Sammamish watershed and are a land-locked form of sockeye salmon. Kokanee have very similar identifying characteristics as sockeye, however they are often much smaller, usually measuring 12 to 24 inches at maturity. Kokanee salmon live their entire life cycle in fresh water, unlike sockeye salmon, that migrate out to live in the ocean. When the population was abundant, one could see them spawning along portions of the lake shoreline and in streams that feed into the lake from about November through January.

Kokanee Habitat

Cover: Stream and lakeside vegetation creates shade and helps regulate water temperature. The root systems of stream and lakeside vegetation protect against erosion, while large organic debris in the stream channel and lake shores provide protection from predators and floods.

Food: Insects are the primary source of food for fish in streams and zooplankton in lakes. These insects may be produced from the stream or lake itself, or they may be provided from stream and lakeside vegetation. Plant material and algae are key elements of the food producing processes in the stream and lake ecosystems.

Substrate: Clean, unsilted gravel beds are essential for salmon and trout spawning and egg survival. These spawning beds may be degraded or destroyed as a result of flooding, excessive erosion, or sedimentation.

Water Quality: Salmon and trout are susceptible to changes in water quality and are particularly sensitive to changes in water temperature and dissolved oxygen. The presence of contaminants or toxins, even if they may not be directly responsible for fish kills, can increase the likelihood of death from predators, disease, or destroy food sources (insects and invertebrates).

Water Quantity: Flooding can destroy stream beds and reduce water quality, while flows in urban streams can eliminate the pools and areas fish had to seek refuge.



5 steps to cleaner waters

1 don't allow toxins to get into the water

2 keep your land vegetated and avoid clearing

3 let water be absorbed; make a rain garden

4 conserve & restore native vegetation

5 educate others about protecting lakes & streams



Access: Kokanee are genetically programmed to return to their natal spawning streams to reproduce. Restrictions in access, in the form of improperly designed culverts or weirs, may prevent these fish from returning to those sites.

Be a Stream and Lake Steward, Anyone can do it!

Building, land clearing, day to day maintenance, and gardening practices, affect fish habitat. The face of the most serious pollution today is by people-we citizens who wouldn't dream of dumping toxins into a lake.

Avoid polluting: Don't use quick release "weed and feed" fertilizers they actually harm the health of your lawn while leaching into soil and running into the water, poisoning everything on the way. If you need to fertilize, be sure the fertilizer is organic and phosphate-free. Clean up painting tools at an indoor sink rather than the driveway to avoid washing into waterways. Keep livestock, pets and their wastes, away from streams and lakes. Keep wet concrete, swimming pool waters or concentrations of bark mulch away from fish bearing waters-they are very toxic to fish.

Stop Erosion: Keep your land vegetated to minimize erosion. Add natural, disease resistance to existing monoculture lawns by overseeding your current lawn with clovers and other broad-leaf varieties. If a section of lawn doesn't grow well redesign that part of your yard with native shrubs and woodland plants. Better yet, eliminate as much lawn as possible.

Manage stormwater runoff: High coverage of your land with buildings or pavement increases the rate of water running off your property (stormwater runoff). Build as small a footprint as possible and construct outdoor areas with pervious surfaces that allow water to drain through. Keep areas of natural or planted vegetation to allow rainfall to fall more slowly to the ground and to allow it to be evaporated or infiltrated into the ground. Construct a rain garden to help store and slowly dissipate stormwater. Plant native coniferous trees, they capture 30% of water that falls on them.

Conserve natural vegetation along stream and lake banks. Overhanging trees, shrubs and sedges provide shade, cover, food and prevent erosion. If you need to manage native vegetation, be selective in what you remove. Learn what vegetation is undesirable and remove it so that it doesn't spread and out-compete the native vegetation.

Restore vegetation along streams to provide shade, cover, food and filtration for fish. Stop mowing the grass areas adjacent to streams and lakes and allow nature to regenerate. To speed up natural revegetation, plant native shrubs and trees that provide habitat for wildlife.

Educate family members and neighbors about stream values. Keep grass clippings and yard waste out of streams and lakes. Do not alter lake shores or stream courses without proper guidance and permits from your local or state authorities.