
2004 Volunteer Salmon Watcher Program

**Lake Washington Watershed,
Puget Sound WRIA 8 Streams,
and Vashon Island**

April 2005



King County

Department of Natural Resources and Parks
Water and Land Resources Division

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King County Water and Land Resources Division, in cooperation with:
Lake Washington/Cedar/Sammamish Watershed Forum
Bellevue Stream Team
Cities of Bothell, Kirkland, Redmond, Renton, Seattle, and Woodinville
Snohomish County Surface Water Management
Vashon-Maury Island Land Trust

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Summary

In 1996, the Bellevue Stream Team, King County Water and Land Resources Division, the Muckleshoot Indian Tribe, the Snohomish County Surface Water Management Division, and the Washington Department of Fish and Wildlife began a jointly coordinated volunteer spawning survey program in the Lake Washington Watershed (all waters draining through the Ballard Locks). In 1997, the program evolved into the Salmon Watcher Program as it is today and has been conducted annually since. The purpose of the program is to document the distribution of spawning adult salmon throughout the basin via an active public outreach and education program, and subsequently consolidate all the information into a single resource (this report). These data can be used by policy makers and the public to improve how aquatic resources are managed, to protect salmon and trout species, and to enhance their habitat.

For the 2004 program, 128 volunteers surveyed 134 sites on 57 streams throughout the Lake Washington Watershed, other WRIA 8 streams in Central Puget Sound, and Vashon Island streams from August 31, 2004 to February 4, 2005. An additional 10 volunteers surveyed 10 sites on 4 streams in Central Puget Sound outside the project area and the Snoqualmie Watershed. Because volunteers collect the data in this program, the agencies are able to obtain more information from far more locations than would otherwise be possible. However, data in this report should be used with the following factors in mind:

- (1) Volunteer expertise in locating and identifying fish species varied from very high to very low;
- (2) Coverage of streams by volunteers was by no means complete; therefore, fish distribution information is not complete;
- (3) Volunteers view stream sites for relatively brief periods of time during the spawning season;
- (4) Determination of survey sites was based on volunteer availability and site accessibility (and some survey locations change from year to year, even on the same creek);
- (5) Spawning fish can be difficult to see and therefore may have passed through reaches undetected; and
- (6) Volunteer data indicate only where minimum fish distributions extend to, but do not indicate reaches where fish are definitively absent (in other words, the data confirms fish presence, but does not confirm absence).

Volunteers observed the following species: sockeye, kokanee, coho, chinook, and chum salmon, as well as trout species. The following results were compiled from volunteer observations: (1) Coho had the widest distribution throughout the official survey area—they were seen in 9 basins in a total of 19 streams; (2) sockeye were seen in the most streams (23) and they were seen in the greatest numbers (over 7,500 enumerated); (3) chinook were observed in 6 Lake Washington basins as well as in Boeing Creek, a WRIA 8 stream that drains to Puget Sound; (4) Kokanee observations were observed reliably in 5 Lake Washington basins; and (5) chum were observed in 1 Vashon stream and all other Puget Sound streams observed.

This report is published on the Internet and can be found using the hyperlinks on this web page: <http://dnr.metrokc.gov/wlr/waterres/salmon/reports.htm>.

Maps included in this report have been published on the Internet and can be found using the hyperlinks on this web page: <http://dnr.metrokc.gov/wlr/waterres/salmon/maps.htm>.

Acknowledgements

Many thanks to all the dedicated volunteers for spending many hours in cold and wet weather to collect the information for this report—some for the eighth year in a row, and sometimes without ever seeing a single fish. Without the volunteers there would be no data, no maps, and no report. They help make a positive difference here in the Northwest, not only by reporting fish species, but by acting as the eyes and ears of the streams, reporting stream blockages as well as illegal and other suspect activities. You are the stewards of resources that make the Pacific Northwest so special. A *huge* Thank You to all!

We also want to acknowledge the various individuals from the cooperating jurisdictions. Every year these folks meet and plan the program, organize and stage the training sessions, and invest lots of time attending to the questions of the volunteers. Thanks (in no particular order) to Laurie Devereaux, Roger Kelley, Bob Spencer, Debra Crawford, Scott Gonsar, Peter Holte, Maureen Meehan, Mary Maier, Kollin Higgins, Hans Berge, Kit Paulsen, Robert Fuerstenberg, Gino Luchetti, Katie Messick, Ray Heller, Karren Gratt, Laura Reed, and Wendy Collins.

We continue to owe immeasurable gratitude to Eric Maia for his talent, time, energy, creative thinking, skills, and patience during the building of our SQL server Salmon Watcher database. His efforts make these reports much faster to generate and make online data entry possible.

Jennifer Vanderhoof writes these annual reports.

Finally, we would like to thank those who partially sponsored our funding: Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Forum through a King Conservation District grant.

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Introduction

The Salmon Watcher Program is a volunteer program that originated in 1996 and whose purpose is to record observations of adult fall-spawning salmonids. Volunteers are recruited and trained to identify and watch for spawning salmon throughout Water Resource Inventory Area 8 (WRIA 8), which includes the Lake Washington Watershed and some streams leading to Puget Sound (Figure 1). Volunteers are also trained to watch on Vashon Island. Regional agencies who participated in the Salmon Watcher Program along with King County during the 2004 season include the Bellevue Stream Team, the cities of Bothell, Kirkland, Redmond, Renton, Seattle, and Woodinville, Snohomish County Surface Water Management, and the Vashon-Maury Island Land Trust.

The Salmon Watcher Program was initiated to expand on current efforts undertaken by resource agencies to document the distribution of spawning salmon in WRIA 8, including the Lake Washington Watershed. Basins that comprise the Lake Washington Watershed include Bear Creek, Cedar River, East Lake Washington, West Lake Sammamish, East Lake Sammamish, Issaquah Creek, and North Lake Washington (divided into the North Lake Washington tributaries and the Sammamish River tributaries). Other streams in WRIA 8 that were watched included Pipers Creek and Boeing Creek, both of which drain to Puget Sound. Vashon Island streams were observed as part of the Salmon Watcher Program for the fourth year in a row.

Salmon Watcher volunteers annually collect information on the presence of fall-spawning salmonids, including chinook, coho, sockeye, kokanee (resident form of sockeye), and chum salmon, as well as trout species. Data of this type become more important in the region as salmonids, such as Puget Sound chinook, are listed under the Endangered Species Act.

Because volunteers do this work, gathering this volume of data is accomplished with reduced agency resources, and the watersheds' residents can become involved and educated at the same time. Further, interactions with agency personnel foster positive relationships between the public and government agencies. With current budget and time constraints of agency personnel, most of the data collected in this effort would not be collected otherwise.

In addition to summaries of fish observed during the fall season, this 2004 report contains information and some statistics about the volunteers. It should be noted that this report summarizes data collected only by Salmon Watcher volunteers, and it is therefore in no way intended to be an exhaustive report of fish distribution in WRIA 8 or on Vashon. Other fish surveys are conducted annually by county, state, city, and federal agencies and non-profit organizations. For example, surveys have been conducted by volunteers or County staff to look specifically for kokanee and chinook; the results of these surveys are reported separately and are not included here.

Figure 1. Basins surveyed for the 2004 Salmon Watcher Program (see insert).

Methods

Volunteers were recruited during late summer and early fall of 2004 to observe fish in streams throughout the Lake Washington Watershed¹, other WRIA 8 streams, and streams on Vashon Island. The 128 volunteers (128 individuals or pairs or groups, totaling 148 people plus one elementary class and the Mercer Slough Environmental Education Center) who surveyed in the project area, plus 10 volunteers who observed outside the project area, are listed in Table 1.

Table 1. Volunteer observers for the 2004 Salmon Watcher Program.

Ann Aagaard	Gary & Bob Emerson	Adrienne & Louis Mendoza
Staci Adman	Kelsey Euerle	Susan Meyer
Dennis Anderson	Sara & Richard Farmer	Dai Mikami
Chad Armour	Mary Ellen Flanagan	Steve Freng and Emi Mizuki
Angelina Artero	Judy Gilbert	Amanda Mondt
Russ Atkins	Hillary Goldstein	Dave Morency
Frank Backus	Linda Gonzalez	Stacey Mullins-Jensen
Tina Bailey	Ron Green	Kristen Nasman
Sean Baker	John & Sally Gummeson	Andrew Neang
Molly Balko	George Hadley	Nelson Family
Jeanette Banobi	Nichole Halleen	Jane Neubauer
Ed and Sheila Barnes	Jinnette and Gerald Hammond	Roger and Joy Neubauer
Cathleen Barry	Nancy Hannah	Mercer Slough Environmental Ed Center
Al Jackson and Mary Beauchamp	HelesHunt Family	Yoshiko Otonari
Jim & JoAnn Beaumont	Pat Livingston and Jim Hughes	Isabelle Otter
Shirley Biccum	Dennis Johnson	John E Palevich
Kai Billmaier	Ed Jonson	Clint Peeples
Jill Blakeway	Monika and Christina Kaetz	Betty Peltzer
Polly Blanchard	Carol and Ed Kane	Sarah Phillips
Mamie & Chuck Bolender	Steve Kealy	Perrilee Pizzini
Bob and Diane Brenno	Pam Kelly	Larry Poore
Brian Brenno	Koczarski Family	Woodridge Elementary
Janet Broadus	Kathy Kolt	Kelly Rau
Rosemary Buchmeier	Janusz Komorowski	Krista Rave-Perkins
Pat Buckley	Mira Konzen	Shan Rayray
Robin Buerki	Joel & Yvonne Kuperberg	Larry Reymann
Beth Carpenter	Ann Kurtz	George Ritchotte
Ben Cease	Cheri Lacey	Adrienne Ross
Janeene & Steven Chilcoat	Kristin Larson	Allison Rossman
Stacey Clear	D. Quinn Lean	Mike Russell
Bill Conner	Lynne Lew	Kathleen Ryan
Nancy Daar	Ardis and Brian Lilleness	Bonnie Schein
Alyse & Dennis DeKraker	Ginny Lodwig	Ed Schein
Sonia Delaney	Steve Long	Carrie & Drew Schwitters
Paula DeLucia	Barbara Lynum	Carl Malec and Mary Shank
Barbara Dickson	Ron Marshall	Kathryn Sheldon
Michael and Linda Dietemann	Rob McElroy	Patty Shelton
John Dixon	Nancy McJunkin	Yoshi Shelton
Chuck Dolan	Jim McRoberts	Georgeann Silverman
Mike Dziuk	Helen Meeker	MarGREAT Simon
Willie Elliott	Joe Meeker	Julie Smith

¹ In this document, the Lake Washington Watershed means all waters draining through the Ballard Locks, and the subbasins of the Lake Washington Watershed are referred to as basins (e.g., Issaquah Creek Basin).

Table 1. Continued. Volunteer observers for the 2004 Salmon Watcher Program.

Mary Ellen Smith	Tobiatha Tucker	Mary Vincent
Kirk Stauffer	Raymond VanDerRoest	Gina White
Mike Stults	Whitney VanLoos	Maggie & Brian Windus
Valerie Taylor	Dawn Walker	Janis Young
Inge Theisen	Irv Weisser	Norb Ziegler
David Trotter		

Volunteer Training

Agency staff held a total of seven classroom training sessions in 2004. Field training sessions were conducted for trained volunteers on two dates: at the Sammamish River at the end of September and at Issaquah Valley Elementary School in October. Additionally, Snohomish County held separate training sessions for its Salmon Watcher program, an off-shoot of the Lake Washington Watershed program.

All volunteers were taught to identify adult spawning salmon species with a slide presentation. The slide show was placed on King County's web site so volunteers could review it at their convenience. During the training sessions, volunteers signed up for one or more sites to survey. They were given salmon identification materials, including color adult species identification cards and spawner timing charts. Volunteers were taught how to fill out and return data forms. Volunteers were also given phone numbers to call for various situations that might arise in the field, including drainage issues, fish kills, and suspicion of pollutants.

Survey locations were prioritized by staff from each cooperating jurisdiction based on the need for information; however, sites were surveyed based on volunteer availability. Volunteers were assigned to stream locations near their homes or customary walking places whenever possible. Not all sites watched were prioritized by agency staff: some sites were watched because of the close proximity to a volunteer's home. Volunteers were instructed to stay on public property (bridges, parks, etc.) unless they gained permission from the landowners to enter private property or the survey location was on their own property. Figure 2 shows all the sites watched by volunteers during the 2004 fall spawning season.

Figure 2. Sites surveyed by Salmon Watcher volunteers in 2004 (see insert).

Data Collection

Surveys were conducted between August 29, 2004, and February 4, 2005, though most surveys began in September and were concluded in December (Table 2). Volunteers were asked to watch at their survey sites for at least 15 minutes, twice per week, and record any adult salmonids they observed. Actual survey frequency and duration varied greatly among volunteers: the average survey frequency was biweekly but ranged from daily to monthly.

Table 2. Number of surveys per month during 2004 Salmon Watcher season.

Month	Number of Surveys
August	1
September	520
October	1373
November	1214
December	695
January	28
February	2

Volunteers counted all live and dead adult salmonids they observed. If a volunteer surveyed the same site more than one time on the same day, the highest fish count was used; however, often more than one volunteer surveyed the same site on a single day and their individual observations were used. Volunteers were asked to report only once those dead fish observed on more than one occasion and to note subsequent observations of the same fish in their comments. Juvenile fish were noted if present. Unidentified fish were counted and described when possible.

Volunteers were asked if they could tell whether the fish they saw had an adipose fin, and they were asked if they noticed anything at their site that needed to be reported and whether they reported it. Volunteers were asked to note how many citizens they came into contact with during their streamside duties. All data were recorded onto field data forms (Appendix B), which were mailed to Salmon Watcher staff on a monthly basis.

For the third consecutive year, in addition to the data sheets, volunteers were asked to fill out a “First Fish ID” form. This form had several multiple-choice questions about various key characteristics for identifying fish. Volunteers were asked to fill one of these forms out the first time they saw a new species and to turn the forms in with their data. The purpose of this form is twofold: (1) to aid volunteers in identification by highlighting key characteristics, and (2) to aid Salmon Watcher staff in quality control.

Quality Assurance/Quality Control

Several means were used to assure that the data collected from volunteers were as accurate and consistent as possible during all phases of the program. Volunteers were provided with training by fish experts: data included in this report were collected either by returning volunteers or new volunteers who attended one of the training sessions for the 2004 season. Volunteers were provided laminated fish identification cards and a packet of training materials with fish identification information in it. Duplicate as well as additional fish identification materials were placed on the Internet. Contact persons were made available to volunteers to answer questions and verify species identification when necessary; volunteers were encouraged to call upon these individuals if they were unsure of species identification.

Staff receiving the data sheets screened them for anything requiring immediate attention such as an unusual fish sighting or potential water quality problems. If an unusual fish sighting was noticed on a data form, agency staff contacted the volunteer to further inquire about what characteristics used to identify fish. The First Fish ID forms were intended to provide another means by which fish identifications could be checked and verified.

Data were input into a SQL server database housed at King County. The database has been designed to catch anomalies in data entry, such as dates not in the season. The database also poses questions when it detected that a count of a certain species had never been as high at that site in that month in previous years. These and other checks were built into the software of the database to increase accuracy of input data. Following data entry, the figures were verified at least once, but sometimes twice, by different agency staff to ensure accuracy, as well as catch anything that might need addressing. At least one of the data reviewers was familiar with the basins and the fish runs typical for the basins.

Volunteers on Lake Washington Watershed stream sites located in Snohomish County turned in their data to Snohomish County, who then passed it along to King County at the end of the season to be integrated into the SQL server Salmon Watcher database.

Because of the limitations of usage of these data (Limitations of Volunteer Data, page 30) and despite quality control measures, the data are intended to be used only to make preliminary evaluations of the distribution of spawning salmonids in the Lake Washington Watershed and Vashon streams.

Results and Discussion

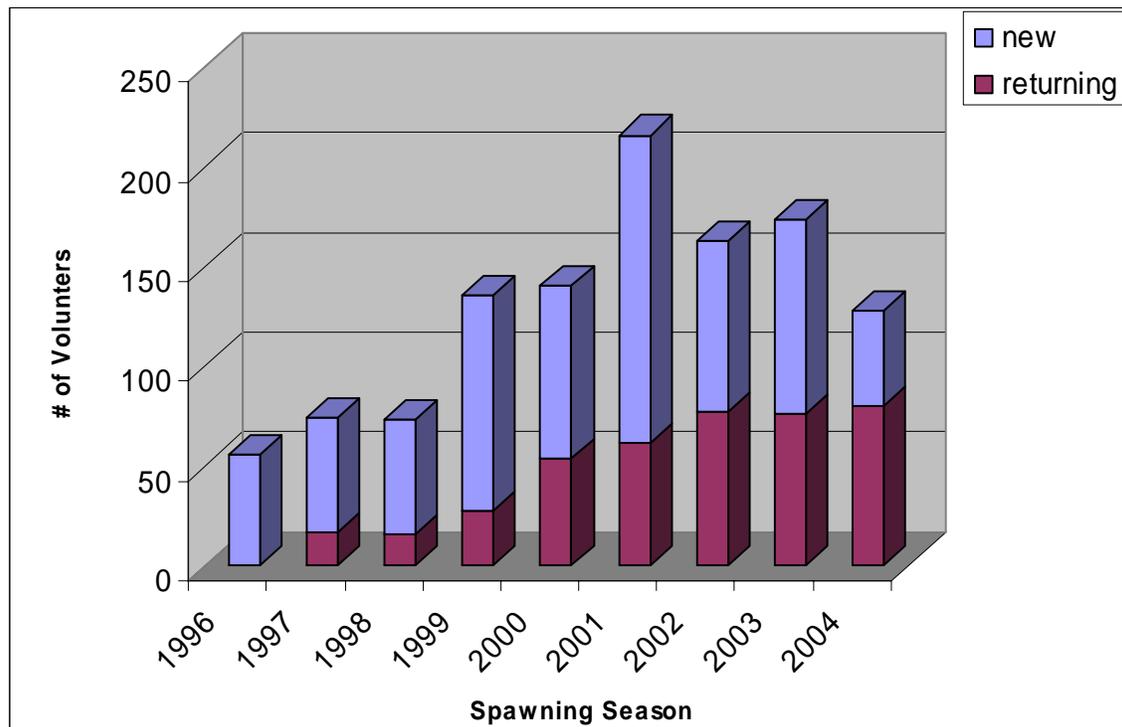
In 2004, a total of 144 sites on 57 streams were surveyed by 138 volunteers (Table 3).

Table 3. Numbers of streams, sites, and volunteers involved in the 2004 spawning season.

Area	# streams	# sites	# volunteers
Lake Washington Watershed	47	122	116
Other WRIA 8 Streams	3	6	6
Vashon Island	3	6	6
Other	4	10	10
Total	57	144	138

In 2004, 80 out of 128 volunteers (63 percent) in the Salmon Watcher program were returnees (Figure 3). The number of returnees is noteworthy because the number of returning volunteers has remained basically consistent for four years in a row, despite varying numbers of new recruits. Of the 80 returnees, 2 pairs of volunteers have surveyed every year of the program. Additionally, 7 out of 10 volunteers at sites outside the funded program areas were returnees.

Figure 3. Number of new and returning volunteers for each year of the Salmon Watcher Program².



² Note that volunteers in 2001 were from a larger geographic area. For further discussion, please see "Volunteer Activity" on page 29.

Basin Summary

In the 2004 spawning season, chinook were reported in the greatest numbers (246) in the Sammamish River, which is in the North Lake Washington Tributaries. They were reported in the second highest numbers (114) in Issaquah Creek (they were reported in the highest numbers in Issaquah Creek in 2001, 2002, and 2003). Fewer observations were made in the Issaquah Creek Basin in 2004 than in the previous three years (36-48 percent fewer). However, considerably fewer chinook were reported than in those previous 3 years (55-75 percent fewer). Chinook counts in the Sammamish River were higher than they've ever been for the Salmon Watcher Program, despite the second lowest number of observations since chinook have been reported by volunteers in 1998. The basin with the second highest chinook counts was East Lake Washington, whose West Trib. Kelsey Creek was the stream with the third highest chinook count (98).

Kokanee were seen in the highest and second highest numbers in Lewis Creek (113) and in Vasa Creek (79), both of which are in the West Lake Sammamish Basin. Other streams that had more than between 1 and 12 kokanee reported included Little Bear Creek (43) and May Creek (26). Coho were observed in the highest numbers in the Issaquah Basin and specifically in Issaquah Creek (146). Coho were seen in the second and third highest numbers in North Creek (72) and Bear Creek (67). As has been the case in every year of the Salmon Watcher Program, again in 2004 sockeye were observed in the greatest numbers in the Cedar River Basin, and that basin, as a consequence, had the most fish observed in the program area. No adult spawners were observed in 23 of 53 streams surveyed within the program area, including Juanita, South Fork Thornton Creek, Shinglemill Creek, Swamp Creek, or Valley Creek.

Table 4. Species enumeration within surveyed basins during the 2004 Salmon Watcher season.

Basin	Chinook	Chum	Coho	Kokanee	Sockeye	Trout	Unid.	Basin Total
Big Bear Creek	43		69	13	278		18	421
Cedar River	8		26		5298	3	15	5350
East Lake Washington	153		8	26	621	36	54	898
West Lake Sammamish			2	192			5	199
East Lake Sammamish					1			1
Issaquah Creek	126		160	2	554		98	940
North Lake Washington Tribs.	247		35	3	165	5	30	485
Samm. River Tribs.	2		76	47	605	21	33	784
Vashon Island		130	23					153
Central Puget Sound - WRIA 8	1	20	17				3	41
Other Central Puget Sound*		64	23				34	121
Snoqualmie River*			38					38
Species Total	580	214	477	283	7522	65	290	9431

*Indicates basins outside Program area.

Detailed results for each basin in the program are presented below in basin groupings. Data include stream name and state stream numbers as assigned by Williams et al. (1975), corresponding stream sites (with Site ID and river mile), dates of surveys, number of surveys, number of surveyors, and number of each species observed. The unique Site ID numbers that correspond with each survey site are used to distinguish the sites. A site, with its unique ID number, will always have the same data associated with it, regardless of refined river mile (RM) designations. River mile designations are generally derived from

Williams et al. (1975) combined with measurements made in GIS. Additionally, a designated site may vary a few feet from year to year: (1) if a volunteer watches on the upstream side of a bridge versus the downstream side, (2) if a new volunteer happens to watch a few yards from where a previous watcher observed, or (3) if a volunteer moves a few feet to observe in an area of better spawning habitat or visibility.

Maps are presented for each basin in the program area and depict observations of sockeye, coho, chinook, kokanee, and chum identified during the survey. The streams surveyed in the Lake Washington Watershed were grouped into the following basins: Big Bear Creek, Cedar River, East Lake Washington, West Lake Sammamish, East Lake Sammamish, Issaquah Creek, and North Lake Washington (split into North Lake Washington tributaries and Sammamish River tributaries). Salmonids were observed in all basins surveyed in 2004. Trout and unidentified species were not mapped.

Big Bear Creek Basin

Volunteers surveyed 18 sites in 7 streams in the Big Bear Creek Basin in 2004 (Figure 2). From 1 to 9 sites were watched per stream, and the total number of surveys ranged from 2 to 52 per site (Table 5). Each site was monitored by 1 to 2 volunteers, except site 136 on Bear Creek had 3 volunteers.

Table 5. Stream number, site ID, site location (listed in river miles, RM), survey dates, total number of surveys, number of volunteers³, and years the sites were watched for each stream surveyed in the Big Bear Creek Basin for the 2004 spawning season.

Stream	Stream #	Site ID	RM	Survey Dates	# Surveys	# Vols.	Years Watched
Big Bear Creek	080105	453	0.9	9/2 - 11/30	11	1	2001, 2002, 2003, 2004
		65	2.7	9/3 - 12/27	48	2	1997, 1998, 1999, 2000, 2002, 2003, 2004
		290	3.2	9/26 - 10/26	6	1	1997, 2000, 2002, 2003, 2004
		101	4.9	9/8 - 12/13	45	2	1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004
		89	6	9/4 - 12/5	35	1	1998, 1999, 2000, 2001, 2002, 2003, 2004
		396	6.8	9/20 - 12/30	27	1	2001, 2002, 2003, 2004
		136	7.4	9/6 - 12/20	46	3	1998, 1999, 2000, 2001, 2002, 2003, 2004
		513	7.8	9/15 - 12/15	15	1	2002, 2004
		503	7.85	9/15 - 12/30	25	1	2002, 2004
Trib. to Bear		90	0.2	11/6 - 12/5	10	1	1998, 1999, 2000, 2001, 2002, 2003, 2004
Cold Creek		465	0.8	9/22 - 10/30	6	1	2001, 2002, 2003, 2004
Cottage Lake Cr.	080122	102	0.6	9/18 - 10/30	13	1	1997, 1998, 2001, 2002, 2003, 2004
		105	1.3	10/2 - 12/21	27	1	1998, 1999, 2000, 2001, 2002, 2003, 2004
		50	2.2	9/17 - 12/30	52	2	1997, 1999, 2000, 2001, 2002, 2003, 2004
		103	2.3	9/17 - 9/29	2	1	1998, 2001, 2002, 2004
Trib. to Cottage Lake Cr.		168	0.14	9/15 - 12/22	20	1	1999, 2000, 2002, 2004
Rutherford Creek	080110	462	0.45	10/10 - 12/30	18	1	2003, 2004
Struve Creek	080131	583	1.3	10/23 - 12/11	16	1	2004

Salmonids were found in two of the seven streams observed in Big Bear Creek Basin (Table 6). Chinook, coho, kokanee, and sockeye were all seen in Bear Creek and its primary tributary, Cottage Lake Creek. The most numerous salmonid species observed by volunteers was sockeye, which was found in Big Bear Creek in the greatest quantity. Struve Creek was watched at a new site higher than in previous seasons, but no fish were seen at that location. Adult spawners were also not observed in Cold Creek or Rutherford Creek or in one each unnamed tributary to Bear Creek and Cottage Lake Creek.

³ “Volunteer,” when used in this context, is defined as an individual, pair, or group of people who observed a stream site for adult spawning salmonids at a given time on a given date.

Table 6. Site ID, RM, and fish counts (live and dead) with dates seen at each stream surveyed in the Big Bear Creek Basin for the 2004 spawning season.

Stream	Site ID	RM	Chinook	Coho	Kokanee	Sockeye	Unid.
Big Bear Creek	453	0.9	-	2 (10/7 - 11/8)	10 (10/2 - 11/11)	34 (10/2 - 11/11)	2 (10/2 - 10/7)
	65	2.7	13 (9/12 - 10/29)	-	-	23 (10/3 - 10/21)	5 (9/17 - 10/30)
	290	3.2	-	-	-	8 (9/26 - 10/12)	-
	101	4.9	5 (10/9 - 12/13)	20 (10/8 - 11/24)	2 (9/20 - 10/9)	103 (9/20 - 10/29)	1 (11/17)
	89	6	-	2 (10/31 - 10/31)	-	99 (10/1 - 10/31)	-
	396	6.8	-	21 (10/17 - 12/1)	-	-	-
	136	7.4	-	5 (10/18 - 10/27)	-	1 (10/19)	-
	513	7.8	-	9 (10/25 - 11/8)	-	-	3 (10/24 - 12/8)
	503	7.85	-	8 (10/24 - 12/8)	-	-	-
Trib. to Bear	90	0.2	-	-	-	-	-
Cold Creek	465	0.8	-	-	-	-	-
Cottage Lake Cr.	102	0.6	5 (9/20 - 10/4)	-	-	7 (9/18 - 10/9)	-
	105	1.3	7 (10/9 - 10/14)	-	1 (10/2)	3 (10/9 - 10/10)	6 (10/2 - 11/25)
	50	2.2	13 (9/27 - 10/13)	2 (11/8 - 11/8)	-	-	1 (10/23)
	103	2.3	-	-	-	-	-
Trib. to Cottage Lake Cr.	168	0.14	-	-	-	-	-
Rutherford Creek	462	0.45	-	-	-	-	-
Struve Creek	583	1.3	-	-	-	-	-

Salmon Watcher volunteers viewed Bear Creek as far as RM 7.85, which is a private residence at NE 162nd St. Chinook, coho, sockeye, and kokanee were observed at every site watched on Bear Creek. Only coho were observed at the highest site observed in 2004, at RM 7.85. Chinook and kokanee were seen only as far as RM 4.9 at the Classic Nursery site on Avondale Rd. One sockeye was seen as far up as RM 7.4 at the Tolt pipeline trail crossing near NE 148th.

Salmon Watcher volunteers viewed Cottage Lake Creek as far as RM 2.3, but no fish were observed at that location. Chinook, coho, sockeye, and kokanee were observed at every site watched on Cottage Lake Creek. Chinook and coho were observed as far upstream as RM 2.2, at the Tolt Pipeline. Kokanee and sockeye were both observed as far upstream as RM 1.3, near 194th Ave. NE and Bear Creek Rd.

The observations of sockeye, coho, chinook, and kokanee in the Big Bear Creek Basin determined from volunteer surveys in are shown in Figure 4.

Figure 4. Observations of salmonids in the Big Bear Creek Basin (see insert).

Cedar River Basin

Volunteers surveyed 15 sites in 5 streams in the Cedar River Basin in 2004 (Figure 2). From 1 to 6 sites were watched per stream, and the total number of surveys ranged from 8 to 110 per site (Table 7). Each site was monitored by either 1 or 2 volunteers.

Table 7. Stream number, site ID, site location (listed in river miles, RM), survey dates, total number of surveys, number of volunteers, and years the sites were watched for each stream surveyed in the Cedar River Basin for the 2004 spawning season.

Stream	Stream #	Site ID	RM	Survey Dates	# Surveys	# Vols.	Years Watched
Cedar River (Cavanaugh Pond)	080299	200	1.2	9/4 - 12/27	29	1	1999, 2004
		202	1.5	9/14 - 10/29	8	1	1999, 2001, 2004
		203	1.6	10/4 - 12/30	13	1	2000, 2001, 2004
		139	6.4	11/9 - 2/4	42	1	1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004
Rock Creek	080338	410	0.2	10/1 - 12/19	80	1	2001, 2002, 2003, 2004
		154	0.4	9/5 - 12/19	95	2	1999, 2000, 2001, 2002, 2003, 2004
		49	1.3	10/1 - 12/19	80	1	1998, 1999, 2000, 2001, 2002, 2003, 2004
Taylor Creek	080320	588	0.37	10/1 - 12/27	110	2	2004
		596	0.5	9/21 - 12/9	29	1	2004
		129	1.2	10/1 - 12/19	80	1	1998, 1999, 2000, 2001, 2002, 2003, 2004
		71	1.8	9/14 - 12/27	108	2	1998, 1999, 2000, 2001, 2002, 2003, 2004
		126	2.4	9/14 - 12/27	108	2	1998, 2001, 2002, 2003, 2004
Trib. 0321	080321	592	0.15	9/21 - 12/9	21	1	2004
		402	0.8	10/7 - 12/7	15	1	2003, 2004
Trib. to Trib. 0236		404	0.3	9/14 - 12/27	28	1	2004

Salmonids were observed in four of the five streams surveyed in the Cedar River Basin. Chinook were observed in the Cedar River and Taylor Creek (Table 8). Coho were observed only Rock Creek and Taylor Creek in 2004. Sockeye were found in the Cedar River, Rock Creek, Taylor Creek, and one tributary to Taylor Creek. No adult spawners were observed in one small tributary in the Taylor Creek subbasin that was one of only two streams in the program watched for the first time in 2004.

Table 8. Site ID, RM, and fish counts (live and dead) with dates seen at each stream surveyed in the Cedar River Basin for the 2004 spawning season.

Stream	Site ID	RM	Chinook	Coho	Sockeye	Unidentified
Cedar River (Cavanaugh Pond)	200	1.2	1 (10/3)	-	1129 (9/23 - 12/5)	2 (10/10 - 11/21)
	202	1.5	-	-	222 (9/14 - 10/29)	-
	203	1.6	-	-	894 (10/4 - 12/13)	-
	139	6.4	-	-	1931 (11/18 - 1/29/05)	-
Rock Creek	410	0.2	-	-	11 (10/2 - 11/14)	-
	154	0.4	-	7 (12/5 - 12/12)	90 (10/24 - 12/19)	1 (12/12)
	49	1.3	-	-	-	-
Taylor Creek	588	0.37	6 (10/11 - 11/3)	11 (10/16 - 11/27)	651 (10/4 - 12/5)	3 (10/15 - 11/18)
	596*	0.5	-	-	255 (10/6 - 12/9)	6 (10/3 - 11/29)
	129	1.2	-	-	43 (10/10 - 12/2)	-
	71	1.8	1 (9/22)	8 (11/9 - 11/23)	38 (9/22 - 12/3)	-
	126	2.4	-	-	2 (11/21)	1 (11/29)
Trib. 0321	592	0.15	-	-	32 (10/6 - 12/1)	2 (11/14 - 11/14)
	402	0.8	-	-	-	-
Trib. to Trib. 0236	404	0.3	-	-	-	-

*Trout were also reported at this site.

Salmon Watcher volunteers viewed the Cedar River as far upstream as RM 6.4, which is the location of Cavanaugh Pond. Sockeye were seen at every site surveyed in the Cedar River. Only one chinook was observed in the Cedar River, at RM 1.2, which is the location of the Williams St. bridge.

Chinook were observed in Taylor Creek, whose mouth is located on the Cedar at approximately RM 13.2, which is further upstream by several miles above the highest site watched on the mainstem Cedar. Coho were not reported at all in the Cedar River. But coho and sockeye both were also observed in Taylor Creek and they were observed in Rock Creek, whose mouth also enters the Cedar River much further upstream than the uppermost site watched on the Cedar in 2004 (Rock Creek enters the Cedar at approximately RM 18.2).

Sockeye were seen in a tributary. Sockeye, as well as unidentified fish, were seen at site 592, which is located at RM 0.15 at a private residence east of Maxwell Road. This tributary to Taylor Creek had not been previously surveyed by volunteers, and so these observations extend the distribution of sockeye in the Taylor Creek system as reported by Salmon Watchers.

The observations of sockeye, chinook, and coho in the Cedar River Basin determined from volunteer surveys are shown in Figure 5.

Figure 5. Observations of salmonids in the Cedar River Basin (see insert).

East Lake Washington Basin

Volunteers surveyed 33 sites in 11 streams and at two beach sites in the East Lake Washington Basin in 2004 (Figure 2). From 1 to 7 sites were watched per stream, and the total number of surveys ranged from 6 to 55 per site (Table 9). Each site was monitored by 1 to 3 volunteers.

Table 9. Stream number, site ID, site location (listed in river miles, RM), survey dates, total number of surveys, number of volunteers, and years the sites were watched for each stream surveyed in the East Lake Washington Basin for the 2004 spawning season.

Stream	Stream #	Site ID	RM	Survey Dates	# Surveys	# Vols.	Years Watched
Coal Creek	080268	440	0.1	9/15 - 12/10	17	1	2001, 2002, 2003, 2004
		444	0.2	10/31 - 11/6	2	1	2001, 2002, 2003, 2004
		439	0.6	9/6 - 12/22	46	2	2001, 2002, 2003, 2004
		46	0.8	9/25 - 12/12	19	1	1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004
		441	2	9/16 - 12/15	45	3	2001, 2002, 2003, 2004
		442	2.1	10/3 - 12/31	18	1	2001, 2002, 2003, 2004
Trib. to Coal	080273	212	0.1	9/17 - 11/30	29	2	1999, 2002, 2003, 2004
Goff Creek	080264	447	0.1	9/18 - 10/24	7	1	2003, 2004
Kelsey Creek	080259	13	2	9/15 - 11/24	13	2	1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004
		124	2.4	9/3 - 12/30	50	3	1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004
		120	3	10/1 - 11/24	9	1	1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004
		115	3.5	9/15 - 10/8	11	1	1998, 2004
		216	4.5	10/8 - 12/10	18	1	1999, 2001, 2002, 2004
		586	4.9	9/9 - 11/29	23	1	2004
		121	5.3	9/30 - 12/8	17	1	1998, 2001, 2002, 2004
Lake WA Beaches	080028	76	30.5	9/5 - 12/28	33	1	1997, 1998, 2003, 2004
		77	30.8	9/5 - 12/28	55	2	1997, 1998, 2003, 2004
May Creek	080282	208	0.2	9/15 - 12/31	45	2	2001, 2002, 2003, 2004
		432	0.5	9/15 - 12/31	25	1	2000, 2004
		20	5.3	9/22 - 11/26	14	1	1997, 2004
Mercer Slough	080259	445	1.6	9/4 - 12/28	49	3	2001, 2003, 2004
Richards Creek	080261	27	0.7	9/4 - 12/30	46	2	1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004
		80	1.6	10/9 - 10/27	6	1	1998, 2002, 2003, 2004
Sears Creek		48	0	9/19 - 11/28	15	1	2002, 2003, 2004
Sturtevant Creek	080260	117	0.25	9/14 - 11/28	21	1	1997, 1998, 1999, 2001, 2002, 2003, 2004
Valley Creek	080266	122	0.1	9/25 - 12/8	21	2	1997, 1998, 1999, 2000, 2001, 2003, 2004
		220	0.6	9/25 - 12/8	13	1	1999, 2000, 2002, 2003, 2004
		221	0.7	10/10 - 12/26	18	1	1999, 2000, 2001, 2002, 2003, 2004
West Trib. Kelsey Cr.	080264	116	0.25	9/3 - 12/20	34	2	1998, 1999, 2001, 2002, 2003, 2004
		602	0.55	9/15 - 10/6	11	1	2004
		325	0.7	9/12 - 12/30	48	1	1997, 2001, 2002, 2003, 2004
		506	0.9	10/6 - 12/31	22	1	2002, 2003, 2004
		73	1.1	9/19 - 11/28	17	1	1998, 2000, 2004

Salmonids were found in 7 of the 11 streams and one of the beach sites surveyed in 2004 (Table 10). Chinook were observed in Coal Creek, Goff Creek, May Creek, Mercer Slough, Kelsey Creek, West Trib. Kelsey Creek, and Richards Creek. Kokanee were observed in May Creek. Sockeye were seen in May Creek, Mercer Slough, Kelsey Creek, and West Trib. Kelsey Creek as well as at one Lake Washington beach site. Coho were

seen in Coal Creek, Mercer Slough, and Kelsey Creek. No adult spawners were observed in Sears Creek, Sturtevant Creek, or Valley Creek, or at a tributary to Coal Creek.

Table 10. Site ID, RM, and fish counts (live and dead) with dates seen at each stream surveyed in the East Lake Washington Basin for the 2004 spawning season.

Stream	Site ID	RM	Chinook	Coho	Sockeye	Kokanee	Unid.
Coal Creek	440	0.1	-	-	-	-	-
	444	0.2	-	-	-	-	3 (10/31)
	439	0.6	6 (10/7 - 11/29)	-	-	-	2 (11/18)
	46	0.8	-	-	-	-	-
	441	2	-	-	-	-	-
	442	2.1	-	3 (10/23 - 12/5)	-	-	1 (11/14)
Trib. to Coal	212	0.1	-	-	-	-	-
Goff Creek	447	0.1	14 (9/18 - 10/11)	-	-	-	1 (9/18)
Kelsey Creek	13	2	8 (10/1 - 10/22)	-	30 (10/15 - 11/10)	-	1 (10/22)
	124*	2.4	11 (9/29 - 10/18)	1 (10/16)	5 (11/6 - 11/12)	-	7 (9/17 - 11/4)
	120	3	-	-	-	-	-
	115	3.5	-	-	-	-	-
	216	4.5	-	-	-	-	-
	586	4.9	-	-	-	-	-
	121	5.3	-	-	-	-	-
Lake Washington Beaches	76	30.5	-	-	2 (11/16)	-	1 (10/26)
	77	30.8	-	-	-	-	-
May Creek	208	0.2	6 (10/1 - 10/27)	-	450 (10/1 - 12/3)	22 (10/4 - 12/3)	21 (10/1 - 12/1)
	432	0.5	-	1 (11/8)	128 (10/1 - 11/29)	4 (10/4 - 11/17)	10 (10/1 - 11/17)
	20	5.3	-	-	-	-	-
Mercer Slough	445	1.6	5 (9/13 - 9/30)	3 (11/17)	5 (9/21 - 10/14)	-	-
Richards Creek	27*	0.7	-	-	-	-	-
	80	1.6	5 (10/18 - 10/19)	-	-	-	-
Sears Creek	48	0	-	-	-	-	-
Sturtevant Creek	117	0.25	-	-	-	-	-
Valley Creek	122	0.1	-	-	-	-	-
	220	0.6	-	-	-	-	-
	221	0.7	-	-	-	-	-
West Trib. Kelsey Cr.	116	0.25	9 (9/14 - 10/24)	-	1 (11/17)	-	1 (11/17)
	602	0.55	9 (9/16 - 9/24)	-	-	-	-
	325	0.7	62 (9/12 - 10/24)	-	-	-	-
	506	0.9	16 (10/7 - 10/24)	-	-	-	-
	73	1.1	2 (10/14 - 10/20)	-	-	-	6 (9/27 - 11/5)

*Trout were also reported at this site.

Chinook were observed at one location in Coal Creek (RM 0.6, Newport Shores), one location in May Creek (RM 0.2, the Lake Washington Blvd. bridge), one location in Richards Creek (RM 1.6, SE 30th St.), and one location in Goff Creek (Bel-Red Rd. near 132nd Ave. NE). As in 2002 and 2003, the upstream-most sightings of chinook in Kelsey Creek were at RM 2.4 (at the junction with Richards Creek). Chinook were seen at all sites watched in West Trib. Kelsey Creek, including the upstream-most site at RM 1.1 (NE 8th). Chinook were seen for the first time by volunteers at the only site watched in Goff Creek, at RM 0.1.

Kokanee were reported in one stream in East Lake Washington in 2004. However, the report of kokanee in May Creek went unverified. May Creek was surveyed by King County biologists weekly and no kokanee

were observed. Further, all reports of kokanee were accompanying reports of sockeye. It is presumed the reports of kokanee were actually also sockeye.

Sockeye were seen in Kelsey Creek (including Mercer Slough), May Creek, and West Trib. Kelsey Creek, but none at the upstream-most site watched. Two sockeye were reported at one Lake Washington beach site that had never had sockeye reported at previously. However, the distribution of sockeye in the Lake Washington was not expanded based on 2004 observations by volunteers.

As in 2003, coho were observed up to RM 2.1 in Coal Creek, the upstream-most site watched. Coho were seen at only one site in Kelsey Creek (at the junction with Richards Creek, which is as far upstream as they were observed in 2003 as well). Coho were observed at only one site in May Creek, RM 0.5 (near 40th and Jones Rd.).

The observations of sockeye, chinook, and coho in the East Lake Washington Basin determined from volunteer surveys are shown in Figure 6.

Figure 6. Observations of salmonids in the East Lake Washington Basin (see insert).

West Lake Sammamish Basin

Volunteers surveyed 9 sites on 5 streams in the West Lake Sammamish Basin in 2004 (Table 11). From 1 to 3 sites were watched per stream, and the total number of surveys ranged from 8 to 87 per stream. Each site was monitored by 1 to 4 volunteers. Three of the sites that were watched in West Lake Sammamish were newly established for the 2004 season and had not been watched previously. A tributary to Vasa Creek was one of only two streams in the Salmon Watcher Program watched for the first time in 2004.

Table 11. Stream number, site ID, site location (listed in river miles, RM), survey dates, total number of surveys, number of volunteers, and years the sites were watched for each stream surveyed in the West Lake Sammamish Basin for the 2004 spawning season.

Stream	Stream #	Site ID	RM	Survey Dates	# Surveys	# Vols.	Years Watched
Idylwood Cr.	080143	423	0.1	9/12 - 12/31	42	2	2000, 2001, 2002, 2003, 2004
Lewis Creek	080162	327	0.05	10/9 - 12/31	39	2	1997, 2001, 2002, 2003, 2004
		598	0.37	10/3 - 12/31	37	1	2004
		283	0.5	10/3 - 1/15/2005	87	4	1999, 2001, 2002, 2003, 2004
Sunrise Cr.	080161	365	0.2	10/15 - 11/30	8	1	2001, 2003, 2004
Vasa Creek	080156	323	0	09/19 - 12/31	48	3	1997, 2001, 2002, 2003, 2004
		597	0.06	09/24 - 11/27	10	1	2004
		39	0.5	09/03 - 12/31	63	3	1999, 2000, 2001, 2002, 2003, 2004
Trib to Vasa		601	0.3	11/13 - 11/27	4	1	2004

Salmonids were found in 2 of the 5 streams surveyed, Lewis Creek and Vasa Creek (Table 12). No fish were observed in Idylwood Creek, Sunrise Creek, or the tributary to Vasa Creek that was observed.

Coho were observed at only the upstream-most site watched in Lewis Creek, at RM 0.5 (West Lake Sammamish Pkwy.). Kokanee were reported at all sites watched in Lewis Creek, including the uppermost site at RM 0.5. In Vasa Creek, kokanee were observed only at the mouth of the creek.

Table 12. Site ID, RM, and fish counts (live and dead) with dates seen at each stream surveyed in the West Lake Sammamish Basin for the 2004 spawning season.

Stream	Site ID	RM	Coho	Kokanee	Unidentified
Idylwood Cr.	423	0.1	-	-	-
Lewis Creek	327	0.05	-	12 (11/16 - 12/21)	-
	598	0.37	-	69 (11/7 - 12/20)	5 (11/24 - 11/28)
	283	0.5	2 (11/24 - 11/26)	32 (11/16 - 12/13)	-
Sunrise Cr.	365	0.2	-	-	-
Vasa Creek	323	0	-	79 (11/3 - 12/5)	-
	597	0.06	-	-	-
	39	0.5	-	-	-
Trib to Vasa	601	0.3	-	-	-

The observations of kokanee and coho in the West Lake Sammamish Basin determined from volunteer surveys are shown above in Figure 6, "Observations of Salmonids in the East Lake Washington Basin."

East Lake Sammamish Basin

Volunteers surveyed only one site on one stream in the West Lake Sammamish Basin (Table 13). One volunteer surveyed one site at the mouth of Laughing Jacobs Creek. Six surveys were conducted over a one and a half month period.

Table 13. Stream number, site ID, site location (listed in river miles, RM), survey dates, total number of surveys, number of volunteers, and years the sites were watched for each stream surveyed in the East Lake Sammamish Basin for the 2004 spawning season.

Stream	Stream #	Site ID	RM	Survey Dates	# Surveys	# Vols.	Years Watched
Laughing Jacobs Cr.	080166	406	0	10/21 - 12/05	6	1	2000, 2004

One sockeye was reported in Laughing Jacobs Creek, the only stream surveyed in the East Lake Sammamish basin (Table 14). Sockeye had not previously been seen in Laughing Jacobs Creek by volunteers; the location of this observation was the mouth of the creek.

Table 14. Site ID, RM, and fish counts (live and dead) with dates seen at each stream surveyed in the East Lake Sammamish Basin for the 2004 spawning season.

Stream	Site ID	RM	Kokanee	Sockeye	Unidentified
Laughing Jacobs Cr.	406	0	-	1 (11/26)	-

The observation of sockeye in the East Lake Sammamish Basin determined from volunteer surveys is shown below in Figure 7, "Observations of Salmonids in the Issaquah Creek Basin."

Issaquah Creek Basin

Volunteers surveyed 13 sites in 5 streams in the Issaquah Creek Basin in 2003 (Figure 2). From 1 to 10 sites were watched per stream, and the total number of surveys ranged from 5 to 51 per site (Table 15). Each site was monitored by 1 or 2 volunteers.

Table 15. Stream number, site ID, site location (listed in river miles, RM), survey dates, total number of surveys, number of volunteers, and years the sites were watched for each stream surveyed in the Issaquah Creek Basin for the 2004 spawning season.

Stream	Stream #	Site ID	RM	Survey Dates	# Surveys	# Vols.	Years Watched
East Fork Issaquah Cr.	080183	82	0.1	10/19 - 12/20	6	1	1997, 1998, 1999, 2003, 2004
		603	0.15	09/08 - 10/11	11	1	2004
Issaquah Creek	080178	397	2.3	09/23 - 12/20	15	1	2001, 2002, 2003, 2004
		457	2.4	09/17 - 11/17	12	1	2001, 2002, 2003, 2004
		59	3.3	09/14 - 11/29	14	1	1997, 1998, 2000, 2001, 2002, 2003, 2004
		83	4.5	10/26 - 12/05	5	1	1998, 1999, 2001, 2002, 2003, 2004
		52	5.8	09/15 - 12/28	33	1	1998, 1999, 2000, 2003, 2004
Tibbetts Creek	080169	108	0.3	09/28 - 12/05	8	1	1998, 1999, 2000, 2004
		455	1.4	09/28 - 12/05	8	1	2001, 2002, 2004
		376	2.4	09/28 - 12/05	7	1	2004

Salmonids were reported in all of the three streams observed: East Fork Issaquah, Issaquah, and Tibbetts creeks (Table 16). Chinook, coho, sockeye, and kokanee were all seen in Issaquah Creek. Chinook, coho, and sockeye were observed in East Fork Issaquah Creek. And sockeye was the only species reported in Tibbetts Creek.

Table 16. Site ID, RM, and fish counts (live and dead) with dates seen at each stream surveyed in the Issaquah Creek Basin for the 2004 spawning season.

Stream	Site ID	RM	Chinook	Coho	Kokanee	Sockeye	Unid.
East Fork Issaquah Cr.	82	0.1	1 (10/19)	-	-	37 (10/19 - 11/3)	8 (10/19 - 11/3)
	603	0.15	11 (10/1 - 10/11)	14 (9/19 - 10/8)	-	83 (10/6 - 10/11)	1 (10/9)
Issaquah Creek	397	2.3	6 (9/28 - 10/5)	72 (9/23 - 11/21)	-	156 (9/23 - 11/21)	-
	457	2.4	70 (9/17 - 10/29)	23 (10/1 - 11/17)	1 (10/1)	215 (9/26 - 11/17)	30 (10/1 - 11/17)
	59	3.3	29 (9/14 - 10/20)	17 (11/11 - 11/29)	-	37 (10/9 - 11/19)	22 (9/25 - 11/29)
	83	4.5	-	1 (11/5 - 11/5)	-	22 (10/26 - 11/5)	17 (11/5 - 11/26)
	52	5.8	9 (10/7 - 11/26)	33 (10/12 - 12/2)	1 (10/23)	-	13 (10/7 - 11/16)
Tibbetts Creek	108	0.3	-	-	-	4 (11/5 - 11/26)	-
	455	1.4	-	-	-	-	6 (11/10 - 12/5)
	376	2.4	-	-	-	-	1 (11/26)

Coho were observed at all sites watched in Issaquah Creek, including the uppermost site at RM 5.8 (SE 113th St. bridge). Sockeye were observed at every site in Issaquah Creek except the upstream-most site.

Kokanee were observed at two sites within Issaquah Creek, including the upstream-most site. Chinook were observed in both Issaquah Creek and East Fork Issaquah Creek, including the upstream-most sites in both streams.

Different sites on Tibbetts Creek have been watched in 1998, 1999, 2000, 2001, 2002, and in 2004. Until 2004, the only salmonid reported was a single sockeye in 2000 at RM 0.3. The lack of previously reported salmonids in Tibbetts Creek despite several years of volunteer observations makes the results of 2004's surveys especially noteworthy. Salmon were observed at all three sites watched in Tibbetts Creek in 2004. Sockeye were reported at the same location they were seen in 2000. Unidentified salmonids were reported in the two upstream-most sites watched in Tibbetts Creek. Although the species of these fish went unidentified, these sightings mark the furthest upstream sites in Tibbetts Creek that salmonids have been reported by Salmon Watchers. The 6 salmonids reported at RM 1.4 had their adipose fins clipped, and after talking with the volunteer who reported them, it is likely the fish were coho. It would be worthwhile to have volunteers on those Tibbetts Creek sites in the 2005 season to try to make positive identifications of any fish sighted.

The distributions of chinook, coho, and sockeye in the Issaquah Creek Basin determined from volunteer observations are shown in Figure 7.

Figure 7. Observations of salmonids in the Issaquah Creek Basin (see insert).

North Lake Washington Tributaries

The North Lake Washington Tributaries are those streams flowing into the north end of Lake Washington (e.g., Denny, McAleer, and Thornton creeks, the Sammamish River). Volunteers surveyed 20 sites in 10 streams in 2004 (Figure 2). From 1 to 6 sites were watched per stream, and the total number of surveys ranged from 4 to 40 per site (Table 17). Each site was monitored by 1 or 2 volunteers.

Table 17. Stream number, site ID, site location (listed in river miles, RM), survey dates, total number of surveys, number of volunteers, and years the sites were watched for each stream surveyed in the North Lake Washington Tributaries for the 2004 spawning season.

Stream	Stream #	Site ID	RM	Survey Dates	# Surveys	# Vols.	Years Watched
Brookside Creek	080049	476	0.1	09/29 - 11/21	8	1	2001, 2002, 2003, 2004
Juanita Creek	080230	389	0	09/16 - 09/30	5	1	2000, 2001, 2004
		411	0.7	09/18 - 09/28	4	1	2000, 2004
Lyon Creek	080052	427	0	09/20 - 11/24	10	1	2000, 2003, 2004
S. Fk. Thornton Creek	080033	192	0.7	09/29 - 12/09	20	2	1999, 2000, 2001, 2002, 2003, 2004
		527	1.15	09/11 - 11/21	10	1	2002, 2003, 2004
McAleer Creek	080049	144	0.3	09/29 - 11/21	10	1	1997, 2001, 2002, 2003, 2004
		498	0.79	09/27 - 11/21	11	1	2001, 2002, 2003, 2004
		266	0.8	09/27 - 11/21	10	1	1999, 2000, 2001, 2002, 2003, 2004
		56	1.1	09/27 - 11/18	10	1	1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004
		314	1.6	09/27 - 11/18	10	1	1997, 2000, 2001, 2002, 2003, 2004
		315	2.1	09/27 - 11/18	10	1	1997, 2001, 2002, 2003, 2004
Peters Creek	080104	452	0.5	10/09 - 01/02/05	25	1	2002, 2003, 2004
Sammamish River	080087	66	5	08/29 - 11/29	22	1	1998, 2002, 2003, 2004
		271	12.5	09/09 - 12/31	40	1	1997, 1999, 2001, 2002, 2003, 2004
Trib 0141 to Samm. R.	080141	352	0.2	09/15 - 12/24	32	1	1999, 2000, 2001, 2004
Thornton Creek	080030	183	0.1	09/15 - 12/27	39	2	1997, 2000, 2001, 2002, 2003, 2004
		385*	1.2	09/24 - 12/24	20	1	2000, 2001, 2004
		528	2.8	09/24 - 12/31	29	1	2002, 2003, 2004
Willow Creek	080102	388	0.05	10/17 - 12/09	4	1	2003, 2004

Salmonids were found in 6 of the 10 streams surveyed in the North Lake Washington Tributaries (Table 18). Nearly all chinook were seen at one site in the Sammamish River. The only other sighting of chinook during 2004 volunteer surveys in this subbasin was one fish in South Fork Thornton Creek. Sockeye were observed in the Sammamish River, Lyon Creek, McAleer Creek, and Thornton Creek. Coho were observed in the Sammamish River and Peters and McAleer creeks. No salmonids were seen in Brookside, Juanita, South Fork Thornton, or Willow creeks, or Tributary 0141 to the Sammamish River.

Site 271 on the Sammamish River is located in Marymoor Park approximately 1 mile downstream of where the river begins at the north end of Lake Sammamish. Chinook, coho, sockeye, and kokanee were all reported at this location in 2004. In fact, this is the only location in the North Lake Washington Tributaries where kokanee were reported in 2004. As mentioned above, the only site other than this Sammamish River site where chinook were observed was one site in South Fork Thornton Creek.

A single chinook was observed in South Fork Thornton Creek (previously referred to as Maple Leaf Creek). This observation marks the first time chinook have been reported in that stream. It is also the highest chinook have ever been reported in this stream. According to King County maps (WRIA 8 2001⁴), chinook have never been reported this high upstream in this stream.

A single coho was reported at the only site watched in Peters Creek in 2004, at RM 0.5 (Willows Rd.). This observation of coho is higher upstream in Peters Creek than they have been previously reported by volunteers and thus extends the known distribution of coho as reported by Salmon Watcher volunteers.

A single sockeye was observed at the mouth of Lyon Creek, its only site watched in 2004. Two sockeye were observed at the downstream-most site watched in Thornton Creek, just a tenth of a mile up from the mouth. The two fish were both observed on the same day. Sockeye were seen in McAleer Creek as high as RM 0.79 (in Animal Acres Park), but the greatest numbers of sockeye reported in the North Lake Washington Tributaries was in the Sammamish River at RM 12.5.

Table 18. Site ID, RM, and fish counts (live and dead) with dates seen at each stream surveyed in the North Lake Washington Tributaries for the 2004 spawning season.

Stream	Site ID	RM	Chinook	Coho	Sockeye	Kokanee	Unid.
Brookside Creek	476	0.1	-	-	-	-	-
Juanita Creek	389	0	-	-	-	-	-
	411	0.7	-	-	-	-	-
Lyon Creek	427	0	-	-	1 (11/1)	-	-
S. Fk. Thornton Creek	192	0.7	-	-	-	-	-
	527	1.15	1 (10/25)	-	-	-	-
McAleer Creek	144	0.3	-	-	3 (11/1 - 11/2)	-	-
	498	0.79	-	7 (10/28 - 11/6)	16 (10/24 - 11/6)	-	-
	266	0.8	-	-	-	-	-
	56	1.1	-	-	-	-	-
	314	1.6	-	2 (11/8)	-	-	-
	315	2.1	-	-	-	-	-
Peters Creek	452	0.5	-	1 (11/25)	-	-	-
Sammamish River	66	5	-	-	-	-	-
	271	12.5	246 (9/9 - 11/22)	25 (9/9 - 11/30)	143 (9/11 - 11/3)	3 (11/17 - 11/22)	29 (9/9 - 12/31)
Trib 0141 to Samm. R.	352	0.2	-	-	-	-	-
Thornton Creek	183	0.1	-	-	2 (11/1)	-	1 (9/23)
	385*	1.2	-	-	-	-	-
	528	2.8	-	-	-	-	-
Willow Creek	388	0.05	-	-	-	-	-

*Trout were also reported at this site.

The distribution of chinook, coho, and sockeye in the North Lake Washington Tributaries determined from volunteer observations in 2003 are shown in Figure 8.

Figure 8. Observations of salmonids in the North Lake Washington Tributaries (see insert).

⁴ See <http://dnr.metrokc.gov/Wrias/8/fish-maps/distmap.htm>

Sammamish River Tributaries

The Sammamish River Tributaries are those streams flowing into the Sammamish River from waters originating in Snohomish County⁵ (Little Bear, North, and Swamp creeks; Big Bear Creek is discussed separately above). Volunteers surveyed 16 sites on 4 Sammamish River tributaries in 2004 (Figure 2). From 1 to 9 sites were watched per stream, and the total number of surveys ranged from 5 to 44 per site (Table 19). Each site was monitored by 1 or 2 volunteers, except for site 536, which was watched by 4 volunteers.

Table 19. Stream number, site ID, site location (listed in river miles, RM), survey dates, total number of surveys, number of volunteers, and years the sites were watched for each stream surveyed in the Sammamish River Tributaries for the 2004 spawning season.

Stream	Stream #	Site ID	RM	Survey Dates	# Surveys	# Vols.	Years Watched
Little Bear Creek	080080	67	0.2	09/16 - 12/09	38	2	1997, 1998, 1999, 2001, 2002, 2003, 2004
		311	0.4	09/08 - 09/25	5	1	1997, 2001, 2004
		176	1.3	09/15 - 12/16	34	2	1997, 2000, 2001, 2002, 2003, 2004
		14	1.9	09/16 - 11/26	16	1	1999, 2000, 2002, 2003, 2004
		231	3.2	09/19 - 11/18	6	1	1997, 1999, 2000, 2002, 2004
Little Swamp Creek	080060	505	0.24	09/12 - 10/31	13	1	2002, 2003, 2004
North Creek	080070	438	0.01	10/01 - 11/22	11	1	2000, 2003, 2004
		112	0.9	10 - 11/14	7	1	1998, 1999, 2000, 2001, 2002, 2003, 2004
		408	0.95	10 - 11/14	7	1	2000, 2001, 2002, 2003, 2004
		57	1.05	09/20 - 12/16	44	2	1998, 2001, 2004
		255	1.8	09/16 - 10/25	10	1	1999, 2000, 2001, 2002, 2003, 2004
		254	2.8	09/20 - 11/23	15	2	2004
		252	4.4	10/02 - 11/24	8	1	2001, 2004
		536	4.5	09/18 - 11/27	37	4	2003, 2004
342	6.45	10/10 - 11/30	10	1	1999, 2001, 2004		
Swamp Creek	080059	34	0.3	09/12 - 10/31	21	2	1997, 1999, 2000, 2002, 2003, 2004

Salmonids were found in 2 of the 4 streams surveyed (Table 20). Chinook, coho, sockeye, and kokanee were all observed in Little Bear Creek. Coho, sockeye, and kokanee were observed in North Creek. Trout and unidentified species were also reported in both of these streams. No fish were observed in Swamp Creek or Little Swamp Creek.

⁵ Data reported from sites located in Snohomish County may also be reported by the Snohomish County Salmon Watch program.

Table 20. Site ID, RM, and fish counts (live and dead) with dates seen at each stream surveyed in the Sammamish River Tributaries for the 2004 spawning season.

Stream	Site ID	RM	Chinook	Coho	Sockeye	Kokanee	Unidentified
Little Bear Creek	67	0.2	1 (10/3)	-	160 (9/26 - 11/7)	26 (9/23 - 11/26)	20 (9/30 - 10/28)
	311	0.4	1 (9/18)	-	2 (9/25)	1 (9/18)	-
	176*	1.3	-	1 (10/7)	43 (9/23 - 10/28)	16 (9/23 - 11/28)	5 (10/24 - 11/19)
	14	1.9	-	-	35 (10/1 - 10/22)	-	-
	231	3.2	-	3 (11/15)	-	-	-
Little Swamp Creek	505	0.24	-	-	-	-	-
North Creek	438	0.01	-	-	76 (10/1 - 11/11)	-	-
	112	0.9	-	-	1 (10/9)	-	-
	408*	0.95	-	-	37 (10/4 - 10/29)	2 (10/29)	-
	57*	1.05	-	24 (10/25 - 11/23)	192 (9/29 - 11/1)	2 (11/9 - 11/17)	2 (10/20 - 10/25)
	255	1.8	-	-	17 (10/2 - 10/25)	-	-
	254	2.8	-	1 (9/27)	29 (9/24 - 11/17)	-	4 (9/27 - 11/19)
	252	4.4	-	-	-	-	-
	536	4.5	-	-	1 (9/25)	-	1 (11/24)
	342*	6.45	-	47 (10/10 - 11/30)	12 (10/10 - 10/15)	-	1 (10/10)
Swamp Creek	34	0.3	-	-	-	-	-

*Trout were also reported at this site.

One chinook was observed in each of two sites in Little Bear Creek in 2004. The sites were the two most downstream-watched sites in that creek. As in 2002 and 2003, kokanee were observed in Little Bear and North creeks. Kokanee in Little Bear Creek were observed as upstream as RM 1.3 (SR 522 and NE 195th St.).

Sockeye were the most commonly seen species in the Sammamish River Tributaries. They were observed in Little Bear and North creeks. In North Creek, they were seen at the upstream-most site watched, at RM 6.45 (end of John Bailey Rd., off 183rd St.). In Little Bear Creek the highest upstream they were observed was RM 1.9 (NE 205th St.). Coho were seen at the most upstream site watched in Little Bear Creek as well as the upstream-most site in North Creek.

The distributions of chinook, coho, sockeye, and kokanee in the Sammamish River Tributaries determined from volunteer observations are shown in Figure 9.

Figure 9. Observations of salmonids in the Sammamish River Tributaries (see insert).

Vashon Island

Volunteers surveyed 6 sites in 3 streams on Vashon Island in 2004 (Figure 2). From 1 to 3 sites were watched per stream, and the total number of surveys ranged from 4 to 27 per site (Table 21). All sites were monitored by 1 volunteer each.

Table 21. Stream number, site ID, site location (listed in river miles, RM), survey dates, total number of surveys, number of volunteers, and years the sites were watched for each stream surveyed on Vashon Island for the 2004 spawning season.

Stream	Stream #	Site ID	RM	Survey Dates	# Surveys	# Vols.	Years Watched
Judd Creek	150129	490	0.9	11/19 - 01/02/05	27	1	2001, 2003, 2004
		491	1.4	10/19 - 11/29	13	1	2002, 2003, 2004
		493	1.8	12/03 - 01/28/05	12	1	2001, 2002, 2003, 2004
Judd Cr. Tributary		534	0	12/03 - 12/30	4	1	2002, 2003, 2004
Shinglemill Creek	150159	146	0	11/22 - 01/20/05	9	1	1998, 2001, 2002, 2003, 2004
		147	0.2	11/28 - 01/12/05	9	1	1998, 2001, 2002, 2003, 2004

Salmonids were found in one of the three streams surveyed (Table 22). Chum and coho were observed in Judd Creek. No fish were observed in Shinglemill Creek or in one tributary to Judd Creek that was observed.

Table 22. Site ID, RM, and fish counts (live and dead) with dates seen at each stream surveyed on Vashon Island for the 2004 spawning season.

Stream	Site ID	RM	Chum	Coho
Judd Creek	490	0.9	130 (11/19 - 12/24)	7 (12/1 - 12/5)
	491	1.4	-	15 (11/14 - 11/25)
	493	1.8	-	1 (12/10)
Judd Cr. Tributary	534	0	-	-
Shinglemill Creek	146	0	-	-
	147	0.2	-	-

Coho and chum were both observed in Judd Creek. Coho were observed at all three sites watched in Judd Creek, including the upstream-most site watched, site 493 at RM 1.8. Chum were observed only at the downstream-most site in Judd Creek almost a mile upstream from the mouth, at the corner of 107th and 216th.

The distributions of coho and chum on Vashon Island determined from volunteer observations are shown in Figure 10.

Figure 10. Observations of salmonids on Vashon Island (see insert).

Central Puget Sound

Streams draining to Puget Sound that were surveyed during the 2004 Salmon Watcher season are both inside and outside WRIA 9 (Table 23). Those streams within WRIA 8 include Boeing Creek, Pipers Creek, and Venema Creek. A total of 15 sites in 6 streams draining to Puget Sound were watched in 2004. Except for 2 sites in Longfellow Creek, all sites were monitored by a single volunteer.

Table 23. Stream number, site ID, site location (listed in river miles, RM), survey dates, total number of surveys, number of volunteers, and years the sites were watched for each stream surveyed in the Central Puget Sound for the 2004 spawning season.

Stream	Stream #	Site ID	RM	Survey Dates	# Surveys	# Vols.	Years Watched
Boeing Creek*	080017	436	0.1	10/28 - 12/16	13	1	2000, 2001, 2002, 2003, 2004
Longfellow Creek	090360	177	0.6	09/27 - 12/31	54	3	1999, 2000, 2001, 2002, 2003, 2004
		178	0.7	10/10 - 12/22	18	1	1999, 2000, 2002, 2003, 2004
		179	0.8	10/06 - 12/31	30	2	1998, 1999, 2000, 2001, 2002, 2003, 2004
		180	0.9	09/24 - 11/25	17	1	1999, 2000, 2001, 2002, 2003, 2004
Miller Creek	090371	417	0.1	09/09 - 12/28	30	1	2000, 2001, 2002, 2003, 2004
		458	0.4	09/20 - 12/17	19	1	2001, 2002, 2003, 2004
		574	0.6	09/27 - 12/28	18	1	2003, 2004
Pipers Creek*	080023	70	0	10/02 - 12/17	21	1	1999, 2000, 2001, 2002, 2003, 2004
		181	0.2	10/01 - 12/18	13	1	1999, 2000, 2001, 2002, 2004
		382	0.45	10/11 - 12/28	12	1	2004
		99	0.53	10/02 - 12/23	24	1	1999, 2002, 2003, 2004
Venema Creek*		383	0.02	09/25 - 12/31	33	1	2000, 2001, 2004
Walker Creek		499	0.01	09/20 - 12/17	18	1	2001, 2003, 2004
		473	0.13	09/20 - 12/17	19	1	2001, 2002, 2003, 2004

*Streams within WRIA 8.

Adult salmon were observed in all streams observed that drain to Puget Sound (Table 24) (this discussion does not include Vashon streams; for discussion of Vashon Island streams, see section above). Chinook, chum, and coho were all observed in Boeing Creek. Chum and coho were observed in Pipers, Longfellow, Miller, and Walker creeks. Only chum were observed in Venema Creek.

A single chinook was reported in Boeing Creek in 2004. Chum and coho were also reported at the same location, which has been watched every year since 2000.

Chum were observed higher upstream in Pipers Creek by volunteers than they have been previously; a single chum was seen as far as RM 0.45 (site 382). A single chum was also observed in Venema Creek, a tributary to Pipers Creek. It was seen just up from the mouth at the only site watched in Venema Creek.

Table 24. Site ID, RM, and fish counts (live and dead) with dates seen at each stream surveyed in Central Puget Sound for the 2004 spawning season.

Stream	Site ID	RM	Chinook	Chum	Coho	Unidentified
Boeing Creek*	436	0.1	1 (12/1)	10 (12/1 - 12/16)	12 (11/8 - 12/16)	-
Longfellow Creek	177	0.6	-	1 (12/12)	-	2 (11/5)
	178	0.7	-	-	1 (11/21)	-
	179	0.8	-	1 (11/28)	4 (11/19 - 11/20)	3 (10/17 - 11/20)
	180	0.9	-	-	-	-
Miller Creek	417	0.1	-	11 (11/12 - 12/17)	2 (11/3 - 11/9)	16 (11/12 - 12/14)
	458	0.4	-	22 (11/30 - 12/17)	9 (10/18 - 11/23)	3 (10/31)
	574	0.6	-	1 (12/17)	1 (11/3)	2 (11/29 - 12/6)
Pipers Creek*	70	0	-	6 (11/24 - 12/8)	2 (11/16)	3 (12/10 - 12/12)
	181	0.2	-	-	2 (11/27)	-
	382	0.45	-	3 (11/24 - 12/23)	1 (11/24)	-
	99	0.53	-	-	-	-
Venema Creek*	383	0.02	-	1 (12/16)	-	-
Walker Creek	499	0.01	-	3 (11/18 - 12/17)	1 (11/20)	2 (10/23)
	473	0.13	-	25 (11/20 - 12/17)	5 (10/18 - 11/9)	6 (11/18 - 11/23)

*Streams within WRIA 8.

The observation of chinook, chum, and coho in the WRIA 8 Central Puget Sound streams determined from volunteer surveys are included above in Figure 8, "Observations of Salmonids in the North Lake Washington Tributaries."

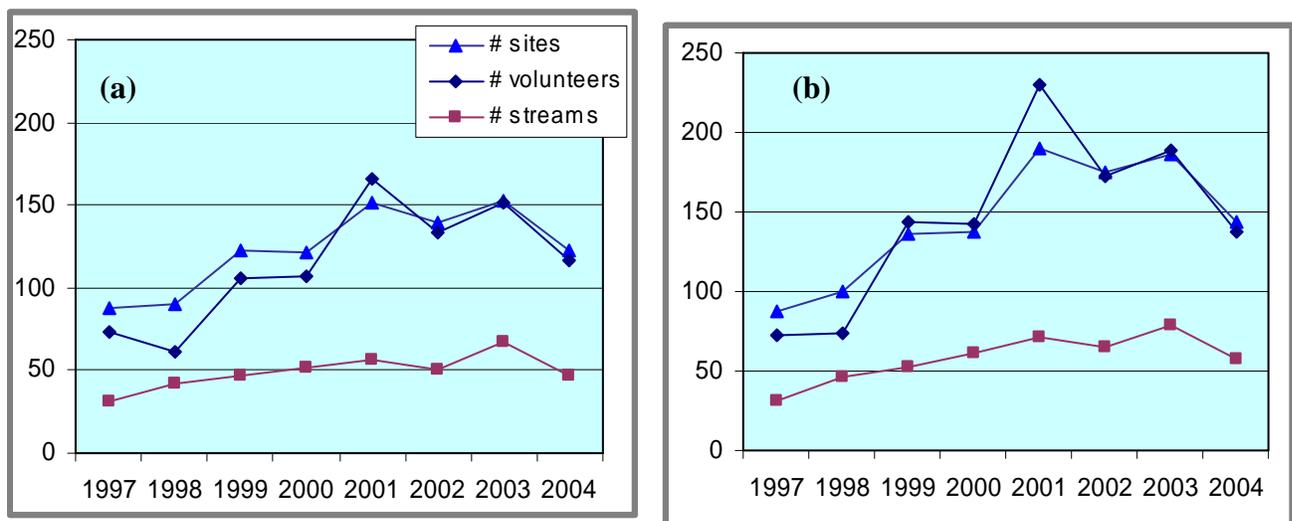
Volunteer Activity

The trend in the number of volunteers participating in the Salmon Watcher Program has varied over the 9 years of the program (Figure 11). It should be noted that many volunteers watch more than one site, and many sites have more than one volunteer watching at it.

Although the Lake Washington Watershed has been in the geographic area of the Salmon Watcher program since the program's inception in 1996, other geographic areas have variously been "officially" involved (e.g., Vashon Island; Central Puget Sound streams). Because the geographic area in the funded Salmon Watcher program has changed, if only those funded areas were included in Figure 11, the variation in and levels of numbers of sites, streams, and volunteers may be misleading (if for instance all Vashon and Central Puget Sound streams were included in one year but not another, yet those variations are not distinguished graphically). All figures similar to Figure 11 in previous reports are superseded by this Figure 11, which depicts (a) Lake Washington Watershed and (b) total participation every year.

Participation in 2004 was lower than in the previous three years. The methods of recruitment as well as levels of recruitment effort varies from year to year, and it is assumed that those variations are in large part responsible for the variation in participation.

Figure 11. Number of volunteers (defined as an individual, pair, or group) watching in the program area⁶ and number of sites and streams watched from 1997⁷-2004 in (a) the Lake Washington Watershed and (b) all areas with volunteers in a given year.



⁶ Program area was Lake Washington Watershed, other WRIA 8 streams (Boeing Creek, Pipers Creek, Venema Creek), and Vashon Island in 2004, Lake Washington Watershed and Vashon in 2002 and 2003, Lake Washington Watershed, Vashon, and Central Puget Sound in 2001, and only Lake Washington Watershed in years prior to 2001.

⁷ Numbers for 1996 are not depicted because many volunteers walked stream reaches, whereas in all other years volunteers watched from stationary positions, and many volunteers were trained differently as part of the kokanee watcher program. In 1997, 30 streams and 16 beach sites were watched; the 16 beach sites were counted in 1997 as 1 site.

Contact with Citizens

Volunteers were asked to keep track of how many citizens they came into contact with during their time by the streams. Salmon Watcher volunteers spoke with at least 850 citizens during the 2004 spawning season. Types of citizen contacts ranged from passers-by in parks and along roads to horse-back riders to entire groups of school children. Table 25 details the numbers of citizens who interacted with volunteers.

Table 25. Number of citizen contacts made by all Salmon Watcher volunteers in each of the surveyed basins.

Big Bear Creek	Cedar River	Central Puget Sound ¹	E. Lake Wash.	Issaquah Creek	N. Lake Wash. ²	Samm. River Tribs.	Vashon Island	W. Lake Samm.
79	144	164	198	40	106	62	10	47

¹ Includes streams both inside (32 citizens) and outside (132 citizens) funded program area.

² Volunteers on North Lake Washington streams in Snohomish County were not asked to record citizen contacts; if any were noted on their data sheets, they were recorded, otherwise it is presumed that this number is an underestimate.

Time Spent by Volunteers

Salmon Watcher volunteers are asked to record the start and end times of each site visit. Those times are used to calculate the amount of time volunteers spend watching stream-side. Occasionally, some volunteers do not fill in that part of the data sheet. Time underestimates notwithstanding, Table 26 illustrates the approximate amount of time spent by volunteers in each basin. More than 1,200 hours were volunteered during the 2004 Salmon Watcher season

Table 26. Number of hours spent by Salmon Watcher volunteers in each of the surveyed basins.

Big Bear Creek	Cedar River	Central Puget Sound ¹	E. Lake Wash.	East Lake Samm.	Issaquah Creek	N. Lake Wash.	Samm. River Tribs.	Snoq. River	Vashon	W. Lake Samm.
141	311	114	287	1	40	109	80	3	31	92

¹ Includes streams both inside (42 hours) and outside (72 hours) funded program area.

Limitations of Volunteer Data

Individuals, citizen groups, non-profit organizations, and government agencies all use data from the Salmon Watcher Program for various reasons (for an extensive list of reasons, please see the report from the 2000 Salmon Watcher season, Vanderhoof 2001). However, several qualifications must be kept in mind when reviewing the data in this report and especially when using the data for any purpose other than describing fish presence. The level of expertise of the volunteers varies widely: some volunteers have past experience identifying fish through professional or school training, recreational fishing, or personal interest. Other volunteers learned to identify salmon for the first time from the Salmon Watcher training session. For additional discussion on the limitations of volunteer data, please see previous reports (e.g., King County 2004).

Every year volunteers from previous years return, and new volunteers enter the program who must learn to identify the different species of salmonids they might encounter in their assigned streams. In 2004, 63 percent of Lake Washington Watershed volunteers were returnees (see the Results and Discussion section above). The variation in numbers of new versus returning volunteers each year likely has an effect on the accuracy of identification from year to year. However, if accuracy of data is decreased because of an increase in new volunteers each year, new efforts by Salmon Watcher staff to increase the accuracy of reporting by *all* volunteers should work to offset any possible decrease and actually enhance identification every year (see “Quality Assessment/Quality Control”).

Although training sessions are thorough, identification materials are provided, and technical experts are available for help with identification, some misidentifications will occur.

It is important to keep in mind that the absence of spawner sightings in a stream does not mean that spawning salmonids are not accessing that location. It does mean that fish were not seen by the volunteer at the site at the time of survey. Because of this important distinction and the other mentioned limitations of this type of survey, data in this report should be used only to indicate the presence of adult salmon at specific locations (species distribution). All other uses and benefits derived from the compilation of this data should be used cautiously and with the specific limitations of the data in mind. With very few exceptions, because most or all of these parameters are different for every stream surveyed from 1996 through 2004, comparisons of raw data likely would not yield valid information about changes in populations. Therefore, the best use for the data is in determining presence of fish and mapping fish distribution.

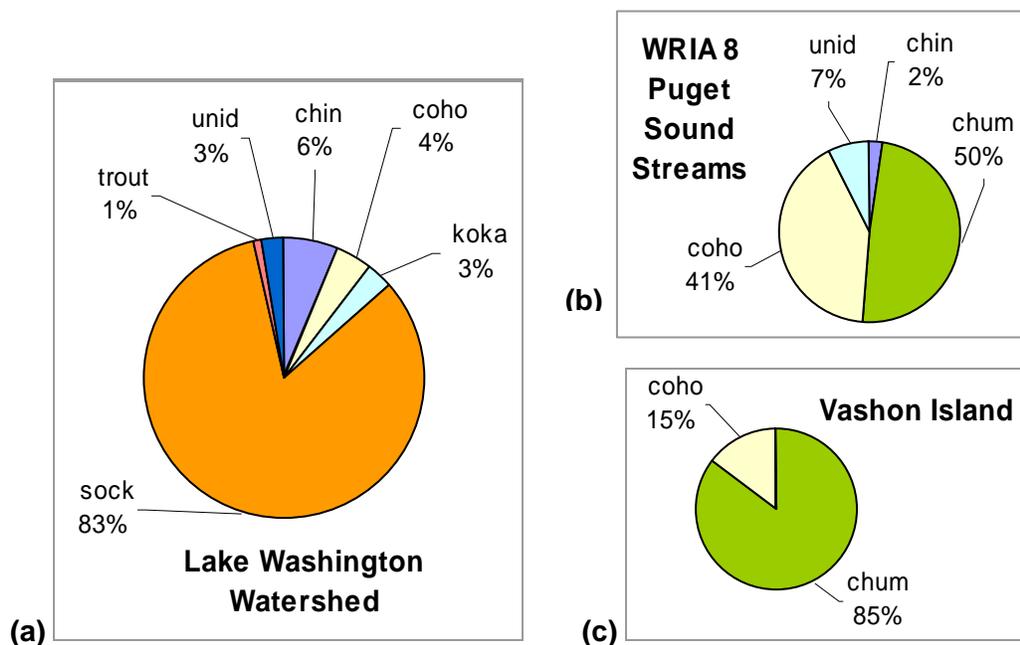
Species Summary

Salmon Watcher Program volunteers recorded observations of all salmonid fish located during their stationary surveys, including chinook, coho, chum, and sockeye salmon, kokanee, and trout (which may have been cutthroat or rainbow trout). The ratios of all fish observed, including unidentified fish, is depicted in Figure 12a for the Lake Washington Watershed, 12b for WRIA 8 streams that drain to Puget Sound, and 12c for Vashon Island.

Of the 57 streams in the study area surveyed in 2004, sockeye were found in 20 streams and one Lake Washington beach site. Coho were found in 19 streams, chinook in 17 streams, kokanee were reported in 9 streams, and trout were reported in 6 streams. Sockeye was the most abundant species counted by volunteers in the Lake Washington Watershed, followed by kokanee. Chum were observed in a total of 4 streams in the study area, including 1 on Vashon Island.

If a volunteer was unable to positively identify what species a fish was, the fish was tallied as “unidentified” (reporting a fish as unidentified was preferable to falsely identifying a species). Of the 9,272 total adult fish observed in the Lake Washington Watershed, Vashon Island, and other WRIA 8 streams in 2004, 256 were tallied as unidentified (2.87 percent). Unidentified adult salmonids were counted in 20 streams in the study area.

Figure 12. Percentage of total fish observed in 2004 by volunteers in (a) the Lake Washington Watershed, (b) other WRIA 8 streams, and (c) Vashon Island.



Marked Fish, Tagged Fish, and Juvenile Fish

On the data forms, one column asked the volunteers to note the “# of fish without adipose.” Most volunteers did not fill in this column, or often they noted they could not tell. Generally, water clarity must be excellent and the fish must be close and somewhat still in order to determine the presence of an adipose fin on a live fish. Of those who did respond numerically to this question, by far the greatest

number of adipose-clipped fish was in West Trib. Kelsey Creek: 71 chinook (out of 98 total chinook in that stream) and 1 unidentified species (Table 27).

The second highest number of marked fish was observed in Issaquah Creek (Table 27). The hatchery in Issaquah Creek clips their juvenile chinook and coho before releasing them. Eleven chinook were reported to have fin clips, as were 22 coho.

Coho and chinook are the only fish released from the Lake Washington Watershed that have been adipose clipped. Therefore, those two species are the only species that should have been reported missing adipose fins in Lake Washington Watershed streams. A total of 119 adipose-clipped chinook were reported in 10 streams, including the Kelsey Creek system and the Issaquah Creek system (Table 27). The only adipose-clipped coho reported by volunteers within the Lake Washington Watershed were reported in Issaquah Creek; a total of 26 adipose-clipped coho were reported in 2 streams.

No sockeye from hatcheries in the Lake Washington Watershed had their adipose fins clipped. However, volunteers reported sockeye without adipose fins in 7 streams (Table 27). Because sockeye are too small to have their adipose fins clipped when they are released from hatcheries, their adipose fins remain intact. Therefore, if sockeye are reported with missing adipose fins, either the fish are sockeye with adipose fins that were difficult to see in the stream, or the fish were another species such as coho who were missing their adipose fins. Likely, the reports of sockeye with fin clips results from a combination of both of these reasons. One volunteer was questioned after she reported a high number of adipose-clipped sockeye, and she indicated the fish were likely coho then, because they were definitely missing adipose fins (those fish were subsequently changed to “unid”). If other people confused the two species, those misidentifications might explain the relatively low number of adipose-clipped coho reported. The proportion of sockeye reported without adipose fins was higher in 2004 than past years.

Table 27. Number of adipose fin clips as reported by volunteer Salmon Watchers. Streams are listed in order of number of adipose-clipped fish reported.

Stream	chinook	chum	coho	sockeye*	unidentified	total
West Trib. Kelsey Creek	73	-	-	-	1	74
Issaquah Creek	11	-	22	-	16	49
North Creek	-	-	-	38	-	38
Sammamish River	15	-	-	1	-	16
Kelsey Creek	4	-	-	8	-	12
Boeing Creek	-	6	4	-	-	10
Taylor Creek	-	-	-	8	-	8
Goff Creek	7	-	-	-	-	7
Tibbetts Creek	-	-	-	-	4	4
Coal Creek	3	-	-	-	-	3
May Creek	1	-	-	2	-	3
Richards Creek	3	-	-	-	-	3
Big Bear Creek	1	-	-	-	-	1
Cottage Lake Creek	-	-	-	1	-	1
East Fork Issaquah Creek	1	-	-	-	-	1
Little Bear Creek	-	-	-	1	-	1
Total	119	6	26	78	4	231

*See text for discussion about sockeye reported with adipose clips.

Three thousand sockeye were tagged with disk tags near their dorsal fins in 2204 for a University of Washington research project in cooperation with WDFW as the fish came through the Ballard Locks.

Two tagged sockeye were observed by Salmon Watcher volunteers: one tagged sockeye was seen in Issaquah Creek (site 397) and the other was seen in Taylor Creek in the Cedar River Basin (site 596).

Volunteers made note of fry and/or juvenile fish in a total of 24 streams in 7 basins including WRIA 8 Puget Sound streams.

Chinook Salmon

Chinook were observed in 7 basins in the study area during the 2004 surveys (Figure 13). A total of 540 live fish and 40 carcasses were found in 16 streams throughout the Lake Washington Watershed and one chinook was reported in Boeing Creek, which is a WRIA 8 stream that drains to Puget Sound. These numbers are almost identical to numbers in 2002. Streams in which chinook were reported include (in order of most to least fish seen): Sammamish River, Issaquah Creek, West Trib. Kelsey Creek, Cottage Lake Creek, Kelsey Creek, Big Bear Creek, Goff Creek, East Fork Issaquah Creek, Taylor Creek, Coal Creek, May Creek, Mercer Slough, Richards Creek, Little Bear Creek, and one each in the Cedar River South Fork Thornton Creek, and Boeing Creek.

A single live chinook was reported in South Fork Thornton Creek (previously referred to as Maple Leaf Creek) by a volunteer for the first time; the fish was seen as far as RM 2.1 (20th Ave. NE and NE 100th St.). According to a compilation of known chinook distribution throughout WRIA 8 (mapped in King County's GIS and cited as "WRIA 8 2001"), chinook are not found this high in South Fork Thornton Creek. So if the fish observed was in fact a chinook, it expands the known distribution of chinook salmon in WRIA 8. The volunteer is considered highly reliable in his identification. Additionally, chinook have been reported by volunteers only twice before (2000 and 2003) in Thornton Creek (both times they were dead fish). Those observations were close to the mouth (one at RM 0.2 and one at RM 0.3). Because the mouth of South Fork Thornton Creek is near RM 1.2 on Thornton Creek, by default this South Fork Thornton Creek sighting significantly expands the distribution of chinook in Thornton Creek as reported by Salmon Watcher volunteers.

Chinook were reported for the first time in Goff Creek, a tributary to West Trib. Kelsey Creek; they were seen at RM 0.1 (Bel-Red Rd. near 132nd Ave. NE) this observation, which was verified by fish biologists, extends the distribution of chinook in Kelsey Creek system as reported by Salmon Watchers.

Figure 13. Distribution of chinook salmon in the program area based on Salmon Watcher observations (see insert).

Sockeye Salmon

Sockeye were by far the most numerous fish counted by volunteers. Sockeye were observed in 7 basins (Figure 14). A total of 6,495 live fish and 1,044 carcasses were observed in 23 streams (in order of most to least fish seen): Cedar River, Taylor Creek, May Creek, Issaquah Creek, North Creek, Big Bear Creek, Little Bear Creek, Sammamish River, East Fork Issaquah Creek, Rock Creek, Kelsey Creek, Tributary 0321 in the Taylor Creek system, McAleer Creek, Cottage Lake Creek, Mercer Slough, Tibbetts Creek, Thornton Creek, a Lake Washington Beach, and one each in Laughing Jacobs Creek, Lyon Creek, and West Trib. Kelsey Creek.

A single sockeye was reported in the East Lake Sammamish basin at the mouth of Laughing Jacobs Creek, a stream they had not previously been seen in by volunteers.

Sockeye were seen in a tributary to Taylor Creek that had not been previously surveyed by volunteers: sockeye, as well as unidentified fish, were seen at RM 0.15 at a private residence east of Maxwell Road.

These observations mark an expansion of the known distribution of sockeye as reported by Salmon Watcher volunteers.

Figure 14. Distribution of sockeye salmon in the program area based on Salmon Watcher observations (see insert).

Coho Salmon

Coho were observed in 8 Lake Washington Watershed basins including WRIA 8 Puget Sound streams, and they were observed on Vashon Island (Figure 15). A total of 368 live coho and 8 carcasses were reported in 16 streams in the Lake Washington Watershed (in order of most to least fish seen): Issaquah Creek, North Creek, Big Bear Creek, Sammamish River, Taylor Creek, East Fork Issaquah Creek, McAleer Creek, Rock Creek, Little Bear Creek, Coal Creek, Mercer Slough, Cottage Lake Creek, Lewis Creek, and one each in Kelsey Creek, May Creek, and Peters Creek. A total of 22 live and 1 dead coho were found in Judd Creek on Vashon Island. A total of 12 live and 5 dead coho were found in Boeing Creek and Pipers Creek.

The distribution of coho as reported by Salmon Watchers is expanded in Peters to RM 0.5. A single coho was reported on November 25. Previously, only four coho had been reported in Peters Creek by volunteers: at the mouth of the creek on a single day in 2003. Sites in Peters Creek have been watched in 1998, 2002, 2003, and 2004.

Figure 15. Distribution of coho salmon in the program area based on Salmon Watcher observations (see insert).

Kokanee

Kokanee were observed in 6 basins (Figure 16). A total of 257 live fish and 26 carcasses were counted in 9 streams (in order of most to least fish seen): Lewis Creek, Vasa Creek, Little Bear Creek, May Creek, Big Bear Creek, North Creek, Sammamish River, Issaquah Creek, and Cottage Lake Creek.

Kokanee were reported higher upstream in May Creek by volunteers than they have been previously; they were seen as far as RM 0.5 (site 432). These May Creek observations were unverified, and because King County biologists conducted weekly surveys in May Creek and did not observe kokanee, the reports by the volunteer are unlikely kokanee. Kokanee were reported in May Creek in 2002 by a different volunteer, and those observations were also not verified by a biologist. In both instances (2004 and 2002), every time the kokanee were observed, sockeye were present also. So it is quite possible that the kokanee that were reported were actually smaller sockeye.

Figure 16. Distribution of kokanee in the program area based on Salmon Watcher observations (see insert).

Chum

On Vashon Island, a total of 124 live chum and 6 carcasses were found in Judd Creek. Within the study area, chum were also reported in Boeing Creek (8 live and 2 dead), Pipers Creek (6 live and 3 dead), and Venema Creek (1 dead).

Chum were observed higher upstream in Pipers Creek by volunteers than they have been previously; they were seen as far as RM 0.45 (at the first viewing location downstream of the footbridge below confluence of Pipers and Venema creeks).

Trout and Unidentified Species

Trout were reported in 6 streams in 4 basins. Trout may have been cutthroat or rainbow. Although all trout species are discussed in training, it is frequently too difficult to distinguish these species in the field. Fish of unidentified species were observed in 22 streams in 8 basins: 125 live fish and 114 carcasses were unidentifiable.

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Appendices

- A. Other Streams Outside the Program Area
- B. Data Collection Form used in 2004
- C. Fautleroy Creek Salmon Watch 2004 Summary

Appendix A.

Other Streams Outside the Program Area

Snoqualmie Basin

Volunteers surveyed one site on a tributary to Tuck Creek in the Snoqualmie Basin (Table A1). Two coho were observed in this basin (Table A2).

Table A1. Stream number, site ID, site location (listed in river miles, RM), survey dates, total number of surveys, number of volunteers, and years the sites were watched for each stream surveyed in the Snoqualmie Basin for the 2004 spawning season.

Stream	Stream #	Site ID	RM	Survey Dates	# Surveys	# Vols.	Years Watched
Tuck Creek	070272	487	3.2	11/14 - 12/27	10	1	2001, 2002, 2003, 2004

Table A2. Site ID, RM, and fish counts (live and dead) with dates seen at each stream surveyed in the Snoqualmie River Basin for the 2004 spawning season.

Stream	Site ID	RM	Coho
Tuck Creek	487	3.2	38 (11/14 - 12/20)

Appendix B.

Data Collection Form used in 2004

Appendix C.

Fauntleroy Creek Salmon Watch 2003 Summary

2004 FAUNTLEROY SALMON WATCH⁸
From the Fauntleroy Community Association

Despite early rains and excellent conditions at the mouth and in the channel, 2004 was our third disappointing coho return in a row. The only solace was that the coho return was also sparse in other Seattle creeks.

A total of 25 volunteer watchers were on duty in the spawning reach from mid October through early December. They included several new volunteers and many veterans. Standard procedure was to monitor within a five-hour period after peak high tide and record any activity in and above the fish ladder. In cooperation with Washington State Ferries, six watchers also observed activity in the cove near peak high. Monitors with Washington

Trout complemented our efforts with weekly surveys for Seattle Public Utilities.

Although cove monitors reported schooling near the ferry pier in early

October, those fish passed us by. Watchers documented six coho in November, some of which were jacks. One redd was evident. Predators - including a river otter in the fishway - left little trace of carcasses.

Our primary recruitment venue for volunteers was the Fauntleroy Fall Festival in mid October. Although we were in communication with a number of schools about field trips, all but Chautauqua Elementary on Vashon backed out for lack of fish. Watchers reported more than 60 hopeful visitors to the fish ladder viewpoint, where we posted bulletins about the return.

⁸ Fauntleroy Creek is located in Seattle in the Central Puget Sound basin of WRIA 9. The results of their annual survey are included here as an appendix to the Salmon Watcher report as a way to further share information collected by other volunteer salmon watching groups in the region.

