

## Fish Friends 2010

686 ice cubes. That was the minimum needed to equip the student observation sessions for eyed salmon eggs, salmon alevin, and salmon fry. But I will get to that later.

The Sackville Rivers Association-sponsored Fish Friends Program 2010 (created over 15 years ago by the Atlantic Salmon Federation) started mid-January, and was winding down by mid-June.

19 classes were involved (plus an additional 14 students from a 4-5 split class in a school that had two full classes of grade four students enrolled).

Grade levels ranged from a 2-3 split class, up to a grade six class.

There were 457 students participating, including some with physical and learning disabilities.

12 of the 19 teachers were working with the program for the first time. This required a greater amount of TLC on the part of the SRA instructors, but the energy and creativity of these teachers more than made up for the effort on our part.

13 insulated aquariums (with chiller units capable of keeping tank temperatures at 4° Celsius) were stocked with 250-300 eyed salmon eggs. Two other tanks were stocked with trout eggs. (1. Because I wanted to see how the program would run with an alternative fish egg supply, and 2. Because one class joined in after the paperwork was done for the salmon egg licenses, and trout eggs were easier to acquire.)

A 16<sup>th</sup> aquarium was maintained in the SRA Office to hold a supply of salmon “just in case...”.

I was directly supported by Ron Duggan, a retired Department of Fisheries and Oceans research scientist, who worked with me through both of my two years as Education Coordinator.

Mike Mackasey, a recently retired teacher, not only played the role of Point Man for four of the classes, but he was responsible for recruiting two new schools into the program (three classes, including a French Immersion class).

Resource binders were produced for all teachers. These included the ASF Fish Friends Program manual (in English and in French), plus a thick bundle of support materials that I had accumulated since I was involved with the program as a classroom teacher in 1997 - 2005. A CD compiled by me, which contained electronic versions of many of the resources, also provided more options. There

were three DVDs (attached to each binder) with programming that went well with Fish Friends in particular, and the elementary school science curriculum in general, plus additional DVDs that were available for borrowing by teachers.

For every aquarium there was a RubberMaid bin containing support equipment which included a tank thermometer, turkey baster (with an extension hose), several sizes of nets, clear viewing containers, pH and ammonia test kits, a clock (to help determine if there was a power loss when school was not in session), mesh screening...

By late February, all classes had participated in an Eyed Egg Observation. Students were paired up, and provided with a Petri Dish containing some aquarium water, an ice cube, and a salmon egg. (The ice cubes were made from "safe" water. We didn't want the salmon in chlorinated water, so the cubes were frozen from either distilled water or aquarium water; the latter wreaked some havoc in my home when the "fish cubes" accidentally ended up chilling Pepsi...)

Students were provided with large magnifying lenses (2X for the main lens, and each with a 5X inset lens). My sister made up drawstring equipped cloth bags for protecting the hand lenses. Students also were given a work sheet on which to draw and colour a large-scale picture of what they could see inside the semi-transparent salmon egg.

All drawings were labeled neatly according to a standardized style that helped to convey the meaning of some of the odder (but actual) structures that the students observed.

Around this time, we "lost" one of the trout egg populations. Due to a miscommunication between me and one of the "new" teachers, the trout eggs were left too long in the (open) transfer jar, and in spite of being sited where there was a flow of moving water in the tank, appeared to suffocate.

A round of Salmon Alevin Observations followed in late March-early April (more "fish cubes"...) One school (private) suffered a power loss at the start of their two-week March Break, and water temperature rose to room temperature within a day or two, and this resulted in the salmon alevin accelerating their growth and becoming salmon fry by the time the class was scheduled for its Alevin Observation. This rapid growth spurt caused physiological damage to most of the fish, and by the time the salmon were ready for their release back into the river, only 25 of the original 250-300 were still alive.

And then we were into our Salmon Fry Observations by late April and early May (still more "fish cubes"...) )

The "finale" for the program was the Salmon Fry Release Field Trip.

By this time, one class had opted to have me look after the release of their fry, and a second class had decided to ease out of the program due to curriculum overload.

Of the 17 remaining classes, four chose to walk to a site on the Little Sackville River to do a release of their fry and also to play a simulation game called Fry Versus Predator, which gave the students a sense of the dangers faced by their salmon once they were removed from the relative safety of the aquarium.

The other 13 classes hired buses, and made a stop at the SRA Fish Ladder in Lower Sackville, where they were provided a tour and orientation to the function of a fish ladder, and also were treated to a display of gaspereau, white suckers, and adult salmon, netted before their widened eyes and dropped jaws from the fish “trap” and placed in a display tank for viewing on site. Four of these classes had the experience of seeing salmon at the grilse stage, as well as the full adult stage (including salmon in the 14-15 pound range). A great opportunity to slip in the line, “And keep in mind that 22 years ago there were ZERO salmon or trout in this river...”

These classes then went to a site on the Little Sackville River, released their salmon fry, and played Fry Versus Predator.

All classes were “marched” into and out of sites using military-style “call-and-response” chants, which pumped up the students and parents. Ron Duggan had begun this “tradition” a year-and-a-half ago during a River Rangers session, and since then he and I have competed with each other to produce the “coolest” verses.

We know who the salmon are - ***(We know who the salmon are)***  
Egg and alevin, fry and parr - ***(Egg and alevin, fry and parr)***  
Another year and smolt they'll be - ***(Another year and smolt they'll be)***  
And then they'll all swim out to sea - ***(And then they'll all swim out to sea)***

And given that there were an average of 5-7 parent volunteers with each of these Fish Ladder stops, this captured the imagination of a very different demographic than the primary focus of the program.

Using my own camera, I took still and video shots during the course of all Fry Release Field Trips, and every class received a souvenir CD (or in some cases, DVD) to highlight their experiences.

At the Fry Releases, we counted 2507 salmon fry (having started with about 3,900 eyed eggs) and 382 trout fry (from about 600 eyed eggs) released into the Little Sackville River.

And then came the work of emptying tanks and cleaning and disinfecting them and all of the support gear that had been in direct contact with the water.

Student responses to the principles explained and demonstrated throughout the Fish Friends Program (many of which students were also similarly engaged in the fall River Rangers Program) have shown clearly that they “get it”.

Written student assessments of the programs have volunteered statements to the effect that the students will do what they can to prevent friends and family from committing damage to the natural environment, and that they will explain the reasons why such harmful behaviour should be discontinued.

One school (Armbrae Academy) - an urban Halifax school – raised funds to pay for remediation work when there was a fuel oil spill (November) into the Little Sackville River.

Two schools (see Appendix C) expressed keen interest in remediation efforts taking place on First Lake, which is just outside the Sackville Rivers Watershed. One of the schools (Sunnyside-Eaglewood Elementary) – which is in Bedford, and not even close to the lake – raised the money to purchase a stenlog (a fibre-filled barrier that can be used to reduce pollution from storm drain inflows into the lake) to be used at First Lake.

The other school - Caudle Park Elementary - (a grade 2-3 split class, and a 3-4 split class), which is close to First Lake, attended and participated in the installation of the stenlog. Students from these classes had – unknown to me – been conducting their own cleanups on the lakeshore (motivated by what they had learned in River Rangers) in the absence of adult involvement. I have since communicated their level of commitment to the organization Friends of First Lake, and FOFL made a commitment to provide support for the work of these students on an ongoing basis.

Students from Millwood Elementary (four girls) were pictured in the local newspaper carrying out a cleanup on the Little Sackville River during their March Break. They credited the River Rangers and Fish Friends programs as the key motivation for their initiative.

Students from River Rangers / Fish Friends classes attended at least two of the SRA river cleanups this spring. And they brought parents and siblings with them.

There were eleven emails sent to the list of Student SRA Members featuring scheduling updates for SRA activities, plus photos and descriptions of activities involving students in the classroom and along the river. As of this writing, there were 78 students receiving this email (which usually passed through the hands of one or more parents before it got to the student), as well as all teachers in the fall River Rangers program and those currently involved in Fish Friends... plus many others who had expressed an interest in what is happening with SRA in general, and the education program in particular.

In addition to this overview of Fish Friends 2010, there is Appendix A which is an unedited compilation of responses from teachers and administrators to the end-of-program questionnaire I sent out in late May.

Appendix B contains some personal reflections of the program, and has some suggestions for consideration by anyone involved in the program in the future.

Appendix C is a more detailed account of the initiatives and commitment shown by the students and teachers of Sunnyside-Eaglewood School and Caudle Park Elementary.

Appendix D is the Sponsors Card that lists the individuals, companies, and organizations that were essential to the success of Fish Friends 2010

Respectfully submitted,

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