

# Schaft Creek Project: 2007 Hydrology Baseline Report



# DRAFT

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# EXECUTIVE SUMMARY

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# Executive Summary

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A baseline hydrological monitoring program was initiated in the Schaft Creek area in 2006. In 2007, hydrological monitoring continued in the area at nine locations within the Schaft Creek and Mess Creek watersheds. This report presents the methods used to collect and analyze hydrometric data from 2007 in the Project area.

Seven of the eight original monitoring stations from 2006 were remobilized in 2007. Two new monitoring stations (SCTR-2, and SCTR-3) were installed and one original station was deactivated (HCTR-1). At each station an automated pressure transducer and data logger recorded water level readings every ten minutes. In total, 70 manual flow measurements were conducted employing the velocity-area and salt dilution techniques. At each monitoring station, a stage-discharge rating curve was either developed (at newly established stations) or improved (for stations where rating curves were established in 2006).

The automated monitoring period extended from late April to early November, with one station (HC-1) remaining active into the winter period. Good quality data was collected from all stations with the exception of SC-1 which was damaged and located at a site that may not have had appropriate hydraulics for stream flow monitoring.

Annual runoff (Table E1) was observed to range from 1,960 mm (SCTR-1) to 920 mm (SK-2) across the Project area. The majority of the annual runoff occurred in June, July, and August with up to 80% of flow occurring in this period (Table E2). The annual peak flow recorded at the higher elevations stations of HC-1, SC-2, SCTR-2, SCTR-3, and MESS-1 was due to a rainfall event, with a snowmelt component in mid-July (Table E3). The annual peak flow recorded at the lower elevations stations of SCTR-1, SK-1, and SK-2 was due to a spring snowmelt event in early June. Annual low flows (Table E4) across the Project area occurred during the winter when the majority of available water was stored within the snowpack.

Continued hydrological monitoring is proposed for 2008, which would include winter flow measurements early in the year and the remobilization of the nine automated monitoring stations prior to the spring freshet.

**Table E1**  
**2007 Annual Runoff**

Station	Area (km <sup>2</sup> )	Median Elevation (m)	Annual Runoff (mm)	Annual Flow (m <sup>3</sup> /s)
HC-1	87.3	1,620	1,890	5.24
SC-1	48.3	1,870	n/a	n/a
SC-2	216.0	1,330	1,630	11.2
SCTR-1	5.5	1,060	1,960	0.34
SCTR-2	75.6	1,570	1,880	4.51
SCTR-3	8.1	1,860	1,630	0.42
SK-1	16.8	1,220	1,080	0.57
SK-2	38.6	1,090	920	1.12
MESS-1	212.7	1,370	1,760	11.9

n/a = not available, stage data not reliable.

**Table E2  
2007 Seasonal Runoff Distribution**

Station	Percent of Annual Runoff											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
HC-1	1	1	1	1	3	18	34	21	11	5	2	1
SC-1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
SC-2	1	1	1	0	6	22	34	21	9	3	2	1
SCTR-1	1	1	1	1	16	32	28	12	5	2	1	0
SCTR-2	0.4	0.4	0.4	1	5	24	34	21	10	2	1	1
SCTR-3	1	1	1	1	8	23	33	19	9	2	1	1
SK-1	1	1	1	1	15	31	29	11	4	2	2	2
Sk-2	3	2	2	2	16	37	17	9	5	4	3	1
MESS-1	1	1	1	1	6	33	36	11	5	3	2	1

n/a = not available, stage data not reliable.

**Table E3  
2007 Annual Instantaneous Peak Flow**

Station	Flow (m <sup>3</sup> /s)	Yield (L/s/km <sup>2</sup> )
HC-1	68.2	781
SC-1	n/a	n/a
SC-2	102	474
SCTR-1	2.8	503
SCTR-2	46.0	608
SCTR-3	5.1	636
SK-1	3.5	206
Sk-2	13.2	342
MESS-1	120	564

n/a = not available, stage data not reliable.

**Table E4  
2007 Annual Low Flows**

Station	June through September (m <sup>3</sup> /s)	Winter (m <sup>3</sup> /s) <sup>a</sup>
HC-1	1.30	0.35
SC-1	n/a	0.04
SC-2	3.84	0.78
SCTR-1	0.20	0.02
SCTR-2	1.44	0.33
SCTR-3	0.27	n/a
SK-1	0.16	0.04
Sk-2	0.53	0.24
MESS-1	3.71	0.79

n/a = not available, station was either not active (SCTR-3) or stage data not reliable (SC-1).

<sup>a</sup> Based on winter manual flow measurements.

# ACKNOWLEDGEMENTS

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# 1. INTRODUCTION

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# 1. Introduction

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This report describes the results from the 2007 baseline surface hydrology monitoring program. The report presents the methods used to collect and analyze hydrometric data in the Project area. The data are used to calculate key hydrological indices such as annual runoff, seasonal runoff distribution, and extreme (high and low) flows experienced in the Project area during 2007 and compares these to regional data. Issues that were encountered over the year are discussed and a brief discussion is provided on proposed future work.

## 1.1 Schaft Creek Project Summary

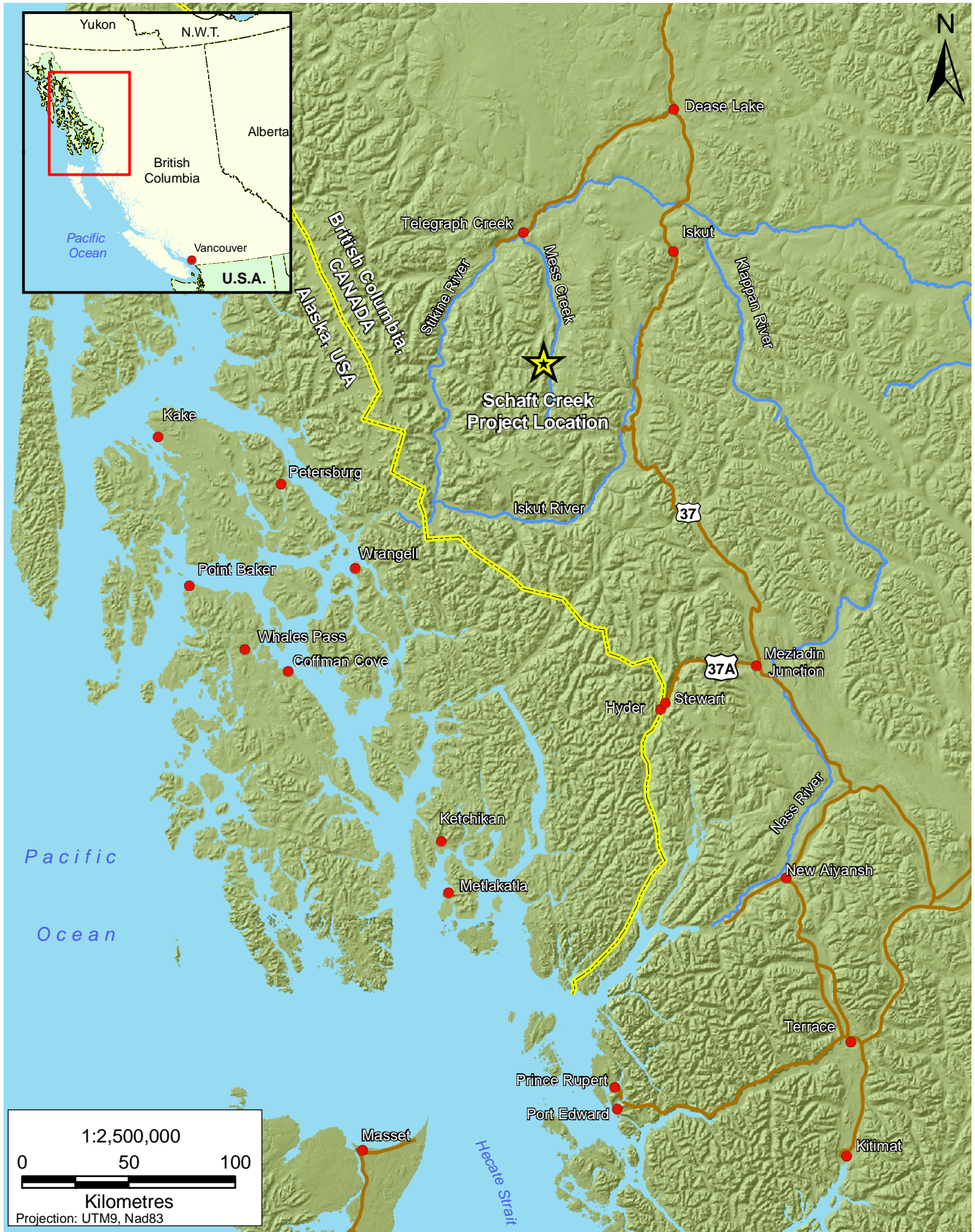
Copper Fox Metals Inc. (Copper Fox) is a Canadian mineral exploration and development company focused on developing the Schaft Creek deposit located in northwestern British Columbia, approximately 60 km south of the village of Telegraph Creek (Figure 1.1-1). The Schaft Creek deposit is a polymetallic (copper-gold-silver-molybdenum) deposit located in the Liard District of north-western British Columbia (Latitude 57° 22' 4.2"; Longitude 130°, 58' 48.9"). The property is comprised of 40 mineral claims covering an area totalling approximately 20,932 ha within the Cassiar Iskut-Stikine Land and Resource Management Plan (Figure 1.1-2).

The Schaft Creek Project is located within the traditional territory of the Tahltan Nation. Copper Fox has been in discussions with the Tahltan Central Council (TCC) and the Tahltan Heritage Resources Environmental Assessment Team (THREAT) since initiating exploration activities in 2005. Copper Fox has engaged in numerous agreements with the TCC including a Communications Agreement, Traditional Knowledge Agreement, Letter of Understanding with the Tahltan Nation Development Corporation (TNDC) and a THREAT Agreement. Copper Fox will continue to work together with the Tahltan Nation as work on the Schaft Creek Project continues.

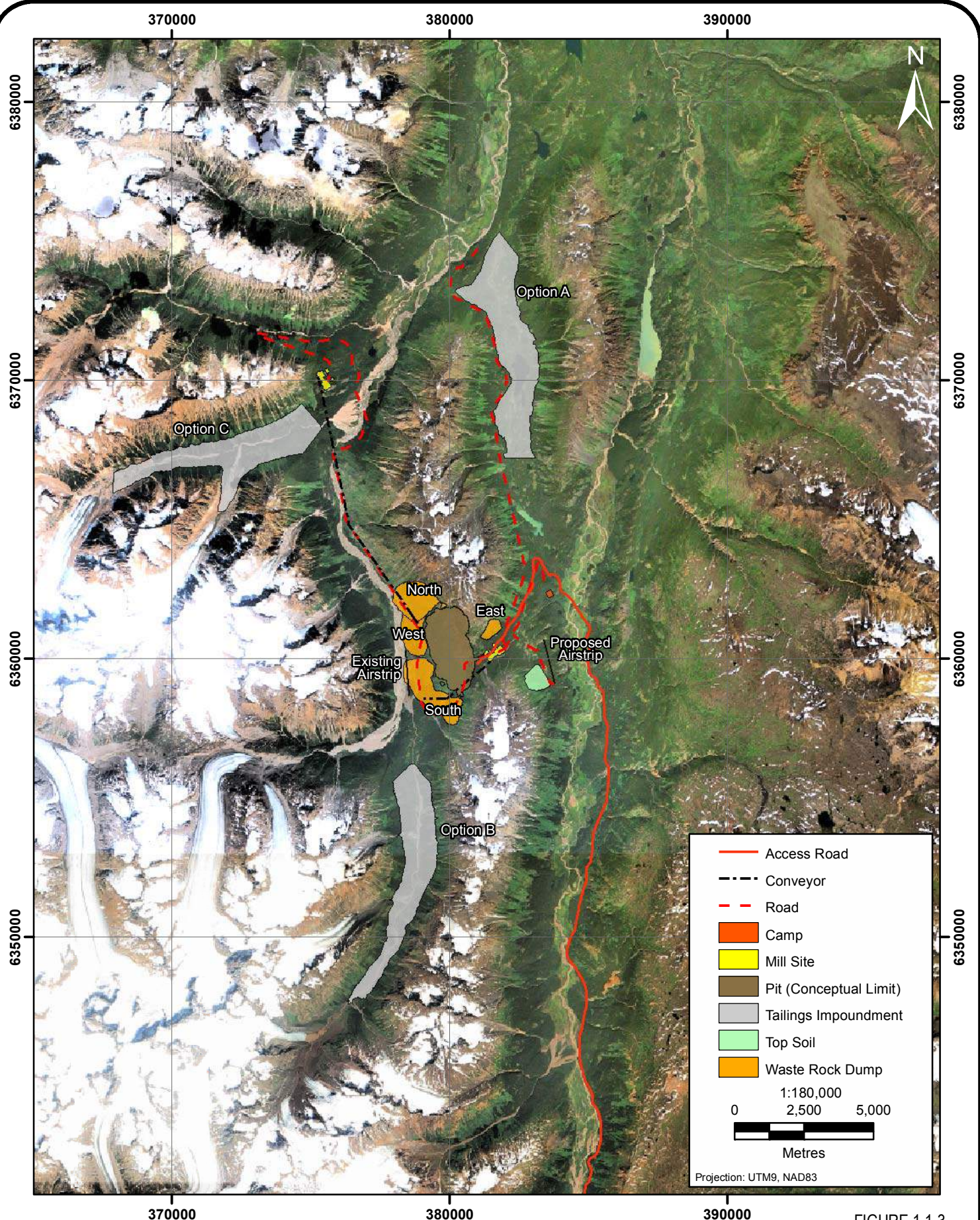
The Schaft Creek deposit was discovered in 1957 and has since been investigated by prospecting, geological mapping, geophysical surveys as well as diamond and percussion drilling. Over 65,000 meters of drilling has been completed on the property as of end of 2007. Additional drilling is planned for 2008 to support future economic assessments of the property and an environmental assessment application.

The Schaft Creek Project entered the British Columbia environmental assessment process in August 2006. Although a formal federal decision has not yet been made, the Project will likely require federal approval as per the Canadian Environmental Assessment Act. Copper Fox has targeted the end of 2008 for submission of their Schaft Creek Environmental Assessment Application.

Copper Fox has recently released a scoping level engineering and economic report for Schaft Creek. The mine and associated infrastructure are presented in Figure 1.1-3. The current mine plan has ore milled from an open pit at a rate of 65,000 tonnes/day. The Schaft deposit will be mined with large truck/shovel operations and typical drill and blast techniques. An explosives manufacturing facility will be constructed on-site to support blasting activities. The mine plan







includes 719 million tonnes of minable ore over a 31 year mine life. The Project is estimated to generate up to 1,200 jobs during the construction phase of the Project and approximately 500 permanent jobs during the life of the mine.

Ore will be crushed, milled and filtered on-site to produce copper and molybdenum concentrates. The mill will include a typical comminution circuit (Semi-Autogenous Mill, Ball Mill and Pebble Crusher) followed by a flotation circuit and a copper circuit with thickener, filtration and concentrate loadout and shipping. The mill includes a designated molybdenum circuit with thickener, filtration circuit, drying and bagging. The filter plant will be located at the plant site. A tailings thickener and water reclaim system will be used to recycle process water. The circuit will have a design capacity of 70,652 tonnes per day and a nominal capacity of 65,000 tonnes per day (23,400,000 tonnes per year). The copper and molybdenum concentrates will be shipped via truck from the mill to the port of Stewart, B.C.

Copper Fox will construct an access road from Highway 37 to the Schaft Creek property. Access to the property from Highway 37 will require approximately 105 km of new road. The first 65 km of the access road to the Schaft Creek property corresponds to the Galore Creek access road. NovaGold and Teck Cominco have currently put a hold on future construction efforts along their access road and the overall Galore Creek Project. Copper Fox will seek approval from the provincial government and NovaGold/Teck Cominco to construct the first 65 km of the Galore Creek access road should the status of the Project not change.

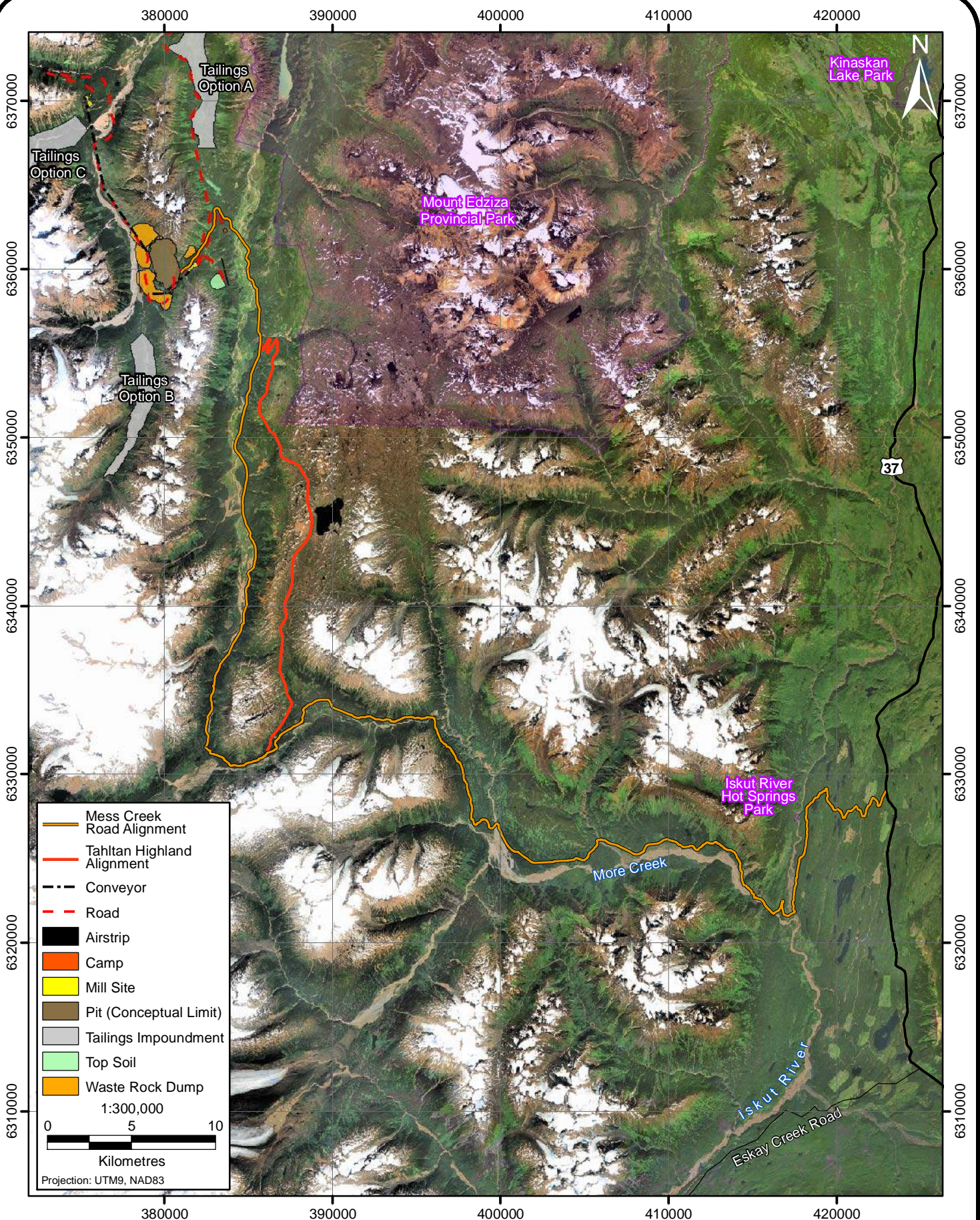
The route of the final 40 km of access road has not been finalized. Copper Fox has completed initial investigations of a route along Mess Creek. An alternative route is also being considered that utilizes the plateau to the east of Mess Creek. Copper Fox is currently investigating the feasibility, as it relates to geohazards, of the two alignments. Both alignments include a 30 m bridge on Mess Creek. Mess Creek is considered navigable as per Transportation Canada criteria. Figure 1.1-4 presents the access road alignment that follows the Galore Creek road (65 km from Highway 37) and the Mess Creek alignment (40 km) to the Schaft Creek property.

Over the life of the mine, the Schaft Creek Project will generate over 700 million tonnes of tailings. There are three tailings facilities being considered (Figure 1.1-3). The three options will undergo an alternatives assessment that will include engineering, construction and operating costs, geotechnical, geohazards, environmental and social considerations.

The Project will generate over a billion tonnes of waste rock. Waste rock dumps are proposed around the perimeter of the pit (Figure 1.1-3). This includes the flat area between the proposed pit and Schaft Creek.

A detailed water management plan has yet to be developed for the Project. A water management plan will be included in the next level of economic assessment (pre-feasibility) and the next Project description update. A waste water discharge is expected from the tailings facility, waste rock dumps and domestic waste water treatment plant. The management plan will detail the plans to minimize natural drainage into the tailings facility, the pit and the waste rock dumps. Pit water will be pumped to the tailings facility.





	Mess Creek Road Alignment
	Tahltan Highland Alignment
	Conveyor
	Road
	Airstrip
	Camp
	Mill Site
	Pit (Conceptual Limit)
	Tailings Impoundment
	Top Soil
	Waste Rock Dump

1:300,000

0 5 10

Kilometres

Projection: UTM9, NAD83

FIGURE 1.1-4

# Proposed Access Road Alignment for the Schaft Creek Project



A new airfield will be constructed to the east of the pit (Figure 1.1-3). The Project will be a fly-in, fly-out operation. The new landing strip will be capable of handling a Boeing 737. Other facilities include a terminal building, fuelling, maintenance and control facilities.

A permanent camp will be constructed to support a staff of approximately 500 employees. Other facilities include truck shop, warehouse, administration, maintenance laboratory, explosives storage, water treatment facilities and potable water storage.

Copper Fox has targeted the end of 2008 for submission of their Environmental Assessment Application and full Feasibility Report. Screening of the EA Application plus the 180 day review period will result in Project approval as early as July 2009. Copper Fox will likely seek concurrent permitting for strategic permits to facilitate the timely construction of key Project components. Construction is estimated to take two and half years. Thus, production could begin by early 2012.

## **1.2 Hydrological Setting**

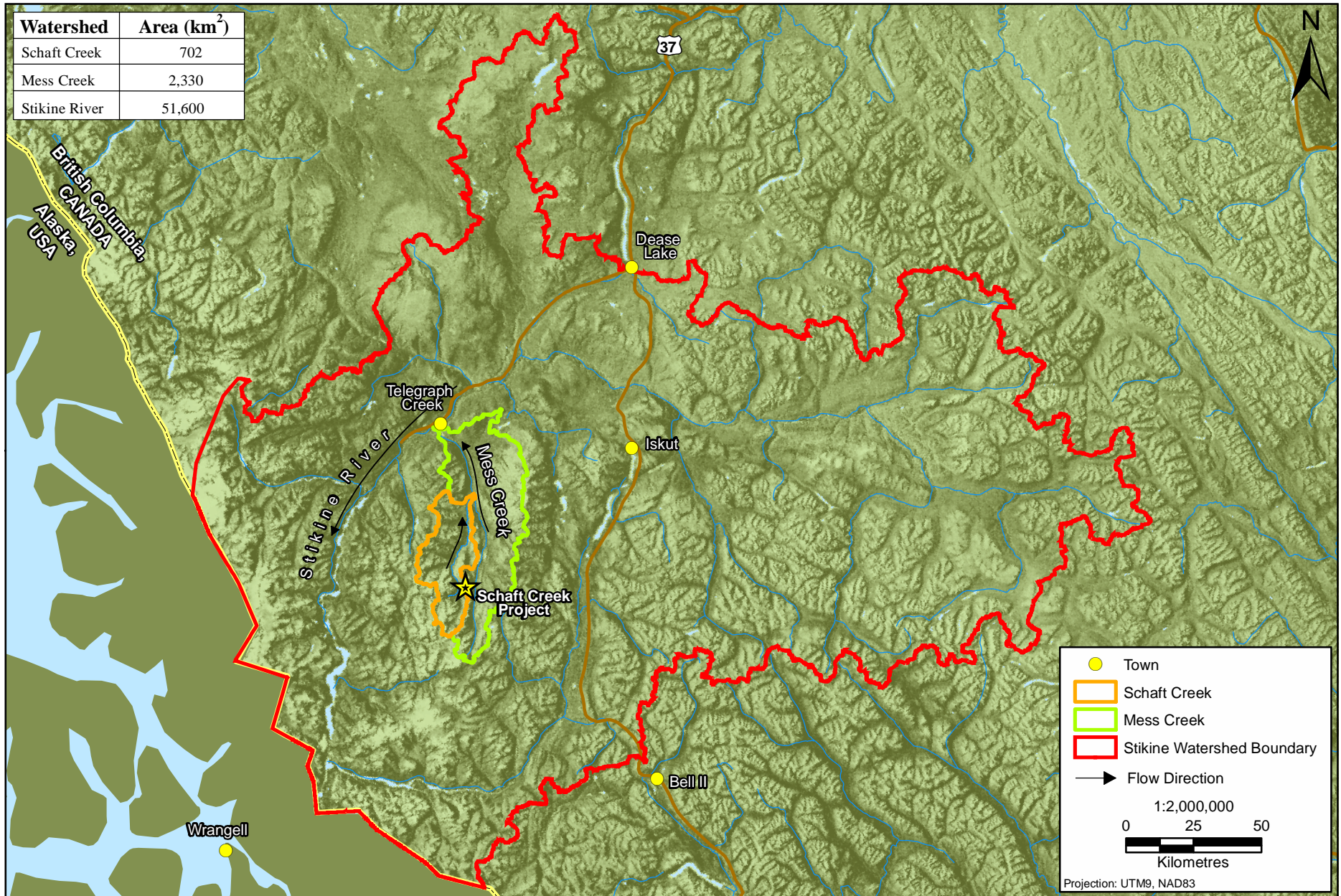
The Project area lies within tributary catchments of the Stikine River (51,600 km<sup>2</sup>) (Figure 1.2-1). The majority of mine site infrastructure including the open pit will be located in the Schaft Creek watershed (702 km<sup>2</sup>). Schaft Creek is a tributary of Mess Creek (2,330 km<sup>2</sup>), which in turn flows into the Stikine River near the village of Telegraph Creek. After its confluence with Mess Creek, the Stikine River flows to the southwest discharging to the Pacific Ocean near Wrangell, Alaska.

Based on the existing mine plan, proposed sites of the main Project components are dispersed over a number of watersheds and sub-watersheds (Table 1.2-1, Figure 1.2-2).

**Table 1.2-1  
Hydrological Setting of Main Project Components**

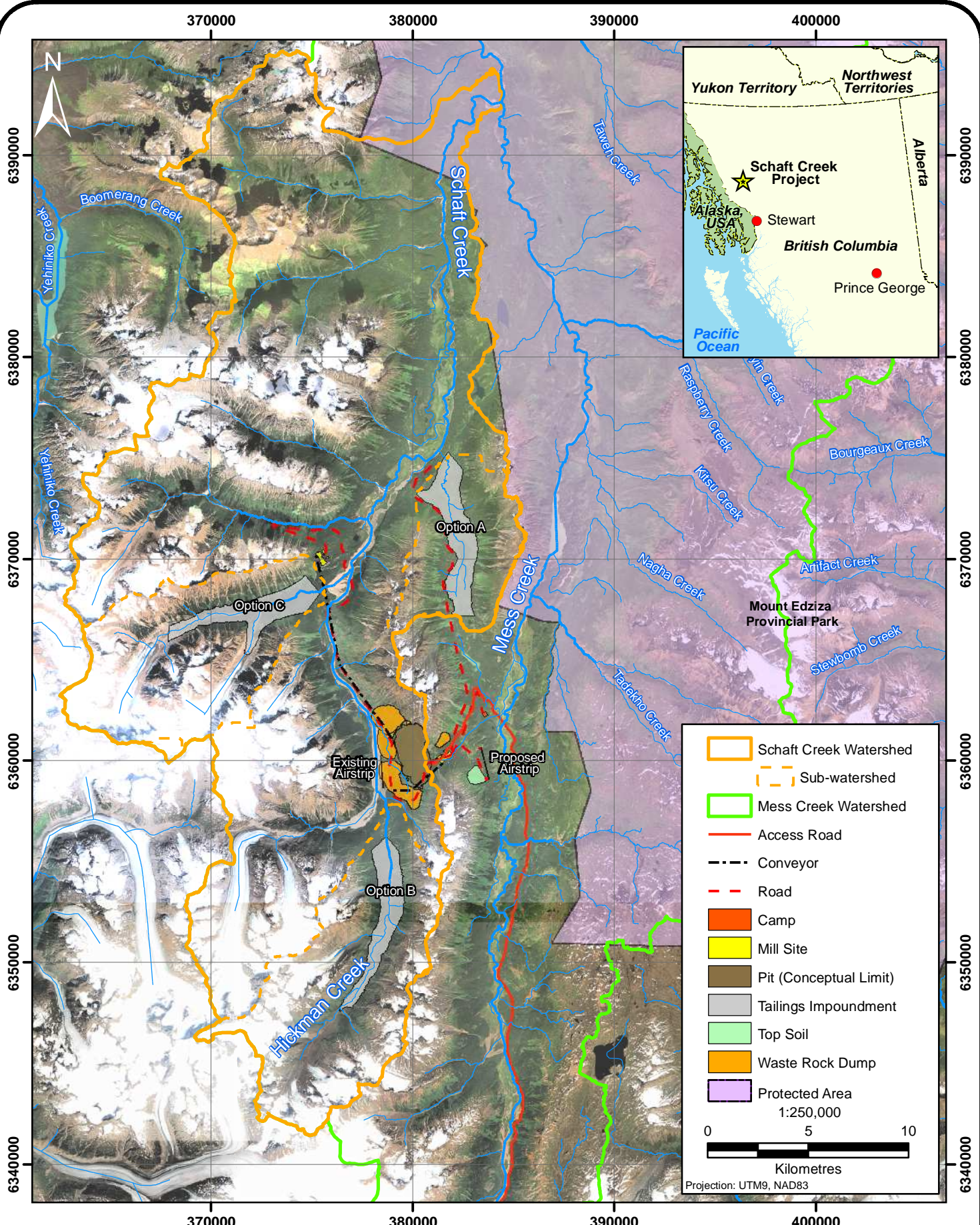
<b>Watershed</b>	<b>Area (km<sup>2</sup>)</b>	<b>Tributary of</b>	<b>Proposed Project components located within catchment</b>
Hickman Creek	87.3	Schaft Creek	Tailings Option B
Skeeter Lake	38.6 <sup>a</sup>	Schaft Creek	Tailings Option A
Tailings Option C	75.6	Schaft Creek	Tailings Option C
Schaft Creek	702	Mess Creek	Open pit; North, West, and South wasterock dumps; mill site, and all components in Hickman, Skeeter, and Tailings Option C watersheds
Mess Creek	2,330	Stikine River	Access road, airstrip, mill site, operations camp, East wasterock dump, and all components in the Schaft Creek watershed

<sup>a</sup> Area at confluence of the Skeeter Lake outflow creek and Schaft Creek.



**Regional Hydrological Setting of the Schaft Creek Project**

FIGURE 1.2-1



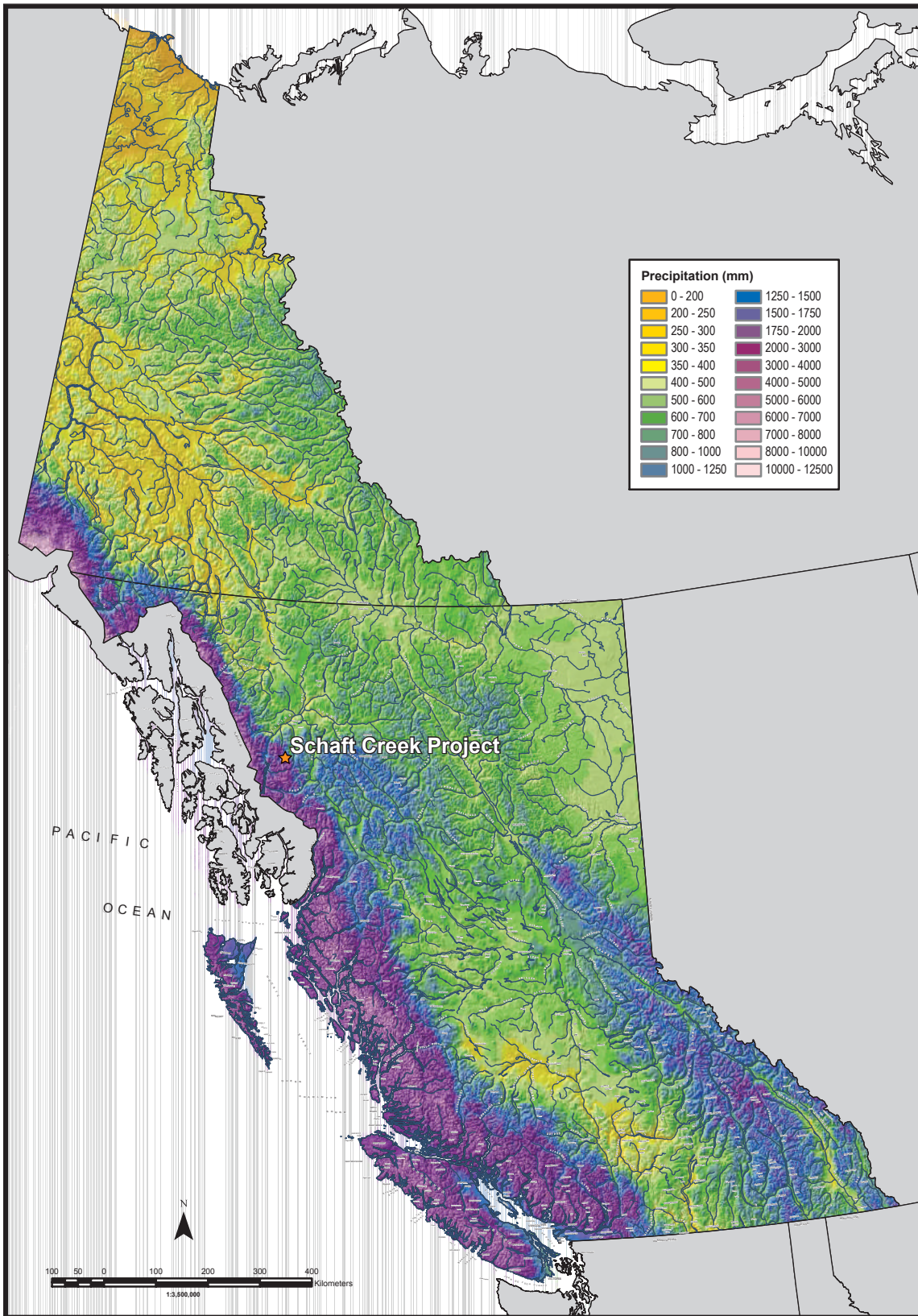
The Project area watersheds lie within the Tahltan Highland of the Boundary Ranges and within a transition zone between the wet coastal region and the drier interior of British Columbia. The regional hydroclimate of north-western British Columbia is dominated by weather systems generated over the Pacific Ocean and is strongly influenced by orographic effects caused by mountainous topography (Figure 1.2-3). The watersheds contain mountain peaks with elevations in excess of 2,500 m. Rivers typically flow in deeply entrenched north-south valleys (Plate 1.2-1 to 1.2-4). Headwater areas of the main Project area watersheds can be substantially glacierized (*e.g.*, Hickman Creek, Schaft Creek), although lower elevation sub-watersheds do exist that lack glaciers (*e.g.*, Skeeter Lake Watershed).



**Plate 1.2-1. Schaft Creek downstream of SC-2, view towards the north.**

Based on data from regional hydrometric monitoring stations operated by the Water Survey of Canada (WSC), a typical hydrological year for watercourses near the Project area can be divided into four main flow periods:

- Winter: characterized by snow and/or ice covered streams with low to negligible stream flow depending on the elevation of the stream and catchment area.
- Spring/freshet: characterized by high flows due to snowmelt and rain-on-snow events. This is typically the period that contains the annual peak flow.
- Summer: characterized by moderate flows, with flow rates decreasing throughout summer resulting from a diminishing input from snowmelt. Flows from heavily glaciated catchments will be supplemented by glacial melt. Peak flow events are supplied primarily by rainfall.



Produced by: Environment Canada, Applications & Services, Data Management Section. March 28, 2002

FIGURE 1.2-3



### Variation in Annual Precipitation Across British Columbia and the Yukon



**Plate 1.2-2. Schaft Creek, downstream of SC-2, view south towards LaCasse Mountain.**



**Plate 1.2-3. Mess Creek with view towards the north and Mount LaCasse.**



**Plate 1.2-4. Skeeter Lake, view to the north**

- Late Summer / Fall: characterized by generally moderate to low flows, but interrupted by rain-fed storm events and rain-on-snow events. Generally, peak flows during the fall remain below the magnitude of the freshet peak flows but can exceed freshet flows if a large precipitation event occurs primarily as rainfall. Between rainstorms, baseflow levels declines towards low winter flows as more and more precipitation falls in the form of snow and is stored within the snowpack.



## 2. BASELINE HYDROLOGICAL MONITORING PROGRAM

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## **2. Baseline Hydrological Monitoring Program**

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This section describes the methodology and provides results from the 2007 baseline surface hydrology monitoring program in the Schaft Creek Project area.

### **2.1 2006 Baseline Program**

In the spring of 2006, eight automated hydrometric stations were installed and operated through the Schaft Creek Project area. A total of 36 manual flow measurements were made in 2006 that produced reliable stage-discharge rating curves for most of the hydrometric stations. Although the stage-discharge relationships for most stations were well-defined, two (SC-1 and MESS-1) were based on relatively few manual flow measurements.

The automated station network monitored flows from most of the area surrounding the proposed pit, plant site and tailings option locations. The proposed site of Tailings Option C was not monitored in 2006. Two of the automated stations were damaged (HC-1, SC-1) and a third (HCTR-1) experienced considerable channel geometry changes during high flow events.

The 2006 monitoring program was not able to capture the onset of the spring freshet in the Project area. Installation of the stations took place at the end of May; however the onset of the freshet in the study area typically occurs in late April.

The 2006 program was fully documented in the *Schaft Creek Project 2006 Hydrology Baseline Report* (Rescan, 2007).

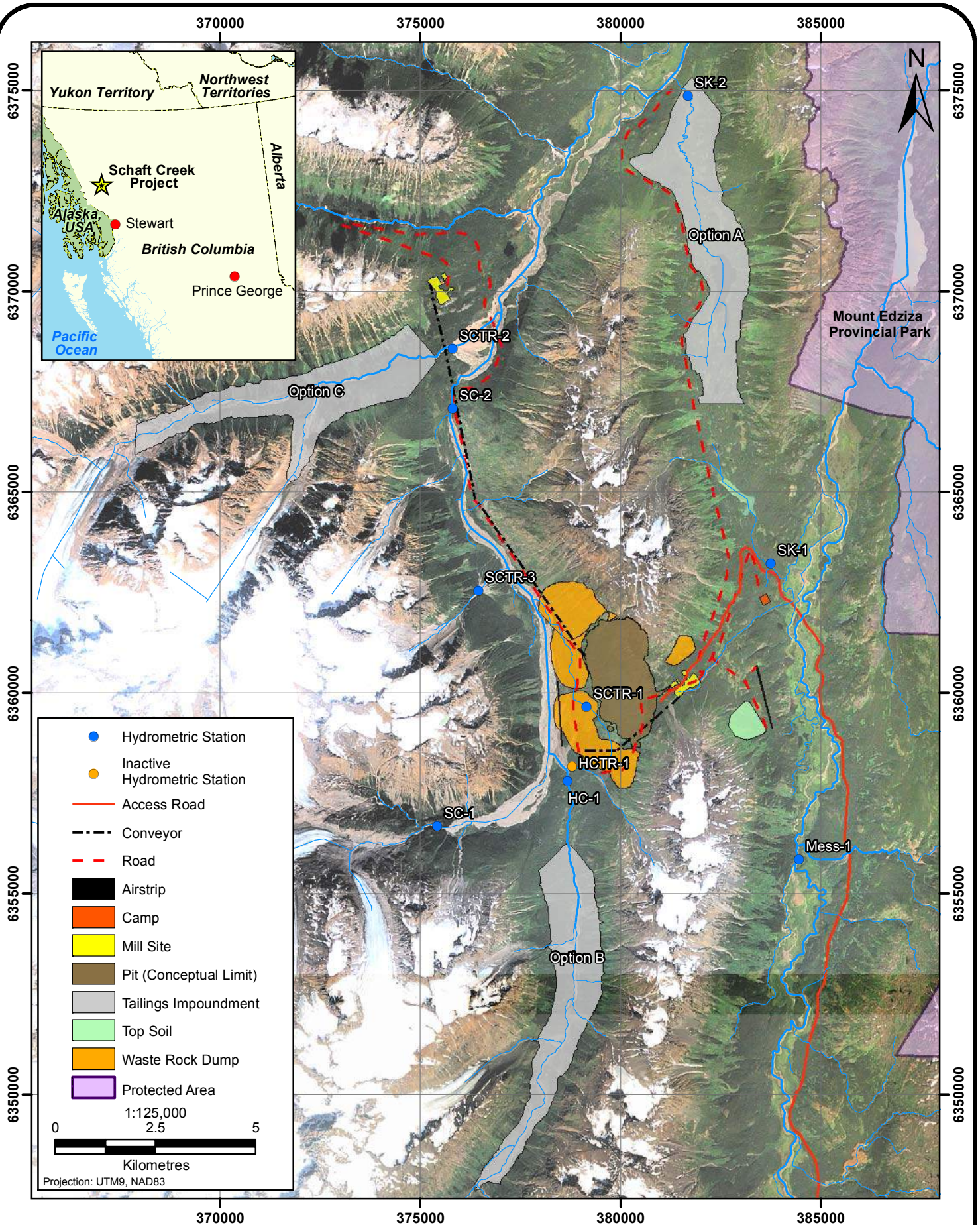
### **2.2 2007 Baseline Program**

#### **2.2.1 Monitoring Station Network**

Nine automated hydrometric monitoring stations were operated within the Schaft Creek and Mess Creek drainages as part of the baseline hydrometric monitoring program (Figure 2.2-1, Table 2.2-1).

Seven of the monitoring stations (HC-1, SC-1, SC-2, SCTR-1, SK-1, SK-2, and MESS-1) operated during 2007 were located at sites where hydrometric monitoring had taken place in 2006. At two of these sites (HC-1 and SC-1), new installations were constructed in the spring of 2007 that replaced stations damaged in 2006. At the five other sites, stations were operated using the same infrastructure as 2006.

Two new monitoring sites (SCTR-2, SCTR-3) were established with automated stations in the spring of 2007. SCTR-2 (Plate 2.2-1) was installed to monitor runoff from Tailings Option C Creek. SCTR-3 (Plate 2.2-2) was installed to act as a reference station to SCTR-1 and replaced the HCTR-1 station that was operated in 2006 but was subsequently deemed to be an inappropriate monitoring site due to activities of the main camp that resulted in multiple changes in the hydraulics of the monitoring station throughout 2006.



# 2007 Automated Hydrometric Monitoring Network

FIGURE 2.2-1



**Plate 2.2-1. SCTR-2 automated hydrometric station, newly installed in 2007.**



**Plate 2.2-2. SCTR-3 automated hydrometric station, newly installed in 2007.**

## **Baseline Hydrological Monitoring Program**

At each station a Terrascience pressure transducer was paired with an ELF2 data logger that recorded water level at ten minute intervals. Water level data was translated into streamflow using rating curves developed at each station.

**Table 2.2-1  
2007 Automated Hydrometric Monitoring Stations**

Station	Location <sup>a</sup>	Drainage Area (km <sup>2</sup> )	Median Elevation (m)	Existing/ New Site	Period of Operation	Notes
HC-1	378,677; 6,357,810	87.3	1,620	Existing	May 1 to present <sup>b</sup>	New more robust anchor structure installed at same location as 2006 structure; as of December 7, 2007 station in 0.56 m of water therefore kept active
SC-1	375,421; 6,356,680	48.3	1,870	Existing	May 24 to December 8	New anchor structure installed at a more sheltered location than in 2006 but within 5 m of 2006 station
SC-2	375,802; 6,367,093	216.0	1,330	Existing	May 23 to November 17	-
SCTR-1	379,153; 6,359,662	5.5	1,060	Existing	April 30 to September 8	-
SCTR-2	375,557; 6,368,569	75.6	1,571	New	May 23 to November 18	New station, monitors flow from Tailings Option C Creek
SCTR-3	376,443; 6,362,550	8.1	1,856	New	June 2 to November 18	New station to act as reference to SCTR-1, replaces former HCTR-1 station
SK-1	383,751; 6,363,227	16.8	1,220	Existing	April 30 to November 16	-
SK-2	381,688; 6,374,886	38.6	1,090	Existing	April 30 to November 17	-
MESS-1	384,455; 6,355,850	212.7	1,370	Existing	April 30 to November 16	-

<sup>a</sup> UTM NAD 83.

<sup>b</sup> At the time of production of this report (March 2008).

The monitoring period varied between the stations due to safety and access constraints. Monitoring was initiated as early in the spring as possible. Monitoring began at the majority of the stations in late April to early May.

However, the monitoring period for four stations (SC-1, SC-2, SCTR-2, and SCTR-3) was delayed until late May and early June. Avalanche concerns at SC-1 delayed access to the station until later in the spring. The installation of the new stations at SCTR-2 and SCTR-3 required that the majority of the snow and ice was gone in order to select a suitable monitoring location. Due to low water levels persisting late in the spring at SC-2 relative to the station, initiation of monitoring was not required until late May.

Typically the stations are demobilized in late October, at the end of the open-water period. During the winter rating curves developed during summer months are generally not applicable for ice covered conditions. In addition, ice can damage the monitoring equipment. All but one (HC-1) of the automated stations were demobilized for the 2007/2008 winter. During the last site visit of the year (December 7), the water level at HC-1 was sufficiently deep to ensure that the pressure

## Baseline Hydrological Monitoring Program

transducer at the station would remain submerged throughout the winter, protecting it from freezing conditions. Although the stage data collected during this time may not be applicable to the established rating curve, useable data will be recorded as soon as open-water conditions return.

### 2.2.2 Manual Flow Measurements

Manual flow measurements were conducted throughout the year. When possible, manual flow measurements were obtained by the velocity-area method using a handheld velocity meter. During warmer periods a Swoffer velocity meter was employed, while during the winter (when the Swoffer meter routinely freezes) a Sontek Flowtracker acoustic Doppler velocity meter was employed. Standard provincial methodologies for manual flow measurements were adopted (MELP, 1998); current velocities were measured at 60% of the flow depth of water. Typically 20 to 30 measurements were taken across the width of a channel, with the aim of having no one measurement being more than 10% of the total discharge. The accuracy of manual flow measurements is affected by flow and channel conditions at each site, but should be less than  $\pm 15\%$ .

For much of the year, flow conditions were too dangerous to allow field personnel to cross streams in the area. Therefore, salt dilution flow gauging was used as an alternate flow measurement technique to handheld meters that require personnel to enter the streamflow. Accuracy of the salt dilution technique is expected to be within 10% obtained by the conventional velocity-area technique. In some situations, such as high gradient, highly turbulent streams it is believed that salt dilution gauging produces better results than the velocity-area technique. For the purpose of this study, the error associated with the salt dilution method is assumed to be  $\pm 15\%$ .

At MESS-1, flow measurements were limited to the low flow periods of January to April and November to December. During the open water season flows at MESS-1 are too deep and swift to allow field personnel to perform velocity-area measurements and the relatively uniform flow and multiple channels of the creek render the salt dilution gauging method inappropriate.

In total, 70 manual flow measurements were conducted during the 2007 monitoring program (Table 2.2-2, Appendix 1).

**Table 2.2-2  
Summary of Manual Flow Measurements**

Station	Date	Stage (m, referenced to pressure transducer)	Flow (m <sup>3</sup> /s)	Measurement Technique
HC-1	January 25	- <sup>a</sup>	0.729	Flowtracker
	March 27	- <sup>a</sup>	0.354	Flowtracker
	May 1	0.09	0.389	Swoffer
	May 22	0.32	3.30	Swoffer
	June 23	0.55	9.94	Salt Dilution
	August 5	0.72	9.22	Salt Dilution
	September 9	0.66	7.63	Salt Dilution

(continued)

## Baseline Hydrological Monitoring Program

**Table 2.2-2  
Summary of Manual Flow Measurements (continued)**

Station	Date	Stage (m, referenced to pressure transducer)	Flow (m <sup>3</sup> /s)	Measurement Technique	
SC-1	December 9	0.56 <sup>b</sup>	0.283	Flowtracker	
	January 25	- <sup>a</sup>	0.619	Flowtracker	
	March 27	- <sup>a</sup>	0.045c	Flowtracker	
	May 1	- <sup>a</sup>	0.123	Swoffer	
	May 24	0.35	1.07	Swoffer	
	June 23	0.65	7.09	Salt dilution	
	August 5	0.97	8.91	Salt dilution	
	September 9	0.95	11.7	Salt dilution	
	November 18	0.76 <sup>b</sup>	0.239	Flowtracker	
	December 7	0.75 <sup>b</sup>	0.057	Flowtracker	
SC-2	January 24	- <sup>a</sup>	1.03	Swoffer	
	March 27	- <sup>a</sup>	0.781	Flowtracker	
	April 30	- <sup>a</sup>	1.46	Swoffer	
	May 23	-0.05	9.79	Salt dilution	
	June 23	0.59	23.6	Salt dilution	
	August 5	0.79	25.2	Salt dilution	
	September 9	0.22	15.6	Salt dilution	
	November 17	- <sup>a</sup>	1.69	Flowtracker	
	December 7	- <sup>a</sup>	0.984	Flowtracker	
	SCTR-1	January 24	- <sup>a</sup>	0.042	Swoffer
March 27		- <sup>a</sup>	0.023	Flowtracker	
April 30		0.16	0.088	Swoffer	
May 23		0.40	0.723	Swoffer	
June 23		0.40	0.830	Salt dilution	
August 5		0.32	0.415	Salt dilution	
September 9		0.20	0.250	Salt dilution	
December 7		- <sup>a</sup>	0.006	Flowtracker	
SCTR-2		May 1	- <sup>a</sup>	0.331	Swoffer
		May 23	0.48	3.515	Swoffer
	June 23	0.72	10.1	Salt dilution	
	August 5	0.86	12.3	Salt dilution	
	September 9	0.69	9.51	Salt dilution	
SCTR-3	December 7	- <sup>a</sup>	0.417	Flowtracker	
	May 24	0.26	0.313	Swoffer	
	June 22	0.40	0.825	Salt dilution	
	August 6	0.44	1.03	Salt dilution	
	September 9	0.45	1.42	Salt dilution	
SK-1	December 7	- <sup>a</sup>	0.017	Flowtracker	
	January 25	- <sup>a</sup>	0.083	Flowtracker	
	March 27	- <sup>a</sup>	0.044	Flowtracker	
	April 30	0.01	0.137	Swoffer	

(continued)

## Baseline Hydrological Monitoring Program

**Table 2.2-2  
Summary of Manual Flow Measurements (completed)**

Station	Date	Stage (m, referenced to pressure transducer)	Flow (m <sup>3</sup> /s)	Measurement Technique
SK-2	May 22	0.22	0.829	Swoffer
	June 22	0.27	1.65	Salt dilution
	August 5	0.18	0.785	Salt dilution
	September 9	0.01	0.480	Salt dilution
	November 16	0.09 <sup>b</sup>	0.132	Flowtracker
	December 7	- <sup>a</sup>	0.038	Flowtracker
	January 24	- <sup>a</sup>	0.328	Flowtracker
	March 27	- <sup>a</sup>	0.239	Flowtracker
	April 30	0.17	0.421	Swoffer
	May 22	0.41	2.49	Swoffer
	June 22	0.56	3.34	Salt dilution
	August 6	0.35	1.55	Salt dilution
	September 8	0.22	0.790	Salt dilution
	November 16	0.14	0.322	Flowtracker
	December 7	- <sup>a</sup>	0.194	Flowtracker
MESS-1	January 25	- <sup>a</sup>	0.971	Swoffer
	March 25	- <sup>a</sup>	0.795	Flowtracker
	April 30	-	2.19	Swoffer
	May 22	0.18	6.96	Swoffer
	November 16	- <sup>a</sup>	2.32	Flowtracker
	December 7	- <sup>a</sup>	1.00	Flowtracker

<sup>a</sup> Station not active or water level below level of pressure transducer

<sup>b</sup> Water level influenced by backwater effects from ice encroachment into the channel

### 2.2.3 Stage-Discharge Rating Curves

Manual flow measurements obtained during 2007 were used to extend the data sets used to generate stage-discharge rating curves (rating curves) for each station. Rating curves are used to convert water level (stage) data recorded by the automated hydrometric stations into a continuous stream flow time-series. The quality of a rating curve depends on the number and accuracy of the individual data points used to generate the curve. Flow measurements at the higher end of the flow range are especially important as they aid in confining the high end of the rating curve. This is significant as high flows often require extrapolation beyond the range of the observed data used to generate the rating curve and the rating relationship can change from low flow periods to high flow periods, depending on channel geometry.

Rating curves for each station are provided in Appendix 1 and summarized in Table 2.2-3.

For stations where manual flow measurements conducted in 2007 plotted near the established rating curve, it was assumed that substantial channel changes had not occurred between years. In this case, 2007 data was combined to previous years' data to create a larger data set that covered



## Baseline Hydrological Monitoring Program

a wider range of flow conditions. This approach was taken at five stations: HC-1, SC-2, SCTR-1, SK-1, and MESS-1.

**Table 2.2-3**  
**Summary Statistics of 2007 Stage-Discharge Rating Curves**

Station	Number of Flow Measurements	Equation	r <sup>2</sup>
HC-1	9	$Q = 13.49H^{3.03}$	0.93
SC-1	6	$Q = 12.98H^{1.97}$	0.93
SC-2	8	$Q = 15.32H^{1.48}$	0.95
SCTR-1	10	$Q = 5.75H^{2.76}$	0.93
SCTR-2	5	$Q = 10.42H^{3.95}$	0.97
SCTR-3			
H<0.6 m	5	$Q = 4.17H^{2.63}$	0.98
H>0.6 m	4	$Q = 8.42H^{3.79}$	0.97
SK-1	10	$Q = 10.0H^{2.64}$	0.88
SK-2	6	$Q = 4.95H^{4.22}$	0.96
MESS-1	Manning's equation	$Q = 16.19H^{2.51}$	1.00

For MESS-1, due to the fact that flow measurements were only possible during low flow conditions the rating curve was developed using Manning's equation with surveyed cross section and water slope data. The Manning's roughness coefficient for the equation was calibrated using the observed manual flow measurement data.

For stations where manual flow measurements conducted in 2007 noticeably deviated from the established rating curve, a separate rating equation based only on data collected in 2007 was generated. This approach was taken at one station; SK-2.

New rating curves based only on 2007 data were also required for three stations; SC-1, SCTR-2, and SCTR-3. At SC-1, there was insufficient data in 2006 to establish a rating curve prior to 2007. The SCTR-2 and SCTR-3 stations were newly installed in 2007.

At SCTR-3, two rating curves were required to appropriately represent the stage-discharge relationship at the station under high and low flows. This is due to a substantial increase in channel width for depths greater than 0.6 m that results in flows increasing at a greater rate relative to stream stage than at lower flow levels.

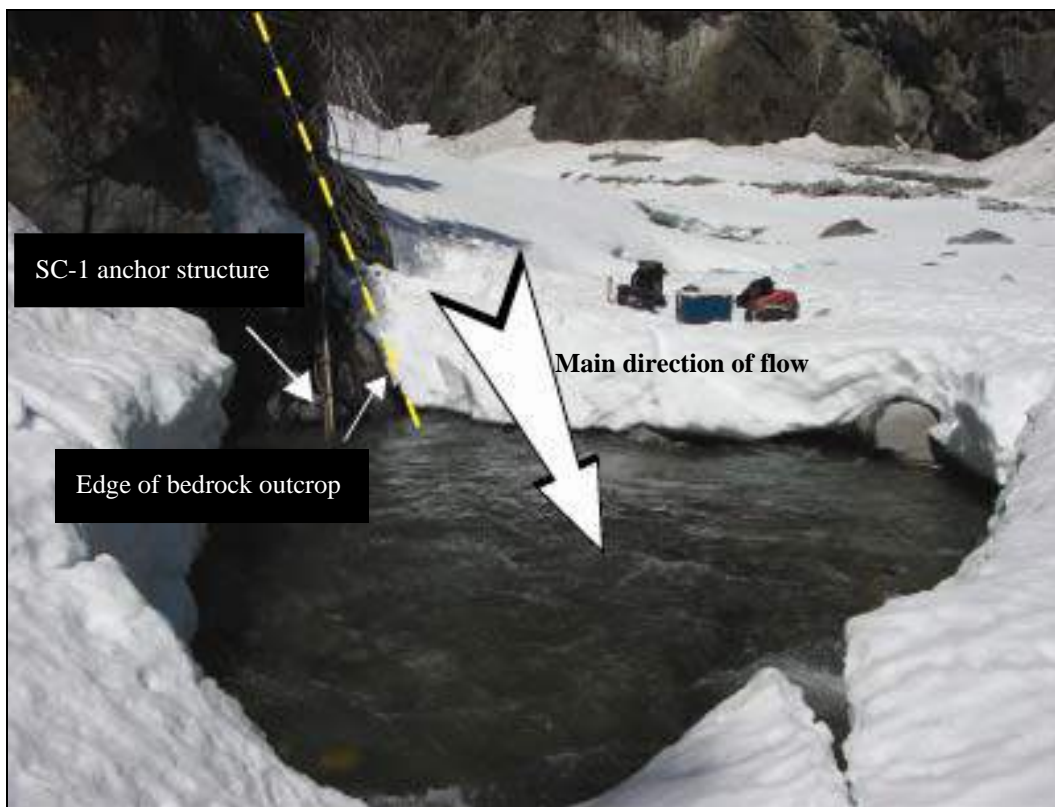
### 2.2.4 Water Level Data

The majority of the automated stations collected good quality water level data throughout the monitoring period. However, issues did arise at the SC-1 and SCTR-1 stations.

In 2006, the original station at SC-1 was damaged early in the monitoring period due to large flows and associated sediment load in the river that prevented data from being collected

throughout the remainder of the year. In the spring of 2007, this station was rebuilt in a more protected location. Unfortunately, the relocation of the station did not result in an improved water level time-series.

The timing of peak stage events at SC-1 was not observed to correlate well with data collected from other stations that were observed to have a strong discharge relationship (Figure 2.2-2). The station was located at the mouth of the canyon that drains the headwaters of Schaft Creek. The pressure transducer of the station was installed during a low flow period in a pool protected by a rock outcrop (Plate 2.2-3). However, during higher flow periods it is possible that a hydraulic jump forms off the tip of the rock outcrop that would change the stage-discharge relationship at that location under varying flow levels.



**Plate 2.2-3. Anchor structure of SC-1.**

At SCTR-1 the data logger unexpectedly stopped recording data on September 8. Data was not collected after this date, however this did not compromise data recorded at this station prior to September 8.

### 2.2.5 Hydrographs

Hydrographs were generated for eight of the nine monitoring locations. These are individually presented in Appendix 2 in graphical and tabular formats. As discussed in the previous section,

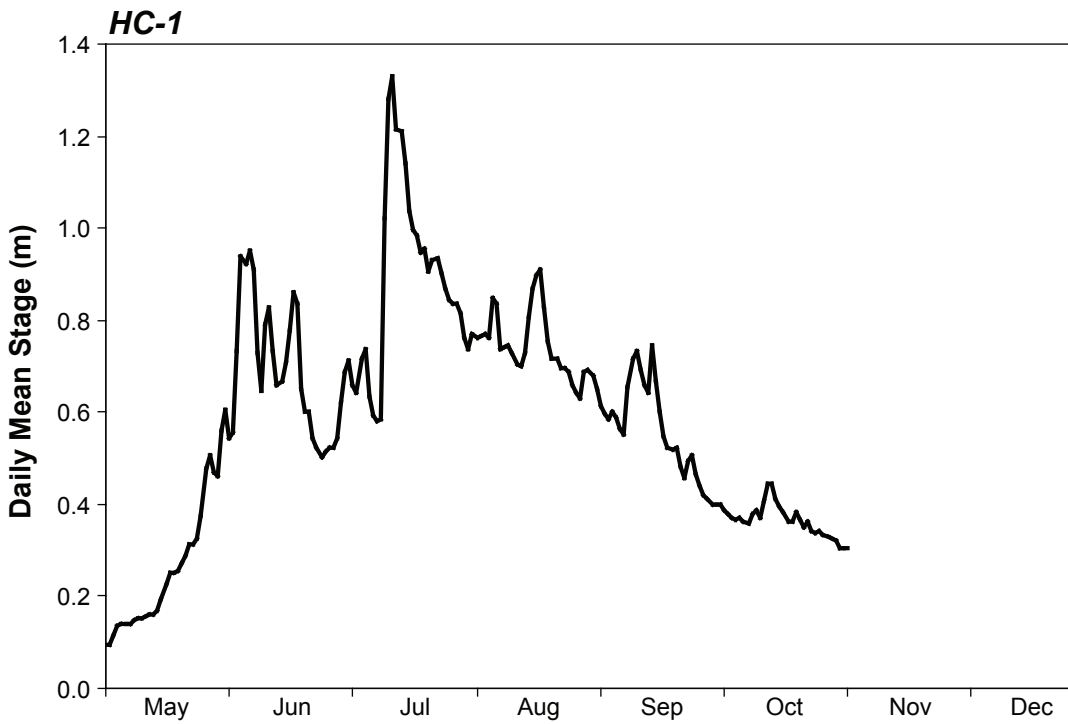
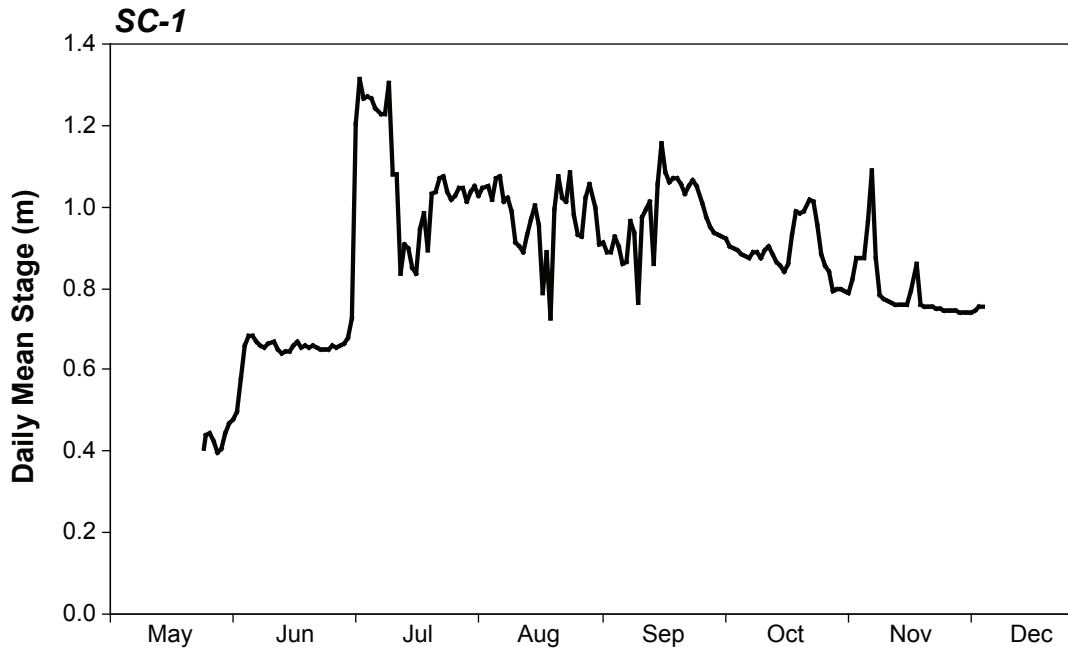


FIGURE 2.2-2



## ***Baseline Hydrological Monitoring Program***

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due the concerns over the hydraulics at the SC-1 station, the recorded stage data is not appropriate for use with the established stage-discharge rating curve. The manual flow measurements conducted during site visits to this location are presented in Appendix 2.

For the operational period of each station, flows were calculated by applying the rating curves presented in Appendix 1 to the recorded stage data. In some cases, when recorded stage data was unreliable or unavailable, flows were estimated using records from nearby stations (if possible). This was required for portions of the year at SC-2 and SCTR-3 as described below.

At SC-2, the water level dropped below the elevation of the pressure transducer for extended periods throughout the summer and fall. During the period of missing data, daily mean flows were estimated based on calculated flows at HC-1 using a relationship developed between the two stations for a period during the summer of concurrent observations (Figure 2.2-3a).

Automated water level monitoring was not initiated at SCTR-3 until early-June, after the freshet had commenced, as described in Section 2.2.4. Prior to automated monitoring at this station, daily mean flows were estimated from calculated flows at HC-1 using a relationship developed between the two stations for a period of concurrent observations during the early spring (Figure 2.2-3b).

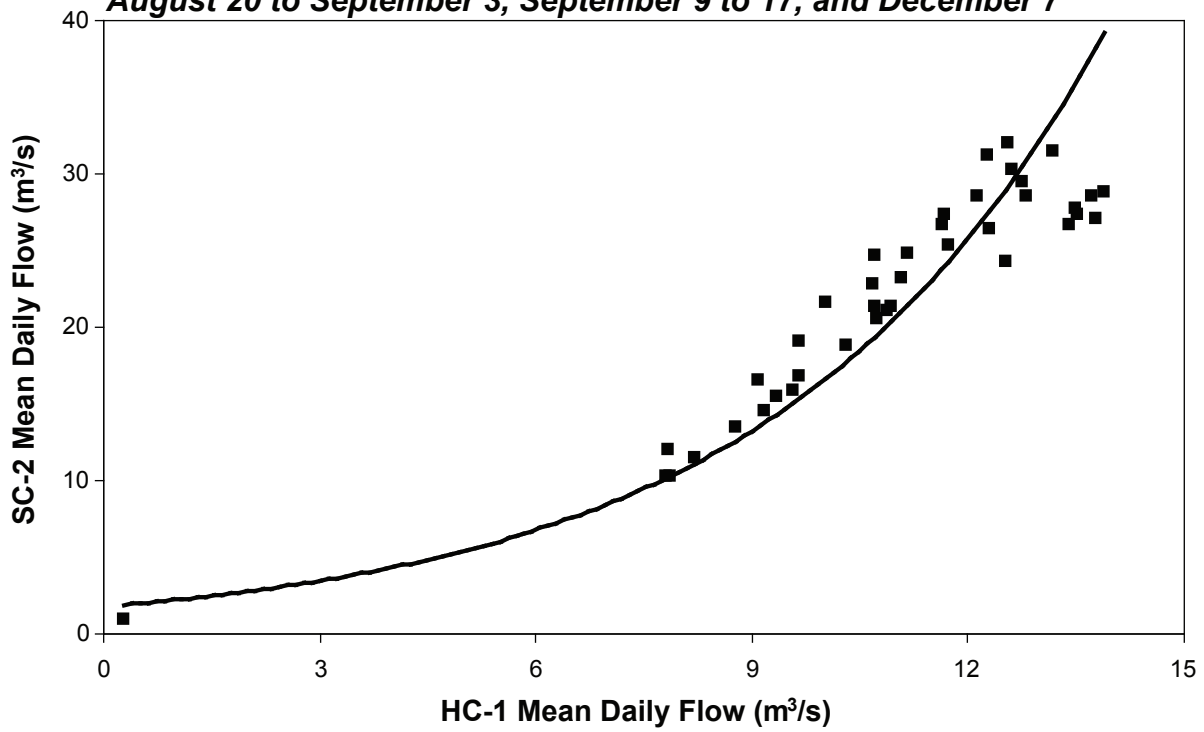
During the winter when the automated stations were inactive, or when ice encroachment into the channel effected the stage-discharge relationship at the station, flows were estimated between site visits (when manual flow measurements were conducted) assuming a logarithmic decay or growth.

Hydrographs for all gauged watersheds are presented as mean daily flow ( $\text{m}^3/\text{s}$ ) in Figure 2.2-4 and as mean daily unit yield ( $\text{L}/\text{s}/\text{km}^2$ ) for the open-water season (May through October) in Figure 2.2-5. Unit yield is a measure of flow normalized to watershed area that allows direct comparison of the hydrological response of watersheds with varying watershed areas.

The onset of the spring freshet occurred in early to mid-May and the winter low flow period had effectively begun by mid-October across the Project area. The hydrological response of larger gauged watersheds (watershed area  $>45 \text{ km}^2$ ) varied from that of the smaller gauged watersheds (watershed area  $<45 \text{ km}^2$ ) throughout much of the open water season.

Larger watersheds include HC-1, SC-2, SCTR-2, and MESS-1. For these watersheds, an initial peak flow event occurred in early June due to snowmelt runoff. Flows remained high through June and July, with additional peak events occurring on or around June 17, July 1, and July 11. The July 11 event which resulted from rainfall and continued snowmelt from residual snow patches proved to be the largest flow event of the year. From August to mid-October flows steadily decreased across the Project area augmented by a number of moderate peak flow events resulting from rainfall runoff. The winter low flow period had effectively begun by mid-October. Although a hydrograph was not calculated for SC-1, this watershed is assumed to have had a similar hydrological response to the other large watersheds.

**SC-2 and HC-1 flows for July 30 to August 14,  
August 20 to September 3, September 9 to 17, and December 7**



**SCTR-3 and HC-1 flows for May 24 and June 3 to July 10**

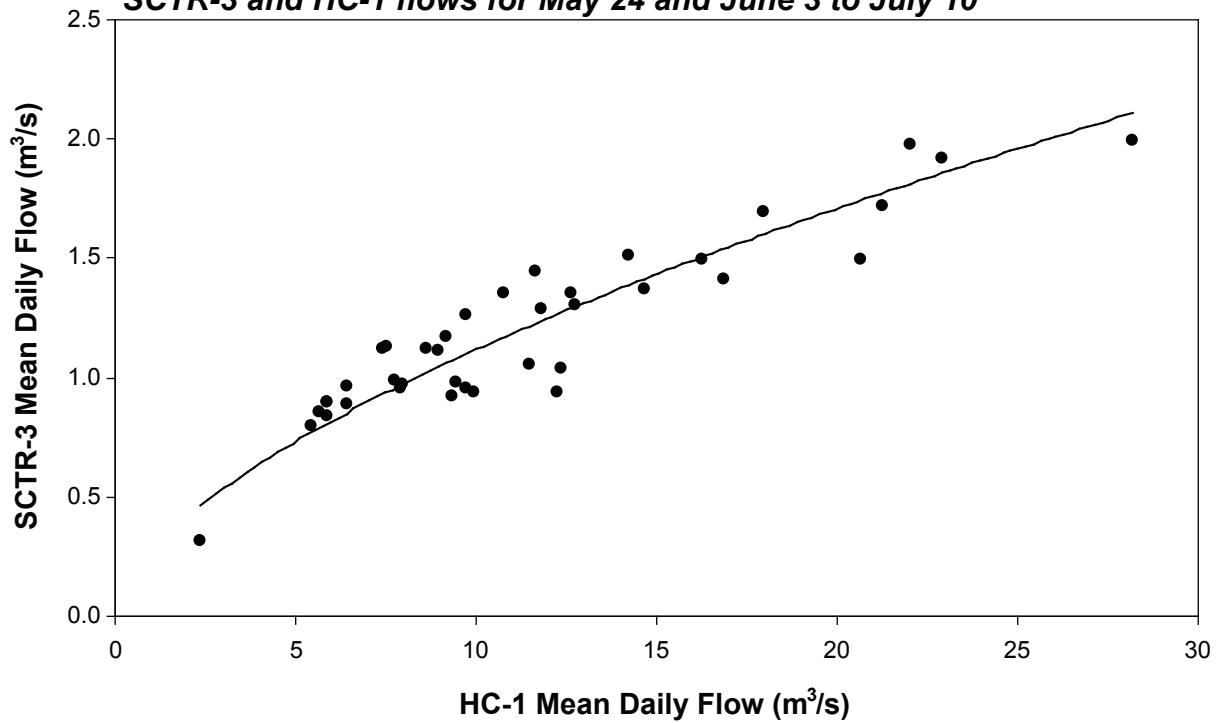


FIGURE 2.2-3



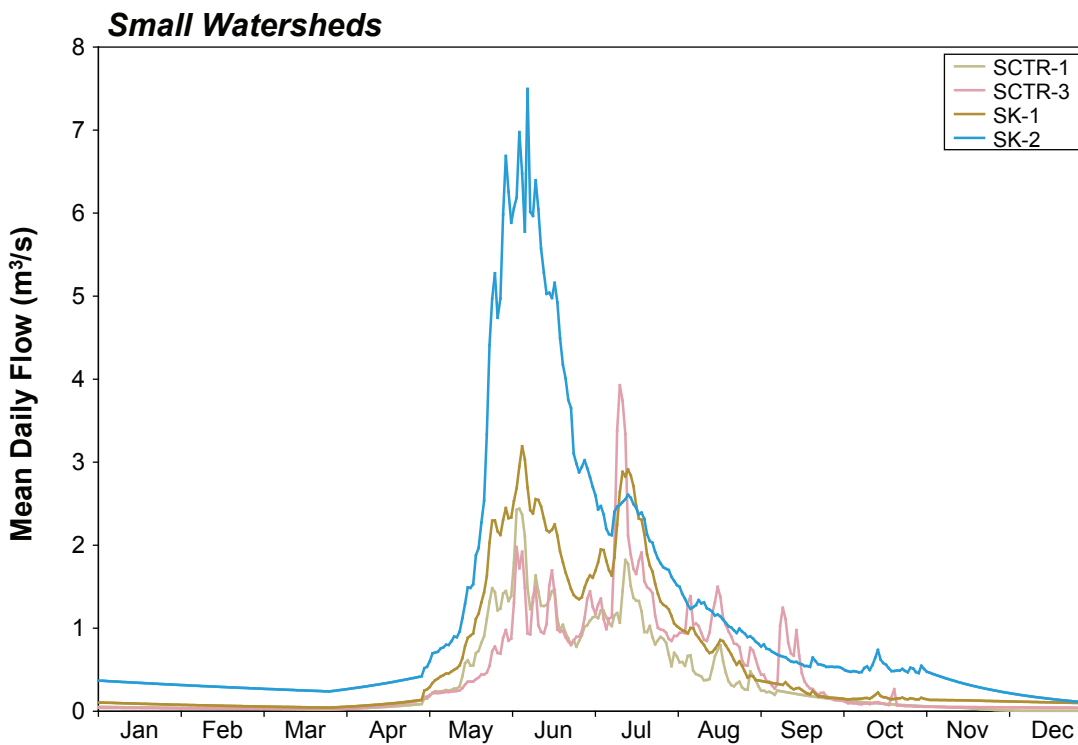
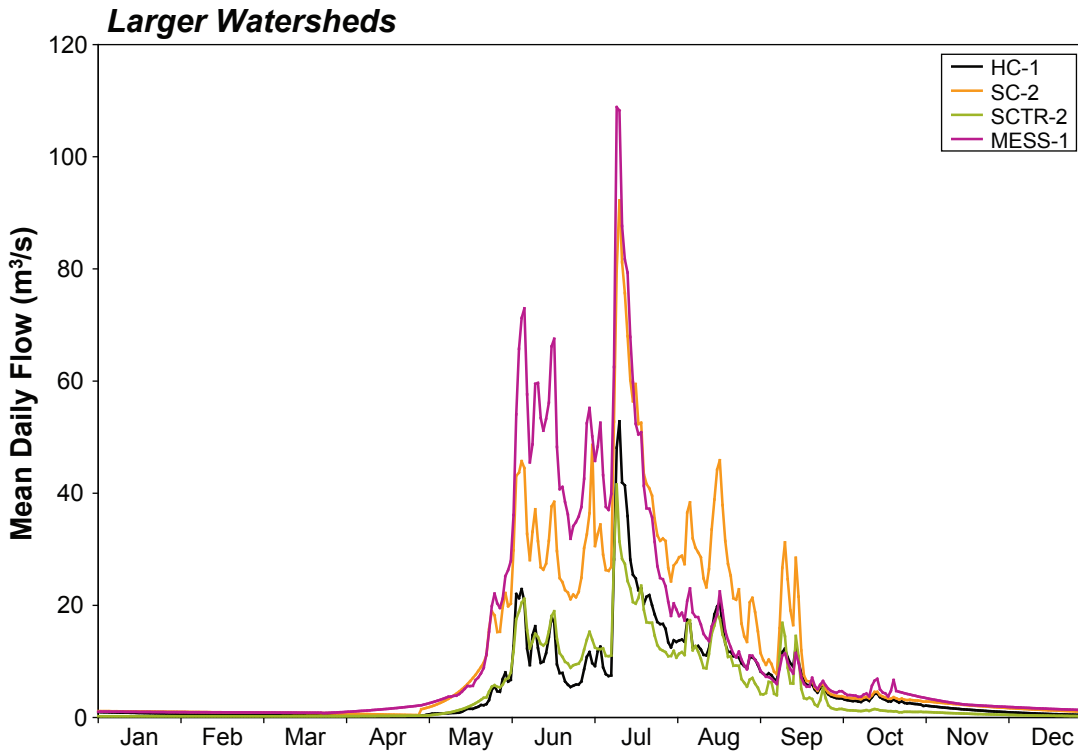


FIGURE 2.2-4



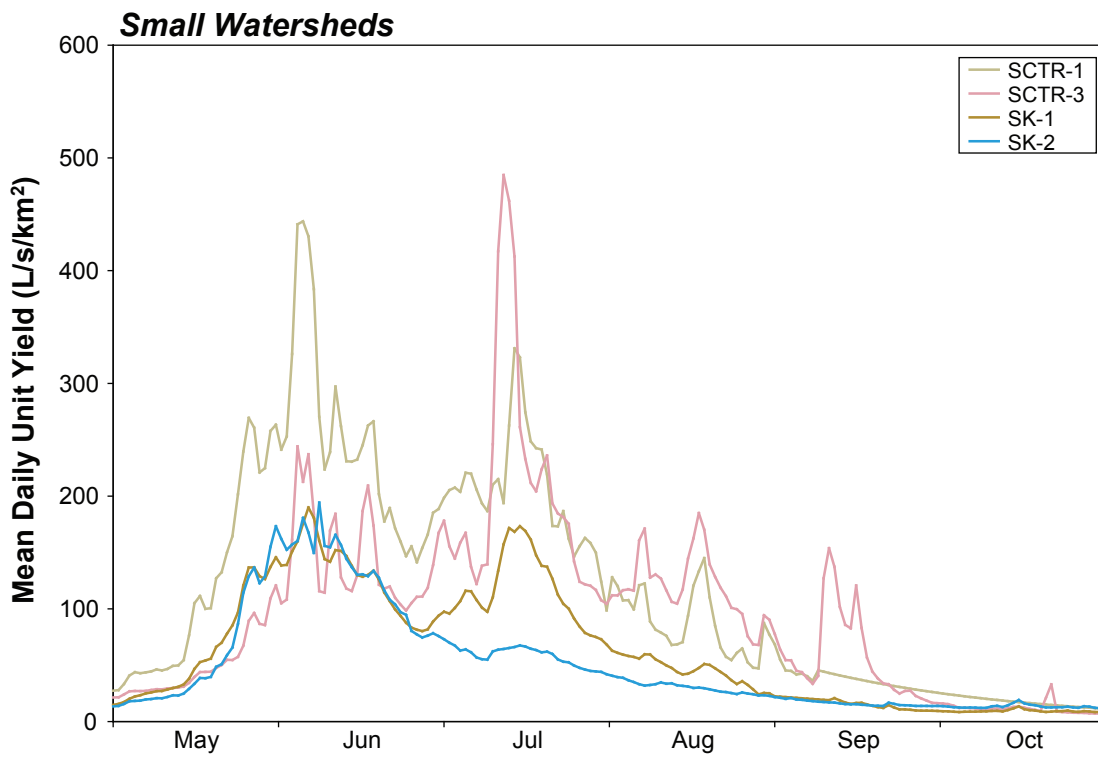
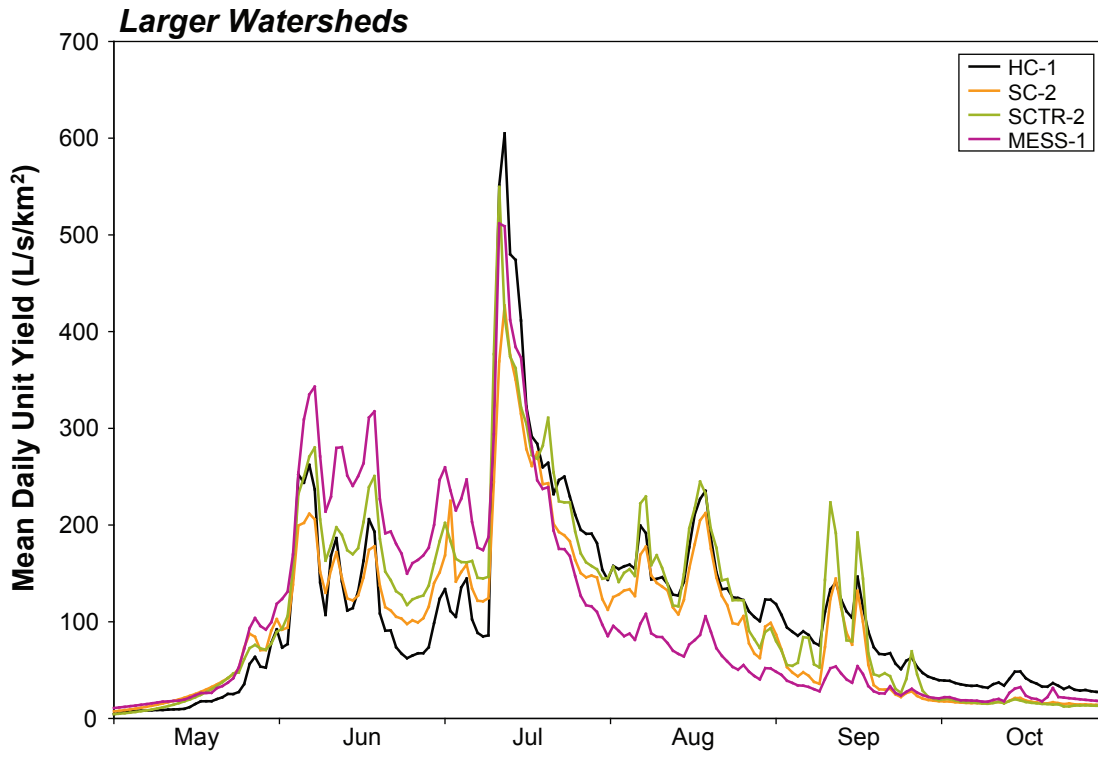


FIGURE 2.2-5



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Smaller watersheds include SCTR-1, SCTR-3, SK-1, and SK-2. The annual hydrological response from SCTR-3 was similar to that of the larger watersheds, while SCTR-1, SK-1, and SK-2, experienced their largest flow event of the year during an early snowmelt event in early June. These catchments have lower median elevations with broader valley bottoms that include substantial lake and wetland complexes. As a result of the lower elevation and broader valley bottoms, the snowpack within these watersheds will tend to melt earlier in the year and over a shorter period of time. Additionally, storage in the lake and wetland complexes is greater later in the summer than early in the freshet, contributing to the smaller response observed from these watersheds during the July 11 event that was the annual peak at SCTR-3 and the larger watersheds.

### 2.2.6 Hydrological Indices

The calculated flows for each hydrometric station can be used to produce a number of important hydrological indices including annual runoff, seasonal runoff distribution, peak flows, and low flows.

#### 2.2.6.1 Annual Runoff

Annual runoff (Table 2.2-4) and mean annual flow (average flow over the entire year) represent the total hydrologic response of a watershed to driving factors such as precipitation and air temperature. Annual runoff was higher in 2007 across the Project area than in 2006. This is likely due to an unusually wet winter in 2006/2007 that produced a very deep snowpack in the region and generated large freshet flows.

In both years, runoff from the Skeeter Lake (SK-2) and Start Lake (SK-1) valleys was substantially lower than runoff from the rest of the gauged catchments.

**Table 2.2-4  
Annual Runoff and Mean Annual Flow**

Station	2006 <sup>a</sup>		2007	
	Annual Runoff (mm)	Mean Annual Flow (m <sup>3</sup> /s)	Annual Runoff (mm)	Mean Annual Flow (m <sup>3</sup> /s)
HC-1	1,690	4.67	1,890	5.24
SC-1	n/a	n/a	n/a	n/a
SC-2	1,520	10.4	1,630	11.2
SCTR-1	1,270	0.22	1,960	0.34
SCTR-2	n/a	n/a	1,880	4.51
SCTR-3	n/a	n/a	1,630	0.42
SK-1	870	0.47	1,080	0.57
SK-2	640	0.78	920	1.12
MESS-1	1,160	7.79	1,760	11.9

n/a = not available, station was either not active (SCTR-2, SCTR-3 in 2006) or stage data not reliable (SC-1).

<sup>a</sup> 2006 differ from annual runoff values presented in the 2006 baseline report (Rescan, 2007), as estimates are based on monthly distribution of the 2007 for the same catchment rather than regional data as originally done.



## **Baseline Hydrological Monitoring Program**

Due to the orographic nature of storms in the region, annual runoff has been found to relate to a watershed's median elevation (Obedkoff, 2001). The relationship between annual runoff and median elevation for gauged catchments in the Schaft Creek Project area is shown in Figure 2.2-6. The on-site data is also compared to mean annual runoff from regional Water Survey of Canada (WSC) records and to data available for the Galore Creek watershed (Rescan, 2005), which is located just west of the Schaft Creek watershed. Regional data presented includes stations that fall within the B.C. hydrologic sub-zone 'S' as defined by Obedkoff, 2001 which includes the Schaft Creek area (Figure 2.2-7).

The Schaft Creek data follows a similar trend to the regional data. Most of the on-site data from 2006 and 2007 plots below the regional mean annual runoff as well as the Galore Creek data from 2005. Based on data from the Iskut below Johnson (ID 08CG001), Nass (ID 08DB001), and Kispiox (ID 08EB004) WSC stations 2006 (the last year that a complete year of flow data was available) had slightly lower than average runoff. After additional WSC data becomes available for 2007 to compare to the on-site data, conclusions may be drawn on how representative the on-site data from 2006 and 2007 are of 'normal' runoff conditions in the Project area. However, based on the geographic location of the Schaft Creek area in the eastern portion of sub-zone 'S' it is expected that runoff would be lower in the Project area than for more western drainages as described in Section 1.2.

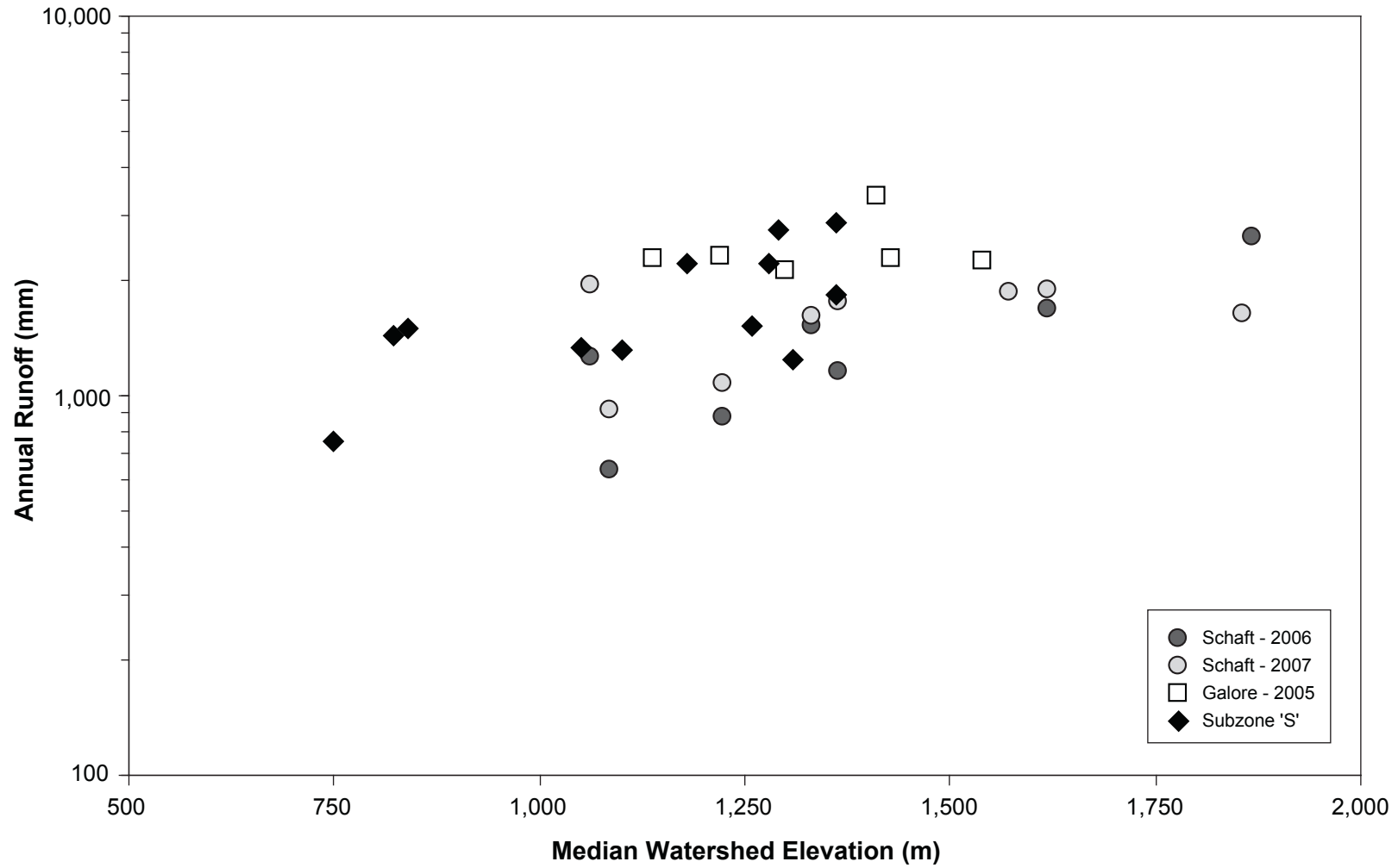
### **2.2.6.2 Seasonal Runoff Distribution**

The seasonal distribution of runoff is relatively similar across the Project area (Table 2.2-5, Figure 2.2-8). The majority (62 to 79%) of runoff was concentrated in June, July, and August at each monitoring location. However, for the lower elevation and less glacierized watersheds (SCTR-1, SK-1, and SK-2) the peak runoff month was June, while for the higher elevation and more glacierized watersheds (HC-1, SC-2, SCTR-2, SCTR-3, and MESS-1) the peak runoff month was July. This is consistent with the pattern of annual hydrographs as discussed in Section 2.2.5.

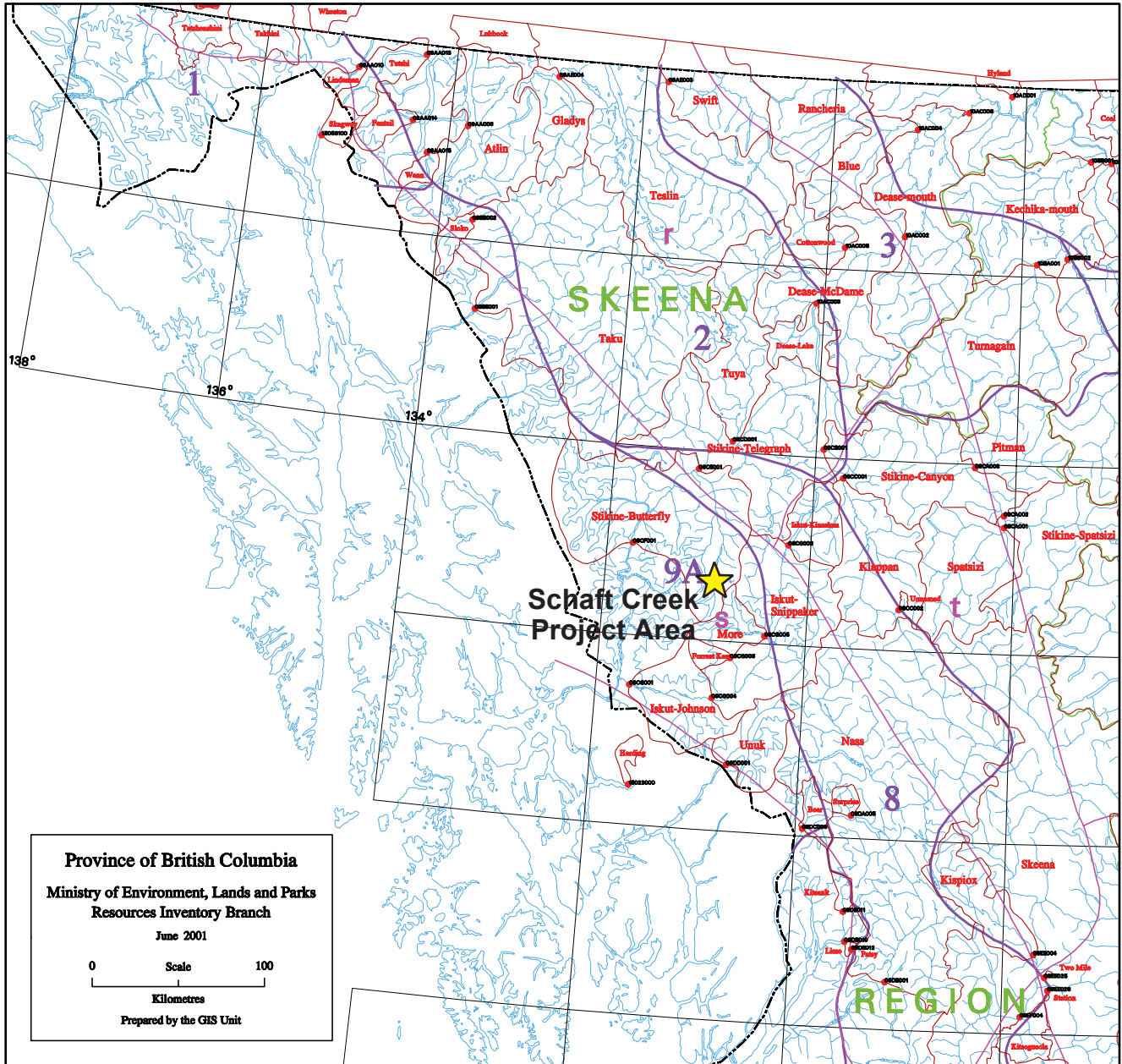
**Table 2.2-5  
2007 Seasonal Runoff Distribution**

<b>Station</b>	<b>Unit</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>
HC-1	mm	25	16	12	10	64	341	647	402	217	93	45	21
	%	1	1	1	1	3	18	34	21	11	5	2	1
SC-1	mm	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
SC-2	mm	13	11	10	7	97	358	560	346	140	43	28	17
	%	1	1	1	0	6	22	34	21	9	3	2	1
SCTR-1	mm	22	15	13	25	311	632	544	234	95	46	18	3
	%	1	1	1	1	16	32	28	12	5	2	1	0
SCTR-2	mm	8	7	8	10	85	454	636	400	193	42	25	12
	%	0.4	0.4	0.4	1	5	24	34	21	10	2	1	1

(continued)



Relationship of Annual Runoff and Median Watershed Elevation for On-Site and Regional Gauged Watersheds



Province of British Columbia  
 Ministry of Environment, Lands and Parks  
 Resources Inventory Branch  
 June 2001  
 0 Scale 100  
 Kilometres  
 Prepared by the GIS Unit

Source: Obedkoff, 2001

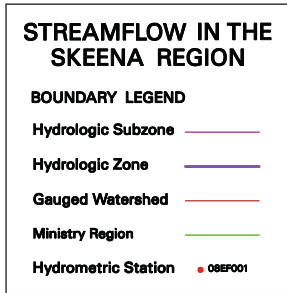
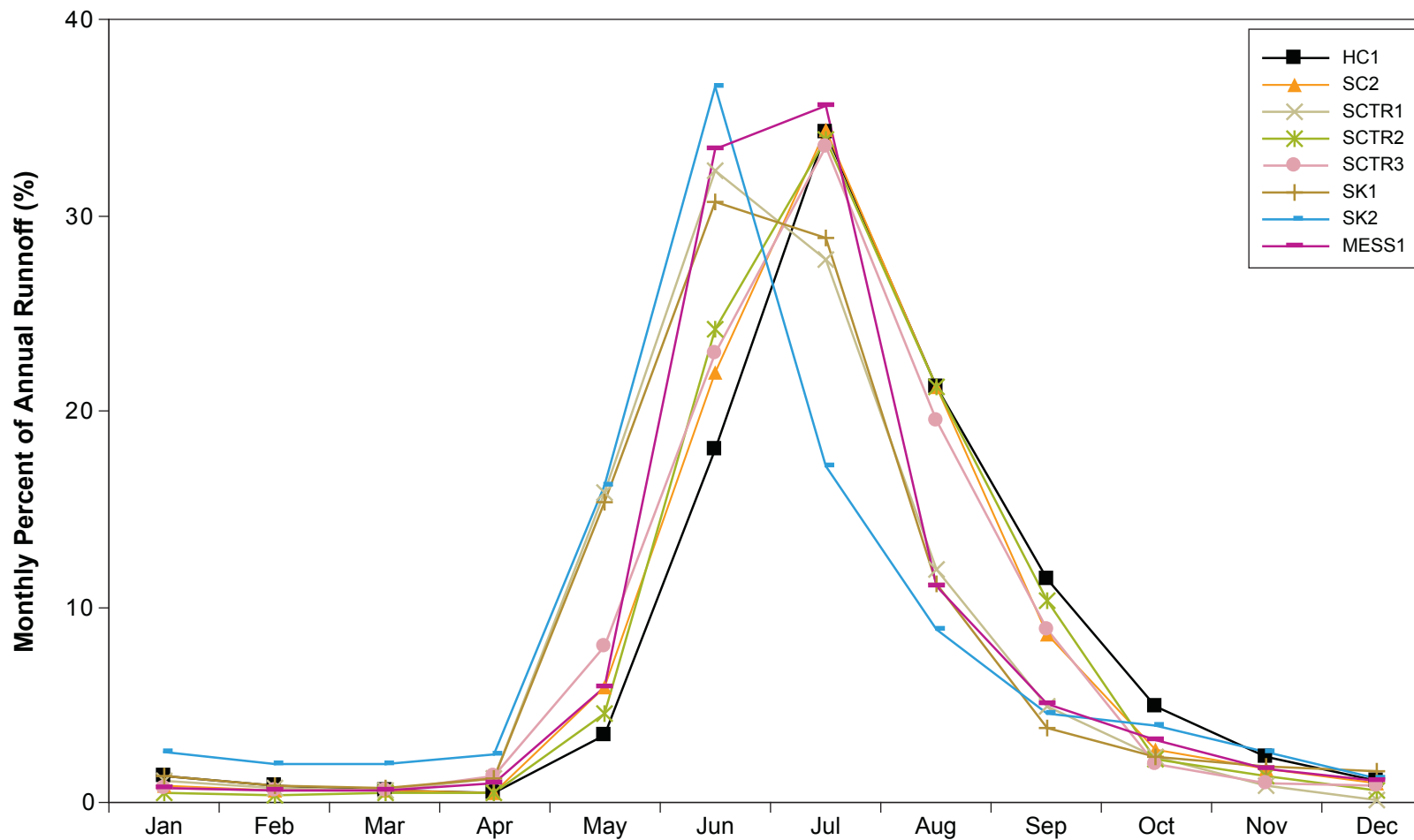


FIGURE 2.2-7



# Hydrologic Zones and Sub-Zones for the Skeena Region



**Table 2.2-5  
2007 Seasonal Runoff Distribution (completed)**

Station	Unit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
SCTR-3	mm	13	10	10	22	131	374	546	318	145	31	16	15
	%	1	1	1	1	8	23	33	19	9	2	1	1
SK-1	mm	15	10	8	14	166	331	311	121	41	25	20	17
	%	1	1	1	1	15	31	29	11	4	2	2	2
Sk-2	mm	24	18	18	22	149	335	157	81	42	36	23	11
	%	3	2	2	2	16	37	17	9	5	4	3	1
MESS-1	mm	13	11	11	18	104	588	626	195	88	56	31	20
	%	1	1	1	1	6	33	36	11	5	3	2	1

n/a = not available, observed stage data not reliable.

### 2.2.6.3 Peak and Low Flows

In 2007, the annual peak flow event observed from the higher elevation HC-1, SC-2, SCTR-2, SCTR-3, and MESS-1 watersheds was a rainfall runoff event that included a snowmelt component which occurred in mid-July (Table 2.2-6). The annual peak flow event observed from the lower elevation watersheds of SCTR-1, SK-1, and SK-2 was an early freshet snowmelt event in early June. The greatest yields were observed from the high elevation and highly glacierized catchments of HC-1, SCTR-2, and SCTR-3. This may be a result of a relatively large proportion of the snowpack remaining in these catchments until mid-July that would have provided a substantial snowmelt component to the rainfall event combined with low lake and wetland storage.

**Table 2.2-6  
Annual Instantaneous Peak Flow**

Station	Instantaneous Flow (m <sup>3</sup> /s)		Instantaneous Yield (L/s/km <sup>2</sup> )	
	2006	2007	2006	2007
HC-1	70.8	68.2	811	781
SC-1	n/a	n/a	n/a	n/a
SC-2	86.5	102	400	474
SCTR-1	2.1	2.8	374	503
SCTR-2	n/a	46.0	n/a	608
SCTR-3	n/a	5.1	n/a	636
SK-1	2.4	3.5	144	206
Sk-2	7.2 <sup>a</sup>	13.2	186	342
MESS-1	74.1	120	348	564

n/a = not available, station was either not active (SCTR-2, SCTR-3 in 2006) or stage data not reliable (SC-1).

<sup>a</sup> Flow recorded on first operational day of the station and may not represent the annual peak flow for the year.

Annual peak flows in 2007 were greater than those observed in 2006 for all stations except for HC-1, where peak flows were observed to be very similar.

## **Baseline Hydrological Monitoring Program**

For a region with homogenous hydrological characteristics, such as B.C. hydrologic sub-zone 'S', annual peak flows in B.C. have been related to watershed area (Coulson and Obedkoff 1998, Church 1997, Obedkoff 2001, Eaton *et al.* 2002). The relationship between the  $Q_2$  and watershed area within sub-zone 'S' is presented in Figure 2.2-9 along with on-site data and available data from the Galore Creek watershed (Rescan, 2006).

The Schaft Creek data follows a similar trend to the regional data. Most of the on-site data from 2006 and 2007 plots slightly below the regional  $Q_2$  data as well as peak flow data available from Galore Creek. Based on active WSC hydrometric stations, 2006 peak flows in the region were observed to be between the mean annual flood ( $Q_2$ ) and a one in ten year event ( $Q_{10}$ ) on the Iskut River (WSC ID 08CG001) and Kispiox River (WSC ID 08EB004) but smaller than the  $Q_2$  on the Nass River (ID 08DB001). Peak flow data from 2007 was currently only available for the Nass River (ID 08DB001), which experienced between a  $Q_{25}$  and a  $Q_{50}$ .

This large event on the Nass River in 2007 was a result of an early June rain-on-snow event that occurred on an unusually deep snowpack. Large, high return period floods were also observed further south on the Skeena and Bulkley Rivers. However, due to higher median elevations (and therefore cooler temperatures) this event was not as significant in the Schaft Creek area. For most gauged watersheds in the Schaft Creek area, the early June runoff event was smaller than a July rain event. Therefore, it is believed that the peak flows observed on-site in 2007 had lower return periods than those experienced on the larger regional gauged watersheds and were likely closer to the  $Q_{10}$  (or less) rather than a  $Q_{25}$ .

Annual low flows (Table 2.2-7) across the Project area occurred during the winter when the majority of available water was stored within the snowpack. June through September low flows were similar to those observed in 2006, except at HC-1 and SC-2 (low flows at SC-2 were estimated from HC-1). This was due to greater precipitation for the month of September in 2006 than in 2007 (Rescan, 2008), which would not be as noticeable at the other stations due to higher watershed storage (*i.e.*, lakes and wetlands). The June through September low flow was recorded in September for both years of record.

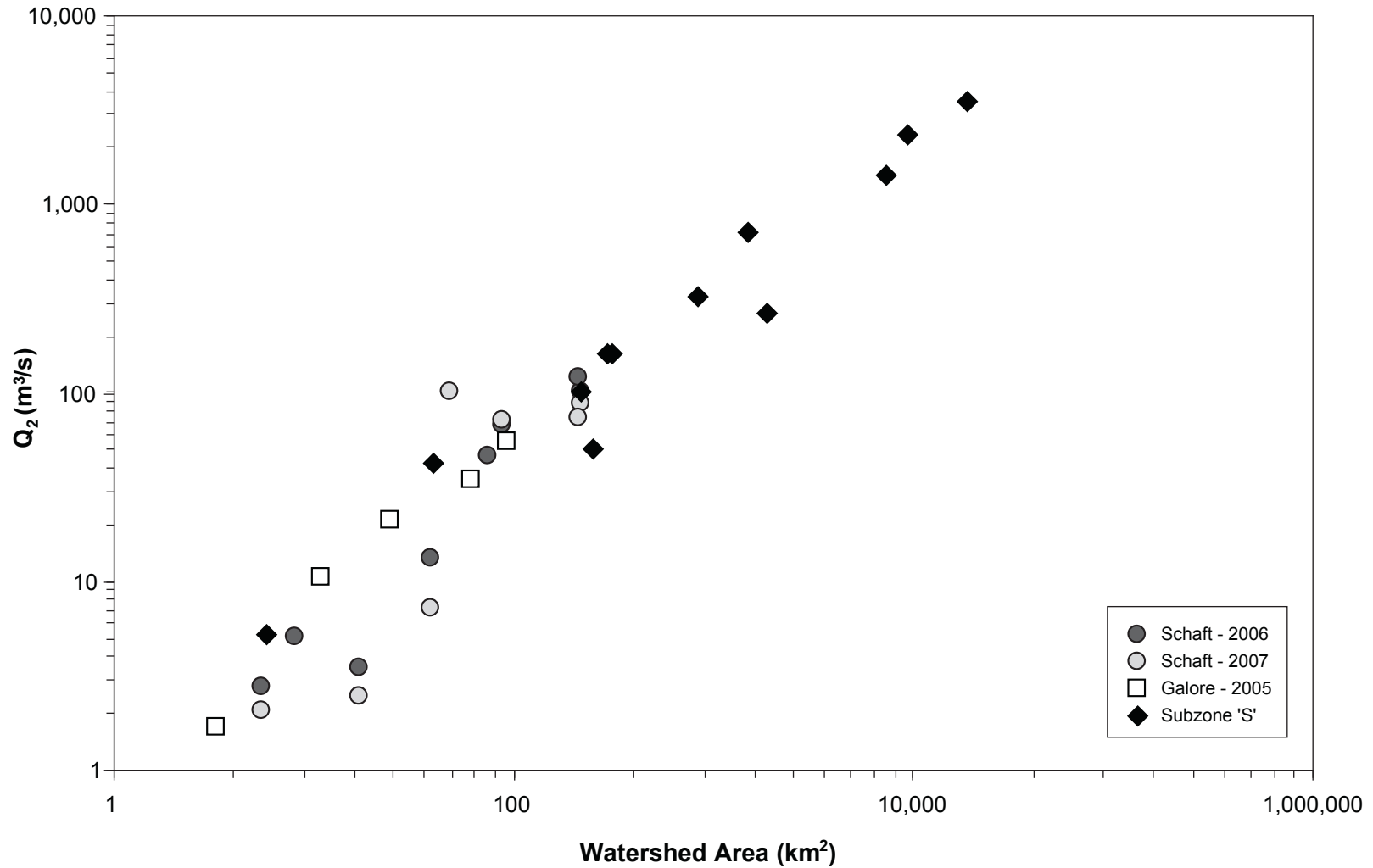
**Table 2.2-7  
Annual Low Flows**

Station	June through September (m <sup>3</sup> /s)		Winter (m <sup>3</sup> /s) <sup>a</sup>
	2006	2007	2006/2007
HC-1	2.97	1.30	0.35
SC-1	n/a	n/a	0.04
SC-2	8.77 <sup>b</sup>	3.84	0.78
SCTR-1	0.16	0.20	0.02
SCTR-2	n/a	1.44	0.33
SCTR-3	n/a	0.27	n/a
SK-1	0.28	0.16	0.04
Sk-2	0.40	0.53	0.24
MESS-1	3.82	3.71	0.79

n/a = not available, station was either not active (SCTR-2, SCTR-3 in 2006) or stage data not reliable (SC-1)

<sup>a</sup> Based on winter manual flow measurements

<sup>b</sup> Estimated from HC-1



Relationship of Q<sub>2</sub> and Watershed Area for On-Site and Regional Gauged Watersheds

### **2.3 Issues and Ongoing Work**

#### **2.3.1 Issues**

The 2007 hydrometric monitoring program was a success. Nevertheless, there were a number of issues that arose over the course of the year that will need to be addressed prior to, or during, the 2008 open water season.

At SC-1, there is an ongoing issue related to finding an appropriate location to monitor flow. The station has been installed at two locations over 2006 and 2007. In 2006, the station was damaged by debris during the spring freshet. In 2007, the station was relocated to a more protected location; however, the station was again damaged although to a much lower degree than in 2006. Additionally, stage data recorded by the station did not correlate well to that of other nearby monitoring stations. This may have been purely the result of the damage to the station, but may have also resulted from hydraulics of the monitoring site that do not facilitate a constant and predictable relationship between stage and streamflow. Therefore, in 2008, an alternate location will be scouted for relocation of the station. There are few potential sites to install an automated station in this location, due to a rapid transition from a steep walled canyon to a broad braided outwash plain. In the absence of a more suitable location, the station will be remobilized at the same location with more robust supplies.

Although good quality data have been collected at the SC-2 station over the past two years, there is the potential to lower the elevation of the station to increase the length of period that pressure transducer of the station is submerged. Prior to the 2008 freshet, it will be attempted to lower the elevation of the station by approximately 0.25 m. It is anticipated that the station can be successfully lowered while retaining the ability to use the rating curve established for the station.

AT SCTR-1 the data logger at the station stopped recording unexpectedly in early September. The logger will be sent back to the manufacturer for diagnostic checking and repair if required. All pressure transducers and data loggers deployed in 2007 will be re-calibrated. If there is a concern that any of the units are not working properly, they will be sent back to the manufacturer for servicing.

#### **2.3.2 Ongoing Work**

It is proposed to continue hydrometric monitoring at all stations operated in 2007. Additional data will provide a continuous baseline data record that will allow comparison to post-development conditions as part of an environmental effects assessment. On-site data will be supplemented with long-term regional data sets to produce normal and return period estimates for annual runoff, seasonal runoff distribution, and extreme (high and low) flows.

All nine automated hydrometric stations operated in 2007 will be re-mobilized prior to the 2008 freshet. The stations will remain in operation throughout the open water period. Eight manual flow measurement trips will be conducted to the area, including three during winter conditions.



### 3. SUMMARY

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### 3. Summary

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In 2007, hydrological monitoring continued in the Schaft Creek area at nine locations with the Schaft Creek and Mess Creek watersheds. At each station an automated pressure transducer and data logger recorded water level readings every ten minutes and a total of 70 manual flow measurements were conducted. This data extends data sets presented in previous reports and improves existing stage-discharge rating curves.

Annual runoff was observed to range from 1,960 mm (SCTR-1) to 920 mm (SK-2) across the Project area. The annual peak flow recorded at the higher elevations stations of HC-1, SC-2, SCTR-2, SCTR-3, and MESS-1 was due to a rainfall event, with a snowmelt component in mid-July. The annual peak flow recorded at the lower elevations stations of SCTR-1, SK-1, and SK-2 was due to a spring snowmelt event in early June.

It has been proposed to continue hydrological monitoring in 2008, which would include winter flow measurements early in the year and the remobilization of the nine automated monitoring stations prior to the spring freshet.

## REFERENCES

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# References

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**APPENDIX 1**  
**2007 MANUAL FLOW MEASUREMENTS**

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**Table A1-1  
Manual Flow Measurements at HC-1 in 2007**

<b>Date Monitored: January 25, 2007</b>	<b>Staff Gauge (m):</b>	-
<b>Time (24 hr):</b>	<b>Pressure Transducer (m):</b>	-
<b>Personnel: G.Norton, I. Thonon</b>	<b>Discharge (m<sup>3</sup>/s):</b>	<b>0.729</b>
<b>Method: Velocity - area with Flow Tracker</b>		

<b>Notes</b>	<b>Station (m)</b>	<b>Depth (cm)</b>	<b>Velocity (m/s)</b>	<b>Q (m<sup>3</sup>/s)</b>	<b>% of Total</b>
L. Bank	5.0	0.0	0.00	0.000	0.0
	3.3	60.0	0.01	0.005	0.6
	3.1	61.0	0.11	0.013	1.8
	2.9	61.5	0.22	0.027	3.7
	2.7	59.5	0.24	0.028	3.9
	2.5	58.0	0.35	0.041	5.6
	2.3	58.0	0.43	0.049	6.8
	2.1	62.0	0.62	0.077	10.6
	1.9	66.0	0.80	0.105	14.4
	1.7	66.0	0.84	0.111	15.2
	1.5	67.0	0.72	0.097	13.3
	1.3	61.0	0.62	0.075	10.3
	1.1	59.0	0.54	0.064	8.8
	0.9	56.0	0.33	0.037	5.0
	0.7	0.0	0.00	0.000	0.0

<b>Date Monitored: March 27, 2007</b>	<b>Staff Gauge (m):</b>	-
<b>Time (24 hr):</b>	<b>Pressure Transducer (m):</b>	-
<b>Personnel: G.Norton, K. Esseltine</b>	<b>Discharge (m<sup>3</sup>/s):</b>	<b>0.354</b>
<b>Method: Velocity - area with Flow Tracker</b>		

<b>Notes</b>	<b>Station (m)</b>	<b>Depth (cm)</b>	<b>Velocity (m/s)</b>	<b>Q (m<sup>3</sup>/s)</b>	<b>% of Total</b>
R. Bank	0	0	0.00	0.000	0
	0.8	18	0.03	0.003	0.9
	1	20	0.08	0.003	1
	1.25	26	0.13	0.008	2.3
	1.5	30	0.16	0.012	3.4
	1.75	32	0.24	0.019	5.5
	2	32	0.31	0.025	6.9
	2.25	34	0.30	0.025	7.1
	2.5	34	0.33	0.028	7.9
	2.75	31	0.36	0.028	7.8
	3	32	0.35	0.028	7.9
	3.25	37	0.27	0.025	7
	3.5	34	0.28	0.024	6.8
	3.75	34	0.32	0.027	7.7
	4	39	0.31	0.030	8.5
	4.25	38	0.18	0.017	4.9
	4.5	40	0.11	0.011	3.1
	4.75	40	0.08	0.008	2.4
	5	42	0.09	0.009	2.5
	5.25	35	0.09	0.007	2.1
	5.5	27	0.05	0.015	4.3
	7.5	0	0.00	0.000	0

(continued)

**Table A1-1  
Manual Flow Measurements at HC-1 in 2007 (continued)**

<b>Date Monitored: May 1, 2007</b>		<b>Staff Gauge (m):</b>		<b>0.1</b>	
<b>Time (24 hr):</b>		<b>Pressure Transducer (m):</b>		<b>0.09</b>	
<b>Personnel: G.Norton, M. Blackburn</b>		<b>Discharge (m<sup>3</sup>/s):</b>		<b>0.389</b>	
<b>Method Velocity - area with Swoffer</b>					
<b>Notes</b>	<b>Station (m)</b>	<b>Depth (cm)</b>	<b>Velocity (m/s)</b>	<b>Q (m<sup>3</sup>/s)</b>	<b>% of Total</b>
L. Bank	0.75	14.5	0.02	0.000	0.1
	1	19	0.26	0.012	3.2
	1.25	22	0.65	0.036	9.2
	1.5	20.5	0.60	0.031	7.9
	1.75	22	0.53	0.029	7.5
	2	25	0.68	0.043	10.9
	2.25	32	0.90	0.072	18.5
	2.5	33	0.68	0.056	14.4
	2.75	29	0.68	0.049	12.7
	3	32	0.29	0.023	6.0
	3.25	28	0.43	0.030	7.7
	3.5	22.5	0.07	0.004	1.0
	3.75	19.5	0.04	0.002	0.5
	4	16	0.02	0.001	0.2
	4.25	14	0.02	0.001	0.2
	4.5	5	0.01	0.000	0.0
	5	0	0.00	0.000	0.0

<b>Date Monitored: May 22, 2007</b>		<b>Staff Gauge (m):</b>		<b>0.3</b>	
<b>Time (24 hr):</b>		<b>900</b>	<b>Pressure Transducer (m):</b>		<b>0.32</b>
<b>Personnel: G.Norton, R. Dennis</b>		<b>Discharge (m<sup>3</sup>/s):</b>		<b>3.301</b>	
<b>Method Velocity - area with Swoffer</b>					
<b>Notes</b>	<b>Station (m)</b>	<b>Depth (cm)</b>	<b>Velocity (m/s)</b>	<b>Q (m<sup>3</sup>/s)</b>	<b>% of Total</b>
L. Bank	-3.5	0	0.00	0.000	0.0
	0.5	25	0.54	0.304	9.2
	1	30	0.14	0.021	0.6
	1.5	37	0.80	0.148	4.5
	2	42.5	1.17	0.249	7.5
	2.5	40.5	1.75	0.354	10.7
	3	34	0.89	0.151	4.6
	3.5	40.5	1.16	0.235	7.1
	4	39	1.11	0.216	6.6
	4.5	37.5	1.23	0.231	7.0
	5	37.5	1.38	0.259	7.8
	5.5	41	1.11	0.228	6.9
	6	41	1.00	0.205	6.2
	6.5	42	0.92	0.193	5.9
	7	34.5	0.88	0.152	4.6
	7.5	34	0.81	0.138	4.2
	8	28	0.98	0.137	4.2
	8.5	22.5	0.31	0.035	1.1
	9	17	0.39	0.040	1.2
	9.7	0	0.00	0.006	0.2

(continued)

**Table A1-1**  
**Manual Flow Measurements at HC-1 in 2007 (completed)**

<b>Date Monitored: June 23, 2007</b>		<b>Staff Gauge (m):</b>	<b>0.57</b>
<b>Time (24 hr):</b>		<b>Pressure Transducer (m):</b>	<b>0.55</b>
<b>Personnel: G. Norton, G. De La Ronde</b>		<b>Discharge (m<sup>3</sup>/s):</b>	<b>9.9</b>
<b>Method: Salt dilution</b>			
		<b>Q</b>	
		<b>(m<sup>3</sup>/s)</b>	
Left Bank			9.8
Right Bank			10.1
<i>See Figure A1-1</i>			
<hr/>			
<b>Date Monitored: August 5, 2007</b>		<b>Staff Gauge (m):</b>	<b>0.75</b>
<b>Time (24 hr):</b>		<b>Pressure Transducer (m):</b>	<b>0.72</b>
<b>Personnel: C. Doughty, S. Louie</b>		<b>Discharge (m<sup>3</sup>/s):</b>	<b>9.2</b>
<b>Method: Salt dilution</b>			
		<b>Q</b>	
		<b>(m<sup>3</sup>/s)</b>	
Left Bank			9.0
Right Bank			9.5
<i>See Figure A1-1</i>			
<hr/>			
<b>Date Monitored: September 9, 2007</b>		<b>Staff Gauge (m):</b>	<b>0.68</b>
<b>Time (24 hr):</b>		<b>Pressure Transducer (m):</b>	<b>0.66</b>
<b>Personnel: C. Doughty, S. Guenther</b>		<b>Discharge (m<sup>3</sup>/s):</b>	<b>7.6</b>
<b>Method: Salt dilution</b>			
		<b>Q</b>	
		<b>(m<sup>3</sup>/s)</b>	
Left Bank			7.7
Right Bank			7.5
<i>See Figure A1-1</i>			
<hr/>			
<b>Date Monitored: December 9, 2007</b>		<b>Staff Gauge (m):</b>	<b>-</b>
<b>Time (24 hr):</b>		<b>Pressure Transducer (m):</b>	<b>-</b>
<b>Personnel: G.Norton, D.McPherson</b>		<b>Discharge (m<sup>3</sup>/s):</b>	<b>0.283</b>
<b>Method: Velocity - area with Flowtracker</b>			
	<b>Station</b>	<b>Depth</b>	<b>Velocity</b>
	<b>(m)</b>	<b>(cm)</b>	<b>(m/s)</b>
			<b>Q</b>
			<b>(m<sup>3</sup>/s)</b>
			<b>% of Total</b>
<b>Notes</b>			
Left Bank	0.50	0	0.00
	4.45	57	0.24
	5.25	56	0.26
	6.00	56	0.15
	6.85	66	0.30
Right Bank	8.00	0	0.00
			0.022
			7.1
			34.4
			7.1
			6.7
			36.7
			7.9



**Table A1-2  
Manual Flow Measurements at SC-1 in 2007**

<b>Date Monitored:</b> January 25, 2007	<b>Staff Gauge (m):</b> -
<b>Time (24 hr):</b>	<b>Pressure Transducer (m):</b> -
<b>Personnel:</b> G.Norton, I. Thonon	<b>Discharge (m<sup>3</sup>/s):</b> 0.619
<b>Method:</b> Velocity - area with Flow Tracker	

<b>Notes</b>	<b>Station (m)</b>	<b>Depth to Bed (cm)</b>	<b>Velocity (m/s)</b>	<b>Q (m<sup>3</sup>/s)</b>	<b>% Total</b>
Left Bank	4.7	0	0.00	0.000	0.0
Edge of snow/ice	2.5	14	0.12	0.020	3.3
	2.3	17	0.22	0.007	1.2
	2.1	22	0.23	0.010	1.7
	1.9	23	0.20	0.009	1.5
	1.7	20	0.25	0.010	1.6
	1.5	20	0.68	0.027	4.4
Edge of snow/ice	1.3	19	0.78	0.534	86.4
Right Bank	-5.7	0	0.00	0.000	0.0

<b>Date Monitored:</b> March 27, 2007	<b>Staff Gauge (m):</b> -
<b>Time (24 hr):</b>	<b>Pressure Transducer (m):</b> -
<b>Personnel:</b> G.Norton, K. Esseltine	<b>Discharge (m<sup>3</sup>/s):</b> 0.045
<b>Method:</b> Velocity - area with Flow Tracker	

<b>Notes</b>	<b>Station (m)</b>	<b>Depth (cm)</b>	<b>Velocity (m/s)</b>	<b>Q (m<sup>3</sup>/s)</b>	<b>% Total</b>
Right Bank	0	0.0	0.00	0.000	0
	1	8.0	0.00	0.000	0.5
	1.25	10.0	0.04	0.001	2
	1.5	12.0	0.05	0.001	3.2
	1.75	17.0	0.21	0.009	20
	2	16.0	0.25	0.010	22.7
	2.25	12.0	0.19	0.006	12.9
	2.5	11.0	0.03	0.001	2
	2.75	8.0	0.10	0.002	4.3
	3	4.0	0.10	0.001	2.3
	3.25	6.0	0.16	0.002	5.4
	3.5	6.0	0.00	0.000	0
	3.75	6.0	0.09	0.001	2.9
	4	7.0	0.00	0.000	-0.2
	4.25	7.0	0.02	0.000	0.8
	4.5	6.0	0.06	0.001	2.1
	4.75	8.0	0.09	0.002	3.8
	5	10.0	0.13	0.003	7.5
	5.25	7.0	0.08	0.001	3.1
	5.5	6.0	0.04	0.001	1.5
	5.75	4.0	0.07	0.001	1.5
	6	4.0	0.05	0.001	1.6
Left Bank	6.5	0.0	0.00	0.000	0

(continued)

**Table A1-2**  
**Manual Flow Measurements at SC-1 in 2007 (continued)**

<b>Date Monitored:</b> May 1, 2007	<b>Staff Gauge (m):</b> -
<b>Time (24 hr):</b>	<b>Pressure Transducer (m):</b> -
<b>Personnel:</b> G.Norton, M. Blackburn	<b>Discharge (m<sup>3</sup>/s):</b> 0.123
<b>Method:</b> Velocity - area with Swoffer	

<b>Notes</b>	<b>Station (m)</b>	<b>Depth (cm)</b>	<b>Velocity (m/s)</b>	<b>Q (m<sup>3</sup>/s)</b>	<b>% Total</b>
Right Bank	1.3	0.0	0.00	0.000	0.2
	1.5	8.0	0.13	0.002	1.9
	1.75	13.0	0.20	0.007	5.3
	2	16.0	0.18	0.007	5.9
	2.25	11.5	0.26	0.007	6.1
	2.5	10.0	0.19	0.005	3.9
	2.75	10.0	0.27	0.007	5.5
	3	11.0	0.23	0.006	5.2
	3.25	14.0	0.29	0.010	8.3
	3.5	15.0	0.27	0.010	8.3
	3.75	15.0	0.31	0.012	9.5
	4	17.0	0.19	0.008	6.6
	4.25	15.0	0.30	0.011	9.2
	4.5	17.5	0.26	0.011	9.3
	4.75	15.0	0.27	0.010	8.3
	5	9.0	0.16	0.004	2.9
	5.25	8.0	0.09	0.004	3.5
Left Bank	6.2	0.0	0.00	0.000	0.3

<b>Date Monitored:</b> May 24, 2007	<b>Staff Gauge (m):</b> 0.43
<b>Time (24 hr):</b>	<b>Pressure Transducer (m):</b> 0.35
<b>Personnel:</b> G.Norton, R. Dennis	<b>Discharge (m<sup>3</sup>/s):</b> 1.073
<b>Method:</b> Velocity - area with Swoffer	

<b>Notes</b>	<b>Station (m)</b>	<b>Depth (cm)</b>	<b>Velocity (m/s)</b>	<b>Q (m<sup>3</sup>/s)</b>	<b>% Total</b>
Right Bank	0.35	21.0	0.09	0.001	0.1
	0.5	18.0	0.08	0.003	0.3
	0.75	22.0	0.16	0.009	0.8
	1	25.5	0.20	0.013	1.2
	1.25	29.0	0.35	0.025	2.4
	1.5	33.0	0.48	0.040	3.7
	1.75	37.5	0.66	0.062	5.8
	2	41.0	0.76	0.078	7.3
	2.25	42.5	0.73	0.078	7.2
	2.5	42.5	0.64	0.068	6.3
	2.75	40.0	0.56	0.056	5.2
	3	37.0	0.56	0.052	4.8
	3.25	34.5	0.44	0.038	3.5
	3.5	34.0	0.52	0.044	4.1
	3.75	34.0	0.58	0.049	4.6
	4	27.0	0.54	0.036	3.4
	4.25	22.5	0.58	0.033	3.0
4.5	13.0	0.59	0.019	1.8	

(continued)

**Table A1-2  
Manual Flow Measurements at SC-1 in 2007 (continued)**

<b>Date Monitored: May 24, 2007</b>		<b>Staff Gauge (m):</b>		<b>0.43</b>	
<b>Time (24 hr):</b>		<b>Pressure Transducer (m):</b>		<b>0.35</b>	
<b>Personnel: G.Norton, R. Dennis</b>		<b>Discharge (m<sup>3</sup>/s):</b>		<b>1.073</b>	
<b>Method Velocity - area with Swoffer</b>					
<b>Notes</b>	<b>Station (m)</b>	<b>Depth (cm)</b>	<b>Velocity (m/s)</b>	<b>Q (m<sup>3</sup>/s)</b>	<b>% Total</b>
Right Bank	4.75	15.0	0.52	0.020	1.8
	5	14.0	0.34	0.012	1.1
	5.25	15.0	0.58	0.022	2.0
	5.5	19.5	0.84	0.041	3.8
	5.75	21.5	0.86	0.046	4.3
	6	25.0	0.78	0.049	4.5
	6.25	30.0	0.65	0.049	4.5
	6.5	27.5	0.57	0.039	3.7
	6.75	33.0	0.51	0.042	3.9
	7	30.0	0.30	0.023	2.1
	7.25	35.0	0.18	0.016	1.5
	7.5	39.0	0.07	0.007	0.6
	7.75	29.0	0.03	0.004	0.4
Left Bank	8.5	0.0	0.00	0.001	0.1

<b>Date Monitored: June 23, 2007</b>		<b>Staff Gauge (m):</b>		<b>-</b>	
<b>Time (24 hr):</b>		<b>Pressure Transducer (m):</b>		<b>0.65</b>	
<b>Personnel: G. Norton, G. De La Ronde</b>		<b>Discharge (m<sup>3</sup>/s):</b>		<b>7.1</b>	
<b>Method: Salt dilution</b>					
				<b>Q (m<sup>3</sup>/s)</b>	
Left Bank					7.2
Right Bank					7.0
<i>See Figure A1-2</i>					

<b>Date Monitored: August 5, 2007</b>		<b>Staff Gauge (m):</b>		<b>-</b>	
<b>Time (24 hr):</b>		<b>Pressure Transducer (m):</b>		<b>0.97</b>	
<b>Personnel: C. Doughty, S. Louie</b>		<b>Discharge (m<sup>3</sup>/s):</b>		<b>8.9</b>	
<b>Method: Salt dilution</b>					
				<b>Q (m<sup>3</sup>/s)</b>	
Left Bank					11.1
Right Bank					6.7
<i>See Figure A1-2</i>					

(continued)

**Table A1-2**  
**Manual Flow Measurements at SC-1 in 2007 (completed)**

<b>Date Monitored: September 9, 2007</b>		<b>Staff Gauge (m):</b>	-
<b>Time (24 hr):</b>		<b>Pressure Transducer (m):</b>	0.95
<b>Personnel: C. Doughty, S. Guenther</b>		<b>Discharge (m<sup>3</sup>/s):</b>	11.7
<b>Method: Salt dilution</b>			
		<b>Q</b>	
		<b>(m<sup>3</sup>/s)</b>	
Left Bank			NA
Right Bank			11.7
<i>See Figure A1-2</i>			

<b>Date Monitored: November 18, 2007</b>		<b>Staff Gauge (m):</b>	-
<b>Time (24 hr):</b>		<b>Pressure Transducer (m):</b>	-
<b>Personnel: C. Doughty, R. Dennis</b>		<b>Discharge (m<sup>3</sup>/s):</b>	0.239
<b>Method: Velocity - area with Flowtracker</b>			

<b>Notes</b>	<b>Station (m)</b>	<b>Depth (cm)</b>	<b>Velocity (m/s)</b>	<b>Q (m<sup>3</sup>/s)</b>	<b>% Total</b>
Right Bank	0.60	0.0	0.00	0.000	0.0
	0.80	52.0	-0.11	-0.012	-4.8
	1.00	25.0	0.16	0.008	3.3
	1.20	35.0	0.72	0.051	21.2
	1.40	32.0	0.52	0.033	13.9
	1.60	25.0	0.55	0.027	11.5
	1.80	30.0	0.47	0.028	11.9
	2.00	26.0	0.32	0.017	7.0
	2.20	20.0	0.22	0.009	3.6
	2.40	22.0	0.58	0.026	10.7
	2.60	18.0	0.18	0.006	2.7
	2.80	15.0	0.53	0.016	6.6
	3.00	14.0	0.16	0.005	1.9
	3.20	16.0	0.21	0.007	2.8
	3.40	10.0	0.16	0.003	1.3
	3.60	8.0	0.07	0.001	0.5
3.80	6.0	0.27	0.003	1.4	
4.00	11.0	0.52	0.011	4.8	
Left Bank	4.20	0.0	0.00	0.000	0.0

<b>Date Monitored: December 8, 2007</b>		<b>Staff Gauge (m):</b>	-
<b>Time (24 hr):</b>		<b>Pressure Transducer (m):</b>	-
<b>Flows monitored by: G.Norton, D.McPherson</b>		<b>Discharge (m<sup>3</sup>/s):</b>	0.057
<b>Method: Velocity - area with Flowtracker</b>			

<b>Notes</b>	<b>Station (m)</b>	<b>Depth (cm)</b>	<b>Depth Ice (cm)</b>	<b>Velocity (m/s)</b>	<b>Q (m<sup>3</sup>/s)</b>	<b>% Total</b>
Left Bank	0.00	0.0	0.0	0.00	0.000	-0.1
	1.10	29.0	3.0	0.00	0.000	-0.5
	2.15	45.0	3.0	-0.02	-0.008	-14.4
	3.05	71.0	22.0	0.08	0.037	65.4
	4.10	50.0	3.0	0.08	0.026	44.9
Right Bank	4.50	0.0	0.0	0.00	0.003	4.6

**Table A13**  
**Manual Flow Measurements at SC-2 in 2007**

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<b>Date Monitored:</b> January 24, 2007	<b>Staff Gauge (m):</b> -
<b>Time (24 hr):</b>	<b>Pressure Transducer (m):</b> -
<b>Personnel:</b> G.Norton, I. Thonon	<b>Discharge (m<sup>3</sup>/s):</b> 1.033
<b>Method:</b> Velocity - area with Swoffer	

<b>Notes</b>	<b>Station (m)</b>	<b>Depth to Bed (cm)</b>	<b>Velocity (m/s)</b>	<b>Q (m<sup>3</sup>/s)</b>	<b>% Total</b>
Left Bank	0.7	0.0	0.00	0.000	0.0
	1.1	9.0	0.00	0.000	0.0
	1.5	12.5	0.17	0.009	0.8
	1.9	14.0	0.12	0.007	0.7
	2.3	16.0	0.53	0.034	3.3
	2.7	16.0	0.57	0.036	3.5
	3.1	17.5	0.40	0.028	2.7
Behind rock	3.5	19.0	0.49	0.037	3.6
	3.9	15.0	0.14	0.008	0.8
	4.3	15.0	0.36	0.022	2.1
	4.7	17.0	0.45	0.031	3.0
	5.1	18.0	0.77	0.055	5.4
	5.5	15.0	0.68	0.041	3.9
	5.9	15.0	0.78	0.047	4.5
	6.3	16.0	0.82	0.052	5.1
	6.7	18.0	0.62	0.045	4.3
	7.1	23.0	0.46	0.042	4.1
	7.5	22.5	0.59	0.053	5.1
	7.9	23.0	0.73	0.067	6.5
	8.3	23.0	0.88	0.081	7.8
8.7	23.0	0.90	0.083	8.0	
Edge of ice shelf	9.1	19.0	1.01	0.077	7.4
	9.5	22.5	0.63	0.057	5.5
	9.9	28.0	0.50	0.056	5.4
Ice to channel bed	10.3	23.0	0.13	0.018	1.7
	11.1	26.0	0.24	0.037	3.6
Right Bank	11.5	0.0	0.00	0.000	0.0
	11.9	15.5	0.17	0.011	1.0
	12.3	13.0	0.00	0.000	0.0
	12.7	15.0	0.00	0.000	0.0
	14.3	0.0	0.00	0.000	0.0

(continued)

**Table A13**  
**Manual Flow Measurements at SC-2 in 2007 (continued)**

Date Monitored: March 27, 2007		Staff Gauge (m):		-	
Time (24 hr):		Pressure Transducer (m):		-	
Personnel: G.Norton, K. Esseltine		Discharge (m <sup>3</sup> /s):		0.781	
Method: Velocity - area with Flow Tracker					
Notes	Station (m)	Depth (cm)	Velocity (m/s)	Q (m <sup>3</sup> /s)	% Total
Left Bank	0.8	0.0	0.00	0.000	0
	1.25	8.0	0.24	0.008	1.1
Near rock	1.65	8.0	0.05	0.002	0.2
	2.05	7.0	0.00	0.000	0
	2.45	9.0	0.38	0.014	1.7
	2.85	12.0	0.43	0.021	2.6
	3.25	14.0	0.24	0.014	1.7
Behind rock	3.65	10.0	0.14	0.006	0.7
	4.05	13.0	0.23	0.012	1.5
Behind rock	4.45	9.0	0.02	0.001	0.1
	4.85	12.0	0.30	0.014	1.8
	5.25	12.0	0.24	0.011	1.5
	5.65	12.0	0.48	0.023	3
	6.05	10.0	0.43	0.017	2.2
	6.45	12.0	0.24	0.012	1.5
	6.85	14.0	0.44	0.025	3.1
	7.25	19.0	0.40	0.031	3.9
	7.65	17.0	0.61	0.041	5.3
	8.05	15.0	0.66	0.039	5
	8.45	19.0	0.59	0.045	5.8
	8.85	16.0	0.75	0.048	6.1
	9.25	17.0	0.80	0.054	7
	9.65	23.0	0.63	0.058	7.5
	10.05	24.0	0.74	0.071	9.1
10.45	22.0	0.89	0.078	10	
10.85	25.0	0.76	0.076	9.7	
11.25	18.0	0.29	0.021	2.7	
11.65	16.0	0.62	0.039	5	
12.05	13.0	0.00	0.001	0.1	
Right Bank	13.5	0.0	0.00	0.000	0

(continued)

**Table A13**  
**Manual Flow Measurements at SC-2 in 2007 (continued)**

Date Monitored: April 30, 2007		Staff Gauge (m):		-	
Time (24 hr):		Pressure Transducer (m):		-	
Personnel: G.Norton, K. Nole		Discharge (m <sup>3</sup> /s):		1.458	
Method Velocity - area with Swoffer					
Notes	Station (m)	Depth (cm)	Velocity (m/s)	Q (m <sup>3</sup> /s)	% Total
Right Bank	1.9	0.0	0.00	0.001	0.1
	2.5	10.5	0.16	0.009	0.6
	3	13.5	0.36	0.024	1.7
	3.5	17.0	0.28	0.024	1.6
	4	18.0	0.04	0.004	0.2
	4.5	15.0	0.36	0.027	1.9
	5	10.0	0.42	0.021	1.4
	5.5	14.0	0.31	0.022	1.5
	6	12.5	0.05	0.003	0.2
	6.5	17.5	0.31	0.027	1.9
	7	19.5	0.04	0.004	0.3
	7.5	15.0	0.31	0.023	1.6
	8	8.0	0.52	0.021	1.4
	8.5	9.5	0.52	0.025	1.7
	9	24.0	0.11	0.013	0.9
	9.5	34.0	0.60	0.102	7.0
	10	42.5	0.69	0.147	10.1
10.5	35.0	0.77	0.135	9.2	
11	34.5	0.62	0.107	7.3	
11.5	38.0	0.47	0.089	6.1	
12	36.0	0.39	0.070	4.8	
12.5	35.0	0.47	0.082	5.6	
13	33.0	0.24	0.040	2.7	
13.5	28.0	0.67	0.094	6.4	
14	26.0	0.75	0.098	6.7	
14.5	21.0	0.68	0.071	4.9	
15	25.5	0.67	0.085	5.9	
15.5	22.0	0.28	0.026	1.8	
15.85	21.0	0.34	0.054	3.7	
Left Bank	17	0.0	0.00	0.010	0.7

Date Monitored: May 23, 2007		Staff Gauge (m):		-	
Time (24 hr):		Pressure Transducer (m):		-0.05	
Personnel: G.Norton, R. Dennis		Discharge (m <sup>3</sup> /s):		9.8	
Method Salt dilution					

Notes	Q (m <sup>3</sup> /s)
Left Bank	9.1
Right Bank	10.5

*See Figure A1-3*

(continued)

**Table A13  
Manual Flow Measurements at SC-2 in 2007 (continued)**

<b>Date Monitored: June 22, 2007</b>		<b>Staff Gauge (m):</b>	<b>0.74</b>
<b>Time (24 hr):</b>		<b>Pressure Transducer (m):</b>	<b>0.59</b>
<b>Personnel: G. Norton, G. De La Ronde</b>		<b>Discharge (m<sup>3</sup>/s):</b>	<b>23.6</b>
<b>Method: Salt dilution</b>			
			<b>Q</b>
			<b>(m<sup>3</sup>/s)</b>
Left Bank			23.3
Right Bank			23.9
<i>See Figure A1-3</i>			

<b>Date Monitored: August 5, 2007</b>		<b>Staff Gauge (m):</b>	<b>-</b>
<b>Time (24 hr):</b>		<b>Pressure Transducer (m):</b>	<b>0.79</b>
<b>Personnel: C. Doughty, S. Louie</b>		<b>Discharge (m<sup>3</sup>/s):</b>	<b>25.2</b>
<b>Method: Salt dilution</b>			
			<b>Q</b>
			<b>(m<sup>3</sup>/s)</b>
Left Bank			25.6
Right Bank			24.8
<i>See Figure A1-3</i>			

<b>Date Monitored: September 9, 2007</b>		<b>Staff Gauge (m):</b>	<b>-</b>
<b>Time (24 hr):</b>		<b>Pressure Transducer (m):</b>	<b>0.22</b>
<b>Personnel: C. Doughty, S. Guenther</b>		<b>Discharge (m<sup>3</sup>/s):</b>	<b>15.6</b>
<b>Method: Salt dilution</b>			
			<b>Q</b>
			<b>(m<sup>3</sup>/s)</b>
Left Bank			15.9
Right Bank			15.4
<i>See Figure A1-3</i>			

<b>Date Monitored: November 17, 2007</b>		<b>Staff Gauge (m):</b>	<b>-</b>		
<b>Time (24 hr):</b>		<b>Pressure Transducer (m):</b>	<b>-</b>		
<b>Personnel: C. Doughty, R. Dennis</b>		<b>Discharge (m<sup>3</sup>/s):</b>	<b>1.691</b>		
<b>Method: Velocity - area with Flowtracker</b>					
	<b>Station</b>	<b>Depth</b>	<b>Velocity</b>	<b>Q</b>	<b>% Total</b>
<b>Notes</b>	<b>(m)</b>	<b>(cm)</b>	<b>(m/s)</b>	<b>(m<sup>3</sup>/s)</b>	
Right Bank	9.00	0.0	0.00	0.000	0.0%
	8.70	22.0	0.34	0.022	1.3%
	8.40	25.0	0.79	0.059	3.5%
	8.10	42.0	0.66	0.083	4.9%
	7.80	38.0	0.87	0.099	5.8%
	7.50	40.0	0.89	0.107	6.3%
	7.20	38.0	1.06	0.120	7.1%
	6.90	46.0	0.83	0.115	6.8%
	6.60	50.0	1.07	0.160	9.5%
	6.30	42.0	0.90	0.113	6.7%
	6.00	52.0	1.03	0.161	9.5%
	5.70	42.0	0.85	0.107	6.4%
	5.40	36.0	0.84	0.106	6.2%
	5.00	32.0	0.77	0.098	5.8%
	4.60	32.0	0.83	0.133	7.9%
	4.00	22.0	0.75	0.090	5.3%
	3.50	26.0	0.65	0.084	5.0%
	3.00	20.0	0.28	0.028	1.7%
	2.50	17.0	0.06	0.005	0.3%
Left Bank	2.10	0.0	0.00	0.000	0.0%

(continued)



**Table A13**  
**Manual Flow Measurements at SC-2 in 2007 (completed)**

<b>Date Monitored:</b> December 7, 2007	<b>Staff Gauge (m):</b> -
<b>Time (24 hr):</b>	<b>Pressure Transducer (m):</b> -
<b>Flows monitored by:</b> G.Norton, K. Nole	<b>Discharge (m<sup>3</sup>/s):</b> 0.984
<b>Method:</b> Velocity - area with Flowtracker	

<b>Notes</b>	<b>Station (m)</b>	<b>Depth (cm)</b>	<b>Depth Ice (cm)</b>	<b>Velocity (m/s)</b>	<b>Q (m<sup>3</sup>/s)</b>	<b>% Total</b>
Right Bank	0.50	0.0	0.0	0.00	0.001	0.1%
	1.60	68.0	38.0	0.03	0.011	1.1%
	2.85	29.0	20.0	0.00	0.000	0.0%
	4.15	40.0	16.0	0.40	0.121	12.3%
	5.40	70.0	0.0	0.90	0.550	55.9%
	5.90	66.0	0.0	0.47	0.146	14.8%
	6.4	66.0	0.0	0.41	0.135	13.8%
Left Bank	6.9	0.0	0.0	0.00	0.019	1.9%

**Table A1-4  
Manual Flow Measurements at SCTR-1 in 2007**

Date Monitored: January 24, 2007		Staff Gauge (m):		-	
Time (24 hr):		Pressure Transducer (m):		-	
Personnel: G.Norton, I. Thonon		Discharge (m <sup>3</sup> /s):		0.042	
Method: Velocity - area with Swoffer					
Notes	Station (m)	Depth to Bed (cm)	Velocity (m/s)	Q (m <sup>3</sup> /s)	% Total
Left Bank	0.1	0.0	0.00	0.000	0.0
	0.8	17.0	0.02	0.001	3.2
	0.9	17.5	0.01	0.000	0.4
	1	17.0	0.01	0.000	0.4
	1.1	15.0	0.01	0.000	0.4
	1.2	15.0	0.02	0.000	0.7
	1.3	9.0	0.02	0.000	0.4
Behind rock	1.4	11.0	0.05	0.001	1.3
	1.5	14.0	0.15	0.002	5.0
	1.6	13.0	0.26	0.003	8.0
	1.7	12.0	0.37	0.004	10.5
	1.8	8.0	0.29	0.002	5.5
	1.9	10.0	0.26	0.003	6.1
	2	8.0	0.30	0.002	5.7
	2.1	10.0	0.17	0.002	4.0
	2.2	10.0	0.26	0.003	6.1
	2.3	10.0	0.33	0.003	7.8
	2.4	10.0	0.38	0.004	9.0
	2.5	10.0	0.31	0.011	25.6
Right Bank	3.1	0.0	0.00	0.000	0.0

Date Monitored: March 27, 2007		Staff Gauge (m):		-	
Time (24 hr):		Pressure Transducer (m):		-	
Personnel: G.Norton, K. Esseltine		Discharge (m <sup>3</sup> /s):		0.023	
Method: Velocity - area with Flow Tracker					
Notes	Station (m)	Depth (cm)	Velocity (m/s)	Q (m <sup>3</sup> /s)	% Total
Left Bank	0.6	8.0	0.11	0.000	0.9
	0.65	8.0	0.21	0.001	5.6
	0.75	8.0	0.22	0.002	7.6
Near rock	0.85	17.0	0.05	0.001	3.4
	0.95	17.0	0.15	0.003	11.4
	1.05	10.0	0.20	0.002	8.9
	1.15	8.0	0.01	0.000	0.3
Behind rock	1.25	5.0	0.08	0.000	1.8
	1.35	8.0	0.33	0.003	11.5
Behind rock	1.45	12.0	0.21	0.003	10.7
	1.55	12.0	0.15	0.002	7.7
	1.65	16.0	0.11	0.002	7.6
	1.75	18.0	0.06	0.001	4.5
	1.85	15.0	0.09	0.001	5.9
	1.95	15.0	0.07	0.001	4.6
	2.05	16.0	0.04	0.001	3.0
	2.15	16.0	0.06	0.001	4.2
	2.25	17.0	0.00	0.000	-0.1
	2.35	2.0	0.03	0.000	0.3
	2.45	5.0	0.00	0.000	0.0
	2.55	5.0	0.00	0.000	0.1
Right Bank	2.7	0.0	0.00	0.000	0.0

(continued)

**Table A1-4  
Manual Flow Measurements at SCTR-1 in 2007 (continued)**

Date Monitored: April 30, 2007	Staff Gauge (m):	0.148
Time (24 hr):	Pressure Transducer (m):	0.16
Personnel: G.Norton, K. Nole	Discharge (m <sup>3</sup> /s):	0.088
Method Velocity - area with Swoffer		

Notes	Station (m)	Depth (cm)	Velocity (m/s)	Q (m <sup>3</sup> /s)	% Total
Left bank	1.2	0.0	0.00	0.000	0.0
	1.4	10.0	0.00	0.000	0.0
	1.55	18.0	0.11	0.003	3.4
	1.7	20.0	0.11	0.003	3.8
	1.85	23.0	0.16	0.006	6.3
	2	24.0	0.10	0.004	4.1
	2.15	24.0	0.15	0.005	6.2
	2.3	24.0	0.10	0.004	4.1
	2.45	20.0	0.18	0.005	6.2
	2.6	24.0	0.17	0.006	7.0
	2.75	22.5	0.28	0.009	10.8
	2.9	21.5	0.43	0.014	15.8
	3.05	22.5	0.12	0.004	4.6
	3.2	21.0	0.13	0.004	4.7
	3.35	21.0	0.26	0.007	7.8
Right bank	4	0.0	0.00	0.003	3.7

Date Monitored: May 22, 2007	Staff Gauge (m):	0.37
Time (24 hr):	Pressure Transducer (m):	0.40
Personnel: G.Norton, R. Dennis	Discharge (m <sup>3</sup> /s):	0.723
Method Velocity - area with Swoffer		

Notes	Station (m)	Depth (cm)	Velocity (cm/s)	Q (m <sup>3</sup> /s)	% Total
	1.1	34.0	0.48	0.016	2.3
	1.3	36.0	0.88	0.063	8.8
	1.5	45.0	0.95	0.086	11.8
	1.7	46.5	0.72	0.067	9.3
	1.9	35.0	0.65	0.046	6.3
	2.1	47.5	0.85	0.081	11.2
	2.3	54.0	1.40	0.151	20.9
	2.5	49.0	1.17	0.115	15.9
	2.7	40.0	0.44	0.035	4.9
	2.9	42.0	0.53	0.045	6.2
	3.1	24.0	0.37	0.018	2.5
	3.3	17.5	0.02	0.001	0.1
	3.55	0.0	0.00	0.000	0.0

Date Monitored: June 23, 2007	Staff Gauge (m):	0.38
Time (24 hr):	Pressure Transducer (m):	0.40
Personnel: G. Norton, G. De La Ronde	Discharge (m <sup>3</sup> /s):	0.8
Method: Salt dilution		

	Q (m <sup>3</sup> /s)
Left Bank	0.9
Right Bank	0.8

See Figure A1-4

(continued)

**Table A1-4  
Manual Flow Measurements at SCTR-1 in 2007 (completed)**

<b>Date Monitored:</b> August 5, 2007	<b>Staff Gauge (m):</b> 0.32
<b>Time (24 hr):</b>	<b>Pressure Transducer (m):</b> 0.32
<b>Personnel:</b> C. Doughty, S. Louie	<b>Discharge (m<sup>3</sup>/s):</b> 0.42
<b>Method:</b> Salt dilution	
	<b>Q (m<sup>3</sup>/s)</b>
Left Bank	0.4
Right Bank	0.4
<i>See Figure A1-4</i>	

<b>Date Monitored:</b> September 8, 2007	<b>Staff Gauge (m):</b> 0.205
<b>Time (24 hr):</b>	<b>Pressure Transducer (m):</b> 0.20
<b>Personnel:</b> C. Doughty, S. Guenther	<b>Discharge (m<sup>3</sup>/s):</b> 0.3
<b>Method:</b> Salt dilution	
	<b>Q (m<sup>3</sup>/s)</b>
Left Bank	0.3
Right Bank	0.3
<i>See Figure A1-4</i>	

<b>Date Monitored:</b> December 8, 2007	<b>Staff Gauge (m):</b> -					
<b>Time (24 hr):</b>	<b>Pressure Transducer (m):</b> -					
<b>Flows monitored by:</b> G.Norton, D.McPherson	<b>Discharge (m<sup>3</sup>/s):</b> 0.006					
<b>Method:</b> Velocity - area with Flowtracker						
	<b>Q (m<sup>3</sup>/s)</b>					
<b>Notes</b>	<b>Station (m)</b>	<b>Depth (cm)</b>	<b>Depth Ice (cm)</b>	<b>Velocity<sub>x</sub> (m/s)</b>	<b>Q (m<sup>3</sup>/s)</b>	<b>% Total</b>
Right Bank	0.90	0.0	0.0	0.00	0.000	0.9
	1.00	40.0	36.0	0.10	0.000	7.0
	1.10	39.0	30.0	0.40	0.004	65.3
	1.20	40.0	27.0	0.11	0.001	26.8
	1.30	44.0	28.0	0.00	0.000	0.0
Left Bank	1.70	0.0	0.0	0.00	0.000	0.0

**Table A1-5  
Manual Flow Measurements at SCTR-2 in 2007**

Date Monitored: May 1, 2007	Staff Gauge (m): -
Time (24 hr):	Pressure Transducer (m): -
Personnel: G.Norton, M. Blackburn	Discharge (m <sup>3</sup> /s): 0.331
Method: Velocity - area with Swoffer	

Notes	Station (m)	Depth to Bed (cm)	Velocity (m/s)	Q (m <sup>3</sup> /s)	% Total
Right Bank	0.75	0.0	0.00	0.000	0.0
	1.2	10.0	0.00	0.000	0.0
	1.5	11.0	0.00	0.000	0.0
	1.75	17.0	0.00	0.000	0.0
	2	18.0	0.00	0.000	0.0
	2.25	19.0	0.03	0.001	0.4
	2.5	20.0	0.10	0.005	1.5
	2.75	17.5	0.13	0.006	1.7
	3	20.0	0.12	0.006	1.8
	3.25	23.0	0.07	0.004	1.2
	3.5	34.0	0.15	0.013	3.9
	3.75	35.5	0.16	0.014	4.3
	4	30.5	0.22	0.017	5.1
	4.25	28.0	0.21	0.015	4.4
	4.5	33.0	0.28	0.023	7.0
	4.75	35.0	0.20	0.018	5.3
	5	39.0	0.25	0.024	7.4
	5.25	40.0	0.35	0.035	10.6
	5.5	40.0	0.31	0.031	9.4
	5.75	39.0	0.25	0.024	7.4
6	40.0	0.25	0.025	7.6	
6.25	43.5	0.19	0.021	6.2	
6.5	39.0	0.16	0.016	4.7	
6.75	31.0	0.12	0.009	2.8	
7	27.0	0.15	0.010	3.1	
7.25	18.0	0.17	0.008	2.3	
7.5	15.0	0.13	0.005	1.5	
7.75	7.5	0.05	0.001	0.4	
Left Bank	8.25	0.0	0.00	0.000	0.1

Date Monitored: May 23, 2007	Staff Gauge (m): 0.47
Time (24 hr):	Pressure Transducer (m): 0.48
Personnel: G.Norton, R. Dennis	Discharge (m <sup>3</sup> /s): 3.515
Method: Velocity - area with Swoffer	

Notes	Station (m)	Depth (cm)	Velocity (cm/s)	Q (m <sup>3</sup> /s)	% Total
Left Bank	0.25	0.0	0.00	0.005	0.2
	0.5	31.0	0.40	0.047	1.3
	1	49.0	0.58	0.142	4.0
	1.5	40.0	0.89	0.178	5.1
	2	35.0	0.14	0.025	0.7
	2.5	42.5	1.03	0.219	6.2
	3	38.0	1.07	0.203	5.8
	3.5	45.0	0.20	0.045	1.3
	4	47.0	0.55	0.129	3.7
	4.5	43.0	1.03	0.221	6.3
	5	47.5	0.56	0.133	3.8
	5.5	42.5	1.36	0.289	8.2

(continued)

**Table A1-5  
Manual Flow Measurements at SCTR-2 in 2007 (continued)**

Date Monitored: May 23, 2007		Staff Gauge (m):	0.47		
Time (24 hr):		Pressure Transducer (m):	0.48		
Personnel: G.Norton, R. Dennis		Discharge (m <sup>3</sup> /s):	3.515		
Method: Velocity - area with Swoffer					
Notes	Station (m)	Depth (cm)	Velocity (cm/s)	Q (m <sup>3</sup> /s)	% Total
Left Bank	6	44.0	1.02	0.224	6.4
	6.5	45.0	0.90	0.203	5.8
	7	41.0	0.19	0.039	1.1
	7.5	44.0	0.87	0.191	5.4
	8	39.0	0.99	0.193	5.5
	8.5	36.0	1.22	0.220	6.2
	9	44.0	0.34	0.075	2.1
	9.5	36.0	0.13	0.023	0.7
	10	36.0	0.04	0.007	0.2
	10.5	35.0	0.83	0.145	4.1
	11	27.0	1.02	0.138	3.9
	11.5	24.0	1.00	0.120	3.4
	12	19.5	0.25	0.024	0.7
	12.5	20.0	0.28	0.028	0.8
	13	22.5	0.37	0.083	2.4
14.5	23.0	0.23	0.053	1.5	
15	23.0	0.23	0.026	0.8	
15.5	20.0	0.20	0.070	2.0	
Right Bank	18.5	0.0	0.00	0.015	0.4

Date Monitored: June 22, 2007		Staff Gauge (m):	0.71
Time (24 hr):		Pressure Transducer (m):	0.72
Personnel: G. Norton, G. De La Ronde		Discharge (m <sup>3</sup> /s):	10.1
Method: Salt dilution			
			Q (m <sup>3</sup> /s)
Left Bank			10.2
Right Bank			10.0
<i>See Figure A1-5</i>			

Date Monitored: August 6, 2007		Staff Gauge (m):	0.85
Time (24 hr):		Pressure Transducer (m):	0.86
Personnel: C. Doughty, S. Louie		Discharge (m <sup>3</sup> /s):	12.3
Method: Salt dilution			
			Q (m <sup>3</sup> /s)
Left Bank			12.3
Right Bank			12.3
<i>See Figure A1-5</i>			

Date Monitored: September 9, 2007		Staff Gauge (m):	0.69
Time (24 hr):		Pressure Transducer (m):	0.69
Personnel: C. Doughty, S. Guenther		Discharge (m <sup>3</sup> /s):	9.5
Method: Salt dilution			
			Q (m <sup>3</sup> /s)
Left Bank			NA
Right Bank			9.5
<i>See Figure A1-5</i>			

(continued)

**Table A1-5  
Manual Flow Measurements at SCTR-2 in 2007 (completed)**

Date Monitored: December 7, 2007		Staff Gauge (m): -			
Time (24 hr):		Pressure Transducer (m): -			
Flows monitored by: G.Norton, K. Nole		Discharge (m <sup>3</sup> /s): 0.417			
Method: Velocity - area with Flowtracker					
Notes	Station (m)	Depth (cm)	Velocity <sub>x</sub> (m/s)	Q (m <sup>3</sup> /s)	% Total
Right Bank	-1	0.0	0.00	0.000	0
	0.7	40.0	0.41	0.162	38.8
	0.95	36.0	0.57	0.051	12.3
	1.2	35.0	0.45	0.039	9.4
	1.45	44.0	0.43	0.047	11.3
	1.7	45.0	0.38	0.043	10.3
	1.95	40.0	0.21	0.021	4.9
	2.2	37.0	0.19	0.018	4.2
	2.45	38.0	0.12	0.012	2.8
	2.7	32.0	0.37	0.029	7
	2.95	36.0	0.01	0.001	0.2
	3.2	30.0	0.06	0.005	1.1
	3.45	30.0	-0.02	-0.010	-2.4
	Left Bank	6.45	0.0	0.00	0.000

**Table A1-6  
Manual Flow Measurements at SCTR-3 in 2007**

<b>Date Monitored:</b> May 24, 2007	<b>Staff Gauge (m):</b> 0.31
<b>Time (24 hr):</b>	<b>Pressure Transducer (m):</b> -
<b>Personnel:</b> G.Norton, R. Dennis	<b>Discharge (m<sup>3</sup>/s):</b> 0.313
<b>Method:</b> Velocity - area with Swoffer	

<b>Notes</b>	<b>Station (m)</b>	<b>Depth (cm)</b>	<b>Velocity (m/s)</b>	<b>Q (m<sup>3</sup>/s)</b>	<b>% Total</b>
Right Bank	1.6	0.0	0.00	0.001	0.2
	1.75	6.0	0.65	0.006	1.9
	1.9	9.0	1.11	0.015	4.8
	2.05	33.0	0.10	0.005	1.6
	2.2	25.0	0.51	0.019	6.1
	2.35	30.0	0.14	0.006	2.0
	2.5	36.0	0.21	0.011	3.6
	2.65	45.0	0.80	0.054	17.3
	2.8	46.0	1.26	0.087	27.8
	2.95	38.0	0.85	0.048	15.5
	3.1	37.0	0.58	0.032	10.3
	3.25	17.5	0.29	0.008	2.4
	3.4	16.0	0.32	0.008	2.5
	3.55	17.0	0.20	0.005	1.6
	3.7	24.5	0.04	0.001	0.5
	3.85	31.0	0.08	0.004	1.2
	4	25.0	0.03	0.001	0.4
	4.15	30.0	0.00	0.000	0.0
	4.3	20.5	0.02	0.001	0.2
4.45	16.0	0.03	0.000	0.2	
Left Bank	4.5	0.0	0.00	0.000	0.0

<b>Date Monitored:</b> June 22, 2007	<b>Staff Gauge (m):</b> 0.45
<b>Time (24 hr):</b>	<b>Pressure Transducer (m):</b> 0.40
<b>Personnel:</b> G. Norton, G. De La Ronde	<b>Discharge (m<sup>3</sup>/s):</b> 0.8
<b>Method:</b> Salt dilution	

	<b>Q (m<sup>3</sup>/s)</b>
Left Bank	0.8
Right Bank	0.8
<i>See Figure A1-6</i>	

<b>Date Monitored:</b> August 6, 2007	<b>Staff Gauge (m):</b> 0.48
<b>Time (24 hr):</b>	<b>Pressure Transducer (m):</b> 0.44
<b>Personnel:</b> C. Doughty, S. Louie	<b>Discharge (m<sup>3</sup>/s):</b> 1.0
<b>Method:</b> Salt dilution	

	<b>Q (m<sup>3</sup>/s)</b>
Left Bank	NA
Right Bank	1.0
<i>See Figure A1-6</i>	

(continued)



**Table A1-6**  
**Manual Flow Measurements at SCTR-3 in 2007 (completed)**

<b>Date Monitored:</b> September 9, 2007	<b>Staff Gauge (m):</b> 0.5
<b>Time (24 hr):</b>	<b>Pressure Transducer (m):</b> 0.45
<b>Personnel:</b> C. Doughty, S. Guenther	<b>Discharge (m<sup>3</sup>/s):</b> 1.4
<b>Method:</b> Salt dilution	
	<b>Q</b> <b>(m<sup>3</sup>/s)</b>
Left Bank	1.3
Right Bank	1.5
<i>See Figure A1-6</i>	

<b>Date Monitored:</b> December 9, 2007	<b>Staff Gauge (m):</b> -
<b>Time (24 hr):</b>	<b>Pressure Transducer (m):</b> -
<b>Flows monitored by:</b> G.Norton, D.McPherson	<b>Discharge (m<sup>3</sup>/s):</b> 0.017
<b>Method:</b> Velocity - area with Flowtracker	
	<b>Q</b> <b>(m<sup>3</sup>/s)</b>
	0.017

<b>Notes</b>	<b>Station (m)</b>	<b>Depth (cm)</b>	<b>Depth Ice (cm)</b>	<b>Velocity (m/s)</b>	<b>Q (m<sup>3</sup>/s)</b>	<b>% Total</b>
Right Bank	1.10	0.0	0.0	0.00	0.000	0.0
	1.70	34.0	32.0	0.01	0.000	0.4
	1.80	50.0	26.0	0.07	0.002	9.3
	1.90	32.0	26.0	0.22	0.001	7.7
	2.00	32.0	24.0	0.44	0.003	20.1
	2.10	32.0	24.0	0.48	0.004	22.1
	2.2	32.0	24.0	0.39	0.003	17.8
	2.3	36.0	26.0	0.38	0.004	21.6
	2.4	30.0	23.0	0.00	0.000	0.3
Left Bank	2.7	0.0	0.0	0.00	0.000	0.1

Notes: when hole to ice created, overflow occurred and was measured seperately, see below

*Over-ice flow*

<b>Notes</b>	<b>Width (m)</b>	<b>Depth (cm)</b>	<b>Velocity<sub>x</sub> (m/s)</b>	<b>Q (m<sup>3</sup>/s)</b>	<b>% Total</b>
	0.12	7.0	0.01	0.000	1.0%

**Table A1-7**  
**Manual Flow Measurements at SK-1 in 2007**

Date Monitored: January 25, 2007	Staff Gauge (m):
Time (24 hr):	Pressure Transducer (m):
Personnel: G.Norton, I. Thonon	Discharge (m <sup>3</sup> /s): <b>0.083</b>
Method: Velocity - area with Flow Tracker	

Notes	Station (m)	Depth to Bed (cm)	Velocity (m/s)	Q (m <sup>3</sup> /s)	% Total
Left Bank	3.8	0.0	0.00	0.000	0.0
	3.0	14.0	0.10	0.006	7.7
	2.9	18.0	0.27	0.007	8.7
	2.7	19.0	0.23	0.009	10.7
	2.5	2.0	0.32	0.001	1.5
	2.3	18.0	0.25	0.009	10.8
	2.1	18.0	0.37	0.013	16.0
	1.9	21.0	0.24	0.010	11.9
	1.7	19.0	0.25	0.010	11.6
	1.5	16.0	0.23	0.007	8.7
	1.3	15.0	0.09	0.003	3.4
	1.1	11.0	0.16	0.004	4.3
	0.9	8.0	0.25	0.004	4.7
Slush and mud	0.7	5.0	0.00	0.000	0.0
Right Bank	0.3	0.0	0.00	0.000	0.0

Date Monitored: March 27, 2007	Staff Gauge (m):
Time (24 hr):	Pressure Transducer (m):
Personnel: G.Norton, K. Esseltine	Discharge (m <sup>3</sup> /s): <b>0.044</b>
Method: Velocity - area with Flow Tracker	

Notes	Station (m)	Depth (cm)	Velocity (m/s)	Q (m <sup>3</sup> /s)	% Total
Right Bank	0.70	22	0.00	0.001	2.8
	0.80	22	0.11	0.004	8.5
	1.00	18	0.11	0.004	9.0
	1.20	20	0.15	0.006	13.4
	1.40	18	0.09	0.003	7.5
	1.60	15	0.00	0.000	0.1
	2.00	10	0.31	0.009	20.7
	2.20	12	0.00	0.000	-0.2
	2.40	11	0.21	0.005	10.6
	2.60	11	0.21	0.005	10.1
	2.80	11	0.13	0.003	6.2
	3.00	8	0.00	0.000	0.0
	3.20	6	0.12	0.001	3.2
	3.40	5	0.11	0.001	1.9
	3.50	6	0.08	0.002	4.6
	4.26	0	0.00	0.001	1.5

(continued)

**Table A1-7  
Manual Flow Measurements at SK-1 in 2007 (continued)**

Date Monitored: April 30, 2007	Staff Gauge (m):	0.03
Time (24 hr):	Pressure Transducer (m):	0.01
Personnel: G.Norton, K. Nole	Discharge (m <sup>3</sup> /s):	0.137
Method Velocity - area with Swoffer		

Notes	Station (m)	Depth (cm)	Velocity (m/s)	Q (m <sup>3</sup> /s)	% Total
Left Bank	1	0.0	0.00	0.000	0.0
	1.2	9.0	0.06	0.001	0.8
	1.4	8.0	0.11	0.002	1.3
	1.6	9.5	0.13	0.002	1.8
	1.8	10.0	0.13	0.003	1.9
	2	9.5	0.21	0.004	2.9
	2.2	11.0	0.09	0.002	1.4
	2.4	12.5	0.17	0.004	3.1
	2.6	14.0	0.28	0.008	5.7
	2.8	17.0	0.29	0.010	7.2
	3	20.5	0.28	0.011	8.4
	3.2	22.0	0.30	0.013	9.6
	3.4	22.0	0.35	0.015	11.3
	3.6	25.0	0.43	0.022	15.7
On a log	3.8			0.008	5.6
	4	22.5	0.02	0.001	0.7
	4.2	24.5	0.17	0.008	6.1
	4.4	22.5	0.17	0.008	5.6
	4.6	20.0	0.15	0.006	4.4
	4.8	15.5	0.15	0.005	3.4
	5	13.0	0.12	0.003	2.3
	5.2	14.0	0.05	0.001	0.8
Right Bank	5.3	17.0	0.00	0.000	0.0

Date Monitored: May 22, 2007	Staff Gauge (m):	0.23
Time (24 hr):	Pressure Transducer (m):	0.22
Personnel: G.Norton, R. Dennis	Discharge (m <sup>3</sup> /s):	0.829
Method Velocity - area with Swoffer		

Notes	Station (m)	Depth (cm)	Velocity (m/s)	Q (m <sup>3</sup> /s)	% Total
Right bank	0.5	0.0	0.00	0.000	0.0
	1	23.0	0.02	0.002	0.2
	1.25	15.5	0.07	0.003	0.3
	1.5	17.5	0.24	0.011	1.3
	1.75	24.0	0.47	0.028	3.4
	2	30.0	0.61	0.046	5.5
	2.25	30.5	0.77	0.059	7.1
	2.5	33.0	0.67	0.055	6.7
	2.75	28.0	1.04	0.073	8.8
	3	25.0	0.85	0.053	6.4
	3.25	22.0	1.10	0.061	7.3
	3.5	25.0	0.97	0.061	7.3
	3.75	25.0	1.03	0.064	7.8

(continued)

**Table A1-7**  
**Manual Flow Measurements at SK-1 in 2007 (continued)**

Date Monitored: May 22, 2007	Staff Gauge (m):	0.23
Time (24 hr):	Pressure Transducer (m):	0.22
Personnel: G.Norton, R. Dennis	Discharge (m <sup>3</sup> /s):	0.829
Method Velocity - area with Swoffer		

Notes	Station (m)	Depth (cm)	Velocity (m/s)	Q (m <sup>3</sup> /s)	% Total
Right bank	4	25.0	0.73	0.046	5.5
	4.25	21.0	1.01	0.053	6.4
	4.5	21.0	0.85	0.045	5.4
	4.75	22.5	0.82	0.046	5.6
	5	19.5	0.50	0.024	2.9
	5.25	16.0	0.68	0.027	3.3
	5.5	12.5	0.44	0.014	1.7
	5.75	10.5	0.38	0.010	1.2
	6	10.0	0.34	0.009	1.0
	6.25	14.0	0.23	0.008	1.0
	6.5	12.5	0.12	0.004	0.5
	6.75	11.0	0.23	0.006	0.8
	7	8.0	0.18	0.004	0.4
	7.25	8.0	0.18	0.004	0.4
	7.5	10.0	0.15	0.004	0.5
	7.75	11.0	0.14	0.004	0.5
	8	10.0	0.07	0.002	0.2
	8.25	12.0	0.10	0.003	0.4
	8.5	14.0	0.08	0.003	0.3
	8.75	15.0	0.05	0.001	0.1
Left bank	8.8	0.0	0.00	0.000	0.0

Date Monitored: June 22, 2007	Staff Gauge (m):	0.3
Time (24 hr):	Pressure Transducer (m):	0.27
Personnel: G. Norton, G. De La Ronde	Discharge (m <sup>3</sup> /s):	1.7
Method: Salt dilution		

	Q (m <sup>3</sup> /s)
Left Bank	1.7
Right Bank	1.7
<i>See Figure A1-7</i>	

Date Monitored: August 5, 2007	Staff Gauge (m):	0.19
Time (24 hr):	Pressure Transducer (m):	0.18
Personnel: C. Doughty, S. Louie	Discharge (m <sup>3</sup> /s):	0.8
Method: Salt dilution		

	Q (m <sup>3</sup> /s)
Left Bank	0.8
Right Bank	0.8
<i>See Figure A1-7</i>	

(continued)

**Table A1-7**  
**Manual Flow Measurements at SK-1 in 2007 (completed)**

<b>Date Monitored: September 8, 2007</b>		<b>Staff Gauge (m):</b>	<b>0.045</b>
<b>Time (24 hr):</b>		<b>Pressure Transducer (m):</b>	<b>0.05</b>
<b>Personnel: C. Doughty, S. Guenther</b>		<b>Discharge (m<sup>3</sup>/s):</b>	<b>0.5</b>
<b>Method: Salt dilution</b>			
			<b>Q</b>
			<b>(m<sup>3</sup>/s)</b>
Left Bank			0.5
Right Bank			0.5
<i>See Figure A1-7</i>			

<b>Date Monitored: November 16, 2007</b>		<b>Staff Gauge (m):</b>	<b>-</b>		
<b>Time (24 hr):</b>		<b>Pressure Transducer (m):</b>	<b>0.09</b>		
<b>Personnel: C. Doughty, R. Dennis</b>		<b>Discharge (m<sup>3</sup>/s):</b>	<b>0.132</b>		
<b>Method: Velocity - area with Flowtracker</b>					
<b>Notes</b>	<b>Station</b>	<b>Depth</b>	<b>Velocity</b>	<b>Q</b>	<b>% Total</b>
	<b>(m)</b>	<b>(cm)</b>	<b>(m/s)</b>	<b>(m<sup>3</sup>/s)</b>	
Right Bank	6.00	0.0	0.00	0.000	0.0
	5.60	17.0	0.05	0.004	3.3
	5.00	14.0	0.21	0.020	15.3
	4.20	20.0	0.25	0.030	22.5
	3.80	20.0	0.23	0.018	13.7
	3.40	19.0	0.04	0.003	2.1
	3.00	6.0	0.31	0.008	5.7
	2.60	4.0	0.04	0.001	0.5
	2.20	7.0	0.00	0.000	0.0
	1.80	12.0	0.28	0.013	10.1
	1.40	14.0	0.41	0.023	17.4
	1.00	14.0	0.15	0.012	9.4
Left Bank	0.20	0.0	0.00	0.000	0.0

<b>Date Monitored: December 7, 2007</b>		<b>Staff Gauge (m):</b>	<b>-</b>			
<b>Time (24 hr):</b>		<b>Pressure Transducer (m):</b>	<b>-</b>			
<b>Flows monitored by: G.Norton, K. Nole</b>		<b>Discharge (m<sup>3</sup>/s):</b>	<b>0.038</b>			
<b>Method: Velocity - area with Flowtracker</b>						
<b>Notes</b>	<b>Station</b>	<b>Depth</b>	<b>Depth Ice</b>	<b>Velocity<sub>x</sub></b>	<b>Q</b>	<b>% Total</b>
	<b>(m)</b>	<b>(cm)</b>	<b>(cm)</b>	<b>(m/s)</b>	<b>(m<sup>3</sup>/s)</b>	
Left Bank	1.00	0.0	0.0	0.00	0.000	0.0
	1.50	22.0	14.0	0.00	0.000	0.0
	2.75	37.0	16.0	0.02	0.006	15.0
	4.15	20.0	14.0	0.05	0.003	8.3
	5.10	38.0	14.0	0.10	0.026	67.5
Right Bank	6.25	0.0	0.0	0.00	0.004	9.2

**Table A1-8  
Manual Flow Measurements at SK-2 in 2007**

<b>Date Monitored: January 24, 2007</b>		<b>Staff Gauge (m):</b>		-	
<b>Time (24 hr):</b>		<b>Pressure Transducer (m):</b>		-	
<b>Personnel: G.Norton, I. Thonon</b>		<b>Discharge (m<sup>3</sup>/s):</b>		<b>0.328</b>	
<b>Method: Velocity - area with Flow Tracker</b>					
<b>Notes</b>	<b>Station (m)</b>	<b>Depth to Bed (cm)</b>	<b>Velocity (m/s)</b>	<b>Q (m<sup>3</sup>/s)</b>	<b>% Total</b>
Left Bank	0.70	0.0	0.00	0.000	0.0
	1.50	12.0	0.27	0.017	5.3
	1.75	15.0	0.34	0.013	3.9
	2.00	12.0	0.10	0.003	0.9
	2.25	13.0	0.18	0.006	1.8
	2.50	13.0	0.34	0.011	3.3
	2.75	21.0	0.57	0.030	9.1
	3.00	20.0	0.35	0.017	5.3
	3.25	24.0	0.65	0.039	11.9
	3.50	22.0	0.44	0.024	7.3
	3.75	25.0	0.58	0.036	11.0
	4.00	13.0	0.55	0.018	5.4
	4.25	24.0	0.64	0.038	11.6
	4.50	24.0	0.64	0.039	11.8
	4.75	17.0	0.59	0.037	11.4
Right Bank	5.25	0.0	0.00	0.000	0.0

<b>Date Monitored: March 27, 2007</b>		<b>Staff Gauge (m):</b>		-	
<b>Time (24 hr):</b>		<b>Pressure Transducer (m):</b>		-	
<b>Personnel: G.Norton, K. Esseltine</b>		<b>Discharge (m<sup>3</sup>/s):</b>		<b>0.239</b>	
<b>Method: Velocity - area with Flow Tracker</b>					
<b>Notes</b>	<b>Station (m)</b>	<b>Depth (cm)</b>	<b>Velocity (m/s)</b>	<b>Q (m<sup>3</sup>/s)</b>	<b>% Total</b>
Left Bank	-2	0.0	0.00	0.000	0
	0.7	32.0	-0.01	-0.004	-1.6
	0.9	30.0	0.02	0.001	0.4
	1.1	28.0	0.01	0.001	0.3
	1.3	21.0	0.22	0.009	3.8
	1.5	22.0	0.32	0.014	5.8
	1.7	28.0	0.40	0.022	9.3
	1.9	29.0	0.39	0.023	9.6
	2.1	29.0	0.49	0.029	11.9
	2.3	26.0	0.34	0.018	7.4
	2.5	26.0	0.37	0.019	8
	2.7	24.0	0.31	0.015	6.2
	2.9	26.0	0.17	0.009	3.8
	3.1	22.0	0.03	0.001	0.5
	3.3	16.0	0.02	0.001	0.2
	3.5	30.0	0.20	0.082	34.3
Right Bank	6	0.0	0.00	0.000	0

(continued)

**Table A1-8**  
**Manual Flow Measurements at SK-2 in 2007 (continued)**

Date Monitored: April 30, 2007		Staff Gauge (m): 0.205			
Time (24 hr):		Pressure Transducer (m): 0.174			
Personnel: G.Norton, K. Nole		Discharge (m <sup>3</sup> /s): 0.421			
Method Velocity - area with Swoffer					
Notes	Station (m)	Depth (cm)	Velocity (m/s)	Q (m <sup>3</sup> /s)	% Total
Right Bank	0.9	0.0	0.00	0.000	0.1
	1.15	20.0	0.04	0.001	0.3
	1.25	19.0	0.22	0.006	1.5
	1.45	25.0	0.07	0.004	0.8
	1.65	24.5	0.02	0.001	0.2
	1.85	23.0	0.25	0.012	2.7
	2.05	22.0	0.46	0.020	4.8
	2.25	29.0	0.16	0.009	2.2
	2.45	38.0	0.71	0.054	12.8
	2.65	37.5	0.71	0.053	12.6
	2.85	39.5	0.81	0.064	15.2
	3.05	40.5	0.53	0.043	10.2
	3.25	32.0	0.88	0.056	13.4
	3.45	40.0	0.37	0.030	7.0
	3.65	41.0	0.42	0.034	8.2
	3.85	41.0	0.30	0.025	5.8
	4.05	44.5	0.02	0.002	0.4
4.25	44.0	0.04	0.004	0.8	
4.45	43.0	0.03	0.003	0.6	
4.65	22.5	0.02	0.001	0.2	
Left Bank	4.75	0.0	0.00	0.000	0.0

Date Monitored: May 22, 2007		Staff Gauge (m): 0.470			
Time (24 hr):		Pressure Transducer (m): 0.410			
Personnel: G.Norton, R. Dennis		Discharge (m <sup>3</sup> /s): 2.493			
Method Velocity - area with Swoffer					
Notes	Station (m)	Depth (cm)	Velocity (m/s)	Q (m <sup>3</sup> /s)	% Total
Right Bank	0.3	0.0	0.00	0.024	1.0
	0.6	43.0	1.01	0.109	4.4
	0.8	49.0	1.10	0.108	4.3
	1	54.5	1.46	0.159	6.4
	1.2	58.0	1.29	0.150	6.0
	1.4	51.0	1.70	0.173	7.0
	1.6	57.0	1.81	0.206	8.3
	1.8	59.0	1.78	0.210	8.4
	2	67.5	1.60	0.216	8.7
	2.2	60.5	1.43	0.173	6.9
	2.4	68.0	1.79	0.365	14.6
	2.8	69.0	1.74	0.360	14.4
	3	57.0	1.09	0.124	5.0
	3.2	64.5	0.59	0.076	3.1
	3.4	75.0	0.12	0.018	0.7
	3.6	77.5	0.11	0.017	0.7
	3.8	58.0	0.03	0.003	0.1
Left bank	4	55.0	0.00	0.001	0.0

(continued)

**Table A1-8**  
**Manual Flow Measurements at SK-2 in 2007 (continued)**

<b>Date Monitored: June 22, 2007</b>		<b>Staff Gauge (m):</b>	<b>0.580</b>		
<b>Time (24 hr):</b>		<b>Pressure Transducer (m):</b>	<b>0.560</b>		
<b>Personnel: G. Norton, G. De La Ronde</b>		<b>Discharge (m<sup>3</sup>/s):</b>	<b>3.3</b>		
<b>Method: Salt dilution</b>					
		<b>Q</b>			
		<b>(m<sup>3</sup>/s)</b>			
Left Bank			3.3		
Right Bank			3.3		
<i>See Figure A1-8</i>					
<b>Date Monitored: August 6, 2007</b>		<b>Staff Gauge (m):</b>	<b>0.420</b>		
<b>Time (24 hr):</b>		<b>Pressure Transducer (m):</b>	<b>0.345</b>		
<b>Personnel: C. Doughty, S. Louie</b>		<b>Discharge (m<sup>3</sup>/s):</b>	<b>1.6</b>		
<b>Method: Salt dilution</b>					
		<b>Q</b>			
		<b>(m<sup>3</sup>/s)</b>			
Left Bank			1.6		
Right Bank			1.5		
<i>See Figure A1-8</i>					
<b>Date Monitored: September 8, 2007</b>		<b>Staff Gauge (m):</b>	<b>0.260</b>		
<b>Time (24 hr):</b>		<b>Pressure Transducer (m):</b>	<b>0.220</b>		
<b>Personnel: C. Doughty, S. Guenther</b>		<b>Discharge (m<sup>3</sup>/s):</b>	<b>0.8</b>		
<b>Method: Salt dilution</b>					
		<b>Q</b>			
		<b>(m<sup>3</sup>/s)</b>			
Left Bank			0.8		
Right Bank			0.8		
<i>See Figure A1-8</i>					
<b>Date Monitored: November 17, 2007</b>		<b>Staff Gauge (m):</b>	<b>0.15</b>		
<b>Time (24 hr):</b>		<b>Pressure Transducer (m):</b>	<b>0.14</b>		
<b>Personnel: C. Doughty, R. Dennis</b>		<b>Discharge (m<sup>3</sup>/s):</b>	<b>0.322</b>		
<b>Method: Velocity - area with Flowtracker</b>					
<b>Notes</b>	<b>Station</b>	<b>Depth</b>	<b>Velocity</b>	<b>Q</b>	<b>% Total</b>
	<b>(m)</b>	<b>(cm)</b>	<b>(m/s)</b>	<b>(m<sup>3</sup>/s)</b>	
Right Bank	4.00	0.0	0.00	0.000	0.0
	3.50	37.0	0.08	0.009	2.8
	3.40	40.0	0.15	0.006	1.8
	3.30	39.0	0.14	0.005	1.6
	3.20	35.0	0.10	0.003	1.1
	3.10	35.0	0.08	0.003	0.9
	3.00	44.0	0.08	0.003	1.1
	2.90	38.0	0.30	0.011	3.6
	2.80	36.0	0.38	0.014	4.3
	2.70	38.0	0.57	0.021	6.7
	2.60	37.0	0.82	0.030	9.4

(continued)



**Table A1-8**  
**Manual Flow Measurements at SK-2 in 2007 (completed)**

Date Monitored: November 17, 2007	Staff Gauge (m): 0.15
Time (24 hr):	Pressure Transducer (m): 0.14
Personnel: C. Doughty, R. Dennis	Discharge (m <sup>3</sup> /s): 0.322
Method: Velocity - area with Flowtracker	

Notes	Station (m)	Depth (cm)	Velocity (m/s)	Q (m <sup>3</sup> /s)	% Total	
Right Bank	2.50	35.0	0.93	0.032	10.1	
	2.40	36.0	1.02	0.037	11.4	
	2.30	33.0	1.10	0.036	11.3	
	2.20	36.0	0.98	0.035	11.0	
	2.10	34.0	1.12	0.038	11.8	
	2.00	40.0	0.56	0.022	7.0	
	1.90	34.0	0.23	0.008	2.4	
	1.80	29.0	0.37	0.011	3.3	
	1.70	29.0	0.01	0.000	0.1	
	1.60	28.0	0.00	0.000	0.0	
	1.50	26.0	-0.09	-0.005	-1.5	
	Left Bank	1.20	28.0	0.00	0.000	0.0

Date Monitored: December 7, 2007	Staff Gauge (m): -
Time (24 hr):	Pressure Transducer (m): -
Flows monitored by: G.Norton, K. Nole	Discharge (m <sup>3</sup> /s): 0.194
Method: Velocity - area with Flowtracker	

Notes	Station (m)	Depth (cm)	Depth Ice (cm)	Velocity <sub>x</sub> (m/s)	Q (m <sup>3</sup> /s)	% Total
Left Bank	0.70	0.0	0.0	0.00	0.001	0.3
	2.00	46.0	28.0	0.02	0.004	1.8
	2.60	52.0	24.0	0.79	0.133	68.6
	3.20	48.0	25.0	0.33	0.044	22.4
	3.75	44.0	34.0	0.23	0.011	5.8
Right Bank	4.20	0.0	0.0	0.00	0.002	1.0

**Table A1-9**  
**Manual Flow Measurements at MESS-1 in 2007**

Date Monitored: January 25, 2007				Staff Gauge (m): -		
Time (24 hr):				Pressure Transducer (m): -		
Personnel: G.Norton, I. Thonon				Discharge (m <sup>3</sup> /s): 0.971		
Method: Velocity - area with Flow Tracker						
Notes	Station (m)	Depth to Bed (cm)	Depth to Bottom of Ice (cm)	Velocity (m/s)	Q (m <sup>3</sup> /s)	% Total
Left Bank	31.7	0.0	0.0	0.00	0.000	0.0
Below snow bank/twigs	31.3	18.0	0.0	0.00	0.000	0.0
Below snow bank/twigs	31.1	23.0	0.0	0.00	0.000	0.0
	30.9	31.0	0.0	0.00	0.000	0.0
	30.7	31.0	0.0	0.00	0.000	0.0
	30.5	31.0	0.0	0.04	0.003	0.3
	30.2	34.0	0.0	0.09	0.009	0.9
	29.9	36.0	0.0	0.14	0.013	1.3
	29.7	38.0	0.0	0.13	0.010	1.0
	29.5	39.0	0.0	0.09	0.007	0.7
	29.3	40.0	0.0	0.11	0.009	0.9
	29.1	40.0	0.0	0.14	0.011	1.2
	28.9	40.0	0.0	0.19	0.015	1.6
	28.7	40.0	0.0	0.20	0.016	1.6
	28.5	41.0	0.0	0.22	0.018	1.9
	28.3	41.0	0.0	0.20	0.057	5.9
Under ice	27.1	46.0	37.5	0.11	0.018	1.9
Under ice	24.5	51.0	25.0	0.41	0.259	26.6
Under ice	22.3	60.0	24.0	0.32	0.253	26.1
Under ice	20.1	73.0	37.0	0.34	0.272	28.1
Under ice - slush to bottom	17.8	87.0	81.0	0.00	0.000	0.0

Date Monitored: March 25, 2007				Staff Gauge (m): -		
Time (24 hr):				Pressure Transducer (m): -		
Personnel: G.Norton, K. Esseltine				Discharge (m <sup>3</sup> /s): 0.795		
Method: Velocity - area with Flow Tracker						
Notes	Station (m)	Depth (cm)	Velocity (m/s)	Q (m <sup>3</sup> /s)	% Total	
Right Bankk	20.00	0.0	0.00	0.000	0.1	
Under ice - slush to bottom	16.55	11.0	0.05	0.023	2.9	
Under ice	11.15	28.0	0.00	0.000	0.0	
Under ice - on bar	9.05	3.0	0.00	0.000	0.0	
Under ice - filled with slush; p	7.40	25.0	-0.02	0.000	0.0	
Under ice	5.55	14.0	0.41	0.090	11.3	
	4.25	45.0	0.41	0.143	18.0	
	4.00	43.0	0.24	0.026	3.3	
	3.75	40.0	0.13	0.013	1.7	
	3.50	39.0	0.10	0.009	1.2	
	3.25	36.0	-0.01	0.000	-0.1	
	3.00	37.0	-0.06	-0.005	-0.7	
	2.75	36.0	0.12	0.010	1.3	
	2.50	35.0	0.50	0.043	5.5	
	2.25	34.0	0.66	0.056	7.0	
	2.00	32.0	0.72	0.058	7.3	
	1.75	32.0	0.72	0.058	7.3	
	1.50	32.0	0.67	0.054	6.8	
	1.25	32.0	0.49	0.177	22.3	
Left Bank	-0.75	0.0	0.00	0.039	5.0	

(continued)

**Table A1-9**  
**Manual Flow Measurements at MESS-1 in 2007 (continued)**

Date Monitored: April 30, 2007	Staff Gauge (m): -
Time (24 hr):	Pressure Transducer (m): -
Personnel: G.Norton, K. Nole	Discharge (m <sup>3</sup> /s): 2.186
Method Velocity - area with Swoffer	

Notes	Station (m)	Depth (cm)	Velocity (cm/s)	Q (m <sup>3</sup> /s)	% Total
Right Bank	3	0.0	0.00	0.002	0.1
	4.2	37.0	0.08	0.033	1.5
	5.2	30.0	0.48	0.144	6.6
	6.2	54.0	0.52	0.281	12.8
	7.2	47.5	0.52	0.247	11.3
	8.2	47.5	0.56	0.266	12.2
	9.2	40.5	0.56	0.227	10.4
	10.2	40.0	0.50	0.200	9.2
	11.2	38.0	0.50	0.190	8.7
	12.2	34.0	0.50	0.170	7.8
	13.2	31.0	0.49	0.152	6.9
	14.2	24.0	0.41	0.098	4.5
	15.2	20.5	0.38	0.078	3.6
	16.2	16.0	0.32	0.051	2.3
	17.2	12.5	0.27	0.034	1.5
	18.2	8.0	0.17	0.014	0.6
	Left Bank	19.2	3.0	0.00	0.000
19.8		0.0	0.00	0.000	0.0

Date Monitored: May 22, 2007	Staff Gauge (m): 0.2
Time (24 hr):	Pressure Transducer (m): 0.18
Personnel: G.Norton, R. Dennis	Discharge (m <sup>3</sup> /s): 6.961
Method Velocity - area with Swoffer	

Notes	Station (m)	Depth (cm)	Velocity (cm/s)	Q (m <sup>3</sup> /s)	% Total
Right Bank	1.4	0	0.00	0.000	0.0
	1.5	14	0.00	0.000	0.0
	2.25	29.5	0.18	0.040	0.6
	3	49	0.26	0.096	1.4
	3.75	67	0.64	0.322	4.6
	4.5	62.5	0.59	0.277	4.0
	5.25	72.5	0.85	0.462	6.6
	6	72	0.93	0.502	7.2
	6.75	70	0.90	0.473	6.8
	7.5	67.5	0.77	0.390	5.6
	8.25	65	0.83	0.405	5.8
	9	62	0.85	0.395	5.7
	9.75	63	0.90	0.425	6.1
	10.5	62.5	0.87	0.408	5.9
	11.25	53	0.57	0.227	3.3
	12	54	0.52	0.211	3.0
	12.75	54.5	0.55	0.225	3.2
	13.5	48	0.63	0.227	3.3
	14.25	45	0.62	0.209	3.0
	15	42.5	0.79	0.252	3.6
15.75	40	0.82	0.246	3.5	
16.5	38	0.63	0.180	2.6	
17.25	35	0.84	0.221	3.2	

(continued)

**Table A1-9**  
**Manual Flow Measurements at MESS-1 in 2007 (continued)**

<b>Date Monitored:</b> May 22, 2007	<b>Staff Gauge (m):</b> 0.2
<b>Time (24 hr):</b>	<b>Pressure Transducer (m):</b> 0.18
<b>Personnel:</b> G.Norton, R. Dennis	<b>Discharge (m<sup>3</sup>/s):</b> 6.961
<b>Method:</b> Velocity - area with Swoffer	

Notes	Station (m)	Depth (cm)	Velocity (cm/s)	Q (m <sup>3</sup> /s)	% Total
Right Bank	18	32.5	0.56	0.137	2.0
	18.75	27.5	0.53	0.109	1.6
	19.5	25	0.46	0.086	1.2
	20.25	20.5	0.43	0.066	0.9
	21	19	0.48	0.068	1.0
	21.75	15	0.45	0.051	0.7
	22.5	13	0.39	0.038	0.5
	23.25	10	0.27	0.020	0.3
	24	8	0.20	0.012	0.2
	24.75	8	0.11	0.007	0.1
	25.5	5.5	0.08	0.003	0.0
	26.25	5.5	0.10	0.004	0.1
	27	18	0.16	0.022	0.3
	27.75	31	0.20	0.047	0.7
	28.5	38	0.21	0.060	0.9
	29.25	39.5	0.13	0.039	0.6
	Left Bank	30	10	0.05	0.004
30.75		0	0.00	0.000	0.0

<b>Date Monitored:</b> June 22, 2007	<b>Staff Gauge (m):</b> 0.89
<b>Time (24 hr):</b>	<b>Pressure Transducer (m):</b> 0.87
<b>Personnel:</b> G. Norton, G. De La Ronde	<b>Discharge (m<sup>3</sup>/s):</b> 35
<b>Method:</b> Visual Estimate	

<b>Date Monitored:</b> August 6, 2007	<b>Staff Gauge (m):</b> 0.545
<b>Time (24 hr):</b>	<b>Pressure Transducer (m):</b> 0.53
<b>Personnel:</b> C. Doughty, S. Louie	<b>Discharge (m<sup>3</sup>/s):</b> 25
<b>Method:</b> Visual Estimate	

<b>Date Monitored:</b> September 9, 2007	<b>Staff Gauge (m):</b> 0.28
<b>Time (24 hr):</b>	<b>Pressure Transducer (m):</b> 0.28
<b>Personnel:</b> C. Doughty, S. Guenther	<b>Discharge (m<sup>3</sup>/s):</b> 15
<b>Method:</b> Visual Estimate	

<b>Date Monitored:</b> November 16, 2007	<b>Staff Gauge (m):</b> -
<b>Time (24 hr):</b>	<b>Pressure Transducer (m):</b> -
<b>Personnel:</b> C. Doughty, R. Dennis	<b>Discharge (m<sup>3</sup>/s):</b> 2.317
<b>Method:</b> Velocity - area with Flowtracker	

Notes	Station (m)	Depth (cm)	Velocity (m/s)	Q (m <sup>3</sup> /s)	% Total
Right Bank	2.20	0	0.00	0.000	0.0%
	2.70	19	0.09	0.008	0.3%
	3.20	28	0.13	0.018	0.8%
	3.70	35	0.24	0.043	1.8%

(continued)

**Table A1-9  
Manual Flow Measurements at MESS-1 in 2007 (completed)**

Date Monitored: November 16, 2007

Time (24 hr):

Personnel: C. Doughty, R. Dennis

Method: Velocity - area with Flowtracker

Staff Gauge (m): -

Pressure Transducer (m): -

Discharge (m<sup>3</sup>/s): 2.317

Notes	Station (m)	Depth (cm)	Velocity (m/s)	Q (m <sup>3</sup> /s)	% Total
Right Bank	4.20	38	0.29	0.055	2.4%
	4.70	40	0.33	0.065	2.8%
	5.20	53	0.44	0.115	5.0%
	5.70	53	0.50	0.132	5.7%
	6.20	48	0.57	0.136	5.9%
	6.70	45	0.56	0.127	5.5%
	7.20	42	0.58	0.122	5.2%
	7.70	40	0.59	0.118	5.1%
	8.20	41	0.63	0.128	5.5%
	8.70	41	0.64	0.131	5.6%
	9.20	41	0.61	0.125	5.4%
	9.70	41	0.62	0.126	5.4%
	10.20	41	0.64	0.130	5.6%
	10.70	41	0.59	0.121	5.2%
	11.20	39	0.60	0.117	5.0%
	11.70	36	0.56	0.100	4.3%
	12.20	31	0.55	0.085	3.7%
	12.70	29	0.55	0.080	3.4%
	13.20	28	0.49	0.069	3.0%
	13.70	23	0.41	0.047	2.0%
14.20	19	0.41	0.039	1.7%	
14.70	17	0.37	0.032	1.4%	
15.20	15	0.33	0.025	1.1%	
15.70	10	0.26	0.013	0.6%	
16.20	7	0.18	0.009	0.4%	
Left Bank	17.20	0	0.00	0.000	0.0%

Date Monitored: December 7, 2007

Time (24 hr):

Flows monitored by: G.Norton, K. Nole

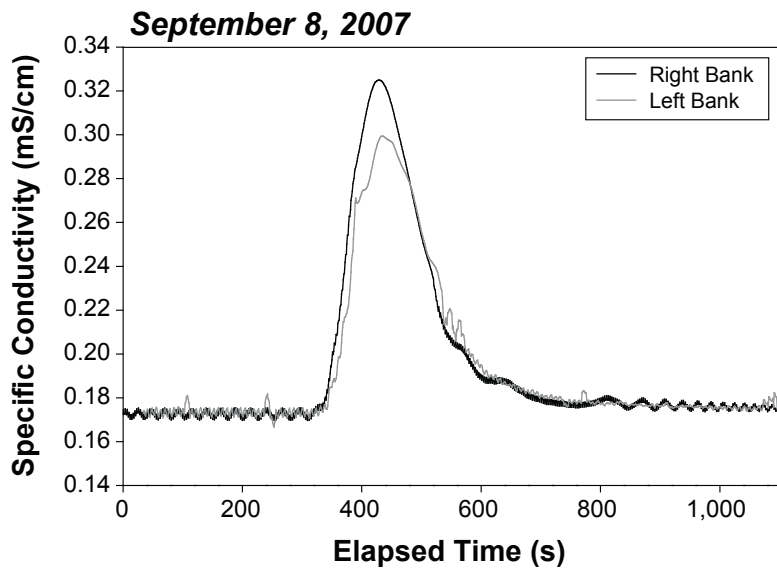
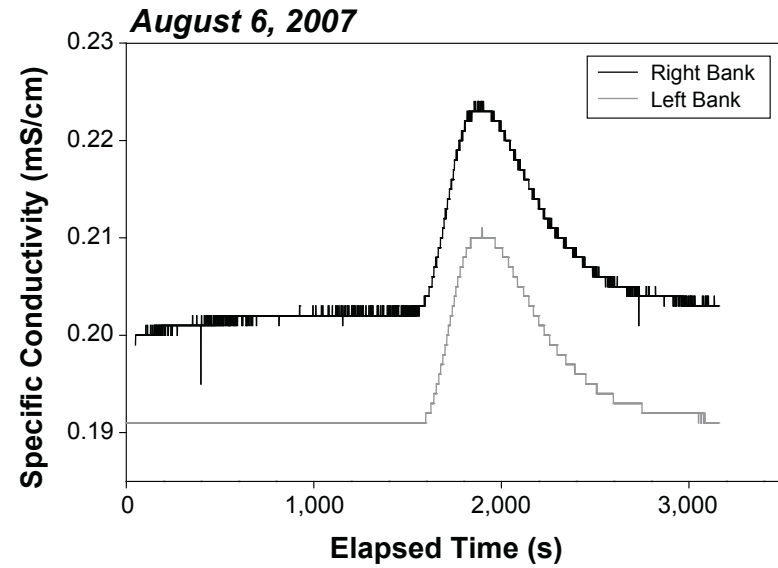
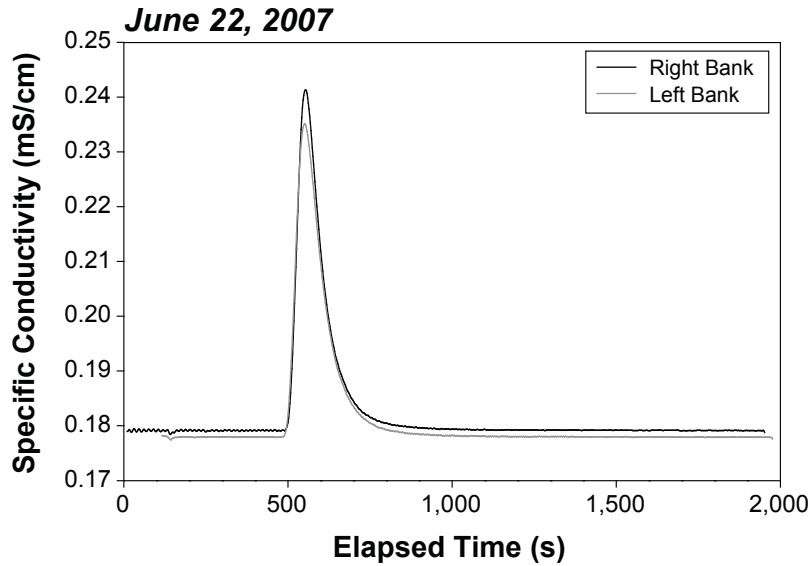
Method: Velocity - area with Flowtracker

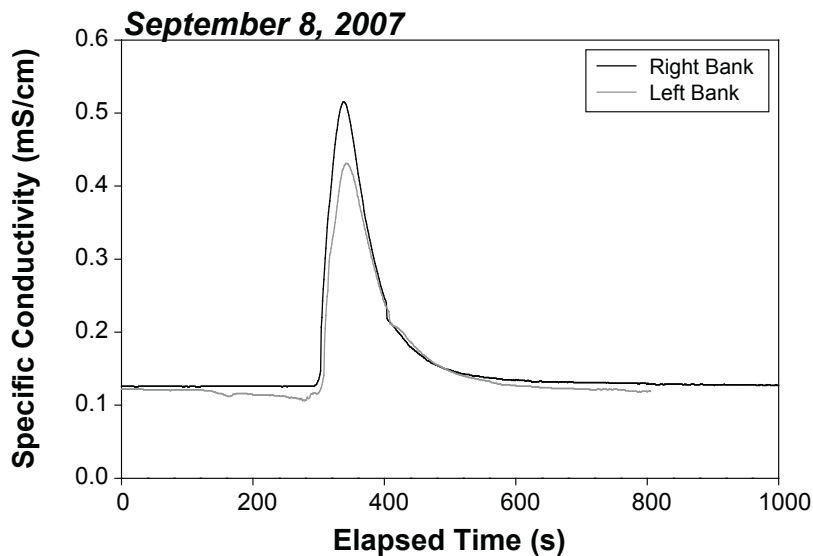
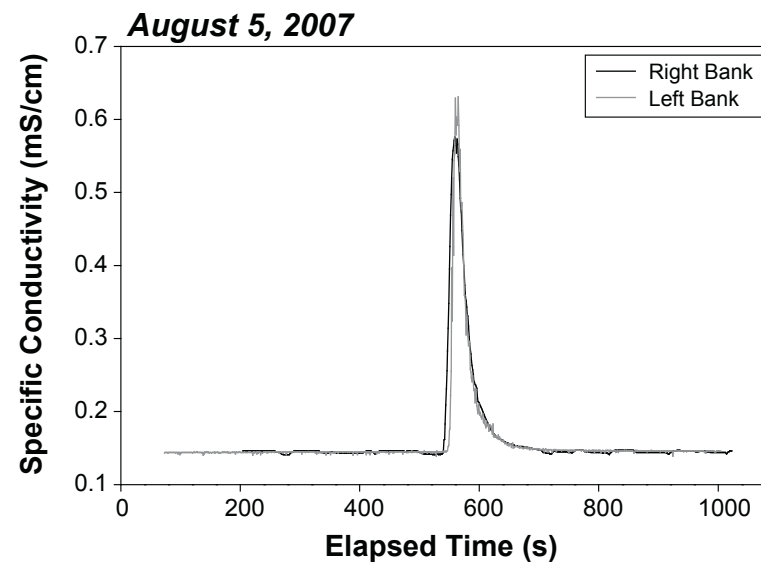
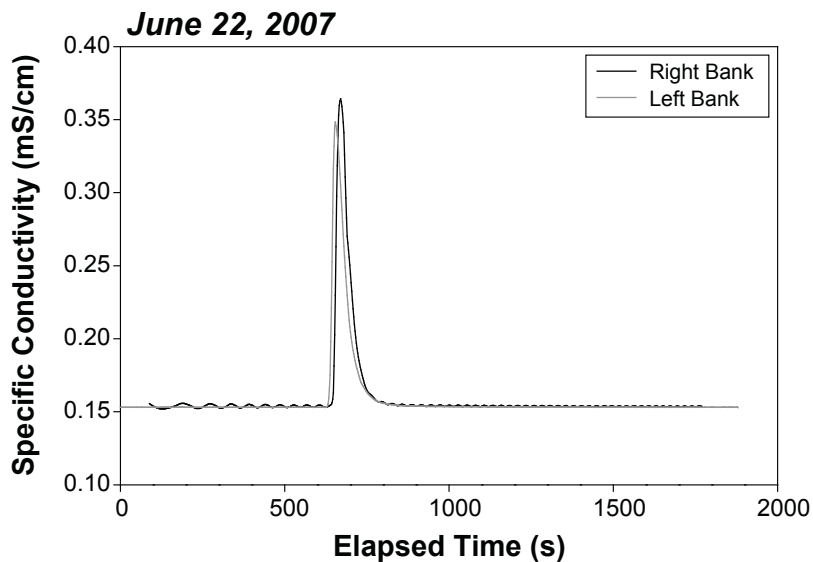
Staff Gauge (m): -

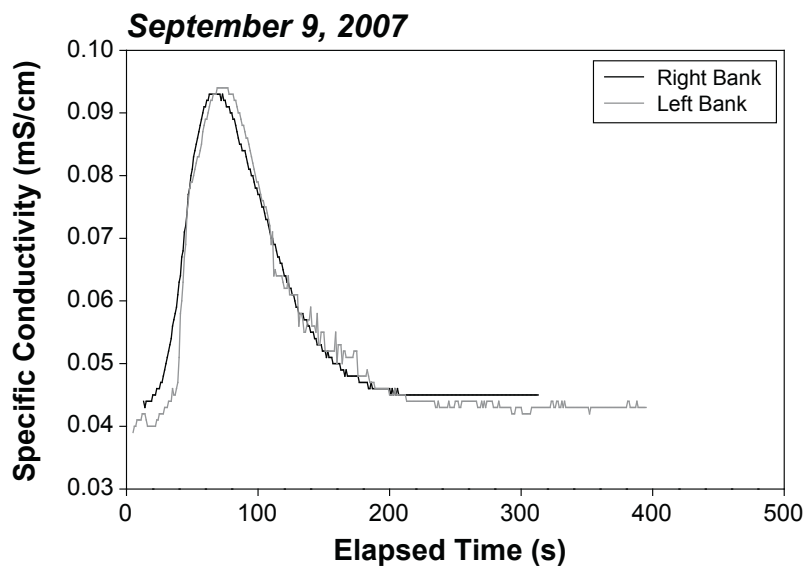
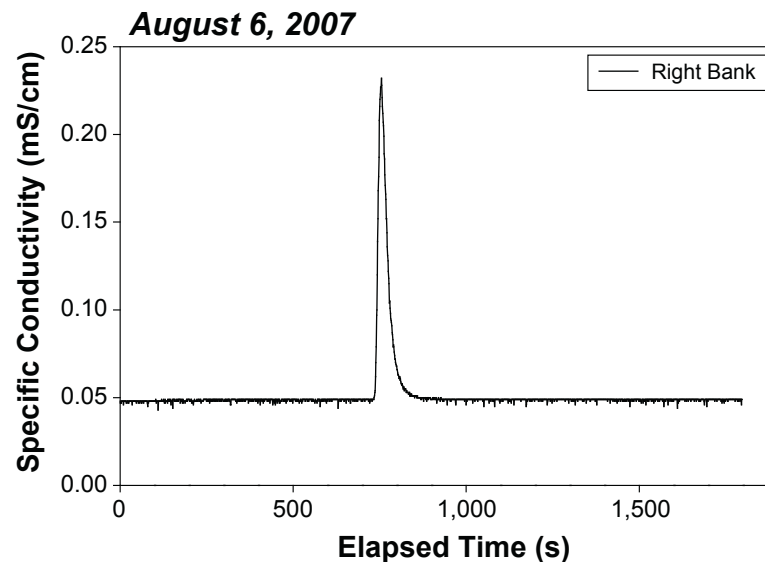
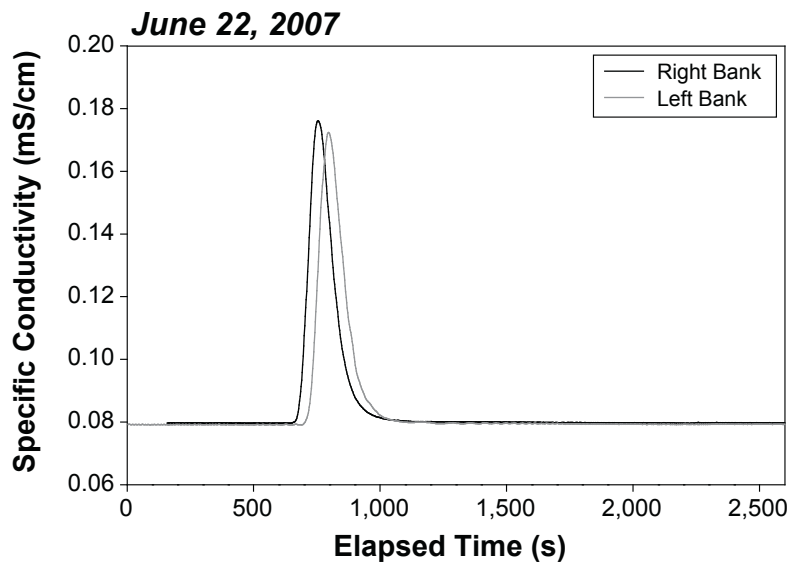
Pressure Transducer (m): -

Discharge (m<sup>3</sup>/s): 0.999

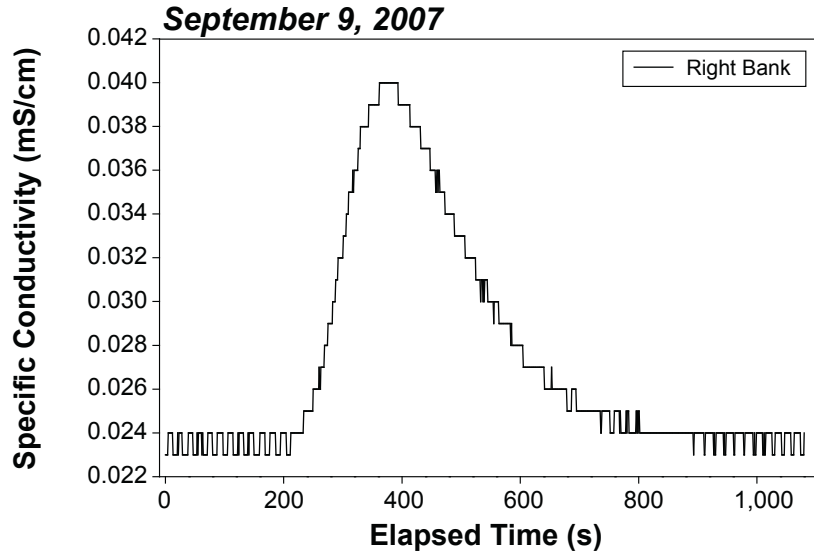
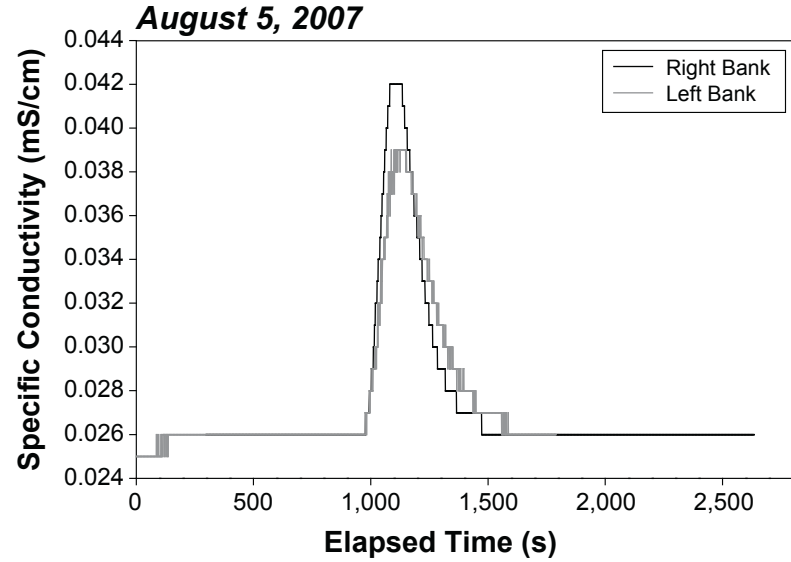
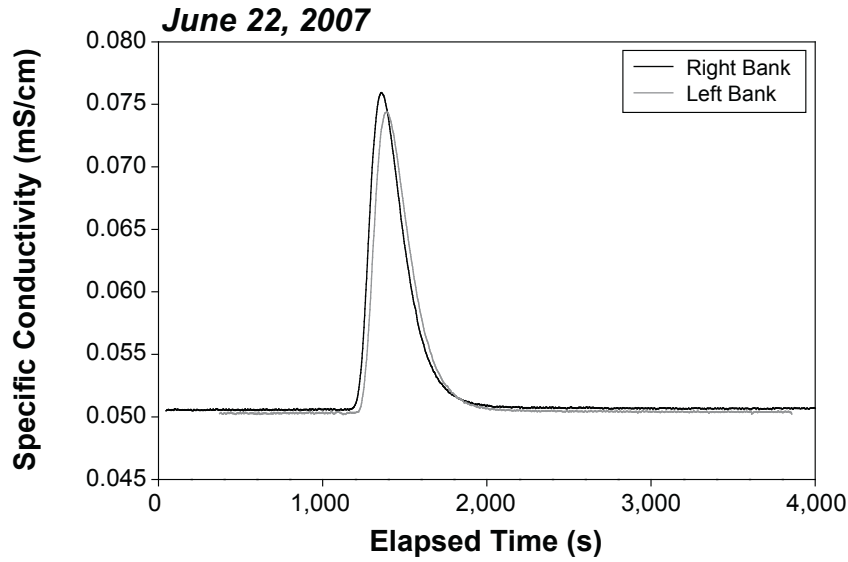
Notes	Station (m)	Depth (cm)	Depth Ice (cm)	Velocity <sub>x</sub> (m/s)	Q (m <sup>3</sup> /s)	% Total
Left Bank	0.60	0	0	0.00	0.028	2.8
	3.95	38	24	0.47	0.162	16.2
	5.50	53	25	0.64	0.286	28.6
	7.15	64	20	0.08	0.062	6.2
	9.25	66	26	0.34	0.398	39.8
Right Bank	13.00	0	0	0.00	0.064	6.4

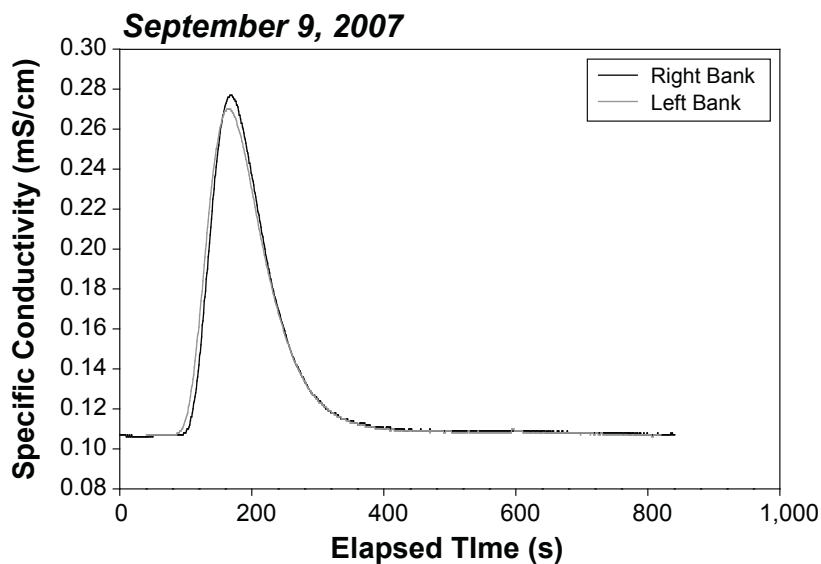
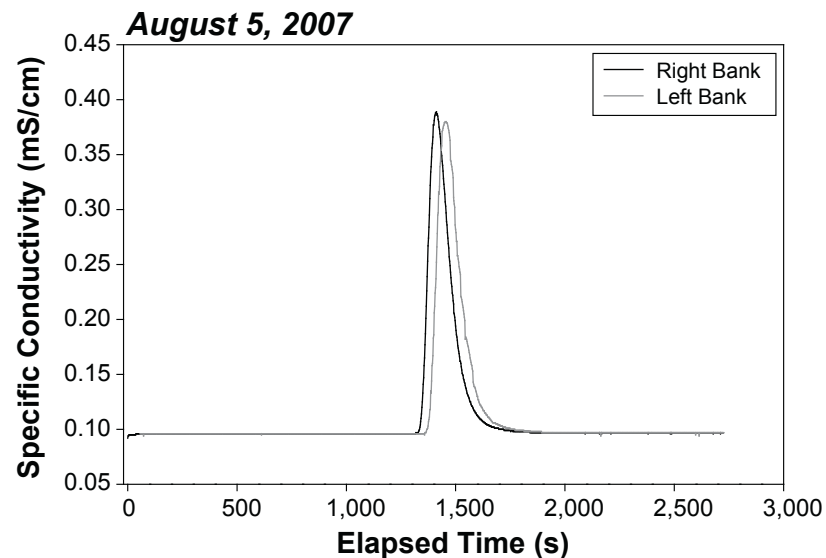
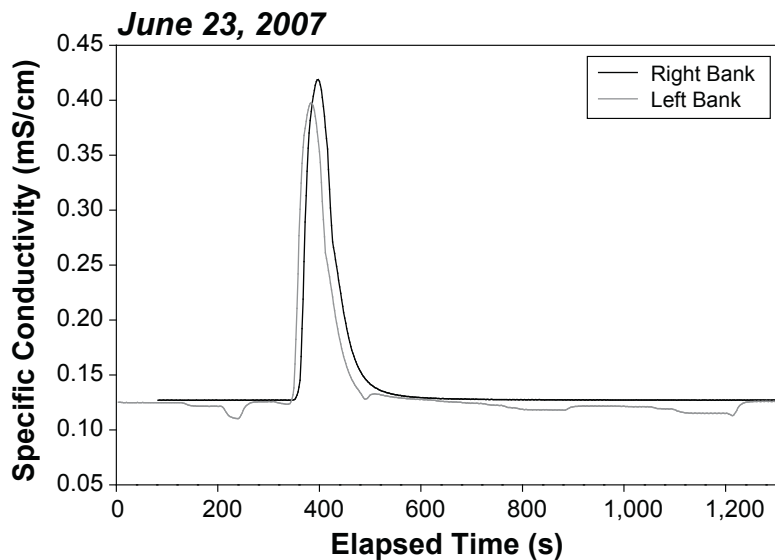


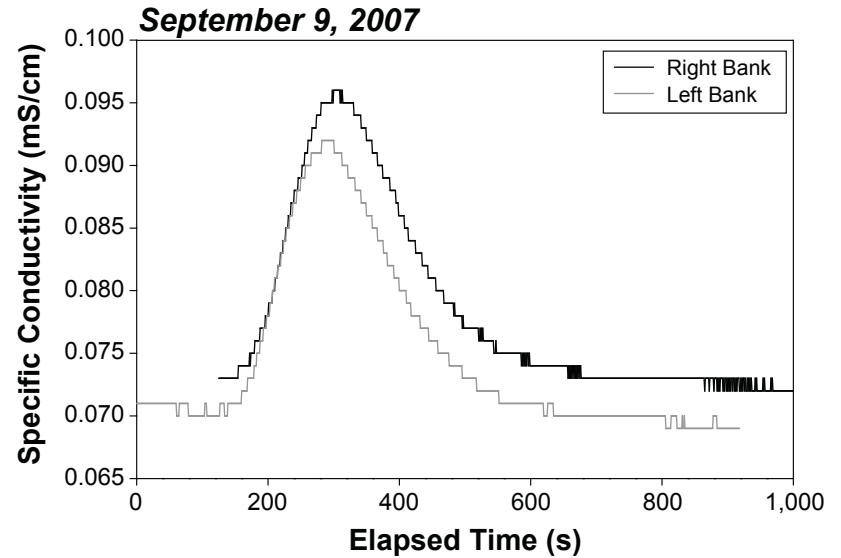
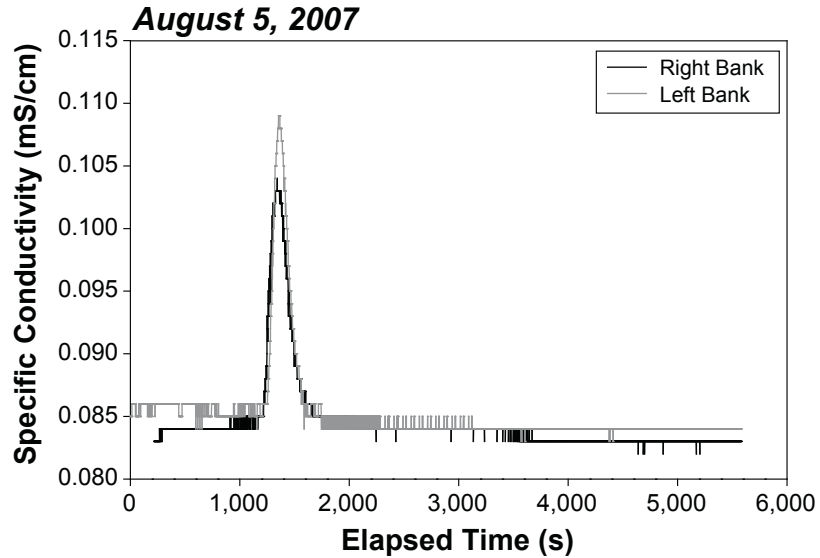
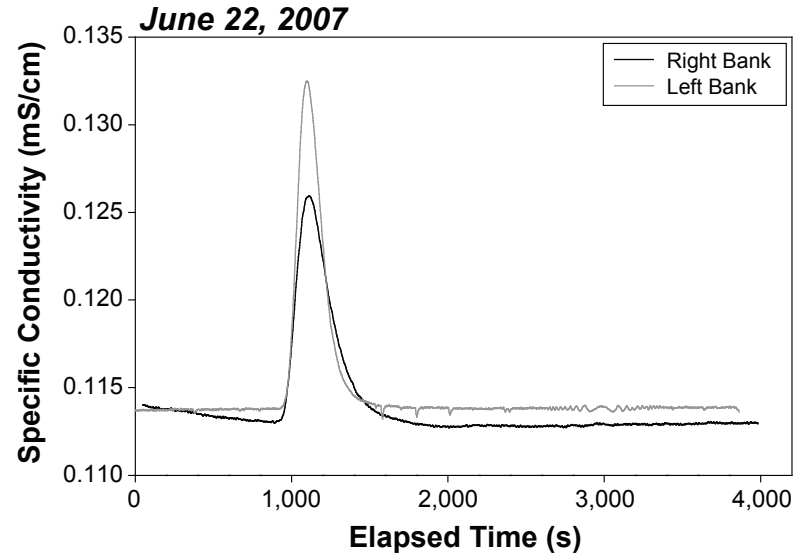
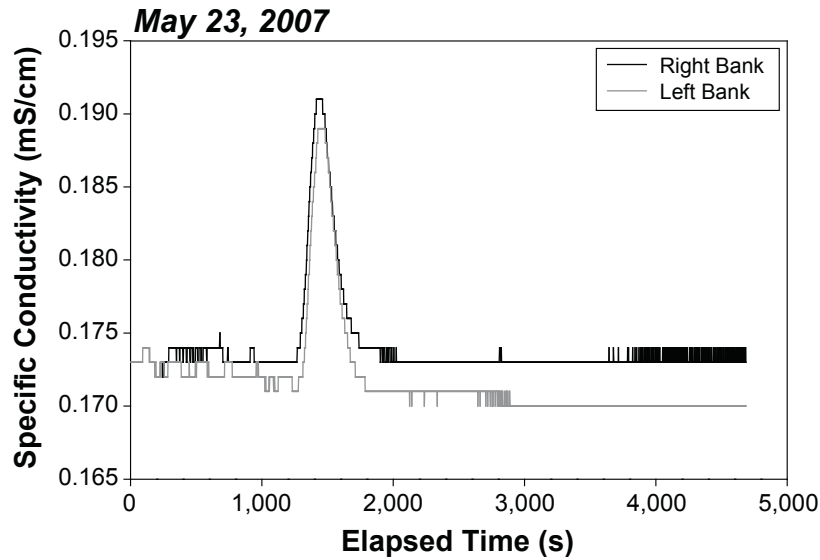


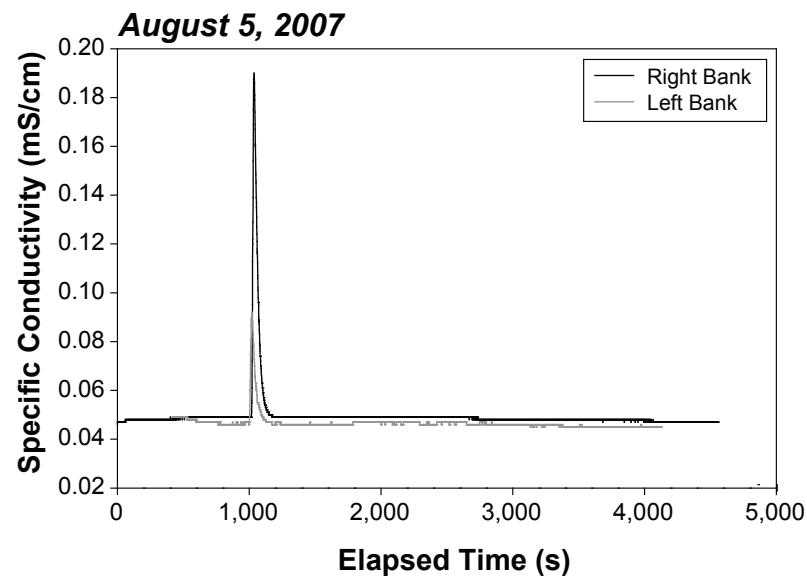
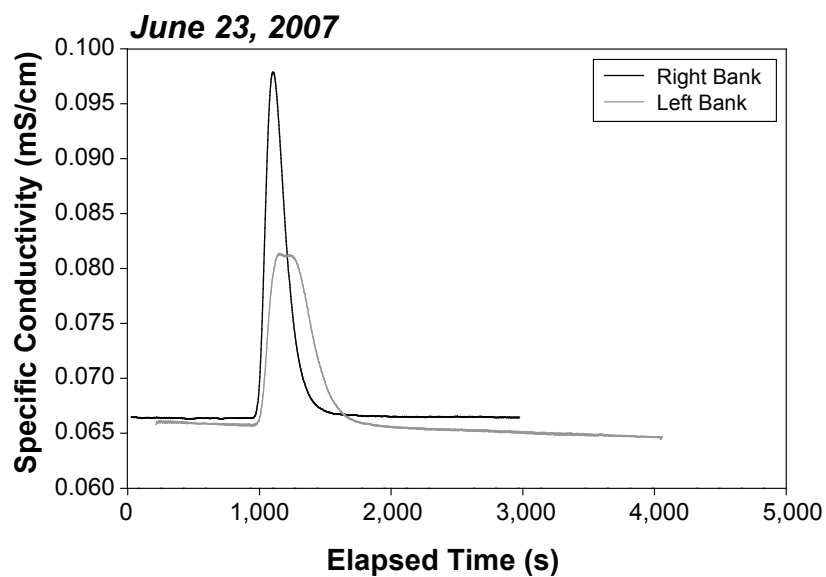


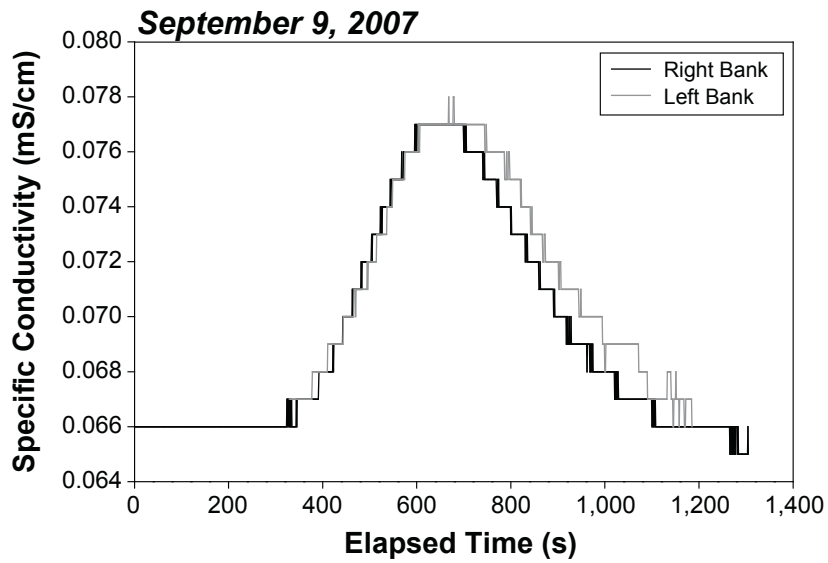
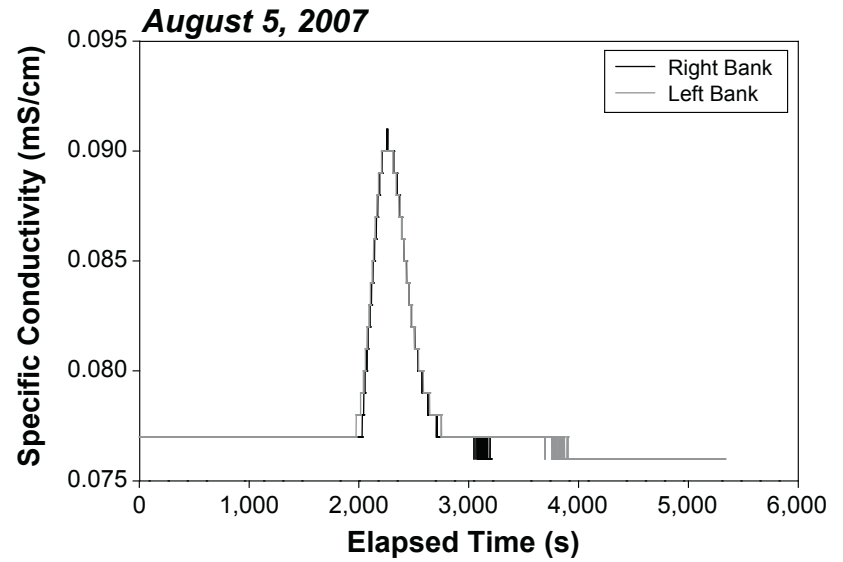
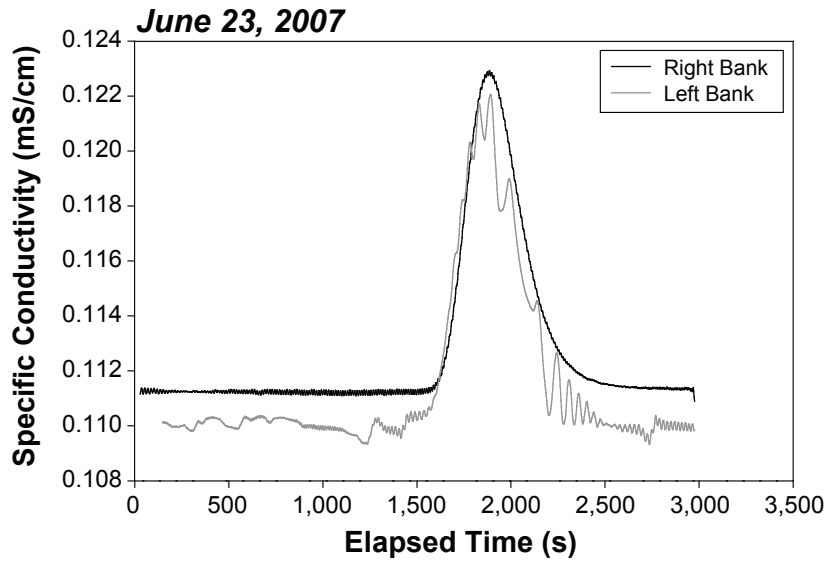








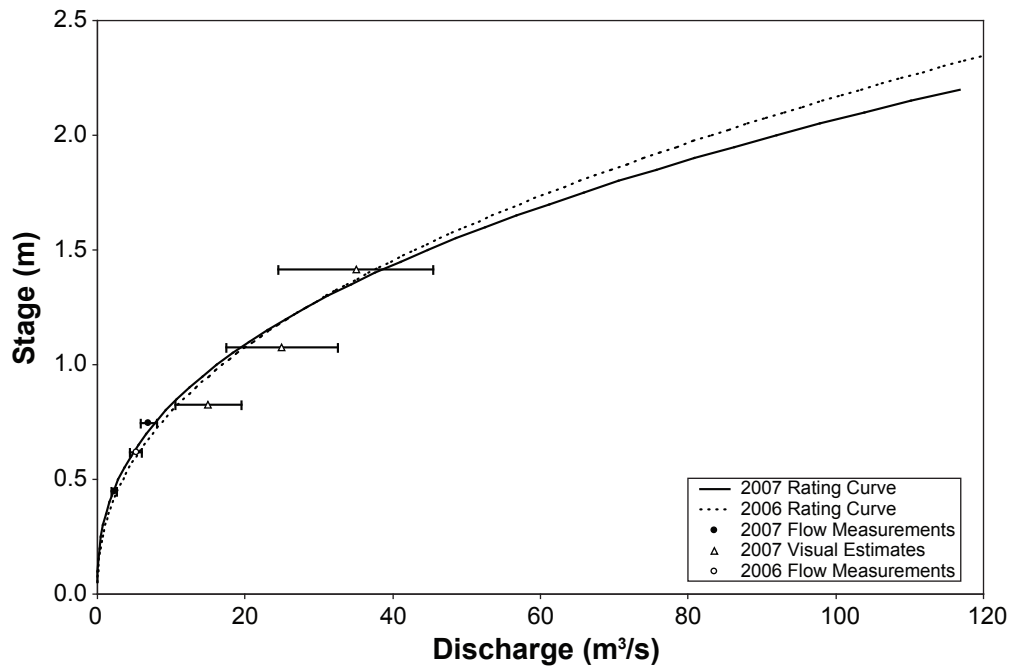




# APPENDIX 2 2007 RATING CURVES

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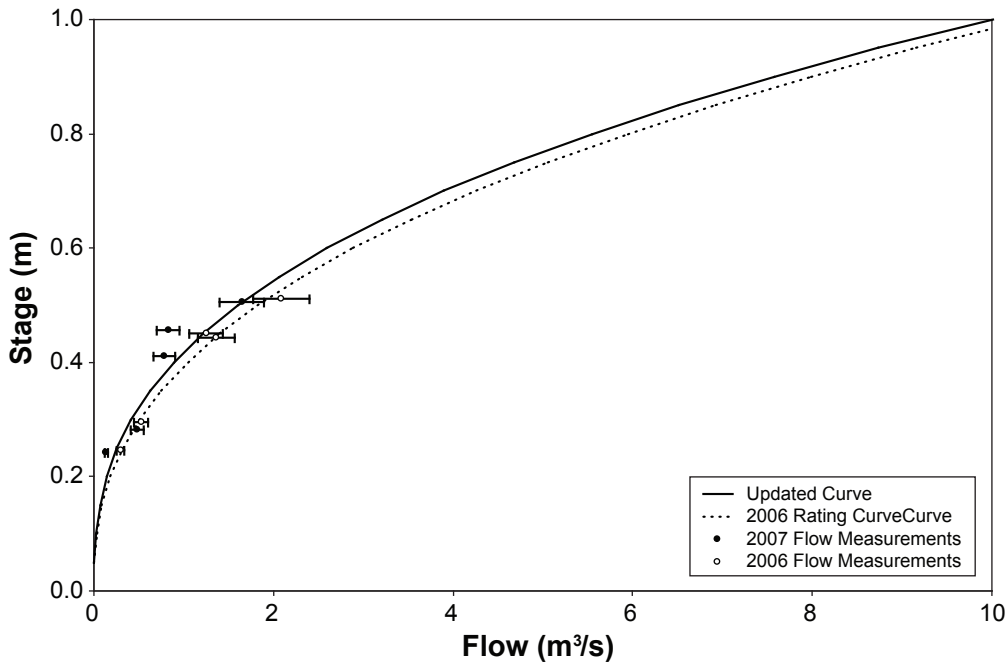




**MESS-1 Stage-Discharge Curve**

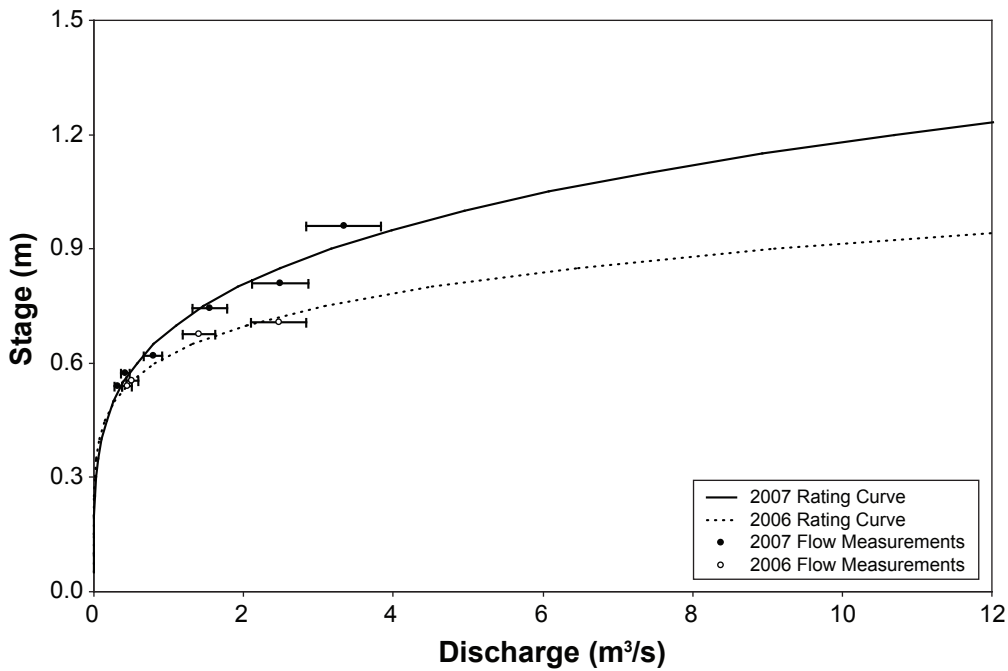
Note: Rating curves based on Mannings equation.

FIGURE A2-9



SK-1 Stage-Discharge Curve

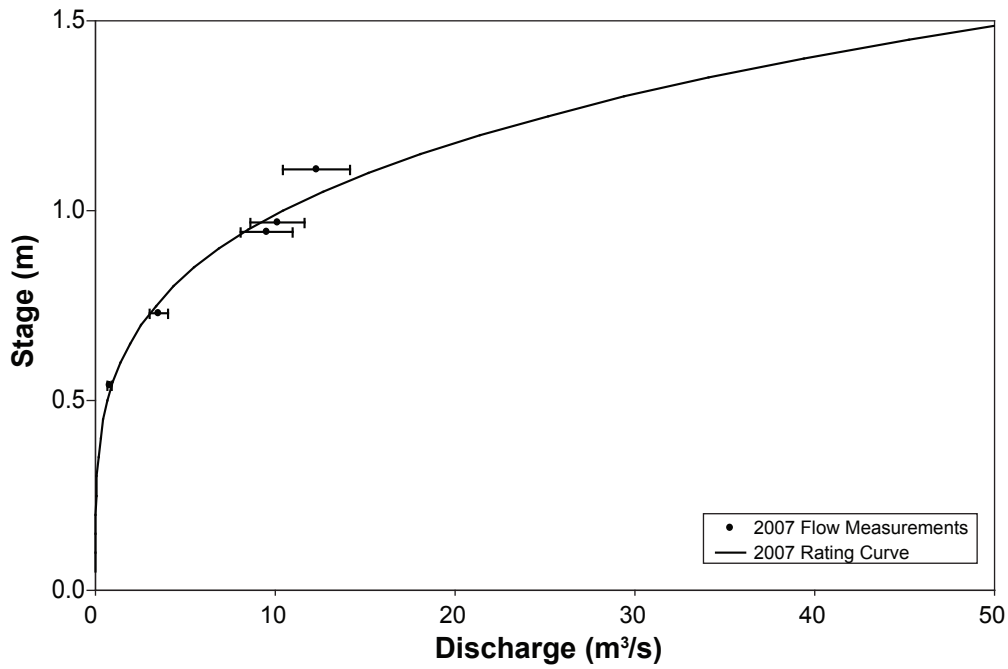
FIGURE A2-7



SK-2 Stage-Discharge Curve

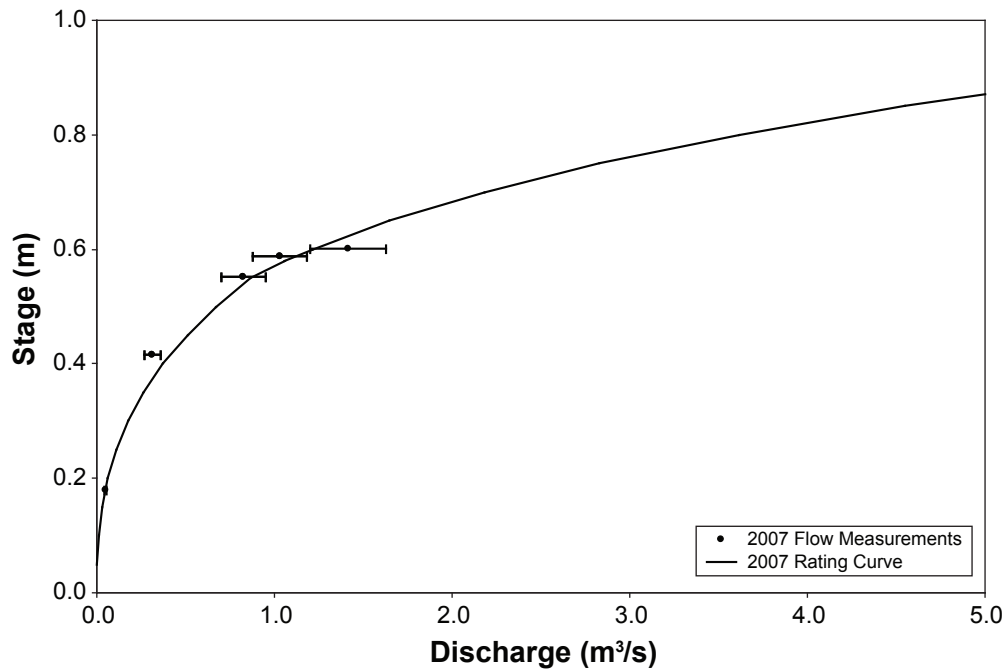
FIGURE A2-8





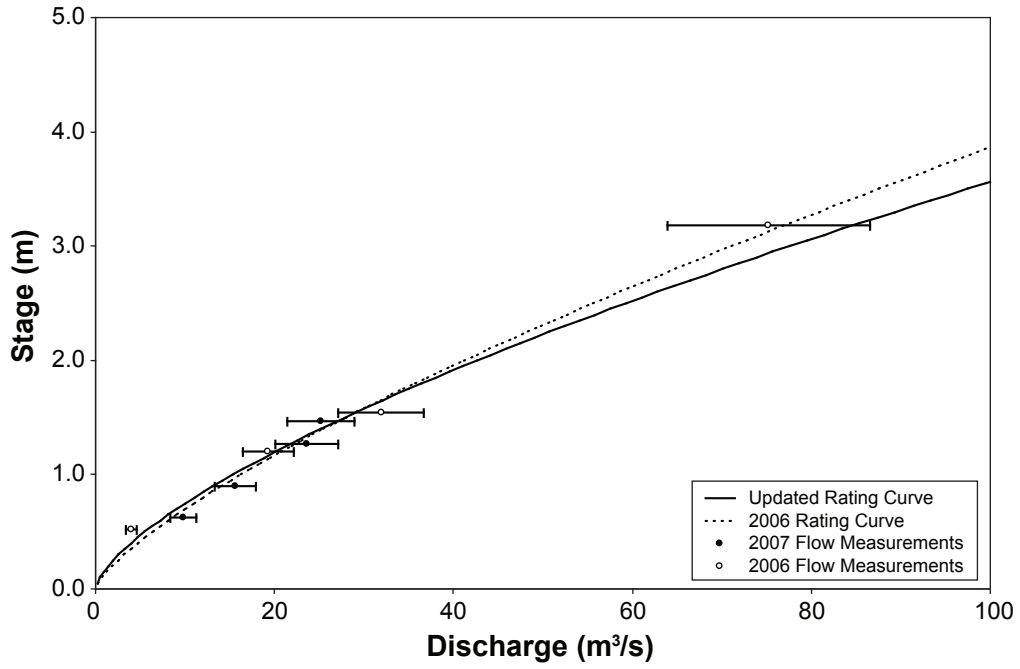
**SCTR-2 Stage-Discharge Curve**

FIGURE A2-5



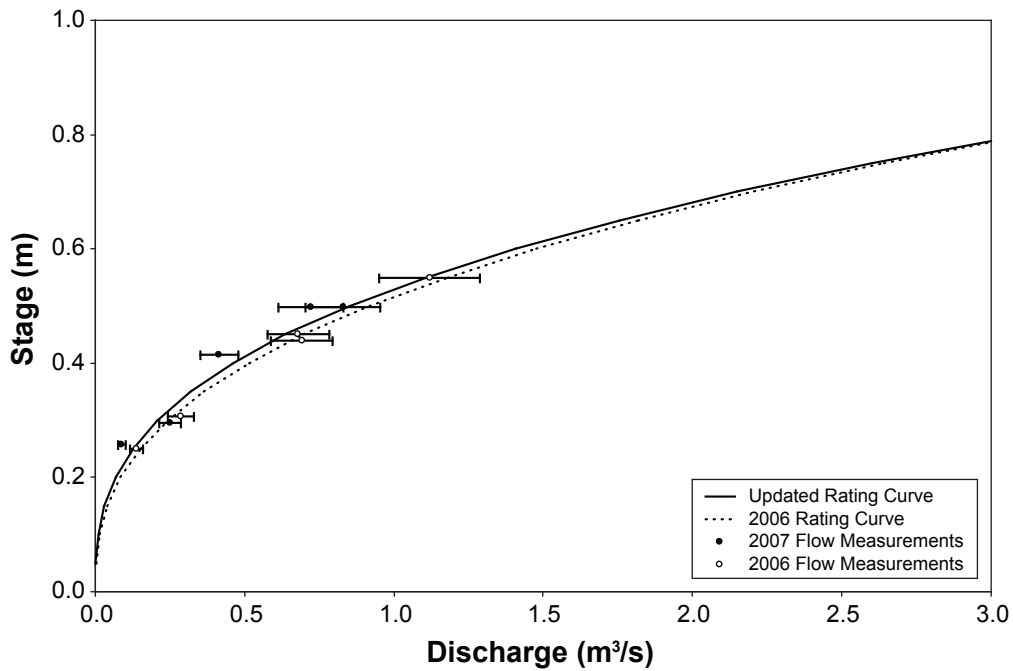
**SCTR-3 Stage-Discharge Curve**

FIGURE A2-6



SC-2 Stage-Discharge Curve

FIGURE A2-3



SCTR-1 Stage-Discharge Curve

FIGURE A2-4

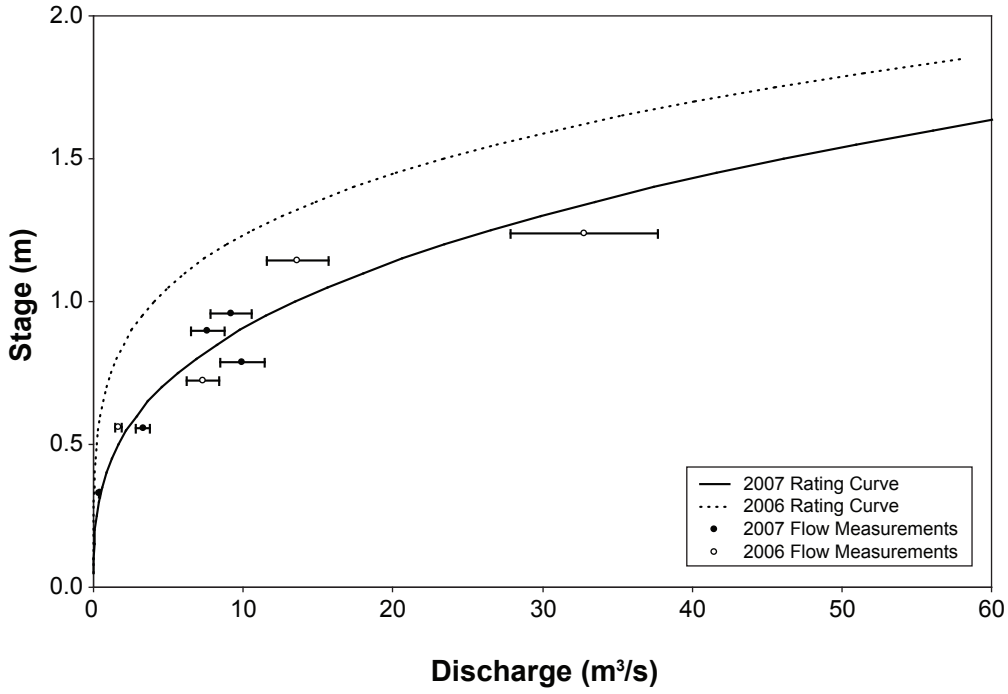


FIGURE A2-1

### HC-1 Stage-Discharge Curve

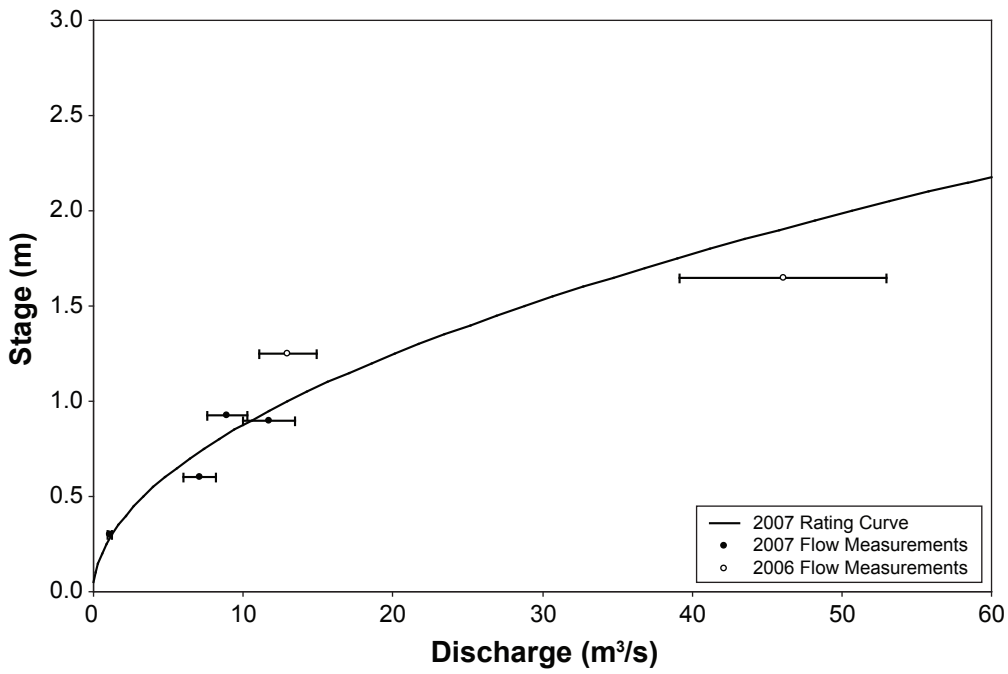


FIGURE A2-2

### SC-1 Stage-Discharge Curve

**APPENDIX 3**  
**2007 DAILY FLOW DATA**

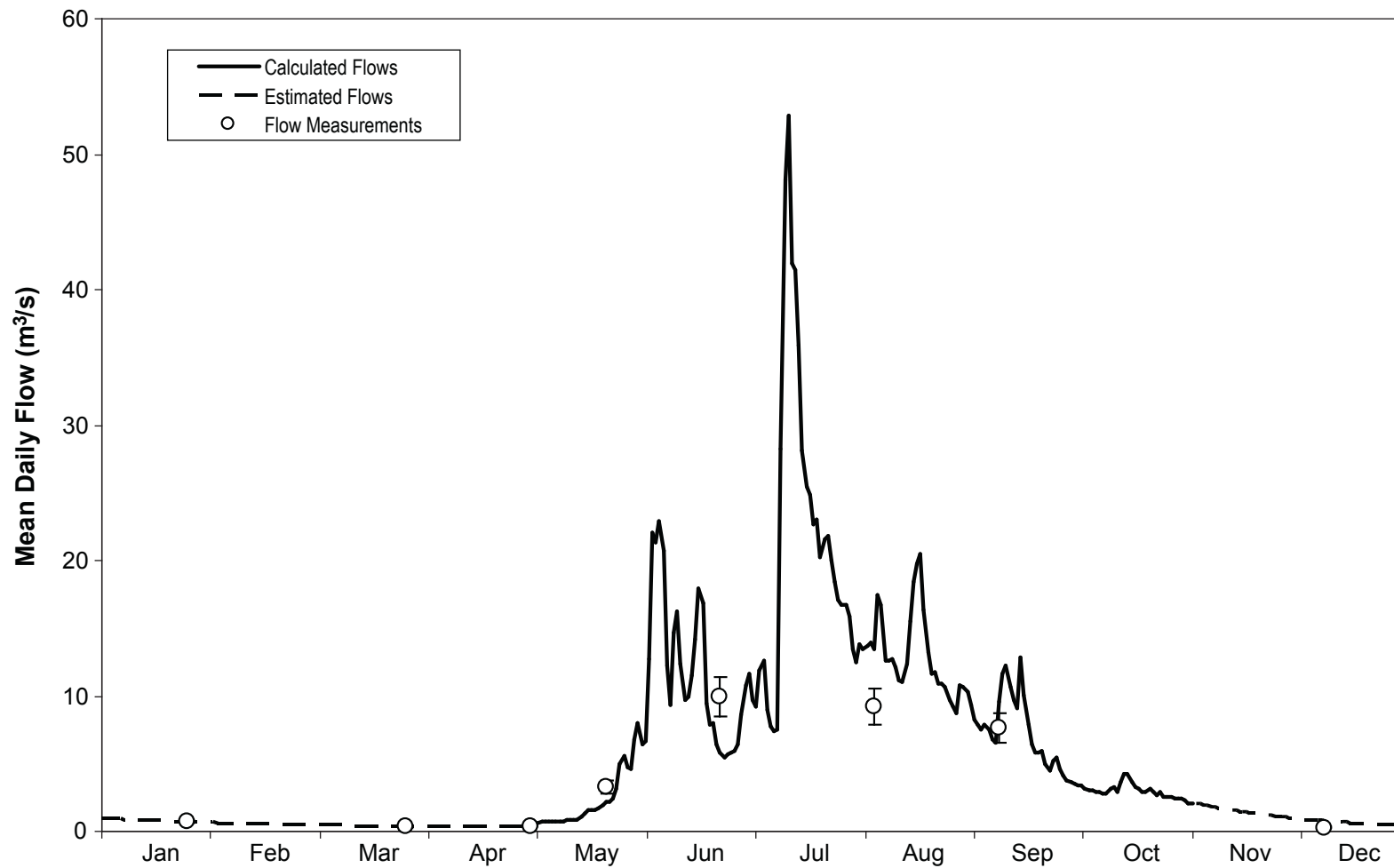
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**Table A3-1 - HC1**  
**Summary of Daily Mean Flow (m<sup>3</sup>/s) 2007**

<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>
01-Jan-06	0.97	01-Mar-06	0.482	01-May-06	0.39	01-Jul-06	11.67	01-Sep-06	9.36	01-Nov-06	2.08
02-Jan-06	0.96	02-Mar-06	0.476	02-May-06	0.48	02-Jul-06	9.71	02-Sep-06	8.21	02-Nov-06	2.11
03-Jan-06	0.94	03-Mar-06	0.471	03-May-06	0.58	03-Jul-06	9.17	03-Sep-06	7.83	03-Nov-06	2.06
04-Jan-06	0.93	04-Mar-06	0.465	04-May-06	0.69	04-Jul-06	11.82	04-Sep-06	7.47	04-Nov-06	2.00
05-Jan-06	0.92	05-Mar-06	0.460	05-May-06	0.70	05-Jul-06	12.63	05-Sep-06	7.87	05-Nov-06	1.95
06-Jan-06	0.91	06-Mar-06	0.454	06-May-06	0.70	06-Jul-06	8.94	06-Sep-06	7.54	06-Nov-06	1.90
07-Jan-06	0.90	07-Mar-06	0.449	07-May-06	0.71	07-Jul-06	7.73	07-Sep-06	6.85	07-Nov-06	1.85
08-Jan-06	0.89	08-Mar-06	0.444	08-May-06	0.74	08-Jul-06	7.40	08-Sep-06	6.59	08-Nov-06	1.80
09-Jan-06	0.88	09-Mar-06	0.438	09-May-06	0.77	09-Jul-06	7.50	09-Sep-06	9.58	09-Nov-06	1.75
10-Jan-06	0.87	10-Mar-06	0.433	10-May-06	0.77	10-Jul-06	28.18	10-Sep-06	11.66	10-Nov-06	1.70
11-Jan-06	0.86	11-Mar-06	0.428	11-May-06	0.80	11-Jul-06	48.11	11-Sep-06	12.28	11-Nov-06	1.66
12-Jan-06	0.85	12-Mar-06	0.423	12-May-06	0.82	12-Jul-06	52.81	12-Sep-06	10.72	12-Nov-06	1.62
13-Jan-06	0.84	13-Mar-06	0.418	13-May-06	0.83	13-Jul-06	41.91	13-Sep-06	9.66	13-Nov-06	1.57
14-Jan-06	0.83	14-Mar-06	0.413	14-May-06	0.88	14-Jul-06	41.40	14-Sep-06	9.09	14-Nov-06	1.53
15-Jan-06	0.82	15-Mar-06	0.408	15-May-06	1.03	15-Jul-06	35.93	15-Sep-06	12.80	15-Nov-06	1.49
16-Jan-06	0.81	16-Mar-06	0.403	16-May-06	1.30	16-Jul-06	28.14	16-Sep-06	10.04	16-Nov-06	1.45
17-Jan-06	0.80	17-Mar-06	0.399	17-May-06	1.54	17-Jul-06	25.46	17-Sep-06	7.85	17-Nov-06	1.41
18-Jan-06	0.79	18-Mar-06	0.394	18-May-06	1.55	18-Jul-06	24.79	18-Sep-06	6.44	18-Nov-06	1.38
19-Jan-06	0.78	19-Mar-06	0.389	19-May-06	1.56	19-Jul-06	22.68	19-Sep-06	5.83	19-Nov-06	1.34
20-Jan-06	0.77	20-Mar-06	0.385	20-May-06	1.75	20-Jul-06	23.07	20-Sep-06	5.77	20-Nov-06	1.30
21-Jan-06	0.76	21-Mar-06	0.380	21-May-06	1.91	21-Jul-06	20.25	21-Sep-06	5.89	21-Nov-06	1.27
22-Jan-06	0.75	22-Mar-06	0.376	22-May-06	2.21	22-Jul-06	21.52	22-Sep-06	4.95	22-Nov-06	1.24
23-Jan-06	0.75	23-Mar-06	0.371	23-May-06	2.20	23-Jul-06	21.83	23-Sep-06	4.45	23-Nov-06	1.20
24-Jan-06	0.74	24-Mar-06	0.367	24-May-06	2.39	24-Jul-06	20.04	24-Sep-06	5.21	24-Nov-06	1.17
25-Jan-06	0.73	25-Mar-06	0.363	25-May-06	3.10	25-Jul-06	18.39	25-Sep-06	5.49	25-Nov-06	1.14
26-Jan-06	0.72	26-Mar-06	0.359	26-May-06	4.92	26-Jul-06	17.03	26-Sep-06	4.65	26-Nov-06	1.11
27-Jan-06	0.71	27-Mar-06	0.354	27-May-06	5.55	27-Jul-06	16.67	27-Sep-06	4.11	27-Nov-06	1.08
28-Jan-06	0.70	28-Mar-06	0.353	28-May-06	4.68	28-Jul-06	16.68	28-Sep-06	3.79	28-Nov-06	1.05
29-Jan-06	0.69	29-Mar-06	0.352	29-May-06	4.58	29-Jul-06	15.82	29-Sep-06	3.62	29-Nov-06	1.03
30-Jan-06	0.69	30-Mar-06	0.351	30-May-06	6.83	30-Jul-06	13.42	30-Sep-06	3.46	30-Nov-06	1.00
31-Jan-06	0.68	31-Mar-06	0.351	31-May-06	8.04	31-Jul-06	12.52	01-Oct-06	3.42	01-Dec-06	0.97
01-Feb-06	0.67	01-Apr-06	0.350	01-Jun-06	6.40	01-Aug-06	13.77	02-Oct-06	3.40	02-Dec-06	0.95
02-Feb-06	0.66	02-Apr-06	0.349	02-Jun-06	6.72	02-Aug-06	13.49	03-Oct-06	3.20	03-Dec-06	0.92
03-Feb-06	0.66	03-Apr-06	0.348	03-Jun-06	12.73	03-Aug-06	13.73	04-Oct-06	3.09	04-Dec-06	0.90
04-Feb-06	0.65	04-Apr-06	0.347	04-Jun-06	22.02	04-Aug-06	13.89	05-Oct-06	3.00	05-Dec-06	0.87
05-Feb-06	0.64	05-Apr-06	0.346	05-Jun-06	21.29	05-Aug-06	13.51	06-Oct-06	2.94	06-Dec-06	0.85
06-Feb-06	0.63	06-Apr-06	0.345	06-Jun-06	22.89	06-Aug-06	17.41	07-Oct-06	2.97	07-Dec-06	0.83
07-Feb-06	0.62	07-Apr-06	0.344	07-Jun-06	20.68	07-Aug-06	16.73	08-Oct-06	2.85	08-Dec-06	0.81
08-Feb-06	0.62	08-Apr-06	0.343	08-Jun-06	12.25	08-Aug-06	12.56	09-Oct-06	2.77	09-Dec-06	0.79
09-Feb-06	0.61	09-Apr-06	0.342	09-Jun-06	9.35	09-Aug-06	12.60	10-Oct-06	3.09	10-Dec-06	0.76
10-Feb-06	0.60	10-Apr-06	0.341	10-Jun-06	14.68	10-Aug-06	12.75	11-Oct-06	3.25	11-Dec-06	0.74
11-Feb-06	0.60	11-Apr-06	0.340	11-Jun-06	16.28	11-Aug-06	12.14	12-Oct-06	2.97	12-Dec-06	0.72
12-Feb-06	0.59	12-Apr-06	0.339	12-Jun-06	12.37	12-Aug-06	11.18	13-Oct-06	3.59	13-Dec-06	0.71
13-Feb-06	0.58	13-Apr-06	0.338	13-Jun-06	9.74	13-Aug-06	11.09	14-Oct-06	4.22	14-Dec-06	0.69
14-Feb-06	0.58	14-Apr-06	0.338	14-Jun-06	9.96	14-Aug-06	12.31	15-Oct-06	4.24	15-Dec-06	0.67
15-Feb-06	0.57	15-Apr-06	0.337	15-Jun-06	11.48	15-Aug-06	15.47	16-Oct-06	3.63	16-Dec-06	0.65
16-Feb-06	0.56	16-Apr-06	0.336	16-Jun-06	14.24	16-Aug-06	18.40	17-Oct-06	3.33	17-Dec-06	0.63
17-Feb-06	0.56	17-Apr-06	0.335	17-Jun-06	17.98	17-Aug-06	19.81	18-Oct-06	3.15	18-Dec-06	0.62
18-Feb-06	0.55	18-Apr-06	0.334	18-Jun-06	16.86	18-Aug-06	20.54	19-Oct-06	2.88	19-Dec-06	0.60
19-Feb-06	0.54	19-Apr-06	0.333	19-Jun-06	9.48	19-Aug-06	16.32	20-Oct-06	2.87	20-Dec-06	0.59
20-Feb-06	0.54	20-Apr-06	0.332	20-Jun-06	7.92	20-Aug-06	13.19	21-Oct-06	3.19	21-Dec-06	0.57
21-Feb-06	0.53	21-Apr-06	0.331	21-Jun-06	7.94	21-Aug-06	11.67	22-Oct-06	2.95	22-Dec-06	0.55
22-Feb-06	0.52	22-Apr-06	0.330	22-Jun-06	6.43	22-Aug-06	11.73	23-Oct-06	2.66	23-Dec-06	0.54
23-Feb-06	0.52	23-Apr-06	0.330	23-Jun-06	5.86	23-Aug-06	10.94	24-Oct-06	2.86	24-Dec-06	0.53
24-Feb-06	0.51	24-Apr-06	0.329	24-Jun-06	5.44	24-Aug-06	10.88	25-Oct-06	2.59	25-Dec-06	0.51
25-Feb-06	0.51	25-Apr-06	0.328	25-Jun-06	5.68	25-Aug-06	10.68	26-Oct-06	2.51	26-Dec-06	0.50
26-Feb-06	0.50	26-Apr-06	0.327	26-Jun-06	5.87	26-Aug-06	9.66	27-Oct-06	2.57	27-Dec-06	0.49
27-Feb-06	0.49	27-Apr-06	0.326	27-Jun-06	5.89	27-Aug-06	9.16	28-Oct-06	2.46	28-Dec-06	0.47
28-Feb-06	0.49	28-Apr-06	0.325	28-Jun-06	6.42	28-Aug-06	8.78	29-Oct-06	2.40	29-Dec-06	0.46
		29-Apr-06	0.324	29-Jun-06	8.62	29-Aug-06	10.73	30-Oct-06	2.37	30-Dec-06	0.45
		30-Apr-06	0.323	30-Jun-06	10.80	30-Aug-06	10.72	31-Oct-06	2.28	31-Dec-06	0.42
						31-Aug-06	10.32				

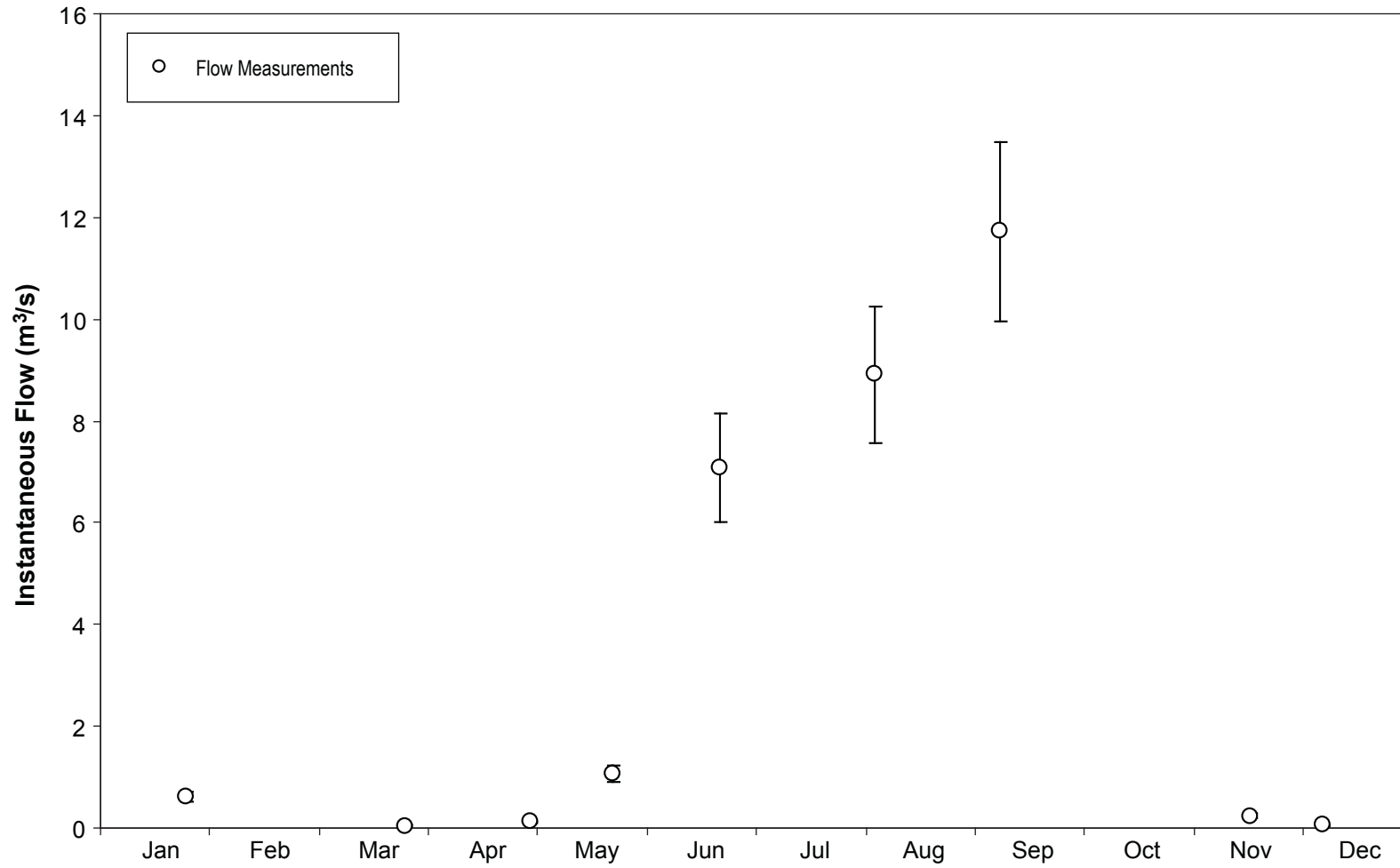
Notes:  
Estimated values are italicized



**Table A3-2 - SC1**  
**Summary of Daily Mean Flow (m<sup>3</sup>/s) 2007**

<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>
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*Flow data not available due to unreliable stage data*

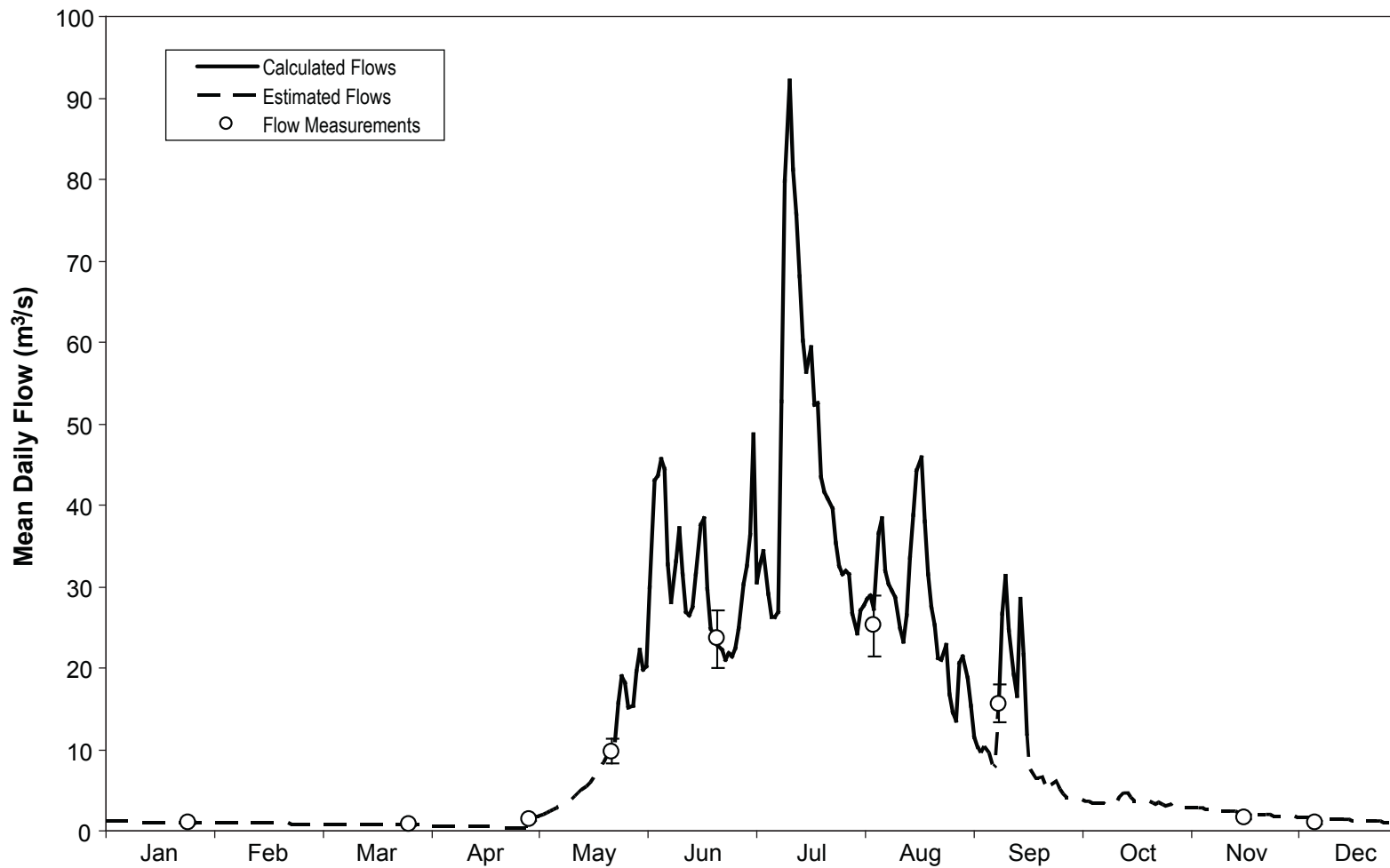




**Table A3-3 - SC2**  
**Summary of Daily Mean Flow (m<sup>3</sup>/s) 2007**

<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>
01-Jan-07	1.15	01-Mar-07	0.88	01-May-07	1.58	01-Jul-07	36.44	01-Sep-07	15.42	01-Nov-07	2.83
02-Jan-07	1.14	02-Mar-07	0.87	02-May-07	1.72	02-Jul-07	48.59	02-Sep-07	11.48	02-Nov-07	2.85
03-Jan-07	1.14	03-Mar-07	0.87	03-May-07	1.87	03-Jul-07	30.59	03-Sep-07	10.26	03-Nov-07	2.83
04-Jan-07	1.13	04-Mar-07	0.87	04-May-07	2.03	04-Jul-07	32.72	04-Sep-07	9.40	04-Nov-07	2.78
05-Jan-07	1.13	05-Mar-07	0.86	05-May-07	2.21	05-Jul-07	34.41	05-Sep-07	10.32	05-Nov-07	2.73
06-Jan-07	1.12	06-Mar-07	0.86	06-May-07	2.40	06-Jul-07	29.02	06-Sep-07	9.54	06-Nov-07	2.69
07-Jan-07	1.12	07-Mar-07	0.85	07-May-07	2.60	07-Jul-07	26.30	07-Sep-07	8.17	07-Nov-07	2.64
08-Jan-07	1.11	08-Mar-07	0.85	08-May-07	2.83	08-Jul-07	26.16	08-Sep-07	7.73	08-Nov-07	2.59
09-Jan-07	1.11	09-Mar-07	0.85	09-May-07	3.07	09-Jul-07	26.88	09-Sep-07	15.93	09-Nov-07	2.55
10-Jan-07	1.10	10-Mar-07	0.84	10-May-07	3.34	10-Jul-07	52.75	10-Sep-07	26.70	10-Nov-07	2.50
11-Jan-07	1.10	11-Mar-07	0.84	11-May-07	3.62	11-Jul-07	79.79	11-Sep-07	31.21	11-Nov-07	2.46
12-Jan-07	1.09	12-Mar-07	0.84	12-May-07	3.94	12-Jul-07	92.20	12-Sep-07	24.66	12-Nov-07	2.42
13-Jan-07	1.09	13-Mar-07	0.83	13-May-07	4.28	13-Jul-07	81.16	13-Sep-07	19.11	13-Nov-07	2.37
14-Jan-07	1.08	14-Mar-07	0.83	14-May-07	4.65	14-Jul-07	75.70	14-Sep-07	16.49	14-Nov-07	2.33
15-Jan-07	1.08	15-Mar-07	0.82	15-May-07	5.05	15-Jul-07	68.01	15-Sep-07	28.49	15-Nov-07	2.29
16-Jan-07	1.07	16-Mar-07	0.82	16-May-07	5.48	16-Jul-07	60.16	16-Sep-07	21.55	16-Nov-07	2.25
17-Jan-07	1.07	17-Mar-07	0.82	17-May-07	5.95	17-Jul-07	56.39	17-Sep-07	11.99	17-Nov-07	2.21
18-Jan-07	1.06	18-Mar-07	0.81	18-May-07	6.47	18-Jul-07	59.46	18-Sep-07	7.46	18-Nov-07	2.17
19-Jan-07	1.06	19-Mar-07	0.81	19-May-07	7.03	19-Jul-07	52.32	19-Sep-07	6.52	19-Nov-07	2.13
20-Jan-07	1.05	20-Mar-07	0.81	20-May-07	7.63	20-Jul-07	52.55	20-Sep-07	6.44	20-Nov-07	2.10
21-Jan-07	1.05	21-Mar-07	0.80	21-May-07	8.29	21-Jul-07	43.49	21-Sep-07	6.61	21-Nov-07	2.06
22-Jan-07	1.04	22-Mar-07	0.80	22-May-07	9.01	22-Jul-07	41.63	22-Sep-07	5.36	22-Nov-07	2.02
23-Jan-07	1.04	23-Mar-07	0.80	23-May-07	9.79	23-Jul-07	40.88	23-Sep-07	4.79	23-Nov-07	1.99
24-Jan-07	1.03	24-Mar-07	0.79	24-May-07	11.12	24-Jul-07	39.57	24-Sep-07	5.68	24-Nov-07	1.95
25-Jan-07	1.03	25-Mar-07	0.79	25-May-07	15.82	25-Jul-07	35.42	25-Sep-07	6.05	25-Nov-07	1.92
26-Jan-07	1.02	26-Mar-07	0.78	26-May-07	18.93	26-Jul-07	32.47	26-Sep-07	5.01	26-Nov-07	1.89
27-Jan-07	1.02	27-Mar-07	0.78	27-May-07	18.23	27-Jul-07	31.51	27-Sep-07	4.44	27-Nov-07	1.85
28-Jan-07	1.01	28-Mar-07	0.77	28-May-07	15.25	28-Jul-07	31.91	28-Sep-07	4.13	28-Nov-07	1.82
29-Jan-07	1.01	29-Mar-07	0.75	29-May-07	15.28	29-Jul-07	31.48	29-Sep-07	3.98	29-Nov-07	1.79
30-Jan-07	1.01	30-Mar-07	0.74	30-May-07	19.62	30-Jul-07	26.65	30-Sep-07	3.84	30-Nov-07	1.76
31-Jan-07	1.00	31-Mar-07	0.73	31-May-07	22.19	31-Jul-07	24.30	01-Oct-07	3.81	01-Dec-07	1.73
01-Feb-07	1.00	01-Apr-07	0.71	01-Jun-07	19.84	01-Aug-07	27.10	02-Oct-07	3.79	02-Dec-07	1.70
02-Feb-07	0.99	02-Apr-07	0.70	02-Jun-07	20.29	02-Aug-07	27.68	03-Oct-07	3.63	03-Dec-07	1.67
03-Feb-07	0.99	03-Apr-07	0.69	03-Jun-07	29.83	03-Aug-07	28.56	04-Oct-07	3.54	04-Dec-07	1.64
04-Feb-07	0.98	04-Apr-07	0.67	04-Jun-07	43.08	04-Aug-07	28.84	05-Oct-07	3.47	05-Dec-07	1.61
05-Feb-07	0.98	05-Apr-07	0.66	05-Jun-07	43.68	05-Aug-07	27.36	06-Oct-07	3.42	06-Dec-07	1.58
06-Feb-07	0.97	06-Apr-07	0.65	06-Jun-07	45.73	06-Aug-07	36.57	07-Oct-07	3.44	07-Dec-07	1.55
07-Feb-07	0.97	07-Apr-07	0.64	07-Jun-07	44.48	07-Aug-07	38.36	08-Oct-07	3.35	08-Dec-07	1.52
08-Feb-07	0.97	08-Apr-07	0.63	08-Jun-07	32.73	08-Aug-07	31.95	09-Oct-07	3.30	09-Dec-07	1.50
09-Feb-07	0.96	09-Apr-07	0.62	09-Jun-07	28.07	09-Aug-07	30.29	10-Oct-07	3.54	10-Dec-07	1.47
10-Feb-07	0.96	10-Apr-07	0.60	10-Jun-07	33.11	10-Aug-07	29.47	11-Oct-07	3.67	11-Dec-07	1.45
11-Feb-07	0.95	11-Apr-07	0.59	11-Jun-07	37.13	11-Aug-07	28.59	12-Oct-07	3.44	12-Dec-07	1.42
12-Feb-07	0.95	12-Apr-07	0.58	12-Jun-07	31.45	12-Aug-07	24.81	13-Oct-07	3.96	13-Dec-07	1.40
13-Feb-07	0.94	13-Apr-07	0.57	13-Jun-07	26.80	13-Aug-07	23.23	14-Oct-07	4.55	14-Dec-07	1.37
14-Feb-07	0.94	14-Apr-07	0.56	14-Jun-07	26.37	14-Aug-07	26.44	15-Oct-07	4.58	15-Dec-07	1.35
15-Feb-07	0.94	15-Apr-07	0.55	15-Jun-07	27.45	15-Aug-07	33.52	16-Oct-07	4.00	16-Dec-07	1.32
16-Feb-07	0.93	16-Apr-07	0.54	16-Jun-07	31.50	16-Aug-07	38.87	17-Oct-07	3.74	17-Dec-07	1.30
17-Feb-07	0.93	17-Apr-07	0.53	17-Jun-07	37.64	17-Aug-07	44.25	18-Oct-07	3.59	18-Dec-07	1.28
18-Feb-07	0.92	18-Apr-07	0.52	18-Jun-07	38.46	18-Aug-07	45.87	19-Oct-07	3.38	19-Dec-07	1.25
19-Feb-07	0.92	19-Apr-07	0.51	19-Jun-07	29.69	19-Aug-07	37.89	20-Oct-07	3.37	20-Dec-07	1.23
20-Feb-07	0.91	20-Apr-07	0.50	20-Jun-07	24.86	20-Aug-07	31.47	21-Oct-07	3.62	21-Dec-07	1.21
21-Feb-07	0.91	21-Apr-07	0.49	21-Jun-07	24.13	21-Aug-07	27.39	22-Oct-07	3.43	22-Dec-07	1.19
22-Feb-07	0.91	22-Apr-07	0.48	22-Jun-07	22.74	22-Aug-07	25.32	23-Oct-07	3.22	23-Dec-07	1.17
23-Feb-07	0.90	23-Apr-07	0.48	23-Jun-07	22.28	23-Aug-07	21.28	24-Oct-07	3.36	24-Dec-07	1.15
24-Feb-07	0.90	24-Apr-07	0.47	24-Jun-07	21.10	24-Aug-07	21.01	25-Oct-07	3.17	25-Dec-07	1.13
25-Feb-07	0.89	25-Apr-07	0.46	25-Jun-07	21.91	25-Aug-07	22.85	26-Oct-07	3.11	26-Dec-07	1.11
26-Feb-07	0.89	26-Apr-07	0.45	26-Jun-07	21.45	26-Aug-07	16.75	27-Oct-07	3.15	27-Dec-07	1.09
27-Feb-07	0.89	27-Apr-07	0.44	27-Jun-07	22.38	27-Aug-07	14.48	28-Oct-07	3.08	28-Dec-07	1.07
28-Feb-07	0.88	28-Apr-07	0.43	28-Jun-07	24.93	28-Aug-07	13.49	29-Oct-07	3.04	29-Dec-07	1.05
		29-Apr-07	0.43	29-Jun-07	30.24	29-Aug-07	20.51	30-Oct-07	3.02	30-Dec-07	1.03
		30-Apr-07	1.46	30-Jun-07	32.61	30-Aug-07	21.35	31-Oct-07	2.96	31-Dec-07	0.98
						31-Aug-07	18.78				

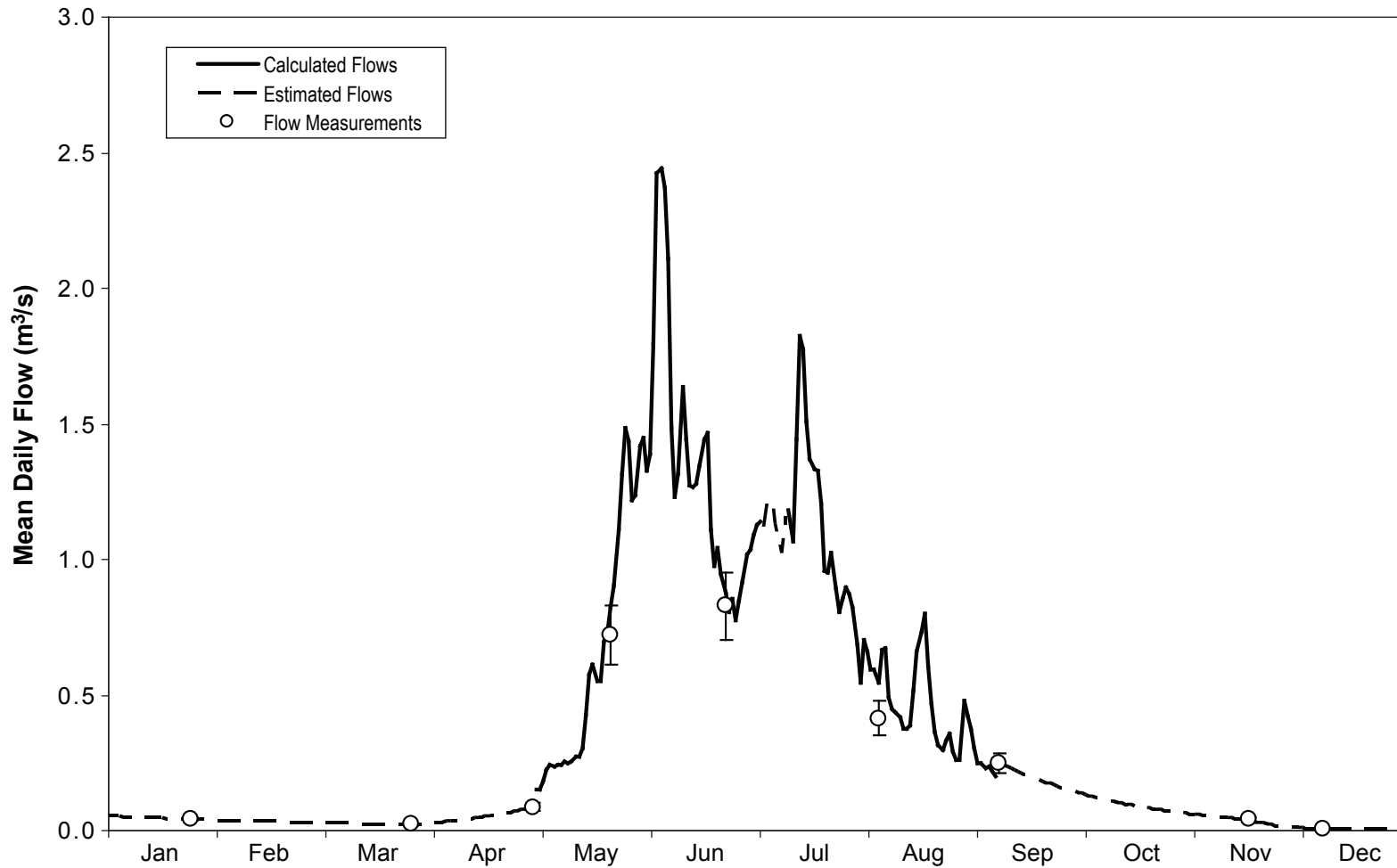
Notes:  
 Estimated values are italicized



**Table A3-4 - SCTR1**  
**Summary of Daily Mean Flow (m<sup>3</sup>/s) 2007**

<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>
01-Jan-07	0.05	01-Mar-07	0.03	01-May-07	0.15	01-Jul-07	1.09	01-Sep-07	0.30	01-Nov-07	0.06
02-Jan-07	0.05	02-Mar-07	0.03	02-May-07	0.15	02-Jul-07	1.13	02-Sep-07	0.25	02-Nov-07	0.06
03-Jan-07	0.05	03-Mar-07	0.03	03-May-07	0.18	03-Jul-07	1.14	03-Sep-07	0.25	03-Nov-07	0.06
04-Jan-07	0.05	04-Mar-07	0.03	04-May-07	0.22	04-Jul-07	1.12	04-Sep-07	0.23	04-Nov-07	0.06
05-Jan-07	0.05	05-Mar-07	0.03	05-May-07	0.24	05-Jul-07	1.21	05-Sep-07	0.23	05-Nov-07	0.05
06-Jan-07	0.05	06-Mar-07	0.03	06-May-07	0.24	06-Jul-07	1.21	06-Sep-07	0.22	06-Nov-07	0.05
07-Jan-07	0.05	07-Mar-07	0.03	07-May-07	0.24	07-Jul-07	1.13	07-Sep-07	0.20	07-Nov-07	0.05
08-Jan-07	0.05	08-Mar-07	0.03	08-May-07	0.24	08-Jul-07	1.06	08-Sep-07	0.25	08-Nov-07	0.05
09-Jan-07	0.05	09-Mar-07	0.03	09-May-07	0.25	09-Jul-07	1.03	09-Sep-07	0.24	09-Nov-07	0.05
10-Jan-07	0.05	10-Mar-07	0.03	10-May-07	0.25	10-Jul-07	1.16	10-Sep-07	0.24	10-Nov-07	0.05
11-Jan-07	0.05	11-Mar-07	0.03	11-May-07	0.26	11-Jul-07	1.18	11-Sep-07	0.23	11-Nov-07	0.05
12-Jan-07	0.05	12-Mar-07	0.03	12-May-07	0.27	12-Jul-07	1.07	12-Sep-07	0.23	12-Nov-07	0.05
13-Jan-07	0.05	13-Mar-07	0.03	13-May-07	0.27	13-Jul-07	1.44	13-Sep-07	0.22	13-Nov-07	0.04
14-Jan-07	0.05	14-Mar-07	0.03	14-May-07	0.30	14-Jul-07	1.82	14-Sep-07	0.21	14-Nov-07	0.04
15-Jan-07	0.05	15-Mar-07	0.03	15-May-07	0.42	15-Jul-07	1.78	15-Sep-07	0.21	15-Nov-07	0.04
16-Jan-07	0.05	16-Mar-07	0.03	16-May-07	0.58	16-Jul-07	1.51	16-Sep-07	0.20	16-Nov-07	0.04
17-Jan-07	0.05	17-Mar-07	0.03	17-May-07	0.61	17-Jul-07	1.37	17-Sep-07	0.20	17-Nov-07	0.04
18-Jan-07	0.04	18-Mar-07	0.03	18-May-07	0.55	18-Jul-07	1.33	18-Sep-07	0.19	18-Nov-07	0.04
19-Jan-07	0.04	19-Mar-07	0.02	19-May-07	0.55	19-Jul-07	1.33	19-Sep-07	0.19	19-Nov-07	0.03
20-Jan-07	0.04	20-Mar-07	0.02	20-May-07	0.70	20-Jul-07	1.20	20-Sep-07	0.18	20-Nov-07	0.03
21-Jan-07	0.04	21-Mar-07	0.02	21-May-07	0.73	21-Jul-07	0.95	21-Sep-07	0.18	21-Nov-07	0.03
22-Jan-07	0.04	22-Mar-07	0.02	22-May-07	0.83	22-Jul-07	0.95	22-Sep-07	0.17	22-Nov-07	0.02
23-Jan-07	0.04	23-Mar-07	0.02	23-May-07	0.90	23-Jul-07	1.03	23-Sep-07	0.17	23-Nov-07	0.02
24-Jan-07	0.04	24-Mar-07	0.02	24-May-07	1.11	24-Jul-07	0.89	24-Sep-07	0.16	24-Nov-07	0.02
25-Jan-07	0.04	25-Mar-07	0.02	25-May-07	1.32	25-Jul-07	0.81	25-Sep-07	0.16	25-Nov-07	0.02
26-Jan-07	0.04	26-Mar-07	0.02	26-May-07	1.48	26-Jul-07	0.86	26-Sep-07	0.16	26-Nov-07	0.02
27-Jan-07	0.04	27-Mar-07	0.02	27-May-07	1.43	27-Jul-07	0.90	27-Sep-07	0.15	27-Nov-07	0.02
28-Jan-07	0.04	28-Mar-07	0.02	28-May-07	1.22	28-Jul-07	0.87	28-Sep-07	0.15	28-Nov-07	0.01
29-Jan-07	0.04	29-Mar-07	0.02	29-May-07	1.24	29-Jul-07	0.82	29-Sep-07	0.14	29-Nov-07	0.01
30-Jan-07	0.04	30-Mar-07	0.03	30-May-07	1.42	30-Jul-07	0.68	30-Sep-07	0.14	30-Nov-07	0.01
31-Jan-07	0.04	31-Mar-07	0.03	31-May-07	1.45	31-Jul-07	0.54	01-Oct-07	0.14	01-Dec-07	0.01
01-Feb-07	0.04	01-Apr-07	0.03	01-Jun-07	1.33	01-Aug-07	0.70	02-Oct-07	0.13	02-Dec-07	0.01
02-Feb-07	0.04	02-Apr-07	0.03	02-Jun-07	1.39	02-Aug-07	0.66	03-Oct-07	0.13	03-Dec-07	0.01
03-Feb-07	0.04	03-Apr-07	0.03	03-Jun-07	1.79	03-Aug-07	0.59	04-Oct-07	0.13	04-Dec-07	0.01
04-Feb-07	0.04	04-Apr-07	0.03	04-Jun-07	2.43	04-Aug-07	0.59	05-Oct-07	0.12	05-Dec-07	0.01
05-Feb-07	0.04	05-Apr-07	0.03	05-Jun-07	2.44	05-Aug-07	0.55	06-Oct-07	0.12	06-Dec-07	0.01
06-Feb-07	0.04	06-Apr-07	0.03	06-Jun-07	2.37	06-Aug-07	0.67	07-Oct-07	0.12	07-Dec-07	0.01
07-Feb-07	0.04	07-Apr-07	0.04	07-Jun-07	2.11	07-Aug-07	0.67	08-Oct-07	0.11	08-Dec-07	0.01
08-Feb-07	0.04	08-Apr-07	0.04	08-Jun-07	1.49	08-Aug-07	0.49	09-Oct-07	0.11	09-Dec-07	0.01
09-Feb-07	0.04	09-Apr-07	0.04	09-Jun-07	1.23	09-Aug-07	0.45	10-Oct-07	0.11	10-Dec-07	0.01
10-Feb-07	0.04	10-Apr-07	0.04	10-Jun-07	1.31	10-Aug-07	0.43	11-Oct-07	0.11	11-Dec-07	0.01
11-Feb-07	0.04	11-Apr-07	0.04	11-Jun-07	1.63	11-Aug-07	0.42	12-Oct-07	0.10	12-Dec-07	0.01
12-Feb-07	0.04	12-Apr-07	0.04	12-Jun-07	1.44	12-Aug-07	0.37	13-Oct-07	0.10	13-Dec-07	0.01
13-Feb-07	0.03	13-Apr-07	0.05	13-Jun-07	1.27	13-Aug-07	0.38	14-Oct-07	0.10	14-Dec-07	0.01
14-Feb-07	0.03	14-Apr-07	0.05	14-Jun-07	1.27	14-Aug-07	0.39	15-Oct-07	0.09	15-Dec-07	0.01
15-Feb-07	0.03	15-Apr-07	0.05	15-Jun-07	1.28	15-Aug-07	0.52	16-Oct-07	0.09	16-Dec-07	0.01
16-Feb-07	0.03	16-Apr-07	0.05	16-Jun-07	1.35	16-Aug-07	0.66	17-Oct-07	0.09	17-Dec-07	0.01
17-Feb-07	0.03	17-Apr-07	0.05	17-Jun-07	1.44	17-Aug-07	0.73	18-Oct-07	0.09	18-Dec-07	0.01
18-Feb-07	0.03	18-Apr-07	0.05	18-Jun-07	1.47	18-Aug-07	0.80	19-Oct-07	0.09	19-Dec-07	0.01
19-Feb-07	0.03	19-Apr-07	0.06	19-Jun-07	1.11	19-Aug-07	0.61	20-Oct-07	0.08	20-Dec-07	0.01
20-Feb-07	0.03	20-Apr-07	0.06	20-Jun-07	0.98	20-Aug-07	0.47	21-Oct-07	0.08	21-Dec-07	0.01
21-Feb-07	0.03	21-Apr-07	0.06	21-Jun-07	1.04	21-Aug-07	0.36	22-Oct-07	0.08	22-Dec-07	0.01
22-Feb-07	0.03	22-Apr-07	0.06	22-Jun-07	0.94	22-Aug-07	0.32	23-Oct-07	0.08	23-Dec-07	0.01
23-Feb-07	0.03	23-Apr-07	0.07	23-Jun-07	0.88	23-Aug-07	0.30	24-Oct-07	0.07	24-Dec-07	0.01
24-Feb-07	0.03	24-Apr-07	0.07	24-Jun-07	0.81	24-Aug-07	0.33	25-Oct-07	0.07	25-Dec-07	0.01
25-Feb-07	0.03	25-Apr-07	0.07	25-Jun-07	0.85	25-Aug-07	0.36	26-Oct-07	0.07	26-Dec-07	0.01
26-Feb-07	0.03	26-Apr-07	0.07	26-Jun-07	0.78	26-Aug-07	0.29	27-Oct-07	0.07	27-Dec-07	0.01
27-Feb-07	0.03	27-Apr-07	0.08	27-Jun-07	0.85	27-Aug-07	0.26	28-Oct-07	0.07	28-Dec-07	0.01
28-Feb-07	0.03	28-Apr-07	0.08	28-Jun-07	0.91	28-Aug-07	0.26	29-Oct-07	0.07	29-Dec-07	0.01
		29-Apr-07	0.08	29-Jun-07	1.02	29-Aug-07	0.48	30-Oct-07	0.06	30-Dec-07	0.01
		30-Apr-07	0.09	30-Jun-07	1.04	30-Aug-07	0.42	31-Oct-07	0.06	31-Dec-07	0.01
						31-Aug-07	0.38				

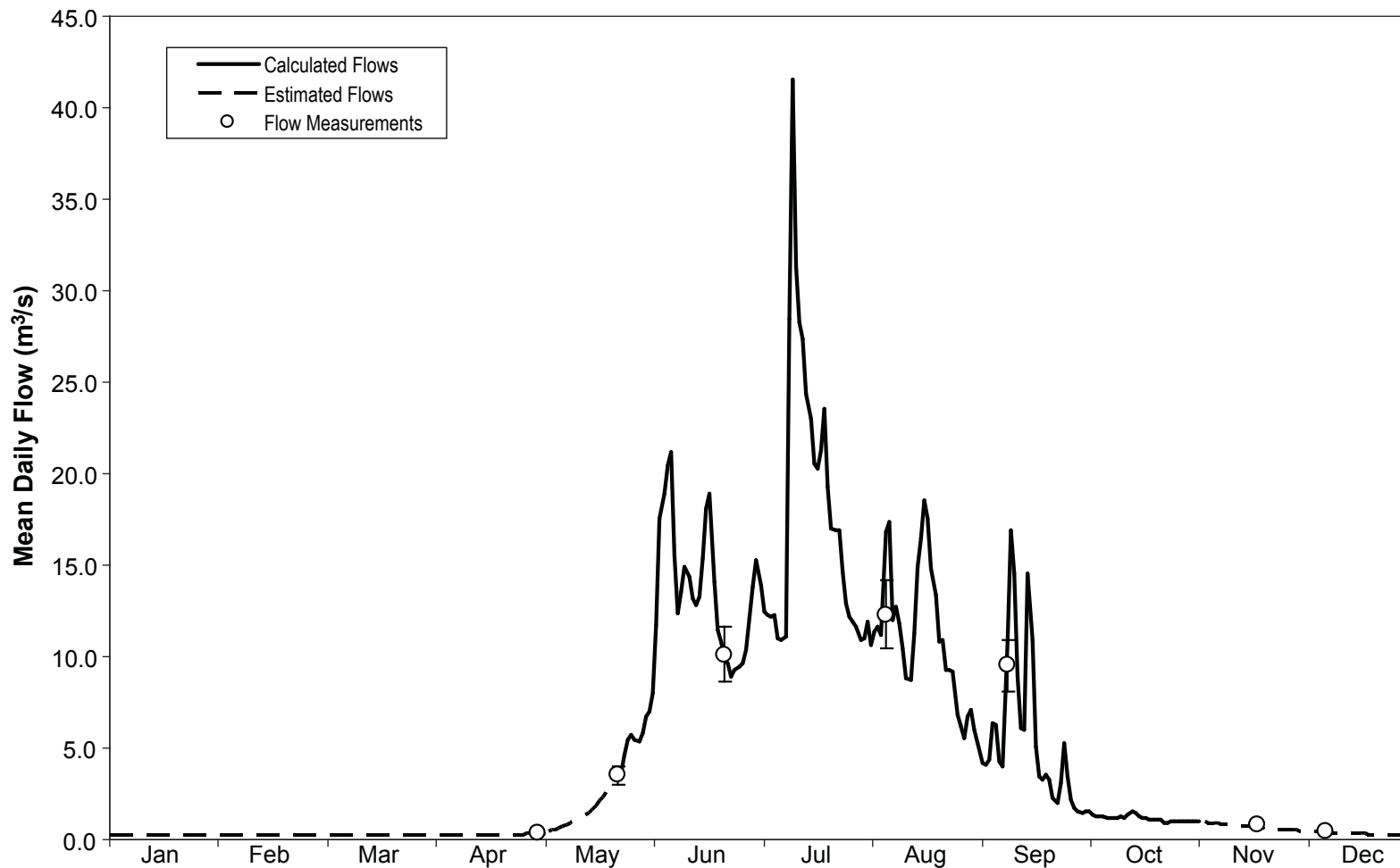
Notes:  
 Estimated values are italicized



**Table A3-5 - SCTR2**  
**Summary of Daily Mean Flow (m<sup>3</sup>/s) 2007**

<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>
01-Jan-07	0.23	01-Mar-07	0.23	01-May-07	0.33	01-Jul-07	15.29	01-Sep-07	5.30	01-Nov-07	0.98
02-Jan-07	0.23	02-Mar-07	0.23	02-May-07	0.37	02-Jul-07	13.87	02-Sep-07	4.18	02-Nov-07	0.98
03-Jan-07	0.23	03-Mar-07	0.23	03-May-07	0.41	03-Jul-07	12.48	03-Sep-07	4.11	03-Nov-07	0.96
04-Jan-07	0.23	04-Mar-07	0.23	04-May-07	0.46	04-Jul-07	12.23	04-Sep-07	4.36	04-Nov-07	0.94
05-Jan-07	0.23	05-Mar-07	0.23	05-May-07	0.51	05-Jul-07	12.20	05-Sep-07	6.36	05-Nov-07	0.91
06-Jan-07	0.23	06-Mar-07	0.23	06-May-07	0.57	06-Jul-07	12.31	06-Sep-07	6.31	06-Nov-07	0.89
07-Jan-07	0.23	07-Mar-07	0.23	07-May-07	0.63	07-Jul-07	11.00	07-Sep-07	4.24	07-Nov-07	0.87
08-Jan-07	0.23	08-Mar-07	0.23	08-May-07	0.70	08-Jul-07	10.94	08-Sep-07	3.98	08-Nov-07	0.85
09-Jan-07	0.23	09-Mar-07	0.23	09-May-07	0.78	09-Jul-07	11.07	09-Sep-07	10.83	09-Nov-07	0.83
10-Jan-07	0.23	10-Mar-07	0.23	10-May-07	0.87	10-Jul-07	28.48	10-Sep-07	16.88	10-Nov-07	0.81
11-Jan-07	0.23	11-Mar-07	0.23	11-May-07	0.97	11-Jul-07	41.55	11-Sep-07	14.50	11-Nov-07	0.79
12-Jan-07	0.23	12-Mar-07	0.23	12-May-07	1.08	12-Jul-07	31.39	12-Sep-07	8.88	12-Nov-07	0.77
13-Jan-07	0.23	13-Mar-07	0.23	13-May-07	1.20	13-Jul-07	28.28	13-Sep-07	6.11	13-Nov-07	0.75
14-Jan-07	0.23	14-Mar-07	0.23	14-May-07	1.34	14-Jul-07	27.39	14-Sep-07	6.03	14-Nov-07	0.73
15-Jan-07	0.23	15-Mar-07	0.23	15-May-07	1.49	15-Jul-07	24.34	15-Sep-07	14.53	15-Nov-07	0.72
16-Jan-07	0.23	16-Mar-07	0.23	16-May-07	1.66	16-Jul-07	23.02	16-Sep-07	10.93	16-Nov-07	0.70
17-Jan-07	0.23	17-Mar-07	0.23	17-May-07	1.84	17-Jul-07	20.59	17-Sep-07	5.09	17-Nov-07	0.68
18-Jan-07	0.23	18-Mar-07	0.23	18-May-07	2.05	18-Jul-07	20.31	18-Sep-07	3.46	18-Nov-07	0.66
19-Jan-07	0.23	19-Mar-07	0.23	19-May-07	2.29	19-Jul-07	21.31	19-Sep-07	3.32	19-Nov-07	0.65
20-Jan-07	0.23	20-Mar-07	0.23	20-May-07	2.55	20-Jul-07	23.50	20-Sep-07	3.53	20-Nov-07	0.63
21-Jan-07	0.23	21-Mar-07	0.23	21-May-07	2.84	21-Jul-07	19.23	21-Sep-07	3.30	21-Nov-07	0.62
22-Jan-07	0.23	22-Mar-07	0.23	22-May-07	3.16	22-Jul-07	16.97	22-Sep-07	2.31	22-Nov-07	0.60
23-Jan-07	0.23	23-Mar-07	0.23	23-May-07	3.51	23-Jul-07	16.89	23-Sep-07	2.00	23-Nov-07	0.59
24-Jan-07	0.23	24-Mar-07	0.23	24-May-07	3.60	24-Jul-07	16.89	24-Sep-07	3.09	24-Nov-07	0.57
25-Jan-07	0.23	25-Mar-07	0.23	25-May-07	4.63	25-Jul-07	14.60	25-Sep-07	5.25	25-Nov-07	0.56
26-Jan-07	0.23	26-Mar-07	0.23	26-May-07	5.49	26-Jul-07	12.90	26-Sep-07	3.44	26-Nov-07	0.55
27-Jan-07	0.23	27-Mar-07	0.23	27-May-07	5.75	27-Jul-07	12.21	27-Sep-07	2.17	27-Nov-07	0.53
28-Jan-07	0.23	28-Mar-07	0.23	28-May-07	5.48	28-Jul-07	11.92	28-Sep-07	1.71	28-Nov-07	0.52
29-Jan-07	0.23	29-Mar-07	0.23	29-May-07	5.38	29-Jul-07	11.66	29-Sep-07	1.54	29-Nov-07	0.51
30-Jan-07	0.23	30-Mar-07	0.23	30-May-07	5.86	30-Jul-07	10.93	30-Sep-07	1.44	30-Nov-07	0.50
31-Jan-07	0.23	31-Mar-07	0.23	31-May-07	6.76	31-Jul-07	10.97	01-Oct-07	1.52	01-Dec-07	0.48
01-Feb-07	0.23	01-Apr-07	0.23	01-Jun-07	7.02	01-Aug-07	11.88	02-Oct-07	1.52	02-Dec-07	0.47
02-Feb-07	0.23	02-Apr-07	0.24	02-Jun-07	8.01	02-Aug-07	10.67	03-Oct-07	1.40	03-Dec-07	0.46
03-Feb-07	0.23	03-Apr-07	0.24	03-Jun-07	11.74	03-Aug-07	11.38	04-Oct-07	1.31	04-Dec-07	0.45
04-Feb-07	0.23	04-Apr-07	0.24	04-Jun-07	17.53	04-Aug-07	11.66	05-Oct-07	1.27	05-Dec-07	0.44
05-Feb-07	0.23	05-Apr-07	0.25	05-Jun-07	18.87	05-Aug-07	11.14	06-Oct-07	1.26	06-Dec-07	0.43
06-Feb-07	0.23	06-Apr-07	0.25	06-Jun-07	20.47	06-Aug-07	16.81	07-Oct-07	1.22	07-Dec-07	0.42
07-Feb-07	0.23	07-Apr-07	0.25	07-Jun-07	21.18	07-Aug-07	17.35	08-Oct-07	1.17	08-Dec-07	0.41
08-Feb-07	0.23	08-Apr-07	0.25	08-Jun-07	15.56	08-Aug-07	11.99	09-Oct-07	1.15	09-Dec-07	0.40
09-Feb-07	0.23	09-Apr-07	0.26	09-Jun-07	12.33	09-Aug-07	12.76	10-Oct-07	1.21	10-Dec-07	0.39
10-Feb-07	0.23	10-Apr-07	0.26	10-Jun-07	13.55	10-Aug-07	11.77	11-Oct-07	1.30	11-Dec-07	0.38
11-Feb-07	0.23	11-Apr-07	0.26	11-Jun-07	14.94	11-Aug-07	10.49	12-Oct-07	1.19	12-Dec-07	0.37
12-Feb-07	0.23	12-Apr-07	0.27	12-Jun-07	14.35	12-Aug-07	8.84	13-Oct-07	1.36	13-Dec-07	0.36
13-Feb-07	0.23	13-Apr-07	0.27	13-Jun-07	13.15	13-Aug-07	8.76	14-Oct-07	1.50	14-Dec-07	0.35
14-Feb-07	0.23	14-Apr-07	0.27	14-Jun-07	12.83	14-Aug-07	11.27	15-Oct-07	1.41	15-Dec-07	0.34
15-Feb-07	0.23	15-Apr-07	0.28	15-Jun-07	13.31	15-Aug-07	14.88	16-Oct-07	1.28	16-Dec-07	0.33
16-Feb-07	0.23	16-Apr-07	0.28	16-Jun-07	15.36	16-Aug-07	16.43	17-Oct-07	1.23	17-Dec-07	0.33
17-Feb-07	0.23	17-Apr-07	0.28	17-Jun-07	18.09	17-Aug-07	18.51	18-Oct-07	1.18	18-Dec-07	0.32
18-Feb-07	0.23	18-Apr-07	0.28	18-Jun-07	18.95	18-Aug-07	17.58	19-Oct-07	1.14	19-Dec-07	0.31
19-Feb-07	0.23	19-Apr-07	0.29	19-Jun-07	14.05	19-Aug-07	14.80	20-Oct-07	1.13	20-Dec-07	0.30
20-Feb-07	0.23	20-Apr-07	0.29	20-Jun-07	11.48	20-Aug-07	13.33	21-Oct-07	1.09	21-Dec-07	0.30
21-Feb-07	0.23	21-Apr-07	0.29	21-Jun-07	10.81	21-Aug-07	10.80	22-Oct-07	1.10	22-Dec-07	0.29
22-Feb-07	0.23	22-Apr-07	0.30	22-Jun-07	9.95	22-Aug-07	10.89	23-Oct-07	0.94	23-Dec-07	0.28
23-Feb-07	0.23	23-Apr-07	0.30	23-Jun-07	9.64	23-Aug-07	9.24	24-Oct-07	0.94	24-Dec-07	0.28
24-Feb-07	0.23	24-Apr-07	0.31	24-Jun-07	8.87	24-Aug-07	9.26	25-Oct-07	1.01	25-Dec-07	0.27
25-Feb-07	0.23	25-Apr-07	0.31	25-Jun-07	9.30	25-Aug-07	9.22	26-Oct-07	1.01	26-Dec-07	0.26
26-Feb-07	0.23	26-Apr-07	0.31	26-Jun-07	9.48	26-Aug-07	6.85	27-Oct-07	1.02	27-Dec-07	0.26
27-Feb-07	0.23	27-Apr-07	0.32	27-Jun-07	9.61	27-Aug-07	6.19	28-Oct-07	1.00	28-Dec-07	0.25
28-Feb-07	0.23	28-Apr-07	0.32	28-Jun-07	10.38	28-Aug-07	5.51	29-Oct-07	0.99	29-Dec-07	0.24
		29-Apr-07	0.32	29-Jun-07	12.12	29-Aug-07	6.76	30-Oct-07	0.99	30-Dec-07	0.24
		30-Apr-07	0.33	30-Jun-07	13.85	30-Aug-07	7.05	31-Oct-07	1.01	31-Dec-07	0.23
						31-Aug-07	6.05				

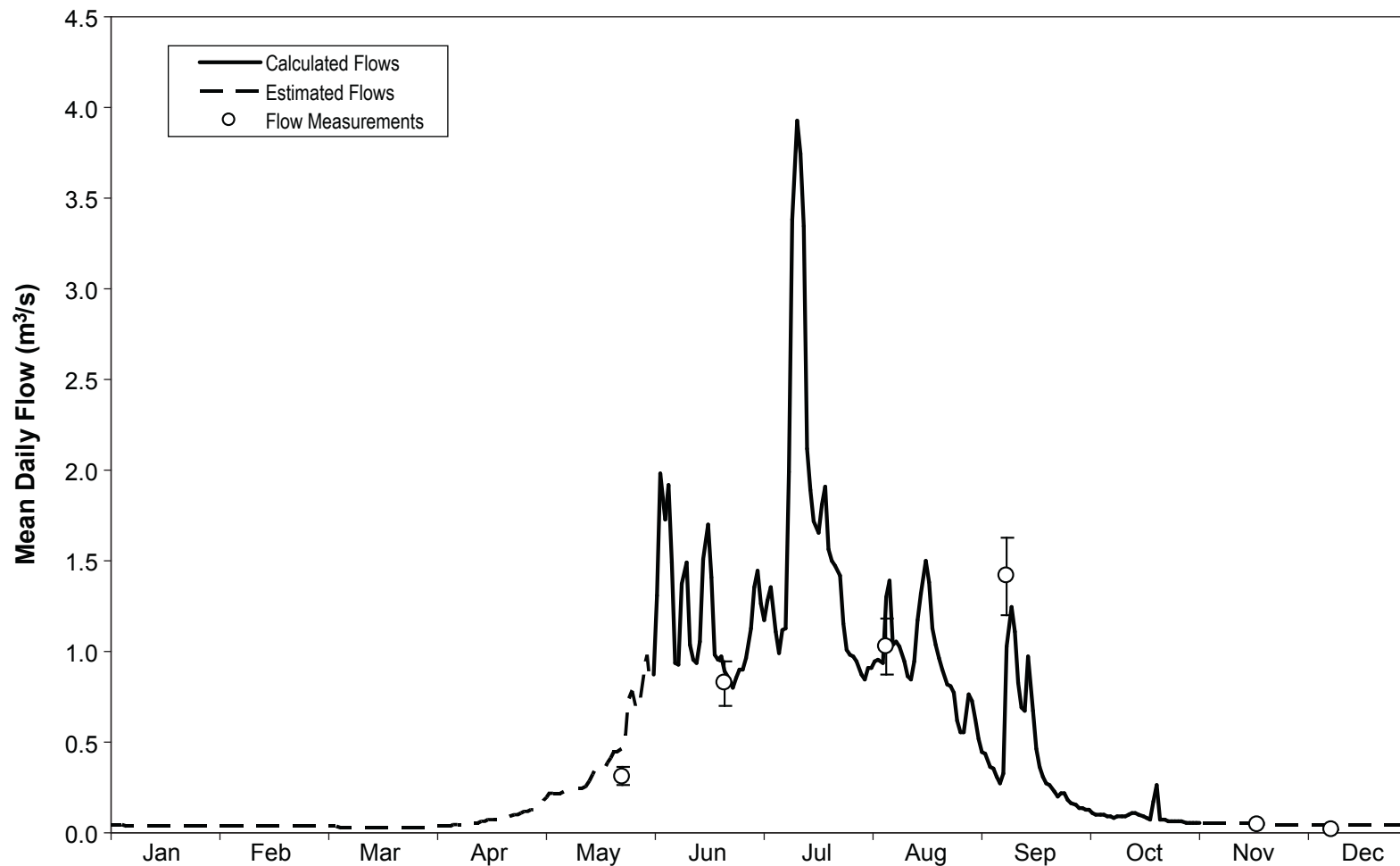
Notes:  
 Estimated values are italicized



**Table A3-6 - SCTR3**  
**Summary of Daily Mean Flow (m<sup>3</sup>/s) 2007**

<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>
01-Jan-07	0.04	01-Mar-07	0.03	01-May-07	0.17	01-Jul-07	1.44	01-Sep-07	0.52	01-Nov-07	0.05
02-Jan-07	0.04	02-Mar-07	0.03	02-May-07	0.17	02-Jul-07	1.26	02-Sep-07	0.44	02-Nov-07	0.05
03-Jan-07	0.04	03-Mar-07	0.03	03-May-07	0.20	03-Jul-07	1.17	03-Sep-07	0.44	03-Nov-07	0.05
04-Jan-07	0.04	04-Mar-07	0.03	04-May-07	0.22	04-Jul-07	1.28	04-Sep-07	0.37	04-Nov-07	0.05
05-Jan-07	0.04	05-Mar-07	0.03	05-May-07	0.22	05-Jul-07	1.36	05-Sep-07	0.35	05-Nov-07	0.05
06-Jan-07	0.04	06-Mar-07	0.03	06-May-07	0.22	06-Jul-07	1.11	06-Sep-07	0.31	06-Nov-07	0.05
07-Jan-07	0.04	07-Mar-07	0.03	07-May-07	0.22	07-Jul-07	0.99	07-Sep-07	0.27	07-Nov-07	0.05
08-Jan-07	0.04	08-Mar-07	0.03	08-May-07	0.23	08-Jul-07	1.12	08-Sep-07	0.33	08-Nov-07	0.05
09-Jan-07	0.04	09-Mar-07	0.03	09-May-07	0.23	09-Jul-07	1.13	09-Sep-07	1.03	09-Nov-07	0.05
10-Jan-07	0.04	10-Mar-07	0.03	10-May-07	0.23	10-Jul-07	1.99	10-Sep-07	1.25	10-Nov-07	0.05
11-Jan-07	0.04	11-Mar-07	0.03	11-May-07	0.24	11-Jul-07	3.38	11-Sep-07	1.11	11-Nov-07	0.05
12-Jan-07	0.04	12-Mar-07	0.03	12-May-07	0.24	12-Jul-07	3.93	12-Sep-07	0.82	12-Nov-07	0.05
13-Jan-07	0.04	13-Mar-07	0.03	13-May-07	0.24	13-Jul-07	3.74	13-Sep-07	0.70	13-Nov-07	0.05
14-Jan-07	0.04	14-Mar-07	0.03	14-May-07	0.25	14-Jul-07	3.34	14-Sep-07	0.67	14-Nov-07	0.05
15-Jan-07	0.04	15-Mar-07	0.03	15-May-07	0.28	15-Jul-07	2.12	15-Sep-07	0.98	15-Nov-07	0.05
16-Jan-07	0.04	16-Mar-07	0.03	16-May-07	0.32	16-Jul-07	1.89	16-Sep-07	0.67	16-Nov-07	0.05
17-Jan-07	0.04	17-Mar-07	0.03	17-May-07	0.36	17-Jul-07	1.72	17-Sep-07	0.46	17-Nov-07	0.05
18-Jan-07	0.04	18-Mar-07	0.03	18-May-07	0.36	18-Jul-07	1.65	18-Sep-07	0.36	18-Nov-07	0.05
19-Jan-07	0.04	19-Mar-07	0.03	19-May-07	0.36	19-Jul-07	1.81	19-Sep-07	0.31	19-Nov-07	0.05
20-Jan-07	0.04	20-Mar-07	0.03	20-May-07	0.38	20-Jul-07	1.91	20-Sep-07	0.27	20-Nov-07	0.05
21-Jan-07	0.04	21-Mar-07	0.03	21-May-07	0.41	21-Jul-07	1.57	21-Sep-07	0.27	21-Nov-07	0.05
22-Jan-07	0.04	22-Mar-07	0.03	22-May-07	0.44	22-Jul-07	1.50	22-Sep-07	0.23	22-Nov-07	0.05
23-Jan-07	0.04	23-Mar-07	0.03	23-May-07	0.44	23-Jul-07	1.47	23-Sep-07	0.20	23-Nov-07	0.05
24-Jan-07	0.04	24-Mar-07	0.03	24-May-07	0.46	24-Jul-07	1.42	24-Sep-07	0.22	24-Nov-07	0.05
25-Jan-07	0.04	25-Mar-07	0.03	25-May-07	0.55	25-Jul-07	1.15	25-Sep-07	0.22	25-Nov-07	0.05
26-Jan-07	0.04	26-Mar-07	0.03	26-May-07	0.72	26-Jul-07	1.01	26-Sep-07	0.18	26-Nov-07	0.05
27-Jan-07	0.04	27-Mar-07	0.03	27-May-07	0.78	27-Jul-07	0.99	27-Sep-07	0.17	27-Nov-07	0.05
28-Jan-07	0.04	28-Mar-07	0.03	28-May-07	0.70	28-Jul-07	0.98	28-Sep-07	0.15	28-Nov-07	0.05
29-Jan-07	0.04	29-Mar-07	0.03	29-May-07	0.69	29-Jul-07	0.95	29-Sep-07	0.13	29-Nov-07	0.05
30-Jan-07	0.04	30-Mar-07	0.03	30-May-07	0.89	30-Jul-07	0.87	30-Sep-07	0.13	30-Nov-07	0.05
31-Jan-07	0.04	31-Mar-07	0.03	31-May-07	0.98	31-Jul-07	0.85	01-Oct-07	0.13	01-Dec-07	0.05
01-Feb-07	0.04	01-Apr-07	0.03	01-Jun-07	0.85	01-Aug-07	0.91	02-Oct-07	0.13	02-Dec-07	0.05
02-Feb-07	0.04	02-Apr-07	0.03	02-Jun-07	0.88	02-Aug-07	0.91	03-Oct-07	0.11	03-Dec-07	0.05
03-Feb-07	0.04	03-Apr-07	0.03	03-Jun-07	1.31	03-Aug-07	0.94	04-Oct-07	0.10	04-Dec-07	0.05
04-Feb-07	0.04	04-Apr-07	0.04	04-Jun-07	1.98	04-Aug-07	0.95	05-Oct-07	0.10	05-Dec-07	0.05
05-Feb-07	0.04	05-Apr-07	0.04	05-Jun-07	1.72	05-Aug-07	0.94	06-Oct-07	0.10	06-Dec-07	0.05
06-Feb-07	0.04	06-Apr-07	0.04	06-Jun-07	1.92	06-Aug-07	1.30	07-Oct-07	0.09	07-Dec-07	0.05
07-Feb-07	0.04	07-Apr-07	0.04	07-Jun-07	1.49	07-Aug-07	1.39	08-Oct-07	0.09	08-Dec-07	0.05
08-Feb-07	0.04	08-Apr-07	0.04	08-Jun-07	0.94	08-Aug-07	1.03	09-Oct-07	0.08	09-Dec-07	0.05
09-Feb-07	0.04	09-Apr-07	0.05	09-Jun-07	0.93	09-Aug-07	1.06	10-Oct-07	0.09	10-Dec-07	0.05
10-Feb-07	0.04	10-Apr-07	0.05	10-Jun-07	1.37	10-Aug-07	1.03	11-Oct-07	0.09	11-Dec-07	0.05
11-Feb-07	0.03	11-Apr-07	0.05	11-Jun-07	1.49	11-Aug-07	0.94	12-Oct-07	0.09	12-Dec-07	0.05
12-Feb-07	0.03	12-Apr-07	0.05	12-Jun-07	1.04	12-Aug-07	0.86	13-Oct-07	0.10	13-Dec-07	0.04
13-Feb-07	0.03	13-Apr-07	0.06	13-Jun-07	0.96	13-Aug-07	0.85	14-Oct-07	0.11	14-Dec-07	0.04
14-Feb-07	0.03	14-Apr-07	0.06	14-Jun-07	0.94	14-Aug-07	0.95	15-Oct-07	0.11	15-Dec-07	0.04
15-Feb-07	0.03	15-Apr-07	0.06	15-Jun-07	1.05	15-Aug-07	1.17	16-Oct-07	0.10	16-Dec-07	0.04
16-Feb-07	0.03	16-Apr-07	0.07	16-Jun-07	1.51	16-Aug-07	1.32	17-Oct-07	0.09	17-Dec-07	0.04
17-Feb-07	0.03	17-Apr-07	0.07	17-Jun-07	1.70	17-Aug-07	1.50	18-Oct-07	0.08	18-Dec-07	0.04
18-Feb-07	0.03	18-Apr-07	0.07	18-Jun-07	1.41	18-Aug-07	1.38	19-Oct-07	0.08	19-Dec-07	0.04
19-Feb-07	0.03	19-Apr-07	0.08	19-Jun-07	0.98	19-Aug-07	1.13	20-Oct-07	0.17	20-Dec-07	0.04
20-Feb-07	0.03	20-Apr-07	0.08	20-Jun-07	0.96	20-Aug-07	1.04	21-Oct-07	0.27	21-Dec-07	0.04
21-Feb-07	0.03	21-Apr-07	0.08	21-Jun-07	0.97	21-Aug-07	0.96	22-Oct-07	0.07	22-Dec-07	0.04
22-Feb-07	0.03	22-Apr-07	0.09	22-Jun-07	0.89	22-Aug-07	0.90	23-Oct-07	0.07	23-Dec-07	0.04
23-Feb-07	0.03	23-Apr-07	0.09	23-Jun-07	0.84	23-Aug-07	0.82	24-Oct-07	0.07	24-Dec-07	0.04
24-Feb-07	0.03	24-Apr-07	0.10	24-Jun-07	0.80	24-Aug-07	0.81	25-Oct-07	0.06	25-Dec-07	0.04
25-Feb-07	0.03	25-Apr-07	0.10	25-Jun-07	0.85	25-Aug-07	0.77	26-Oct-07	0.06	26-Dec-07	0.04
26-Feb-07	0.03	26-Apr-07	0.11	26-Jun-07	0.90	26-Aug-07	0.61	27-Oct-07	0.06	27-Dec-07	0.04
27-Feb-07	0.03	27-Apr-07	0.12	27-Jun-07	0.90	27-Aug-07	0.55	28-Oct-07	0.06	28-Dec-07	0.04
28-Feb-07	0.03	28-Apr-07	0.12	28-Jun-07	0.96	28-Aug-07	0.55	29-Oct-07	0.06	29-Dec-07	0.04
		29-Apr-07	0.13	29-Jun-07	1.13	29-Aug-07	0.76	30-Oct-07	0.06	30-Dec-07	0.04
		30-Apr-07	0.13	30-Jun-07	1.36	30-Aug-07	0.73	31-Oct-07	0.06	31-Dec-07	0.04
						31-Aug-07	0.63				

Notes:  
 Estimated values are italicized

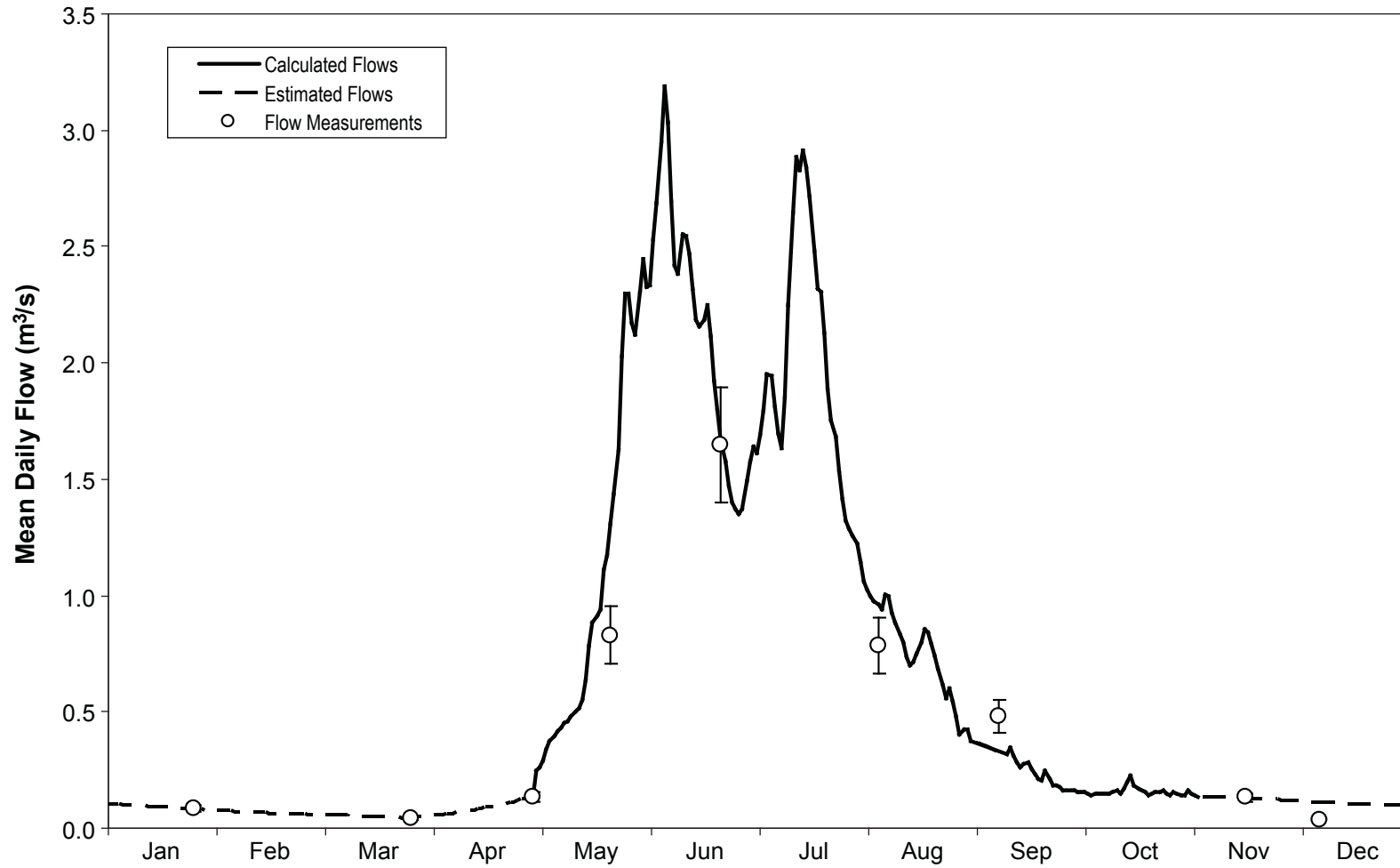




**Table A3-7 - SK1**  
**Summary of Daily Mean Flow (m<sup>3</sup>/s) 2007**

<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>
01-Jan-07	<i>0.11</i>	01-Mar-07	<i>0.06</i>	01-May-07	0.25	01-Jul-07	1.64	01-Sep-07	0.37	01-Nov-07	0.15
02-Jan-07	<i>0.11</i>	02-Mar-07	<i>0.06</i>	02-May-07	0.26	02-Jul-07	1.61	02-Sep-07	0.36	02-Nov-07	0.14
03-Jan-07	<i>0.10</i>	03-Mar-07	<i>0.06</i>	03-May-07	0.29	03-Jul-07	1.69	03-Sep-07	0.36	03-Nov-07	0.14
04-Jan-07	<i>0.10</i>	04-Mar-07	<i>0.06</i>	04-May-07	0.34	04-Jul-07	1.79	04-Sep-07	0.35	04-Nov-07	<i>0.14</i>
05-Jan-07	<i>0.10</i>	05-Mar-07	<i>0.06</i>	05-May-07	0.37	05-Jul-07	1.95	05-Sep-07	0.35	05-Nov-07	<i>0.14</i>
06-Jan-07	<i>0.10</i>	06-Mar-07	<i>0.06</i>	06-May-07	0.39	06-Jul-07	1.94	06-Sep-07	0.34	06-Nov-07	<i>0.14</i>
07-Jan-07	<i>0.10</i>	07-Mar-07	<i>0.05</i>	07-May-07	0.42	07-Jul-07	1.81	07-Sep-07	0.34	07-Nov-07	<i>0.14</i>
08-Jan-07	<i>0.10</i>	08-Mar-07	<i>0.05</i>	08-May-07	0.43	08-Jul-07	1.70	08-Sep-07	0.33	08-Nov-07	<i>0.13</i>
09-Jan-07	<i>0.10</i>	09-Mar-07	<i>0.05</i>	09-May-07	0.45	09-Jul-07	1.64	09-Sep-07	0.32	09-Nov-07	<i>0.13</i>
10-Jan-07	<i>0.10</i>	10-Mar-07	<i>0.05</i>	10-May-07	0.46	10-Jul-07	1.85	10-Sep-07	0.32	10-Nov-07	<i>0.13</i>
11-Jan-07	<i>0.10</i>	11-Mar-07	<i>0.05</i>	11-May-07	0.48	11-Jul-07	2.25	11-Sep-07	0.35	11-Nov-07	<i>0.13</i>
12-Jan-07	<i>0.09</i>	12-Mar-07	<i>0.05</i>	12-May-07	0.50	12-Jul-07	2.64	12-Sep-07	0.31	12-Nov-07	<i>0.13</i>
13-Jan-07	<i>0.09</i>	13-Mar-07	<i>0.05</i>	13-May-07	0.52	13-Jul-07	2.88	13-Sep-07	0.28	13-Nov-07	<i>0.13</i>
14-Jan-07	<i>0.09</i>	14-Mar-07	<i>0.05</i>	14-May-07	0.55	14-Jul-07	2.83	14-Sep-07	0.26	14-Nov-07	<i>0.13</i>
15-Jan-07	<i>0.09</i>	15-Mar-07	<i>0.05</i>	15-May-07	0.64	15-Jul-07	2.91	15-Sep-07	0.28	15-Nov-07	<i>0.13</i>
16-Jan-07	<i>0.09</i>	16-Mar-07	<i>0.05</i>	16-May-07	0.79	16-Jul-07	2.84	16-Sep-07	0.28	16-Nov-07	0.13
17-Jan-07	<i>0.09</i>	17-Mar-07	<i>0.05</i>	17-May-07	0.88	17-Jul-07	2.71	17-Sep-07	0.26	17-Nov-07	0.13
18-Jan-07	<i>0.09</i>	18-Mar-07	<i>0.05</i>	18-May-07	0.91	18-Jul-07	2.48	18-Sep-07	0.23	18-Nov-07	0.13
19-Jan-07	<i>0.09</i>	19-Mar-07	<i>0.05</i>	19-May-07	0.94	19-Jul-07	2.32	19-Sep-07	0.22	19-Nov-07	<i>0.13</i>
20-Jan-07	<i>0.09</i>	20-Mar-07	<i>0.05</i>	20-May-07	1.11	20-Jul-07	2.31	20-Sep-07	0.20	20-Nov-07	<i>0.13</i>
21-Jan-07	<i>0.09</i>	21-Mar-07	<i>0.05</i>	21-May-07	1.18	21-Jul-07	2.13	21-Sep-07	0.24	21-Nov-07	<i>0.13</i>
22-Jan-07	<i>0.09</i>	22-Mar-07	<i>0.05</i>	22-May-07	1.31	22-Jul-07	1.89	22-Sep-07	0.21	22-Nov-07	<i>0.13</i>
23-Jan-07	<i>0.08</i>	23-Mar-07	<i>0.05</i>	23-May-07	1.43	23-Jul-07	1.76	23-Sep-07	0.18	23-Nov-07	<i>0.13</i>
24-Jan-07	<i>0.08</i>	24-Mar-07	<i>0.05</i>	24-May-07	1.63	24-Jul-07	1.68	24-Sep-07	0.18	24-Nov-07	<i>0.13</i>
25-Jan-07	<i>0.08</i>	25-Mar-07	<i>0.05</i>	25-May-07	2.03	25-Jul-07	1.54	25-Sep-07	0.18	25-Nov-07	<i>0.12</i>
26-Jan-07	<i>0.08</i>	26-Mar-07	<i>0.04</i>	26-May-07	2.30	26-Jul-07	1.42	26-Sep-07	0.17	26-Nov-07	<i>0.12</i>
27-Jan-07	<i>0.08</i>	27-Mar-07	<i>0.04</i>	27-May-07	2.30	27-Jul-07	1.32	27-Sep-07	0.16	27-Nov-07	<i>0.12</i>
28-Jan-07	<i>0.08</i>	28-Mar-07	<i>0.05</i>	28-May-07	2.17	28-Jul-07	1.28	28-Sep-07	0.16	28-Nov-07	<i>0.12</i>
29-Jan-07	<i>0.08</i>	29-Mar-07	<i>0.05</i>	29-May-07	2.12	29-Jul-07	1.26	29-Sep-07	0.16	29-Nov-07	<i>0.12</i>
30-Jan-07	<i>0.08</i>	30-Mar-07	<i>0.05</i>	30-May-07	2.30	30-Jul-07	1.23	30-Sep-07	0.16	30-Nov-07	<i>0.12</i>
31-Jan-07	<i>0.08</i>	31-Mar-07	<i>0.05</i>	31-May-07	2.45	31-Jul-07	1.15	01-Oct-07	0.15	01-Dec-07	<i>0.12</i>
01-Feb-07	<i>0.08</i>	01-Apr-07	<i>0.05</i>	01-Jun-07	2.33	01-Aug-07	1.06	02-Oct-07	0.15	02-Dec-07	<i>0.12</i>
02-Feb-07	<i>0.08</i>	02-Apr-07	<i>0.05</i>	02-Jun-07	2.34	02-Aug-07	1.02	03-Oct-07	0.15	03-Dec-07	<i>0.12</i>
03-Feb-07	<i>0.08</i>	03-Apr-07	<i>0.06</i>	03-Jun-07	2.53	03-Aug-07	1.00	04-Oct-07	0.14	04-Dec-07	<i>0.12</i>
04-Feb-07	<i>0.07</i>	04-Apr-07	<i>0.06</i>	04-Jun-07	2.69	04-Aug-07	0.98	05-Oct-07	0.15	05-Dec-07	<i>0.12</i>
05-Feb-07	<i>0.07</i>	05-Apr-07	<i>0.06</i>	05-Jun-07	2.95	05-Aug-07	0.96	06-Oct-07	0.15	06-Dec-07	<i>0.12</i>
06-Feb-07	<i>0.07</i>	06-Apr-07	<i>0.06</i>	06-Jun-07	3.19	06-Aug-07	0.94	07-Oct-07	0.15	07-Dec-07	<i>0.11</i>
07-Feb-07	<i>0.07</i>	07-Apr-07	<i>0.06</i>	07-Jun-07	3.03	07-Aug-07	1.00	08-Oct-07	0.15	08-Dec-07	<i>0.11</i>
08-Feb-07	<i>0.07</i>	08-Apr-07	<i>0.07</i>	08-Jun-07	2.70	08-Aug-07	1.00	09-Oct-07	0.15	09-Dec-07	<i>0.11</i>
09-Feb-07	<i>0.07</i>	09-Apr-07	<i>0.07</i>	09-Jun-07	2.42	09-Aug-07	0.93	10-Oct-07	0.16	10-Dec-07	<i>0.11</i>
10-Feb-07	<i>0.07</i>	10-Apr-07	<i>0.07</i>	10-Jun-07	2.38	10-Aug-07	0.88	11-Oct-07	0.16	11-Dec-07	<i>0.11</i>
11-Feb-07	<i>0.07</i>	11-Apr-07	<i>0.07</i>	11-Jun-07	2.55	11-Aug-07	0.84	12-Oct-07	0.15	12-Dec-07	<i>0.11</i>
12-Feb-07	<i>0.07</i>	12-Apr-07	<i>0.08</i>	12-Jun-07	2.54	12-Aug-07	0.80	13-Oct-07	0.17	13-Dec-07	<i>0.11</i>
13-Feb-07	<i>0.07</i>	13-Apr-07	<i>0.08</i>	13-Jun-07	2.47	13-Aug-07	0.74	14-Oct-07	0.20	14-Dec-07	<i>0.11</i>
14-Feb-07	<i>0.07</i>	14-Apr-07	<i>0.08</i>	14-Jun-07	2.32	14-Aug-07	0.70	15-Oct-07	0.23	15-Dec-07	<i>0.11</i>
15-Feb-07	<i>0.07</i>	15-Apr-07	<i>0.08</i>	15-Jun-07	2.18	15-Aug-07	0.71	16-Oct-07	0.18	16-Dec-07	<i>0.11</i>
16-Feb-07	<i>0.07</i>	16-Apr-07	<i>0.09</i>	16-Jun-07	2.16	16-Aug-07	0.75	17-Oct-07	0.17	17-Dec-07	<i>0.11</i>
17-Feb-07	<i>0.07</i>	17-Apr-07	<i>0.09</i>	17-Jun-07	2.19	17-Aug-07	0.80	18-Oct-07	0.16	18-Dec-07	<i>0.11</i>
18-Feb-07	<i>0.06</i>	18-Apr-07	<i>0.09</i>	18-Jun-07	2.25	18-Aug-07	0.86	19-Oct-07	0.15	19-Dec-07	<i>0.11</i>
19-Feb-07	<i>0.06</i>	19-Apr-07	<i>0.10</i>	19-Jun-07	2.12	19-Aug-07	0.84	20-Oct-07	0.14	20-Dec-07	<i>0.11</i>
20-Feb-07	<i>0.06</i>	20-Apr-07	<i>0.10</i>	20-Jun-07	1.92	20-Aug-07	0.79	21-Oct-07	0.15	21-Dec-07	<i>0.10</i>
21-Feb-07	<i>0.06</i>	21-Apr-07	<i>0.10</i>	21-Jun-07	1.79	21-Aug-07	0.74	22-Oct-07	0.16	22-Dec-07	<i>0.10</i>
22-Feb-07	<i>0.06</i>	22-Apr-07	<i>0.11</i>	22-Jun-07	1.67	22-Aug-07	0.69	23-Oct-07	0.16	23-Dec-07	<i>0.10</i>
23-Feb-07	<i>0.06</i>	23-Apr-07	<i>0.11</i>	23-Jun-07	1.58	23-Aug-07	0.62	24-Oct-07	0.16	24-Dec-07	<i>0.10</i>
24-Feb-07	<i>0.06</i>	24-Apr-07	<i>0.11</i>	24-Jun-07	1.47	24-Aug-07	0.56	25-Oct-07	0.15	25-Dec-07	<i>0.10</i>
25-Feb-07	<i>0.06</i>	25-Apr-07	<i>0.12</i>	25-Jun-07	1.40	25-Aug-07	0.60	26-Oct-07	0.14	26-Dec-07	<i>0.10</i>
26-Feb-07	<i>0.06</i>	26-Apr-07	<i>0.12</i>	26-Jun-07	1.37	26-Aug-07	0.55	27-Oct-07	0.16	27-Dec-07	<i>0.10</i>
27-Feb-07	<i>0.06</i>	27-Apr-07	<i>0.12</i>	27-Jun-07	1.35	27-Aug-07	0.48	28-Oct-07	0.15	28-Dec-07	<i>0.10</i>
28-Feb-07	<i>0.06</i>	28-Apr-07	<i>0.13</i>	28-Jun-07	1.37	28-Aug-07	0.41	29-Oct-07	0.14	29-Dec-07	<i>0.10</i>
		29-Apr-07	<i>0.13</i>	29-Jun-07	1.49	29-Aug-07	0.43	30-Oct-07	0.14	30-Dec-07	<i>0.10</i>
		30-Apr-07	<i>0.14</i>	30-Jun-07	1.58	30-Aug-07	0.42	31-Oct-07	0.16	31-Dec-07	<i>0.10</i>
						31-Aug-07	0.38				

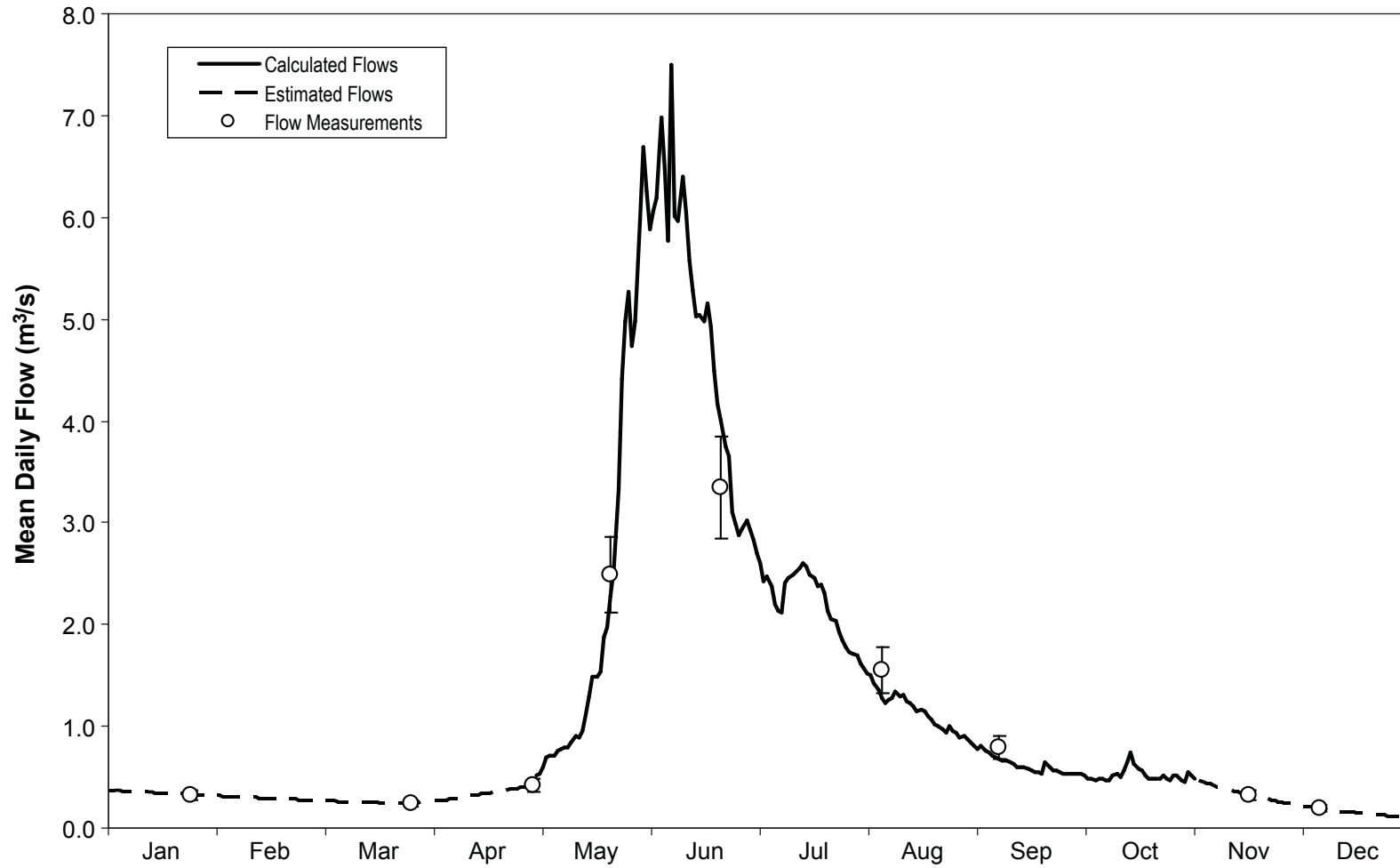
Notes:  
Estimated values are italicized



**Table A3-8 - SK2**  
**Summary of Daily Mean Flow (m<sup>3</sup>/s) 2007**

<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>	<b>Date</b>	<b>Mean Daily Flow (m<sup>3</sup>/s)</b>
01-Jan-07	0.37	01-Mar-07	0.27	01-May-07	0.52	01-Jul-07	2.82	01-Sep-07	0.81	01-Nov-07	0.51
02-Jan-07	0.37	02-Mar-07	0.27	02-May-07	0.54	02-Jul-07	2.70	02-Sep-07	0.78	02-Nov-07	0.48
03-Jan-07	0.37	03-Mar-07	0.27	03-May-07	0.60	03-Jul-07	2.60	03-Sep-07	0.81	03-Nov-07	0.47
04-Jan-07	0.36	04-Mar-07	0.27	04-May-07	0.70	04-Jul-07	2.43	04-Sep-07	0.75	04-Nov-07	0.45
05-Jan-07	0.36	05-Mar-07	0.27	05-May-07	0.71	05-Jul-07	2.47	05-Sep-07	0.74	05-Nov-07	0.44
06-Jan-07	0.36	06-Mar-07	0.27	06-May-07	0.72	06-Jul-07	2.37	06-Sep-07	0.72	06-Nov-07	0.43
07-Jan-07	0.36	07-Mar-07	0.26	07-May-07	0.76	07-Jul-07	2.20	07-Sep-07	0.70	07-Nov-07	0.42
08-Jan-07	0.36	08-Mar-07	0.26	08-May-07	0.77	08-Jul-07	2.13	08-Sep-07	0.68	08-Nov-07	0.41
09-Jan-07	0.35	09-Mar-07	0.26	09-May-07	0.80	09-Jul-07	2.12	09-Sep-07	0.67	09-Nov-07	0.40
10-Jan-07	0.35	10-Mar-07	0.26	10-May-07	0.80	10-Jul-07	2.40	10-Sep-07	0.66	10-Nov-07	0.39
11-Jan-07	0.35	11-Mar-07	0.26	11-May-07	0.84	11-Jul-07	2.46	11-Sep-07	0.65	11-Nov-07	0.38
12-Jan-07	0.35	12-Mar-07	0.26	12-May-07	0.90	12-Jul-07	2.48	12-Sep-07	0.62	12-Nov-07	0.37
13-Jan-07	0.35	13-Mar-07	0.26	13-May-07	0.89	13-Jul-07	2.52	13-Sep-07	0.60	13-Nov-07	0.36
14-Jan-07	0.35	14-Mar-07	0.26	14-May-07	0.96	14-Jul-07	2.55	14-Sep-07	0.59	14-Nov-07	0.35
15-Jan-07	0.34	15-Mar-07	0.25	15-May-07	1.12	15-Jul-07	2.61	15-Sep-07	0.59	15-Nov-07	0.34
16-Jan-07	0.34	16-Mar-07	0.25	16-May-07	1.30	16-Jul-07	2.57	16-Sep-07	0.58	16-Nov-07	0.33
17-Jan-07	0.34	17-Mar-07	0.25	17-May-07	1.49	17-Jul-07	2.50	17-Sep-07	0.56	17-Nov-07	0.32
18-Jan-07	0.34	18-Mar-07	0.25	18-May-07	1.49	18-Jul-07	2.45	18-Sep-07	0.55	18-Nov-07	0.31
19-Jan-07	0.34	19-Mar-07	0.25	19-May-07	1.53	19-Jul-07	2.37	19-Sep-07	0.54	19-Nov-07	0.31
20-Jan-07	0.34	20-Mar-07	0.25	20-May-07	1.88	20-Jul-07	2.39	20-Sep-07	0.53	20-Nov-07	0.30
21-Jan-07	0.33	21-Mar-07	0.25	21-May-07	1.97	21-Jul-07	2.32	21-Sep-07	0.65	21-Nov-07	0.29
22-Jan-07	0.33	22-Mar-07	0.25	22-May-07	2.27	22-Jul-07	2.13	22-Sep-07	0.61	22-Nov-07	0.28
23-Jan-07	0.33	23-Mar-07	0.24	23-May-07	2.54	23-Jul-07	2.05	23-Sep-07	0.57	23-Nov-07	0.28
24-Jan-07	0.33	24-Mar-07	0.24	24-May-07	3.34	24-Jul-07	2.03	24-Sep-07	0.56	24-Nov-07	0.27
25-Jan-07	0.33	25-Mar-07	0.24	25-May-07	4.41	25-Jul-07	1.92	25-Sep-07	0.55	25-Nov-07	0.26
26-Jan-07	0.33	26-Mar-07	0.24	26-May-07	4.97	26-Jul-07	1.84	26-Sep-07	0.53	26-Nov-07	0.26
27-Jan-07	0.32	27-Mar-07	0.24	27-May-07	5.28	27-Jul-07	1.78	27-Sep-07	0.54	27-Nov-07	0.25
28-Jan-07	0.32	28-Mar-07	0.24	28-May-07	4.74	28-Jul-07	1.73	28-Sep-07	0.54	28-Nov-07	0.24
29-Jan-07	0.32	29-Mar-07	0.25	29-May-07	4.97	29-Jul-07	1.72	29-Sep-07	0.53	29-Nov-07	0.24
30-Jan-07	0.32	30-Mar-07	0.25	30-May-07	5.99	30-Jul-07	1.70	30-Sep-07	0.53	30-Nov-07	0.23
31-Jan-07	0.32	31-Mar-07	0.26	31-May-07	6.69	31-Jul-07	1.62	01-Oct-07	0.53	01-Dec-07	0.23
01-Feb-07	0.32	01-Apr-07	0.26	01-Jun-07	6.26	01-Aug-07	1.57	02-Oct-07	0.51	02-Dec-07	0.22
02-Feb-07	0.31	02-Apr-07	0.26	02-Jun-07	5.88	02-Aug-07	1.52	03-Oct-07	0.49	03-Dec-07	0.22
03-Feb-07	0.31	03-Apr-07	0.27	03-Jun-07	6.06	03-Aug-07	1.50	04-Oct-07	0.48	04-Dec-07	0.21
04-Feb-07	0.31	04-Apr-07	0.27	04-Jun-07	6.19	04-Aug-07	1.41	05-Oct-07	0.47	05-Dec-07	0.20
05-Feb-07	0.31	05-Apr-07	0.28	05-Jun-07	6.98	05-Aug-07	1.35	06-Oct-07	0.48	06-Dec-07	0.20
06-Feb-07	0.31	06-Apr-07	0.28	06-Jun-07	6.48	06-Aug-07	1.28	07-Oct-07	0.48	07-Dec-07	0.19
07-Feb-07	0.31	07-Apr-07	0.29	07-Jun-07	5.78	07-Aug-07	1.23	08-Oct-07	0.47	08-Dec-07	0.19
08-Feb-07	0.30	08-Apr-07	0.29	08-Jun-07	7.49	08-Aug-07	1.25	09-Oct-07	0.47	09-Dec-07	0.18
09-Feb-07	0.30	09-Apr-07	0.30	09-Jun-07	6.02	09-Aug-07	1.28	10-Oct-07	0.52	10-Dec-07	0.18
10-Feb-07	0.30	10-Apr-07	0.30	10-Jun-07	5.97	10-Aug-07	1.34	11-Oct-07	0.54	11-Dec-07	0.18
11-Feb-07	0.30	11-Apr-07	0.31	11-Jun-07	6.40	11-Aug-07	1.30	12-Oct-07	0.50	12-Dec-07	0.17
12-Feb-07	0.30	12-Apr-07	0.31	12-Jun-07	6.05	12-Aug-07	1.31	13-Oct-07	0.56	13-Dec-07	0.17
13-Feb-07	0.30	13-Apr-07	0.32	13-Jun-07	5.57	13-Aug-07	1.24	14-Oct-07	0.64	14-Dec-07	0.16
14-Feb-07	0.29	14-Apr-07	0.32	14-Jun-07	5.28	14-Aug-07	1.22	15-Oct-07	0.74	15-Dec-07	0.16
15-Feb-07	0.29	15-Apr-07	0.33	15-Jun-07	5.03	15-Aug-07	1.20	16-Oct-07	0.62	16-Dec-07	0.15
16-Feb-07	0.29	16-Apr-07	0.33	16-Jun-07	5.04	16-Aug-07	1.15	17-Oct-07	0.58	17-Dec-07	0.15
17-Feb-07	0.29	17-Apr-07	0.34	17-Jun-07	4.98	17-Aug-07	1.16	18-Oct-07	0.56	18-Dec-07	0.15
18-Feb-07	0.29	18-Apr-07	0.34	18-Jun-07	5.16	18-Aug-07	1.14	19-Oct-07	0.52	19-Dec-07	0.14
19-Feb-07	0.29	19-Apr-07	0.35	19-Jun-07	4.92	19-Aug-07	1.10	20-Oct-07	0.48	20-Dec-07	0.14
20-Feb-07	0.29	20-Apr-07	0.36	20-Jun-07	4.49	20-Aug-07	1.07	21-Oct-07	0.49	21-Dec-07	0.14
21-Feb-07	0.28	21-Apr-07	0.36	21-Jun-07	4.18	21-Aug-07	1.02	22-Oct-07	0.49	22-Dec-07	0.13
22-Feb-07	0.28	22-Apr-07	0.37	22-Jun-07	4.01	22-Aug-07	1.01	23-Oct-07	0.49	23-Dec-07	0.13
23-Feb-07	0.28	23-Apr-07	0.37	23-Jun-07	3.75	23-Aug-07	0.98	24-Oct-07	0.51	24-Dec-07	0.13
24-Feb-07	0.28	24-Apr-07	0.38	24-Jun-07	3.65	24-Aug-07	0.94	25-Oct-07	0.49	25-Dec-07	0.12
25-Feb-07	0.28	25-Apr-07	0.39	25-Jun-07	3.10	25-Aug-07	1.00	26-Oct-07	0.47	26-Dec-07	0.12
26-Feb-07	0.28	26-Apr-07	0.39	26-Jun-07	2.98	26-Aug-07	0.96	27-Oct-07	0.53	27-Dec-07	0.12
27-Feb-07	0.28	27-Apr-07	0.40	27-Jun-07	2.88	27-Aug-07	0.94	28-Oct-07	0.51	28-Dec-07	0.11
28-Feb-07	0.27	28-Apr-07	0.41	28-Jun-07	2.94	28-Aug-07	0.89	29-Oct-07	0.47	29-Dec-07	0.11
		29-Apr-07	0.41	29-Jun-07	3.02	29-Aug-07	0.90	30-Oct-07	0.46	30-Dec-07	0.11
		30-Apr-07	0.42	30-Jun-07	2.93	30-Aug-07	0.88	31-Oct-07	0.55	31-Dec-07	0.11
						31-Aug-07	0.84				

Notes:  
 Estimated values are italicized



**Table A3-9 - MESS1**  
**Summary of Daily Mean Flow (m<sup>3</sup>/s) 2007**

Date	Mean Daily Flow (m <sup>3</sup> /s)	Date	Mean Daily Flow (m <sup>3</sup> /s)	Date	Mean Daily Flow (m <sup>3</sup> /s)	Date	Mean Daily Flow (m <sup>3</sup> /s)	Date	Mean Daily Flow (m <sup>3</sup> /s)	Date	Mean Daily Flow (m <sup>3</sup> /s)
01-Jan-07	1.05	01-Mar-07	0.89	01-May-07	2.30	01-Jul-07	55.20	01-Sep-07	9.58	01-Nov-07	3.55
02-Jan-07	1.05	02-Mar-07	0.89	02-May-07	2.43	02-Jul-07	50.15	02-Sep-07	8.32	02-Nov-07	3.45
03-Jan-07	1.05	03-Mar-07	0.89	03-May-07	2.56	03-Jul-07	45.77	03-Sep-07	7.82	03-Nov-07	3.35
04-Jan-07	1.04	04-Mar-07	0.89	04-May-07	2.70	04-Jul-07	48.32	04-Sep-07	7.28	04-Nov-07	3.26
05-Jan-07	1.04	05-Mar-07	0.89	05-May-07	2.85	05-Jul-07	52.55	05-Sep-07	7.21	05-Nov-07	3.17
06-Jan-07	1.04	06-Mar-07	0.88	06-May-07	3.00	06-Jul-07	43.20	06-Sep-07	6.92	06-Nov-07	3.08
07-Jan-07	1.03	07-Mar-07	0.88	07-May-07	3.16	07-Jul-07	37.58	07-Sep-07	6.44	07-Nov-07	2.99
08-Jan-07	1.03	08-Mar-07	0.88	08-May-07	3.34	08-Jul-07	37.03	08-Sep-07	5.98	08-Nov-07	2.91
09-Jan-07	1.02	09-Mar-07	0.88	09-May-07	3.52	09-Jul-07	39.88	09-Sep-07	8.65	09-Nov-07	2.83
10-Jan-07	1.02	10-Mar-07	0.88	10-May-07	3.71	10-Jul-07	62.50	10-Sep-07	11.03	10-Nov-07	2.75
11-Jan-07	1.02	11-Mar-07	0.87	11-May-07	3.76	11-Jul-07	108.86	11-Sep-07	11.44	11-Nov-07	2.67
12-Jan-07	1.01	12-Mar-07	0.87	12-May-07	3.86	12-Jul-07	108.25	12-Sep-07	9.89	12-Nov-07	2.60
13-Jan-07	1.01	13-Mar-07	0.87	13-May-07	3.91	13-Jul-07	87.65	13-Sep-07	8.58	13-Nov-07	2.52
14-Jan-07	1.01	14-Mar-07	0.87	14-May-07	4.19	14-Jul-07	81.72	14-Sep-07	7.86	14-Nov-07	2.45
15-Jan-07	1.00	15-Mar-07	0.86	15-May-07	4.60	15-Jul-07	79.34	15-Sep-07	11.50	15-Nov-07	2.38
16-Jan-07	1.00	16-Mar-07	0.86	16-May-07	5.11	16-Jul-07	67.86	16-Sep-07	9.77	16-Nov-07	2.32
17-Jan-07	1.00	17-Mar-07	0.86	17-May-07	5.59	17-Jul-07	59.77	17-Sep-07	7.13	17-Nov-07	2.29
18-Jan-07	0.99	18-Mar-07	0.86	18-May-07	5.60	18-Jul-07	52.39	18-Sep-07	5.98	18-Nov-07	2.26
19-Jan-07	0.99	19-Mar-07	0.86	19-May-07	5.66	19-Jul-07	50.49	19-Sep-07	5.52	19-Nov-07	2.23
20-Jan-07	0.99	20-Mar-07	0.85	20-May-07	6.67	20-Jul-07	50.86	20-Sep-07	5.49	20-Nov-07	2.20
21-Jan-07	0.98	21-Mar-07	0.85	21-May-07	7.12	21-Jul-07	41.33	21-Sep-07	7.09	21-Nov-07	2.17
22-Jan-07	0.98	22-Mar-07	0.85	22-May-07	7.87	22-Jul-07	37.31	22-Sep-07	5.62	22-Nov-07	2.15
23-Jan-07	0.98	23-Mar-07	0.85	23-May-07	8.83	23-Jul-07	37.22	23-Sep-07	5.08	23-Nov-07	2.12
24-Jan-07	0.97	24-Mar-07	0.85	24-May-07	11.27	24-Jul-07	35.72	24-Sep-07	5.86	24-Nov-07	2.09
25-Jan-07	0.97	25-Mar-07	0.79	25-May-07	15.30	25-Jul-07	31.32	25-Sep-07	6.51	25-Nov-07	2.07
26-Jan-07	0.97	26-Mar-07	0.82	26-May-07	19.86	26-Jul-07	26.98	26-Sep-07	5.70	26-Nov-07	2.04
27-Jan-07	0.97	27-Mar-07	0.84	27-May-07	22.08	27-Jul-07	24.89	27-Sep-07	5.13	27-Nov-07	2.01
28-Jan-07	0.96	28-Mar-07	0.86	28-May-07	20.34	28-Jul-07	24.64	28-Sep-07	4.74	28-Nov-07	1.99
29-Jan-07	0.96	29-Mar-07	0.89	29-May-07	19.55	29-Jul-07	23.42	29-Sep-07	4.53	29-Nov-07	1.96
30-Jan-07	0.96	30-Mar-07	0.91	30-May-07	21.18	30-Jul-07	20.61	30-Sep-07	4.41	30-Nov-07	1.94
31-Jan-07	0.96	31-Mar-07	0.94	31-May-07	25.21	31-Jul-07	18.12	01-Oct-07	4.67	01-Dec-07	1.91
01-Feb-07	0.95	01-Apr-07	0.97	01-Jun-07	26.30	01-Aug-07	20.34	02-Oct-07	4.68	02-Dec-07	1.89
02-Feb-07	0.95	02-Apr-07	1.00	02-Jun-07	27.88	02-Aug-07	19.27	03-Oct-07	4.30	03-Dec-07	1.86
03-Feb-07	0.95	03-Apr-07	1.02	03-Jun-07	36.10	03-Aug-07	18.10	04-Oct-07	4.01	04-Dec-07	1.84
04-Feb-07	0.95	04-Apr-07	1.05	04-Jun-07	54.07	04-Aug-07	18.67	05-Oct-07	4.00	05-Dec-07	1.82
05-Feb-07	0.95	05-Apr-07	1.08	05-Jun-07	65.75	05-Aug-07	17.30	06-Oct-07	3.95	06-Dec-07	1.79
06-Feb-07	0.94	06-Apr-07	1.11	06-Jun-07	71.25	06-Aug-07	20.83	07-Oct-07	3.89	07-Dec-07	1.77
07-Feb-07	0.94	07-Apr-07	1.15	07-Jun-07	72.96	07-Aug-07	23.00	08-Oct-07	3.71	08-Dec-07	1.75
08-Feb-07	0.94	08-Apr-07	1.18	08-Jun-07	57.61	08-Aug-07	18.72	09-Oct-07	3.71	09-Dec-07	1.73
09-Feb-07	0.94	09-Apr-07	1.21	09-Jun-07	45.50	09-Aug-07	17.97	10-Oct-07	4.08	10-Dec-07	1.71
10-Feb-07	0.93	10-Apr-07	1.25	10-Jun-07	48.73	10-Aug-07	17.89	11-Oct-07	4.28	11-Dec-07	1.68
11-Feb-07	0.93	11-Apr-07	1.28	11-Jun-07	59.50	11-Aug-07	16.59	12-Oct-07	3.79	12-Dec-07	1.66
12-Feb-07	0.93	12-Apr-07	1.32	12-Jun-07	59.66	12-Aug-07	14.91	13-Oct-07	5.66	13-Dec-07	1.64
13-Feb-07	0.93	13-Apr-07	1.36	13-Jun-07	53.40	13-Aug-07	14.20	14-Oct-07	6.57	14-Dec-07	1.62
14-Feb-07	0.93	14-Apr-07	1.39	14-Jun-07	51.16	14-Aug-07	13.64	15-Oct-07	6.89	15-Dec-07	1.60
15-Feb-07	0.92	15-Apr-07	1.43	15-Jun-07	53.26	15-Aug-07	16.24	16-Oct-07	5.03	16-Dec-07	1.58
16-Feb-07	0.92	16-Apr-07	1.47	16-Jun-07	56.11	16-Aug-07	17.22	17-Oct-07	4.46	17-Dec-07	1.56
17-Feb-07	0.92	17-Apr-07	1.52	17-Jun-07	66.18	17-Aug-07	18.39	18-Oct-07	4.27	18-Dec-07	1.54
18-Feb-07	0.92	18-Apr-07	1.56	18-Jun-07	67.53	18-Aug-07	22.47	19-Oct-07	3.77	19-Dec-07	1.52
19-Feb-07	0.92	19-Apr-07	1.60	19-Jun-07	48.24	19-Aug-07	19.05	20-Oct-07	4.72	20-Dec-07	1.50
20-Feb-07	0.91	20-Apr-07	1.65	20-Jun-07	40.73	20-Aug-07	15.45	21-Oct-07	6.68	21-Dec-07	1.48
21-Feb-07	0.91	21-Apr-07	1.70	21-Jun-07	41.11	21-Aug-07	13.80	22-Oct-07	4.72	22-Dec-07	1.46
22-Feb-07	0.91	22-Apr-07	1.75	22-Jun-07	38.40	22-Aug-07	12.56	23-Oct-07	4.59	23-Dec-07	1.44
23-Feb-07	0.91	23-Apr-07	1.80	23-Jun-07	36.27	23-Aug-07	11.36	24-Oct-07	4.46	24-Dec-07	1.43
24-Feb-07	0.90	24-Apr-07	1.85	24-Jun-07	31.88	24-Aug-07	10.74	25-Oct-07	4.34	25-Dec-07	1.41
25-Feb-07	0.90	25-Apr-07	1.90	25-Jun-07	34.13	25-Aug-07	11.74	26-Oct-07	4.21	26-Dec-07	1.39
26-Feb-07	0.90	26-Apr-07	1.95	26-Jun-07	34.85	26-Aug-07	10.31	27-Oct-07	4.10	27-Dec-07	1.37
27-Feb-07	0.90	27-Apr-07	2.01	27-Jun-07	35.84	27-Aug-07	9.32	28-Oct-07	3.98	28-Dec-07	1.36
28-Feb-07	0.90	28-Apr-07	2.07	28-Jun-07	37.53	28-Aug-07	8.60	29-Oct-07	3.87	29-Dec-07	1.34
		29-Apr-07	2.13	29-Jun-07	42.59	29-Aug-07	11.07	30-Oct-07	3.76	30-Dec-07	1.32
		30-Apr-07	2.19	30-Jun-07	52.47	30-Aug-07	11.00	31-Oct-07	3.65	31-Dec-07	1.30
						31-Aug-07	10.28				

Notes:  
 Estimated values are italicized

