

MaineDOT Culvert Hydrology Summary Sheet

Town: Machiasport WIN (or Region): 18834.00

Route: n.a. Local Road Name: Port Road

Stream: n.a.

Lat: 44.62915 Long: 67.3912

Asset ID: LC 146244 Also Known As: n.a.

Existing Structure: twin 36"D x 84'L CMP

Watershed Area: 0.3 sq. mi. NWI Wetlands: 2.3 %

Wbf - calculated: 4.1 feet Wbf - measured (if known): 7 feet

Q50: 69.7 cfs

Q100: 81.4 cfs

Preliminary Pipe Size*:

a 54" D CMP with no streambed fill meets the Q50 and Q100 std

* Note: this size may NOT meet fish passage regulatory requirements. Consult with ENV staff for guidance.

Comments:

Fish passage requirements TBD

By: MRL

Date: 11/14/2016

Revised:

ver: 11/14/2016

USGS **StreamStats Version 3.0 : Maine**

Select on a tool on the toolbar. If the icon remains depressed, click on the map to perform the desired action.

ME Map Layers

- Streamgages
- Stream Grid
- Area of limited functionality
- Areas where lidar was used
- Maine
- Study Area Bndys

Base Layers

- Imagery
- Street Map
- World Topo
- USA Topo
- Canadian Topo
- TNM Topo

0 0.1 0.2mi
Scale: 1 : 18,056
Latitude: 44.63721
Longitude: -67.41462 SS

Machiasport

USGS The National Map, National Wetlands Inventory

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URL: http://streamstats.cr.usgs.gov/v3_beta/viewer.htm
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USGS **StreamStats Version 3.0** **Print**

Basin Characteristics Ungaged Site Report

Date: Mon Nov 14, 2016 4:00:29 PM GMT-5
 Study Area: Maine
 NAD 1983 Latitude: 44.6292 (44 37 45)
 NAD 1983 Longitude: -67.3909 (-67 23 28)

Label	Value	Units	Definition
DRNAREA	0.3	square miles	Area that drains to a point on a stream
STORNV/I	2.26	percent	Percentage of storage (combined water bodies and wetlands) from the National Wetlands Inventory
ELEV	125	feet	Mean Basin Elevation
PRECIP	48.8	inches	Mean Annual Precipitation
SANDGRAVAP	21.37	percent	Percentage of land surface underlain by sand and gravel aquifers
COASTDIST	22.2	miles	Shortest distance from the coastline to the basin centroid

WIN:	18834.00		
Town:	Machiasport		
Route No.:	n.a.		
Asset ID:	LC 146244		
Lat:	44.62915	Long:	67.39118

Project Name:	n.a.
Stream Name:	n.a.
Bridge Name:	n.a.
Analysis by:	MRL
Date:	11/14/2016

Peak Flow Calculations by USGS Regression Equations (Hodgkins, 1999 & Lombard/Hodgkins, 2015)

Enter data in blue cells only!

	km ²	mi ²	ac
A	0.78	0.30	192.0
W	0.02	0.0	4.3

Enter data in [mi²]

Watershed Area
Wetlands area (by NWI)

P _c	627183	4943329
County	Washington	
pptA	44.2	
SG	0.21	

watershed centroid (E, N; UTM 19N; meters)
choose county from drop-down menu
mean annual precipitation (inches; by look-up)
sand & gravel aquifer as decimal fraction of watershed A

A (km ²)	0.78
W (%)	2.26

Conf Lvl

Wetlands area (by NWI)

Worksheet prepared by:

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ver. 2016 Feb 05

References:

Hodgkins, G.A., 1999.
Estimating the magnitude of peak flows for streams
in Maine for selected recurrence intervals
WRIR 99-4008, USGS Augusta, ME

Lombard, P.J. & G.A. Hodgkins, 2015.
Peak flow regression equations for small, ungaged streams in
Maine - Comparing map-based to field-based variables
SIR 2015-4059, USGS, Augusta, ME

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

Ret Pd T (yr)	Peak Flow Estimate	
	Lower	Upper
1.1	0.31	
2	0.64	
5	1.01	
10	1.28	
25	1.67	
50	1.97	
100	2.30	
500	3.13	

Q _T (ft ³ /s)
10.8
22.6
35.7
45.4
59.1
69.7
81.4
110.6

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

MAINE MONTHLY MEDIAN FLOWS and HYDRAULIC GEOMETRY BY USGS REGRESSION EQUATIONS (2004)

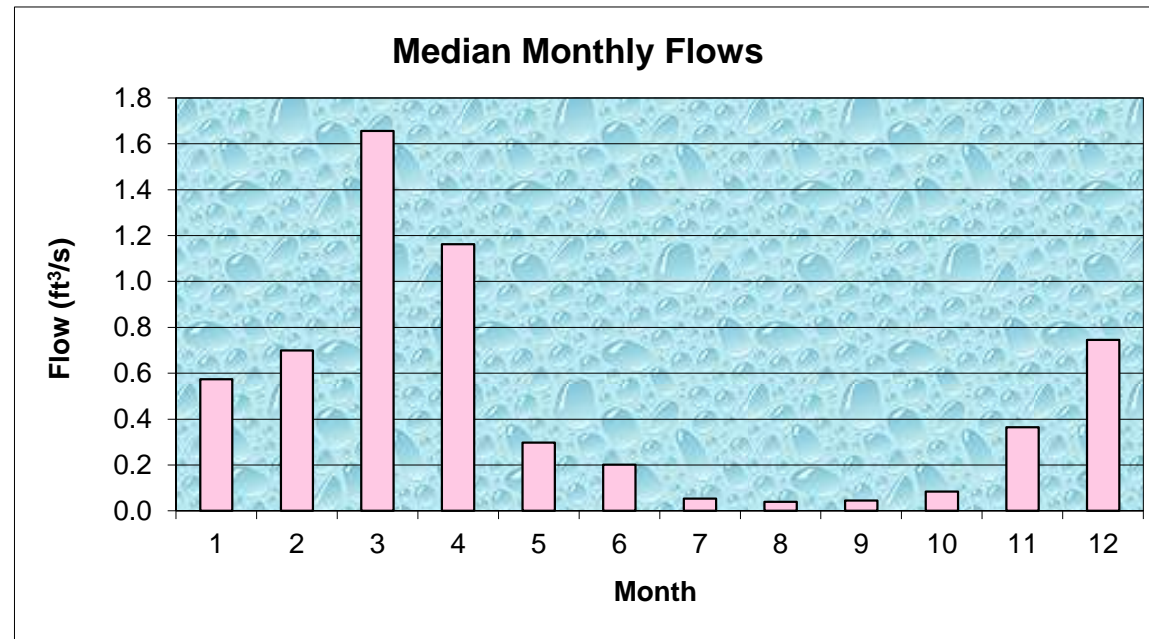
Value	Variable	Explanation
0.30	A	Area (mi ²)
627183.02	P _c	Watershed centroid (E,N; UTM; Zone 19; meters)
21.54	DIST	Distance from Coastal reference line (mi)
44.2	pptA	Mean Annual Precipitation (inches)
0.00	SG	Sand & Gravel Aquifer (decimal fraction of watershed area)

Month	Q _{median} (ft ³ /s)	(m ³ /s)
Jan	0.57	0.0163
Feb	0.70	0.0198
Mar	1.66	0.0469
Apr	1.16	0.0330
May	0.30	0.0084
Jun	0.20	0.0057
Jul	0.05	0.0015
Aug	0.04	0.0011
Sep	0.05	0.0013
Oct	0.08	0.0024
Nov	0.36	0.0103
Dec	0.75	0.0211

Q _{bf}	1.5
ann avg	0.6
ann med	0.3
Q _{1.002}	4.6
Q _{1.01}	6.2
Q _{1.05}	9.0
Q _{bf}	5.2

assume v = 4ft/s

W _{bf}	4.1	estimated bankfull width
d _{bf}	0.3	estimated bankfull depth



References

Dudley, R.W., 2004. Hydraulic Geometry Relations ..., SIR 2004-5042
 Dudley, R.W., 2004. Estimating Monthly Streamflows ... , SIR 2004-5026

Log-Normal Probability Plot

