Project Name:	Bridge Scour	**PIN:**	17869.00
Stream Name:	Prestile Stream	**Town:**	Bridgewater
Bridge Name:	Boundary Bridge	**Bridge No.**	3734
Route No.	Line Rd	**USGS Quad:**	
Analysis by:	A.W.Mann	**Date:**	Revised 12/1/08, 6/20/2008

Peak Flow Calculations by USGS Regression Equations (Hodgkins, 1999)

Enter data in blue cells only!

	km^2	mi^2	ac	***Use just one consistent set of units:***
A	346.939			Watershed Area
W	43.758			Wetlands area (by NWI)

A (km^2)	346.939	**Conf Lvl**	0.67
W (%)	12.61		

Worksheet prepared by:
Charles S. Hebson, PE
Chief Hydrologist
Maine Dept. Transportation
Augusta, ME 04333-0016
207-287-1105
Charles.Hebson@maine.gov

Ret Pd	**Peak Flow Estimate**			
T (yr)	**Lower**	**Q_T (m^3/s)**	**Upper**	**Q_T (ft^3/s)**
1.1		39.15		1382.4
2	50.93	70.80	98.43	2500.0
5	73.47	102.39	142.69	3615.3
10	88.70	124.80	175.60	4406.8
25	107.71	153.52	218.80	5420.7
50	121.74	175.40	252.70	6193.4
100	136.25	198.52	289.23	7009.6
500	169.11	253.93	381.28	8966.2

Reference:

Hodgkins, G., 1999.
Estimating the magnitude of peak flows for streams in Maine for selected recurrence intervals
Water-Resources Investigations Report 99-4008
US Geological Survey, Augusta, Maine

$Q_T = b \times A^a \times 10^{-wW}$

Project Name:	Bridgewater - Boundary Bridge	**PIN:**	17869
Stream Name:	Prestile Stream	**Town:**	Bridgewater
Bridge Name:	Boundary Bridge	**Bridge No.**	3987
Route No.	Boundry Line Rd	**USGS Quad:**	
Analysis by:	AM / CSH	**Date:**	9/22/2011

DO NOT ENTER ANY DATA ON THIS PAGE; EVERYTHING IS CALCULATED

MAINE MONTHLY MEDIAN FLOWS BY USGS REGRESSION EQUATIONS (2004)

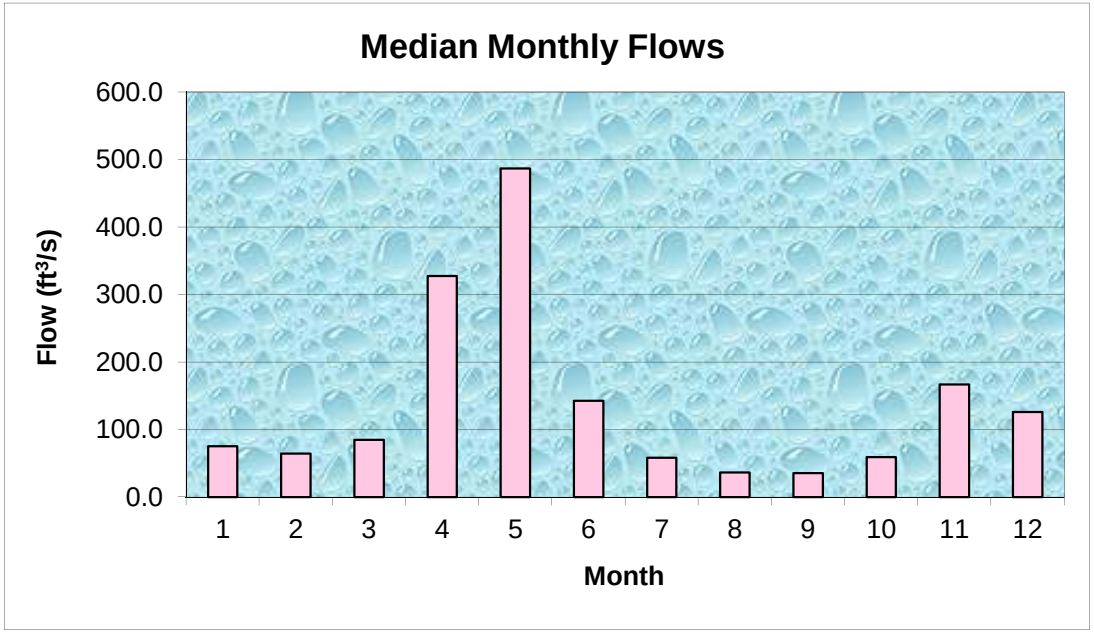
Worksheet prepared by:
Charles S. Hebson, PE
Chief Hydrologist
Maine Dept. Transportation
Augusta, ME 04333-0016
207-624-3073
Charles.Hebson@maine.gov

	Value	Variable	Explanation
	133.977	*A*	Area (mi^2)
593522	5150315	P_c	Watershed centroid (E,N; UTM; Zone 19; meters)
	142.57	*DIST*	Distance from Coastal reference line (mi)
	36.1	*pptA*	Mean Annual Precipitation (inches)
	0.00	*SG*	Sand & Gravel Aquifer (decimal fraction of watershed area)

Month	Q_{median} (ft3/s)	(m^3/s)
Jan	**75.58**	2.1418
Feb	**64.40**	1.8249
Mar	**84.94**	2.4071
Apr	**327.44**	9.2791
May	**486.67**	13.7915
Jun	**142.69**	4.0435
Jul	**58.37**	1.6541
Aug	**36.65**	1.0387
Sep	**35.71**	1.0118
Oct	**59.10**	1.6747
Nov	**166.96**	4.7314
Dec	**126.24**	3.5774

Q_{bf}	**888.3**
ann avg	**238.0**
ann med	**107.8**
$Q_{1.002}$	**696.2**
$Q_{1.01}$	888.1
$Q_{1.05}$	1191.2

W_{bf}	97.3	
d_{bf}	7.6	
Q_{bf}	2950.6	assume v = 4ft/s

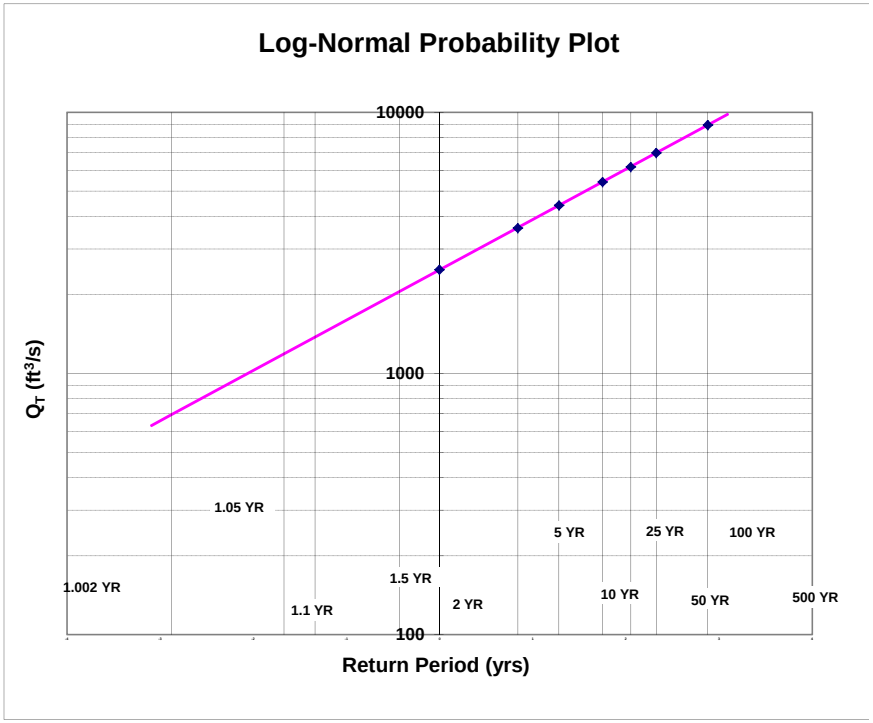


μ (log)	1.85
s (log)	1.927E-01

Flood Frequency Curve

Ret Pd T	Cum Prob F	Q_T (m3/s usgs)	Log-Normal Distn norm std var z	log (Q m3/s)	Q (m^3/s)	Q (ft^3/s)	log (Q ft3/s)	Q_T (ft3/s usgs)
1.001	0.001		-3.091	1.25	17.96	633.78	2.80	
1.002	0.002		-2.879	1.30	19.73	696.20	2.84	
1.010	0.010		-2.330	1.40	25.17	888.12	2.95	
1.050	0.048		-1.668	1.53	33.76	1191.18	3.08	
1.100	0.091		-1.335	1.59	39.13	1380.98	3.14	
1.250	0.200		-0.842	1.69	48.72	1719.07	3.24	
1.500	0.333		-0.431	1.77	58.46	2062.87	3.31	
1.750	0.429		-0.180	1.82	65.34	2305.60	3.36	
2	0.500	70.77	0.000	1.85	70.77	2497.30	3.40	2497.30
5	0.800	102.33	0.842	2.01	102.81	3627.85	3.56	3611.14
6.300	0.841		1.000	2.04	110.28	3891.43	3.59	
10	0.900	124.74	1.282	2.10	124.97	4409.84	3.64	4401.64
20	0.950		1.645	2.17	146.83	5181.19	3.71	
25	0.960	153.43	1.751	2.19	153.89	5430.29	3.73	5414.17
50	0.980	175.30	2.054	2.25	176.04	6211.87	3.79	6185.81
100	0.990	198.40	2.326	2.30	198.67	7010.54	3.85	7000.90
200	0.995		2.576	2.35	221.92	7831.16	3.89	
500	0.998	253.77	2.878	2.40	253.78	8955.39	3.95	8954.75
1000	0.999		3.090	2.45	278.82	9838.98	3.99	

Adjust Q_T Vertical Plot Scale to Contain FF Curve

"right click" QT scale and set min, max scale values

	Min $Q_{1.002}$	Max Q_{500}
Q	696.20	8955.39
log(Q)	2.84	3.95
scale Q	***100.00***	***10000.00***