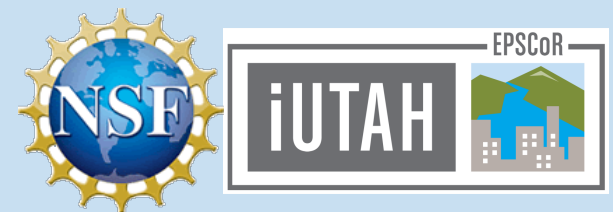


Relating Stage to Discharge in Red Butte Creek

Jem Locquiao, University of Utah
Christine Pomeroy, University of Utah

Department of Civil and Environmental Engineering



Outline

- Objectives
- Relevance
- Research Methodology
- Challenges and Results
- Conclusions and Future Research



Objectives

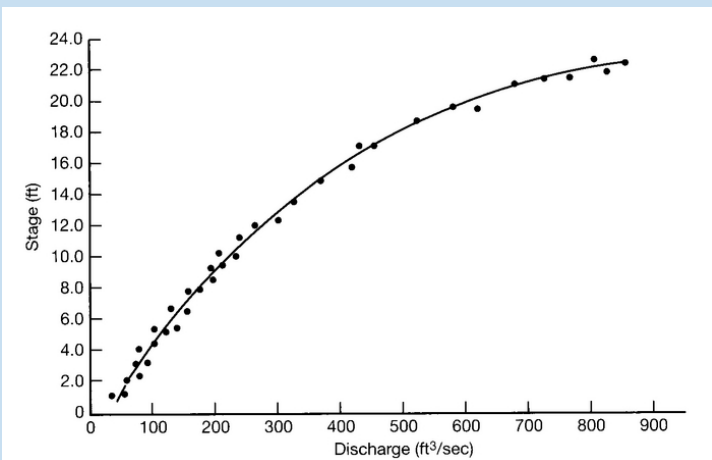


Image credit: University of Texas at



Relevance



RFA1: Biophysical
Ecohydrologic
System

RFA2: Social and
Engineered
Ecohydrologic
System

RFA3: Coupled
Human-Natural
System

Research Methodology

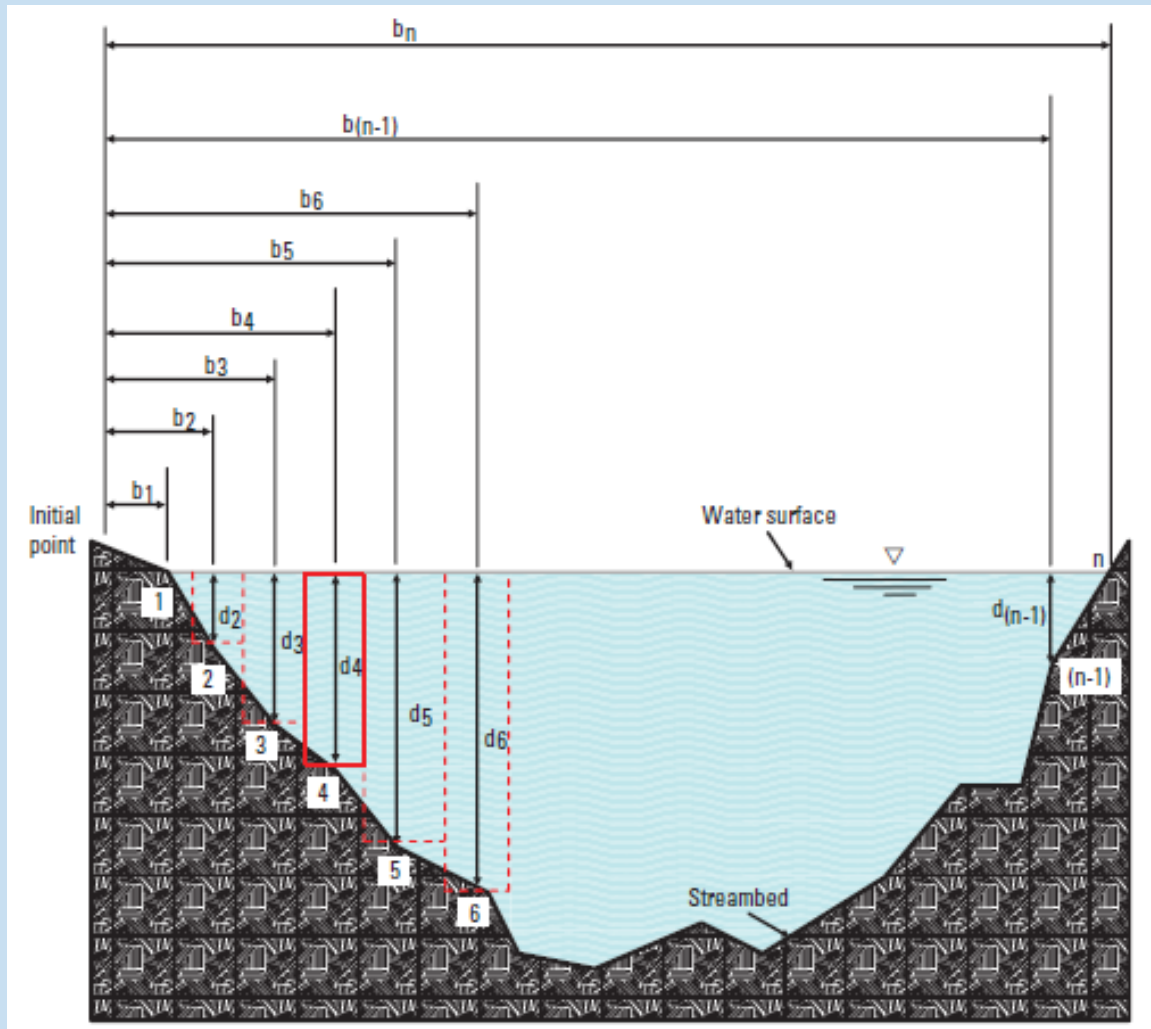


Image credit: U.S. Geological Survey



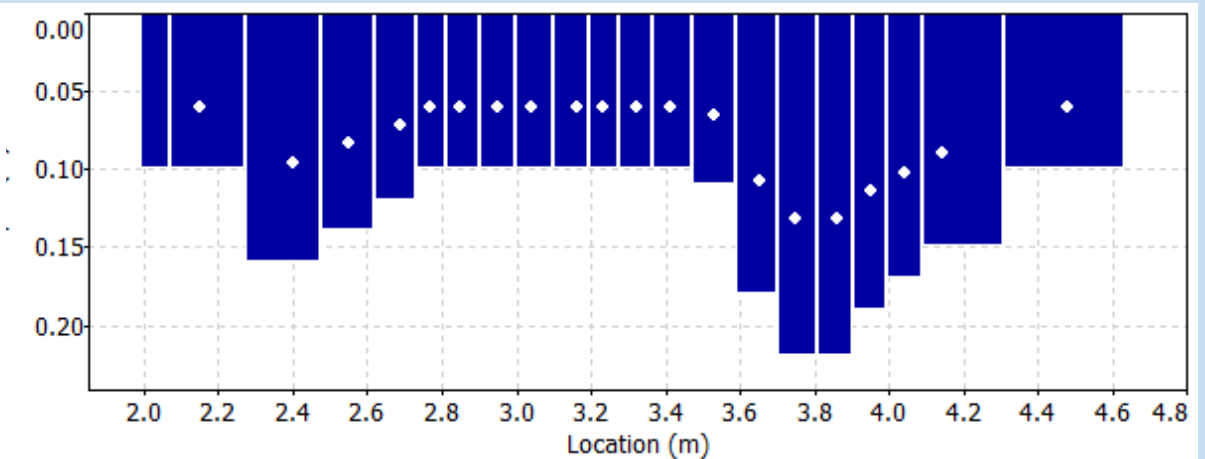
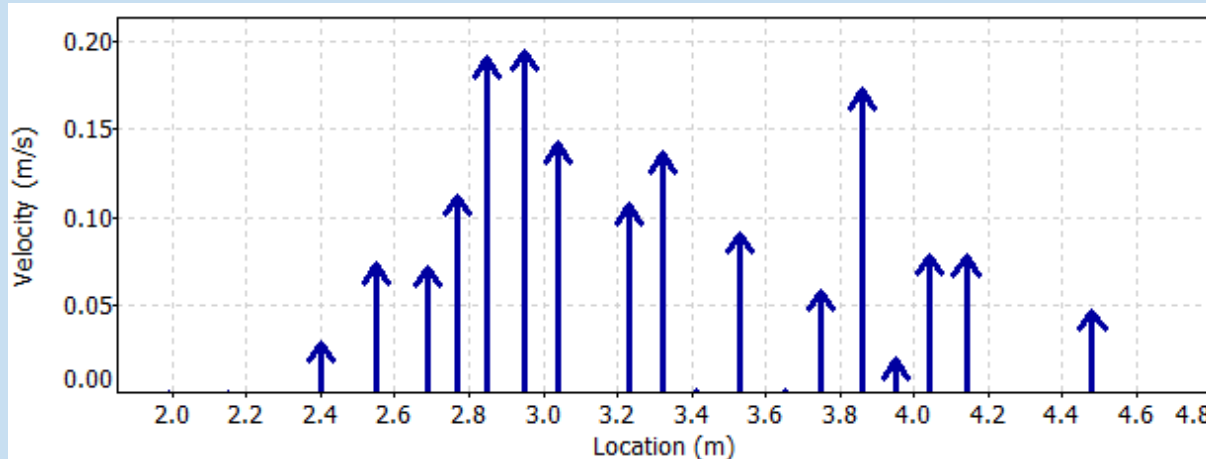
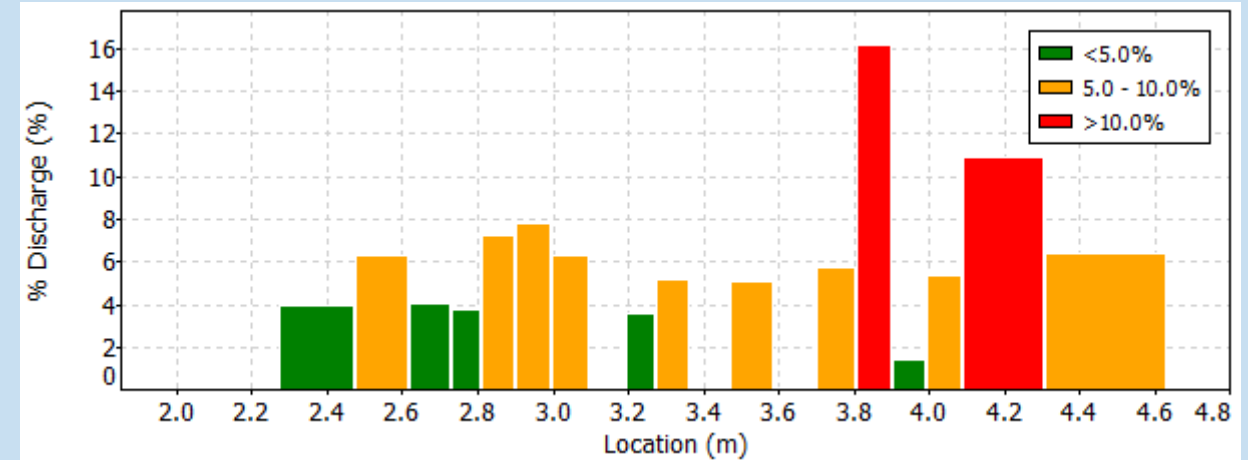
Image credit: LICA United Technology Limited



Challenges and Results



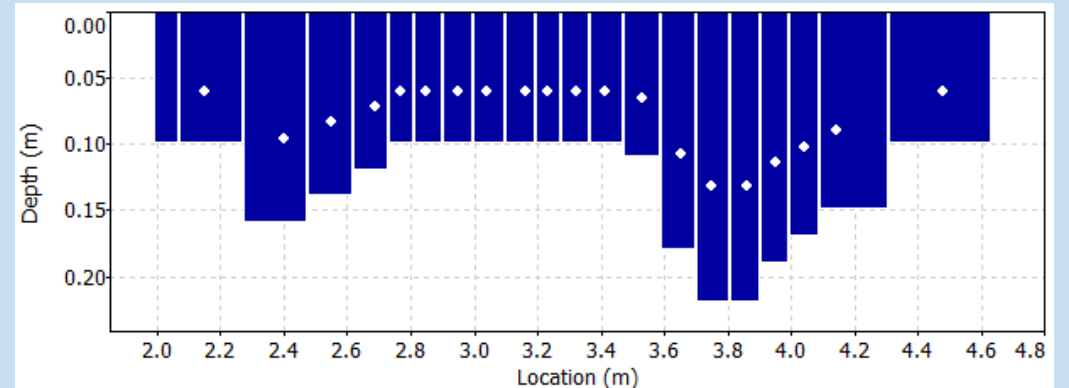
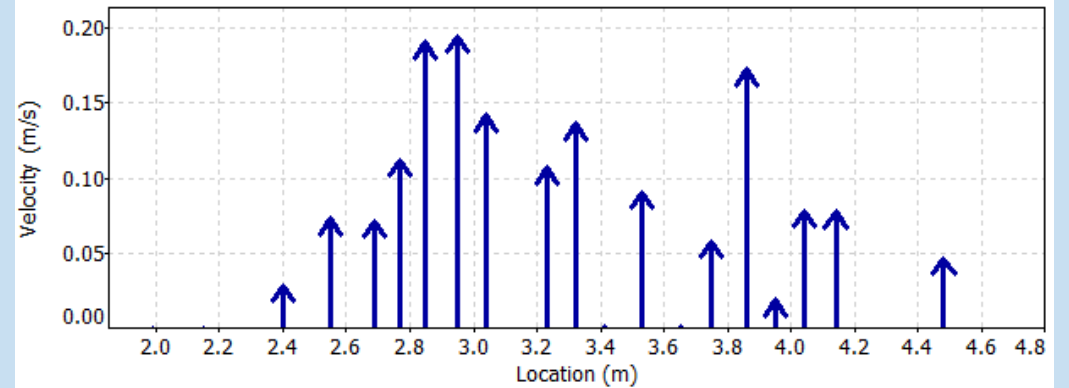
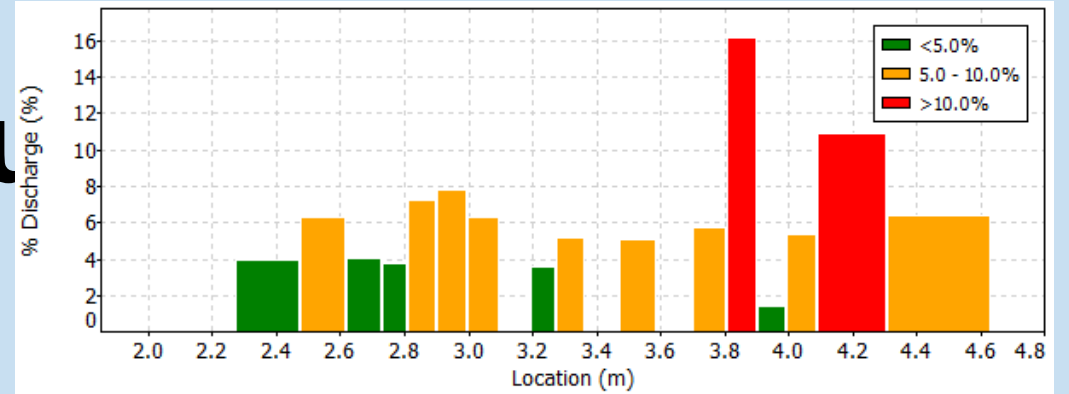
Quality Control			
St	Loc	%Dep	Message
2	2.40	0.6	Boundary QC is Good; possible boundary interference
9	3.16	0.6	High differences in beam SNR: 45.5,63.2
		0.6	SNR (54.4) is different from typical SNR (32.5)
10	3.23	0.6	Boundary QC is Fair; possible boundary interference
12	3.41	0.6	Boundary QC is Poor; possible boundary interference
14	3.65	0.6	SNR (15.7) is different from typical SNR (32.5)
		0.6	Boundary QC is Fair; possible boundary interference
15	3.75	0.6	Boundary QC is Fair; possible boundary interference
16	3.86	0.6	High number of spikes: 7
		0.6	High differences in beam SNR: 6.4,19.7
		0.6	SNR (13.1) is different from typical SNR (32.5)
		0.6	High standard error: 0.093
19	4.14	0.6	High angle: 28
21	4.78	0.6	Low SNR: 0.0,0.0
		0.6	SNR (0.0) is different from typical SNR (32.5)
		0.6	High standard error: 0.256



Challenges and Results

Measurement Results												
St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	13:24	1.99	None	0.100	0.0	0.0	0.0000	1.00	0.0007	0.008	0.0000	0.0
1	13:24	2.15	0.6	0.100	0.6	0.040	0.0007	1.00	0.0007	0.021	0.0000	0.1
2	13:33	2.40	0.6	0.160	0.6	0.064	0.0293	1.00	0.0293	0.032	0.0009	4.0
3	13:34	2.55	0.6	0.140	0.6	0.056	0.0734	1.00	0.0734	0.020	0.0015	6.3
4	13:36	2.69	0.6	0.120	0.6	0.048	0.0719	1.00	0.0719	0.013	0.0009	4.0
5	13:37	2.77	0.6	0.100	0.6	0.040	0.1126	1.00	0.1126	0.008	0.0009	3.8
6	13:38	2.85	0.6	0.100	0.6	0.040	0.1908	1.00	0.1908	0.009	0.0017	7.3
7	13:40	2.95	0.6	0.100	0.6	0.040	0.1947	1.00	0.1947	0.010	0.0018	7.9
8	13:41	3.04	0.6	0.100	0.6	0.040	0.1424	1.00	0.1424	0.011	0.0015	6.4
9	13:43	3.16	0.6	0.100	0.6	0.040	0.0000	1.00	0.0000	0.010	0.0000	0.0
10	13:44	3.23	0.6	0.100	0.6	0.040	0.1073	1.00	0.1073	0.008	0.0009	3.6
11	13:47	3.32	0.6	0.100	0.6	0.040	0.1365	1.00	0.1365	0.009	0.0012	5.2
12	13:50	3.41	0.6	0.100	0.6	0.040	0.0014	1.00	0.0014	0.011	0.0000	0.1
13	13:51	3.53	0.6	0.110	0.6	0.044	0.0908	1.00	0.0908	0.013	0.0012	5.1
14	13:56	3.65	0.6	0.180	0.6	0.072	0.0019	1.00	0.0019	0.020	0.0000	0.2
15	14:00	3.75	0.6	0.220	0.6	0.088	0.0582	1.00	0.0582	0.023	0.0013	5.7
16	14:02	3.86	0.6	0.220	0.6	0.088	0.1729	1.00	0.1729	0.022	0.0038	16.2
17	14:03	3.95	0.6	0.190	0.6	0.076	0.0197	1.00	0.0197	0.017	0.0003	1.4
18	14:05	4.04	0.6	0.170	0.6	0.068	0.0787	1.00	0.0787	0.016	0.0013	5.4
19	14:08	4.14	0.6	0.150	0.6	0.060	0.0778	1.00	0.0778	0.033	0.0026	10.9
20	14:11	4.48	0.6	0.100	0.6	0.040	0.0470	1.00	0.0470	0.032	0.0015	6.4
21	14:13	4.78	0.6	0.000	0.6	0.000	0.3665	1.00	0.0000	0.000	0.0000	0.0
22	14:13	4.80	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.



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Conclusions and Future Research



Minimize errors using FlowTracker

Explore other methods to
determine discharge

Determine discharge and rating
curve at new location along Red
Butte Creek

A photograph of a stream flowing through a stone bridge with a central archway. The water is dark and reflects the surrounding greenery. The bridge is made of large, rectangular stone blocks. The stream is bordered by a stone wall on the left and a rocky bank on the right. The background is filled with dense green trees and foliage, with sunlight filtering through the leaves. The text "Thank You" is overlaid in the center of the image.

Thank You



Site

Google earth

Objectives

Characterize streamflow and cross-section characteristics

Develop rating curve

