

NATIONAL PETROLEUM RESERVE – ALASKA (NPR-A) WATERSHED HYDROLOGY

Final Project Report



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**prepared for
U.S. Department of the Interior, Bureau of Land Management**

**Report INE/WERC 14.12
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Front cover photo credit:

Hydrology station at Otuk Creek, Alaska (photograph by Dragos Vas).

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Acknowledgments and Disclaimer

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The use of trade and firm names in this document is for the purpose of identification only and does not imply endorsement by the University of Alaska Fairbanks or BLM.

Abstract

During a five-year period, which represents the entire project span, the research team performed discharge measurements on seven gaging stations distributed on the National Petroleum Reserve-Alaska (NPR-A), an area of approximately 23 million acres that extends from the north side of the Brooks Range to the Arctic Ocean. Specifically, 225 discharge measurements were taken during that period. In addition, records of air temperature and rainfall, as well as wind speed and wind direction from stations that collected such data were analyzed. The air temperature data indicate that the entire region followed a pronounced warming trend, ending with the 2010/2011 winter, which was the warmest winter recorded at the stations. Rainfall data suggest a trend in increasing precipitation during the summer months from the coastal plain to the foothill area. Unusually dry conditions were experienced over the entire area in 2007 and in 2011. The overall highest mean wind speed was recorded in June at the two stations where wind data were available; the lowest mean wind speed was recorded in December at one station and in March at the other station. Wind roses indicate two main wind directions—roughly from the northeast and southwest—with winds from the northeast predominant.

CHAPTER 1 INTRODUCTION

Over the past five years, the University of Alaska Fairbanks (UAF) Water and Environmental Research Center (WERC) has conducted extensive studies on the Alaska North Slope. The foci of these ongoing studies are climate, hydrology, and water quality. Research work has included (a) the continuous collection of climatologic data from several meteorological stations, (b) studies on snow distribution, (c) stream gaging in several rivers, and (d) modeling.

A series of federal and state agencies funded these research efforts, including the National Science Foundation (NSF), U.S. Department of Energy (DOE), U.S. Department of the Interior, Bureau of Land Management (BLM), Alaska Department of Transportation and Public Facilities (ADOT&PF), Alaska Department of Natural Resources (DNR), and Alaska Department of Fish and Game (ADF&G), as did project partners, such as BP, ConocoPhillips, and Geo-Watersheds Scientific.

One of the projects, the National Petroleum Reserve – Alaska (NPR-A) Watershed Hydrology study, is funded by BLM under agreement L09AC15923. The project started in 2009 and finished in September 2014. As part of the project, BLM and UAF personnel performed hydrologic measurements (river discharge, water level) along several streams located in the NPR-A. Data on basic meteorological parameters—air temperature, rainfall, wind speed, and wind direction—were collected at stations located in the same area. The location of each site, as well as the contributing areas upstream of each station, is shown in Figure 1.1.

This report, which constitutes the final project report of a multi-year agreement (L09AC15923), is organized as follows: Chapter 1 introduces the study. Chapter 2 provides information related to discharge measurements carried out during the project; Chapter 3 presents meteorological data collected before and during the duration of the project; and Chapter 4 describes tasks related to information technology. The appendices contain discharge measurement summary forms and basic weather plots.

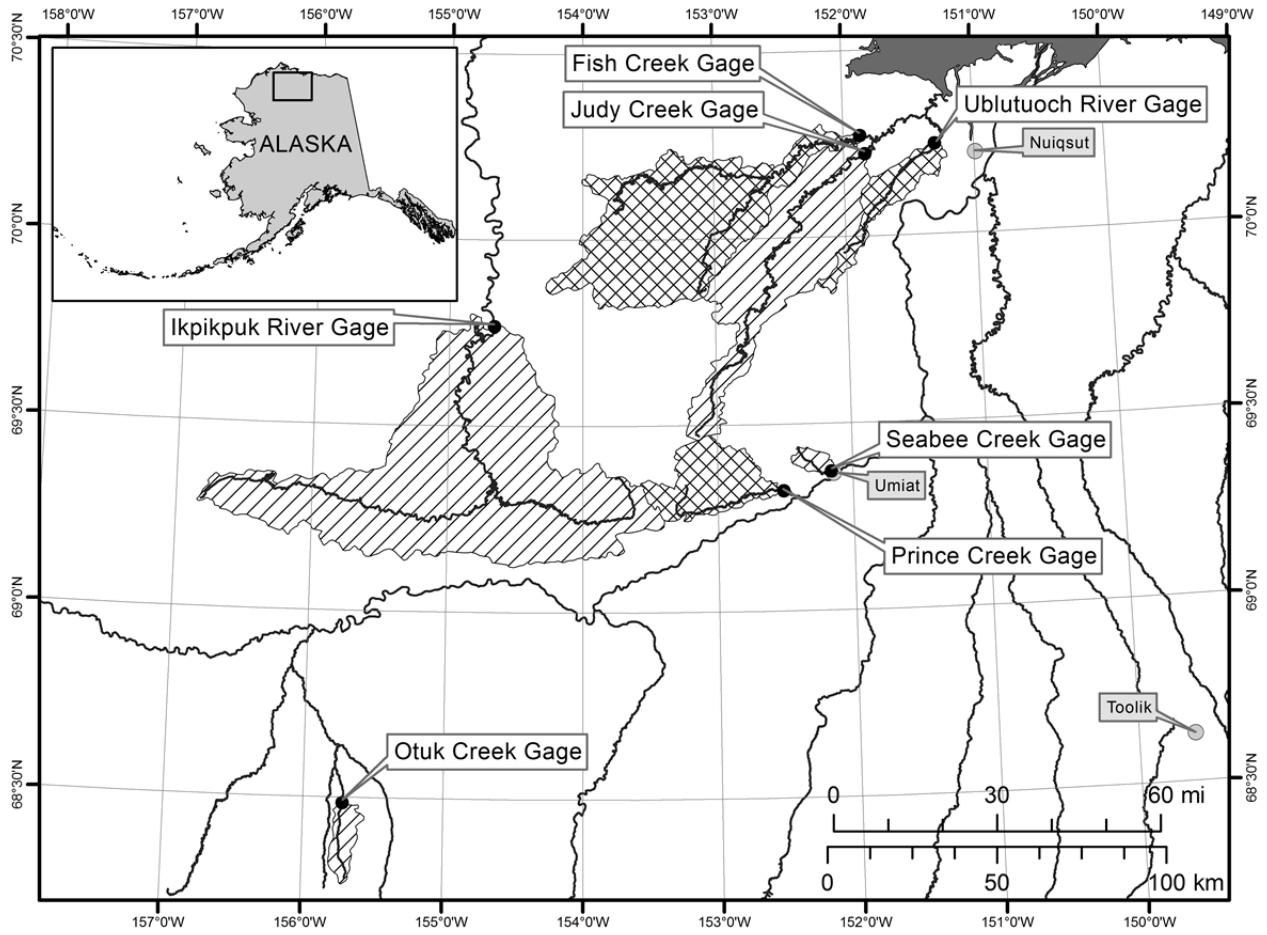


Figure 1.1 Geographic distribution of stations inside the NPR-A.

CHAPTER 2 DISCHARGE MEASUREMENTS

The UAF/WERC research team, in conjunction with personnel from BLM, run seven gaging stations located on the National Petroleum Reserve – Alaska (NPR-A). Specifically, the stations are Fish Creek (70°16.23' N; 151°52.155' W), Ikpikpuk River (69°46.008' N; 154°39.826' W), Judy Creek (70°13.241' N; 151°50.13' W), Otuk Creek (68°29.128' N; 155°43.032' W), Prince Creek (69°19.30' N; 152°30.84' W), Seabee Creek (69°22.29' N; 152°09.47' W), and Ublutuoch River (70°14.591' N; 151°17.823' W). Field tasks and data analysis carried out by the UAF research team are described in the remainder of this chapter.

2.1 Fieldwork

The fieldwork described in this report spanned from spring 2010 to fall 2014. Personnel from UAF were in the field about 6 to 7 weeks/year. However, pre-field and post field activities involved a substantial amount of time each year. For instance, before the beginning of each trip to Umiat, in preparation for field deployment, the field gear was cleaned and repaired, and the firmware and software for scientific equipment was updated. After returning from the field, all the equipment was placed in adequate storage rooms at UAF or BLM; data collected in the field were also copied in several computers.

At the Umiat site, the research team worked with Richard Kemnitz (a BLM employee, who is in charge of the stations in NPR-A) to open, maintain, and improve the BLM camp. Such work included preparing generators for operation; clearing snow away from the buildings in spring; hauling water from the Colville River; helping to organize and clean fuel storage and containment; painting outdoor walls and handcarts; changing oil in ATVs, snow machines, and generators; and cleaning boats at the end of each season. One season, we installed a water heater and a monitor oil heater in the main BLM building.

During the five-year period, together with Richard Kemnitz, we performed 225 discharge measurements (Table 2.1) at seven gaging sites (see Figure 1.1), using an acoustic Doppler current profiler (ADCP) or a U.S. Geological Survey (USGS)-type AA current meter. Individual summary forms for discharge measurements taken with an ADCP are included in Appendix A. Most of the measurements were conducted during spring breakup, which is the main

hydrological event of the year (Toniolo et al. 2013). We ran levels at the gaging sites and installed new reference points and survey markers.

At the end of each warm season, along with Richard Kemnitz, we closed the camp. Camp-closing tasks included freeze proofing the water heater, the washing machine, and water lines; charging all batteries; and cleaning and storing gear that was used during the field season.

Table 2.1 Summary of discharge measurements taken during the duration of the project.

Date	Fish	Ikpikpuk	Judy	Otuk	Prince	Seabee	Ublutuoch
	ft ³ /s	ft ³ /s	ft ³ /s	ft ³ /s	ft ³ /s	ft ³ /s	ft ³ /s
5/30/10						159	
5/31/10					328	311	
6/2/10					739		
6/3/10						232	
6/4/10		12221					
6/5/10			1417				
6/6/10				264*	4800	486	
6/7/10		26984			5641	442	
6/8/10	3390		9115				3117
6/9/10						167*	
6/10/10	2990		4582				1798
6/11/10		7423				104*	
6/12/10					838		
6/14/10	2820		1777				
6/15/10							569
6/17/10		1074					
6/18/10				253*			
6/19/10						12*	
7/3/10		214					
7/5/10			170				
7/6/10	648						65
7/8/10				10	14		
7/12/10						1*	
8/26/10				33*			
8/27/10						11*	
8/28/10							35*
8/30/10	233		162				
8/31/10					89		
9/10/10		97					
10/10/10						1*	
5/26/11						293	

Date	Fish	Ikpikpuk	Judy	Otuk	Prince	Seabee	Ublutuoch
	ft ³ /s	ft ³ /s	ft ³ /s	ft ³ /s	ft ³ /s	ft ³ /s	ft ³ /s
5/27/11					405		
5/29/11		27201				676	
5/30/11					6545	356 & 594	
5/31/11		30269					
6/1/11						242	
6/2/11	2059		4414				1692
6/3/11		8074			827		
6/4/11				75*			
6/5/11	2000		2666				1642
6/6/11					867		
6/7/11	2443	275	2595				1161
6/8/11						66*	
7/7/11							
7/8/11	527		187				42
7/9/11				19			
7/10/11					27*		
7/12/11						2	
8/26/11		79					
8/27/11	159						
8/28/11			66				8
8/29/11				23*	9*		
8/31/11						8*	
9/11/11						65*	
5/23/12						6*	
5/24/12						46 & 52*	
5/25/12		8682			22	95	
5/27/12	101		549		54		
5/28/12				64			
5/31/12		8055					
6/1/12				500		467	
6/3/12	406		3094			307*	148
6/4/12		10567					
6/5/12	1838		6556		3542		2119
6/7/12	2546		4605				1603
6/8/12					609	90*	
6/9/12	2977		3260				1078
6/11/12						64*	
7/5/12		204					
7/6/12				63*			
7/7/12	581		181				57
8/31/12		1190					

Date	Fish	Ikpikpuk	Judy	Otuk	Prince	Seabee	Ublutuoch
	ft ³ /s	ft ³ /s	ft ³ /s	ft ³ /s	ft ³ /s	ft ³ /s	ft ³ /s
9/1/12	213		85				10
9/2/12					972		
9/3/12						81*	
9/4/12				74*			
9/8/12						30*	
5/25/13						1*	
5/26/13						1*	
5/27/13						7*	
5/28/13		1232			73	122	
5/30/13						245	
5/31/13		17428			1001		
6/1/13						295	
6/2/13	442		3381			665	
6/3/13					6638	751	
6/5/13		17972					
6/6/13	2148		3049				1318
6/7/13					1270	102*	
6/8/13				847	3160		
6/9/13	3420		5639				2434
6/11/13	4965		5712		2829		2036
6/12/13						157	
6/13/13	5002		3691				1533
6/15/13					575		
6/16/13						64	
6/17/13	3598		2105				738
6/18/13		4166					
6/20/13				129*	180		
6/21/13	2473		1145				382
6/22/13						17*	
7/4/13					58*		
7/5/13				38*			
7/6/13	1182		376				120
7/7/13		1383					
7/8/13						4*	
7/13/13				18*			
7/14/13							60*
7/15/13					19*		
8/22/13		2717			102		
8/23/13	440		144				19
8/25/13						5	
9/13/13						7*	

Date	Fish	Ikpikpuk	Judy	Otuk	Prince	Seabee	Ublutuoch
	ft ³ /s	ft ³ /s	ft ³ /s	ft ³ /s	ft ³ /s	ft ³ /s	ft ³ /s
10/23/13	199						
5/17/14						309	
5/18/14						397	
5/19/14						199	
5/20/14						132	
5/23/14						61	
5/25/14					360		
5/26/14		1207				30*	
5/27/14	1166		1273				580
6/2/14	1340		1633				397
6/3/14		10500					
6/4/14				140			
6/5/14						313	
6/6/14	2609		3707				1076
6/7/14					2469		
6/8/14		8114			2131		
6/9/14	3122		2096				739
6/10/14				192*			
7/9/14						13*	
7/11/14		362			58		
7/12/14	912		280				75
7/13/14				88*			
8/26/14						2*	

* Measurements made with USGS-type AA current meter. The remaining measurements were made using an ADCP.

2.2 Data Analysis

At the end of each field season, field notes and photographs from the game cameras installed in some of the stations were organized, and quality assurance and quality control (QA/QC) were performed on the discharge data collected. In particular, a summary form for each ADCP measurement was generated (see Appendix A). Each form includes the final discharge values and the location and quality of the measurements. Basic geometric (cross-sectional area, channel width) and hydraulic (flow velocity) parameters are also included in each form. The research team is currently working with Richard Kemnitz to finalize the data at each site, which together with the 15-minute water level data collected at each site will allow finalizing of the rating curves (Figure 2.1) to estimate daily discharge values using Aquarius Hydrological software.

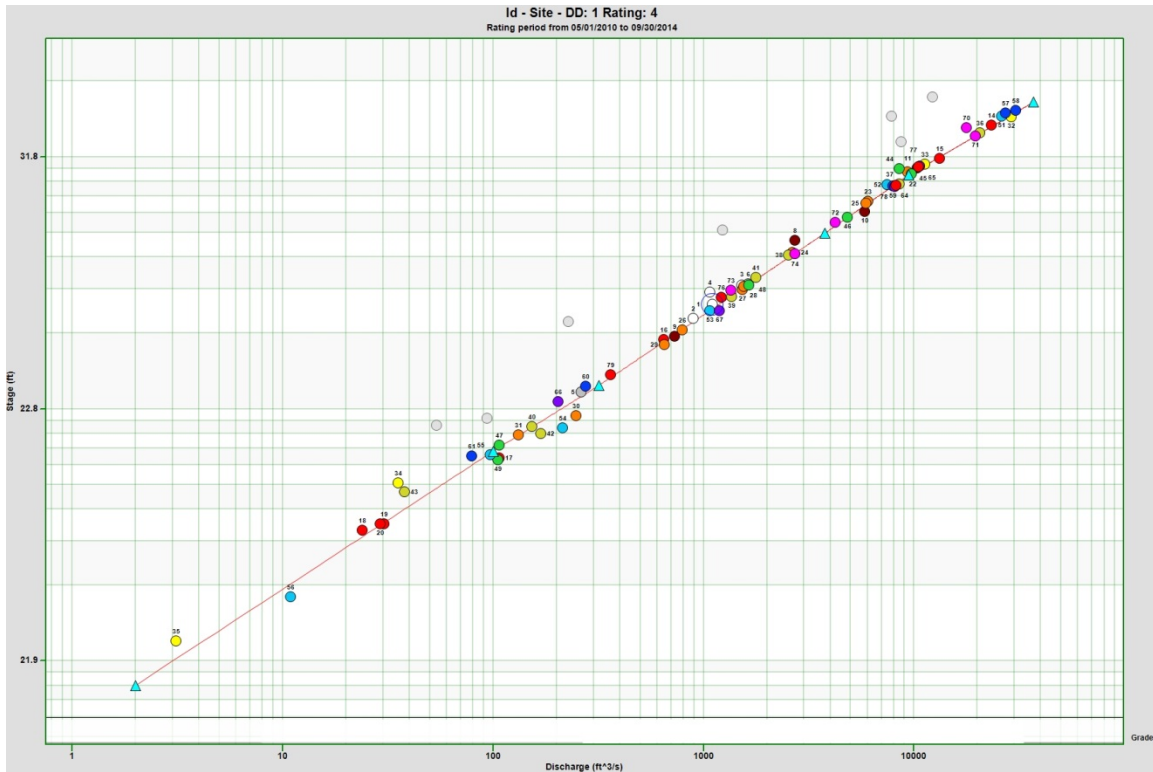


Figure 2.1 Rating curve generated in Aquarius and maintained by NPR-A hydrology project.
Example: Ikpikuk

The main characteristics, that is, the number of measurements and the maximum and minimum measured discharge for each station from 2010 to 2014, are provided below.

Fish Creek: Discharge was measured 32 times. The highest discharge was 5002 ft³/s measured on 13 June 2013; the lowest discharge was 101 ft³/s measured on 27 May 2012.

Ikpikuk River: Discharge was measured 26 times. The highest discharge was 30,269 ft³/s measured on 11 May 2011; the lowest discharge was 79 ft³/s measured on 26 August 2011.

Judy Creek: Discharge was measured 32 times. The highest discharge was 9115 ft³/s measured on 8 June 2010; the lowest discharge was 66 ft³/s measured on 28 August 2011.

Otuk Creek: Discharge was measured 18 times. The highest discharge was 847 ft³/s measured on 8 June 2013; the lowest discharge was 10 ft³/s measured on 8 July 2010.

Prince Creek: Discharge was measured 33 times. The highest discharge was 6638 ft³/s measured on 3 June 2013; the lowest discharge was 9 ft³/s measured on 29 August 2011.

Seabee Creek: Discharge was measured 54 times. The highest discharge was 751 ft³/s measured on 3 June 2013; the lowest discharge was 1 ft³/s measured on 25 May 2013 and 26 May 2013.

Ublutuoch River: Discharge was measured 30 times. The highest discharge was 3117 ft³/s measured on 8 June 2010; the lowest discharge was 8 ft³/s measured on 28 August 2011.

CHAPTER 3 METEOROLOGICAL DATA

Six basic weather stations were installed by BLM before the UAF project had begun. These stations simply recorded air temperature; only three stations recorded rain, wind speed, and wind direction. Table 3.1 shows the temporal record of each station, as well as the variables measured. All existing meteorological data were processed and reviewed for QA/QC by the UAF research team.

Table 3.1 Stations and meteorological data collected.

Station	Record	Weather Data			
		Rainfall	Air Temperature	Wind Direction	Wind Speed
Fish Creek	2003–2013	Yes	Yes	Yes	Yes
Ikpikpuk River	2003–2013	Yes	Yes	Yes	Yes
Judy Creek	2005–2013		Yes		
Otuk Creek	2008–2013	Yes	Yes	Suspected sensor error	Suspected sensor error
Prince Creek	2010–2013		Yes		
Ublutuoch River	2005–2013		Yes		

Air Temperature: The six available stations covered the foothills (Otuk Creek) to the coastal plain area (Ublutuoch River) and collected air temperature at 2 m from the ground surface.

Rainfall: A southwest–northeast path defined by three stations was studied to detect pattern changes (if any) during the summer months along the study area. The stations included Otuk Creek (furthest southwest station available), Ikpikpuk River (central station along this path), and Fish Creek (furthest northeast station).

Wind: As mentioned before, only three stations collected wind data. However, sensor malfunction at the Otuk Creek station is suspected. Thus, this report includes information from two stations: Fish Creek and Ikpikpuk River. Wind direction and wind speed were recorded.

In recent years, weather data were collected by the following instruments: air temperature – Thermex air temperature probe; wind – RM Young 05103 (wind velocity and direction); and rain – Texas Electronics TR525USW. A datalogger Waterlog H-522 with a GOES SatLink transmitter or a Sutron 8210, also with a GOES SatLink transmitter, were used to collect individual variables and transmit them by satellite.

The air temperature sensor was situated inside a standard shield, which was located at the end of a crossbar mounted on a metallic tripod. The wind sensors (speed and direction) were located on the opposite end of the same crossbar. Summer rainfall at the sites was collected by tipping bucket gages located 40 to 70 cm above the ground surface. Precipitation, after falling in an orifice, activates a bucket mechanism that tips when filled to a calibrated level. Tips were counted and recorded by a datalogger every hour. All precipitation gages are surrounded by an Alter wind shield, positioned slightly above the gage to avoid precipitation undercatch due to wind (Derry et al. 2007).

3.1 Methodology

The water year, which is defined from 1 October Year (X) to 30 September Year (X+1), was used to analyze the air temperature and wind data (direction and speed) on an annual basis. In addition, average monthly air temperature and wind direction were analyzed. Liquid precipitation (rain) was analyzed during the warm season (May/June to September/October in a given year).

The annual cumulative freezing degree-days (ACFDD) in degrees Fahrenheit (or Celsius) were calculated to investigate the variation in air temperature during the long winter months that are characteristic of this area. Freezing degree-days (FDD) can be calculated as follows:

$$FDD = (32 - T_{aF}) \quad \text{or} \quad FDD = (0 - T_{aC}) \quad (1a, b)$$

where T_{aF} is the average daily air temperature in degrees Fahrenheit (or in Celsius, T_{aC}).

3.2 Results

3.2.1 Rainfall

Figure 3.1, Figure 3.2, and Figure 3.3 show the cumulative rainfall calculated for each year during the available record. The plots indicate that maximum cumulative values ranged from

approximately 20 mm to 100 mm (Fish Creek station); 5 mm to 160 mm (Ikpikuk River station); and 115 mm to 190 mm (Otuk Creek station). Additionally, the plots suggest a trend in increasing precipitation during the summer months from the coastal plain (Fish Creek station) to the foothill area (Otuk Creek station).

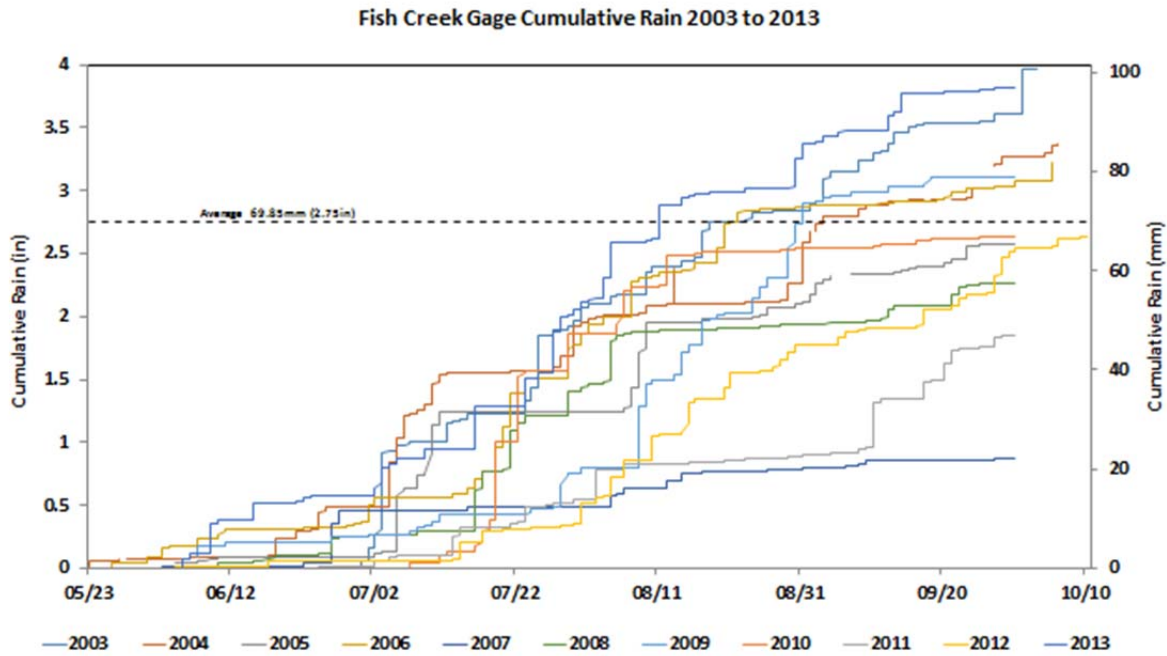


Figure 3.1 Cumulative rainfall – Fish Creek station.

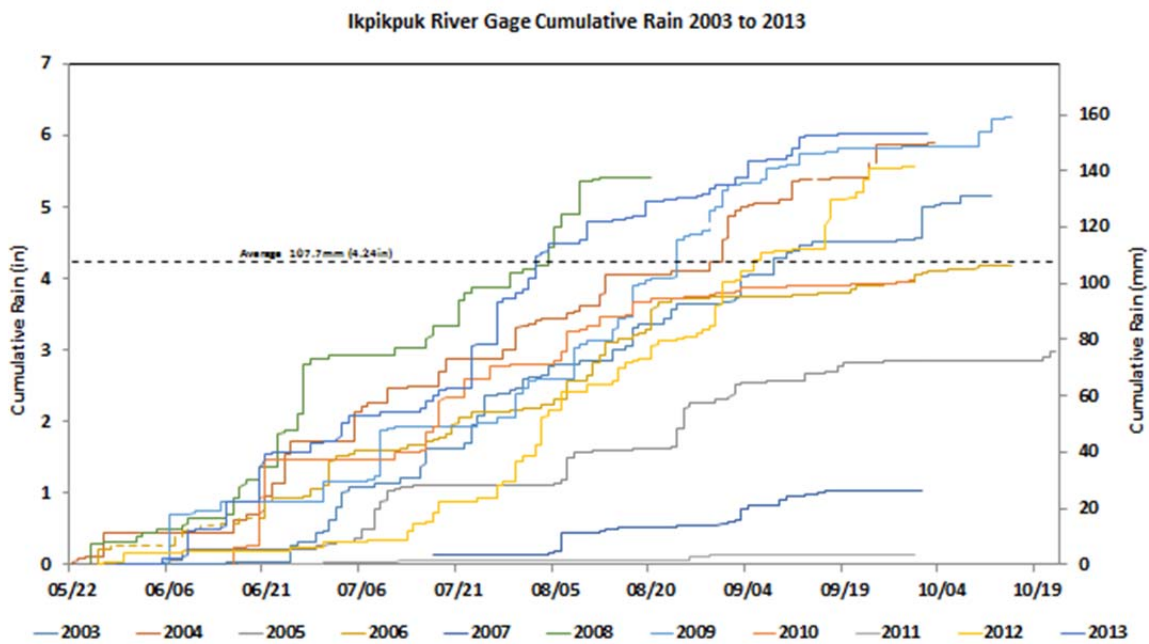


Figure 3.2 Cumulative rainfall – Ikpikuk River station.

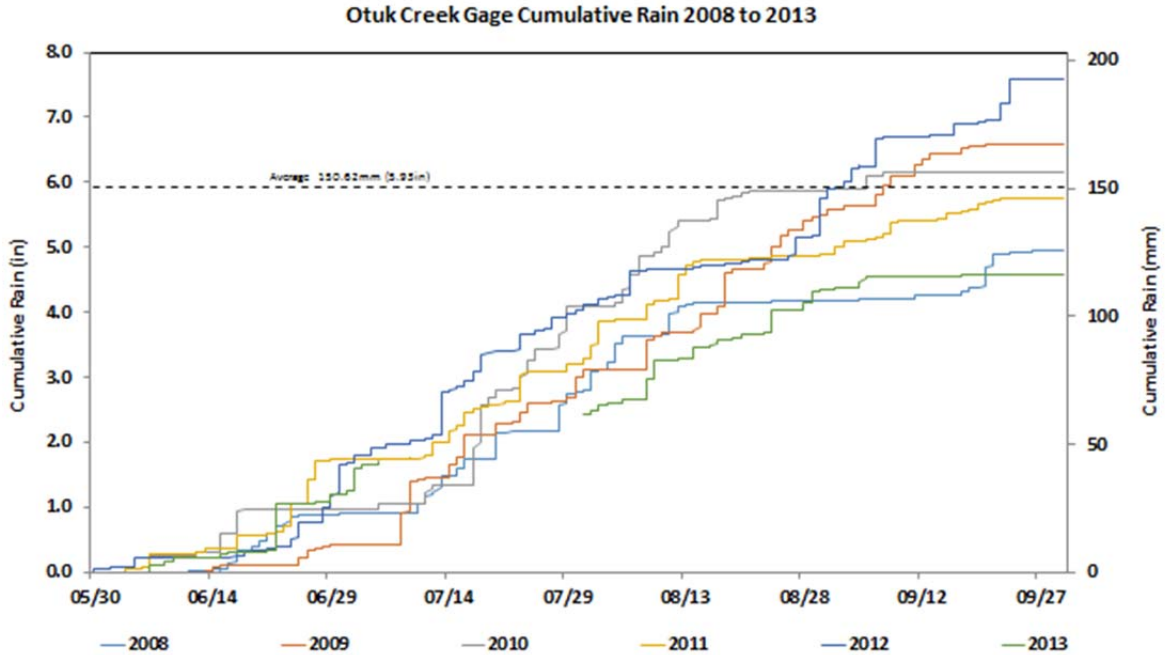


Figure 3.3 Cumulative rainfall – Otuk Creek station.

Plots depicting the cumulative monthly rainfall values for the stations are shown in Figure 3.4, Figure 3.5, and Figure 3.6. The available data indicate that at the coastal plain, July was the wettest month in 7 out of 10 years of record, followed by August (2 out of 10 years). Data from the Ikpikuk River station show that August was the wettest month in 5 out of 10 years, followed by July (3 out of 10 years). In the foothill area, July was the wettest month (4 out of 6 years), followed by June and August (1 out of 6 years, each month). Finally, the graphs in Figure 3.4 through Figure 3.6 illustrate the unusual dry conditions that were experienced over the entire area in 2007 and in 2011.

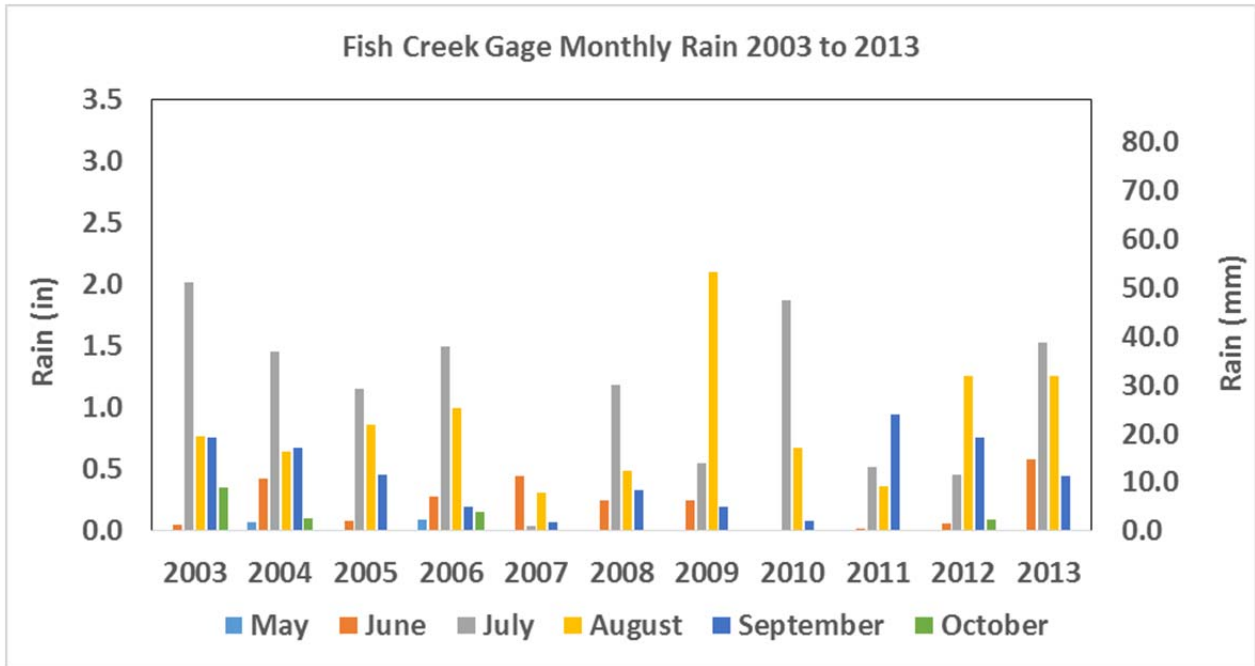


Figure 3.4 Cumulative monthly rainfall – Fish Creek station.

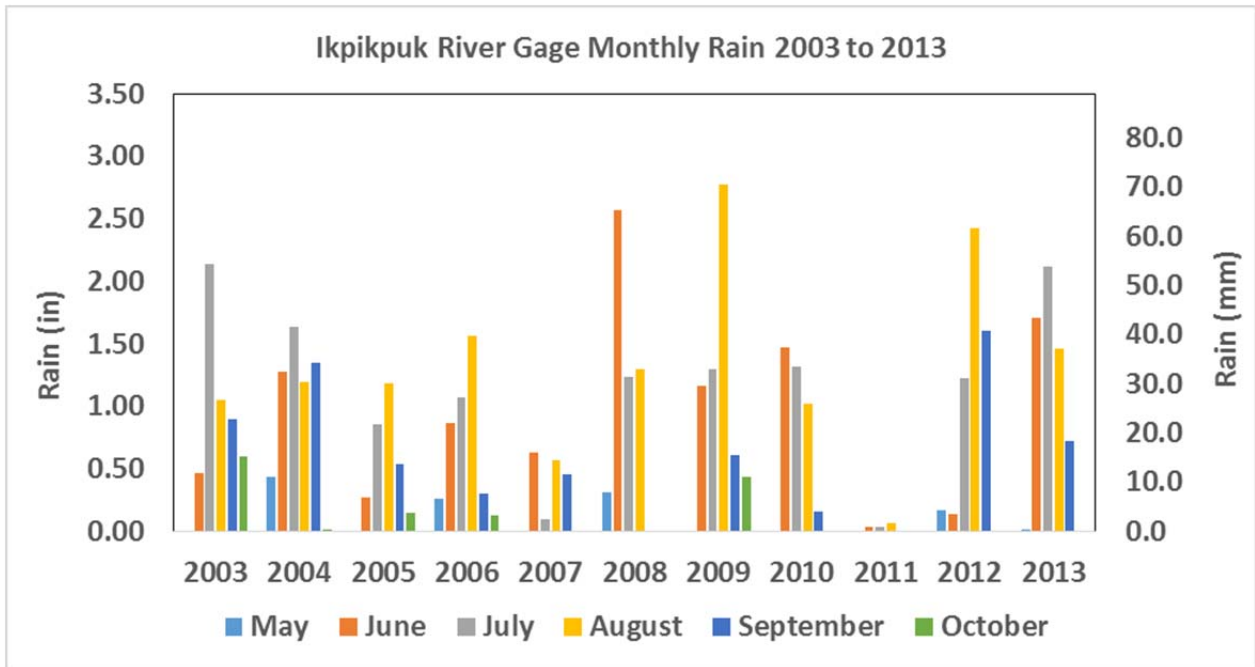


Figure 3.5 Cumulative monthly rainfall – Ikpikuk River station.

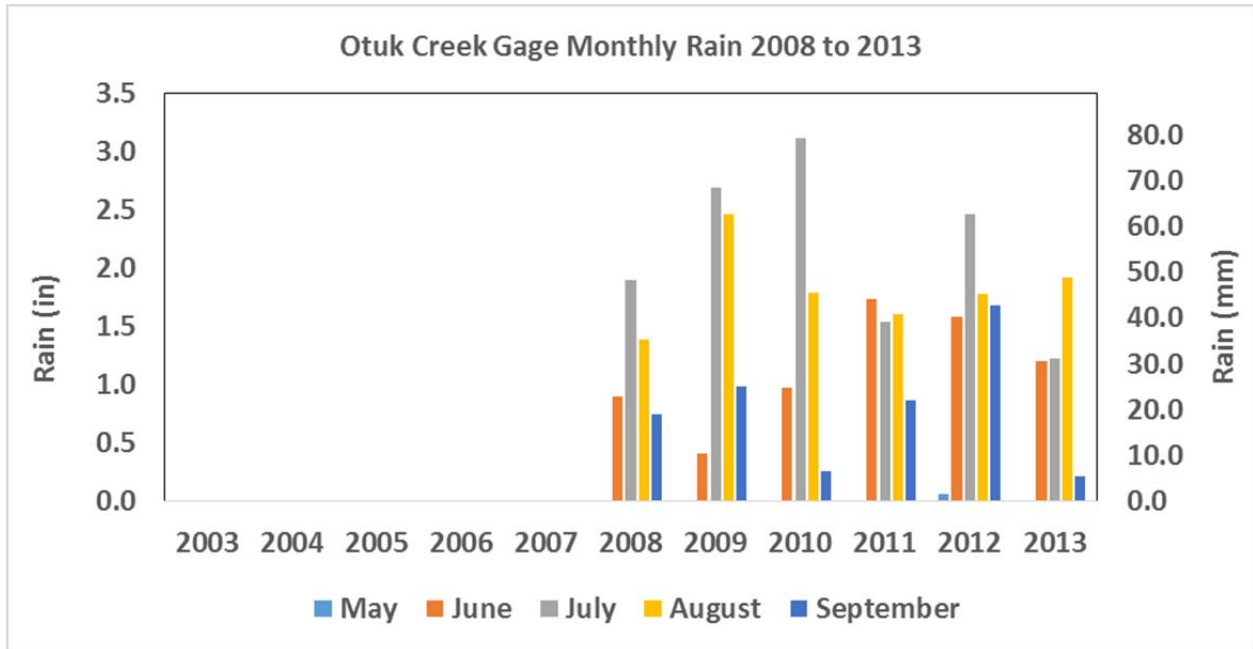


Figure 3.6 Cumulative monthly rainfall – Otuk Creek station.

3.2.2 Air Temperature

Plots describing the annual cumulative freezing degree-days (ACFDD) for the Fish Creek and Ikpikpuk River stations (Figure 3.7 and Figure 3.8) show a distinctive change in the decreasing trend (i.e., overall warmer temperatures) that was registered from 2003/04 to 2010/11. The sudden increase in ACFDD (approximately 17% and 25% for Fish Creek and the Ikpikpuk River, respectively) indicates that the last two years of record were the coldest years recorded by the stations. A linear regression during the “warm period” (i.e., 2003/04–2010/11) shows a negative trend (i.e., warming) of 38°C/year and 57°C/year for Fish Creek and the Ikpikpuk River, respectively.

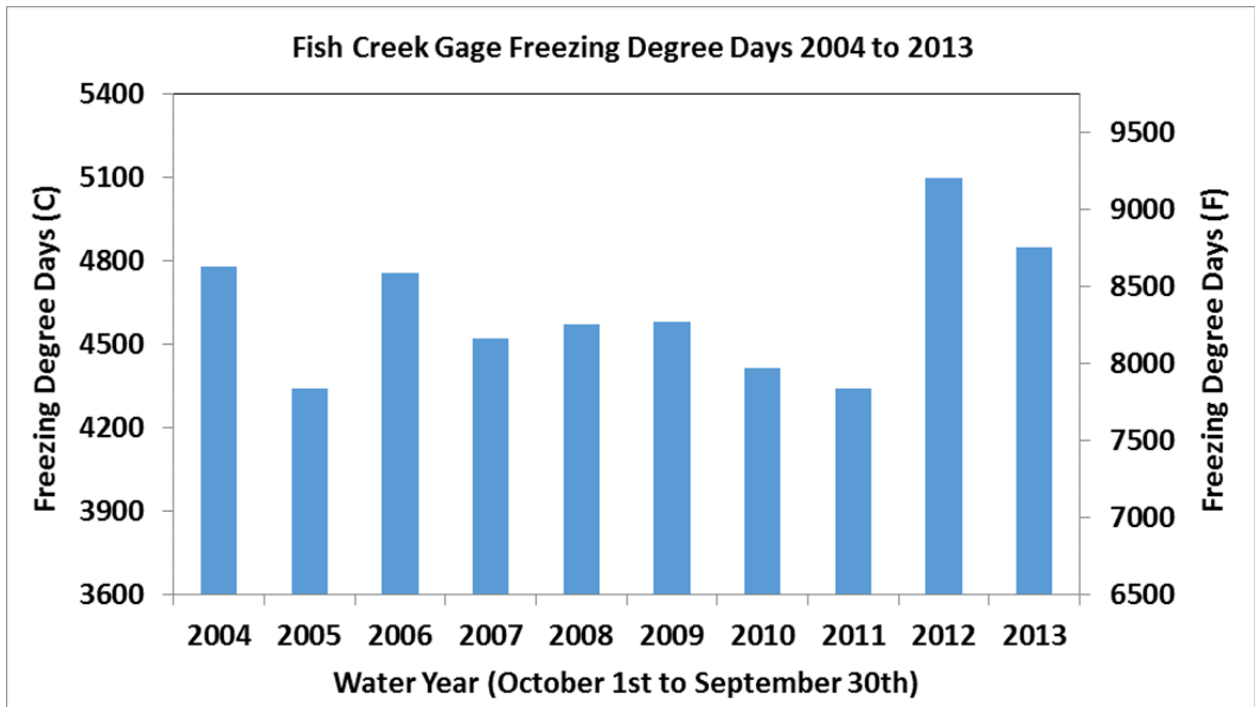


Figure 3.7 Cumulative freezing degree-days – Fish Creek station.

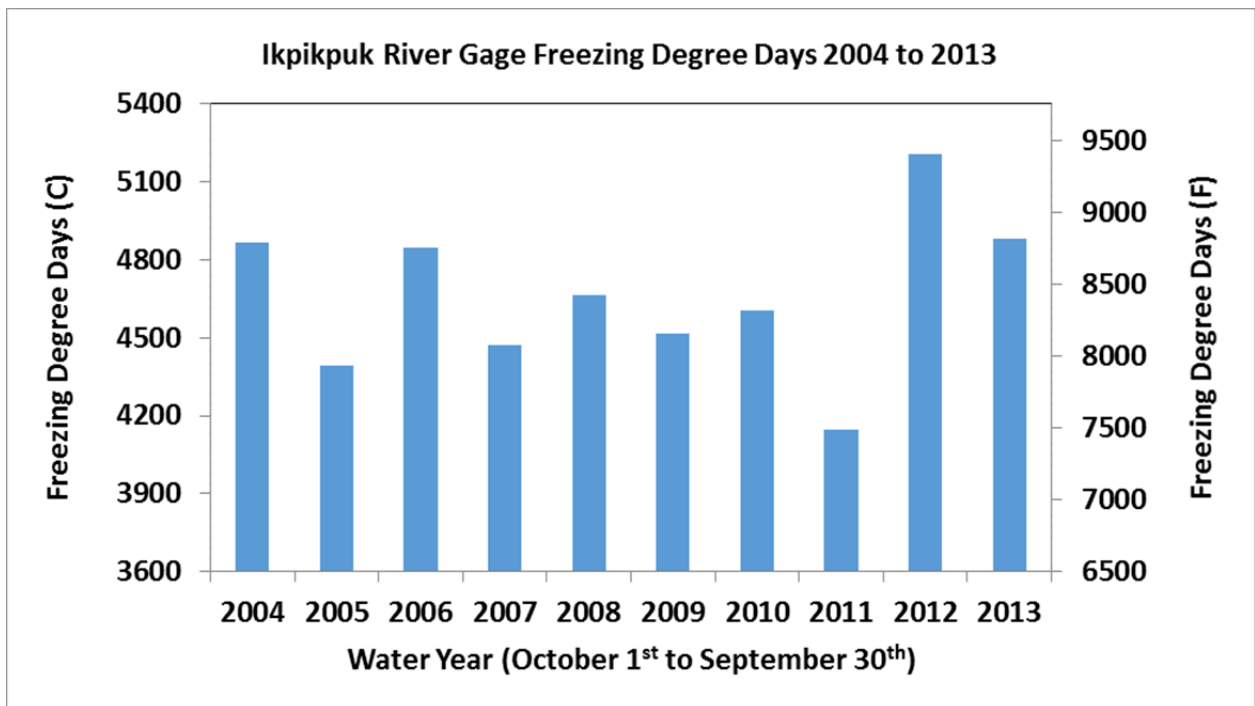


Figure 3.8 Cumulative freezing degree-days – Ikpikpuk River station.

Similarly, plots in Figure 3.9 and Figure 3.10 illustrate the ACFDD for Judy Creek and the Ublutuoch River, respectively. As expected, the graphs depict a behavior that is in agreement with data from other stations previously discussed. In other words, the plots show several years that are increasingly warmer (2005/06–2010/11), then a marked jump in ACFDD—specifically, a 20% increase in ACFDD from 2010/11 to 2011/12 in both stations. A linear regression for the period preceding the last two years of data (i.e., 2005/06–2010/11) indicates a negative trend of $66^{\circ}\text{C}/\text{year}$ and $51^{\circ}\text{C}/\text{year}$ for Judy Creek and the Ublutuoch River, respectively.

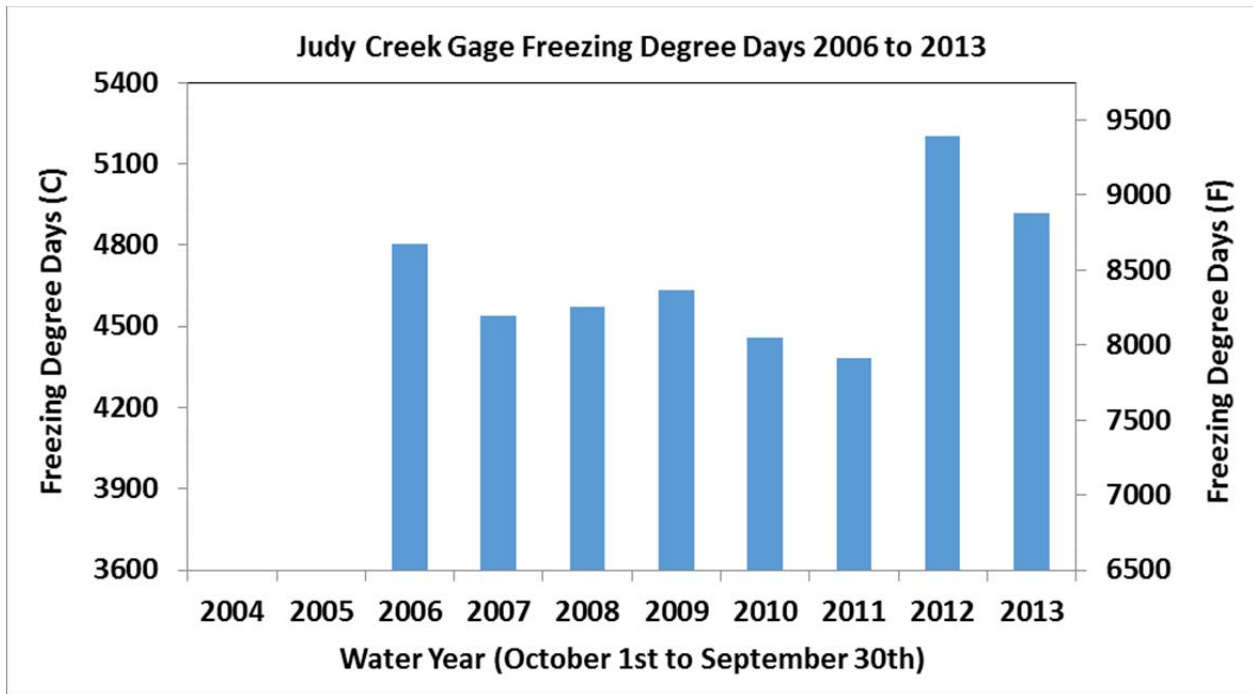


Figure 3.9 Cumulative freezing degree-days – Judy Creek station.

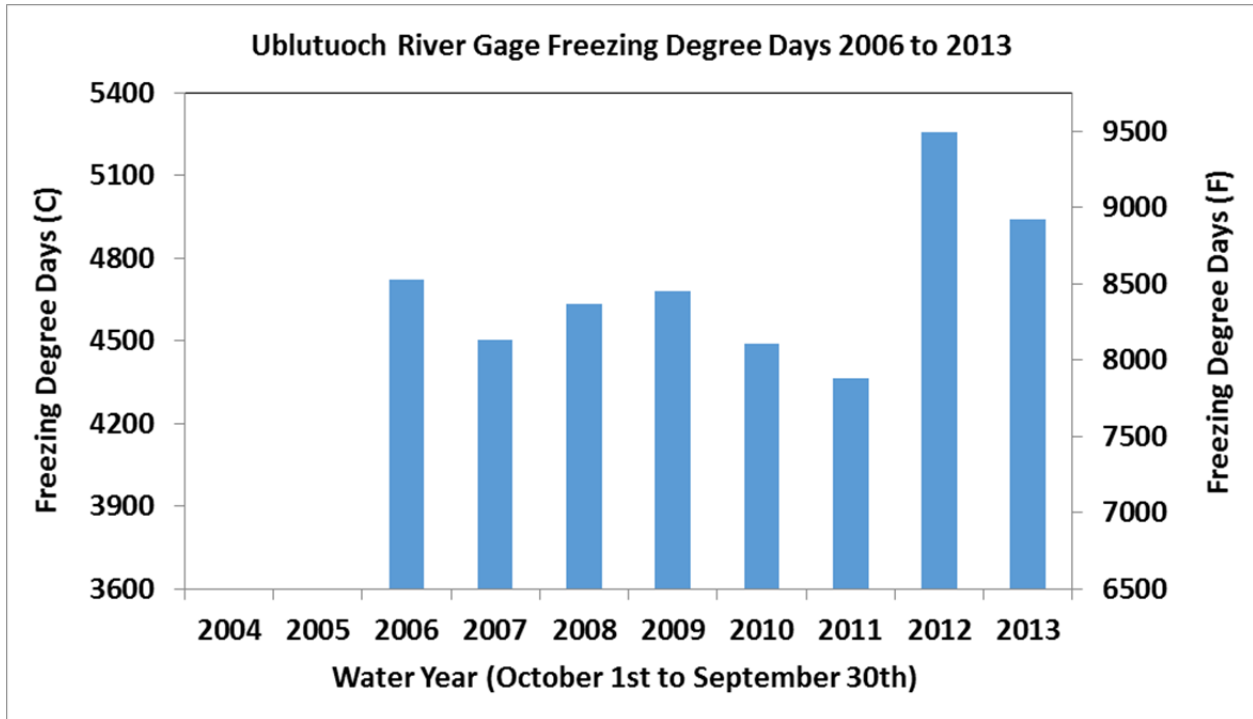


Figure 3.10 Cumulative freezing degree-days – Ublutuoch River station.

Finally, plots in Figure 3.11 and Figure 3.12 show the ACFDD for Otuk Creek and Prince Creek, respectively. Again, the plots indicate a significant increase in ACFDD corresponding to 2011/12. The increment reached 33% at Otuk Creek and 18% at Prince Creek. Because of the limited dataset available, no linear trend prior to that water year was calculated.

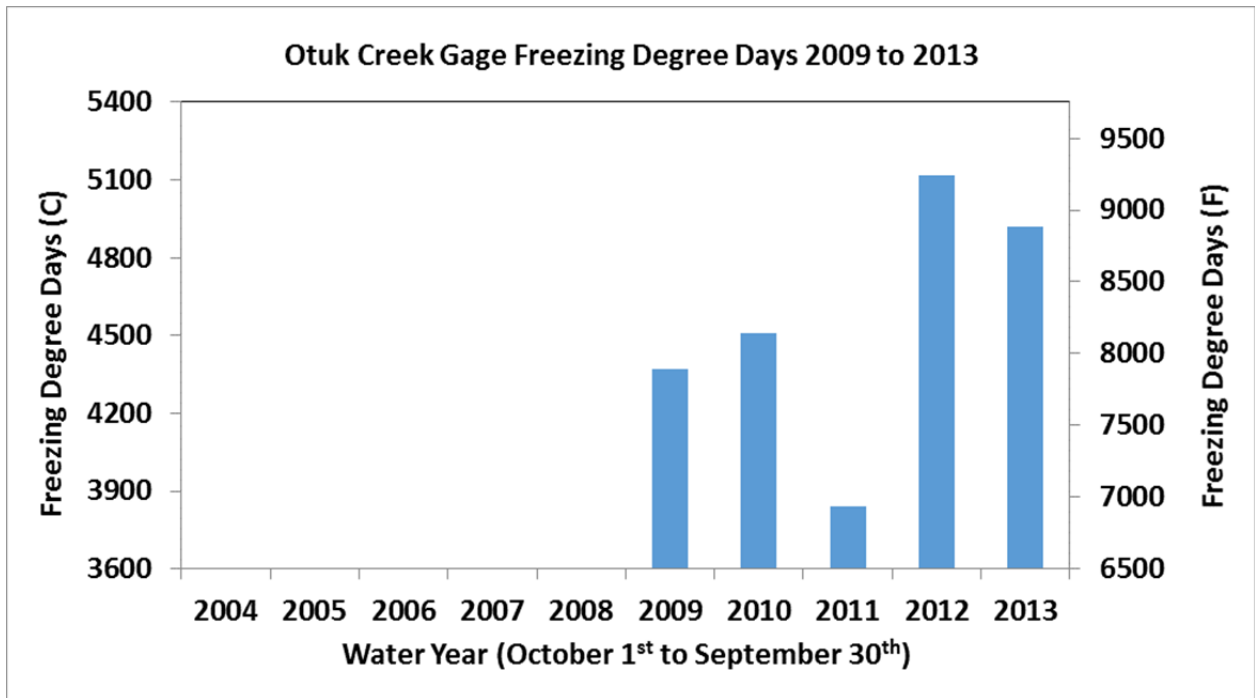


Figure 3.11 Cumulative freezing degree-days – Otuk Creek station.

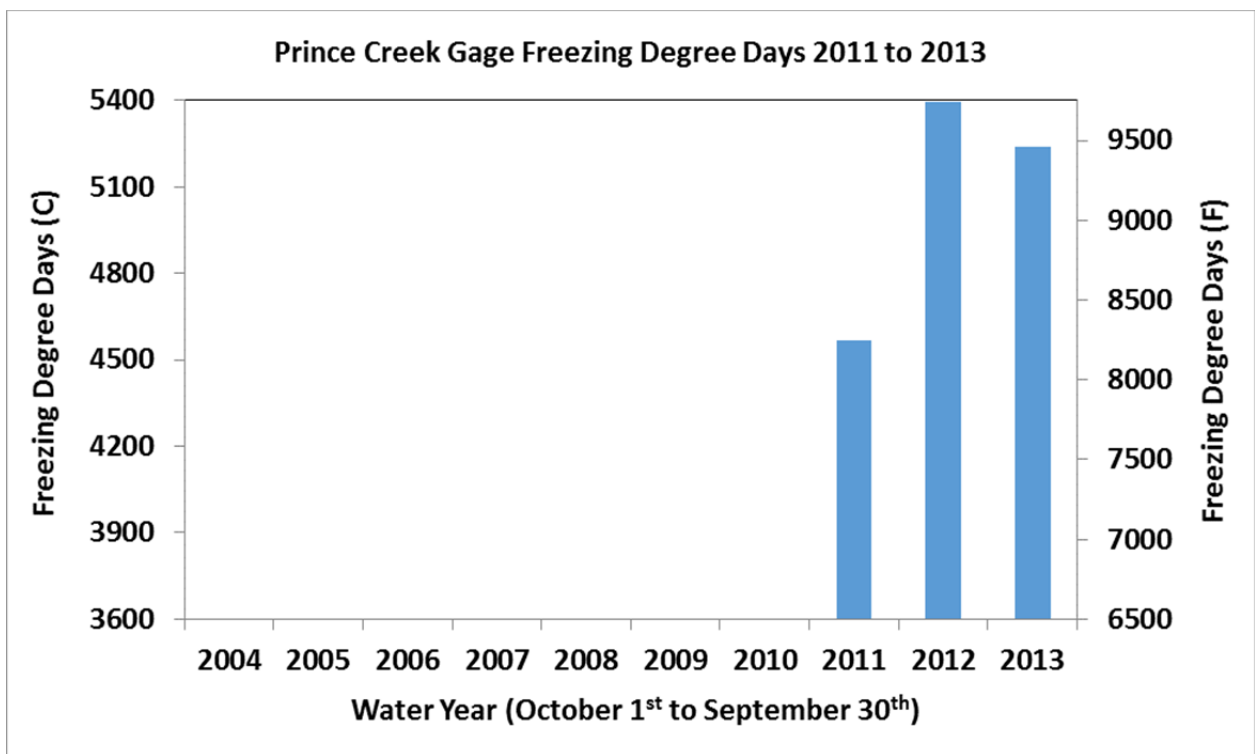


Figure 3.12 Cumulative freezing degree-days – Prince Creek station.

In addition, the air temperature was plotted on a monthly basis. While mean-maximum, mean, and mean-minimum monthly air temperatures were calculated for all stations, only mean monthly temperatures are included in Appendix B. These plots indicate a relatively high variability in a given month from year to year.

3.2.3 Wind

The overall monthly mean wind speed at Fish Creek (Table 3.2) varied between 7.4 and 9.9 miles per hour, with June having the overall highest mean wind speed and December having the lowest. This finding is consistent with that of previous studies, which have shown that while coastal sites typically have the highest mean wind speeds during the cold season, interior stations typically have the highest mean wind speeds during the warm season (Baule and Shulski 2013). Considering the ten-year averages for each month at the Ikpikpuk River (Table 3.3), June also had the highest average wind speed, while March had the lowest. More variation in wind speed occurred at the Ikpikpuk River, however, than at Fish Creek, with 4 out of 10 years having the highest average wind speeds in January or February. The monthly mean wind speeds did not show a trend over the decade of study at either site, remaining roughly steady. This finding is in contrast to a decrease in monthly mean wind speeds reported in previous studies of interior Alaska sites (Baule and Shulski 2013).

Table 3.2 Monthly mean wind speed (mph) for Fish Creek. Months left blank indicate insufficient data.

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
2004									8.3	8.0	7.1	7.7
2005	8.9	11.4	9.2	8.5	9.4	11.7	8.4	10.1	10.3	9.2	6.7	11.9
2006	7.8	5.4	6.9		8.2	8.1	8.1	7.3	7.9	8.9	7.2	6.7
2007	9.8	6.4	7.3	8.0	8.3	7.2	9.5	8.8	10.7	9.0	7.3	9.4
2008	10.1	10.1	7.8	8.9	6.8	7.4	8.9	11.8	8.2	8.3	6.8	6.8
2009	8.0	8.2	6.3	6.9	8.5	11.1	7.4	8.4	10.9	9.5	7.7	8.6
2010	8.4	7.6	7.3	7.3	12.0	8.2	8.4	12.2	12.2	8.9	9.1	7.9
2011	11.6	11.9	7.6	14.3	12.9	5.8	9.6	7.6	12.1	8.9	8.5	9.9
2012	9.5	7.5	5.8	7.4		4.5	8.7	9.3	10.2	8.2	8.8	8.7
2013	8.3	7.7	6.9	13.2	10.0	12.2	9.1	8.3	8.5	10.0	7.5	8.3
Overall	9.2	8.5	7.4	9.4	9.6	8.6	8.7	9.3	9.9	8.9	7.7	8.6

Table 3.3 Monthly mean wind speed (mph) for Ikpikpuk River. Months left blank indicate insufficient data.

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
2004									7.6	7.7	7.4	9.3
2005	11.1	9.8	10.7	10.4	8.9	8.2	7.5	10.4	11.3	9.7	7.2	10.4
2006	7.8	6.2	6.5	9.7	9.9	7.1	8.2	7.5	8.9	8.9	7.9	6.8
2007	8.3	6.4	9.0	7.5				9.8	10.4	9.0	7.2	7.4
2008	8.6	9.2	6.7	9.5	7.8	7.0	8.3	12.5	8.1	8.9	7.5	5.1
2009	10.1	8.4	9.5	9.7	9.9	9.6	7.7	9.1	11.0	9.1	8.3	9.7
2010	7.6	7.2	6.0	9.8	11.2	7.7	7.6	11.3	11.7	8.5	9.2	7.3
2011	9.8	11.1	7.9	5.8	15.2	6.1	8.7	6.7	12.5	8.4	8.1	11.0
2012	9.3	8.0	9.7	10.8	5.9	6.8	7.0	9.0	9.7	7.3	8.5	8.3
2013	9.5	7.4	7.1	11.3	9.4	8.8	9.4	9.5	9.0	9.3	7.9	9.1
Overall	9.1	8.2	8.1	9.4	9.8	7.7	8.1	9.5	10.0	8.7	7.9	8.5

While the monthly mean wind speed was usually highest during the warm-weather months at both sites, the maximum wind speed recorded each year almost always fell during the cold-weather months. At the Fish Creek station (Table 3.4) the highest recorded wind speed occurred between October 1 and April 15 (the cold season) 7 of the 9 years for which the dataset is complete (2010 and 2013 are the exceptions). At Ikpikpuk River (Table 3.5), the maximum wind speed occurred during the cold season for all nine years of complete data. This finding is consistent with that of other studies of interior stations, which reported that although the warm season typically has the highest mean wind speed, the highest wind event occurred during the cold season (Baule and Shulski 2013).

Table 3.4 Maximum wind speed (mph) recorded each month of the period of record for Fish Creek. The maximum wind speed for each year is in bold font. Months left blank indicate insufficient data.

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
2004									20.6	24.1	22.8	26.5
2005	26.5	39.1	45.6	32.2	29.8	41.2	26.1	23.7	32.2	21.7	17.3	27.8
2006	32.0	19.1	28.3		50.4	32.2	26.7	25.9	20.4	24.3	20.0	21.5
2007	46.3	24.8	31.4	39.2	31.1	33.3	35.3	24.6	30.7	21.5	22.1	26.5
2008	29.9	37.0	36.4	50.6	28.3	26.1	27.2	32.0	23.2	34.9	27.2	20.8
2009	28.3	28.3	44.9	38.1	33.5	40.6	21.5	25.7	24.3	24.8	27.4	31.2
2010	38.0	32.5	27.9	32.2	36.7	31.8	27.9	56.4	33.4	26.0	29.1	22.5
2011	38.2	64.5	22.8	33.5	67.7	22.7	28.2	23.4	29.0	24.4	22.3	27.1
2012	36.2	27.0	64.8	25.4	24.0	18.6	23.9	25.3	29.0	24.6	31.4	27.4
2013	25.0	27.3	50.1	66.2	29.2	74.8	31.1	31.1	21.2	29.0	21.0	30.3

Table 3.5 Maximum wind speed (mph) recorded each month of the period of record for the Ikpikpuk River. The maximum wind speed for each year is in bold font. Months left blank indicate insufficient data.

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
2004									26.5	22.4	25.4	41.4
2005	31.1	35.7	57.9	42.5	31.8	39.2	34.6	25.2	36.4	25.0	27.6	30.9
2006	27.4	23.0	33.8	27.2	57.2	28.3	24.3	24.1	26.7	27.6	21.3	24.1
2007	39.0	32.0	32.9	27.0				18.2	28.1	24.8	28.1	26.5
2008	38.0	43.2	45.2	54.8	27.6	24.6	31.1	33.5	22.8	27.2	19.1	14.3
2009	31.1	27.6	50.2	52.6	42.7	47.1	25.4	25.7	28.1	27.8	31.0	33.0
2010	31.8	36.6	18.7	32.6	47.1	32.3	28.3	28.5	27.1	24.6	31.4	19.2
2011	35.5	48.4	30.0	34.9	59.4	27.4	31.7	23.1	28.8	22.7	22.7	31.6
2012	39.8	29.1	43.9	31.1	21.9	25.2	19.7	23.3	26.3	27.6	26.4	29.1
2013	27.1	27.4	30.3	45.2	28.2	35.4	30.3	39.8	23.5	27.5	23.3	25.7

The likely explanation for high wind speeds during the cold season is an increased frequency and intensity of cyclones during the cold season (Zhang et al. 2004). Cyclone duration, however, is typically longer during the warm season (Zhang et al. 2004), possibly leading to an overall higher monthly mean wind speed in the warm season rather than in the cold season.

When wind speeds are further examined by occurrence in cold and warm season, the patterns discussed in Table 3.4 and Table 3.5 are again visible. At Fish Creek (Figure 3.13), we see that the cold season has fewer calm periods than the warm season, but that the warm season has a higher frequency of winds below 25 mph. The same pattern is seen at the Ikpikpuk River (Figure 3.14).

Wind roses are presented for the hydrological year in Appendix C. These wind roses show that both at Fish Creek and the Ikpikpuk River, there are two main wind directions—roughly northeast and southwest—with winds from the northeast being predominant. Wind direction for the warm (April 16–September 30) and the cold (October 1–April 15) seasons is considered separately. In the cold season, the predominant wind direction at Fish Creek is east-northeast, but clearly, a large number of wind events occur from the west-southwest during the cold season (Figure 3.15). During the warm season, very few wind events occur from the west-southwest direction, indicating that these wind events are brought on by winter storms (Evans et al. 1989).

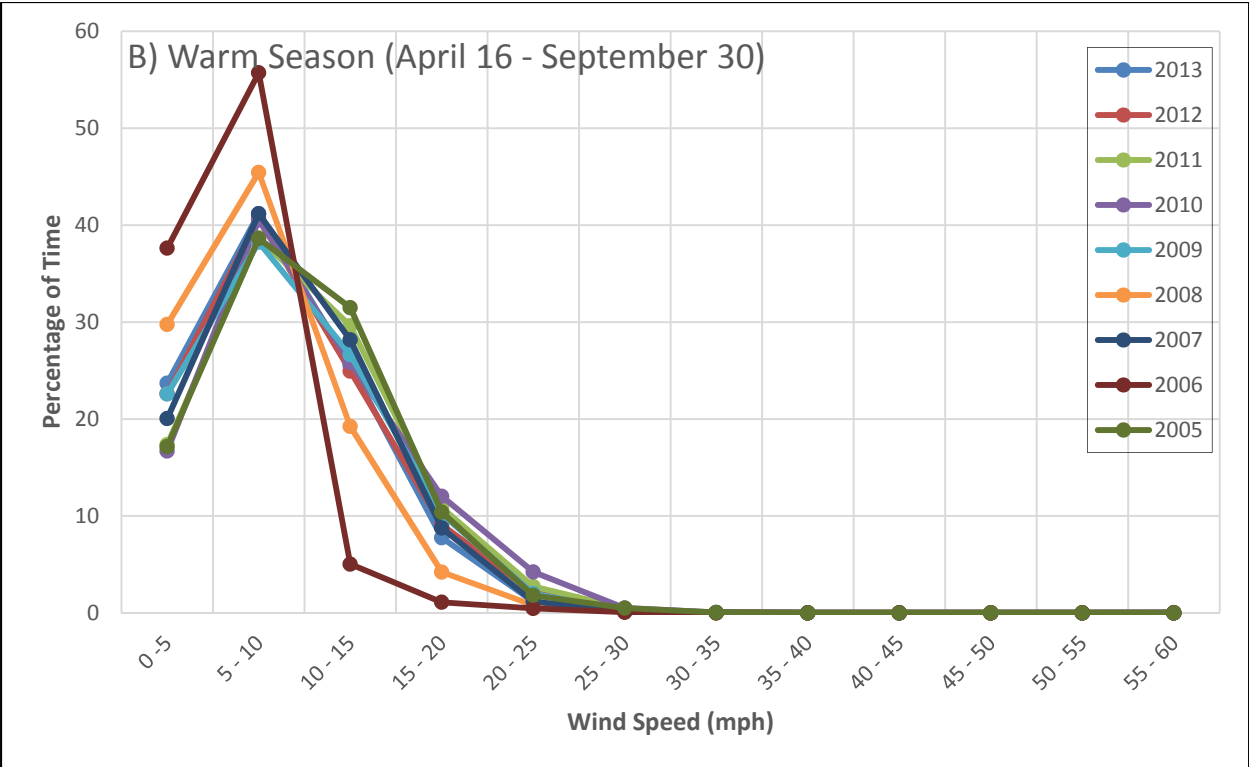
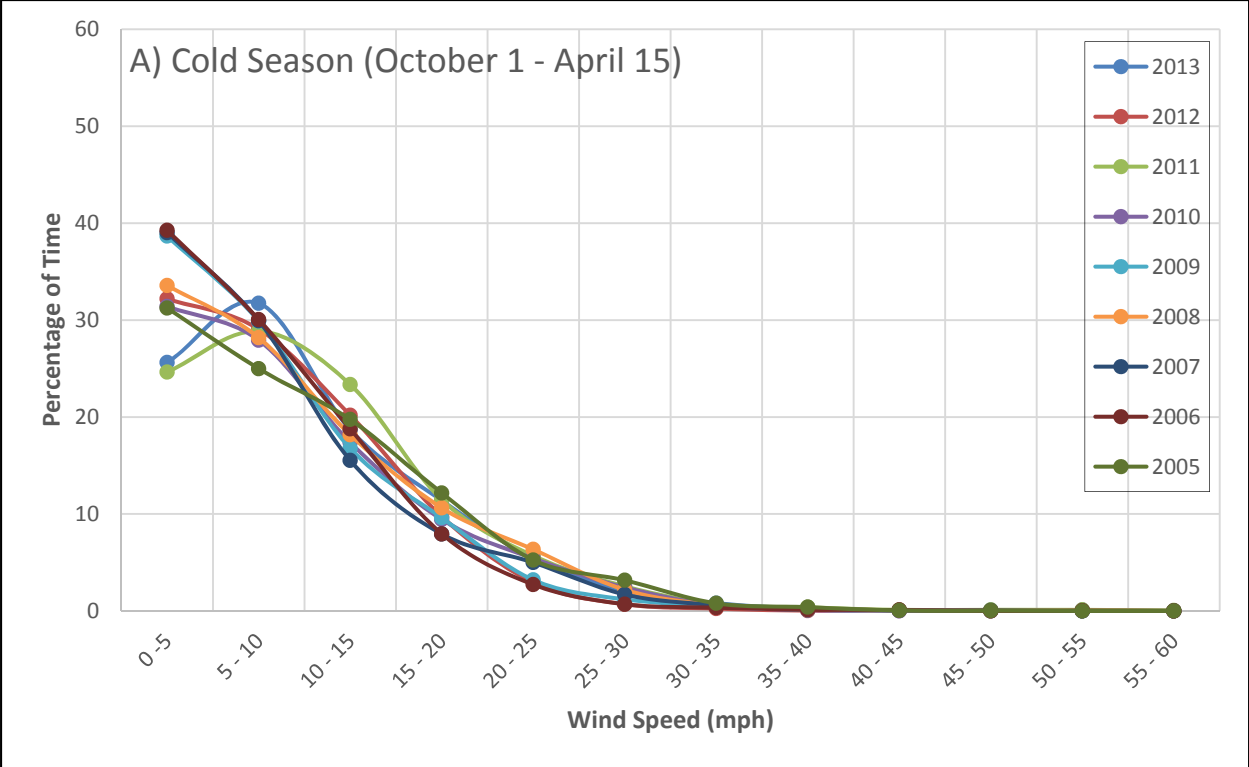


Figure 3.13 Wind speed percentages for Fish Creek cold (A) and warm (B) seasons.

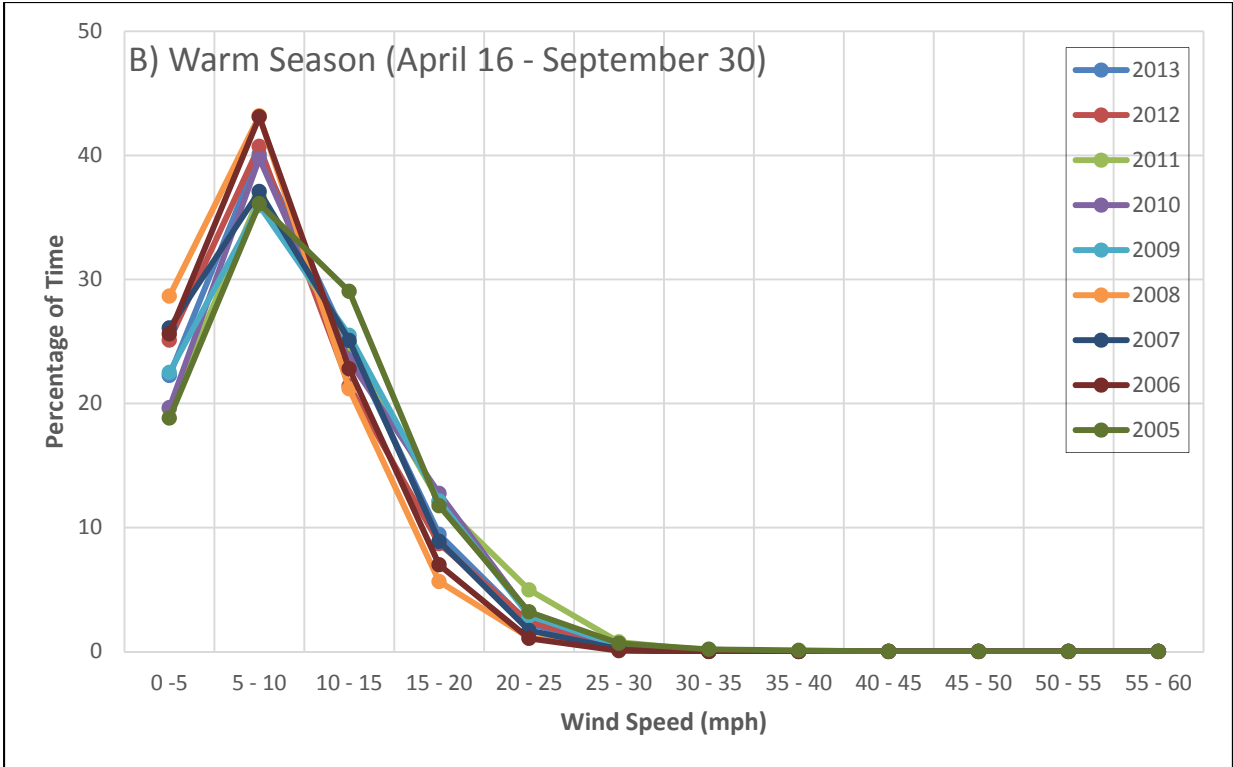
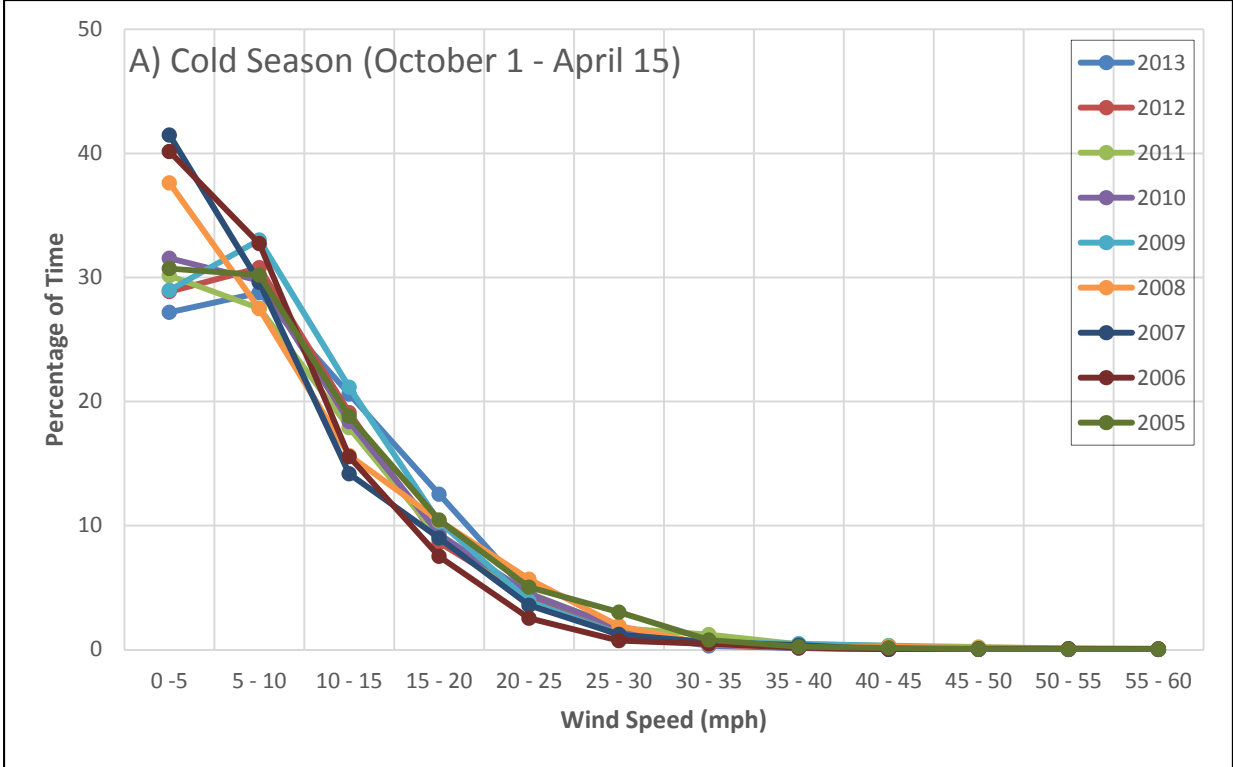


Figure 3.14 Wind speed percentages for Ikpikuk River cold (A) and warm (B) seasons.

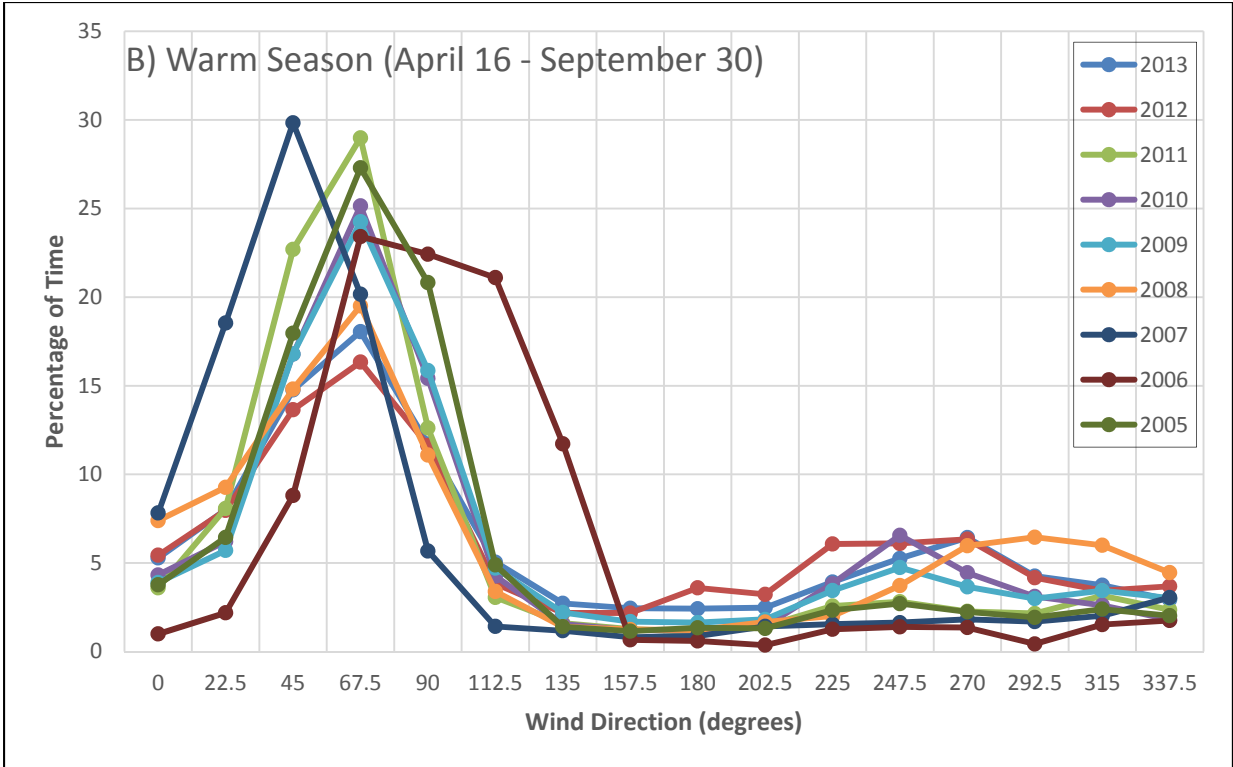
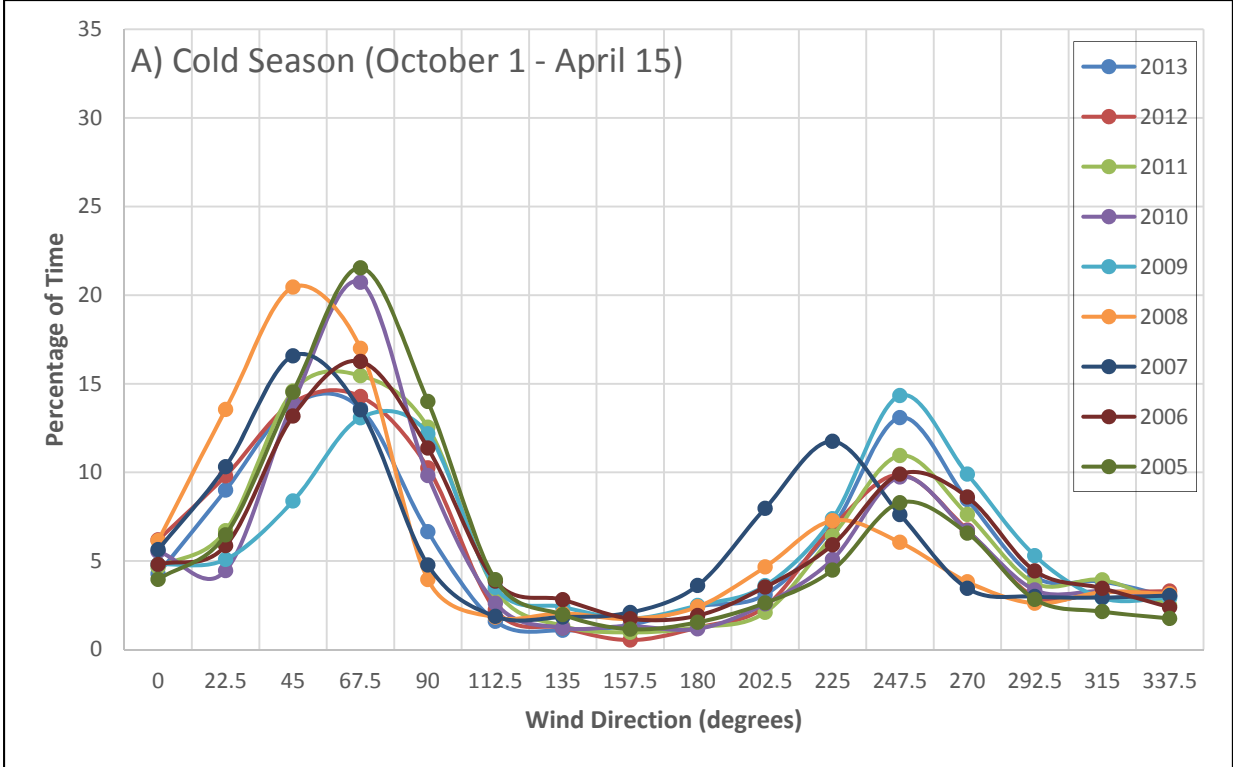


Figure 3.15 Wind direction percentage for Fish Creek: cold (A) and warm (B) seasons.

The data in Table 3.6 indicate that winds at Fish Creek occur from the northeast to east 40.9% of the cold season and 54.2% of the warm season. Winds also occur from the west to southwest 24.3% of the cold season, but only 10.7% of the warm season. At the Ikpikpuk River (Table 3.6), the wind direction shows a duality during the cold season, with winds coming from the west-southwest to south-southwest 30.6% of the time and from the northeast to east 27.2% of the time; this is especially clear in Figure 3.16. During the warm season, winds are from the northeast to east 41.7% of the time, and from the west-southwest to south-southwest 15.9% of the time. This increase in southwest winds during the warm season, in comparison with winds at Fish Creek, may be due in part to the location of the Ikpikpuk River site, which is further inland from the coast.

Table 3.6 Percentage of the time over the study period that winds occur in each direction during the cold and warm seasons.

Degree	Direction	Fish Creek		Ikpikpuk River	
		Cold Season	Warm Season	Cold Season	Warm Season
0	N	5.21	4.73	6.50	7.75
22.5	NNE	8.08	8.07	5.53	8.59
45.0	NE	14.67	17.39	10.32	15.25
67.5	ENE	16.49	22.63	11.23	17.44
90.0	E	9.70	14.17	5.61	8.98
112.5	ESE	2.82	5.76	2.54	3.55
135.0	SE	1.81	2.89	2.17	2.40
157.5	SSE	1.44	1.41	2.72	2.43
180.0	S	2.05	1.55	4.75	3.26
202.5	SSW	3.69	1.68	7.85	4.07
225.0	SW	7.04	3.00	14.51	6.24
247.5	WSW	10.19	3.89	8.20	5.59
270.0	W	7.02	3.84	6.25	4.44
292.5	WNW	3.67	3.03	2.89	2.47
315.0	NW	3.29	3.16	3.43	3.08
337.5	NNW	2.84	2.79	5.51	4.46

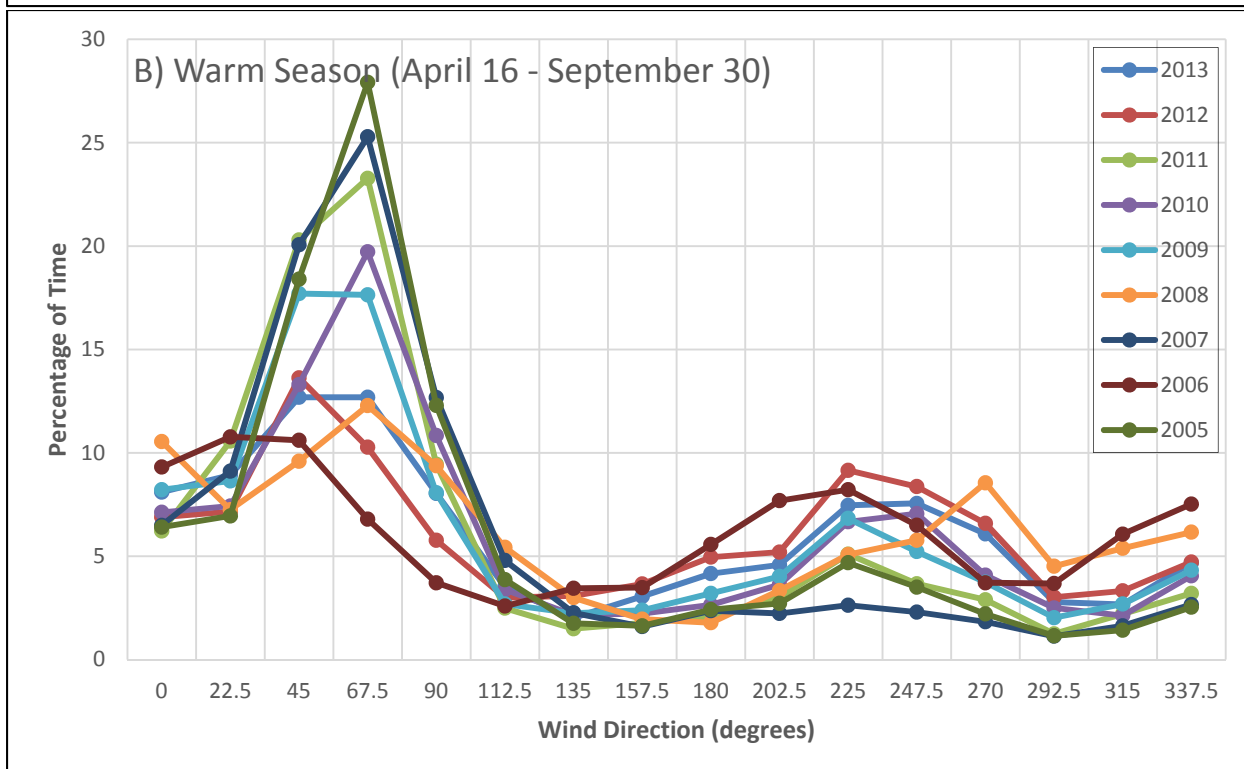
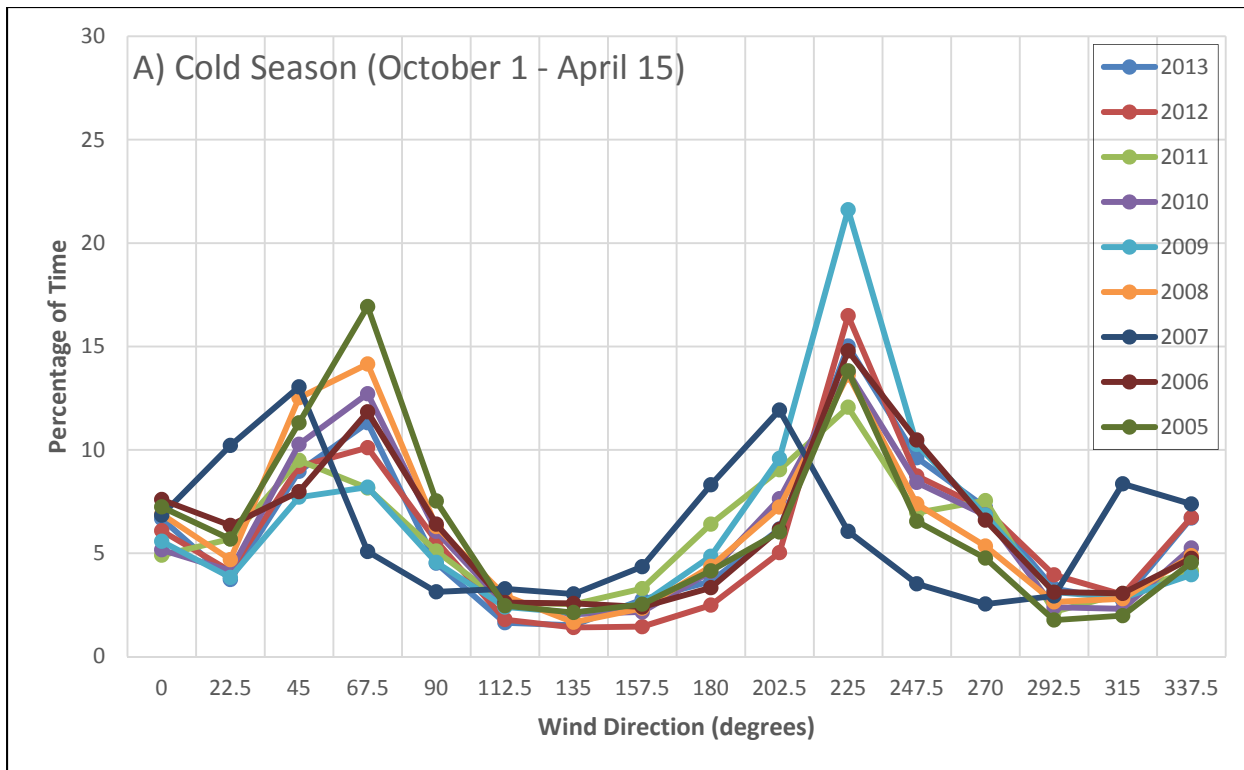


Figure 3.16 Wind direction percentages for the Ikipuk River: cold (A) and warm (B) seasons.

CHAPTER 4 INFORMATION TECHNOLOGY

4.1 Aquatic Informatics Aquarius Software

We used an Aquatic Informatics Aquarius Server at the UAF Institute of Northern Engineering to provide a standardized and efficient method to generate rating curves for the various gaging sites, and we maintained the ability for both UAF and non-UAF personnel to access the Aquarius software remotely. In addition, we maintained an installation of Aquarius Workstation on a fieldwork laptop. As part of the ongoing support and maintenance agreement with Aquatic Informatics, we regularly received and installed Aquarius Server software updates.

4.2 Telemetry Data Retrieval

At the beginning of the project, we used an HTML method that had been developed in-house to retrieve station data via GOES-based telemetry. Our original method of data retrieval became susceptible to changes at the data source web page, which interrupted data retrieval. We ultimately changed the data retrieval process to take advantage of the Sutron DCS Toolkit commercial software, which allowed us to retrieve GOES DCP messages directly from NOAA's data portal server.

The DCS Toolkit-based retrieval method eliminated all errors introduced by the HTML-based retrieval method. Since Sutron DCS Toolkit is the de facto standard tool for GOES message retrieval, we significantly increased data-retrieval continuity by retiring the previous data retrieval solution, which relied on the knowledge and availability of specific INE personnel.

With the addition of the Seabee Creek station in 2013, we introduced another telemetry and data retrieval method via a FreeWave radio link and a Campbell Scientific LoggerNet Server. The Seabee Creek data are retrieved directly from the site via Umiat Camp and sent to UAF. Due to excellent collaboration between the Seabee Creek field team and the Fairbanks-based IT group, we were able to report near-real-time data on the Internet within twelve hours of deploying the station to the field.

4.3 Near-Real-Time Data Delivery Online

As part of the project's outreach effort and to assist with near-real-time monitoring of current conditions at remote sites, we created a project web page at <http://ine.uaf.edu/werc/projects/npra-hydrology>.

Besides providing contact information and a project overview, the project web page contains near-real-time data graphs for each station, where each station's sensor values are shown in a separate graph. An example of the Seabee Creek stage graph is shown in Figure 4.1.



Figure 4.1 Seabee Creek near-real-time web-based stage graph.

Sensor data were provided to the web server using a Microsoft SQL Server and an ODM-based database. The database was populated from the near-real-time data supplied by the Sutron and Campbell Scientific-based data acquisition systems described earlier in the report.

For each project station, the following sensor values were reported on the station web pages: stage, air temperature, water temperature, wind speed, wind direction, and precipitation. Not all stations were equipped with every sensor.

To reduce the data, volume transmitted to the end-user viewing the near-real-time graph reporting period was limited to the current water year. This change was especially beneficial to users who were viewing the data on mobile devices or over a satellite Internet connection.

We enhanced the presentation of data plots to mobile device users such that the most current data can now more easily be viewed on mobile devices that have limited screen resolution.

4.4 Information Technology Infrastructure

For this project, we used a variety of software and hardware resources. Except for the database and web servers, which are shared INE resources, each project component was deployed on a dedicated virtual server. Dedicated servers were deployed for Aquarius Server, LoggerNet Server, and Sutron DCS Toolkit. We developed functionality by which the database server would poll the data acquisition servers for data every hour and append new data to the existing database. Likewise, we developed functionality by which the web server would poll the database server for the most recent data to display the data via the near-real-time data plots.

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Appendices

Appendix A – Summary of Discharge Measurement Forms

Appendix B – Mean Monthly Temperatures

Appendix C – Wind Roses

Appendix A

Summary of Discharge Measurement Forms

Fish Creek

Ikpikpuk River

Judy Creek

Otuk Creek

Prince Creek

Seabee Creek

Ublutuock River

Summary of Discharge Measurement Forms

Fish Creek, Alaska

Party: DB/BL	Width: 309 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,790 ft ²	Mean Velocity: 1.89 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 3,390 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.469 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.04
BT Error Vel.: 32.81 ft/s	Bin Size: 13 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 3.91 ft/s	
Max. Depth: 8.85 ft	
Mean Depth: 5.81 ft	
% Meas.: 70.83	
Water Temp.: None	
ADCP Temp.: 37.4 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 100' US of gage

Project Name: fish20100608000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	L	4	4	269	585	2461	446	6.04	3.85	3502	340	1979	16:57	17:02	1.35	1.77	15	0
001	R	4	4	255	557	2440	413	6.11	3.11	3419	312	1830	17:02	17:06	1.26	1.87	11	0
002	L	4	4	273	567	2398	430	6.46	3.46	3405	305	1758	17:06	17:11	1.17	1.94	7	0
003	R	4	4	288	536	2277	386	2.33	3.14	3205	304	1770	17:11	17:16	1.09	1.81	24	0
004	L	4	4	253	552	2371	404	5.51	3.50	3336	304	1775	17:17	17:21	1.22	1.88	17	0
005	R	4	4	266	576	2437	419	4.98	3.00	3440	286	1654	17:25	17:30	1.12	2.08	19	0
Mean		4	4	267	562	2397	416	5.24	3.34	3385	309	1794	Total	00:32	1.20	1.89	16	0
SDev		0	0	13	17.7	67.2	20.7	1.52	0.318	103	17.8	107.2			0.10	0.11		
SD/M		0.00	0.00	0.05	0.03	0.03	0.05	0.29	0.10	0.03	0.06	0.06			0.08	0.06		

Remarks: Q 3385cfs using BT with 3% error

Party: DB/BL	Width: 206 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,370 ft ²	Mean Velocity: 2.20 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 2,990 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.459 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: _____ Firmware: 31.04
BT Error Vel.: 0.33 ft/s	Bin Size: 13 cm Blank: 3 cm
WT Error Vel.: 0.40 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 3.71 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
	Max. Vel.: 3.71 ft/s
	Max. Depth: 8.25 ft
	Mean Depth: 6.64 ft
	% Meas.: 68.05
	Water Temp.: None
	ADCP Temp.: 48.1 °F

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: not sure

Project Name: fish20100610000r.mmt
Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	L	10	10	129	403	2024	478	29.8	47.2	2982	229	1554	17:09	17:11	1.76	1.92	13	11
001	R	10	10	117	430	2052	461	46.8	39.3	3029	203	1337	17:11	17:13	1.66	2.27	3	8
002	L	10	10	119	422	2063	447	41.7	33.6	3006	195	1288	17:13	17:15	1.57	2.33	8	11
003	R	10	10	116	414	1991	451	41.9	32.4	2929	197	1290	17:17	17:19	1.67	2.27	3	7
Mean		10	10	120	417	2032	459	40.0	38.1	2987	206	1367	Total	00:10	1.67	2.20	7	9
SDev		0	0	6	11.6	32.3	13.8	7.22	6.75	43.0	15.7	126.8			0.08	0.19		
SD/M		0.00	0.00	0.05	0.03	0.02	0.03	0.18	0.18	0.01	0.08	0.09			0.05	0.09		

Remarks: Q 2987cfs using BT with 1% error

Party: DB/BL	Width: 247 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,340 ft ²	Mean Velocity: 2.10 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 2,820 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.459 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.04
BT Error Vel.: 32.81 ft/s	Bin Size: 11 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 9.48 ft/s	
Max. Depth: 7.80 ft	
Mean Depth: 5.43 ft	
% Meas.: 71.76	
Water Temp.: None	
ADCP Temp.: 44.9 °F	

Performed Diag. Test: NO

Project Name: prince20100612000r.mmt

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: NO Evaluation: NO

Meas. Location: no sure

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
001	R	10	10	142	487	2194	363	37.2	14.8	3096	258	1393	14:49	14:52	1.92	2.22	4	0
003	R	10	10	100	425	1902	318	60.1	28.1	2734	239	1288	14:54	14:56	2.41	2.12	9	0
005	L	5	5	96	376	1758	278	22.8	-6.14	2430	247	1338	14:58	14:59	2.80	1.81	22	0
006	R	5	5	112	462	2085	331	14.4	-2.51	2890	254	1382	15:00	15:01	2.40	2.09	11	0
007	L	5	5	104	472	2119	320	-15.5	-6.82	2888	239	1305	15:02	15:03	2.42	2.21	13	0
008	R	5	5	114	490	2250	352	12.6	7.42	3112	256	1422	15:04	15:06	2.31	2.19	10	0
009	L	5	5	103	383	1690	287	-10.4	4.17	2354	235	1227	15:06	15:08	2.52	1.92	18	0
010	R	5	5	107	491	2211	366	11.4	3.92	3083	250	1375	15:08	15:10	2.41	2.24	6	0
Mean		6	6	109	448	2026	327	16.6	5.37	2823	247	1341	Total	00:20	2.40	2.10	12	0
SDev		2	2	14	47.3	215	33.0	24.4	11.7	297	8.7	64.6			0.24	0.16		
SD/M		0.37	0.37	0.13	0.11	0.11	0.10	1.47	2.18	0.11	0.04	0.05			0.10	0.07		

Remarks: Q 2823cfs using BT with 11% error

Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: Kemnitz/Vas	Width: 177 ft	Processed by: Dragos Vas
Boat/Motor: kayak	Area: 445 ft ²	Mean Velocity: 1.45 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 648 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: F
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: 4-Clear	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.04
BT Error Vel.: 0.33 ft/s	Bin Size: 7 cm* Blank: 3 cm
WT Error Vel.: 0.50 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 3.50 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
	Max. Vel.: 3.39 ft/s
	Max. Depth: 4.74 ft
	Mean Depth: 2.51 ft
	% Meas.: 47.29
	Water Temp.: None
	ADCP Temp.: 53.1 °F

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage
 Project Name: fish20100706000rvas.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	2	6	161	220	301	122	1.20	-5.62	639	180	457	16:30	16:32	1.13	1.40	2	22
001	R	2	6	154	219	304	109	1.73	-6.04	627	173	428	16:33	16:36	1.17	1.46	1	25
002	L	3	3	145	213	302	121	2.30	2.93	642	177	448	16:42	16:44	1.23	1.43	1	20
003	R	3	3	134	221	308	122	2.37	2.72	656	177	441	16:45	16:47	1.36	1.49	2	20
004	L	3	3	120	215	309	136	2.68	2.65	665	175	447	16:48	16:50	1.46	1.49	2	18
005	R	3	3	137	221	314	117	1.91	3.35	657	180	451	16:51	16:53	1.35	1.46	2	16
Mean		3	4	141	218	306	121	2.03	0.000	648	177	445	Total	00:23	1.28	1.45	2	20
SDev		1	2	15	3.18	4.80	8.79	0.530	4.52	14.2	2.6	10.0			0.13	0.04		
SD/M		0.19	0.39	0.10	0.01	0.02	0.07	0.26	5536387	100.0217640	0.01	0.02			0.10	0.02		

Remarks: Q 648cfs using BT with 2% error

* - value not consistent for all transects

Party: Kemnitz/Vas	Width: 80.9 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 176 ft ²	Mean Velocity: 1.32 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 233 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: 4-Clear	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: _____ Firmware: 31.04
BT Error Vel.: 0.33 ft/s	Bin Size: 6 cm Blank: 3 cm
WT Error Vel.: 1.10 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 3.00 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 2.98 ft/s	
Max. Depth: 3.22 ft	
Mean Depth: 2.18 ft	
% Meas.: 60.68	
Water Temp.: None	
ADCP Temp.: 48.0 °F	

Performed Diag. Test: NO Project Name: fish20100830dv.mmt
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
001	L	3	10	94	52.8	143	34.4	2.86	4.84	238	79	173	18:17	18:19	0.73	1.37	2	1
002	R	3	10	90	49.9	139	32.3	1.66	5.65	229	81	180	18:19	18:21	0.78	1.27	0	1
003	L	3	10	90	50.1	139	31.0	2.54	4.48	227	81	175	18:21	18:23	0.79	1.30	2	0
004	R	3	10	86	53.2	143	34.1	1.20	4.59	236	82	177	18:23	18:25	0.83	1.33	2	1
Mean		3	10	90	51.5	141	33.0	2.07	4.89	233	81	176	Total	00:07	0.78	1.32	2	1
SDev		0	0	3	1.74	2.25	1.58	0.769	0.527	5.32	1.3	2.8			0.04	0.04		
SD/M		0.00	0.00	0.04	0.03	0.02	0.05	0.37	0.11	0.02	0.02	0.02			0.05	0.03		

Remarks: Q 233cfs using BT with 2% error

Party: DB/DAV	Width: 200 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,230 ft ²	Mean Velocity: 2.22 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 2,060 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: NO	Max. Vel.: 4.83 ft/s	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Max. Depth: 14.0 ft	Serial #: _____ Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Mean Depth: 6.31 ft	Bin Size: 11 cm Blank: 3 cm
WT Error Vel.: 0.50 ft/s	% Meas.: 75.32	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	Water Temp.: None	WT Mode: 12 WT Pings: 6
WT Up Vel.: 4.90 ft/s	ADCP Temp.: 32.9 °F	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO		

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 300' US of gage

Project Name: fish20110602000 q2059cfs.mmm
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
001	R	3	10	196	274	1506	230	1.09	2.22	2013	265	1624	18:27	18:31	1.08	1.24	20	4
002	L	3	10	204	296	1673	238	0.459	-3.46	2204	203	1246	18:37	18:41	1.07	1.77	17	3
003	R	3	10	178	270	1539	229	1.02	3.74	2043	271	1627	18:42	18:46	1.25	1.26	24	2
004	L	3	10	179	268	1486	222	1.17	-1.13	1976	61	427	18:46	18:50	1.17	4.63	18	4
Mean		3	10	189	277	1551	230	0.936	0.344	2059	200	1231	Total	00:23	1.14	2.22	20	3
SDev		0	0	13	13.0	84.4	6.37	0.323	3.25	101	97.5	565.2			0.09	1.62		
SD/M		0.00	0.00	0.07	0.05	0.05	0.03	0.35	9.45	0.05	0.49	0.46			0.08	0.73		

Remarks: Q 2059cfs using BT with 5% error

Station Number:

Meas. No:

Station Name: Fish Creek

Date: 06/05/2011

Party: DB/DAV	Width: 266 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,170 ft ²	Mean Velocity: 1.72 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 2,000 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 32.81 ft/s	Bin Size: 15 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 3.27 ft/s	
Max. Depth: 8.46 ft	
Mean Depth: 4.39 ft	
% Meas.: 63.95	
Water Temp.: None	
ADCP Temp.: 33.6 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage

Project Name: fish20110605000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	4	8	179	381	1235	314	5.65	13.2	1950	287	1292	17:42	17:45	1.28	1.51	16	0
001	R	4	8	233	373	1148	303	3.67	-12.3	1815	233	991	17:46	17:51	0.92	1.83	13	0
002	L	4	8	214	392	1315	306	2.97	10.6	2027	286	1291	17:51	17:56	1.09	1.57	15	0
003	R	4	8	203	411	1293	328	4.31	11.7	2048	269	1147	17:56	18:01	1.19	1.79	12	0
004	L	4	8	182	413	1430	328	-3.00	11.3	2179	273	1234	18:01	18:05	1.20	1.77	16	0
005	R	4	8	185	389	1253	326	3.99	9.08	1981	250	1079	18:06	18:10	1.25	1.84	13	0
Mean		4	8	199	393	1279	317	2.93	7.26	2000	266	1172	Total	00:28	1.16	1.72	14	0
SDev		0	0	21	16.1	93.8	11.3	3.04	9.67	120	21.1	122.1			0.13	0.14		
SD/M		0.00	0.00	0.11	0.04	0.07	0.04	1.04	1.33	0.06	0.08	0.10			0.11	0.08		

Remarks: Q 2000cfs using BT with 6% error, no GPS

Discharge for transects in *italics* have a total Q more than 5% from the mean

Station Number:

Meas. No:

Station Name: Fish Creek

Date: 06/07/2011

Party: DB / DAV	Width: 216 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,310 ft ²	Mean Velocity: 1.86 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 2,440 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Bin Size: 15 cm Blank: 3 cm
WT Error Vel.: 0.50 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 4.20 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 4.14 ft/s	
Max. Depth: 10.8 ft	
Mean Depth: 6.08 ft	
% Meas.: 71.47	
Water Temp.: None	
ADCP Temp.: 35.2 °F	

Performed Diag. Test: NO

Project Name: fish20110607000 2443cfs.mmt

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: NO Evaluation: NO

Meas. Location: 300' US of gage

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	L	4	4	152	326	1692	298	7.59	5.37	2329	192	1224	15:49	15:53	1.16	1.90	14	5
001	R	4	4	169	346	1682	317	1.73	10.2	2356	211	1263	15:53	15:57	1.09	1.87	14	4
002	L	4	4	173	367	1810	352	3.00	7.88	2540	230	1388	15:57	16:01	1.16	1.83	21	2
003	R	4	4	189	377	1799	364	2.01	4.24	2547	232	1375	16:02	16:06	1.05	1.85	19	2
Mean		4	4	170	354	1746	333	3.58	6.92	2443	216	1313	Total	00:16	1.12	1.86	17	3
SDev		0	0	15	22.9	68.3	30.6	2.73	2.67	116	18.7	81.2			0.05	0.03		
SD/M		0.00	0.00	0.09	0.06	0.04	0.09	0.76	0.39	0.05	0.09	0.06			0.05	0.02		

Remarks: Q 2443cfs using BT with 5% error

Station Number:

Meas. No:

Station Name: Fish Creek

Date: 07/08/2011

Party: RTK / DAV	Width: 145 ft	Processed by: DAV
Boat/Motor: kayak	Area: 314 ft ²	Mean Velocity: 1.68 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 527 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.: 10	Adj. Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Bin Size: 6 cm Blank: 3 cm
WT Error Vel.: 1.10 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 4.10 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
	Max. Vel.: 3.71 ft/s
	Max. Depth: 3.54 ft
	Mean Depth: 2.17 ft
	% Meas.: 58.35
	Water Temp.: None
	ADCP Temp.: 56.5 °F

Performed Diag. Test: NO

Project Name: fish201107080 527cfs.mmt

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: NO Evaluation: NO

Meas. Location: 300' US of gage

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	6	20	163	114	304	87.3	8.93	10.5	525	138	301	16:13	16:16	0.73	1.75	5	2
001	R	6	20	140	115	305	94.9	10.6	11.2	536	146	319	16:17	16:20	0.79	1.68	1	3
002	L	6	20	137	121	319	90.5	8.76	-12.3	526	144	311	16:21	16:23	0.82	1.69	1	4
003	R	6	20	131	113	303	88.3	5.30	11.2	521	150	324	16:24	16:26	0.85	1.61	1	3
Mean		6	20	142	116	308	90.3	8.40	5.15	527	145	314	Total	00:13	0.80	1.68	2	3
SDev		0	0	14	3.26	7.49	3.37	2.24	11.7	6.51	5.1	10.1			0.05	0.06		
SD/M		0.00	0.00	0.10	0.03	0.02	0.04	0.27	2.26	0.01	0.04	0.03			0.07	0.03		

Remarks: Q 527cfs using BT with 1% error

Station Number:

Meas. No:

Station Name: Fish Creek

Date: 08/27/2011

Party: RTK/DAV	Width: 81.2 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 154 ft ²	Mean Velocity: 1.04 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 159 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: 4-Clear	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: _____ Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Bin Size: 6 cm Blank: 3 cm
WT Error Vel.: 1.00 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 3.03 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 300' US of gage
 Project Name: fish20110827000 q159.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
005	L	6	6	83	41.3	85.6	25.1	3.60	1.84	158	91	175	16:10	16:11	0.86	0.90	1	5
006	R	6	6	100	43.8	82.8	25.0	3.21	1.91	157	73	131	16:12	16:14	0.74	1.19	1	4
007	L	6	6	81	42.7	88.1	24.1	3.71	3.04	162	87	167	16:15	16:16	0.88	0.97	1	4
008	R	6	6	89	40.9	87.4	24.4	2.47	3.28	158	74	142	16:16	16:18	0.78	1.12	2	4
Mean		6	6	88	42.2	86.0	24.7	3.25	2.52	159	81	154	Total	00:08	0.81	1.04	1	4
SDev		0	0	9	1.33	2.38	0.500	0.560	0.752	2.16	9.5	20.7			0.06	0.14		
SD/M		0.00	0.00	0.10	0.03	0.03	0.02	0.17	0.30	0.01	0.12	0.13			0.08	0.13		

Remarks: Q 159cfs using BT with 1% error

Party: RTK/DAV	Width: 67.9 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 107 ft ²	Mean Velocity: 0.949 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 101 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.: 10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: NO	Max. Vel.: 3.03 ft/s	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Max. Depth: 3.27 ft	Serial #: _____ Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Mean Depth: 1.57 ft	Bin Size: 4 cm Blank: 3 cm
WT Error Vel.: 1.10 ft/s	% Meas.: 47.07	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	Water Temp.: None	WT Mode: 12 WT Pings: 6
WT Up Vel.: 3.10 ft/s	ADCP Temp.: 34.8 °F	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO		

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 100' DS of gage
 Project Name: fish 27052012 q101cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	10	10	92	27.2	47.3	15.9	2.54	4.98	97.9	74	114	13:40	13:42	0.53	0.86	2	2
001	R	10	10	82	27.1	48.8	16.8	4.84	4.70	102	67	106	13:42	13:44	0.55	0.97	2	2
002	L	10	10	67	26.4	46.2	17.8	4.98	5.37	101	67	107	13:44	13:45	0.63	0.94	4	2
003	R	10	10	72	27.3	47.4	17.4	4.94	5.12	102	64	100	13:46	13:47	0.60	1.03	4	1
Mean		10	10	78	27.0	47.4	17.0	4.33	5.04	101	68	107	Total	00:07	0.58	0.95	3	2
SDev		0	0	11	0.415	1.06	0.806	1.19	0.280	2.01	4.1	6.0			0.05	0.07		
SD/M		0.00	0.00	0.14	0.02	0.02	0.05	0.28	0.06	0.02	0.06	0.06			0.08	0.07		

Remarks: Q 101cfs using BT with 2% error
 bottom ice in 1/2 the channel and back water

Party: DAV/JPB	Width: 160 ft	Processed by: DAV
Boat/Motor: kayak	Area: 429 ft ²	Mean Velocity: 0.948 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 406 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.6°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.12
BT Error Vel.: 3.28 ft/s*	Bin Size: 10 cm Blank: 19 cm
WT Error Vel.: 32.81 ft/s*	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s*	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s*	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 4.51 ft/s	
Max. Depth: 4.07 ft	
Mean Depth: 2.68 ft	
% Meas.: 41.32	
Water Temp.: None	
ADCP Temp.: 35.7 °F	

Performed Diag. Test: NO Project Name: fish6032012_0.mmt
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 100' DS of gage

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
002	L	6	6	129	164	161	63.5	1.73	2.51	394	154	404	13:00	13:02	2.56	0.97	9	1
003	R	6	6	114	170	170	74.1	4.87	2.90	422	169	455	13:02	13:03	2.51	0.93	4	2
004	L	6	6	121	164	172	72.2	4.87	2.68	415	149	400	13:03	13:04	2.41	1.04	8	3
005	R	6	6	105	163	171	67.9	4.59	2.75	409	164	442	13:04	13:05	2.63	0.93	15	1
007	L	6	6	137	162	160	65.0	2.75	1.06	391	158	419	13:06	13:07	2.19	0.93	15	2
008	R	6	6	105	153	171	73.2	5.09	2.33	405	166	456	13:07	13:08	2.67	0.89	20	0
Mean		6	6	118	163	168	69.3	3.98	2.37	406	160	429	Total	00:07	2.49	0.95	12	2
SDev		0	0	13	5.38	5.32	4.50	1.40	0.672	12.2	7.6	24.9			0.18	0.05		
SD/M		0.00	0.00	0.11	0.03	0.03	0.06	0.35	0.28	0.03	0.05	0.06			0.07	0.05		

Remarks: Q 406cfs using BT with 3% error, poor GPS data Q 534cfs using VTG with 29% error

* - value not consistent for all transects

Station Number:

Meas. No:

Station Name: Fish Creek

Date: 06/05/2012

Party: DAV/JPB	Width: 219 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,060 ft ²	Mean Velocity: 1.74 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 1,840 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.6°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.12
BT Error Vel.: 0.33 ft/s	Bin Size: 10 cm Blank: 19 cm
WT Error Vel.: 0.50 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 1.00 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 5.30 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 5.24 ft/s	
Max. Depth: 7.93 ft	
Mean Depth: 4.86 ft	
% Meas.: 57.47	
Water Temp.: None	
ADCP Temp.: 33.7 °F	

Performed Diag. Test: NO

Project Name: fish 6052012 q1837cfs.mmt

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: NO Evaluation: NO

Meas. Location: 200' DS of gage

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
004	L	6	6	244	417	1083	319	5.05	9.53	1834	214	1030	12:58	13:01	1.61	1.78	11	2
005	R	6	6	152	422	1085	327	16.5	8.37	1859	231	1135	13:01	13:03	2.30	1.64	1	2
006	L	6	6	179	416	1015	364	13.8	8.30	1816	197	947	13:04	13:06	1.99	1.92	0	7
007	R	6	6	133	427	1042	345	19.6	8.40	1843	233	1143	13:06	13:08	2.69	1.61	3	7
Mean		6	6	177	421	1056	339	13.7	8.65	1838	219	1064	Total	00:09	2.15	1.74	4	5
SDev		0	0	48	5.35	33.9	19.9	6.26	0.590	17.7	16.9	93.4			0.46	0.14		
SD/M		0.00	0.00	0.27	0.01	0.03	0.06	0.46	0.07	0.01	0.08	0.09			0.21	0.08		

Remarks: Q 1838cfs using BT with 1% error and 1827cfs using VTG with 6% error

Station Number:

Meas. No:

Station Name: Fish

Date: 06/07/2012

Party: DAV/RTK	Width: 197 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,230 ft ²	Mean Velocity: 2.07 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 2,550 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (18.4°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.12
BT Error Vel.: 0.33 ft/s	Bin Size: 10 cm Blank: 19 cm
WT Error Vel.: 0.50 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 14.70 ft/s*	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s*	WZ : 5
Use Weighted Mean Depth: YES	

Performed Diag. Test: NO Project Name: fish 20120607 q2540.mmt
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	10	6	154	452	1505	501	44.3	23.4	2525	190	1204	13:42	13:44	1.83	2.10	0	6
001	R	10	6	161	460	1546	457	42.5	24.5	2530	198	1231	13:44	13:46	1.72	2.06	1	3
002	L	10	3	150	465	1539	483	43.9	1.62	2532	196	1229	13:46	13:48	1.95	2.06	0	7
003	R	10	3	179	475	1587	492	41.0	2.26	2597	204	1260	13:48	13:50	1.63	2.06	1	5
Mean		10	4	161	463	1544	483	42.9	12.9	2546	197	1231	Total	00:07	1.78	2.07	0	5
SDev		0	2	13	9.88	34.0	19.0	1.51	12.7	34.3	5.6	23.0			0.13	0.02		
SD/M		0.00	0.39	0.08	0.02	0.02	0.04	0.04	0.98	0.01	0.03	0.02			0.08	0.01		

Remarks: Q 2546cfs using BT with 1% error, poor GPS data Q 2690cfs using VTG with 26% error

* - value not consistent for all transects

Party: RTK/DAV	Width: 240 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,340 ft ²	Mean Velocity: 2.22 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 2,980 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (18.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.12
BT Error Vel.: 0.33 ft/s	Bin Size: 10 cm Blank: 19 cm
WT Error Vel.: 0.50 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 1.00 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 5.30 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 5.27 ft/s	
Max. Depth: 8.30 ft	
Mean Depth: 5.57 ft	
% Meas.: 59.87	
Water Temp.: None	
ADCP Temp.: 37.0 °F	

Performed Diag. Test: NO Project Name: fish 20120609 q2974cfs.mmt
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	5	10	262	583	1753	517	4.20	16.6	2874	235	1290	12:35	12:37	1.63	2.23	6	6
001	R	5	10	122	591	1730	569	28.6	26.2	2945	244	1370	12:38	12:39	2.86	2.15	3	5
002	L	5	10	217	606	1835	537	11.5	23.7	3013	233	1299	12:39	12:42	1.76	2.32	6	6
003	R	5	10	141	624	1809	595	17.3	27.9	3074	250	1397	12:42	12:43	2.63	2.20	1	4
Mean		5	10	185	601	1782	555	15.4	23.6	2977	240	1339	Total	00:08	2.22	2.22	4	5
SDev		0	0	65	17.8	48.5	34.6	10.3	4.98	86.1	7.9	52.7			0.62	0.07		
SD/M		0.00	0.00	0.35	0.03	0.03	0.06	0.67	0.21	0.03	0.03	0.04			0.28	0.03		

Remarks: Q 2977cfs using BT with 3% error and Q 3274cfs using VTG with 12% error

Party: RTK/DAV	Width: 111 ft	Processed by: DAV
Boat/Motor: kayak	Area: 326 ft ²	Mean Velocity: 1.79 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 581 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: _____ Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Bin Size: 9 cm Blank: 3 cm
WT Error Vel.: 1.10 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 3.40 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 3.35 ft/s	
Max. Depth: 4.62 ft	
Mean Depth: 2.96 ft	
% Meas.: 64.59	
Water Temp.: None	
ADCP Temp.: 56.6 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 300' DS of gage
 Project Name: fish 7072012 q581cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
001	L	5	15	177	95.7	379	82.8	1.87	8.26	568	106	339	15:32	15:36	0.95	1.67	21	0
002	R	5	15	161	106	358	97.1	17.0	5.47	584	124	345	15:38	15:41	0.84	1.69	4	0
003	L	5	15	97	96.0	380	77.5	17.3	8.76	580	91	290	15:41	15:43	1.42	2.00	13	1
004	R	5	15	114	108	383	88.2	9.68	10.0	599	112	321	15:44	15:46	0.90	1.86	2	0
005	L	5	15	136	97.3	376	80.2	8.26	10.5	572	121	326	15:47	15:50	1.04	1.76	3	0
006	R	5	15	121	102	374	87.7	6.92	10.6	582	111	335	15:50	15:52	0.84	1.74	1	0
Mean		5	15	134	101	375	85.6	10.2	8.93	581	111	326	Total	00:19	1.00	1.79	7	0
SDev		0	0	30	5.33	9.12	7.02	6.01	1.94	10.8	11.7	19.7			0.22	0.12		
SD/M		0.00	0.00	0.22	0.05	0.02	0.08	0.59	0.22	0.02	0.11	0.06			0.22	0.07		

Remarks: Q 581cfs using BT with 2% error

Station Number:

Meas. No:

Station Name: Fish Creek

Date: 09/01/2012

Party: RTK/DAV	Width: 111 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 186 ft ²	Mean Velocity: 1.14 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 213 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Bin Size: 5 cm Blank: 3 cm
WT Error Vel.: 1.10 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 3.20 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
	Max. Vel.: 3.10 ft/s
	Max. Depth: 2.45 ft
	Mean Depth: 1.69 ft
	% Meas.: 52.04
	Water Temp.: None
	ADCP Temp.: 43.7 °F

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 300' US of gage

Project Name: fish 09012012 q213cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	4	10	153	64.0	111	39.1	1.48	3.50	219	119	196	17:46	17:49	0.65	1.12	3	1
001	R	4	10	125	61.4	110	35.9	1.52	4.31	213	108	182	17:49	17:52	0.71	1.17	1	2
002	L	4	10	120	60.2	114	35.2	1.59	4.84	216	108	185	17:52	17:54	0.71	1.17	1	0
003	R	4	10	136	57.3	109	32.9	1.38	3.64	204	107	183	17:55	17:57	0.68	1.12	1	1
Mean		4	10	133	60.7	111	35.8	1.49	4.07	213	111	186	Total	00:11	0.69	1.14	1	1
SDev		0	0	15	2.76	2.23	2.56	0.088	0.623	6.43	5.5	6.6			0.03	0.03		
SD/M		0.00	0.00	0.11	0.05	0.02	0.07	0.06	0.15	0.03	0.05	0.04			0.04	0.03		

Remarks: Q 213cfs using BT with 3% error

Party: RTK/DAV	Width: 172 ft	Processed by: DAV
Boat/Motor: kayak	Area: 775 ft ²	Mean Velocity: 0.575 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 442 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (1.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: _____ Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Bin Size: 10 cm Blank: 3 cm
WT Error Vel.: 0.60 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 1.61 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 1.61 ft/s	
Max. Depth: 6.66 ft	
Mean Depth: 4.52 ft	
% Meas.: 69.75	
Water Temp.: None	
ADCP Temp.: 37.4 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 700' DS of gage

Project Name: fish20130602dav442cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	L	10	10	141	74.8	309	56.0	1.06	0.989	441	199	885	10:52	10:55	1.18	0.50	3	1
001	R	10	10	143	70.9	305	54.7	1.98	1.06	434	152	713	10:56	10:58	1.33	0.61	15	1
004	L	10	10	129	73.2	303	55.4	2.22	1.73	436	185	809	11:01	11:04	1.23	0.54	2	2
005	R	10	10	157	77.0	315	58.1	2.08	2.93	455	152	696	11:04	11:07	1.15	0.66	4	2
Mean		10	10	142	74.0	308	56.1	1.84	1.68	442	172	775	Total	00:14	1.22	0.57	6	2
SDev		0	0	11	2.56	5.40	1.47	0.528	0.900	9.86	23.7	88.2			0.08	0.07		
SD/M		0.00	0.00	0.08	0.03	0.02	0.03	0.29	0.54	0.02	0.14	0.11			0.06	0.12		

Remarks: Q 442cfs using BT with 2% error, no GPS

Party: DAV/JPB	Width: 264 ft	Processed by: DAV
Boat/Motor: Kayak	Area: 1,390 ft ²	Mean Velocity: 1.55 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 2,150 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.15
BT Error Vel.: 3.28 ft/s*	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s*	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s*	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s*	WZ : 5
Use Weighted Mean Depth: YES	

Performed Diag. Test: NO Project Name: fish20130606dav2085cfs.mmt
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	L	4	4	306	551	1238	336	1.55	4.17	2131	264	1385	18:33	18:36	1.60	1.54	31	0
001	R	4	4	281	587	1273	351	1.31	1.52	2214	267	1383	18:36	18:39	1.56	1.60	6	0
002	L	4	4	223	539	1217	329	1.20	5.47	2092	264	1393	18:40	18:42	1.85	1.50	13	0
003	R	4	4	194	562	1250	339	1.70	2.19	2155	262	1378	18:42	18:44	2.09	1.56	3	0
Mean		4	4	251	560	1245	339	1.44	3.34	2148	264	1385	Total	00:11	1.77	1.55	13	0
SDev		0	0	52	20.7	23.2	8.82	0.226	1.81	50.9	2.2	6.2			0.24	0.04		
SD/M		0.00	0.00	0.21	0.04	0.02	0.03	0.16	0.54	0.02	0.01	0.00			0.14	0.03		

Remarks: Q 2148cfs using BT with 2% error and 2085cfs using VTG with 6% error

* - value not consistent for all transects

Station Number:

Meas. No:

Station Name: Fish Creek

Date: 06/09/2013

Party: DAV/JPB	Width: 200 ft	Processed by: DAV
Boat/Motor: Kayak	Area: 1,420 ft ²	Mean Velocity: 2.41 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 3,420 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.15
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 7.66 ft/s	
Max. Depth: 9.24 ft	
Mean Depth: 7.10 ft	
% Meas.: 63.88	
Water Temp.: None	
ADCP Temp.: 35.4 °F	

Performed Diag. Test: NO

Project Name: fish20130609dav3472cfs.mmt

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: NO Evaluation: NO

Meas. Location: 100' DS of gage

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
005	R	4	4	187	659	2176	538	12.0	4.80	3391	200	1418	17:16	17:18	1.64	2.39	3	0
006	L	4	4	164	668	2209	547	9.25	17.8	3451	200	1426	17:20	17:22	1.75	2.42	4	0
007	R	4	4	132	665	2169	540	20.6	12.1	3407	201	1423	17:22	17:24	2.17	2.40	5	0
008	L	4	4	174	665	2188	562	1.73	20.7	3437	199	1411	17:24	17:26	1.74	2.43	7	0
Mean		4	4	164	664	2186	547	10.9	13.9	3422	200	1420	Total	00:10	1.82	2.41	5	0
SDev		0	0	23	3.66	17.3	10.8	7.80	7.00	27.6	1.0	6.5			0.23	0.02		
SD/M		0.00	0.00	0.14	0.01	0.01	0.02	0.72	0.51	0.01	0.00	0.00			0.13	0.01		

Remarks: Q 3422cfs using BT with 1% error and 3472cfs using VTG with 6% error

Station Number:
 Station Name: Fish Creek

Meas. No:
 Date: 06/11/2013

Party: DAV/JPB	Width: 258 ft	Processed by: DAV
Boat/Motor: Kayak	Area: 1,930 ft ²	Mean Velocity: 2.57 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 4,970 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.15
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage

Project Name: fish201300611dav4898cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	4	4	177	955	3327	809	18.8	6.57	5116	276	2027	14:38	14:41	2.04	2.53	11	0
001	R	4	4	213	896	3238	759	12.9	5.23	4911	251	1896	14:41	14:43	1.66	2.59	19	0
002	L	4	4	205	893	3231	721	5.54	10.7	4862	256	1916	14:44	14:46	1.69	2.54	6	0
003	R	4	4	136	913	3248	784	22.5	2.05	4969	249	1886	14:47	14:48	2.71	2.63	6	0
Mean		4	4	182	914	3261	768	14.9	6.13	4965	258	1931	Total	00:09	2.03	2.57	11	0
SDev		0	0	35	28.8	44.6	37.4	7.40	3.57	110	12.3	64.8			0.49	0.05		
SD/M		0.00	0.00	0.19	0.03	0.01	0.05	0.50	0.58	0.02	0.05	0.03			0.24	0.02		

Remarks: Q 4965cfs using BT with 2% error and 4898cfs using VTG with 5% error

Party: DAV/JPB	Width: 315 ft	Processed by: DAV
Boat/Motor: Kayak	Area: 2,200 ft ²	Mean Velocity: 2.27 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 5,000 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.15
BT Error Vel.: 3.28 ft/s*	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s*	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s*	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s*	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 4.40 ft/s	
Max. Depth: 10.0 ft	
Mean Depth: 7.00 ft	
% Meas.: 63.52	
Water Temp.: None	
ADCP Temp.: 46.6 °F	

Performed Diag. Test: NO

Project Name: fish20130613dav4805cfs.mmt

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: NO Evaluation: NO

Meas. Location: at gage

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
001	L	4	4	209	987	3176	777	3.11	5.01	4948	327	2217	13:15	13:17	2.26	2.23	18	0
002	R	4	4	157	995	3151	889	10.4	2.47	5048	316	2228	13:18	13:19	3.05	2.27	4	0
004	L	4	4	183	967	3191	764	2.44	16.4	4941	309	2195	13:21	13:22	2.67	2.25	19	0
005	R	4	4	139	996	3192	862	20.2	2.51	5072	307	2171	13:23	13:24	3.36	2.34	0	0
Mean		4	4	172	986	3178	823	9.05	6.59	5002	315	2203	Total	00:09	2.83	2.27	10	0
SDev		0	0	31	13.4	19.0	61.5	8.29	6.62	67.5	9.2	25.2			0.48	0.05		
SD/M		0.00	0.00	0.18	0.01	0.01	0.07	0.92	1.00	0.01	0.03	0.01			0.17	0.02		

Remarks: Q 5002cfs using BT with 1% error and 4805cfs using VTG with 7% error

Station Number:

Meas. No:

Station Name: Fish Creek

Date: 06/17/2013

Party: RTK/KAP	Width: 354 ft	Processed by: DAV
Boat/Motor: Kayak	Area: 1,690 ft ²	Mean Velocity: 2.13 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 3,600 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.500 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.15
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	

Performed Diag. Test: NO Project Name: fish20130617dav3598cfs.mmt
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: YES Evaluation: YES
 Meas. Location: 20' from REW

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
001	L	8	6	375	914	2135	567	11.4	3.78	3632	354	1673	13:15	13:19	1.49	2.17	5	0
002	R	6	10	329	896	2051	603	10.3	4.56	3565	354	1700	13:20	13:23	1.67	2.10	1	0
Mean		7	8	352	905	2093	585	10.9	4.17	3598	354	1687	Total	00:08	1.58	2.13	3	0
SDev		1	3	33	12.7	59.9	25.5	0.774	0.549	47.3	0.2	19.2			0.13	0.05		
SD/M		0.20	0.35	0.09	0.01	0.03	0.04	0.07	0.13	0.01	0.00	0.01			0.08	0.03		

Remarks: Q 3598cfs using BT with 1% error and 3801cfs using VTG with 15% error

Station Number:

Meas. No:

Station Name: Fish

Date: 06/21/2013

Party: RTK	Width: 275 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,120 ft ²	Mean Velocity: 2.22 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 2,470 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 32.81 ft/s	Bin Size: 8 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
	Max. Vel.: 5.28 ft/s
	Max. Depth: 7.76 ft
	Mean Depth: 4.07 ft
	% Meas.: 68.39
	Water Temp.: None
	ADCP Temp.: 62.1 °F

Performed Diag. Test: NO

Project Name: fish20130621vas2473cfs.mmt

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: NO Evaluation: NO

Meas. Location: 200' US of gage

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	3	0	143	447	1619	297	3.39	0.000	2367	288	1152	13:37	13:40	1.89	2.05	15	0
001	R	3	5	161	484	1651	336	4.73	8.97	2484	283	1085	13:40	13:44	1.50	2.29	7	0
002	L	3	5	118	464	1785	319	2.90	2.40	2574	271	1135	13:44	13:46	1.93	2.27	14	0
003	R	3	5	132	436	1711	315	2.01	4.17	2468	256	1093	13:47	13:50	1.65	2.26	13	0
Mean		3	4	138	458	1692	317	3.26	3.88	2473	275	1116	Total	00:12	1.74	2.22	13	0
SDev		0	3	18	21.1	73.4	15.7	1.14	3.80	84.8	14.2	32.3			0.20	0.11		
SD/M		0.00	0.67	0.13	0.05	0.04	0.05	0.35	0.98	0.03	0.05	0.03			0.12	0.05		

Remarks: Q 2473cfs using BT with 3% error, no GPS

Party: RTK/DAV	Width: 240 ft	Processed by: DAV
Boat/Motor: kayak	Area: 590 ft ²	Mean Velocity: 2.01 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 1,180 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Bin Size: 8 cm Blank: 3 cm
WT Error Vel.: 1.00 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 3.72 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
	Max. Vel.: 3.72 ft/s
	Max. Depth: 4.76 ft
	Mean Depth: 2.46 ft
	% Meas.: 54.47
	Water Temp.: None
	ADCP Temp.: 62.8 °F

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 100' US of gage
 Project Name: fish20130706dav1182cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	R	3	10	127	353	643	176	2.79	10.5	1186	235	572	12:38	12:41	1.64	2.07	2	0
001	L	3	10	143	350	639	176	2.93	9.61	1177	237	576	12:41	12:44	1.42	2.04	1	0
002	R	3	10	135	344	656	178	1.84	10.2	1190	245	621	12:45	12:47	1.66	1.92	1	1
003	L	3	10	151	352	638	176	1.77	8.55	1176	243	590	12:48	12:50	1.38	1.99	1	0
Mean		3	10	139	350	644	177	2.33	9.71	1182	240	590	Total	00:12	1.53	2.01	1	0
SDev		0	0	10	4.09	8.51	0.692	0.615	0.860	6.61	4.8	22.0			0.15	0.07		
SD/M		0.00	0.00	0.07	0.01	0.01	0.00	0.26	0.09	0.01	0.02	0.04			0.10	0.03		

Remarks: Q 1182cfs using BT with 1% error, no GPS

Station Number:

Meas. No:

Station Name: Fish Creek

Date: 08/23/2013

Party: RTK/DAV	Width: 105 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 258 ft ²	Mean Velocity: 1.71 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 440 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:6	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: NO	Max. Vel.: 3.51 ft/s	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Max. Depth: 3.57 ft	Serial #: Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Mean Depth: 2.45 ft	Bin Size: 6 cm Blank: 3 cm
WT Error Vel.: 1.10 ft/s	% Meas.: 63.39	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	Water Temp.: None	WT Mode: 12 WT Pings: 6
WT Up Vel.: 3.51 ft/s	ADCP Temp.: 44.7 °F	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO		

Performed Diag. Test: NO

Project Name: fish20130823dav440cfs.mmt

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: NO Evaluation: NO

Meas. Location: 300' DS of gage

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
001	R	3	6	106	95.6	278	63.2	1.34	2.44	440	106	258	17:53	17:55	0.82	1.71	1	1
002	L	3	6	110	94.4	278	61.0	1.20	3.21	438	104	257	17:56	17:58	0.83	1.71	2	1
003	R	3	6	107	94.4	284	62.0	1.17	3.11	444	106	259	17:58	18:00	0.82	1.72	1	0
004	L	3	6	113	91.9	271	61.9	1.38	2.83	429	105	257	18:00	18:03	0.80	1.67	1	0
005	R	3	6	105	95.8	284	63.4	2.01	2.97	448	105	258	18:03	18:05	0.84	1.74	2	1
Mean		3	6	108	94.4	279	62.3	1.42	2.91	440	105	258	Total	00:12	0.82	1.71	1	1
SDev		0	0	3	1.57	5.19	0.991	0.344	0.302	7.13	0.7	0.9			0.02	0.02		
SD/M		0.00	0.00	0.03	0.02	0.02	0.02	0.24	0.10	0.02	0.01	0.00			0.02	0.01		

Remarks: Q 440cfs using BT with 2% error, no GPS

Party: RTK/DAV	Width: 238 ft	Processed by: DAV
Boat/Motor: kayak	Area: 851 ft ²	Mean Velocity: 1.26 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 1,080 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.16
BT Error Vel.: 3.28 ft/s*	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s*	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s*	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s*	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 6.34 ft/s	
Max. Depth: 7.10 ft	
Mean Depth: 3.63 ft	
% Meas.: 46.03	
Water Temp.: None	
ADCP Temp.: 32.9 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage and 200' DS

Project Name: fish20140527.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	4	4	147	424	447	177	3.78	4.77	1057	246	809	15:00	15:02	2.43	1.31	4	0
002	L	4	4	221	444	484	182	2.40	2.83	1115	273	893	15:08	15:10	2.16	1.25	29	0
005	R	4	4	106	310	554	174	11.0	2.61	1052	196	851	15:17	15:18	2.75	1.24	1	0
Mean		4	4	158	393	495	178	5.73	3.40	1075	238	851	Total	00:17	2.45	1.26	11	0
SDev		0	0	58	72.4	54.5	3.72	4.63	1.19	34.9	39.3	42.4			0.30	0.04		
SD/M		0.00	0.00	0.37	0.18	0.11	0.02	0.81	0.35	0.03	0.16	0.05			0.12	0.03		

Remarks: Q 1166cfs using BT with 5% error and 1075cfs using VTG with 3% error

Party: DAV/JPB	Width: 199 ft	Processed by: DAV
Boat/Motor: kayak	Area: 898 ft ²	Mean Velocity: 1.49 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 1,340 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.16
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 4.60 ft/s	
Max. Depth: 8.45 ft	
Mean Depth: 4.50 ft	
% Meas.: 53.24	
Water Temp.: None	
ADCP Temp.: -9796.8 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 100' DS of gage

Project Name: fish06022014_0.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	L	4	4	152	408	682	222	1.27	4.45	1317	200	868	14:13	14:15	2.08	1.52	5	0
001	R	4	4	135	419	713	238	10.8	2.37	1383	201	866	14:15	14:16	2.24	1.60	11	0
002	L	4	4	132	395	741	244	1.77	5.30	1387	197	927	14:17	14:19	2.22	1.50	16	0
003	R	4	4	123	366	689	199	5.16	2.33	1261	205	914	14:19	14:20	2.33	1.38	20	0
004	L	4	4	114	401	735	237	3.53	7.27	1384	194	908	14:22	14:23	2.48	1.53	14	100
005	R	4	4	95	386	722	187	6.14	7.70	1309	199	904	14:24	14:25	2.75	1.45	4	0
Mean		4	4	125	396	714	221	4.78	4.90	1340	199	898	Total	00:11	2.35	1.49	12	17
SDev		0	0	20	18.3	24.1	23.3	3.50	2.32	52.4	3.7	25.3			0.23	0.07		
SD/M		0.00	0.00	0.16	0.05	0.03	0.11	0.73	0.47	0.04	0.02	0.03			0.10	0.05		

Remarks: Q 1340cfs using BT with 4% error and 1336cfs using VTG with 7% error
 Floting and bottom ice in the channel

Discharge for transects in *italics* have a total Q more than 5% from the mean

Station Number:

Meas. No:

Station Name: Fish Creek

Date: 06/06/2014

Party: DAV/JPB	Width: 239 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,110 ft ²	Mean Velocity: 2.36 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 2,610 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.16
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 5.29 ft/s	
Max. Depth: 7.87 ft	
Mean Depth: 4.64 ft	
% Meas.: 53.20	
Water Temp.: None	
ADCP Temp.: 36.0 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: YES
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 50' DS of gage

Project Name: judy06062014_0.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	3	3	139	748	1433	441	3.74	5.26	2631	237	1091	12:45	12:47	2.84	2.41	16	0
001	R	3	3	128	754	1368	486	8.65	4.70	2622	241	1127	12:47	12:48	3.00	2.33	28	0
003	R	3	3	132	739	1365	463	6.29	4.20	2577	237	1100	12:50	12:52	2.99	2.34	20	0
Mean		3	3	133	747	1388	463	6.23	4.72	2610	239	1106	Total	00:06	2.94	2.36	21	0
SDev		0	0	6	7.87	38.2	22.5	2.45	0.530	28.7	2.5	19.1			0.09	0.05		
SD/M		0.00	0.00	0.04	0.01	0.03	0.05	0.39	0.11	0.01	0.01	0.02			0.03	0.02		

Remarks: Q 2609cfs using BT with 1% error and 2529cfs using VTG with 3% error

Station Number:

Meas. No:

Station Name: Fish Creek

Date: 06/09/2014

Party: DAV/JPB	Width: 210 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,300 ft ²	Mean Velocity: 2.41 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 3,120 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.16
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 4.76 ft/s	
Max. Depth: 10.2 ft	
Mean Depth: 6.19 ft	
% Meas.: 58.30	
Water Temp.: None	
ADCP Temp.: 38.2 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 50' DS of gage

Project Name: Fish06092014_0.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	4	4	120	689	1871	577	0.953	6.67	3144	215	1362	13:33	13:35	2.72	2.31	13	1
001	R	4	4	126	695	1826	587	13.2	5.23	3126	208	1286	13:35	13:37	2.37	2.43	0	0
002	L	4	4	89	678	1749	559	14.9	15.6	3016	206	1262	13:37	13:38	3.24	2.39	20	1
003	R	4	4	133	713	1834	613	17.9	22.9	3201	210	1285	13:38	13:40	2.40	2.49	11	0
Mean		4	4	117	694	1820	584	11.7	12.6	3122	210	1299	Total	00:06	2.68	2.41	11	0
SDev		0	0	19	15.0	51.1	22.5	7.44	8.26	77.5	3.7	43.7			0.40	0.08		
SD/M		0.00	0.00	0.17	0.02	0.03	0.04	0.63	0.65	0.02	0.02	0.03			0.15	0.03		

Remarks: Q 3122cfs using BT with 2% error and 3055cfs using VTG with 1% error

Station Number:

Meas. No:

Station Name: Fish Creek

Date: 07/12/2014

Party: RTK/DAV	Width: 219 ft	Processed by: DAV
Boat/Motor: Tethered Boat	Area: 594 ft ²	Mean Velocity: 1.53 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 912 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:5	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: Rio Grande / 600 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 0.00
BT Error Vel.: 32.81 ft/s	Bin Size: 6 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 0 BT Pings: 0
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 3.42 ft/s	
Max. Depth: 3.72 ft	
Mean Depth: 2.72 ft	
% Meas.: 66.43	
Water Temp.: None	
ADCP Temp.: 60.0 °F	

Performed Diag. Test: NO

Project Name: fish20140712 q912cfs dv.mmt

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: NO Evaluation: NO

Meas. Location: 1000' DS of gage

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	L	2	10	174	184	614	121	1.09	5.05	925	222	598	16:11	16:14	1.07	1.55	1	0
001	R	2	10	160	182	592	122	0.883	5.51	902	222	589	16:15	16:18	1.19	1.53	1	0
002	L	2	10	182	172	599	120	1.13	5.30	899	214	595	16:18	16:22	1.04	1.51	2	0
003	R	2	10	156	178	617	118	1.66	5.09	920	216	595	16:22	16:25	1.18	1.55	1	0
Mean		2	10	168	179	606	121	1.19	5.24	912	219	594	Total	00:13	1.12	1.53	1	0
SDev		0	0	12	5.10	12.1	1.72	0.330	0.213	13.1	4.0	3.9			0.08	0.02		
SD/M		0.00	0.00	0.07	0.03	0.02	0.01	0.28	0.04	0.01	0.02	0.01			0.07	0.01		

Remarks: Q 912cfs using BT with 1% error

Summary of Discharge Measurement Forms

Ikpikpuk River, Alaska

Party: DB/RTK	Width: 377 ft	Processed by: DAV
Boat/Motor: kayak	Area: 5,680 ft ²	Mean Velocity: 2.15 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 12,200 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.430 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: Model (19.4°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: Rio Grande / 1200 kHz
WT 3-Beam Solution: NO	Serial #: 3600 Firmware: 10.17
BT Error Vel.: 0.33 ft/s	Bin Size: 25 cm Blank: 25 cm
WT Error Vel.: 3.50 ft/s	BT Mode: 5 BT Pings: 1
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 1
WT Up Vel.: 5.00 ft/s	WV : 175 WO : 1, 4
Use Weighted Mean Depth: YES	
Max. Vel.: 4.89 ft/s	
Max. Depth: 24.6 ft	
Mean Depth: 15.1 ft	
% Meas.: 73.94	
Water Temp.: None	
ADCP Temp.: 33.0 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage

Project Name: ikpikpuk2.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
001	L	5	40	641	1564	8934	1479	10.9	26.8	12015	380	5740	19:18	19:23	1.37	2.09	19	1
002	R	5	40	563	1576	8933	1573	9.15	61.9	12154	396	5751	19:23	19:27	1.48	2.11	23	0
004	R	5	40	572	1586	8989	1609	5.33	32.9	12223	375	5639	19:31	19:35	1.53	2.17	14	1
005	L	5	40	600	1737	9148	1498	5.09	21.2	12409	366	5631	19:35	19:39	1.51	2.20	17	1
007	L	5	40	476	1582	9176	1477	5.05	65.7	12306	368	5629	19:43	19:46	1.86	2.19	14	0
Mean		5	40	570	1609	9036	1527	7.10	41.7	12221	377	5678	Total	00:27	1.55	2.15	17	0
SDev		0	0	61	71.8	118	60.2	2.73	20.7	149	11.8	61.5			0.19	0.05		
SD/M		0.00	0.00	0.11	0.04	0.01	0.04	0.38	0.50	0.01	0.03	0.01			0.12	0.02		

Remarks: Q 12,221cfs using BT with 1% error and 11,452cfs using VTG with 11% error

Party: DB/BL	Width: 502 ft	Processed by: DAV
Boat/Motor: kayak	Area: 6,000 ft ²	Mean Velocity: 4.36 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 26,000 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.430 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: Model (19.4°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: Rio Grande / 1200 kHz
WT 3-Beam Solution: NO	Serial #: 3600 Firmware: 10.17
BT Error Vel.: 0.33 ft/s*	Bin Size: 25 cm Blank: 25 cm
WT Error Vel.: 3.50 ft/s	BT Mode: 5 BT Pings: 1
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 1
WT Up Vel.: 10.00 ft/s	WV : 196 WO : 1, 4
Use Weighted Mean Depth: YES	
Max. Vel.: 12.6 ft/s	
Max. Depth: 21.2 ft	
Mean Depth: 12.1 ft	
% Meas.: 68.23	
Water Temp.: None	
ADCP Temp.: 37.8 °F	

Performed Diag. Test: YES
 Performed Moving Bed Test: NO
 Performed Compass Calibration: YES Evaluation: YES
 Meas. Location: started aprox 2 miles US

Project Name: ikpikpuk20100607 q26984cfs,m
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
002	R	10	5	482	3623	19413	3172	22.5	-8.72	26221	427	6246	16:45	16:48	2.42	4.20	25	0
007	L	10	10	375	3991	17384	3415	62.7	72.2	24925	455	5942	17:01	17:03	3.09	4.20	19	1
008	R	10	10	504	5167	18053	3923	47.1	83.7	27273	517	5683	17:03	17:07	2.75	4.80	19	0
010	R	10	10	568	5200	17174	3831	64.2	40.2	26309	582	6170	17:12	17:16	2.68	4.27	14	0
011	L	10	10	488	4690	17130	3416	93.2	113	25442	543	6338	17:16	17:19	2.90	4.01	11	0
012	R	10	10	463	4795	17485	3599	96.3	138	26112	490	5597	17:20	17:23	2.80	4.67	11	0
Mean		10	9	480	4578	17773	3559	64.3	73.0	26047	502	5996	Total	00:37	2.78	4.36	17	0
SDev		0	2	63	640	869	282	27.9	52.3	804	57.1	306.7			0.22	0.31		
SD/M		0.00	0.22	0.13	0.14	0.05	0.08	0.43	0.72	0.03	0.11	0.05			0.08	0.07		

Remarks: Q 26,047cfs using BT with 3%error and 26,984cfs using VTG with 5% error
 Due to swift current the zig zag metod was used for aprox 1 mile stretch

Party: RTK/BL	Width: 329 ft	Processed by: Dragos Vas
Boat/Motor: kayak	Area: 2,820 ft ²	Mean Velocity: 2.64 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 7,420 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.459 ft*	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.04
BT Error Vel.: 32.81 ft/s*	Bin Size: 14 cm* Blank: 3 cm
WT Error Vel.: 32.81 ft/s*	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s*	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s*	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 5.49 ft/s	
Max. Depth: 14.4 ft	
Mean Depth: 8.59 ft	
% Meas.: 72.96	
Water Temp.: None	
ADCP Temp.: 51.6 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location:

Project Name: ikpikpuk20100611 q7423cfs.mn
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	R	10	10	214	805	5745	866	6.60	18.3	7441	326	2812	15:17	15:21	1.51	2.64	8	0
001	L	10	10	236	869	5626	1159	12.1	19.4	7685	360	3090	15:21	15:25	1.55	2.49	11	15
002	R	10	10	193	879	5360	1428	14.2	21.4	7703	317	2845	15:28	15:31	1.63	2.71	11	16
003	L	10	10	211	875	5426	1193	17.5	11.8	7523	332	2956	15:31	15:35	1.56	2.55	10	17
004	R	10	10	191	801	5137	1015	24.9	17.7	6995	305	2797	15:36	15:40	1.61	2.50	20	14
005	L	10	10	178	908	5218	1326	20.7	10.3	7482	322	2670	15:42	15:45	1.85	2.80	7	14
006	R	10	10	174	785	5278	905	-3.53	22.0	6986	343	2862	15:46	15:49	1.95	2.44	21	0
007	L	10	10	187	982	5539	1023	5.09	19.0	7568	325	2530	15:50	15:53	1.95	2.99	9	0
Mean		10	10	198	863	5416	1114	12.2	17.5	7423	329	2820	Total	00:35	1.70	2.64	12	9
SDev		0	0	21	65.4	209	198	9.23	4.26	282	16.7	169.4			0.18	0.19		
SD/M		0.00	0.00	0.11	0.08	0.04	0.18	0.76	0.24	0.04	0.05	0.06			0.11	0.07		

Remarks: Q 7,423cfs BT only with 4% error

* - value not consistent for all transects

Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: RH/JB	Width: 196 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,100 ft ²	Mean Velocity: 0.978 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 1,070 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.459 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.04
BT Error Vel.: 32.81 ft/s	Bin Size: 14 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 1.95 ft/s	
Max. Depth: 11.2 ft	
Mean Depth: 5.61 ft	
% Meas.: 67.85	
Water Temp.: None	
ADCP Temp.: 51.1 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 40' D.S of gage

Project Name: ikpikpuk0617000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	R	10	35	174	156	726	140	13.5	38.8	1074	179	1046	19:34	19:37	1.21	1.03	9	0
001	L	10	35	129	159	738	135	12.0	42.2	1087	201	1135	19:37	19:40	1.31	0.96	2	0
002	R	10	35	138	155	709	143	11.9	40.4	1059	196	1061	19:40	19:42	1.27	1.00	4	0
003	L	10	35	147	159	740	137	9.11	29.3	1075	209	1156	19:43	19:45	1.18	0.93	1	0
Mean		10	35	147	157	729	139	11.6	37.7	1074	196	1099	Total	00:11	1.24	0.98	4	0
SDev		0	0	19	2.13	14.3	3.42	1.82	5.76	11.1	12.9	54.4			0.06	0.04		
SD/M		0.00	0.00	0.13	0.01	0.02	0.02	0.16	0.15	0.01	0.07	0.05			0.05	0.04		

Remarks: Q 1,074cfs using BT with 1% error

Party: RTK/DAV	Width: 185 ft	Processed by: DAV
Boat/Motor:	Area: 723 ft ²	Mean Velocity: 0.297 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 214 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 1.801 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: NO	Max. Vel.: 10.5 ft/s	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Max. Depth: 5.14 ft	Serial #: Firmware: 31.04
BT Error Vel.: 32.81 ft/s	Mean Depth: 3.90 ft	Bin Size: 4 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	% Meas.: 30.92	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	Water Temp.: None	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	ADCP Temp.: 60.1 °F	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO		

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location:

Project Name: ikpikpuk20100703 q214cfs.mmm
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
001	R	6	10	153	122	65.3	22.0	0.706	9.89	219	181	684	16:00	16:03	1.13	0.32	2	6
002	L	6	10	162	113	68.1	19.6	1.34	8.16	210	187	750	16:04	16:07	1.09	0.28	1	6
003	R	6	10	156	117	65.4	21.2	-0.883	10.7	213	188	734	16:07	16:10	1.15	0.29	2	6
Mean		6	10	157	117	66.3	20.9	0.388	9.58	214	185	723	Total	00:09	1.12	0.30	2	6
SDev		0	0	5	4.36	1.57	1.24	1.15	1.30	4.79	3.5	34.3			0.03	0.02		
SD/M		0.00	0.00	0.03	0.04	0.02	0.06	2.95	0.14	0.02	0.02	0.05			0.03	0.07		

Remarks: Q 214 cfs using BT with 2% error, only used the last 3 transects

Party: RTK/DAV	Width: 102 ft	Processed by: DAV
Boat/Motor:	Area: 117 ft ²	Mean Velocity: 0.846 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 97.1 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.164 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: NO	Max. Vel.: 4.35 ft/s	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Max. Depth: 1.78 ft	Serial #: Firmware: 31.04
BT Error Vel.: 0.33 ft/s	Mean Depth: 1.14 ft	Bin Size: 3 cm* Blank: 3 cm
WT Error Vel.: 1.10 ft/s	% Meas.: 35.49	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	Water Temp.: None	WT Mode: 12 WT Pings: 6
WT Up Vel.: 5.70 ft/s	ADCP Temp.: 52.6 °F	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO		

Performed Diag. Test: NO Project Name: ik20100910000rdv.mmt
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 300ft DS of gage

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	L	10	6	218	38.7	32.5	24.6	3.04	0.600	99.4	109	122	15:45	15:48	0.58	0.81	9	8
001	R	10	6	201	40.4	30.3	25.4	2.40	0.424	98.9	114	131	15:49	15:52	0.58	0.75	2	7
002	L	10	6	190	38.4	37.4	23.5	0.812	-0.636	99.5	87	99	15:53	15:56	0.58	1.00	2	17
003	R	10	6	173	37.3	34.1	21.3	1.66	-0.141	94.2	119	140	15:57	16:00	0.71	0.67	0	17
004	L	10	6	159	37.2	36.9	23.0	3.07	-0.283	99.9	118	134	16:00	16:03	0.76	0.74	2	18
005	R	12	6	158	34.0	35.0	21.6	6.11	-0.989	95.7	89	104	16:03	16:05	0.52	0.92	1	19
006	L	12	6	105	34.1	34.3	20.5	4.91	0.494	94.4	91	102	16:06	16:08	0.74	0.92	2	16
007	R	12	6	125	34.2	35.1	20.5	5.26	-0.671	94.5	89	101	16:08	16:10	0.65	0.94	2	14
Mean		11	6	166	36.8	34.4	22.5	3.41	-0.150	97.1	102	117	Total	00:25	0.64	0.85	2	15
SDev		1	0	38	2.41	2.28	1.86	1.85	0.602	2.58	14.4	17.0			0.09	0.12		
SD/M		0.10	0.00	0.23	0.07	0.07	0.08	0.54	4.01	0.03	0.14	0.15			0.14	0.14		

Remarks: Q 97cfs BT with 3% error

* - value not consistent for all transects

Party: DB/CB	Width: 691 ft	Processed by: DAV
Boat/Motor:	Area: 8,230 ft ²	Mean Velocity: 3.31 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 27,200 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.300 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.4°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: Rio Grande / 1200 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 10.17
BT Error Vel.: 0.33 ft/s	Bin Size: 50 cm Blank: 25 cm
WT Error Vel.: 3.50 ft/s	BT Mode: 5 BT Pings: 1
BT Up Vel.: 1.00 ft/s	WT Mode: 1 WT Pings: 1
WT Up Vel.: 9.00 ft/s	WV : 250
Use Weighted Mean Depth: NO	
	Max. Vel.: 13.3 ft/s
	Max. Depth: 19.6 ft
	Mean Depth: 12.4 ft
	% Meas.: 62.55
	Water Temp.: None
	ADCP Temp.: 32.6 °F

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location:

Project Name: ikpik000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
003	R	5	5	399	3973	18181	4129	86.4	31.8	26401	482	7939	15:51	15:53	3.23	3.33	10	1
005	R	5	5	494	6044	17290	5874	107	29.5	29344	847	8621	15:58	16:01	4.77	3.40	18	1
006	L	5	5	467	5396	15605	4877	79.4	79.9	26037	784	8747	16:03	16:06	4.36	2.98	13	0
007	R	0	5	453	5097	16984	4882	0.000	58.9	27022	650	7613	16:07	16:10	3.84	3.55	7	0
Mean		4	5	453	5127	17015	4940	68.2	50.0	27201	691	8230	Total	00:19	4.05	3.31	12	0
SDev		3	0	40	865	1068	716	47.0	24.0	1485	161.8	543.2			0.67	0.24		
SD/M		0.67	0.00	0.09	0.17	0.06	0.14	0.69	0.48	0.05	0.23	0.07			0.16	0.07		

Remarks: Q 27,446cfs using BT with 3% error and 27,201cfs using VTC with 5% error

Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: DB/KM	Width: 390 ft	Processed by: DAV
Boat/Motor: raft	Area: 4,660 ft ²	Mean Velocity: 6.50 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 30,300 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.350 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (20.4°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: Rio Grande / 1200 kHz
WT 3-Beam Solution: NO	Serial #: 12812 Firmware: 10.16
BT Error Vel.: 0.33 ft/s	Bin Size: 15 cm Blank: 25 cm
WT Error Vel.: 3.50 ft/s	BT Mode: 5 BT Pings: 1
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 1
WT Up Vel.: 8.00 ft/s	WV : 177 WO : 13, 4
Use Weighted Mean Depth: YES	
Max. Vel.: 10.8 ft/s	
Max. Depth: 16.7 ft	
Mean Depth: 11.9 ft	
% Meas.: 72.87	
Water Temp.: None	
ADCP Temp.: 34.6 °F	

Performed Diag. Test: YES
 Performed Moving Bed Test: NO
 Performed Compass Calibration: YES Evaluation: YES
 Meas. Location:

Project Name: Ikpikpuk_0.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	R	4	6	400	4784	22551	3558	35.0	39.3	30966	395	4756	15:07	15:13	1.29	6.51	1	0
005	L	5	5	184	4809	22556	3349	33.5	19.9	30767	403	4776	15:32	15:35	2.47	6.44	0	0
006	R	5	5	256	4827	22071	3569	42.7	12.3	30521	398	4644	15:35	15:39	1.87	6.57	0	0
009	L	7	9	165	4811	22380	3490	64.7	69.1	30815	407	4846	15:46	15:48	2.76	6.36	2	0
010	R	5	8	204	4535	20898	3279	159	31.3	28902	370	4361	15:49	15:52	2.15	6.63	1	0
011	L	5	7	150	4454	21889	3168	33.1	99.1	29643	369	4584	15:52	15:55	2.79	6.47	0	0
Mean		5	7	226	4703	22057	3402	61.3	45.2	30269	390	4661	Total	00:47	2.22	6.50	1	0
SDev		1	2	93	164	627	163	49.3	32.9	819	16.5	174.6			0.58	0.10		
SD/M		0.19	0.24	0.41	0.03	0.03	0.05	0.80	0.73	0.03	0.04	0.04			0.26	0.01		

Remarks: Q 28,483cfs using BT with 2% error and 30,269cfs using VTG with 3% error

Party: DB/KM	Width: 296 ft	Processed by: DAV
Boat/Motor: raft	Area: 1,800 ft ²	Mean Velocity: 4.41 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 7,900 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.300 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.5°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: Rio Grande / 1200 kHz
WT 3-Beam Solution: NO	Serial #: 12812 Firmware: 10.16
BT Error Vel.: 0.33 ft/s	Bin Size: 12 cm Blank: 25 cm
WT Error Vel.: 3.50 ft/s	BT Mode: 5 BT Pings: 1
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 1
WT Up Vel.: 7.00 ft/s	WV : 175 WO : 15, 4
Use Weighted Mean Depth: YES	
Max. Vel.: 8.03 ft/s	
Max. Depth: 10.7 ft	
Mean Depth: 6.08 ft	
% Meas.: 60.21	
Water Temp.: None	
ADCP Temp.: 38.1 °F	

Performed Diag. Test: YES

Project Name: Ikpikpuk_0.mmt

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: YES Evaluation: YES

Meas. Location:

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	6	60	143	1908	4730	1104	32.9	164	7938	303	1793	18:41	18:43	2.06	4.43	34	0
001	R	12	60	181	1835	4834	1075	10.1	283	8037	318	1915	18:43	18:46	1.58	4.20	24	0
002	L	12	50	159	1797	4732	1057	4.63	141	7732	271	1736	18:47	18:49	1.78	4.46	15	0
003	R	12	50	214	2127	4792	1203	5.16	195	8322	351	1947	18:49	18:53	1.53	4.27	34	0
004	L	12	50	163	1830	4755	1050	5.44	138	7779	280	1792	18:53	18:55	1.77	4.34	13	0
005	R	12	50	177	1802	4745	1025	9.68	119	7701	303	1806	18:55	18:58	1.57	4.27	19	0
006	L	12	50	133	1849	4750	1050	9.96	211	7869	269	1668	18:58	19:00	2.04	4.72	21	0
007	R	12	50	169	1834	4704	1052	19.0	198	7807	275	1699	19:01	19:03	1.59	4.60	18	0
Mean		11	53	167	1873	4755	1077	12.1	181	7898	296	1795	Total	00:22	1.74	4.41	22	0
SDev		2	5	25	108	40.4	55.6	9.60	52.7	204	28.4	97.5			0.21	0.18		
SD/M		0.19	0.09	0.15	0.06	0.01	0.05	0.79	0.29	0.03	0.10	0.05			0.12	0.04		

Remarks: Q 7,898cfs using BT with 3% error and 8,074cfs using VTG with 3% error

Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: RTK/DAV	Width: 180 ft	Processed by: DAV
Boat/Motor: kayak	Area: 501 ft ²	Mean Velocity: 0.554 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 275 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Bin Size: 6 cm Blank: 3 cm
WT Error Vel.: 1.10 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 4.60 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 3.20 ft/s	
Max. Depth: 5.96 ft	
Mean Depth: 2.78 ft	
% Meas.: 62.07	
Water Temp.: None	
ADCP Temp.: 65.8 °F	

Performed Diag. Test: NO Project Name: ikpikpuk 20110707000 275.4cfs
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location:

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
001	R	10	10	218	52.7	173	48.7	2.05	9.18	285	195	537	16:06	16:11	0.79	0.53	1	6
002	L	10	10	217	53.2	179	53.8	2.01	-5.93	282	172	486	16:11	16:15	0.72	0.58	4	7
003	R	10	10	233	47.7	166	45.4	-0.318	5.76	264	186	522	16:18	16:22	0.72	0.51	1	4
004	L	10	10	219	60.1	162	51.5	0.636	-4.73	270	161	434	16:23	16:27	0.79	0.62	1	8
005	R	10	10	202	50.0	175	44.4	1.48	4.84	276	185	525	16:28	16:32	0.80	0.52	2	3
Mean		10	10	217	52.7	171	48.7	1.17	1.82	275	180	501	Total	00:25	0.77	0.55	2	6
SDev		0	0	11	4.67	6.78	4.00	1.01	6.74	8.56	13.5	41.9			0.04	0.05		
SD/M		0.00	0.00	0.05	0.09	0.04	0.08	0.86	3.70	0.03	0.07	0.08			0.06	0.09		

Remarks: Q 275cfs using BT with 3% error

Party: RTK/DAV	Width: 89.0 ft	Processed by: DAV
Boat/Motor:	Area: 149 ft ²	Mean Velocity: 0.533 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 78.9 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: 4-Clear	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: NO	Max. Vel.: 3.14 ft/s	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Max. Depth: 2.66 ft	Serial #: Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Mean Depth: 1.68 ft	Bin Size: 4 cm Blank: 3 cm
WT Error Vel.: 1.00 ft/s	% Meas.: 48.09	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	Water Temp.: None	WT Mode: 12 WT Pings: 6
WT Up Vel.: 12.90 ft/s	ADCP Temp.: 53.6 °F	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO		

Performed Diag. Test: NO

Project Name: ikpikpuk 20110826000 q79cfs.n

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: NO Evaluation: NO

Meas. Location:

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
019	L	20	10	85	20.3	34.1	12.6	6.36	2.30	75.5	90	138	19:23	19:25	0.67	0.55	2	8
020	R	20	10	86	20.0	38.9	13.3	6.07	3.78	82.1	89	145	19:25	19:27	0.62	0.57	2	9
021	L	20	10	73	21.8	41.6	14.0	5.62	2.75	85.8	87	141	19:27	19:29	0.71	0.61	3	8
022	R	20	10	74	20.0	40.0	12.6	3.81	3.21	79.6	88	147	19:29	19:30	0.71	0.54	1	11
023	L	20	10	75	17.8	36.6	11.5	8.40	2.75	77.0	87	153	19:31	19:32	0.75	0.50	3	9
024	R	20	10	85	16.1	36.6	11.5	6.64	2.79	73.6	93	171	19:33	19:34	0.68	0.43	2	11
Mean		20	10	79	19.3	38.0	12.6	6.15	2.93	78.9	89	149	Total	00:11	0.69	0.53	2	9
SDev		0	0	6	2.02	2.72	1.00	1.49	0.507	4.50	2.2	11.9			0.04	0.06		
SD/M		0.00	0.00	0.08	0.10	0.07	0.08	0.24	0.17	0.06	0.03	0.08			0.06	0.11		

Remarks: Q 79cfs using BT with 6% errorDischarge for transects in *italics* have a total Q more than 5% from the mean

Party: RTK/DAV	Width: 317 ft	Processed by: DAV
Boat/Motor: kayak	Area: 3,650 ft ²	Mean Velocity: 2.40 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 8,680 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (18.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: Rio Grande / 1200 kHz
WT 3-Beam Solution: NO	Serial #: 3600 Firmware: 10.17
BT Error Vel.: 0.33 ft/s	Bin Size: 25 cm Blank: 25 cm
WT Error Vel.: 3.50 ft/s	BT Mode: 5 BT Pings: 1
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 1
WT Up Vel.: 5.00 ft/s	WV : 175 WO : 1, 4
Use Weighted Mean Depth: YES	
Max. Vel.: 5.40 ft/s	
Max. Depth: 20.6 ft	
Mean Depth: 11.5 ft	
% Meas.: 64.22	
Water Temp.: None	
ADCP Temp.: 33.4 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage

Project Name: ikpikpuk 5252012 q8683cfs.mmm
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	R	5	4	714	1631	5703	1411	17.7	7.52	8771	332	3827	06:45	06:49	1.44	2.29	13	0
001	L	5	5	489	1803	5498	1477	7.24	13.5	8798	302	3246	06:50	06:53	2.22	2.71	2	0
002	R	5	5	467	1535	5524	1393	14.5	10.1	8477	318	3883	06:55	06:58	1.95	2.18	2	0
Mean		5	5	556	1656	5575	1427	13.1	10.4	8682	317	3652	Total	00:12	1.87	2.40	6	0
SDev		0	1	137	135	111	44.1	5.36	3.01	178	14.9	352.4			0.39	0.28		
SD/M		0.00	0.12	0.25	0.08	0.02	0.03	0.41	0.29	0.02	0.05	0.10			0.21	0.12		

Remarks: Q 8,682 using BT with 2% error

Party: DAV/RTK	Width: 277 ft	Processed by: DAV
Boat/Motor: kayak	Area: 2,500 ft ²	Mean Velocity: 3.22 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 8,060 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.500 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (18.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.12
BT Error Vel.: 3.28 ft/s*	Bin Size: 10 cm Blank: 19 cm
WT Error Vel.: 32.81 ft/s*	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s*	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s*	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 6.20 ft/s	
Max. Depth: 16.2 ft	
Mean Depth: 9.04 ft	
% Meas.: 64.51	
Water Temp.: None	
ADCP Temp.: 38.7 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: YES Evaluation: YES
 Meas. Location: 100 DS gage

Project Name: ikpikpuk 20120531 q8055cfs.m
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	R	15	6	338	1105	5311	1623	111	12.8	8163	277	2518	14:37	14:41	1.47	3.24	0	0
001	L	15	15	171	996	5141	1507	121	51.4	7816	255	2449	14:41	14:43	2.46	3.19	0	0
002	R	15	10	183	1180	5125	1767	56.4	24.7	8153	293	2458	14:45	14:46	2.42	3.32	0	0
003	L	15	10	164	1118	5272	1684	54.8	35.6	8165	285	2536	14:47	14:49	2.50	3.22	0	0
004	R	15	10	154	1076	4959	1752	93.1	25.4	7906	282	2547	14:50	14:51	2.77	3.10	0	0
005	L	15	10	144	1073	5366	1568	89.2	28.7	8125	272	2508	14:52	14:53	2.89	3.24	0	0
Mean		15	10	192	1091	5196	1650	87.5	29.8	8055	277	2503	Total	00:15	2.42	3.22	0	0
SDev		0	3	73	60.8	150	103	27.3	12.9	153	12.9	40.9			0.50	0.07		
SD/M		0.00	0.28	0.38	0.06	0.03	0.06	0.31	0.43	0.02	0.05	0.02			0.21	0.02		

Remarks: Q 8,055cfs using BT with 2% error

There was a 4000 cfs bias between left and right transects using VTG, Q with all transects using VTG was 8836cfs with 24% error, 10,773cfs using only the left transects with 4% error and 6,899cfs using only the right transects with 5% error.

* - value not consistent for all transects

Party: DAV/RTK	Width: 300 ft	Processed by:
Boat/Motor: kayak	Area: 2,820 ft ²	Mean Velocity: 3.77 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 10,600 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (18.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.12
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 19 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 7.06 ft/s	
Max. Depth: 14.5 ft	
Mean Depth: 9.42 ft	
% Meas.: 65.95	
Water Temp.: None	
ADCP Temp.: 41.9 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 100ft DS of gage

Project Name: ikpikpuk 20120604 q10628cfs.n
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	L	10	10	165	1270	6814	2367	4.73	16.9	10472	329	3094	14:04	14:05	3.24	3.39	0	0
001	R	10	10	162	1280	7094	2250	15.6	23.9	10664	285	2707	14:07	14:08	3.12	3.94	0	0
002	L	10	10	136	1274	6882	2278	-8.12	68.2	10493	318	2986	14:10	14:11	3.91	3.51	0	0
003	R	10	10	150	1272	7087	2230	10.1	37.8	10637	267	2501	14:12	14:14	3.45	4.26	0	0
Mean		10	10	153	1274	6969	2281	5.58	36.7	10566	300	2822	Total	00:10	3.43	3.77	0	0
SDev		0	0	13	4.60	143	60.3	10.2	22.7	97.7	28.7	269.1			0.35	0.40		
SD/M		0.00	0.00	0.09	0.00	0.02	0.03	1.82	0.62	0.01	0.10	0.10			0.10	0.11		

Remarks: Q 10,567cfs using BT with 1% error
 Q with VTG was 6,216cfs with 37% error, poor GPS data

Party: RTK/DAV	Width: 122 ft	Processed by: DAV
Boat/Motor: Tethered Boat	Area: 230 ft ²	Mean Velocity: 0.886 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 204 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Bin Size: 5 cm Blank: 3 cm
WT Error Vel.: 1.10 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 5.00 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 3.23 ft/s	
Max. Depth: 2.91 ft	
Mean Depth: 1.89 ft	
% Meas.: 53.64	
Water Temp.: None	
ADCP Temp.: 59.1 °F	

Performed Diag. Test: NO

Project Name: ikpikpuk 7052012 q204cfs.mmt

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: NO Evaluation: NO

Meas. Location: 1 mile U.S of gage

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
010	L	15	10	107	48.4	107	36.4	5.76	3.50	201	121	224	15:01	15:03	0.80	0.90	1	4
011	R	15	10	114	50.8	108	36.2	6.50	3.00	205	124	230	15:03	15:06	0.78	0.89	1	3
012	L	15	10	106	47.6	111	36.5	6.57	4.24	206	119	232	15:07	15:09	0.84	0.89	1	3
013	R	15	10	109	48.5	111	35.0	5.12	3.96	204	124	236	15:09	15:11	0.84	0.87	2	3
Mean		15	10	109	48.8	109	36.0	5.99	3.67	204	122	230	Total	00:10	0.82	0.89	1	3
SDev		0	0	4	1.38	2.03	0.678	0.684	0.542	1.99	2.4	4.9			0.03	0.01		
SD/M		0.00	0.00	0.03	0.03	0.02	0.02	0.11	0.15	0.01	0.02	0.02			0.04	0.02		

Remarks: Q 204 cfs using BT with 1% error

Party: RTK/DAV	Width: 248 ft	Processed by: DAV
Boat/Motor: Kayak	Area: 1,030 ft ²	Mean Velocity: 1.16 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 1,190 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: _____ Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Bin Size: 10 cm Blank: 3 cm
WT Error Vel.: 0.50 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 4.00 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 2.85 ft/s	
Max. Depth: 8.36 ft	
Mean Depth: 4.14 ft	
% Meas.: 58.78	
Water Temp.: None	
ADCP Temp.: 42.6 °F	

Performed Diag. Test: NO Project Name: ikpikpuk 08312012 q1190cfs.m
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 200' U.S of gage

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	R	6	6	98	312	681	181	1.20	3.35	1178	246	984	16:08	16:10	1.89	1.20	2	9
001	L	6	6	106	289	711	184	1.17	2.51	1187	250	1030	16:11	16:13	1.79	1.15	3	10
002	R	6	6	106	308	696	189	1.13	2.12	1197	244	1062	16:13	16:16	1.84	1.13	2	9
003	L	6	6	116	308	709	175	0.565	3.07	1195	253	1036	16:16	16:19	1.74	1.15	4	12
Mean		6	6	106	304	699	182	1.02	2.76	1189	248	1028	Total	00:10	1.82	1.16	3	10
SDev		0	0	7	10.5	14.0	5.84	0.302	0.556	8.52	4.0	32.4			0.06	0.03		
SD/M		0.00	0.00	0.07	0.03	0.02	0.03	0.30	0.20	0.01	0.02	0.03			0.03	0.02		

Remarks: Q 1190cfs using BT with 1% error

Party: RTK/DAV	Width: 261 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,050 ft ²	Mean Velocity: 1.17 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 1,230 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (18.5°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: NO	Max. Vel.: 4.47 ft/s	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Max. Depth: 5.31 ft	Serial #: Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Mean Depth: 4.04 ft	Bin Size: 7 cm Blank: 3 cm
WT Error Vel.: 1.00 ft/s	% Meas.: 76.91	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	Water Temp.: None	WT Mode: 12 WT Pings: 6
WT Up Vel.: 4.47 ft/s	ADCP Temp.: 36.4 °F	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO		

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 200' DS gage

Project Name: ikpiok20130528dav1232cfs.mmm
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
001	L	10	10	152	151	962	127	-0.318	10.3	1251	273	1100	15:22	15:25	1.60	1.14	11	1
002	R	10	10	135	150	932	119	-1.02	12.6	1213	249	1005	15:25	15:28	2.05	1.21	13	1
Mean		10	10	143	151	947	123	-0.671	11.4	1232	261	1053	Total	00:06	1.83	1.17	12	1
SDev		0	0	12	0.499	21.2	6.02	0.499	1.65	26.6	17.4	67.0			0.32	0.05		
SD/M		0.00	0.00	0.08	0.00	0.02	0.05	0.74	0.14	0.02	0.07	0.06			0.17	0.04		

Remarks: 1232cfs using BT with 2% error, no GPS

Party: RTK/DAV	Width: 323 ft	Processed by: DAV
Boat/Motor: kayak	Area: 3,900 ft ²	Mean Velocity: 4.47 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 17,400 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (18.5°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.15
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 10.6 ft/s	
Max. Depth: 14.8 ft	
Mean Depth: 12.1 ft	
% Meas.: 68.49	
Water Temp.: None	
ADCP Temp.: 34.0 °F	

Performed Diag. Test: NO

Project Name: ikpikpuk20130531dav17428cfs.

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: NO Evaluation: NO

Meas. Location: 300' DS gage

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	6	6	226	2006	12289	3392	37.2	48.2	17772	315	3854	16:51	16:53	2.23	4.61	0	0
001	R	6	6	200	1999	12149	3523	5.97	18.6	17696	332	4052	16:55	16:57	2.82	4.37	1	0
002	L	6	6	182	1925	11343	3253	16.7	35.2	16574	325	3878	16:59	17:01	2.97	4.27	2	0
003	R	6	6	189	2066	11964	3554	53.2	34.0	17671	321	3812	17:03	17:05	2.65	4.64	1	0
Mean		6	6	199	1999	11936	3430	28.3	34.0	17428	323	3899	Total	00:14	2.67	4.47	1	0
SDev		0	0	19	57.5	417	137	21.1	12.1	571	7.2	105.8			0.32	0.18		
SD/M		0.00	0.00	0.10	0.03	0.03	0.04	0.75	0.36	0.03	0.02	0.03			0.12	0.04		

Remarks: 17921cfs using BT with 0.03 error and 17428cfs using VTG with 0.03 error

Party: DAV/RTK	Width: 296 ft	Processed by: DAV
Boat/Motor: kayak	Area: 3,850 ft ²	Mean Velocity: 5.08 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 19,500 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (18.5°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.15
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	

Performed Diag. Test: NO Project Name: ikpikpuk20130605dav17972cfs.
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 200' DS of gage

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	L	4	4	198	1995	13572	4307	3.18	10.5	19888	287	3909	16:15	16:17	2.53	5.09	1	0
001	R	4	4	236	2269	13135	3841	-1.20	9.96	19254	294	3452	16:18	16:20	2.37	5.58	0	0
002	L	4	4	198	1974	13130	4508	6.92	9.39	19629	293	4004	16:30	16:32	2.68	4.90	0	0
003	R	4	4	207	2019	12916	4088	27.3	5.37	19056	312	4023	16:35	16:38	2.67	4.74	8	0
Mean		4	4	209	2064	13188	4186	9.04	8.81	19457	296	3847	Total	00:22	2.56	5.08	2	0
SDev		0	0	18	138	275	287	12.6	2.34	373	10.6	268.1			0.15	0.36		
SD/M		0.00	0.00	0.09	0.07	0.02	0.07	1.39	0.27	0.02	0.04	0.07			0.06	0.07		

Remarks: 19,457cfs using BT with 2% error and 17,972cfs using VTG with 7% error

Party: RTK/KAP	Width: 279 ft	Processed by: DAV
Boat/Motor: kayak	Area: 2,060 ft ²	Mean Velocity: 2.04 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 4,210 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.000 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (18.5°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: Firmware: 44.15
BT Error Vel.: 0.33 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: NO	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location:

Project Name: ipkipuk20130618dav4166cfs.m
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
001	L	10	5	366	432	3050	801	-2.75	3.85	4284	279	2078	12:47	12:51	1.15	2.06	1	1
002	R	10	5	345	427	2871	814	16.0	1.80	4129	279	2049	12:51	12:55	1.26	2.01	0	0
003	L	10	5	290	423	2995	778	7.84	7.10	4211	279	2081	12:55	12:58	1.39	2.02	1	1
004	R	10	5	371	437	2955	831	2.65	3.18	4229	278	2038	12:58	13:03	1.14	2.08	0	0
Mean		10	5	343	430	2968	806	5.94	3.98	4213	279	2062	Total	00:15	1.24	2.04	0	1
SDev		0	0	37	6.22	75.3	22.1	8.00	2.25	64.1	0.4	21.5			0.12	0.03		
SD/M		0.00	0.00	0.11	0.01	0.03	0.03	1.35	0.56	0.02	0.00	0.01			0.10	0.01		

Remarks: 4213cfs using BT with 0.02 error and 4166cfs using VTG with 0.03 error

Party: RTK/DAV	Width: 243 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,120 ft ²	Mean Velocity: 1.23 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 1,380 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Bin Size: 10 cm Blank: 3 cm
WT Error Vel.: 0.60 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 2.70 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 2.70 ft/s	
Max. Depth: 9.16 ft	
Mean Depth: 4.62 ft	
% Meas.: 66.81	
Water Temp.: None	
ADCP Temp.: 58.8 °F	

Performed Diag. Test: NO

Project Name: ikpikpuk20130707dav1383cfs.m

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: NO Evaluation: NO

Meas. Location:

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
001	R	4	6	96	232	924	187	1.84	4.27	1350	246	1222	10:59	11:01	2.00	1.11	4	4
002	L	4	6	141	263	979	225	1.91	3.28	1473	246	1133	11:02	11:05	1.36	1.30	2	4
003	R	4	6	108	253	948	208	1.20	3.18	1414	241	1114	11:07	11:09	1.84	1.27	8	4
004	L	4	6	159	252	929	198	1.41	3.57	1384	239	1063	11:10	11:14	1.29	1.30	2	4
005	R	4	6	121	233	903	197	1.31	3.92	1339	243	1179	11:14	11:17	1.62	1.14	5	6
006	L	4	6	134	248	902	210	0.600	2.97	1363	244	1102	11:19	11:22	1.40	1.24	1	3
007	R	4	6	111	258	884	214	1.09	4.38	1362	243	1052	11:22	11:25	1.75	1.29	4	5
Mean		4	6	124	249	924	206	1.34	3.65	1383	243	1124	Total	00:25	1.61	1.23	4	4
SDev		0	0	22	11.7	32.1	12.7	0.447	0.551	46.4	2.5	60.9			0.27	0.08		
SD/M		0.00	0.00	0.18	0.05	0.03	0.06	0.33	0.15	0.03	0.01	0.05			0.17	0.07		

Remarks: 1,383cfs using BT with 3% error, no GPSDischarge for transects in *italics* have a total Q more than 5% from the mean

Party: RTK/DAV	Width: 248 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,470 ft ²	Mean Velocity: 1.85 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 2,720 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:5	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Bin Size: 10 cm Blank: 3 cm
WT Error Vel.: 0.60 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 3.39 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 3.39 ft/s	
Max. Depth: 13.2 ft	
Mean Depth: 5.97 ft	
% Meas.: 72.45	
Water Temp.: None	
ADCP Temp.: 46.9 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 300' US of gage

Project Name: ikpikpuk20130822dav2717cfs.m
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
001	R	6	6	101	324	1984	407	5.30	3.53	2723	229	1676	13:36	13:38	1.72	1.62	2	6
002	L	6	6	109	393	1978	334	4.63	4.77	2713	255	1449	13:41	13:43	1.75	1.87	2	3
003	R	6	6	90	408	1950	343	5.19	4.98	2711	257	1390	13:44	13:46	2.06	1.95	2	1
004	L	6	6	124	394	1968	316	1.91	7.35	2688	252	1419	13:46	13:49	1.56	1.89	2	1
005	R	6	6	93	394	1963	375	6.25	9.64	2749	248	1435	13:49	13:51	1.96	1.92	2	3
Mean		6	6	103	383	1969	355	4.65	6.05	2717	248	1474	Total	00:15	1.81	1.85	2	3
SDev		0	0	14	33.3	13.0	36.0	1.64	2.43	22.2	11.2	114.8			0.20	0.13		
SD/M		0.00	0.00	0.13	0.09	0.01	0.10	0.35	0.40	0.01	0.05	0.08			0.11	0.07		

Remarks: 2717cfs using BT with 1% error

Party: RTK/DAV	Width: 231 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,110 ft ²	Mean Velocity: 1.09 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 1,210 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.16
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 5.23 ft/s	
Max. Depth: 9.03 ft	
Mean Depth: 4.84 ft	
% Meas.: 57.81	
Water Temp.: None	
ADCP Temp.: 38.0 °F	

Performed Diag. Test: NO Project Name: ikpikpuk20140526.mmt
 Performed Moving Bed Test: YES Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
001	L	6	10	230	276	743	209	-0.353	2.93	1230	223	1128	13:01	13:04	1.74	1.09	37	0
002	R	6	10	132	234	759	209	-0.777	-5.65	1196	224	1214	13:04	13:05	2.49	0.98	20	1
004	R	6	10	127	262	749	218	-1.87	3.07	1230	229	1212	13:08	13:09	2.88	1.01	28	1
005	L	6	10	149	367	610	212	0.671	6.82	1196	246	1029	13:12	13:14	2.60	1.16	9	2
006	R	6	10	117	328	628	219	2.54	6.00	1183	233	988	13:14	13:15	3.05	1.20	9	2
Mean		6	10	151	293	698	213	0.042	2.63	1207	231	1114	Total	00:14	2.55	1.09	21	1
SDev		0	0	46	53.2	72.7	4.77	1.67	4.94	21.8	9.2	103.6			0.51	0.09		
SD/M		0.00	0.00	0.30	0.18	0.10	0.02	39.38	1.88	0.02	0.04	0.09			0.20	0.08		

Remarks: Q 1,207cfs using BT only with 2% error

Party: JSO/MFS	Width: 310 ft	Processed by: JSO
Boat/Motor: AIRE VIOLET	Area: 3,030 ft ²	Mean Velocity: 3.46 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 10,500 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.500 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: P
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: 4-Clear	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: Firmware: 44.15
BT Error Vel.: 0.33 ft/s	Bin Size: 20 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: NO	
Max. Vel.: 6.93 ft/s	
Max. Depth: 16.7 ft	
Mean Depth: 9.79 ft	
% Meas.: 67.39	
Water Temp.: 39.6 °F	
ADCP Temp.: 39.5 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: GAGE X-SECTION

Project Name: ikpikuk_20140603.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	R	10	10	243	1330	7006	2213	1.13	14.4	10565	315	3015	18:14	18:17	2.24	3.50	7	0
003	L	10	5	142	1298	7145	1985	-7.52	13.9	10434	304	3050	18:36	18:37	3.33	3.42	7	1
Mean		10	8	192	1314	7075	2099	-3.20	14.1	10500	310	3032	Total	00:23	2.79	3.46	7	1
SDev		0	4	71	22.3	98.3	162	6.12	0.325	92.1	7.7	25.3			0.77	0.06		
SD/M		0.00	0.47	0.37	0.02	0.01	0.08	1.91	0.02	0.01	0.02	0.01			0.28	0.02		

Remarks: RR62041. KAYAK AT GAGE X-SECTION.

Q 10,500cfs using BT with 1% error

COMPUTER ISSUES IN RIVER FOLLOWING Tr000.

ADCP CLOCK SET, TEST CONDUCTED AND LCT from ikpikuk_Tr000_20140603.mmt

COMPASS CALIBRATION STORED FROM 15803000_89 MMT USED HERE

TWO MMTs MADE:

ikpikuk_Tr000_20140603.mmt AND ikpikuk_Tr001_20140603.mmt

PD0 FILES COMBINED (IKPIKPUK_0_000_14-06-03.PD0, RR_2014-06-03_0_000.PD0) TO CREATE ikpikuk_20140603.mmt

NO MB FROM LCT (LBT= first Tr001 here) PROCESSED IN LC v4.04.

EXTRAP DEFAULT USED. RECOMMENDATION -1.1% DIFF OF DEFAULT AND DOES NOT ACCOUNT FOR NECESSARY SUBSECTION EDITS AT EDGES.

BOTH Tr000 AND Tr003 SUBSECTIONED. LBT SUBSECTIONED.

second TR001 HERE = INVALID.

MMT DOWNGRADED TO POOR DUE TO SHORT TIME IN WATER AND EXTENSIVE POST-PROCESSING.

Party: DAV/JPB	Width: 307 ft	Processed by: DAV
Boat/Motor: kayak	Area: 2,760 ft ²	Mean Velocity: 2.98 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 8,220 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (17.4°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: Distributed		Control2: Unspecified	
% Correction: 5.99		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.16
BT Error Vel.: 3.28 ft/s*	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s*	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s*	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s*	WZ : 5
Use Weighted Mean Depth: YES	

Performed Diag. Test: NO
 Performed Moving Bed Test: YES
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage

Project Name: Ikpikpuk06082014_0.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	MBT Corrected Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	R	4	4	179	1374	5553	2049	1.27	5.05	8983	313	2782	15:39	15:41	2.81	3.23	30	1
001	L	4	4	163	1219	5054	1580	3.99	6.96	7864	293	2709	15:41	15:43	2.78	2.90	3	0
002	R	4	4	124	1337	5156	1875	6.78	18.2	8393	321	2824	15:44	15:46	3.32	2.97	10	0
003	L	4	4	131	1164	4874	1606	0.424	7.95	7652	298	2704	15:46	15:47	3.49	2.83	2	0
Mean		4	4	149	1274	5159	1777	3.12	9.53	8223	307	2755	Total	00:08	3.10	2.98	11	0
SDev		0	0	26	98.5	288	225	2.88	5.89	595	13.0	58.2			0.36	0.17		
SD/M		0.00	0.00	0.18	0.08	0.06	0.13	0.92	0.62	0.07	0.04	0.02			0.12	0.06		

Remarks: Q 8,114cfs using BT with 3% error and 8,223cfs using BT with 7% error

* - value not consistent for all transects

Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: RTK/DAV	Width: 149 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 281 ft ²	Mean Velocity: 1.33 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 362 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:5	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 32.81 ft/s	Bin Size: 6 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 3.56 ft/s	
Max. Depth: 4.24 ft	
Mean Depth: 1.87 ft	
% Meas.: 50.88	
Water Temp.: None	
ADCP Temp.: 63.7 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 1 mile U.S of gage

Project Name: ikpikpuk20140711 q362cfs day.
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
001	L	20	0	144	78.7	209	58.2	6.25	0.000	352	157	370	10:55	10:57	1.01	0.95	1	1
002	R	20	6	128	107	175	74.7	12.1	3.14	372	148	247	10:58	11:00	0.88	1.51	1	0
003	L	20	6	106	91.5	177	67.7	14.1	3.35	354	144	256	11:01	11:03	1.02	1.38	1	0
004	R	20	6	115	102	174	73.2	14.2	3.74	367	148	249	11:03	11:05	0.98	1.48	2	0
Mean		20	5	123	94.9	184	68.4	11.7	2.56	362	149	281	Total	00:10	0.97	1.33	1	0
SDev		0	3	17	12.6	17.0	7.47	3.73	1.72	9.96	5.8	60.0			0.06	0.26		
SD/M		0.00	0.67	0.13	0.13	0.09	0.11	0.32	0.67	0.03	0.04	0.21			0.07	0.19		

Remarks: Q 362cfs using BT with 3% error

Summary of Discharge Measurement Forms

Judy Creek, Alaska

Station Number:
Station Name: Judy Creek

Meas. No:
Date: 06/05/2010

Party: DB/RTK	Width: 157 ft	Processed by: DAV
Boat/Motor: kayak	Area: 579 ft ²	Mean Velocity: 2.46 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 1,420 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.469 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.04
BT Error Vel.: 32.81 ft/s	Bin Size: 11 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 4.94 ft/s	
Max. Depth: 7.01 ft	
Mean Depth: 3.67 ft	
% Meas.: 67.15	
Water Temp.: None	
ADCP Temp.: 34.0 °F	

Performed Diag. Test: NO Project Name: judy20100605 q1444.mmt
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	L	10	30	171	<i>225</i>	<i>898</i>	<i>158</i>	<i>5.16</i>	<i>35.8</i>	<i>1322</i>	<i>149</i>	<i>561</i>	17:20	17:23	0.94	2.36	20	0
001	R	10	30	226	<i>305</i>	<i>1042</i>	<i>204</i>	<i>-4.63</i>	<i>26.4</i>	<i>1573</i>	<i>186</i>	<i>714</i>	17:23	17:27	0.86	2.20	28	0
002	L	10	30	140	<i>264</i>	<i>943</i>	<i>180</i>	<i>0.848</i>	<i>31.1</i>	<i>1419</i>	<i>160</i>	<i>558</i>	17:27	17:30	1.17	2.54	17	0
004	L	10	30	160	<i>255</i>	<i>911</i>	<i>178</i>	<i>3.35</i>	<i>27.8</i>	<i>1375</i>	<i>148</i>	<i>507</i>	17:34	17:37	1.10	2.71	16	0
005	R	10	30	191	<i>282</i>	<i>958</i>	<i>189</i>	<i>-4.66</i>	<i>31.0</i>	<i>1456</i>	<i>154</i>	<i>599</i>	17:37	17:40	0.93	2.43	28	0
006	L	10	30	192	<i>252</i>	<i>955</i>	<i>178</i>	<i>3.64</i>	<i>-33.1</i>	<i>1355</i>	<i>148</i>	<i>532</i>	17:40	17:44	1.02	2.55	22	0
Mean		10	30	180	264	951	181	0.618	19.8	1417	157	579	Total	00:23	1.00	2.46	22	0
SDev		0	0	30	27.4	50.5	15.2	4.30	26.1	89.9	14.6	73.4			0.12	0.18		
SD/M		0.00	0.00	0.17	0.10	0.05	0.08	6.96	1.32	0.06	0.09	0.13			0.12	0.07		

Remarks: Q 1417cfs using BT with 6% error, Invalid ensembles ranged between 16% and 28%

Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: DB/BL	Width: 313 ft	Processed by: DAV
Boat/Motor: kayak	Area: 2,190 ft ²	Mean Velocity: 3.17 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 6,850 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.430 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: Model (20.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: Rio Grande / 1200 kHz
WT 3-Beam Solution: NO	Serial #: 3600 Firmware: 10.17
BT Error Vel.: 0.33 ft/s	Bin Size: 25 cm Blank: 25 cm
WT Error Vel.: 3.50 ft/s	BT Mode: 5 BT Pings: 1
BT Up Vel.: 1.00 ft/s	WT Mode: 1* WT Pings: 1
WT Up Vel.: 10.00 ft/s	WV : 184
Use Weighted Mean Depth: YES	
Max. Vel.: 8.83 ft/s	
Max. Depth: 16.2 ft	
Mean Depth: 7.07 ft	
% Meas.: 50.94	
Water Temp.: None	
ADCP Temp.: 35.4 °F	

Performed Diag. Test: NO Project Name: judy_2010_06_08 q8971.mmt
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 1 mille reach DS of gage

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	5	40	625	1565	4371	1129	13.0	149	7226	251	2106	14:37	14:40	1.41	3.43	69	0
002	L	7	12	762	2089	3523	1331	46.7	-5.97	6983	325	2200	14:44	14:47	1.72	3.18	26	0
009	R	30	8	676	1836	4042	1314	51.5	39.7	7283	292	2248	15:11	15:14	1.74	3.24	58	0
010	L	30	25	587	1953	2293	1169	50.7	170	5636	325	1809	15:14	15:16	2.27	3.11	47	0
013	R	7	40	626	2111	2949	1288	21.7	259	6628	309	2041	15:26	15:30	1.90	3.25	65	0
016	L	8	40	408	1494	3379	1032	97.2	250	6252	236	1816	15:39	15:41	2.28	3.44	67	0
017	R	10	40	542	2338	3874	1404	124	210	7949	457	3091	15:42	15:44	2.23	2.57	74	0
Mean		14	29	603	1912	3490	1238	57.8	153	6851	313	2187	Total	01:07	1.93	3.17	58	0
SDev		11	14	111	304	703	131	39.6	102	757	72.0	433.7			0.34	0.29		
SD/M		0.80	0.49	0.18	0.16	0.20	0.11	0.69	0.67	0.11	0.23	0.20			0.17	0.09		

Remarks: Q 6851cfs using BT with 11% error and up to 65% of invalid ensembles,
 Q 9115cfs using VTG with 7% error, USE THIS mmt

* - value not consistent for all transects

Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: DB/BL	Width: 124 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,320 ft ²	Mean Velocity: 3.48 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 4,580 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.430 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (21.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: YES	Max. Vel.: 6.10 ft/s	Type/Freq.: Rio Grande / 1200 kHz
WT 3-Beam Solution: NO	Max. Depth: 15.6 ft	Serial #: 3600 Firmware: 10.17
BT Error Vel.: 0.33 ft/s*	Mean Depth: 10.6 ft	Bin Size: 25 cm Blank: 25 cm
WT Error Vel.: 3.50 ft/s	% Meas.: 64.17	BT Mode: 5 BT Pings: 1
BT Up Vel.: 1.00 ft/s	Water Temp.: None	WT Mode: 12 WT Pings: 1
WT Up Vel.: 4.00 ft/s	ADCP Temp.: 44.5 °F	WV : 175 WO : 8, 4
Use Weighted Mean Depth: YES		

Performed Diag. Test: YES

Project Name: judy_0.mmt

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: YES Evaluation: NO

Meas. Location: not sure

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	4	8	163	875	3006	737	12.1	18.6	4649	120	1287	22:26	22:28	1.28	3.61	12	0
001	R	7	8	188	853	2875	753	14.7	20.1	4516	128	1346	22:29	22:31	1.22	3.36	10	0
Mean		6	8	175	864	2941	745	13.4	19.4	4582	124	1316	Total	00:04	1.25	3.48	11	0
SDev		2	0	18	15.1	92.6	10.9	1.80	1.05	94.0	6.1	42.0			0.05	0.18		
SD/M		0.39	0.00	0.10	0.02	0.03	0.01	0.13	0.05	0.02	0.05	0.03			0.04	0.05		

Remarks: Q 3901cfs using BT with 2% error and 4582cfs using VTG with 2% error

Station Number:

Meas. No:

Station Name: Judy Creek

Date: 06/14/2010

Party: DB/BL	Width: 123 ft	Processed by: DAV
Boat/Motor: kayak	Area: 769 ft ²	Mean Velocity: 2.32 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 1,780 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.459 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: NO	Max. Vel.: 4.59 ft/s	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Max. Depth: 10.7 ft	Serial #: Firmware: 31.04
BT Error Vel.: 32.81 ft/s	Mean Depth: 6.33 ft	Bin Size: 16 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	% Meas.: 71.85	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	Water Temp.: None	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	ADCP Temp.: 46.9 °F	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO		

Performed Diag. Test: NO

Project Name: judy20100614 q1777cfs.mmt

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: NO Evaluation: NO

Meas. Location: not sure

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
001	R	3	5	134	242	1261	286	1.98	-5.19	1786	130	773	16:49	16:51	1.15	2.31	7	0
002	L	3	5	169	212	1294	244	4.98	4.06	1759	143	861	16:52	16:54	1.19	2.04	27	0
003	R	3	5	117	250	1260	303	-1.24	3.57	1815	123	736	16:55	16:57	1.25	2.47	4	0
004	L	3	5	101	215	1291	238	-3.35	4.87	1746	96	706	16:57	16:59	1.39	2.47	24	0
Mean		3	5	130	230	1277	268	0.592	1.83	1777	123	769	Total	00:09	1.24	2.32	15	0
SDev		0	0	29	18.9	18.7	32.0	3.66	4.71	30.7	19.8	67.0			0.11	0.20		
SD/M		0.00	0.00	0.22	0.08	0.01	0.12	6.18	2.58	0.02	0.16	0.09			0.09	0.09		

Remarks: Q 1777cfs using BT with 2% error, no GPS

Station Number:

Meas. No:

Station Name: Judy Creek

Date: 07/05/2010

Party: RTK/DAV	Width: 110 ft	Processed by: DAV
Boat/Motor: kayak	Area: 522 ft²	Mean Velocity: 0.331 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 170 ft³/s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.04
BT Error Vel.: 32.81 ft/s	Bin Size: 12 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	

Performed Diag. Test: NO

Project Name: judy201007005rb000r.mmt

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: NO Evaluation: NO

Meas. Location: 100' US of gage

Tr.#	Edge Distance	#Ens.	Discharge							Width	Area	Time		Mean Vel.		% Bad		
			L	R	Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
013	R	2	10	109	30.5	114	21.0	-0.848	2.72	168	132	648	15:12	15:14	1.31	0.26	7	0
014	L	2	10	125	25.1	121	26.5	0.177	-3.35	170	126	495	15:16	15:18	1.09	0.34	27	0
015	R	2	10	92	28.1	119	21.9	0.388	4.70	174	110	552	15:19	15:20	1.14	0.31	2	0
016	L	2	10	84	28.5	114	25.0	0.353	-2.61	165	90	441	15:21	15:23	1.13	0.37	12	1
017	R	2	10	98	26.7	119	20.2	0.530	6.22	173	93	476	15:23	15:25	0.90	0.36	13	0
Mean		2	10	101	27.8	117	22.9	0.120	1.53	170	110	522	Total	00:12	1.11	0.33	12	0
SDev		0	0	16	2.03	3.29	2.69	0.555	4.31	3.68	18.9	80.9			0.15	0.05		
SD/M		0.00	0.00	0.16	0.07	0.03	0.12	4.63	2.81	0.02	0.17	0.15			0.13	0.14		

Remarks: Q 170cfs using BT with 2% error, no GPS

Station Number:
 Station Name: Judy Creek

Meas. No:
 Date: 08/30/2010

Party: Kemnitz/Vas	Width: 111 ft	Processed by: DAV
Boat/Motor: kayak	Area: 240 ft ²	Mean Velocity: 0.673 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 162 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: 4-Clear	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.04
BT Error Vel.: 0.33 ft/s	Bin Size: 7 cm Blank: 3 cm
WT Error Vel.: 1.10 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 2.30 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 2.24 ft/s	
Max. Depth: 2.79 ft	
Mean Depth: 2.17 ft	
% Meas.: 58.01	
Water Temp.: None	
ADCP Temp.: 49.1 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 100' US of gage
 Project Name: iudy20100830000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	L	4	6	142	37.6	96.2	25.3	1.70	2.75	164	112	244	16:34	16:36	0.74	0.67	1	1
001	R	4	6	143	37.8	93.1	26.6	1.27	2.05	161	110	237	16:37	16:39	0.72	0.68	1	1
002	L	4	6	123	38.4	90.7	28.3	1.52	1.24	160	111	237	16:39	16:41	0.85	0.68	2	1
003	R	4	6	133	37.4	94.8	25.4	1.34	2.51	161	111	242	16:42	16:44	0.79	0.67	0	0
Mean		4	6	135	37.8	93.7	26.4	1.46	2.14	162	111	240	Total	00:10	0.77	0.67	1	1
SDev		0	0	9	0.393	2.38	1.39	0.190	0.668	1.56	0.6	3.4			0.06	0.00		
SD/M		0.00	0.00	0.07	0.01	0.03	0.05	0.13	0.31	0.01	0.01			0.08	0.01			

Remarks: Q 162cfs using BT with 1% error

Station Number:

Meas. No:

Station Name: Judy Creek

Date: 06/02/2011

Party: DB/DAV	Width: 254 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,620 ft ²	Mean Velocity: 2.74 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 4,410 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.300 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (20.2°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: Rio Grande / 1200 kHz
WT 3-Beam Solution: NO	Serial #: 12812 Firmware: 10.16
BT Error Vel.: 0.33 ft/s	Bin Size: 4 cm Blank: 25 cm
WT Error Vel.: 3.50 ft/s	BT Mode: 5 BT Pings: 1
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 1
WT Up Vel.: 5.00 ft/s	WV : 175 WO : 5, 4
Use Weighted Mean Depth: YES	
Max. Vel.: 7.00 ft/s	
Max. Depth: 15.7 ft	
Mean Depth: 6.39 ft	
% Meas.: 66.37	
Water Temp.: None	
ADCP Temp.: 33.4 °F	

Performed Diag. Test: NO

Project Name: judy 622011 4414cfs.mmt

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: YES Evaluation: NO

Meas. Location:

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
001	R	6	20	205	1042	2878	604	31.2	16.2	4571	287	1658	16:01	16:05	1.37	2.76	31	1
002	L	6	50	175	853	2915	505	10.3	29.1	4311	259	1642	16:08	16:11	1.29	2.62	11	1
003	R	6	45	251	931	2896	584	7.80	32.8	4451	237	1500	16:11	16:15	1.16	2.97	11	1
004	L	6	55	184	827	3008	470	13.8	41.1	4360	250	1628	16:16	16:19	1.20	2.68	8	0
005	R	6	60	224	874	2832	567	9.01	58.5	4340	258	1611	16:19	16:23	1.06	2.69	3	1
006	L	0	0	123	899	3051	503	0.000	0.000	4452	230	1653	16:24	16:26	2.25	2.69	39	1
Mean		5	38	193	904	2930	539	12.0	29.6	4414	254	1615	Total	00:24	1.39	2.74	17	1
SDev		2	23	44	76.3	83.0	53.4	10.5	20.2	96.5	20.1	58.9			0.44	0.12		
SD/M		0.49	0.61	0.23	0.08	0.03	0.10	0.87	0.68	0.02	0.08	0.04			0.31	0.04		

Remarks: Q 4002cfs using BT with 2% error and 4414cfs using VTG with 2% error

Party: DB/DAV	Width: 299 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,220 ft ²	Mean Velocity: 2.20 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 2,670 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: _____ Firmware: 31.12
BT Error Vel.: 32.81 ft/s	Bin Size: 17 cm* Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 4.10 ft/s	
Max. Depth: 7.13 ft	
Mean Depth: 4.08 ft	
% Meas.: 65.63	
Water Temp.: None	
ADCP Temp.: 34.6 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 100' US of gage
 Project Name: judy20110605000 2690cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
001	R	-3	-3	260	606	1500	459	3.50	-0.777	2568	301	1264	16:32	16:37	1.16	2.03	31	0
002	L	25	25	144	524	1842	329	29.4	12.1	2737	340	1368	16:39	16:42	1.67	2.00	12	0
003	R	25	25	214	498	1771	320	25.8	13.3	2628	247	1033	16:42	16:46	1.10	2.55	20	0
004	L	25	25	135	512	1861	338	14.6	23.7	2749	314	1280	16:47	16:50	1.64	2.15	21	0
005	R	25	25	225	504	1774	327	24.2	18.4	2647	294	1157	16:50	16:55	1.08	2.29	24	0
Mean		19	19	195	529	1750	355	19.5	13.4	2666	299	1220	Total	00:22	1.33	2.20	22	0
SDev		13	13	54	44.4	145	58.7	10.5	9.15	76.2	34.2	128.9			0.30	0.22		
SD/M		0.65	0.65	0.28	0.08	0.08	0.17	0.54	0.68	0.03	0.11	0.11			0.22	0.10		

Remarks: Q 2666cfs using BT with 3% error and between 12% to 31% bad ens, no GPS

* - value not consistent for all transects

Station Number:
 Station Name: Judy Creek

Meas. No: 0
 Date: 06/07/2011

Party: DB/DAV	Width: 157 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,060 ft ²	Mean Velocity: 2.44 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 2,600 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.430 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (20.2°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: Rio Grande / 1200 kHz
WT 3-Beam Solution: NO	Serial #: 12812 Firmware: 10.16
BT Error Vel.: 0.33 ft/s	Bin Size: 9 cm Blank: 25 cm
WT Error Vel.: 3.50 ft/s	BT Mode: 5 BT Pings: 1
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 1
WT Up Vel.: 5.00 ft/s	WV : 175 WO : 9, 4
Use Weighted Mean Depth: YES	
Max. Vel.: 6.31 ft/s	
Max. Depth: 13.4 ft	
Mean Depth: 6.78 ft	
% Meas.: 64.45	
Water Temp.: None	
ADCP Temp.: 36.0 °F	

Performed Diag. Test: NO Project Name: judy 06072011 2595cfs.mmt
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: YES Evaluation: NO
 Meas. Location: 200' US of gage

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	5	45	169	470	1645	322	8.02	52.6	2497	150	1007	13:41	13:43	0.91	2.48	19	0
001	R	5	45	169	576	1645	391	11.4	78.4	2702	176	1112	13:43	13:46	0.92	2.43	17	0
002	L	5	45	147	501	1750	364	5.97	61.7	2683	158	1121	13:47	13:49	0.95	2.40	7	0
003	R	5	45	191	469	1651	317	6.60	55.5	2499	146	1017	13:50	13:53	0.81	2.46	0	0
Mean		5	45	169	504	1673	348	8.01	62.0	2595	157	1064	Total	00:12	0.90	2.44	11	0
SDev		0	0	18	50.1	51.9	35.5	2.44	11.5	113	13.5	60.6			0.06	0.04		
SD/M		0.00	0.00	0.11	0.10	0.03	0.10	0.31	0.19	0.04	0.09	0.06			0.07	0.02		

Remarks: Q 2536cfs using BT with 3% error and 2595cfs using VTG with 4% error

Party: RTK / DAV	Width: 113 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 223 ft ²	Mean Velocity: 0.838 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 187 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Bin Size: 4 cm Blank: 3 cm
WT Error Vel.: 1.10 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 3.00 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 100 DS of gage

Project Name: judy201110708000 187cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
002	L	10	20	130	41.5	110	24.5	4.20	5.65	186	112	217	18:22	18:24	0.60	0.86	1	2
003	R	10	20	109	41.2	109	25.4	4.77	8.05	188	115	227	18:25	18:27	0.70	0.83	1	2
004	L	10	20	113	41.2	107	25.7	5.44	7.59	187	112	219	18:29	18:31	0.70	0.85	2	2
005	R	10	20	125	40.4	108	26.0	3.99	8.48	187	114	229	18:31	18:34	0.62	0.82	1	2
Mean		10	20	119	41.1	108	25.4	4.60	7.44	187	113	223	Total	00:11	0.65	0.84	1	2
SDev		0	0	10	0.466	1.19	0.616	0.648	1.25	0.902	1.6	5.9			0.05	0.02		
SD/M		0.00	0.00	0.08	0.01	0.01	0.02	0.14	0.17	0.00	0.01	0.03			0.08	0.02		

Remarks: Q 187cfs using BT with 1% error, no GPS

Station Number:
 Station Name: Judy Creek

Meas. No:
 Date: 08/28/2011

Party: RTK/DAV	Width: 88.0 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 160 ft ²	Mean Velocity: 0.414 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 66.1 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: 4-Clear	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Bin Size: 4 cm Blank: 3 cm
WT Error Vel.: 1.00 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 4.10 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 2.65 ft/s	
Max. Depth: 2.48 ft	
Mean Depth: 1.82 ft	
% Meas.: 55.12	
Water Temp.: None	
ADCP Temp.: 49.0 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 300' DS of gage

Project Name: judy20110828000 q 66.1cfs.m
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	6	10	118	17.9	37.7	10.2	0.671	1.31	67.9	90	163	17:25	17:27	0.56	0.42	1	7
001	R	6	10	104	16.2	34.7	9.25	0.918	2.19	63.2	93	167	17:28	17:30	0.65	0.38	3	4
002	L	6	10	95	17.3	37.5	10.0	0.530	2.30	67.7	85	157	17:30	17:32	0.65	0.43	1	6
003	R	6	10	94	16.9	35.9	10.2	0.989	1.66	65.6	84	153	17:33	17:34	0.65	0.43	1	8
Mean		6	10	102	17.1	36.4	9.94	0.777	1.86	66.1	88	160	Total	00:09	0.63	0.41	1	7
SDev		0	0	11	0.742	1.43	0.470	0.214	0.463	2.20	4.1	6.1			0.05	0.03		
SD/M		0.00	0.00	0.11	0.04	0.04	0.05	0.28	0.25	0.03	0.05	0.04			0.07	0.06		

Remarks: Q 66cfs using BT with 1% error, no GPS

Party: RTK/DAV	Width: 184 ft	Processed by: DAV
Boat/Motor: kayak	Area: 551 ft ²	Mean Velocity: 1.00 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 549 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: _____ Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Bin Size: 6 cm Blank: 3 cm
WT Error Vel.: 1.10 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 3.60 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 3.55 ft/s	
Max. Depth: 5.73 ft	
Mean Depth: 3.00 ft	
% Meas.: 68.07	
Water Temp.: None	
ADCP Temp.: 34.0 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage
 Project Name: judy 5272012 q549cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	R	6	10	188	90.9	357	64.5	3.11	8.86	524	165	503	15:18	15:21	0.80	1.04	31	0
002	R	6	10	215	83.8	367	63.3	3.85	14.6	533	154	493	15:26	15:30	0.82	1.08	53	1
003	L	6	10	201	102	401	66.9	2.40	16.7	589	217	653	15:31	15:34	0.93	0.90	16	0
004	R	6	10	305	99.2	370	68.3	1.48	11.6	551	201	555	15:36	15:42	0.72	0.99	16	1
Mean		6	10	227	94.0	374	65.8	2.71	12.9	549	184	551	Total	00:24	0.82	1.00	29	0
SDev		0	0	53	8.29	18.7	2.26	1.01	3.42	28.5	29.7	73.6			0.09	0.08		
SD/M		0.00	0.00	0.23	0.09	0.05	0.03	0.37	0.26	0.05	0.16	0.13			0.10	0.08		

Remarks: q 549cfs using BT with 5% error

Party: DAV/JB	Width: 132 ft	Processed by: DAV
Boat/Motor: kayak	Area: 879 ft ²	Mean Velocity: 3.55 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 3,090 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: Firmware: 44.12
BT Error Vel.: 0.33 ft/s	Bin Size: 10 cm Blank: 19 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: NO	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 100' US of gage
 Project Name: judy 6032012 q3094cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	R	6	20	114	428	1795	672	41.8	9.15	2946	152	906	15:21	15:22	2.05	3.25	35	1
001	L	6	20	50	410	1749	645	29.4	112	2945	110	768	15:22	15:23	2.97	3.83	4	0
002	R	6	20	65	466	1911	749	37.8	14.2	3178	138	916	15:23	15:24	2.94	3.47	3	0
003	L	6	20	71	516	2122	804	24.7	29.8	3497	128	820	15:24	15:25	2.61	4.26	0	0
004	R	6	20	70	389	1810	639	43.6	22.8	2904	131	986	15:25	15:25	2.79	2.95	3	1
Mean		6	20	74	442	1877	702	35.5	37.6	3094	132	879	Total	00:04	2.67	3.55	9	0
SDev		0	0	24	50.2	149	72.1	8.14	42.3	250	15.3	85.5			0.38	0.51		
SD/M		0.00	0.00	0.32	0.11	0.08	0.10	0.23	1.13	0.08	0.12	0.10			0.14	0.14		

Remarks: Q 2031cfs using BT with 3% error and 3094cfs using VTG with 8% error

Discharge for transects in *italics* have a total Q more than 5% from the mean

Station Number:
Station Name: Judy Creek

Meas. No:
Date: 06/05/2012

Party: DAV/JB	Width: 229 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,360 ft ²	Mean Velocity: 4.86 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 6,560 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.6°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.12
BT Error Vel.: 0.33 ft/s	Bin Size: 10 cm Blank: 19 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	

Performed Diag. Test: NO Project Name: judy 6052012 q6562cfs.mmt
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 100' US of gage

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	6	0	108	1333	4158	1594	24.6	0.000	7109	207	1244	14:37	14:38	3.37	5.72	3	0
001	R	6	6	146	1033	3675	1443	49.9	5.97	6207	227	1329	14:38	14:39	3.25	4.67	18	1
002	L	6	6	117	1192	3653	1521	35.7	16.6	6418	225	1316	14:41	14:42	3.47	4.88	15	1
003	R	6	6	120	1138	3790	1473	83.7	6.29	6491	256	1559	14:42	14:43	3.82	4.16	17	0
Mean		6	5	122	1174	3819	1508	48.5	7.20	6556	229	1362	Total	00:06	3.48	4.86	13	1
SDev		0	3	16	125	234	65.9	25.6	6.88	388	20.1	136.8			0.24	0.65		
SD/M		0.00	0.67	0.13	0.11	0.06	0.04	0.53	0.95	0.06	0.09	0.10			0.07	0.13		

Remarks: Q 4612cfs using BT with 2% error and 6556cfs using VTG with 6% error

Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: RTK/DAV	Width: 196 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,180 ft ²	Mean Velocity: 3.90 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 4,610 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (18.4°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.12
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 19 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 8.22 ft/s	
Max. Depth: 13.2 ft	
Mean Depth: 6.03 ft	
% Meas.: 61.40	
Water Temp.: None	
ADCP Temp.: 35.4 °F	

Performed Diag. Test: NO Project Name: judy20120607_q4605cfs.mmt
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 100' US of gage

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
001	L	5	20	166	880	3027	952	33.2	23.9	4916	198	1162	15:40	15:41	1.95	4.23	0	1
002	R	5	20	187	685	2697	876	16.4	24.4	4299	196	1251	15:41	15:43	1.89	3.44	1	0
003	L	5	20	134	864	2895	949	22.3	29.1	4758	197	1135	15:44	15:45	2.39	4.19	1	0
004	R	5	20	173	727	2691	979	28.4	20.2	4446	194	1189	15:46	15:47	1.96	3.74	1	0
Mean		5	20	165	789	2827	939	25.0	24.4	4605	196	1184	Total	00:07	2.05	3.90	1	0
SDev		0	0	22	97.4	163	44.0	7.32	3.67	283	1.9	49.8			0.23	0.38		
SD/M		0.00	0.00	0.14	0.12	0.06	0.05	0.29	0.15	0.06	0.01	0.04			0.11	0.10		

Remarks: Q 3307cfs using BT with 5% error and 4605cfs using VTG with 6% error

Party: DAV/RTK	Width: 205 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,020 ft ²	Mean Velocity: 3.20 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 3,260 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.12
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 19 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	

Performed Diag. Test: NO Project Name: judy 20120609 q3260cfs.mmt
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 100' US of gage

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
003	L	6	20	130	771	2097	610	14.9	44.0	3537	206	1013	14:05	14:07	2.19	3.49	2	0
005	R	6	20	166	666	1841	570	34.6	19.9	3132	205	1046	14:08	14:09	1.95	3.00	19	0
006	L	6	20	158	689	1728	580	22.0	24.3	3043	198	944	14:13	14:15	1.78	3.22	1	0
007	R	6	20	173	701	1809	614	32.7	23.4	3179	208	1027	14:15	14:17	1.76	3.09	0	0
008	L	6	20	140	741	1932	660	22.6	35.2	3392	205	1003	14:18	14:19	2.06	3.38	0	0
010	R	20	6	171	673	1869	620	106	5.83	3274	208	1095	14:20	14:22	1.97	2.99	8	0
Mean		8	18	156	707	1879	609	38.9	25.4	3260	205	1021	Total	00:16	1.95	3.20	5	0
SDev		6	6	18	41.2	126	31.9	33.9	13.1	181	3.6	49.8			0.16	0.21		
SD/M		0.69	0.32	0.11	0.06	0.07	0.05	0.87	0.52	0.06	0.02	0.05			0.08	0.06		

Remarks: Q 2516cfs using BT with 2% error and 3260cfs using VTG with 6% error

Discharge for transects in *italics* have a total Q more than 5% from the mean

Station Number:
 Station Name: Judy Creek

Meas. No:
 Date: 07/07/2012

Party: DAV/RTK	Width: 138 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 194 ft ²	Mean Velocity: 0.931 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 181 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Bin Size: 4 cm Blank: 3 cm
WT Error Vel.: 1.10 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 3.00 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 2.99 ft/s	
Max. Depth: 2.22 ft	
Mean Depth: 1.40 ft	
% Meas.: 44.57	
Water Temp.: None	
ADCP Temp.: 60.2 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 300' DS of gage

Project Name: judy 7072012 q181cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	L	20	15	142	57.6	82.9	31.7	6.85	5.40	184	140	201	17:16	17:19	0.70	0.92	1	4
001	R	20	15	140	57.4	82.3	31.3	8.83	4.56	184	137	192	17:19	17:22	0.68	0.96	1	3
002	L	20	15	154	54.2	80.7	29.1	8.72	5.44	178	136	192	17:22	17:25	0.65	0.93	1	3
003	R	20	15	146	56.9	76.1	31.3	5.51	5.79	176	140	190	17:25	17:28	0.70	0.93	1	3
Mean		20	15	145	56.5	80.5	30.8	7.48	5.30	181	138	194	Total	00:12	0.68	0.93	1	3
SDev		0	0	6	1.56	3.08	1.18	1.60	0.525	4.49	2.0	5.0			0.02	0.02		
SD/M		0.00	0.00	0.04	0.03	0.04	0.04	0.21	0.10	0.02	0.01	0.03			0.03	0.02		

Remarks: Q 181cfs using BT with 2% error, no GPS

Party: RTK/DAV	Width: 92.5 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 105 ft ²	Mean Velocity: 0.808 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 85.1 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Bin Size: 4 cm Blank: 3 cm
WT Error Vel.: 1.10 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 3.10 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 2.72 ft/s	
Max. Depth: 1.55 ft	
Mean Depth: 1.14 ft	
% Meas.: 31.89	
Water Temp.: None	
ADCP Temp.: 43.9 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 300' DS of gage

Project Name: judy 09012012 q85.1cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
003	L	10	10	85	34.1	24.4	17.9	3.32	3.07	82.8	91	102	16:00	16:02	0.82	0.82	1	5
004	R	10	10	103	33.8	25.4	17.7	2.37	3.07	82.4	93	104	16:02	16:04	0.69	0.79	1	4
005	L	10	10	84	33.7	29.7	16.3	4.45	3.18	87.3	92	108	16:05	16:06	0.79	0.81	1	2
006	R	10	10	91	35.2	29.0	17.7	2.37	3.46	87.7	93	108	16:07	16:09	0.77	0.81	1	3
Mean		10	10	90	34.2	27.1	17.4	3.13	3.20	85.1	92	105	Total	00:08	0.77	0.81	1	4
SDev		0	0	9	0.673	2.60	0.766	0.991	0.184	2.84	0.9	3.2			0.05	0.01		
SD/M		0.00	0.00	0.10	0.02	0.10	0.04	0.32	0.06	0.03	0.01	0.03			0.07	0.01		

Remarks: Q 85cfs using BT with 3% error, no GPS

Party: DAV/RTK	Width: 241 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,570 ft ²	Mean Velocity: 2.16 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 3,380 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.15
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	

Performed Diag. Test: NO Project Name: judy20130602dav3581cfs.mmt
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: YES Evaluation: YES
 Meas. Location: at gage

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
003	R	10	15	173	530	2049	615	-15.4	2.86	3181	239	1599	13:57	13:59	1.86	1.99	2	0
004	L	10	15	182	641	2328	751	-3.04	-3.60	3714	266	1660	14:01	14:03	2.22	2.24	1	1
005	R	10	15	155	531	2006	573	-11.4	-3.81	3095	255	1645	14:03	14:05	2.20	1.88	6	1
006	L	10	15	195	617	2274	659	-0.600	-1.09	3548	227	1490	14:06	14:09	1.76	2.38	4	0
007	R	10	15	154	581	2145	652	-5.86	-6.32	3367	216	1457	14:09	14:11	1.94	2.31	9	0
Mean		10	15	171	580	2160	650	-7.26	-2.39	3381	241	1570	Total	00:13	2.00	2.16	4	0
SDev		0	0	18	49.7	139	66.2	6.08	3.47	255	20.3	92.0			0.21	0.21		
SD/M		0.00	0.00	0.10	0.09	0.06	0.10	0.84	1.45	0.08	0.08	0.06			0.10	0.10		

Remarks: 3013cfs using BT with 8% error and 3381cfs using VTG with 8% error

Party: DAV/JPB	Width: 172 ft	Processed by: DAV
Boat/Motor: Kayak	Area: 1,010 ft ²	Mean Velocity: 3.02 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 3,050 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.15
BT Error Vel.: 3.28 ft/s*	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s*	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s*	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s*	WZ : 5
Use Weighted Mean Depth: YES	

Performed Diag. Test: NO Project Name: judy20130606dav3049cfs.mmt
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 100' US og gage

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	4	6	167	671	1756	583	2.79	7.70	3021	168	958	16:27	16:29	1.73	3.15	17	0
001	R	4	6	94	655	1830	622	12.1	7.77	3127	177	1054	16:29	16:30	2.86	2.97	22	0
002	L	4	6	122	662	1759	597	4.20	7.66	3030	161	956	16:31	16:32	2.10	3.17	3	0
003	R	4	6	114	656	1757	583	17.8	5.54	3019	181	1083	16:32	16:33	2.56	2.79	23	0
Mean		4	6	124	661	1775	596	9.23	7.17	3049	172	1013	Total	00:05	2.31	3.02	16	0
SDev		0	0	31	7.40	36.2	18.5	7.04	1.08	52.2	9.1	65.2			0.50	0.18		
SD/M		0.00	0.00	0.25	0.01	0.02	0.03	0.76	0.15	0.02	0.05	0.06			0.22	0.06		

Remarks: Q 3082cfs using BT with 3% error and 3049cfs using VTG with 2% error

* - value not consistent for all transects

Party: DAV/JPB	Width: 195 ft	Processed by: DAV
Boat/Motor: Kayak	Area: 1,530 ft ²	Mean Velocity: 3.69 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 5,640 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: YES	Max. Vel.: 9.09 ft/s	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Max. Depth: 16.4 ft	Serial #: 54988 Firmware: 44.15
BT Error Vel.: 3.28 ft/s	Mean Depth: 7.86 ft	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	% Meas.: 64.54	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	Water Temp.: None	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	ADCP Temp.: 37.1 °F	WZ : 5
Use Weighted Mean Depth: YES		

Performed Diag. Test: NO Project Name: judy20130609dav5639cfs.mmt
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 200' US of gage

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
001	R	4	10	122	898	3757	1047	11.2	3.57	5717	209	1586	15:09	15:10	3.16	3.60	27	0
002	L	4	10	121	896	3549	1270	4.56	5.90	5725	193	1490	15:10	15:11	2.54	3.84	1	0
003	R	4	10	112	859	3817	1061	12.8	6.04	5755	196	1574	15:11	15:13	2.84	3.66	4	0
004	L	4	10	126	821	3431	1123	8.48	5.83	5389	185	1483	15:18	15:19	2.35	3.64	14	0
005	R	4	10	111	844	3642	1100	14.5	6.85	5607	190	1505	15:20	15:21	2.69	3.72	1	0
Mean		4	10	118	864	3639	1120	10.3	5.64	5639	195	1528	Total	00:12	2.72	3.69	9	0
SDev		0	0	7	33.2	156	89.0	3.91	1.23	150	9.0	48.7			0.31	0.09		
SD/M		0.00	0.00	0.06	0.04	0.04	0.08	0.38	0.22	0.03	0.05	0.03			0.11	0.03		

Remarks: Q 4034cfs using BT with 6% error and 5639cfs using VTG with 3% error

Party: DAV/JPB	Width: 200 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,580 ft ²	Mean Velocity: 3.62 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 5,710 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: Firmware: 44.15
BT Error Vel.: 3.28 ft/s*	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s*	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s*	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s*	WZ : 5
Use Weighted Mean Depth: YES	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 100' US of gage
 Project Name: judy20130611dav5712cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	4	10	164	891	3709	1150	2.90	24.4	5777	185	1542	16:09	16:11	1.92	3.75	30	1
001	R	4	10	95	815	3426	1078	12.4	15.4	5346	191	1561	16:11	16:12	3.04	3.43	3	1
002	L	4	10	107	964	3724	1250	9.15	19.0	5967	202	1594	16:12	16:13	2.68	3.74	9	0
003	R	4	10	113	934	3715	1084	9.71	15.5	5758	221	1623	16:14	16:15	3.03	3.55	25	0
Mean		4	10	119	901	3644	1140	8.54	18.6	5712	200	1580	Total	00:05	2.67	3.62	17	0
SDev		0	0	30	65.0	145	80.3	4.02	4.24	261	16.0	36.0			0.53	0.16		
SD/M		0.00	0.00	0.26	0.07	0.04	0.07	0.47	0.23	0.05	0.08	0.02			0.20	0.04		

Remarks: Q 4427cfs using BT with 2% error and 5712cfs using VTG with 5% error

* - value not consistent for all transects
 Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: DAV/JPB	Width: 129 ft	Processed by: DAV
Boat/Motor: Kayak	Area: 1,200 ft ²	Mean Velocity: 3.06 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 3,670 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.15
BT Error Vel.: 3.28 ft/s*	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s*	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s*	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s*	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 6.32 ft/s	
Max. Depth: 13.0 ft	
Mean Depth: 9.26 ft	
% Meas.: 61.33	
Water Temp.: None	
ADCP Temp.: 51.0 °F	

Performed Diag. Test: NO Project Name: judy20130613dav3672cfs.mmt
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 150' US of gage

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
001	L	4	4	122	550	2379	999	-0.565	4.70	3932	128	1185	14:31	14:32	1.60	3.32	7	0
002	R	4	4	114	482	2022	823	8.02	1.94	3336	125	1140	14:32	14:33	2.09	2.93	18	1
003	L	4	4	87	514	2258	911	16.4	5.72	3704	133	1216	14:34	14:35	2.03	3.05	7	1
004	R	4	4	77	507	2289	866	3.50	5.69	3671	132	1259	14:35	14:36	2.62	2.91	1	0
007	L	4	4	139	539	2334	915	2.90	6.22	3797	128	1171	14:47	14:49	1.37	3.24	6	1
008	R	4	4	96	508	2231	840	9.01	3.85	3593	131	1223	14:49	14:50	2.13	2.94	20	1
Mean		4	4	105	517	2252	892	6.53	4.69	3672	129	1199	Total	00:19	1.97	3.06	10	1
SDev		0	0	23	24.8	125	63.8	5.96	1.59	202	2.9	42.5			0.44	0.18		
SD/M		0.00	0.00	0.22	0.05	0.06	0.07	0.91	0.34	0.05	0.02	0.04			0.22	0.06		

Remarks: Q 3305cfs using BT with 6% error and 3691cfs using VTG with 2% error

* - value not consistent for all transects
 Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: RTK/KAP	Width: 122 ft	Processed by: DAV
Boat/Motor: kayak	Area: 900 ft ²	Mean Velocity: 2.34 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 2,110 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.500 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.15
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 4.58 ft/s	
Max. Depth: 12.2 ft	
Mean Depth: 7.36 ft	
% Meas.: 64.18	
Water Temp.: None	
ADCP Temp.: 55.1 °F	

Performed Diag. Test: NO Project Name: judy20130617dav2105cfs.mmt
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 250' US of gage

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
001	R	4	5	214	338	1341	415	4.45	6.32	2105	122	921	15:03	15:05	0.92	2.28	0	0
002	L	4	5	175	381	1454	425	4.45	6.39	2271	124	893	15:05	15:07	1.03	2.54	1	0
003	R	4	5	232	324	1278	382	4.66	4.24	1992	125	926	15:08	15:10	0.84	2.15	1	1
004	L	4	5	233	372	1402	404	3.85	5.01	2187	121	867	15:12	15:14	0.84	2.52	2	0
005	R	4	5	204	321	1279	360	4.59	3.50	1968	120	894	15:16	15:18	0.95	2.20	1	0
Mean		4	5	211	347	1351	397	4.40	5.09	2105	122	900	Total	00:15	0.91	2.34	1	0
SDev		0	0	24	27.8	77.2	26.3	0.321	1.27	128	2.2	23.9			0.08	0.18		
SD/M		0.00	0.00	0.11	0.08	0.06	0.07	0.07	0.25	0.06	0.02	0.03			0.09	0.08		

Remarks: Q 2097cfs using BT with 3% error and 2105cfs using VTG with 6% error

Discharge for transects in *italics* have a total Q more than 5% from the mean

Station Number:
Station Name: Judy Creek

Meas. No:
Date: 06/21/2013

Party: RTK	Width: 117 ft	Processed by: DAV
Boat/Motor: kayak	Area: 649 ft ²	Mean Velocity: 1.76 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 1,150 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 44.15
BT Error Vel.: 0.33 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 0.60 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 1.00 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 3.44 ft/s	WZ : 0
Use Weighted Mean Depth: NO	
	Max. Vel.: 3.44 ft/s
	Max. Depth: 8.92 ft
	Mean Depth: 5.56 ft
	% Meas.: 70.67
	Water Temp.: None
	ADCP Temp.: 63.0 °F

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 300' US of gage
 Project Name: judy20130621dav1145cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	R	3	5	113	164	817	166	3.07	5.97	1156	116	649	15:01	15:03	0.85	1.78	11	4
001	L	3	5	84	165	819	172	1.52	3.43	1161	118	655	15:04	15:06	1.10	1.77	5	5
002	R	3	5	110	164	804	167	2.44	4.77	1141	116	642	15:06	15:08	0.85	1.78	5	3
003	L	3	5	93	160	798	157	3.53	4.41	1122	117	652	15:09	15:11	0.97	1.72	6	2
Mean		3	5	100	163	809	165	2.64	4.64	1145	117	649	Total	00:09	0.94	1.76	7	4
SDev		0	0	14	2.34	10.3	6.24	0.872	1.05	17.4	0.9	5.8			0.12	0.03		
SD/M		0.00	0.00	0.14	0.01	0.01	0.04	0.33	0.23	0.02	0.01	0.01			0.13	0.02		

Remarks: Q 1145cfs using BT with 2% error, no GPS

Party: RTK/DAV	Width: 171 ft	Processed by: DAV
Boat/Motor: kayak	Area: 338 ft ²	Mean Velocity: 1.11 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 376 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 44.15
BT Error Vel.: 0.33 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 1.20 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 1.00 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 2.92 ft/s	WZ : 0
Use Weighted Mean Depth: NO	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 400' DS of gage

Project Name: judy20130706dav376cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
011	L	6	6	187	97.5	214	59.3	2.54	2.19	375	172	336	14:27	14:31	0.77	1.12	1	1
012	R	6	6	212	96.7	213	58.5	1.84	2.08	372	174	341	14:31	14:35	0.69	1.09	1	1
013	L	6	6	196	96.6	221	57.8	2.19	3.46	381	167	336	14:35	14:39	0.71	1.14	1	1
014	R	6	6	202	95.8	215	59.3	2.12	2.83	375	171	339	14:40	14:44	0.71	1.10	0	1
Mean		6	6	199	96.6	216	58.7	2.17	2.64	376	171	338	Total	00:16	0.72	1.11	1	1
SDev		0	0	11	0.664	3.79	0.699	0.290	0.638	3.84	3.1	2.7			0.04	0.02		
SD/M		0.00	0.00	0.05	0.01	0.02	0.01	0.13	0.24	0.01	0.02	0.01			0.05	0.02		

Remarks: Q 376cfs using BT with 1% error, no GPS

Party: RTK/DAV	Width: 129 ft	Processed by: DAV
Boat/Motor: kayak	Area: 206 ft ²	Mean Velocity: 0.696 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 144 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:6	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: NO	Serial #: _____ Firmware: 44.15
BT Error Vel.: 0.33 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 1.40 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 1.00 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 2.90 ft/s	WZ : 0
Use Weighted Mean Depth: NO	

Performed Diag. Test: NO

Project Name: judy20130823dav144cfs.mmt

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: NO Evaluation: NO

Meas. Location: 500' DS of gage

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
002	R	6	15	131	45.1	65.4	26.3	1.62	3.53	142	133	201	15:51	15:54	0.77	0.71	1	0
003	L	6	10	136	42.6	71.5	23.4	2.12	3.32	143	124	205	15:54	15:57	0.71	0.70	1	1
004	R	6	10	154	43.9	69.2	24.4	1.31	3.96	143	128	207	15:57	16:00	0.71	0.69	1	1
005	L	6	15	141	43.5	71.5	24.8	2.30	4.38	147	131	212	16:01	16:03	0.72	0.69	1	0
Mean		6	13	140	43.8	69.4	24.7	1.84	3.80	144	129	206	Total	00:12	0.73	0.70	1	1
SDev		0	3	10	1.05	2.88	1.19	0.453	0.470	2.04	4.0	4.6			0.03	0.01		
SD/M		0.00	0.23	0.07	0.02	0.04	0.05	0.25	0.12	0.01	0.03	0.02			0.04	0.01		

Remarks: Q 144cfs using BT with 1% error, no GPS

Station Number:
Station Name: Judy Creek

Meas. No:
Date: 05/27/2014

Party: RTK/DAV	Width: 116 ft	Processed by: DAV
Boat/Motor: kayak	Area: 641 ft ²	Mean Velocity: 1.99 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 1,270 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.16
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 5.83 ft/s	
Max. Depth: 10.6 ft	
Mean Depth: 5.51 ft	
% Meas.: 56.37	
Water Temp.: None	
ADCP Temp.: 33.2 °F	

Performed Diag. Test: NO Project Name: judy20140527.mmt
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 700' US of gage

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
002	L	4	6	83	283	752	273	3.78	3.46	1316	116	622	13:01	13:02	2.29	2.12	7	0
003	R	4	6	92	302	697	313	10.3	1.41	1324	115	639	13:02	13:03	2.22	2.07	14	0
004	L	4	6	90	249	676	239	11.3	4.77	1180	109	610	13:03	13:04	2.11	1.93	23	0
005	R	4	6	107	272	745	242	9.22	3.07	1271	127	693	13:04	13:05	1.91	1.83	16	1
Mean		4	6	93	277	717	267	8.65	3.18	1273	116	641	Total	00:04	2.13	1.99	15	0
SDev		0	0	10	22.3	37.1	34.5	3.36	1.38	66.1	7.6	36.7			0.17	0.13		
SD/M		0.00	0.00	0.11	0.08	0.05	0.13	0.39	0.43	0.05	0.06	0.06			0.08	0.06		

Remarks: Q 1259cfs using BT with 4% error and 1273cfs using VTG with 5% error

Discharge for transects in *italics* have a total Q more than 5% from the mean

Station Number:

Meas. No:

Station Name: Judy Creek

Date: 06/02/2014

Party: DAV/JPB	Width: 116 ft	Processed by: DAV
Boat/Motor: kayak	Area: 702 ft ²	Mean Velocity: 2.33 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 1,630 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.16
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 5.47 ft/s	
Max. Depth: 10.9 ft	
Mean Depth: 6.04 ft	
% Meas.: 57.41	
Water Temp.: None	
ADCP Temp.: 34.9 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 300' US of gage

Project Name: judy06022014_0.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
001	R	3	6	84	337	930	333	8.90	2.79	1612	117	700	17:09	17:10	2.27	2.30	2	0
002	L	3	6	94	322	937	298	0.671	5.05	1562	108	658	17:10	17:11	2.05	2.38	26	0
003	R	3	6	77	307	875	334	4.56	5.12	1525	116	709	17:11	17:12	2.65	2.15	32	1
004	L	3	6	75	355	1006	385	1.98	5.30	1754	115	694	17:17	17:18	2.53	2.53	7	1
005	R	3	6	88	338	950	402	6.71	4.70	1701	115	716	17:18	17:19	2.18	2.38	0	1
006	L	3	6	76	343	943	347	3.43	4.59	1641	115	694	17:19	17:20	2.33	2.37	14	1
007	R	3	6	70	334	921	368	7.17	5.19	1635	128	745	17:20	17:21	2.59	2.19	23	0
Mean		3	6	80	334	938	352	4.77	4.68	1633	116	702	Total	00:12	2.37	2.33	15	0
SDev		0	0	8	15.4	39.0	35.4	2.97	0.871	77.9	6.0	26.6			0.23	0.13		
SD/M		0.00	0.00	0.11	0.05	0.04	0.10	0.62	0.19	0.05	0.05	0.04			0.10	0.05		

Remarks: Q 1592cfs using BT with 2% error and 1633cfs using VTG with 5% error

Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: DAV/JPB	Width: 142 ft	Processed by: DAV
Boat/Motor: kayak	Area: 886 ft ²	Mean Velocity: 4.20 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 3,710 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.16
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 12.2 ft/s	
Max. Depth: 11.3 ft	
Mean Depth: 6.25 ft	
% Meas.: 54.02	
Water Temp.: None	
ADCP Temp.: 37.0 °F	

Performed Diag. Test: NO Project Name: Judy06062014_0.mmt
 Performed Moving Bed Test: YES Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 300' US of gage

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
001	R	3	3	71	851	1964	992	10.2	18.0	3835	168	1000	14:33	14:34	2.83	3.84	21	0
002	L	3	3	70	766	1905	852	25.9	8.55	3558	146	907	14:35	14:36	3.02	3.92	21	0
004	L	3	3	75	746	1989	850	1.24	8.02	3595	131	828	14:42	14:42	3.36	4.34	16	0
006	L	4	10	57	760	2050	868	3.25	44.3	3725	134	849	14:46	14:47	3.65	4.39	2	0
007	R	4	10	58	772	2092	936	24.3	44.0	3868	138	877	14:50	14:50	3.24	4.41	0	0
008	L	4	10	61	735	1974	798	6.07	45.0	3559	135	827	14:53	14:54	3.19	4.30	0	0
009	R	4	10	72	728	2042	1004	22.1	12.2	3809	143	915	14:55	14:56	3.13	4.16	8	0
Mean		4	7	66	766	2002	900	13.3	25.7	3707	142	886	Total	00:23	3.20	4.20	10	0
SDev		1	4	7	41.1	62.8	78.4	10.5	17.8	135	12.4	61.4			0.26	0.23		
SD/M		0.15	0.53	0.11	0.05	0.03	0.09	0.79	0.69	0.04	0.09	0.07			0.08	0.06		

Remarks: Q 2817cfs using BT with 6% error and 3707cfs using VTG with 4% error

Party: DAV/JPB	Width: 139 ft	Processed by: DAV
Boat/Motor: kayak	Area: 832 ft ²	Mean Velocity: 2.52 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 2,100 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: Distributed		Control2: Unspecified	
% Correction: 5.21		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.16
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 6.60 ft/s	
Max. Depth: 11.0 ft	
Mean Depth: 5.99 ft	
% Meas.: 57.54	
Water Temp.: None	
ADCP Temp.: 39.0 °F	

Performed Diag. Test: NO Project Name: Judy06092014_0.mmt
 Performed Moving Bed Test: YES Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 300' US of gage

Tr.#		Edge Distance		#Ens.	MBT Corrected Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	4	6	103	432	1148	388	7.27	7.49	1984	139	800	12:20	12:21	2.07	2.48	9	1
001	R	4	6	82	420	1219	429	15.2	5.72	2089	136	856	12:21	12:22	2.53	2.44	4	0
002	L	4	6	80	448	1196	442	6.29	7.20	2100	140	811	12:22	12:23	2.70	2.59	3	0
003	R	4	6	79	460	1261	462	24.7	4.10	2212	140	861	12:23	12:24	2.80	2.57	1	1
Mean		4	6	86	440	1206	430	13.4	6.13	2096	139	832	Total	00:04	2.52	2.52	4	0
SDev		0	0	11	17.5	46.9	31.1	8.55	1.56	93.0	1.8	30.8			0.32	0.07		
SD/M		0.00	0.00	0.13	0.04	0.04	0.07	0.64	0.25	0.04	0.01	0.04			0.13	0.03		

Remarks: Q 2160cfs using BT with 2% error and 2096cfs using VTG with 4% error

Party: RTK/DAV	Width: 148 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 250 ft ²	Mean Velocity: 1.12 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 280 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:5	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds: BT 3-Beam Solution: NO WT 3-Beam Solution: NO BT Error Vel.: 32.81 ft/s WT Error Vel.: 32.81 ft/s BT Up Vel.: 32.81 ft/s WT Up Vel.: 32.81 ft/s Use Weighted Mean Depth: NO	Max. Vel.: 2.90 ft/s Max. Depth: 2.54 ft Mean Depth: 1.69 ft % Meas.: 52.79 Water Temp.: None ADCP Temp.: 56.8 °F	ADCP: Type/Freq.: RiverRay / 600 kHz Serial #: Firmware: 44.16 Bin Size: 10 cm Blank: 16 cm BT Mode: Auto BT Pings: Dyn WT Mode: Auto WT Pings: Dyn WZ : 0
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Performed Diag. Test: NO
Performed Moving Bed Test: NO
Performed Compass Calibration: NO Evaluation: NO
Meas. Location: 200' DS of gage

Project Name: judy20140712 q280cfs dv.mmt
Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
003	L	10	20	103	76.0	147	44.6	5.72	5.90	280	148	249	13:15	13:17	1.03	1.13	1	0
004	R	10	20	106	76.1	149	43.7	3.88	7.49	280	151	256	13:18	13:20	1.09	1.10	1	0
005	L	10	20	114	74.8	145	43.6	4.10	7.95	275	150	251	13:21	13:23	1.00	1.10	1	0
006	R	10	20	104	75.9	150	46.1	5.76	7.42	285	143	245	13:23	13:25	0.99	1.16	1	0
Mean		10	20	106	75.7	148	44.5	4.86	7.19	280	148	250	Total	00:09	1.03	1.12	1	0
SDev		0	0	5	0.616	2.28	1.15	1.01	0.891	4.11	3.3	4.4			0.04	0.03		
SD/M		0.00	0.00	0.05	0.01	0.02	0.03	0.21	0.12	0.01	0.02	0.02			0.04	0.03		

Remarks: Q 280cfs using BT with 1% error, no GPS

Summary of Discharge Measurement Forms

Otuk Creek, Alaska

Party: Kemnitz/Vas	Width: 22.6 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 40.7 ft ²	Mean Velocity: 0.249 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 10.1 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: F
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: 4-Clear	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Bin Size: 2 cm Blank: 3 cm
WT Error Vel.: 1.10 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 3.80 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 2.37 ft/s	
Max. Depth: 2.62 ft	
Mean Depth: 1.80 ft	
% Meas.: 46.99	
Water Temp.: None	
ADCP Temp.: 56.1 °F	

Performed Diag. Test: NO

Project Name: otak20100708000rdv.mmt

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: NO Evaluation: NO

Meas. Location: 100 DS of Gage

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
001	R	6	3	49	2.12	4.56	1.45	1.80	0.388	10.3	22	39	11:51	11:52	0.36	0.27	14	6
002	L	6	3	46	1.73	4.34	1.17	1.94	0.565	9.75	21	38	11:52	11:53	0.31	0.26	7	3
003	R	6	3	51	2.15	5.54	1.31	0.706	0.283	9.99	23	42	11:54	11:54	0.34	0.24	18	5
004	L	6	3	48	1.98	4.56	1.52	1.77	0.565	10.4	24	44	11:55	11:56	0.37	0.24	8	9
Mean		6	3	48	2.00	4.75	1.36	1.55	0.450	10.1	23	41	Total	00:05	0.35	0.25	12	6
SDev		0	0	2	0.192	0.539	0.157	0.570	0.139	0.306	1.2	2.7			0.03	0.01		
SD/M		0.00	0.00	0.05	0.10	0.11	0.12	0.37	0.31	0.03	0.05	0.07			0.08	0.06		

Remarks: Q 10cfs using BT with 3% error

Station Number:

Meas. No:

Station Name: Otuk Creek

Date: 07/09/2011

Party: RTK / DAV	Width: 30.9 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 30.3 ft ²	Mean Velocity: 0.641 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 19.4 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Bin Size: 2 cm Blank: 3 cm
WT Error Vel.: 1.10 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 11.80 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 3.94 ft/s	
Max. Depth: 1.65 ft	
Mean Depth: 0.980 ft	
% Meas.: 30.46	
Water Temp.: None	
ADCP Temp.: 57.1 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 100' DS of gage

Project Name: otuk20110709000 19.4cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
021	L	4	4	79	8.44	6.04	4.06	1.20	0.388	20.1	30	30	13:49	13:51	0.27	0.68	8	16
023	R	4	4	80	8.02	5.79	3.53	0.742	0.989	19.1	32	31	13:53	13:55	0.29	0.61	5	14
024	L	4	4	84	9.25	5.76	4.52	-0.318	0.636	19.9	31	30	13:56	13:58	0.28	0.67	8	16
027	L	4	4	63	8.30	6.04	3.71	0.247	0.212	18.5	31	30	14:03	14:04	0.35	0.61	2	19
Mean		4	4	76	8.50	5.91	3.96	0.468	0.556	19.4	31	30	Total	00:14	0.30	0.64	6	16
SDev		0	0	9	0.530	0.154	0.436	0.653	0.337	0.742	1.0	0.7			0.04	0.04		
SD/M		0.00	0.00	0.12	0.06	0.03	0.11	1.39	0.61	0.04	0.03	0.02			0.12	0.06		

Remarks: Q 19cfs using BT with 4% error

Party: RTK/DAV	Width: 22.3 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 35.9 ft ²	Mean Velocity: 1.79 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 64.2 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: _____ Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Bin Size: 4 cm Blank: 3 cm
WT Error Vel.: 1.10 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 5.00 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 100' DS of gage

Project Name: otuk 5282012 q64.2cfs.mmt
Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
003	R	3	3	46	17.2	30.9	10.4	1.98	4.66	65.1	22	35	12:45	12:45	0.49	1.84	15	2
004	L	3	3	63	16.8	32.3	9.68	1.66	5.62	66.1	22	36	12:46	12:47	0.34	1.81	25	1
005	R	3	3	52	16.8	29.5	10.4	1.87	5.37	63.8	22	35	12:47	12:48	0.34	1.85	15	2
006	L	3	3	61	16.5	29.6	10.2	1.91	3.67	61.9	23	37	12:49	12:50	0.33	1.65	13	2
Mean		3	3	55	16.8	30.6	10.2	1.85	4.83	64.2	22	36	Total	00:05	0.38	1.79	17	2
SDev		0	0	8	0.289	1.34	0.334	0.137	0.870	1.83	0.4	1.3			0.08	0.09		
SD/M		0.00	0.00	0.14	0.02	0.04	0.03	0.07	0.18	0.03	0.02	0.03			0.20	0.05		

Remarks: Q 64cfs using BT with 3% error

Station Number:
 Station Name: Otuk Creek

Meas. No:
 Date: 06/01/2012

Party: RTK/DAV	Width: 81.8 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 132 ft ²	Mean Velocity: 3.80 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 500 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.: 10	Adj. Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (18.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: NO	Max. Vel.: 7.85 ft/s	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Max. Depth: 2.92 ft	Serial #: Firmware: 31.12
BT Error Vel.: 32.81 ft/s	Mean Depth: 1.61 ft	Bin Size: 5 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	% Meas.: 47.83	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	Water Temp.: None	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	ADCP Temp.: 39.6 °F	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO		

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at the bridge

Project Name: otuk6012012000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
001	R	10	6	129	137	239	83.1	8.51	19.4	487	82	133	17:12	17:15	0.58	3.65	42	0
003	R	10	6	75	165	239	116	13.0	22.2	555	87	134	17:19	17:20	1.19	4.13	59	0
004	L	10	6	123	141	267	88.5	8.23	19.7	524	87	146	17:23	17:25	0.68	3.58	21	0
005	R	10	6	101	128	231	77.6	7.91	21.2	465	74	120	17:26	17:27	0.71	3.88	36	0
007	R	10	6	103	132	219	87.6	8.05	20.1	467	79	124	17:32	17:34	0.65	3.76	22	0
Mean		10	6	106	141	239	90.5	9.15	20.5	500	82	132	Total	00:21	0.76	3.80	36	0
SDev		0	0	21	14.6	17.8	14.7	2.18	1.16	39.0	5.5	10.2			0.24	0.22		
SD/M		0.00	0.00	0.20	0.10	0.07	0.16	0.24	0.06	0.08	0.07	0.08			0.32	0.06		

Remarks: Q 500cfs using BT with 8% error and lots of bad ens

Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: RTK/DAV	Width: 115 ft	Processed by: DAV
Boat/Motor: Tethered Boat	Area: 296 ft ²	Mean Velocity: 2.86 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 847 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (17.2°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: YES	Max. Vel.: 16.1 ft/s	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Max. Depth: 4.46 ft	Serial #: 54988 Firmware: 44.15
BT Error Vel.: 3.28 ft/s	Mean Depth: 2.59 ft	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	% Meas.: 30.92	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	Water Temp.: None	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	ADCP Temp.: 36.9 °F	WZ : 5
Use Weighted Mean Depth: YES		

Performed Diag. Test: NO Project Name: otuk20130608dav847cfs.mmt
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at bridge

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	L	15	4	241	378	215	133	29.5	12.7	769	123	298	16:00	16:02	0.95	2.58	33	3
001	R	5	4	327	387	379	136	18.7	40.2	960	110	296	16:02	16:05	0.73	3.24	28	2
002	L	5	4	211	335	276	133	18.7	36.7	799	98	265	16:08	16:09	1.00	3.02	30	3
005	R	15	4	232	401	269	159	47.9	24.8	902	124	321	16:15	16:17	0.90	2.81	32	4
006	L	15	4	128	436	239	142	66.0	16.6	900	115	293	16:18	16:20	1.36	3.07	19	4
007	R	15	4	163	395	215	161	18.3	35.1	825	121	314	16:20	16:21	1.27	2.63	21	3
010	R	15	4	228	351	240	138	37.6	6.78	774	112	286	16:26	16:28	0.95	2.70	34	7
Mean		12	4	218	383	262	143	33.8	24.7	847	115	296	Total	00:27	1.02	2.86	28	4
SDev		5	0	63	33.2	56.7	11.9	18.1	13.0	74.0	9.1	18.3			0.22	0.25		
SD/M		0.40	0.00	0.29	0.09	0.22	0.08	0.53	0.53	0.09	0.08	0.06			0.21	0.09		

Remarks: 847cfs using VTG with 9% error, most of BT missing

Station Number:

Meas. No:

Station Name: Otuk Creek

Date: 06/04/2014

Party: DAV/JPB	Width: 39.7 ft	Processed by: DAV
Boat/Motor: Tethered Boat	Area: 84.5 ft ²	Mean Velocity: 1.70 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 140 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.300 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (16.6°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.16
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 7.72 ft/s	
Max. Depth: 3.58 ft	
Mean Depth: 2.13 ft	
% Meas.: 36.51	
Water Temp.: None	
ADCP Temp.: 37.7 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: YES
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 200' US of gage

Project Name: otuk06042014_1.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	L	3	2	97	83.1	32.0	26.2	1.55	4.03	147	37	62	12:01	12:02	0.77	2.38	22	0
006	R	4	3	90	51.2	54.8	27.6	4.38	2.47	140	33	75	12:16	12:17	0.78	1.87	17	0
008	R	4	3	72	51.4	55.2	24.7	1.66	-1.17	132	36	80	12:18	12:19	0.89	1.64	13	0
010	R	4	3	83	52.6	52.9	32.3	2.44	1.52	142	39	86	12:20	12:21	0.88	1.65	14	0
012	L	3	4	119	48.2	53.1	27.9	-1.38	2.65	131	49	102	12:24	12:25	0.69	1.28	37	1
013	R	3	4	88	56.2	56.2	30.2	2.26	0.777	146	37	86	12:25	12:26	0.82	1.70	22	0
014	L	3	4	114	56.8	53.5	27.5	2.30	2.58	143	47	100	12:26	12:27	0.73	1.42	36	0
Mean		3	3	94	57.1	51.1	28.1	1.89	1.84	140	40	85	Total	00:25	0.79	1.70	23	0
SDev		1	1	17	11.8	8.52	2.51	1.71	1.67	6.36	6.2	14.1			0.08	0.35		
SD/M		0.16	0.23	0.18	0.21	0.17	0.09	0.91	0.91	0.05	0.16	0.17			0.10	0.21		

Remarks: Q 140cfs using VTG with 5% error, most of BT data is missing

Discharge for transects in *italics* have a total Q more than 5% from the mean

Summary of Discharge Measurement Forms

Prince Creek, Alaska

Station Number:
 Station Name: Prince

Meas. No:
 Date: 05/31/2010

Party: DB/BL	Width: 156 ft	Processed by: DAV
Boat/Motor: kayak	Area: 254 ft ²	Mean Velocity: 1.29 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 328 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.469 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: NO	Max. Vel.: 4.07 ft/s	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Max. Depth: 2.62 ft	Serial #: Firmware: 31.04
BT Error Vel.: 32.81 ft/s	Mean Depth: 1.63 ft	Bin Size: 5 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	% Meas.: 42.17	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	Water Temp.: None	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	ADCP Temp.: 34.1 °F	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO		

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 1500' DS of gage
 Project Name: prince20100531 q328cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	R	5	30	176	135	133	43.8	2.08	5.83	320	150	242	15:53	15:56	0.77	1.32	0	0
001	L	5	30	182	139	146	44.6	1.31	-4.70	326	155	260	15:56	15:59	0.73	1.26	1	0
002	R	5	30	201	138	139	43.7	1.24	2.08	324	166	272	16:00	16:03	0.70	1.19	0	0
003	L	5	30	189	140	141	44.1	1.77	10.3	337	153	251	16:03	16:07	0.68	1.34	1	0
004	R	5	30	197	144	131	45.1	0.777	9.46	331	156	244	16:07	16:10	0.75	1.35	1	0
Mean		5	30	189	139	138	44.3	1.43	4.61	328	156	254	Total	00:17	0.73	1.29	0	0
SDev		0	0	10	3.52	6.01	0.585	0.505	6.14	6.63	6.3	12.3			0.04	0.07		
SD/M		0.00	0.00	0.05	0.03	0.04	0.01	0.35	1.33	0.02	0.04	0.05			0.05	0.05		

Remarks: Q 328cfs using BT with 2% error

Party: DB/BL	Width: 172 ft	Processed by: DAV
Boat/Motor: kayak	Area: 350 ft ²	Mean Velocity: 2.11 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 739 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.469 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: NO	Max. Vel.: 5.71 ft/s	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Max. Depth: 3.57 ft	Serial #: Firmware: 31.04
BT Error Vel.: 32.81 ft/s	Mean Depth: 2.03 ft	Bin Size: 5 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	% Meas.: 48.55	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	Water Temp.: None	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	ADCP Temp.: 34.0 °F	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO		

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 1500' DS of gage

Project Name: prince20100602001w000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	R	4	25	185	260	365	101	2.01	19.2	747	173	347	18:31	18:34	0.89	2.16	1	0
001	L	4	25	197	266	367	102	-1.27	26.4	760	171	354	18:34	18:37	0.84	2.15	1	0
002	R	4	25	186	254	353	95.6	1.84	23.4	727	174	351	18:38	18:41	0.86	2.08	0	0
003	L	4	25	160	286	393	109	1.27	19.0	807	173	355	18:41	18:44	1.00	2.27	1	0
004	R	4	25	162	257	366	101	1.70	18.2	744	175	358	18:44	18:47	0.96	2.08	1	0
005	L	4	25	168	243	337	96.9	2.22	19.6	699	169	345	18:47	18:50	1.04	2.03	2	0
006	R	4	25	144	250	336	97.7	1.94	23.6	709	171	344	18:50	18:53	1.09	2.06	1	0
007	L	4	25	163	252	356	97.9	1.62	14.0	722	172	347	18:53	18:56	0.98	2.08	1	0
Mean		4	25	170	258	359	100	1.42	20.4	739	172	350	Total	00:24	0.96	2.11	1	0
SDev		0	0	17	12.9	18.3	4.08	1.12	3.88	34.0	1.9	5.2			0.09	0.08		
SD/M		0.00	0.00	0.10	0.05	0.05	0.04	0.79	0.19	0.05	0.01	0.01			0.09	0.04		

Remarks: Q 739cfs using BT

Party: DB/BL	Width: 243 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,010 ft ²	Mean Velocity: 4.76 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 4,800 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.469 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.04
BT Error Vel.: 32.81 ft/s	Bin Size: 11 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 9.93 ft/s	
Max. Depth: 6.72 ft	
Mean Depth: 4.16 ft	
% Meas.: 66.99	
Water Temp.: None	
ADCP Temp.: 36.4 °F	

Performed Diag. Test: NO

Project Name: prince20100606000r.mmt

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: NO Evaluation: NO

Meas. Location: 1500 DS of gage

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
001	L	7	6	191	1003	3155	651	12.5	23.3	4846	259	982	13:30	13:33	1.70	4.93	13	0
002	R	7	6	164	941	3509	616	17.5	45.8	5130	230	1027	13:34	13:36	1.53	4.99	16	0
003	L	7	6	173	955	3039	634	11.0	26.5	4665	266	1008	13:37	13:40	1.80	4.63	19	0
004	R	7	6	199	921	3372	670	15.1	46.6	5025	239	1057	13:40	13:43	1.30	4.75	32	0
005	L	7	6	141	743	2626	503	13.6	25.6	3911	227	904	13:45	13:47	1.88	4.33	12	0
006	R	7	6	151	957	3595	619	13.1	44.8	5229	237	1060	13:48	13:50	1.63	4.93	19	0
Mean		7	6	169	920	3216	616	13.8	35.4	4801	243	1007	Total	00:20	1.64	4.76	19	0
SDev		0	0	23	90.7	357	58.6	2.26	11.4	480	15.8	58.3			0.21	0.25		
SD/M		0.00	0.00	0.13	0.10	0.11	0.10	0.16	0.32	0.10	0.07	0.06			0.13	0.05		

Remarks: Q 4801cfs using BT with 10% error, lots of bad ensembles (between 12% to 32%)Discharge for transects in *italics* have a total Q more than 5% from the mean

Station Number:
Station Name: Prince

Meas. No:
Date: 06/07/2010

Party: DB/BL	Width: 305 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,350 ft ²	Mean Velocity: 4.23 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 5,640 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.469 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.: 10	Adj. Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: NO	Max. Vel.: 13.1 ft/s	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Max. Depth: 10.1 ft	Serial #: _____ Firmware: 31.04
BT Error Vel.: 32.81 ft/s	Mean Depth: 4.51 ft	Bin Size: 14 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	% Meas.: 62.59	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	Water Temp.: None	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	ADCP Temp.: 37.2 °F	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO		

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: about .5 mile DS
 Project Name: seabee20100606_000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
001	R	5	5	200	1361	3661	910	9.57	-2.97	5939	303	1395	11:36	11:39	2.03	4.26	6	0
007	R	5	5	251	1550	4001	1005	-1.27	-2.08	6553	462	1754	11:54	11:58	2.32	3.74	12	0
008	L	5	5	196	1157	3766	878	34.7	10.2	5846	296	1500	12:01	12:04	2.27	3.90	28	0
009	R	5	5	163	1129	3670	844	31.4	18.8	5693	235	1163	12:05	12:07	1.76	4.90	23	0
010	L	5	5	127	1107	3628	780	31.4	9.29	5555	259	1325	12:08	12:10	2.55	4.19	16	0
015	R	5	5	211	1061	2457	715	2.51	22.6	4258	272	964	12:21	12:24	2.07	4.42	14	0
Mean		5	5	191	1227	3531	855	18.0	9.29	5640	305	1350	Total	00:48	2.17	4.23	17	0
SDev		0	0	42	189	543	101	16.2	10.5	760	81.1	272.9			0.27	0.41		
SD/M		0.00	0.00	0.22	0.15	0.15	0.12	0.90	1.13	0.13	0.27	0.20			0.13	0.10		

Remarks: Q 5641cfs using BT with 13%, bad ensembles 6% to 28%

Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: BL	Width: 85.7 ft	Processed by: DAV
Boat/Motor: kayak	Area: 392 ft ²	Mean Velocity: 2.15 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 838 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.459 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.04
BT Error Vel.: 32.81 ft/s	Bin Size: 11 cm* Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 4.09 ft/s	
Max. Depth: 8.03 ft	
Mean Depth: 4.57 ft	
% Meas.: 67.26	
Water Temp.: None	
ADCP Temp.: 53.0 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: can't find notes

Project Name: prince20100612000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
001	L	12	0	156	165	568	109	16.6	0.000	858	81	345	15:33	15:36	0.67	2.48	18	0
002	R	12	8	107	120	571	88.3	25.1	3.46	808	77	355	15:36	15:38	0.88	2.27	29	0
003	L	12	8	122	146	568	106	15.4	10.2	847	96	404	15:39	15:41	0.72	2.09	2	0
004	R	12	5	148	153	551	105	15.7	4.73	830	81	333	15:42	15:44	0.66	2.49	10	0
005	L	12	5	111	142	576	108	17.8	-1.06	843	88	412	15:45	15:47	0.79	2.04	2	0
006	R	12	5	90	154	578	164	12.1	3.57	912	90	410	15:48	15:49	0.87	2.22	3	0
007	L	12	5	111	138	569	124	9.85	1.45	843	91	422	15:50	15:52	0.78	1.99	3	0
008	R	12	5	97	129	558	95.8	15.5	2.68	801	89	418	15:53	15:54	0.91	1.92	2	0
009	L	12	5	96	129	545	117	24.8	2.51	818	84	401	15:55	15:56	0.77	2.04	2	0
010	R	12	5	83	136	591	105	16.5	2.65	850	85	396	15:57	15:58	0.95	2.15	6	0
011	L	12	5	102	132	532	140	30.6	2.22	837	85	408	15:59	16:00	0.77	2.05	5	0
012	R	12	5	80	129	559	100	21.6	2.47	812	82	394	16:01	16:02	1.02	2.06	3	0
Mean		12	5	108	139	564	114	18.5	2.91	838	86	392	Total	00:29	0.82	2.15	7	0
SDev		0	2	24	13.0	15.8	20.9	5.95	2.77	29.6	5.3	30.0			0.11	0.18		
SD/M		0.00	0.39	0.22	0.09	0.03	0.18	0.32	0.95	0.04	0.06	0.08			0.14	0.09		

Remarks: Q 838cfs using BT with 4% error

* - value not consistent for all transects

Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: RTK/DAV	Width: 75.7 ft	Processed by: DAV
Boat/Motor: tethered boat	Area: 97.4 ft ²	Mean Velocity: 0.148 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 14.0 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.04
BT Error Vel.: 32.81 ft/s	Bin Size: 4 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
	Max. Vel.: 9.71 ft/s
	Max. Depth: 2.00 ft
	Mean Depth: 1.28 ft
	% Meas.: 32.19
	Water Temp.: None
	ADCP Temp.: 58.9 °F

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at the gage

Project Name: prince20100708000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	5	5	100	5.30	3.88	2.93	1.02	0.424	13.6	78	102	15:21	15:23	0.73	0.13	3	8
002	L	5	5	165	4.80	4.03	2.79	-0.318	-0.812	12.5	79	122	16:06	16:09	0.46	0.10	2	13
002	L	5	5	81	4.80	4.03	2.79	0.459	0.459	12.5	76	99	15:25	15:27	0.88	0.12	0	4
006	L	5	5	90	7.10	5.16	3.74	-0.424	-0.247	15.3	74	86	15:38	15:39	0.78	0.18	1	9
008	L	5	5	85	6.64	5.19	3.60	0.636	-0.459	15.6	74	90	15:42	15:44	0.79	0.17	2	7
010	L	5	5	85	6.75	4.20	3.85	0.212	-0.247	14.7	73	85	15:46	15:47	0.79	0.17	2	4
Mean		5	5	101	5.90	4.41	3.28	0.265	-0.147	14.0	76	97	Total	00:26	0.74	0.15	2	7
SDev		0	0	32	1.05	0.597	0.499	0.560	0.501	1.37	2.5	13.9			0.15	0.03		
SD/M		0.00	0.00	0.32	0.18	0.14	0.15	2.11	3.40	0.10	0.03	0.14			0.20	0.22		

Remarks: Q 14cfs using BT with 10% error

Party: RTK/DAV	Width: 76.2 ft	Processed by: DAV
Boat/Motor: Tethered Boat	Area: 95.5 ft ²	Mean Velocity: 0.930 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 88.7 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.04
BT Error Vel.: 32.81 ft/s*	Bin Size: 4 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s*	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s*	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s*	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 13.5 ft/s	
Max. Depth: 1.86 ft	
Mean Depth: 1.25 ft	
% Meas.: 35.25	
Water Temp.: None	
ADCP Temp.: 45.6 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 300' US
 Project Name: prince20100831000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	6	6	158	38.8	34.0	21.5	1.84	1.77	97.9	86	107	11:34	11:37	0.47	0.92	16	0
001	R	6	10	77	26.0	28.5	14.1	2.51	8.26	79.4	67	84	11:37	11:38	0.72	0.94	0	0
Mean		6	8	117	32.4	31.2	17.8	2.17	5.01	88.7	76	96	Total	00:04	0.60	0.93	8	0
SDev		0	3	57	9.06	3.87	5.24	0.474	4.59	13.1	13.2	15.8			0.18	0.02		
SD/M		0.00	0.35	0.49	0.28	0.12	0.29	0.22	0.92	0.15	0.17	0.17			0.30	0.02		

Remarks: Q 88.6cfs using BT with 15% error

* - value not consistent for all transects
 Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: DB	Width: 127 ft	Processed by: DAV
Boat/Motor: kayak	Area: 201 ft ²	Mean Velocity: 2.02 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 405 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: _____ Firmware: 31.12
BT Error Vel.: 32.81 ft/s	Bin Size: 4 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 5.85 ft/s	
Max. Depth: 2.76 ft	
Mean Depth: 1.58 ft	
% Meas.: 42.09	
Water Temp.: None	
ADCP Temp.: 35.8 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: not sure
 Project Name: prince20110527000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	R	15	30	194	164	147	63.2	23.3	-3.78	394	128	187	17:29	17:33	0.59	2.11	11	0
001	L	15	30	121	146	176	58.0	22.8	-4.52	398	125	205	17:33	17:35	0.65	1.94	10	0
002	R	15	30	176	154	152	60.0	20.4	-6.53	381	126	189	17:35	17:39	0.55	2.01	6	0
003	L	15	30	121	149	182	62.3	21.1	-4.98	409	129	213	17:39	17:42	0.66	1.92	2	1
004	R	15	30	190	160	196	67.2	25.4	-4.17	444	127	212	17:42	17:46	0.52	2.10	9	1
Mean		15	30	160	155	170	62.1	22.6	-4.80	405	127	201	Total	00:16	0.59	2.02	8	0
SDev		0	0	37	7.58	20.4	3.48	1.95	1.07	23.8	1.6	12.4			0.06	0.09		
SD/M		0.00	0.00	0.23	0.05	0.12	0.06	0.09	0.22	0.06	0.01	0.06			0.11	0.04		

Remarks: Q 405cfs using BT with 6% error

Party: DB/CB	Width: 253 ft	Processed by: DAV
Boat/Motor: kayak	Area: 1,100 ft ²	Mean Velocity: 5.96 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 6,550 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.5°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: Rio Grande / 1200 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 10.17
BT Error Vel.: 0.33 ft/s	Bin Size: 25 cm Blank: 25 cm
WT Error Vel.: 3.50 ft/s	BT Mode: 5 BT Pings: 1
BT Up Vel.: 1.00 ft/s	WT Mode: 1 WT Pings: 1
WT Up Vel.: 9.00 ft/s	WV : 219
Use Weighted Mean Depth: NO	
Max. Vel.: 12.0 ft/s	
Max. Depth: 7.79 ft	
Mean Depth: 4.34 ft	
% Meas.: 33.12	
Water Temp.: None	
ADCP Temp.: 36.1 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: not sure
 Project Name: Prince_20110530000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
004	L	6	40	976	2785	2286	1512	55.0	305	6943	265	1153	15:54	15:57	1.19	6.02	32	0
005	R	0	40	1506	2545	1969	1298	0.000	333	6145	254	1091	15:57	16:02	1.29	5.63	20	0
006	L	5	45	804	2492	2185	1435	38.5	385	6536	247	1086	16:06	16:09	1.34	6.02	20	0
007	R	5	45	867	2487	2205	1425	35.6	371	6524	246	1080	16:09	16:12	1.21	6.04	19	0
008	L	5	45	950	2558	2192	1437	32.6	360	6579	254	1081	16:13	16:16	1.21	6.09	36	0
Mean		4	43	1020	2573	2168	1421	32.3	351	6545	253	1098	Total	00:22	1.25	5.96	26	0
SDev		2	3	280	122	118	77.3	20.1	32.1	283	7.7	31.0			0.06	0.19		
SD/M		0.57	0.06	0.27	0.05	0.05	0.05	0.62	0.09	0.04	0.03	0.03			0.05	0.03		

Remarks: Q 6442cfs using BT with 5% error and Q6545cfs using VTG with 4% error

Party: DB/DAV	Width: 77.7 ft	Processed by: DAV
Boat/Motor: kayak	Area: 385 ft ²	Mean Velocity: 2.15 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 827 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 32.81 ft/s	Bin Size: 10 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 4.89 ft/s	
Max. Depth: 6.90 ft	
Mean Depth: 4.96 ft	
% Meas.: 69.80	
Water Temp.: None	
ADCP Temp.: 36.1 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 300' US of gage
 Project Name: prince20110603000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	8	6	87	126	588	102	5.69	25.9	848	84	405	10:45	10:47	0.92	2.09	6	0
001	R	8	6	85	123	593	96.4	11.3	21.6	845	75	382	10:47	10:49	0.78	2.21	4	0
002	L	8	6	84	117	557	92.4	10.0	25.1	802	75	370	10:49	10:51	0.79	2.17	2	0
003	R	8	6	89	120	569	93.1	9.57	20.1	812	76	384	10:51	10:53	0.77	2.11	6	0
Mean		8	6	86	121	577	96.0	9.14	23.2	827	78	385	Total	00:07	0.82	2.15	4	0
SDev		0	0	2	3.89	16.8	4.44	2.41	2.80	23.5	4.5	14.4			0.07	0.05		
SD/M		0.00	0.00	0.03	0.03	0.03	0.05	0.26	0.12	0.03	0.06	0.04			0.08	0.03		

Remarks: Q 827cfs using BT with 3% error

Party: RTK/DAV	Width: 66.0 ft	Processed by: DAV
Boat/Motor: kayak	Area: 328 ft ²	Mean Velocity: 2.65 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 867 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: NO	Max. Vel.: 4.84 ft/s	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Max. Depth: 6.82 ft	Serial #: _____ Firmware: 31.12
BT Error Vel.: 32.81 ft/s	Mean Depth: 4.97 ft	Bin Size: 10 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	% Meas.: 68.51	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	Water Temp.: None	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	ADCP Temp.: 44.0 °F	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO		

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 300' US of gage
 Project Name: prince20110606000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
002	R	8	6	79	114	566	91.7	14.6	43.8	830	62	310	11:20	11:21	0.64	2.68	3	0
003	L	8	6	68	116	599	95.1	21.1	39.0	870	62	327	11:22	11:23	0.74	2.66	3	0
004	R	8	6	81	129	615	105	12.4	35.1	896	69	335	11:23	11:25	0.69	2.67	2	0
005	L	8	6	65	129	609	101	14.9	32.3	886	70	340	11:27	11:28	0.95	2.61	3	0
006	R	8	6	81	120	581	96.8	12.9	41.0	852	67	327	11:28	11:30	0.66	2.60	11	0
Mean		8	6	74	122	594	97.8	15.2	38.2	867	66	328	Total	00:10	0.74	2.65	4	0
SDev		0	0	8	7.09	20.2	5.05	3.47	4.57	26.4	3.8	11.5			0.13	0.04		
SD/M		0.00	0.00	0.10	0.06	0.03	0.05	0.23	0.12	0.03	0.06	0.04			0.17	0.01		

Remarks: Q 867cfs using BT with 3% error

Party: RTK/DAV	Width: 21.0 ft	Processed by: DAV
Boat/Motor: kayak	Area: 25.4 ft ²	Mean Velocity: 0.848 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 21.6 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 32.81 ft/s	Bin Size: 3 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
	Max. Vel.: 4.90 ft/s
	Max. Depth: 2.15 ft
	Mean Depth: 1.21 ft
	% Meas.: 37.92
	Water Temp.: None
	ADCP Temp.: 33.1 °F

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 100' US of gage

Project Name: prince creek5252012000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	5	2	74	6.85	7.80	3.71	2.40	0.742	21.5	21	24	11:42	11:44	0.19	0.90	1	0
001	R	5	2	64	6.64	8.58	3.46	2.33	0.812	21.8	21	26	11:44	11:45	0.24	0.82	3	1
002	L	5	2	57	7.45	8.33	4.06	2.33	0.212	22.4	21	25	11:45	11:47	0.26	0.89	2	2
003	R	5	2	57	5.79	7.98	3.11	2.86	0.777	20.5	21	26	11:47	11:48	0.28	0.78	7	2
Mean		5	2	63	6.68	8.18	3.58	2.48	0.636	21.6	21	25	Total	00:05	0.24	0.85	3	2
SDev		0	0	8	0.687	0.349	0.402	0.255	0.284	0.772	0.4	1.2			0.04	0.06		
SD/M		0.00	0.00	0.13	0.10	0.04	0.11	0.10	0.45	0.04	0.02	0.05			0.16	0.07		

Remarks: Q 21.5cfs using BT with 4% error

Party: RTL/DAV	Width: 26.1 ft	Processed by: DAV
Boat/Motor: tethered boat	Area: 30.5 ft ²	Mean Velocity: 1.76 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 53.7 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 32.81 ft/s	Bin Size: 4 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 3.78 ft/s	
Max. Depth: 2.18 ft	
Mean Depth: 1.17 ft	
% Meas.: 37.58	
Water Temp.: None	
ADCP Temp.: 33.4 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 100 US of Gage
 Project Name: prince creek5272012000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
001	R	6	5	54	16.3	20.0	9.46	4.66	4.41	54.8	26	31	17:44	17:45	0.31	1.77	9	1
002	L	6	5	56	15.5	21.1	9.50	4.73	3.85	54.7	27	32	17:45	17:47	0.31	1.71	11	0
003	R	6	5	53	16.1	20.0	10.3	3.43	3.99	53.9	26	30	17:47	17:48	0.28	1.78	4	0
004	L	6	5	73	15.7	19.6	9.43	3.07	3.60	51.4	25	29	17:49	17:50	0.34	1.77	5	1
Mean		6	5	59	15.9	20.2	9.69	3.97	3.96	53.7	26	31	Total	00:06	0.31	1.76	7	0
SDev		0	0	9	0.349	0.642	0.442	0.849	0.340	1.59	0.6	1.3			0.03	0.04		
SD/M		0.00	0.00	0.16	0.02	0.03	0.05	0.21	0.09	0.03	0.02	0.04			0.08	0.02		

Remarks: Q 53.7 cfs using BT with 3% error

Party:	Width: 150 ft	Processed by:
Boat/Motor: raft/Mercury 5hp	Area: 595 ft ²	Mean Velocity: 5.82 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 3,460 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.12
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 19 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 10.2 ft/s	
Max. Depth: 8.06 ft	
Mean Depth: 3.96 ft	
% Meas.: 52.99	
Water Temp.: None	
ADCP Temp.: 42.4 °F	

Performed Diag. Test: NO Project Name: Prince6052012_0.mmt
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 500' DS of gage

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	20	10	199	776	1786	587	47.4	170	3367	146	570	18:31	18:33	1.26	5.91	0	0
001	R	20	10	167	823	1770	594	49.3	173	3409	152	581	18:33	18:34	1.39	5.87	0	1
002	L	20	10	158	804	1869	689	32.5	143	3537	151	598	18:35	18:36	1.54	5.92	4	1
003	R	20	10	140	778	1902	665	49.5	122	3516	151	629	18:37	18:38	1.59	5.59	1	1
Mean		20	10	166	795	1832	633	44.7	152	3457	150	595	Total	00:07	1.44	5.82	1	1
SDev		0	0	25	22.2	63.6	50.8	8.16	24.0	82.3	2.6	25.9			0.15	0.16		
SD/M		0.00	0.00	0.15	0.03	0.03	0.08	0.18	0.16	0.02	0.02	0.04			0.10	0.03		

Remarks: Q 3457cfs using BT with 2% error and add and estimate of 85.5cfs from a smaller channel
 Total Q 3542cfs

Party: RTK/DAV	Width: 76.9 ft	Processed by: DAV
Boat/Motor: kayak	Area: 325 ft ²	Mean Velocity: 1.88 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 609 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (18.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.12
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 19 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 5.82 ft/s	
Max. Depth: 5.61 ft	
Mean Depth: 4.23 ft	
% Meas.: 53.78	
Water Temp.: None	
ADCP Temp.: 42.3 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 600' US of gage
 Project Name: prince0608_0.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	6	6	125	140	304	115	4.91	6.25	571	78	329	11:39	11:40	0.91	1.73	0	0
001	R	6	6	114	153	338	114	6.00	10.7	621	77	323	11:40	11:41	0.91	1.92	1	0
002	L	6	6	81	144	326	121	4.80	17.3	614	77	339	11:41	11:42	1.36	1.81	2	0
003	R	6	6	92	155	343	118	7.80	8.05	631	75	310	11:42	11:43	1.17	2.03	2	0
Mean		6	6	103	148	328	117	5.88	10.6	609	77	325	Total	00:04	1.09	1.88	1	0
SDev		0	0	20	7.04	17.2	3.39	1.39	4.86	26.7	1.6	12.0			0.22	0.13		
SD/M		0.00	0.00	0.19	0.05	0.05	0.03	0.24	0.46	0.04	0.02	0.04			0.20	0.07		

Remarks: Q 563cfs using BT with 2% error and 609cfs using VTG with 4%

Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: RTK/DAV	Width: 68.6 ft	Processed by: DAV
Boat/Motor: kayak	Area: 354 ft ²	Mean Velocity: 2.75 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 972 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: _____ Firmware: 31.12
BT Error Vel.: 32.81 ft/s	Bin Size: 9 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 4.58 ft/s	
Max. Depth: 6.59 ft	
Mean Depth: 5.15 ft	
% Meas.: 70.35	
Water Temp.: None	
ADCP Temp.: 41.9 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 500' US of gage
 Project Name: prince09022012000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	R	4	3	70	143	674	127	5.09	2.22	951	70	361	14:47	14:48	0.93	2.63	6	0
001	L	4	3	71	149	686	138	4.94	1.27	979	68	343	14:48	14:50	0.92	2.86	3	0
002	R	4	3	71	145	686	131	6.32	0.212	970	70	363	14:50	14:51	0.92	2.67	3	0
003	L	4	3	84	153	708	145	5.97	-0.106	1011	68	353	14:52	14:53	0.80	2.87	4	0
004	R	4	3	79	146	666	131	5.44	2.72	951	67	347	14:54	14:56	0.93	2.74	9	0
Mean		4	3	75	147	684	134	5.55	1.26	972	69	354	Total	00:08	0.90	2.75	5	0
SDev		0	0	6	3.83	15.9	7.08	0.584	1.23	25.1	1.4	8.9			0.06	0.11		
SD/M		0.00	0.00	0.08	0.03	0.02	0.05	0.11	0.97	0.03	0.02	0.03			0.06	0.04		

Remarks: Q 972cfs using BT with 3% error

Party: RTK/DAV	Width: 30.6 ft	Processed by: DAV
Boat/Motor:	Area: 39.1 ft ²	Mean Velocity: 1.87 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 73.1 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (18.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 0.33 ft/s*	Bin Size: 4 cm Blank: 3 cm
WT Error Vel.: 1.40 ft/s*	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s*	WT Mode: 12 WT Pings: 6
WT Up Vel.: 3.43 ft/s*	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 3.43 ft/s	
Max. Depth: 2.55 ft	
Mean Depth: 1.28 ft	
% Meas.: 41.80	
Water Temp.: None	
ADCP Temp.: 36.0 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 200' us of gage
 Project Name: prince20130528dav73cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
001	R	5	5	62	23.5	30.9	13.1	3.64	3.81	74.9	30	38	13:29	13:30	0.35	1.99	13	0
002	L	5	5	61	22.0	29.7	12.6	4.73	3.18	72.3	29	38	13:31	13:32	0.33	1.88	7	0
003	R	5	5	64	23.3	31.4	12.0	2.93	3.57	73.3	31	40	13:32	13:34	0.33	1.85	13	0
004	L	5	5	56	22.8	30.7	14.0	2.97	3.14	73.7	31	40	13:34	13:35	0.38	1.85	4	0
005	R	5	5	64	22.6	30.0	12.8	2.72	3.25	71.4	32	40	13:35	13:36	0.38	1.77	3	0
Mean		5	5	61	22.8	30.6	12.9	3.40	3.39	73.1	31	39	Total	00:07	0.35	1.87	8	0
SDev		0	0	3	0.598	0.680	0.737	0.822	0.290	1.34	1.1	1.1			0.02	0.08		
SD/M		0.00	0.00	0.05	0.03	0.02	0.06	0.24	0.09	0.02	0.04	0.03			0.06	0.04		

Remarks: 73cfs using BT with 0.02 error, no GPS

* - value not consistent for all transects

Station Number:
Station Name: Prince Creek

Meas. No: 003
Date: 05/31/2013

Party: RTK/DAV	Width: 123 ft	Processed by: DAV
Boat/Motor: kayak	Area: 404 ft ²	Mean Velocity: 2.50 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 1,000 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (18.6°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Bin Size: 8 cm Blank: 3 cm
WT Error Vel.: 1.00 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 4.68 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	

Performed Diag. Test: NO Project Name: prince20130531dav1001cfs.m...
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 50' DS of gage

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	3	6	142	242	627	159	4.94	1.13	1034	123	390	11:21	11:23	1.09	2.65	21	2
001	R	3	6	123	243	580	169	2.05	1.84	996	134	446	11:24	11:26	1.11	2.23	11	1
002	L	3	6	104	250	593	170	4.91	2.44	1019	114	367	11:27	11:29	1.16	2.78	23	0
003	R	3	6	99	245	544	153	2.97	8.23	954	123	411	11:29	11:31	1.02	2.32	12	1
Mean		3	6	117	245	586	163	3.72	3.41	1001	123	404	Total	00:10	1.09	2.50	17	1
SDev		0	0	20	3.45	34.2	7.95	1.45	3.26	35.1	8.4	33.5			0.06	0.26		
SD/M		0.00	0.00	0.17	0.01	0.06	0.05	0.39	0.96	0.04	0.07	0.08			0.05	0.10		

Remarks: 1001cfs using BT with 4% error

Party: DAV/RTK	Width: 208 ft	Processed by: DAV
Boat/Motor: 10' zodiac w motor	Area: 1,190 ft ²	Mean Velocity: 5.57 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 6,540 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.350 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (18.6°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.15
BT Error Vel.: 3.28 ft/s*	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s*	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s*	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s*	WZ : 5
Use Weighted Mean Depth: YES	

Performed Diag. Test: NO Project Name: prince20130603dav6638cfs.mmm
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 1650' US of gage

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	L	10	10	149	1193	3582	1424	-4.84	144	6339	236	1369	13:35	13:37	2.57	4.63	0	0
002	L	10	10	97	1260	3818	1455	91.6	123	6747	170	957	13:40	13:41	2.47	7.05	3	1
003	R	10	10	121	1267	3804	1409	3.71	146	6629	213	1210	13:41	13:42	2.70	5.48	0	0
004	L	10	10	191	1241	3706	1490	-5.05	112	6543	223	1302	13:44	13:47	2.69	5.03	0	0
005	R	10	10	92	1216	3757	1372	-13.0	91.5	6423	200	1134	13:47	13:48	3.47	5.67	0	0
Mean		10	10	130	1235	3733	1430	14.5	123	6536	208	1194	Total	00:12	2.78	5.57	1	0
SDev		0	0	41	30.8	95.1	45.0	43.5	22.8	162	25.0	160.1			0.40	0.92		
SD/M		0.00	0.00	0.31	0.02	0.03	0.03	3.00	0.18	0.02	0.12	0.13			0.14	0.17		

Remarks: 6536cfs using BT with 0.02 error and 6638cfs using VTG with 0.02 error

* - value not consistent for all transects

Party: DAV/JPB	Width: 86.8 ft	Processed by: DAV
Boat/Motor: Kayak	Area: 414 ft ²	Mean Velocity: 2.90 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 1,200 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (18.6°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.15
BT Error Vel.: 3.28 ft/s*	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s*	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s*	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s*	WZ : 5
Use Weighted Mean Depth: YES	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 300' US of gage

Project Name: prince20130607dav1270cfs.m
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	4	4	147	280	628	211	4.41	24.8	1149	90	414	16:53	16:54	1.35	2.77	14	1
001	R	4	4	92	321	688	227	5.83	22.5	1265	94	461	16:54	16:56	1.29	2.75	20	2
002	L	4	4	87	304	657	215	3.81	13.1	1193	83	409	16:56	16:57	1.40	2.92	20	0
003	R	4	4	87	317	663	217	6.67	4.84	1208	82	386	16:57	16:58	1.29	3.13	2	2
004	L	4	4	104	321	637	218	5.05	10.6	1191	89	411	16:59	17:00	1.22	2.90	22	1
005	R	4	4	88	312	640	217	6.00	4.80	1179	83	401	17:00	17:01	1.30	2.94	5	1
Mean		4	4	100	309	652	217	5.30	13.4	1198	87	414	Total	00:08	1.31	2.90	14	1
SDev		0	0	24	15.5	21.8	5.49	1.07	8.58	38.6	4.6	25.2			0.06	0.14		
SD/M		0.00	0.00	0.24	0.05	0.03	0.03	0.20	0.64	0.03	0.05	0.06			0.05	0.05		

Remarks: 1198cfs using BT with 0.03 error and 1270cfs with 3% error

* - value not consistent for all transects
 Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: RTK/DAV	Width: 138 ft	Processed by: DAV
Boat/Motor: kayak	Area: 783 ft ²	Mean Velocity: 4.04 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 3,160 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:3	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (18.9°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 44.15
BT Error Vel.: 0.33 ft/s	Bin Size: 10 cm* Blank: 16 cm
WT Error Vel.: 0.60 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 1.00 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 8.14 ft/s	WZ : 0
Use Weighted Mean Depth: NO	
Max. Vel.: 8.14 ft/s	
Max. Depth: 8.44 ft	
Mean Depth: 5.69 ft	
% Meas.: 70.80	
Water Temp.: None	
ADCP Temp.: 36.4 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 500' US of gage

Project Name: prince20130608dav3161cfs.m
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
002	R	4	4	53	457	2278	460	-3.92	18.9	3210	142	805	13:39	13:40	2.03	3.99	8	12
004	R	4	4	58	470	2313	484	-4.03	19.1	3281	136	787	13:43	13:44	1.93	4.17	3	12
005	L	4	4	50	431	2251	438	5.76	16.9	3142	131	806	13:44	13:45	2.26	3.90	14	19
007	R	4	4	62	460	2083	444	2.15	20.8	3010	139	757	13:46	13:48	1.84	3.98	2	11
008	L	4	4	43	436	2287	345	-5.26	21.7	3083	130	789	13:48	13:49	2.65	3.91	19	16
009	R	4	4	57	541	2218	458	1.87	20.4	3239	150	752	13:50	13:51	2.12	4.30	9	8
Mean		4	4	53	466	2238	438	-0.571	19.6	3161	138	783	Total	00:12	2.14	4.04	9	13
SDev		0	0	7	39.9	82.8	48.4	4.44	1.71	102	7.6	23.2			0.29	0.16		
SD/M		0.00	0.00	0.13	0.09	0.04	0.11	7.78	0.09	0.03	0.06	0.03			0.14	0.04		

Remarks: 3161cfs using BT with 3% error, no GPS

* - value not consistent for all transects

Station Number:
Station Name: Prince

Meas. No: 0
Date: 06/11/2013

Party: DAV/JPB	Width: 144 ft	Processed by: DAV
Boat/Motor: Kayak	Area: 756 ft ²	Mean Velocity: 3.75 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 2,810 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (18.6°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.15
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 8.25 ft/s	
Max. Depth: 8.61 ft	
Mean Depth: 5.26 ft	
% Meas.: 56.39	
Water Temp.: None	
ADCP Temp.: 40.3 °F	

Performed Diag. Test: NO Project Name: prince20130611dav2829cfs.mmm
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 300' US of gage

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	L	4	4	88	578	1642	475	8.30	14.3	2719	139	843	10:47	10:49	2.27	3.23	0	2
001	R	4	4	112	737	1577	489	9.46	11.7	2825	149	764	10:49	10:50	1.96	3.70	1	2
002	L	4	4	87	715	1646	466	3.28	20.4	2850	143	775	10:50	10:51	2.38	3.68	1	2
003	R	4	4	110	900	1462	441	5.16	18.6	2827	148	643	10:51	10:53	2.14	4.39	4	1
Mean		4	4	99	733	1582	468	6.55	16.2	2805	144	756	Total	00:05	2.19	3.75	1	2
SDev		0	0	14	132	86.0	20.3	2.84	3.99	58.9	4.7	83.1			0.18	0.48		
SD/M		0.00	0.00	0.14	0.18	0.05	0.04	0.43	0.25	0.02	0.03	0.11			0.08	0.13		

Remarks: 2805cfs using BT with 2% error and 2829cfs using VTG with 6%

Station Number:
Station Name: Prince

Meas. No:
Date: 06/15/2013

Party: RTK/KAP	Width: 70.8 ft	Processed by: DAV
Boat/Motor: kayak	Area: 324 ft ²	Mean Velocity: 1.77 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 575 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 44.15
BT Error Vel.: 0.33 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 0.60 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 1.00 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 3.37 ft/s	WZ : 0
Use Weighted Mean Depth: NO	
Max. Vel.: 3.37 ft/s	
Max. Depth: 6.24 ft	
Mean Depth: 4.57 ft	
% Meas.: 69.32	
Water Temp.: None	
ADCP Temp.: 54.2 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 400' US of gage
 Project Name: prince20130615dav575cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	6	3	126	94.6	396	76.7	3.07	-1.77	568	72	327	17:59	18:02	0.49	1.74	4	5
001	R	6	3	130	94.5	405	75.2	4.80	2.61	582	73	333	18:02	18:05	0.48	1.75	15	8
002	L	6	3	114	94.0	397	76.3	3.00	5.12	575	70	317	18:05	18:07	0.50	1.81	3	7
003	R	6	3	139	91.4	395	74.0	5.12	6.39	572	69	318	18:08	18:10	0.45	1.80	7	8
Mean		6	3	127	93.7	398	75.5	4.00	3.09	575	71	324	Total	00:10	0.48	1.77	7	7
SDev		0	0	10	1.53	4.58	1.21	1.12	3.60	5.91	1.8	7.4			0.02	0.04		
SD/M		0.00	0.00	0.08	0.02	0.01	0.02	0.28	1.16	0.01	0.03	0.02			0.05	0.02		

Remarks: 575cfs using BT with 0.01 error, no GPS

Party: RTK	Width: 118 ft	Processed by: DAV
Boat/Motor:	Area: 164 ft ²	Mean Velocity: 1.10 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 180 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.230 ft*	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 44.15
BT Error Vel.: 0.33 ft/s*	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 1.60 ft/s*	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 1.00 ft/s*	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 6.11 ft/s*	WZ : 0
Use Weighted Mean Depth: NO	
Max. Vel.: 5.32 ft/s	
Max. Depth: 2.18 ft	
Mean Depth: 1.39 ft	
% Meas.: 40.48	
Water Temp.: None	
ADCP Temp.: 67.8 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 600' US of gage
 Project Name: prince20130620dav180cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	5	0	138	69.9	80.3	33.8	0.953	0.000	185	118	170	17:30	17:33	0.81	1.09	1	1
001	R	5	0	128	82.7	70.6	38.8	0.177	0.000	192	119	158	17:33	17:36	0.91	1.22	2	3
002	L	5	0	125	72.6	64.3	34.0	0.600	0.000	172	119	157	17:36	17:38	0.90	1.09	2	1
003	R	5	0	132	74.2	67.0	34.3	0.459	0.000	176	119	159	17:39	17:41	0.85	1.11	2	2
004	L	5	0	111	62.9	80.2	31.4	0.424	0.000	175	118	177	17:42	17:44	0.96	0.99	1	2
005	R	5	0	129	70.6	73.6	33.1	0.212	0.000	177	117	165	17:44	17:46	0.84	1.08	0	2
Mean		5	0	127	72.2	72.7	34.2	0.471	0.000	180	118	164	Total	00:16	0.88	1.10	1	2
SDev		0	0	9	6.48	6.65	2.46	0.285	0.000	7.64	0.8	7.9			0.06	0.07		
SD/M		0.00	0.00	0.07	0.09	0.09	0.07	0.60	0.00	0.04	0.01	0.05			0.06	0.07		

Remarks: 180cfs using BT with 4% error, no GPS

* - value not consistent for all transects
 Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: RTK/DAV	Width: 49.2 ft	Processed by: DAV
Boat/Motor:	Area: 78.7 ft ²	Mean Velocity: 1.29 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 102 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:6	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 44.15
BT Error Vel.: 0.33 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 1.40 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 1.00 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 3.58 ft/s	WZ : 0
Use Weighted Mean Depth: NO	
Max. Vel.: 3.49 ft/s	
Max. Depth: 2.82 ft	
Mean Depth: 1.60 ft	
% Meas.: 52.91	
Water Temp.: None	
ADCP Temp.: 59.6 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 50' DS of gage

Project Name: prince20130822dav102cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	R	10	6	77	27.4	54.8	14.9	4.31	1.48	103	52	82	17:01	17:03	0.44	1.26	1	1
001	L	10	6	63	25.9	53.1	15.7	4.45	2.83	102	50	78	17:03	17:04	0.49	1.31	2	0
002	R	10	6	49	24.9	53.8	13.9	6.57	2.22	101	47	78	17:05	17:06	0.56	1.30	2	1
003	L	10	6	54	24.7	53.6	14.3	5.40	2.65	101	48	77	17:06	17:07	0.52	1.31	2	1
Mean		10	6	60	25.7	53.8	14.7	5.18	2.30	102	49	79	Total	00:05	0.50	1.29	2	1
SDev		0	0	12	1.23	0.736	0.749	1.04	0.597	0.904	2.4	2.1			0.05	0.02		
SD/M		0.00	0.00	0.21	0.05	0.01	0.05	0.20	0.26	0.01	0.05	0.03			0.11	0.02		

Remarks: 102cfs using BT with 1% error, no GPS

Party: RTK/DAV	Width: 97.5 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 205 ft ²	Mean Velocity: 1.76 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 360 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: NO	Max. Vel.: 3.78 ft/s	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Max. Depth: 3.81 ft	Serial #: _____ Firmware: 31.12
BT Error Vel.: 32.81 ft/s	Mean Depth: 2.12 ft	Bin Size: 5 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	% Meas.: 62.24	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	Water Temp.: None	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	ADCP Temp.: 34.4 °F	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO		

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage
 Project Name: prince20140525000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	R	4	15	105	81.4	233	55.7	1.06	3.96	375	105	212	06:28	06:30	0.73	1.77	1	0
001	L	4	15	93	79.7	225	55.3	1.66	8.62	370	99	205	06:30	06:32	0.76	1.80	1	0
002	R	4	15	90	81.4	231	52.3	0.459	6.11	371	104	211	06:32	06:34	0.84	1.76	1	0
003	L	-3	-3	97	75.9	214	48.0	-0.883	-1.55	336	75	186	06:34	06:36	0.77	1.80	1	0
004	R	4	15	95	74.7	216	48.0	0.494	6.78	346	103	211	06:37	06:39	0.82	1.64	1	0
Mean		3	11	96	78.6	224	51.8	0.558	4.78	360	98	205	Total	00:10	0.78	1.76	1	0
SDev		3	8	6	3.15	8.21	3.80	0.943	3.91	17.5	12.5	11.0			0.04	0.07		
SD/M		1.28	0.72	0.06	0.04	0.04	0.07	1.69	0.82	0.05	0.13	0.05			0.05	0.04		

Remarks: Q 360cfs using BT with 5% error

Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: DAV/JPB	Width: 167 ft	Processed by: DAV
Boat/Motor: kayak	Area: 662 ft ²	Mean Velocity: 3.73 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 2,470 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (18.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.16
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 12.0 ft/s	
Max. Depth: 6.23 ft	
Mean Depth: 3.96 ft	
% Meas.: 52.86	
Water Temp.: None	
ADCP Temp.: 37.7 °F	

Performed Diag. Test: NO

Project Name: Prince06072014_0.mmt

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: NO Evaluation: NO

Meas. Location: at gage

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	3	4	109	692	1338	456	3.00	6.14	2495	167	648	11:28	11:29	2.40	3.85	2	3
001	R	3	4	89	664	1332	475	4.73	6.71	2482	165	657	11:30	11:30	2.96	3.78	0	4
002	L	3	4	108	684	1273	502	1.91	5.33	2467	172	678	11:31	11:32	2.46	3.64	2	3
003	R	3	4	85	650	1276	494	5.86	5.23	2430	164	665	11:33	11:34	3.09	3.66	0	4
Mean		3	4	97	672	1305	482	3.88	5.85	2469	167	662	Total	00:06	2.73	3.73	1	4
SDev		0	0	13	19.2	35.1	20.5	1.76	0.703	28.1	3.7	12.5			0.35	0.10		
SD/M		0.00	0.00	0.13	0.03	0.03	0.04	0.45	0.12	0.01	0.02	0.02			0.13	0.03		

Remarks: Q 2590cfs using BT with 2% error and 2469cfs using VTG with 1% error

Party: DAV/JPB	Width: 164 ft	Processed by: DAV
Boat/Motor: kayak	Area: 672 ft ²	Mean Velocity: 3.17 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 2,130 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: DGPS	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (18.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: YES	Max. Vel.: 9.75 ft/s	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Max. Depth: 7.05 ft	Serial #: 54988 Firmware: 44.16
BT Error Vel.: 3.28 ft/s	Mean Depth: 4.10 ft	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	% Meas.: 49.05	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	Water Temp.: None	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	ADCP Temp.: 37.9 °F	WZ : 5
Use Weighted Mean Depth: YES		

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage
 Project Name: Prince06082014_0.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	3	3	128	662	1015	461	2.05	3.71	2144	161	660	10:34	10:35	1.97	3.25	6	2
001	R	3	3	93	633	1075	415	3.21	2.37	2128	160	667	10:36	10:37	2.78	3.19	11	1
003	R	3	3	100	632	1045	435	4.06	3.64	2120	170	688	10:39	10:40	2.71	3.08	24	2
Mean		3	3	107	642	1045	437	3.11	3.24	2131	164	672	Total	00:06	2.49	3.17	14	1
SDev		0	0	19	16.9	29.6	23.0	1.01	0.755	12.1	5.8	14.6			0.45	0.08		
SD/M		0.00	0.00	0.17	0.03	0.03	0.05	0.33	0.23	0.01	0.04	0.02			0.18	0.03		

Remarks: Q 2275cfs using BT with 2% error and 2131cfs using VTG with 1% error

Party: RTK/DAV	Width: 47.6 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 69.0 ft ²	Mean Velocity: 0.834 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 57.6 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:5	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 44.16
BT Error Vel.: 32.81 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 0
Use Weighted Mean Depth: NO	
Max. Vel.: 4.49 ft/s	
Max. Depth: 2.25 ft	
Mean Depth: 1.45 ft	
% Meas.: 53.41	
Water Temp.: None	
ADCP Temp.: 61.4 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage
 Project Name: prince20140711 q57.6cfs dav.m
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
002	L	6	10	64	16.8	31.4	10.2	1.62	-0.388	59.6	50	72	15:37	15:39	0.50	0.82	5	0
003	R	6	10	48	14.9	31.0	8.86	3.07	2.65	60.5	47	69	15:39	15:40	0.59	0.88	2	1
004	L	6	10	50	14.5	30.8	8.51	3.04	-2.40	54.5	47	68	15:41	15:42	0.61	0.80	2	0
005	R	6	10	47	15.3	30.1	9.53	2.65	0.353	58.0	46	68	15:42	15:43	0.58	0.85	2	0
006	L	6	10	52	16.3	30.5	9.57	0.918	-2.58	54.7	50	70	15:44	15:45	0.61	0.78	2	1
007	R	6	10	39	16.2	30.7	9.53	1.48	0.283	58.2	46	66	15:45	15:46	0.73	0.88	5	0
Mean		6	10	50	15.7	30.8	9.38	2.13	-0.347	57.6	48	69	Total	00:08	0.60	0.83	3	0
SDev		0	0	8	0.890	0.430	0.608	0.908	1.95	2.49	1.8	2.0			0.07	0.04		
SD/M		0.00	0.00	0.16	0.06	0.01	0.06	0.43	5.62	0.04	0.04	0.03			0.12	0.05		

Remarks: Q 57.6cfs using BT with 4% error

Discharge for transects in *italics* have a total Q more than 5% from the mean

Summary of Discharge Measurement Forms

Seabee Creek, Alaska

Party: DB/BL	Width: 96.0 ft	Processed by: DAV
Boat/Motor: kayak	Area: 154 ft ²	Mean Velocity: 1.05 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 159 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.469 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.04
BT Error Vel.: 32.81 ft/s	Bin Size: 7 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 3.95 ft/s	
Max. Depth: 2.75 ft	
Mean Depth: 1.60 ft	
% Meas.: 35.31	
Water Temp.: None	
ADCP Temp.: 33.6 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage

Project Name: seabee20100530001w000r.mmm
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
002	R	25	10	157	51.1	66.1	22.5	21.2	1.38	162	104	193	22:35	22:38	0.72	0.84	1	0
004	L	25	10	108	54.7	50.4	21.5	31.3	-0.565	157	95	142	22:38	22:40	0.62	1.11	5	0
005	R	25	10	140	53.5	58.3	21.7	21.6	1.06	156	91	147	22:40	22:43	0.51	1.07	0	0
006	L	25	10	134	56.1	52.9	22.9	31.8	1.09	165	98	147	22:43	22:45	0.51	1.12	8	1
007	R	25	10	135	48.5	54.4	19.4	24.5	1.87	149	92	149	22:47	22:49	0.58	1.00	4	0
008	L	25	10	122	60.8	55.7	23.4	26.8	0.565	167	96	143	22:49	22:51	0.56	1.17	12	0
Mean		25	10	132	54.1	56.3	21.9	26.2	0.901	159	96	154	Total	00:16	0.58	1.05	5	0
SDev		0	0	17	4.25	5.51	1.42	4.60	0.836	6.77	4.6	19.6			0.08	0.12		
SD/M		0.00	0.00	0.13	0.08	0.10	0.06	0.18	0.93	0.04	0.05	0.13			0.13	0.11		

Remarks: Q 159.4 cfs using BT with 4%error

Party: DB	Width: 101 ft	Processed by: DAV
Boat/Motor: kayak	Area: 231 ft ²	Mean Velocity: 1.35 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 311 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.469 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.04
BT Error Vel.: 32.81 ft/s	Bin Size: 7 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 4.11 ft/s	
Max. Depth: 3.39 ft	
Mean Depth: 2.27 ft	
% Meas.: 52.74	
Water Temp.: None	
ADCP Temp.: 33.1 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at road X

Project Name: seabee20100530001w000r.mmm
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
001	R	4	15	165	95.2	174	44.5	4.59	3.57	322	106	248	23:01	23:04	0.57	1.30	4	0
002	L	4	15	158	95.4	155	45.6	4.24	2.65	303	99	213	23:04	23:07	0.60	1.42	4	0
003	R	4	15	156	90.3	169	43.5	4.70	4.03	311	102	243	23:07	23:10	0.63	1.28	3	0
004	L	4	15	139	96.0	160	46.4	4.94	5.16	312	101	221	23:10	23:12	0.69	1.41	3	0
005	R	4	15	159	91.7	166	43.5	4.27	4.20	309	102	236	23:14	23:16	0.62	1.31	4	0
006	L	4	15	125	94.6	161	44.7	4.31	4.56	310	99	224	23:16	23:18	0.76	1.38	6	0
Mean		4	15	150	93.9	164	44.7	4.51	4.03	311	101	231	Total	00:17	0.65	1.35	4	0
SDev		0	0	15	2.29	6.86	1.14	0.283	0.860	6.23	2.4	13.6			0.07	0.06		
SD/M		0.00	0.00	0.10	0.02	0.04	0.03	0.06	0.21	0.02	0.02	0.06			0.11	0.05		

Remarks: Q 311cfs using BT with 2% error

Party: DB	Width: 94.2 ft	Processed by: DAV
Boat/Motor: kayak	Area: 271 ft ²	Mean Velocity: 0.857 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 232 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.469 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.04
BT Error Vel.: 32.81 ft/s	Bin Size: 7 cm* Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage
 Project Name: seabee20100603000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	R	4	15	177	51.9	129	38.7	2.61	3.60	226	95	282	21:18	21:21	0.58	0.80	3	0
001	L	4	15	163	52.8	133	30.5	2.68	-2.22	217	97	276	21:21	21:24	0.61	0.78	6	0
002	R	4	15	158	53.5	135	35.5	2.68	3.53	230	94	275	21:24	21:27	0.63	0.84	9	1
003	L	4	15	156	55.5	140	31.9	2.93	4.27	235	95	274	21:27	21:30	0.61	0.86	1	0
004	R	4	15	153	56.3	138	38.7	2.68	4.45	240	91	261	21:30	21:33	0.64	0.92	5	1
005	L	4	15	158	58.4	145	29.5	2.79	-4.34	231	97	274	21:33	21:36	0.62	0.84	6	0
010	R	4	15	163	52.9	142	30.2	2.58	2.44	230	88	246	21:59	22:02	0.60	0.94	2	0
011	L	4	15	154	57.9	152	31.1	2.51	-4.56	239	94	277	22:02	22:05	0.63	0.86	3	0
012	R	4	15	165	55.6	149	32.5	2.47	4.52	244	96	277	22:05	22:08	0.57	0.88	8	0
013	L	4	15	138	53.1	139	28.0	2.44	3.07	225	94	268	22:08	22:11	0.69	0.84	3	0
Mean		4	15	158	54.8	140	32.7	2.64	1.48	232	94	271	Total	00:53	0.62	0.86	5	0
SDev		0	0	10	2.29	7.18	3.76	0.151	3.68	8.14	2.8	10.6			0.03	0.05		
SD/M		0.00	0.00	0.06	0.04	0.05	0.12	0.06	2.50	0.04	0.03	0.04			0.05	0.06		

Remarks: Q 232cfs using BT with 4% error

* - value not consistent for all transects
 Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: DB/RTK	Width: 71.0 ft	Processed by: DAV
Boat/Motor: kayak	Area: 129 ft ²	Mean Velocity: 3.42 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 442 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.459 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.04
BT Error Vel.: 32.81 ft/s	Bin Size: 4 cm* Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 6.12 ft/s	
Max. Depth: 4.67 ft	
Mean Depth: 1.82 ft	
% Meas.: 42.96	
Water Temp.: None	
ADCP Temp.: 44.9 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage

Project Name: FACTORY-DEFAULT_000r.mmm
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	L	4	24	222	133	189	69.8	5.76	44.4	442	70	128	22:46	22:49	0.26	3.45	1	0
001	R	4	24	122	138	193	71.1	5.72	42.5	450	72	133	22:50	22:52	0.47	3.37	2	0
002	L	4	24	126	134	186	68.9	5.62	45.6	441	72	130	22:52	22:55	0.43	3.39	1	0
004	R	4	24	122	133	188	67.7	5.86	44.2	439	71	128	22:56	22:58	0.41	3.43	2	0
005	L	4	24	124	133	192	65.8	6.39	41.9	438	70	127	22:59	23:01	0.41	3.46	1	0
006	R	4	24	118	133	191	66.0	8.30	42.5	441	71	128	23:01	23:03	0.44	3.44	1	0
Mean		4	24	139	134	190	68.2	6.27	43.5	442	71	129	Total	00:17	0.40	3.42	1	0
SDev		0	0	41	1.89	2.50	2.09	1.03	1.43	4.12	0.9	2.3			0.07	0.03		
SD/M		0.00	0.00	0.29	0.01	0.01	0.03	0.16	0.03	0.01	0.01	0.02			0.18	0.01		

Remarks: Q 442cfs using BT with 1% error

* - value not consistent for all transects

Party: DB	Width: 110 ft	Processed by: DAV
Boat/Motor: kayak	Area: 276 ft ²	Mean Velocity: 1.06 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 292 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (20.4°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 32.81 ft/s	Bin Size: 7 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 5.54 ft/s	
Max. Depth: 4.93 ft	
Mean Depth: 2.51 ft	
% Meas.: 65.39	
Water Temp.: None	
ADCP Temp.: 34.1 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage

Project Name: seabee 2011 05 26000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	R	20	8	261	60.3	190	41.7	-3.81	-1.06	287	110	273	21:06	21:11	0.31	1.05	2	2
001	L	20	8	216	60.4	183	44.2	-3.18	-0.530	284	109	290	21:12	21:16	0.37	0.98	4	2
003	L	24	13	222	61.1	186	45.4	5.54	0.600	299	113	287	21:23	21:27	0.34	1.04	7	3
004	R	20	14	243	67.1	207	39.3	-4.03	-1.06	309	109	263	21:31	21:36	0.33	1.17	1	1
005	L	20	14	212	62.8	190	38.5	-5.76	-1.38	284	108	266	21:37	21:41	0.35	1.07	4	2
Mean		21	11	230	62.3	191	41.8	-2.25	-0.685	292	110	276	Total	00:34	0.34	1.06	4	2
SDev		2	3	21	2.82	9.56	3.01	4.46	0.780	11.1	1.7	12.1			0.02	0.07		
SD/M		0.09	0.27	0.09	0.05	0.05	0.07	1.99	1.14	0.04	0.02	0.04			0.06	0.07		

Remarks: Q 293cfs using BT with 4% error

Party: RTK	Width: 88.9 ft	Processed by: DAV
Boat/Motor: kayak	Area: 241 ft ²	Mean Velocity: 2.82 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 676 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 32.81 ft/s	Bin Size: 6 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 5.49 ft/s	
Max. Depth: 5.36 ft	
Mean Depth: 2.71 ft	
% Meas.: 58.28	
Water Temp.: None	
ADCP Temp.: 36.5 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at road X

Project Name: seabee20110529000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
001	R	0	0	91	189	414	104	0.000	0.000	707	96	258	00:31	00:33	1.01	2.74	2	1
002	L	0	0	119	163	422	96.1	0.000	0.000	680	83	234	00:33	00:35	0.79	2.91	2	0
003	R	0	0	107	173	376	108	0.000	0.000	658	92	247	00:36	00:38	0.78	2.66	1	0
004	L	0	0	103	178	384	103	0.000	0.000	665	84	222	00:38	00:40	0.82	2.99	2	0
005	R	0	0	100	184	375	112	0.000	0.000	671	90	242	00:40	00:42	0.84	2.78	6	1
Mean		0	0	104	177	394	105	0.000	0.000	676	89	241	Total	00:11	0.85	2.82	3	0
SDev		0	0	10	10.2	21.8	5.97	0.000	0.000	19.3	5.3	13.6			0.09	0.13		
SD/M		0.00	0.00	0.10	0.06	0.06	0.06	0.00	0.00	0.03	0.06	0.06			0.11	0.05		

Remarks: Q 676cfs using BT with 3% error

Party: RTK	Width: 73.6 ft	Processed by: DAV
Boat/Motor: kaysk	Area: 152 ft ²	Mean Velocity: 2.41 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 356 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: NO	Max. Vel.: 4.81 ft/s	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Max. Depth: 4.44 ft	Serial #: _____ Firmware: 31.12
BT Error Vel.: 32.81 ft/s	Mean Depth: 2.05 ft	Bin Size: 5 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	% Meas.: 49.63	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	Water Temp.: None	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	ADCP Temp.: 41.6 °F	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO		

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at road X
 Project Name: seabee20110530a000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	R	0	15	95	131	183	61.6	0.000	-2.97	373	78	151	22:26	22:28	0.96	2.46	18	0
001	L	0	15	81	109	177	61.7	0.000	6.64	354	60	114	22:28	22:30	0.87	3.10	9	1
003	L	0	15	93	<i>94.6</i>	<i>172</i>	<i>47.9</i>	<i>0.000</i>	<i>9.15</i>	<i>324</i>	<i>65</i>	<i>134</i>	<i>22:33</i>	<i>22:35</i>	<i>0.80</i>	<i>2.41</i>	<i>14</i>	<i>1</i>
004	R	0	15	87	109	178	59.1	0.000	18.2	364	83	176	22:37	22:38	0.90	2.08	24	3
006	R	0	15	76	107	173	65.5	0.000	20.0	366	82	184	22:41	22:42	1.12	1.99	26	2
Mean		0	15	86	110	177	59.2	0.000	10.2	356	74	152	Total	00:16	0.93	2.41	18	1
SDev		0	0	8	13.1	4.48	6.70	0.000	9.32	19.3	10.4	28.7			0.12	0.44		
SD/M		0.00	0.00	0.09	0.12	0.03	0.11	0.00	0.91	0.05	0.14	0.19			0.13	0.18		

Remarks: Q 356cfs using BT with 5% error

Party: RTK	Width: 88.9 ft	Processed by: DAV
Boat/Motor: kayak	Area: 216 ft ²	Mean Velocity: 2.75 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 594 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: NO	Max. Vel.: 5.66 ft/s	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Max. Depth: 5.19 ft	Serial #: Firmware: 31.12
BT Error Vel.: 32.81 ft/s	Mean Depth: 2.44 ft	Bin Size: 5 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	% Meas.: 56.97	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	Water Temp.: None	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	ADCP Temp.: 39.2 °F	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO		

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: road X
 Project Name: seabee20110530000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
002	R	0	5	127	179	328	98.3	0.000	0.883	606	93	221	00:41	00:43	0.87	2.74	9	1
003	L	0	5	123	148	338	95.6	0.000	0.953	583	82	207	00:44	00:46	0.77	2.82	2	1
004	R	0	10	103	167	338	89.4	0.000	2.05	596	95	225	00:47	00:49	0.92	2.65	6	1
005	L	0	10	111	149	350	91.3	0.000	2.08	592	86	213	00:49	00:51	0.80	2.78	2	1
Mean		0	8	116	161	338	93.6	0.000	1.49	594	89	216	Total	00:10	0.84	2.75	4	1
SDev		0	3	11	14.8	9.14	4.05	0.000	0.663	9.52	6.2	8.1			0.07	0.07		
SD/M		0.00	0.38	0.09	0.09	0.03	0.04	0.00	0.44	0.02	0.07	0.04			0.08	0.03		

Remarks: Q 594cfs using BT with 2%error

Party: DAV	Width: 66.2 ft	Processed by: DAV
Boat/Motor: kayak	Area: 122 ft ²	Mean Velocity: 1.99 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 242 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 32.81 ft/s	Bin Size: 4 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 4.38 ft/s	
Max. Depth: 2.61 ft	
Mean Depth: 1.84 ft	
% Meas.: 55.49	
Water Temp.: None	
ADCP Temp.: 35.8 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: road X
 Project Name: seabee20110601000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	R	8	6	79	59.8	138	34.2	9.53	4.45	246	65	121	21:57	21:59	0.60	2.03	1	0
001	L	8	6	88	58.9	129	35.1	10.1	3.43	237	65	119	21:59	22:01	0.60	1.99	2	0
002	R	8	6	69	60.5	133	34.8	9.11	5.01	242	66	120	22:01	22:03	0.69	2.02	1	0
003	L	8	6	82	58.9	138	32.5	10.8	4.45	245	68	128	22:03	22:05	0.64	1.91	2	0
Mean		8	6	79	59.5	135	34.2	9.89	4.33	242	66	122	Total	00:07	0.63	1.99	2	0
SDev		0	0	8	0.784	4.25	1.18	0.734	0.662	4.07	1.5	4.1			0.05	0.05		
SD/M		0.00	0.00	0.10	0.01	0.03	0.03	0.07	0.15	0.02	0.02	0.03			0.07	0.03		

Remarks: Q 242cfs using BT with 2% error

Party: RTK/DAV	Width: 2.61 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 3.80 ft ²	Mean Velocity: 0.403 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 1.82 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: Rio Grande / 600 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 0.00
BT Error Vel.: 32.81 ft/s	Bin Size: 2 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 0 BT Pings: 0
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 11.9 ft/s	
Max. Depth: 1.77 ft	
Mean Depth: 1.05 ft	
% Meas.: 35.52	
Water Temp.: None	
ADCP Temp.: 56.8 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 100' DS of road X
 Project Name: seabee20110712000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
001	L	-3	-3	21	<i>0.353</i>	<i>0.494</i>	<i>0.177</i>	<i>1.24</i>	<i>-0.530</i>	<i>1.70</i>	-5	-3	13:31	13:31	0.07	0.65	10	3
006	R	1	1	40	<i>0.212</i>	<i>0.671</i>	<i>-0.141</i>	<i>0.671</i>	<i>0.247</i>	<i>1.66</i>	4	5	13:36	13:37	0.09	0.33	7	8
008	L	1	1	36	<i>0.494</i>	<i>0.706</i>	<i>0.283</i>	<i>0.247</i>	<i>0.141</i>	<i>1.87</i>	5	5	13:39	13:40	0.06	0.34	6	2
009	R	1	1	36	<i>0.530</i>	<i>0.671</i>	<i>0.247</i>	<i>0.318</i>	<i>0.141</i>	<i>1.91</i>	5	6	13:40	13:41	0.08	0.31	3	1
010	L	1	1	37	<i>0.530</i>	<i>0.706</i>	<i>0.283</i>	<i>0.177</i>	<i>0.283</i>	<i>1.94</i>	4	5	13:41	13:42	0.06	0.38	5	0
Mean		0	0	34	0.424	0.650	0.170	0.530	0.057	1.82	3	4	Total	00:11	0.07	0.40	6	3
SDev		2	2	7	0.139	0.089	0.179	0.438	0.334	0.129	4.3	3.6			0.01	0.14		
SD/M		13.26	13.26	0.22	0.33	0.14	1.06	0.83	5.91	0.07	1.67	0.95			0.14	0.35		

Remarks: Q 1.8cfs using BT with 7% error

Station Number:
 Station Name: Seabee Creek

Meas. No: 003
 Date: 05/24/2012

Party: DAV	Width: 32.1 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 38.8 ft ²	Mean Velocity: 1.18 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 46.0 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: _____ Firmware: 31.12
BT Error Vel.: 32.81 ft/s	Bin Size: 3 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 3.46 ft/s	
Max. Depth: 1.86 ft	
Mean Depth: 1.21 ft	
% Meas.: 40.22	
Water Temp.: None	
ADCP Temp.: 32.7 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at road X
 Project Name: seabee5242012000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	4	6	82	14.6	18.3	8.55	2.61	2.30	46.3	33	39	09:57	09:58	0.27	1.19	9	0
001	R	4	6	62	13.6	19.8	8.30	3.07	2.79	47.6	32	40	09:59	10:00	0.36	1.19	8	0
002	L	4	6	66	13.7	18.4	8.30	2.90	2.12	45.4	32	38	10:00	10:01	0.34	1.19	9	0
003	R	4	6	68	13.5	17.6	8.02	3.04	2.47	44.6	32	38	10:02	10:03	0.32	1.16	7	0
Mean		4	6	69	13.9	18.5	8.29	2.90	2.42	46.0	32	39	Total	00:06	0.32	1.18	8	0
SDev		0	0	9	0.514	0.932	0.216	0.209	0.286	1.29	0.6	0.9			0.04	0.02		
SD/M		0.00	0.00	0.13	0.04	0.05	0.03	0.07	0.12	0.03	0.02	0.02			0.12	0.01		

Remarks: Q 46cfs using BT with 3% error

Station Number:
Station Name: Seabee Creek

Meas. No:
Date: 05/25/2012

Party: DAV	Width: 42.4 ft	Processed by: DAV
Boat/Motor: Tethered Boat	Area: 57.1 ft ²	Mean Velocity: 1.66 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 95.0 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Bin Size: 3 cm Blank: 3 cm
WT Error Vel.: 1.10 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 3.90 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
	Max. Vel.: 3.81 ft/s
	Max. Depth: 2.38 ft
	Mean Depth: 1.35 ft
	% Meas.: 45.24
	Water Temp.: None
	ADCP Temp.: 34.5 °F

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at road X
 Project Name: seabee 05252012 q95cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
002	R	4	8	74	28.5	44.2	16.5	3.57	3.85	96.6	43	57	21:43	21:44	0.39	1.69	1	6
003	L	4	8	58	26.3	41.6	15.8	3.92	5.01	92.6	42	56	21:45	21:46	0.47	1.65	5	2
004	R	4	8	62	27.3	40.9	16.8	3.28	5.09	93.4	42	56	21:46	21:48	0.45	1.66	3	5
005	L	4	8	59	27.8	45.2	16.3	3.74	4.48	97.5	43	59	21:48	21:49	0.47	1.65	5	5
Mean		4	8	63	27.5	43.0	16.3	3.63	4.61	95.0	42	57	Total	00:05	0.44	1.66	4	5
SDev		0	0	7	0.903	2.06	0.458	0.271	0.573	2.38	0.7	1.4			0.04	0.02		
SD/M		0.00	0.00	0.12	0.03	0.05	0.03	0.07	0.12	0.03	0.02	0.02			0.09	0.01		

Remarks: Q 95cfs using BT with 3% error

Party: DAV	Width: 67.5 ft	Processed by: DAV
Boat/Motor: kayak	Area: 147 ft ²	Mean Velocity: 3.19 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 467 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 32.81 ft/s	Bin Size: 7 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 5.22 ft/s	
Max. Depth: 4.33 ft	
Mean Depth: 2.17 ft	
% Meas.: 49.74	
Water Temp.: None	
ADCP Temp.: 35.9 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at road X

Project Name: seabee60112000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
002	L	6	20	53	116	251	68.8	25.9	32.1	494	71	156	11:58	11:59	0.86	3.16	6	0
003	R	6	20	47	92.3	215	56.9	28.5	38.2	431	61	134	11:59	12:00	1.00	3.22	4	0
004	L	6	20	46	111	239	72.0	31.1	33.6	486	67	150	12:00	12:01	0.88	3.24	4	0
005	R	6	20	47	103	229	59.2	26.9	39.2	457	62	135	12:02	12:03	0.98	3.39	4	0
006	L	6	20	57	122	250	74.4	30.3	25.4	502	76	163	12:03	12:04	0.93	3.08	16	0
007	R	6	20	69	117	230	68.4	29.6	27.2	472	71	147	12:07	12:09	0.99	3.22	23	0
008	L	6	20	47	98.1	212	52.2	32.0	31.6	426	65	140	12:09	12:10	1.09	3.03	9	0
Mean		6	20	52	109	232	64.6	29.2	32.5	467	67	147	Total	00:11	0.96	3.19	9	0
SDev		0	0	8	10.9	15.4	8.44	2.23	5.13	30.1	5.4	11.0			0.08	0.12		
SD/M		0.00	0.00	0.16	0.10	0.07	0.13	0.08	0.16	0.06	0.08	0.07			0.08	0.04		

Remarks: Q 467cfs using BT with 6% error

Party: DAV/RTK	Width: 44.9 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 68.8 ft ²	Mean Velocity: 1.78 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 122 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.8°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: NO	Max. Vel.: 4.29 ft/s	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Max. Depth: 2.22 ft	Serial #: Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Mean Depth: 1.53 ft	Bin Size: 4 cm Blank: 3 cm
WT Error Vel.: 1.40 ft/s	% Meas.: 49.23	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	Water Temp.: None	WT Mode: 12 WT Pings: 6
WT Up Vel.: 4.29 ft/s	ADCP Temp.: 35.0 °F	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO		

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at road
 Project Name: seabee20130528dav125cfs.m
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
001	L	4	6	74	35.4	58.7	19.7	3.78	3.39	121	43	67	19:26	19:28	0.41	1.81	3	1
002	R	4	6	69	36.7	60.7	20.7	2.86	3.28	124	45	68	19:28	19:30	0.46	1.82	1	1
003	L	4	6	60	35.3	56.2	19.9	2.65	1.91	116	45	68	19:30	19:31	0.60	1.72	7	0
004	R	4	6	60	37.9	62.9	21.0	2.93	3.00	128	44	68	19:32	19:33	0.54	1.88	2	0
005	L	4	6	80	36.6	62.9	19.4	2.47	1.77	123	48	74	19:33	19:35	0.44	1.67	1	1
Mean		4	6	68	36.4	60.3	20.2	2.94	2.67	122	45	69	Total	00:08	0.49	1.78	3	1
SDev		0	0	9	1.05	2.85	0.680	0.503	0.776	4.31	1.7	2.7			0.08	0.08		
SD/M		0.00	0.00	0.13	0.03	0.05	0.03	0.17	0.29	0.04	0.04	0.04			0.16	0.05		

Remarks: 125cfs using BT with 6% error, no GPS

Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: DAV	Width: 51.3 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 93.1 ft ²	Mean Velocity: 2.65 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 245 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.8°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Bin Size: 4 cm Blank: 3 cm
WT Error Vel.: 1.10 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 4.92 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 4.92 ft/s	
Max. Depth: 3.04 ft	
Mean Depth: 1.82 ft	
% Meas.: 53.02	
Water Temp.: None	
ADCP Temp.: 34.1 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at road
 Project Name: seabee20130530dav245cfs.m
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
003	R	3	10	93	60.0	127	41.4	4.98	8.30	241	54	93	11:14	11:16	0.62	2.61	4	1
004	L	3	10	85	57.8	131	40.6	5.93	7.38	243	54	100	11:16	11:18	0.59	2.43	12	0
005	R	3	10	77	61.2	130	43.7	7.91	9.18	252	48	84	11:19	11:20	0.61	2.99	5	1
006	R	3	10	75	58.9	127	41.8	6.29	8.79	243	50	87	11:25	11:27	0.49	2.77	4	0
007	L	3	10	74	54.8	135	42.1	5.90	8.55	246	51	101	11:27	11:29	0.50	2.43	7	1
Mean		3	10	80	58.5	130	41.9	6.20	8.44	245	51	93	Total	00:14	0.56	2.65	6	1
SDev		0	0	8	2.45	3.52	1.14	1.07	0.676	4.55	2.6	7.3			0.06	0.24		
SD/M		0.00	0.00	0.10	0.04	0.03	0.03	0.17	0.08	0.02	0.05	0.08			0.11	0.09		

Remarks: 245cfs using BT with 2%, no GPS

Party: DAV	Width: 61.7 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 122 ft ²	Mean Velocity: 2.42 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 295 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: NO	Max. Vel.: 4.78 ft/s	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Max. Depth: 4.12 ft	Serial #: Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Mean Depth: 1.98 ft	Bin Size: 4 cm Blank: 3 cm
WT Error Vel.: 1.40 ft/s	% Meas.: 57.05	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	Water Temp.: None	WT Mode: 12 WT Pings: 6
WT Up Vel.: 4.78 ft/s	ADCP Temp.: 43.0 °F	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO		

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at road

Project Name: seabee20130601dav295cfs.m
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	R	6	10	106	65.5	167	45.3	11.1	8.58	298	60	116	14:24	14:26	0.41	2.56	2	0
001	L	6	10	97	65.3	167	49.4	11.4	8.69	302	62	124	14:27	14:29	0.52	2.44	10	1
002	R	6	10	111	65.3	172	44.9	10.2	7.38	300	61	120	14:29	14:31	0.49	2.51	1	1
003	L	6	10	116	60.4	165	44.0	8.05	6.25	284	61	122	14:32	14:34	0.66	2.32	13	1
004	L	6	10	129	64.4	170	44.9	6.89	6.18	292	66	128	14:36	14:38	0.46	2.28	12	1
Mean		6	10	111	64.2	168	45.7	9.52	7.42	295	62	122	Total	00:13	0.51	2.42	8	1
SDev		0	0	12	2.17	2.74	2.10	1.97	1.21	7.44	2.3	4.5			0.10	0.12		
SD/M		0.00	0.00	0.11	0.03	0.02	0.05	0.21	0.16	0.03	0.04	0.04			0.19	0.05		

Remarks: 295cfs using BT with 3% error, no GPS

Party: DAV, JPB	Width: 79.8 ft	Processed by: DAV
Boat/Motor: kayak	Area: 219 ft ²	Mean Velocity: 3.04 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 665 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.5°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: YES	Serial #: 592 Firmware: 31.12
BT Error Vel.: 0.33 ft/s*	Bin Size: 4 cm Blank: 3 cm
WT Error Vel.: 1.15 ft/s*	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 5.00 ft/s	
Use Weighted Mean Depth: YES	
Max. Vel.: 5.20 ft/s	
Max. Depth: 4.66 ft	
Mean Depth: 2.75 ft	
% Meas.: 58.57	
Water Temp.: None	
ADCP Temp.: 55.8 °F	

Performed Diag. Test: NO Project Name: seabee20130602dav665cfs.m
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at road

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	R	4	6	53	176	365	98.3	19.7	1.70	661	83	207	21:04	21:05	1.17	3.19	0	0
001	L	4	6	46	158	411	90.4	2.01	6.18	668	81	228	21:06	21:07	1.39	2.93	0	0
002	R	4	6	33	167	359	101	18.3	5.93	652	77	204	21:07	21:07	1.74	3.19	0	2
003	L	4	6	33	153	423	88.5	4.94	10.6	681	78	237	21:07	21:08	2.01	2.87	0	2
Mean		4	6	41	164	390	94.5	11.2	6.11	665	80	219	Total	00:04	1.58	3.04	0	1
SDev		0	0	10	10.3	32.3	5.96	9.07	3.65	12.2	2.7	15.8			0.37	0.17		
SD/M		0.00	0.00	0.24	0.06	0.08	0.06	0.81	0.60	0.02	0.03	0.07			0.24	0.06		

Remarks: 665cfs using BT with 2% error, no GPS

* - value not consistent for all transects

Party: DAV	Width: 68.4 ft	Processed by: DAV
Boat/Motor: kayak	Area: 216 ft ²	Mean Velocity: 3.48 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 751 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Bin Size: 4 cm Blank: 3 cm
WT Error Vel.: 0.60 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 5.24 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 5.24 ft/s	
Max. Depth: 5.11 ft	
Mean Depth: 3.16 ft	
% Meas.: 58.67	
Water Temp.: None	
ADCP Temp.: 36.6 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at road
 Project Name: seabee20130603dav751cfs.m
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
004	L	4	4	77	176	440	117	6.11	7.38	746	68	217	07:39	07:41	0.81	3.44	3	3
005	R	4	4	75	176	440	124	5.09	7.06	753	66	209	07:41	07:42	0.95	3.60	3	6
006	L	4	4	72	181	439	119	6.57	3.96	750	70	219	07:43	07:44	0.89	3.43	4	3
007	R	4	4	66	181	444	123	4.06	4.98	757	69	220	07:45	07:46	0.93	3.44	3	5
Mean		4	4	72	178	441	121	5.46	5.84	751	68	216	Total	00:06	0.89	3.48	3	4
SDev		0	0	5	2.77	2.31	3.55	1.12	1.65	4.72	1.7	4.7			0.06	0.08		
SD/M		0.00	0.00	0.07	0.02	0.01	0.03	0.20	0.28	0.01	0.02	0.02			0.07	0.02		

Remarks: 751cfs using BT with 1% error, no GPS

Party: DAV	Width: 55.8 ft	Processed by: DAV
Boat/Motor:	Area: 96.6 ft ²	Mean Velocity: 1.63 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 157 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:3	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.8°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: NO	Max. Vel.: 3.84 ft/s	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Max. Depth: 3.92 ft	Serial #: Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Mean Depth: 1.73 ft	Bin Size: 4 cm Blank: 3 cm
WT Error Vel.: 1.40 ft/s	% Meas.: 50.29	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	Water Temp.: None	WT Mode: 12 WT Pings: 6
WT Up Vel.: 3.99 ft/s	ADCP Temp.: 56.0 °F	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO		

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at road

Project Name: seabee20130612dav157cfs.mn
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	R	6	6	84	38.8	75.7	23.9	11.5	1.91	152	57	101	16:53	16:55	0.52	1.50	1	1
001	L	4	6	79	42.6	79.2	26.3	1.17	4.80	154	54	90	16:56	16:57	0.56	1.70	1	0
002	R	6	6	80	41.4	78.6	30.9	5.86	4.63	161	53	96	16:58	16:59	0.51	1.68	1	1
003	L	6	6	64	45.8	82.3	27.6	3.81	1.17	161	60	99	17:00	17:01	0.67	1.63	2	1
Mean		6	6	76	42.1	78.9	27.2	5.60	3.13	157	56	97	Total	00:07	0.56	1.63	1	1
SDev		1	0	9	2.91	2.72	2.89	4.41	1.86	4.79	3.1	4.6			0.07	0.09		
SD/M		0.18	0.00	0.12	0.07	0.03	0.11	0.79	0.60	0.03	0.06	0.05			0.13	0.06		

Remarks: 157cfs using BT with 3% error, no GPS

Party: RTK	Width: 45.7 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 41.2 ft ²	Mean Velocity: 1.59 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 64.4 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.220 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (21.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: NO	Max. Vel.: 4.81 ft/s	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Max. Depth: 1.72 ft	Serial #: Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Mean Depth: 0.899 ft	Bin Size: 4 cm* Blank: 3 cm
WT Error Vel.: 2.00 ft/s	% Meas.: 26.79	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	Water Temp.: None	WT Mode: 12 WT Pings: 6
WT Up Vel.: 4.81 ft/s	ADCP Temp.: 48.9 °F	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO		

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at road

Project Name: seabee20130616dav64cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	R	12	14	126	16.7	19.5	9.15	10.2	7.13	62.8	52	55	18:43	18:45	0.27	1.15	2	0
001	L	16	8	108	20.6	14.0	9.53	12.0	3.99	60.2	46	39	18:47	18:49	0.24	1.56	1	2
002	R	10	8	98	24.3	17.3	10.0	6.00	4.31	62.0	44	39	18:49	18:51	0.25	1.59	1	1
003	L	10	8	97	24.5	17.9	10.5	6.60	4.63	64.1	44	39	18:52	18:54	0.26	1.64	2	2
004	R	10	8	95	28.0	16.3	11.9	6.99	4.41	67.6	45	37	18:55	18:57	0.27	1.80	1	1
005	L	10	8	111	26.3	17.1	10.9	7.38	4.84	66.6	46	40	18:57	18:59	0.25	1.67	1	1
006	R	4	8	102	30.3	18.6	12.0	2.51	4.20	67.6	43	40	19:00	19:02	0.29	1.70	1	1
Mean		10	9	105	24.4	17.3	10.6	7.39	4.79	64.4	46	41	Total	00:19	0.26	1.59	1	1
SDev		4	2	11	4.56	1.76	1.11	3.06	1.07	2.93	2.8	6.0			0.02	0.21		
SD/M		0.34	0.26	0.10	0.19	0.10	0.10	0.41	0.22	0.05	0.06	0.14			0.06	0.13		

Remarks: 64cf using BT with 5% error, no GPS

* - value not consistent for all transects

Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: RTK/DAV	Width: 12.3 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 22.0 ft ²	Mean Velocity: 0.205 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 4.53 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:5	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: _____ Firmware: 31.12
BT Error Vel.: 0.33 ft/s	Bin Size: 4 cm Blank: 3 cm
WT Error Vel.: 1.40 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 3.72 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 2.97 ft/s	
Max. Depth: 2.31 ft	
Mean Depth: 1.80 ft	
% Meas.: 49.35	
Water Temp.: None	
ADCP Temp.: 46.5 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 100' DS of road X
 Project Name: seabee20130825dav4.4cfs.mmm
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	R	2	2	45	1.20	2.72	0.706	0.212	-0.071	4.73	12	23	17:58	17:59	0.19	0.21	7	2
001	L	2	2	56	1.09	2.33	0.706	0.494	0.177	4.80	12	22	17:59	18:00	0.16	0.22	9	6
003	L	2	2	49	0.918	1.84	0.636	0.353	0.742	4.45	12	22	18:02	18:03	0.18	0.20	8	3
004	R	2	2	50	0.918	2.01	0.565	0.247	0.459	4.17	12	22	18:03	18:04	0.18	0.19	6	6
005	L	2	2	44	1.09	2.40	0.671	0.388	0.212	4.77	12	22	18:05	18:06	0.20	0.21	7	2
006	R	2	2	42	0.883	2.15	0.494	0.424	0.283	4.24	12	22	18:06	18:07	0.21	0.20	12	2
Mean		2	2	47	1.02	2.24	0.630	0.353	0.300	4.53	12	22	Total	00:09	0.19	0.21	8	3
SDev		0	0	5	0.129	0.312	0.085	0.107	0.276	0.281	0.2	0.4			0.02	0.01		
SD/M		0.00	0.00	0.11	0.13	0.14	0.13	0.30	0.92	0.06	0.01	0.02			0.09	0.05		

Remarks: 4.5cfs using BT with 6% error, no GPS

Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: Kemnitz	Width: 80.7 ft	Processed by: Kemnitz
Boat/Motor: ADCP Kayak	Area: 155 ft ²	Mean Velocity: 2.00 ft/s
Gage Height: 62.93 ft	G.H.Change: 0.000 ft	Discharge: 309 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 32.81 ft/s	Bin Size: 4 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 5.37 ft/s	
Max. Depth: 3.37 ft	
Mean Depth: 1.93 ft	
% Meas.: 50.16	
Water Temp.: None	
ADCP Temp.: 33.0 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: DS edge of road

Project Name: seabee20140517000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
001	L	0	10	96	98.4	157	44.5	0.000	8.12	308	74	154	04:19	04:21	0.76	2.00	6	0
003	L	0	10	91	103	154	45.1	0.000	7.17	309	77	151	04:23	04:25	0.82	2.04	3	0
001	R	10	10	98	111	154	47.5	-1.77	6.22	318	87	157	04:31	04:33	0.76	2.03	3	0
002	L	10	10	92	98.5	156	42.1	-0.883	7.63	303	84	159	04:34	04:35	0.70	1.91	7	0
Mean		5	10	94	103	155	44.8	-0.662	7.28	309	81	155	Total	00:16	0.76	2.00	5	0
SDev		6	0	3	6.04	1.31	2.22	0.845	0.812	6.05	6.0	3.3			0.05	0.06		
SD/M		1.15	0.00	0.04	0.06	0.01	0.05	1.28	0.11	0.02	0.07	0.02			0.07	0.03		

Remarks: Q 309cfs using BT with 2% error
 no ice running, Qm at 1615 hr

Party: Kemnitz	Width: 89.6 ft	Processed by: Kemnitz/DAV
Boat/Motor: ADCP Kayak	Area: 186 ft ²	Mean Velocity: 2.13 ft/s
Gage Height: 63.38 ft	G.H.Change: 0.000 ft	Discharge: 397 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft*	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (21.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 32.81 ft/s*	Bin Size: 4 cm* Blank: 3 cm
WT Error Vel.: 32.81 ft/s*	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s*	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s*	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 5.92 ft/s	
Max. Depth: 3.70 ft	
Mean Depth: 2.08 ft	
% Meas.: 55.94	
Water Temp.: 33.0 °F	
ADCP Temp.: 33.4 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: DS edge of road
 Project Name: seabee20140518000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	R	10	5	105	120	219	58.7	-1.87	3.53	399	81	181	03:51	03:53	0.87	2.20	2	1
002	R	10	5	129	81.9	244	69.6	-1.94	2.15	396	91	169	03:56	03:58	0.77	2.34	2	2
005	L	10	5	99	98.0	243	55.2	-2.05	2.93	397	89	201	04:05	04:07	0.80	1.98	1	2
001	L	10	5	98	116	230	56.6	0.424	4.06	407	87	200	04:16	04:18	0.70	2.04	1	2
002	R	10	5	94	123	218	53.4	-2.19	2.58	395	89	187	04:18	04:20	0.86	2.11	2	1
003	L	10	5	90	113	225	54.1	-1.98	2.61	392	91	203	04:20	04:22	0.87	1.93	2	2
004	R	10	5	96	128	219	56.9	-2.58	3.85	405	91	189	04:22	04:24	0.80	2.14	4	1
005	L	10	5	91	121	207	52.1	-0.918	3.18	382	88	176	04:25	04:26	0.93	2.17	1	1
006	R	10	5	98	112	220	56.7	-2.68	2.93	389	94	183	04:14	04:16	0.91	2.13	1	2
007	L	10	5	98	126	215	53.6	-1.77	2.54	395	94	187	04:29	04:31	0.84	2.12	2	2
008	R	10	5	89	136	214	58.1	-1.27	3.04	410	91	178	04:31	04:33	0.98	2.30	2	1
009	L	10	5	97	126	210	57.1	-1.91	2.72	395	90	183	04:33	04:35	0.79	2.16	2	2
Mean		10	5	98	117	222	56.8	-1.73	3.01	397	90	186	Total	00:44	0.84	2.13	2	2
SDev		0	0	11	14.6	11.8	4.51	0.832	0.564	7.79	3.5	10.4			0.08	0.12		
SD/M		0.00	0.00	0.11	0.13	0.05	0.08	0.48	0.19	0.02	0.04	0.06			0.09	0.06		

Remarks: Q 397cfs using BT with 2% error
 no ice running, Qm at 1551-1633 hr

* - value not consistent for all transects

Party: Kemnitz	Width: 62.8 ft	Processed by: Kemnitz/DAV
Boat/Motor: ADCP Kayak	Area: 90.5 ft ²	Mean Velocity: 1.46 ft/s
Gage Height: 62.22 ft	G.H.Change: 0.000 ft	Discharge: 132 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.220 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (21.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: 4-Clear	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: NO	Max. Vel.: 4.92 ft/s	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Max. Depth: 2.03 ft	Serial #: Firmware: 31.12
BT Error Vel.: 32.81 ft/s	Mean Depth: 1.44 ft	Bin Size: 4 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	% Meas.: 48.72	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	Water Temp.: 33.0 °F	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	ADCP Temp.: 34.7 °F	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO		

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: DS side of road

Project Name: seabee20140520000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
001	R	0	5	105	44.8	65.1	23.1	0.000	1.70	135	63	90	06:32	06:34	0.62	1.49	4	0
002	L	0	5	110	40.3	63.7	21.6	0.000	1.48	127	63	93	06:35	06:37	0.52	1.36	1	1
003	R	0	5	98	44.8	63.5	23.9	0.000	1.52	134	63	89	06:37	06:39	0.62	1.51	2	0
004	L	0	5	100	43.3	65.3	23.6	0.000	1.17	133	61	90	06:39	06:41	0.56	1.49	1	0
Mean		0	5	103	43.3	64.4	23.0	0.000	1.47	132	63	90	Total	00:08	0.58	1.46	2	0
SDev		0	0	5	2.15	0.935	1.01	0.000	0.221	3.52	1.0	1.9			0.05	0.07		
SD/M		0.00	0.00	0.05	0.05	0.01	0.04	0.00	0.15	0.03	0.02	0.02			0.09	0.05		

Remarks: Q 132cfs using BT with 3% error
 Qm from 1834-1841 hr

Party: Kemnitz	Width: 49.6 ft	Processed by: Kemnitz/DAV
Boat/Motor: wading	Area: 67.0 ft ²	Mean Velocity: 0.904 ft/s
Gage Height: 61.73 ft	G.H.Change: 0.000 ft	Discharge: 60.6 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.220 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: F
MagVar Method: None (18.4°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: 4-Clear	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 32.81 ft/s	Bin Size: 4 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 5.12 ft/s	
Max. Depth: 2.57 ft	
Mean Depth: 1.35 ft	
% Meas.: 46.50	
Water Temp.: 36.0 °F	
ADCP Temp.: 34.1 °F	

Performed Diag. Test: NO Project Name: seabee20140523000r.mmt
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: DS side of road

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
003	L	3	5	93	19.7	27.7	10.4	-0.177	1.45	59.1	48	66	07:03	07:05	0.46	0.90	1	0
004	R	3	5	90	20.5	28.6	10.9	-0.071	1.66	61.6	48	65	07:05	07:07	0.42	0.94	1	0
005	L	3	5	106	21.6	29.2	11.7	-0.318	1.13	63.3	51	69	07:07	07:09	0.44	0.93	1	0
006	R	3	5	88	19.7	27.9	10.2	-0.035	1.06	58.8	49	67	07:10	07:12	0.47	0.88	1	1
007	L	3	5	87	19.8	27.4	11.0	0.388	1.34	60.0	51	68	07:12	07:14	0.50	0.88	1	0
Mean		3	5	92	20.3	28.2	10.8	-0.042	1.33	60.6	50	67	Total	00:10	0.46	0.90	1	0
SDev		0	0	8	0.833	0.733	0.560	0.265	0.243	1.88	1.6	1.4			0.03	0.03		
SD/M		0.00	0.00	0.08	0.04	0.03	0.05	6.25	0.18	0.03	0.03	0.02			0.06	0.03		

Remarks: Q 61cfs using BT with 3% error
 Qm made at 1915 hr

Station Number:

Meas. No:

Station Name: Seabee Creek

Date: 06/05/2014

Party: DAV/JPB	Width: 71.4 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 150 ft ²	Mean Velocity: 2.15 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 313 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.300 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (18.4°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 31.12
BT Error Vel.: 3.28 ft/s	Bin Size: 4 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 170 WO : 1, 4
Use Weighted Mean Depth: YES	
Max. Vel.: 7.48 ft/s	
Max. Depth: 3.79 ft	
Mean Depth: 2.11 ft	
% Meas.: 36.17	
Water Temp.: None	
ADCP Temp.: 40.6 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: YES
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at road X

Project Name: Seabee06052014_0.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
001	L	2	20	94	118	116	50.3	1.13	24.8	310	66	134	15:40	15:41	0.88	2.32	13	4
003	R	2	10	132	133	107	59.1	2.51	8.02	310	91	188	15:43	15:44	1.22	1.64	40	6
004	L	2	10	113	128	116	60.0	0.883	13.0	318	57	128	15:45	15:46	0.86	2.49	35	6
Mean		2	13	113	126	113	56.5	1.51	15.3	313	71	150	Total	00:05	0.99	2.15	29	5
SDev		0	6	19	7.54	4.95	5.34	0.875	8.60	4.80	17.6	33.5			0.21	0.45		
SD/M		0.00	0.43	0.17	0.06	0.04	0.09	0.58	0.56	0.02	0.25	0.22			0.21	0.21		

Remarks: Q 313cfs using BT with 2% error

Summary of Discharge Measurement Forms

Ublutuoch River, Alaska

Station Number:

Meas. No:

Station Name: Ublutuoch River

Date: 06/08/2010

Party: DB/BL	Width: 391 ft	Processed by: DAV
Boat/Motor: kayak	Area: 2,520 ft ²	Mean Velocity: 1.23 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 3,120 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.430 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: Model (20.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: Rio Grande / 1200 kHz
WT 3-Beam Solution: NO	Serial #: 3600 Firmware: 10.17
BT Error Vel.: 0.33 ft/s*	Bin Size: 25 cm Blank: 25 cm
WT Error Vel.: 3.50 ft/s	BT Mode: 5 BT Pings: 1
BT Up Vel.: 1.00 ft/s	WT Mode: 1 WT Pings: 1
WT Up Vel.: 4.00 ft/s	WV : 175
Use Weighted Mean Depth: YES	
Max. Vel.: 5.80 ft/s	
Max. Depth: 17.5 ft	
Mean Depth: 6.47 ft	
% Meas.: 53.00	
Water Temp.: None	
ADCP Temp.: 35.9 °F	

Performed Diag. Test: NO

Project Name: ublutuoch_20100608.mmt

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: YES Evaluation: YES

Meas. Location: 1/2 mile DS of gage

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	L	25	40	1103	809	1755	657	41.6	37.4	3300	395	2546	11:59	12:04	1.34	1.30	65	10
001	R	20	40	1068	607	1648	610	41.8	17.8	2924	346	2388	12:04	12:09	1.36	1.22	66	12
002	L	20	40	1308	548	1402	547	42.4	26.8	2567	423	2536	12:09	12:15	1.14	1.01	70	12
003	R	25	40	1158	1078	1794	930	57.4	15.5	3875	408	2645	12:16	12:21	1.37	1.47	71	12
004	L	25	40	1334	479	1603	559	37.0	25.6	2705	393	2405	12:21	12:27	1.04	1.13	68	11
005	R	25	40	1216	776	1708	789	40.2	16.2	3330	379	2599	12:27	12:32	1.29	1.28	71	12
Mean		23	40	1197	716	1652	682	43.4	23.2	3117	391	2520	Total	00:33	1.26	1.23	69	11
SDev		3	0	108	219	141	150	7.12	8.45	482	26.4	103.5			0.14	0.16		
SD/M		0.11	0.00	0.09	0.31	0.09	0.22	0.16	0.36	0.15	0.07	0.04			0.11	0.13		

Remarks: Q 3117cfs using BT with 15% error and 3719cfs using VTG with 23% error

* - value not consistent for all transects

Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: DB/BL	Width: 126 ft	Processed by: DAV
Boat/Motor: kayak	Area: 994 ft ²	Mean Velocity: 1.96 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 1,800 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.459 ft*	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: Rio Grande / 1200 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 10.17
BT Error Vel.: 32.81 ft/s*	Bin Size: 25 cm Blank: 25 cm
WT Error Vel.: 32.81 ft/s*	BT Mode: 5 BT Pings: 1
BT Up Vel.: 32.81 ft/s*	WT Mode: 1 WT Pings: 1
WT Up Vel.: 32.81 ft/s*	WV : 0
Use Weighted Mean Depth: NO	
Max. Vel.: 4.96 ft/s	
Max. Depth: 11.9 ft	
Mean Depth: 7.80 ft	
% Meas.: 72.73	
Water Temp.: None	
ADCP Temp.: 37.9 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 1/2 mile DS of gage
 Project Name: ublu20100610000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
001	R	0	8	144	219	1250	251	0.000	-7.13	1712	135	985	11:55	11:57	0.96	1.74	8	0
002	L	0	8	142	199	1245	250	0.000	7.42	1702	167	1458	11:57	12:00	1.26	1.17	11	0
005	R	0	8	121	237	1375	275	0.000	7.10	1894	131	989	12:04	12:06	1.09	1.91	6	0
006	L	0	8	130	234	1383	281	0.000	9.64	1907	135	1095	12:06	12:08	1.06	1.74	15	0
007	R	0	8	152	229	1313	258	0.000	12.3	1813	128	949	12:08	12:11	0.88	1.91	16	0
008	L	0	8	182	220	1358	236	0.000	7.70	1822	170	1420	12:12	12:15	1.02	1.28	17	0
009	R	0	8	139	226	1253	269	0.000	11.4	1759	119	893	12:18	12:20	0.99	1.97	17	0
010	L	0	8	131	240	1346	288	0.000	7.88	1882	126	974	12:20	12:23	1.00	1.93	9	0
012	L	10	8	142	188	1260	275	2.86	11.8	1738	74	551	12:30	12:32	0.73	3.16	33	0
013	R	10	8	113	181	1289	256	3.21	15.9	1745	79	624	12:33	12:35	0.73	2.80	19	0
Mean		2	8	139	217	1307	264	0.607	8.39	1797	126	994	Total	00:40	0.97	1.96	15	0
SDev		4	0	19	20.9	54.8	16.3	1.28	6.13	76.9	31.3	289.2			0.16	0.61		
SD/M		2.11	0.00	0.14	0.10	0.04	0.06	2.11	0.73	0.04	0.25	0.29			0.17	0.31		

Remarks: Q 1798cfs using BT with 4% error, no GPS

* - value not consistent for all transects
 Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: Kemnitz/Vas	Width: 24.6 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 51.8 ft ²	Mean Velocity: 1.26 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 65.3 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: F
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: 4-Clear	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.04
BT Error Vel.: 0.33 ft/s	Bin Size: 4 cm Blank: 3 cm
WT Error Vel.: 1.10 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 4.30 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 200' DS of gage

Project Name: ublu20100610001rdv.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
005	L	1	1	55	17.8	38.0	10.8	0.494	0.424	67.5	26	56	14:00	14:01	0.52	1.21	9	5
006	R	1	1	55	16.9	37.8	9.78	0.318	0.247	65.1	24	50	14:01	14:02	0.47	1.30	5	7
007	L	1	1	56	17.7	35.7	11.3	0.883	0.247	65.9	26	53	14:02	14:03	0.52	1.24	14	3
008	R	1	1	51	16.2	36.1	9.64	0.424	0.283	62.7	23	48	14:04	14:04	0.48	1.31	4	6
Mean		1	1	54	17.2	36.9	10.4	0.530	0.300	65.3	25	52	Total	00:04	0.50	1.26	8	5
SDev		0	0	2	0.751	1.17	0.816	0.246	0.084	2.00	1.8	3.5			0.03	0.05		
SD/M		0.00	0.00	0.04	0.04	0.03	0.08	0.47	0.28	0.03	0.07	0.07			0.06	0.04		

Remarks: Q 65cfs using BT with 3% error

Party: DB/DAV	Width: 101 ft	Processed by: DAV
Boat/Motor: kayak	Area: 450 ft ²	Mean Velocity: 3.76 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 1,690 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:		ADCP:
BT 3-Beam Solution: NO	Max. Vel.: 6.19 ft/s	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Max. Depth: 7.04 ft	Serial #: Firmware: 31.12
BT Error Vel.: 32.81 ft/s	Mean Depth: 4.46 ft	Bin Size: 8 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	% Meas.: 69.48	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	Water Temp.: None	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	ADCP Temp.: 32.7 °F	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO		

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage
 Project Name: ublu20110602000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	R	8	4	199	262	1193	211	5.58	5.69	1678	90	427	12:33	12:37	0.54	3.93	28	0
001	L	13	4	151	265	1143	220	14.6	7.66	1650	104	454	12:37	12:41	0.56	3.64	16	0
002	R	13	4	156	270	1177	209	10.8	8.23	1676	99	435	12:41	12:44	0.55	3.85	12	0
003	L	13	4	152	291	1189	269	9.89	6.67	1766	113	485	12:45	12:48	0.62	3.64	27	0
Mean		12	4	164	272	1176	227	10.2	7.06	1692	101	450	Total	00:15	0.57	3.76	21	0
SDev		3	0	23	13.1	22.7	28.1	3.70	1.12	50.5	9.7	25.9			0.03	0.15		
SD/M		0.21	0.00	0.14	0.05	0.02	0.12	0.36	0.16	0.03	0.10	0.06			0.06	0.04		

Remarks: Q 1692cfs using BT with 3% error

Station Number:

Meas. No:

Station Name: Ublutuoch River

Date: 06/05/2011

Party: DB/DAV	Width: 115 ft	Processed by: DAV
Boat/Motor: kayak	Area: 518 ft ²	Mean Velocity: 3.17 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 1,640 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 32.81 ft/s	Bin Size: 9 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 6.33 ft/s	
Max. Depth: 7.96 ft	
Mean Depth: 4.49 ft	
% Meas.: 70.73	
Water Temp.: None	
ADCP Temp.: 37.4 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage

Project Name: ublu20110605000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	R	25	10	125	235	1129	214	25.9	26.7	1630	116	502	15:15	15:18	0.63	3.25	34	0
001	L	25	10	87	230	1152	202	24.2	21.5	1629	115	527	15:18	15:20	0.85	3.09	18	0
002	R	25	10	97	226	1122	190	25.5	20.9	1584	116	507	15:20	15:22	0.70	3.13	14	0
003	L	25	10	106	239	1242	208	14.4	20.2	1723	114	536	15:23	15:25	0.76	3.21	25	0
Mean		25	10	103	232	1161	203	22.5	22.3	1642	115	518	Total	00:10	0.74	3.17	23	0
SDev		0	0	16	5.66	55.1	10.4	5.42	2.98	58.2	0.9	16.5			0.09	0.07		
SD/M		0.00	0.00	0.16	0.02	0.05	0.05	0.24	0.13	0.04	0.01	0.03			0.13	0.02		

Remarks: Q 1642cfs using BT with 4% error

Station Number:

Meas. No:

Station Name: Ublutuoch River

Date: 06/07/2011

Party: DB/DAV	Width: 83.9 ft	Processed by: DAV
Boat/Motor: kayak	Area: 352 ft ²	Mean Velocity: 3.30 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 1,160 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 32.81 ft/s	Bin Size: 10 cm Blank: 3 cm
WT Error Vel.: 32.81 ft/s	BT Mode: 10 BT Pings: 2
BT Up Vel.: 32.81 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 32.81 ft/s	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 6.73 ft/s	
Max. Depth: 7.98 ft	
Mean Depth: 4.20 ft	
% Meas.: 64.03	
Water Temp.: None	
ADCP Temp.: 35.7 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage

Project Name: ublu20110607000r.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	R	12	6	92	191	749	163	13.5	9.71	1127	89	362	11:09	11:11	0.70	3.11	21	0
001	L	12	6	84	192	735	149	10.0	9.46	1095	80	336	11:11	11:13	0.74	3.26	18	1
002	R	12	6	85	202	799	187	10.1	10.0	1209	80	332	11:13	11:15	0.75	3.64	18	0
003	L	12	6	73	218	874	176	14.2	8.37	1291	86	369	11:16	11:17	0.99	3.50	21	0
004	R	12	6	81	185	758	157	15.9	9.39	1126	81	351	11:18	11:20	0.80	3.21	10	0
005	L	12	6	77	199	542	351	15.4	8.33	1116	88	364	11:20	11:22	0.80	3.07	32	1
Mean		12	6	82	198	743	197	13.2	9.22	1161	84	352	Total	00:12	0.80	3.30	20	0
SDev		0	0	7	11.7	111	76.7	2.56	0.706	74.8	4.0	15.5			0.10	0.23		
SD/M		0.00	0.00	0.08	0.06	0.15	0.39	0.19	0.08	0.06	0.05	0.04			0.13	0.07		

Remarks: Q 1161cfs using BT with 6% error

Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: RTK / DAV	Width: 16.6 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 22.5 ft ²	Mean Velocity: 1.85 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 41.6 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 31.12
BT Error Vel.: 0.33 ft/s*	Bin Size: 4 cm Blank: 3 cm
WT Error Vel.: 1.10 ft/s*	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s*	WT Mode: 12 WT Pings: 6
WT Up Vel.: 5.20 ft/s*	WV : 0 WO : 1, 4
Use Weighted Mean Depth: NO	
Max. Vel.: 5.18 ft/s	
Max. Depth: 2.05 ft	
Mean Depth: 1.36 ft	
% Meas.: 37.75	
Water Temp.: None	
ADCP Temp.: 58.0 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 100' DS of gage

Project Name: ublu20110708000 41.2cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	L	1	1	45	16.1	15.2	8.90	1.02	0.742	41.9	17	22	13:48	13:49	0.37	1.88	2	5
001	R	1	1	47	16.1	16.7	9.04	1.02	0.742	43.6	17	23	13:49	13:50	0.30	1.89	4	1
002	L	1	1	48	15.8	16.1	8.62	0.989	0.777	42.3	17	23	13:50	13:51	0.30	1.86	4	7
003	R	1	1	59	14.4	15.6	7.70	1.02	0.777	39.5	17	23	13:51	13:53	0.30	1.69	2	8
004	L	1	1	54	15.9	15.3	8.76	1.06	0.742	41.7	16	21	13:53	13:54	0.25	1.94	4	6
005	R	1	1	55	14.8	15.3	8.26	1.20	0.777	40.4	16	22	13:55	13:56	0.26	1.84	2	5
Mean		1	1	51	15.5	15.7	8.55	1.05	0.759	41.6	17	22	Total	00:08	0.30	1.85	3	5
SDev		0	0	5	0.717	0.592	0.493	0.075	0.019	1.45	0.3	0.7			0.04	0.09		
SD/M		0.00	0.00	0.11	0.05	0.04	0.06	0.07	0.03	0.03	0.02	0.03			0.15	0.05		

Remarks: Q 41.6cfs using BT with 3% error

Party: DAV/JPB	Width: 40.5 ft	Processed by: DAV
Boat/Motor: kayak	Area: 126 ft ²	Mean Velocity: 1.18 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 148 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (20.9°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.12
BT Error Vel.: 3.28 ft/s*	Bin Size: 10 cm Blank: 19 cm
WT Error Vel.: 32.81 ft/s*	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s*	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s*	WZ : 5
Use Weighted Mean Depth: YES	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: Project Name: ublu 6032012 q148.3cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	R	6	4	99	38.3	67.5	28.3	3.85	4.91	143	48	145	11:24	11:25	1.02	0.98	0	0
001	L	6	4	65	42.9	66.9	25.7	2.54	4.17	142	39	120	11:25	11:26	1.09	1.18	23	0
002	R	6	4	51	46.2	71.8	33.3	5.26	2.12	159	43	133	11:26	11:26	1.20	1.19	2	0
003	L	6	4	48	45.5	75.5	27.6	2.58	2.72	154	40	122	11:26	11:27	1.25	1.27	0	0
006	L	6	4	83	42.4	74.4	27.1	2.37	3.78	150	40	127	11:28	11:29	0.74	1.18	0	0
007	R	6	4	59	41.5	69.0	31.4	3.92	3.28	149	39	127	11:30	11:31	0.96	1.17	2	0
008	L	6	4	65	41.1	70.3	25.4	2.58	2.68	142	36	110	11:31	11:32	0.88	1.29	0	0
Mean		6	4	67	42.6	70.8	28.4	3.30	3.38	148	41	126	Total	00:07	1.02	1.18	4	0
SDev		0	0	18	2.70	3.33	2.95	1.08	0.969	6.56	4.0	11.0			0.18	0.10		
SD/M		0.00	0.00	0.27	0.06	0.05	0.10	0.33	0.29	0.04	0.10	0.09			0.18	0.08		

Remarks: Q 148cfs using BT with 4% error

* - value not consistent for all transects
 Discharge for transects in *italics* have a total Q more than 5% from the mean

Station Number:

Meas. No:

Station Name: Ublutuoch River

Date: 06/05/2012

Party: DAV/JPB	Width: 82.8 ft	Processed by: DAV
Boat/Motor: kayak	Area: 514 ft ²	Mean Velocity: 4.30 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 2,120 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (20.9°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.12
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 19 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 10.8 ft/s	
Max. Depth: 12.3 ft	
Mean Depth: 6.17 ft	
% Meas.: 58.48	
Water Temp.: None	
ADCP Temp.: 34.9 °F	

Performed Diag. Test: NO

Project Name: ublu 06052012 q2114cfs.mmt

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: NO Evaluation: NO

Meas. Location: at gage

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	R	15	6	158	335	1256	529	10.6	14.8	2146	94	587	11:18	11:20	1.26	3.65	21	3
001	L	15	6	56	328	1261	522	41.8	29.3	2178	73	473	11:20	11:21	2.17	4.61	5	1
002	R	15	6	45	308	1188	552	59.4	19.9	2127	95	625	11:21	11:21	3.03	3.41	9	1
003	L	15	6	56	302	1206	498	5.19	25.8	2037	65	356	11:21	11:22	2.43	5.72	2	3
004	R	15	6	40	296	1212	497	21.2	18.5	2044	96	611	11:22	11:23	3.14	3.35	3	1
005	L	15	6	63	325	1316	527	-7.77	25.0	2184	74	433	11:23	11:23	2.76	5.04	29	2
Mean		15	6	69	316	1240	521	21.7	22.2	2119	83	514	Total	00:05	2.47	4.30	11	2
SDev		0	0	44	15.8	47.1	20.8	24.8	5.39	64.7	13.7	109.5			0.69	0.98		
SD/M		0.00	0.00	0.64	0.05	0.04	0.04	1.14	0.24	0.03	0.17	0.21			0.28	0.23		

Remarks: Q 2119cfs using BT with 3% error and 1366cfs using VTG with 16% error

Party: RTK/DAV	Width: 74.3 ft	Processed by: DAV
Boat/Motor: kayak	Area: 455 ft ²	Mean Velocity: 3.52 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 1,600 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (18.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.12
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 19 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 9.59 ft/s	
Max. Depth: 10.8 ft	
Mean Depth: 6.13 ft	
% Meas.: 58.22	
Water Temp.: None	
ADCP Temp.: 35.3 °F	

Performed Diag. Test: NO Project Name: ublu 201120607 q1602.4cfs.mn
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	R	10	6	96	248	931	368	11.7	14.4	1574	79	470	12:02	12:03	1.12	3.35	0	2
001	L	10	6	101	251	954	378	18.8	25.6	1628	72	445	12:04	12:05	1.06	3.66	3	1
002	R	10	6	103	254	906	400	24.6	11.9	1596	75	457	12:05	12:06	1.10	3.50	5	0
003	L	10	6	86	249	942	389	8.12	26.1	1614	72	451	12:06	12:07	1.21	3.58	8	1
Mean		10	6	96	250	933	384	15.8	19.5	1603	74	455	Total	00:04	1.12	3.52	4	1
SDev		0	0	8	2.62	20.6	13.8	7.37	7.37	23.3	3.1	10.8			0.06	0.13		
SD/M		0.00	0.00	0.08	0.01	0.02	0.04	0.47	0.38	0.01	0.04	0.02			0.06	0.04		

Remarks: Q 1603cfs using BT with 1% error and 1356cfs using VTG with 25% error

Party: RTK/DAV	Width: 61.9 ft	Processed by: DAV
Boat/Motor: kayak	Area: 352 ft ²	Mean Velocity: 3.07 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 1,080 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (18.3°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.12
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 19 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 7.92 ft/s	
Max. Depth: 9.20 ft	
Mean Depth: 5.68 ft	
% Meas.: 59.51	
Water Temp.: None	
ADCP Temp.: 35.0 °F	

Performed Diag. Test: NO

Project Name: ublu 20120609 q1078cfs.mmt

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: NO Evaluation: NO

Meas. Location: at gage

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
000	R	10	4	103	176	626	254	13.8	2.54	1071	60	337	11:13	11:14	0.84	3.18	4	1
001	L	10	4	85	174	627	229	-3.71	5.26	1032	61	339	11:15	11:16	1.06	3.04	4	2
002	R	10	4	74	179	658	262	5.51	6.25	1111	65	374	11:16	11:17	1.10	2.97	0	2
005	L	10	4	78	172	637	225	6.60	4.70	1045	62	340	11:19	11:19	1.20	3.08	1	2
006	R	10	4	66	185	659	276	28.5	4.56	1153	62	365	11:20	11:21	1.26	3.16	2	1
007	L	10	4	81	174	642	220	11.1	5.19	1052	62	354	11:21	11:22	1.09	2.97	2	2
Mean		10	4	81	177	641	245	10.3	4.75	1078	62	352	Total	00:08	1.09	3.07	2	2
SDev		0	0	13	4.76	14.7	22.6	10.8	1.23	46.2	1.5	15.5			0.15	0.09		
SD/M		0.00	0.00	0.15	0.03	0.02	0.09	1.04	0.26	0.04	0.02	0.04			0.13	0.03		

Remarks: Q 1078cfs using BT with 4% error and 927cfs using VTG with 20% errorDischarge for transects in *italics* have a total Q more than 5% from the mean

Station Number:

Meas. No:

Station Name: Ublutuoch River

Date: 06/06/2013

Party: DAV/JPB	Width: 106 ft	Processed by: DAV
Boat/Motor: Kayak	Area: 435 ft ²	Mean Velocity: 3.04 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 1,320 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.4°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: StreamPro / 2000 kHz
WT 3-Beam Solution: YES	Serial #: 592 Firmware: 31.12
BT Error Vel.: 0.33 ft/s*	Bin Size: 15 cm Blank: 3 cm
WT Error Vel.: 0.98 ft/s*	BT Mode: 10 BT Pings: 2
BT Up Vel.: 1.00 ft/s	WT Mode: 12 WT Pings: 6
WT Up Vel.: 4.00 ft/s	
Use Weighted Mean Depth: YES	
Max. Vel.: 4.86 ft/s	
Max. Depth: 6.44 ft	
Mean Depth: 4.13 ft	
% Meas.: 64.38	
Water Temp.: None	
ADCP Temp.: 40.0 °F	

Performed Diag. Test: NO

Project Name: ublu20130606dav1318cfs.mmt

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: NO Evaluation: NO

Meas. Location: at gage

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	R	4	4	57	253	851	205	7.31	5.12	1322	119	455	14:37	14:38	1.62	2.90	35	1
001	L	4	4	60	254	859	208	2.05	8.40	1332	105	441	14:39	14:40	1.50	3.02	15	0
002	R	4	4	46	249	840	200	11.3	11.2	1311	96	405	14:42	14:43	1.55	3.24	35	0
003	L	4	4	56	245	844	206	2.22	10.2	1308	103	439	14:43	14:44	1.55	2.98	11	0
Mean		4	4	54	250	849	205	5.73	8.73	1318	106	435	Total	00:07	1.56	3.04	24	0
SDev		0	0	6	3.98	8.26	3.80	4.46	2.67	11.0	9.4	21.3			0.05	0.14		
SD/M		0.00	0.00	0.11	0.02	0.01	0.02	0.78	0.31	0.01	0.09	0.05			0.03	0.05		

Remarks: Q 1318cfs using BT with 1% error, no GPS

* - value not consistent for all transects

Party: DAV/JPB	Width: 111 ft	Processed by:
Boat/Motor: Kayak	Area: 694 ft ²	Mean Velocity: 3.51 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 2,430 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.4°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.15
BT Error Vel.: 3.28 ft/s*	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s*	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s*	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s*	WZ : 5
Use Weighted Mean Depth: YES	

Performed Diag. Test: NO Project Name: ublu20130609dav2410cfs.mmt
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	R	4	4	130	430	1516	453	3.18	1.34	2404	102	638	12:53	12:54	2.01	3.77	28	3
001	L	4	4	126	450	1509	487	-1.13	6.96	2452	116	741	12:55	12:56	1.35	3.31	13	1
002	R	4	4	104	443	1509	462	1.31	1.48	2417	113	692	12:56	12:57	1.71	3.49	5	4
003	L	4	4	106	455	1531	469	0.883	5.65	2461	114	706	12:58	12:59	1.63	3.49	10	2
Mean		4	4	116	444	1516	468	1.06	3.86	2433	111	694	Total	00:05	1.67	3.51	14	3
SDev		0	0	13	10.9	10.0	14.3	1.77	2.87	27.6	6.0	42.9			0.27	0.19		
SD/M		0.00	0.00	0.12	0.02	0.01	0.03	1.67	0.75	0.01	0.05	0.06			0.16	0.05		

Remarks: Q 2434cfs using BT with 1% error and 2410cfs using VTG with 10% error

* - value not consistent for all transects

Party: DAV/JPB	Width: 89.4 ft	Processed by: DAV
Boat/Motor: Kayak	Area: 700 ft ²	Mean Velocity: 2.91 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 2,040 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.4°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.15
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 8.07 ft/s	
Max. Depth: 12.0 ft	
Mean Depth: 7.83 ft	
% Meas.: 64.18	
Water Temp.: None	
ADCP Temp.: 37.3 °F	

Performed Diag. Test: NO

Project Name: ublbu20130611dav2061cfs.mmm

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: NO Evaluation: NO

Meas. Location: at gage

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
001	L	4	4	89	311	1352	462	4.87	3.18	2133	86	697	12:59	13:00	1.43	3.06	10	1
002	R	4	4	76	286	1312	427	2.90	1.27	2029	89	688	13:00	13:01	1.84	2.95	16	2
003	L	4	4	73	271	1256	411	4.20	2.86	1944	93	714	13:01	13:02	1.83	2.72	19	2
Mean		4	4	79	289	1306	434	3.99	2.44	2036	89	700	Total	00:02	1.70	2.91	15	2
SDev		0	0	9	20.3	48.4	26.2	1.01	1.02	94.6	3.1	13.3			0.24	0.17		
SD/M		0.00	0.00	0.11	0.07	0.04	0.06	0.25	0.42	0.05	0.04	0.02			0.14	0.06		

Remarks: Q 2036cfs using BT with 5% error and 2061cfs using VTG with 4% error

Party: DAV/JPB	Width: 70.1 ft	Processed by: DAV
Boat/Motor: Kayak	Area: 482 ft ²	Mean Velocity: 3.18 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 1,530 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.4°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.15
BT Error Vel.: 3.28 ft/s*	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s*	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s*	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s*	WZ : 5
Use Weighted Mean Depth: YES	

Performed Diag. Test: NO Project Name: ublu20130613dav1505cfs.mmt
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location:

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	R	4	4	78	251	930	357	1.98	4.03	1544	75	485	11:22	11:23	1.28	3.19	28	2
001	L	4	4	77	236	858	362	1.45	2.97	1460	69	475	11:24	11:24	1.35	3.07	1	1
002	R	4	4	65	250	954	348	1.62	-0.989	1553	69	488	11:25	11:25	1.55	3.18	15	2
003	L	4	4	56	257	925	386	2.65	4.20	1575	68	480	11:26	11:26	1.65	3.28	0	0
Mean		4	4	69	249	917	363	1.92	2.55	1533	70	482	Total	00:03	1.46	3.18	11	1
SDev		0	0	10	9.07	41.0	16.2	0.531	2.42	50.3	3.1	5.6			0.17	0.09		
SD/M		0.00	0.00	0.15	0.04	0.04	0.04	0.28	0.95	0.03	0.04	0.01			0.12	0.03		

Remarks: Q 1533cfs using BT with 3% error and 1505cfs using VTG with 4% error

* - value not consistent for all transects

Station Number:

Meas. No:

Station Name: Ublutuoch River

Date: 06/17/2013

Party: RTK/KAP	Width: 51.1 ft	Processed by: DAV
Boat/Motor: kayak	Area: 249 ft ²	Mean Velocity: 2.96 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 738 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 44.15
BT Error Vel.: 0.33 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 0.50 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 1.00 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 5.20 ft/s	WZ : 0
Use Weighted Mean Depth: NO	
Max. Vel.: 5.19 ft/s	
Max. Depth: 7.11 ft	
Mean Depth: 4.88 ft	
% Meas.: 63.96	
Water Temp.: None	
ADCP Temp.: 52.9 °F	

Performed Diag. Test: NO

Project Name: ublu20130617dav738cfs.mmt

Performed Moving Bed Test: NO

Software: 2.11

Performed Compass Calibration: NO Evaluation: NO

Meas. Location: 20' US of gage

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	6	6	137	101	466	156	0.706	13.8	738	54	250	10:45	10:48	0.45	2.95	21	23
001	R	6	6	112	107	484	148	4.94	15.3	760	52	254	10:48	10:50	0.41	2.99	13	19
002	L	6	6	113	96.4	469	135	1.20	19.8	722	50	249	10:51	10:53	0.47	2.90	6	19
003	R	6	6	107	107	472	160	2.40	15.4	757	53	251	10:54	10:56	0.45	3.02	4	17
004	L	6	6	111	96.1	463	136	2.79	13.3	712	50	247	10:56	10:58	0.47	2.88	10	21
005	R	6	6	106	107	491	131	3.96	12.6	745	52	250	11:00	11:02	0.41	2.98	5	16
006	L	6	6	94	102	457	151	9.15	12.3	731	48	241	11:02	11:04	0.53	3.03	5	20
Mean		6	6	111	102	472	145	3.59	14.6	738	51	249	Total	00:19	0.46	2.96	9	19
SDev		0	0	13	4.90	12.1	11.3	2.86	2.57	17.8	2.1	4.2			0.04	0.06		
SD/M		0.00	0.00	0.12	0.05	0.03	0.08	0.79	0.18	0.02	0.04	0.02			0.09	0.02		

Remarks: Q 738cfs using BT with 2% error, no GPS

Party: RTK	Width: 42.0 ft	Processed by: DAV
Boat/Motor: kayak	Area: 154 ft ²	Mean Velocity: 2.49 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 382 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 44.15
BT Error Vel.: 0.33 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 1.00 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 1.00 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 5.08 ft/s	WZ : 0
Use Weighted Mean Depth: NO	
Max. Vel.: 5.08 ft/s	
Max. Depth: 5.11 ft	
Mean Depth: 3.67 ft	
% Meas.: 63.66	
Water Temp.: None	
ADCP Temp.: 60.1 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage
 Project Name: ublu20130621dav382cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	R	0	3	95	<i>64.4</i>	<i>234</i>	<i>57.8</i>	0.000	5.26	362	42	167	11:09	11:11	0.63	2.17	28	5
001	L	3	3	83	<i>73.8</i>	<i>252</i>	<i>64.4</i>	2.97	1.87	395	46	157	11:11	11:13	0.52	2.53	22	6
002	R	3	3	95	<i>70.4</i>	<i>245</i>	<i>67.8</i>	2.12	3.39	388	42	151	11:13	11:15	0.48	2.57	21	5
003	L	3	3	86	<i>67.9</i>	<i>242</i>	<i>66.6</i>	2.54	4.48	384	38	142	11:15	11:17	0.50	2.70	22	7
Mean		2	3	89	69.1	243	64.1	1.91	3.75	382	42	154	Total	00:07	0.53	2.49	23	6
SDev		1	0	6	3.96	7.50	4.47	1.32	1.47	14.6	3.1	10.2			0.07	0.23		
SD/M		0.67	0.00	0.07	0.06	0.03	0.07	0.69	0.39	0.04	0.07	0.07			0.13	0.09		

Remarks: Q 382cfs using BT with 0.04 error, no GPS

Party: RTK/DAV	Width: 29.1 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 87.4 ft ²	Mean Velocity: 1.37 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 120 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 44.15
BT Error Vel.: 0.33 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 1.00 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 1.00 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 3.49 ft/s	WZ : 0
Use Weighted Mean Depth: NO	
Max. Vel.: 3.36 ft/s	
Max. Depth: 3.65 ft	
Mean Depth: 3.00 ft	
% Meas.: 69.05	
Water Temp.: None	
ADCP Temp.: 61.1 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 50' DS of gage
 Project Name: ublu20130706dav120cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	L	2	2	77	20.9	85.2	15.8	1.09	-0.494	122	29	88	11:58	12:00	0.31	1.40	4	3
001	R	2	2	93	19.1	77.9	14.8	0.848	0.177	113	30	89	12:00	12:02	0.29	1.27	6	5
003	L	2	2	68	20.4	82.0	16.1	1.38	0.953	121	29	87	12:04	12:05	0.36	1.39	3	5
004	R	2	2	73	20.6	85.2	14.8	1.24	-0.247	122	29	87	12:06	12:07	0.34	1.39	4	3
005	L	2	2	72	20.8	83.6	15.2	1.59	0.459	122	29	86	12:07	12:09	0.34	1.41	7	4
Mean		2	2	76	20.4	82.8	15.3	1.23	0.170	120	29	87	Total	00:10	0.33	1.37	5	4
SDev		0	0	10	0.713	3.05	0.594	0.281	0.573	3.99	0.4	0.9			0.03	0.06		
SD/M		0.00	0.00	0.13	0.03	0.04	0.04	0.23	3.38	0.03	0.01	0.01			0.09	0.04		

Remarks: Q 120cfs using BT with 3% error, no GPS

Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: RTK/DAV	Width: 19.5 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 26.2 ft ²	Mean Velocity: 0.728 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 19.0 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:6	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 44.15
BT Error Vel.: 0.33 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 1.40 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 1.00 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 5.51 ft/s	WZ : 0
Use Weighted Mean Depth: NO	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 100' US of gage
 Project Name: ublu20130824dav19cfs.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
001	R	2	2	49	6.43	7.31	3.21	0.530	0.565	18.0	20	26	12:55	12:57	0.27	0.68	2	4
002	L	2	2	46	6.71	7.31	3.85	0.848	0.812	19.6	20	27	12:57	12:58	0.30	0.73	2	0
003	R	2	2	46	6.82	7.73	3.71	-0.459	0.706	18.5	19	26	12:58	12:59	0.29	0.71	2	4
004	L	2	2	47	6.92	8.16	3.46	0.459	0.989	20.0	19	25	13:00	13:01	0.29	0.79	4	2
Mean		2	2	47	6.72	7.63	3.56	0.344	0.768	19.0	20	26	Total	00:05	0.29	0.73	3	2
SDev		0	0	1	0.213	0.406	0.280	0.562	0.179	0.916	0.4	0.5			0.01	0.05		
SD/M		0.00	0.00	0.03	0.03	0.05	0.08	1.63	0.23	0.05	0.02	0.02			0.05	0.06		

Remarks: Q 19cfs using BT with 5% error, no GPS

Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: RTK/DAV	Width: 44.4 ft	Processed by: DAV
Boat/Motor: kayak	Area: 191 ft ²	Mean Velocity: 3.09 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 579 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.15
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 7.77 ft/s	
Max. Depth: 6.80 ft	
Mean Depth: 4.30 ft	
% Meas.: 49.85	
Water Temp.: None	
ADCP Temp.: 34.3 °F	

Performed Diag. Test: NO Project Name: ublu_0.mmt
 Performed Moving Bed Test: NO Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	R	2	2	123	136	298	111	1.20	0.636	547	48	222	10:39	10:40	1.00	2.46	2	4
001	L	2	2	59	184	317	124	4.20	3.74	633	38	156	10:41	10:41	1.26	4.06	2	4
002	R	2	2	48	159	249	114	4.66	2.65	530	45	192	10:41	10:42	1.56	2.76	8	2
003	L	2	2	45	197	291	111	3.35	4.56	607	47	196	10:42	10:43	1.63	3.10	2	3
Mean		2	2	68	169	289	115	3.35	2.90	579	44	191	Total	00:03	1.36	3.09	4	3
SDev		0	0	37	27.0	28.4	6.05	1.53	1.70	48.6	4.5	27.1			0.29	0.69		
SD/M		0.00	0.00	0.54	0.16	0.10	0.05	0.46	0.59	0.08	0.10	0.14			0.21	0.22		

Remarks: Q 580cfs using BT with 8% error, flow over snow/ice

Discharge for transects in *italics* have a total Q more than 5% from the mean

Station Number:

Meas. No:

Station Name: Ublutuoch River

Date: 06/02/2014

Party: DAV/JPB	Width: 43.3 ft	Processed by: DAV
Boat/Motor: kayak	Area: 170 ft ²	Mean Velocity: 2.37 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 397 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.2°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.16
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 5.88 ft/s	
Max. Depth: 6.99 ft	
Mean Depth: 3.94 ft	
% Meas.: 45.70	
Water Temp.: None	
ADCP Temp.: 34.5 °F	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage and 50' DS

Project Name: ublu06022014_0.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
001	L	3	3	60	139	189	99.8	2.58	5.72	436	43	172	12:10	12:10	1.15	2.53	28	3
003	L	3	3	51	115	160	82.5	4.10	4.91	367	38	148	12:11	12:11	1.30	2.47	22	0
004	R	3	3	49	130	157	79.7	1.91	5.72	374	47	168	12:12	12:13	1.72	2.22	37	2
005	L	3	3	69	115	170	68.4	2.12	7.56	364	36	136	12:13	12:13	1.08	2.67	43	1
006	R	3	3	78	122	214	90.2	1.87	6.14	434	57	217	12:14	12:15	1.43	2.00	58	1
007	L	3	3	55	112	199	89.1	2.30	6.11	409	39	178	12:15	12:16	1.13	2.30	25	1
Mean		3	3	60	122	182	84.9	2.48	6.03	397	43	170	Total	00:06	1.30	2.37	36	1
SDev		0	0	11	10.5	22.8	10.7	0.835	0.872	33.4	7.6	27.8			0.24	0.24		
SD/M		0.00	0.00	0.19	0.09	0.13	0.13	0.34	0.14	0.08	0.17	0.16			0.19	0.10		

Remarks: Q 397cfs using BT with 8% error and 404cfs using VTG with 10% error
 Snow/ice on the bottom

Discharge for transects in *italics* have a total Q more than 5% from the mean

Party: DAV/JPB	Width: 60.4 ft	Processed by: DAV
Boat/Motor: kayak	Area: 305 ft ²	Mean Velocity: 3.53 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 1,080 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.400 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.2°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.16
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 6.44 ft/s	
Max. Depth: 8.00 ft	
Mean Depth: 5.05 ft	
% Meas.: 53.43	
Water Temp.: None	
ADCP Temp.: 35.1 °F	

Performed Diag. Test: NO Project Name: Ublu06062014_0.mmt
 Performed Moving Bed Test: YES Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	R	3	3	65	224	545	284	2.86	6.53	1062	66	317	11:03	11:03	1.72	3.35	25	2
001	L	3	3	43	209	591	263	1.66	14.8	1079	57	301	11:04	11:04	2.07	3.58	7	1
003	L	3	3	45	211	585	266	0.812	15.0	1078	59	297	11:05	11:05	2.17	3.63	7	1
004	R	3	3	40	221	579	277	3.96	15.1	1095	61	304	11:06	11:06	2.34	3.61	25	0
005	L	3	3	42	204	574	262	1.09	22.4	1063	60	305	11:06	11:07	2.31	3.49	10	3
Mean		3	3	47	214	575	270	2.08	14.8	1076	60	305	Total	00:03	2.12	3.53	15	2
SDev		0	0	10	8.53	17.7	9.44	1.31	5.63	13.6	3.5	7.7			0.25	0.12		
SD/M		0.00	0.00	0.22	0.04	0.03	0.03	0.63	0.38	0.01	0.06	0.03			0.12	0.03		

Remarks: Q 1076cfs using BT with 1% error and 1013cfs using VTG with 8% error
 Snow/ice on the bottom

Party: DAV/JPB	Width: 50.1 ft	Processed by: DAV
Boat/Motor: kayak	Area: 269 ft ²	Mean Velocity: 2.85 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 764 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.600 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (19.2°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: YES	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: YES	Serial #: 54988 Firmware: 44.16
BT Error Vel.: 3.28 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 5
Use Weighted Mean Depth: YES	
Max. Vel.: 6.26 ft/s	
Max. Depth: 7.53 ft	
Mean Depth: 5.36 ft	
% Meas.: 54.65	
Water Temp.: None	
ADCP Temp.: 38.6 °F	

Performed Diag. Test: NO Project Name: Ublu06092014_0.mmt
 Performed Moving Bed Test: YES Software: 2.11
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: at gage

Tr.#		Edge Distance		#Ens.	Discharge						Width	Area	Time		Mean Vel.		% Bad	
		L	R		Top	Middle	Bottom	Left	Right	Total			Start	End	Boat	Water	Ens.	Bins
001	L	4	4	51	168	433	151	1.27	17.1	771	53	277	10:51	10:51	1.62	2.79	22	4
002	R	4	4	41	161	406	166	4.13	10.1	747	48	259	10:52	10:53	1.88	2.89	20	3
003	L	4	4	35	166	430	164	-1.38	14.3	773	51	275	10:53	10:53	1.98	2.81	3	2
004	R	4	4	41	166	413	173	11.7	8.72	773	47	257	10:53	10:54	1.91	3.00	27	3
005	L	4	4	42	163	406	174	0.636	15.5	758	52	275	10:54	10:54	1.81	2.75	17	1
Mean		4	4	42	165	418	165	3.26	13.1	764	50	269	Total	00:03	1.84	2.85	17	3
SDev		0	0	6	3.01	13.2	9.00	5.09	3.57	11.6	2.7	9.6			0.14	0.10		
SD/M		0.00	0.00	0.14	0.02	0.03	0.05	1.56	0.27	0.02	0.05	0.04			0.08	0.03		

Remarks: Q 764cfs using BT with 2% error and 739cfs using VTG with 7% error

Party: RTK/DAV	Width: 22.1 ft	Processed by: DAV
Boat/Motor: Tethered boat	Area: 30.2 ft ²	Mean Velocity: 2.47 ft/s
Gage Height: 0.00 ft	G.H.Change: 0.000 ft	Discharge: 74.6 ft ³ /s

Area Method: Avg. Course	ADCP Depth: 0.200 ft	Index Vel.: 0.00 ft/s	Rating No.: 1
Nav. Method: Bottom Track	Shore Ens.:10	Adj.Mean Vel: 0.00 ft/s	Qm Rating: U
MagVar Method: None (0.0°)	Bottom Est: Power (0.1667)	Rated Area: 0.000 ft ²	Diff.: 0.000%
Depth Sounder: Not Used	Top Est: Power (0.1667)	Control1: Unspecified	
Discharge Method: None		Control2: Unspecified	
% Correction: 0.00		Control3: Unspecified	

Screening Thresholds:	ADCP:
BT 3-Beam Solution: NO	Type/Freq.: RiverRay / 600 kHz
WT 3-Beam Solution: NO	Serial #: Firmware: 44.16
BT Error Vel.: 32.81 ft/s	Bin Size: 10 cm Blank: 16 cm
WT Error Vel.: 32.81 ft/s	BT Mode: Auto BT Pings: Dyn
BT Up Vel.: 32.81 ft/s	WT Mode: Auto WT Pings: Dyn
WT Up Vel.: 32.81 ft/s	WZ : 0
Use Weighted Mean Depth: NO	

Performed Diag. Test: NO
 Performed Moving Bed Test: NO
 Performed Compass Calibration: NO Evaluation: NO
 Meas. Location: 30' US of gage

Project Name: ublu20140712 q75cfs dv.mmt
 Software: 2.11

Tr.#		Edge Distance		#Ens.	Discharge					Width	Area	Time		Mean Vel.		% Bad		
		L	R		Top	Middle	Bottom	Left	Right			Total	Start	End	Boat	Water	Ens.	Bins
000	R	2	2	53	25.6	34.0	15.1	2.61	0.742	78.1	21	32	10:56	10:57	0.33	2.45	2	1
001	L	2	2	68	26.2	28.1	14.3	2.61	2.01	73.2	22	29	10:58	10:59	0.29	2.49	7	6
002	R	2	2	51	27.0	28.9	14.8	2.12	1.55	74.3	22	29	10:59	11:00	0.35	2.54	2	2
003	L	2	2	55	27.2	27.3	14.8	1.66	1.94	72.9	23	30	11:01	11:02	0.35	2.41	11	1
Mean		2	2	56	26.5	29.6	14.8	2.25	1.56	74.6	22	30	Total	00:05	0.33	2.47	6	2
SDev		0	0	8	0.760	3.05	0.350	0.458	0.583	2.38	0.7	1.2			0.03	0.05		
SD/M		0.00	0.00	0.14	0.03	0.10	0.02	0.20	0.37	0.03	0.03	0.04			0.10	0.02		

Remarks: Q 74.6cfs using BT with 3% error

Appendix B

Mean Monthly Temperatures

Fish Creek

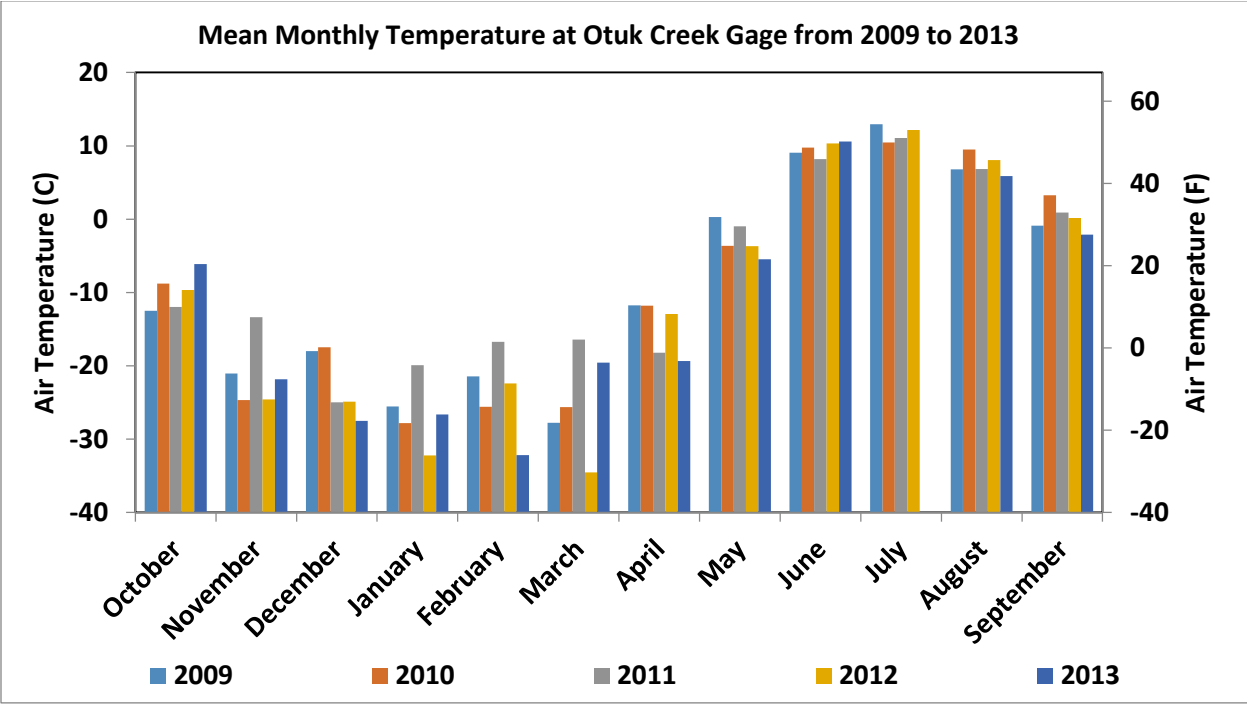
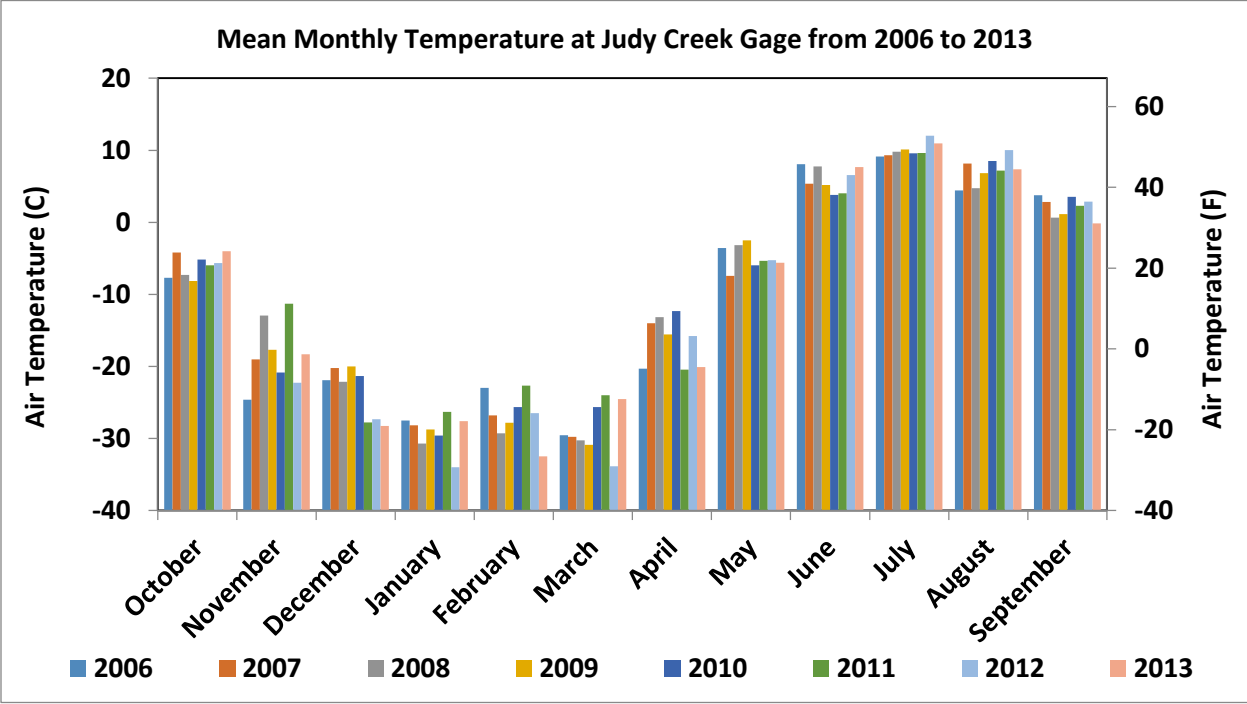
Ikpikpuk River

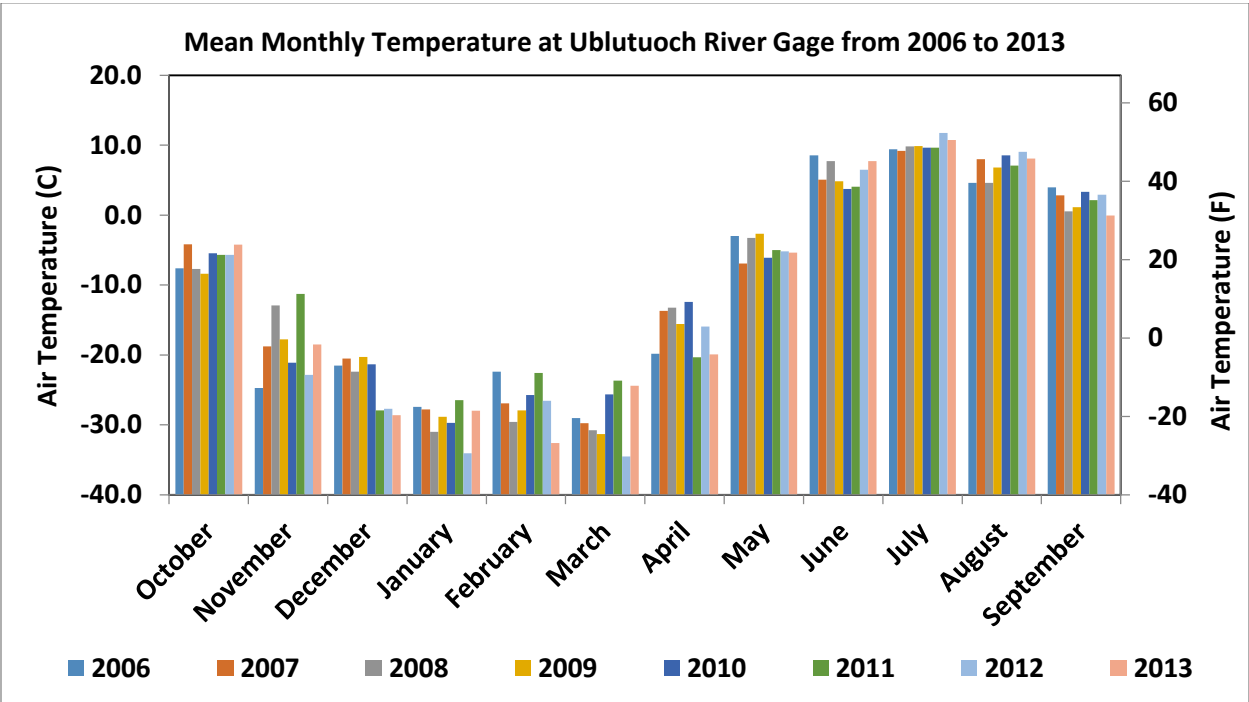
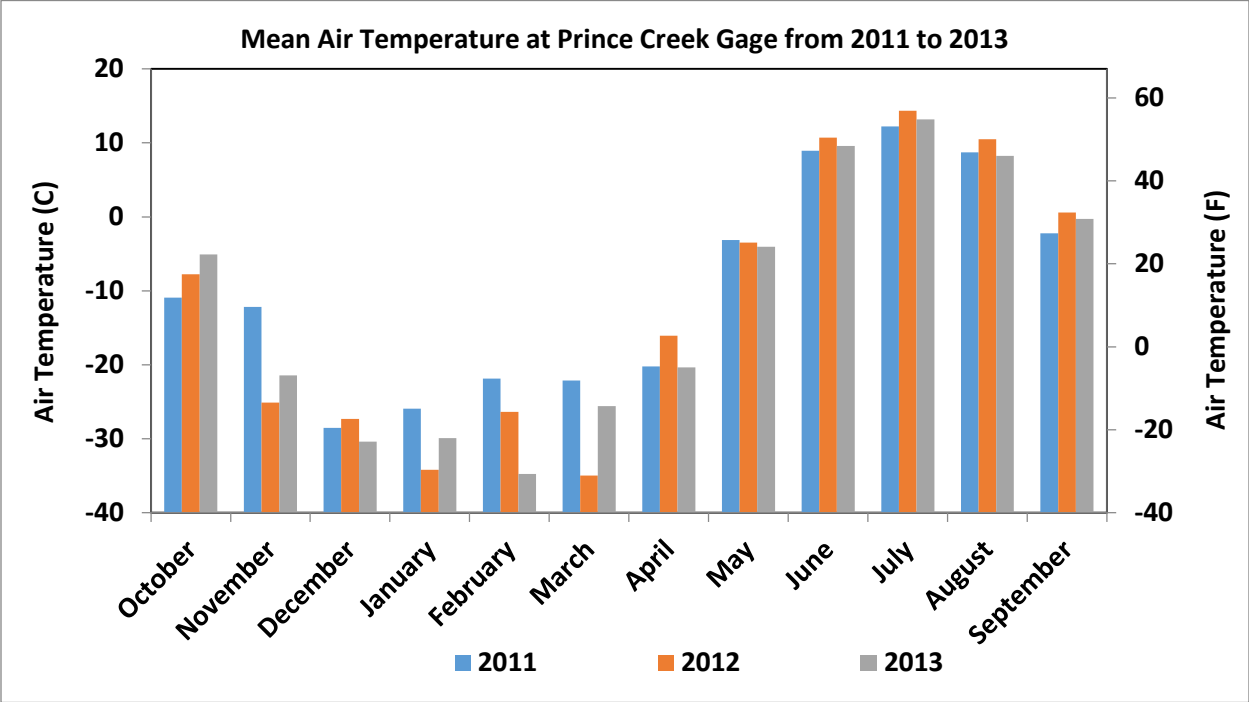
Judy Creek

Otuk Creek

Prince Creek

Ublutuock River





Appendix C

Wind Roses

Fish Creek and Ikpikpuk River, Alaska

