NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM MUNICIPAL STORMWATER PERMIT PROGRAM ANNUAL REPORT FOR CALENDAR YEAR 2003

King County
March 31, 2004

PROGRESS ON ADDRESSING EXCEPTIONS TO SWMP APPROVAL

A Washington State Department of Ecology letter of August 1, 1997, partially approved King County's stormwater management program (SWMP). Exceptions to the approval included the County's proposed revised Surface Water Design Manual (SWDM) and the County's actions to control phosphorous in Lake Sammamish.

Lake Sammamish (the Lake)

Water Quality

Water quality goals for Lake Sammamish continue to be based on the assumption that the Lake is phosphorus limited and control of phosphorus loading to the lake will control primary productivity and water clarity. All of the water quality control activities currently being carried out in this watershed address external phosphorus loading from the watershed to varying degrees. Control of external phosphorus loading also results in many secondary benefits to the watershed, such as the control of erosion and sedimentation, and preservation of fish habitat, forest, and riparian cover.

An empiric goal of 22 μg/L mean annual volume-weighted total phosphorus (VWTP) is used to meet the mean summer chlorophyll-*a* goal of 2.8 mg/m^3. Concentrations of chlorophyll-*a* $\leq$ 2.8 mg/m^3 historically resulted in summer average Secchi dish transparency of $\geq$ 4.0 meters. Summer epilimnion VWTP, which is approximately the photic zone of the lake and more directly involved in phytoplankton dynamics during the stratified period, is being evaluated as a management tool for maintaining the summer chlorophyll-*a* and Secchi goals for the Lake. A goal based on summer epilimnion VWTP would be significantly lower than the current whole lake annual VWTP goal to achieve similar levels of lake protection.

The water quality for Lake Sammamish from 1998 through 2003 has been very good. Annual mean phosphorus concentrations in the past six years have been consistently lower than the previous 15 years. At the south mid-lake sampling station (0612) the annual mean VWTP for 1998, 1999, and 2000 was 12 μg/L, 13 μg/L for both 2001 and 2002, and 14 μg/L for 2003 – all substantially lower than the 22 μg/L goal (Figure 1). Annual mean VWTP at the north mid-lake sampling station (0611) has been similarly low at 13 μg/L, 14 μg/L, 13 μg/L, 15 μ/L, 13 μg/L and 12 μg/L for 1998, 1999, 2000, 2001, 2002, and 2003 respectively. A combination of weather and stream inflow patterns as well as decreased loading from the watershed may be the reason for the lower VWTP concentrations in recent years.

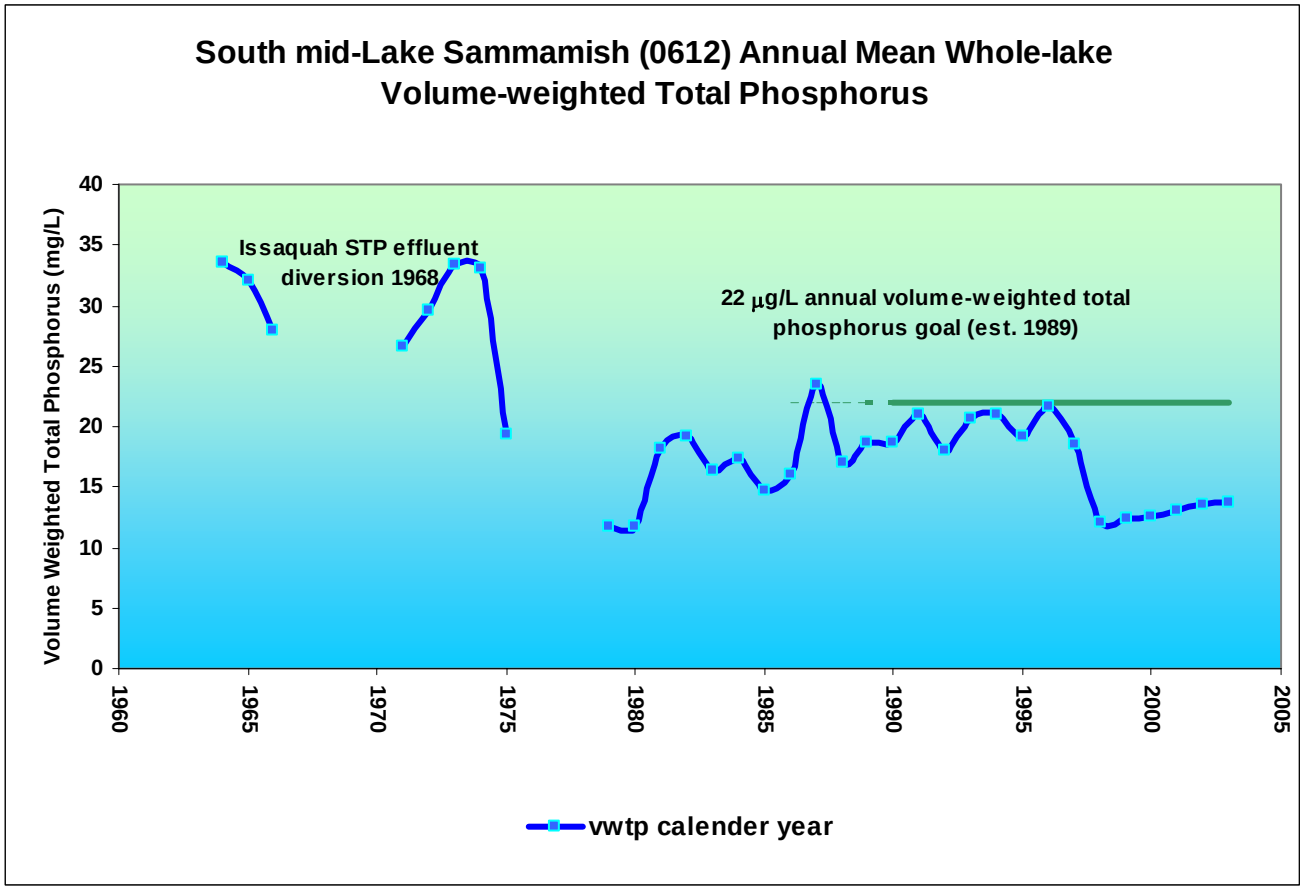
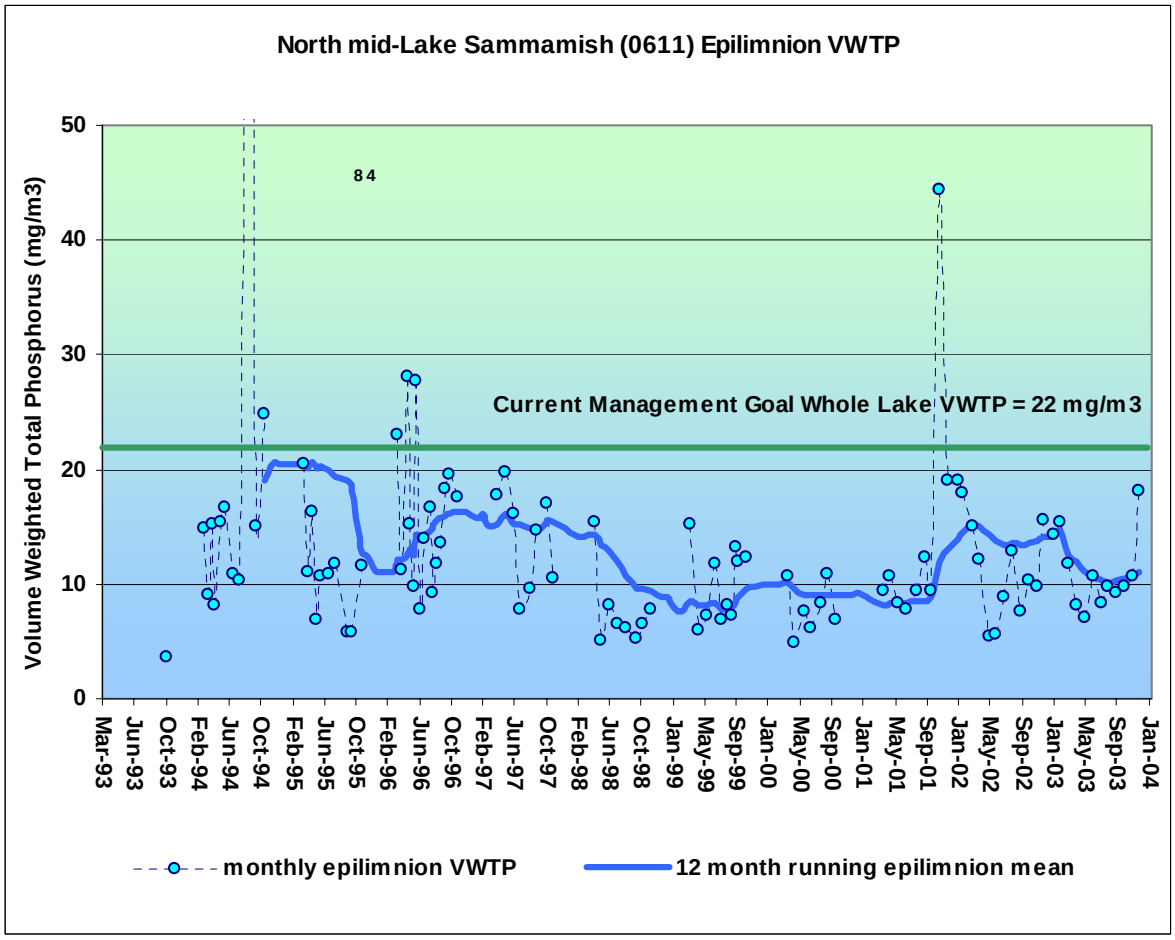


Figure 1. Mean annual volume weighted total phosphorus (VWTP) concentrations at the south mid-lake sampling station (0612).

For a decrease in the whole lake mean annual VWTP to result in decreased phytoplankton productivity and increased water clarity, the concentration of phosphorus in the photic zone (that part of the lake where sunlight and nutrients interact and support phytoplankton growth) also need to decrease. The more direct relationship between nutrient concentrations in the epilimnion (which approximates the photic zone), phytoplankton productivity, and lake transparency are reasons for looking at VWTP in this part of the lake. Figure 2 illustrates the epilimnion 12 month running means as well as the summer monthly epilimnion VWTP.


North mid-Lake Sammamish (0611) Epilimnion VWTP
Volume Weighted Total Phosphorus (mg/m3)
84
Current Management Goal Whole Lake VWTP = 22 mg/m3
monthly epilimnion VWTP
12 month running epilimnion mean

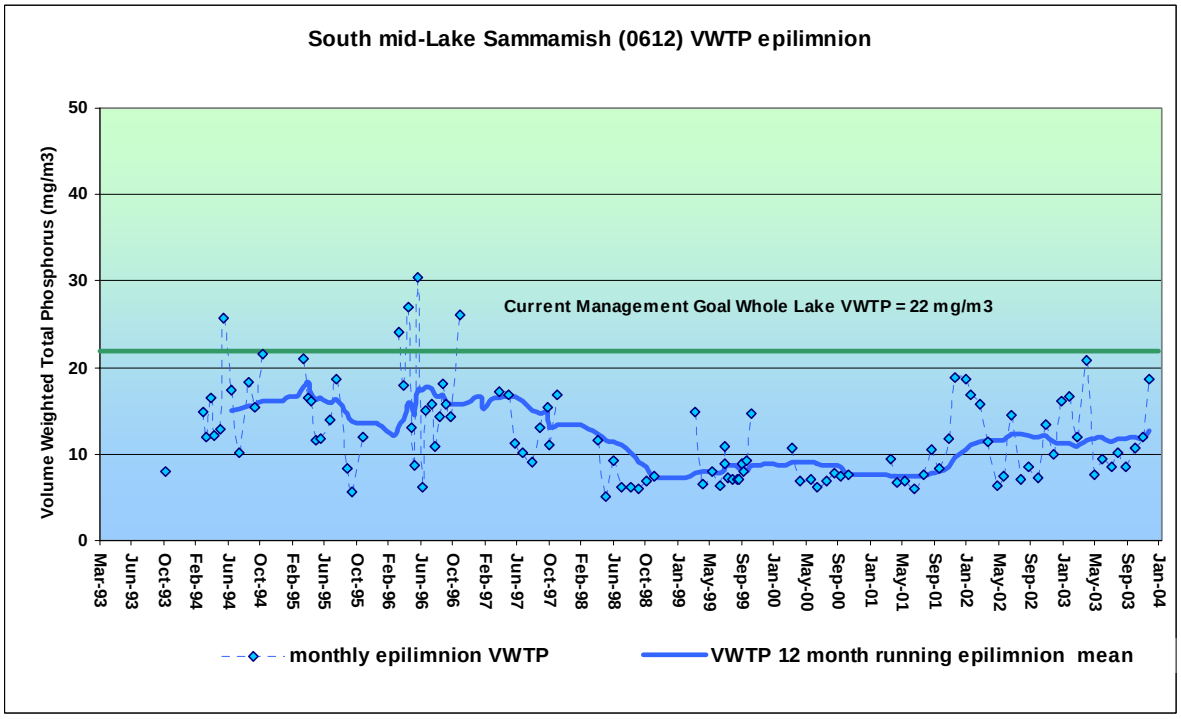

South mid-Lake Sammamish (0612) VWTP epilimnion
Volume Weighted Total Phosphorus (mg/m3)
Current Management Goal Whole Lake VWTP = 22 mg/m3
monthly epilimnion VWTP
VWTP 12 month running epilimnion mean

Figure 2. The dashed lines indicate monthly epilimnion VWTP concentrations for north and south lake for 0612 (diamonds) and 0611 (circles). No epilimnion data is shown for the winter period when the lake is not stratified. The solid line is a 12-month VWTP running mean for the epilimnion. A running mean de-seasonalizes data to show long-term trends. During winter mixed conditions, data from the top 15 meters was used to generate this mean.

Epilimnion VWTP in both the north and south ends of Lake Sammamish has been near 10 μg/L, and the whole lake annual VWTP is below the 22 μg/L goal. Based on the models used to monitor Lake Sammamish, chlorophyll-*a* and Secchi disk transparency should both meet or exceed the water quality goals as well (VWTP ≤ 22 μg/L and Secchi ≥ 4.0m). The north and south average summer mean chlorophyll-*a* concentrations for 1998 and 2001 were less than the chlorophyll-*a* goal 2.8 mg/m^3, while in 1999, 2000, 2002, and 2003 the summer mean chlorophyll-*a* concentrations slightly exceeded the goals (Table 1). Secchi disk transparency for all six years was at or better than the water quality goal of 4.0 m.

Table 1. Lake Sammamish chlorophyll-*a* and Secchi disk transparency and summer means (June-September) collected at the north mid-lake station (0611) and the south mid-lake station (0612). Management goals are 2.8 mg/m^3 chlorophyll-*a*, and 4.0 meter Secchi depth.

collect date	north mid-lake (0611)		south mid-lake (0612)	
	chlorophyll-*a* mg/m^3	Secchi depth meters	chlorophyll-*a* mg/m^3	Secchi depth meters
June 3, 1998	1.6	7.5	1.7	Not recorded
June 17, 1998	1.8	6.5	2.1	6.0
July 6, 1998	4.5	5.5	5.2	3.8
July 20, 1998	2.9	4.5	3.1	5.5
August 5, 1998	2.0	6.0	2.8	5.0
August 19, 1998	2.0	6.5	1.7	7.0
September 8, 1998	1.6	7.0	1.3	7.0
September 23, 1998	2.0	6.6	1.7	8.0
summer average	**2.3**	**6.3**	**2.5**	**6.0**
June 8, 1999	3.5	4.0	3.2	4.0
June 22, 1999	5.2	3.0	5.3	3.5
July 7, 1999	2.6	4.5	2.8	5.2
July 20, 1999	3.1	4.0	2.8	3.5
August 3, 1999	4.1	3.5	4.3	3.5
August 17, 1999	6.2	3.3	6.3	2.7
September 8, 1999	4.0	4.5	3.5	4.5
September 21, 1999	2.6	5.0	2.5	4.5

summer average	**3.9**	**4.0**	**3.8**	**3.9**
June 13, 2000	4.3	5.0	3.5	Not recorded
July 5, 2000	2.5	7.0	2.1	6.0
July 18, 2000	5.0	4.0	3.7	4.2
August 8, 2000	3.9	6.2	3.9	6.0
August 22, 2000	8.2	5.0	6.3	5.0
September 6, 2000	5.2	3.3	5.5	3.2
September 19, 2000	2.5	3.0	2.9	3.0
summer average	**4.5**	**4.8**	**4.0**	**4.6**
June 19, 2001	5.5	4.5	5.2	4.0
July 2, 2001	3.2	4.0	2.8	6.0
July 17, 2001	3.0	6.5	2.2	6.0
August 7, 2001	1.7	5.5	2.0	6.5
August 21, 2001	1.7	6.2	1.4	7.0
September 5, 2001	2.1	7.5	1.9	8.0
September 18, 2001	1.7	9.0	2.0	8.5
summer average	**2.7**	**6.2**	**2.5**	**6.6**
June 4, 2002	5.8	4.0	6.5	4.6
June 18, 2002	2.9	5.0	2.1	5.0
July 1, 2002	3.1	5.4	2.3	6.0
July 16, 2002	3.2	4.3	3.0	4.0
August 7, 2002	2.3	4.0	2.8	4.5
August 19, 2002	1.6	3.3	1.8	3.5
September 7, 2002	2.8	5.5	2.5	5.2
September 19, 2002	2.7	5.5	2.8	6.0
summer average	**3.1**	**4.6**	**3.0**	**4.9**
June 4, 2003	3.8	7.6	3.3	7.1
June 17, 2003	3.3	6.0	2.7	6.9
July 9, 2003	3.7	5.2	4.3	5.5
July 22, 2003	5.7	5.4	5.5	5.5
August 5, 2003	3.2	5.0	3.2	5.1
August 19, 2003	2.0	4.2	2.9	5.0
September 3, 2003	2.6	5.0	2.5	5.8
September 16, 2003	2.6	4.8	2.8	4.5
summer average	**3.4**	**5.4**	**3.4**	**5.7**

The higher chlorophyll-*a* concentrations in 1999, 2000, 2002, and 2003 did not result in as great a loss of water clarity as expected from the model, or observed in the past. One reason may be a shift to more colonial forms of algae that concentrate chlorophyll-*a*, but because they are clumped do not decrease transparency to the same degree as unicellular algae. This phenomenon is being investigated in further detail for the upcoming Lake Sammamish Existing Conditions Report. Lower chlorophyll-*a* in 2001 did result in higher summer water clarity, particularly in July and August. However, clarity was also relatively high in 2003 as well. Transparency is also affected by factors other than algal growth, including suspended solids. Decreased inputs of suspended materials from streams due to the dry weather conditions have a positive influence on summer water clarity. The summer of 2003 was one of the driest on record.

The relationship between the annual whole lake VWTP, and summer chlorophyll-*a* in Lake Sammamish is still functioning. The relationship between chlorophyll-a and Secchi disk transparency also still works with the exception of periods where colonial phytoplankton predominate. The water quality goals that have been agreed upon for the Lake of 22 μg/L for mean annual VWTP, 2.8 mg/m^3 for chlorophyll-*a*, and 4.0 m for Secchi disk transparency are still appropriate.

While summer water quality in Lake Sammamish has seen improvement, there are serious water quality issues in the fall. During the late summer and early fall of 1997, an extensive, toxic bloom of *Microcystis aeruginosa* covered much of the Lake. This bloom occurred even though the Lake met the water quality goals during this period. During the late summer of 1998, a bloom of *Microcystis aeruginosa* did not occur, however a sample was collected and analyzed for toxicity. Mouse bioassay tests indicated the cyanobacteria were not toxic. Subsequent strain analysis done at the University of Washington indicated that while the cyanobacteria species was the same (i.e., *Microcystis aeruginosa)*, the specific strain was different and non-toxic. In an effort to examine potential environmental factors that influence the production of toxins, a graduate student investigated this issue in Lake Sammamish with the support of King County, Seattle University, and the University of Washington.

In 1999, low concentrations of *Microcystis aeruginosa* were collected from the lake and tested positive for toxicity when analyzed using the ELISA test. While there was no bloom of toxic cyanobacteria in the lake during the fall of 1998 or 1999, the same strain of toxic algae, producing toxins at low levels, was present in the lake. It is apparent that the toxic strain of *Microcystis aeruginosa* is endemic in Lake Sammamish. If water quality conditions in Lake Sammamish deteriorate in the future and result in a cyanobacterial bloom, it would be expected that toxic *Microcystis aeruginosa* would be present. There were no blooms of toxic cyanobacteria recorded in Lake Sammamish in 2000, 2001, 2002, or 2003. In 2001, a preliminary survey for microcystins in lakes Washington, Sammamish and Union was initiated. Data from this survey was used to develop the Sampling Analysis Plan for Toxic Cyanobacteria in Lake Washington, Lake Sammamish, and Lake Union (2003). Sampling began in May 2003.

In 1998 it was hypothesized that *el Niño* was influential in the excellent summer water quality. Summer primary productivity is dependent on addition of phosphorus to the stable upper photic

zone of the lake (i.e., epilimnion) by a combination of external loading during storm events and internal loading from the hypolimnion. The large toxic bloom observed in 1997 occurred after a significant late summer rainfall event that discharged into a very stable epilimnion. In comparison, during the summer of 1998, 1999, 2000, 2001, 2002, and 2003 there was less summer/fall rain and subsequently little external loading from the watershed or mechanism for mixing hypolimnetic water into the epilimnion and photic zone. These conditions likely resulted in the low VWTP measured in the lake and the corresponding low primary productivity and lack of a fall algal bloom. Interesting to note is that VWTP in Lake Washington was also reduced in these last six years as well.

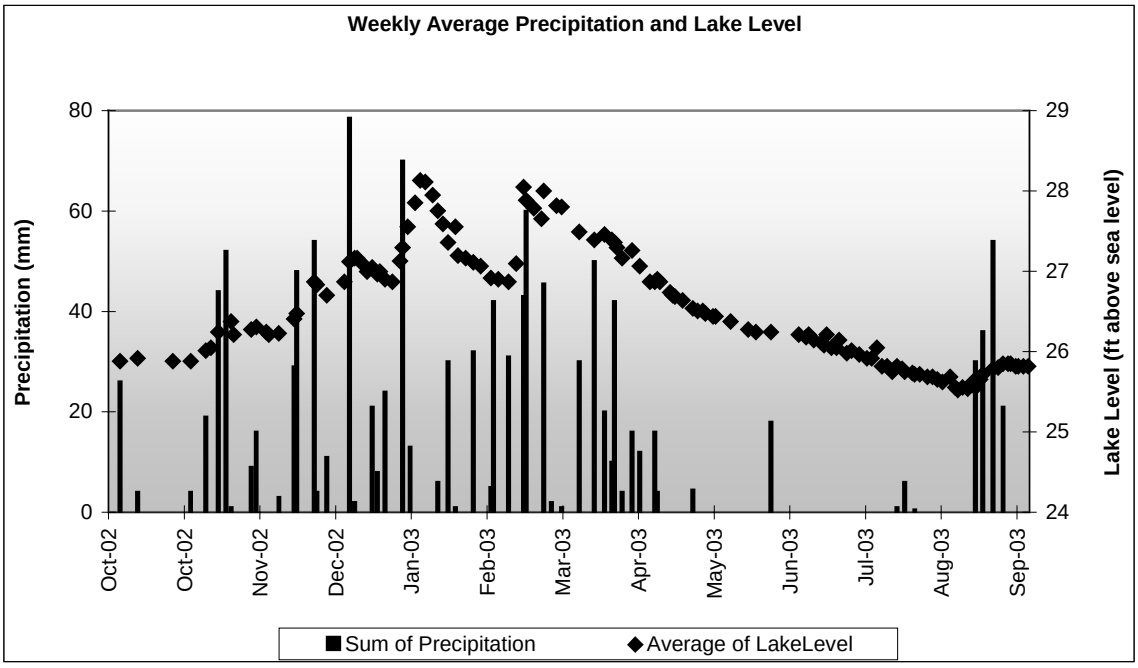
Summer weather and stream inflow patterns have a significant influence on summer water quality, but other factors obviously influence the response of the lake. The lack of extreme winter storm events and the resultant erosion and sediment transport into the lake is a probable cause. Improved watershed management in the basin by citizens' groups and local governments may be another factor in this improvement. While neither citizens' groups nor County policies are responsible for the weather, the water quality improvements seen in the last six summers (1998 through 2003) show that limiting external phosphorus loading to the lake can result in improved water quality. All of the management policies in the Lake Sammamish watershed are designed to reduce external loading by controlling discharge of non-point source pollution to the Lake and associated streams. Assuming these policies are continued and successful, we should be able to meet the long-term water quality goals for Lake Sammamish.

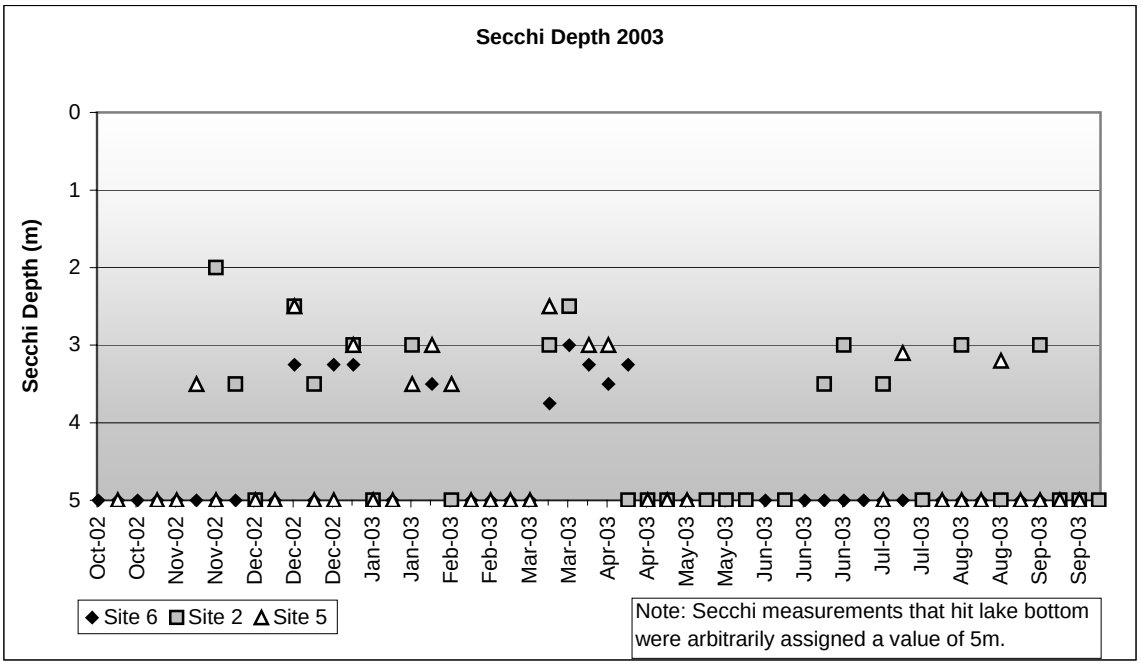
Volunteer Program Summary

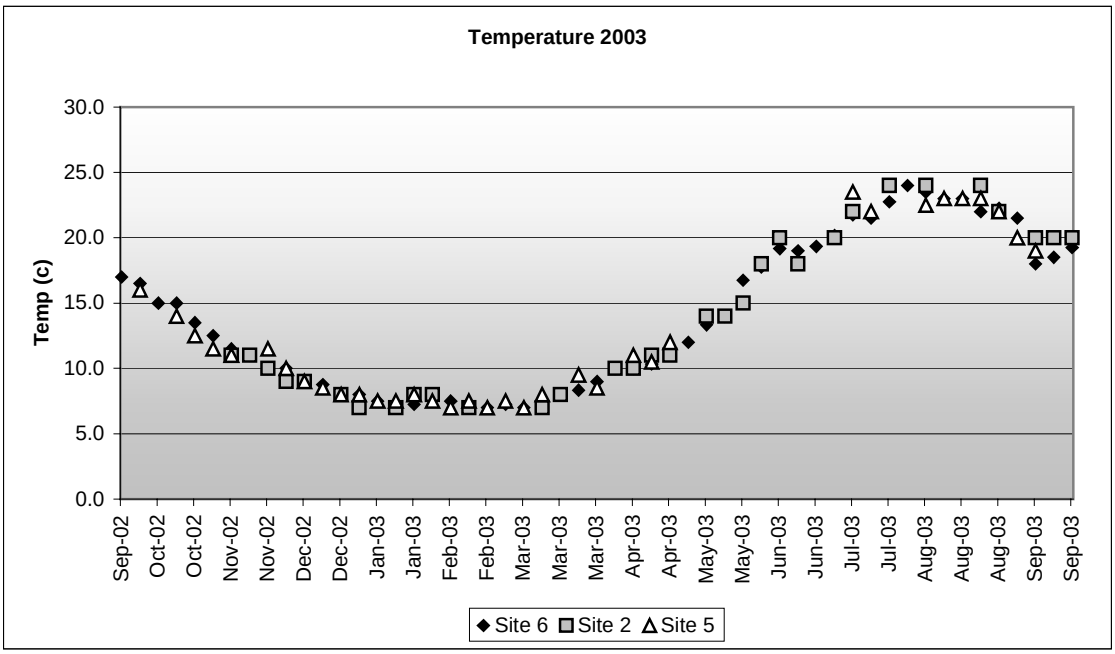
Volunteers have been collecting physical data along the Lake Sammamish shoreline since 1999, in a program originally begun through a partnership between King County and *Save Lake Sammamish*. These data augment data currently collected at seven sites on Lake Sammamish by the County through the Major Lakes Ambient Monitoring Program. Parameters monitored by volunteers include lake level, precipitation, secchi disk measurements, and water temperature. The volunteers monitor secchi depth and temperature from their docks. Volunteers also collected lake use information including the presence of boats, swimmers, birds, wildlife, and algal blooms.

The program currently includes three active volunteer monitors. These citizens live on the lakeshore and collect data on a much more frequent schedule than would be possible without their efforts. Special training results in data that can be used directly in evaluation and management of the resources. In 2003, Lake Sammamish volunteers also participated in training workshops and other educational workshops provided by King County's Minor Lakes Volunteer program.

Analysis of the 2003 volunteer data is not yet complete. The charts below summarize the data to date.




Secchi Depth 2003
Secchi Depth (m)
0
1
2
3
4
5
Oct-02
Oct-02
Nov-02
Nov-02
Dec-02
Dec-02
Dec-02
Jan-03
Jan-03
Feb-03
Feb-03
Mar-03
Mar-03
Apr-03
Apr-03
May-03
May-03
Jun-03
Jun-03
Jun-03
Jul-03
Jul-03
Aug-03
Aug-03
Sep-03
Sep-03
Site 6
Site 2
Site 5
Note: Secchi measurements that hit lake bottom were arbitrarily assigned a value of 5m.


Temperature 2003
Temp (c)
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Sep-02
Oct-02
Oct-02
Nov-02
Nov-02
Dec-02
Dec-02
Jan-03
Jan-03
Feb-03
Feb-03
Mar-03
Mar-03
Mar-03
Apr-03
Apr-03
May-03
May-03
Jun-03
Jun-03
Jul-03
Jul-03
Aug-03
Aug-03
Aug-03
Sep-03
Sep-03
Site 6
Site 2
Site 5

Implementation of Lake Sammamish Management Program
During 2003, King County implemented the Lake Sammamish Management Program as follows:

1. Forest Conservation Program – This program was integrated into the King County forestry program and will continue to be implemented by the County's Department of Natural Resources, Resource Lands Section, and the Department of Development and Environmental Services. The regulatory (65 percent forest retention on all rural zoned lands) and incentive (both the current use taxation and education) elements of the program are being implemented by a King County forester.

2. Non-point Source Control Program – Education activities for the Lake Sammamish Basin are now developed and implemented through the WRIA 8 process. However, traditional planting events, workshops, and the Issaquah Salmon Days emphasis on the whys and wherefores of phosphorus as a pollutant have continued.

3. Regulatory Compliance and Enforcement –most of the developing land in the Lake Sammamish Basin has incorporated or been annexed, so King County's role in protecting the lake from phosphorous inputs from construction sites is extremely limited. See page 16 of this report for details of the County's Erosion and Sedimentation Control Program.

4. Enhanced Operations and Maintenance – no changes were made in maintenance practices for detention and water quality facilities in the basin in 2003.

5. Lake Protection Standards – 50 percent total phosphorus removal standards for new development were adopted for the unincorporated parts of the basin in January 1998. These standards have been implemented since that time, though they were superceded by adoption of the 1998 King County Surface Water Design Manual. In 1999, the County applied for and received a $250,000 grant from the United States Environmental Protection Agency to evaluate the feasibility of implementing regional stormwater treatment in the Lake Sammamish Basin. The draft study was completed in 2002 and regional stormwater treatment was not deemed feasible for the Basin. In 2003, the final study was published and a new scope of work was developed for the unexpended grant funds. The new scope of work outlines a process to determine the treatment effectiveness of water quality facilities in the Lake Sammamish basin built in compliance with the Lake Protection Standards. Their phosphorous removal goal is implemented through stormwater treatment facilities, including wetponds and sand filters and the study will try to determine if these treatment facilities actually achieve the goal.

6. Public Ownership and Shoreline Access – King County has purchased and is developing the East Lake Sammamish Trail. Portions of the interim trail on the former railbed have been developed recently in the Cities of Redmond and Issaquah. The County is currently in the process of obtaining a permit to construct the interim trail within the City of Sammamish. King County recently acquired three waterfront parcels in the vicinity of Inglewood Hill

Road. King County, the King County Land Trust, and citizens continue to evaluate other possible shoreline parcel acquisitions in conjunction with the trail development.

The three short-term programmatic actions identified for King County action—an erosion control program, a source control program, and implementation of the 50 percent phosphorus standards for new development—have all been incorporated into the County's ongoing management of the Lake. Two of the eight capital projects identified as short term actions—Valley Growers Nursery and Weowna Creek, —were constructed or completed during 1997 or 1998. Three are now under the jurisdiction of the City of Issaquah (Kelly Ranch, and the Bianca and Interpace Mines). The Issaquah State Hatchery design project has transformed into a public education kiosk at the site that is due for completion in 2004. [More detail available in the Lake Sammamish Initiative Table provided in the Appendix.]

Surface Water Design Manual (SWDM)

The publication of Ecology's *Stormwater Management Manual for Western Washington* in August of 2001 mooted the dialogue between the County and Ecology on the equivalency of the County's Surface Water Design Manual with Ecology's 1992 Stormwater Manual for the Puget Sound Basin. Instead, King County has begun the process of updating the SWDM and other County regulations to achieve substantial equivalency with Ecology's new manual for western Washington. In 2003, the County conducted two public reviews of draft legislation, which would enable amendments to the SWDM and other regulations affecting stormwater management on new development, redevelopment, and construction sites. The materials provided during these reviews included draft updates of the SWDM Chapter 1. In February 2004, the County Executive transmitted a revised draft of this legislation to the Council. The proposed legislation may be viewed online at **http://metrokc.gov/ddes/cao**. Coincident with the transmittal of the draft legislation, a full "working" draft of the SWDM update has been posted at **http://dnr.metrokc.gov/wlr/dss/Manual-Draft.htm**. The working draft will be updated again in late April in response to internal comments and will be circulated for external/stakeholder review. The final update of the SWDM will be adopted through a rule-making process after the Council adopts the enabling legislation, probably near the end of 2004.

The following discussion focuses on the elements of the annual report required by the above referenced permits.

S10 (B) 1: STATUS OF IMPLEMENTING THE COMPONENTS OF THE SWMP

All the requisite components of a SWMP are in place in King County, with the exceptions noted above. Although there are some minor changes in the timing, magnitude, or name of some of

our compliance activities, our program today continues to be substantially the same as that described in our approved SWMP.

S10 (B) 2: NOTIFICATION OF RECENT OR PROPOSED ANNEXATIONS OR INCORPORATIONS RESULTING IN A… DECREASE IN PERMIT COVERAGE AREA

From January 1, 2003 to December 31, 2003, King County's losses to annexation in terms of land area and revenue were minimal.

No incorporations occurred in 2003 and none are expected in 2004.

A map showing the current status of annexations and incorporations in the County is included in the Appendix.

S10 (B) 3 & 4: DIFFERENCES BETWEEN PLANNED AND ACTUAL EXPENDITURES FOR THE REPORTING PERIOD & REVISIONS TO THE REMAINING YEARS OF THE FISCAL ANALYSIS

King County's detailed fiscal analysis is included in the Appendix. In summary, the County's planned spending for NPDES stormwater related activities in 2003 was $54,222,266. Actual spending for 2003 was $52,071,092--an increase of 4.88% from 2002 actuals. The adopted budget for 2004 by the County Council is $53,499,872--a slight decrease of 1.33% from the 2003 adopted budget.

S10 (B) 6: A SUMMARY DESCRIBING COMPLIANCE ACTIVITIES, INCLUDING THE NATURE AND NUMBER OF OFFICIAL ENFORCEMENT ACTIONS, INSPECTIONS, AND TYPES OF PUBLIC EDUCATION ACTIVITIES

Enforcements and Inspections

SWS Inspections and Enforcement Activities

Drainage facility inventory numbers have remained fairly constant--new facilities are keeping up with those lost to annexations and incorporations. The Stormwater Services Section (SWS) of the Water and Land Resources Division continues to provide inspection, complaint investigation, and maintenance services to six contract cities. SWS also continues to inventory commercial conveyance-only facilities, but does not inspect them.

SWS continues to be the initial investigator of drainage complaints. As shown, many facility complaints result in corrective work orders. Additionally SWS corrects drainage problems by designing small improvement projects through our Neighborhood Drainage Assistance program.[1]. The 2-year maintenance/defect program continues to include quarterly inspections of new drainage systems. Maintenance programs have remained substantially unchanged in 2003.

SWS provided maintenance assessments and notification of maintenance needs to property owners with private flow control and water quality facilities in unincorporated King County, and to several Cities under contract. Property owner compliance increased from the previous Self-Assessment program. Additional programs including; inspection of large single-family residential drainage facilities, and an enhanced water quality audit program have been initiated to enhance the Stormwater Management Program. SWS has upgraded the complaint tracker program to include GIS/GPS capabilities to facilitate monitoring drainage complaints and using facility maps. The Maintenance Information System[2] has also been redeveloped to improve maintenance tracking, reporting, and scheduling. Both will facilitate the use of historical data to address drainage problems.

Enforcement Actions & Inspections-- Flow Control and Water Quality facilities
The spreadsheet below identifies the total number of Flow Control (FC) inventories and assessment activities for 2003.

[1] The Neighborhood Drainage Assistance Program (NDAP) is a Water and Land Resources Division program that addresses drainage problems not covered by other drainage response or road maintenance programs. It builds small projects to remedy off right-of-way drainage problems, many of which are located on private property. NDAP projects quite often result from a SWS drainage complaint investigation that escalates to a drainage review. The projects are prioritized and then funded for construction on an annual basis. Contracted maintenance crews perform the work under the guidance of SWS engineers. NDAP has been a successful program for addressing problems neither referred to other agencies nor addressed by general maintenance programs within SWS.

[2] The SWS Maintenance Information System (MIS) enhances the Drainage Investigation and Inspection (DI&I) Unit's Facility inspection and maintenance programs. This computerized program is used to maintain a facility inventory, perform facility inspections, produce work authorizations or maintenance correction letters, and to track completion of work. The historical database contained in this program is used to do a "phased" analysis for inspection scheduling of publicly owned facilities. This software has been redeveloped to better suit the redefined responsibilities of DI&I, and to fit many of the newer flow control facility features developed in the Design Manual.

	INVENTORY TOTALS (as of 12/31/03)	WORK PROGRAM	INSPECTION TOTALS			
			2000	2001	2002	2003
Public						
2-Year Bond	163	2-Year M/D Bond Inspections	272	350	425	436
Residential R/D	1603	Inspections	986	950	929	854
		Special Use Permits	37	45	35	53
Total	1769	New Facilities Inventoried	68	45	54	61
Private						
M/F Comm incl City	1260	Inspections	1396	1130	1240	1303
NPDES Facilities (conveyance-only)	478	NPDES Inventories	6	10	6	10
Total	1738	New Facilities Inventoried	37	45	85	111

Enforcement Actions & Inspections--KCC 9.12 Activities *(Including corrections to the information provided in the 1999 report for calendar year 1998.)*

INVESTIGATION TYPE	CARRY OVER	NEW (in '03)	CLOSED (in '03)	OPEN
COMPLAINTS★ (quick response)	38	76	106	38
REVIEWS☆ (more complex response)	265	56	60	261
SITE CONSULTATIONS☆ (for businesses)	241	264	106	399
ENFORCEMENTS✭ (violations issued)	38	11	18	31

★**Complaints (quick response):** All water quality complaints that are received by WLRD are reviewed by a Senior Engineer to see if an initial quick visit by a drainage investigator may be sufficient to solve the problem. If so, the investigator visits the site and collects all pertinent information. If the problem is a simple problem or one that can be resolved with a minor amount of information as required by the King County Water Quality Code or education by the investigator the complaint can then be closed. If the Senior Engineer determines the complaint is more involved at the time of the initial review, an Engineer investigates the

problem as a Water Quality **Review**. If the problem is identified as a potential violation that needs coordination with other agencies, a referral is made to the appropriate agency.

If a drainage investigator visits the site and finds more involved issues at the site, or if the individual or business where the complaint originates needs more detailed, technical information the complaint is "turned into" a Water Quality **Review**.

☆**Reviews:** (Handled by an Engineer II) These problems often require additional site investigation or water quality site audit, meeting with the property owner or site manager, and writing letters to the property or business owner where the water quality problem is occurring and explaining in more detail KCC code 9.12, or outlining additional ways to correct the water quality problem. A review often requires additional research to find the source, potential impacts, and severity of the water quality problem. A review also may require coordination with other agencies such as Washington State Dept. of Ecology, KC Health, DDES, Washington State Patrol, Labor and Industries, EPA, Hazardous Waste, Solid Waste, King County Roads, or others.

☆**Site consultations/Water Quality Site Audits:** An Engineer II visits a business or commercial/residential property site with the owner/property manager. All BMPs that are required for the site to achieve compliance with KCC 9.12 are discussed and an implementation schedule is agreed upon. Once the owner/property manager feels that all BMPs are in place, the engineer revisits the site, and if the site is in compliance, a compliance letter is sent, and the file is closed.

✯**Enforcements:** These cover a variety of problems. The first step in the process is a Notice of Violation that explains the specific violation and the steps necessary to correct the Violation. If the violation is an intentional or repeat violation or of an egregious nature, a formal Notice and Order with civil penalties and fines may be issued. Once the violation is corrected, a Release of Violation letter is sent. The types of violations we see vary and involve both business and residential properties.

★**Inspections:** Carry over "inspections" files have been integrated into the site audit /consultation category. Inspections triggered by closed commercial building permits were abandoned in 2003 as data received from DDES was incomplete and did not result in an efficient method of capturing commercial sites that had significant pollution generating activities that would warrant a full water quality site audit. Due to new King County Stormwater regulations, all commercial sites with flow control or water quality facilities must implement BMPS to qualify for SWM fee reductions, and a new procedure was implemented. This new procedure is capturing many more sites with pollution generating activities that require site audits. As new commercial facilities are added to our commercial inventory, business site audits will be completed assuring compliance with Ecology's requirement to assure businesses are implementing appropriate source control BMPs.

We are currently formulating new procedures/policies to complete site consultations on all inventoried private/commercial flow control and water quality sites over a specified time period based on staff restraints. We also plan on completing site audits/consultations on all inventoried "conveyance only" facilities, based on a prioritization system of potential pollution generating activities at specific businesses. SWS continues to inventory commercial "conveyance" only facilities. Water quality audits/consultations will be completed on these sites as staffing resources allow even thought these sites do not qualify for SWM fee reductions.. As new facilities are added to our commercial inventory, business site audits will be completed assuring compliance with Ecology's request to audit all new businesses that have pollution generating activities and to ensure source controls BMPs are implemented..

Erosion and Sedimentation Control

The Erosion Control Inspection & Enforcement Program (the Program) is based in the King County Department of Development and Environmental Services (DDES). In 2002, the separate program for permitted sites merged into the ongoing programs of the Building Inspection Section, Site Development Services Section and the Land Use Inspection section. An additional five (5) Site Development Specialists in the Code Enforcement Section have been assigned to non-permitted activities, especially those affecting ESA compliance. This program continued in 2003.

The Program continues to include enhanced inspections of permitted activities for Erosion/Sediment Control compliance (ESC) throughout the County. Additionally, the Small Works Program continues to operate for sites that remain non-compliant. The five erosion control contracts let in 2001 were replaced in 2002 by a single contract, saving limited funds and simplifying the processing of work orders. Under this program, the County notifies the developer that they are in default of their restoration financial guarantee agreement. Then the department prepares a work order under the erosion control contract. The cash portion of the restoration financial guarantee is used to pay the erosion and sedimentation control contractor. After the needed erosion control work is complete, the developer must restore the cash restoration financial guarantee to begin working again. The developer is also responsible for any additional charges in excess of the financial guarantee amount

The inspectors performing enhanced ESC inspections visit sites to observe whether appropriate ESC Best Management Practices (BMPs) are used. The inspectors are authorized not only to note violations, but also to provide on-site training in the proper use and installation of ESC BMPs. Enhanced ESC inspection areas include the Green River, Cedar River, Sammamish River, Bear Creek, and the Snoqualmie River Basins. [See the Appendix for a map showing enhanced ESC inspection visits performed during 2003.] The Program's services to the Lake Sammamish drainage area are limited to activities permitted by DDES. The Program also implements that portion of the County's response to the Endangered Species Act (ESA) relating to the inspection of non-permitted sites. DDES provides 24 hour 7 days per week complaint response via the Road Maintenance Section's 24 hour 1-800 number—1-800-KC-ROADS. (King County also has a 24 hour x 7 day environmental emergency complaint line--1-888-437-

4771.) After hours and on weekends a staff person is always on standby to assure rapid response to complaints.

The enhanced ESC inspection program serves three main functions. First, it enhances ESC inspections on permitted activities, as described above. These include permitted activities from clearing and grading, short plats, subdivisions, commercial, and residential. The Appendix includes a map that shows the number of permitted sites with enhanced erosion inspections during 2003. For the year, a total of over 5,400 separate inspection visits representing 5,100 hours were conducted at construction sites. T his is a slight increase over the previous year, though spread out over several inspectors and fewer repeated site visits. Some inspections resulted in violation notices and enforcement actions. Frequently, enforcement occurred during, or immediately after, a major rain event. Many ESC inspections occurred prior to rainfall and needed corrections were addressed which meant that the program was more successful in monitoring and preventing potential erosion problems.

The second of the program's three main functions involves the provision of technical assistance through guidance on the use of BMP's at specific construction sites. Many of the site visits focused builders' attention on better erosion control practices. In addition, the DDES web page offers additional information to builders at http://www.metrokc.gov/ddes/esa/ as well as a written notice to builders in the fall. This notice alerts builders that BMP requirements were needed to be in place prior to the end of the growing season and beginning of the rainy season.

The third main function of the enhanced ESC inspection program is the pursuit of enforcement actions for sites that are not permitted and are in violation of Appendices C & D of the 1998 King County Surface Water Design Manual, for other regulations as they apply to water quality, and for ESA compliance for both permitted and non-permitted activities.

Inspections & Consultations—Hazardous Waste

Business – Small Quantity Generator

Survey

In late 2002 and in 2003 the Survey Team conducted work by watershed areas in Kent and Renton, with the cities providing detailed watershed maps and setting the order of work by watersheds of most concern. The Team is providing reports to the cities on their activities and findings by local watershed area. In addition some Survey Team members worked on the Duwamish Project with SPU and Industrial Waste Staff.

City of Kent and City of Renton requested the Survey Team to inspect businesses and provide technical assistance about hazardous materials to watershed areas and to pay special attention to storm and surface water concerns. The Survey Team made 948 site visits in six areas: Kent, Renton, Kenmore, Black Diamond, Maple Valley, and Seattle (as part of Seattle Public Utilities's Duwamish Project). As a result of these visits, environmental compliance had improved at 91.89% of businesses revisited (34/37), the best annual compliance rate ever.

Duwamish Drainage Basin

During 2002 and 2003, the Local Hazardous Waste Management Program worked with KC Industrial Waste and Seattle Public Utilities to conduct outreach to businesses in the Duwamish River's drainage basin (this work continues in 2004). Outreach has focused on educating and aiding these businesses in:

Proper management and storage of hazardous wastes;
Proper management of sanitary system discharges;
Proper management of stormwater runoff.

The primary goal of this work is to help reduce/eliminate recontamination of Duwamish River sediments (the Duwamish is a listed Superfund site, scheduled for cleanup). The work focuses on contaminants such as phthalates and other endocrine-disrupting chemicals, as well as oils, soaps, solvents, etc. Testing is underway to help determine what products in common use at these businesses contain phthalates (such as detergents, auto-detailing products, plastics, etc). This effort should help reduce the amount of harmful contaminants impacting stormwater runoff in the Duwamish drainage basin.

On-Site

The On-site Consultation Program conducted 556 site visits to businesses in 2003. All visits included evaluation of chemical disposal and storage practices to determine if improper discharges to storm or sewer drains were occuring. As a result of these visits, the following stormwater-related changes in businesses behavior occurred:

450 gallons of contaminated process water containing detergents and oils were diverted from storm drains to the sanitary sewer.
2,220 gallons of hazardous chemicals were moved into secondary containment under cover to prevent accidental release into nearby storm and sewer drains.

Response

The Response Team's primary work revolves around investigating public complaint calls (RFA) or interagency referrals on the mismanagement of hazardous materials. The team responds to about 300 RFA's a year. Of those calls, over half of the alleged problems reported had the potential or directly impacted storm drains and surface-water runoff.

Example of a RFA (Request for Action) call:

November of 2003, the Response Team received a call about hazardous waste abandoned beside a lake in Black Diamond. After investigating the call and collaborating with local officials, the interagency team located several hundred containers of paint, tar, resins, as well as miscellaneous containers on the ground near a Black Diamond lake. The Response team member met with the owner of the property to assist with property management and potentially contaminated soil issues. Entering into a negotiated compliance with the property owner, the materials on site have since been recycled or properly disposed of--over 500 containers of hazardous waste and product.

Interagency Regulatory Analysis Committee

The Response Team also administers, facilitates and leads the Interagency Regulatory Analysis Committee (IRAC). As the lead of the Interagency Regulatory Analysis Committee's (IRAC) Troublesome Site Workgroup, the Response team helped coordinate the interagency investigation of, and eventual cleanup of two properties:

- The Pillon property along May Creek,
- Japanese Auto next to the Green River.

As the lead of the Interagency Regulatory Analysis Committee's (IRAC) Grease Workgroup, the Response team coordinated the interagency work on restaurant grease that are stored and managed outside the business. Restaurant grease is often improperly handled and disposed of by restaurant owners and their staff. They often choose methods of storage and/or disposal that allow grease to overflow into storm drains and the environment. Clean up of restaurant grease by methods such as power washing or the use of cleaners or solvents can also cause more grease and hazardous materials to flow to storm drains. The Grease workgroup researches the common causes of grease mismanagement resulting in improper releases or disposal practices, the regulations and ordinances applying in each jurisdiction, and methods to effectuate change.

Mercury Switches

LHWMP is working on getting mercury-bearing switches removed from cars (switches used in trunk and hood convenience lighting, as well as those used in ABS). This will help reduce potential mercury releases to air, ground and water when cars with these switches are crushed or shredded. So far, various government fleets have committed to removing these switches from their vehicles. LHWMP is also developing a program to get these switches removed at auto recycling facilities.

Surface Water Engineering and Environmental Services

Program Overview

The primary role of the Surface Water Engineering and Environmental Services (SWEES) Section is to design and build capital projects in direct support of their Water and Land Resources (WLR) Division's capital needs. In addition, SWEES provides a broad range of engineering and environmental support services. SWEES "clients," both internal and external to King County government, include King County's Department of Natural Resources and Parks (DNRP), Wastewater Treatment Division (WTD), Solid Waste Division (SWD), and Department of Transportation (DOT). Other municipalities as well as County and State agencies also commonly request support.

Interdisciplinary teams within the SWEES group are responsible for developing and implementing projects and providing innovative "state-of-the-art" expertise to its clients. These teams offer technical direction and advice for a variety of challenging ecological and surface and storm water related problems and issues. SWEES team members are comprised of ecologists, engineers, geologists, landscape architects, water quality specialists, and other technical support

specialists. They produce multi-objective projects that address water quality problems, fish and wildlife habitat enhancement and restoration, localized flooding impacts, damage from erosion and sedimentation, hazards to human health and safety, and alterations to hydrology. Solutions to these problems include implementing a variety of traditional and non-traditional capital projects such as:

- Regional storm-water storage facilities that aid in flood damage reduction and improvements to water quality;
- Allowing access to upstream habitat by removing or replacing antiquated culverts that are barriers to fish migration;
- Restoring and enhancing stream, wetland, and floodplain habitats for fish and wildlife;
- Reducing sediment impacts from landslides and channel and streambank erosion.

Program Elements

Capital projects are received from a number of sources, but the majority of projects originate within the WLR Division. Sources include:

1. Basin plans and other reconnaissance efforts performed by the former Surface Water Management (SWM) Division or WLR and its partners have historically been the main source of large projects. Numerous projects identified by basin plans remain to be implemented; some remain in unincorporated King County while others have become the primary responsibility of cities as new areas are annexed or incorporated.

2. The WLR Division Drainage Services Section recommends projects created in response to citizens' drainage complaints and requests from other agencies and municipalities.

3. The rural capital reconnaissance, begun in 2000, is developing into an important new source of projects to address long-standing drainage, sedimentation, and water quality problems in the expanded surface water area.

4. Future capital projects identified through Water Resources Inventory Area (WRIA) planning are expected to solve water quantity and quality problems while restoring degraded aquatic habitat.

A committee of project proponents and the ecologists and engineering staff who will ultimately do the design and permitting prioritizes projects in a two-step process. First, effectiveness and feasibility are used to rank projects. "Effectiveness" measures the overall value of a project on the basis of considerations such as the severity of the original problem, how thoroughly the proposed project would resolve the problem, project cost, durability of the design once built, and possible upstream and downstream impacts of the project. "Feasibility" reflects the constructibility of the project by considering the issues such as physical access to the site, landowner willingness to participate in the project, and the likelihood of securing permits for the projects. Finally, project rankings are adjusted to reflect a number of secondary considerations

such as the multiple benefits provided by some projects, public visibility or support for certain projects, and geographic equity among potential projects.

To efficiently manage the diversity of capital projects, the capital improvement program is divided into four principal areas: Large, Small, Emergency, and Opportunity.

Large CIP
The Large Project Capital Improvement Program includes capital projects identified in basin plans through special studies as well WRIA plans and other sources. Projects were prioritized through the CIP Master List process involving CIP and Basin Planning personnel. Large and small basin plan CIP projects are prioritized during preparation of the basin plans. Upon completion of the basin plan, CIP and Basin Planning personnel adjust priorities based on changing basin conditions, but strive to respect the basin plan's original ranking of projects and the intent of the basin plan's goals and objectives. Expenditures in this category represent a majority of the capital program.

Small CIP
The SWEES Section constructs small capital improvement projects to resolve small habitat and localized flooding problems. These problems, individually, do not represent a significant threat to water resources or cause major property damage, but exhibit cumulative effects that may lead to the system-wide deterioration of valuable habitat and dissatisfaction on the part of King County residents. The Small CIP consists of three program elements:

Neighborhood Drainage Assistance Program (NDAP)
The SWEES Section's NDAP addresses localized flooding, erosion and sedimentation problems that primarily affect private property, and are caused by nonexistent, inadequate or malfunctioning storm-water conveyance systems within the Surface Water Fee Service Area. The NDAP applies to both residential and commercial properties. Neighborhood drainage problems will be addressed through selected enforcement action, maintenance procedures, the construction of capital improvement projects, and through the provision of technical assistance for privately funded solutions. The goal of the NDAP is to provide customer service within the Surface Water Fee Service Area.

The NDAP gives SWEES the authority, funding, and ability to manage surface water runoff outside of County maintained right-of-ways and tracts. The NDAP, along with existing SWEES activities and coordination with the Roads Division, provides SWEES the opportunity to more comprehensively manage storm water systems. Citizens will receive direct benefits from solving flooding and erosion problems that cause property damage, threaten health and safety, and degrade natural resources within their neighborhoods. The NDAP also gives SWEES the opportunity to control surface and storm water runoff at their sources, therefore preventing degradation of our valuable streams, lakes, and wetlands. The NDAP will not immediately address the entire off-road drainage system; rather, it will solve problems as they arise. In many cases the NDAP will accept regular maintenance responsibility for new facilities and those repaired by County crews.

SWEES is notified of neighborhood drainage problems when citizens file a drainage complaint, usually after a storm event. Approximately 40-percent of the total complaints received by SWEES each year is outside of County maintained roadways. NDAP field staff will investigate all problems in the off-road system to collect drainage-related information, and screen and prioritize the problems using impact criteria. The criteria include the type and number of items affected (home vs. yard), severity of impact on the items affected (yard eroded vs. minor yard flooding), potential to cause further damage, damage to natural resources, and the need to adjust expenditures and revenues in identified basins. NDAP staff then routes the problem to one of three solution groups: enforcement, maintenance, or capital construction. Staff will perform a cost/benefit analysis and solve as many problems as funding allows. The SWEES Section staff also offers technical assistance and recommended solutions to all program participants.

Drainage and Habitat Improvement (DHI) Program
The DHI Program builds small capital projects that resolve minor drainage, erosion, and sedimentation problems, and/or improve water quality, and enhance wetlands and habitat in or along natural stream systems. The program focuses on projects that 1) are technically complex, requiring hydrologic modeling, backflow analysis, detailed plans, and/or extensive survey; 2) could have significant downstream impacts; or 3) require use of heavy equipment.

DHI projects are ranked and prioritized by the DHI Core Team using objective criteria such as 1) protection of public health, safety, and private property; 2) protection of beneficial uses such as aquatic, wetland or fish resources; 3) project cost, liability, and chance of success.

Small Habitat Restoration Program (SHRP)
The purpose and goal of the Small Habitat Restoration Program (SHRP) is to build effective and inexpensive small scale habitat restoration projects in stream corridors and wetlands that restore physical, chemical, and biological habitat forming processes for fish and wildlife. The program focuses on 1) developing habitat management plans; 2) providing technical assistance; and 3) constructing habitat restoration projects. These may include stabilizing eroding streambanks, installing livestock fencing, controlling invasive weeds, and planting native vegetation. In the Rural Service Area SHRP is focusing efforts on specific stream corridors in order to reduce or eliminate the "piecemealing" of projects among sites scattered throughout different basins. This stream corridor focus is a landscape-level approach to restoring habitat-forming processes and practicing adaptive management. SHRP projects originate from Basin Plans, County staff, and the general public and community groups.

SHRP also provides technical assistance to property owners and other agencies interested in pursuing their own habitat or enhancement projects.

Emergency CIP Projects
The emergency capital improvement program was designed to respond to emergencies or critical needs without drawing funds from other programs. Typical examples of emergencies are system failures, washouts, and erosive slides that threaten public health and safety, or property. For

emergency responses to storm events, special funding appropriation will be sought to augment the emergency CIP fund when necessary. This category also includes critical projects, in advance of basin plan completion, that solve long-standing problems.

Opportunity CIP Projects
These are generally large CIP projects that become a high priority for another jurisdiction or a developer, who in turn offers to participate in the funding. If the project fits into any SWEES plans or objectives for the area or problem, an attempt is made to establish an arrangement to share funding and identify a participant's scope of responsibilities through an interlocal agreement.

Other programs
The Ecological Services Unit (ESU) manages other programs that directly support the surface water CIP program. They include:

Native Plant Salvage Program
ESU continues to salvage, hold, and propagate native plants for use in surface water CIP and Roads CIP programs where re-establishing native vegetation is desirable or required. In conjunction with WLR's Public Involvement staff, ESU held six volunteer-staffed events throughout King County. Approximately 8,900 native plants were salvaged from development sites in 2003 and approximately 5,000 plants were salvaged by landowners for re-establishing native vegetation and habitat in their own yards. About 7,922 plants were replanted at project sites during the fall and winter dormant periods. These will include salvaged plants, plants propagated at the holding facility, and plants donated to the holding facility by the National Tree Trust, local vocational nursery programs, and private property owners. The program results in significant cost savings to the County and promotes the preservation of native plant gene pools through the extensive use of locally adapted plants.

Management of the Washington Conservation Corps Crew
ESU manages the Washington Conservation Corps (WCC) crew for use on numerous surface water and Roads CIP projects. Crews provide extensive construction support for stream and wetland restoration projects and for projects where work in sensitive areas requires the extensive use of hand labor. Besides offering a low impact method to construct projects in sensitive areas, the use of the WCC crew results in considerable cost savings to the County. In return, crewmembers receive training and job experience in the field of ecological restoration.

CIP Monitoring Program
ESU manages the CIP Monitoring Program. This program creates and implements project-monitoring plans in order to assess project performance and to meet regulatory monitoring requirements. In 2003, ESU monitored 19 previously constructed projects. Ten of these projects required the preparation of yearly monitoring reports that were submitted to regulatory agencies (the King County Department of Development and Environmental Services, the Washington State Department of Fish and Wildlife, and the US Army Corps of Engineers) in compliance with permit conditions. Five reports were *final* reports.

CIP HIGHLIGHTS
SWEES constructed 9 capital projects during 2003, at a cost of 1.285 million dollars, and plans to construct 11 capital projects in 2004.

Road Maintenance Activities

The year 2003 saw continued efforts to improve the Road Maintenance Program to address salmonid impacts. A detailed report on these efforts is provided in the Appendix.

Public Involvement and Training Activities

Department of Natural Resources and Parks

Since 1998, the King County Department of Natural Resources and Parks has conducted an annual Water Quality Survey to track public awareness and attitudes on water quality issues and programs. The department uses survey results to help plan and carry out efforts to protect water quality and communicate with the public. A copy of the Survey is included in the Appendix and may be accessed at ftp://dnr.metrokc.gov/dnr/library/2003/kcr1425.pdf

Department of Natural Resources and Parks, Water and Land Resources Division

Public Involvement Program

Public outreach messages and activities continue to educate and involve citizens on issues of watershed and salmon health and water quality.

Volunteers Program

About **5,580 volunteers** participated in 195 volunteer events on King County Parks and Natural Lands, providing **24,102 volunteer hours**. Volunteers **planted** over **25,859** native trees and shrubs and potted up more than 20,000 seedlings. Planting new sites and maintaining existing plantings (by removing invasive plants and other work) helps prevent erosion, improve water quality and protect salmon habitat.

More than 410 people participated in five **native plant salvage** events, digging up a total of 8,900 native plants (worth over $50,000) from development sites to be used in future plantings. An additional 250 volunteers helped out at the native plant holding facility.

210 volunteers participated as **Salmon Watchers**, noting the presence or absence of salmon species in numerous streams and rivers in King County.

In the lakes program, 105 volunteers participated as **lake monitors**, measuring water quality, lake level, clarity and temperature on their home lakes. Four lake-related workshops and educational events attracted 125 lakeside residents.

Clean **carwash kits** were supplied for 23 charity car wash events and 20 **storm drain stenciling** kits were supplied to interested groups of citizens.

Grants Program
The Water and Land Resources Division awarded **numerous grants** to support improvements to water quality, including habitat. The Division's grant programs awarded 53 grants totalling $626,414 of King County funds, with some in each of the four County WRIA's. The grants brought in an additional $201,550 in federal funds and $2,193,888 in local matching funds.

Public Information and Education Programs
Classroom water quality presentations reached more than 3,300 students at 58 schools. Staff presented an hour long, hands-on class about water quality, wastewater treatment and individual responsibility for a healthy environment.

A total of 4,515 people participated in our **Groundwater Education Program**. This includes 170 classrooms of students as well as a number of audiences at community events. This program explains our connection to groundwater and how we can protect it.

Volunteer **Beach Naturalists –** 111 of them **--** made more than 18,600 contacts with public visitors to seven area beaches on low tide weekends during the fifth summer of this program sponsored jointly with The Seattle Aquarium.

In the sixth year of the **Cedar River Naturalist** program, 52 trained volunteers helped nearly 5,000 visitors spot spawning salmon along the Cedar River and understand the natural and human history of the watershed. Teams of naturalists also delivered these messages on two summer Saturdays at the Ballard Locks; more than 10,000 people visited the Locks during that time.

A total of 510 residents attended twelve **naturescaping presentations** around the County. Attendees learned how and why to use native plants and shrink the lawns in their home landscapes, thus keeping pesticides and fertilizers out of lakes, streams, rivers and marine waters.

King County's **Programs for Educators** 2003-2004 School Year Edition booklet was also published and distributed, both in hard copy and on the web. It continues to serve as a valuable resource for environmental educators with updated listings of action projects, classroom programs, curricula, field trips, grants, Internet resources, newsletters, teacher workshops and videos.

Spring and fall issues of **Downstream News** were mailed to about 13,000 volunteers, teachers and others and four issues of **Lake Steward** were mailed to 2,200 lakeside residents in the

County. Topics featured in these publications included protecting habitat, reducing hazardous waste, removing noxious weeds, preserving trees, conserving water and gardening naturally, with lots of tips on ways to get involved and find out more.

The **Going Native brochure** was thoroughly revised, rewritten and redesigned and 3,000 copies printed. The brochure explains how native plants benefit homeowners and water quality and gives specific instructions for buying, planting and caring for them

The **Wheels to Water** environmental school bus program reached 5,625 students, an increase of 66% over last year, thanks to an EPA grant and large turnouts last fall. This program provides free Metro bus transportation to water quality education sites throughout the County.

Staff organized and participated in 11 **public meetings on the Critical Areas Ordinance**. A total of 790 people attended and gave their input on the proposed revisions to the CAO.

The King County **Stormwater Website** was updated during 2003 with new resources and related links. It was used to post the 2003 Annual Report simultaneously with its submission to Ecology and the website updates added all of the County's prior municipal permit reports. In 2003, the web site was also used as a communication tool for the process of updating the King County Surface Water Design Manual and the King County Stormwater Pollution Prevention Manual and was used to highlight articles, events, and comment periods related to Stormwater in the State and region. The URL for the site is: http://dnr.metrokc.gov/wlr/stormwater.

WLR also launched the Northwest Gardening Connection web site as an additional component of its source control program. This site supports the public education and employee training requirements of King County's NPDES Municipal Stormwater Permit as well as organizational goals for environmental quality, waste to resource, community investment, price of service, customer service, employee involvement, and organization. It can be found at http://dnr.metrokc.gov/wlr/dss/gardening/.

Lake Stewardship Program

- In 2003, the Lake Stewardship Program trained and supported over 100 citizen lake monitors on 55 small lakes plus Lake Sammamish and Lake Union for sampling and recording water quality and quantity information.
- The **2002 Lake Monitoring Report** was completed in December 2003 – written, edited and designed in-house. Water quality and quantity data for 50 county lakes were collected by the Program's Volunteer Lake Monitors and analyzed by Program staff for the report. Hard copies of the report, the eighth in a series, were distributed to approximately 100 local stakeholders and a digital version is available online at: http://dnr.metrokc.gov/wlr/waterres/smlakes/
- Two public workshops were offered: one on identification and control of aquatic vegetation, both native and noxious, and the other on King County shoreline codes and regulations.

- Technical assistance was provided in over 200 instances to lakeside residents and local jurisdictions, addressing water quality issues and protection activities.
- More than 23 presentations on lake ecology, water quality, and citizen involvement were made through the year upon request to community clubs, school groups, summer day camps, and other gatherings.
- **The Lake Steward**, the program's newsletter – produced entirely in-house – was distributed to approximately 2,300 lakeside residents and interested citizens each quarter. The newsletter provides information on a variety of water quality protection and enhancement activities, as well current reports on small lakes water quality data.
- The program to eradicate Hydrilla from Lakes Pipe and Lucerne was continued, managed by the Program through an agreement with the cities of Maple Valley and Covington, using a grant from the Washington Department of Ecology.
- Projects involving Lake Garrett (Hicks) trained 4th through 8th graders at White Center Heights Elementary and Cascade Middle School to do Level I monitoring on the lake, and worked with King County Parks and local community groups to replant native vegetation along the shoreline and remove noxious weeds from the park.
- The Program worked with citizens from Spring Lake to produce an Integrated Aquatic Plant Management Plan and to apply for grants to eradicate or control four different noxious weeds found in the lake and nearshore environments. All lakeside residents granted permission for weeds along their shorelines to be treated in the summer
- Interim monitoring of Beaver Lake inlets was performed by agreement with the city of Sammamish during an LMD renewal phase, followed by the signing of an agreement to do the monitoring work over the life of the second LMD.
- Also as part of the LMD, the Program produced **The Beaver Lake Monitor**, a bi-annual newsletter that targets residents around Beaver Lake. This publication is an educational communication piece designed to raise awareness of water quality protection and keep the community informed of the action taken under the LMD.
- The program followed up on a special project started ten years ago in the Cottage Lake inlet streams. Special water quality monitoring was done to see if management changes along the streams have had an effect on water quality. This work helped supplement the design of the phosphorus TMDL on Cottage Lake.
- **Small Lakes Recreation At-A-Glance** – an easy reference, brochure about recreation opportunities at King County's small lakes – was created as a companion piece, to the comprehensive **Small Lakes Recreation Guide** available only online. The brochure, created entirely in-house, was designed to extend the value of online version.
- The Program's extensive Web site was updated more frequently in 2003 to include timely information on workshops, training, new publications, photos, lake-related events and news, and emerging lake-related issues. Go to: http://dnr.metrokc.gov/wlr/waterres/smlakes/
- To facilitate visitor's access to lake information, a new, easier to use URL was created: http://dnr.metrokc.gov/lakes/ by the Webmaster for the Program.
- Program staff met with residents from Lakes Killarney,Geneva and Steel to discuss potential aquatic weed removal projects at each lake in the near future.
- Program staff served in an advisory capacity on Maple Valley's aquatic weed removal project.

Local Hazardous Waste Management Program

The Local Hazardous Waste Management Program (LHWMP) has several efforts that aim to protect water quality by reducing residents' use of pesticides and household hazardous materials through education and training.

The following summarizes the diversity of the LHWMP programs:

Green Gardening

A summary of activities in 2003 includes the following highlights:

- Weed and feed products and the problems they pose were discussed with all program audiences, both professional and consumer.
- Green Gardening team members, Master Gardeners, and other volunteers made 37 presentations to community groups, reaching an estimated audience of 845 people, exceeding event and audience goals by 16% and 30%, respectively. More than half of those who use weed and feed said that they would quit or consider quitting after hearing the presentation.
- Mary Robson wrote a total of 6 Green Gardening articles for the Practical Gardener column in the *Seattle Times*, daily circulation 224,000, estimated column readership 50,000 per issue.
- A total of 92 Master Gardeners plus 18 staff and other volunteers received a three-hour introduction to Green Gardening principles during their training program.
- Two new *Pro*IPM fact sheets were written this year, bringing the total number in the series to 26. The *Pro*IPM fact sheets were promoted in nine print advertisements that ran in the journals of the Washington Association of Landscape Professionals and the Washington State Nursery and Landscape Association. Internet access to the *Pro*IPM fact sheets increased more than 20% over 2002 levels.
- The Green Gardening team developed new curriculum and presented two cycles of ten workshops for staff at garden centers and the SPU Natural Lawn and Garden Hotline. Spring attendance was 139; fall attendance was 123. Eighty-two percent of participants said that they try to steer customers away from weed and feed products towards other methods of weed control.
- In cooperation with instructors, a new, expanded curriculum was developed for the community college horticulture classes. Each group received 4.5 contact hours of teaching and students were required to do a class project. This new curriculum was presented to students at Edmonds Community College, South Seattle Community College, and two classes at Lake Washington Technical College.
- The one-day IPM conference for landscape professionals attracted the highest registration ever: 372.

  All aspects of the Green Gardening Program were evaluated with participant surveys. New questionnaires this year explored consumer use of and attitudes towards weed and feed, as well as retailer perspectives on the issue.

Natural Yard Care

Since 1997 the Natural Lawn Care Program, a cooperative effort with King County Department of Natural Resources, Seattle Public Utilities and other public agencies, has used advertising, media events, brochures, community outreach and other methods to encourage people to change their lawn care methods. Natural lawn care methods will mean reduced use of pesticides, fertilizers and water, and reduction of solid waste.

In it's first five years, what was called the Natural Lawn Care approach used expensive media advertising to spread the message about key behaviors. Awareness about the behaviors grew exponentially but behavior change did not. For the last three years, the Natural Yard Care Neighborhoods program has been using a community-based social marketing approach to target individual communities, train them in the techniques of natural yard care, and let them spread the word. It has been very successful at a fraction of the previous cost and is holding awareness levels high while changing the behaviors of nearly everyone who takes the training. Sixteen neighborhoods have already been trained and from 10 to 13 are planned for every year.

General outreach

Distributed 25,000 general Household Hazardous Waste brochures, e. g. Five Steps & Hazards on the Homefront [WLRD]. Distributed over 120,000 brochures and videos through lawn care phone line, the NW Flower & Garden Show, events, nurseries and other methods. The Stop before you spray good bug guide was featured in Sunset magazine, and won an award from 3CMA, a city-county organization. In general, local government activity focused more on gardening topics in 2003 and less on general household hazardous waste topics.

Provided household hazardous waste education via ECOSS to non- English speaking, low-income and other ethnic minority families. In 2003, ECOSS outreach workers conducted 230 home visits, convened/ facilitated 37 groups, and attended more than 27 events. They distributed Green Cleaning Kits in the following language- specific communities: Spanish, Vietnamese, East African, and English.

Property Managers

LHWMP sponsored a booth at the December 9 Trends event for residential property managers. Ten LHWMP staff volunteered to speak with property managers about hazwaste and proper disposal. (We usually include the Drains fact sheet.) Foot traffic at the show was estimated at 1800 property managers.

Home Buyers Education

In 2003, we directly reached 35,000 new homebuyers in King County with information about proper disposal of household hazardous waste, including paint, pesticides, motor oil and other products that could end up going down the drain.

School Program

In 2003, the LHWMP Household Hazardous Waste School Program saw 5875 students (grades 4-12) and their 120 teachers. The program includes a lesson about tracing the path of household products from the home -- via storm drains and groundwater and runoff -- to bodies of water bodies and to fish. Also included is a lesson about proper disposal methods, including a discussion on why it's not a good idea to dispose of hazardous household waste in storm drains, or by dumping on the ground.

Groundwater Program

Classroom Presentations

During classroom style presentations, the Groundwater Education Program provides students with the knowledge and skills they need to make informed decisions and behavior changes aimed at increasing the quality and quantity of groundwater.

Students are engaged in interactive classroom activities on the water cycle and groundwater conservation and protection and a home water use inventory/audit.

In 2003, 4,515 students received the classroom Groundwater Program presentation. This included 16 districts, 58 schools and 170 classrooms.

In addition to school visits, the Groundwater Program participated in a number of youth oriented festivals. These included the following:

- Water Festival 2003 (Highline CC)
- Northshore Watershed Festival (Bothell)
- Meridian Elementary School (Kent School District)/Soos Creek Science Fair
- Renton River Days Kids Day (in conjunction with City of Renton)
- Wilder Elementary School (Lake Washington School District) PTA Science Fair
- PACE at Lockwood Elementary (Northshore School District) Outdoor Education Program
- Bellevue Parks Outdoor Education Day

Public Outreach

Public and adult outreach is accomplished primarily through informational booths at community and environmental fairs with the dissemination of materials and discussion of our exhibits and displays. At these festivals and fairs, interactive exhibits in the booth allow attendants the opportunity to discuss groundwater with community members. A large groundwater model is used to show the relationship of those of us above the ground to the water below the ground. Citizens can also be directed to other resources to develop a positive attitude toward this resource.

The Groundwater Program had a presence at the following community fairs/festivals:

- Vashon Strawberry Festival
- King County Fair

- Renton River Days
- Alpine Days (North Bend)
- Snoqualmie Railroad Days
- Issaquah Salmon Days

Department of Natural Resources and Parks, Parks Division

King County manages over 25,000 acres of land with many of these properties protecting salmon habitat and thus water quality. Unfortunately, King County is facing an unprecedented budget crisis that is affecting all agencies, including Parks. Reduced sales tax revenues and voter-approved initiatives contributed to a County budget shortfall of $52 million for 2003. The County anticipates budget shortfalls of more than $22 million in 2004 and 2005. While all County activities funded by the general fund have made budget cuts in response to the shortfalls, Parks has taken a proportionately larger share of the cuts because it performs more of a discretionary than mandatory function.

In 2003, Parks cut $9.1 million from its budget including more than 80 full time positions. This was following a nearly $3.2 million cut in the 2002 budget that included 30 full time positions. Regrettably, the Interpretive Programs Office was one of the programs eliminated from the 2003 Parks budget. Many of the programs once offered by the IPO office are being continued through a unique partnership with “Nature Vision”, a non-profit environmental education business. They are continuing the "Nature Connection" programs, which were the programs Parks previously offered to schools. These programs covered topics relating to wetlands, streams, forests and marine life. Nature Vision is also able to provide these programs to groups such as Boys Scouts, Girl Scouts, etc. The County still owns the supplies and curriculum materials that were developed and acquired by Parks, and allows Nature Vision access to them. Nature Vision's Website is http://www.naturevision.org.

The Parks Natural Resources Program works with volunteers on a variety of projects including wetland and natural land restoration, invasive plant removal, water quality monitoring, bird and plant inventories, and trail building. Educational components are often incorporated in projects through the contribution of other county divisions or departments (i.e. WLRD) and non-profit environmental education agencies. In 2003, 200 plus volunteer events were completed on King County Parks and Natural Lands. Over 5,580 volunteers provided more than 24,120 volunteer hours on restoration projects.

Informal bird walks led by Audobon Society members take place informally on trails and in parks including Marymoor Park and the Soos Creek Trail. The King County Fair works with 4-H and other agencies to provide educational activities and information regarding agriculture, water quality, land management and other issues.

Employee Training Related to Water Quality
Employee training is an important component of managing the park system acreage to insure compliance with current regulations and model land management practices. Employees attended the following list of courses in 2003.

- Pesticide Applicators Re-certification - 18 employees (16 hours each)
- Dangerous Waste Management – 2 employee
- Stormwater Conference – 1 employee

Other Parks Activities to Benefit Water Resources
Parks reduced water consumption in 2003 by still employing the conservation measures adopted during the drought year of 2001.

Parks manages over 25,000 acres of land and over 200 parks. In addition,
Parks has hundreds of miles of trails. Maintenance activities include replacing culverts, cleaning and reestablishing ditches, cleaning storm water structures, controlling non-native vegetation, etc. Parks inventoried its stormwater quantity and treatment facilities and provided the data to DNRP during. During 2003, Parks started the development of a stormwater system maintenance and inspection program. The activity began with constructing accurate drawings of existing Parks stormwater systems. Parks is expecting to initiate maintenance inspections during 2004.

In 2004, Parks is expected to initiate Stormwater Employee Awareness training program.

In 2004, Parks is planning to revise the 2002 Best Management Practices manual. The manual includes sections on small construction site erosion and sedimentation control practices, Integrated Pest Management (IPM), irrigation, and other Parks Dept. day-to- day operations that may influence stormwater.

During 2003, Parks initiated surveying (using GPS) of the former logging roads and trails within Taylor Mountain Park. This activity was completed in March 2004. As part of The Fish and Forest Practices Act the long-term plan is to remove any unneeded roads and trial thus restoring natural habitat.

Department of Development and Environmental Services
In 2003, DDES Environmental Education (EE) outreach staff focused on activities related to the County's proposed updates to the Critical Areas Ordinance and other environmental codes including KCC 9.04, the drainage code. (The drainage code updates are the first step towards a King County Surface Water Design Manual (SWDM) that is equivalent to Ecology's Stormwater Manual for Western Washington. Discussions were also held with members of the agricultural community and DDES and WLRD staff on how to apply the SWDM's design standards when dealing with the large metal roofs common to agricultural buildings.

Department of Executive Services

The Environmental Purchasing Program, of the King County Procurement & Contract Services Section, produces periodic (about once a month) e-mail Environmental Purchasing (EP) Bulletins to highlight recycled and environmentally preferable products, events, contracts, and other materials of interest to participants in the program. These bulletins were originally produced for program contacts within King County, but are now distributed to suburban cities and others and have become a valuable tool for initiating the exchange of information with other programs.

Copies of two recent bulletin is included in the Appendix and can be accessed at http://www.metrokc.gov/procure/green/bul80.htm and http://www.metrokc.gov/procure/green/bul84.htm. The program's 2003 annual report is available at http://www.metrokc.gov/procure/green/bul83.htm. Past bulletins can be found at: http://www.metrokc.gov/procure/green/bulindex.htm.

Topic Categories:
- The Program
- Annual reports
- Environmentally Preferable Materials - Construction
- Environmentally Preferable Materials - Office/Janitorial
- Allied King County programs/activities
- Hazardous waste
- Construction, Demolition and LandClearing
- Recycling/Reuse
- Green Building
- Waste Prevention/Source Reduction
- Environmental Purchasing Resources

Integrated Pest Management

The King County government continues its efforts to incorporate Integrated Pest Management (IPM) principles in their internal operations as directed by the 1999 Executive Order. IPM is a well-established, holistic approach to managing pests and landscapes. It seeks to prevent or address pest problems by employing a wide range of strategies, generally using chemical pesticides as a last resort. The IPM approach considers the impacts of management methods on the environment and public health.

Some of the landscape management activities used last year that highlight IPM principles were:
- Continued hand pulling weeds and using mechanical tools such as flame weeders, weed wrench's and string weeders.
- Using large amounts of mulch for weed suppression.
- Actively considering alternative methods, practices and products.

- Tolerating a greater number of weeds in the landscape. Because this caused an increase in complaints from a public accustomed to a more manicured look placards were developed to educate the public on IPM and the "weedy" look.

Other IPM activities included:

- The IPM Steering Committee met quarterly to communicate, coordinate and share experiences. The members are from county departments and divisions with a role in managing landscapes.
- In response to the arrival of the West Nile virus the issue of mosquito control and IPM principles was a regular agenda item for the steering committee.
- The e-mail Info-Share, created to share expertise, solve problems, announce events and otherwise communicate, was distributed as needed.
- Staff continued to research and provide information on local training opportunities.
- Continued efforts to make changes in contract language for contractors working on county property. The county hopes this will reduce pesticide use over time as contracts are renewed.
- Continued the process of reviewing requests to use Tier 1 products for the control of noxious weeds.

Other Compliance Activities

In addition to the documents described above, the Appendix to this report also includes information on other compliance activities continuing in the County, water-related CIP projects (improving fish passage, etc.), and mapping of the County's storm sewer system.

S10 (B) 7: IDENTIFICATION OF KNOWN WATER QUALITY IMPROVEMENTS OR DEGRADATION

Beach Monitoring Program

To track public health issues related to swimming, a public swimming beach monitoring program was implemented in 1996 , and continues as a cooperative effort of WLRD, KC Environmental Laboratory, the Seattle King County Public Health Department (SKCPHD), and a number of suburban cities. In 1998, 21 public swimming beaches on lakes Washington, Sammamish, Five-Mile, Wilderness, Pine, Beaver, and Green were sampled weekly from June through September. In 1999-2001, the public swimming beaches on lakes Washington, Sammamish, and Green were sampled weekly from June through September, while the other lakes were sampled by other jurisdictions and private laboratories. In 2000, sampling included the Magnuson Off-leash Dog Area. In 2002, 26 beaches and the off-leash area were sampled. All bacterial data were immediately transferred to the SKCPHD for determinations on public health and contacts with the local jurisdictions and parks departments, and published on the King County Website at <http://dnr.metrokc.gov/wlr/waterres/lakes/bacteria.htm>.

Data from the beach monitoring program was used by the SKCPHD to identify potential public health problems. Bacterial counts at nearly all the beaches monitored were within acceptable ranges and did not warrant swimming beach closures. Juanita Beach (King County Parks) was the only beach closed during the summer of 2001, and this closure was caused by a sewer line break associated with construction adjacent to the park. In 2002 only Green Lake swimming beach was closed, but because of toxic cyanobacteria, not fecal bacterial, contamination.

The major modification to the program for 2003 is the development of a training program for local jurisdictions. The training includes sampling and handling protocols and laboratory analysis for the first year. After the first year these jurisdictions will be responsible for collecting and analyzing samples for their swimming beaches. Data analysis and publication on the KCDNR webpage will be carried out by KCDNR staff as part of our regional services

Basin Management Evaluation Program (BMEP)

In the year 2003, the Basin Management Evaluation Program (BMEP) annual monitoring activities continued to face many obstacles and permit requirements stemming from the Endangered Species Act. Although some of our monitoring activities continued as planned and projected for 2003, several monitoring programs were altered, challenged, or discontinued because of unforeseen obstacles.

King County Water and Land Resources Division's stream habitat assessments, which had been performed annually since 1997 on Bear and Soos creeks and the Cedar River tributaries, were halted or altered in 2000 because of a property access issue. The County's property access policies were challenged by a property owner who did not want County scientists accessing and monitoring his land. This issue was presented to a task force for remedy and all forays onto private lands were halted until a reasonable outcome could be determined. King County unsuccessfully attempted to get written letters granting access to contiguous properties in the Bear Creek study sites, and the County disbanded its annual habitat assessments for 2000. Where property access was obtainable, limited habitat surveys were carried out in Bear Creek in 2001 and 2002. Habitat surveys were performed in Bear Creek and the Cedar River tributaries in 2003 and are planned for these waterbodies in 2004.

Since 1994, King County biologists have actively surveyed the Bear Creek, Cedar River, and Issaquah Creek basins as part of an effort to monitor the health of native salmonid populations in WRIA 8. These surveys include active participation from local, state, federal, and tribal agencies. Since the 1999 listing of Puget Sound chinook salmon, particular emphasis has been placed on documenting the distribution and spawning characteristics of these species, and will continue for the next five years. In 2002, surveys continued to focus upon chinook salmon, with emphasis on making distinctions between hatchery raised and wild fish in the Lake Washington watershed. Salmonid surveys were conducted in Bear Creek and the Cedar River in 2003 and are planned for 2004.

In 2000, King County began to formally survey the nearshore environment along King County beaches to determine the presence of ESA listed species (e.g. chinook salmon and bull trout). In 2001, these efforts were increased to include Vashon Island and the southern portion of Snohomish County. This effort continued during 2002.

Hydrologic monitoring continued as planned in King County for 2001. Soos, Bear, and Issaquah creeks were gauged and monitored. Gauges were also maintained in the Cedar River tributaries and in the East Lake Sammamish system. Gauging in the Bear, East Lake Sammamish, Issaquah Creek, and Lower and Middle Cedar River watersheds supported water quality investigations and habitat studies. New gauges were also established in the Green River watershed for water quality assessment. Three new sites were established in WRIA 7 on tributaries to the Snoqualmie River as rate funded surface water activites expanded into these areas. Hydrologic monitoring continued in all of these waterbodies in 2002 and 2003 and is planned for the same sites in 2004.

Land use and land cover assessments were slated to begin in 2000 but were conducted only in Bear Creek and were postponed elsewhere until 2002. Land use and land cover assessments did not take place in 2002 or 2003 and are not planned for 2004.

Benthic macroinvertebrate monitoring continued on track in 2001. King County Water and Land Resources Division sampled sites in Bear Creek, Soos Creek, Cedar River, Issaquah Creek, and in Shinglemill Creek on Vashon Island. Bear, Soos, and Issaquah creeks and the Cedar River were monitored for benthic macroinvertebrates in 2002 and 2003; monitoring is planned for 2004 as well.

Water quality monitoring continued as projected in 2001. County scientists monitored water quality in 2002 and 2003 in Soos, Bear, and Issaquah creeks, East Lake Sammamish, and the Cedar River, and plan to conduct water quality monitoring in these waterbodies in 2004.

Wetland monitoring in King County has changed dramatically since the NPDES permit was written. King County has focused its wetland monitoring resources on mitigation banking sites; these monitoring sites include one site in the Sammamish plateau and another site near Swamp Creek. Wetland monitoring continued at the Urban Planned Development in the Bear and Swamp creek systems. Wetland monitoring activities have also expanded to include vegetation surveys, bird surveys, and amphibian surveys. Wetland monitoring did not take place in 2003 and is not planned for 2004.

A table showing the types and location of monitoring completed during the permit term is included in the Appendix.

S10 (B) 8: STATUS OF WATERSHED-WIDE COORDINATION

ILA Program
In 2001, work began on development of work products under the ILA construct involving cost sharing by more than 45 jurisdictions to support the salmon conservation planning effort. The work is now entering its four year and all jurisdictions are continuing to participate.

In WRIA 7, the final version of the Snohomish Basin Near Term Action Agenda (NTAA) was approved in 2001, which included guidance for local governments in updating local policies and regulations while a more detailed salmon conservation plan is developed. In 2002, the joint review of local planning policies and regulations was completed. In addition, the Forum approved a proposal to develop model language for jurisdictions that would meet the guidance of the NTAA. In addition, scoping and workplan development for the Multi-Species Salmon Conservation Plan was completed in 2002. WRIA 7 is on target for a draft plan in June 2004 and a final in June 2005.

In WRIA 8, The Draft WRIA 8 Reconnaissance Report, which includes known, probable, and possible factors of decline organized by sub-basin, was published in March 2001 and the Reconnaissance Assessment was updated and expanded as a Limiting Factors Report. The first draft of the Near Term Action Agenda was completed in December 2001 and adopted in 2002. Detailed scoping for the Salmon Conservation Plan took place in 2002 as well as work on the Strategic Assessment. The Strategic Assessment will provide the technical foundation for the conservation plan as well as baseline information needed for adaptive management. In 2002, WRIA 8 also hired a consultant to develop the Ecosystem Diagnostic and Treatment (EDT) model for the watershed, which will provide guidance for the development of recommendations in the conservation plan. A draft framework for that plan was completed in December 2003 and with the draft plan due in March 2004. A final is tentatively scheduled for August 2004.

The draft Near Term Action Agenda for WRIA 9 was completed at the end of 2001 and is based on findings in the WRIA 9 Reconnaissance Report. As with the other NTAAs, it contains actions that can be taken in the next 2-3 years while more detailed conservation planning is underway. In 2002, work on the Strategic Assessment proceeded the detailed scoping and workplan for the Comprehensive Salmon Conservation Plan was completed. In 2003 and 2004, work on the Strategic Assessment is underway with a draft plan due in May 2005 and a final in December 2005.

While not part of the ILA structure, King County continues to participate in planning for WRIA 10 under Pierce County's lead. The WRIA-10 group completed its recovery plan in September 2003. The plan identifies potential actions, assesses their effectiveness, and prioritizes the actions necessary to meet recovery goals. Plan implementation, like the technical planning and plan development processes, will be accomplished by voluntary participation of watershed stakeholders.

CONCLUSION

The County's SWMP continues substantially as planned and disclosed in our approved submittal, although the emphasis of our management activities has shifted to addressing threats to the survival of salmonids and to making the water quality improvements (including improved habitat elements--not just water chemistry) necessary to assure that salmonids can thrive in our waters.