



# Green is an Important Part of the Spectrum

**G**reen letters spelling “Rogers Adventist School” stand out against the cream-colored block building topped with a blue roof. The sign, however, is not the only thing that is green at RAS. Arriving at school, students head to the large tank to check on the young salmon that are progressing through the stages from eggs to alevin to fry, eventually to be released into one of the local streams as a part of a program to reintroduce fish into the wild and educate students about the salmon’s lifecycle. Near the salmon tank, two computer screens monitor the energy being produced by solar panels and a wind turbine. How did solar panels, a wind turbine, and a salmon tank become a part of Rogers Adventist School?

Each of these “green” inclusions is the brainchild of Tonya Wessman, one of the 1st- and 2nd-grade teachers. Upon arriving at Rogers 11 years ago, Wessman de-

ecided that student learning could be enriched with the addition of renewable resources. RAS was preparing to erect a new school building, and she figured that this would be the perfect opportunity. The first project, solar panels, went so well that she and the school were approached to try the next project, a wind turbine. The newest of the green projects, and probably the one that draws the greatest daily attention from students, is the salmon tank located in the school lobby. What convinced Wessman that students would benefit from these projects? In the following interview, she answers these questions and others.

**Veverka:** Tonya, what sparked your interest in solar panels?

**Wessman:** I was interested in renewable energy and thought that this would be a great opportunity for education for kids. It seemed to me that our school should be the leader in the [Walla Walla] valley in all areas of education.

**Veverka:** How easy was it to convince others of your dream?

**Wessman:** It depends on “others.” Our principal at that time, Jim Weller, was easy to convince. Getting the money was not easy. We wrote grants, talked with potential donors, and finally came up with a grant from Bonneville Power and individual donations.

**Veverka:** According to a Columbia Rural Electric newsletter, Rogers Adventist School was the first school in the Walla Walla Valley to install this photovoltaic system [one that uses solar panels to convert sunlight into electricity]. This PV system generates about 1,200 watts. I understand that these panels, located on the south side of the building, convert enough sunlight to electricity to operate the lights in just over three classrooms. Do you know if many schools have followed RAS’s lead?

**Wessman:** I don’t know of any, but one local school does have a wind turbine.

BY JOY BRUNT VEVERKA



**Veverka:** After the installation, were there any stipulations, obligations, or responsibilities on the part of the school?

**Wessman:** No.

**Veverka:** How do students benefit from the solar panels?

**Wessman:** I am quite sure teachers use them for awareness when they study about renewable energy. In my classroom, representatives from Columbia Rural Electric come and share information with students.

**Veverka:** As for the wind turbine, I understand that you were approached by Columbia Rural Electric, and that the project, including installation of a 7.5-ton concrete base and a 53-foot-tall wind turbine (including blades), were all part of a \$20,000 grant. What did you do to coordinate the process? Since this was the first project like this in the area, were there some concerns?

**Wessman:** Tons of paperwork! One other turbine that size was located in the valley, but not in a residential area. We had to do paperwork for environmental studies, make presentations to the College Place City Council, send paperwork to Olympia [the state capital], and send out notices to all the neighbors. There were concerns about noise, birds, and safety—such as ice or blades flying off.

**Veverka:** I must ask, other than the knowledge that alternate sources of power exist, how do students benefit from the wind turbine?

**Wessman:** It is another opportunity for them to learn about renewable energy. They also learned how to try something that's hard. I learned that lesson, too; it wasn't easy, but it's one step at a time.

**Veverka:** I know the history behind the salmon tank. One summer evening, you, your husband, Marty, and I were guests at the home of one of our school families. While we were enjoying a delicious dinner in their backyard, something was said about a salmon tank. You said you had operated one at Riverside Adventist Christian School in



**Top:** At Rogers Adventist School (RAS), multi-age reading buddies smile as they transport solar panels from boxes to the installation points.

**Middle:** RAS 1st- and 2nd-graders help with groundbreaking for the wind turbine. Students signed their names on the base that was placed in the hole.

**Bottom:** A RAS student carefully releases a salmon.





Washougal, Washington, when you taught in the Oregon Conference. I mentioned that I had learned just that very day about one available in our area through Ranger Mike Dedman at Whitman Mission. Hearing the conversation, our hostess went to her computer and printed out the information. Tonya, you don't waste any time. When I saw you the next afternoon, you had already made the arrangements!

Now we are in the third year of the

Creek. Led by Ranger Mike or Marty Wessman, fry are collected from the tank and put into buckets. They then ride the bus along with the students to the release site. Patiently, each student lowers a cup containing a young salmon into the water, waiting for it to swim away. Parents and grandparents often accompany us, joining in the excitement. What would you add, Tonya, regarding the salmon experience?

**Wessman:** Students are interested in

said: "Seeing the salmon take to the natural stream water for the first time was like seeing a baby walk for the first time."

"I liked watching our salmon turn from little eggs to fry," stated Nathaniel Cueto. "I wish I could have seen them turn from smolt [juvenile fish] to adult. Salmon are born with a special sense (like a GPS) that guides them back to the place they were born to lay their eggs there, too. I think it would be cool to have that sense in your brain because then if you were lost, you could just 'feel' where to go. It was very exciting to see the salmon swim off when we released them into the river!"

As you can surmise, these projects involve community resources—we can't do it alone. Ranger Mike Dedman of the National Park Service works with the Department of Fish and Wildlife to maintain a self-sustaining program of salmon in local schools. "The program in the schools is primarily to emphasize the lifecycle of salmon and how that relates to our everyday experiences. For example, the redd, or nest, in the streams is important for the salmon. We can't change the course of the stream, we can't remove rocks, or cut shrubs or trees, and still maintain the necessary cool, clear, clean water required," Dedman states. He adds: "Another emphasis is showing the importance of salmon to us. For some people it is food, as it is for other animals. Those animals benefit our habitat. Birds eat a lot of salmon. Both birds and salmon eat a lot of insects. Birds eat rodents that are harmful to us. It is all interrelated."

"The idea behind raising salmon is from the Confederated Tribes," Dedman explains. "They know from records and letters and journals from missionaries and immigrants how many salmon there were. Henry Spalding made the comment that there were 'so many salmon you could walk across the streams on their backs.' Dams were



**Ranger Mike Dedman shares information about the salmon lifecycle.**

salmon program, and I can attest to its educational value. One of the [North American Division] Pathways reading selections, *Come Back, Salmon* by Molly Cone, comes to life when those eggs are placed in that gravel nest. Students check their progress each day and are thrilled when the alevin first begin to move. For three years, students from our two classrooms have gently released young salmon, or fry, into Mill

it. They care about the fish. Watching the cycle is interesting, since most kids just go to the pet store and buy a fish. Here they see the lifecycle. Parents have enjoyed watching the process, too.

I asked some students what was important to them about that event.

"It felt good and bad knowing that the salmon we raised were going out into the ocean and that we wouldn't see them again," remarked Sarah Dybdahl, now a 7th grader.

Another student, Rachael Schremp,



**Top: Eggs begin their life at school in a nest, or redd. After almost three months, they are ready for four-times-a-day feedings.**

**Bottom: Don Veverka (kneeling) and Tonya Wessman (far right in purple shirt) help students release salmon into Mill Creek.**

built, and salmon could no longer migrate up the rivers. After some of the dams were torn down, the Confederated Tribes put mature fish, ready to lay eggs, at the headwaters. The cycle began again.”

Salmon began returning to the area streams in 2004 and now number more than a thousand fish each year.<sup>1</sup> How exciting for students to have a part in restoring a species back to its habitat! It had been nearly 80 years since salmon had spawned in these streams. Students are also involved in helping to maintain the salmon’s habitat. According to Mike Dedman at Whitman Mission, “restoration work was done to modify the riparian zone next to the creek by adding certain rocks to attract fish, adding wood debris and logs, and planting the shore with cottonwoods and willows.”

By the time this article goes to press, RAS students will have helped to maintain that habitat. They are not the only students in the area helping. Local college and university students have worked with area agencies on Doan Creek, the one closest to RAS, and whose headwater springs originate under the school’s playground. According to Mike Denny from the Walla Walla Conservation District, Doan Creek was relocated to a ditch in 1947. This put an end to fish spawning. When the land became a part of Whitman Mission, discussions began among several agencies. “In early 2007, with the plans in hand, the old stream channel was re-established (dug out), and a new mouth (confluence with Mill Creek) was established,” states Denney. “That spring,” he continues, “with the great help of Walla Walla College [now University] students, hundreds of willow trees were planted along the still dry stream bed in anticipation of turning Doan Creek out of its ditch and back into the newly planted channel. In early 2008, Doan Creek was diverted into its old original ‘new’ channel. In less than nine months after closing up





the 1947 irrigation ditch, several pair of Endangered Species Act-listed Steelhead trout were already digging redds [nests] to lay their eggs. These beautiful big fish were 30 inches long. Deer, moose, beaver, coyotes, and dozens of native bird species all have moved into this area as a result of the newly established riparian habitat.”

But back to the salmon still in the tank. As the eyed-eggs grow into alevin, they are still maintained by the yolk sac. Once that disappears, students feed the salmon four times each day. Dedicated teachers and administrators take over the feeding on weekends. Dedman has set up the program so that it is financially self-sustaining. Permits are obtained through a local fisheries biologist, and water-treatment chemicals are minimal. The cost to RAS is in the work of feeding and changing water; there is no monetary cost. The learning is phenomenal. Students become excited about habitat and growth, protecting the environment, and appreciating the world and its creatures that God has created.

The idea that “it takes a village” is certainly true when it comes to providing students with experiences outside of the classroom. In October 2011, my 3rd- and 4th-grade class enjoyed a full-day field trip focused on salmon education and local food systems. Students learned about habitat from a stream simulator, searched stream water for macro invertebrates, painted pictures of salmon (now displayed on our school fence), climbed inside a 25-foot “salmon” named FIN, and visited a local farm where they studied local food systems.<sup>2</sup> Tasting giant radishes and arugula was not for the faint-hearted! While students tiptoed through rows of organically grown vegetables, learning how to walk without packing down the soil or stomping on

plants, many experienced for the first time just how large a sunflower can be. I marvel at the generosity of a local farmer who is willing to occasionally devote an afternoon to sharing with a group of students.

In order to gain a broad perspective, students in grades 3 and 4 visit McNary Dam in Umatilla, Oregon. There they learn about hydroelectric power and

the dams along the Columbia and Snake rivers. They check out the salmon viewing areas and learn about the boat ride that takes salmon from Umatilla to Portland.

Fifth- and 6th-grade students test power usage at their homes through a program sponsored by Pacific Power and Light. Bruce Wildfang visits each



**Top:** Salmon fry are fed by RAS students and staff before being released for their journey from Mill Creek to the Walla Walla River, down the Columbia River and out to the Pacific Ocean, where they will feed and grow for several years before returning to spawn.

**Bottom:** Releasing the salmon brings mixed emotions: excitement about sending them on their long journey and sadness at no longer being able to watch them grow.



## Poems Written by Students at Rogers Adventist School After They Learned About Salmon

### Water

Cool, clean  
Flowing, splashing, shining  
Rocks, logs, fish, bugs  
Gleaming, rushing, flashing  
Clear, shiny  
Stream  
By Asher Mahurin

### Eggs

Red, black  
Laying, fertilizing, moving  
Tails, yolk sacs, fins, alevin  
Swimming, growing, aging  
Shiny, silky  
Salmon  
By Jake Freedle

### Salmon

Hatching, shimmering  
Hiding, flopping, zipping  
Ocean, estuary, rocks, channel  
Flipping, swimming, jumping  
Old, tired  
Egg  
By David Rittenbach

### Egg

Small, healthy  
Growing, developing, living  
Streams are beautiful places.  
Laying, moving, rolling  
Fragile, energetic  
Redd  
By Rebecca Danner

### Adult

Red, shiny  
Reproducing, laying, spawning  
Eggs, water, rocks, logs  
Hatching, moving, feeding  
Silvery, new  
Alevin  
By Larissa Krueger

### Salmon


Cool, silvery  
Spawning, jumping, moving  
Ocean, rocks, rivers, streams  
Laying, fertilizing, swimming  
Silky, shiny  
Fish  
By Jessica Mitchell

of the three classrooms for three periods, explaining the importance of using power wisely. Each student is given a kit containing equipment he or she can use to evaluate electrical and water usage at home. The kit contains a bag for measuring the amount of water output for the shower, a low-flow shower head, a timer to encourage five-minute showers, and a device to test water temperature. Also included in the kit are a colored tablet to check for toilet tank leakage, a low-wattage light bulb, a nightlight, and a booklet explaining how to reduce energy costs and usage. Names of students from the three classrooms who complete the entire process are placed in a drawing for

a new mountain bike and other prizes. Teachers Gwen Payne, Cindy Solis, and Lorelee Thomas report that students enjoy Wildfang's energetic and informative presentations.

*By Design*, the North American Division's new science program for grades 1-8, presents an inquiry-based approach to science. Students learn about the Creator and the world around them through their inquiries, questions, research, and investigations. In addition, they learn care and respect for the world created by a loving God. Programs that teach sustainability and care

for the Earth's resources reveal the importance of being stewards of what God has created and entrusted to us, His children. While introducing salmon back into local streams will not be a "fit" for schools in every geographic area, there are always areas that can be enhanced, replanted, or cleaned up to restore the beauty of the world God created.

All of these experiences contribute to students' understanding of their responsibility to care for the world in which they live. As they explore various methods to produce and conserve energy, ways to protect the habitat and the creatures living there, and make an impact by using less, they are inspired to engage in lifelong learning and voluntarism. 

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4th-grade team. She has taught in a variety of school settings, including secondary, where she taught academy biology classes. As an adjunct professor for the School of Education and Psychology at Walla Walla University, also in College Place, Mrs. Veverka teaches classroom organization and management as well as small schools colloquium.

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