



CONSEIL DE GESTION DU BASSIN-VERSANT DE LA
RIVIÈRE RESTIGOUCHE INC.



RESTIGOUCHE RIVER
WATERSHED MANAGEMENT COUNCIL INC.

Science Advisory Committee Report

Science Advisory Committee meeting report showcasing results presented to and by the Science Chair to assess the status review of salmon populations in the Restigouche.

The Science Advisory Committee met on January 23rd and 24th 2017 in Pointe-à-la-Croix (PQ) to assess the status of Restigouche Atlantic salmon in 2016.

Environmental conditions in 2016

The Environment Canada flow station on the Upsalquitch River is used as a representative indicator of the Restigouche River flow conditions. In 2016, the Upsalquitch River demonstrated excessive flows in February, March, April and June. The lowest flow was recorded on October 18th (8.5 m³/s), while the highest flow was 432 m³/s and was recorded on June 9th (beyond 2-year flood occurrence).

The average water temperatures in summer were slightly higher (+1°C) than average conditions. Maximum water temperature was on August 6th and ranged from 21.4°C to 24.7°C. These results were obtained from data recorded by thermographs distributed in over 20 sites across the system placed and recorded throughout the year. In addition, the RRWMC has been involved for three years with the RivTemp program to monitor water temperature in salmon rivers at various spatial and temporal scales to create an adaptive response management for water temperature increases in relation to recreational angling. Since 2014, 30 additional thermographs to those already deployed by DFO are installed every year. Monitoring of these sites will be continued in 2017 in collaboration with Listuguj Fisheries. The expected results of the research include mapping, a developed monitoring protocol and ability to forecast temperatures in sub-catchments of the Restigouche River.

Trends in Atlantic salmon populations in 2016

Compared to 2015, the fishing effort (rods per day) remained stable at the fishing lodges. However, the effort for the rivers managed by the CGRMP declined by 20% and an 11% decline was also estimated for Crown Reserved waters.

Overall, catches of grilse and large salmon decreased in 2016 compared to 2015. The catch per unit effort (CPUE) or fishing success, for large and small salmon also decreased for all rivers of the watershed.

In 2016, the number of spawners contributing to the stock recruitment in the Restigouche River was determined by visual snorkel counts conducted in late September and early October. From these observations, stocks were below the conservation requirements of large salmon for all tributaries Restigouche in New Brunswick except for the main section of the Restigouche which would have reached its conservation threshold. As for Quebec rivers, the estimated conservation thresholds are 99%, 102% and 56%, for the Matapédia, Causapscaal and Patapédia respectively. The RRWMC also conducted a visual count later in the season, when the spawners would be located on their spawning grounds. The visual count generated contrasting estimates of spawners compared to the snorkel count



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method. This later count yielded lower numbers in the main stem Restigouche River which is mostly attributed to spawners migrating to tributaries to spawn between the counts.

Compared to 2015, the density of fry and parr (1+ and 2+) is down for 2016 for all the tributaries. Overall, there is a good distribution of juvenile salmon throughout the sampling sites and there were two to three cohorts of juveniles in most sites in 2016.

The rotary screw traps (smolt wheels) installation on the Matapedia, Restigouche and Kedgwick rivers in 2016, took place on May 19, 20 and 21, respectively. The second Restigouche River smolt wheel was installed on May 26th. The Upsalquitch River smolt wheel was not installed in 2016 due to logistical issues. Total productivity and smolt outmigration estimates will be available in Fall 2017.

The Atlantic Salmon Federation (ASF) continued its acoustic telemetry monitoring work to track migrating smolts and kelts in 2016. Eighty (80) smolts were tagged with acoustic transmitters at the Kedgwick River smolt wheel. The RRWMC also tagged 60 smolts at the Matapedia River smolt wheel. During migration, some receiver lines may not detect tagged fish; therefore a corrective detection model is applied to the data to have more accurate survival rates. For the Kedgwick River, an estimated 92% of tagged smolts survived until the head of the tide; about 75% survived till the end of the estuary (Chaleur Bay) whereas those that survived the migration to the Strait of Belle Isle (SOBI) was approximately 61%. For the Matapedia River, survival rates were lower at 80%, 57% and 50% for the respective detection lines. Tagged kelts were once again detected at the Strait of Belle Isle line during the same period as migrating smolts. It was the fourth year that kelts were tagged in Restigouche. Twenty-five (25) kelts were acoustically tagged of which 10 were tagged with satellite “pop-up tags”. Of the ten, 5 have an unknown fate (all hit off Chaleur Bay acoustic receivers), 1 was caught in river on June 4th 2016, 1 returned as a consecutive spawner (tag cannot pop up in freshwater), 3 popped up early (1 reached SoBI, 1 reached Labrador and 1 reached West Greenland).

Other research programs

Since 2006, the nuisance of the diatom *Didymosphenia geminata* (didymo) is present in the rivers of the watershed, at contrasting levels of severity. Didymo was less prevalent in 2016 compared to 2015 based on visual observations of mats. In 2016, severe didymo mats were persistent in some areas of the watershed: 40 mile on NW Upsalquitch and downstream as well as the Milnikek River. Carole-Anne Gillis was involved with three peer-reviewed publications on didymo in 2016. The thesis is expected to be completed in 2017.

In 2016, the RRWMC was involved with regular science programs, the water temperature monitoring network and the Upsalquitch River Forks restoration project. New initiatives launched in 2016 include: Strategic management of thermal refuges, a watershed management plan for the Kedgwick River sub-catchment and the collaborative work with ASF on PSAT tagged salmon in the Restigouche River. New projects that have been submitted and are awaiting confirmation for funding include: Watershed-wide connectivity analysis for in-stream barriers to Atlantic salmon migration and a restoration project in the Five Fingers basin to limit sediment input to streams.



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Listuguj Fisheries mentioned that they were once again involved with the smolt wheel operations in the Restigouche River and they pursued their salmon health monitoring research in 2016 as well as sample striped bass biological data and intend to carry out similar monitoring in 2017. Virus testing was a new component that was implemented in their research activities and will also be renewed for 2017. New 2017 scientific programs plan to acquire knowledge about the distribution of juvenile Atlantic salmon in upstream portions of the watershed and look at thermal habitat use of juveniles.

Two postdoctoral projects were carried out in the watershed in 2016. The first project was led by INRS and they conducted a full upstream-downstream bathymetric survey of the Matapedia River. This data will help improve that Habitat Suitability Index (HSI) for Atlantic salmon in the Matapedia River. The second project is led by UNB and intends to build a full life-cycle stock-recruitment model. This will help improve data acquisition for better decision making related to Atlantic salmon stocks in the Restigouche watershed. Also, PhD thesis results were presented in regards to social interactions between the three watershed communities (Mi'gmaq, French settlers and English settlers). Key findings acknowledge different cultural beliefs and ways of knowing. Towards creating an effective co-management framework for Atlantic salmon, we need to acknowledge the past, reconcile, find common goals and build relationships.

A round table regarding the review of the conservation requirement thresholds was conducted. A resolution was drafted by the Science Advisory Committee and was endorsed by the Board of Directors. The RRWMC will be actively involved with the scientific review of the thresholds for the Restigouche River stocks.

Finally, the representatives of all present organizations summarized their planned and tentative work activities for the next field season.

Carole-Anne Gillis, Scientific Research Chair