

## **5.0 MANAGEMENT SUGGESTIONS FOR ATLANTIC SALMON RIVERS IN PRINCE EDWARD ISLAND**

There are many factors which can limit the population of Atlantic salmon in a particular river, including access, quality and quantity of spawning, nursery and over-wintering habitat, water quality, and predation. The key to successful management and maintenance of sustainable populations is not only being aware of the limiting factors, but also knowing which ones will likely have the biggest impact on fish abundance in a particular river or section of river. Once the most prominent limiting factors are known, they should be addressed first. For instance, it makes little sense to add digger logs in a stream reach to increase spawning or nursery sites if beaver blockages downstream prevent salmon from reaching the enhanced habitat.

On Prince Edward Island, the two most crucial limiting factors for Atlantic salmon populations are sedimentation and river blockages, especially beaver dams. Both of these problems are evident in all of our salmon rivers, but one or the other may be more prominent, depending on the river. In the long term, there are many other problems which also have to be considered once these crucial ones are addressed. In setting up the present classification scheme, I have put a lot of weight on extensive field work and dialogue with landowners and community watershed groups about present and past problems. In addition, years of electrofishing data and autumn redd surveys give a clear picture as to salmon population status in rivers or river reaches.

Salmon rivers have been classified into various categories. For each category, a table summarizes much of the data collected over the past eight years (Tables 3, 4, 5 and 6). From 2000-2002, I electrofished sections of approximately 80 rivers on Prince Edward Island (Guignion et al. 2002) and pertinent data from those efforts are summarized in each of the tables under the column labeled as 2002. I have also been given oral reports of Atlantic salmon being angled in recent years in rivers in Class V, such as the Fortune River, Flat River, Pinette River and Valleyfield River. While I certainly do not question the authenticity or value of such reports, these are likely instances of stray salmon and do not represent a run of salmon ascending a river, with the possible exception of the Valleyfield River (Section 5.4.6).

In 2007, I again electrofished sections of all rivers where juvenile salmon were reported in the 2002 data or found in various surveys between 2002 and 2007. Those data are presented under the heading of "2007" in tables 3, 4, 5 and 6. In 2008, all Prince Edward Island index river sites (MacFarlane 2009) were again electrofished and the data for salmon added to the 2008 column in tables 3, 4, 5 and 6. In 2008, Atlantic salmon redd counts were conducted in all rivers that salmon juveniles were known to be present in 2002 or 2007. If redds were found, their locations and the location of redds found in previous years are shown on watershed maps to indicate critical habitat for spawning and nursery areas.

The management suggestions offered reflect the data that have been collected in this and other research efforts. As habitat and fish populations are monitored and more information becomes available, the strategy for each river should be reviewed and adapted as required.

Table 3. Density of juvenile salmonids in Class I rivers in Prince Edward Island in 2002, 2007 and 2008.

River	Sector	Salmonid Density (#Fish/100m <sup>2</sup> )								
		Brook trout			Rainbow trout			Atlantic salmon		
		2002	2007	2008	2002	2007	2008	2002	2007	2008
Cains Brook	MacAuslands	73.6	205.5	n/a	0.0	0.0	n/a	60.2	76.8	n/a
	Upstream 1 km	65.2	n/a	n/a	0.0	n/a	n/a	2.0	n/a	n/a
Cross River	MacInnis Pond	45.2	44.7	n/a	0.0	0.0	n/a	171.2	36.4	n/a
	Souris Line Road	23.0	68.4	n/a	0.0	0.0	n/a	53.7	0.0	n/a
Mill River	Bloomfield Park	92.8	n/a	n/a	0.0	n/a	n/a	318.0	n/a	n/a
	Howlan	n/a	n/a	54.4	n/a	n/a	0.0	n/a	n/a	162.2
	Forestview	n/a	24.2	89.8	n/a	0.0	0.0	n/a	162.8	78.4
Naufrage River	Hermitage Road	1.0	7.4	n/a	0.0	0.0	n/a	18.7	58.7	n/a
	Larkins Pond	0.0	yes	n/a	0.0	0.0	n/a	21.0	no	n/a
North Lake Creek	Head of Tide	173.3	n/a	n/a	0.0	n/a	n/a	2.2	n/a	n/a
	Dixons Pond	35.3	80.0	n/a	0.0	0.0	n/a	21.0	109.0	n/a
Pisquid River	East Branch	164.3	93.0	n/a	0.0	1.0	n/a	0.0	12.0	n/a
	Forestry Bridge	30.7	27.4	n/a	12.4	6.2	n/a	9.4	17.7	n/a
Priest Pond Creek	Pensioners Road	36.0	25.6	n/a	0.0	0.0	n/a	19.1	30.8	n/a
	Bull Creek Road	38.4	45.6	n/a	0.0	0.0	n/a	0.0	9.5	n/a
St. Peters River	Below Quigleys Pond	5.6	<1	n/a	0.0	0.0	n/a	169.8	88.7	n/a
Trout River	Bannys Hole	98.7	94.9	n/a	0.0	0.0	n/a	31.9	61.1	n/a
West River	Cudmores	157.2	122.6	109.1	10.6	17.3	18.1	9.9	24.7	3.6
	Below Carraghers Pond	n/a	n/a	64.0	n/a	n/a	70.6	n/a	n/a	0.0
	Howells Brook at Riverdale Bridge	n/a	n/a	67.2	n/a	n/a	6.0	n/a	n/a	0.0

Yes - indicates salmon or trout present in a spot check

No - indicates salmon or trout not present in a spot check

Table 4. Density of juvenile salmonids in Class II rivers in Prince Edward Island in 2002, 2007 and 2008.

Sector		Salmonid Density (#Fish/100m <sup>2</sup> )								
		Brook trout			Rainbow trout			Atlantic salmon		
		2002	2007	2008	2002	2007	2008	2002	2007	2008
Clarks Creek	Auburn Road	12.9	n/a	n/a	17.5	n/a	n/a	0.0	n/a	n/a
	Cape Breton Road	n/a	2.0	n/a	n/a	8.3	n/a	n/a	52.5	n/a
Dunk River	Hal Mills Brook	n/a	n/a	41.2	n/a	n/a	27.3	n/a	n/a	0.0
	Northeast Tributary	n/a	n/a	34.9	n/a	n/a	70.5	n/a	n/a	0.0
	Scales Pond	yes	n/a	n/a	yes	n/a	n/a	yes	n/a	n/a
	Greenans Bridge	n/a	39.3	51.8	n/a	24.3	17.4	n/a	0.0	0.0
	Walls Bridge	73.3	n/a	yes	131.9	n/a	yes	0.0	n/a	yes
	Breadalbane	52.5	n/a	n/a	109.7	n/a	n/a	0.0	n/a	n/a
Midgell River	MacDonalds Pond	0.9	0.0	n/a	0.0	0.0	n/a	19.4	66.7	n/a
Morell River	Kennys Bridge	n/a	n/a	34.3	n/a	n/a	0.0	n/a	n/a	8.9
	Below Cranes	82.1	29.6	16.9	0.0	0.0	0.0	21.3	62.4	14.9
	Old Cardigan Road	n/a	yes	n/a	n/a	no	n/a	n/a	yes	n/a
Vernon River	Glencoe Road	98.1	152.6	n/a	4.3	36.3	n/a	0.0	6.2	n/a
	MacMillans Pond	yes	yes	n/a	no	no	n/a	yes	yes	n/a

Yes - indicates salmon or trout present in a spot check

No - indicates salmon or trout not present in a spot check

Table 5. Density of juvenile salmonids in Class III rivers in Prince Edward Island in 2002, 2007 and 2008.

River	Sector	Salmonid Density (#Fish/100m2)								
		Brook trout			Rainbow trout			Atlantic salmon		
		2002	2007	2008	2002	2007	2008	2002	2007	2008
Bristol Creek	Forestry Road	80.6	150.7	yes	0.0	0.0	no	0.0	0.0	yes
Cardigan River	Below hatchery	70.8	33.8	n/a	42.9	68.6	n/a	22.2	55.2	n/a
	Straghboghie Road	n/a	n/a	yes	n/a	n/a	no	n/a	n/a	no
Head of Hillsborough	Below Warrens Dam	34.4	<1	n/a	20.2	3.5	n/a	0.0	21.4	n/a
Little Trout River	Shale Pit	56.7	53.4	58.6	0.0	0.0	0.0	15.9	0.0	0.0
	Richmond	n/a	62.2	28.3	n/a	0.0	0.0	n/a	0.0	0.0
North River	Springvale (Rt 2)	72.6	161.6	n/a	13.0	109.8	n/a	0.0	47.4	n/a
	Loyalist Road	128.9	n/a	yes	0.0	n/a	yes	0.0	n/a	no
	Coles Brook	n/a	n/a	yes	n/a	n/a	yes	n/a	n/a	yes
Bank Brook/Trout River (Tyne Valley)	Robinsons Pond	49.2	5.6	52.1	0.0	0.0	0.0	21.3	4.5	4.6
Wilmot River	Arsenaults Pond	97.5	n/a	34.2	39.8	n/a	35.5	0.0	n/a	0.0
	Cairns Road	144.5	n/a	146.3	43.9	n/a	52.7	0.0	n/a	0.0
	Marchbanks	3.8*	n/a		21.6*			0.0*		
		n/a	83.0	yes	n/a	63.0	yes	n/a	0.0	no
								yes		

Yes - indicates salmon or trout present in a spot check  
 No - indicates salmon or trout not present in a spot check  
 \* indicates post-fishkill survey

Table 6. Density of juvenile salmonids in Class IV rivers in Prince Edward Island in 2002, 2007 and 2008.

River	Sector	Salmonid Density (#Fish/100m2)								
		Brook trout			Rainbow trout			Atlantic salmon		
		2002	2007	2008	2002	2007	2008	2002	2007	2008
Black River	Route 6	7.1	13.2	n/a	0.0	0.0	n/a	1.0	0.0	n/a
	Brackley Point Rd	64.2	n/a	n/a	0.0	n/a	n/a	0.0	n/a	n/a
Bells Creek	Route 25A	105.5	n/a	yes	0.0	n/a	no	1.0	n/a	no
Bradshaw River	West Bedeque Rink Road	162.6	n/a	yes	57.6	n/a	yes	1.0	n/a	no
Brudenell River	Mellishs Pond	175.9	186.7	n/a	32.3	24.3	n/a	2.4	0.0	n/a
	Dewars Pond	n/a	n/a	yes	n/a	n/a	yes	n/a	n/a	No
Cow Creek	Highway Site	30.0	n/a	yes	0.0	n/a	no	39.8	n/a	No
	Selkirk Road	56.0	yes	yes	0.0	no	no	8.7	no	no
Hay River	Lesperance Site	50.0	31.3	yes	0.0	0.0	no	14.9	0.0	No
Little Pierre Jacque River	Bridge Site	56.8	yes	n/a	0.0	no	n/a	0.0	no	n/a
Marie River	Below Websters Dam	0.0	1.0	n/a	0.0	0.0	n/a	0.0	0.0	n/a
Souris River	East Branch at Forks	13.3	n/a	n/a	99.7	n/a	n/a	0.0	n/a	n/a
	West Branch	113.2	n/a	89.1	120.3	n/a	15.0	0.0	n/a	0.0
	East Branch	n/a	n/a	81.8	n/a	n/a	114.9	n/a	n/a	0.0
Valleyfield River	MacRaes Dam	yes	yes	yes	yes	yes	yes	no	no	no
	Egolfs Dam	24.5	n/a	n/a	23.5	n/a	n/a	0.0	n/a	n/a
Wheatley River	Upstream from Rackhams	n/a	n/a	94.2	n/a	n/a	0.0	n/a	n/a	0.0
	Below Rackhams	9.6	n/a	n/a	0.0	n/a	n/a	0.0	n/a	n/a

Yes - indicates salmon or trout present in a spot check

No - indicates salmon or trout not present in a spot check