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# The Bartibogue River Watershed Recreational Fishing Management Plan

Bartibogue Fish & Game Association  
**2015**



**The Bartibogue River Watershed**

**Recreational Fishing Management Plan**

**for the**

**Bartibogue Fish and Game Association**

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Fornabu Lumber, as the lease-hold manager of the timber rights on much of the crown land in the Bartibogue River watershed has been most cooperative and we extend our appreciation particularly to the woodland Planning Coordinator, Mr. Tony Van Buskirk.

It seems everyone loves the Bartibogue and other support was available through our MREAC membership. Mr. Bernie Dubee, retired fish biologist and MREAC member, offered valuable support in reviewing the draft management plan and make it much more credible as a fish focused document. Other volunteer of significant note include Mr. Dave Williams, then student at NBCC-Miramichi, an avid fisher of the Bartibogue River and Mr. Tim Humes, avid paddler and keen participant on new waterway adventures.

# Bartibogue River Watershed Recreational Fishing Management Plan

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# **Bartibogue\* River Watershed Recreational Fishing Management Plan**

## **1.0 Introduction**

The Bartibogue River watershed has long been popular for recreational fishing for Brook Trout and Atlantic salmon. Two waterways receive most of the angling attention, the Bartibogue River and the Little Bartibogue River. As an unscheduled river system that allows for spin casting throughout most of the season these waterways appeal to family outings. As river systems known primarily for a fall run of Atlantic salmon, much of the angling is concentrated on Brook Trout fishing.

This plan is prompted from and guided by the interest in, the passion for, and the knowledge of the Bartibogue River system, expressed by members of the Bartibogue Fish and Game Association (BFGA). In 2014/15 the Miramichi River Environmental Assessment Committee (MREAC), in partnership with the Association, found funding for Bartibogue watershed related projects through the Atlantic Salmon Conservation Foundation and the Recreational Fisheries Conservation Partnership Program (RFCPP). Support for this management plan comes through the Habitat Stewardship Program of Environment Canada. There has not previously been a watershed specific recreational fishing management plan for the Bartibogue River. Some, albeit minimal, habitat and fish stock assessment has been completed in the past by staff from Fisheries and Oceans Canada and the Department of Natural Resources. Most of this information is outdated and contributes relatively little to the current situation. The BF&GA hopes to lead additional work on both habitat and fish stocks in the near future.

## **2.0 Background**

The Bartibog River is located in Northeastern New Brunswick. The watershed area of the Bartibogue River, including the Little Bartibog is approximately 512 sq. km. with a meander length on the main branch being approximately 60 km. The watershed is a mixture of crown and private lands with most of the private lands on the lower river reaches, on the east side of the watershed.

\* *Bartibogue River – This spelling of the Bartibogue River has been adopted for this report. The BF&GA selected this name for their association, and, as the lead organization, it seems appropriate to use this spelling. It is noted that the name Bartibog is the more familiar rendering on maps and in other documents.*

The mouth of the Bartibogue River is situated on Miramichi estuary, discharging into the tidal waters of Miramichi Inner Bay, ultimately into the Gulf of St Lawrence. It is associated with the world renowned Miramichi River and its Atlantic salmon fishing but does not have the high profile of the Miramichi main branches and her major tributaries with their attraction to recreational fishers around the globe.

The Bartibogue River watershed is situated on the Eastern Lowlands Ecoregion. It is a relatively low gradient river averaging about 2.67 meter drop per kilometer.

Forestry is the biggest industry sector. Fornebu Lumber manages the crown land timber land within the watershed. Fornebu also holds considerable free hold property. Multiple private woodlot owners manage their land to their liking.

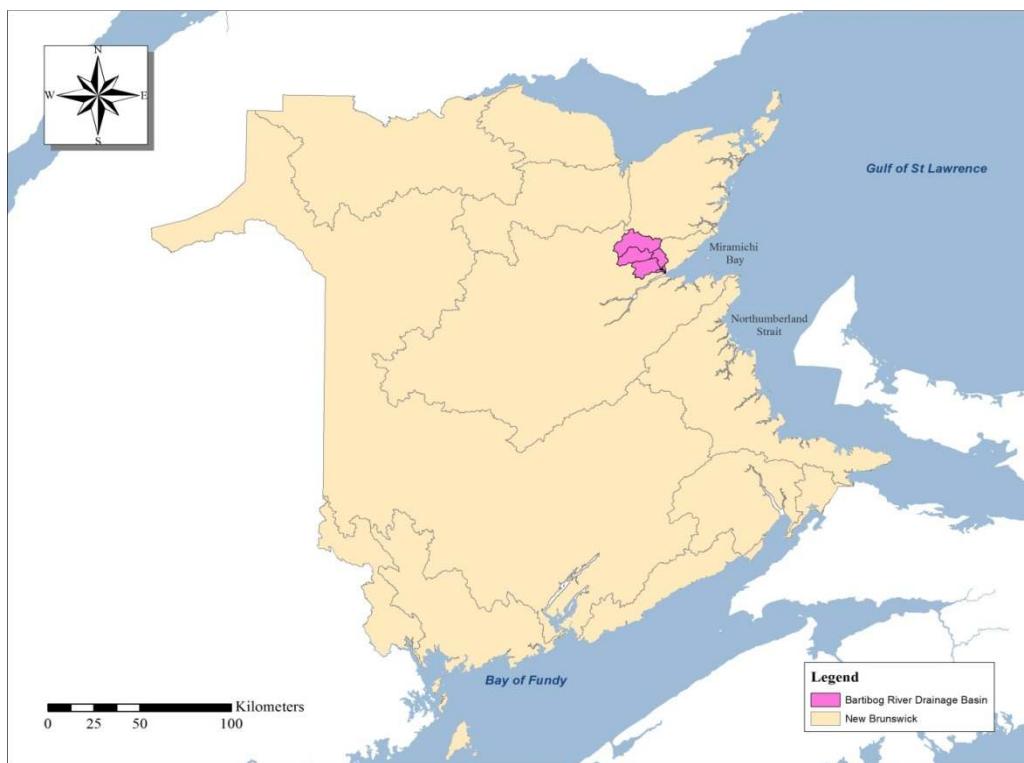


Figure 1: Bartibogue River Drainage Basin within New Brunswick

The Bartibogue is popular for recreational fishing and has sustained a healthy population of Brook Trout for decades. It is known for its Sea-run Brook Trout, fish that are significantly larger than resident Brook Trout. As an Atlantic salmon river, the main branch of the Bartibogue

is popular for black salmon fishing in the spring. The river is otherwise known as a “fall run” river for Atlantic salmon fishing, but BF&GA members speak of the presence of some bright salmon for the entire season. The Little Bartibogue is particularly popular among Brook Trout fishers, especially to local New Brunswickers. Little information in current productivity and catch data estimates is available as little data has been collected. Retired DNR fish biologist, Mr. Bernie Dubee maintains that “despite years of significant fishing pressure, the Bartibogue seems capable of maintaining a healthy stock level of Brook trout. This is due in large part to a productive estuary and the relatively cool water temperatures throughout much of the system. It is important that these conditions be maintained.”

**Goal: The BF&GA and partners aim to maintain a high level of recreational fishing experience on the Bartibogue River waterways for Atlantic salmon and Brook Trout by active engagement as needed in addressing management issues.**

**Vision: The BF&GA envisions the Bartibogue River waterways providing a high level of recreational experience for future generations of New Brunswick fishers and other outdoor enthusiasts.**

### **3.0 Management Objectives:**

1. To maintain the ecological and recreational values that the Bartibogue River has long offered to river users;
2. To conserve and protect the existing recreational fisheries stocks and their habitat;
3. To maintain access to recreational fishing opportunities and experiences;
4. To improve the scientific knowledge base through monitoring and assessment activities of recreational fishes and their habitat conditions;
5. To recruit the cooperation and support of recreational users and other interested parties to deliver needed management of the recreational fisheries resources;
6. To promote equity and fairness for all users in the application of management measures for the recreational fisheries;
7. To promote and engage the local interests of various stakeholders to participate in the decision-making process for managing the recreational fisheries resources;

8. To implement a long term strategy to conserve and maintain the wise use of recreational fishes and their habitat;

## **4.0 Access**

The mix of crown and private lands on the Bartibogue River watershed is such that it allows for a reasonable level of public access to the waterways in many locations. Many private land owners allow access to fishing holes across their properties. Several others have posted their property to prevent public access and several others have fixed barriers. With the existing available access at bridges, by boat (mostly canoe), and via crown land wood roads, there is not a major concern of losing access for recreation on the Bartibogue River waterways. The BF&GA will assume the role as ‘gatekeepers’ to provide sufficient access to the Bartibogue in perpetuity to allow the general public a reasonable level of access to fishing on the Bartibogue River waterways.

## **5.0 Habitat Conditions**

Water temperature has become an increasing concern on salmonid bearing streams throughout New Brunswick. Sustained periods of elevated high temperatures, normally mid-summer, can result in significant stress to Atlantic salmon and Brook Trout. A “warm water protocol” has been instituted for important salmon pools throughout the main branches of the Miramichi watershed wherein pool closures will apply when stress levels to fish are such that additional stress due to angling should be avoided. This protocol has a defined temperature regime that would result in temporary pool closures as well as closure of the entire river if warranted.

Through Atlantic Salmon Conservation Foundation (ASCF) support to MREAC in 2014 to assess fish habitat, three temperature monitors were installed for much of the open water season. Comparing one of the Bartibogue temperature monitoring stations (see Fig. 1) to three other MREAC stations on the greater Miramichi watershed, it is noteworthy that the Bartibogue River consistently maintained a slightly lower water temperature (see Fig. 2). Despite this, water temperatures still sustained (>48 hour) high stress levels of greater than 20° Celsius at the Bartibogue station in early July. In 2015 MREAC installed and recovered four other temperature loggers at locations throughout the Bartibogue River watershed. The results from these loggers are shown in Fig. 3. It is noteworthy that the smaller tributaries maintain water temperatures that track significantly cooler than wider more open waterways. While this is not a major factor for

adult Atlantic salmon on this fall-run river it will impact the survivability of juvenile salmon and Brook trout. In recent years, river temperature conditions have been unpredictable but several years have shown conditions of high stress for salmonids and conditions are expected to worsen in coming years with the growing impact of climate change. **It is recommended that as temperatures increase some Bartibogue River pools be considered for incorporation into the list of candidate pools under the “warm water protocol”.**

**5.1 Beaver Dams:** Much of the headwaters on the main Bartibogue River are accessible to spawning Atlantic salmon and Brook Trout during this fall event without impoundments. These same conditions are not as true on the Little Bartibogue River. It has become an acceptable practice to remove old, unused (by beaver) beaver dams to promote greater spawning success. It is also a practice to notch existing active dams during the peak of spawning to allow headwater access of spawning fish. It is realized that this work on active dams will be quickly undone by the resident beaver with rapid repair being their natural response. However the appropriate timing for such work does allow for significant numbers of spawning fish to move further into the headwaters. In 2014 the ASCF sponsored old beaver dam breaching through a MREAC sponsored proposal. It was clear at the time of this work that significant numbers of fish, mostly Brook Trout, were allowed to advance further upstream for spawning. The lower reach of the Little Bartibogue River is problematic with annual blockage at old beaver dam sites due to a widely braided river channel. **It is recommended that an annual program of breaching these old dams be instituted by the BF&GA and other volunteers as available.**



Figure 2: NBCC- Miramichi Environmental Technologies Students – volunteer on Little Bartibogue River for beaver dam breaching – Oct. 2014



Figure 3: Fall beaver dam breaching on the Little Bartibogue River - 2014

## **6.0 Land Use**

The Bartibogue River watershed has one large scale industry sector within its boundary. Fornebu Lumber controls much of the forest harvesting within the watershed through their crown land timber lease. They also have much freehold land and manage these multiple properties for the same purpose. In total Fornebu Lumber manages approximately 86% of the watershed. There are relatively few full time residents living within the watershed and most of these would be in the small hamlet of Russellville near the mouth of the river. Other users have camps on the river and many of these are concentrated on the Kenna Road. The headwaters of the Bartibogue watershed are virtually without building infrastructure but some access is available through a network of gravel roads constructed by the forestry sector. Existing roadways and other trails are constructed for use by all-terrain-vehicles and snowmobiles. Stream fording by ATVs is of concern when the fords results in siltation. A rail line also transects the headwaters. One of the growing local industry sectors is that of blueberry production. Extensive clearing on the woods road accessing headwaters suggests a very significant impact on the landscape. No production has been realized to date but, as a growth industry, it is expected this will be much more prominent in future years. The BF&GA are making efforts to educate themselves on the potential impact and risks associated with blueberry growing. With the use of fertilizers and herbicides, the primary concern is related to the risk of these chemicals impacting water quality and fish stocks.

## **7.0 Environmental Monitoring**

MREAC staff, in cooperation with Environment Canada staff, has established Canadian Aquatic Biomonitoring Network (CABIN) sites on the main Bartibogue River (just below Hwy 8 bridge), at the mouth of Green Brook and near the mouth of the Little Bartibogue River. Available results of this more comprehensive ecological assessment indicate that the Bartibogue River currently maintains good “unstressed” ecological conditions. These sites complement several other sites on the Miramichi watershed that can be considered to have “reference” conditions against which impacted rivers might be compared. It is of note that a key metric of implementing the CABIN protocol is an assessment of the macro-invertebrate community on the stream bottom. The relative abundance and diversity of this community says much about the health of the

watercourse under consideration. The “bugs” from the two sites monitored in 2015 have not been assessed and are thus not available as yet.

## 8.0 Water Quality/Quantity

**8.1 Temperature:** Temperature related issues are perhaps the greatest long-term threat to water quality and quantity. However, as related to Atlantic salmon, the Bartibogue is known to be a “fall run” river. This implies that the main Salmon run is beyond the critical period of potentially harmful high temperature conditions of mid-summer. Due to the comparatively smaller scale of the Bartibogue, early run fish would be exposed to an entire summer of predation and other threats (including angling and poaching), especially during low water conditions and with restricted pool sizes. The threat of high temperature conditions does apply to the resident Brook Trout and these are likely to require management consideration during periods of high temperature stress. The following Figures (\_\_\_\_ to \_\_\_\_) show the results of water temperature monitoring over 2104 and 2015 at seven different locations on the Bartibogue River watershed (Fig. \_\_\_\_ ) including one on the Little Bartibogue River.

In comparing the temperature regime for these two years with other monitoring on the larger branches of the Miramichi watershed (Southwest Miramichi, Northwest Miramichi and Little Southwest Miramichi), cooler condition prevail on the Bartibogue which for these cool water species of salmonids is an advantage. Despite this observation it is also observed that conditions do reach the stress level that serves as a trigger for the “warm water protocol” that is implemented on major Miramichi River pools.

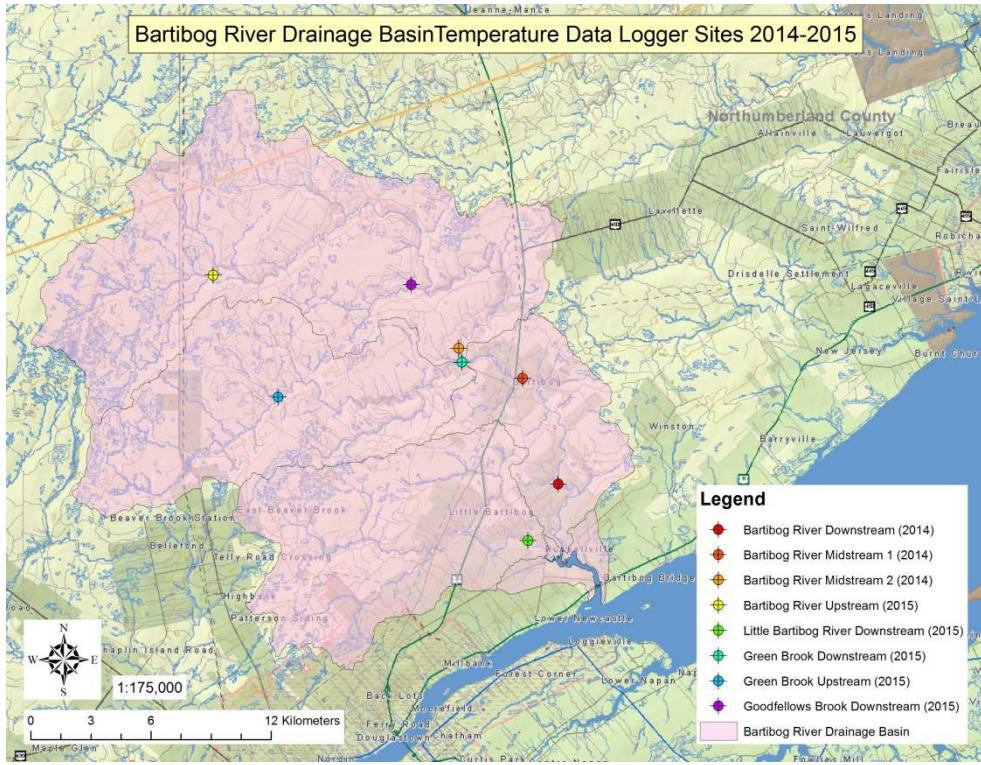


Figure 4: Temperature Data Logger Locations - 2014 and 2015

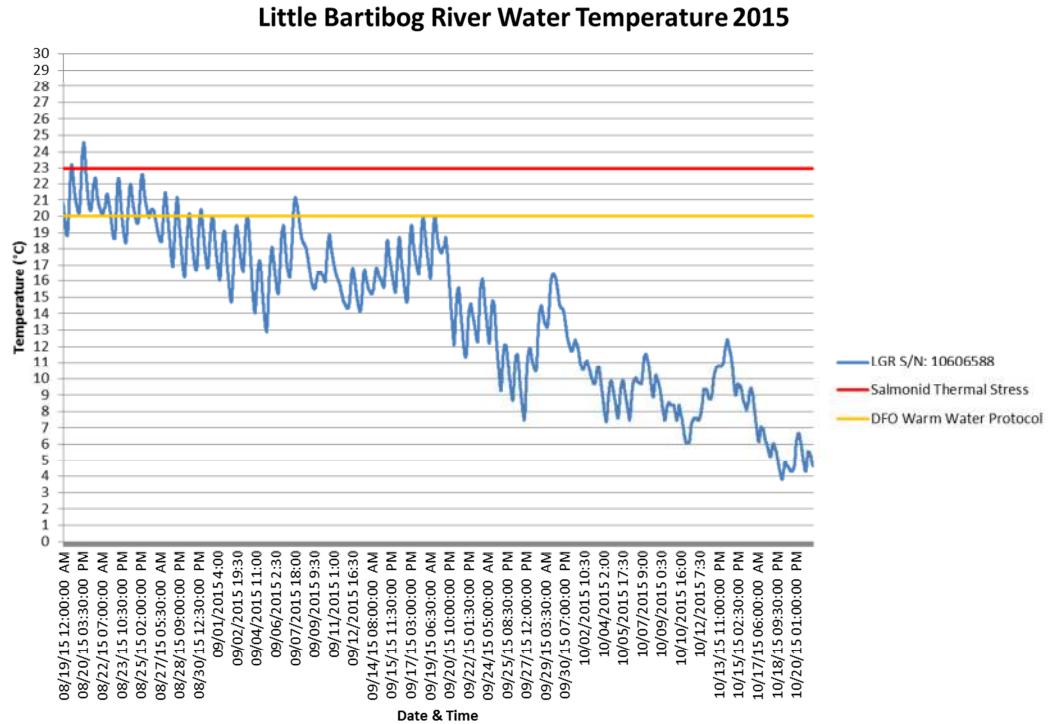


Figure 5: Little Bartibog River Water Temperature - 2015

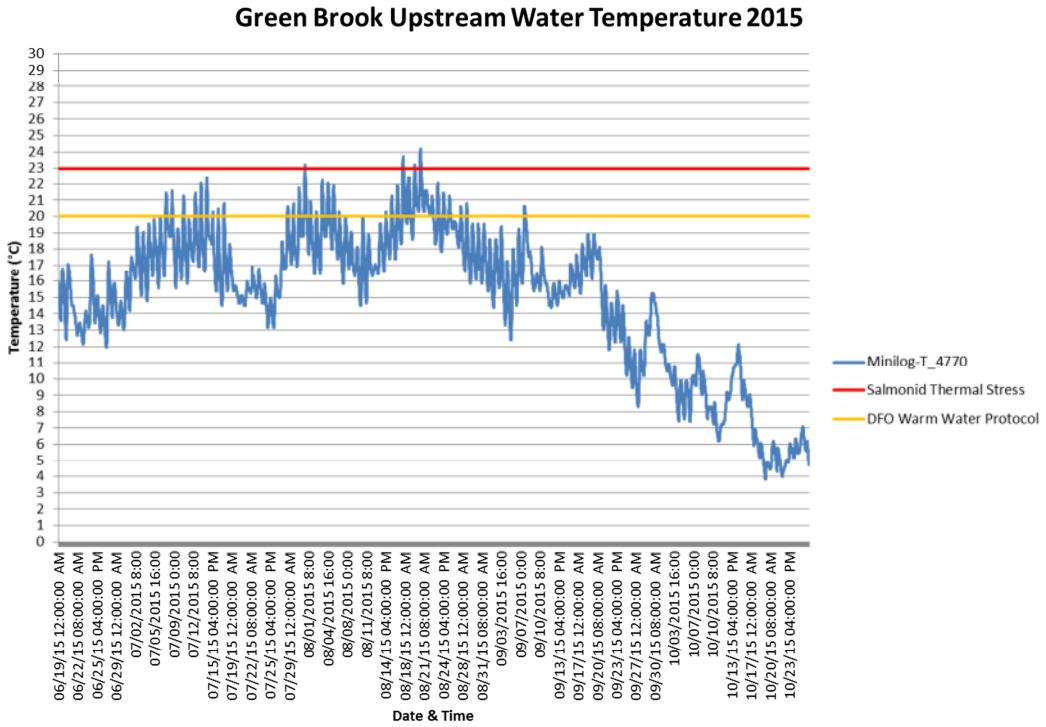


Figure 6: Green Brook Upstream Water Temperature – 2015

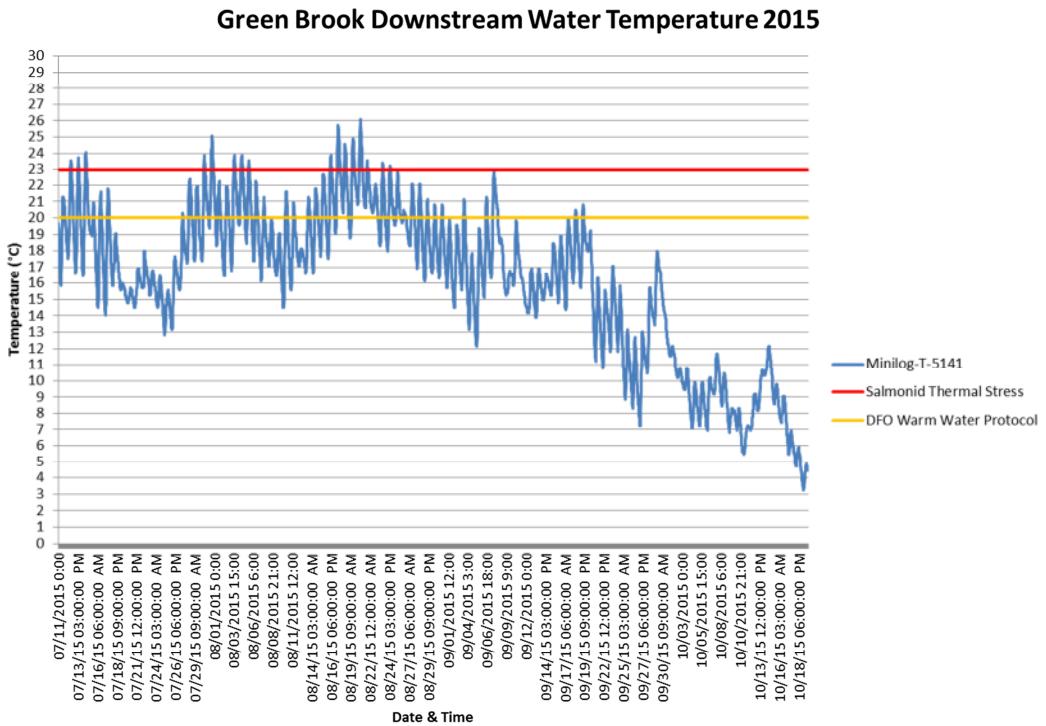


Figure 7: Green Brook Downstream Water Temperature - 2015

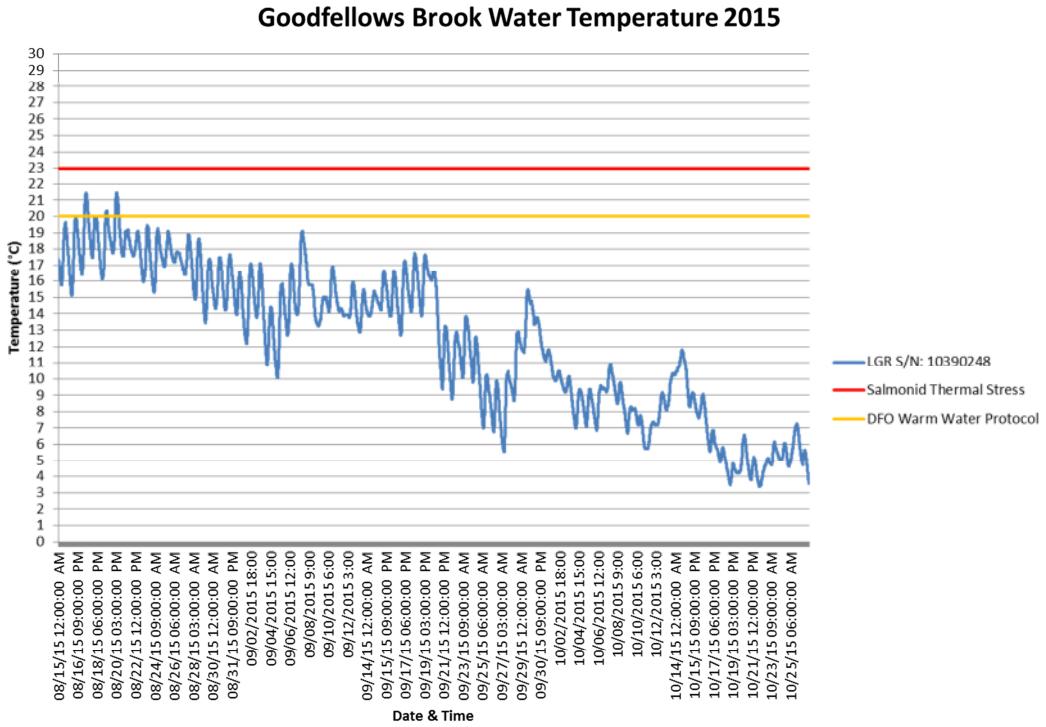


Figure 8: Goodfellows Brook Water Temperature - 2015

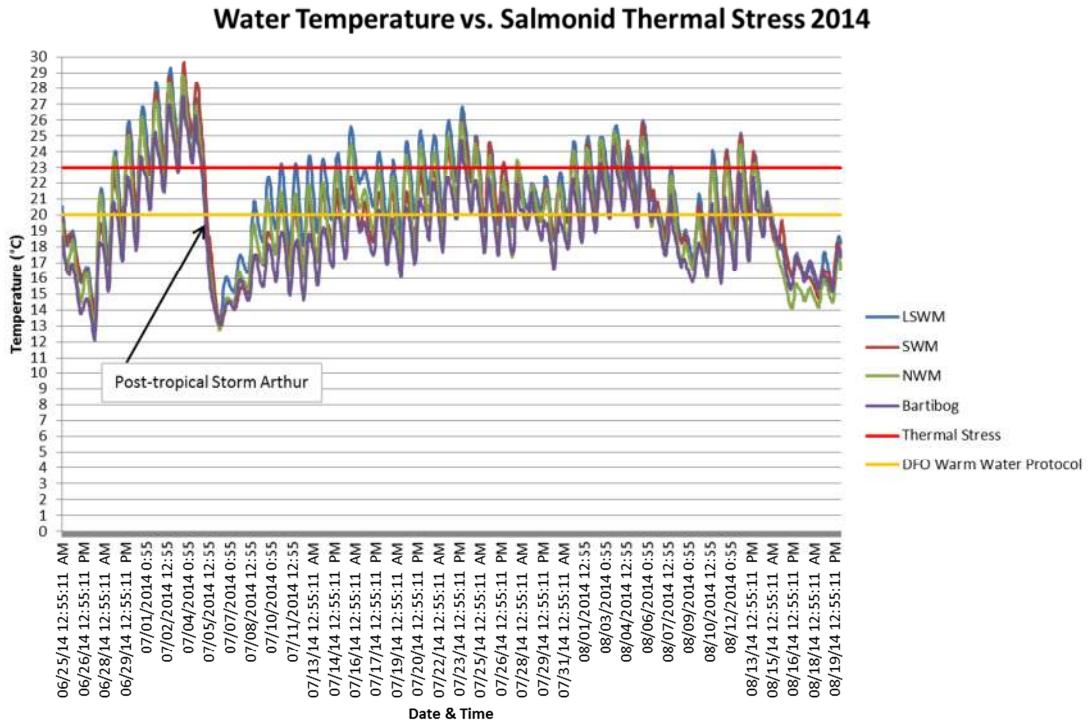


Figure 9: Monitoring of Water Temperatures on Four Waterways - 2014

**8.2 Siltation:** Issues related to siltation are most commonly related to road construction, especially at river and stream crossings (Pers. Comm. Tony Vanbuskirk, Fornebu Lumber). Industry practices are such that most of these issues are avoided by road building techniques that reduce the impacts of run-off and silt by diversion via cross drains, diversion ditches or silt traps and roadside seeding. Two existing areas of concern related to siltation are outstanding and will be addressed, based on funding availability in the near future. As of 2014 a portion of the siltation problems associated with Kenna Road have been addressed. MREAC is seeking funding in 2015 to deal with the remaining problems in this area. The other area, in the headwaters of Green Brook, is also flagged as needing some stabilization work. **MREAC, along with the BF&GA, and other partners will look for the resources to address both of these areas in future years.**

Siltation also arises on private lands with wood harvesting and other construction activities. Poor harvesting practices and limited awareness levels of problems associated with siltation are a widespread issue related to private woodlots. **Strategies to promote the use of best management practices among private woodlot owners will be promoted.**

All land uses that involve land clearing, including road or trail construction, present a potential problem for siltation. The local topography, surficial geology and the awareness level of those engaged are all factors that apply. The BF&GA and others with concern about the Bartibogue will need to remain alert to siltation issues with an eye to timely remediation of the damaged site.

**8.3 Dissolved Oxygen (DO):** DO levels for salmonids has not been an issue on any of the monitoring data available to or taken by the authors of this report. There do not appear to be any threats to this parameter based on current and expected land use pressures.

**8.4 pH:** The pH measures taken on the Bartibogue are all within an acceptable range for salmonids. Any future monitoring on the Bartibogue will include additional pH monitoring using hand held equipment. Based on existing and projected land uses on the watershed, no pH issues are anticipated.

**8.5 General Chemistry:** This analysis provided a wide suite of chemical parameters that provide a snapshot of chemical conditions in the watercourse. Results from 2014 samples did not give rise to any concern about the water chemistry of the river.

## 9.0 Fish Stock Assessments

It has been several years since any juvenile fish counts have been completed within the Bartibogue River watershed. Fish habitat assessments in 2014 and 1995 indicate conditions that favor good spawning success. Past electrofishing activities support these indications (Pers. Comm. Mr. Rod Currie, Biologist).



Figure 10: Fish Habitat Assessment on Green Brook - 2014

Due to the significant lapse in time since the last juvenile stock assessment, **the BF&GA will look to find support for future work using electrofishing techniques to determine the productivity levels of the various Bartibogue River branches.** As resources allow, the association hopes to develop long-term electrofishing reference sites.

## **10.0 Recreational Fishing Rules and Regulations (a reflection)**

As with other waterways in New Brunswick, fishing regulations on the Bartibogue River and the watershed are complex, convoluted and difficult to interpret. There is somewhat less complexity on the Bartibogue as there are no high-end resorts and little jealous protection of fishing rights among residents and camp owners. The Bartibogue River is currently scheduled (fly fishing only) from April 15<sup>th</sup> to April 30<sup>th</sup> and again after September 15<sup>th</sup>. For the remainder of the season the Bartibogue is open to bait fishing. This status is valued by the BF&GA as a river that is more family friendly and allows for spin casting gear for most of the season. Concerns about abuses of the existing fishing regulations have resulted in the following recommendation from the BF&GA. **The BF&GA support an adjustment of the early season of “black salmon” fly-fishing, extending this season to May 15<sup>th</sup> of each year.** This will allow more of these fishes to survive into the season and hopefully beyond.

Current regulations (2014) have the existing downstream boundary of Bartibogue River at the Highway 11 Bridge. Here again **the BF&GA would like to provide a greater level of protection to fish in the estuary by extending that line across the mouth of the river from Moody Point to the MacDonald Farm Point.** This same line should also apply as the limit beyond which smelt fishing camps are not allowed. Traditional knowledge suggests that camps in the estuarine waters located above Moody Point are often taking Brook trout rather than American smelt (*Osmerus mordax*).

## **11.0 Maintaining Biodiversity**

With the rapidly increasing concern about the loss of global biodiversity we note that the Bartibogue watershed is not exempt from some of these issues. The BF&GA and project partners recognize that maintaining an intact watershed ecosystem is the best management strategy for the long term maintenance of the natural values we are trying to protect. To this end

we address the two areas of current concern in, preventing or reducing the impact of invasive species, and in protecting species at risk.

**11.1 Invasive Species:** A Rainbow Trout (*Oncorhynchus mykiss*) was caught on the Bartibogue River and clearly identified by a local fisherman in 2014, confirming that this introduced species is present on this river. Based on the angling experience of association members and others, it is believed that this is a rare occurrence and this stray fish should not generate any sweeping program of eradication. However the importance of promoting awareness of this invasive species is highlighted and we recommend that all fishers have opportunity to get familiar with and, as opportunity allows, remove this species from the waterways, as part of their daily bag limit. This same principal might be applied to other invasive fish species as the need arises. With the modern day frequency of invasive species arrivals, other situations will need to be addressed on a case-by-case basis.



Figure 11: Rainbow trout caught on main Bartibogue River 2014 (Photo: David Williams)

**11.2 Species at risk:** Many Association members and other users of the Bartibogue River have encountered Wood Turtles (*Glyptemys insculpta*) over the years. Now listed as a “Species of Concern” by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) it is an offence to interfere with this species. Unfortunately the

awareness level of this status and of Wood Turtles in general is very low. This species and other species at risk on the Bartibogue River watershed will have ongoing consideration and Association members and other project partners will promote awareness and implement stewardship practices related to these species in cooperation with the New Brunswick Department of Natural Resources and/or the Canadian Wildlife Services as the situation requires.

## **12.0 Other Influences**

The BF&GA are members of the umbrella organization the Miramichi Watershed Management Committee (MWMC). The MWMC has adopted the entire Miramichi watershed within its scope, including the Bartibogue River watershed. In watershed managements plans developed through the MWMC, larger issues, beyond the scope of this management plan are addressed. The BF&GA, as members in good standing with the MWMC, thus endorse the direction and recommendations coming from these plans. Specifically the concern and management recommendations about Grey Seals and Striped Bass predation on Atlantic salmon are endorsed by the BF&GA.

## **13.0 Summary of Recommendations:**

For better management of the recreational fish stock and to maintain a high level of fishing experience on the Bartibogue River and her branches, the following recommendations are suggested:

- 1. It is recommended that as temperatures increase some Bartibogue River pools be considered for incorporation into the list of candidate pools under the established “warm water protocol”.**
- 2. Additional temperature monitoring will be implemented at two major pools on the Bartibogue (i.e. Egans and Green Brook pools) with two loggers, one in the pool and the second in the shallow water above the head of the pool.**
- 3. Additional problem areas of siltation on the Bartibogue River watershed will be corrected as resources allow.**

- 4. The BF&GA will promote best management practices among private woodlot owners to prevent negative watercourse impacts.**
- 5. Future work using electrofishing techniques will be used to determine the productivity levels of the various Bartibogue River branches.**
- 6. Adjust the early season of “black salmon” fishing with fly-fishing only. Extending this season to May 15<sup>th</sup> of each year.**
- 7. The BF&GA recommends an adjustment in the downstream boundary to the Bartibogue River, moving from the existing limit at Hwy 11 to a line crossing the mouth of the river at Moody Point to the MacDonald Farm Point.**
- 8. Smelt shacks should not be permitted to be placed above (upstream) of the Moody Point – MacDonald Farm Point boundary.**
- 9. Enforcement staff is encouraged to make trips down the river to demonstrate a greater presence to provide a deterrent to poaching activities**
- 10. The BF&GA will promote awareness and appropriate management practices to protect species at risk and to mitigate the impact of invasive/introduced species.**
- 11. It is recommended that an annual program of breaching inactive beaver dams be instituted by the BF&GA and other volunteers as available.**
- 12. It is recommended that a late season redd count be conducted on the main Bartibogue from the “Bailey Bridge to river mouth.**

#### **14.0 Conclusion**

The Bartibogue River and her tributaries are highly cherished by a remarkable number of river users, most being engaged in recreational fishing. This plan is developed to address a number of current and pending issues that will assist in maintaining the long term, sustainable recreational use of this very productive watershed. The BF&GA, since 1987, have been active in protecting the values of the Bartibogue system that they and their families continue to enjoy. This Association will continue to implement the action items outlined in this plan and others that may arise.

## **15.0 References**

Currie, R., 2015 (Personal Communications), R A Currie Biological Consultant, 2015

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