

Volunteer Monitoring

Chapter Includes:

Project “GREEN” Monitoring

2006-2007 Volunteer Monitoring Activities

Project "GREEN" Program

South Sound GREEN (Global Rivers Environmental Education Network) is a watershed education program of the Thurston Conservation District. Currently, more than 40 teachers and their students from schools in the North Thurston, Olympia, Tumwater, Griffin, and Rainier School Districts as well as St. Martin's College and other private schools are involved in this community-based, action-oriented program. The Nisqually River Education Project, which also gathers water quality data based on the GREEN protocols, currently has 34 teachers and their students participating, including schools from Eatonville, Yelm, North Thurston, Clover Park and Steilacoom. As participants, students monitor the chemical parameters of the Deschutes and Nisqually Rivers and several of their tributaries, and streams in the Henderson, Eld and Totten watersheds. Monitoring sites also may include lakes and wetlands. Monitoring data, coupled with information about cultural, economic, and environmental aspects of the watershed, help students identify and prioritize issues facing the community.

Data is collected by students twice yearly, once in autumn and once in late winter. Students usually also conduct EPA Stream Walks on these monitoring days. Data and recommendations for addressing issues facing the local watershed are presented by students at a student Congress held each spring. At this Congress, students attend workshop sessions to gain skills needed to implement their recommendations. Working with community members, students plan and implement environmental research and action projects designed to enhance and protect local water resources. South Sound GREEN is funded by a combination of public and private funding sources including: Thurston County, Thurston Conservation District, the Cities of Olympia, Lacey and Tumwater, North Thurston School District, and Trout Unlimited.

On monitoring day, students collect grab samples at their monitoring sites. Generally, the tests are conducted in the field. In some instances, students may transport the collected samples in a cooler and conduct the tests in their classroom. Taking the potential for operator error into consideration, three split samples are run from the same collection bottle for pH, nitrate and turbidity. For dissolved oxygen and biochemical oxygen demand, two or three samples are collected from the river in the same place at the same time. A sterile bottle is used to collect a sample for fecal coliform and three split samples are run if time and materials allow.

The chemical parameters are measured using a variety of monitoring equipment. Dissolved oxygen and biochemical oxygen demand are measured using primarily LaMotte test kits. Komachin Middle School uses Hach kits for these parameters. Fecal coliform tests are conducted by the standard membrane filtration method using the Millipore Sterifil Aseptic filter system. The samples are incubated for 24 hours and the numbers of bacteria colonies visible on the petri dishes are counted directly. The data indicates number of fecal coliform colonies present in 100ml of water sample. Wide range indicator pH kits from HACH are used to measure pH while LaMotte kits are used to measure turbidity.

Total solids samples collected by South Sound GREEN students use sampling bottles from the LOTT Wastewater Treatment Facility. Samples are kept in a cooler and delivered to LOTT for analysis. The Yelm Wastewater Treatment Facility provides the total solids bottles and the analysis for the Nisqually River Education Project students.

For more information on South Sound GREEN, contact Anne Mills, Program Coordinator, Thurston Conservation District, at (360) 754-3588, ext. 108 or ssgreen@thurstoncd.com. For Nisqually River Education Project, contact Sheila Wilson, Program Coordinator, (360) 438-8687 ext. 2153 or sheila@nisquallyriver.org.

The data collected for the 2006-2007 water years follows.

Site	School	DO	FC	pH	BOD	Water Temp.	Turbidity	Total Solids
*THTC=Too High to Count	10/19/2006							
Eaton Creek-86th Ave SE (Hall's)	Lydia Hawk	9.2	18	7.5	0	10	10	1
Eaton Creek-Evergreen Valley Rd.	Southworth (Murphy)	8.4	86	7.5	1.3	10	3.3	1
Horn Creek	McKenna (Dahlberg)	7.8	86	7.5	0	10	0	<1
Kalama Creek	Mill Pond (Knight)	8.3	29	7	1.1	10	0	1.5
Lacamas Creek-288th St. S	McKenna (Pederson)	6	n.a	7.5	1	11	5	N.A.
Lacamas Creek-S.R.507	McKenna (Roth)	8.9	82	7	0.2		3.3	N.A.
McAllister Creek-Nis. Refuge	RRHS (Geyen)	7.6	112	7.5	1.3	12	32	386.5
McAllister Creek-Steilacoom Rd.	RRHS (Gradoville)	6.2	40	7	1.5	8	5	1.5
Muck Creek-8th Ave. E	Clarkmoor Elem.	10	31	7.5	2	N.A.	1.25	<1
Nisqually - Frank's Landing	Wa He Lut	12	N/A.	7	4	14	7	48.5
Nisqually Date:10/19/06		mg/L	col/100mL	units	mg/L	Celsius	JTUs	mg/L
Nisqually- McKenna	Mill Pond (Carlsen)	12	70	6.5	2.5	12	25	11.5
Nisqually -Tank Crossing	YHS - (Wood)	9.5	66	7.5	1.5	13	15	n.a.
Nisqually-Centralia Boat Launch	Yelm HS (Wallis)	10.25	17	7.5	error	14	1.6	10
Nisqually-Centralia Powerhouse	Southworth (Tatro)	7.4	12	7	0.4	15	20	10
Nisqually-Nis. Pines	Yelm HS (Wallis)	10	35	7.5	1.1	13	21	6.5
Nisqually-Tahoma Woods	Columbia Crest	12	0	error	N.A.	N.A.	THTC*	13757
Ohop Creek-Kjelstad Rd.	Eatonville Elem.	8.6	40	7	0.6	10	15	4.5
Red Salmon Creek-McBride's	Meadows Elem.	9.8	20	7.5	0.97	10	0	<1
Tanaxax Creek-	Weyerehauser Elem.	8.6	24	7	0.6	10	11.6	149.5
Toboton Creek-Piessner Rd.	Lackamas Elem.	10.3	46	8.3	1.3	10	15	N.A.
Total Phosphates-Nisqually-McKenna-0								
Yelm Creek-Bald Hills Rd.	Praire Elem.	3.2	n.a.	7	0.2	11	43	34
Yelm Creek-Ft. Stevens	Ft. Stevens (Wertz)	8.5	4	7	0	15	5.8	<1
Yelm Creek-Ft. Stevens	Ft. Stevens (Rich)	9	4	7	0	15	6.6	<1

South Sound
GREEN
2006-2007
Water Quality Data

Parameter	DO (mg/l)		DO sat (%)		FC (#/100ml)		pH		BOD (mg/l)		Water Temp. (°C)		Turbidity (JTU)		Total Solids** (mg/l)		Weather/Notes		School	Teacher Advisor
	Oct	Mar	Oct	Mar	Oct	Mar	Oct	Mar	Oct	Mar	Oct	Mar	Oct	Mar	Oct	Mar	Oct	Mar		
Optimal Standard	7.0-8.0				50		7.0-8.0		0		9.0-12.0	0			25-80					
Acceptable Standard					50-100		6.5-9.5		lower the better		12-18°C									
Deschutes Watershed																				
Deschutes @ Military Rd	10.6	94	NAF	81	NAF	16	7.5	9.8	0	0.4	12	4.5	0	2	0.9	2.8	5°C	overcast showers; 14°C	CSE	Rehoboth
Deschutes River @ Rich Rd (Red)	7.7	14.2	NAF	95	NAF	12	7.0	7.0	0	1.2	12	5	0	13.0	0	7.7	11:15 cloudy; 5°C	Black Hills HS	St. Clair	
Deschutes River @ The Farm Center (The Barn)	6.6	11	NAF	82	NAF	26	7.0	7.0	1.16	3.15	10.3	7.7	0	17	0	7.2	4°C	overcast, drizzle; 14°C	St. Mary's University	Garman
Deschutes River @ Pioneer Fls	8	11	NAF	86	NAF	65	7.0	7.0	0	NAF	10.3	NAF	17	15	0	5.2	4°C	overcast, drizzle; 45°F	Immaculate HS	Rehoboth
Deschutes River @ Turbine Fls	10.06	10.56	NAF	109	NAF	312	7.0	7.0	0.86	0.56	20	17	3.3	10	1.1	4.3	3:00 PM; cloudy; 45°F	Overland HS	Kirk	
Deschutes River @ Historical Park	9.33	13.67	NAF	90	NAF	520	7.5	7.5	0.83	2	9	7	5	18.33	2	27	9:00; cloudy; 4°C	McKernan Elem	Brewer	
Black River/Perceval Creek Watershed																				
Black Lake Ditch @ R. W. Johnson Rd	8.27	10.067	NAF	83	NAF	NAF	7.0	7.0	3.3	NAF	NAF	7	13.3	5	2	1.8	Mar	cloudy, 14°C	School	Teacher
Perceval Creek @ Chaappal	10.1	80	NAF	80	NAF	NAF	7.0	7.0	7.8	NAF	12	7	0	0	8.3	1.8	cloudy and cool	YMCA Service Corp	Ziegler	
Perceval Creek @ Sage Rd	9.5	10.3	NAF	86	NAF	0	7.0	7.0	2.3	0	11.5	6	5	5	2.4	2.3	9:45; partly cloudy; 8°C	Bush MS	Adams	
Perceval Creek @ Alderbrook (duck pond)	7.9	11.5	NAF	75	NAF	1	7.0	7.0	0.7	1.5	13	6	5	10	2.6	4.8	8:30; partly cloudy; 4°C	Tumwater MS	Harris	
Perceval Creek @ Alderbrook (woods)	NAF	NAF	NAF	NAF	NAF	TC<5	8.0	7.5	2.53	0	6.5	6.5	5	0.5	10	5.1	9:10; cloudy; snow; 4°C	THS	Harris	
Capitol Lake @ 5th and Water	10	11	NAF	110	NAF	NAF	8.0	7.5	NAF	0	12	5	5	10	5.1	3.4	drizzling/light rain; 13°C	Pioneer Elem	Buechner	
Capitol Lake @ Marathon Park	10.53	10.77	NAF	84	NAF	NAF	7.5	7.2	2.63	NAF	11	5	166	11.66	1.6	3.4	3/2-10:30; cloudy; 14°C	Pioneer Elem	Varano	
Ken Lake	9.2	10.2	NAF	100	NAF	117	4	7.0	1.3	1.5	21	NAF	5	0	0.8	NAF	3/2; overcast	Avant HS	Sogn	
Fish Pond Creek @ Kennydell Park	8.8	9.7	NAF	80	NAF	33	6	6.0	6.5	2.5	10	7	1.66	0	NAF	0	9.30; cloudy; snow; 3°C	Bush MS	Culler	
Ashley Creek @ the pond	NAF	9.2/NAF	NAF	72	NAF	2 (TC<30)	NAF	6.5	6.5	NAF	6.5	NAF	0	0	NAF	0.2	8:18; snowing; 3°C	Bush MS	Culler	
Ashley Creek @ the culvert	NAF	9/NAF	NAF	72	NAF	0 (TC<30)	NAF	6.5	6.5	NAF	6.5	NAF	0	0	NAF	1.8	8:18; snow; 3°C	Bush MS	Culler	
Black River @ DFW boat Launch	6.3	55	NAF	55	NAF	NAF	7.0	7.0	NAF	NAF	9	9	0	0	NAF	1.8	10:23	BHHS	St. Clair	
Henderson/Misqually																				
Pattison Lake Ditch	3.6	55	NAF	55	NAF	0	8.5	7.2	1.7	0	13	5	3.3	0	NAF	4	13°C	School	Teacher	
Woodland Creek @ Community Center	7.1	9.3	NAF	73	NAF	42	7.0	7.0	0.6	2.2	11	6	5	5	2.9	4.3	28th; air 24°F	Timberline HS	Marshall	
Woodland Creek @ Draham Rd	8.5	10.3	NAF	64	NAF	28	7.0	7.1	0.6	0.2	11	6	5	5	2.9	4.3	overcast; 59°F	Mount View Elem	Stevens	
Woodland Creek @ Pleasant Glade	8.2	11.5	NAF	75	NAF	330	7.5	7.0	0.5	0.3	12	9	0	5	1.6	NAF	40°F; 10:00 a.m.	Mountain View Elem	Stevens	
Woodland Creek @ Hollywood	10	11.7	NAF	89	NAF	NAF	7.4	6.5	NAF	0	12	NAF	8.3	18	1.6	NAF	overcast; 64°F	Lydia Hawk Elem	Pooler	
Beachcrest	11.3	10.5	NAF	102	NAF	66	8.0	7.5	1	2.1	8	4	5	11.7	2	NAF	air 42°F; 5°C; overcast	Komatich MS	Glock	
Toime Creek @ State Park	9.6	85	NAF	93	NAF	0	9.3	7.5	1.3	0.5	11	10	7.5	6.7	NAF	NAF	partly cloudy; 57°F	South Bay Elem	Lang	
Budd Inlet Watershed																				
Gairfield Creek @ Nature Trail	8.5	15.8	NAF	75	NAF	132	7.0	7.0	0.7	NAF	11	8	5	5	8.8	NAF	12:15°C	School	Teacher	
Mission Creek @ Ethridge and Central (Park)	8.3	8.9	NAF	120%	NAF	26	7.0	7.0	0.7	NAF	12	12	0	0	NAF	NAF	Samples contaminated	Gairfield Elem	Sherin/Royolds	
Mission Creek @ East Bay Drive	9.3	9.9	NAF	82	NAF	26	7.0	7.0	1.6	1.6	12	5	0	0	NAF	NAF	13°C air; partly cloudy; 2 p.m.	Roosevelt Elem	Ferguson	
Moale Creek @ stormwater pipe	10	8.3	NAF	89	NAF	NAF	6.8	7.0	1.4	1.9	11.5	5.1	0	0	NAF	NAF	a.m.	Roosevelt Elem	Ferguson	
Moale Creek @ spring	10.6	10.6	NAF	89	NAF	416	7.0	7.0	3.4	0	9.2	9	6.8	2.8	2.7	1.7	overcast; some rain	Central Elem	Samson	
Indian Creek @ Crooks St	9.38	10.8	NAF	105	NAF	392	7.5	7.0	7.73	1.50	20	NAF	7.5	5	6.3	3.6	overcast; 29°C	Central Elem	Samson	
Schneider Creek @ Yamish/West Olympia	14.1	14.5	NAF	122	NAF	125	7.3	7.0	4.65	0	20	NAF	39+	0	10.6	6.1	Oct. 18; cloudy; 53°F	Avant HS	Sogn	
Eld Inlet Watershed																				
Beatty Creek @ the bridge	8.7	10.3	NAF	76	NAF	8	7.5	7.0	0	0.05	9	5.5	2.5	0	0.2	0.8	overcast; 15°C	McLama Elem	Schiller	
McLama Creek @ The Nature Trail	10	9.6	NAF	86	NAF	NAF	7.0	7.0	1.6	E	9	5.5	0	2.5	1.4	2	overcast; 14°C	McLama Elem	Bergholz	
Library Creek @ TESC	7.6	10.2	NAF	64	NAF	312	49	7.5	7.5	0	2.74	12.5	3	3.3	0	NAF	4.2	overcast; rainy; 13.5°C	Capital HS	Hook
Snyder Creek @ Cedrona	10	11.5	NAF	92	NAF	253	7.3	7.3	1	0.7	12	9	5	5	4.2	5.6	overcast; 13°C	Capital HS	Baker	
Green Cove Creek @ Fire Station	7.9	7.5	NAF	56	NAF	NAF	6.5	6.5	E	E	4	4	5	1.66	1.8	NAF	ground; 8:45; 3°C	Marshall MS	Traflet	
Green Cove Creek @ 36th	9	11.2	NAF	86	NAF	NAF	7.3	6.8	NAF	NAF	4.5	0	3.4	0	14.8	NAF	mostly cloudy; 8°C; 1:15 p.m.	Marshall MS	Traflet	
Cooper Crest Creek @ the bridge	8.8	10.8	NAF	78	NAF	13	7.5	7.0	0.5	0.5	11	5.5	0	5	11.6	NAF	5.3	overcast; cold; dry; 10:30 a.m.	Marshall MS	Cook
Totten Inlet Watershed																				
Schneider Creek @ Bridges	9.5	11.4	NAF	86	NAF	53	7.0	6.5	2.3	NAF	12	4	3.3	0	NAF	3.7	partly cloudy; light wind; 10°C	Griffin MS	Temple	
Schneider Creek @ ReRoute	9	11	NAF	85	NAF	115+	7.0	6.8	0.3	0.5	11	5	0	0	NAF	1.8	overcast; 13°C	Griffin MS	Temple	
Kennedy Creek @ The Salmon Trail	9	11	NAF	85	NAF	NAF	7.0	6.8	0.3	0.5	11	5	0	0	NAF	3.7	overcast; 13°C	Capital HS	Baker	

KEY:
 NAF = Not analyzed for
 0 = Possible switch of spring & storm pipe results ??
 TC = insufficient replicates
 E = Error
 * = LOTT Lab Results