Haley Isaacson
Lab 11
ENG 115

Input parameters:

Surface Area Lake (m^2)	8000	Radius of Bucket:	5.625 inches	Hours in a day:	24	Days in November:	30
evaporation:	1.04 inches/nov						
Feet in a meter:	3.28	Meters in a Kilometer:	1000 Inches in a Meter:	39.37 Seconds in a Minute:	60	Minutes in an Hour:	60

Inflow: Velocity Meter (method 1)

Trial Number	Velocity		Depth:		Width:		Cross-Area:		Flowrate:	
1	0.18 m/s		0.05 m		0.30 m		0.02 m^2		0.002832 m^3/s	
2	0.27 m/s		0.05 m		0.30 m		0.02 m^2		0.004249 m^3/s	
3	0.24 m/s		0.05 m		0.30 m		0.02 m^2		0.003777 m^3/s	
									Average Flowrate:	

Outflow: Float (method 2)

Trial Number	Depth:		Width:		Length Travelled:		Volume:		Time:	
1	0.10 m		0.23 m		0.76 m		0.01770 m^3		9.47 seconds	
2	0.11 m		0.28 m		0.76 m		0.02434 m^3		13.28 seconds	
3	0.09 m		0.30 m		0.76 m		0.02065 m^3		8.60 seconds	

Outflow: Bucket (method 3)

Trial Number	Bucket Volume		Bucket Volume		Time		Time		Flowrate	
1	298.05469 in^3		0.00488 m^3		4.2 seconds		0.00117 hours		4.18652 m^3/hr	
2	298.05469 in^3		0.00488 m^3		4.4 seconds		0.00122 hours		3.99622 m^3/hr	
3	372.56836 in^3		0.00611 m^3		4.9 seconds		0.00136 hours		4.48555 m^3/hr	
							Average Flowrate:		4.22276 m^3/hr	

Results:

Total Inflow	Average			
method 1:	13.02914 m^3/hr			
Sum of inflow:	13.02914 m^3/hr			
Total outflow			Evaporation:	value (m/nov) lake surface (m^2) Evaporation rate (m^3/hr)
method 2:	7.32453 m^3/hr			0.02642 8,000 0.293511698
method 3:	4.22276 m^3/hr			
Sum of outflow:	11.54729 m^3/hr			
Sum of outflow + evaporation:	11.84080 m^3/hr			

Fern Lake is not in a steady state; the total of the inputs
exceed the total of the outputs. More water is entering per
hour than is leaving per hour.

Rate of Volume Change:	Inflow (m^3/hr)	Outflow (m^3/hr)	Rate (m^3/hr)	
Inflow-Outflow	13.02914	11.84080	1.18833	Increasing

Rate of Depth Change:	Rate of Volume Change (m^3/h	Surface Area of Lake (m^2)	Rate of Depth Change: (cm/hr)	
Change in Volume/Surface Area	1.18833	8000	0.014854158	Increasing