STREAM-FLOW MEASUREMENTS AT SELECTED GAGING STATIONS IN THE IOWA AND DES MOINES RIVER BASINS
Sampling Period: 10 July 2003 - 27 August 2003
(Data: IIHR5 and IIHR6)

by
Tatsuaki Nakato and Doug Houser

Submitted to
U.S. Army Corps of Engineers
Rock Island District
Clock Tower Building
Rock Island, Illinois 61204

IIHR Technical Report No. 433

IIHR – Hydroscience & Engineering
College of Engineering
The University of Iowa
Iowa City, Iowa 52242-1585

November 2003

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
NOV 2003		**00-00-2003 to 00-00-2003**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Stream-Flow Measuremetns at Selected Gaging Stations in the Iowa and Des Moines River Basins. Sampling Period: 10 July 2003 - 27 August 2003	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **The University of Iowa,College of Engineering,IIHR - Hydroscience & Engineering,Iowa City,IA,52242-1585**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES
The original document contains color images.

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			
unclassified	**unclassified**	**unclassified**		**76**	

ABSTRACT

Two sets of field velocity measurements were taken at fifteen stream gaging sites within the Iowa River and Des Moines River basins during the period from 10 July 2003 to 27 August 2003. These additional data confirmed the validity of the log-linear stage-discharge relationships and the rating tables developed previously in July 2003 for each station by IIHR.

ACKNOWLEDGMENTS

The field investigation reported herein was conducted for and sponsored by the U.S. Army Corps of Engineers, Rock Island District (USACE-MVR) through Missman Stanley & Associates, P.C. (MSAPC). The author thanks James Stiman and Thomas Knox of the USACE-MVR and Mike McCaw of MSAPC for their unfailing cooperation throughout the course of this study. The author is also indebted to Mike Kundert and Ralph Altmaier of the IIHR – Hydroscience & Engineering for assisting in traffic controls, and Todd Westberg and Justin Krohn and of MSAPC for collecting the field data.

TABLE OF CONTENTS

		Page
I.	INTRODUCTION	1
II.	CHARACTERISTICS OF IIHR5 AND IIHR6	3
III.	GRAPHICAL PRESENTATION OF IIHR5 AND IIHR6 WITH EXSTING HISTORICAL DATA	12
	1. East Forks Des Moines River near Algona, IA (AGNI4)	12
	2. Iowa River near Belle Plaine, IA (BLPI4)	15
	3. Iowa River near Columbus Junction, IA (CJTI4)	18
	4. Des Moines River near Eddyville, IA (EDYI4)	21
	5. West Fork Des Moines River near Emmetsburg, IA (EMTI4)	24
	6. West Fork Des Moines River near Estherville, IA (ESVI4)	27
	7. Boone River near Goldfield, IA (GLDI4)	30
	8. North Raccoon River near Lanesboro, IA (LKCI4)	33
	9. North Fork English River near Parnell, IA (NEPI4)	36
	10. North Raccoon River near Perry, IA (PROI4)	39
	11. Iowa River near Steamboat Rock, IA (STBI4)	42
	12. Iowa River near Tama, IA (TAMI4)	45
	13. Deer Creek near Toledo, IA (TOLI4)	48
	14. West Fork Des Moines River near Windom, MN (WDOM5)	51
	15. Beaver Creek near Woodward, IA (WWDI4)	54
APPENDIX I	ANALYSIS OF FEILD VELOCITY DATA FOR FIFTEEN GAGING STATIONS	40

LIST OF TABLES

		Page
Table 1	Sample spreadsheet developed for analyzing raw data to obtain total discharge at North Raccoon River near Perry, Iowa (PROI4)	4
Table 2(a)	Summary of field data collected at Stations AGNI4, BPLI4, CJTI4, EDYI4, and EMTI4 in the Iowa River and the Des Moines River Basins between September 2002 and August 2003	5
Table 2(b)	Summary of field data collected at Stations ESVI4, GLDI4, LKCI4, NEPI4, and PROI4 in the Iowa River and the Des Moines River Basins between September 2002 and August 2003	6
Table 2(c)	Summary of field data collected at Stations STBI4, TAMI4, TOLI4, WDOM5, and WWDI4 in the Iowa River and the Des Moines River Basins between September 2002 and August 2003	7
Table 3	Comparison of five highest discharges recorded at LKCI4, PROI4, and WWDI4	8
Table 4(a)	Stage-discharge relationships developed for Station Nos. 1 through 10	10

Table 4(b) Stage-discharge relationships developed for Station Nos. 11 through 15 11

LIST OF FIGURES

Page

Figure 1 Location map identifying fifteen stream-flow gaging stations (Note: MLII2 on the Rock River in Illinois was not included) 2
Figure 2 River-stage record in 2003 at LKCI4 (from USACE-MVR web site) 8
Figure 3 River-stage record in 2003 at PROI4 (from USACE-MVR web site) 9
Figure 4 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for AGNI4 (Note: the data for 1991-1993 were excluded) 13
Figure 5 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for BPLI4 15
Figure 6 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for CJTI4 17
Figure 7 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for EDYI4 19
Figure 8 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for EMTI4 21
Figure 9 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for ESVI4 23
Figure 10 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for GLDI4 25
Figure 11 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for LKCI4 27
Figure 12 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for NEPI4 29
Figure 13 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for PROI4 31
Figure 14 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for STBI4 33
Figure 15 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for TAMI4 35
Figure 16 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for TOLI4 37
Figure 17 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for WDOM5 39
Figure 18 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for WWDI4 41

STREAM-FLOW MEASUREMENTS AT SELECTED GAGING STATIONS IN THE IOWA AND DES MOINES RIVER BASINS
Sampling Period: 10 July 2003 - 27 August 2003
(Data: IIHR5 and IIHR6)

I. INTRODUCTION

During the period from 3 September 2002 to 18 April 2003, four sets of field stream gaging data (IIHR1 through IIHR4) were collected by IIHR – Hydroscience & Engineering (IIHR), The University of Iowa, at fifteen gaging stations along the Iowa River and the Des Moines River basins that are maintained by the U.S. Army Corps of Engineers, Rock Island District (USACE-MVR). The new sets of field data were added to the old historical data sets and the revised stage-discharge relationships were developed for individual stations (Nakato 2003[1]).

Those fifteen stream-gaging stations, shown in figure 1, include six gaging stations for the Iowa River basin and nine stations for the Des Moines River basin, as follow:

Iowa River basin:

1. Iowa River at Steamboat Rock, Iowa (STBI4);
2. Deer Creek Near Toledo, Iowa (TOLI4);
3. Iowa River at Tama, Iowa (TAMI4);
4. Iowa River near Belle Plaine, Iowa (BPLI4);
5. North Fork English River near Parnell, Iowa (NEPI4); and
6. Iowa River at Columbus Junction, Iowa (CJTI4)

Des Moines River basin:

1. West Fork Des Moines River near Windom, Minnesota (WDOM5);
2. Des Moines River at Estherville, Iowa (ESVI4);
3. Des Moines River at Emmetsburg, Iowa (EMTI4);
4. East Fork Des Moines River at Algona, Iowa (AGNI4);
5. Boone River near Goldfield, Iowa (GLDI4);

[1] Nakato, T., "Stream-flow measurements at selected gaging stations in the Iowa and Des Moines River basins and development of stage-discharge relationships - sampling period: 3 September 2002-18 April 2003," IIHR Technical Report No. 431, IIHR – Hydroscience & Engineering, The University of Iowa, Iowa City, Iowa 52242, July 2003

6. Beaver Creek near Woodward, Iowa (WWDI4);
7. North Raccoon River near Lanesboro, Iowa (LKCI4);
8. North Raccoon River near Perry, Iowa (PROI4); and
9. Des Moines River near Eddyville, Iowa (EDYI4)

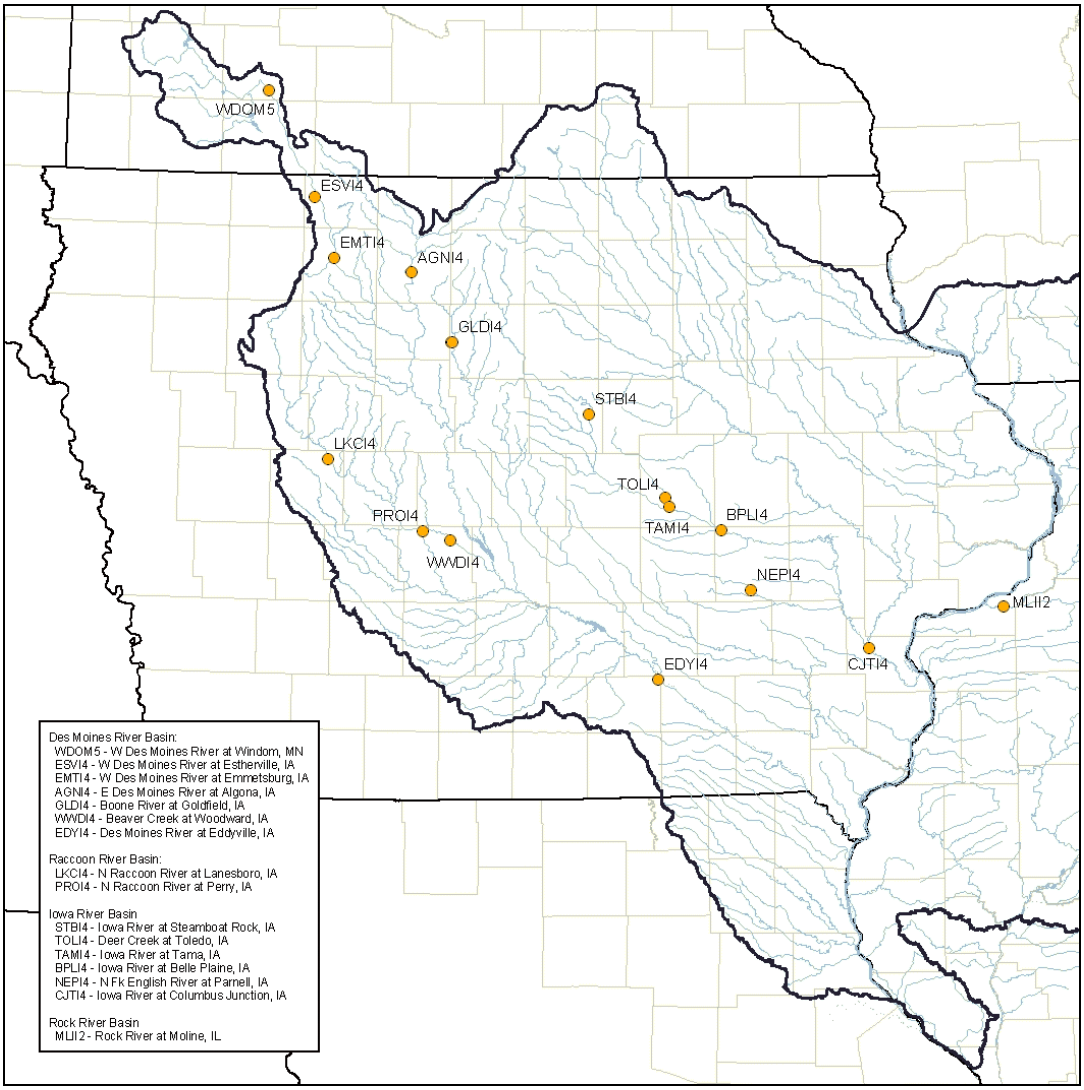


Figure 1 Location map identifying fifteen stream-flow gaging stations (Note: MLII2 on the Rock River in Illinois was not included)

Between 10 July 2003 and 27 August 2003, two sets of additional field data were collected at the same fifteen gaging stations. The new sets of data, identified as **IIHR5** and **IIHR6,** are presented in this report.

II. CHARACTERISTICS OF IIHR5 AND IIHR6

All the depth, width, and raw velocity data collected were stored in the spreadsheet and flow areas and total discharges were computed using MS Excel 2000, as exemplified in table 1. Tables 2(a) through 2(c) list the date and the time of measurements, information on gage height (GH), the width of the stream flow, the total flow area, and the calculated discharge (Q). All the spreadsheets generated for the new data sets, **IIHR5** and **IIHR6**, are included in Appendix I. Additionally, IIHR created a spreadsheet to list all the historical data as well as the data collected by IIHR (IIIHR1 through **IIHR6**) at each measurement station, identifying outliers that were excluded in the regression analysis. The spreadsheet was submitted electronically to the USACE-MVR.

The first data set, **IIHR5**, was obtained during the period from 10 July to 24 July 2003. At three gaging stations for North Raccoon River at Lanesboro, Iowa (LKCI4), North Raccoon River at Perry, Iowa (PROI4), and Beaver Creek at Woodward, Iowa (WWDI4), high flood flows were observed on 10 and 11 July 2003. In particular, the highest discharges of 10,674 cfs and 15,432 cfs were recorded at LKCI4 and PROI4, respectively, as shown in table 3. Stage hydrographs at LKCI4 and PROI4 are shown in figures 2 and 3. At WWDI4, the second highest discharge of 2,424 cfs was recorded. The other stations except for these three stations recorded intermediate discharges.

The second data set, **IIHR6**, was collected during the period from 19 August to 27 August 2003. River stages during this period were extremely low; therefore, the measured water discharge at each station was also extremely low. The following chapter presents the data set of **IIHR5** and **IIHR6**.

PROI4_7-11-03 (TRIP 5)
Gage = 18.47' at 14:15
W = 373'

C	Dist from	w (ft)	d (ft)	%	Rev	Time	V (ft/s)	Vc	a (sq ft)	q (cfs)
	373.0									
1.00	357.6	15.4	5.0	0.2	0	40.0	0.00	0.00	77.00	0.00
1.00	357.6	0.0		0.8	0	40.0	0.00	0.00	0.00	0.00
0.99	342.0	15.6	7.5	0.2	20	40.9	1.10	0.95	117.00	111.37
0.99	342.0	0.0		0.8	15	40.9	0.83	0.00	0.00	0.00
1.00	327.8	14.2	7.7	0.2	21	40.6	1.16	1.01	109.34	110.03
1.00	327.8	0.0		0.8	16	42.2	0.85	0.00	0.00	0.00
1.00	312.9	14.9	7.2	0.2	12	42.0	0.65	0.54	107.28	58.09
1.00	312.9	0.0		0.8	8	42.3	0.44	0.00	0.00	0.00
1.00	298.0	14.9	6.8	0.2	18	40.0	1.01	0.54	101.32	54.29
1.00	298.0	0.0		0.8	1	50.8	0.06	0.00	0.00	0.00
1.00	283.0	15.0	7.1	0.2	15	42.3	0.80	0.61	106.50	64.47
1.00	283.0	0.0		0.8	8	44.9	0.41	0.00	0.00	0.00
0.98	268.2	14.8	6.6	0.2	24	40.6	1.32	0.95	97.68	93.13
0.98	268.2	0.0		0.8	11	40.0	0.62	0.00	0.00	0.00
0.98	253.3	14.9	5.0	0.2	24	40.8	1.32	0.65	74.50	48.66
0.98	253.3	0.0		0.8	0	40.0	0.02	0.00	0.00	0.00
0.96	238.4	14.9	4.5	0.2	25	40.0	1.40	0.79	67.05	52.84
0.96	238.4	0.0		0.8	7	67.8	0.25	0.00	0.00	0.00
0.98	223.5	14.9	11.2	0.2	23	40.0	1.29	1.22	166.88	202.90
0.98	223.5	0.0		0.8	22	41.2	1.20	0.00	0.00	0.00
0.94	208.6	14.9	15.6	0.2	27	40.4	1.49	1.60	232.44	372.08
0.94	208.6	0.0		0.8	35	40.7	1.91	0.00	0.00	0.00
0.98	193.7	14.9	16.4	0.2	35	40.8	1.91	2.34	244.36	572.31
0.98	193.7	0.0		0.8	52	40.2	2.87	0.00	0.00	0.00
0.99	178.8	14.9	17.9	0.2	47	40.3	2.59	3.11	266.71	829.44
0.99	178.8	0.0		0.8	67	40.2	3.69	0.00	0.00	0.00
0.98	163.9	14.9	17.4	0.2	76	40.0	4.21	4.38	259.26	1136.05
0.98	163.9	0.0		0.8	86	40.2	4.74	0.00	0.00	0.00
0.98	149.0	14.9	18.4	0.2	79	40.1	4.36	4.48	274.16	1227.88
0.98	149.0	0.0		0.8	87	40.3	4.78	0.00	0.00	0.00
0.98	134.1	14.9	17.3	0.2	58	40.1	3.21	3.07	257.77	792.47
0.98	134.1	0.0		0.8	56	40.5	3.07	0.00	0.00	0.00
0.99	119.2	14.9	17.7	0.2	116	40.1	6.40	5.78	263.73	1523.11
0.99	119.2	0.0		0.8	96	40.3	5.27	0.00	0.00	0.00
0.98	104.3	14.9	17.9	0.2	123	40.0	6.80	5.85	266.71	1560.81
0.98	104.3	0.0		0.8	93	40.0	5.14	0.00	0.00	0.00
0.99	89.4	14.9	16.6	0.2	123	40.1	6.78	6.58	247.34	1626.89
0.99	89.4	0.0		0.8	118	40.1	6.51	0.00	0.00	0.00
0.99	74.5	14.9	17.4	0.2	122	40.2	6.71	6.39	259.26	1655.73
0.99	74.5	0.0		0.8	112	40.0	6.19	0.00	0.00	0.00
1.00	59.6	14.9	16.8	0.2	119	40.2	6.55	5.98	250.32	1495.91
1.00	59.6	0.0		0.8	98	40.1	5.41	0.00	0.00	0.00
1.00	44.7	14.9	16.3	0.2	90	40.4	4.93	3.95	242.87	959.67
1.00	44.7	0.0		0.8	54	40.3	2.97	0.00	0.00	0.00
1.00	29.8	14.9	13.4	0.2	66	40.4	3.62	3.64	199.66	726.41
1.00	29.8	0.0		0.8	66	40.0	3.66	0.00	0.00	0.00
1.00	14.9	14.9	6.3	0.2	41	40.8	2.23	1.68	93.87	157.43
1.00	14.9	0.0		0.8	20	40.0	1.12	0.00	0.00	0.00
	0.0									
									4383.0	**15432.0**

Table 1 Sample spreadsheet developed for analyzing raw data to obtain total discharge at North Raccoon River near Perry, Iowa (PROI4)

		Date	Time	Inside Gage (ft)	Outside Gage (ft)	Corr (ft)	Width (ft)	Area (sq ft)	Discharge (cfs)
Station ID	**AGNI4**								
Location	Algona,IA								
River	E. Fork/DMR								
Trip No.	**IIHR1**	9/5/02	12:00	7.26	7.38	0.12	115.0	339.0	126.0
	IIHR2	9/26/02	10:00	6.95	7.00	0.05	113.0	316.3	32.6
	IIHR3	10/30/02	13:00	7.54	7.61	0.07	116.0	362.0	210.0
5" Ice	**IIHR4**	12/12/02	15:00	7.21	7.21	0.00	120.0	394.6	100.4
	IIHR5	**7/16/03**	**17:45**	**9.55**	**9.53**	-0.02	**135.3**	**637.7**	**751.7**
	IIHR6	**8/20/03**	**14:20**	**6.96**	**6.84**	-0.12	**110.0**	**295.6**	**28.4**
Station ID	**BPLI4**								
Location	Belle Plaine, IA								
River	Iowa River								
Trip No.	**IIHR1**	9/3/02	16:15	7.00	6.81	-0.19	180.0	547.2	869.2
	IIHR2	9/24/02	14:45	6.61	6.55	-0.06	205.0	544.5	758.4
	IIHR3	11/1/02	12:00	6.86	6.88	0.02	207.0	622.4	874.3
	IIHR4	12/6/02	13:00	6.27	6.38	0.11	174.0	398.3	342.5
	IIHR5	**7/18/03**	**12:00**	**10.75**	**10.48**	**-0.27**	**225.0**	**1585.8**	**2896.8**
	IIHR6	**8/26/03**	**11:40**	**5.65**	**5.64**	**-0.01**	**128.0**	**316.4**	**386.7**
Station ID	**CJTI4**								
Location	Columbus Jct, IA								
River	Iowa River								
Trip No.	**IIHR1**	9/12/02	19:00	9.63			913.0	2072.3	3060.1
	IIHR2	10/9/02	16:30	11.21			993.0	3739.5	7291.9
	IIHR3	11/7/02	15:50	10.19			925.0	2271.8	4076.7
	IIHR4	12/18/02	16:00	9.89			920.0	2119.3	3753.8
	IIHR5	**7/24/03**	**10:20**	**12.34**	**12.20**	**-0.14**	**1000.0**	**4256.6**	**9185.0**
	IIHR6	**8/27/03**	**9:50**	**9.50**	**9.20**	**-0.30**	**925.0**	**1659.1**	**2359.2**
Station ID	**EDYI4**								
Location	Eddyville, IA								
River	Des Moines River								
Trip No.	**IIHR1**	9/12/02	13:15	48.17			460.0	1064.6	1086.4
	IIHR2	10/14/02	11:20	51.39			532.0	2718.3	5782.3
	IIHR3	11/7/02	11:00	49.87			515.0	1801.6	3369.1
	IIHR4	12/5/02	11:00	49.78			480.0	1658.4	3261.6
	IIHR5	**7/23/03**	**13:40**	**57.42**			**553.0**	**5982.0**	**19172.5**
	IIHR6	**8/27/03**	**14:05**	**48.72**			**470.0**	**1387.4**	**1033.5**
Station ID	**EMTI4**								
Location	Emmetsburg, IA			*7.67 ft was added to Inside/Outside GHs*					
River	Des Moines River								
Trip No.	**IIHR1**	9/5/02	15:30	9.20	9.13	-0.07	113.0	192.2	181.3
	IIHR2	9/26/02	13:15	8.51	8.44	-0.07	34.0	34.8	55.0
	IIHR3	10/30/02	10:30	9.49	9.30	-0.19	116.0	199.8	212.3
	IIHR4	4/17/03	16:00	9.77	9.74	-0.03	132.0	193.7	343.9
	IIHR5	**7/16/03**	**13:30**	**10.63**	**10.64**	**0.01**	**98.0**	**349.2**	**844.7**
	IIHR6	**8/20/03**	**12:00**	**8.42**			**38.0**	**49.3**	**61.3**

Table 2(a) Summary of field data collected at Stations AGNI4, BPLI4, CJTI4, EDYI4, and EMTI4 in the Iowa River and the Des Moines River Basins between September 2002 and August 2003

		Date	Time	Inside Gage (ft)	Outside Gage (ft)	Corr (ft)	Width (ft)	Area (sq ft)	Discharge (cfs)
Station ID	**ESVI4**								
Location	Estherville, IA								
River	Des Moines River								
Trip No.	**IIHR1**	9/5/02	18:00	2.15			40.0	36.3	70.6
	IIHR2	9/26/02	15:00	2.05			53.0	48.9	51.8
	IIHR3	10/30/02	9:00	2.67			66.0	72.1	202.1
	IIHR4	12/11/02	14:00	2.27			40.3	40.3	93.0
	IIHR5	**7/16/03**	**9:20**	**3.48**			**116.0**	**276.0**	**533.2**
	IIHR6	**8/20/03**	**9:40**	**1.98**			**56.0**	**39.2**	**40.4**
Station ID	**GLDI4**								
Location	Goldfield, IA								
River	Boone River								
Trip No.	**IIHR1**	9/5/02	9:00	7.80	7.70	-0.10	79.5	64.4	42.0
	IIHR2	9/25/02	17:00	7.17	7.33	0.16	49.0	21.9	15.2
	IIHR3	12/12/02	16:00	8.05	8.38	0.33	83.0	90.2	66.0
	IIHR4	4/18/03	10:00	9.50	9.48	-0.02	87.0	211.7	244.9
	IIHR5	**7/17/03**	**9:30**	**11.16**			**104.8**	**285.9**	**489.7**
	IIHR6	**8/21/03**	**9:20**	**7.48**	**7.45**	**-0.03**	**46.0**	**39.5**	**28.1**
Station ID	**LKCI4**								
Location	Lanesboro, IA								
River	N Raccoon River								
Trip No.	**IIHR1**	9/11/02	14:00	8.22	8.12	-0.10	97.0	119.3	126.9
	IIHR2	10/9/02	9:50	9.50	9.46	-0.04	202.0	327.4	595.1
	IIHR3	10/31/02	10:00	8.90	8.89	-0.01	169.0	261.5	424.7
	IIHR4	11/14/02	16:30	8.51			84.0	173.0	259.9
	IIHR5	**7/11/03**	**9:55**	**18.46**	**18.72**	0.26	**234.2**	**2417.8**	**10673.7**
	IIHR6	**8/22/03**	**9:00**	**8.17**	**8.04**	**-0.13**	**58.0**	**49.4**	**108.6**
Station ID	**NEPI4**								
Location	Parnell, IA								
River	N.F. English River								
Trip No.	**IIHR1**	9/3/02	12:00	14.08	14.10	0.02	60.5	48.8	28.4
	IIHR2	9/24/02	12:30	14.22	14.20	-0.02	60.0	54.4	36.6
	IIHR3	11/1/02	14:30	14.71	14.77	0.06	92.0	95.8	114.0
	IIHR4	12/13/02	15:30	14.61	14.66	0.05	92.0	85.3	52.8
	IIHR5	**7/23/03**	**10:00**	**14.29**	**14.29**	**0**	**89.0**	**55.3**	**48.1**
	IIHR6	**8/26/03**	**9:30**	**13.73**	**13.70**	**-0.03**	**37.0**	**11.6**	**7.6**
Station ID	**PROI4**								
Location	Perry, IA								
River	N. Raccoon River								
Trip No.	**IIHR1**	9/11/02	17:00	4.57	4.30	-0.27	139.0	234.6	259.4
	IIHR2	10/8/02	15:15	7.79	7.71	-0.08	206.0	841.5	2036.3
	IIHR3	10/31/02	12:20	5.63	5.67	0.04	199.0	472.0	865.6
	IIHR4	11/14/02	14:00	5.10	5.04	-0.06	160.0	382.3	512.1
	IIHR5	**7/11/03**	**14:15**	**18.47**	**18.66**	**0.19**	**373.0**	**4383.0**	**15432.0**
	IIHR6	**8/21/03**	**14:30**	**4.13**	**4.06**	**-0.07**	**165.0**	**436.9**	**289.3**

Table 2(b) Summary of field data collected at Stations ESVI4, GLDI4, LKCI4, NEPI4, and PROI4 in the Iowa River and the Des Moines River Basins between September 2002 and August 2003

		Date	Time	Inside Gage (ft)	Outside Gage (ft)	Corr (ft)	Width (ft)	Area (sq ft)	Discharge (cfs)
Station ID	**STBI4**								
Location	Steamboat Rock, IA								
River	Iowa River								
Trip No.	**IIHR1**	9/4/02	15:45	5.64	5.62	-0.02	140.0	204.4	366.8
	IIHR2	9/25/02	15:00	5.58	5.58	0.00	90.0	99.2	227.7
	IIHR3	10/31/02	17:00	5.91	5.87	-0.04	110.0	196.3	411.1
	IIHR4	12/10/02	13:00	5.50			87.0	83.9	193.9
	IIHR5	**7/17/03**	**13:30**	**6.44**			**143.8**	**387.7**	**1141.1**
	IIHR6	**8/19/03**	**11:45**	**5.32**			**109.0**	**90.6**	**105.4**
Station ID	**TAMI4**								
Location	Tama, IA								
River	Iowa River								
Trip No.	**IIHR1**	9/4/02	9:00	9.23	9.11	-0.12	183.0	381.1	616.8
	IIHR2	9/25/02	8:15	8.91	8.92	0.01	184.0	379.6	550.0
	IIHR3	11/1/02	10:25	9.54	9.53	-0.01	189.0	486.8	830.9
	IIHR4	11/15/02	14:00	9.07	9.08	0.01	185.0	410.9	625.8
	IIHR5	**7/18/03**	**9:50**	**12.42**	**12.58**	**0.16**	**198.8**	**1083.9**	**2498.4**
	IIHR6	**8/26/03**	**15:00**	**8.12**	**8.17**	**0.05**	**90.0**	**177.5**	**269.3**
Station ID	**TOLI4**								
Location	Toledo, IA								
River	Deer Creek								
Trip No.	**IIHR1**	9/4/02	11:00	4.17			45.2	16.3	11.3
	IIHR2	9/25/02	11:00	4.39	4.41	0.02	48.0	25.5	8.6
	IIHR3	4/17/03	10:15	4.22	4.21	-0.01	47.0	17.5	11.0
	IIHR4	4/18/03	15:00	4.21	4.22	0.01	38.0	13.2	10.2
	IIHR5	**7/17/03**	**16:45**	**4.36**	**4.53**	**0.17**	**51.0**	**30.2**	**31.8**
	IIHR6	**8/22/03**	**14:00**	**4.03**	**4.18**	**0.15**	**43.0**	**15.6**	**7.5**
Station ID	**WDOM5**								
Location	Windom, MN								
River	Des Moines River								
Trip No.	**IIHR1**	9/6/02	9:30	11.78	11.75	-0.03	75.0	526.8	98.6
	IIHR2	9/27/02	11:30	11.29	11.26	-0.03	74.0	472.5	13.2
	IIHR3	10/29/02	17:15	12.32	12.25	-0.07	75.0	550.5	219.2
8" Ice	**IIHR4**	12/12/02	10:15	11.90	11.90	0.00	110.0	260.2	94.1
	IIHR5	**7/15/03**	**16:40**	**13.34**	**13.42**	**0.08**	**82.9**	**627.1**	**551.5**
	IIHR6	**8/19/03**	**18:15**	**11.20**	**11.26**	**0.06**	**73.0**	**465.0**	**33.0**
Station ID	**WWDI4**								
Location	Woodward, IA								
River	Beaver Creek								
Trip No.	**IIHR1**	9/12/02	9:00	10.62	10.61	-0.01	22.0	4.1	0.9
	IIHR2	10/8/02	12:30	11.89	11.56	-0.33	59.0	57.9	71.7
	IIHR3	10/31/02	14:00	11.29	11.23	-0.06	53.0	38.3	37.1
	IIHR4	11/14/02	12:00	11.13	11.05	-0.08	51.0	28.9	22.2
	IIHR5	**7/10/03**	**15:30**	**18.90**	**19.01**	**0.11**	**105.0**	**674.9**	**2424.4**
	IIHR6	**8/21/03**	**12:45**	**10.84**	**10.83**	**-0.01**	**19.0**	**6.5**	**9.7**

Table 2(c) Summary of field data collected at Stations STBI4, TAMI4, TOLI4, WDOM5, and WWDI4 in the Iowa River and the Des Moines River Basins between September 2002 and August 2003

DATA I.D.	DATE	GH (ft)	Q (cfs)
N. Raccoon River @ Lanesboro, IA (LKCI4)			
RUST13	5/19/1998	12.03	2090
RUST18	4/20/1999	12.85	2600
RUST12	4/16/1998	13.90	3790
RUST3	6/21/1996	18.48	8940
IIHR5	**7/11/2003**	**18.46**	**10674**
N. Raccoon River @ Perry, IA (PROI4)			
RUST18	4/21/1999	11.38	4800
ET9	6/12/2001	11.57	5240
RUST3	6/21/1996	12.94	6730
RUST4	6/24/1996	16.57	11600
IIHR5	**7/11/2003**	**18.47**	**15432**
Beaver Creek @ Woodward, IA (WWDI4)			
RUST19	5/13/1999	15.23	920
RUST3	6/21/1996	16.80	1390
ET9	6/12/2001	19.01	2370
IIHR5	**7/10/2003**	**18.90**	**2424**
RUST14	6/15/1998	21.31	3470

Table 3 Comparison of five highest discharges recorded at LKCI4 , PROI4, and WWDI4

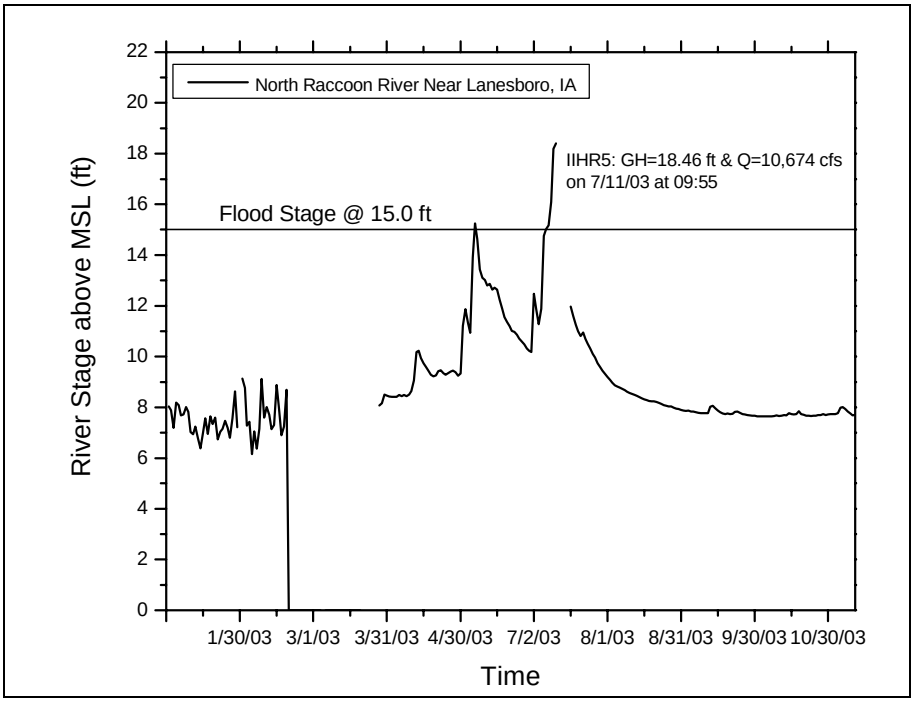


Figure 2 River-stage record in 2003 at LKCI4 (from USACE-MVR web site)

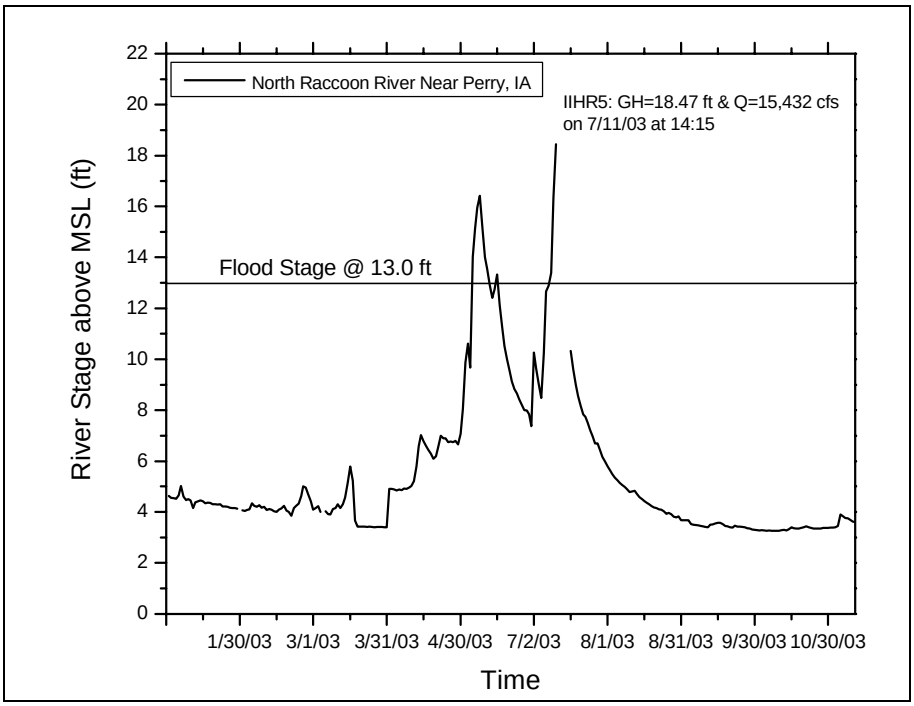


Figure 3 River-stage record in 2003 at PROI4 (from USACE-MVR web site)

III. GRAPHICAL PRESENTATION OF IIHR5 AND IIHR6 WITH EXSTING HISTORICAL DATA

In this chapter, a general description of each station, a few new station photos, and the historical stage-discharge plot are presented for each gaging station. Based on visual inspections of the new set of data, **IIHR5** and **IIHR6**, with respect to prior field data, it was judged to be unnecessary at this time to revise the individual stage-discharge relationships that were developed previously (IIHR 2003). As will be seen in the following presentation, practically all the new data (**IIHR5** and **IIHR6**) were found to follow the general trends of the regressed lines. It is recommended that new statistical analyses of the revised stage-discharge relationships be performed after several more sets of new data are acquired. For reference, the stage-discharge relationships developed prior to **IIHR5** and **IIHR6** are presented in tables 4(a) and 4(b).

No	Station ID Location River	Data Period	Range of Gage Height (GH)	Regression Equations	Correla-tion Coeff
1	**AGNI4**	1994-2002	GH<7.69 ft	$Q=10^{-17.936}*GH^{22.903}$	0.9153
	Algona,IA		GH≥7.69 ft	$Q=10^{-0.913}*GH^{3.690}$	0.9828
	E. Fork/DMR				
2	**BPLI4**	1987-2002	GH<6.81 ft	$Q=10^{-1.433}*GH^{5.210}$	0.9723
	Belle Plaine, IA		6.81 ft≤GH<15.66 ft	$Q=10^{0.757}*GH^{2.582}$	0.9938
	Iowa River		GH≥15.66 ft	$Q=10^{-6.623}*GH^{8.759}$	0.9507
3	**CJTI4**	1995-2002	GH<12.39 ft	$Q=10^{-1.299}*GH^{4.851}$	0.9821
	Columbus Jct, IA		GH≥12.39 ft	$Q=10^{0.935}*GH^{2.807}$	0.9976
	Iowa River				
4	**EDYI4**	1990-2002	GH<50.57 ft	$Q=10^{-53.762}*GH^{33.667}$	0.9234
	Eddyville, IA		50.57 ft≤GH<55.08 ft	$Q=10^{-20.493}*GH^{14.142}$	0.9627
	Des Moines River		GH≥55.08 ft	$Q=10^{-8.903}*GH^{7.485}$	0.9763
5	**EMTI4**	1995-2003	GH<10.56 ft	$Q=10^{-7.426}*GH^{10.148}$	0.9536
	Emmetsburg, IA		GH≥10.56 ft	$Q=10^{-0.316}*GH^{3.201}$	0.9920
	Des Moines River				
6	**ESVI4**	1996-2002	GH<2.45 ft	$Q=10^{-0.483}*GH^{6.946}$	0.9916
	Estherville, IA		2.45 ft≤GH<4.74 ft	$Q=10^{1.028}*GH^{3.072}$	0.9930
	Des Moines River		GH≥4.74 ft	$Q=10^{2.093}*GH^{1.496}$	0.9967
7	**GLDI4**	1995-2003	GH<9.35 ft	$Q=10^{-10.439}*GH^{13.278}$	0.9229
	Goldfield, IA		GH≥9.35 ft	$Q=10^{-1.037}*GH^{3.592}$	0.9941
	Boone River				
8	**LKCI4**	1995-2001	GH<8.85 ft	$Q=10^{-12.647}*GH^{16.079}$	0.9154
	Lanesboro, IA		8.85 ft≤GH<11.48 ft	$Q=10^{-2.964}*GH^{5.852}$	0.9651
	N Raccoon River		GH≥11.48 ft	$Q=10^{-0.503}*GH^{3.530}$	0.9961
9	**NEPI4**	1995-2002	GH<14.66 ft	$Q=10^{-35.041}*GH^{31.818}$	0.8628
	Parnell, IA		14.66 ft≤GH<16.19 ft	$Q=10^{-17.075}*GH^{16.411}$	0.9876
	N.F. English River		GH≥16.19 ft	$Q=10^{-3.622}*GH^{5.286}$	0.9860
10	**PROI4**	1995-2002	GH<5.65 ft	$Q=10^{-0.508}*GH^{4.660}$	0.9759
	Perry, IA		GH≥5.65 ft	$Q=10^{1.235}*GH^{2.342}$	0.9938
	N. Raccoon River				

Table 4(a) Stage-discharge relationships developed for Station Nos. 1 through 10

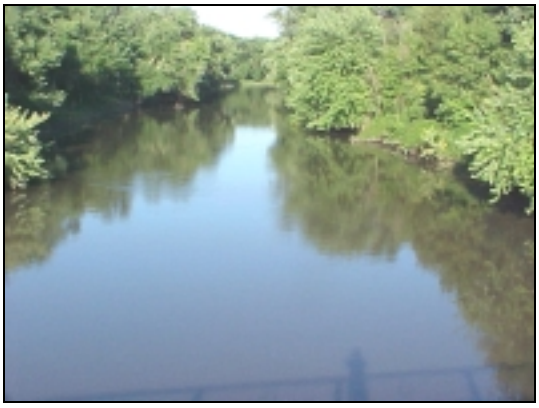
No	Station ID Location River	Data Period	Range of Gage Height (GH)	Regression Equations	Correla-tion Coeff
11	**STBI4**	1992-2002	GH<5.99 ft	$Q=10^{-7.408}*GH^{13.078}$	0.9459
	Steamboat Rock, IA		GH≥5.99 ft	$Q=10^{0.135}*GH^{3.376}$	0.9961
	Iowa River				
12	**TAMI4**	1993-2002	GH<9.68 ft	$Q=10^{-3.397}*GH^{6.389}$	0.8983
	Tama, IA		9.68 ft≤GH<17.62 ft	$Q=10^{-0.480}*GH^{3.430}$	0.9875
	Iowa River		GH≥17.62 ft	$Q=10^{-2.304}*GH^{4.894}$	0.9229
13	**TOLI4**	1997-2003	GH<4.90 ft	$Q=10^{-7.785}*GH^{14.073}$	0.9062
	Toledo, IA		GH≥4.90 ft	$Q=10^{-0.805}*GH^{3.961}$	0.9761
	Deer Creek				
14	**WDOM5**	1995-2002	GH<12.01 ft	$Q=10^{-45.910}*GH^{44.505}$	0.9217
	Windom, MN		12.01 ft≤GH<14.44 ft	$Q=10^{-7.457}*GH^{8.886}$	0.9579
	Des Moines River		GH≥14.44 ft	$Q=10^{-3.001}*GH^{5.043}$	0.9885
15	**WWDI4**	1995-2002	GH<11.52 ft	$Q=10^{-61.171}*GH^{59.393}$	0.8745
	Woodward, IA		11.52 ft≤GH<14.42 ft	$Q=10^{-9.125}*GH^{10.356}$	0.9495
	Beaver Creek		GH≥14.42 ft	$Q=10^{-1.747}*GH^{3.990}$	0.9984

Table 4(b) Stage-discharge relationships developed for Station Nos. 11 through 15

1. EAST FORK DES MOINES RIVER NEAR ALGONA, IA (AGNI4)

- Gage Description - AGNI4 - E. Des Moines River near Algona, IA
- Stream = East Fork Des Moines River
- Gage Zero = 1098.74 feet NGVD (1929)
- Flood Stage = 14.00 feet
- Record Stage = 22.65 feet date 04-01-93
- Lat 43°04'44" - Long 94°14'10"
- Drainage Area = 884.0 sq. mi.
- River Mile = 374.4
- Location of Gage = on left bank at downstream side of bridge on US Highway 169, at north edge of Algona, and 5.5 miles downstream from Black Cat Creek.

Downstream Side View (7/16/03)



Upstream View (7/16/03)

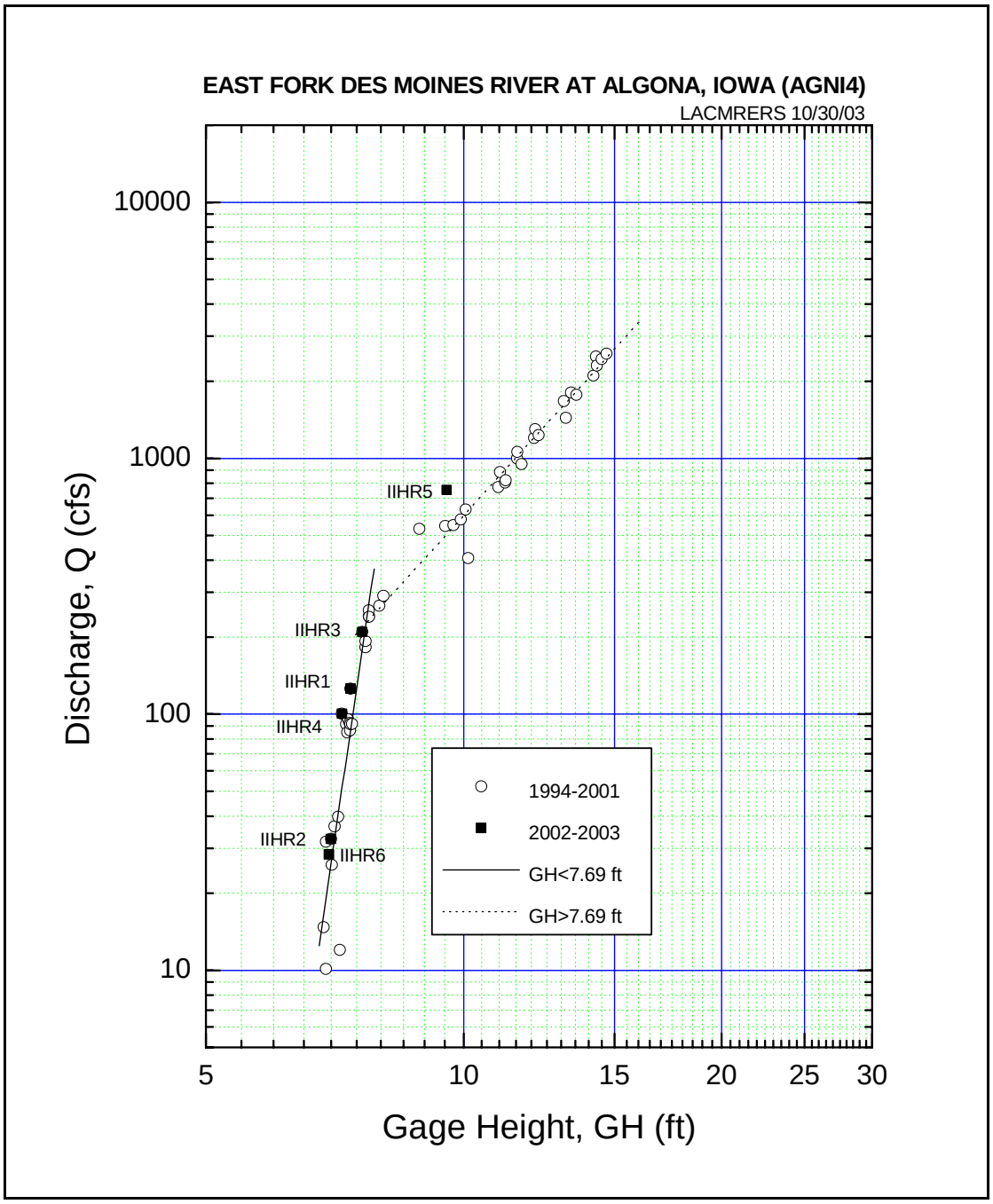


Figure 4 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for AGNI4 (Note: the data for 1991-1993 were excluded)

2. IOWA RIVER NEAR BELLE PLAINE, IA (BPLI4)

- Gage Description - BPLI4 - Iowa River near Belle Plaine, IA
- Stream = Iowa River
- Gage Zero = 749.82 feet NGVD (1929)
- Flood Stage = 14.50 feet
- Record Stage = 18.74 feet Date 07-11-93
- Lat 41°51'20" - Long 92°14'20"
- Drainage Area = 2,455 sq. mi.
- River Mile = 154.0
- Location of Gage = on right bank 5 ft upstream from bridge on State Highway 21, 1.0 mi downstream from Salt Creek, 1.1 mi downstream from Walnut Creek, 2.7 mi south of Belle Plaine, and at mile 159.0.

Upstream Side View (7/18/03)

Downstream View (7/18/03)

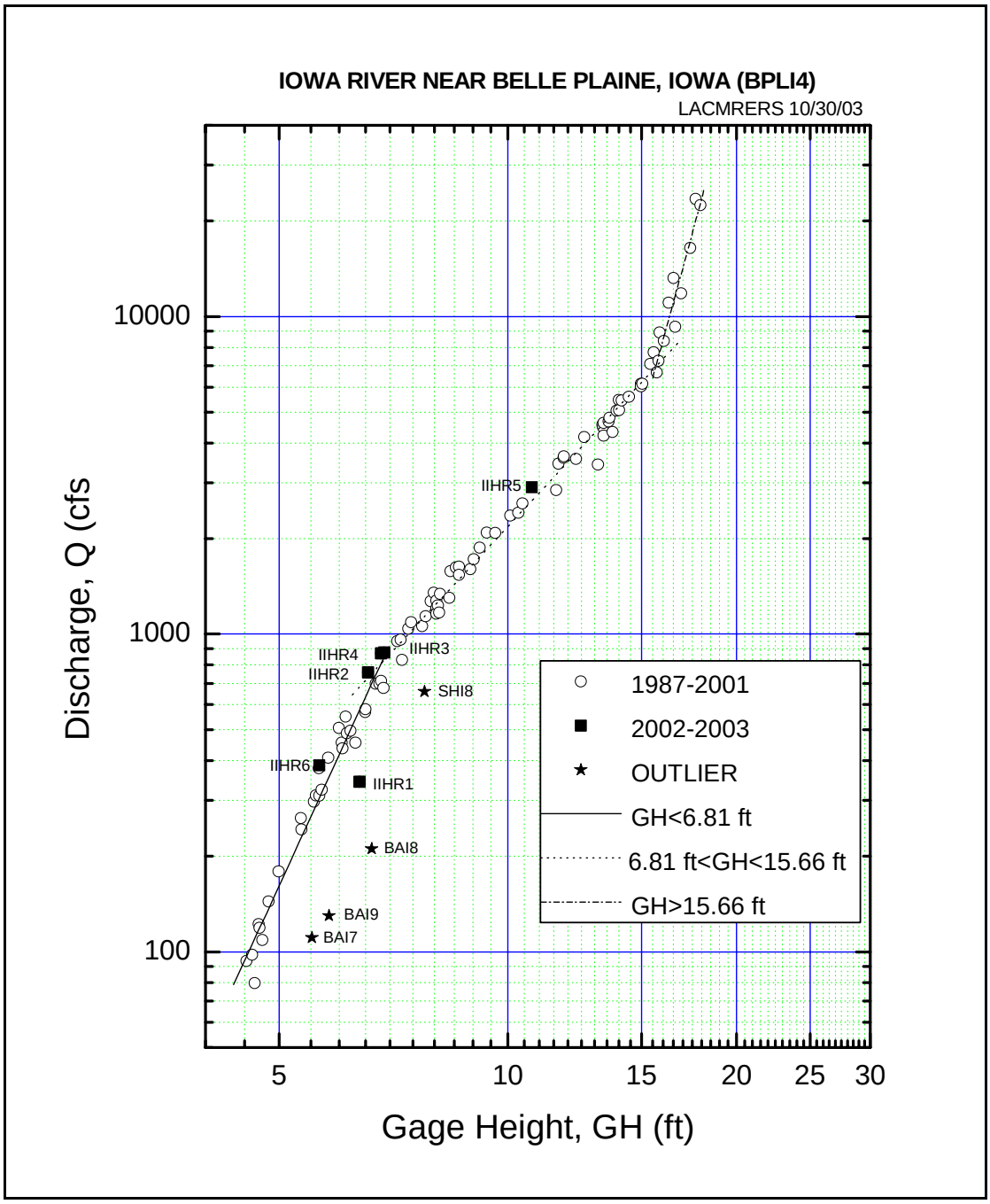


Figure 5 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for BPLI4

3. IOWA RIVER NEAR COLUMBUS JUNCTION, IA (CJTI4)

- Gage Description - CJTI4 - Iowa River near Columbus Junction, IA
- Stream = Iowa River
- Gage Zero = N/A
- Flood Stage = N/A
- Record Stage = N/A
- Lat 41°16'45" - Long 91°20'44"
- Drainage Area = 12,261 sq. mi.
- River Mile = 28.6
- Location of Gage = on right bank 15 feet downstream from bridge on State Highway 92, 0.5 mile downstream Cedar River, and 0.4 mile east of Columbus Junction, IA.

Downstream Side View (7/24/03)

Upstream View (7/24/03)

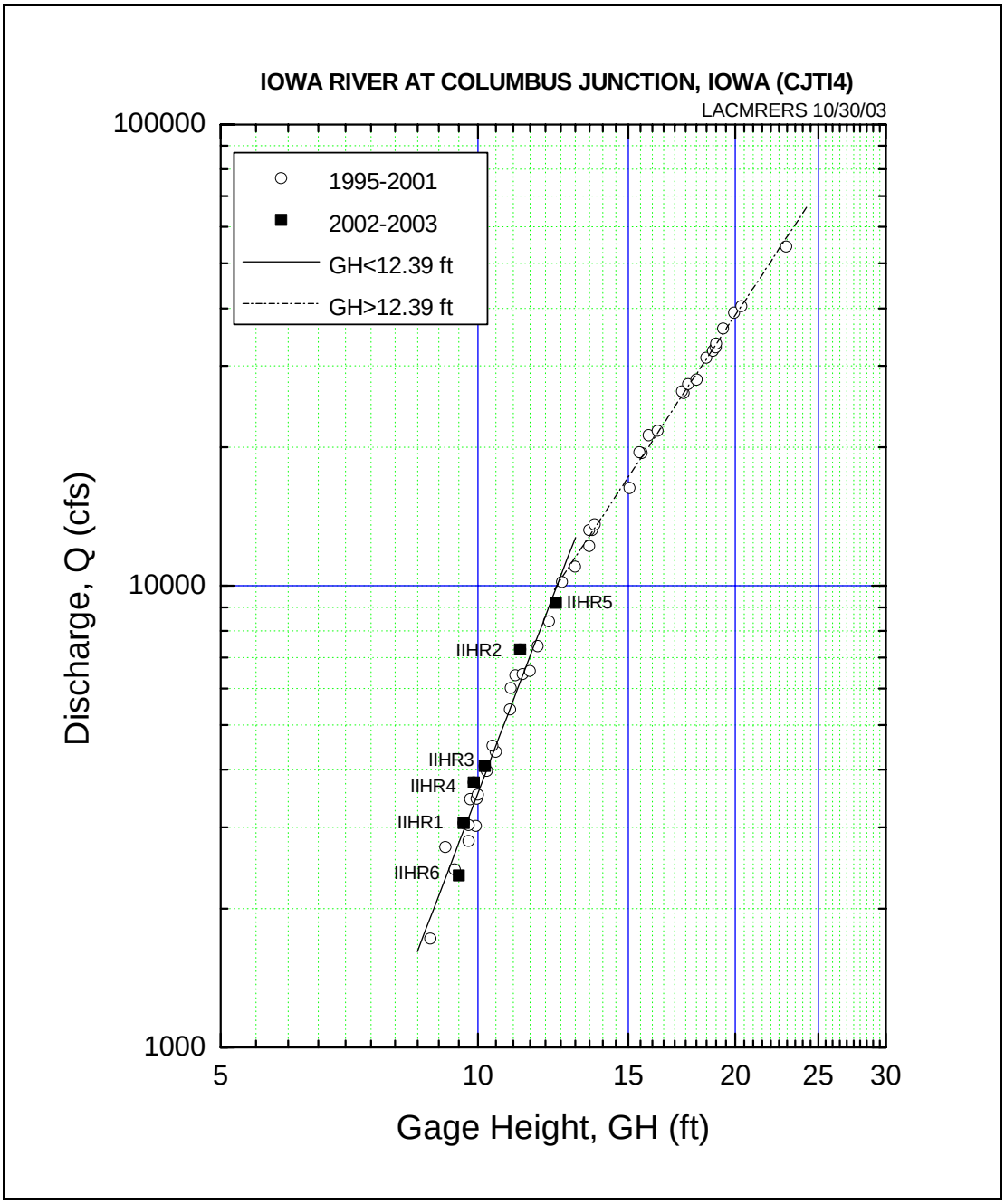


Figure 6 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for CJTI4

4. DES MOINES RIVER NEAR EDDYVILLE, IA (EDYI4)

- Gage Description - EDYI4 - Des Moines River near Eddyville, IA
- Stream = Des Moines River
- Gage Zero = 600.00 feet NGVD (1929)
- Flood Stage = N/A
- Record Stage = N/A
- Lat 41°08'59" - Long 92°38'04"
- Drainage Area = 13,130 sq. mi.
- River Mile =
- Location of Gage = on downstream guard rail of bridge on State Highway 137, at south edge of Eddyville, 0.35 mi upstream from Miller Creek, and 1.5 mi downstream from Grays Creek.

Downstream Side View (7/23/03)

Downstream View (7/23/03)

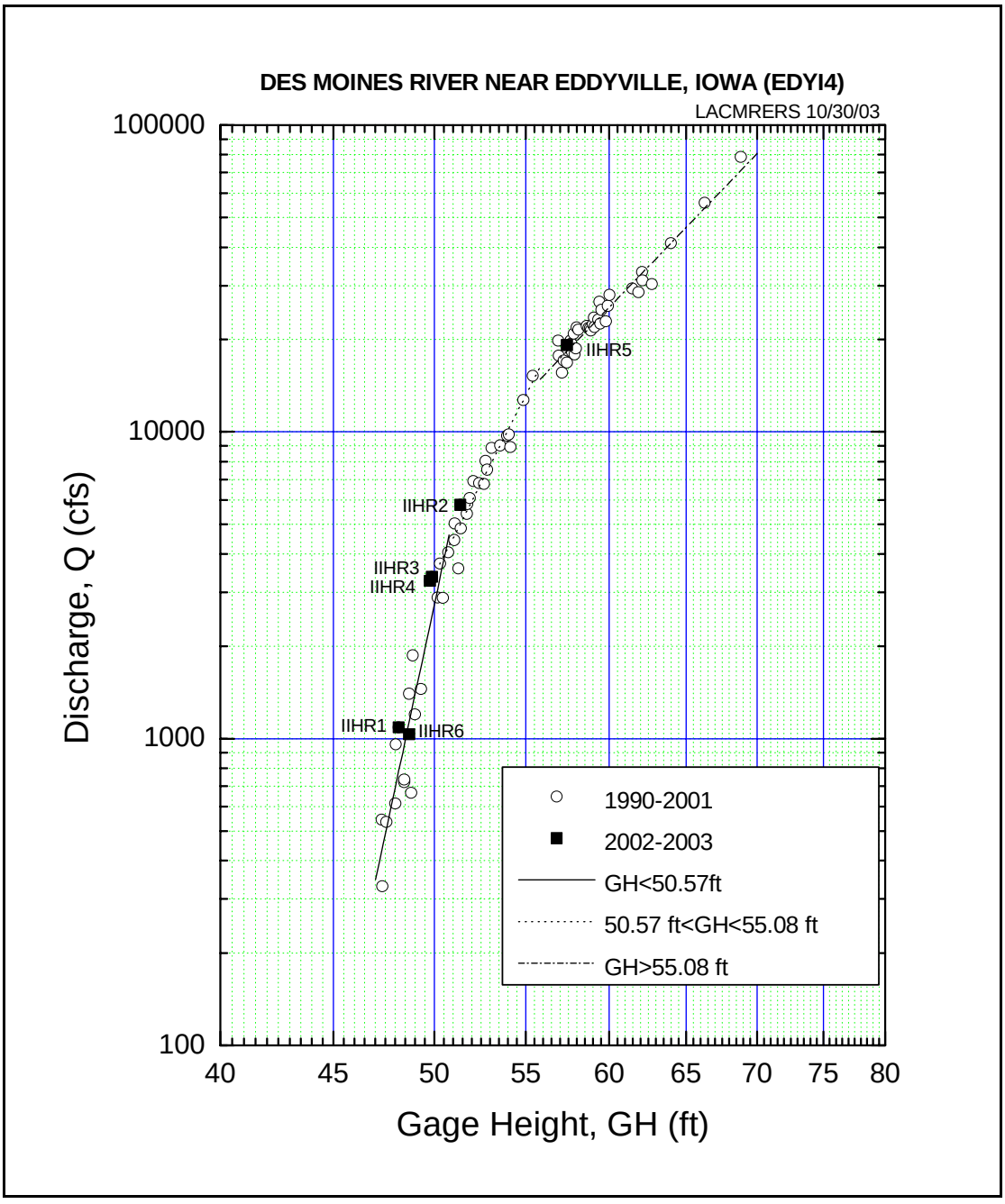


Figure 7 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for EDYI4

5. WEST FORK DES MOINES RIVER NEAR EMMETSBURG, IA (EMTI4)

- Gage Description - EMTI4 - W. Des Moines River near Emmetsburg, IA
- Stream = West Fork Des Moines River
- Gage Zero = 1196.00 feet NGVD (1929)
- Flood Stage = 10.00 feet
- Record Stage = 20.75 feet Date 04-12-69
- Lat 43°07'35" - Long 94°42'24"
- Drainage Area = 1672.0 sq. mi.
- River mile = 380.6
- Location of Gage = on left bank 15 ft downstream from bridge on US Highway 18, 3.0 miles downstream from Jack Creek, and 0.5 mile northwest of Emmetsburg, IA.

Downstream Side View (7/16/03)

Downstream View (7/16/03)

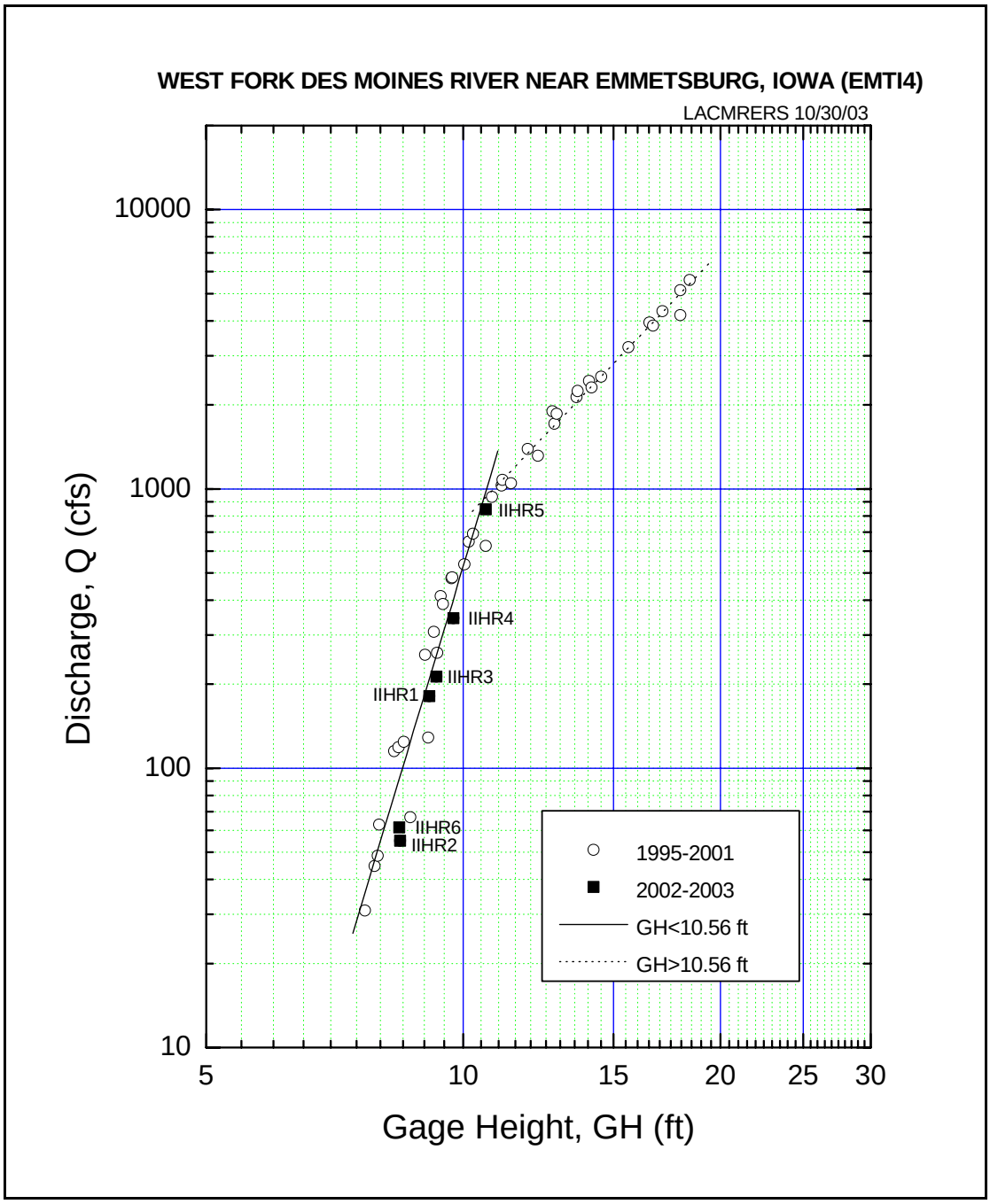


Figure 8 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for EMTI4

6. WEST FORK DES MOINES RIVER NEAR ESTHERVILLE, IA (ESVI4)

- Gage Description - ESVI4 - W. Des Moines River near Estherville, IA
- Stream = West Fork Des Moines River
- Gage Zero = 1,247.55 feet NGVD (1929)
- Flood Stage = 7.00 feet
- Record Stage = 17.68 feet Date 04-12-69
- Lat 43°23'51" - Long 94°50'38"
- Drainage Area = 1,372 sq. mi.
- River Mile = 404.2
- Location of Gage = Emmet County, city park in Estherville, IA; right bank; 1200 ft. downstream of State highway 9 bridge; 0.1 mi. upstream from School Creek, 2.3 mi. upstream from Brown Creek. at mile 404.2.

Upstream Side View (7/16/03)

Upstream View (7/16/03)

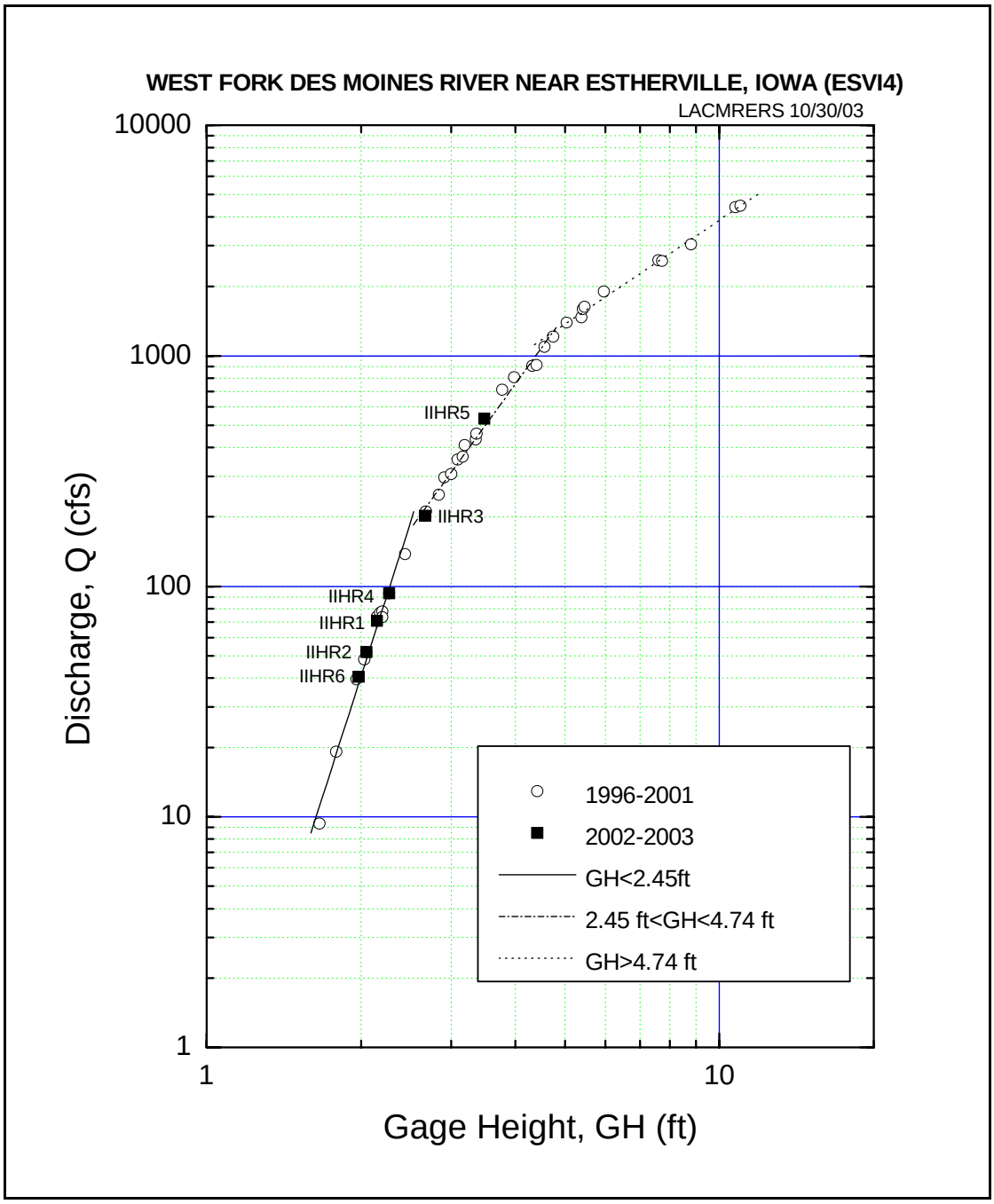


Figure 9 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for ESVI4

7. BOONE RIVER NEAR GOLDFIELD, IA (GLDI4)

- Gage Description - GLDI4 - Boone River near Goldfield, IA
- Stream = Boone River
- Gage Zero = N/A feet NGVD (1929)
- Flood Stage = N/A
- Record Stage = N/A
- Lat 42°43'34" - Long 93°58'02"
- Drainage Area = 418 sq. mi.
- River Mile = N/A
- Location of Gage = on left bank 15 ft downstream from bridge on county
- highway, 1 mile upstream from ditch #9, and 1.5 miles south of Goldfield, IA.

River-Stage Gaging Station (9/5/02)

Downstream View (9/5/02)

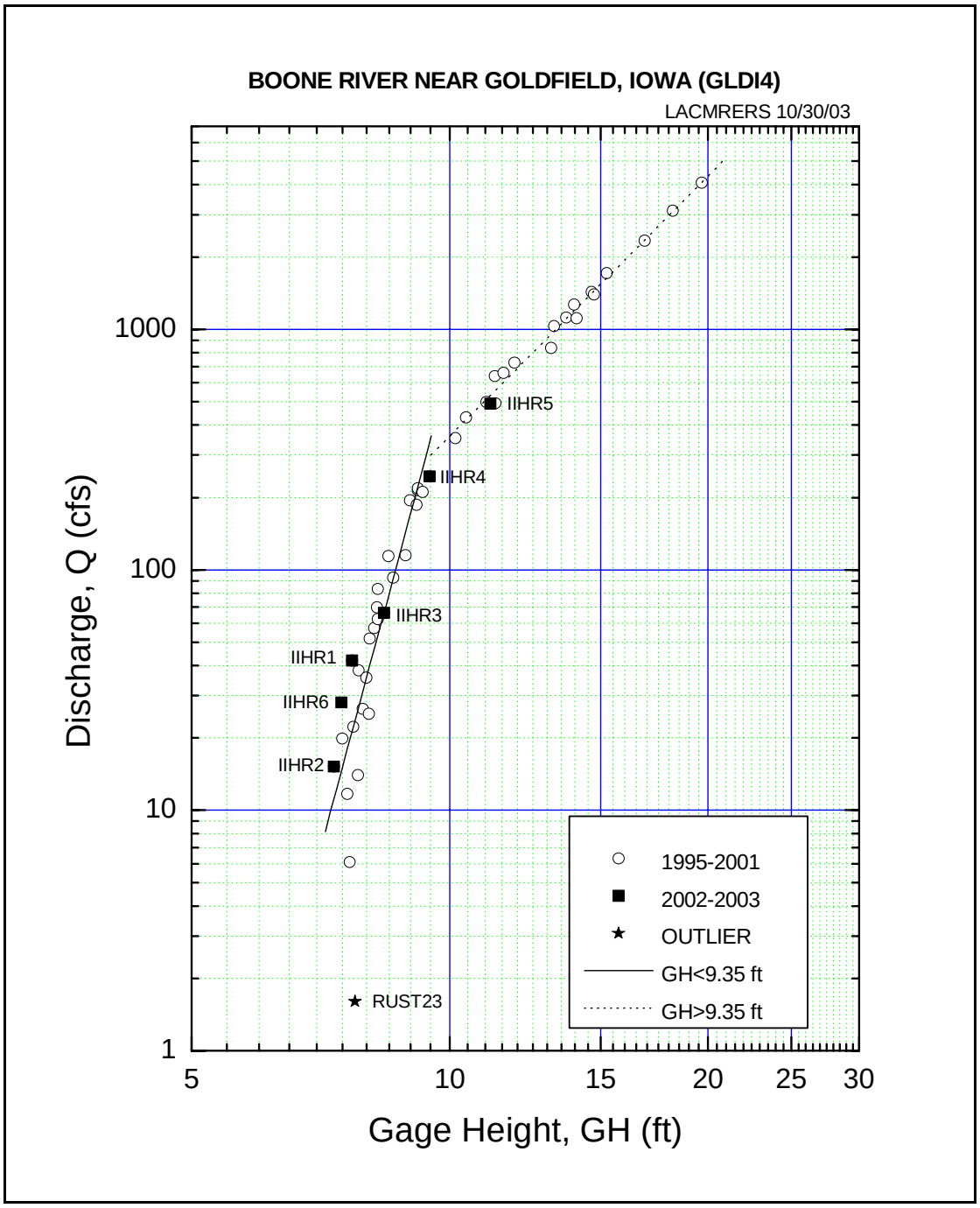


Figure 10 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for GLDI4

8. NORTH RACCOON RIVER NEAR LANESBORO, IA (LKCI4)

- Gage Description - LKCI4 - N. Raccoon River near Lanesboro, IA
- Stream = North Raccoon River
- Gage Zero = N/A
- Flood Stage = N/A
- Record Stage = N/A
- Lat 42°10'08" - Long 94°43'34"
- Drainage Area = 1238 sq. mi.
- River Mile = N/A
- Location of Gage = on left bank 15 ft downstream from bridge on State Highway 286, 1.5 miles downstream from Elk Run, and 1.5 miles southwest of Lanesboro, IA.

Downstream Side View (7/11/03)

Upstream View (7/11/03)

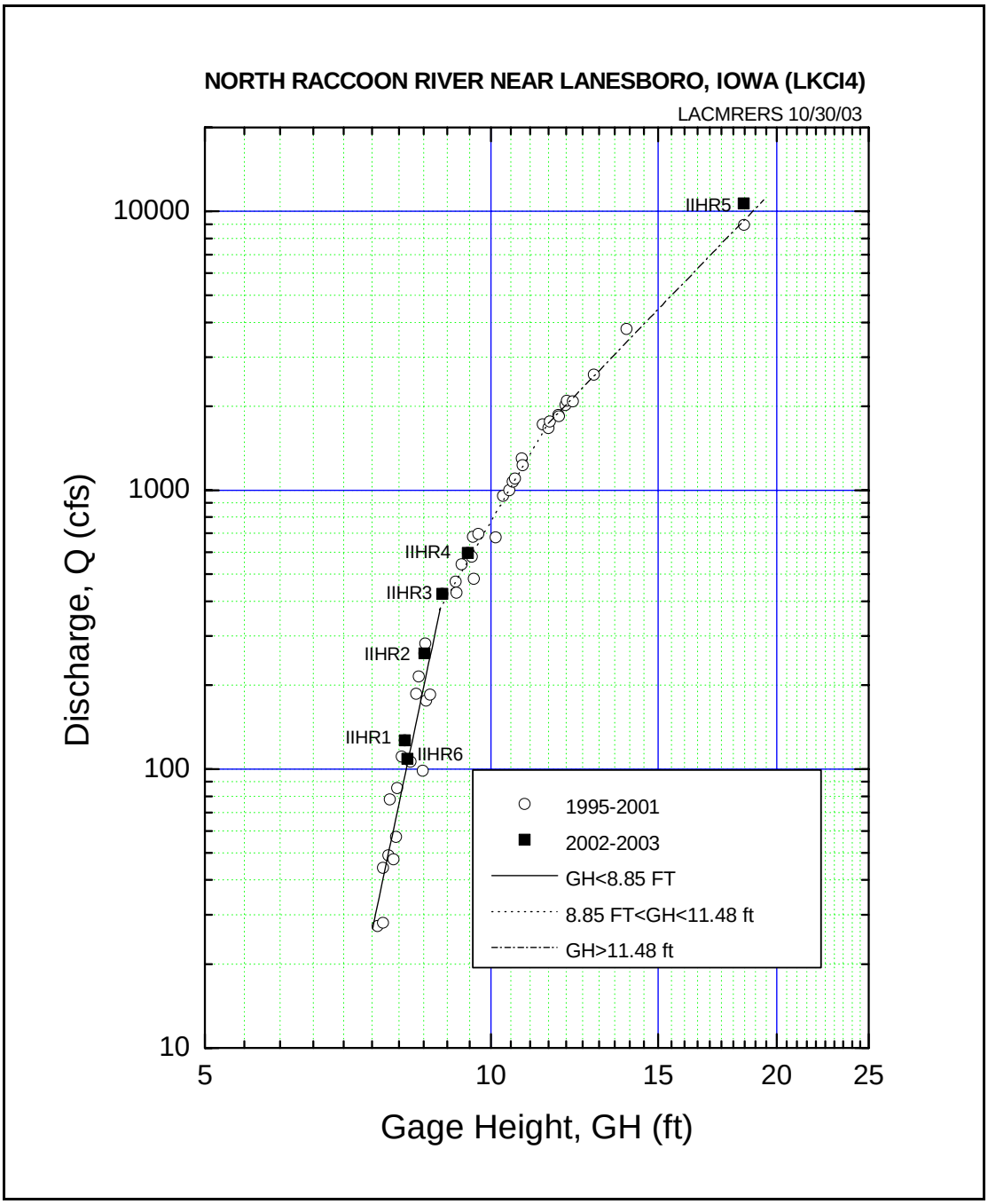


Figure 11 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for LKCI4

9. NORTH FORK ENGILISH RIVER NEAR PARNELL, IA (NEPI4)

- Gage Description - NEPI4 - N. Fork English River near Parnell, IA
- Stream = North Fork English River
- Gage Zero = N/A
- Flood Stage = N/A
- Record Stage = N/A
- Lat 41°33'45" - Long 92°04'15"
- Drainage Area = 302 sq. mi.
- River Mile = 3.5
- Location of Gage = 15 ft downstream from bridge on County Highway F67, 3.5 miles upstream from South English River, and 4.0 miles south of Parnell, IA.

Downstream Side View (7/23/03)

Upstream View (7/23/03)

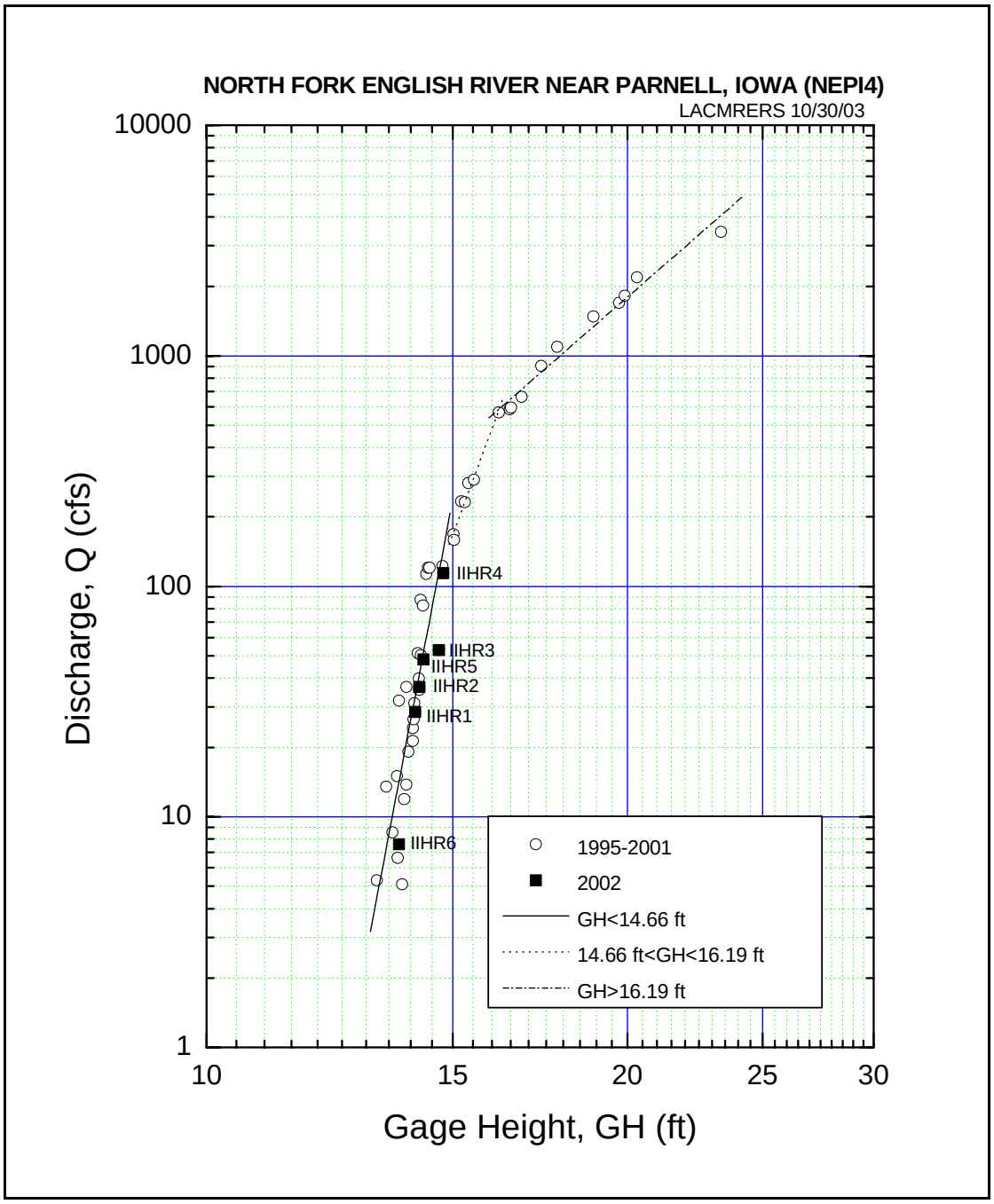


Figure 12 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for NEPI4

10. NORTH RACCOON RIVER NEAR PERRY, IA (PROI4)

- Gage Description - PROI4 - N. Raccoon River near Perry, IA
- Stream = North Raccoon River
- Gage Zero = N/A
- Flood Stage = 13.00 feet
- Record Stage = N/A
- Lat 41°50'10" - Long 94°07'34"
- Drainage Area = 2167 sq. mi.
- River Mile = N/A
- Location of Gage = On left bank 15 ft downstream from bridge on State Highway 141, 1.5 miles upstream from Frog Creek, and 1.5 miles west of Perry, IA.

Downstream Side View (7/11/03)

Upstream View (7/11/03)

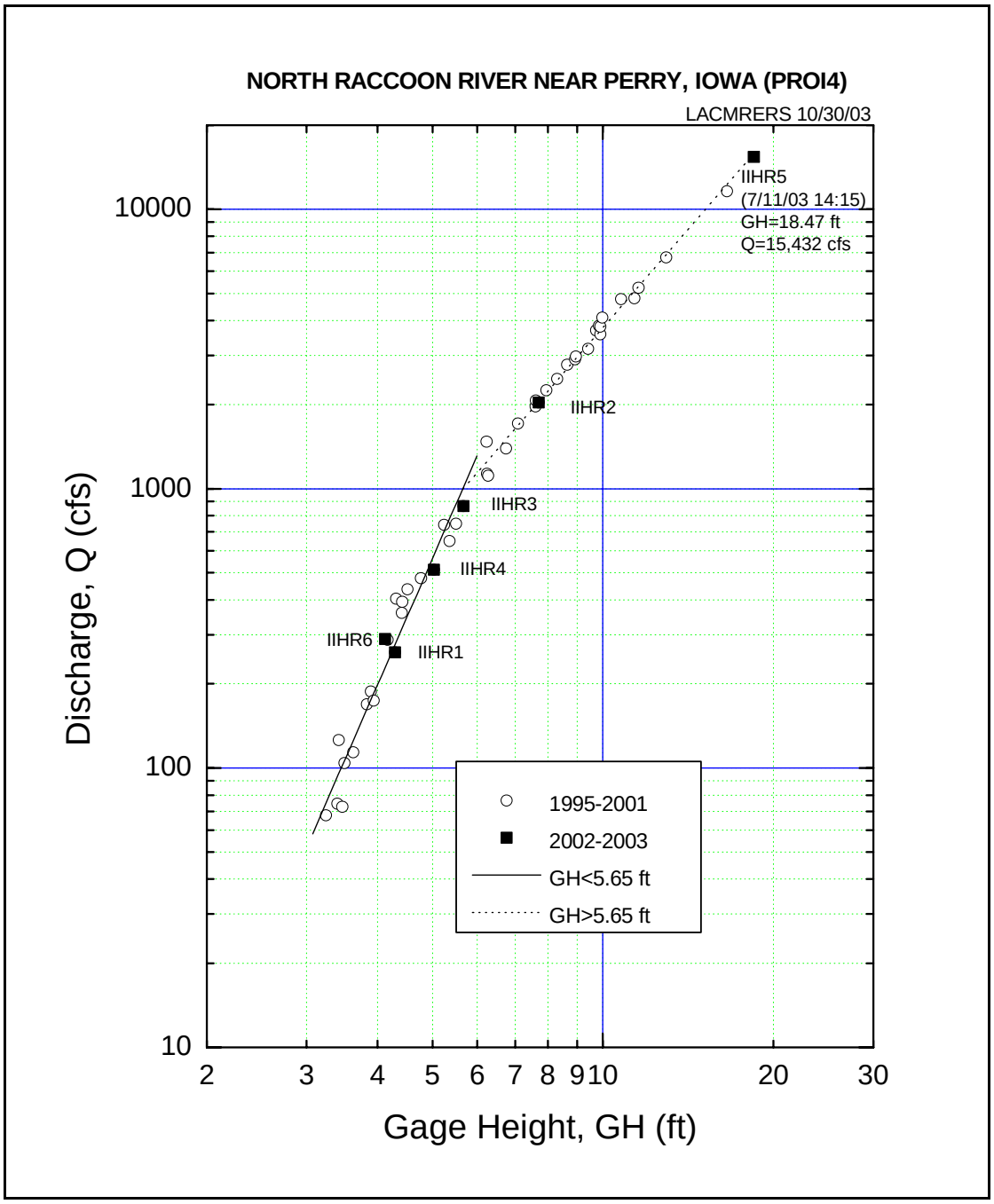


Figure 13 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for PROI4

11. IOWA RIVER NEAR STEAMBOAT ROCK, IA (STBI4)

- Gage Description - STBI4 - Iowa River near Steamboat Rock, IA
- Stream = Iowa River
- Gage Zero = 951.46 feet NGVD (1929)
- Flood Stage = N/A
- Record Stage = 16.42 feet Date 03/08/65
- Lat 42° 24'26" - Long 93°04'19"
- Drainage Area = 735.0 sq. mi.
- River Mile = 258.1
- Location of Gage = Hardin County, Streamboat Rock, IA; on right bank 400 ft upstream from bridge on county highway D35 in Steamboat Rock, and at mile 258.1.

Upstream Side View (7/17/03)

Downstream View (7/17/03)

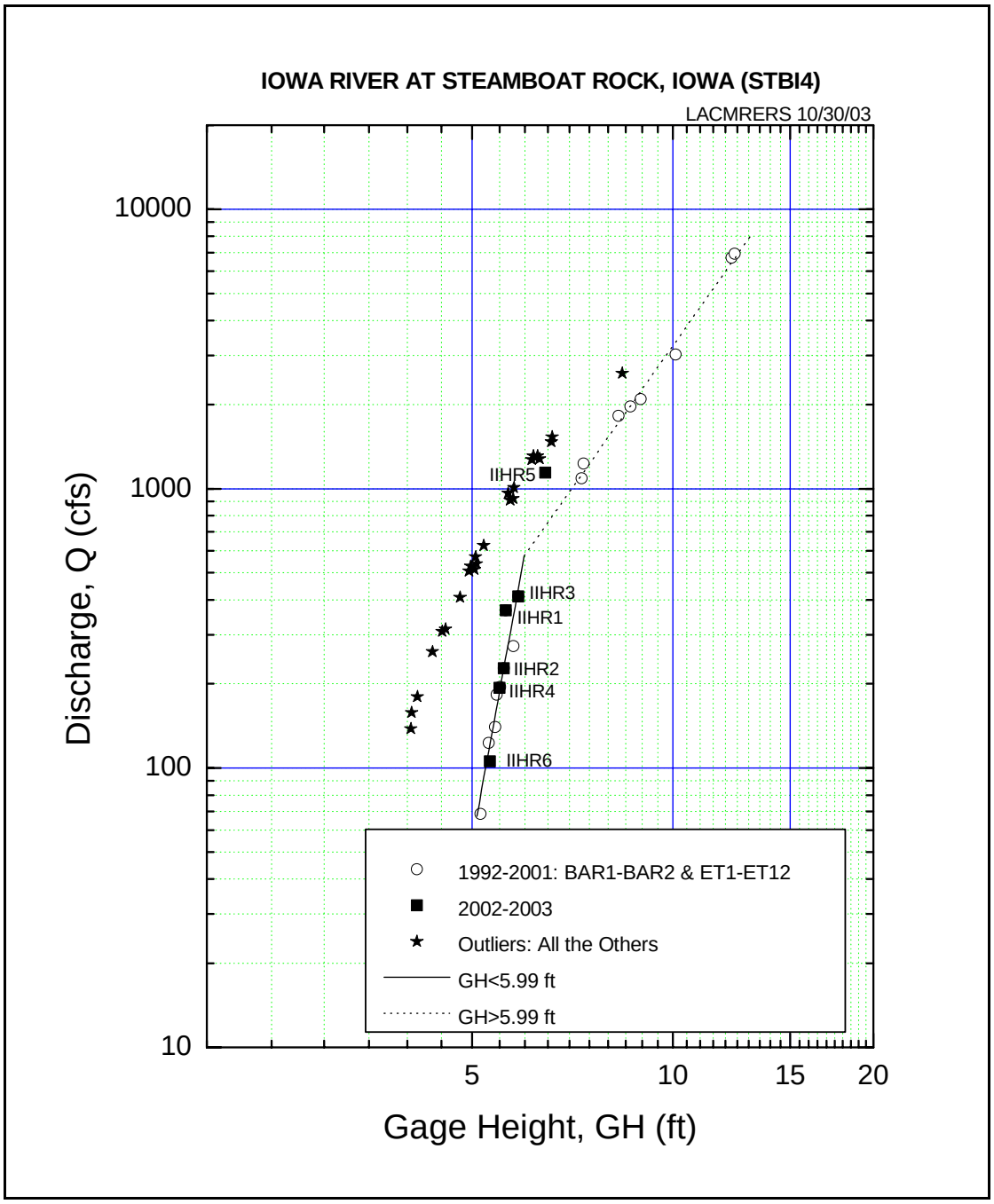


Figure 14 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for STBI4

12. IOWA RIVER NEAR TAMA, IA (TAMI4)

- Gage Description - TAMI4 - Iowa River near Tama, IA
- Stream = Iowa River
- Gage Zero = 794.34 feet NGVD (1929)
- Flood Stage = 13.00 feet
- Record Stage = 21.60 feet Date 05-23-93
- Lat 41°37'11" - Long 92°34'36"
- Drainage Area = 1,984 sq. mi.
- River Mile = 188.5
- Location of Gage = on right bank at downstream side of bridge on State Highway 63 south side of Tama, 0.45 miles downstream from Deer Creek, and at mile 188.5.

Downstream Side View (7/18/03)

Upstream View (7/18/03)

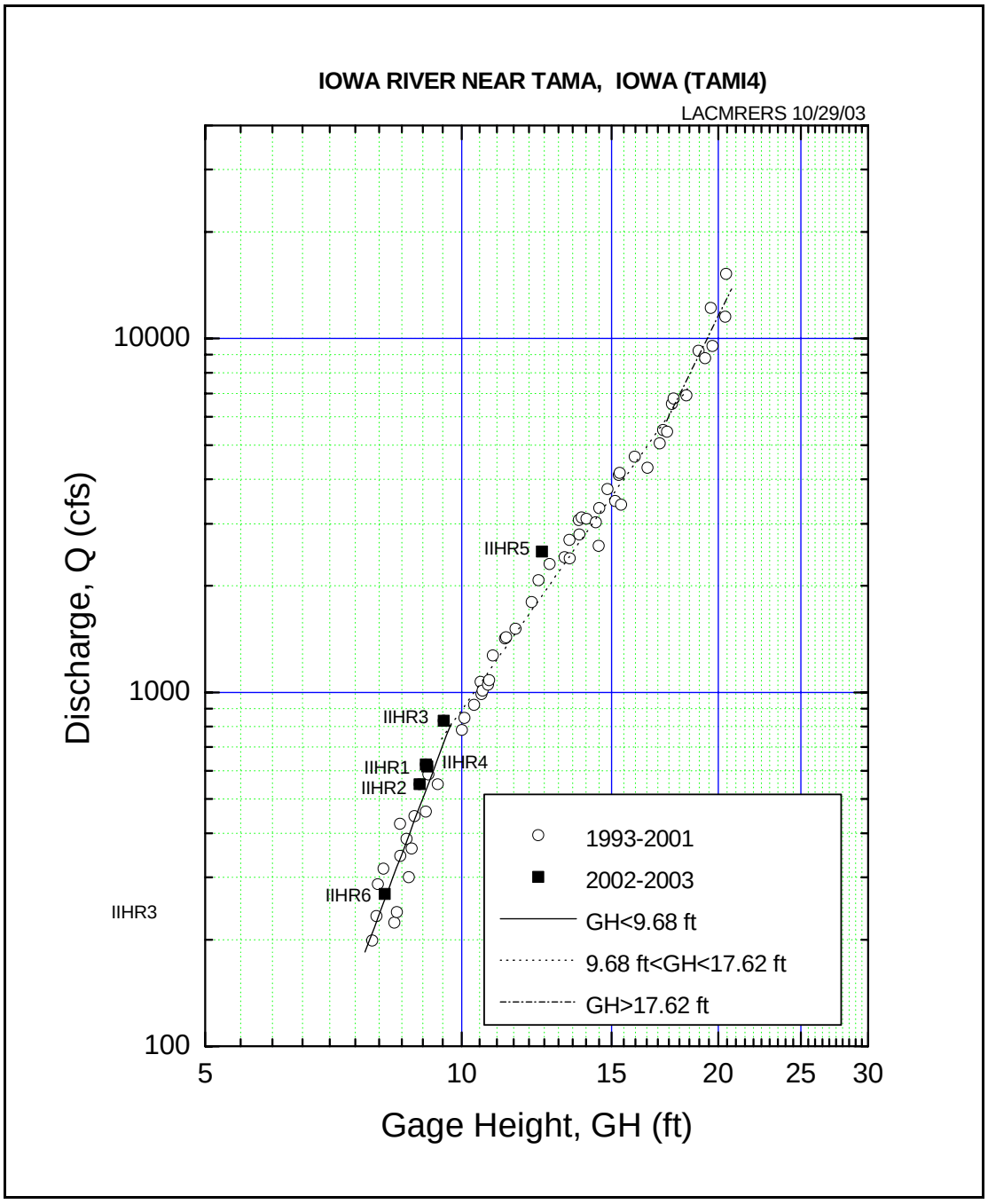


Figure 15 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for TAMI4

13. DEER CREEK NEAR TOLEDO, IA (TOLI4)

- Gage Description - TOLI4 - Deer Creek near Toledo, IA
- Stream = Deer Creek
- Gage Zero = N/A
- Flood Stage = N/A
- Record Stage = N/A
- Lat 42°00'00" - Long 92°35'10"
- Drainage Area = 76.4 sq. mi.
- River Mile = N/A
- Location of Gage = on right bank 15 ft downstream from bridge on County Highway E43, 1.0 mile south of mouth of Jordan Creek, and 1.0 mile north of Toledo, IA.

Downstream Side View (7/17/03)

Downstream View (7/17/03)

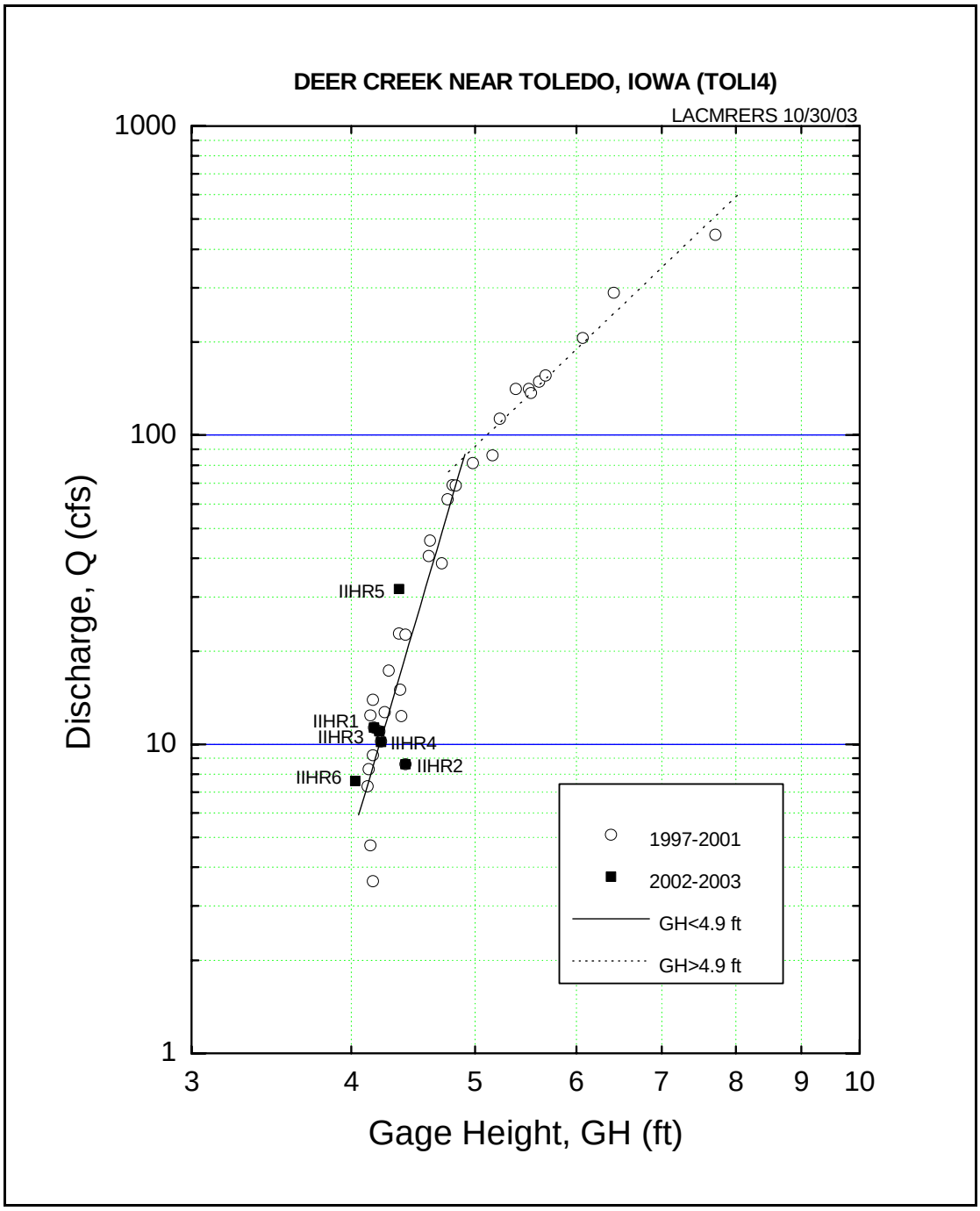


Figure 16 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for TOLI4

14. WEST FORK DES MOINES RIVER NEAR WINDOM, MN (WDOM5)

- Gage Description - WDOM5 - W. Des Moines River near Windom, MN
- Stream = West Fork Des Moines River
- Gage Zero = N/A
- Flood Stage = 17.00 feet
- Record Stage = N/A
- Lat 43°53'26" - Long 95°09'35"
- Drainage Area = N/A
- River Mile = 450.8
- Location of Gage = North Side of City of Windom, MN Golf Course.

Downstream Side View (7/15/03)

Downstream View (7/15/03)

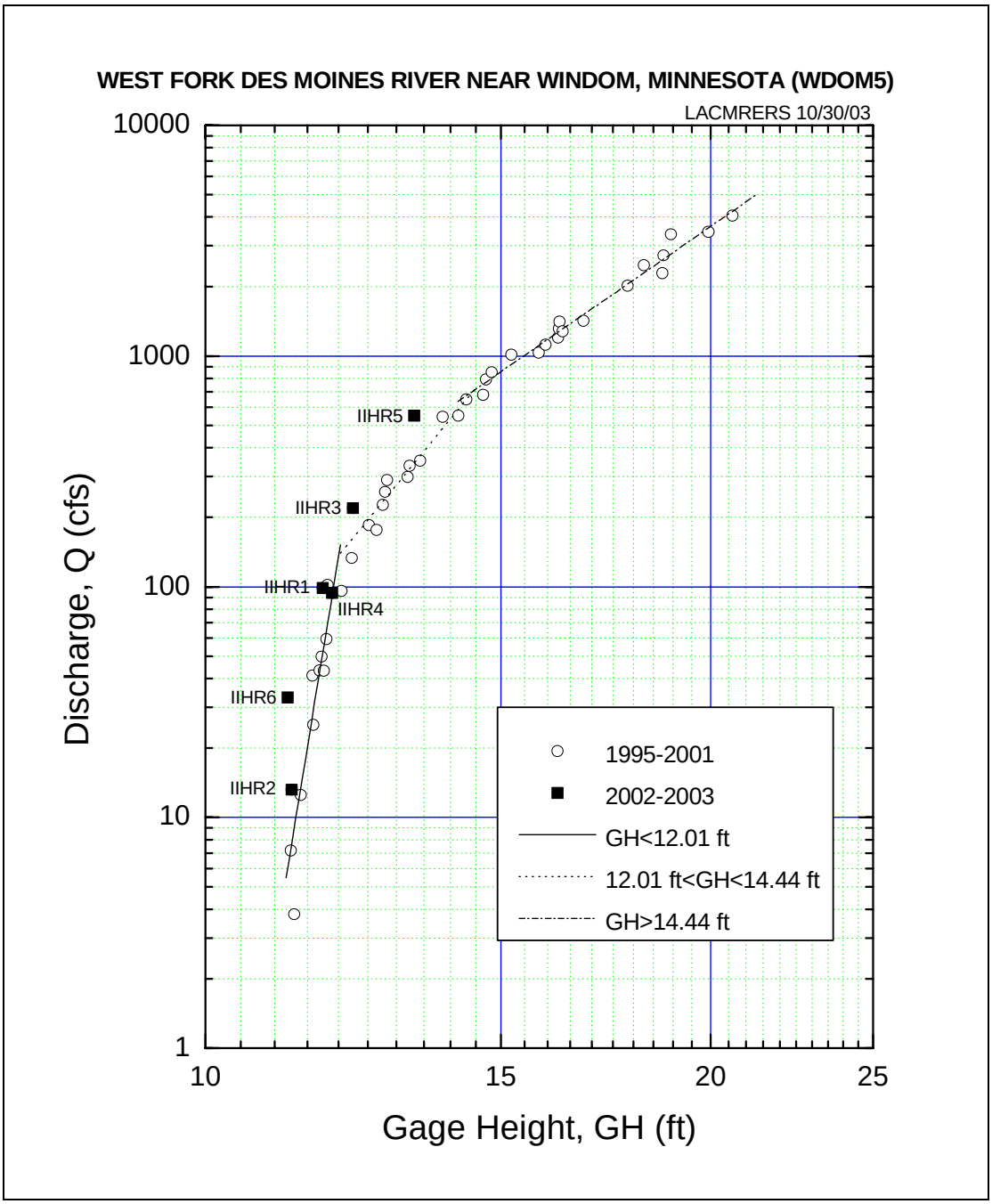


Figure 17 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for WDOM5

15. BEAVER CREEK NEAR WOODWARD, IA (WWDI4)

- Gage Description - WWDI4 - Beaver Creek near Woodward, IA
- Stream = Beaver Creek
- Gage Zero = N/A feet NGVD (1929)
- Flood Stage = N/A
- Record Stage = N/A
- Lat 41°47'31" - Long 93°57'20"
- Drainage Area = 280 sq. mi.
- River Mile = N/A
- Location of Gage = 15 ft downstream from bridge on county highway, 3.5 miles downstream from Little Beaver Creek, and 3.5 miles south of Woodward, IA.

Downstream Side View (7/10/03)

Downstream View (7/10/03)

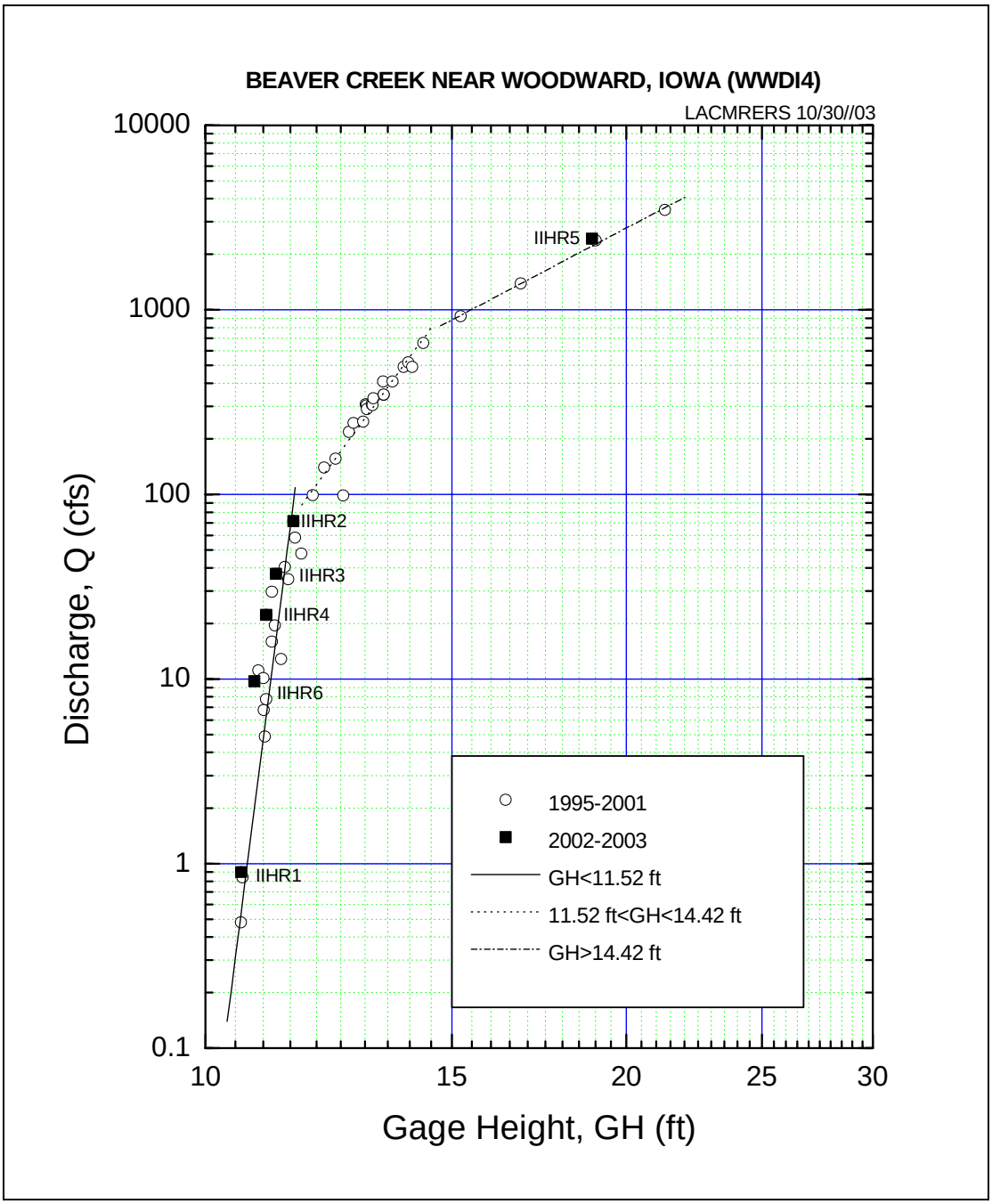


Figure 18 IIHR5 and IIHR6 plotted on log-linear stage-discharge relationships developed for WWDI4

APPENDIX I

ANALYSIS OF FEILD VELOCITY DATA: IIHR5 AND IIHR6 FOR FIFTEEN GAGING STATIONS

AGNI4_7-16-03 (IIHR5)

AGNI4_7-16-03 (TRIP 5)
Gage = 9.55' at 17:45
W = 135.3'

C factor	Dist from IP (ft)	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	135.3									
0.97	129.6	5.7	1.7	0.6	3	55.8	0.14	0.14	9.69	1.28
0.97	124.2	5.4	2.6	0.6	5	44.1	0.27	0.27	14.04	3.65
0.99	118.8	5.4	3.6	0.2	10	43.5	0.52	0.47	19.44	9.05
0.99	118.8	0.0		0.8	8	44.4	0.42	0.00	0.00	0.00
1.00	113.4	5.4	4.1	0.2	14	42.2	0.75	0.73	22.14	16.12
1.00	113.4	0.0		0.8	13	41.6	0.71	0.00	0.00	0.00
0.99	108.0	5.4	4.8	0.2	15	41.4	0.82	0.78	25.92	20.14
0.99	108.0	0.0		0.8	14	42.0	0.75	0.00	0.00	0.00
0.98	102.6	5.4	5.4	0.2	21	41.4	1.14	0.98	29.16	27.88
0.98	102.6	0.0		0.8	15	41.5	0.81	0.00	0.00	0.00
0.98	97.2	5.4	5.8	0.2	19	41.8	1.02	0.95	31.32	29.11
0.98	97.2	0.0		0.8	16	41.1	0.88	0.00	0.00	0.00
0.99	91.8	5.4	6.0	0.2	25	40.8	1.37	1.34	32.40	42.85
0.99	91.8	0.0		0.8	24	41.2	1.30	0.00	0.00	0.00
0.98	86.4	5.4	6.4	0.2	26	40.6	1.43	1.37	34.56	46.49
0.98	86.4	0.0		0.8	24	40.8	1.32	0.00	0.00	0.00
0.99	81.0	5.4	6.8	0.2	27	40.5	1.49	1.37	36.72	49.97
0.99	81.0	0.0		0.8	23	40.8	1.26	0.00	0.00	0.00
0.99	75.6	5.4	7.0	0.2	28	41.0	1.52	1.32	37.80	49.22
0.99	75.6	0.0		0.8	20	40.5	1.11	0.00	0.00	0.00
0.99	70.2	5.4	6.6	0.2	29	41.0	1.58	1.44	35.64	50.65
0.99	70.2	0.0		0.8	24	41.5	1.29	0.00	0.00	0.00
0.99	64.8	5.4	6.5	0.2	27	40.2	1.50	1.37	35.10	47.74
0.99	64.8	0.0		0.8	23	41.2	1.25	0.00	0.00	0.00
0.99	59.4	5.4	6.4	0.2	29	40.2	1.61	1.48	34.56	50.77
0.99	59.4	0.0		0.8	25	41.1	1.36	0.00	0.00	0.00
0.99	54.0	5.4	6.3	0.2	28	40.1	1.56	1.45	34.02	48.70
0.99	54.0	0.0		0.8	24	40.2	1.33	0.00	0.00	0.00
0.99	48.6	5.4	5.9	0.2	27	40.6	1.48	1.43	31.86	44.95
0.99	48.6	0.0		0.8	25	40.9	1.37	0.00	0.00	0.00
0.99	43.2	5.4	5.6	0.2	28	40.6	1.54	1.47	30.24	44.03
0.99	43.2	0.0		0.8	26	41.4	1.40	0.00	0.00	0.00
0.99	37.8	5.4	5.0	0.2	26	40.1	1.45	1.22	27.00	32.53
0.99	37.8	0.0		0.8	18	41.0	0.99	0.00	0.00	0.00
0.99	32.4	5.4	4.8	0.2	26	40.9	1.42	1.37	25.92	35.13
0.99	32.4	0.0		0.8	24	40.7	1.32	0.00	0.00	0.00
0.99	27.0	5.4	4.5	0.2	23	40.2	1.28	1.22	24.30	29.29
0.99	27.0	0.0		0.8	21	40.7	1.16	0.00	0.00	0.00
0.99	21.6	5.4	4.2	0.2	23	40.0	1.29	1.20	22.68	27.04
0.99	21.6	0.0		0.8	21	41.9	1.12	0.00	0.00	0.00
0.99	16.2	5.4	3.8	0.2	21	41.6	1.13	1.09	20.52	22.21
0.99	16.2	0.0		0.8	19	40.4	1.06	0.00	0.00	0.00
0.99	10.8	5.4	2.6	0.6	19	41.4	1.03	1.03	14.04	14.32
0.99	5.4	5.4	1.6	0.6	18	40.4	1.00	1.00	8.64	8.56
	0									
									637.7	**751.7**

AGNI4_8-20-03 (IIHR6)

AGNI4_8-20-03 (TRIP 6)
Gage = 6.96' at 14:20
W = 110.0'

C factor	Dist from IP (ft)	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	110.0									
0.92	105.6	4.4	1.0	0.6	0	60.0	0.00	0.00	4.40	0.00
0.92	101.2	4.4	1.2	0.6	4	48.1	0.20	0.20	5.28	0.98
0.94	96.8	4.4	1.8	0.6	0	60.0	0.00	0.00	7.92	0.00
0.96	92.4	4.4	2.4	0.6	2	77.8	0.07	0.07	10.56	0.76
1.00	88.0	4.4	2.7	0.6	0	60.0	0.00	0.00	11.88	0.00
1.00	83.6	4.4	2.9	0.6	0	60.0	0.00	0.00	12.76	0.00
0.98	79.2	4.4	3.4	0.6	1	42.0	0.07	0.07	14.96	1.03
0.98	74.8	4.4	3.8	0.6	2	88.7	0.07	0.07	16.72	1.11
0.98	70.4	4.4	4.0	0.6	2	96.0	0.06	0.06	17.60	1.10
0.98	66.0	4.4	4.2	0.6	1	31.7	0.09	0.09	18.48	1.59
0.98	61.6	4.4	4.2	0.6	1	78.1	0.05	0.05	18.48	0.84
0.98	57.2	4.4	4.0	0.6	3	58.7	0.13	0.13	17.60	2.25
0.98	50.8	6.4	4.1	0.6	1	48.5	0.06	0.06	26.24	1.63
0.98	48.4	2.4	3.9	0.6	1	44.3	0.07	0.07	9.36	0.62
0.98	44.0	4.4	3.7	0.6	1	38.8	0.07	0.07	16.28	1.19
0.98	39.6	4.4	3.2	0.6	3	49.9	0.15	0.15	14.08	2.08
0.98	35.2	4.4	3.0	0.6	4	41.5	0.23	0.23	13.20	2.98
0.98	30.8	4.4	2.8	0.6	3	46.9	0.16	0.16	12.32	1.92
0.98	26.4	4.4	2.4	0.6	4	51.0	0.19	0.19	10.56	1.98
0.98	22.0	4.4	2.2	0.6	7	53.8	0.30	0.30	9.68	2.89
0.98	17.6	4.4	2.0	0.6	3	50.6	0.15	0.15	8.80	1.28
0.98	13.2	4.4	1.7	0.6	3	49.5	0.15	0.15	7.48	1.11
0.98	8.8	4.4	1.5	0.6	2	45.1	0.12	0.12	6.60	0.75
0.98	4.4	4.4	1.0	0.6	1	48.7	0.06	0.06	4.40	0.27
	0.0									
									295.6	**28.4**

BPLI4_7-18-03 (IIHR5)

BPLI4_7-18-03 (TRIP 5)
Gage = 10.75' at 12:00
W = 225'

C factor	Dist from IP (ft)	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	225.0									
-0.97	216.0	9.0	5.0	0.2	17	41.4	0.92	0.90	45.00	-39.15
-0.97	216.0	0.0		0.8	16	41.4	0.87	0.00	0.00	0.00
-0.80	207.0	9.0	5.9	0.2	16	42.2	0.85	0.86	53.10	-36.41
-0.80	207.0	0.0		0.8	16	41.9	0.86	0.00	0.00	0.00
-0.70	198.0	9.0	5.3	0.2	16	41.6	0.87	0.92	47.70	-30.69
-0.70	198.0	0.0		0.8	18	41.6	0.97	0.00	0.00	0.00
-0.97	189.0	9.0	8.2	0.2	10	41.6	0.55	0.85	73.80	-60.78
-0.97	189.0	0.0		0.8	21	40.9	1.15	0.00	0.00	0.00
1.00	180.0	9.0	10.6	0.2	16	43.4	0.83	1.27	95.40	121.20
1.00	180.0	0.0		0.8	31	40.4	1.71	0.00	0.00	0.00
0.98	171.0	9.0	14.1	0.2	19	42.2	1.01	1.66	126.90	206.51
0.98	171.0	0.0		0.8	42	40.4	2.31	0.00	0.00	0.00
1.00	162.0	9.0	15.0	0.2	58	40.6	3.17	3.06	135.00	413.02
1.00	162.0	0.0		0.8	54	40.6	2.95	0.00	0.00	0.00
1.00	153.0	9.0	12.8	0.2	46	40.1	2.55	2.03	115.20	233.29
1.00	153.0	0.0		0.8	27	40.1	1.50	0.00	0.00	0.00
1.00	144.0	9.0	9.3	0.2	58	40.4	3.18	2.83	83.70	237.03
1.00	144.0	0.0		0.8	45	40.3	2.48	0.00	0.00	0.00
1.00	135.0	9.0	8.7	0.2	55	40.2	3.03	2.81	78.30	219.95
1.00	135.0	0.0		0.8	47	40.4	2.58	0.00	0.00	0.00
1.00	126.0	9.0	9.1	0.2	55	40.6	3.01	2.70	81.90	221.41
1.00	126.0	0.0		0.8	44	40.7	2.40	0.00	0.00	0.00
1.00	117.0	9.0	8.3	0.2	51	40.2	2.82	2.57	74.70	191.66
1.00	117.0	0.0		0.8	42	40.3	2.32	0.00	0.00	0.00
1.00	108.0	9.0	7.6	0.2	53	40.5	2.90	2.47	68.40	168.81
1.00	108.0	0.0		0.8	37	40.5	2.03	0.00	0.00	0.00
1.00	99.0	9.0	6.7	0.2	51	40.0	2.83	2.53	60.30	152.82
1.00	99.0	0.0		0.8	41	40.7	2.24	0.00	0.00	0.00
1.00	90.0	9.0	5.8	0.2	49	40.2	2.71	2.49	52.20	130.19
1.00	90.0	0.0		0.8	42	40.9	2.28	0.00	0.00	0.00
1.00	81.0	9.0	5.8	0.2	52	40.0	2.88	2.52	52.20	131.73
1.00	81.0	0.0		0.8	39	40.1	2.16	0.00	0.00	0.00
1.00	72.0	9.0	5.6	0.2	47	40.0	2.61	2.18	50.40	109.67
1.00	72.0	0.0		0.8	32	40.9	1.74	0.00	0.00	0.00
1.00	63.0	9.0	5.2	0.2	47	40.2	2.60	2.21	46.80	103.31
1.00	63.0	0.0		0.8	33	40.4	1.82	0.00	0.00	0.00
1.00	54.0	9.0	4.5	0.2	44	40.6	2.41	2.14	40.50	86.60
1.00	54.0	0.0		0.8	34	40.5	1.87	0.00	0.00	0.00
1.00	45.0	9.0	5.1	0.2	46	40.6	2.52	2.08	45.90	95.28
1.00	45.0	0.0		0.8	30	40.9	1.64	0.00	0.00	0.00
1.00	36.0	9.0	4.8	0.2	40	40.6	2.19	1.99	43.20	86.13
1.00	36.0	0.0		0.8	33	40.9	1.80	0.00	0.00	0.00
1.00	27.0	9.0	4.7	0.2	40	40.2	2.21	1.98	42.30	83.74
1.00	27.0	0.0		0.8	32	40.8	1.75	0.00	0.00	0.00
1.00	18.0	9.0	4.5	0.2	27	40.3	1.50	1.38	40.50	56.00
1.00	18.0	0.0		0.8	23	40.5	1.27	0.00	0.00	0.00
1.00	9.0	9.0	3.6	0.6	18	42.2	0.96	0.48	32.40	15.53
	0.0									
									1585.8	**2896.8**

BPLI4_8-26-03 (IIHR6)

BPLI4_8-26-03 (TRIP 6)
Gage = 5.66' at 11:40
W = 128'

C factor	Dist from IP (ft)	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	128.0									
1.00	122.4	5.6	0.0	0.6	0		0.00	0.00	0.00	0.00
-0.80	117.3	5.1	0.5	0.6	13	42.3	0.70	0.70	2.55	-1.42
-0.92	112.2	5.1	1.6	0.6	11	41.4	0.60	0.60	8.16	-4.53
-0.75	107.1	5.1	2.5	0.6	8	43.1	0.43	0.43	12.75	-4.09
0.10	102.0	5.1	2.9	0.6	8	40.2	0.46	0.46	14.79	0.68
0.60	96.1	5.9	3.0	0.6	16	41.7	0.86	0.86	17.70	9.18
0.94	91.8	4.3	3.4	0.8	18	40.9	0.99	1.06	14.62	14.62
0.94	91.8	0.0		0.2	21	41.3	1.14	0.00	0.00	0.00
0.98	86.7	5.1	4.3	0.8	21	41.4	1.14	1.30	21.93	27.86
0.98	86.7	0.0		0.2	27	41.4	1.46	0.00	0.00	0.00
0.99	81.6	5.1	5.1	0.8	27	40.5	1.49	1.58	26.01	40.75
0.99	81.6	0.0		0.2	31	41.2	1.68	0.00	0.00	0.00
1.00	76.5	5.1	6.3	0.8	32	40.7	1.75	1.75	32.13	56.35
1.00	76.5	0.0		0.2	32	40.6	1.76	0.00	0.00	0.00
1.00	71.4	5.1	5.8	0.8	23	40.6	1.27	1.60	29.58	47.47
1.00	71.4	0.0		0.2	35	40.1	1.94	0.00	0.00	0.00
1.00	66.3	5.1	4.8	0.8	28	41.1	1.52	1.71	24.48	41.87
1.00	66.3	0.0		0.2	35	41.0	1.90	0.00	0.00	0.00
1.00	61.2	5.1	4.4	0.8	31	40.9	1.69	1.81	22.44	40.70
1.00	61.2	0.0		0.2	35	40.2	1.94	0.00	0.00	0.00
1.00	56.1	5.1	4.3	0.8	23	40.1	1.28	1.50	21.93	32.81
1.00	56.1	0.0		0.2	31	40.4	1.71	0.00	0.00	0.00
1.00	51.0	5.1	3.5	0.8	19	40.9	1.04	1.15	17.85	20.50
1.00	51.0	0.0		0.2	23	41.0	1.25	0.00	0.00	0.00
1.00	45.9	5.1	2.2	0.6	22	42.0	1.17	1.17	11.22	13.16
1.00	40.8	5.1	1.2	0.6	24	40.7	1.32	1.32	6.12	8.07
1.00	35.7	5.1	1.3	0.6	32	40.8	1.75	1.75	6.63	11.59
1.00	30.6	5.1	1.2	0.6	32	40.9	1.74	1.74	6.12	10.67
0.99	25.5	5.1	1.0	0.6	29	40.3	1.60	1.60	5.10	8.10
0.99	20.4	5.1	1.0	0.6	29	40.3	1.60	1.60	5.10	8.10
1.00	15.3	5.1	0.7	0.6	22	41.5	1.19	1.19	3.57	4.24
1.00	10.2	5.1	0.6	0.6	0		0.00	0.00	3.06	0.00
1.00	5.1	5.1	0.5	0.6	0		0.00	0.00	2.55	0.00
	0.0									
									316.4	**386.7**

CJTI4_7-24-03 (IIHR5)

CJTI4_7-24-03 (TRIP 5)
Gage = 12.34' at 10:20
W = 1000'

C factor	Dist from IP	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	1000									
0.98	963	37	1.2	0.6	9	42.0	0.49	0.49	44.40	21.34
1.00	920	43	5.4	0.2	3	53.5	0.14	0.07	232.20	16.44
1.00	920	0		0.8	0	40.0	0.00	0.00	0.00	0.00
0.98	880	40	7.1	0.2	52	40.3	2.86	2.40	284.00	666.78
0.98	880	0		0.8	35	40.4	1.93	0.00	0.00	0.00
0.98	840	40	6.2	0.2	52	40.1	2.88	2.43	248.00	591.80
0.98	840	0		0.8	36	40.2	1.99	0.00	0.00	0.00
0.98	800	40	5.8	0.2	47	40.4	2.58	2.17	232.00	492.79
0.98	800	0		0.8	32	40.7	1.75	0.00	0.00	0.00
0.98	760	40	4.7	0.2	55	40.3	3.03	2.52	188.00	465.19
0.98	760	0		0.8	37	40.7	2.02	0.00	0.00	0.00
0.98	720	40	6.0	0.2	55	40.3	3.03	2.57	240.00	605.39
0.98	720	0		0.8	39	40.9	2.12	0.00	0.00	0.00
0.98	680	40	5.6	0.2	51	40.3	2.81	2.43	224.00	534.00
0.98	680	0		0.8	38	41.1	2.06	0.00	0.00	0.00
0.98	640	40	4.5	0.2	53	40.4	2.91	2.48	180.00	438.21
0.98	640	0		0.8	37	40.0	2.06	0.00	0.00	0.00
0.98	600	40	4.8	0.2	47	40.3	2.59	2.21	192.00	416.47
0.98	600	0		0.8	33	40.0	1.84	0.00	0.00	0.00
0.98	560	40	4.0	0.2	39	40.1	2.16	1.89	160.00	295.97
0.98	560	0		0.8	29	40.1	1.61	0.00	0.00	0.00
0.97	520	40	3.8	0.2	44	40.0	2.44	2.07	152.00	304.67
0.97	520	0		0.8	31	40.9	1.69	0.00	0.00	0.00
0.98	480	40	3.7	0.2	49	40.1	2.71	2.35	148.00	341.21
0.98	480	0		0.8	36	40.2	1.99	0.00	0.00	0.00
0.98	440	40	3.0	0.6	42	40.9	2.28	2.28	120.00	268.40
0.98	400	40	3.2	0.6	42	40.8	2.29	2.29	128.00	286.99
0.98	360	40	2.5	0.6	38	40.6	2.08	2.08	100.00	204.02
0.97	320	40	3.5	0.2	46	40.3	2.53	2.24	140.00	304.02
0.97	320	0		0.8	35	40.1	1.94	0.00	0.00	0.00
0.97	280	40	4.5	0.2	45	40.3	2.48	2.11	180.00	368.33
0.97	280	0		0.8	32	41.0	1.74	0.00	0.00	0.00
0.97	240	40	4.2	0.2	51	40.0	2.83	2.63	168.00	428.65
0.97	240	0		0.8	44	40.2	2.43	0.00	0.00	0.00
0.97	200	40	5.1	0.2	49	40.5	2.69	2.35	204.00	464.87
0.97	200	0		0.8	37	40.9	2.01	0.00	0.00	0.00
0.98	160	40	4.1	0.2	55	40.2	3.03	2.81	164.00	451.98
0.98	160	0		0.8	47	40.3	2.59	0.00	0.00	0.00
0.97	120	40	4.9	0.2	44	40.0	2.44	2.18	196.00	413.80
0.97	120	0		0.8	35	40.8	1.91	0.00	0.00	0.00
0.97	80	40	4.6	0.2	50	40.7	2.73	2.40	184.00	429.12
0.97	80	0		0.8	38	40.6	2.08	0.00	0.00	0.00
0.98	40	40	3.7	0.2	57	40.1	3.15	2.58	148.00	374.57
0.98	40	0		0.8	37	40.9	2.01	0.00	0.00	0.00
	0									
									4256.6	**9185.0**

CJTI4_8-27-03 (IIHR6)

CJTI4_8-27-03 (TRIP 6)
Gage = 9.50' at 10:20
W = 925'

C factor	Dist from IP	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	925									
0.97	888	37	3.7	0.8	18	40.7	0.99	1.33	136.90	176.12
0.97	888	0		0.2	30	40.3	1.66	0.00	0.00	0.00
0.97	851	37	3.7	0.8	22	40.6	1.21	1.24	136.90	165.28
0.97	851	0		0.2	23	40.3	1.28	0.00	0.00	0.00
0.97	814	37	3.7	0.8	24	40.3	1.33	1.46	136.90	194.41
0.97	814	0		0.2	29	40.5	1.60	0.00	0.00	0.00
0.97	777	37	3.0	0.8	24	40.3	1.33	1.61	111.00	173.28
0.97	777	0		0.2	34	40.1	1.89	0.00	0.00	0.00
0.97	740	37	1.6	0.6	20	41.8	1.07	1.07	59.20	61.62
0.97	703	37	3.0	0.8	32	40.0	1.78	1.99	111.00	213.85
0.97	703	0		0.2	40	40.6	2.19	0.00	0.00	0.00
0.97	666	37	2.6	0.6	36	40.4	1.98	1.98	96.20	185.03
0.97	629	37	2.4	0.6	34	40.0	1.89	1.89	88.80	162.99
0.98	592	37	1.7	0.6	33	40.6	1.81	1.81	62.90	111.59
0.97	555	37	1.0	0.6	23	40.5	1.27	1.27	37.00	45.59
0.98	518	37	1.0	0.6	30	40.7	1.64	1.64	37.00	59.59
0.98	481	37	0.9	0.6	29	41.0	1.58	1.58	33.30	51.48
1.00	444	37	0.3	0.6	0		0.00	0.00	11.10	0.00
0.97	407	37	0.7	0.6	22	40.9	1.20	1.20	25.90	30.25
0.97	370	37	1.1	0.6	26	41.6	1.40	1.40	40.70	55.12
0.80	333	37	0.8	0.6	28	40.1	1.56	1.56	29.60	36.89
0.80	296	37	0.8	0.6	29	40.1	1.61	1.61	29.60	38.19
0.70	259	37	0.7	0.6	22	40.7	1.21	1.21	25.90	21.94
0.94	222	37	2.1	0.6	22	41.7	1.18	1.18	77.70	86.28
0.94	185	37	2.9	0.6	29	40.2	1.61	1.61	107.30	162.25
0.97	148	37	2.4	0.6	32	40.6	1.76	1.76	88.80	151.25
1.00	111	37	1.3	0.6	23	41.1	1.25	1.25	48.10	60.22
0.90	74	37	1.3	0.6	8	42.4	0.43	0.43	48.10	18.79
0.94	30	44	1.8	0.6	24	41.1	1.31	1.31	79.20	97.20
	0									
									1659.1	**2359.2**

EDYI4_7-23-03 (IIHR5)

EDYI4_7-23-03 (TRIP 5)
Gage = 57.42' at 13:40
W = 553'

C factor	Dist from IP	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	553.0									
0.97	530.4	22.6	8.2	0.2	17	40.8	0.94	1.10	185.32	197.54
0.97	530.4	0.0		0.8	23	40.8	1.26	0.00	0.00	0.00
0.93	508.3	22.1	9.0	0.2	9	40.0	0.51	0.52	198.90	96.31
0.93	508.3	0.0		0.8	10	43.3	0.53	0.00	0.00	0.00
0.97	486.2	22.1	10.9	0.2	18	40.3	1.00	0.74	240.89	172.17
0.97	486.2	0.0		0.8	10	48.7	0.47	0.00	0.00	0.00
1.00	464.1	22.1	13.6	0.2	70	40.5	3.83	3.52	300.56	1058.63
1.00	464.1	0.0		0.8	58	40.0	3.22	0.00	0.00	0.00
1.00	442.0	22.1	13.2	0.2	75	40.5	4.10	3.67	291.72	1070.54
1.00	442.0	0.0		0.8	59	40.4	3.24	0.00	0.00	0.00
1.00	419.9	22.1	12.6	0.2	72	40.2	3.97	3.52	278.46	981.47
1.00	419.9	0.0		0.8	56	40.3	3.08	0.00	0.00	0.00
1.00	397.8	22.1	12.4	0.2	70	40.3	3.85	3.42	274.04	937.60
1.00	397.8	0.0		0.8	54	40.0	2.99	0.00	0.00	0.00
1.00	375.7	22.1	10.9	0.2	74	40.2	4.08	3.83	240.89	922.83
1.00	375.7	0.0		0.8	66	40.8	3.58	0.00	0.00	0.00
0.98	353.6	22.1	11.9	0.2	69	40.1	3.81	3.55	262.99	915.57
0.98	353.6	0.0		0.8	60	40.4	3.29	0.00	0.00	0.00
0.99	331.5	22.1	12.2	0.2	76	40.2	4.19	3.79	269.62	1011.67
0.99	331.5	0.0		0.8	62	40.5	3.39	0.00	0.00	0.00
0.99	309.4	22.1	11.2	0.2	76	40.5	4.16	3.68	247.52	902.14
0.99	309.4	0.0		0.8	58	40.1	3.21	0.00	0.00	0.00
0.99	287.3	22.1	11.0	0.2	81	40.2	4.46	4.05	243.10	974.60
0.99	287.3	0.0		0.8	66	40.2	3.64	0.00	0.00	0.00
0.99	265.2	22.1	10.1	0.2	77	40.1	4.25	3.53	223.21	779.34
0.99	265.2	0.0		0.8	51	40.4	2.80	0.00	0.00	0.00
0.99	243.1	22.1	11.4	0.2	77	40.5	4.21	3.59	251.94	894.86
0.99	243.1	0.0		0.8	54	40.4	2.97	0.00	0.00	0.00
0.99	221.0	22.1	8.6	0.2	77	40.4	4.22	3.96	190.06	744.51
0.99	221.0	0.0		0.8	67	40.2	3.69	0.00	0.00	0.00
0.99	199.0	22.0	12.8	0.2	79	40.3	4.34	4.07	281.60	1133.78
0.99	199.0	0.0		0.8	69	40.3	3.79	0.00	0.00	0.00
0.99	176.8	22.2	11.7	0.2	86	40.2	4.74	4.12	259.74	1060.23
0.99	176.8	0.0		0.8	64	40.4	3.51	0.00	0.00	0.00
0.99	154.7	22.1	13.1	0.2	86	40.2	4.74	4.10	289.51	1176.38
0.99	154.7	0.0		0.8	63	40.2	3.47	0.00	0.00	0.00
0.99	132.6	22.1	12.7	0.2	95	40.2	5.23	4.83	280.67	1341.64
0.99	132.6	0.0		0.8	80	40.0	4.43	0.00	0.00	0.00
0.99	110.5	22.1	12.4	0.2	90	40.2	4.95	4.54	274.04	1232.56
0.99	110.5	0.0		0.8	75	40.2	4.13	0.00	0.00	0.00
0.99	88.4	22.1	12.2	0.2	87	40.3	4.78	4.29	269.62	1145.22
0.99	88.4	0.0		0.8	69	40.2	3.80	0.00	0.00	0.00
0.98	66.3	22.1	11.1	0.2	18	40.4	1.00	0.67	245.31	160.55
0.98	66.3	0.0		0.8	6	41.7	0.34	0.00	0.00	0.00
0.99	44.2	22.1	10.3	0.2	20	40.2	1.12	0.86	227.63	193.52
0.99	44.2	0.0		0.8	11	41.5	0.60	0.00	0.00	0.00
0.98	22.1	22.1	7	0.2	10	42.0	0.54	0.45	154.70	68.88
0.98	22.1	0.0		0.8	7	44.4	0.37	0.00	0.00	0.00
	0									
									5982.0	**19172.5**

EDYI4_8-27-03 (IIHR6)

EDYI4_8-27-03 (TRIP 6)
Gage = 48.72' at 13:40
W = 470'

C factor	Dist from IP	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	470.0									
1.00	451.2	18.8	3.3	0.6	5	43.9	0.27	0.27	62.04	16.70
1.00	432.4	18.8	4.5	0.8	10	41.6	0.55	0.70	84.60	59.22
1.00	432.4	0.0		0.2	16	42.3	0.85	0.00	0.00	0.00
1.00	413.6	18.8	4.1	0.8	9	41.3	0.50	0.72	77.08	55.58
1.00	413.6	0.0		0.2	17	40.5	0.94	0.00	0.00	0.00
1.00	394.8	18.8	4.5	0.8	7	42.3	0.38	0.69	84.60	58.31
0.99	394.8	0.0		0.2	18	40.6	1.00	0.00	0.00	0.00
0.99	376.0	18.8	3.4	0.8	14	41.1	0.77	0.99	63.92	62.34
0.99	376.0	0.0		0.2	22	41.0	1.20	0.00	0.00	0.00
0.99	357.2	18.8	3.0	0.6	22	40.6	1.21	1.21	56.40	67.72
1.00	338.4	18.8	1.9	0.6	13	41.1	0.72	0.72	35.72	25.56
1.00	319.6	18.8	3.9	0.8	12	42.4	0.64	0.80	73.32	58.30
1.00	319.6	0.0		0.2	17	40.3	0.95	0.00	0.00	0.00
1.00	300.8	18.8	2.7	0.6	17	40.0	0.96	0.96	50.76	48.48
1.00	282.0	18.8	1.9	0.6	17	40.7	0.94	0.94	35.72	33.54
1.00	263.2	18.8	2.4	0.6	12	40.7	0.67	0.67	45.12	30.15
0.99	244.4	18.8	1.8	0.6	11	40.5	0.62	0.62	33.84	20.67
0.99	225.6	18.8	2.0	0.6	10	40.0	0.57	0.57	37.60	21.19
1.00	206.8	18.8	1.8	0.6	12	42.3	0.64	0.64	33.84	21.78
0.99	188.0	18.8	1.2	0.6	10	40.4	0.56	0.56	22.56	12.59
1.00	169.2	18.8	3.6	0.6	10	42.4	0.54	0.54	67.68	36.42
1.00	150.4	18.8	3.0	0.6	14	40.1	0.79	0.79	56.40	44.43
1.00	131.6	18.8	3.3	0.8	18	41.6	0.97	1.06	62.04	65.83
1.00	131.6	0.0		0.2	21	40.9	1.15	0.00	0.00	0.00
0.99	112.8	18.8	3.8	0.8	17	41.4	0.92	1.05	71.44	74.02
0.99	112.8	0.0		0.2	21	40.2	1.17	0.00	0.00	0.00
0.99	94.0	18.8	3.9	0.8	15	41.3	0.82	0.95	73.32	69.03
0.99	94.0	0.0		0.2	20	41.4	1.08	0.00	0.00	0.00
0.99	75.2	18.8	4.0	0.8	16	41.8	0.86	0.95	75.20	71.07
0.99	75.2	0.0		0.2	19	40.7	1.05	0.00	0.00	0.00
1.00	56.4	18.8	3.8	0.8	14	40.2	0.79	0.87	71.44	62.11
1.00	56.4	0.0		0.2	17	40.1	0.95	0.00	0.00	0.00
1.00	37.6	18.8	2.9	0.6	3	42.4	0.17	0.17	54.52	9.49
0.80	18.8	18.8	3.1	0.6	4	50.4	0.19	0.19	58.28	9.00
	0.0									
									1387.4	**1033.5**

EMTI4_7-16-03 (IIHR5)

EMTI4_7-16-03 (TRIP 5)
Gage = 10.63' at 13:30
W = 98'

C factor	Dist from IP (ft)	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	98.0									
1.00	93.6	4.4	1.2	0.6	6	45.9	0.31	0.31	5.28	1.62
1.00	89.7	3.9	1.6	0.6	43	40.4	2.36	2.36	6.24	14.76
1.00	85.8	3.9	2.8	0.6	34	40.0	1.89	1.89	10.92	20.66
1.00	81.4	4.4	4.2	0.2	68	40.3	3.74	2.50	18.48	46.20
1.00	81.4	0.0		0.8	23	40.8	1.26	0.00	0.00	0.00
1.00	78.0	3.4	4.8	0.2	73	40.4	4.00	2.95	16.32	48.13
1.00	78.0	0.0		0.8	35	41.1	1.90	0.00	0.00	0.00
1.00	74.1	3.9	6.0	0.2	75	40.1	4.14	3.76	23.40	87.92
1.00	74.1	0.0		0.8	61	40.1	3.37	0.00	0.00	0.00
1.00	70.2	3.9	6.4	0.2	73	40.1	4.03	3.50	24.96	87.33
1.00	70.2	0.0		0.8	54	40.4	2.97	0.00	0.00	0.00
1.00	66.3	3.9	6.2	0.2	67	40.3	3.68	2.83	24.18	68.39
1.00	66.3	0.0		0.8	36	40.6	1.97	0.00	0.00	0.00
1.00	62.4	3.9	5.9	0.2	61	40.4	3.35	2.48	23.01	57.11
1.00	62.4	0.0		0.8	29	40.0	1.62	0.00	0.00	0.00
1.00	58.5	3.9	4.7	0.2	35	40.4	1.93	1.85	18.33	33.96
1.00	58.5	0.0		0.8	32	40.1	1.78	0.00	0.00	0.00
1.00	54.6	3.9	3.3	0.2	50	40.6	2.73	2.07	12.87	26.62
1.00	54.6	0.0		0.8	26	41.4	1.40	0.00	0.00	0.00
1.00	50.7	3.9	3.3	0.2	60	40.5	3.28	2.76	12.87	35.55
1.00	50.7	0.0		0.8	41	40.7	2.24	0.00	0.00	0.00
1.00	46.8	3.9	3.4	0.2	69	40.3	3.79	3.58	13.26	47.51
1.00	46.8	0.0		0.8	61	40.1	3.37	0.00	0.00	0.00
1.00	42.4	4.4	4.4	0.2	64	40.1	3.54	3.27	19.36	63.40
1.00	42.4	0.0		0.8	55	40.5	3.01	0.00	0.00	0.00
1.00	39.0	3.4	4.5	0.2	56	40.3	3.08	2.74	15.30	41.91
1.00	39.0	0.0		0.8	44	40.8	2.40	0.00	0.00	0.00
1.00	35.1	3.9	4.6	0.2	50	40.6	2.73	2.39	17.94	42.80
1.00	35.1	0.0		0.8	37	40.4	2.04	0.00	0.00	0.00
1.00	31.2	3.9	4.0	0.2	39	40.1	2.16	1.97	15.60	30.77
1.00	31.2	0.0		0.8	32	40.0	1.78	0.00	0.00	0.00
1.00	27.3	3.9	3.7	0.2	29	40.2	1.61	1.66	14.43	24.00
1.00	27.3	0.0		0.8	31	40.2	1.72	0.00	0.00	0.00
1.00	23.4	3.9	3.0	0.6	28	41.1	1.52	1.52	11.70	17.79
1.00	19.5	3.9	2.8	0.6	26	40.3	1.44	1.44	10.92	15.73
1.00	15.6	3.9	2.7	0.6	30	41.1	1.63	1.63	10.53	17.14
1.00	11.7	3.9	2.6	0.6	20	41.6	1.08	1.08	10.14	10.93
1.00	7.8	3.9	1.8	0.6	9	44.0	0.47	0.47	7.02	3.29
1.00	3.4	4.4	1.4	0.6	4	48.9	0.20	0.20	6.16	1.22
	0									
									349.2	**844.7**

EMTI4_8-20-03 (IIHR6)

EMTI4_8-20-03 (TRIP 6)
Gage = 8.42' at 12:00
W = 38'

C factor	Dist from IP (ft)	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	0.0									
-1.00	1.5	1.5	0.28	0.6	14	49.4	0.30	0.30	0.42	-0.13
-1.00	3.0	1.5	0.45	0.6	19	70.9	0.29	0.29	0.68	-0.19
-0.96	4.5	1.5	0.65	0.6	13	60.0	0.24	0.24	0.98	-0.22
0.96	6.0	1.5	0.85	0.6	20	35.4	0.57	0.57	1.28	0.70
1.00	7.5	1.5	1.15	0.6	30	24.3	1.22	1.22	1.73	2.10
1.00	9.0	1.5	1.50	0.6	40	27.1	1.45	1.45	2.25	3.26
1.00	10.5	1.5	1.85	0.6	50	26.7	1.83	1.83	2.78	5.07
1.00	12.0	1.5	2.05	0.6	50	29.7	1.65	1.65	3.08	5.07
1.00	13.5	1.5	2.25	0.6	50	29.2	1.67	1.67	3.38	5.65
1.00	15.0	1.5	2.20	0.6	50	28.5	1.72	1.72	3.30	5.66
1.00	16.5	1.5	2.20	0.6	50	27.2	1.80	1.80	3.30	5.93
1.00	18.0	1.5	2.05	0.6	50	25.9	1.88	1.88	3.08	5.79
1.00	19.5	1.5	1.93	0.6	50	32.9	1.49	1.49	2.90	4.31
1.00	21.0	1.5	1.78	0.6	50	31.4	1.56	1.56	2.67	4.16
1.00	22.5	1.5	1.67	0.6	50	32.7	1.50	1.50	2.51	3.75
1.00	24.0	1.5	1.66	0.6	50	40.4	1.22	1.22	2.49	3.04
1.00	25.5	1.5	1.58	0.6	50	42.1	1.17	1.17	2.37	2.78
1.00	27.0	1.5	1.50	0.6	40	38.7	1.02	1.02	2.25	2.30
1.00	28.5	1.5	1.43	0.6	39	53.9	0.73	0.73	2.15	1.56
1.00	30.0	1.5	1.30	0.6	20	44.2	0.47	0.47	1.95	0.91
1.00	31.5	1.5	1.07	0.6	4	56.0	0.10	0.10	1.61	0.16
-0.97	33.0	1.5	0.70	0.6	10	42.5	0.26	0.26	1.05	-0.26
-0.98	34.5	1.5	0.41	0.6	6	46.0	0.16	0.16	0.62	-0.09
-1.00	36.0	1.5	0.33	0.6	0	0.0	0.00	0.00	0.50	0.00
	38.0									
									49.3	**61.3**

ESVI4_7-16-03 (IIHR5)

ESVI4_7-16-03 (TRIP 5)
Gage = 3.48' at 9:20
W = 116.0'

C factor	Dist from IP	w (ft)	d (ft)	%depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	6.0									
1.0	11.0	5.0	1.20	0.6	40	33.2	1.19	1.19	6.00	7.13
1.0	16.0	5.0	2.00	0.6	40	21.6	1.81	1.81	10.00	18.09
1.0	21.0	5.0	2.90	0.6	40	16.9	2.30	2.30	14.50	33.40
1.0	26.0	5.0	3.00	0.6	40	14.1	2.75	2.75	15.00	41.32
1.0	31.0	5.0	3.00	0.6	40	12.8	3.03	3.03	15.00	45.47
1.0	36.0	5.0	3.20	0.6	40	11.6	3.34	3.34	16.00	53.46
1.0	41.0	5.0	3.20	0.6	40	12.8	3.03	3.03	16.00	48.50
1.0	46.0	5.0	3.20	0.6	40	13.4	2.90	2.90	16.00	46.35
1.0	51.0	5.0	3.40	0.6	40	15.4	2.52	2.52	17.00	42.92
1.0	56.0	5.0	3.20	0.6	40	17.1	2.28	2.28	16.00	36.43
1.0	61.0	5.0	3.20	0.6	40	16.8	2.32	2.32	16.00	37.07
1.0	66.0	5.0	3.00	0.6	40	24.1	1.62	1.62	15.00	24.37
1.0	71.0	5.0	3.00	0.6	40	26.0	1.51	1.51	15.00	22.62
1.0	76.0	5.0	2.60	0.6	40	23.9	1.64	1.64	13.00	21.29
1.0	81.0	5.0	2.60	0.6	40	35.8	1.10	1.10	13.00	14.35
1.0	86.0	5.0	2.60	0.6	40	40.6	0.98	0.98	13.00	12.70
1.0	91.0	5.0	2.40	0.6	40	44.9	0.89	0.89	12.00	10.63
1.0	96.0	5.0	2.10	0.6	30	54.4	0.56	0.56	10.50	5.88
1.0	101.0	5.0	1.80	0.6	20	42.1	0.49	0.49	9.00	4.38
1.0	106.0	5.0	1.40	0.6	20	47.8	0.43	0.43	7.00	3.03
1.0	111.0	5.0	1.10	0.6	10	27.4	0.38	0.38	5.50	2.10
1.0	116.0	5.0	1.10	0.6	10	33.0	0.32	0.32	5.50	1.77
	122.0									
									276.0	**533.2**

ESVI4_8-20-03 (IIHR6)

ESVI4_8-20-03 (TRIP 6)
Gage = 1.98' at 9:40
W = 56.0'

C factor	Dist from IP	w (ft)	d (ft)	%depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	0.0									
1.0	2.3	2.3	0.63	0.6	0	60.0	0.03	0.03	1.45	0.04
1.0	4.6	2.3	0.86	0.6	10	75.6	0.16	0.16	1.98	0.31
1.0	6.9	2.3	0.98	0.6	9	62.1	0.17	0.17	2.25	0.38
1.0	9.2	2.3	1.11	0.6	10	34.4	0.31	0.31	2.55	0.79
1.0	11.5	2.3	1.03	0.6	20	31.9	0.63	0.63	2.37	1.50
1.0	13.8	2.3	0.90	0.6	30	37.1	0.81	0.81	2.07	1.67
1.0	16.1	2.3	0.73	0.6	30	31.1	0.96	0.96	1.68	1.61
1.0	18.4	2.3	0.55	0.6	40	30.3	1.30	1.30	1.27	1.64
1.0	20.7	2.3	0.55	0.6	40	28.8	1.36	1.36	1.27	1.73
1.0	23.0	2.3	0.60	0.6	40	24.2	1.62	1.62	1.38	2.23
1.0	25.3	2.3	0.70	0.6	50	32.9	1.49	1.49	1.61	2.40
1.0	27.6	2.3	0.87	0.6	50	36.9	1.33	1.33	2.00	2.66
1.0	29.9	2.3	1.00	0.6	50	44.0	1.12	1.12	2.30	2.58
1.0	32.2	2.3	1.10	0.6	50	39.8	1.24	1.24	2.53	3.13
1.0	34.5	2.3	0.92	0.6	50	36.8	1.34	1.34	2.12	2.83
1.0	36.8	2.3	0.92	0.6	50	30.9	1.58	1.58	2.12	3.35
1.0	39.1	2.3	0.72	0.6	50	30.3	1.62	1.62	1.66	2.67
1.0	41.4	2.3	0.68	0.6	50	31.8	1.54	1.54	1.56	2.41
1.0	43.7	2.3	0.60	0.6	50	32.4	1.51	1.51	1.38	2.09
1.0	46.0	2.3	0.58	0.6	50	35.2	1.39	1.39	1.33	1.86
1.0	48.3	2.3	0.44	0.6	50	39.0	1.26	1.26	1.01	1.28
1.0	50.6	2.3	0.32	0.6	50	43.8	1.13	1.13	0.74	0.83
1.0	52.9	2.3	0.25	0.6	40	62.9	0.64	0.64	0.57	0.37
	56.0									
									39.2	**40.4**

GLDI4_7-17-03 (IIHR5)

GLDI4_7-17-03 (TRIP 5)
Gage = 11.16' at 09:30
W = 104.8'

C factor	Dist from IP	w (ft)	d (ft)	%depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	104.8									
0.96	100.8	4.0	0.8	0.6	17	42.2	0.91	0.91	3.20	2.78
0.97	96.6	4.2	1.5	0.6	20	40.4	1.11	1.11	6.30	6.78
0.98	92.4	4.2	1.8	0.6	21	41.0	1.15	1.15	7.56	8.50
0.98	88.2	4.2	3.0	0.6	21	40.5	1.16	1.16	12.60	14.34
0.99	84.0	4.2	3.1	0.2	38	40.5	2.09	1.91	13.02	24.63
0.99	84.0	0.0		0.8	32	41.1	1.73	0.00	0.00	0.00
1.00	79.8	4.2	3.0	0.6	40	40.3	2.21	2.21	12.60	27.80
1.00	75.6	4.2	3.0	0.6	38	40.8	2.07	2.07	12.60	26.10
1.00	71.4	4.2	3.0	0.6	40	40.8	2.18	2.18	12.60	27.47
1.00	67.2	4.2	2.9	0.6	39	40.2	2.16	2.16	12.18	26.27
1.00	63.0	4.2	2.7	0.6	42	40.7	2.29	2.29	11.34	26.01
1.00	58.8	4.2	3.1	0.6	34	40.9	1.85	1.85	13.02	24.10
1.00	54.6	4.2	2.8	0.6	39	40.3	2.15	2.15	11.76	25.31
1.00	50.4	4.2	3.0	0.6	38	40.9	2.07	2.07	12.60	26.04
1.00	46.2	4.2	3.4	0.2	41	40.3	2.26	2.08	14.28	29.75
1.00	46.2	0.0		0.8	35	40.9	1.90	0.00	0.00	0.00
1.00	42.0	4.2	3.6	0.2	41	40.2	2.27	2.09	15.12	31.61
1.00	42.0	0.0		0.8	35	40.7	1.91	0.00	0.00	0.00
1.00	37.8	4.2	3.3	0.2	42	40.4	2.31	2.12	13.86	29.41
1.00	37.8	0.0		0.8	35	40.3	1.93	0.00	0.00	0.00
1.00	33.6	4.2	3.7	0.2	42	40.9	2.28	2.09	15.54	32.46
1.00	33.6	0.0		0.8	35	41.1	1.90	0.00	0.00	0.00
1.00	29.4	4.2	3.4	0.2	38	40.0	2.11	1.89	14.28	27.02
1.00	29.4	0.0		0.8	30	40.0	1.67	0.00	0.00	0.00
1.00	25.2	4.2	3.3	0.2	25	40.9	1.37	1.42	13.86	19.70
1.00	25.2	0.0		0.8	27	40.8	1.48	0.00	0.00	0.00
1.00	21.0	4.2	2.9	0.6	7	44.5	0.36	0.36	12.18	4.44
1.00	16.8	4.2	3.0	0.6	16	40.2	0.90	0.90	12.60	11.28
1.00	12.6	4.2	3.5	0.2	29	41.2	1.57	1.12	14.70	16.53
1.00	12.6	0.0		0.8	13	43.4	0.68	0.00	0.00	0.00
1.00	8.4	4.2	2.4	0.6	24	40.4	1.33	1.33	10.08	13.39
1.00	4.2	4.2	1.9	0.6	18	40.5	1.00	1.00	7.98	7.96
	0									
									285.9	**489.7**

GLDI4_8-21-03 (IIHR6)

GLDI4_8-21-03 (TRIP 6)
Gage = 7.48' at 9:20
W = 46'

C factor	Dist from IP	w (ft)	d (ft)	%depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	0.0									
1.00	1.8	1.8	1.03	0.6	10	20.3	0.50	0.50	1.85	0.93
1.00	3.6	1.8	1.23	0.6	20	40.9	0.50	0.50	2.21	1.11
1.00	5.4	1.8	1.50	0.6	20	34.8	0.58	0.58	2.70	1.57
1.00	7.2	1.8	1.39	0.6	20	35.9	0.57	0.57	2.50	1.42
1.00	9.0	1.8	1.20	0.6	20	25.4	0.79	0.79	2.16	1.70
1.00	10.8	1.8	1.02	0.6	30	34.6	0.86	0.86	1.84	1.59
1.00	12.6	1.8	0.98	0.6	30	30.4	0.98	0.98	1.76	1.73
1.00	14.4	1.8	0.94	0.6	30	26.9	1.10	1.10	1.69	1.86
1.00	16.2	1.8	0.95	0.6	30	23.8	1.24	1.24	1.71	2.12
1.00	18.0	1.8	0.88	0.6	40	34.8	1.13	1.13	1.58	1.80
1.00	19.8	1.8	0.92	0.6	40	39.5	1.00	1.00	1.66	1.66
1.00	21.6	1.8	1.02	0.6	40	41.6	0.95	0.95	1.84	1.75
1.00	23.4	1.8	1.20	0.6	40	43.9	0.91	0.91	2.16	1.96
1.00	25.2	1.8	1.16	0.6	40	50.6	0.79	0.79	2.09	1.65
1.00	27.0	1.8	1.10	0.6	30	41.8	0.72	0.72	1.98	1.43
1.00	28.8	1.8	1.04	0.6	30	48.4	0.63	0.63	1.87	1.17
1.00	30.6	1.8	0.99	0.6	20	38.2	0.53	0.53	1.78	0.95
1.00	32.4	1.8	0.83	0.6	20	47.8	0.43	0.43	1.49	0.65
1.00	34.2	1.8	0.75	0.6	10	27.0	0.39	0.39	1.35	0.52
1.00	36.0	1.8	0.60	0.6	10	39.0	0.28	0.28	1.08	0.30
1.00	37.8	1.8	0.44	0.6	7	45.9	0.18	0.18	0.79	0.14
1.00	39.6	1.8	0.30	0.6	9	70.2	0.15	0.15	0.54	0.08
1.00	41.4	1.8	0.22	0.6	0		0.00	0.00	0.40	0.00
1.00	43.2	1.8	0.17	0.6	0		0.00	0.00	0.31	0.00
1.00	45.0	1.8	0.07	0.6	0		0.00	0.00	0.13	0.00
	46.0									
									39.5	**28.1**

LKCI4_7-11-03 (IIHR5)

LKCI4_7-11-03 (TRIP 5)
Gage = 18.46' at 09:55
W = 234.2'

C factor	Dist from IP	w (ft)	d (ft)	%depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	234.2									
1	225.6	8.6	0.0	weeds	0.0	0.0	0.00	0.00	0.0	0.0
1	216.2	9.4	3.0	weeds	0.0	0.0	0.00	0.00	28.2	0.0
1	206.8	9.4	2.5	weeds	0.0	0.0	0.00	0.00	23.5	0.0
1	197.4	9.4	4.9	0.2	4.0	45.4	0.21	0.16	46.1	7.4
1	197.4	0.0		0.8	2.0	49.2	0.11	0.00	0.0	0.0
1	188.0	9.4	7.8	0.2	13.0	42.2	0.70	0.63	73.3	46.3
1	188.0	0.0		0.8	10.0	40.2	0.57	0.00	0.0	0.0
1	178.6	9.4	8.9	0.2	25.0	40.3	1.39	1.59	83.7	133.1
1	178.6	0.0		0.8	33.0	40.9	1.80	0.00	0.0	0.0
1	169.2	9.4	11.4	0.2	22.0	40.3	1.22	1.13	107.2	120.9
1	169.2	0.0		0.8	19.0	41.2	1.03	0.00	0.0	0.0
1	159.8	9.4	11.4	0.2	69.0	40.4	3.78	3.62	107.2	387.9
1	159.8	0.0		0.8	63.0	40.4	3.46	0.00	0.0	0.0
1	150.4	9.4	10.9	0.2	92.0	40.2	5.06	5.02	102.5	514.5
1	150.4	0.0		0.8	90.0	40.0	4.98	0.00	0.0	0.0
1	141.0	9.4	11.0	0.2	100.0	40.3	5.49	4.74	103.4	489.9
1	141.0	0.0		0.8	72.0	40.0	3.99	0.00	0.0	0.0
1	131.6	9.4	12.3	0.2	108.0	40.0	5.97	5.31	115.6	613.8
1	131.6	0.0		0.8	85.0	40.5	4.65	0.00	0.0	0.0
1	122.2	9.4	12.0	0.2	111.0	40.2	6.11	5.63	112.8	635.5
1	122.2	0.0		0.8	94.0	40.3	5.16	0.00	0.0	0.0
1	112.8	9.4	13.5	0.2	113.0	40.1	6.23	5.61	126.9	711.7
1	112.8	0.0		0.8	91.0	40.4	4.98	0.00	0.0	0.0
1	103.4	9.4	13.9	0.2	120.0	40.0	6.63	5.61	130.7	732.7
1	103.4	0.0		0.8	83.0	40.1	4.58	0.00	0.0	0.0
1	94.0	9.4	13.4	0.2	114.0	40.3	6.26	5.80	126.0	730.2
1	94.0	0.0		0.8	97.0	40.2	5.34	0.00	0.0	0.0
1	84.6	9.4	13.2	0.2	120.0	40.0	6.63	5.82	124.1	722.3
1	84.6	0.0		0.8	91.0	40.2	5.01	0.00	0.0	0.0
1	75.2	9.4	12.8	0.2	70.0	40.2	3.86	4.71	120.3	566.4
1	75.2	0.0		0.8	101.0	40.2	5.56	0.00	0.0	0.0
1	65.8	9.4	14.7	0.2	87.0	40.5	4.75	4.24	138.2	586.2
1	65.8	0.0		0.8	68.0	40.4	3.73	0.00	0.0	0.0
1	56.4	9.4	16.6	0.2	105.0	40.2	5.78	5.06	156.0	790.2
1	56.4	0.0		0.8	79.0	40.2	4.35	0.00	0.0	0.0
1	47.0	9.4	16.0	0.2	119.0	40.3	6.53	4.72	150.4	709.3
1	47.0	0.0		0.8	53.0	40.5	2.90	0.00	0.0	0.0
1	37.6	9.4	16.3	0.2	113.0	40.1	6.23	6.13	153.2	939.9
1	37.6	0.0		0.8	110.0	40.3	6.04	0.00	0.0	0.0
1	28.2	9.4	15.2	0.2	100.0	40.1	5.52	5.38	142.9	768.6
1	28.2	0.0		0.8	95.0	40.1	5.24	0.00	0.0	0.0
1	18.8	9.4	11.0	0.2	94.0	40.2	5.17	4.35	103.4	449.5
1	18.8	0.0		0.8	64.0	40.3	3.52	0.00	0.0	0.0
1	9.4	9.4	4.5	0.2	13.0	44.5	0.66	0.41	42.3	17.4
1	9.4	0.0		0.8	4.0	62.2	0.16	0.00	0.0	0.0
	0.0									
									2417.7	**10673.7**

LKCI4_8-22-03 (IIHR6)

LKCI4_8-22-03 (TRIP 6)
Gage = 8.17' at 9:00
W = 58'

C factor	Dist from IP	w (ft)	d (ft)	%depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	0.0									
1.00	2.3	2.3	0.35	0.6	40	33.0	1.19	1.19	0.8	1.0
1.00	4.6	2.3	0.55	0.6	40	25.3	1.55	1.55	1.3	2.0
1.00	6.9	2.3	0.69	0.6	50	29.3	1.67	1.67	1.6	2.6
1.00	9.2	2.3	0.70	0.6	50	27.8	1.76	1.76	1.6	2.8
1.00	11.5	2.3	0.72	0.6	50	25.5	1.91	1.91	1.7	3.2
1.00	13.8	2.3	0.78	0.6	60	28.7	2.04	2.04	1.8	3.7
1.00	16.1	2.3	0.85	0.6	60	26.9	2.17	2.17	2.0	4.2
1.00	18.4	2.3	0.94	0.6	60	29.7	1.97	1.97	2.2	4.3
1.00	20.7	2.3	1.30	0.6	60	28.9	2.02	2.02	3.0	6.1
1.00	23.0	2.3	1.35	0.6	60	28.6	2.04	2.04	3.1	6.3
1.00	25.3	2.3	1.25	0.6	60	23.8	2.45	2.45	2.9	7.0
1.00	27.6	2.3	1.10	0.6	60	20.2	2.88	2.88	2.5	7.3
1.00	29.9	2.3	1.22	0.6	70	26.5	2.57	2.57	2.8	7.2
1.00	32.2	2.3	1.25	0.6	70	26.7	2.55	2.55	2.9	7.3
1.00	34.5	2.3	1.15	0.6	70	26.8	2.54	2.54	2.6	6.7
1.00	36.8	2.3	1.22	0.6	70	28.9	2.36	2.36	2.8	6.6
1.00	39.1	2.3	1.14	0.6	70	28.5	2.39	2.39	2.6	6.3
1.00	41.4	2.3	1.00	0.6	70	29.3	2.32	2.32	2.3	5.3
1.00	43.7	2.3	1.07	0.6	70	29.3	2.32	2.32	2.5	5.7
1.00	46.0	2.3	0.95	0.6	70	30.0	2.27	2.27	2.2	5.0
1.00	48.3	2.3	0.74	0.6	70	30.0	2.27	2.27	1.7	3.9
1.00	50.6	2.3	0.60	0.6	70	35.4	1.93	1.93	1.4	2.7
1.00	52.9	2.3	0.37	0.6	70	55.5	1.24	1.24	0.9	1.1
1.00	55.2	2.3	0.18	0.6	70	74.1	0.94	0.94	0.4	0.4
	58.0									
									49.4	**108.6**

NEPI4_7-23-03 (IIHR5)

NEPI4_7-23-03 (TRIP 5)
Gage = 14.29' at 10:00
W=89.0'

C factor	Dist from IP	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	0.0									
1.00	3.6	3.6	1.20	0.6	40	50.8	0.79	0.79	4.32	3.40
1.00	7.2	3.6	1.10	0.6	40	44.2	0.90	0.90	3.96	3.56
1.00	10.8	3.6	1.00	0.6	40	37.1	1.07	1.07	3.60	3.84
1.00	14.4	3.6	1.00	0.6	40	38.0	1.04	1.04	3.60	3.75
1.00	18.0	3.6	1.00	0.6	40	42.6	0.93	0.93	3.60	3.36
1.00	21.6	3.6	0.80	0.6	40	43.1	0.92	0.92	2.88	2.66
1.00	25.2	3.6	0.60	0.6	40	46.1	0.86	0.86	2.16	1.87
1.00	28.8	3.6	0.60	0.6	40	44.2	0.90	0.90	2.16	1.94
1.00	32.4	3.6	0.70	0.6	40	43.9	0.91	0.91	2.52	2.28
1.00	36.0	3.6	0.60	0.6	40	36.8	1.07	1.07	2.16	2.32
1.00	39.6	3.6	0.70	0.6	40	41.4	0.96	0.96	2.52	2.42
1.00	43.2	3.6	0.60	0.6	40	41.1	0.97	0.97	2.16	2.09
1.00	46.8	3.6	0.60	0.6	40	38.5	1.03	1.03	2.16	2.22
1.00	50.4	3.6	0.60	0.6	40	39.4	1.01	1.01	2.16	2.17
1.00	54.0	3.6	0.60	0.6	40	44.1	0.90	0.90	2.16	1.95
1.00	57.6	3.6	0.50	0.6	40	45.4	0.88	0.88	1.80	1.58
1.00	61.2	3.6	0.50	0.6	40	51.6	0.78	0.78	1.80	1.40
1.00	64.8	3.6	0.40	0.6	20	33.8	0.60	0.60	1.44	0.86
1.00	68.4	3.6	0.30	0.6	20	25.4	0.79	0.79	1.08	0.85
1.00	72.0	3.6	0.30	0.6	20	38.1	0.53	0.53	1.08	0.58
1.00	75.6	3.6	0.55	0.6	20	39.0	0.52	0.52	1.98	1.04
1.00	79.2	3.6	0.50	0.6	20	35.4	0.57	0.57	1.80	1.03
1.00	82.8	3.6	0.50	0.6	20	39.2	0.52	0.52	1.80	0.94
1.00	86.4	3.6	0.10	0.6	0	0.0	0.00	0.00	0.36	0.00
	89.0									
									55.3	**48.1**

NEPI4_8-26-03 (IIHR6)

NEPI4_8-26-03 (TRIP 6)
Gage = 13.73' at 9:30
W=37.0'

C factor	Dist from IP	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	0.0									
1.00	1.5	1.5	0.10	0.6	3 ft in 8 sec		0.38	0.38	0.15	0.06
1.00	3.0	1.5	0.35	0.6	30	39.2	0.77	0.77	0.53	0.40
1.00	4.5	1.5	0.50	0.6	30	35.6	0.84	0.84	0.75	0.63
1.00	6.0	1.5	0.60	0.6	30	35.2	0.85	0.85	0.90	0.76
1.00	7.5	1.5	0.58	0.6	30	49.8	0.61	0.61	0.87	0.53
1.00	9.0	1.5	0.18	0.6	30	49.9	0.61	0.61	0.27	0.16
1.00	10.5	1.5	0.20	0.6	20	51.9	0.40	0.40	0.30	0.12
1.00	12.0	1.5	0.18	0.6	20	32.8	0.62	0.62	0.27	0.17
1.00	13.5	1.5	0.19	0.6	20	59.2	0.36	0.36	0.29	0.10
1.00	15.0	1.5	0.20	0.6	20	40.9	0.50	0.50	0.30	0.15
1.00	16.5	1.5	0.25	0.6	20	38.3	0.53	0.53	0.38	0.20
1.00	18.0	1.5	0.30	0.6	20	29.3	0.69	0.69	0.45	0.31
1.00	19.5	1.5	0.30	0.6	20	34.7	0.58	0.58	0.45	0.26
1.00	21.0	1.5	0.31	0.6	20	30.2	0.67	0.67	0.47	0.31
1.00	22.5	1.5	0.32	0.6	20	33.2	0.61	0.61	0.48	0.29
1.00	24.0	1.5	0.34	0.6	20	25.0	0.80	0.80	0.51	0.41
1.00	25.5	1.5	0.32	0.6	20	28.6	0.70	0.70	0.48	0.34
1.00	27.0	1.5	0.36	0.6	20	34.9	0.58	0.58	0.54	0.31
1.00	28.5	1.5	0.36	0.6	20	33.3	0.61	0.61	0.54	0.33
1.00	30.0	1.5	0.24	0.6	20	34.5	0.59	0.59	0.36	0.21
1.00	31.5	1.5	0.31	0.6	20	37.8	0.54	0.54	0.47	0.25
1.00	33.0	1.5	0.35	0.6	20	29.3	0.69	0.69	0.53	0.36
1.00	34.5	1.5	0.56	0.6	20	28.7	0.70	0.70	0.84	0.59
1.00	36.0	1.5	0.36	0.6	20	35.9	0.57	0.57	0.54	0.31
	37.0									
									11.6	**7.6**

PROI4_7-11-03 (IIHR5)

PROI4_7-11-03 (TRIP 5)
Gage = 18.47' at 14:15
W = 373'

C factor	Dist from IP	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	373.0									
1.00	357.6	15.4	5.0	0.2	0	40.0	0.00	0.00	77.00	0.00
1.00	357.6	0.0		0.8	0	40.0	0.00	0.00	0.00	0.00
0.99	342.0	15.6	7.5	0.2	20	40.9	1.10	0.95	117.00	111.37
0.99	342.0	0.0		0.8	15	40.9	0.83	0.00	0.00	0.00
1.00	327.8	14.2	7.7	0.2	21	40.6	1.16	1.01	109.34	110.03
1.00	327.8	0.0		0.8	16	42.2	0.85	0.00	0.00	0.00
1.00	312.9	14.9	7.2	0.2	12	42.0	0.65	0.54	107.28	58.09
1.00	312.9	0.0		0.8	8	42.3	0.44	0.00	0.00	0.00
1.00	298.0	14.9	6.8	0.2	18	40.0	1.01	0.54	101.32	54.29
1.00	298.0	0.0		0.8	1	50.8	0.06	0.00	0.00	0.00
1.00	283.0	15.0	7.1	0.2	15	42.3	0.80	0.61	106.50	64.47
1.00	283.0	0.0		0.8	8	44.9	0.41	0.00	0.00	0.00
0.98	268.2	14.8	6.6	0.2	24	40.6	1.32	0.95	97.68	93.13
0.98	268.2	0.0		0.8	11	40.0	0.62	0.00	0.00	0.00
0.98	253.3	14.9	5.0	0.2	24	40.8	1.32	0.65	74.50	48.66
0.98	253.3	0.0		0.8	0	40.0	0.02	0.00	0.00	0.00
0.96	238.4	14.9	4.5	0.2	25	40.0	1.40	0.79	67.05	52.84
0.96	238.4	0.0		0.8	7	67.8	0.25	0.00	0.00	0.00
0.98	223.5	14.9	11.2	0.2	23	40.0	1.29	1.22	166.88	202.90
0.98	223.5	0.0		0.8	22	41.2	1.20	0.00	0.00	0.00
0.94	208.6	14.9	15.6	0.2	27	40.4	1.49	1.60	232.44	372.08
0.94	208.6	0.0		0.8	35	40.7	1.91	0.00	0.00	0.00
0.98	193.7	14.9	16.4	0.2	35	40.8	1.91	2.34	244.36	572.31
0.98	193.7	0.0		0.8	52	40.2	2.87	0.00	0.00	0.00
0.99	178.8	14.9	17.9	0.2	47	40.3	2.59	3.11	266.71	829.44
0.99	178.8	0.0		0.8	67	40.2	3.69	0.00	0.00	0.00
0.98	163.9	14.9	17.4	0.2	76	40.0	4.21	4.38	259.26	1136.05
0.98	163.9	0.0		0.8	86	40.2	4.74	0.00	0.00	0.00
0.98	149.0	14.9	18.4	0.2	79	40.1	4.36	4.48	274.16	1227.88
0.98	149.0	0.0		0.8	87	40.3	4.78	0.00	0.00	0.00
0.98	134.1	14.9	17.3	0.2	58	40.1	3.21	3.07	257.77	792.47
0.98	134.1	0.0		0.8	56	40.5	3.07	0.00	0.00	0.00
0.99	119.2	14.9	17.7	0.2	116	40.1	6.40	5.78	263.73	1523.11
0.99	119.2	0.0		0.8	96	40.3	5.27	0.00	0.00	0.00
0.98	104.3	14.9	17.9	0.2	123	40.0	6.80	5.85	266.71	1560.81
0.98	104.3	0.0		0.8	93	40.0	5.14	0.00	0.00	0.00
0.99	89.4	14.9	16.6	0.2	123	40.1	6.78	6.58	247.34	1626.89
0.99	89.4	0.0		0.8	118	40.1	6.51	0.00	0.00	0.00
0.99	74.5	14.9	17.4	0.2	122	40.2	6.71	6.39	259.26	1655.73
0.99	74.5	0.0		0.8	112	40.0	6.19	0.00	0.00	0.00
1.00	59.6	14.9	16.8	0.2	119	40.2	6.55	5.98	250.32	1495.91
1.00	59.6	0.0		0.8	98	40.1	5.41	0.00	0.00	0.00
1.00	44.7	14.9	16.3	0.2	90	40.4	4.93	3.95	242.87	959.67
1.00	44.7	0.0		0.8	54	40.3	2.97	0.00	0.00	0.00
1.00	29.8	14.9	13.4	0.2	66	40.4	3.62	3.64	199.66	726.41
1.00	29.8	0.0		0.8	66	40.0	3.66	0.00	0.00	0.00
1.00	14.9	14.9	6.3	0.2	41	40.8	2.23	1.68	93.87	157.43
1.00	14.9	0.0		0.8	20	40.0	1.12	0.00	0.00	0.00
	0.0									
									4383.0	**15432.0**

PROI4_8-21-03 (IIHR6)

PROI4_8-21-03 (TRIP 6)
Gage = 4.13' at 14:30
W = 165'

C factor	Dist from IP	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	165.0									
1.00	158.4	6.6	1.9	0.6	10	43.3	0.53	0.53	12.54	6.61
1.00	151.8	6.6	3.4	0.8	9	40.5	0.51	0.47	22.44	10.47
1.00	151.8	0.0		0.2	8	43.3	0.43	0.00	0.00	0.00
1.00	145.2	6.6	3.4	0.8	15	42.3	0.80	0.87	22.44	19.44
1.00	145.2	0.0		0.2	17	41.0	0.93	0.00	0.00	0.00
1.00	138.6	6.6	3.3	0.8	14	40.2	0.79	0.90	21.78	19.67
1.00	138.6	0.0		0.2	19	41.8	1.02	0.00	0.00	0.00
1.00	132.0	6.6	3.3	0.8	18	41.4	0.98	1.10	21.78	23.91
1.00	132.0	0.0		0.2	22	40.4	1.22	0.00	0.00	0.00
1.00	125.4	6.6	3.4	0.8	18	41.9	0.97	1.12	22.44	25.15
1.00	125.4	0.0		0.2	23	40.3	1.28	0.00	0.00	0.00
1.00	118.8	6.6	3.5	0.8	20	41.5	1.08	1.14	23.10	26.29
1.00	118.8	0.0		0.2	22	41.2	1.20	0.00	0.00	0.00
1.00	112.2	6.6	3.5	0.8	12	41.1	0.66	0.91	23.10	20.93
1.00	112.2	0.0		0.2	21	40.9	1.15	0.00	0.00	0.00
1.00	105.6	6.6	3.6	0.8	11	40.7	0.61	0.72	23.76	17.09
1.00	105.6	0.0		0.2	15	41.0	0.82	0.00	0.00	0.00
1.00	99.0	6.6	2.2	0.6	3	42.0	0.18	0.18	14.52	2.55
1.00	92.4	6.6	3.1	0.6	8	46.5	0.40	0.40	20.46	8.13
1.00	85.8	6.6	3.2	0.6	17	41.6	0.92	0.92	21.12	19.41
1.00	79.2	6.6	2.8	0.6	20	41.8	1.07	1.07	18.48	19.83
0.99	72.6	6.6	2.7	0.6	19	41.0	1.04	1.04	17.82	18.34
0.99	66.0	6.6	2.3	0.6	15	40.0	0.84	0.84	15.18	12.70
0.99	59.4	6.6	2.2	0.6	12	43.7	0.62	0.62	14.52	8.96
0.98	52.8	6.6	2.1	0.6	11	42.6	0.59	0.59	13.86	7.98
0.98	46.2	6.6	1.9	0.6	10	40.4	0.56	0.56	12.54	6.93
0.98	39.6	6.6	2.0	0.6	7	40.7	0.40	0.40	13.20	5.14
0.98	33.0	6.6	2.3	0.6	4	40.1	0.24	0.24	15.18	3.54
1.00	26.4	6.6	2.9	0.6	2	41.3	0.12	0.12	19.14	2.39
1.00	19.8	6.6	2.9	0.6	4	48.8	0.20	0.20	19.14	3.80
1.00	13.2	6.6	2.9	0.6	0	60.0	0.00	0.00	19.14	0.00
1.00	6.6	6.6	1.4	0.6	0	60.0	0.00	0.00	9.24	0.00
	0.0									
									436.9	**289.3**

STBI4_7-17-03 (IIHR5)

STBI4_7-17-03 (TRIP 5)
Gage = 6.44' at 13:30
W = 143.8'

C factor	Dist from IP	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	143.8									
0.98	139.2	4.6	1.7	0.6	2	40.8	0.13	0.13	7.82	0.97
0.98	133.4	5.8	2.4	0.6	30	40.2	1.66	1.66	13.92	22.69
0.98	127.6	5.8	2.5	0.6	35	40.0	1.95	1.95	14.50	27.67
0.98	121.8	5.8	2.5	0.6	35	40.7	1.91	1.91	14.50	27.20
0.98	116.0	5.8	2.6	0.6	41	40.8	2.23	2.23	15.08	33.01
0.98	110.2	5.8	3.1	0.6	44	40.8	2.40	2.40	17.98	42.22
0.98	104.4	5.8	3.6	0.2	59	40.4	3.24	2.38	20.88	48.78
0.98	104.4	0.0	3.6	0.8	29	42.3	1.53	0.00	0.00	0.00
0.98	98.6	5.8	3.8	0.2	66	40.5	3.61	3.18	22.04	68.59
0.98	98.6	0.0	3.8	0.8	50	40.5	2.74	0.00	0.00	0.00
0.98	92.8	5.8	4.3	0.2	71	40.1	3.92	3.42	24.94	83.50
0.98	92.8	0.0	4.3	0.8	53	40.4	2.91	0.00	0.00	0.00
0.98	87.0	5.8	3.1	0.6	78	40.0	4.32	4.32	17.98	76.08
0.99	81.2	5.8	3.0	0.6	50	40.2	2.76	2.76	17.40	47.55
0.99	75.4	5.8	2.4	0.6	78	40.5	4.26	4.26	13.92	58.77
0.99	69.6	5.8	2.5	0.6	87	40.0	4.81	4.81	14.50	69.10
0.99	63.8	5.8	2.4	0.6	82	40.1	4.53	4.53	13.92	62.39
0.99	58.0	5.8	2.5	0.6	88	40.2	4.84	4.84	14.50	69.55
0.98	52.2	5.8	2.4	0.6	94	40.1	5.19	5.19	13.92	70.76
0.99	46.4	5.8	2.8	0.6	94	40.1	5.19	5.19	16.24	83.39
0.99	40.6	5.8	2.9	0.6	92	40.2	5.06	5.06	16.82	84.33
0.99	34.8	5.8	2.7	0.6	80	40.2	4.41	4.41	15.66	68.31
1.00	29.0	5.8	2.7	0.6	9	40.4	0.51	0.51	15.66	7.97
1.00	23.2	5.8	2.3	0.6	10	42.7	0.53	0.53	13.34	7.13
0.99	17.4	5.8	3.2	0.6	18	41.3	0.98	0.98	18.56	17.99
0.98	11.6	5.8	3.6	0.6	49	40.9	2.66	2.66	20.88	54.42
1.00	5.8	5.8	2.2	0.6	12	40.0	0.68	0.68	12.76	8.67
	0.0									
									387.7	**1141.1**

STBI4_8-19-03 (IIHR6)

STBI4_8-19-03 (TRIP 6)
Gage = 5.32' at 11:45
W = 109'

C factor	Dist from IP	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	9.0									
1.00	13.4	4.4	0.3	0.6	40	35.4	1.12	1.12	1.32	1.47
1.00	17.8	4.4	0.6	0.6	40	42.6	0.93	0.93	2.64	2.46
1.00	22.2	4.4	0.8	0.6	40	46.6	0.86	0.86	3.52	3.01
1.00	26.6	4.4	0.8	0.6	40	26.5	1.48	1.48	3.52	5.21
1.00	31.0	4.4	0.8	0.6	40	29.9	1.32	1.32	3.52	4.63
1.00	35.4	4.4	0.7	0.6	40	24.5	1.60	1.60	3.08	4.92
1.00	39.8	4.4	0.8	0.6	40	21.8	1.79	1.79	3.52	6.31
1.00	44.2	4.4	0.7	0.6	40	24.6	1.59	1.59	3.08	4.90
1.00	48.6	4.4	1.0	0.6	40	24.3	1.61	1.61	4.40	7.09
1.00	53.0	4.4	1.1	0.6	40	37.7	1.05	1.05	4.84	5.08
1.00	57.4	4.4	1.2	0.6	40	29.5	1.33	1.33	5.28	7.04
1.00	61.8	4.4	1.0	0.6	40	28.4	1.38	1.38	4.40	6.09
1.00	66.2	4.4	1.1	0.6	40	38.0	1.04	1.04	4.84	5.04
1.00	70.6	4.4	1.1	0.6	40	31.9	1.23	1.23	4.84	5.98
1.00	75.0	4.4	1.0	0.6	40	36.6	1.08	1.08	4.40	4.75
1.00	79.4	4.4	0.9	0.6	40	38.3	1.03	1.03	3.96	4.09
1.00	83.8	4.4	1.0	0.6	40	41.4	0.96	0.96	4.40	4.22
1.00	88.2	4.4	1.1	0.6	40	35.4	1.12	1.12	4.84	5.40
1.00	92.6	4.4	1.1	0.6	40	35.4	1.12	1.12	4.84	5.40
1.00	97.0	4.4	1.0	0.6	40	44.3	0.90	0.90	4.40	3.95
1.00	101.4	4.4	1.0	0.6	40	42.2	0.94	0.94	4.40	4.14
1.00	105.8	4.4	0.7	0.6	20	26.9	0.74	0.74	3.08	2.29
1.00	110.2	4.4	0.5	0.6	20	26.5	0.76	0.76	2.20	1.66
1.00	114.6	4.4	0.3	0.6	10	59.2	0.19	0.19	1.32	0.25
	118.0									
									90.6	**105.4**

TAMI4_7-18-03 (IIHR5)

TAMI4_7-18-03 (TRIP 5)
Gage = 12.42' at 09:50
W = 198.8'

C factor	Dist from IP	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	198.8									
1.00	192.0	6.8	4.1	0.2	19	43.2	0.99	0.94	27.88	26.22
1.00	192.0	0.0		0.8	16	40.3	0.89	0.00	0.00	0.00
1.00	184.0	8.0	5.9	0.2	5	41.5	0.28	0.28	47.20	13.20
1.00	184.0	0.0		0.8	5	42.8	0.28	0.00	0.00	0.00
1.00	176.0	8.0	7.3	0.2	24	40.5	1.32	1.66	58.40	97.01
1.00	176.0	0.0		0.8	36	40.1	2.00	0.00	0.00	0.00
1.00	168.0	8.0	8.8	0.2	36	40.8	1.96	2.23	70.40	157.07
1.00	168.0	0.0		0.8	45	40.0	2.50	0.00	0.00	0.00
1.00	160.0	8.0	8.9	0.2	55	40.1	3.04	3.06	71.20	217.76
1.00	160.0	0.0		0.8	56	40.4	3.07	0.00	0.00	0.00
0.99	152.0	8.0	8.0	0.2	57	40.2	3.14	3.32	64.00	210.57
0.99	152.0	0.0		0.8	64	40.5	3.50	0.00	0.00	0.00
0.98	144.0	8.0	7.5	0.2	60	40.5	3.28	3.20	60.00	188.34
0.98	144.0	0.0		0.8	57	40.5	3.12	0.00	0.00	0.00
0.98	136.0	8.0	7.2	0.2	62	40.0	3.44	3.29	57.60	185.72
0.98	136.0	0.0		0.8	57	40.2	3.14	0.00	0.00	0.00
0.99	128.0	8.0	6.8	0.2	62	40.0	3.44	3.18	54.40	171.09
0.99	128.0	0.0		0.8	53	40.3	2.92	0.00	0.00	0.00
0.98	120.0	8.0	6.8	0.2	62	40.2	3.42	3.28	54.40	174.74
0.98	120.0	0.0		0.8	57	40.3	3.14	0.00	0.00	0.00
0.99	112.0	8.0	7.6	0.2	61	40.2	3.36	3.04	60.80	183.07
0.99	112.0	0.0		0.8	49	40.0	2.72	0.00	0.00	0.00
0.99	104.0	8.0	7.7	0.2	51	40.4	2.80	2.84	61.60	173.16
0.99	104.0	0.0		0.8	52	40.1	2.88	0.00	0.00	0.00
0.99	96.0	8.0	6.6	0.2	36	40.7	1.97	2.15	52.80	112.28
0.99	96.0	0.0		0.8	42	40.1	2.33	0.00	0.00	0.00
0.99	88.0	8.0	4.8	0.2	27	41.4	1.46	1.26	38.40	47.73
0.99	88.0	0.0		0.8	19	40.4	1.06	0.00	0.00	0.00
0.99	80.0	8.0	2.7	0.6	31	40.9	1.69	1.69	21.60	36.12
0.99	72.0	8.0	2.5	0.6	31	40.4	1.71	1.71	20.00	33.86
0.99	64.0	8.0	3.1	0.6	32	41.1	1.73	1.73	24.80	42.59
0.99	56.0	8.0	3.8	0.2	35	40.3	1.93	1.88	30.40	56.53
0.99	56.0	0.0		0.8	33	40.3	1.82	0.00	0.00	0.00
0.99	48.0	8.0	4.2	0.2	40	40.0	2.22	2.08	33.60	69.04
0.99	48.0	0.0		0.8	35	40.4	1.93	0.00	0.00	0.00
0.99	40.0	8.0	4.3	0.2	40	40.3	2.21	2.15	34.40	73.28
0.99	40.0	0.0		0.8	38	40.3	2.10	0.00	0.00	0.00
0.99	32.0	8.0	4.6	0.2	31	40.8	1.69	1.71	36.80	62.30
0.99	32.0	0.0		0.8	32	41.3	1.73	0.00	0.00	0.00
0.99	24.0	8.0	4.5	0.2	29	40.6	1.59	1.55	36.00	55.16
0.99	24.0	0.0		0.8	27	40.1	1.50	0.00	0.00	0.00
0.99	16.0	8.0	4.4	0.2	34	40.8	1.86	1.73	35.20	60.36
0.99	16.0	0.0		0.8	29	40.2	1.61	0.00	0.00	0.00
1.00	8.0	8.0	4.0	0.2	32	41.1	1.73	1.60	32.00	51.17
1.00	8.0	0.0		0.8	27	41.2	1.46	0.00	0.00	0.00
	0									
									1083.9	**2498.4**

TAMI4_8-26-03 (IIHR6)

TAMI4_8-26-03 (TRIP 6)
Gage = 8.12' at 15:00
W = 90'

C factor	Dist from IP	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	0.0									
1.00	3.6	3.6	0.70	0.6	17	44.0	0.40	0.40	2.52	1.01
1.00	7.2	3.6	0.96	0.6	20	21.7	0.92	0.92	3.46	3.16
1.00	10.8	3.6	1.23	0.6	20	18.6	1.06	1.06	4.43	4.71
1.00	14.4	3.6	1.56	0.6	40	32.2	1.22	1.22	5.62	6.87
1.00	18.0	3.6	1.87	0.6	40	30.5	1.29	1.29	6.73	8.68
1.00	21.6	3.6	2.10	0.6	40	29.8	1.32	1.32	7.56	9.98
1.00	25.2	3.6	2.00	0.6	40	25.9	1.51	1.51	7.20	10.90
1.00	28.8	3.6	2.06	0.6	40	25.7	1.53	1.53	7.42	11.31
1.00	32.4	3.6	2.16	0.6	40	22.8	1.72	1.72	7.78	13.34
1.00	36.0	3.6	2.06	0.6	40	24.2	1.62	1.62	7.42	12.00
1.00	39.6	3.6	2.04	0.6	40	24.5	1.60	1.60	7.34	11.74
1.00	43.2	3.6	2.06	0.6	40	23.4	1.67	1.67	7.42	12.40
1.00	46.8	3.6	2.12	0.6	40	23.1	1.69	1.69	7.63	12.92
1.00	50.4	3.6	2.26	0.6	40	25.3	1.55	1.55	8.14	12.60
1.00	54.0	3.6	2.22	0.6	40	22.3	1.75	1.75	7.99	14.01
1.00	57.6	3.6	2.03	0.6	40	25.3	1.55	1.55	7.31	11.32
1.00	61.2	3.6	2.48	0.6	40	24.5	1.60	1.60	8.93	14.27
1.00	64.8	3.6	2.65	0.6	40	22.6	1.73	1.73	9.54	16.51
1.00	68.4	3.6	2.99	0.6	40	22.3	1.75	1.75	10.76	18.87
1.00	72.0	3.6	2.92	0.6	40	27.3	1.44	1.44	10.51	15.11
1.00	75.6	3.6	2.75	0.6	40	24.4	1.60	1.60	9.90	15.89
1.00	79.2	3.6	2.50	0.6	40	22.4	1.75	1.75	9.00	15.71
1.00	82.8	3.6	1.95	0.6	40	22.9	1.71	1.71	7.02	11.99
1.00	86.4	3.6	1.63	0.6	20	29.2	0.69	0.69	5.87	4.04
	90.0									
									177.5	**269.3**

TOLI4_7-17-03 (IIHR5)

TOLI4_7-17-03 (TRIP 5)
Gage = 4.36' at 16:45
W = 51.0'

C factor	Dist from IP	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	0.0									
1.00	2.0	2.0	0.20	0.6	10.0	34.5	0.31	0.31	0.40	0.12
1.00	4.0	2.0	0.30	0.6	15.0	40.0	0.39	0.39	0.60	0.23
1.00	6.0	2.0	0.50	0.6	40.0	41.9	0.95	0.95	1.00	0.95
1.00	8.0	2.0	0.50	0.6	40.0	40.3	0.98	0.98	1.00	0.98
1.00	10.0	2.0	0.40	0.6	40.0	35.1	1.13	1.13	0.80	0.90
1.00	12.0	2.0	0.30	0.6	40.0	42.2	0.94	0.94	0.60	0.56
1.00	14.0	2.0	0.40	0.6	40.0	47.7	0.84	0.84	0.80	0.67
1.00	16.0	2.0	0.30	0.6	40.0	32.8	1.20	1.20	0.60	0.72
1.00	18.0	2.0	0.50	0.6	40.0	36.4	1.09	1.09	1.00	1.09
1.00	20.0	2.0	0.40	0.6	40.0	52.0	0.77	0.77	0.80	0.62
1.00	22.0	2.0	0.60	0.6	40.0	69.7	0.58	0.58	1.20	0.70
1.00	24.0	2.0	0.70	0.6	40.0	40.6	0.98	0.98	1.40	1.37
1.00	26.0	2.0	0.70	0.6	40.0	35.1	1.13	1.13	1.40	1.58
1.00	28.0	2.0	0.70	0.6	40.0	31.6	1.25	1.25	1.40	1.74
1.00	30.0	2.0	0.80	0.6	40.0	31.0	1.27	1.27	1.60	2.03
1.00	32.0	2.0	0.90	0.6	40.0	33.1	1.19	1.19	1.80	2.14
1.00	34.0	2.0	0.80	0.6	40.0	33.1	1.19	1.19	1.60	1.91
1.00	36.0	2.0	0.90	0.6	40.0	29.5	1.33	1.33	1.80	2.40
1.00	38.0	2.0	1.00	0.6	40.0	31.8	1.24	1.24	2.00	2.48
1.00	40.0	2.0	0.80	0.6	40.0	34.4	1.15	1.15	1.60	1.84
1.00	42.0	2.0	0.80	0.6	40.0	36.2	1.09	1.09	1.60	1.75
1.00	44.0	2.0	0.70	0.6	40.0	34.4	1.15	1.15	1.40	1.61
1.00	46.0	2.0	0.70	0.6	40.0	41.3	0.96	0.96	1.40	1.35
1.00	48.0	3.0	0.80	0.6	40.0	46.6	0.86	0.86	2.40	2.05
	51.0									
									30.2	**31.8**

TOLI4_8-22-03 (IIHR6)

TOLI4_8-22-03 (TRIP 6)
Gage = 4.03' at 14:00
W = 43'

C factor	Dist from IP	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	0.0									
1.00	1.7	1.7	0.34	0.6	9	30.6	0.31	0.31	0.58	0.18
1.00	3.4	1.7	0.40	0.6	10	27.7	0.38	0.38	0.68	0.26
1.00	5.1	1.7	0.25	0.6	10	34.5	0.31	0.31	0.43	0.13
1.00	6.8	1.7	0.28	0.6	20	40.9	0.50	0.50	0.48	0.24
1.00	8.5	1.7	0.28	0.6	20	50.7	0.41	0.41	0.48	0.20
1.00	10.2	1.7	0.25	0.6	20	44.2	0.47	0.47	0.43	0.20
1.00	11.9	1.7	0.23	0.6	20	39.2	0.52	0.52	0.39	0.20
1.00	13.6	1.7	0.34	0.6	20	43.3	0.47	0.47	0.58	0.27
1.00	15.3	1.7	0.30	0.6	20	37.1	0.55	0.55	0.51	0.28
1.00	17.0	1.7	0.32	0.6	20	43.7	0.47	0.47	0.54	0.26
1.00	18.7	1.7	0.35	0.6	20	51.2	0.41	0.41	0.60	0.24
1.00	20.4	1.7	0.33	0.6	20	44.1	0.47	0.47	0.56	0.26
1.00	22.1	1.7	0.32	0.6	20	38.9	0.52	0.52	0.54	0.29
1.00	23.8	1.7	0.36	0.6	20	44.8	0.46	0.46	0.61	0.28
1.00	25.5	1.7	0.32	0.6	20	32.0	0.63	0.63	0.54	0.34
1.00	27.2	1.7	0.37	0.6	20	37.8	0.54	0.54	0.63	0.34
1.00	28.9	1.7	0.40	0.6	20	36.7	0.55	0.55	0.68	0.38
1.00	30.6	1.7	0.35	0.6	20	42.7	0.48	0.48	0.60	0.29
1.00	32.3	1.7	0.43	0.6	20	39.4	0.52	0.52	0.73	0.38
1.00	34.0	1.7	0.46	0.6	20	33.7	0.60	0.60	0.78	0.47
1.00	35.7	1.7	0.50	0.6	20	45.7	0.45	0.45	0.85	0.38
1.00	37.4	1.7	0.62	0.6	20	42.9	0.48	0.48	1.05	0.50
1.00	39.1	1.7	0.65	0.6	20	45.0	0.46	0.46	1.11	0.51
1.00	40.8	1.7	0.75	0.6	20	40.5	0.51	0.51	1.28	0.64
	43.0									
									15.6	**7.5**

WDOM5_7-15-03 (IIHR5)

WDOM5_7-15-03 (TRIP 5)
Gage = 13.32' at 16:40
W = 82.9'

C factor	Dist from IP	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	82.9									
1.00	79.7	3.2	1.6	0.6	1	54.3	0.06	0.06	5.12	0.30
1.00	76.4	3.3	2.5	0.6	4	49.0	0.20	0.20	8.25	1.63
1.00	73.0	3.4	3.3	0.6	5	40.3	0.29	0.29	11.22	3.27
1.00	69.7	3.3	4.0	0.6	3	41.4	0.10	0.10	13.20	1.33
1.00	66.4	3.3	5.6	0.2	4	46.8	0.21	0.19	18.48	3.50
1.00	66.4	0.0		0.8	3	42.9	0.17	0.00	0.00	0.00
1.00	63.1	3.3	7.1	0.2	4	41.3	0.23	0.27	23.43	6.35
1.00	63.1	0.0		0.8	6	45.2	0.31	0.00	0.00	0.00
1.00	59.8	3.3	8.6	0.2	5	40.0	0.29	0.37	28.38	10.56
1.00	59.8	0.0		0.8	8	40.8	0.45	0.00	0.00	0.00
1.00	56.4	3.4	9.0	0.2	8	46.7	0.40	0.67	30.60	20.53
1.00	56.4	0.0		0.8	17	40.4	0.95	0.00	0.00	0.00
1.00	53.1	3.3	9.5	0.2	13	41.7	0.71	0.76	31.35	23.83
1.00	53.1	0.0		0.8	15	41.5	0.81	0.00	0.00	0.00
1.00	49.8	3.3	9.9	0.2	13	42.9	0.69	0.83	32.67	27.24
1.00	49.8	0.0		0.8	18	41.2	0.98	0.00	0.00	0.00
1.00	46.5	3.3	11.2	0.2	13	42.8	0.69	0.75	36.96	27.66
1.00	46.5	0.0		0.8	15	41.8	0.81	0.00	0.00	0.00
1.00	43.2	3.3	12.5	0.2	24	40.9	1.31	1.29	41.25	53.38
1.00	43.2	0.0		0.8	23	40.3	1.28	0.00	0.00	0.00
0.97	39.8	3.4	13.8	0.2	21	40.5	1.16	1.05	46.92	47.74
0.97	39.8	0.0		0.8	17	40.8	0.94	0.00	0.00	0.00
0.97	36.5	3.3	14.0	0.2	25	40.3	1.39	1.25	46.20	55.98
0.97	36.5	0.0		0.8	20	40.3	1.11	0.00	0.00	0.00
0.97	33.2	3.3	13.4	0.2	32	40.1	1.78	1.60	44.22	68.50
0.97	33.2	0.0		0.8	26	41.0	1.42	0.00	0.00	0.00
0.97	29.9	3.3	12.6	0.2	25	40.9	1.37	1.26	41.58	50.85
0.97	29.9	0.0		0.8	21	40.7	1.16	0.00	0.00	0.00
0.98	26.6	3.3	11.0	0.2	27	40.8	1.48	1.37	36.30	48.60
0.98	26.6	0.0		0.8	23	41.0	1.25	0.00	0.00	0.00
0.99	23.2	3.4	10.2	0.2	26	40.5	1.43	1.16	34.68	39.80
0.99	23.2	0.0		0.8	16	40.7	0.88	0.00	0.00	0.00
0.99	19.9	3.3	8.8	0.2	20	41.3	1.09	1.03	29.04	29.75
0.99	19.9	0.0		0.8	18	41.1	0.98	0.00	0.00	0.00
0.99	16.6	3.3	7.4	0.2	10	44.0	0.52	0.56	24.42	13.63
0.99	16.6	0.0		0.8	11	41.1	0.61	0.00	0.00	0.00
1.00	13.3	3.3	6.1	0.2	10	45.4	0.50	0.37	20.13	7.49
1.00	13.3	0.0		0.8	5	49.6	0.24	0.00	0.00	0.00
1.00	10.0	3.3	3.6	0.2	13	41.8	0.70	0.48	11.88	5.73
1.00	10.0	0.0		0.8	5	45.4	0.26	0.00	0.00	0.00
1.00	6.6	3.4	2.2	0.6	8	44.4	0.42	0.42	7.48	3.11
1.00	3.3	3.3	1.0	0.6	5	51.7	0.23	0.23	3.30	0.76
	0.0									
									627.1	**551.5**

WDOM5_8-19-03 (IIHR6)

WDOM5_8-19-03 (TRIP 6)
Gage = 11.20' at 18:15
W = 73'

C factor	Dist from IP	w (ft)	d (ft)	% depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	73.0									
1.00	69.6	3.4	0.9	0.6	3	51.3	0.15	0.15	3.06	0.45
1.00	66.7	2.9	1.5	0.6	0	60.0	0.00	0.00	4.35	0.00
1.00	63.8	2.9	2.6	0.6	0	60.0	0.00	0.00	7.54	0.00
1.00	60.9	2.9	3.7	0.6	0	60.0	0.00	0.00	10.73	0.00
1.00	58.0	2.9	4.5	0.6	2	83.1	0.07	0.07	13.05	0.93
1.00	55.1	2.9	5.2	0.6	2	62.6	0.09	0.09	15.08	1.33
1.00	52.2	2.9	6.3	0.6	2	49.9	0.11	0.11	18.27	1.94
1.00	49.3	2.9	6.8	0.6	1	44.8	0.07	0.07	19.72	1.33
1.00	46.4	2.9	7.8	0.6	0	60.0	0.00	0.00	22.62	0.00
1.00	43.5	2.9	8.6	0.6	2	41.4	0.12	0.12	24.94	3.11
1.00	40.6	2.9	9.2	0.6	0	60.0	0.00	0.00	26.68	0.00
1.00	37.7	2.9	10.0	0.6	4	53.4	0.18	0.18	29.00	5.31
1.00	34.8	2.9	10.7	0.6	0	60.0	0.00	0.00	31.03	0.00
1.00	31.9	2.9	11.0	0.6	4	48.4	0.20	0.20	31.90	6.39
1.00	29.0	2.9	11.5	0.6	0	60.0	0.00	0.00	33.35	0.00
1.00	26.1	2.9	11.3	0.6	0	60.0	0.00	0.00	32.77	0.00
1.00	23.2	2.9	10.4	0.6	0	60.0	0.00	0.00	30.16	0.00
1.00	20.3	2.9	8.7	0.6	4	53.1	0.18	0.18	25.23	4.64
1.00	17.4	2.9	8.2	0.6	4	45.7	0.21	0.21	23.78	5.02
1.00	14.5	2.9	7.0	0.6	1	40.4	0.07	0.07	20.30	1.47
1.00	11.6	2.9	5.7	0.6	0	60.0	0.00	0.00	16.53	0.00
1.00	8.7	2.9	4.5	0.6	2	67.8	0.08	0.08	13.05	1.08
1.00	5.8	2.9	2.7	0.6	0	60.0	0.00	0.00	7.83	0.00
1.00	2.9	2.9	1.4	0.6	0	60.0	0.00	0.00	4.06	0.00
	0.0									
									465.0	**33.0**

WWDI4_7-10-03 (IIHR5)

WWDI4_7-10-03 (TRIP 5)
Gage = 18.90' at 15:30
W = 105'

C factor	Dist from IP	w (ft)	d (ft)	%depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	105.0									
0.99	96.6	8.4	2.9	0.6	15	40.1	0.84	0.84	24.4	20.3
0.99	92.4	4.2	5.2	0.2	19	40.1	1.06	0.90	21.8	19.4
0.99		0.0		0.8	15	46.3	0.73	0.00	0.0	0.0
0.99	88.2	4.2	6.8	0.2	20	40.5	1.11	0.99	28.6	28.0
0.99		0.0		0.8	16	41.3	0.87	0.00	0.0	0.0
0.99	84.0	4.2	6.3	0.2	46	40.1	2.55	2.85	26.5	74.8
0.99		0.0		0.8	58	40.7	3.16	0.00	0.0	0.0
0.99	79.8	4.2	6.6	0.2	73	40.1	4.03	3.88	27.7	106.4
0.99		0.0		0.8	68	40.5	3.72	0.00	0.0	0.0
1	75.6	4.2	6.0	0.2	78	40.3	4.29	3.82	25.2	96.2
1		0.0		0.8	61	40.4	3.35	0.00	0.0	0.0
1	71.4	4.2	7.5	0.2	91	40.4	4.98	4.21	31.5	132.6
1		0.0		0.8	62	40.0	3.44	0.00	0.0	0.0
1	67.2	4.2	7.3	0.2	96	40.2	5.28	4.60	30.7	141.1
1		0.0		0.8	71	40.1	3.92	0.00	0.0	0.0
1	63.0	4.2	7.0	0.2	103	40.1	5.68	5.02	29.4	147.6
1		0.0		0.8	79	40.1	4.36	0.00	0.0	0.0
1	58.8	4.2	6.6	0.2	103	40.1	5.68	5.30	27.7	147.0
1		0.0		0.8	89	40.0	4.92	0.00	0.0	0.0
1	54.6	4.2	6.6	0.2	104	40.0	5.75	5.32	27.7	147.5
1		0.0		0.8	89	40.3	4.89	0.00	0.0	0.0
1	50.4	4.2	7.9	0.2	93	40.0	5.14	4.73	33.2	157.0
1		0.0		0.8	78	40.0	4.32	0.00	0.0	0.0
1	46.2	4.2	8.5	0.2	91	40.3	5.00	4.83	35.7	172.5
1		0.0		0.8	85	40.3	4.67	0.00	0.0	0.0
1	42.0	4.2	8.9	0.2	82	40.3	4.50	4.37	37.4	163.5
1		0.0		0.8	77	40.2	4.24	0.00	0.0	0.0
1	37.8	4.2	9.5	0.2	79	40.2	4.35	4.18	39.9	166.8
1		0.0		0.8	73	40.3	4.01	0.00	0.0	0.0
1	33.6	4.2	9.5	0.2	77	40.2	4.24	4.04	39.9	161.0
1		0.0		0.8	70	40.5	3.83	0.00	0.0	0.0
1	29.4	4.2	9.5	0.2	66	40.3	3.63	3.60	39.9	143.7
1		0.0		0.8	65	40.3	3.57	0.00	0.0	0.0
1	25.2	4.2	9.3	0.2	59	40.5	3.23	3.51	39.1	137.2
1		0.0		0.8	69	40.3	3.79	0.00	0.0	0.0
1	21.0	4.2	8.6	0.2	47	40.4	2.58	2.77	36.1	99.9
1		0.0		0.8	54	40.6	2.95	0.00	0.0	0.0
1	16.8	4.2	7.4	0.2	46	40.6	2.52	2.37	31.1	73.6
1		0.0		0.8	41	41.0	2.22	0.00	0.0	0.0
1	12.6	4.2	5.3	0.2	48	40.2	2.65	2.48	22.3	55.3
1		0.0		0.8	42	40.3	2.32	0.00	0.0	0.0
1	8.4	4.2	3.0	0.6	35	40.2	1.94	1.94	12.6	24.4
1	4.2	4.2	1.6	0.6	23	40.6	1.27	1.27	6.7	8.5
	0									
									675	**2424**

WWDI4_8-21-03 (IIHR6)

WWDI4_8-21-03 (TRIP 6)
Gage = 10.84' at 12:45
W = 19'

C factor	Dist from IP	w (ft)	d (ft)	%depth	Rev	Time (sec)	V (ft/s)	Vc (ft/s)	a (sq ft)	q (cfs)
	0.0									
1.00	0.8	0.8	0.10	0.6	8	37.5	0.24	0.24	0.1	0.0
1.00	1.6	0.8	0.11	0.6	12	41.3	0.31	0.31	0.1	0.0
1.00	2.4	0.8	0.20	0.6	30	55.3	0.55	0.55	0.2	0.1
1.00	3.2	0.8	0.20	0.6	20	44.4	0.46	0.46	0.2	0.1
1.00	4.0	0.8	0.23	0.6	20	26.7	0.75	0.75	0.2	0.1
1.00	4.8	0.8	0.23	0.6	20	25.0	0.80	0.80	0.2	0.1
1.00	5.6	0.8	0.34	0.6	20	16.7	1.18	1.18	0.3	0.3
1.00	6.4	0.8	0.35	0.6	40	30.5	1.29	1.29	0.3	0.4
1.00	7.2	0.8	0.38	0.6	40	28.3	1.39	1.39	0.3	0.4
1.00	8.0	0.8	0.38	0.6	40	26.4	1.49	1.49	0.3	0.5
1.00	8.8	0.8	0.40	0.6	40	25.4	1.54	1.54	0.3	0.5
1.00	9.6	0.8	0.45	0.6	40	21.3	1.83	1.83	0.4	0.7
1.00	10.4	0.8	0.55	0.6	50	28.8	1.70	1.70	0.4	0.7
1.00	11.2	0.8	0.50	0.6	50	24.2	2.01	2.01	0.4	0.8
1.00	12.0	0.8	0.50	0.6	50	27.8	1.76	1.76	0.4	0.7
1.00	12.8	0.8	0.55	0.6	50	27.2	1.80	1.80	0.4	0.8
1.00	13.6	0.8	0.55	0.6	50	27.0	1.81	1.81	0.4	0.8
1.00	14.4	0.8	0.55	0.6	50	25.9	1.88	1.88	0.4	0.8
1.00	15.2	0.8	0.55	0.6	50	26.9	1.82	1.82	0.4	0.8
1.00	16.0	0.8	0.38	0.6	50	29.6	1.65	1.65	0.3	0.5
1.00	16.8	0.8	0.35	0.6	50	31.7	1.55	1.55	0.3	0.4
1.00	17.6	0.8	0.20	0.6	20	26.2	0.76	0.76	0.2	0.1
1.00	18.4	0.8	0.06	0.6	0	40.0	0.00	0.00	0.0	0.0
	19.0									
									6.5	**9.7**