Fish Use of Stream Drainage Basins in the City of Bellevue

March 2010

Background and Data Sources

Current knowledge of the species of fish in Bellevue's streams and their distribution is based on stream typing work conducted in the summer of 2001 (The Watershed Company 2001) that involved assessing culverts as to whether fish could pass upstream and electrofishing; an electrofishing survey conducted at five sites in the Kelsey Creek basin in 2007 (City of Bellevue, unpublished data) and fish moved prior to sediment removal from two sediment ponds along Coal Creek (The Watershed Company 2007a); salmon spawning surveys conducted annually during the fall between 2001 and 2008 (Taylor Associates 2002; The Watershed Company 2003, 2004, 2005, 2006, 2007b, 2009); and peamouth surveys and spawning observations conducted by Bellevue staff and volunteers between the late 1990s and 2008 (City of Bellevue, unpublished data). Lake Washington shore use by warm water fish was documented by Washington Department of Fish and Wildlife in June of 2005 (Personal Communication, Chad Jackson, July 18, 2007). Fish use of the lake shore along Lake Sammamish has not been documented by the City of Bellevue.

Ardmore Area

No fish have been found to use the two streams in this basin, although some habitat exists. A lack of water from early summer until fall appears to be the limiting factor for fish use in most areas. The upstream area of the Ardmore Drainage Basin has two headwater streams, which begin within the City of Bellevue and continue through the City of Redmond where they discharge into the north end of Lake Sammamish. The northernmost stream lies along the north City limit adjacent to Bellevue-Redmond Road. Although it is essentially a roadside ditch in most places, the channel does contain a significant amount of suitable habitat features and has a relatively gentle slope. The headwaters of the southern streams are located in Ardmore Park. A forested riparian cover provided extremely good habitat, which included large woody debris, gravel and cobble substrate, and pool-riffle sequences. The pools generally were not large, but fish should be able to use these segments based on habitat value.

Beaux Arts Area

All salmon use the nearshore area of Lake Washington at some stage of their life history. Sockeye salmon (*Oncorhynchus nerka*) have been known to spawn at Enatai, Chesterfield, and Chism Beach Parks. They likely spawn at any location

along the shoreline that has gravel substrate and upwelling water conditions. Juvenile chinook salmon (*O. tshawytscha*) rear along the shoreline from January until June, with the most abundance occurring between March and mid-May. The chinook juveniles are typically found in less than two feet water depth and seem to prefer sand and gravel substrates. Both juvenile and adult chinook appear to actively select holding areas near tributary mouths or other freshwater sources.

Clyde Beach Area

All salmon use the nearshore area of Lake Washington at some stage of their life history. Sockeye salmon have been known to spawn at Meydenbauer and Clyde Beach Parks. They likely spawn at any location along the shoreline that has gravel substrate and upwelling water conditions. Juvenile chinook rear along the shoreline from January until June, with the most abundance occurring between March and mid-May. The chinook juveniles are typically found in less than two feet depth and seem to prefer sand and gravel substrates. Both juvenile and adult chinook appear to actively select holding areas near tributary mouths or other freshwater sources.

Coal Creek Basin

In spite of coal mining impacts from the mid 1860s, Coal Creek was said to have an excellent run of native kokanee (*O. nerka*) in 1946, with estimated spawning densities of up to two fish per yard of stream (Garlick 1946). However, in 1956, coal washings were blamed for the "almost total extermination of all the native fish using this stream for spawning purposes" (Ajwani 1956). Cutthroat trout (*O. clarki clarki*) are currently found throughout the basin, including upstream of natural barriers to anadromous migration. Since 1999, adult coho (*O. kisutch*), sockeye, chinook, and steelhead (*O. mykiss*) have been observed in Coal Creek below river mile 2.5. Fish moved prior to sediment removal at the sediment ponds upstream of I-405 and Coal Creek Parkway in 2007 included numerous cutthroat and coho juveniles, sculpin (*Cottus* sp.) and lamprey (*Lampetra* sp.). Largescale suckers (*Catostomus macrocheilus*) have been observed in this creek by Peamouth volunteers.

East Creek Basin

East Creek flows into Richards Creek in central Bellevue, just north of I-90. The upper segments of the creek flow largely through deciduous forested areas, but the lower segments have been heavily channelized around property boundaries and roadways. The tree roots and wood from the riparian buffer have contributed to pool formation, and in general, fish inhabit all segments that contain sufficient flow.

Cutthroat trout, coho salmon, and lamprey have been documented in East Creek from the confluence to near SE 30th Street. Chinook and sockeye migrated up East Creek approximately 1,300 feet to an overflow confluence with Richards

Creek. The headwaters flowing off the eastern hill south of SE 30th had step-pool habitat and might be capable of supporting fish. The westerly tributary had juvenile cutthroat trout use up to the two 300-foot culverts. Upstream of the culverts there was insufficient habitat to support fish. No other tributaries had sufficient flows to support fish.

Goff Creek Basin

Goff Creek flows through north-central Bellevue, passing under SR 520 and Northup Way en route to the West Tributary of Kelsey Creek. A high flow bypass pipe was installed in the ravine upstream of NE 24th St. to prevent damaging erosion and excessive sedimentation. Heavy commercial and residential development surrounds the creek and contributes surface flow. The significant volume of water in Goff Creek provides abundant opportunities for fish use. Cutthroat trout are known to inhabit the entire length of Goff Creek. Chinook, coho, and sockeye salmon have been documented in open channel areas below Bel-Red Road. Tributary 81-03 does not have sufficient habitat to support fish.

Kelsey Creek Basin

Kelsey Creek is the most important stream in Bellevue for salmon, which access the creek from Lake Washington via Mercer Slough. Sockeye, coho, chinook, cutthroat trout and Peamouth (*Mylocheilus caurinus*) are all known to spawn in the Kelsey basin. Lamprey were found in all electrofished reaches in 2007, including lower reaches and almost as far upstream as the crossing with 148th Ave NE. Dace (*Rhyinichthys* sp.) were also seen in abundance during that survey at sites downstream of NE 8th Street, and three-spine stickleback (*Gasterosteus aculeatus*) were found in the wetland reach. Largescale suckers are frequently observed in the lower section. Salmon have access to the entire mainstem Kelsey basin, likely to Phantom Lake. Occasionally, as in 1999, anadromous fish are still seen in the modified channels upstream of Larsen Lake. Larsen Lake, near the head of the drainage, may support populations of introduced warm water fish species such as largemouth bass (*Micropterus salmoides*), yellow perch (*Perca flavescens*), pumpkinseed (*Lepomis gibbosus*), black crappie (*Pomoxis nigromaculatus*), and brown bullhead (*Ameiurus nebulosus*). Peamouth generally spawn under the Wilburton railroad trestle in the lower part of the creek in the spring.

Lakehurst Area

No fish were observed in the Lakehurst drainage during the 2001 stream typing project. The two southern streams were found to be completely or nearly dry during this study. Lakehurst Creek (08-0281), accessed from the Park & Ride off I-405, has perennial flow through pool sequences, though evidently still insufficient to provide suitable fish habitat. Most pools were no more than three inches deep, and only two reached a depth of as much as six inches within the

survey length. The stream is piped from the lake to I-405, preventing any upstream migration from Lake Washington.

The northern stream, located in Newcastle Beach Park, flows sluggishly through the lower portion of the park. It is a low-gradient stream with thick, sandy sediment. The stream likely has sufficient flow to support fish use, but a wetland generally forms in the transitional area between the stream and Lake Washington, and flows may not be sufficient through the wetland and water temperatures may be too warm to attract fish from the lake. Crayfish were observed in this stream.

Lewis Creek Basin

Present use of Lewis Creek (08-0162) by anadromous and migratory fish is confined to the section downstream (north) of I-90 because the culvert under I-90 is impassible. Migratory cutthroat trout, coho and sockeye salmon, and late-run kokanee have been observed in this reach (Ostergaard 1998; Vanderhoof et al. 2000). Chinook salmon are not mentioned in the historical record for Lewis Creek. While six adult chinook salmon were seen in lower Lewis Creek in 1995, no chinook were found in the 1994 surveys, and none were seen in the stream during surveys between 1996 and 2000 (O'Laughlin 2000). The absence of chinook in historical record and in the stream in years between 1996 and 2000, the proximity of Lewis Creek to the Issaquah Hatchery, and the frequent rate of hatchery fish straying to spawn in streams other than where they originated (Berge et al. 2006) make it likely that those seen in Lewis Creek in 1995 may have been hatchery strays.

Above I-90, Lewis Creek supports fish populations along the main stem almost to Village Park Dr. SE, where cutthroat trout have been found in large numbers. Mainstem habitat above that point is insufficient to support fish. Of the many tributaries to Lewis Creek, fish were found only in the tributary near SE 47th Way. The lower part of this segment contained multiple age classes of cutthroat trout. All other tributary segments clearly do not have sufficient flows to support fish.

Mercer Slough Basin

Prior to 1916 when the Montlake cut was completed, the elevation of Lake Washington was at least nine feet higher than present; it may have risen an additional three to four feet higher in winter. Mercer Slough was navigable by shallow draft steamboats and ferries for much of the year up to where I-405 now crosses. The wetland area associated with Mercer Slough extended well south of the mouth of Coal Creek, and north in Bellevue as far as present Main Street (McDonald 1984). King County constructed a dock in the 1890s, at the north end of the slough. A logging camp and a sawmill were established there. Log rafts were assembled in the slough for towing across Lake Washington and lumber shipments were made until the area became isolated by the lowered lake level (Harvey 1992; McConaghy Undated; McDonald 1984).

Currently, Mercer Slough serves mainly as a migration corridor for adult fish heading upstream to spawn in Kelsey Creek and its tributaries and for juvenile fish migrating downstream (Williams et al. 1975). In season, migrating chinook, coho, and sockeye salmon pass through the slough, as do migratory cutthroat trout and steelhead. The fish ladder below the I-405 culvert was rebuilt in 2003 to improve fish passage, and since then, Peamouth have also used the slough to gain access to Kelsey Creek. The slough provides rearing habitat especially for juvenile coho and Peamouth, and juveniles of other species. Lake fish are commonly observed in the slough by Bellevue staff, including three-spined stickleback. There is no suitable salmon spawning habitat in Mercer Slough, and there was likely none historically.

Meydenbauer Creek Basin

Lower Meydenbauer Creek (08-0258) is a fish-bearing stream. The historical record mentions local residents fishing for trout and salmon (McDonald 1984). The stream likely supported both resident and migratory cutthroat trout; the salmon mentioned in local histories were likely coho. Adult sockeye salmon, cutthroat trout, sculpin and three-spine stickleback were observed in Meydenbauer Creek downstream of 101st AVE SE in both 2000 and 2001.

Newport Area

The two main stream channels in this basin flow to the north and into Coal Creek near I-405. The west stream flows seasonally, with no surface water during summer and a muddy, channel through good riparian habitat with organic (wetland) soils. On the other hand, Newport Creek (08-0269), to the east, contains significant streamflow and an abundance of cutthroat trout throughout the system. Previous surveys documented the presence of lamprey along this stretch. A 2001 survey confirmed use by trout and juvenile coho in the main headwater open channel, and electrofishing in 2007 also documented cutthroat and coho juveniles, numerous sculpin, and lamprey (The Watershed Company 2007a). A high flow bypass pipe routes storm flows away from the open channel to prevent erosion. No fish were observed in the small headwater tributary to the east that cascades down a steep slope. Along this segment, which features a 40 percent gradient, no pools deeper than two inches were found.

North Sammamish Area

No fish were observed in the four streams in this basin. Lack of permanent water and steep gradients are limiting factors. The northernmost stream (08-0151) had the most significant flow of the group. Nevertheless, upstream of West Lake Sammamish Parkway, the largest pools were only two inches deep. The outflow from a small sediment catch basin into the culvert under West Lake Sammamish Parkway constitutes a five-foot fish barrier. Downstream of the culvert, the stream flows through an elaborate residential landscape with artificial pools and

shallow concrete channels. The outfall into Lake Sammamish, a long, steep concrete culvert, represents a significant fish barrier. The other three streams have essentially the same features, each less than two inches deep and featuring significant fish barriers as they flow below West Lake Sammamish Parkway. Encroaching vegetation within the channels has caused organic substrates to accumulate, and emergent vegetation thrives in places. Each of these channels is no more than one to two feet wide at bank-full width upstream of West Lake Sammamish Parkway

Phantom Creek Basin

Historical references suggest that the downstream segment of Phantom Creek (08-0154) could have been used by coho salmon and possibly sockeye (Williams et al. 1975). Further upstream, no fish were found during surveys by The Watershed Company in 1997 and 2001 (Johnston 1997a); the upper segment had dried into isolated pools, which were inhabited by at least two bullfrogs.

Despite absence of fish during surveys, all segments of Phantom Creek upstream of the falls are considered to have some fish use due to their connectivity with Phantom Lake. Phantom Lake is known to contain warm-water fish species. The discovery of small bass in some of the pools at Weowna Park during a Watershed Company-designed restoration project confirms this classification (Way 2001). These fish had evidently washed downstream from Phantom Lake, since cascades and gradients greater than 25 percent prevent upstream migration in Phantom Creek.

Richards Creek Basin

Richards Creek (08-0261) is a southern tributary to Kelsey Creek, and access from Lake Washington is via Mercer Slough. Adult Chinook, coho and sockeye salmon have been observed to SE 30th St., and chinook, sockeye, coho and cutthroat spawning have been documented (The Watershed Company 2009). Sculpin, lamprey and stickleback have also been observed in Richards Creek.

The headwater segment of Richards Creek flows through a ditch at Loehmann's Plaza along Factoria Boulevard. Electrofishing here in 2001 located several cutthroat trout, each greater than six inches in length, as well as a juvenile coho salmon. Within the channel, pool formation was minimal due to a lack of woody debris or other significant in-stream structures. The stream was deeper than two feet at many places and it flowed steadily. The isolated tributary to Richards Creek, accessed via trail at SE 20th Street, was incapable of supporting fish activity. This small channel lacked any pools greater than two inches deep. There were also numerous natural fish barriers, most notably a six-foot waterfall at the trail's lower bridge, located near the 13500 block. During the survey, a second stream flowing into this tributary, which does not appear on the City's maps, was found and sampled. Hydrology was also a limiting factor in this stream. No fish were discovered in either channel.

Rosemont Area

The drainage pattern in this basin is easterly toward Lake Sammamish, down steep ravines off the ridge separating Lake Washington and Lake Sammamish. No perennial streams are listed in this basin in the State stream classification system; no perennial streams have been located by the City of Bellevue. Whatever surface water runoff occurs in this basin flows in pipes down the several ravines directly to Lake Sammamish. There is no historical record to indicate that fish ever inhabited this basin (Williams et al. 1975).

Sears Creek Basin

Significant fish use (coho, chinook, and cutthroat trout) was found up to the upper culvert in Sears Creek (08-0267) at 148th Ave NE. Chinook and Coho have been documented spawning in the lower reach of Sears Creek along NE 21st St. During 2001 summer sampling, the majority of fish caught were yearling cutthroat trout; only one cutthroat fry was captured during the investigation.

South Sammamish Area

In the westernmost stream, (unnamed, 08-0160) resident cutthroat trout were observed in 1999 (Morgenroth, B., pers. comm., 2000). Anadromous fish are blocked from the stream by a 716-foot long culvert, which discharges into Lake Sammamish, and a culvert under I-90. Above the lower culvert a large sedimentation pond exists, and pool-riffle and step pool sequences suitable for fish were available further upstream. With an average bankfull width of greater than 10 feet and suitable pool habitat, these two segments would likely support significant cutthroat populations if access were improved. The middle stream (unnamed) also contains step-pool sequences. However, steep cascades, between three and five feet tall, contribute to isolation among many of the pools, which averaged less than four inches in depth. Due to barriers, steep gradients up to 19%, and a lack of sufficient stream flow, fish use in this stream is considered possible but unlikely.

The easternmost stream (unnamed, #08-0161) contained gentle riffles and suitable pools up to eight inches deep through the lower segments, where fish use is expected. Upstream, the gradient increased and stream flow was insufficient to support fish. A field survey of the headwater segments and upper tributary found poorly defined channels that apparently had seasonal flow, and were incapable of supporting fish.

Spirit Ridge Area

No streams are cataloged in the basin by the State WRIA system. City of Bellevue stream walkers report only dry ravines. No historical fish use was identified in this basin (Williams et al. 1975).

Sturtevant Creek Basin

Sturtevant Creek (08-0260) is one of the most urbanized basins in Bellevue, and includes portions of downtown Bellevue and I-405. Its headwaters are at Lake Bellevue, and it flows into Mercer Slough. The downstream segment is the least altered reach. Coho, chinook, and sockeye salmon and peamouth use are documented in the City's historical records. In addition, coho were known to use the entire stream in 1975 (Williams et al.). However, anadromous fish use is now blocked by the culvert at I-405.

In 2001, the middle reach was accessed via NE 2nd Place. This segment supported substantial flow, which was presumably stormwater runoff, since the upstream segment was barely flowing. No fish were found in this segment. The headwater segment near Lake Bellevue contained almost no water. The channel was muddy with a thick organic layer near the lake, and flow gradually weakened on its way downstream adjacent to the railroad tracks. Although no fish were found, Lake Bellevue was known to support a population of non-native goldfish (*Carassius auratus*). Thus, incidental fish use downstream of Lake Bellevue could be expected.

Sunset Creek Basin

Sunset Creek is identified in the State classification system as an unnamed stream (08-0262). While Sunset Creek was identified as a coho salmon stream by Williams et al. (1975), no information was provided on their historical distribution. It is likely that migratory cutthroat trout used the stream as well. Chinook salmon and steelhead have been observed in the lowest segment, and sockeye and coho salmon have been recorded as far upstream as I-90. Cutthroat trout are present as far upstream as SE 42nd Street.

Survey efforts in 2001 were confined to the headwaters, accessed from the 4400 block of 150th Avenue SE. The survey began at the City boundary and extended 150 feet upstream through a gentle, wooded ravine. This channel consists of small pools no greater than ten inches deep, connected by short riffles. Pool formation has been aided by woody debris. No fish were detected, although several crayfish (Unknown spp.) were found. Although low streamflow is a limiting factor, the absence of fish is likely due to a barrier downstream, outside of City limits.

Valley Creek Basin

Historical information shows sockeye, chinook, and coho salmon presence throughout the main stem of Valley Creek (08-0266), upstream as far as the outfall of the 1,087-foot culvert at the Bellevue Municipal Golf Course. The 2007 electrofishing survey found numerous cutthroat trout and coho salmon juveniles, as well as lamprey. Cutthroat are documented in various reaches of Valley Creek

and likely use the full corridor to the golf course culvert. Non-native bluegill (*Lepomis macrochirus*) have been documented in the lower reaches of Valley Creek. No fish were found in a 1998 electrofishing survey by The Watershed Company at the upstream end of Valley Creek (Johnston 1998). Unlike downstream areas, this section was characterized by shallow water full of emergent vegetation and organic, muddy substrate. Although it does not support fish, one Pacific giant salamander (*Dicamptodon tenebrosus*) was found.

In 2001, survey efforts at the small tributary adjacent to SR 520 revealed a mostly dry, muddy channel incapable of supporting fish. In contrast, the tributary to the north contained several young cutthroat trout. At the downstream end of this tributary, the stream becomes part of a detention pond. Other than this pond, this segment contains limited flow, and the deepest pools were only eight inches deep. The trout were found upstream of the pond in a pool-riffle sequence.

Vasa Creek Basin

According to Washington Department of Fish and Wildlife information (Downen 2000), the reaches of Vasa Creek (08-0156) nearest to Lake Sammamish contain cutthroat trout and late run kokanee, as well as coho and sockeye salmon. The first small tributary is entirely within the influence of the main channel and presumed to have similar fish use. The other small tributary flows through a restored corridor along 167th Avenue SE. Numerous juvenile cutthroat trout were visible in the downstream pools in the summer of 2001. However, several installed weirs with 18-inch plunges possibly hinder upstream migration. The survey effort did not discover any fish in the upper portion of this tributary, located in a ditch parallel to SE 35th Street. The reach, located above an impassible fish barrier at I-90, consists of a sedimentation pond and a gravel-filled channel that lacks perennial surface flow. Surface flow was observed both upstream and downstream of this segment and thus, flow must go subsurface through a thick gravelly substrate during summer months. Although no fish were present in the sedimentation pond, the possibility of a resident population in Eastgate, outside of City limits, cannot be ruled out without field verification. A high flow bypass from I-90 to lake Sammamish removes much of the peak flows from the open stream.

West Tributary Basin

The West Tributary of Kelsey Creek (08-0264) is used by sockeye, chinook, and coho salmon, migratory and resident cutthroat trout. Peamouth have been documented as far upstream as the Kelsey Creek farm, where they spawned in 2005. Largescale suckers have also been observed in this creek by Peamouth volunteers. The upstream limit of migratory fish use appeared to be Bel-Red Road. In 2001, electrofishing on both sides of 124th Avenue NE yielded no fish, although a Pacific giant salamander was caught. Habitat characteristics along some reaches included sluggish flow through pools that were several hundred feet long, apparently created by beaver activity. Substrate consisted of a thick silt

layer. Further upstream, at 120th Avenue NE, the stream consisted of isolated pools with thick silt substrate. Fish were also absent in this segment. No fish were found in the tributary at NE 8th Street in 2001. This tributary was a sequence of tiny pockets of water, each less than two inches deep.

Wilkins Creek Basin

Wilkins Creek originates near the top of the north-to-south till ridge that separates Lake Sammamish and Lake Washington, and flows east-southeast down a steep ravine to the base of the ridge; there the gradient lessons as it flows under West Sammamish Parkway and into Lake Sammamish. There is no historical or contemporary record of fish use of this stream. Williams et al. (1975) indicated that an impassable cascade in the ravine just upstream of West Lake Sammamish Parkway marked the natural limit to anadromous fish use of the system. City of Bellevue personnel indicated that the stream channel was extensively modified, with much of the flow bypassed in pipes (Morgenroth 2000). No fish were observed in Wilkins Creek during a qualitative electrofishing survey by The Watershed Company in 1997 (Johnston 1997b). Fish use was limited by steep gradient, low water flows, and barriers to fish migration from Lake Sammamish.

Yarrow Creek Basin

Historically, Yarrow Creek (08-0252) supported coho salmon (Williams et al. 1975) and cutthroat trout. Both migratory and resident cutthroat likely used the stream, along with coho. Yarrow Creek may also have been used by one or both races of native Lake Washington kokanee. Because kokanee were an important subsistence resource for Native Americans during the 1800s, they often located their villages near important resources. Such a village was located at Yarrow Bay (Buerge 1984; Tobin & Pendergrass 1993 [updated 1997]).

In a 2001 survey, cutthroat trout were found within the entire portion of the main channel of Yarrow Creek within City of Bellevue limits. Cutthroat trout also inhabit the tributary flowing north of Northup Way along NE 33rd Place. Fish were not found in the other tributaries. However, the habitat characteristics in the tributary originating near 108th Ave. NE were suitable for fish use. Other tributaries lacked sufficient flow to allow fish use, except possibly during high flow events.

Salmon Identification in Bellevue

Cutthroat Trout *(Oncorhynchus clarki)*
Spawns February through May. Head blunt, jaw long – mouth opening extends backwards past eye. Small black spots on head and body extending well below lateral line, and on all fins. Red to yellow streaks on underside of jaw. Faint to no red on sides of spawning fish. Length up to 30 inches.

Coho *(Oncorhynchus kisutch)*
Spawns mid-October through early January. Back and head dark bluish-green. Lower sides brilliant red to wine color. Distinctive red spot on gill cover behind eye. Black spots on back and upper lobe of tail fin only. Length range 17-38 inches.

Chinook *(Oncorhynchus tshawytscha)*
Largest salmon. Spawns from September through mid-December. Color varies from olive-brown to dark brown to red. Spots on back and both upper and lower tail fin. Length range 24-60 inches.

Sockeye *(Oncorhynchus nerka)*
Spawn early August through late December. In males, back and sides are bright red to dirty red-grey, head is bright to olive green, tail is green to black. In females, colors not as bright, but red above lateral line. No distinct spots on back or tail fin. Males have a large dorsal hump. Length range 20-28 inches.

Kokanee *(Oncorhynchus nerka)*
Same as Sockeye, but length range from 6-18 inches. Kokanee spend their entire lives in fresh water.

Rainbow Trout *(Oncorhynchus mykiss)*
Spawning in Bellevue is unknown. Head blunt, jaw short – mouth opening extends backwards only to the eye. Black spots on head, body and tail. Length up to 28 inches.

Steelhead *(Oncorhynchus mykiss)*:
Spawns late March through early June. Head blunt, jaw short –extends only to the eye. Distinct dark spots on dorsal fin. Square-shaped tail fin with radiating pattern of spots. Often has reddish stripe along sides, gill cover reddish. Length up to 45 inches.

References Cited

Ajwani, S. 1956. A review of Lake Washington watershed, historical, biological, and limnological. Page 148 University of Washington, Seattle.

Berge, H. B., M. L. Hammer, and S. R. Foley. 2006. Timing, Abundance and Population Characteristics of Spawning Chinook Salmon in the Cedar/Sammamish Watershed. King County Department of Natural Resources and Parks, Water and Land Resources Division, and Washington Department of Fish and Wildlife, Seattle, WA.

Buerge, D. 1984. Indian Lake Washington. The Weekly [now Seattle Weekly], Seattle, WA, Aug. 1-7, 1984.

Downen, M., WDFW. 2000. Personal communication with K. Paulsen. Bellevue, WA.

Garlick, L. R. 1946. Report on check of silver trout run in Lake Washington tributaries. Unpublished report. Washington Dept. of Game, Olympia, WA.

Harvey, D. W. 1992. Historic overview of Kelsey Creek Community Park. Prepared by Northwest Preservation Resources. Bellevue Historical Society, Bellevue, WA.

Johnston, G. 1997a. Letter to Ron Bard, Sverdrup Civil, Inc, 14 May 1997. The Watershed Company.

Johnston, G. 1997b. Letter to Scott Taylor, 13 May, 1997. City of Bellevue Utilities Department, Bellevue, WA.

Johnston, G. 1998. Letter to Scott Taylor, June 4. City of Bellevue Utilities Department, Bellevue, WA.

McConaghy, L. Undated. Report on research-Wilburton, Wilburton Hill. Bellevue Historical Society, Bellevue, WA.

McDonald, L. 1984. Bellevue: Its First 100 years. Bellevue Historical Society, Bellevue, WA.

Morgenroth, B., 2000. Personal communication with City of Bellevue Utilities Department, Bellevue, WA.

O'Laughlin, K., King County DNR 2000. Personal communication with City of Bellevue Utilities. Bellevue, WA.

Ostergaard, E. 1998. 1996 Salmon spawning surveys in the Lake Washington Watershed: Results of the 1996 salmon spawning survey program and kokanee spawner survey program. King County Department of Natural Resources, Seattle, WA.

Taylor Associates. 2002. Kelsey Creek and Tributaries 2001 Spawner Survey, Bellevue, WA.

The Watershed Company. 2001. City of Bellevue Stream Typing Inventory: Final Report. City of Bellevue, Utilities Department, Bellevue, WA.

The Watershed Company. 2003. Salmon Spawner Survey 2002: Kelsey Creek and Tributaries. City of Bellevue, Utilities Department, Bellevue, WA.

The Watershed Company. 2004. Salmon Spawner Survey 2003: Kelsey Creek and Tributaries. City of Bellevue, Utilities Department, Bellevue.

The Watershed Company. 2005. Salmon Spawner Survey 2004: Kelsey Creek and Tributaries. City of Bellevue, Utilities Department, Bellevue, WA.

The Watershed Company. 2006. Salmon Spawner Survey 2005: Kelsey Creekand Tributaries. City of Bellevue, Utilities Department, Bellevue.

The Watershed Company. 2007a. Fish Salvage Report: Coal Creek Sediment Basin. City of Bellevue, Utilities, Bellevue, WA.

The Watershed Company. 2007b. Salmon Spawner Survey 2006: Kelsey Creek and Tributaries. City of Bellevue, Utilities Department, Bellevue, WA.

The Watershed Company. 2009. 2008 Salmon Spawner Surveys: Kelsey Creek, West Tributary, Richards Creek and Coal Creek. Page 76 + appendices. City of Bellevue Utilities, Bellevue, WA.

Tobin, C., and L. F. Pendergrass. 1993 [updated 1997]. Bellevue Historic and Cultural Resources Survey. City of Bellevue Design and Development Department, Bellevue, WA.

Vanderhoof, J., E. Ostergaard, and D. M. Gleisner. 2000. 1997 Volunteer Salmon Watcher Program in the Lake Washington Watershed. King County Dept. of Natural Resources, Water and Land Resources Division, Seattle, WA.

Way, A. W., President, The Watershed Company. 2001. Personal communication with T. Perkins. Bellevue, WA.

Williams, R. W., R. M. Laramie, and J. J. Ames. 1975. A Catalog of Washington Streams and Salmon Utilization. Washington Department of Fisheries, Olympia, Washington