

**City of Vancouver Water Resources Education Center &
Clark County Environmental Services: Clean Water Program**

**Quarterly Report
April, May, June 2010
Date: August 27, 2010**

NOTES:

This report addresses tasks outlined in the Scope of Work for the current Intergovernmental Agreement (IGA) for the Student Watershed Monitoring Program provided to K-12 and above schools located in and/or monitoring in Clark County (but outside the City of Vancouver boundary). Included are descriptions of teacher support, school and site visits, equipment management, Watershed Congress planning and delivery and administration. However, the total project also includes, for both City and County schools, in-kind costs such as those required to administer, report, market, teach, evaluate and design programs.

2nd quarter activities corresponding to IGA tasks

Task 1: Recruitment/Support for Returning Teachers

Over 2,300 Clark County students participated in the Watershed Monitoring Network during this school year. This was about 800 more County students than participated in the 2008-2009 school year. These numbers, coupled with the 800 students from City schools maxed out our available Contractor time. But we did not have to turn away interested teachers or limit class and field visits with participating teachers.

Support for teachers during this quarter involved not only field visits with their classes but classroom visits to help teachers submit/use NatureMapping data and to work with the students preparing for their Congress presentations. With many new teachers this year, who were uncertain about what was expected at Congress, we continually offered additional information and support in order to ease their minds about preparing their students.

Task 2: Classroom and Site Visits

School	Grade	# of Students	Teacher	Site	# of visits
Alki MS	7 th -8 th	156	D. Buss	Whipple Cr	1
Amboy MS	8 th	75	Snow	Classroom/ Chelatchie Cr	1
Amboy MS	8 th	75	Plamondon	Classroom/ Chelatchie Cr	1
Camas HS	9 th	60	Dean	Lacamas Lake	1
Camas HS	10 th -12 th	45	Dean	Lacamas Lake	2
Columbia River HS	10 th - 11 th	25	M. Buss	Cougar Cr	2
Columbia River HS	10 th - 11 th	30	McDonald	Cougar Cr	2
Columbia River HS	10 th - 11 th	115	McKinney	Cougar Cr	2
Columbia River HS	10 th - 11 th	55	Sandison	Cougar Cr/Mill Cr	2

Dorothy Fox Ele.	5 th	25	Lawrence	Bioswale and outlet	4
Frontier MS	10 th -12 th sped	14	Robertson	Bioswale	2
Frontier MS	6 th – 8 th	8	West	Bioswale	2
Gaiser MS	6 th	112	Graves	Bioswales/Mill Cr	2
Gardner	3 rd – 4 th	18	Arensberg	Gardner Pond	2
La Center Ele	5 th	25	Bussler	Breeze Crk. Lower	3
La Center Ele	5 th	25	Smith	Breeze Crk. Lower	3
La Center HS	10 th -12 th	14	Morris	Breeze Crk. Upper and Lower	4
La Center MS	7 th -8 th	125	Cripe	Breeze Crk. Lower and EF Lewis	3
La Center MS	7 th -8 th	125	Ecklund	Breeze Crk. Lower and EF Lewis	3
La Center MS	6 th	132	Schneider	La Center Bottoms	2
Liberty MS	7 th	104	Kankelberg	Round Lake	2
Liberty MS	7 th	98	Mueller	Round Lake	1
Prunehill Ele.	4 th -5 th	24	Rakoski	Bioswale	4
Prunehill Ele.	4 th -5 th	24	Cameron	Bioswale	4
Prunehill Ele.	4 th -5 th	24	Colman	Bioswale	4
Prunehill Ele.	4 th -5 th	24	Holscher	Bioswale	4
Prunehill Ele.	4 th -5 th	24	Stewart	Bioswale	4
River HomeLink			Gassaway	Round Lake Cr	1
River HomeLink	3-4 th	40	Grahman	Round Lake Cr	1
River HomeLink	3-4 th	40	Hergert	Round Lake Cr	1
Sacajawea	4 th	28	Neil	Salmon Cr	1
Sacajawea	4 th -5 th	26	Gannon	Salmon Crk.	1
Shahala	6 th	90	Johnson	Currie Cr	1
Shahala	6 th	90	Sullivan	Currie Cr	1
York Ele	5 th	28	Land	Mill Cr	1
York Ele	5 th	28	Pemberton	Rock Cr	1
York Ele	5 th	28	Russon	Salmon Cr	1
York Ele	5 th	28	Schommer	Fifth Plain Cr	
17 schools	3rd-12 th	2007	37	22	78

Task 3: Equipment Management

During monitoring in the second quarter, dissolved oxygen, phosphate, and nitrate reagents were restocked. At the end of every school year, all equipment loaned to participating schools is collected and inventoried for restocking. All equipment was cleaned for summer storage. More radios were rented for Watershed

Congress which improved communications among the four WSU-V buildings as participants rotated through a shifted schedule.

Task 4: Annual Student Watershed Congress

The annual Watershed Congress was held on Friday, June 4, 2010 at Washington State University-Vancouver. The 275 students attending Congress this year gave 50 presentations from 8 elementary schools, 8 middle schools and 3 high schools. Similar to last year, this included 1 alternative school and 1 special education class. Due to budget constraints, only two teachers without a class were able to attend.

Holding Watershed Congress at WSU-V works well except for the difficulty in confirming the date and use of the facility in a timely fashion since Academic scheduling for the summer session takes priority and isn't completed until mid to late March. But the WSU-V Science Department is a great partner that waives the rental fee and this helps with the budget; in addition there are no other venues in Clark County that would work as well for this event even if they cost more. But bus confirmation is difficult for teachers and Cory has looked at alternatives to paying for actual school buses. However, hiring private companies is very expensive; most school districts also have restrictions on utilization of private buses due to union contracts with their bus drivers.

In order to accommodate increasing numbers of students attending Congress, the planning team decided to stagger the schedule. Two tracks, one starting at 9 am and 1 starting at 9:30 am, were planned. This worked well for many schools that over the years could not get to Congress on time or had to leave Congress early. Arrival and departure times are always challenging to schedule since Congress students vary from grade school to high school with completely different start and end times. In order to make this work we had to eliminate the opening "edutainment" that we offered in the past. We tried a slide show of students monitoring and music to help transition into each gathering time in the large hall.

The day flowed relatively smoothly; one of the few difficulties was in facilitator training since facilitators for both tracks were trained at the same time. Once again, WSU-V provided top notch service as the caterer, AV support and overall scheduling.

The afternoon "problem-solving" session was completely revamped this year in order to give students an opportunity to mentally move from stream monitoring, to stream issues, to possible community solutions, and finally to personal actions accomplishable by the students over the summer. Teachers and students provided good feedback on the concept for these sessions which included students making a magnet with their personal action.

As always, one success of the Watershed Congress is the many volunteers who return to be facilitators year after year. This year, 42 community and agency volunteers worked with students or provided volunteer support. Bringing together students of many grade levels with community members of diverse backgrounds is another Congress accomplishment.

We are grateful to many staff and volunteers from these organizations: U.S. Fish and Wildlife, Watershed Stewards, Clark Public Utilities StreamTeam, Vancouver Watersheds Council, Columbia Springs, Clark County Conservation District, Clark County Solid Waste, Clark County Weed Management, Friends of Ridgefield National Wildlife Reserve, Clark County Public Works/Environmental Services, Water Resources, US Forest Service, Waste Connections, City of Vancouver Sensitive Lands Team, Vancouver-Clark Parks, Salmon Creek Watershed Council, Urban Farm School, Coastal Conservation Association, Washington Department of Ecology, Educational Service District 112, Clark County Clean Water Commission, WSU-Vancouver and Americorps.

For full evaluation summaries from participating teachers, facilitators, students and guests for this Watershed Congress, please refer to the attachment at the end of this report (page 16). Teachers' names appear next to their comments.

A new Congress project this year was the elimination of the Photo contest (due to the same few schools frequently submitting and winning prizes year after year) and the initiation of the Teeny Tiny Billboard Contest. We felt that this contest would allow students who could not come to Congress an opportunity to submit a product. All entries were on display at Congress, Congress participants voted on their favorites and the winners were put on display at the Water Center over the summer months. We encouraged students to produce a "billboard" that was clear, creative and visually appealing if you viewed it from a passing car. About 5 schools submitted entries which we hope to grow as more schools see the possibilities of involving more students. We will bring this up at the 2010 Kickoff to see if teachers see this contest as a positive element to retain or if they have other ideas.

Teacher comments on morning session

- Excellent
- Students gained sense of connection to broader community by watching peer presentations
- Great for students to evaluate other students
- Liked opening "greeting" in auditorium: gives students a chance to calm their nerves
- Pride and ownership of the project creating the PowerPoint created opportunity to challenge students that were hungry for extension of project
- Great to have questions and discussion after each student presentation. This gave a bigger picture for the students.
- liked the staggered sessions (several teachers)
- Well organized, paced, pampered and fed!
- Great that students have common vocabulary and understanding. Very positive and fun time for my students.

Teacher comments on afternoon sessions:

- Students felt empowered to help with their creek
- Really liked that it helps kids with personal responsibility
- Wish my kids had others to brainstorm with
- Great way for students to work with others; allows creative answers
- Helps students realize others their age know how to help the environment and together they can make a difference.
- Groups seemed too large
- Totally engaged students-real world science needs to improve community ecosystem for enjoyment of all
- Really liked this new afternoon session (several comments)

Teacher Difficulties in bringing Students to Congress

- Choosing which kids got to go
- Buses
- Time to prepare students
- Thanks for bus and substitute money: couldn't come without that

Recommendations from Teachers

- Good to know flow of the day and rooms in advance
- Add short tour of University campus
- AM intro lacked the excitement from previous years. Question/prizes didn't seem productive-kids felt it was unfair
- Have facilitators in the morning walk around the room and call on kids from different parts of the room
- Suggests afternoon closure in auditorium.
- What happened to photo contest (NOTE: We told teachers we were changing that this year)
- Do something more to show that all these small creeks, streams and rivers end up in the Columbia and Ocean

Facilitator evaluations (overall score: 4.4 out of 5.0)

Comments from Facilitators

- See recommendations for next's year's Congress for suggestions
- Lots more questions from students than I've seen in past years

- Liked the maps with circular annotations for afternoon session
- Invaluable to have students present their findings, especially since so many dollars and time is put into the program
- Hope to come back next year and participate

Student evaluations (overall score: 4.4 out of 5.0)

Some comments from students

- 100 billion was the overall impression of Congress from one happy student
- I would love to come here again. The helpers and staff were sooo nice and fun. You guys rock.
- One of the best field trips ever
- The food is very good (many comments)
- Several liked the afternoon session (suggests some type of physical activity)
- I love how everyone knew what they were doing
- Suggestion: the afternoon session may have been a bit long for the activity provided. The morning session was quite fun and informative and the facilitators asked good questions.
- It was fun meeting new people and learning how to help the watershed
- Like to know more opportunities for students to improve the watershed
- I liked seeing all of the other groups and what their creek, stream, river or lake is like and how healthy it is.
- I loved it. I think we should have more days like this
- I had a great time and have learned many new things. Furthermore, I feel that I will use this knowledge throughout my life and this will be a memorable experience.
- I love WSU. I really think I should go here for college because it is so nice.

Recommendations for next year's Congress

1. From facilitator evaluation: Some new facilitators were confused: more step by step instruction
2. Facilitator evaluation: Confusing as to how teachers were supposed to participate
3. Facilitator evaluation: Need to schedule start and stop time for presentations (2 min break to fill out feedback forms.
4. Afternoon session: lots of noise; perhaps use groups of 4
5. Facilitator evaluation: Afternoon too long for activity given; use more examples of questions and other activities to take up time
6. Facilitator evaluation: Suggests networking session between professionals and students
7. Afternoon session:
 - clarify; many students divided paper into 4 like the sample
 - Don't designate one person as "drawer/writer"
 - Need introductions: perhaps some kind of name game
 - No more than 3-4 tables per room
 - Some sort of teacher networking in PM
 - Rethink timing: Perhaps do one at a table and then present to the whole room
8. Morning session:
 - Work with teachers on length of morning session: kids speed up when speaking so many presentations were too short
 - Schedule time to fill in feedback form
9. Facilitator training
 - Needs to be linear—step by step
 - Specifically ask for evaluations
 - Make extra generic facilitator packages for those who come as substitute for someone else
10. Registration Table
 - Have a separate table for each staggered track
11. Involve Brendan and perhaps an intern in some of the planning. Figure out who will replace Jessica as a point person
12. Didn't get any feedback from teachers on Teeny Tiny billboard contest: not sure what to do next year.
13. Rethink opening in Auditorium

14. Several facilitators went with their student groups to the Continuum activity in the Auditorium. This means that they missed the afternoon facilitator training. I gave them a quick, separate training after I hunted them down.
15. Evaluations: Change scale from 0 to 5 to 1 to 5; also show visual scale.

What worked well this year (Based on recommendations and debriefing from last year)?

- Management of AV: disks and jump drives went smoothly
- Staggered sessions to accommodate all the grade levels and districts that we serve
- Again, a high return on the evaluations
- Food service for 2 separate tracks
- Two separate tracks went better than expected: more students could attend Congress
- Good feedback on new afternoon session

Task 5: Reporting and administrative activities

As always, much time is spent behind the scenes, planning, coordinating with other team members, scheduling, compiling evaluations and feedback, finding facilitators for Congress, preparing printed materials, sending out thank-yous and a myriad of other tasks.

School Year 2009-2010 Summary

Schools and Students: During the 2009-2010 school year,

- County Schools: 2,383 students from 20 schools and 46 teachers participated. (See chart on next page for details)
- City Schools and Students: 895 students from 6 schools and 17 teachers

The Watershed Monitoring Network completed a full year of partnering with the WSU-V National Science Foundation funded program: Partners in Discovery of the Columbia River Watershed –GK-12 Project. Sixty percent (6 out of 10) teachers who participated in this program last year also participated in the Watershed Monitoring Network. The GK-12 program is 3 years old and has attracted teachers to the Network from the beginning. This year WSU-V offered to buy consumables to supplement what their teachers use. Participating graduate students submitted a poster to the GK-12 National Conference in San Diego this year. The audience, from schools around the country, was very impressed by the practical science; many wanted to do something similar in their area and wanted the Vancouver program to connect with their schools. We welcome this program and WSU-V as a valued partner who bring talented teachers and WSU-V graduate students into the Watershed Monitoring Network.

Final List of County Schools, Teachers, Classes, Students and Monitoring Sites 2009-2010

School	Grade	# of Students	Classes	Teacher	Site
Alki MS	7th-8th	156	6	D. Buss	Classroom/Whipple Cr
Amboy MS	8th	75	3	Plamondon	Classroom/ Chelatchie Cr
Amboy MS	8th	75	3	Snow	Classroom/ Chelatchie Cr
CAM Jr. High	7th	60	2	Clapp	East Fork Lewis River
Camas HS	9th	60	2	Dean	Lacamas Lake
Chief Umtuch MS	7th	30	1	Clement	Woodin Creek
Chief Umtuch MS	7th	30	1	Engebretson	Woodin Creek
Chief Umtuch MS	7th	30	1	Flagan	Woodin Creek
Chief Umtuch MS	7th	31	1	Dowsett	Woodin Creek

Columbia River HS	10th-11th	25	1	M. Buss	Cougar Cr
Columbia River HS	10th-11th	30	1	McDonald	Cougar Cr
Columbia River HS	10th-11th	115	4	McKinney	Cougar Cr
Columbia River HS	10th-11th	55	2	Sandison	Classroom/Cougar Cr
Dorothy Fox Ele.	5th	25	1	Lawrence	Bioswale and outlet
Frontier MS	6th-8th	16	1	Robertson	Classroom/Bioswale
Frontier MS	6th-8th	8	1	West	Bioswale
Gaiser MS	6th	112	2	Graves	Classroom/Bioswales
Gaiser MS	7th	120	4	Shea	Classroom/Gaiser Pond
Gardner	3rd	18	1	Arensberg	Gardner wetland pond
La Center Ele	5th	28	1	Bussler	Breeze Crk. Lower
La Center Ele	5th	28	1	Smith	Breeze Crk. Lower
La Center HS	10th-12th	12	1	Morris	Breeze Crk. Upper and Lower
La Center MS	7th-8th	120	4	Cripe	Breeze Crk. Lower and EF Lewis
La Center MS	7th-8th	150	5	Ecklund	Breeze Crk. Lower and EF Lewis
La Center MS	6th	132	5	Schneider	La Center Bottoms
Liberty MS	7th	104	4	Kankelberg	Round Lake
Liberty MS	8th	104	4	Mueller	Round Lake
Prunehill Ele.	5th	28	1	Rakoski	Bioswale
Prunehill Ele.	5th	28	1	Cameron	Bioswale
Prunehill Ele.	5th	28	1	Colman	Bioswale
Prunehill Ele.	5th	28	1	Holscher	Bioswale
Prunehill Ele.	4th	28	1	Stewart	Bioswale
River HomeLink	3rd	15	1	Gassaway	Round Lake Cr
River HomeLink	5th	18	1	Graham	Round Lake Cr
River HomeLink	5th	32	1	Hergert	Round Lake Cr
River HomeLink	3rd-4th	16	1	Remmen	Round Lake Cr
Sacajawea	4th-5th	28	1	Gannon	Salmon Cr
Sacajawea	4th	28	1	Neil	Salmon Cr
Shahala	6th	90	3	Johnson	Classroom/Currie Cr
Shahala	6th	90	3	Sullivan	Currie Cr
Wsu-Vancouver	College	25	1	Jennifer	Mill Creek
York Ele	5th	28	1	Land	Classroom/Mill Cr
York Ele	5th	28	1	Pemberton	Classroom/Rock Cr
York Ele	5th	28	1	Russon	Classroom/ Salmon Cr
York Ele	5th	28	1	Schommer	Classroom/Fifth Plain Cr
20 schools	3rd-College	2,343	85	46	24

Watershed Monitoring Program Teacher Evaluation Summary & Highlights (Congress comments are separate)

Teachers lauded the Watershed Monitoring Program for:

- Students gained knowledge of the scientific process, the integration of math, science and social science and gained a sense of personal responsibility
- Think tank of other students learning and problem solving
- Awareness of human impact on water
- Students understand they are doing something worthwhile for our community
- Science classes learn how to be real scientists by testing water; this reinforces the entire scientific method/science inquiry which helps middle school students be ready for high school science
- Students see that what people do (cause) has an effect on water quality.
- Students gain public speaking skills and understand the importance of water
- Hands-on experiences
- Students increase knowledge and awareness of watershed topics and scientific method

Teachers gained these professional benefits:

- Collaboration with colleagues
- Makes teaching intentional
- Increases water quality/macrobenthic and community knowledge
- Knowledge of the big picture

Teachers identified the following as some of the best parts of the program:

- Student “light bulbs” going on by getting excited about monitoring
- Participation in authentic hands-on science
- Liked afternoon format
- Seeing kids love getting in the creek and making connections
- Creating environmental awareness in students

Teachers planned the following changes for the next school year:

- Extend time spent at the stream and focus on macros
- Measuring tools for depth, width, water speed
- Create and question/conclusion
- Solve the problem in our creek
- Start earlier; write transportation grants sooner
- focus on testable hypothesis

Recommendations for next year’s Monitoring Network:

From Teachers

- Network educators spend more time explaining the overall purpose of monitoring
- Show how what students learn can be used in community
- Connection to experts who could help and guide efforts in stream restoration
- Monitor over summer if possible

From Watershed Monitoring Network team

- Continue to come up with a way for students not able to participate in Congress to be part of a final program/project.
- Try to get photo releases as part of initial/Kickoff event. Or, get names of students in the class who cannot have photos taken

Program “Snapshots” from Teachers and Students – Informal Reflections on Measurable Outcomes (The Impact on Students and Teachers of Participation in the Watershed Monitoring Network)

NOTE: Outdoor school for Clark County schools no longer exists as a residential program that took students outside to observe, learn and respect their environments. The Watershed Monitoring Program is now one of the only ways that students in Clark County go outdoors to learn about systems as important as surface water. In addition, an advantage beyond Outdoor School, is the connection of students to a place in their nearby community (instead of a camp at some distance away).

This school year, we initiated a pre and post survey to provide more information on whether students changed their understanding of basic storm/surface water concepts. Five County schools: Columbia River High School, Gaiser Middle School, Shahala Middle School, Alki Middle School and York Elementary participated. The pre-survey has been tabulated and a post survey from one school has been completed. We plan to supplement these results and provide results for selected City schools once we complete the full compilation.

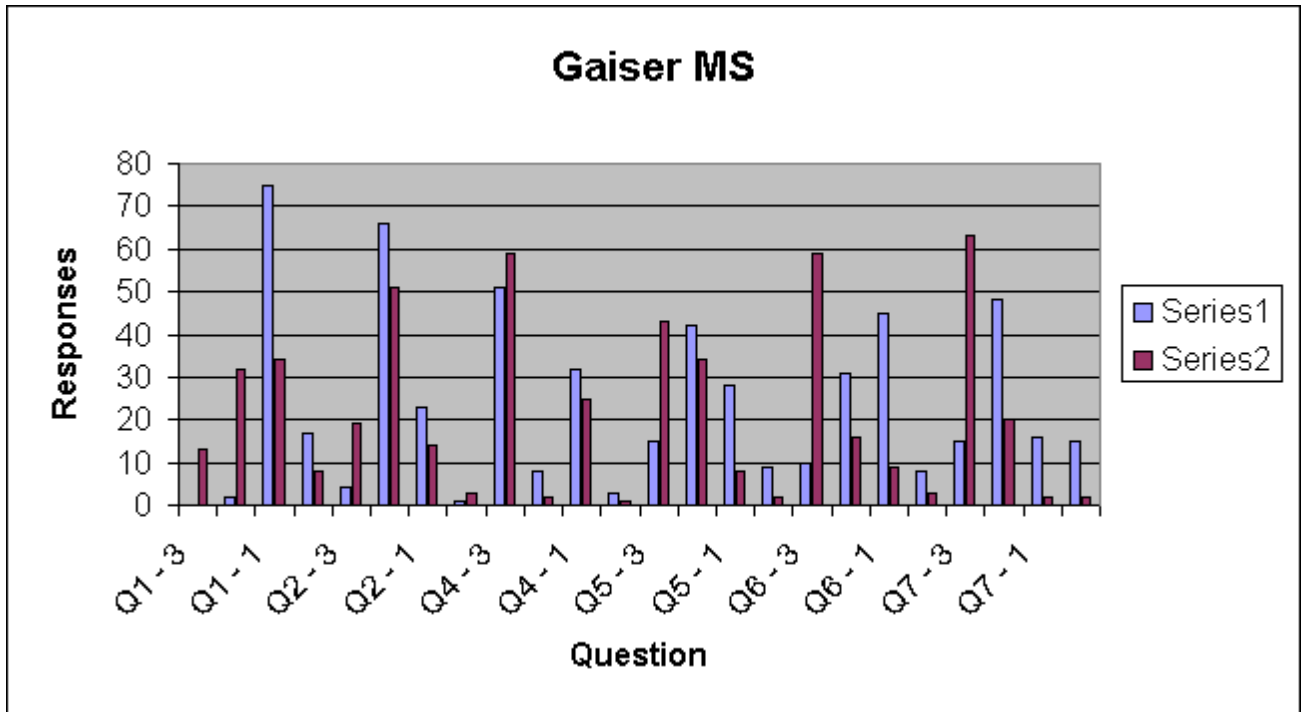
Questions for Survey

1. What is a watershed?
2. When rain falls on trees and grass, where does it go?
3. When rains falls on roofs, streets and parking lots, where does it go?
4. Does sewer water from your house and storm water from the street go through the same pipes?
5. How does dog poop or bug spray put on your lawn end up in the stream?
6. Is it better to wash your car on the street or on the lawn? Why?
7. Name 3 things your family can do to keep storm water clean?
8. (Only in the post survey) Did going down to the stream or pond help you understand:
More, Nothing different, Less about keeping streams and ponds healthy for fish and people?

Here are preliminary results from Gaiser Middle School:

3 = correct response
 2 = incomplete response
 1 = incorrect response
 0 = no response/I don't know

light blue is pre-test
 maroon is post-test



Observationally, it appears that the highest change in understanding occurred in questions, 5, 6, 7 and 8. These questions had to do specifically with how contaminants end up in streams, personal actions to mitigate stream pollution and the value of monitoring at the site in increasing understanding of keeping water bodies healthy. More analysis will be done and submitted during the 2010-2011 school year.

In 2010, the Water Center's Earth Month event, "Critter Count" also delivered an additional message to 110 people who came to look for amphibians and reptiles. We connected the health of amphibians to water quality and asked for a show of hands from those who would look for better ways to garden without bug and weed killers. In addition, we passed out a handout with the following message.

Small Steps...Huge Impacts

Two simple things you can do for frogs and other critters.

-- Do not use bug and weed killers in your yard and garden.

Amphibians can be easily poisoned through their skin and by eating poisoned insects and slugs.

...And don't forget: what is put on your yard, roof and walkway often ends up in a nearby stream, lake or wetland.

-- Report oil, paint and chemical spills into storm drains and streams.

Throughout Clark County, call the 24-hour Washington Department of Ecology line: 1-360-407 6300.

Multiple teachers continually comment on how beneficial this program is: in being interdisciplinary; collecting "real" data, connecting students to the community, instilling a sense of personal responsibility for their monitoring site and for being one of if not the best field trip of the year. "I just wanted to thank you again for making our field trip to the Creek so special this year. It was one of the best experiences the kids had this year." We also send data to various agencies who are interested: WSU-V requests information about Mill Creek, Columbia River Fisheries Office has received documentation of native mussels and we have shared data with Jeff Schnabel, Clark County Water Resources on Burnt Bridge Creek and Salmon Creek. Below are a few of the excerpts/anecdotes from this school year.

Another interesting by-product is the public relations and information that the educators, in particular Judy Bufford, do while waiting for classes: At Round Lake, the East Fork of the Lewis River and other places, citizens have volunteered for Congress and suggested sources of bus money after talking with Judy.

Gaiser Middle School teachers who were monitoring their bioswales on their own applied for and received \$750 in Department of Ecology funding to restore the bioswale. "We found a project through our water testing work this year. We would like to refurbish the spot on campus where all our storm drain water empties. There is just a large puddle with lots of invasive species and a creek running nearby."

A York teacher changed wedding plans so that her daughter could present at Congress. An Amboy Middle School student changed her career plans in order to pursue being an environmental engineer because of her participation in the Watershed Monitoring Network.

Liberty Middle School: The principal and other staff came out with the kids during monitoring. In addition, towards the end of the school year, another teacher at Liberty watched the students monitoring from another class and begged to be part of the program. "The administration team and counselors that came on this trip are so appreciative of this awesome learning experience for our kids, and that it goes on all year. My teaching partner wanted me to check and see if there were any spots still available this year that she could take. She would have the same type of set up that I do.

Several schools: Parents are so excited that this program is available to their students. "There's a comment every time we meet you from a parent chaperone about how great it is that you come out and do this with the kids!" "I heard from one parent that her son couldn't stop talking about the trip."

On taking action:

My students wrote letters to all the neighbors around the stream and explained that we suspected a leaky septic system. We wanted to raise awareness that there is a problem. The stories some of the neighbors told Susan and I about happenings around the lake and our stream had us a little concerned. We are now suspecting a motor home that seems to have people living in it, but no hook-ups. My husband put me in contact with Tom Gonzales from Environmental Health. We shared our data with him. He told me that the e coli numbers are usually around 600 when a septic is leaking. But he was interested in one set of our numbers when our count was over 500. Based on our conversation in class, the students want to focus their collection to a spot before and after a diverted portion of the stream returns to the main stream. We'll work on our question.

La Center High School students continue to publish a newsletter documenting their involvement with Brezee Creek restoration and how to prepare for Watershed Congress.

“Our tests (dissolved oxygen, turbidity, pH, phosphates, nitrates and fecal coliform) would not be possible without the proper tools or guidance. That is why we have special help from our water monitoring guide, Brendan Addis. He helps us out with supplying the tools to do the tests and teaches us how to do water monitoring the right way, so we are sure to get accurate results and learn the process so perhaps one day we can do this ourselves, or maybe as part of a job in our future.”

Prunehill Bioswale monitoring classes (3): These students became great scientists and stewards of their bioswale. By the end of the year, the kids could look at macro samples and quickly ID the species, even to the point of noticing simple variations. As the year went by we noticed the egg masses and tadpoles living within the swale. Students became very protective of the space and request that their teachers give them cleanup time to pick up trash thrown into the area. I was also told by several teachers that the students in these classes had become self-appointed police of the swale and would discourage fellow students from kicking balls and throwing things over the fence since it would disturb the baby frogs.

A Liberty Middle School teacher passed on that a group of students organized themselves and met after school to do more than they could do in class with watershed monitoring.

One of our participating teachers, Carol Sandison at Columbia River High School, has drafted an article and provided photos with captions to be published later this year in the Washington State Science Teachers Association Journal. We thought it would be helpful to share this draft article:

The 12th Annual 2010 Watershed Congress, Vancouver, Washington Contributions made by Judy Bufford, Cory Samia, and Carol Sandison

The Water Resource Education Center, located on the Columbia River, along with the City of Vancouver and the Clark County Environmental Services Clean Water Program have sponsored the Watershed Congress. This is a day of celebration where students, elementary through high school, from around Clark County have the opportunity to share the results of their experiments regarding the waterways near their schools. In the past we have been entertained and informed with skits about macroinvertebrates in streams to E. coli issues to the chemical analysis of the watersheds of Clark County.



These students are sorting and counting macroinvertebrates from their stream



These students are in the stream taking a collection of macroinvertebrates using a D-net

Several of the schools work on stream restoration, working to clear garbage (including tires, pop cans and bottles, clothing, trash, children's toys and many other discarded items), planting native vegetation, raising and then releasing salmon, removing non-native species from the stream banks, all while working with County agencies to share talents and resources to make our water cleaner for

both human enjoyment, nature, and especially the salmon! Each year adds depth to the data pool and gives the students rich experiences comparing and analyzing the many years of data and knowledge. These experiences introduce students to working with local experts and specialists in the field, making the lab come alive and do real applicable science in the communities where these students live. The Watershed Monitoring Program targets education, discovery and stewardship. Students grow to protect what they know.

For the last 12 years, teachers with community partners have formed a network of over 17,000 citizen students monitoring Clark County lakes, rivers, streams and bioswales. One part of the Watershed Monitoring Program is to have data that is accessible to all. We encourage using the NatureMapping website (depts.washington.edu/natmap) to store data so that different schools in the same watershed or different classes monitoring the same site over successive years can develop questions based on patterns that might emerge as we continue to add to the data available. We encourage field monitoring that is the outcome of a thoughtful, meaningful question.



CRHS students who presented June 2010

This year was no exception, on June 4th, Washington State University Vancouver campus was overrun by students from Clark County, seeking to share their research projects focusing on watersheds. Throughout this past school year there were over 3,000 students monitoring watersheds, in 23 schools, lead by 56 teachers.



Students working with Jim Martin, a community partner, helping students understand the water quality of their stream and what they may do to make changes in their environment

As the culminating event, Watershed Congress continues to bring students together with the community in evaluating changing watershed conditions in their neighborhoods from data collected during the school year. What a day for celebrations!

Additional photos and captions provided for the article:



Students receiving feedback from community judge



Cougar Creek, Columbia River HS Vancouver, WA



CRHS Chemistry students presenting their data analysis of Cougar Creek in Vancouver, WA



Skit by our local watershed stewards Bill Feddeler & Judy Bufford



CRHS student John Graves presenting at Watershed Congress about the macroinvertebrates and the pollution tolerance index and how this relates to Cougar Creek



Testing the pH using the LaMotte system



CRHS Chemistry students presenting to an audience of students from Clark County



CRHS Biology students presenting on E. coli in Cougar Creek

Watershed Congress Volunteers, Staff and Sponsors

Sarah Adams, Waste Connections
Donna Allard, US Fish and Wildlife
Cary Armstrong, Clark County Public Works
Jac Arnal, Watershed Stewards
Owen Bacon, City of Vancouver Sensitive Lands
Lisa Beranek, Clark Public Utilities Stream Team
Gary Bock, Vancouver Watersheds Council
Amy Carpenter, Columbia Springs
Lynn Cornelius, Gee Creek Watershed
Elena Cronin, Americorps
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Patty Page, Clean Water Commissioner
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Dan Wilson, Watershed Steward
Ben Wishnek, Clark Public Utilities Stream Team

2010 Sponsors

City of Vancouver Water Resources Education Center, Clark County Environmental Services, Clean Water Program and Science Programs, Washington State University Vancouver

Water Center Team

Cory Samia, Judy Bufford, Bill Feddeler, Brendan Addis, Rita Davidson, Kymberlee Elliott, Nick Popravak, Maya Jones, Rich McConaghy, Tila Crick, Rainy Rau, Andrea Vizcaino, Jessica Bufford



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Watershed Monitoring Network 2009/10 Program Evaluation

Teacher: _____
School: _____

Please answer the following:

Part 1:Congress

1. What difficulties did you have planning to bring your students to Congress?

GAISER/SHEA-Choosing which kids got to go

-Figuring out if lunch was provided

-Knowing the flow of the day-re-rooms, locations, would have been helpful to have in advance

OGDEN/PATRICK & SHINNERS- Time and Knowledge

SACAJAWEA/GANNON- It is always difficult to schedule buses and subs. The earlier we have the congress date the better

P.S.O./RAYMOND- N/A

PRUNE HILL/HOLSCHER- Just time to get them prepared.

PRUNE HILL/COLMAN- We're sharing a bus with one other school- 2 more hopped on board- Great idea! Should have happened sooner

PRUNE HILL/ CAMERON- No students this time

YORK/PEMBERTON- None

YORK/LAND- None

YORK/SHOMMER-None

FRONTIER/WEST- None. Everything was smooth. Judy has been very helpful throughout the year

MACMS/GOODE- How to choose which student to bring?/Creating time at the end of the year to prepare a presentation- Which are my problems not yours ☺

RIVER HOMELINK/GASSAWAY- We had difficulties that are unique to our school. We have students who meet M/TH and T/F. Getting them together to practice is always a challenge

GARDNER/GLADSKI- None

SHAHALA/JOHNSON-Choosing students 4 of 90.

SHAHALA/SULLIVAN-It went very smoothly this year. There were no issues.

GAISER/GRAVES-None – You provided the biggest issues. Bus money and Sub money. Couldn't come w/o that. Time to prepare student made PowerPoint's.

DISCOVERY/JOY- Having enough prep time/ organizing transportation

COL.RIVER HS/SANDISON- None

AMBOY/SNOW- Bussing! Also – getting the dates/times earlier may have helped w/ the bussing situation.

ROOSEVELT/SMITH- None-thanks for accommodating with multiple sessions

ROOSEVELT/CUDDY- This was our first year presenting, so I didn't feel as confident as I will in the future getting the kids ready.

ROOSEVELT/CARMICHAEL- Carving time out of our busy schedule to create a presentation

DOROTHY FOX/LAWRENCE-How to pick the 4! I would have liked to give more students the opportunity ☺

YORK/GLUSSON- None

2. What value was the morning session?

GAISER/SHEA-10+

OGDEN/PATRICK & SHINNERS- Excellent experience- Students enthusiastic! And Knowledgeable!

SACAJAWEA/GANNON- My students gained a sense of connection to the broader community by watching their peers presentations.

P.S.O./RAYMOND- Great! The kids had to prove/show what they learned.

PRUNE HILL/HOLSCHER- Excellent! Loved hearing the students questions & answers to each other.

PRUNE HILL/COLMAN- Kids liked to see what other schools are doing. Variety of presentations.

PRUNE HILL/ CAMERON- The best part! Giving students the opportunity to present and watching others share

YORK/PEMBERTON- Excellent~Great to hear data about other sites

YORK/LAND- Very presentation skills/ sharing info w/like peers-gave them real value for their work/ evaluating others info others info/ asking questions from of others

YORK/SHOMMER-It was good for the students to observe other kids from different schools present information. It added to their background knowledge and provided them with ideas about future presentations.

FRONTIER/WEST- We enjoyed the other presentations. (They were awesome!) It was good to have our students share using some alternative methods. The opportunity increased their self esteem, participation and listening skills.

MACMS/GOODE- Very high- It creates a situation for my student to take real data and research then present! Allows an opportunity to happen!

RIVER HOMELINK/GASSAWAY- We really enjoyed just seeing how many other schools are involved

GARDNER/GLADSKI- Great value. I loved watching all of the children's presentations. They were all so different.

SHAHALA/JOHNSON-1.Greeting-High value- Students had a chance to gain an understanding of other schools involved. This gave the students an opportunity to calm their nerves.**2.** Presentations- Great to see other schools level of understanding CAM was excellent.

SHAHALA/SULLIVAN-I think the presentations are extremely valuable because students learn about the data from other testing sites and gain experience in public speaking.

GAISER/GRAVES-Pride and ownership of the project creating the PowerPoint created a opportunity to challenge students that were hungry for extension of the project. Practice public speaking.

DISCOVERY/JOY- Important → set tone/settled kids

COL.RIVER HS/SANDISON- Presentation were awesome!

AMBOY/SNOW- The kids got a better perspective of the monitoring the other schools are doing. Raised new questions for our own monitoring.

ROOSEVELT/SMITH- Wonderful! Great presentations from all groups and excellent questions and answer sessions

ROOSEVELT/CUDDY- Excellent! It was a great chance for students to "own" the information as well as compare the year's studies between grade levels.

ROOSEVELT/CARMICHAEL- Excellent presentations from various parameter perspectives as to health and water site. Great to hear other make correlations.

DOROTHY FOX/LAWRENCE-For students to be able to show case their work. Experience of a presentation. Feedback forms and questions asked

YORK/GLUSSON- It was good to have questions and discussions after each student presentation. This gave a bigger picture for the students

3. What value was the interaction of group members and facilitators in the afternoon session?

GAISER/SHEA-10+

OGDEN/PATRICK & SHINNERS- their expertise in the subject-their enthusiasm encouraged the kids

SACAJAWEA/GANNON- Students feel empowered to take action about their data

P.S.O./RAYMOND- Students felt empowered to help w/their creek.

PRUNE HILL/HOLSCHER- Very engaging this year! Like that it helps kids with personal responsibility

PRUNE HILL/COLMAN- What nextas responsible citizens

PRUNE HILL/ CAMERON- Learn how to help take care of lakes, rivers etc. in the future

YORK/PEMBERTON- I think the activity helped them to connect their experiences

YORK/LAND- Interaction good but really wished they had others to brainstorm with ☹

YORK/SHOMMER-Bonding/building new relationships

FRONTIER/WEST- Again great integration and collaboration/ problem solving

MACMS/GOODE- A great way for students to work with others. Allows creative answers from students

RIVER HOMELINK/GASSAWAY- The kids were a little hesitant to ask questions of the other schools at the beginning. Then they warmed up and were able to open up. It was nice because we all do the same tests. So we know how the tests are done. The results are different for each school.

GARDNER/GLADSKI- It depended upon the group. One of the groups our kids were at had a very experienced and engaging facilitator. The other groups' facilitator seemed nervous. The kids liked making the magnets.

SHAHALA/JOHNSON-Talk time.

SHAHALA/SULLIVAN-This is a great addition to the day because kids get to meet students from other schools as well as do something fun together (drawing/coloring).

GAISER/GRAVES-Good place to make connections to all the topics we discussed to local impact hearing other students that have similar info is good for the kids to strengthen their understanding. Helping them realize others their age know how to help the environment and they together can make a difference.

DISCOVERY/JOY- Groups seemed almost too large.

COL.RIVER HS/SANDISON- Great session~students loved interactions

AMBOY/SNOW- Unable to attend (see #1)

ROOSEVELT/SMITH- Fun – large groups but they all seemed engaged!

ROOSEVELT/CUDDY- no answer

ROOSEVELT/CARMICHAEL- Totally engaged students – real world science needs to improve community ecosystem for the enjoyment of all.

DOROTHY FOX/LAWRENCE-Really fun to “mix” kids up and have facilitators generate ideas. Definitely do this again!

YORK/GLUSSON- Its nice for the teachers to take a background role for once

4. Anything we should throw out or thoroughly revise?

GAISER/SHEA-None

OGDEN/PATRICK & SHINNERS-No

SACAJAWEA/GANNON- No

P.S.O./RAYMOND- No

PRUNE HILL/HOLSCHER- add short tour of University campus

PRUNE HILL/COLMAN- Went smoothly and was organized

PRUNE HILL/ CAMERON- No answer

YORK/PEMBERTON- We missed the skit during the opening

YORK/LAND- AM intro lacked the excitement from previous years. Question/ prizes didn't seem productive – kids felt unfair

YORK/SHOMMER-No

FRONTIER/WEST- No

MACMS/GOODE- Not this year! Really well put together – I like the changes

RIVER HOMELINK/GASSAWAY- I really liked how you ran the last session this time. I would take the pens away though until the discussion has ended. They became too focused on the pictures to really listen.

GARDNER/GLADSKI- Maybe the afternoon sessions could have less groups per room-it was hard to hear what the kids/adults were saying. In the AM session it would be nice if the facilitator moved around the room and called on kids from different parts of the room.

SHAHALA/JOHNSON-No.

SHAHALA/SULLIVAN-I think that congress just gets better and better every year! Great job you guys!

GAISER/GRAVES-Force table groups in afternoon section to be smaller.

DISCOVERY/JOY- Do you need teacher and school info on the evaluation?

COL.RIVER HS/SANDISON- Not that I can think of

AMBOY/SNOW- I like the flexibility of the 2 tracks- fit our schedule better.

ROOSEVELT/SMITH- zero

ROOSEVELT/CUDDY- no answer

ROOSEVELT/CARMICHAEL- No answer

DOROTHY FOX/LAWRENCE-All was good!

YORK/GLUSSON- There should be an afternoon closure in the auditorium. Also, what happened to the photo contest?

5. What was your overall impression of Congress?

GAISER/SHEA- Excellent! we will back

OGDEN/PATRICK & SHINNERS-A wonderful experience--fantastic!

SACAJAWEA/GANNON- I really liked the 2 track model. It eased the time crunch for us.

P.S.O./RAYMOND- Students Loved it!

PRUNE HILL/HOLSCHER- Excellent! Thank you!

PRUNE HILL/COLMAN- Excellent

PRUNE HILL/ CAMERON- Excellent

YORK/PEMBERTON- No answer

YORK/LAND- A little disorganized compared to previous years

YORK/SHOMMER-It was a good opportunity for students to become public speakers and they gained a true awareness about H₂O quality.

FRONTIER/WEST- We love it! Thanks You!

MACMS/GOODE- Excellent!

RIVER HOMELINK/GASSAWAY- Wonderful! It really brings together the reason for our students and monitoring work. I think we could do something more to show that all these small creeks, streams and rivers end up in the Columbia and the Ocean.

GARDNER/GLADSKI- This was the first time our school has gone to the watershed congress. It was a fun and educational experience that I hope our school participates in next year.

SHAHALA/JOHNSON-This has always been an excellent opportunity for students to share their results and have further discussion on how to tangibly solve problems.

SHAHALA/SULLIVAN- 10/10 A++++ 100%

GAISER/GRAVES-Great! Well organized. Good Space.

DISCOVERY/JOY- A-1! / Great way to put meaning in kids efforts wish could bring entire class

COL.RIVER HS/SANDISON- Awesome!

AMBOY/SNOW- Great opportunity! All my students loved this! Not as chaotic as last year.

ROOSEVELT/SMITH- Fantastic! Organized, Informative, Fun! Validating

ROOSEVELT/CUDDY- ☺

ROOSEVELT/CARMICHAEL- Well organized, paced, pampered and fed!

DOROTHY FOX/LAWRENCE-We will be back next year ☺

YORK/GLUSSON- It's great that students have common vocabulary and understanding. Very positive and fun time for my students.

-OVER-

Part 2: Overall Monitoring Program

6. What benefits did your students get from this year's program?

GAISER/SHEA- This was a great 1st year- it was great to do hands-on research that ties into our curriculum

OGDEN/PATRICK & SHINNERS-New life experience-True science exploration

SACAJAWEA/GANNON- My students gained knowledge of the scientific process, the integration of math, science, and social science, and gained a sense of personal responsibility for the environment.

P.S.O./RAYMOND- Confidence/desire to go to college 😊

PRUNE HILL/HOLSCHER- Think tank of other students learning & problem solving Hands on problem –solving & research!

PRUNE HILL/COLMAN- Hands on / trying to solve real world

PRUNE HILL/ CAMERON- Science applied in the field

YORK/PEMBERTON- Hands on science/ Connection to the environment/ Opportunity to work collaboratively on a project

YORK/LAND- Good science/math application

YORK/SHOMMER-Awareness of human impact on H₂O

FRONTIER/WEST- Practice monthly is great students became more competent and confident each time

MACMS/GOODE- Being able to be outside, collect data, look at changes thru time.

RIVER HOMELINK/GASSAWAY- They understand they are doing something worth while for our community

GARDNER/GLADSKI- Our 3rd and 4th graders looked forward to meeting w/Judy every month. After the first few meeting the kids remembered how to conduct the tests and what each test result meant. The kids were always mindful of the wetlands on our campus, but now seem to hold it in a different more serious regard.

SHAHALA/JOHNSON-This always gives the students the drive (reason) for reaching a higher level of understanding (Blooms) Sharing their voice with others, and cementing their new understanding.

SHAHALA/SULLIVAN-My science classes learn so much about how to be a real scientist by doing water testing. It reinforces the entire scientific method/science inquiry which helps my MS kids be ready for HS science.

GAISER/GRAVES-long term science project. Collecting and analyzing data. Getting out in the neighborhood. Applying concepts to life (scientific skills). Putting cause and effect together (what people do effects water quality. Makes this concept more concrete).

DISCOVERY/JOY- Hands-on real science/ get out of the classroom

COL.RIVER HS/SANDISON- Public speaking important of H₂O Fun!!

AMBOY/SNOW- New thoughts about their topics and the overall program, awareness of our environment –deepen knowledge of science concepts.

ROOSEVELT/SMITH- Increased knowledge and awareness of watershed topics and scientific method

ROOSEVELT/CUDDY- No answer

ROOSEVELT/CARMICHAEL- They learned others to use data to draw conclusions and make correlations

DOROTHY FOX/LAWRENCE-Hands-on experience, Recording real data, working with Brendan

YORK/GLUSSON- Reinforced what they've learned throughout the year.

7. What professional benefits did you get?

GAISER/SHEA-increase knowledge on macros and h₂o quality/watershed/community

OGDEN/PATRICK & SHINNERS-makes my teaching intentional

SACAJAWEA/GANNON- Collaborating with colleagues helps me to explore new avenues to address in my teaching.

P.S.O./RAYMOND- Tying it into other curriculum w/ government /-writing letters

PRUNE HILL/HOLSCHER- Brendan Addis is an INVALUABLE RESOURCE!

PRUNE HILL/COLMAN- Mr. Brendan's expertise

PRUNE HILL/ CAMERON- Watching how the process comes together at the culminating activity

YORK/PEMBERTON- My knowledge regarding water quality continues to grow

YORK/LAND- Every year learning more scientific concepts focused on salmon/H₂O quality

YORK/SHOMMER-I improved upon my base understanding of H₂O

FRONTIER/WEST- learned a lot about water testing

MACMS/GOODE- This year I attended to PD opportunity at the water resource center.

RIVER HOMELINK/GASSAWAY- I like to see how many other colleagues have used the scientific method to teach different age groups. It would be fun to get the teachers together to find out how they manage the graphs, PowerPoint's, and data analysis at the different grades.

GARDNER/GLADSKI- I learned just as much as the kids this year.

SHAHALA/JOHNSON-1. Make connections with old friends. 2. steal others ideas for future presentations.

SHAHALA/SULLIVAN-I always learn something new about water monitoring and can add that to my presentation when I train students.

GAISER/GRAVES-Learned a lot from Judy!! Didn't know much about water quality measurements, now I do.

DISCOVERY/JOY- Time away from my building

COL.RIVER HS/SANDISON- Collaborating with other teachers

AMBOY/SNOW- Saw people I knew-networking! Ideas for our creek. More knowledge of the big picture for me too.

ROOSEVELT/SMITH- I'm always learning!

ROOSEVELT/CUDDY- No answer

ROOSEVELT/CARMICHAEL- Wow! Watching highly engaged students dig deeper into the field of water science.

DOROTHY FOX/LAWRENCE-This was all new to me so everything was a learning experience! My principal was very impressed and supportive.

YORK/GLUSSON- Deeper knowledge of water quality needs.

8. What was the best part?

GAISER/SHEA- Everything

OGDEN/PATRICK & SHINNERS-Students "light bulbs" going off the excitement they have as explore

SACAJAWEA/GANNON- The students have the opportunity to participate in authentic, hands-on science.

P.S.O./RAYMOND- seeing other students share/talk

PRUNE HILL/HOLSCHER- Student learning and sharing

PRUNE HILL/COLMAN- The Ah-has!

PRUNE HILL/ CAMERON- Watching student presentation

YORK/PEMBERTON- Taking kids outside and watching them learn.

YORK/LAND- Presentation -> really liked the discussion session and the new format

YORK/SHOMMER-I enjoyed each phase.

FRONTIER/WEST- JUDY! She is wonderful

MACMS/GOODE- 1. seeing my students excited and engaged at the stream. 2. watching students put all the pieces together for the presentation.

RIVER HOMELINK/GASSAWAY- The wrap-up

GARDNER/GLADSKI- Judy! The kids loved her and all the hands-on work they did with her.

SHAHALA/JOHNSON-FOOD! No, but it was good. Having kids talk with other kids about the environment, science, and their own experiences.

SHAHALA/SULLIVAN-The best part is seeing kids get into the creek. They love it! I see the connections being made. They apply what they have learned in class.

GAISER/GRAVES-Getting the kids out of classroom. Using inquiry. Writing explanations based on the data and all we studied.

DISCOVERY/JOY- Seeing kids engaged in their work
COL.RIVER HS/SANDISON- Congress!!
AMBOY/SNOW- Getting to see all my kids present! Lunch was great too @ congress! Field trip to creek each month. Tying concepts together.
ROOSEVELT/SMITH- All Great!
ROOSEVELT/CUDDY- No answer
ROOSEVELT/CARMICHAEL- Put knowledge from monitoring to task-making a poster
DOROTHY FOX/LAWRENCE-Creating the environmental awareness in the students
YORK/GLUSSON- Small group presentations.

9. Anything we should throw out or thoroughly revise?

GAISER/SHEA-No
OGDEN/PATRICK & SHINNERS-No
SACAJAWEA/GANNON- No
P.S.O./RAYMOND- No
PRUNE HILL/HOLSCHER- Add a quick tour of University Campus de-mystify the college some- bookstore/ commons/ library
PRUNE HILL/COLMAN- No
PRUNE HILL/ CAMERON- No answer
YORK/PEMBERTON- No
YORK/LAND- AM intro segment --> if anything get rid of prizes- better previous years (at end just hand raised or as a lottery)
YORK/SHOMMER-No
FRONTIER/WEST- No
MACMS/GOODE- NO
RIVER HOMELINK/GASSAWAY- ?
GARDNER/GLADSKI- It was hard to measure across our wetlands. Is there another way we could have been able to do it?
SHAHALA/JOHNSON-Magnets are great new idea.
SHAHALA/SULLIVAN-No! The program is fantastic!
GAISER/GRAVES-No – It would be cool to have a “teacher” meeting maybe while all the kids are in the auditorium or 2nd session. So we can share things that worked well and problem-solve issues together, work to expand or deepen our projects.
DISCOVERY/JOY- Not answered
COL.RIVER HS/SANDISON- ?????
AMBOY/SNOW- Judy was awesome! Did extra to get us macros for the ½ of the classes to evaluate while the rest went to the creek
ROOSEVELT/SMITH- zero
ROOSEVELT/CUDDY- No answer
ROOSEVELT/CARMICHAEL- N/A I really like whole group. Share (color) rating of water site
DOROTHY FOX/LAWRENCE-Can't think of anything
YORK/GLUSSON- The game with prizes was fun but needs to have clearer rules/directions. (Who was Brendan asking questions to?) Suggestion-using buzzer up front

10. Do you plan to change anything in your program for next year?

GAISER/SHEA-Logistical things on our end
OGDEN/PATRICK & SHINNERS-Yes Beginning of the year go through each experiment so students know what good levels are.
SACAJAWEA/GANNON- We are hoping to extend the time we spend at the stream each monitoring visit. I would like to focus on macros next year.
P.S.O./RAYMOND- Yes. Work more on each element
PRUNE HILL/HOLSCHER- Measuring tools for depth, width, speed of water monitored
PRUNE HILL/COLMAN- 1. More of the process- hypothesis – conclusion. 2. we will look at a new question from our past data. 3. standardize between 5 classes.
PRUNE HILL/ CAMERON- Create a question and having students make a conclusion.(do a more focus investigation with my own students)

YORK/PEMBERTON- Well, I'll be teaching 4th grade so I would like to continue water testing. That will depend on funding as well.

YORK/LAND- Moving grades→either expanding program over 2yr span or focus on 1 aspect in 4th bridge to 5th

YORK/SHOMMER-No

FRONTIER/WEST- Larger pictures to share maybe try PowerPoint

MACMS/GOODE- Yes- I need to streamline where the data goes after each testing

RIVER HOMELINK/GASSAWAY- we really want solve the problem in our creek. We try to get the word out, but we haven't seen a difference. That can be frustrating. The kids start to feel hopeless. We need to keep motivated.

GARDNER/GLADSKI- Unfortunately, our 3rd/4th grade teacher, Tracy Arensberg is leaving us☹ - hopefully next years teacher will keep up the relationship.

SHAHALA/JOHNSON-Start earlier, write transportation grants sooner, and input data in excel as soon as we get it. Create a spreadsheet of all the year's data.

SHAHALA/SULLIVAN-I want to focus more on testable hypothesis, instead of just asking the question about whether or not the creek is healthy.

GAISER/GRAVES-Narrow testing sites. Not sure what else. I am going to question the kids and get their feedback.

DISCOVERY/JOY- Perhaps focus on 1 or 2 tests instead of 8+ tests/observation. → come @ a life-science angle: macro &/or fecal coliform → come @ earth science angle: precipitation & depth/rate of flow

COL.RIVER HS/SANDISON- Start with ?'s at beginning of year → Notebooks

AMBOY/SNOW- Unknown at this time, but we still want to do this

ROOSEVELT/SMITH- No answer

ROOSEVELT/CUDDY- No answer

ROOSEVELT/CARMICHAEL- Have better data debriefs by using cumulative data/statistics

DOROTHY FOX/LAWRENCE-Oh Yes! I took several notes today ☺

YORK/GLUSSON- No

11. How could we have helped you more?

GAISER/SHEA-N/A did great

OGDEN/PATRICK & SHINNERS-More time explaining the overall purpose of monitoring- Explain tests more thoroughly to students

SACAJAWEA/GANNON- We received all of the help we needed this year. Thank You!

P.S.O./RAYMOND- Come to class and present on why/what each test does. Show how to use what we are learning in the community.

PRUNE HILL/HOLSCHER- ?? Excellent Thank You!

PRUNE HILL/COLMAN- no answer

PRUNE HILL/ CAMERON- no answer

YORK/PEMBERTON- You all are wonderful. Thank you for all you do

YORK/LAND- None, your help through the year was great!

YORK/SHOMMER-Nothing I can think of.

FRONTIER/WEST- We felt well supported. Thank You!

MACMS/GOODE- What would have been very helpful if Brendan would take data for the day. So we could have at least one baseline to refer to if needed. Thanks Brendan! Also suggested to Judy to have a teacher networking session in the afternoon.

RIVER HOMELINK/GASSAWAY- Some suggestions from experts to help us. Could you connect us to people who could help us and guide us in our efforts to solve the stream issues.

GARDNER/GLADSKI- The kids thought an additional person (a helper to Judy) could help answer questions/help when Judy was busy with other children.

SHAHALA/JOHNSON-Nothing you guys, all of you, do too much already!

SHAHALA/SULLIVAN-Cory, Judy, Bill: Thank you for another great year of water monitoring! It is great to you every year!

GAISER/GRAVES-Judy was great, she did all that I needed! Even walked extra when I was short on chaperons!

DISCOVERY/JOY- not answered
COL.RIVER HS/SANDISON- ?
AMBOY/SNOW- Is there a way we could monitor over the summer?
ROOSEVELT/SMITH- No answer
ROOSEVELT/CUDDY- No answer
ROOSEVELT/CARMICHAEL- Everything was great
DOROTHY FOX/LAWRENCE-Being here today really helped for future years.
YORK/GLUSSON- No. Thanks for the help and being flexible when I turned registration in late.

Please turn in the evaluation at the afternoon session or at the registration desk on your way out.

**Thank you so much for your participation and feed back.
Hope to see you again next year!**

EVALUATION FOR STUDENT MONITORS

12th Annual Watershed Monitoring Congress

June 4th, 2010

Please rate the following on a scale of 0 – 5 (1 =POOR to 5 =GREAT). If you have no reaction, please use (0) ZERO.

194 responses

- 1) 4.16 Morning auditorium introductions/program.
- 2) 4.33 The morning session.
- 3) 4.41 The afternoon session.
- 4) 4.37 Time devoted to each part.
- 5) 4.80 Food provided.
- 6) 4.66 Help from the staff and facilitators.
- 7) 4.08 Getting to know other people involved in watershed issues.
- 8) 4.25 Sharing problems and experiences with other students and the community.
- 9) 4.45 The value of the information to you.
- 10) 4.16 Having fun.
- 11) 4.69 Overall impression of Congress.

COMMENTS? Make any criticisms, constructive or otherwise, you feel are needed.

EVALUATION FOR FACILITATORS

12th Annual Watershed Monitoring Congress

June 4th, 2010

Please rate the following on a scale of 0 – 5 (1 =POOR to 5 =GREAT). If you have no reaction, please use (0) ZERO. Please add comments below each question.

22 returns- Results

- 1) 4.0 Facilitators' training and help from staff.
Some new facilitators were confused – more step by step instruction and a “5” for helping me when I came in late
- 2) 4.4 Morning auditorium introductions/program.
Confusing as to how teachers were supposed to participate
- 3) 4.7 The interaction of facilitators and students at morning sessions.
*Would have liked more
Lots more questions from students than I've seen in past years
Need to schedule start and stop time for presentations (2 min break to fill out feedback forms)*
- 4) 4.7 The interaction of facilitators and students at afternoon sessions.
*Not sure the PM session is worthwhile
Lots of noise, made it hard to intro activity – better in groups of 4?*
- 5) 4.4 Time devoted to each part.
*Afternoon too long for activity given
More examples of questions & other activities to take up time
The maps with circular annotations worked very, very, very well
Dragonfly fly went long even with two issues; AM seemed right*
- 6) 4.2 Food provided.
Food allergies
- 7) 4.3 Getting to know other people interested in watershed issues.
Not much time to chat
- 8) 4.4 Connecting to involved students and teachers.
Would have liked more time to talk with others
- 9) 4.5 The value of this activity to you.
- 10) 4.6 Overall impression of Congress.
*Great event – you all do a great job
Have groups submit abstracts, forward them to facilitators ahead of time
Thanks!
It's a good thing. I think it is invaluable to have students present heir findings, especially since so many dollars & time is put into the program
Networking session b/w professionals & students
Afternoon session disorganized with classes coming in a different times
Hope to come back and participate next year*