

Assumptions:

- seepage, runoff, and precipitation are negligible
- multiplied pan test by 0.7
- the beaker was catching 1/100 of the total inflow volume
- fern lake surface area = 8000 m²

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11/3/2016

Knowns

3.28 ft/m
12 in/ft
264.172 gal/m³
30 days/Nov
24 hrs/day

Input Parameter	
Surface Area of Lake(m ²)	8000
Evaporation (inch/nov)	1.04

Inflow: Velocity Meter					
Trial	Velocity (m/s)	Depth (m)	Width (m)	Cross Area (m ²)	Flowrate (m ³ /hr)
1	0.09	0.0508	0.2541	0.0129	4.251
2	0.03	0.0508	0.2541	0.0129	1.417
3	0.18	0.0508	0.2541	0.0129	8.502
Avg. Flowrate					4.723

Inflow: Float Test								
Trial	Distance (m)	Time (sec)	Time (hr)	Velocity (m/hr)	Depth (m)	Width (m)	Cross Area (m ²)	Flowrate (m ³ /hr)
1	0.686	2.87	0.000797	860.5	0.0508	0.2541	0.0129	11.108
2	0.686	2.93	0.000814	842.8	0.0508	0.2541	0.0129	10.881
3	0.686	2.85	0.000792	866.5	0.0508	0.2541	0.0129	11.186
Avg. Flowrate								11.058
Final Avg Inflow Rate								7.891

Outflow: Bucket test					
Trial	Bucket Volume (gal)	Bucket Volume (m ³)	Time (s)	Time (hr)	Flowrate(m ³ /hr)
1	1.786	0.0068	7.5	0.125	0.05408
2	1.964	0.0074	8.56	0.143	0.05212
3	2.607	0.0099	10.35	0.173	0.05721
Avg. Outflow Rate					0.05447

Fern Lake was at an unsteady state when we made our measurements because the inflow is greater than the outflow.

Evaporation (m ³ /hr)	2.94E-01
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Rate of Change in Volume (m ³ /hr)	7.543	increasing
Rate of Change in Depth (cm/hr)	0.0943	increasing