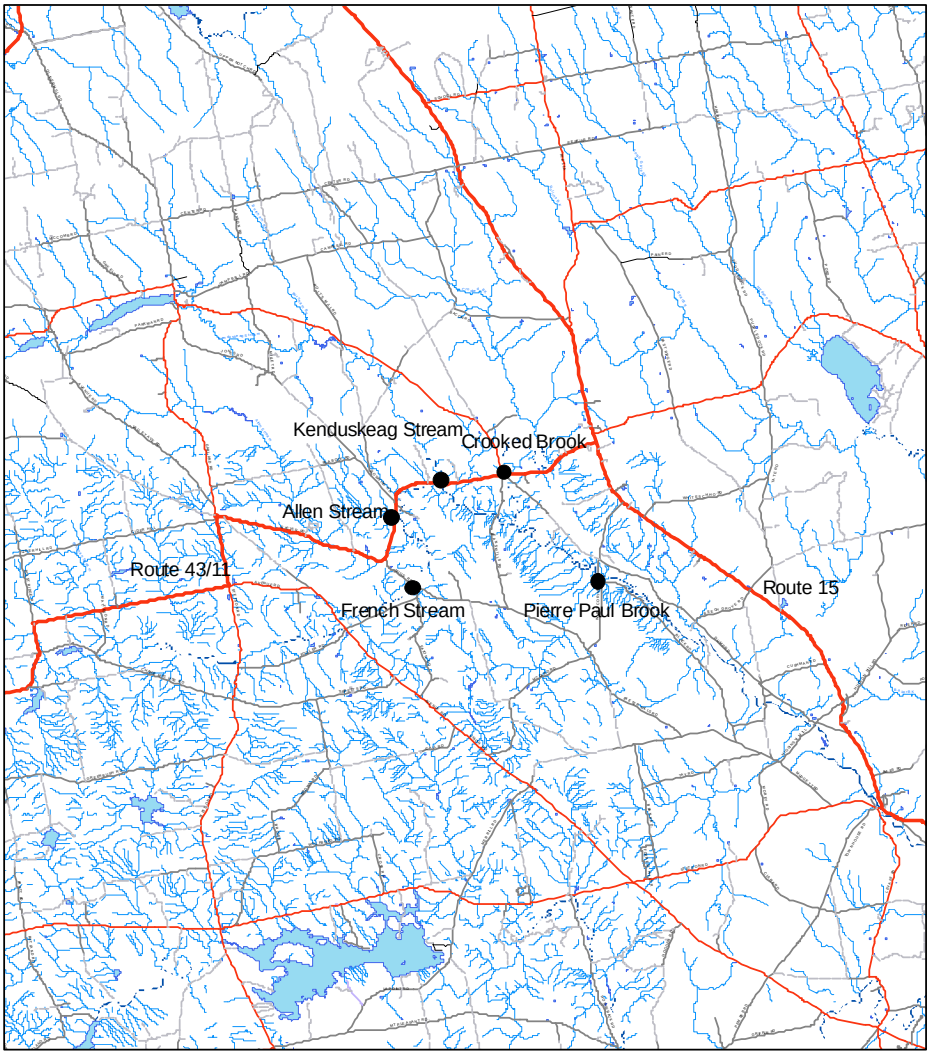

Figure 1. Kenduskeag Stream Tributary Study
2004 Sample Sites

2.5
Miles

Figure 2. River discharge for the Sebasticook River.

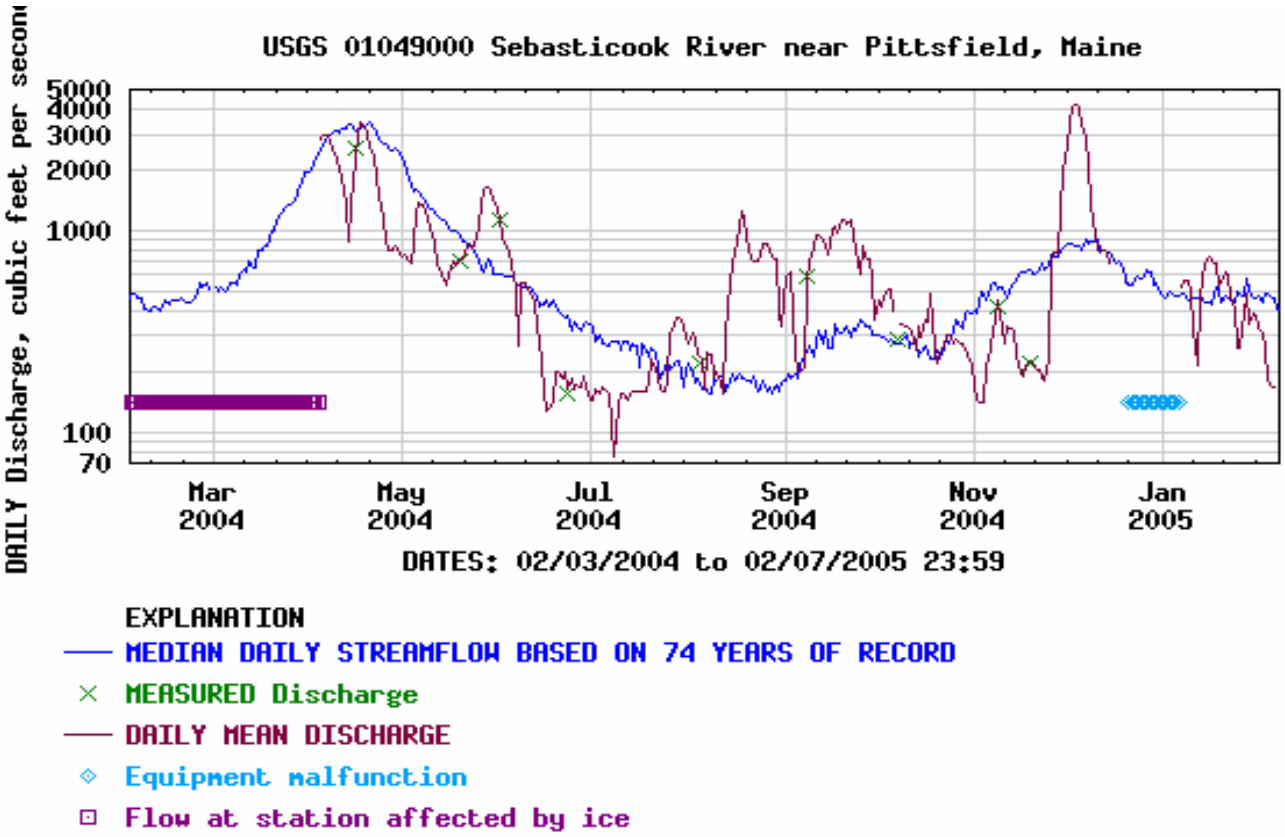

Figure 3. NOAA rain gauge data for Bangor, daily precipitation totals.

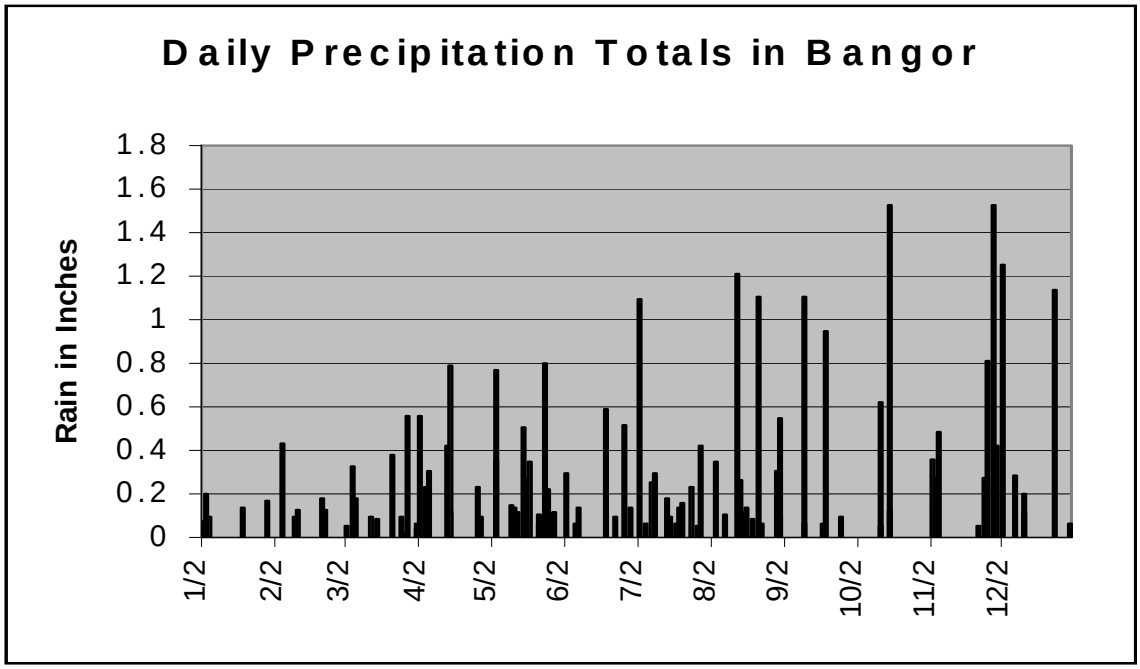

Figure 4. Ranges in closed cell pH for our sample sites.

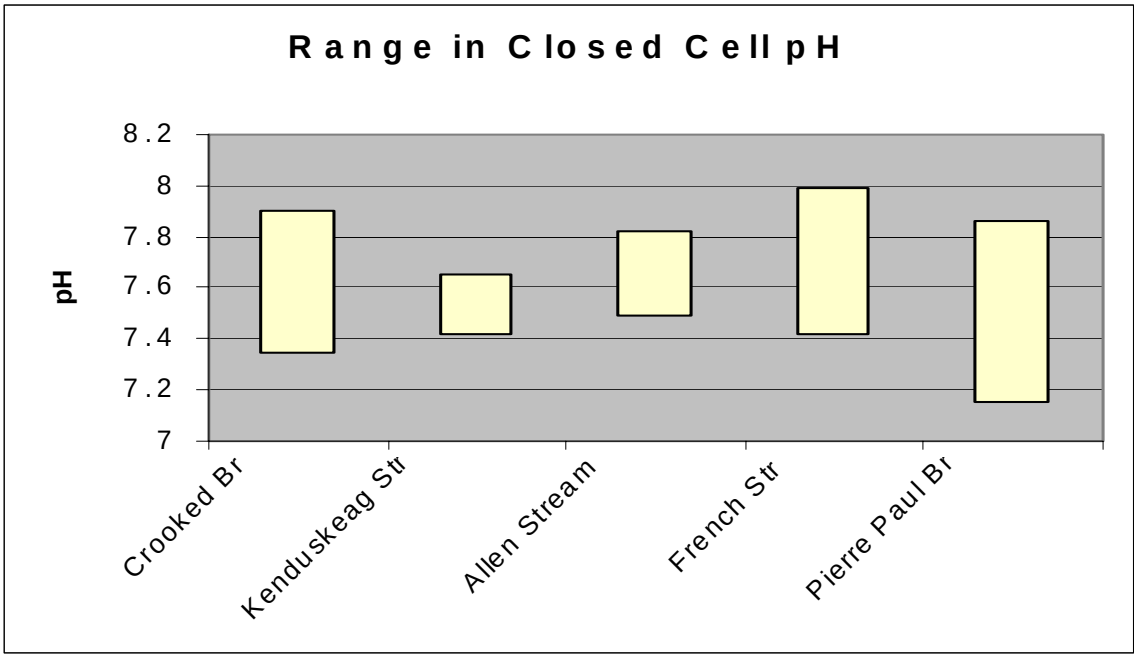

Figure 5. Ranges in Alkalinity for our sample sites.

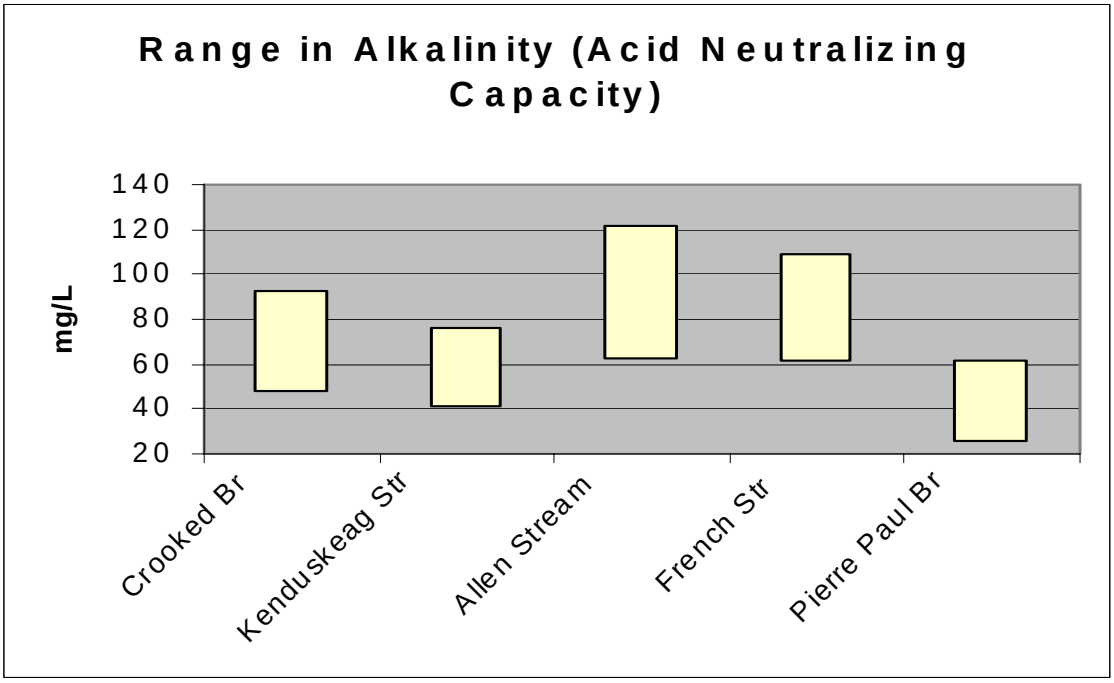

Figure 6. Ranges for Calcium in mg/L in our samples.

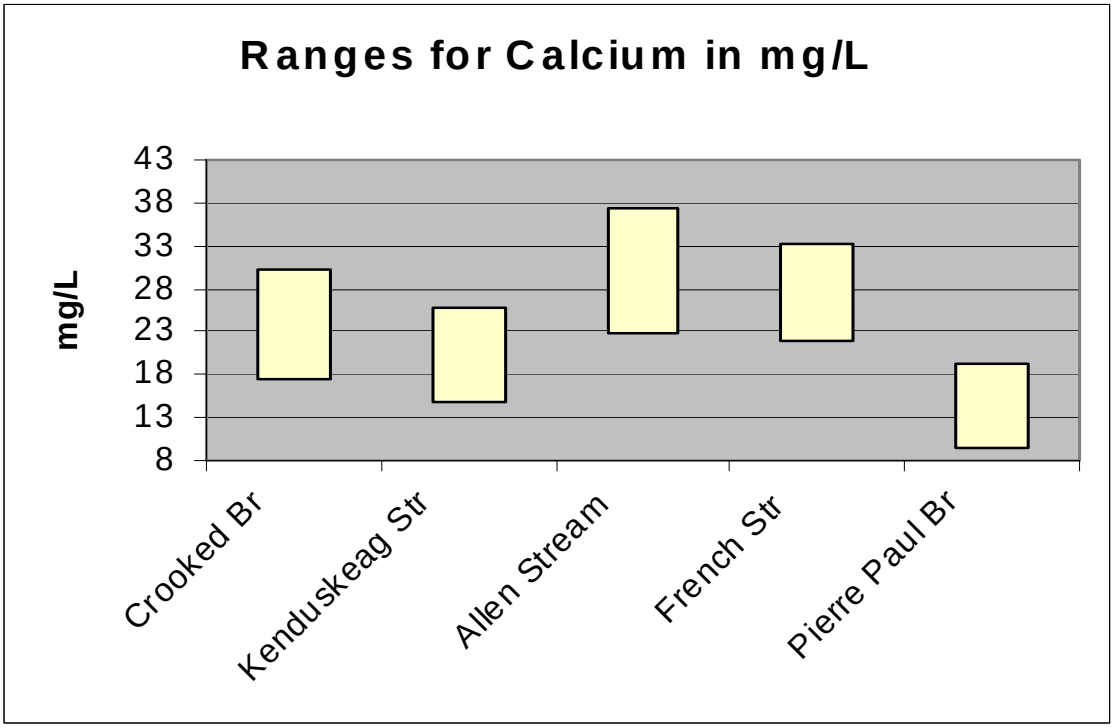

Figure 7. Ranges in Dissolved Organic Carbon (DOC) in mg/L in our samples.

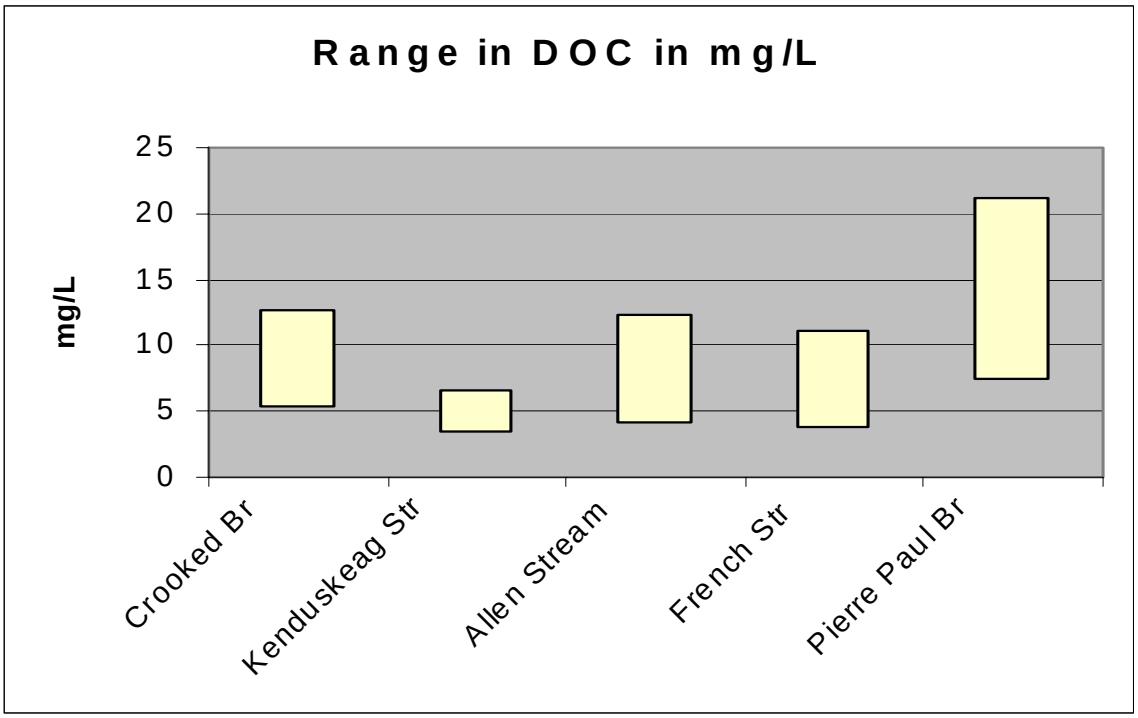

Figure 8. Coorelation between water color (in Pt Co units) and DOC in mg/L.

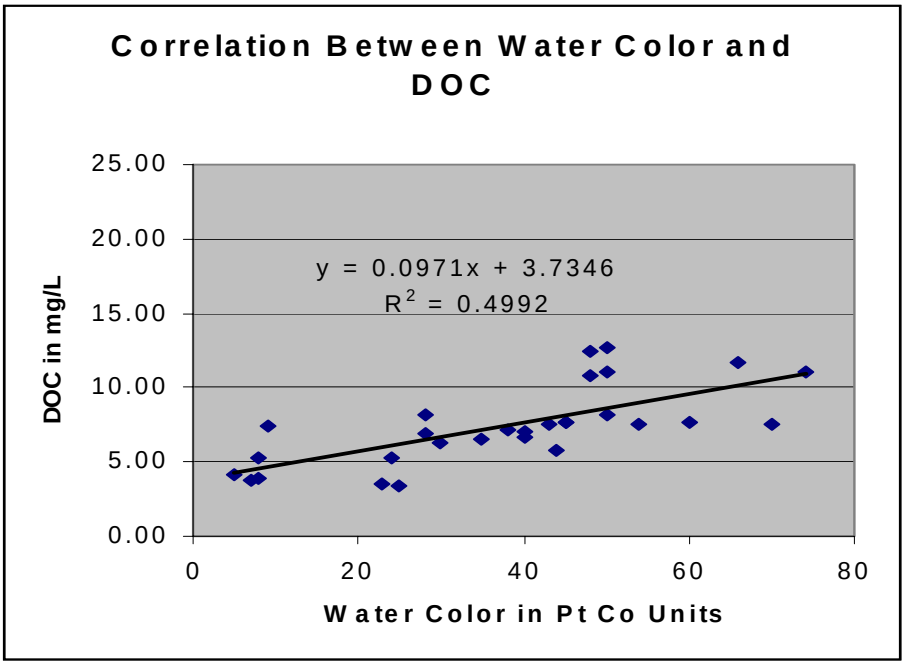

Figure 9. Ranges of Nitrate concentrations in 2004 samples.

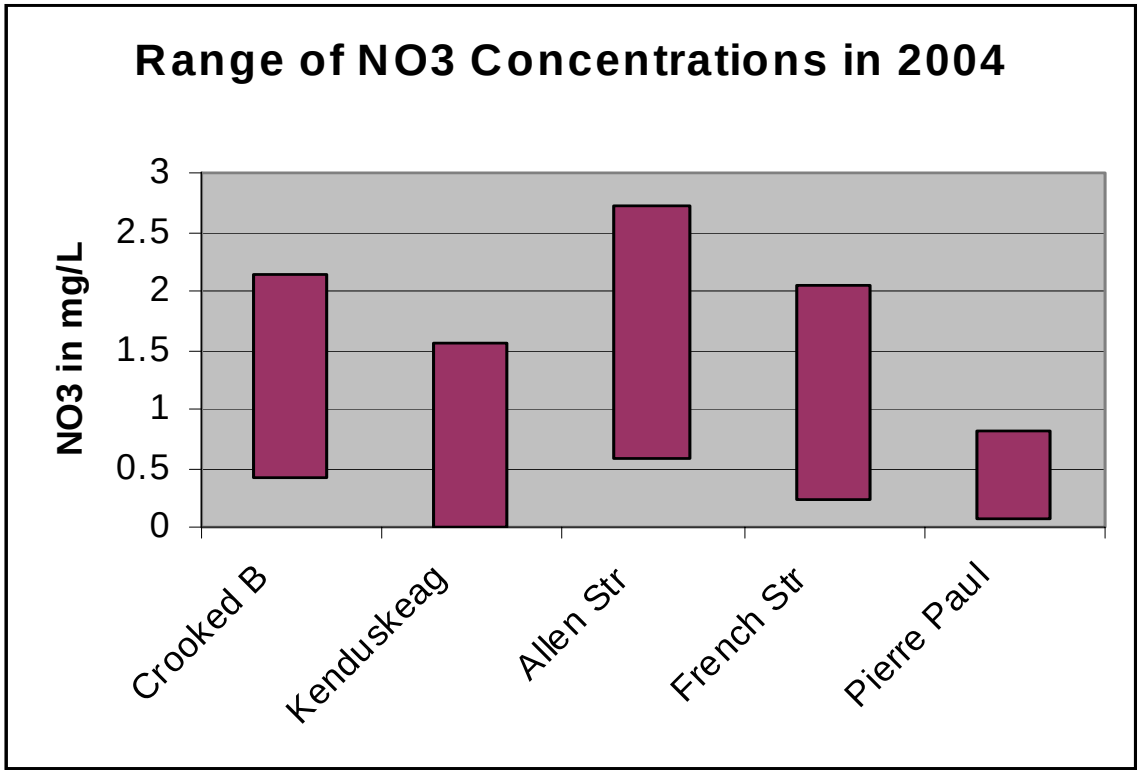

Figure 10. Nitrate concentrations by sample date.

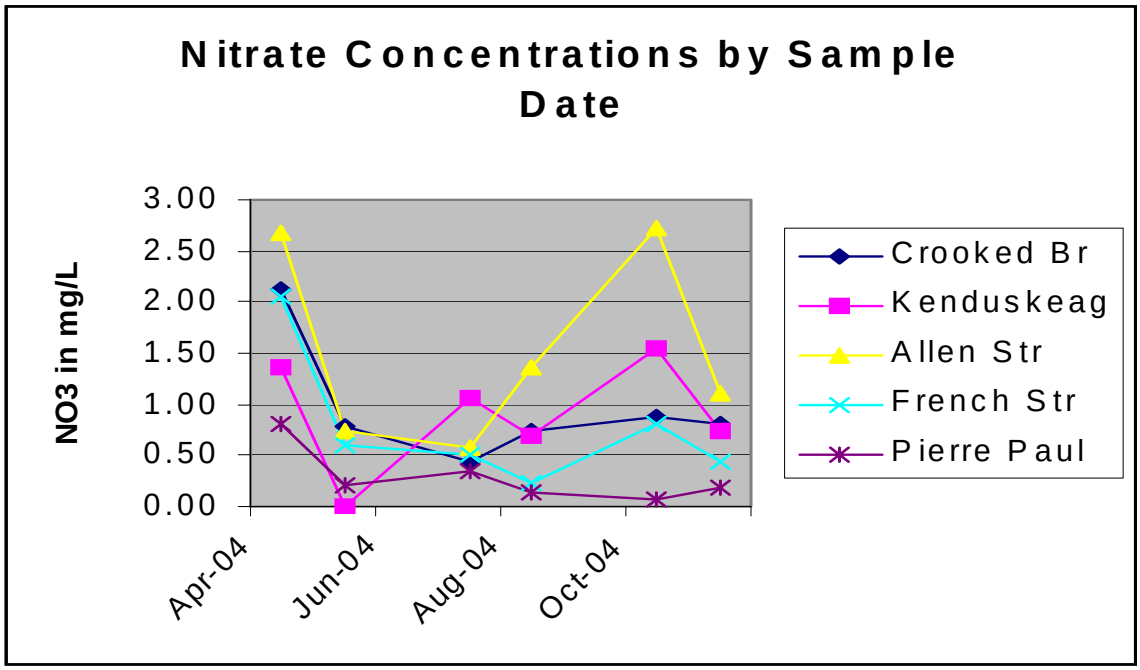

Figure 11. Correlation of nitrate with relative flows at Kenduskeag Stream site.

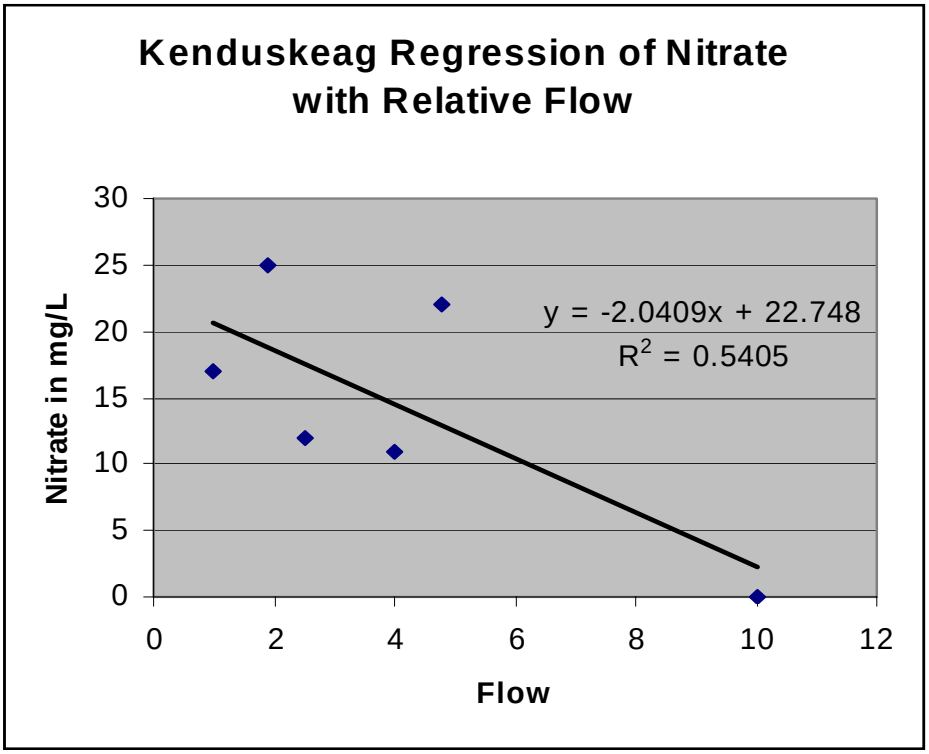

Figure 12. Ranges of Total Phosphorus at our sites.

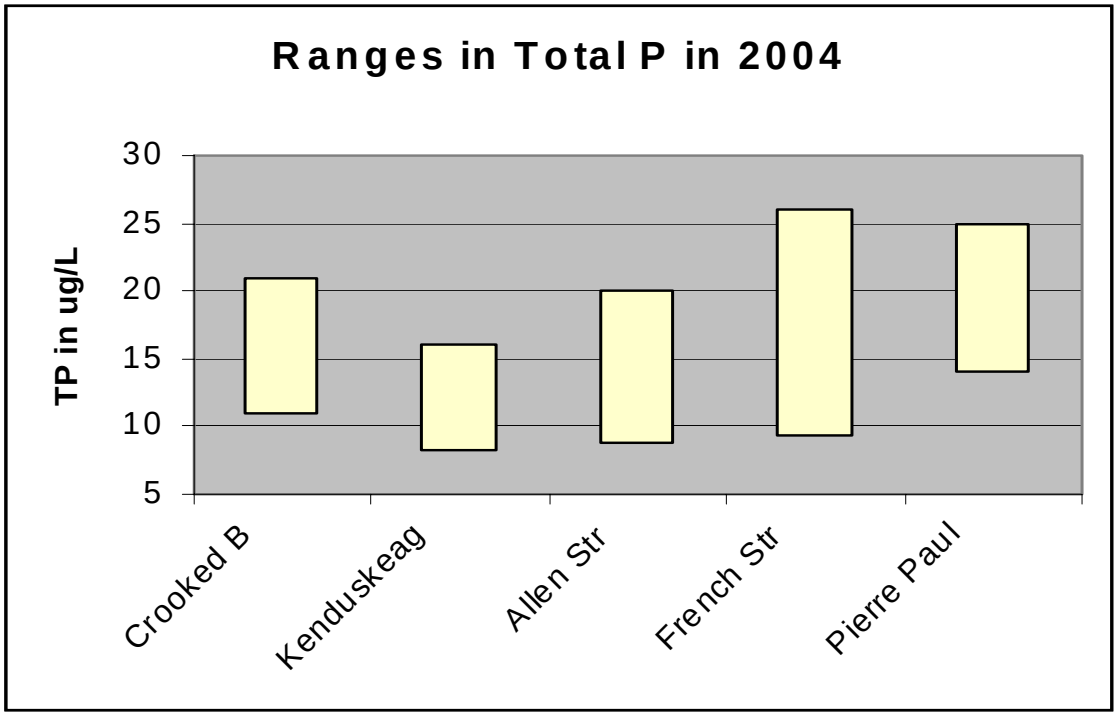

Figure 13. Total Phosphorus concentrations by date.

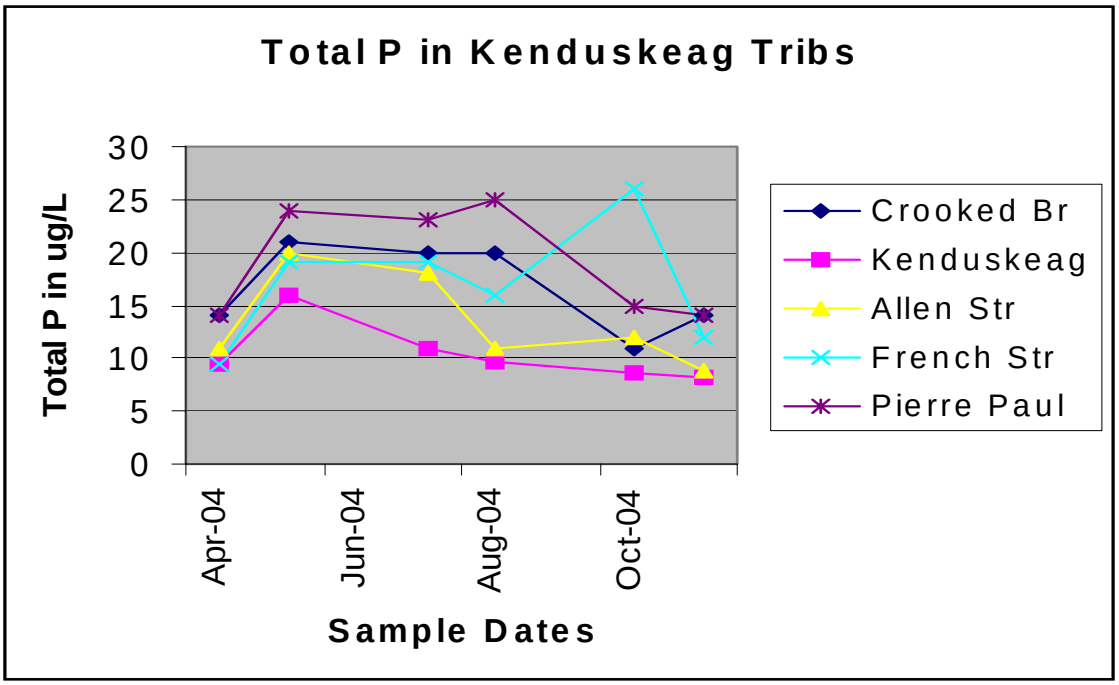

Figure 14. Correlation of Total Phosphorus with relative flow for the Kenduskeag sample site.

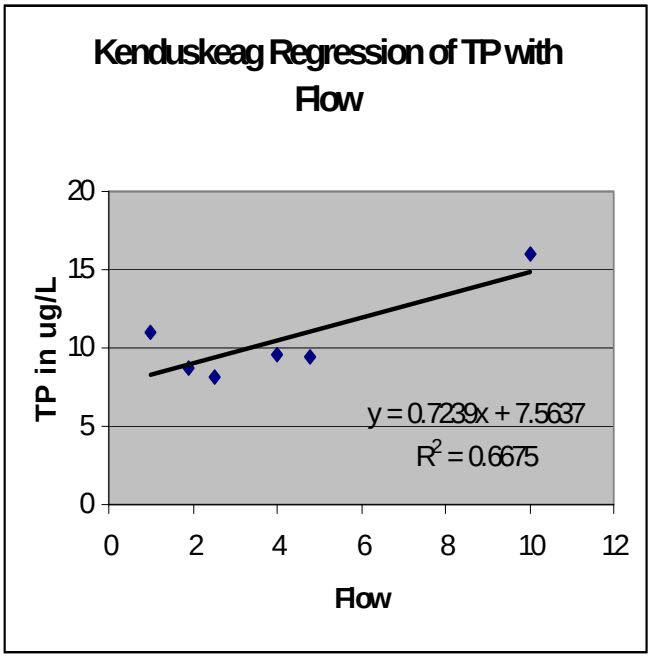

Figure 15. The relationship between TSS and relative flow at our sample sites.

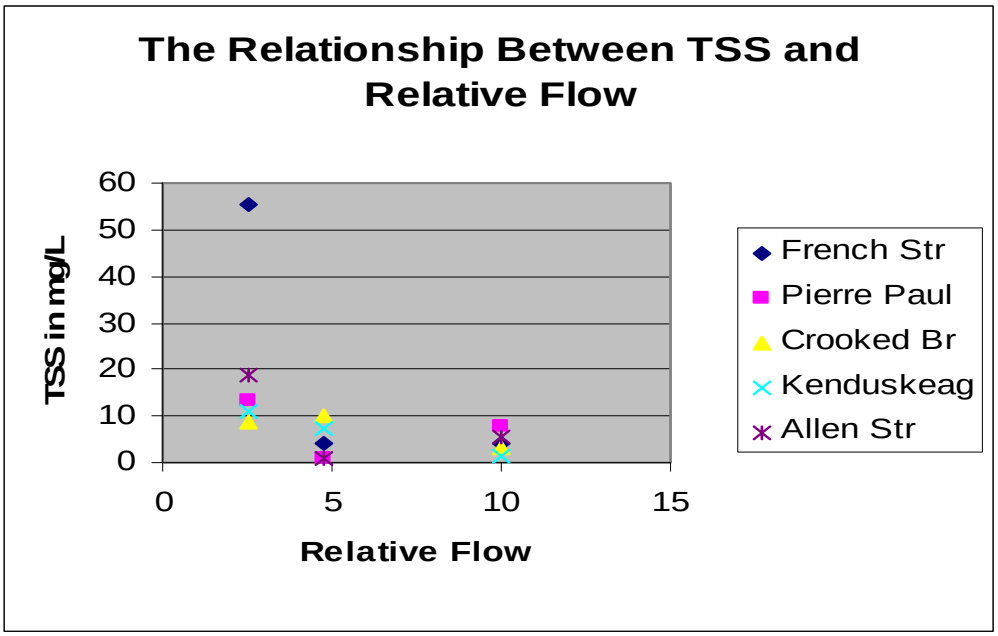

Figure 16. Correlation of TSS with Total Phosphorus.

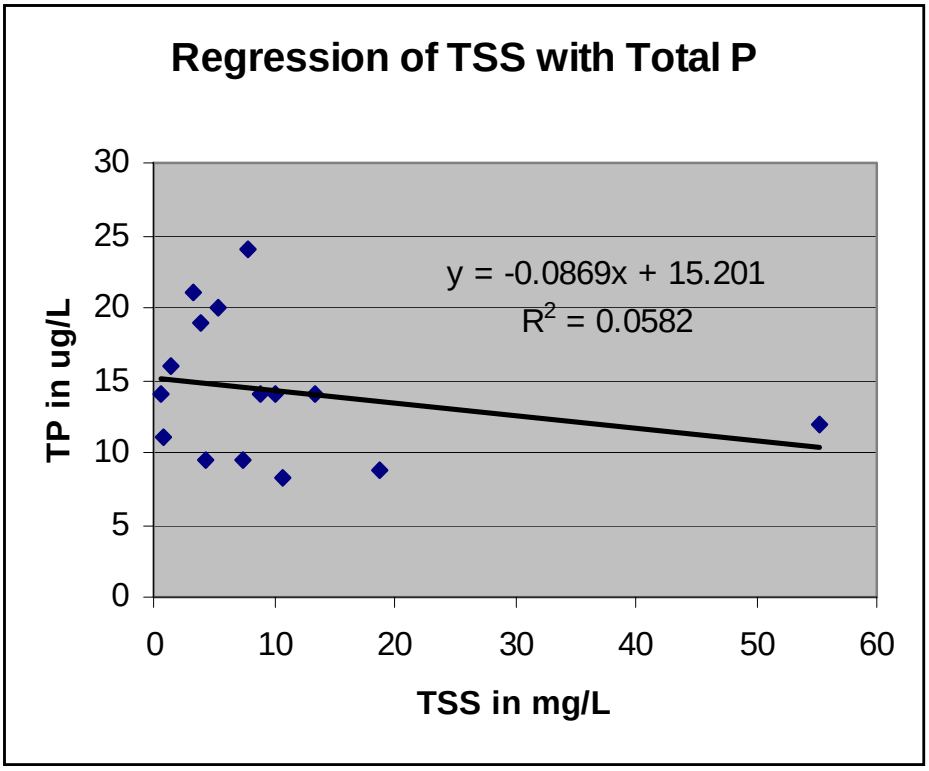

Figure 17. A comparison of Dissolved Oxygen measurements using an electronic meter and a Winkler titration kit.

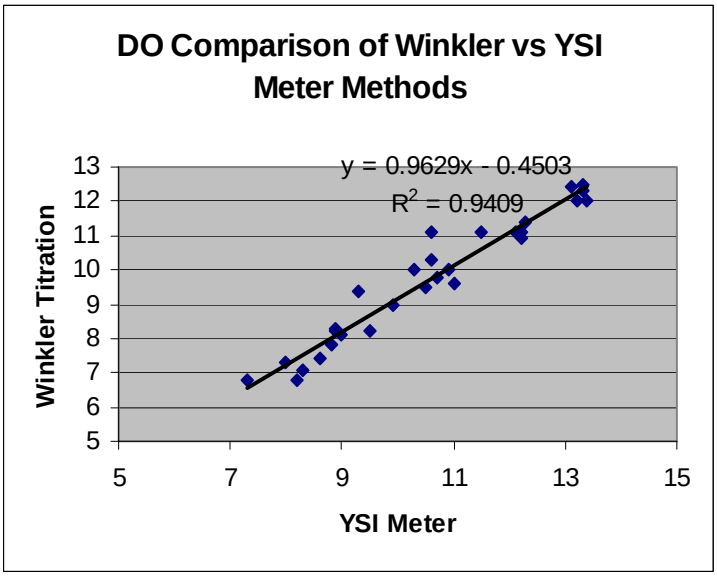

Figure 18. Temperature logger recording of water temperature at Crooked Brook site.

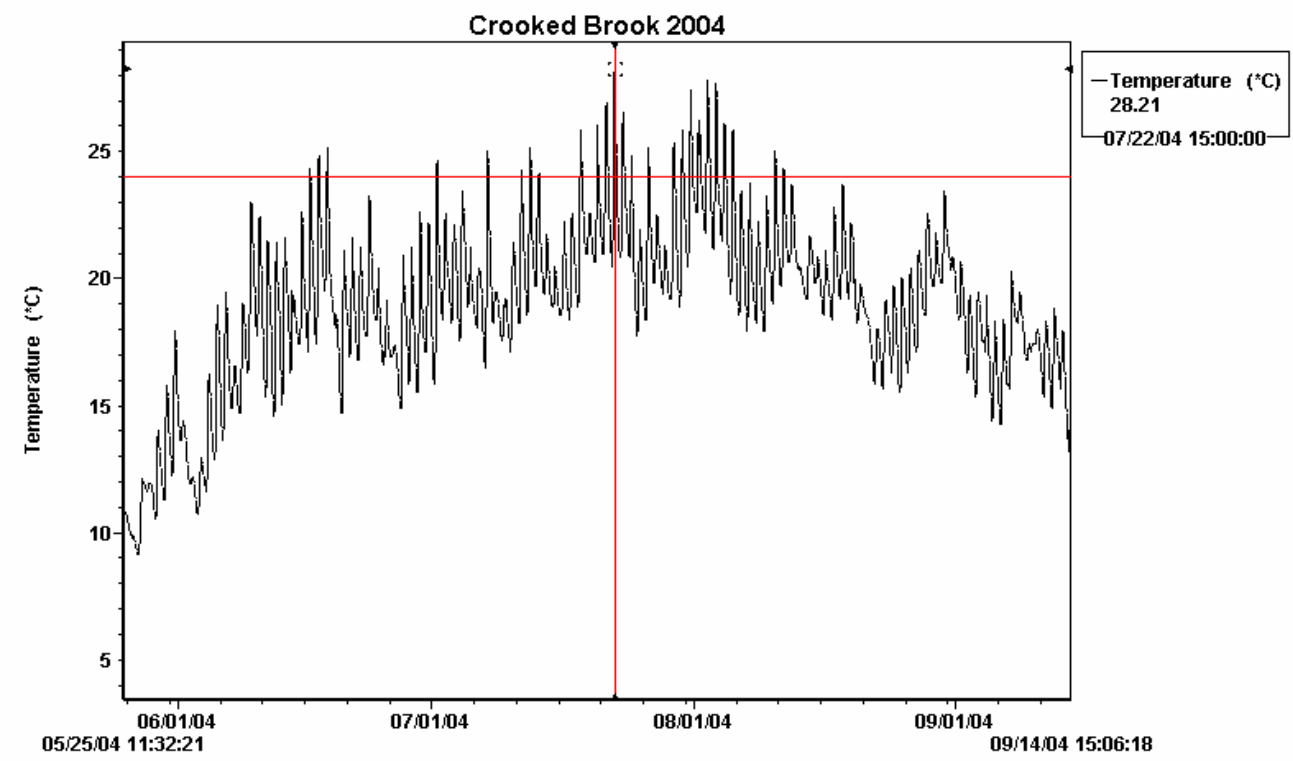

Figure 19. Temperature logger recording for Kenduskeag Stream site at the outlet of Garland Pond.

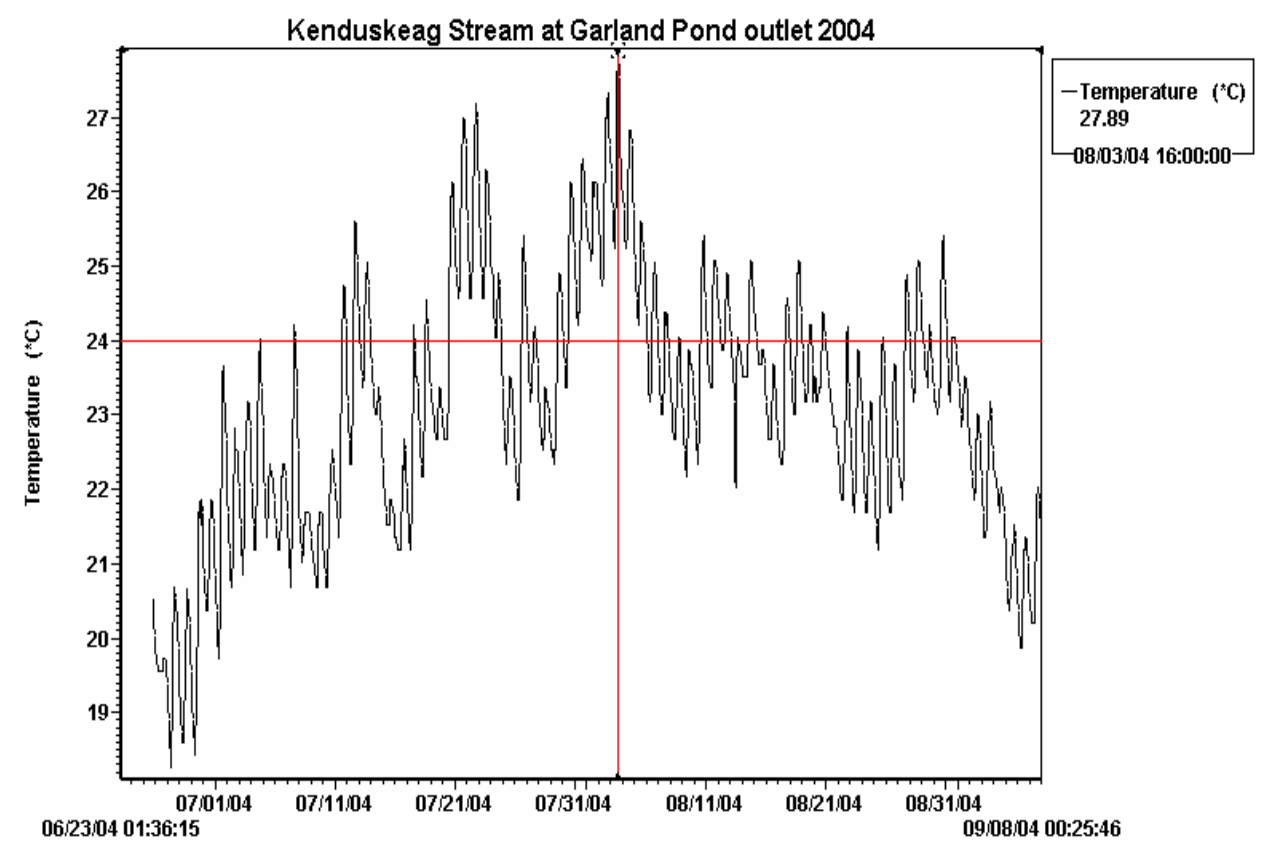

Figure 20. Water temperature ranges for the warmest day of the year, August 3, 2004.

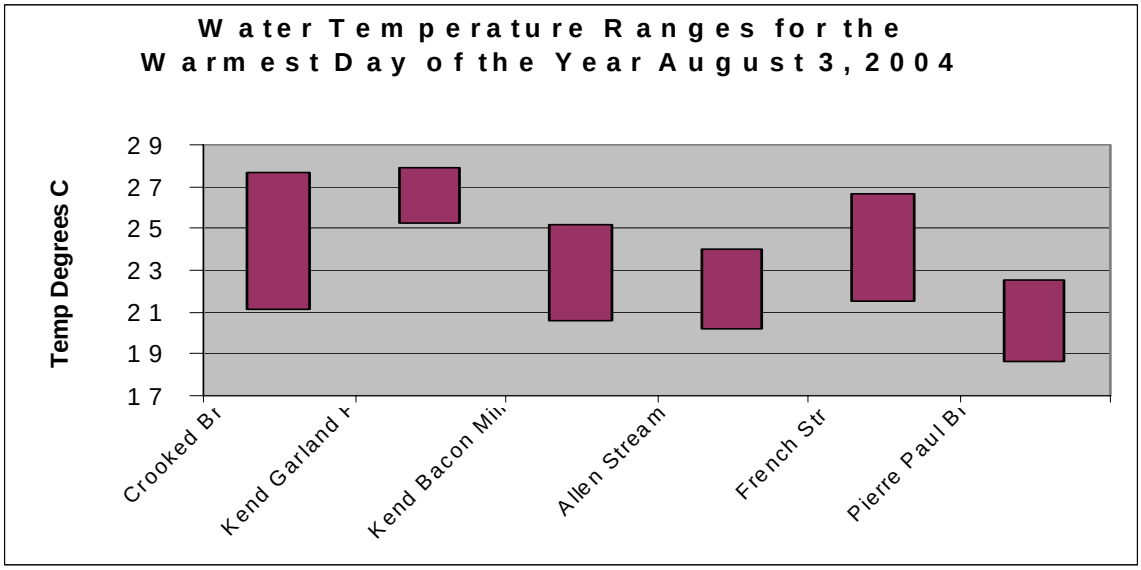

Table 1. Stream discharges taken on August 25, 2004.

	Cross Section Area	Discharge in cfs
Crooked Brook	0.9	14.27
Kenduskeag Stream	1.872	16.32
Allen Stream	1.056	21.97
French Stream	4.725	30.58
Pierre Paul Brook	1.091	10.28

Table 2. Water chemistry data, results of lab analysis. Analysis provided by Sawyer Environmental Chemistry Lab, University of Maine.

(see appended Excel file)

Table 3. Field data taken by Central High School Stream Team.

(see appended Excel file)

Table 4. R-square values for a correlation of relative flow with nitrate, and total phosphorus. Negative signs indicate an inverse relationship with flow.

Stream	NO3	TP
Crooked Brook	0.0402	0.1940
Kenduskeag Stream	-0.5405	0.6675
Allen Stream	-0.0369	0.2187
French Stream	0.0134	-0.0145
Pierre Paul Brook	0.0094	0.1194

Table 5. Results of 5-day Biological Oxygen Demand (BOD) incubations.

Site	Date	BOD_5	Ultimate BOD
		mg/L	mg/L
CB1	4/28/2004	1.90	6.70
KS1	4/28/2004	1.90	5.50
AS1	4/28/2004	1.80	4.40
PP1	4/28/2004	2.10	5.50
FS1	4/28/2004	1.70	4.90
CB1	7/9/2004	2.34	
KS1	7/9/2004	2.27	
AS1	7/9/2004	2.53	
PP1	7/9/2004	2.65	
FS1	7/9/2004	2.37	
CB1	7/22/2004	1.17	
KS1	7/22/2004	0.87	
AS1	7/22/2004	0.78	
PP1	7/22/2004	0.92	
FS1	7/22/2004	1.39	
CB1	8/12/2004	0.49	
KS1	8/12/2004	0.34	
AS1	8/12/2004	0.56	
PP1	8/12/2004	0.27	
FS1	8/12/2004	0.81	
CB1	8/25/2004	0.49	
KS1	8/25/2004	0.81	
AS1	8/25/2004	0.41	
PP1	8/25/2004	0.52	
FS1	8/25/2004	0.61	

Table 6. Results of E. coli tests based on most probable number method.

		E. coli
Site	Date	*Colonies per 100 ml*
CB-1	5/25/04	410.6
KS-1	5/25/04	185
AS-1	5/25/04	1119.85
FS-1	5/25/04	260.2
PP-1	5/25/04	102.2
CB-1	7/22/04	58.8
KS-1	7/22/04	109.2
AS-1	7/22/04	35.4
FS-1	7/22/04	127.4
PP-1	7/22/04	31.8

Table 7. Macroinvertebrate sampling results based on rock bag collections.

Bug survey for Crooked Brook 10/19/2004

	Group 1 Pollution Sensitive		Group 2 Somewhat Sensitive		Group 3 Pollution Tolerant
1	Water penny		Beetle larvae		Aquatic worms
1	Hellgrammites		Clams		Blackflies
200	Mayflies		Craneflies		Leeches
	Gilled snails		Crayfish	5	Midges
	Riffle beetle		Damselfies		Snails
6	Stoneflies		Scuds		
10	Non-net spinning caddis		Sowbugs		
			Fishflies		
			Alderflies		
			Net spinning caddis		

Bug survey for Kenduskeag Stream 10/19/2004

	Group 1 Pollution Sensitive		Group 2 Somewhat Sensitive		Group 3 Pollution Tolerant
	Water penny	1	Beetle larvae		Aquatic worms
2	Hellgrammites		Clams	1	Blackflies
13	Mayflies		Craneflies		Leeches
	Gilled snails		Crayfish	1	Midges
	Riffle beetle	1	Damselfies		Snails
4	Stoneflies		Scuds		
11	Non-net spinning caddis		Sowbugs		
			Fishflies		
			Alderflies		
			Net spinning caddis		
		1	Dragonflies		

Table 7. (continued)

Bug survey for Allen Stream 10/19/2004

	Group 1 Pollution Sensitive		Group 2 Somewhat Sensitive		Group 3 Pollution Tolerant
	Water penny	1	Beetle larvae		Aquatic worms
	Hellgrammites		Clams		Blackflies
80	Mayflies		Craneflies		Leeches
	Gilled snails		Crayfish	1	Midges
	Riffle beetle	3	Damselfies		Snails
7	Stoneflies		Scuds		
1	Non-net spinning caddis		Sowbugs		
			Fishflies		
			Alderflies		
			Net spinning caddis		
		3	Dragonflies		

Bug survey for French Stream 10/19/2004

	Group 1 Pollution Sensitive		Group 2 Somewhat Sensitive		Group 3 Pollution Tolerant
2	Water penny		Beetle larvae	8	Aquatic worms
4	Hellgrammites		Clams		Blackflies
11	Mayflies		Craneflies		Leeches
	Gilled snails		Crayfish	1	Midges
	Riffle beetle	4	Damselfies		Snails
	Stoneflies	2	Scuds		
1	Non-net spinning caddis		Sowbugs		
			Fishflies		
			Alderflies		
			Net sprinning caddis		
		2	Dragonfies		

Bug survey for Pierre Paul Brook 10/19/2004

	Group 1 Pollution Sensitive		Group 2 Somewhat Sensitive		Group 3 Pollution Tolerant
	Water penny		Beetle larvae		Aquatic worms
	Hellgrammites		Clams		Blackflies
82	Mayflies		Craneflies		Leeches
	Gilled snails		Crayfish		Midges
	Riffle beetle		Damselfies		Snails
5	Stoneflies		Scuds		
8	Non-net spinning caddis		Sowbugs		
			Fishflies		
			Alderflies		
			Net spinning caddis		

Table 8. Summary of tributary water temperature thresholds. No sites had days where the daily maxima exceeded 30˚ C.

Trib	Days Max >24 C	Consecutive Days > 24 C	Days Max > 27 C
Crooked Br	25	8	4
Kenduskeag Str at Garland P	41	11	3
Kenduskeag Str at Bacon Mills	7	4	0
Allen Stream	5	4	0
French Str	27	8	3
Pierre Paul Br	0	0	0