



End of Program Report to the Board of Directors
Sackville Rivers Association
River Rangers 2015



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River Rangers 2015 started out in late August . I set up an insulated aquarium with a chiller in the SRA Office and Damon Conrad looked after filling of the tank and the ongoing maintenance that continued through November. Given that the nearest source of tap water to the SRA Office was hot water only, Damon had to carry the hot water into the office by bucket and then let it sit for 24 – 48 hours for it to cool down and also release chlorine.

Electrofishing to gather fish to stock school aquariums was done with the support of Joel Scott, Joel Marks, and Damon Conrad. These fish were taken from the Little Sackville River to the SRA aquarium, and from there to school aquariums.

Aquariums were set up at Armbrae Academy, Sackville Heights Elementary, and Caudle Park Elementary. The first two were set up outside the participating classrooms, making them visible to other students, school staff, and visiting parents. The Caudle Park tank was set up in the school’s “Art Room”, which was less-than-ideal as this placed it on a different floor of the school from the two participating classes.

Teachers and students involved were Jane Bigelow (Armbrae Academy – 16 grade four students), Jodi Gordon (Sackville Heights Elementary – 27 grade four students), Kim Price (Caudle Park Elementary – 21 grade four students) and Michelle Zinck (13 grade four students and 13 grade three students).

Jane Bigelow has participated in River Rangers since 2007. Jodi Gordon and Kim Price were “rookies”. Michelle Zinck participated in one session of River Rangers at Ecole Burton Ettinger School in Halifax four years ago.

All students were given the River Rangers Introductory presentation (slide show with videos), which covered the extent of the Sackville Rivers Watershed, the environmental collapse of its fish habitats, the birth of the SRA, the work carried out by the SRA, and related ongoing issues affecting the Sackville Rivers today.

All students created a “Bug Dial” (a “wheel” featuring pictures of aquatic Insects and invertebrates found within the Sackville Rivers Watershed, along with information as to size, lifespans of juveniles and adults, food sources, predators, and “interesting facts”). I provided card stock and master copies of the patterns that needed to be photocopied onto the card stock. I led three of the four classes in the assembly of the Bug Dials. I followed this up with a 45-minute session on the classification of the insects and invertebrates, food, and habitats, followed by a session on how to use the Bug Dial to identify any insects taken from the Little Sackville River during the field trips. (On the field trips, students were provided with (waterproof) laminated Bug Dials; the ones on card stock were retained by the students who constructed them as “souvenirs”.)

The first field trip was scheduled for October 14, postponed to the next day due to adverse water conditions on the original date. Students walked from Sackville

Heights Elementary to a site on the Little Sackville River off of Highrigger in the Millwood subdivision. On site, students formed three groups, rotating through three “Learning Stations” (Habitat and Adaptation – Walter Scott; Water Quality – Joel Scott; Aquatic Insects – Damon Conrad and Joel Marks). Five parent-volunteers accompanied the students, in addition to the classroom teacher.

On October 21, Armbrae Academy grade fours were taken by private vehicles to the Fish Ladder on the Sackville River, and then to the main field trip site behind Boston Pizza close to Sackville Drive. Five parents and one member of the school administration accompanied the students. After the first rotation of the three learning stations, it was determined that the water temperature was too cold for students (and instructors). This resulted in the closure of the Aquatic Insects station, but Damon Conrad was prepared to transition his role into speaking with students and adults about the habitat and ecosystem issues with that particular location on the Little Sackville River. So, all three groups spent time at the Habitat / Adaptation station, and the Water Quality Station, but only one at the Invertebrates station.

Caudle Park Elementary took a bus to their field trip activities on October 19. Due to a misunderstanding on the part of the teachers, the school assumed that both classes could take part in a single field trip session. However, River Ranger Field Trips have always been restricted to a single class so as to keep student numbers low enough so that the small groups were made up of nine or fewer students. The arrival of 47 students (plus adults) would result in groups too large to effectively participate in the “hands on” activities we had planned. Since one of the classes only had 13 grade fours in it, producing a total of 34 grade fours (far more than optimum), I compromised by accepting the 34 grade fours into the Learning Station rotation, while Michelle Zinck (teacher of the split 3-4 class) occupied the grade three students nearby. (This did not have an adverse affect on the initial stop at the Fish Ladder, as the two classes took turns for sessions at the fish ladder, itself, and on the shore at the pool below the falls. Joel Scott led both classes in the walking tour downriver of the falls and the Fish Ladder.)

Also, I made it clear that the Aquatic Insects station would be skipped in favour of the session that Damon Conrad had used in the previous field trip.

Both Sackville Heights Elementary and Armbrae Academy classes participated in the session I call “Name that Fish”, whereby the students attempted to identify fish (life specimens with accompanying picture of the fish). In Armbrae’s case, this was done with only pictures, as my only stickleback and common shiner specimens had died before the Sackville Heights session leaving aquariums with only white suckers, creek chub, and American eels. The sessions were ended with my providing bad diagrams and additional facts about specific fish adaptations and invasive species.

There were more water quality issues with the three school tanks than in previous years. I think it may be related to my use of some fish food originally provided for the Fish Friends program, in addition to the dried bloodworm. I made this change because of the large number of bottom-feeding white suckers, who were challenged by the fact that the dried bloodworm tended to be eaten at the surface or just below the surface, but the creek chub. The trout / salmon food would sink to the bottom and be available for the creek chub.

Whatever the source of the problem was, the result was cloudy water, patches of clumped debris (uneaten food / fish feces?) that formed on the bottom as well as floated above the bottom, plus high ammonia levels.

I encouraged all teachers to aggressively carry out water exchanges (having pails of tap water that had been given 24 – 48 hours to dissipate any chlorine) that could be used to replace aquarium water, on as frequent a schedule as possible.

Sackville Heights Elementary and Armbrae Academy were fairly successful with this, and had a low fish mortality. Caudle Park Elementary experienced a blockage to the water uptake tube leading to the filter inserts, which was not detected, and as a result of the loss of water flow, most of the fish, and the sole American eel, died.

I spent a lot of time and travel going from school-to-school “trouble-shooting” aquariums that were experiencing serious water quality issues.

On October 30, I started the process of returning any surviving fish to the Little Sackville River, and emptied and cleaned all tanks and support materials. Aquariums, chillers, and supplies were left onsite at Armbrae Academy and Caudle Park, for use in the spring Fish Friends programs. I removed these materials from Sackville Heights, at their request, on the basis of lack of storage space and safety regulations (P-3 school)

This has been my final go at running River Rangers for the Sackville Rivers Association. There have been so many changes in public and private school operation over the last 10 years that factor into this.

Bus rentals are expensive, and some teachers are reluctant to invest their annual bus rental funding on activities early in the school year; their preference is for retaining this for use at the end of the school year (June). While some schools are within walking distance of Little Sackville River sites, this precludes them from taking part in the Fish Ladder experience.

Teacher responsibilities have been increased to the extent that the teachers experience difficulty in fitting all of the River Rangers activities into their schedules. This has led to the scheduling of field trips to later in the fall, which

involves colder temperatures, which weigh against comfortable participation in the learning stations.

Permission forms required of students and parent volunteers have become laden with requirements that hamper the scheduling of activities outside of the classroom. Elements of legal issues related to student “safety” restrict planned activities, both on the part of the teachers, parents, students, and school administrations.

It gets harder and harder to retain the learning station instructors who have to be experienced and knowledgeable, while committing themselves to a field trip schedule that is dependent on weather and river conditions which lead to cancellations and postponements the evening before or the morning of the scheduled dates.

My faithful co-worker, Mike Mackasey, who has shared the workload of River Rangers since his retirement from teaching, was unavailable this fall due to health issues. At 65, with my own health showing significant signs of decline, I have made the extremely difficult decision to withdraw from the River Rangers Program.

Looking ahead, I do plan on leading Fish Friends 2016 in the spring. Activities are spread out over a longer period of time (January-to-June), and the field trip at the end can be handled by a single person (when a single class is involved), or with the involvement of one or two assistants / volunteers who do not need as much specialized background as with River Rangers. The warmer weather is also a good feature.

At this time, I have eight teachers interested in participating, including a “newbie” teacher in the Mount Uniacke area – the source of our Sackville Rivers Watershed.

Respectfully submitted,
Walter Scott
Education Coordinator for River Rangers 2015

Appendix A
End-of Program Questionnaire
River Rangers 2015

1. What was the highlight of the fall River Rangers Program to you and your class?

The class enjoyed the entire program from start to finish. They loved feeding the fish, and all aquarium maintenance but if I had to pick something it would be the class trip. It was a cold day but the children loved it anyway. It was informative and enjoyable. It's important to see the real habitat.

Having the fish aquarium for the students to observe daily and having the responsibility of taking care of them.

2. What improvements or changes would you like to see made to the program for another year?

(No comments submitted)

3. Effectiveness / frequency of communications from Walter Scott:

Excellent communication – was always readily available and emails were replied to immediately.

Walter is always available. Communication was timely and informative.

4. Aquarium maintenance and support from Walter Scott

Excellent – Very patient with me as I have limited knowledge in this area.

Excellent

5. In-class activities (slide shows, Fish ID, etc.):

The students loved it. They are very curious and very concerned

about the environment.

Students enjoyed all presentations in-class (including bug dial).

6. The Field Trip (location, use of your time, learning stations, etc.)

Students loved the field trip! It was a short walking distance from the school. The stations were hands-on and the students were all engaged in the activities.

Again, it was well run and very informative. I should have booked sooner to ensure a warm day. However, a fun time was had by all. Parents included.

7. What cross-curriculum activities did your students do that were

7. What cross-curriculum activities did your students do that were related to Fish Friends (i.e. research, art, language arts, etc.):

We make fish in art class and we write poetry in Language Arts. I also do another unit on habitats in the spring. The fact that the students have this background information really makes the unit effective. We can have very in depth conversations about why animals are endangered and or extinct and what we should be doing about it. . The students already understanding how delicate habitats can be, and the harm that humans can cause.

Students were assigned a habitat research project.

8. Any other thoughts:

Wonderful opportunity for our students. Thank you so much for offering this program to us

Appendix B
SHES Grade 4 Gordon Fall 2015
What we Learned as River Rangers!

- The river can be polluted by fish dropping, leftover food, and garbage - Lydia
- If there is too much ammonia in the water, the fish may die – Sarah
- Some fish eat mud. They are called White Suckers – Addy
- Fish like to hide in the water for their own protection – Oscar
- There are four different types of water bugs – Scrapers, collectors, shredders, and predators - Josh
- One water bug can breathe through its bottom – Josh
- Predators hang on to rocks and wood so they don't go down the current – Lauryn
- All fish have their own way of living – Ella B
- You can see the eel's heart! – Ryan
- Fish live in different heights of water – Madison
- The eel swims backwards to get under the rocks and watch for predators – Rylan
- Fish don't breathe through their mouths, they breathe through their gills - Aidan
- Fish habitats are threatened by humans who pollute – Ms. Gordon

Thank you so much for everything!
Ms. Gordon

Appendix C
Program Pictures



Bridge over the Little Sackville River



Students work on fish habitat scavenger hunt



A close look at an American eel



Bug collecting



Gotcha



Now what is this bugs name?



Joel Scott leads the water quality learning station