



Science Committee report

Report to Council on the results of the Science Committee meeting of 3 & 4 February 2014 to review salmon population status during the 2013 season.

The Science Committee met on 3 & 4 February 2013 in Campbellton, New Brunswick, to assess the status of Atlantic salmon in the river in 2013.

The Restigouche River environment in 2013

The Environment Canada gauging station on the Upsalquitch River serves as the indicator site for the Restigouche River. In 2013 the Upsalquitch River experienced excessive flows in February, March, June, August and September. A high flow of 239 m³/s was experienced on May 27th, (below the 2-year flood incidence). Lowest flows were recorded on January 30th (4.69 m³/s) and December 31st (8.8m³/s). A deficient flow was experienced in January.

Mean summer water temperatures were very close to average conditions. Maximum water temperatures were reached on July 16th and ranged from 21.8°C to 25.3°C. Year round water temperatures are monitored at 20 sites throughout the system using instream data loggers. All but one of the 20 recorders were retrieved and downloaded in 2013.

Atlantic salmon trends in 2013

Compared to 2012, rod day effort was up for the Restigouche and Matapedia Rivers in 2013.

Overall, grilse and salmon catches in the system were up in 2013 compared to 2012. The catch per unit effort (CPUE) for large salmon was up in both the Restigouche and Matapedia systems. The catch per unit effort (CPUE) for small salmon was down in both the Restigouche and Matapedia systems.

In 2013, for Restigouche New Brunswick spawners were determined during visual (snorkel) counts in late September and early October. It would appear that spawners were above the conservation requirement for the Kedgwick and near the conservation requirement for the Little Main Restigouche. It is not known if the Upsalquitch and mainstem Restigouche reached the spawner requirements as snorkel counts could not be completed due to extreme water conditions. Spawning escapements in the Matapedia, Patapedia and Causapsal rivers were estimated at 109%, 185% and 286% respectively, of the conservation requirement.

At the DNR protection barrier at Ten Mile Pool on the North West Upsalquitch River, grilse counts in 2013 were up compared to 2012 from 269 to 287. Large salmon returns were up in 2013 compared to 2012 from 282 to 349. The combined total of grilse and salmon of 636 is about 43% below the previous 5-year mean. The barrier was installed on June 21st and removed on September 13th, for an effective duration of only 65 days, the lowest in the thirty-five year time series. The cause of at least one barrier collapse was a build-up of the invasive algae Didymo which was washed downstream clogging the barrier fences and traps during a high water event



Compared to 2012, Restigouche New Brunswick fry are down overall (down in all tributaries and mainstem). Small parr densities are up overall (up in Kedgwick, Upsalquitch and mainstem, down in Little Main Restigouche). Large parr densities are up overall (up in Little Main Restigouche and mainstem, down in Kedgwick and Upsalquitch). Fry density levels were down in both the Patapedia and Matapedia. Small parr density levels in the Patapedia were down and up for the Matapedia, while large parr densities were up in the Patapedia and down for the Matapedia. Overall, there is a good distribution of juvenile salmon in the rearing habitat throughout the system and there were 2 to 3 cohorts of juveniles at most of the sites sampled in 2013.

In 2013 due to extremely high water levels combined with large debris movement and equipment failures no estimate of smolt production is available for the Restigouche system overall (the lower RST's were not operational during the smolt run) and only partial estimates are available for both the Kedgwick and Upsalquitch rivers. Partial smolt production from the Kedgwick River is estimated at 104,000 (2.97/100 m²) while partial smolt production from the Upsalquitch River is estimated at 192,000 (3.62/100 m²). Smolt production estimates for the Restigouche overall are not available for 2013. Smolt run timing was similar to most previous years as were most biological characteristics.

The Atlantic Salmon Federation continued its smolt sonic telemetry work in 2013. Eighty (80) smolts were sonically tagged at the Kedgwick rotary screw trap (smolt wheel) location. It is estimated that about 91% of them survived their movements through fresh water to reach the head of the tide; 81% survived to Dalhousie Junction (new receiver line in 2013), the same 81% survived to Dalhousie, slightly more than 40% were detected leaving the outer part of the estuary (the Baie des Chaleurs) for the Gulf of St. Lawrence and about 18% were detected at the Strait of Belle Isle. Tagged kelts were once again detected at Strait of Belle Isle during the same period as the smolt migration. This was the first year that kelts were tagged in the Restigouche. Twenty-five (25) kelts were tagged at Rafting Ground and fourteen of the twenty-five were detected at Strait of Belle Isle. In 2013 preparatory work was begun on predator-prey interaction investigations with the goal of obtaining an estimation of the predation of salmon smolts by cormorants.

Other research programs

Since 2006, didymo exists throughout our rivers. In 2013, there were persistent blooms on the North West Upsalquitch River. There was an extreme didymo event on the Duval River, a tributary of the Bonaventure River where the algal mat reached a thickness of 45mm at one location. An established volunteer committee of 70 members, comprising 22 organizations gathered data on didymo occurrence and extensiveness on 24 rivers throughout the watershed. From 2010 to 2013 more than 1300 observations have been collated. Research led by Carole-Anne Gillis, aims to study the controlling factors of the mat-forming diatom *D. geminata* and evaluate its impact on juvenile Atlantic salmon.

The RRWMC noted there did not seem to be many fungus affected salmon in 2013. No reports of fungus affected fish were received from the public. During visual counts conducted the snorkel crews noted the observed salmon and grilse seemed to be in generally good physical condition with some fungus noted.



Deny Isaac of Gespe'gewaq Mi'gmaq Resource Council (GMRC) summarized some projects the organization had undertaken in 2103. GMRC worked with N.B. Power on elver tracking and monitoring on the Nepisiguit River. GMRC partnered with Pabineau First Nation towards a salmon rehabilitation project on the Little River near Bathurst. In the area of salmon conservation, the GMRC assisted with the fish friends program in three area schools and hope that the salmon curriculum program developed in 2010 will be implemented at Alaqsite'w Gitpu School (AGS) in the fall of 2014. Contaminants research which is ongoing since 2008 continued in 2013 looking at contaminant levels in Atlantic salmon, lobster and clams. GMRC personnel assisted the ASF with the retrieval and downloading of smolt and kelt receivers and anticipate continuing that assistance in 2014.

David LeBlanc executive director of RRWMC outlined projects undertaken during the past year. The thermal and optical imagery acquisition work continued in 2013. This innovative project aims to to identify and map the location of thermal refugia throughout the Restigouche watershed with the goal of protecting their integrity and updating the information on the quality and availability of habitat for juvenile salmon for all the tributaries of the Restigouche River. This was the last year of the project and the watercourses surveyed were the South Branch Kedgwick River, Tracy Brook, Gounamitz River, Jardine Brook and Five Fingers Brook. A beaver dam survey was conducted on the Little Main Restigouche, dams were observed on the north and south branches of the Gounamitz, Cedar Brook, and Waganis Brook. Electrofishing upstream of these dams determined there were no fry present indicating passage was blocked to spawners in 2012. The RRWMC undertook a survey to determine the number of fin clipped grilse (indicating returns from hatchery stocking) angled on the Upsalquitch. Mr. LeBlanc also summarized the work the RRWMC has undertaken in 2013 involving equivalence cuts which measures the impact of forestry activities on watersheds.

Representatives of the organizations present summarized their tentative work activities for the upcoming field season.

Paul Cameron, chair