

Miramichi Salmon and Trout Restoration- Stocking 2012  
Final Report

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## **Introduction**

Stocking Atlantic salmon first-feeding fry can improve the juvenile production capacity of the Miramichi River by targeting areas that are under-seeded or not accessible to wild spawning adults. An electrofishing survey is carried out each year by the Miramichi Salmon Association (MSA) to assess areas of the river that are lacking adequate numbers of fry or parr. An abundance of fry at a location indicates that adult salmon were able to spawn in that area the previous fall. If no fry being present could mean that adults were unable to access that spawning area. In many cases where fry are absent, the river or stream is barricaded in some way (e.g. beaver dams) as to limit upstream migration of adults. Not only will these areas be targeted to stock but efforts may be made to identify and remove any impediments to natural spawning. The majority of these areas are located in headwater areas or small tributaries of the main stem Miramichi River. Small brooks often have good quality habitat and lower numbers of predators compared to lower stream sites; however, may be inaccessible to adult salmon due to blockages or due to the small size of the brook, especially in years with low flow conditions.

Juvenile abundance electrofishing surveys and smolt estimates, which are other MSA projects, are also used to aid in determining specific tributaries that may need additional stocking. Using all these projects is important because if fish are stocked into an area with an already high density of fry or parr the increased competition will likely inhibit an increase in juvenile production for that area. Identifying juvenile densities allows us to avoid overstocking some areas as well as determine the success of past stocking efforts. In terms of stocking, any site containing more than 100 fry per 100m<sup>2</sup> is not considered for stocking as it appears to reflect a healthy natural population. Sites with less than 50 fry per 100m<sup>2</sup> are considered candidates for further stocking. Absence of fry at an already stocked site may indicate that the site does not contain the appropriate habitat or it may have too many predators.

Prior to 2010, fall fingerlings were stocked and were identified by an adipose clip (removal of the adipose fin). In 2010 the Miramichi Salmon Association shifted the focus from stocking young of the year Atlantic salmon fingerlings in fall to stocking first-feeding salmon fry in late spring when they would normally be feeding for the first time in the wild. First-feeding fry are stocked in June or early July, instead of October although the smaller sizes of fish makes the fish impossible to mark. Additionally, fall fingerling young of the year salmon and young of

the year brook trout were raised during this study at the satellite rearing stations run in collaboration with NSPA, JD Irving Ltd and MHSF.

The objectives of the current study are to improve Atlantic salmon production in the headwater areas of the Miramichi River and to assess the practice of stocking first-feeding salmon fry in headwater sites.

## **Methods**

Adult salmon were collected in September and early October in 2011 for broodstock. When female salmon were ready to spawn, they were stripped of their eggs and the eggs were fertilized by the milt of a male salmon. Eggs were incubated on brook water until the eyed stage, when dead eggs were removed weekly. Prior to hatch eggs were transferred to incubation boxes for hatching. After hatching fry were fed a formulated salmonid diet (EWOS #1) for approximately 2 weeks until stocking. All salmon fry were stocked in their river of origin (“river specific stocking”).

Stocking sites were targeted based on the juvenile densities found at the headwater sites by the previous year’s electrofishing and in tributaries that typically have low juvenile production (i.e. Cains and Little Southwest). Additional salmon fry were taken to satellite rearing sites for rearing at the camps.

## **Results**

From June 19 to July 5, 2012, approximately 330,189 Atlantic salmon first-feeding fry were released into targeted sites in seven tributaries of the Miramichi River (Table 1). The first-feeding fry were released into 52 sites, with 226,250 fry released into Northwest Miramichi River tributaries and 103,939 fry released into Southwest Miramichi River tributaries (Table 1). An additional 42,146 fry were taken to satellite holding tanks for future release by local conservation groups (Table 2). We also distributed 14,986 brook trout parr into two satellite rearing tanks (Table 3).

Table 1: Distribution of Atlantic salmon first feeding fry that were stocked from the Miramichi Salmon Conservation Centre into the Miramichi River. The date, stock origin of adult salmon, branch of the Miramichi River that was stocked, stocked site location, stocked site GPS, number of fry stocked are shown.

Release date	Stock origin	Branch	Stocked site	Latitude	Longitude	Fish stocked
June-19-12	Sevogle	Northwest	Johnstone Brook	47.0430	-66.2235	2500
June-19-12	Sevogle	Northwest	Travis Brook	47.0480	-66.2305	5000
June-19-12	Sevogle	Northwest	North Brook of South Branch	47.0976	-66.2770	5000
June-19-12	Sevogle	Northwest	South Sevogle	47.1163	-66.3300	5000
June-19-12	Sevogle	Northwest	Barracks Brook	47.0598	-66.3378	20000
June-19-12	Sevogle	Northwest	Brook off North Branch	47.2056	-66.3455	3000
June-19-12	Sevogle	Northwest	Bridge at North Branch	47.2034	-66.3204	5000
June-19-12	Sevogle	Northwest	d/s Bridge at North Branch	47.2021	-66.3223	5000
June-19-12	Sevogle	Northwest	u/s Bridge at North Branch	47.2039	-66.3231	5000
June-19-12	Sevogle	Northwest	North Branch	47.2079	-66.3543	5000
June-19-12	Sevogle	Northwest	u/s North Branch	47.2085	-66.3549	5000
June-19-12	Sevogle	Northwest	d/s North Branch	47.2081	-66.3528	3000
June-25-12	Northwest	Northwest	South Branch	47.2459	-66.3350	10000
June-25-12	Northwest	Northwest	South Branch	47.2369	-66.3602	10000
June-25-12	Northwest	Northwest	Brook off South Branch	47.2466	-66.3739	10000
June-25-12	Northwest	Northwest	North Branch	47.2757	-66.4434	5000
June-25-12	Northwest	Northwest	North Branch	47.2890	-66.4304	12000
July-03-12	Northwest	Northwest	Gill Brook	47.2274	-66.2297	3750
July-03-12	Northwest	Northwest	South Branch	47.2495	-66.3927	6000
July-03-12	Northwest	Northwest	South Branch	47.2508	-66.4021	6000
July-03-12	Northwest	Northwest	North Branch Tomogonops	47.3264	-66.0541	6000
July-03-12	Northwest	Northwest	North Branch Tomogonops	47.3063	-66.0135	12000
June-26-12	Little Southwest	Northwest	Fish Brook	47.1235	-66.5325	5000
June-26-12	Little Southwest	Northwest	Saddlers Brook	47.1535	-66.5531	10000
June-26-12	Little Southwest	Northwest	West Branch	47.0423	-66.7644	7000
June-26-12	Little Southwest	Northwest	Squaw Barron Brook	46.9732	-66.7051	10000

June-26-12	Little Southwest	Northwest	Crooked Brook Tuadook	46.9148	-66.7760	10000
June-26-12	Little Southwest	Northwest	County Line Brook	46.9273	-66.7422	5000
June-26-12	Little Southwest	Northwest	Devils Brook	46.8742	-66.2273	10000
June-26-12	Little Southwest	Northwest	Libbys Brook	46.8747	-66.3315	5000
June-26-12	Little Southwest	Northwest	Libbys Brook- old bridge off LSW road	46.8936	-66.3920	10000
June-26-12	Little Southwest	Northwest	Libbys Brook- Jim Boldn road	46.9042	-66.4029	5000
June-20-12	Juniper	Southwest	South Branch Southwest	46.5451	-67.2282	4000
June-20-12	Juniper	Southwest	Little Teague	46.5840	-67.2606	6000
June-20-12	Juniper	Southwest	Little Teague	46.5932	-67.2533	8000
June-20-12	Juniper	Southwest	Big Teague	46.5578	-67.2331	8000
June-29-12	Cains River	Southwest	McKenzie Brook	46.4572	-66.0112	5000
June-29-12	Cains River	Southwest	Mahoney Brook	46.4572	-65.9914	2500
June-29-12	Cains River	Southwest	small unnamed brook	46.4867	-65.9139	2500
June-29-12	Cains River	Southwest	Mahoney Brook	46.5088	-65.8719	2500
June-29-12	Cains River	Southwest	West Branch 10 Mile Brook	46.4198	-66.0051	1500
June-29-12	Cains River	Southwest	East Branch 10 Mile Brook	46.4145	-65.9909	3500
June-29-12	Cains River	Southwest	West Branch 6 Mile brook	46.4546	-65.8573	5000
June-29-12	Cains River	Southwest	West Br. Left Hand Branch Salmon Brook	46.6362	-65.6153	2500
June-29-12	Cains River	Southwest	Main salmon brook- Cains River	46.6449	-65.6131	2500
July-04-12	Rocky Brook	Southwest	UNB electrofishing site			2500
July-04-12	Rocky Brook	Southwest	LL Bridge on Rocky Brook	46.7797	-66.7255	40000
July-05-12	Clearwater	Southwest	Lake Brook (Warwick rd)	46.8600	-65.7950	1000
July-05-12	Clearwater	Southwest	West Branch Indian town Brook (rte. 8)	46.8370	-65.8000	1000
July-05-12	Clearwater	Southwest	White Rapid Brook (Lockstead road)	46.7690	-65.8580	4000
July-05-12	Clearwater	Southwest	Cow Spring Brook (Skidder road)	46.7790	-65.8540	1000
July-05-12	Clearwater	Southwest	North Branch White Rapid Brook	46.7650	-65.8890	939

Table 2: Distribution of Atlantic salmon first feeding fry to satellite holding tanks.

Date	Stock origin	Satellite tank	Fry released
June-20-12	Juniper	Miramichi Headwaters Salmon Federation	10000
June-18-12	Clearwater	Clearwater satellite tank	10106
June-27-12	Burnthill	Burnthill tanks	22040

Table 3: Distribution of brook trout parr released into satellite holding tanks.

Date	Stock origin	Satellite tank	Parr released
June-18-12	Rocky Brook	Mile 18	5000
June-27-12	Moose Lake	Moose Lake tanks	9986