JERICHO DIAMOND PROJECT
2005 AQUATIC EFFECTS MONITORING PROGRAM REPORT

Prepared for

Tahera Diamond Corporation
Toronto, Ontario

By

Mainstream Aquatics Ltd.
6956 Roper Road
Edmonton, Alberta
T6B 3H9

March 2006

mainstream
AQUATICS LTD

Citation: Mainstream Aquatics Ltd. 2006. Jericho Diamond Project 2005 Aquatic Effects Monitoring Program Report. Prepared for Tahera Diamond Corporation. Report No. 05013F: 97 p.

ACKNOWLEDGEMENTS

Mainstream Aquatics Ltd. would like to thank Cheryl Wray and Mike Tanguay, Health, Safety and Environment Managers for the Jericho Diamond Mine, for their assistance. Thanks go to Kevin Osmond of Tahera Diamond Corporation who assisted with logistical support during the field program.

The individuals associated with Mainstream Aquatics Ltd. who participated in the study were as follows:

Steph Neufeld	Project Biologist and Primary Author
Karl Zimmer	Project Biologist and Coauthor
Rick Pattenden	Project Manager and Editor
Chantal Pattenden	Senior Technician
Charlene Hinkel	Technician
Darrien Genereux	Technician

Responsibilities during the 2005 Jericho AEMP were as follows:

Mainstream Aquatics	- Collection of aquatic biota and sedimentation samples - Data analyses and reporting
Tahera Diamond Corporation	- Collection of water quality samples - Collection of winter dissolved oxygen profiles
AMEC Laboratories (Edmonton, AB)	- Water quality sample analyses
Envirotest Laboratories (Vancouver, BC)	- Water quality sample analyses
Norwest Laboratories (Surrey, BC)	- Fish tissue metal analyses
Dave Beliveau	- Phytoplankton
Emil Dratnal	- Benthic invertebrate identification
Barbara Dratnal	- Zooplankton

This page left intentionally blank.

TABLE OF CONTENTS

Page #
ACKNOWLEDGEMENTS ..... **i**
TABLE OF CONTENTS ..... **iii**
LIST OF TABLES ..... **v**
LIST OF FIGURES ..... **vii**
1.0 INTRODUCTION **1**
1.1 BACKGROUND 1
1.2 PURPOSE AND OBJECTIVES 1
1.3 STUDY AREA 1
2.0 DESIGN **5**
2.1 STREAM C1 WATER TEMPERATURE 5
2.2 WATER CHEMISTY 5
2.2.1 Parameters 5
2.2.2 Waterbodies and Stations 7
2.2.3 Frequency and Replication 7
2.3 SEDIMENT CHEMISTRY 10
2.4 DISSOLVED OXYGEN AND TEMPERATURE PROFILES 10
2.4.1 Parameters 10
2.4.2 Waterbodies and Stations 10
2.4.3 Frequency and Replication 11
2.5 SECCHI DEPTH 11
2.6 SEDIMENT DEPOSITION 11
2.6.1 Parameters 11
2.6.2 Stations and Locations 11
2.6.3 Frequency and Replication 15
2.7 AQUATIC BIOTA 15
2.7.1 Parameters 15
2.7.2 Stations and Locations 15
2.7.3 Frequency and Replication 17
3.0 METHODS **21**
3.1 STREAM C1 WATER TEMPERATURE 21
3.2 WATER CHEMISTRY 21
3.2.1 Field 21
3.2.2 Laboratory 22
3.3 DISSOLVED OXYGEN AND TEMPERATURE 23
3.4 SECCHI DEPTH 23
3.5 SEDIMENT DEPOSITION 23
3.5.1 Field 23
3.5.2 Laboratory 23
3.6 PHYTOPLANKTON 24
3.6.1 Field 24

3.6.2 Laboratory 25
3.7 ZOOPLANKTON 26
3.7.1 Field 26
3.7.2 Laboratory 26
3.8 BENTHIC MACROINVERTEBRATES 27
3.8.1 Field 27
3.8.2 Laboratory 27
3.9 FISH 28
3.9.1 Field 28
3.9.2 Laboratory 30
3.10 QUALITY ASSURANCE 31
3.10.1 Nonvertebrate Aquatic Biota 31
3.10.2 Fish Tissues 31
3.11 DATA ANALYSES 32
4.0 RESULTS 35
4.1 STREAM C1 WATER TEMPERATURE 35
4.2 WATER CHEMISTRY 37
4.2.1 Carat Lake Freshwater Intake (JERWQ1) 37
4.2.2 PKCA Discharge (JERWQ2) 38
4.2.3 Aquatics Effects Monitoring 39
4.3 DISSOLVED OXYGEN AND TEMPERATURE 53
4.4 SECCHI DEPTH 53
4.5 SEDIMENT DEPOSITION 57
4.6 PHYTOPLANKTON 58
4.7 ZOOPLANKTON 62
4.8 BENTHIC MACROINVERTEBRATES 67
4.9 FISH TISSUE 71
4.10 FISH COMMUNITY CHARACTERISTICS 80
4.10.1 Fish Community 80
4.10.2 Biological Characteristics 82
5.0 SUMMARY 91
6.0 LITERATURE CITED 95

APPENDIX A – Water Quality
APPENDIX B – Water Temperature
APPENDIX C – Depth Profiles
APPENDIX D - Sedimentation
APPENDIX E - Phytoplankton
APPENDIX F - Zooplankton
APPENDIX G – Benthic Macroinvertebrates
APPENDIX H – Fish Sampling
APPENDIX I – Fish Tissue
APPENDIX J – Sampling Precision

LIST OF TABLES

Page #

Table 1.1 Discharge sources, potential mode of entry, and receiving waterbodies by Project phase, Jericho Diamond Project. 3
Table 2.1 Water chemistry monitoring parameters and detection limits, 2005 Jericho AEMP. 5
Table 2.2 Water chemistry monitoring stations and purpose, 2005 Jericho AEMP. 7
Table 2.3 Water chemistry monitoring frequency, 2005 Jericho AEMP. 9
Table 2.4 Frequency of sampling dates, 2005 Jericho AEMP. 10
Table 2.5 Dissolved oxygen monitoring stations and waterbodies, 2005 Jericho AEMP. 11
Table 2.6 Sediment deposition monitoring stations and waterbodies, 2005 Jericho AEMP. 12
Table 2.7 Monitored indicators and parameters, 2005 Jericho AEMP. 15
Table 2.8 Detection limits for fish tissue metal contaminants, 2005 Jericho AEMP. 16
Table 2.9 Aquatic biota monitoring stations, waterbody, and location, 2005 Jericho AEMP 17
Table 2.10 Sampling timing and replication for aquatic biota, 2005 Jericho AEMP. 17
Table 4.1 Selected water chemistry parameters for monitoring station JERWQ1 and comparisons to drinking water quality guidelines, 2005 Jericho AEMP. 38
Table 4.2 Water chemistry parameters for monitoring station JERWQ2 and comparisons to effluent quality requirements, 2005 Jericho AEMP. 39
Table 4.3 Physical test parameters mean values and standard deviations for water quality monitoring sites in the summer season (late-May to late-September). 41
Table 4.4 Dissolved anions and nutrient mean concentrations (mg/L) and standard deviations for water quality monitoring sites in the summer season (late-May to late-September). 42
Table 4.5 Dissolved metal mean concentrations (mg/L) and standard deviations for water quality monitoring sites in the summer season (late-May to late-September). 43
Table 4.6 Dissolved metal mean concentrations and standard deviations for water quality monitoring sites in the summer season (late-May to late-September). 44
Table 4.7 Total metal mean concentrations and standard deviations for water quality monitoring sites in the summer season (late-May to late-September). 45
Table 4.8 Total metal mean concentrations (mg/L) and standard deviations for water quality monitoring sites in the summer season (late-May to late-September). 46
Table 4.9 Physical test parameters values for water quality monitoring sites monitored in July only. 47
Table 4.10 Anion and nutrient concentrations for water quality monitoring sites monitored in July only. 47
Table 4.11 Dissolved metal concentrations for water quality monitoring sites monitored in July only. 48
Table 4.12 Total metal concentrations for water quality monitoring sites monitored in July only. 48
Table 4.13 Sites that met the criteria for statistical analyses (n=4, >3 samples above detection limit) for a given parameter. Sites with x met the criteria and sites with - did not. 49

Table 4.14 Number of parameters and percent error between duplicates taken by Tahera, 2005 Jericho AEMP. 52
Table 4.15 Number of parameters and percent error between laboratory duplicates, Jericho AEMP, 2005. 52
Table 4.16 Sediment deposition data at stations monitored between 2004 and 2005, 2005 Jericho AEMP. 57
Table 4.17 Phytoplankton parameter summary metrics at stations, 2005 Jericho AEMP..... 58
Table 4.18 Zooplankton parameter summary metrics at stations, 2005 Jericho AEMP. 63
Table 4.19 Benthic macroinvertebrate parameter summary metrics at stations, 2005 Jericho AEMP. 67
Table 4.20 Summary of biological characteristics of fish collected for tissue metal contaminants, 2005 Jericho AEMP. 72
Table 4.21 Number of fish tissue samples above analytical detection limits for selected metals associated with potential mine discharge, 2005 Jericho AEMP. 73
Table 4.22 Linear regression of metal concentrations in tissues and fish age for selected metals that met the criteria for minimum sample size ($n \geq 4$ above detection limit) of the monitored waterbodies, 2005 Jericho AEMP..... 73
Table 4.23 Metal concentrations in fish tissue summary metrics, 2005 Jericho AEMP. 74
Table 4.24 Statistical comparisons of mean metal concentrations in fish tissues, 2005 Jericho AEMP. 78
Table 4.25 Percent difference in metal concentrations between processed and quality control samples, 2005 Jericho AEMP..... 80
Table 4.26 Fish species recorded in the Jericho Study Area in 2005. 80
Table 4.27 Gill net catch rates while sampling for tissue fish in 2005, Jericho AEMP. 81
Table 4.28 Backpack electrofishing catch rates during sampling for slimy sculpin tissue fish in 2005, Jericho AEMP. 82
Table 4.29 Density estimates of fish in Stream C1 and Stream C3, 2005 Jericho AEMP. 82
Table 4.30 Median, maximum, and minimum fork length and age of fish species captured by gill netting in 2005, Jericho AEMP. 83
Table 4.31 Median, maximum and minimum length of fish species captured by backpack electrofishing, 2005 Jericho AEMP. 85
Table 4.32 Mean Fulton body condition index (K) of fish collected by gill net in 2005, Jericho AEMP. 88
Table 4.33 Sex ratios and percent maturity of fish captured by gill netting in 2005, Jericho AEMP 88
Table 4.34 Maturity and gonad weight of sampled fish, 2005 Jericho AEMP..... 89

LIST OF FIGURES

Page #

Figure 1.1 Location of project components and monitored waterbodies, 2005 Jericho AEMP. 2

Figure 2.1. Water chemistry monitoring stations, 2005 Jericho AEMP. 8

Figure 2.2 Dissolved oxygen profile monitoring stations, 2005 Jericho AEMP. 13

Figure 2.3 Sediment deposition monitoring stations, 2005 Jericho AEMP. 14

Figure 2.4 Sedentary aquatic biota monitoring stations, 2005 Jericho AEMP. 18

Figure 2.5 Nonsedentary aquatic biota monitoring stations, 2005 Jericho AEMP. 19

Figure 4.1 Mean, minimum, and maximum daily temperatures recorded in Stream C1 from 7 July to 23 August, 2005 Jericho AEMP. 36

Figure 4.2 Dissolved oxygen and temperature profiles at stations monitored in April 2005, Jericho AEMP. 54

Figure 4.3 Dissolved oxygen and temperature profiles at stations monitored in July 2005, Jericho AEMP. 55

Figure 4.4 Dissolved oxygen and temperature profiles at stations monitored in August 2005, Jericho AEMP. 56

Figure 4.5 Phytoplankton parameter summary metrics at stations, 2005 Jericho AEMP. 59

Figure 4.6 Zooplankton parameter summary metrics at stations, 2005 Jericho AEMP. 64

Figure 4.7 Benthic macroinvertebrate parameter summary metrics at stations, 2005 Jericho AEMP. 68

Figure 4.8 Selected metal contaminants in lake trout tissues summary metrics, 2005 Jericho AEMP. 75

Figure 4.9 Selected metal contaminants in round whitefish tissues summary metrics, 2005 Jericho AEMP. 76

Figure 4.10 Selected metal contaminants in slimy sculpin whole fish tissues summary metrics, 2005 Jericho AEMP. 77

Figure 4.11 Length-at-age relationships of lake trout and round whitefish tissue fish sampled in Cigar Lake and Jericho Lake in 2005, Jericho AEMP. 84

Figure 4.12 Length-weight relationships of lake trout, round whitefish, and Arctic char captured by gill netting in Cigar Lake, 2005 Jericho AEMP. 86

Figure 4.13 Length-weight relationships of lake trout, round whitefish, and Arctic char captured by gill netting in Jericho Lake, 2005 Jericho AEMP. 87

This page left intentionally blank.

1.0 INTRODUCTION

1.1 BACKGROUND

The Jericho Diamond Project was initiated in 1995 based on the discovery of a kimberlite pipe adjacent to the southern shore of an unnamed lake (locally known as Carat Lake). The Jericho Diamond Project has undergone environmental review by the Nunavut Impact Review Board (NIRB), which recommended that the Project be approved, subject to several terms and conditions. NIRB issued a Project Certificate on 20 July 2004 after receiving approval from the Minister of Indian and Northern Affairs. The conditions include development and implementation of a comprehensive environmental monitoring program, part of which includes an Aquatic Effects Monitoring Program (AEMP). The Nunavut Water Board (NWB) issued Water License NWBJER0410 on 22 December 2004 pursuant to DIAND ministerial approval which was received on 26 January 2005. NWB adopted the NIRB recommendations regarding the AEMP. This document presents the results of the aquatic biota component of the 2005 Jericho AEMP. A detailed discussion of the rationale and design of the Jericho AEMP is presented in Mainstream and AMEC (2005).

1.2 PURPOSE AND OBJECTIVES

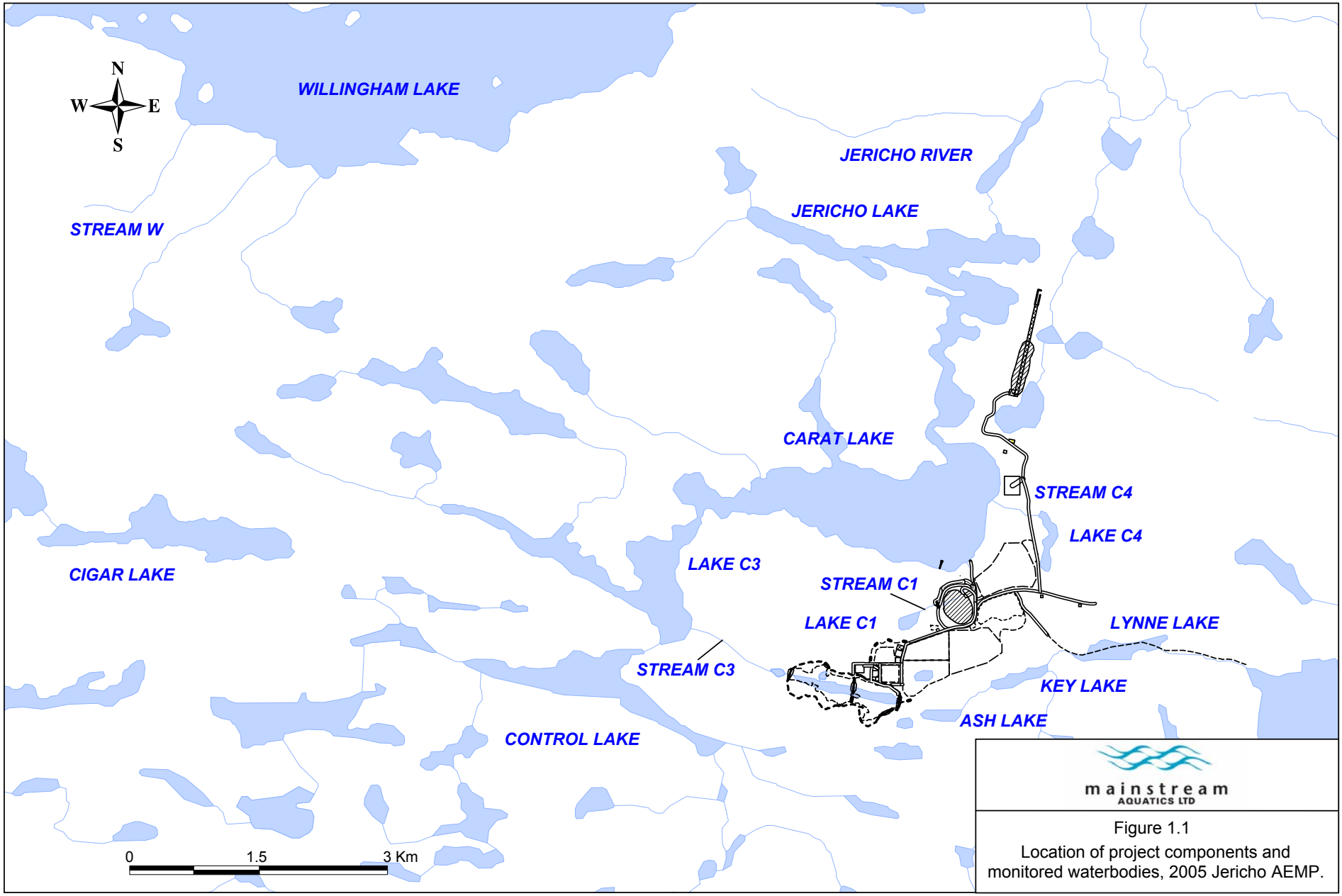
The purpose of an AEMP is to monitor the potential effects of the Jericho Diamond Project on the aquatic environment. The goals of the program are to:

- Protect the health and integrity of the aquatic environment.
- Confirm impact predictions.
- Ascertain whether mitigation measures are effective.
- Adjust mitigation where appropriate.

The objective of the 2005 Jericho AEMP was to continue the collections of baseline data that describe selected components of the aquatic environment. Where appropriate, comparisons are made to 2004 data.

1.3 STUDY AREA

The ore bearing deposit and mine infrastructure is located immediately south of Carat Lake (Figure 1.1). Potential contaminant sources that could affect the aquatic environment, the mode of transport, and the receiving waterbodies are listed in Table 1.1. The modes of transport are licensed discharge, surface runoff, and airborne dust. In general the constituents of concern are nutrients, contaminants, and sediments.



mainstream AQUATICS LTD

Figure 1.1
Location of project components and monitored waterbodies, 2005 Jericho AEMP.

Licensed discharge from the Processed Kimberlite Containment Area will be released into Lake C3 via Stream C3. Surface runoff and airborne contaminants have the potential to enter lakes and streams depending on the source.

Table 1.1 Discharge sources, potential mode of entry, and receiving waterbodies by Project phase, Jericho Diamond Project.

Phase	Source	Mode[a]	Receiving Waterbodies
Construction	• Processed Kimberlite Containment Area[b]	• Discharge	• Stream C3 and Lake C3
	• Stream C1 diversion	• Runoff	• Stream C1 and Carat Lake
	• Drainage ditch to Lake C4	• Runoff	• Lake C4, Stream C4, and Carat Lake
	• Permanent road	• Runoff	• Stream C4 and Carat Lake
	• Waste rock dump	• Airborne	• Lynne Lake
Operation[c]	• Discharge from PKCA	• Discharge	• Stream C3 and Lake C3
	• Stream C1 Diversion	• Runoff	• Stream C1 and Carat Lake
	• Drainage ditch to Lake C4	• Runoff	• Stream C4, Lake C4, and Carat Lake
	• Waste rock dump	• Airborne	• Lynne Lake
Post-closure	• Discharge from reclaimed PKCA	• Runoff	• Stream C3 and Lake C3
	• Mine site runoff	• Runoff	• Lake C1, Stream C1, and Carat Lake
	• Mine pit water discharge	• Runoff	• Stream C1 and Carat Lake

[a] Discharge - licensed discharge into receiving waterbodies; Runoff - unanticipated discharge; Airborne - dust.
[b] PKCA – Processed Kimberlite Containment Area
[c] Mine site runoff will be collected and directed to the PKCA for release.

Receiving waterbodies are placed into two groups based on location and flow direction. The Jericho River group is part of the Jericho River system, which flows in a northerly direction to the Kathawachaga River system situated approximately 15 km downstream of the Project. Waterbodies monitored in this group include Lake C3, Carat Lake, Jericho Lake, Jericho River, Lake C1, Lake C4, Stream C4, Stream C3, and Stream C1.

The Lynne Lake group consists of a series of small waterbodies and ephemeral watercourses situated immediately east and north of the Project, which drain into Contwoyto Lake. Waterbodies monitored in this group include Ash Lake, Key Lake, and Lynne Lake.

Two control lakes are incorporated in the AEMP to provide data from nonaffected waterbodies. These include Control Lake located immediately upstream of Lake C3 and Cigar Lake located outside the watershed, 10 km west of the Project. A control stream was added to the aquatic biota AEMP to allow collection of slimy sculpin for metal tissue contaminants. Stream W, which flows into Willingham Lake is located 5 km north of Cigar Lake.

This page left intentionally blank.

2.0 DESIGN

2.1 STREAM C1 WATER TEMPERATURE

Water temperature monitoring on Stream C1 was initiated on 7 July. Water temperatures were monitored on an hourly basis until thermograph removal on 23 August.

2.2 WATER CHEMISTY

2.2.1 Parameters

Table 2.1 provides a list of water chemistry parameters that were analysed at each site together with detection limits. Both total and dissolved metals were analysed.

Table 2.1 Water chemistry monitoring parameters and detection limits, 2005 Jericho AEMP.

Water Quality Parameter	Detection Limits (mg/L or parameter units)
Physical Tests	
Conductivity (µS/cm) (field and lab)	2
Hardness ($CaCO_3$)	6
pH (field and lab)	0.01
Hydroxide	0.01
Total Suspended Solids	3
Total Dissolved Solids	10
Turbidity (NTU)	1
Temperature (°C)	1
ORP	
Dissolved Anions	
Alkalinity-Total $CaCO_3$	5
Acidity ($CaCO_3$)	1
Carbonate (CO_3)	1
Bicarbonate (HCO_3)	1
Chloride (Cl)	1
Sulphate (SO_4)	0.5
Nutrients	
Nitrate (NO_3)	0.05
Nitrite (NO_2)	0.05
Ammonia (NH_3)	0.10
Total Dissolved Phosphorus	0.005
Total Phosphorus	0.050
Orthophosphate	0.2

Table 2.1 Water chemistry monitoring parameters and detection limits, 2005 Jericho AEMP.

Water Quality Parameter	Detection Limits (mg/L or parameter units)
Total & Dissolved Metals	
Aluminum (Al)	0.02
Arsenic (As)	0.0004
Barium (Ba)	0.0005
Beryllium (Be)	0.0005
Boron (B)	0.01
Cadmium (Cd)	0.0001
Calcium (Ca)	0.05
Chromium (Cr)	0.0009
Cobalt (Co)	0.0001
Copper (Cu)	0.001
Iron (Fe)	0.03
Lead (Pb)	0.0001
Magnesium (Mg)	0.05
Manganese (Mn)	0.01
Mercury (Hg)	0.0001
Molybdenum (Mo)	0.0005
Nickel (Ni)	0.0006
Potassium (K)	0.5
Selenium (Se)	0.0008
Sodium (Na)	0.5
Strontium (Sr)	0.0001
Uranium (U)	0.00005
Vanadium (Va)	0.0001
Zinc (Zn)	0.002
Organic Parameters	
Total Organic Carbon (TOC)	0.01
Total Inorganic Carbon (TIC)[a]	1
Biological Parameters	
Biological Oxygen Demand (BOD) [a]	
Fecal Coliform[a]	

[a] This parameter was added to the original AEMP parameters as per NWB conditions.

Parameters measured in the field for each station are as follows:

- Sampler's name
- Station number
- Single or replicate samples
- Date and time
- Type and number of sample bottles filled
- pH
- Water temperature
- Conductivity
- Any other field measurements

All information was kept in a field log book and data entered into a water quality database kept by the mine environmental coordinator.

2.2.2 Waterbodies and Stations

A list of water chemistry monitoring stations as well as the purpose for monitoring is presented in Table 2.2. Figure 2.1 depicts the locations of the water chemistry monitoring stations.

Table 2.2 Water chemistry monitoring stations and purpose, 2005 Jericho AEMP.

Station	Location	Purpose
JER-WQ1	Freshwater Intake	Compliance with water license; monitor quality
JER-WQ2	PKCA Discharge	Compliance with water license
JER-WQ3	Stream C3 above Mouth	Near field PKCA discharge
JER-WQ20	Stream C3 outlet in Lake C3	Near field PKCA discharge; aquatic biota
JER-WQ4	Lake C3 South Basin	Near field PKCA discharge
JER-WQ5	Lake C3 Outlet	Far field PKCA discharge
JER-WQ6	Carat Lake Centre Basin	Near field near mine non-discharge effects
JER-WQ7	Carat Lake Outlet	Far field near mine non-discharge effects
JER-WQ8	Jericho Lake North Basin	Far field
JER-WQ9	Jericho River Downstream of Jericho Lake	Far field on IOL
JER-WQ10	Control Lake	Upstream control
JER-WQ11	Cigar Lake (2nd Control)	Outside basin control
JER-WQ19	Stream C1 outlet in Carat Lake	Near field; near mine discharge; aquatic biota
JER-WQ12	Stream C1 above Mouth	Near mine, non-discharge effects
JER-WQ13	Lake C1	Near mine, non-discharge effects[a]
JER-WQ14	Lake C4	Near mine, non-discharge effects[a]
JER-WQ15	Stream C4 above Mouth	Near mine, non-discharge effects[a]
JER-WQ16	Lynne Lake	Near mine, non-discharge effects
JER-WQ17	Key Lake	Near mine, non-discharge effects
JER-WQ18	Ash Lake	Near mine, non-discharge effects

[a] Non-discharge includes surface runoff, accidental spill, and airborne dust.

2.2.3 Frequency and Replication

Table 2.3 lists the water chemistry monitoring frequency during each phase at each station.

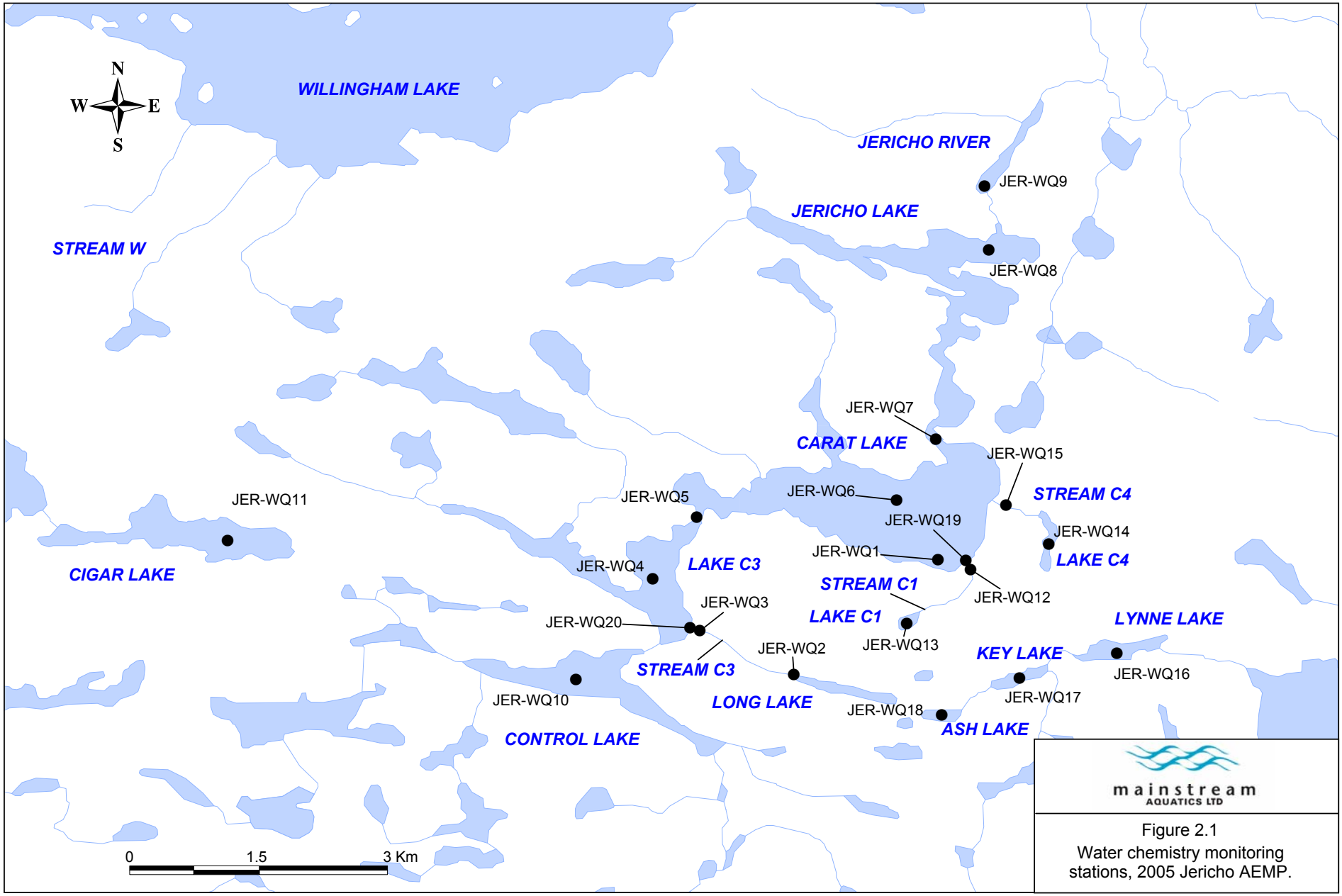


Figure 2.1
Water chemistry monitoring stations, 2005 Jericho AEMP.

Table 2.3 Water chemistry monitoring frequency, 2005 Jericho AEMP.

Station	Location	Phase	Water Chemistry	Frequency
JER-WQ1	Carat Lake Freshwater Intake	Pre-construction Construction Operation	 PW	 M2
JER-WQ2	PKCA Discharge	Pre-construction		
		Construction	Turbity (correlate with TSS)	D
		Operation	R, ICP-T, ICP-D, N, B	W, M2
JER-WQ3	Stream C3 Upstream of Lake C3	Pre-construction	R, ICP-T, ICP-D, N	M2
		Construction	R, ICP-T, ICP-D, N	M2
		Operation	R, ICP-T, ICP-D, N	M2
JER-WQ4	Lake C3 South Basin	Pre-construction	R, ICP-T, ICP-D, N, DO	A1
		Construction	R, ICP-T, ICP-D, N	M1
		Operation	R, ICP-T, ICP-D, N	M1
JER-WQ5	Lake C3 Outlet	Pre-construction		
		Construction	R, ICP-T, ICP-D, N	M2
		Operation	R, ICP-T, ICP-D, N	M2
JER-WQ6	Carat Lake Centre Basin	Pre-construction	DO	A1
		Construction	R, ICP-T, ICP-D, N	M1
		Operation	R, ICP-T, ICP-D, N	M1
JER-WQ7	Carat Lake Outlet	Pre-construction		
		Construction	R, ICP-T, ICP-D, N	M2
		Operation	R, ICP-T, ICP-D, N	M2
JER-WQ8	Jericho Lake North Basin	Pre-construction	R, ICP-T, ICP-D, N, DO	A1
		Construction	R, ICP-T, ICP-D, N	M1
		Operation	R, ICP-T, ICP-D, N	M1
JER-WQ9	Jericho River Downstream of Jericho Lake	Pre-construction		
		Construction	R, ICP-T, ICP-D, N	M1
		Operation	R, ICP-T, ICP-D, N	M1
JER-WQ10	Control Lake	Pre-construction		
		Construction	R, ICP-T, ICP-D, N	M1
		Operation	R, ICP-T, ICP-D, N	M1
JER-WQ11	Cigar Lake (2nd Control)	Pre-construction		
		Construction	R, ICP-T, ICP-D, N	M1
		Operation	R, ICP-T, ICP-D, N	M1
JER-WQ12	Stream C1 Upstream of Carat Lake	Pre-construction		
		Construction	R, ICP-T, ICP-D, N	M2
		Operation	R, ICP-T, ICP-D, N	M2
JER-WQ13	Lake C1	Pre-construction	R, ICP-T, ICP-D, N, DO	A1
		Construction	R, ICP-T, ICP-D, N	M1
		Operation	R, ICP-T, ICP-D, N	M1
JER-WQ14	Lake C4	Pre-construction	R, ICP-T, ICP-D, N, DO	A1
		Construction	R, ICP-T, ICP-D, N	M2
		Operation	R, ICP-T, ICP-D, N	M2
JER-WQ15	Stream C4 Upstream of Carat Lake	Pre-construction		
		Construction	R, ICP-T, ICP-D, N	M2
		Operation	R, ICP-T, ICP-D, N	M2
JER-WQ16	Lynne Lake	Pre-construction		
		Construction		
		Operation	R, ICP-T, ICP-D, N	A2
JER-WQ17	Key Lake	Pre-construction		
		Construction		
		Operation	R, ICP-T, ICP-D, N	A2
JER-WQ18	Ash Lake	Pre-construction		
		Construction		
		Operation	R, ICP-T, ICP-D, N	A2
JER-WQ19	Stream C1 outlet in Carat Lake	Pre-construction		
		Construction		
		Operation	R, ICP-T, ICP-D, N	A2
JER-WQ20	Stream C3 outlet in Lake C3	Pre-construction		
		Construction		
		Operation	R, ICP-T, ICP-D, N	A2

A1: Annual Once in Winter M1: Monthly: Mid-Apr, Jun, Jul, Aug, Sep, Mid-Dec W: Weekly
A2: Annual Once in Summer M2: Monthly: Jun, Jul, Aug, Sep D: Daily

The frequency of sampling dates is listed in Table 2.4.

Table 2.4 Frequency of sampling dates, 2005 Jericho AEMP.

Station	Location	Frequency Class	2005 Sampling Dates
JER-WQ1	Carat Lake Freshwater Intake	M2	June, July (2), Aug, Sept
JER-WQ2	PKCA Discharge	W, M2	June, July, Aug, Sept
JER-WQ3	Stream C3 Upstream of Lake C3	M2	June, July, Aug, Sept
JER-WQ4	Lake C3 South Basin	M1	May, June, July, Aug, Sept, Dec
JER-WQ5	Lake C3 Outlet	M2	June, July, Aug, Sept
JER-WQ6	Carat Lake Centre Basin	M1	May, July, Aug, Sept
JER-WQ7	Carat Lake Outlet	M2	June, July, Aug, Sept
JER-WQ8	Jericho Lake North Basin	M1	May, July, Aug, Sept
JER-WQ9	Jericho River Downstream of Jericho Lake	M1	June, July, Aug, Sept, Dec
JER-WQ10	Control Lake	M1	May, July, Aug, Dec
JER-WQ11	Cigar Lake (2nd Control)	M1	May, July, Aug, Dec
JER-WQ12	Stream C1 Upstream of Carat Lake	M2	June(2), July, Aug, Sept
JER-WQ13	Lake C1	M1	May, June, July, Aug
JER-WQ14	Lake C4	M2	June, July, Aug, Sept
JER-WQ15	Stream C4 Upstream of Carat Lake	M2	June, July, Aug
JER-WQ16	Lynne Lake	A2	July
JER-WQ17	Key Lake	A2	July
JER-WQ18	Ash Lake	A2	July
JER-WQ19	Stream C1 outlet in Carat lake	A2	July
JER-WQ20	Stream C3 outlet in Lake C3	A2	July

2.3 SEDIMENT CHEMISTRY

Sediment chemistry data were to be collected in 2005 as per specifications in the Jericho AEMP (Mainstream and AMEC 2005). Sediment chemistry data were not collected in 2005.

2.4 DISSOLVED OXYGEN AND TEMPERATURE PROFILES

2.4.1 Parameters

Parameters include dissolved oxygen (mg/L) and water temperature (^{o}C).

2.4.2 Waterbodies and Stations

Dissolved oxygen and temperature profiles were taken at specific stations on several waterbodies including two control stations (Control Lake and Cigar Lake), two near-field stations (Lake C3 and Carat Lake), and one far-field station (Jericho Lake) (Table 2.5, Figure 2.2).

Table 2.5 Dissolved oxygen monitoring stations and waterbodies, 2005 Jericho AEMP.

Station	Waterbody	Purpose
JER-DO10	Control Lake	Upstream control
JER-DO11	Cigar Lake	Out of basin control
JER-DO04	Lake C3	Near-field; PKCA discharge
JER-DO06	Carat Lake	Near-field; Stream C1 discharge
JER-DO08	Jericho Lake	Far-field

2.4.3 Frequency and Replication

Sampling at each of the stations listed in Table 2.5 was completed once in winter and two times in summer.

2.5 SECCHI DEPTH

Secchi depths were measured at the phytoplankton and zooplankton monitoring stations listed in Table 2.9.

2.6 SEDIMENT DEPOSITION

2.6.1 Parameters

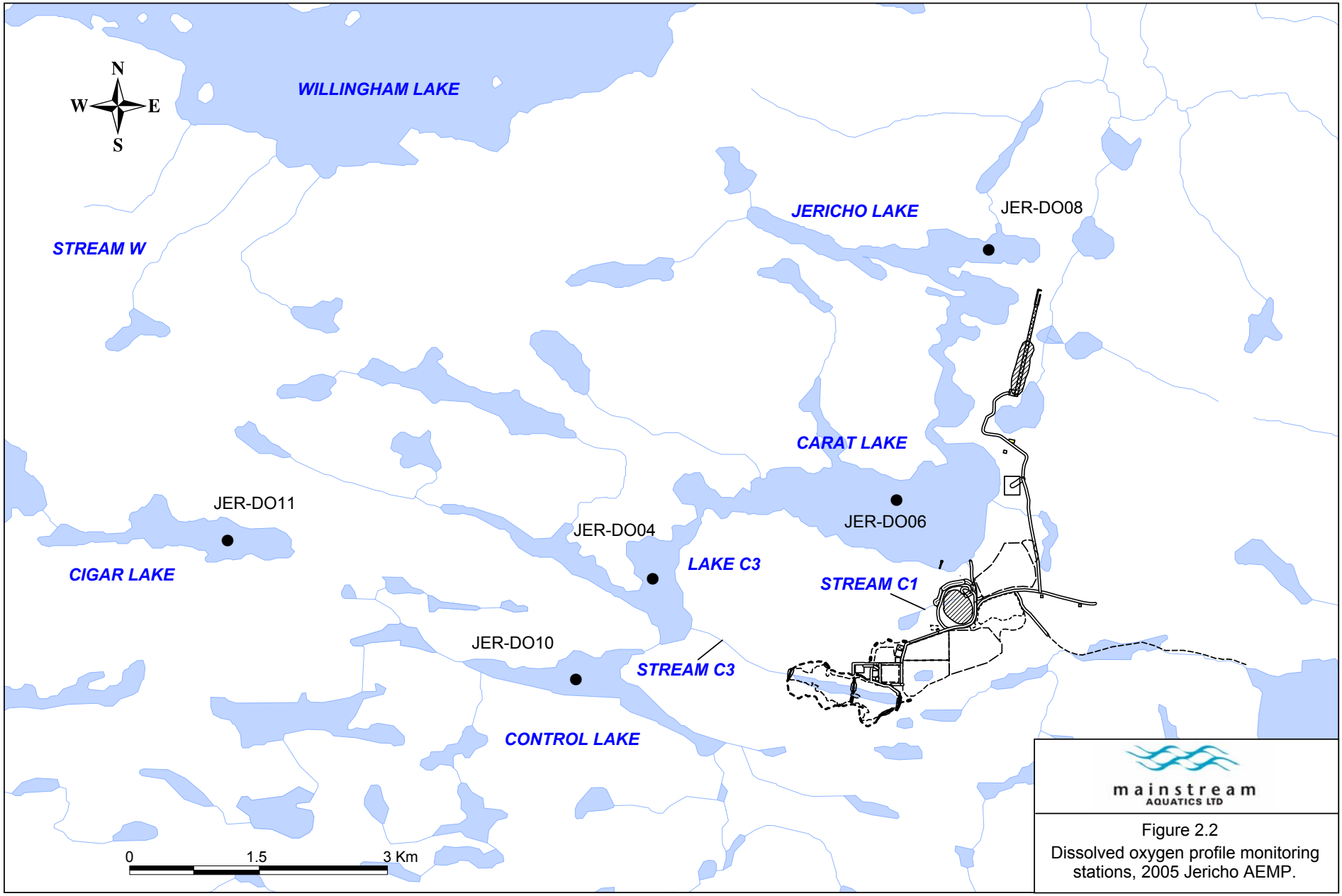
Parameters investigated include weight of sediment deposited and sediment deposition rate.

2.6.2 Stations and Locations

Station locations are listed in Table 2.6 and illustrated in Figure 2.3. The majority of sediment traps were deployed in August, 2004. Traps at SD21, SD22, and SD05 were deployed between 11 and 12 July 2005.

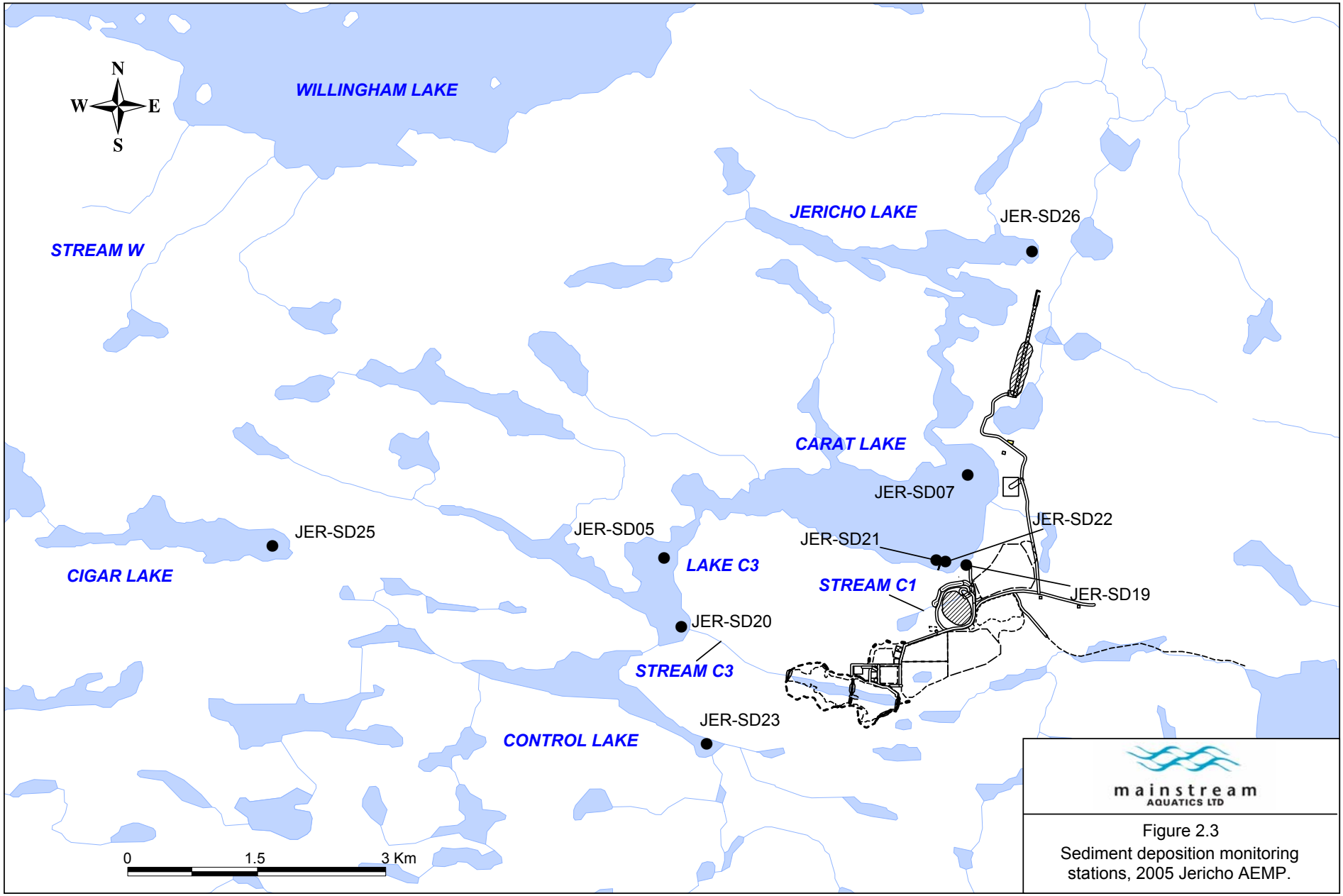
Table 2.6 Sediment deposition monitoring stations and waterbodies, 2005 Jericho AEMP.

Station	Waterbody	Purpose
JER-SD23	Control Lake	Upstream control
JER-SD25	Cigar Lake	Outside basin control
JER-SD20	Lake C3 at Stream C3	Near-field; PKCA discharge
JER-SD05	Lake C3 outlet	Far-field; PKCA discharge
JER-SD19	Carat Lake at Stream C1	Near-field; Stream C1 discharge
JER-SD21	Carat Lake west of causeway	Near-field; causeway effects
JER-SD22	Carat Lake east of causeway	Near-field; causeway effects
JER-SD07	Carat Lake outlet	Far-field; Stream C1 discharge
JER-SD26	Jericho Lake	Far-field



mainstream AQUATICS LTD

Figure 2.2
Dissolved oxygen profile monitoring stations, 2005 Jericho AEMP.



mainstream AQUATICS LTD

Figure 2.3
Sediment deposition monitoring stations, 2005 Jericho AEMP.

2.6.3 Frequency and Replication

One sediment deposition sample was collected from each station annually.

2.7 AQUATIC BIOTA

2.7.1 Parameters

Parameters monitored for aquatic biota are listed in Table 2.7. Analytical detection limits for metal contaminants in fish tissues are listed in Table 2.8.

Table 2.7 Monitored indicators and parameters, 2005 Jericho AEMP.

Indicator	Parameter
Phytoplankton	Taxa richness; taxa diversity; density; biovolume; biomass index (Chl. *a*)
Zooplankton	Taxa richness; taxa diversity; density; biomass
Benthic invertebrates	Taxa richness; taxa diversity; density
Sediment deposition	Sediment weight
Fish	Metal contaminants • muscle and liver (lake trout and round whitefish) • whole body (slimy sculpin) Community characteristics • age distribution • size distribution • sexual maturity • condition

2.7.2 Stations and Locations

Station locations and the biotic aquatic indicators monitored are listed in Table 2.9 and illustrated in Figures 2.4 and 2.5.

Station location is based on the type of indicator monitored. Sedentary indicators are benthic invertebrates and slimy sculpin. Sedentary indicator stations and types are as follows:

1) Adjacent to source (near-field)
   a) Stream C3 outlet in Lake C3 (JER-AB20)
   b) Stream C1 outlet in Carat Lake (JER-AB19)
2) Downstream and outside the immediate zone of potential effect (far-field)
   a) Outlet to Carat Lake (JER-AB07)
   b) Jericho Lake (JER-AB26)
   c) Outlet to Lake C3 (JER-AB05)

3) Outside the zone of any potential effect (control)
   a) Cigar Lake (JER-AB25)
   b) Control Lake (JER-AB23)
   c) Stream W (JER-AB24)

Table 2.8 Detection limits for fish tissue metal contaminants, 2005 Jericho AEMP.

Metal	Abbreviation	Detection Limit (µg/g)	Metal	Abbreviation	Detection[a] Limit (µg/g)
Aluminum	Al	0.2	Manganese	Mn	0.07
Antimony	Sb	0.50	Mercury	Hg	0.01
Arsenic	As	0.20	Molybdenum	Mo	0.02
Barium	Ba	0.02	Nickel	Ni	0.03
Beryllium	Be	0.01	Selenium	Se	0.15
Bismuth	Bi	0.40	Silver	Ag	0.10
Cadmium	Cd	0.02	Strontium	Sr	0.02
Chromium	Cr	0.03	Titanium	Ti	0.04
Cobalt	Co	0.02	Vanadium	V	0.10
Copper	Cu	0.05	Zinc	Zn	0.10
Iron	Fe	0.5	Moisture		0.1%
Lead	Pb	0.20			
Lithium	Li	0.08			

[a] Detection limits were sample specific. To standardize between samples the highest detection limit for all samples (as listed above) was used.

Nonsedentary indicators are phytoplankton, zooplankton, lake trout, and round whitefish. Nonsedentary indicator stations and types are as follows:

1) Waterbody adjacent to source (near-field)
   a) Lake C3 (JER-AB04)
   b) Carat Lake (JER-AB06)
2) Waterbody outside the immediate zone of potential effect (far-field)
   a) Jericho Lake (JER-AB08)
3) Waterbody outside the zone of any potential effect (control)
   a) Cigar Lake (JER-AB11)
   b) Control Lake (JER-AB10)

Table 2.9 Aquatic biota monitoring stations, waterbody, and location, 2005 Jericho AEMP.

Station	Waterbody and Location	Indicators				
		Non-sedentary			Sedentary	
		Phytoplankton	Zooplankton	Lake trout/ Round whitefish	Benthic Invertebrates	Slimy sculpin
JER-AB10	Control Lake	✓	✓			
JER-AB23	Control Lake				✓	
JER-AB11	Cigar Lake	✓	✓	✓		
JER-AB25	Cigar Lake				✓	
JER-AB24	Stream W at Willingham Lake					✓
JER-AB04	Lake C3	✓	✓			
JER-AB05	Lake C3 outlet				✓	
JER-AB06	Carat Lake	✓	✓			
JER-AB07	Carat Lake outlet				✓	
JER-AB08	Jericho Lake	✓	✓	✓		
JER-AB26	Jericho Lake				✓	✓
JER-AB19	Carat Lake at Stream C1				✓	
JER-AB20	Lake C3 at Stream C3				✓	

Metal contaminants in fish from selected lakes were measured in 2004 (Mainstream and AMEC 2005). Following completion of the 2004 program Jericho Lake was added to the list of waterbodies to be monitored for metal contaminants in fish tissues. To accommodate this requirement fish were collected from Jericho Lake and a control lake in 2005. Information for other monitored waterbodies is provided in Mainstream and AMEC (2005).

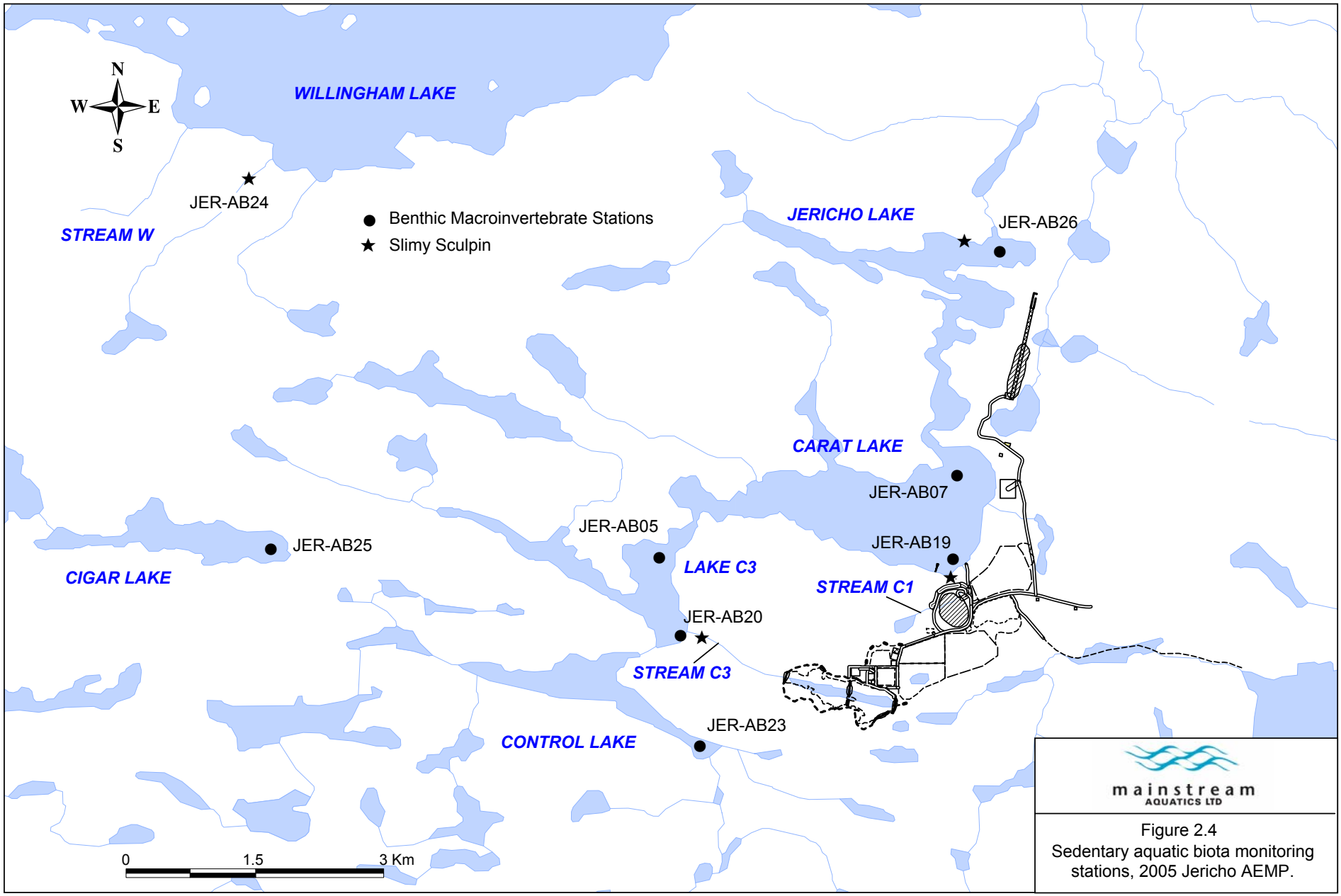
2.7.3 Frequency and Replication

The timing of sample collection and number of replicates are listed in Table 2.10.

Table 2.10 Sampling timing and replication for aquatic biota, 2005 Jericho AEMP.

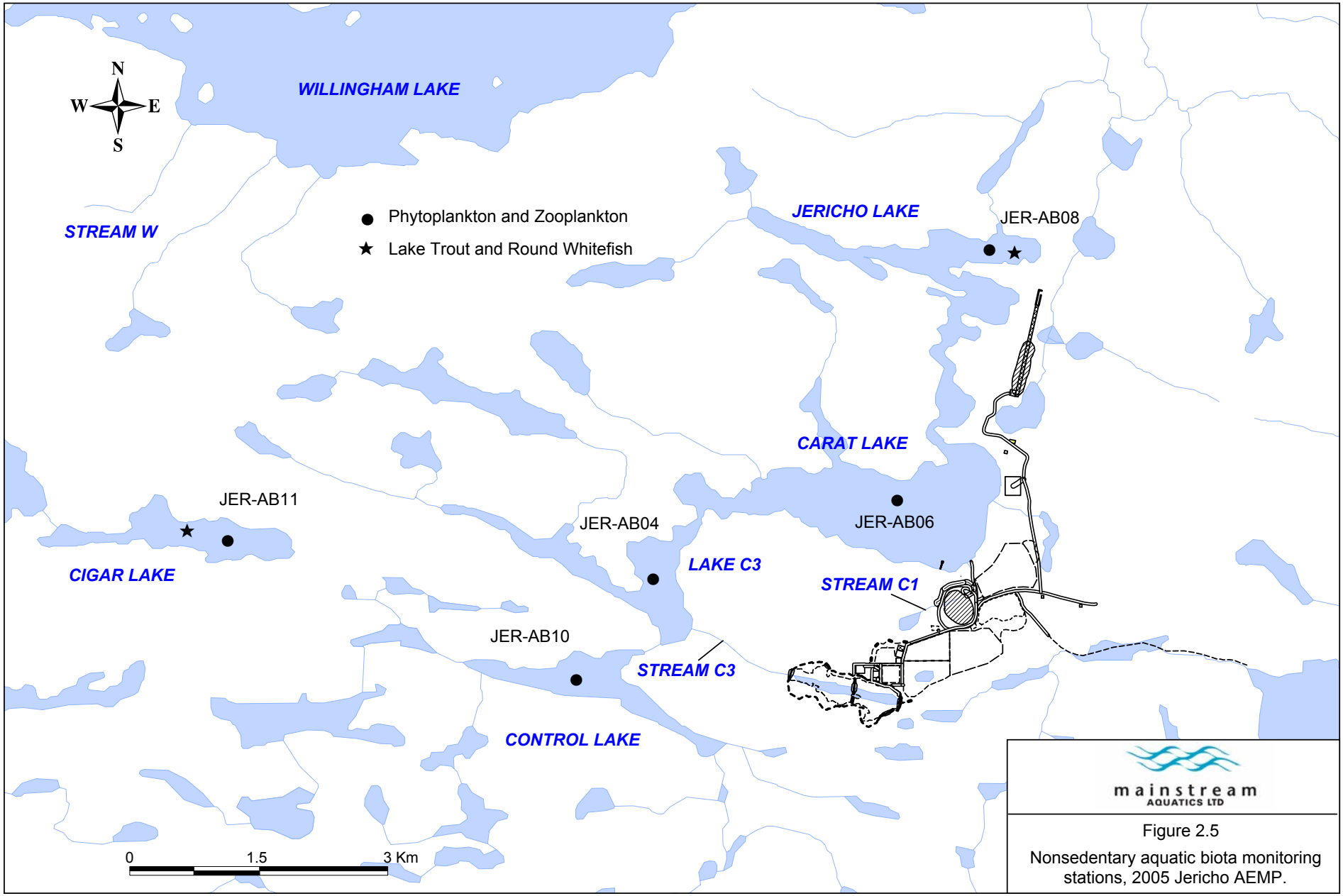
Indicator	Sample Timing	No. Replicates
Phytoplankton	11 to 14 August	7
Zooplankton	11 to 14 August	7
Benthic macroinvertebrates	7 to 10 July	6
Fish tissue metal contaminants	9 to 12 July; 11 to 12 August	10 per species[a]

[a] Target number of replicates.



mainstream AQUATICS LTD

Figure 2.4
Sedentary aquatic biota monitoring stations, 2005 Jericho AEMP.



mainstream AQUATICS LTD

Figure 2.5

Nonsedentary aquatic biota monitoring stations, 2005 Jericho AEMP.

This page left intentionally blank.

3.0 METHODS

3.1 STREAM C1 WATER TEMPERATURE

A Vemco® thermograph was installed to monitor stream water temperatures (±0.1C^{o}) at one hour intervals. The thermograph was placed inside a 16 cm piece of galvanized steel pipe that was capped at both ends. Holes were drilled along the sides of the pipe to allow water to flow through. The pipe was set in Stream C1 and anchored with rocks, and then fixed to a metal stake with rope so it could be located at a later date. The thermograph was retrieved prior to stream freeze-up.

3.2 WATER CHEMISTRY

3.2.1 Field

Tahera Diamond Corporation was responsible for collection of water quality samples. The following description is based on AEMP protocols (Mainstream and AMEC 2005). Prior to sampling raw water, sample bottles were rinsed three times; pre-treated sample bottles were not be rinsed. During summer, water was collected by submersing bottles 0.25 m below the surface in lakes and below the surface in streams, uncapping and allowing bottles to fill, recapping and then resurfacing. During periods of ice cover (i.e., the April and December sampling periods), holes were drilled through the ice cover by a gas powered ice auger for the collection of surface grab water samples. Samples were collected approximately 1.0 m below the water surface exposed in the holes using a Van Dorn sampler. Rinsing of sample containers with in-situ water was impractical due to the cold weather; consequently, laboratory prepared sample containers were used. All samples were kept cool during storage and were air transported to the analytical laboratory. All filtering was done in the laboratory. Chain of custody forms were used to track samples.

Duplicate water samples were submitted to the analytical laboratory for quality control and quality assurance; sequential duplicate samples were collected for 10% of the total number of samples per sampling session. A sequential duplicate required that the collector fill two sampling sets (group of bottles from two different samples at the same depth).

To ascertain sample contamination due to sampling procedures field blanks were incorporated into the sampling process. A field blank consisted of a set of bottles filled with demineralized, de-ionized water (supplied by the lab) and was processed in the same manner as a collected water sample. These blanks

were be used for each sampling session. All blanks were filled in the field to ensure that they underwent the same conditions and procedures as the water samples.

3.2.2 Laboratory

General water parameters (pH, dissolved anions, nutrients) were analyzed in accordance with procedures described in "Methods for Chemical Analysis of Water and Wastes" (United States Environmental Protection Agency), "Manual for the Chemical Analysis of Water, Wastewaters, Sediments and Biological Tissues" (British Columbia Ministry of the Environment), and/or "Standard Methods for the Examination of Water and Wastewater" (American Public Health Association).

Total and dissolved metals and organic parameter samples were analyzed in accordance with procedures described in "Standard Methods for the Examination of Water and Wastewater", 18th Edition (American Public Health Association, 1992). Several methods were employed for metals analysis, including Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) and Atomic Absorption Spectrophotometry (AA) to obtain the required detection limit for each element. Organic parameters were analyzed using a gas chromatograph - flame ionization detector (GC/FID). Mercury was analyzed by cold vapour AA.

Quality Assurance Management

Laboratory analytical reports contain pertinent information regarding the sample(s) submitted for analyses. This information includes the date the sample was collected and received by the lab, date of analysis, technician's initials, parameters, methodology, method reference, method detection limit and results. The report is reviewed by the lab QA/QC coordinator and lab manager for completeness and accuracy. All documentation associated with the analysis including raw data, chromatograms, calibration curves, calculations, etc. are kept in that file.

Instruments were calibrated prior to analyses using a series of high-purity standards that cover the working range of the instrument. Instrument responses were collated in an appropriate quality control sheet and this data was plotted regularly to monitor for inappropriate changes.

Duplicate analysis was performed on every tenth sample submitted to the lab. With every batch of samples, a method blank was prepared with deionized water and/or extraction solvent and was analyzed to verify the absence of interferences or contaminants associated with storage, preparation and instrumental analyses.

A Canadian Association for Environmental Analytical Laboratories (CAEAL) Inc. was used for analyses.

3.3 DISSOLVED OXYGEN AND TEMPERATURE

Dissolved oxygen and temperature profiles were measured at five stations between 8 and 10 July and between 11 and 14 August 2005. Dissolved oxygen concentration (± 0.1 mg/L) and water temperature (± 0.1 C°) were measured in the field using an Oxyguard Handy Beta dissolved oxygen-temperature meter. Depth profile measurements were collected at 1.0 m intervals.

3.4 SECCHI DEPTH

Water transparency was measured using a standard 20 cm diameter Secchi disk to the nearest 0.1 m.

3.5 SEDIMENT DEPOSITION

Methodology and analysis procedures generally followed those described in DDMI (2003).

3.5.1 Field

Sediment deposition traps were set in August 2004 and left for a period of approximately one year before retrieval in 2005. Water and sediment from the traps were collected and filtered back in the laboratory.

Additional traps were set in Lake C3 (one site at the far-field location) and Carat Lake (two sites, one each on either side of the Causeway) in July 2005.

The design of the traps was similar to those described in the CRC Handbook of Techniques for Aquatic Sediments Sampling (Mudroch and MacKnift 1991). Traps consisted of collection bottles located in PVC tubes suspended 1 m above the lake bottom and 2.5 m below the water surface. Traps were located at sites with water depths between 6.0 and 6.5 m.

3.5.2 Laboratory

The bottled samples were filtered onto pre-weighed 47 Gelman GF/AE filters (nominal pore size 1 micron recommended for testing dissolved and suspended solids in water as described in Standard Methods for the Examination of Water and Wastewater) utilizing a Millipore filter funnel and hand

vacuum pump. The entire volume of each sediment trap was filtered utilizing successive filters as required. Filters were air dried, folded inward (in half) and stored in numbered foil packs and sent for weight analysis. In the lab they were oven dried for 24 hours at 105°C and reweighed (utilizing a Mettler M58A airlock/mechanical weight pan insertion balance with a capability of weighing 5 µg units). They were subsequently ashed in a muffle furnace for one hour at 550°C, cooled and reweighed. Ashed weight was then calculated to quantify the nonorganic or mineral component of the sample.

3.6 PHYTOPLANKTON

3.6.1 Field

Phytoplankton was collected following procedures described in Findlay and Kling (2003). Samples were collected from the water column within the euphotic zone, which was assumed to be a water depth equal to two times the Secchi depth. In lakes that were shallower than two times the Secchi depth, samples encompassed the entire water column to 1 m above the lake bottom to avoid contamination with sediment.

Each replicate consisted of a composite of five samples from the euphotic zone collected using an integrated sampler. The integrated sampler consisted of a weighted 3 cm diameter polyethylene tube. The tube was gently lowered vertically into the water column and the top capped off before being lifted out of the water and drained into a bucket. The composite sample in the bucket was thoroughly mixed and a 970 mL volume subsample collected as a replicate. The process was repeated for each replicate.

Each replicate was placed in pre-labeled 1000 mL container and preserved with a combination acid-Lugol's solution (0.5% by volume; 10 mL) and a formaldehyde acetic acid solution (2% by volume; 20 mL). All replicates were stored in the dark.

Replicates destined specifically for chlorophyll *a* analysis were collected separately. A pre-determined 300 mL volume of subsample from the mixed composite sample was filtered onto Whatman GF/C filter paper, covered with anhydrous $MgCO_3$, and frozen.

Equipment was thoroughly rinsed before and after sampling at each station to prevent contamination. All samples were labeled with the station and replicate identifier, time, date, depth, volume sampled, preservative amount, and name of the collector.

3.6.2 Laboratory

Phytoplankton samples were processed by a qualified phytoplankton taxonomist using procedures outlined in Lund *et al.* (1958). Prior to analyses, samples were gently inverted, and a 10 to 100 mL subsample was dispensed into sedimentation chambers (Lund *et al.* 1958). Subsample volume was dependant on the ability to count a minimum of 200 phytoplankton cells or units (colonies, chains or filaments). Samples were processed after a 24 h sedimentation period. A species list was developed by scanning the entire basal area of the chamber with an inverted microscope (Wild™ M-40). Diatom identification was accomplished by concentrating a subsample onto a coverslip, clearing utilizing a muffle furnace and then mounting in Styrax. These were then examined under a compound microscope. Taxonomic keys used for identification included Prescott (1970), Taft and Taft (1971), and Webber (1971).

To calculate cell density (cells/mL), individual cells were enumerated within a specified area of the sedimentation chamber. This was accomplished by counting the number of cells along horizontal transects placed across the specified area. One or more transects were processed until the minimum number of 200 cells or units were counted. To calculate the cell density, the number of cells within the specified area was extrapolated to the subsample, and then to the entire sample.

Cell biovolume ($\mu m^3/m^3$) was calculated by first measuring the physical dimensions (length, width, and depth) of 10 to 30 cells of each species in the sample. Representative cell biovolume were then generated by calculating individual cell volumes for all cells measured (utilizing the nearest geometric shape[s]) and averaging these to produce an estimated cell biovolume for each species. The cell biovolume estimate for the subsample was then extrapolated to the entire sample (Note: averaging cell dimensions rather than individual cell volume estimates to produce a representative cell volume can seriously underestimate the representative cell volume used). Species that were encountered during the qualitative assessment, but not enumerated (i.e., very low numbers, nonviable, or located outside the enumeration transects) were recorded as present and included in the total taxa present for that sample.

Chlorophyll *a* analysis was conducted using the spectrophotometric-acetone extraction method described by Moss (1967a, 1967b). This method corrects for the presence of phaeophytin *a*, which may be present in decaying algal cells. This is achieved by acidification of the sample after initial measurement and referencing results to predetermined calibration curves.

3.7 ZOOPLANKTON

3.7.1 Field

Zooplankton was collected following the general procedures described in Paterson (2003). Each zooplankton sample consisted of a composite of five vertical hauls, each of which included two times the euphotic zone (i.e., four times the Secchi depth). In lakes that were shallower than four times the Secchi depth, hauls encompassed the entire water column to 1 m above the lake bottom to avoid contamination with sediment. Zooplankton were collected with a Wisconsin plankton net constructed with Nitex® mesh (net mouth diameter 130 mm; 0.064 x 0.064 mm mesh). For each haul, the net was lowered to the desired depth and then retrieved at a constant rate of 1.0 m/s. Samples were preserved immediately in 5% formaldehyde and stored in labeled 500 mL polyethylene bottles. All samples were labeled with a site identifier, time, date, depth, and name of the collector. Equipment was thoroughly rinsed before and after sampling at each site to prevent contamination.

3.7.2 Laboratory

Prior to enumeration, all taxa found in the sample were identified to the lowest possible taxonomic level under a compound microscope. All the identified taxa were then examined under a stereomicroscope to determine the capability of their identification at 50x magnification. The taxonomic keys and papers used for identification include the following: Brandlowa *et al.* 1972, Brooks 1957, Chengalath *et al.* 1971, Clifford 1991, Deevey and Deevey 1971, Dodson and Frey 1991, Elliot 1977, Grothe and Grothe 1977, Pennack 1978, Ruttner-Kolisko 1974, Stemberger 1979, Wilson 1959 and Yeatman 1959.

Following identification, each sample was thoroughly mixed by stirring and shaking, and a sub-sample was withdrawn using a wide mouth Gilson pipette. The sub-sample was placed in a counting trough, which was secured to the stage of a stereomicroscope, to count the number of individuals of each species encountered in the sub-sample. To ensure a complete transfer of all organisms from the Gilson pipette to the trough, the tip of the pipette was washed, the wash water examined microscopically, and organisms, if found, were added to the sub-sample.

The round counting trough, constructed of polished Plexiglas, allows the analysis of 1 – 25 mL volume sub-samples. The trough was thoroughly tested for use in the analysis of zooplankton samples at the University of Calgary, and was judged superior to the Sedwick-Rafter counting cell for macro-zooplankton. It was used primarily because it allows the processing of a relatively large volume of sub-samples, shows a great resistance to ambient vibrations, and allows the processing of samples without a

cover. If further examination of a particular specimen is necessary with a compound microscope, it can be easily extracted from the trough. For each sample three sub-sample replicates of 5 to 25 mL were examined.

The density of enumerated zooplankton was eventually calculated per 1 m^3, using the following equation:

$$\mathbf{s\ (m^3) = \Sigma\ s\ in\ subsample * (sample\ volume / total\ volume\ of\ subsamples) * (1 / field\ volume\ in\ m^3)}$$

where: **s** = number of individuals (density)

3.8 BENTHIC MACROINVERTEBRATES

3.8.1 Field

Benthic macroinvertebrates were sampled following general procedures described in Rosenberg *et al.* (2003) immediately following ice-out in July. Sampling during the early open water period is deemed appropriate for two reasons. First, it is logistically more feasible to sample during open water compared to winter when ice limits access to sites. Two, collections made during the open water period before emergence (transformation of larvae/pupae into adults), provides good representation of the benthic macroinvertebrate community.

All sites were located in water depths between 4.8 - 5.4 m. An ekman grab sampler (aperture area equal to 0.023 m^2) was used to collect five replicates at each station. To address the issue of high within-site variation caused by clumped benthic macroinvertebrate distribution, and to increase the probability of encountering rare taxa, each replicate consisted of a composite of three ekman grabs.

The quality of the sample was examined (i.e., jaws were closed and the grab was full) before it was processed. If deemed of poor quality, the sample was rejected and the procedure repeated. Each replicate was sieved through a 0.243 µm mesh net to remove excess sediments, placed in labelled polyethylene sample bags, and preserved in 10% formalin.

3.8.2 Laboratory

Sorting of benthic macroinvertebrate samples, preservation of sorted animals, identification and enumeration of invertebrates followed procedures recommended by Alberta Environment (1990) and Environment Canada (1993).

Benthic macroinvertebrates were removed from the accompanying debris using a dissecting microscope at 10x magnification. Rose Bengal stain was added to the samples first to improve sorting efficiency. Each sample was then separated into coarse and fine fractions by washing thoroughly through two sieves, with mesh sizes of 1 mm and 200 μm. The content of each sieve was transferred to a large beaker where warm water was added to separate organic material from sand. The contents were swirled and the water, with the floating organic matter, was decanted into the 200 μm sieve. The process was repeated until all the organic matter was separated from the sand.

Each separated fraction of the sample was examined, portion by portion, on a gridded Petri dish under a dissecting microscope, for removal of all benthic macroinvertebrates. Sorted invertebrates were stored in vials and preserved in 80% ethanol.

For samples containing large numbers of macroinvertebrates the fine fraction was subsampled, following the procedure outlined in Wrona *et al.* (1982). Samples were divided into two components for processing: elutriated and sediment. The organisms were collected by repeatedly rinsing and elutriating the sample until organisms were no longer observed. The entire elutriated and sediment components of the sample were then processed.

Invertebrates were sorted by major taxonomic group and identified to the lowest practical taxonomic level (genus where possible) using a dissecting microscope (6-42x magnification). Chironomids were identified to family or tribe. Identifications were performed using the following taxonomic keys and papers: Brinkhurst 1986, Clifford 1991, McAlpine *et al.* 1981, Merritt and Cummins 1984, Oliver and Roussel 1983, Pennack 1989, Stewart and Stark 1988, Thorp and Covich 1991, Wiggins 1977.

Once processing was completed samples were preserved in 80% ethanol.

3.9 FISH

3.9.1 Field

Capture Methods

Variable-mesh standard gill nets sets were used to sample open water lake habitats. Each standard experimental gill net set was comprised of 15.2 x 1.8 m panels of 2.5, 3.8, 6.4, 8.9, 11.4, and 14.0 cm mesh sizes (stretched measure). Set times were kept short (less than 2 h) to minimize capture mortality;

occasionally overnight sets were employed if fish tissue quotas were not met. Shoreline areas and streams were sampled using a Smith Root Type XII high output backpack electrofisher.

Captured fish were measured for fork length (± 1 mm) and weight (± 2 g). Ageing structures and gonad weight were collected for lake trout and round whitefish destined for tissue analyses. Sex and maturity were also determined for fish mortalities. Descriptions of maturity codes can be found in Appendix H.

Density Estimates

Estimates of population size were generated for fish in the lowermost reaches of Stream C1 and Stream C3 in July and August using the multi-pass removal-depletion method described by Zippin (1958). Sampling involved placement of block nets (0.5 cm mesh; stretched measure) across the channel at upstream and downstream ends of the site to prevent fish movement into or out of the area. A backpack electrofisher was then used to thoroughly sample the enclosed area. The multi-pass removal-depletion method requires a minimum of three removal runs to generate a reliable density estimate. Each removal run consisted of an upstream pass through the enclosed area. Captured fish were placed in a holding tank located at the downstream end of the enclosed section. All fish were identified, enumerated and measured prior to their release downstream of the lower block net. Block nets were emptied once all backpack electrofishing runs had been completed. Fish caught in the block net were added to the total catch of the first electrofishing run.

Tissues Collection

Muscle and liver tissues were used to monitor tissue metal contaminants in lake trout and round whitefish, while whole fish were used for slimy sculpin.

Dorsal musculature (50 to 100 g) and livers (excluding the gall bladder) were dissected from each fish and sealed in 120 mL sterile, acid-washed specimen containers. All tissue samples were immediately frozen and kept frozen until the time of laboratory analyses.

Tissue sampling protocols followed procedures described by USAEPA (2000). Appropriate measures were taken to prevent contamination. All dissections occurred on a washable plastic surface. High-quality, corrosion-resistant stainless steel sample processing equipment was used including sterile knives with plastic handles. Utensils and containers were cleaned thoroughly with a detergent solution, rinsed with 5% HNO3, followed by an immediate rinse with distilled water. All dissecting equipment, sample containers, sample wrapping and wash equipment were shipped and stored in clean waterproof containers.

Data recorded for each fish included fork length (to the nearest 1 mm), weight (to the nearest 2 g), sex, maturity, and gonad weight. An appropriate ageing structure was also collected (otoliths) from all captured tissue fish.

3.9.2 Laboratory

Tissues

Analyses of metal concentrations in fish tissues were conducted by Norwest Laboratories (Surrey, British Columbia). The following is a description of the methods and instrumentation that were used.

Tissue sample preparation was based on CFIA requirements. Samples were prepared for analyses by first homogenizing the tissue in plastic cups using a "Virtis" shearer equipped with stainless steel blades. Prior to homogenization of each sample, the apparatus was cleaned with 18 MΩ deionized water. Approximately 1 g of homogenized tissue was then weighed into a precleaned (triple nitric acid) teflon digestion vessel. High purity "Seastar" nitric acid (4 mL) was added and the vessel was capped before being heated at 150°C. The resulting solution was made up to a volume of 25 mL with 18 mL deionized water for subsequent analyses.

The digested sample was then analyzed by ICP and ICPMS. The instrument methods are based on EPA 6010B and 6020. The minerals Ca, Mg, Na, K, Fe, P, and Si were reported from the ICP and the other metals were analyzed by ICPMS. The mercury was analyzed by cold vapor atomic absorption, based on EPA 7470.

Moisture content was measured using 1 g of homogenized tissue. The sample was weighed into a preweighed and tared 10 mL glass beaker. The beaker and sample were then dried overnight at 105°C. After cooling to room temperature, the beaker and sample were transferred to a desiccator for 2 h, after which, the beaker with the sample was re-weighed to obtain the loss in moisture.

All results were reported as micrograms per gram on a 'wet weight' basis.

Analytical detection limits for metal contaminants of fish tissue are listed in Table 2.8.

Ageing

Fish ageing followed the protocol outlined in Mackay *et al.* (1990). Otoliths, stored dry in labelled envelopes, were first lightly ground and polished with emery cloth (400 grit) to allow sufficient light transmission. Then a binocular dissecting microscope, equipped with a transmitted light source, was used to obtain an age from each structure. Two independent readers aged each structure. When discrepancies in the assigned age occurred, the two readers conferred to arrive at a consensus.

Fish Community

Fish data were inputted into Microsoft Excel® for analysis. Relative abundance was determined by the catch-per-unit effort (CPUE), which was summarized as number of fish/100m^2/12h for gill nets and number of fish/minute for backpack electrofishing. Microfish 3.0 software was used for determining population estimates. SigmaPlot® 8.0 was used to plot and determine length-at-age and length-weight regressions for large fish species. Fish maturity classes were grouped as immature (codes 01, 11), mature (codes 05, 15, 07, 17, 08, 18, 09, 19), and non-spawner (codes 02, 12, 06, 16) (Appendix H).

3.10 QUALITY ASSURANCE

3.10.1 Nonvertebrate Aquatic Biota

The following QA/QC procedures were used for nonvertebrate data.

1. Strict sampling protocols were adhered to ensure consistency in technique for each parameter.
2. Consistency of identifications for each indicator was achieved by using the same person.
3. Ten percent of samples were analyzed by other qualified persons to ensure the accuracy of identifications and counts.
4. Split samples collected from 5% of the samples were submitted as blinds.
5. For benthic invertebrates the residue of the sample was examined to determine sorting efficiency. If the residue contained a number of organisms that exceeded 10% of the entire sample, the sample was re-processed. A reference collection of more difficult taxa to identify was completed and verified by a qualified taxonomist.
6. All samples were archived for future reference.

3.10.2 Fish Tissues

Fish metal contaminants sampling utilized safeguards to prevent contamination as follows:

1. Use of sterile stainless steel instruments.
2. Tissue cups rinsed in 5% nitric acid solution.
3. Covering the work area in plastic.

Analytical QA/CC procedures included:

1. Use of an accredited laboratory.
2. Running certified reference materials (NBS1566A oyster tissue, DORM2, and DOLT2).
3. Split samples from 5% of the replicates were submitted for analyses.

3.11 DATA ANALYSES

General

Data analyses involved generating summary metrics (mean, standard deviation, minimum, maximum) for each parameter. This was followed by evaluation of spatial differences among stations using univariate parametric statistical tests. Prior to summaries and statistical analyses the data for each parameter were examined to ensure appropriateness for evaluation.

The first step was to present the data graphically to examine gross differences among stations, to examine the distribution pattern, and to identify outliers. An individual data point was defined as an outlier if its absolute value exceeded the absolute value of the next closest data point in the entire data by a magnitude of three. Once an outlier was identified, subsequent tests were completed with and without the outlier.

Data were then examined to establish whether assumptions were met for parametric statistical analyses using standard procedures as follows:

1. Homogeneity of variance (Levene's test)
2. Normal distribution (G test)
3. Independence (Runs Test)

If one or more assumptions for parametric tests were violated the data were transformed to an appropriate nonlinear scale. If the assumption for homogeneous variance was not met after transformation the parametric test statistic was adjusted (i.e., *Welch* statistic used in place of *F* statistic).
Spatial difference among stations was examined using t-tests.

Fish tissues

A different approach was used for metal concentrations in fish tissues. First, the number of data points below the analytical detection limit was summarized. If the number below detection was >4 no further analyses were undertaken. This approach was deemed appropriate because sample sizes available for metal concentration analyses typically do not have sufficient power to identify a statistical difference (if one exists) assuming a size effect of 2 standard deviations (Environment Canada 2002). For samples that

met the criteria for a minimum data points above detection, analytical detection limits for the remaining data points were adjusted (i.e., ½ detection limit) and included in the analyses.

Second, data were examined to ascertain whether there was a relationship between metal concentration and fish age using linear regression. If a significant trend was established t-tests were done to ensure that age did not differ between the waterbodies tested. Statistical significance was accepted at $P \leq 0.05$ and marginal significance was accepted at $P \leq 0.10$. All tests followed descriptions presented in Sokal and Rolhf (1981).

Water chemistry

The approach to water quality analyses was also different than the general analyses methods described above. The majority of parameters tested were below analytical detection and therefore the number of data points to allow for statistical comparisons were limited. Statistical comparisons between sites were only done when the number of values above the analytical detection limit was greater than four. Site means, on the other hand, were calculated for all parameters where one value was above detection limit for a given site. Where values were below analytical detection the value was assumed to be half the detection limit. In addition, statistical comparisons among sites were done using means from similar sampling periods. For example, if one site had samples taken in summer and winter and another site had samples taken only in summer only summer means were compared.

It is important to note that two analytical laboratories were used in the analyses of water chemical parameters and as such there were sometimes different detection limits for the same parameter. To standardize comparisons among data the highest analytic detection limit used for a particular parameter was applied.

Sampling Precision

Collecting small replicate samples yields statistical inaccuracy due to the naturally heterogeneous dispersion of species and some unavoidable faults in sampling techniques. Measuring the degree of precision for the collected replicates ensures that data retain acceptable statistical power. A standard error equal to 20% of the mean (D = 0.2) is considered a reasonable error and maintaining sampling precision within this error is recommended by Alberta Environment (1990). Precision of replicate samples was calculated using the formula (based on a Poisson distribution):

$$D = \frac{1}{\bar{x}} \sqrt{\frac{s^2}{n}}$$

where: $\bar{x}$ = mean value; s^2 = variance; and n = number of replicate samples.

In cases where the precision exceeded the recommended 0.2 the number of replicates (n) required to obtain $D \leq 0.2$, was determined by the following formula:

$$n = \frac{s^2}{D^2 \quad \overline{x^2}}$$

Precision was determined for density and taxa richness for benthic invertebrates, zooplankton, and phytoplankton. Sampling precision was acceptable for density and taxa richness for benthic invertebrates, zooplankton, and phytoplankton (Appendix J) and as such the sample sizes are adequate to detect differences when they exist. Precision was also calculated for fish tissue (liver and muscle) for the following metals: aluminum, cadmium, copper, mercury, molybdenum, nickel, and zinc in each monitored waterbody (Appendix J). For fish tissue metal concentrations samples sizes were generally adequate to provide acceptable precision which would maintain adequate power for statistical comparisons. However there were some cases where sample sizes were inadequate and sample precision (D) was above the recommended value. The number of replicates required to obtain a precision of 0.2 are outlined in Appendix J1-3.

4.0 RESULTS

4.1 STREAM C1 WATER TEMPERATURE

Water temperatures in Stream C1 varied during the study period (Figure 4.1). Mean daily temperatures ranged between 4.9^{o}C and 11.7^{o}C. The lowest temperature (3.5 ^{o}C) was recorded on 24 July with the maximum temperature (13.5 ^{o}C) occurring on 12 July. The range in water temperatures recorded each day was high: up to 7.1^{o}C (14 July).

This trend is not unexpected in a small free flowing stream such as Stream C1. There is a small amount of water or thermal mass available to store heat generated during day time temperatures. As such, water temperatures cooled rapidly when air temperatures decreased and the reverse occurred when air temperatures increased.

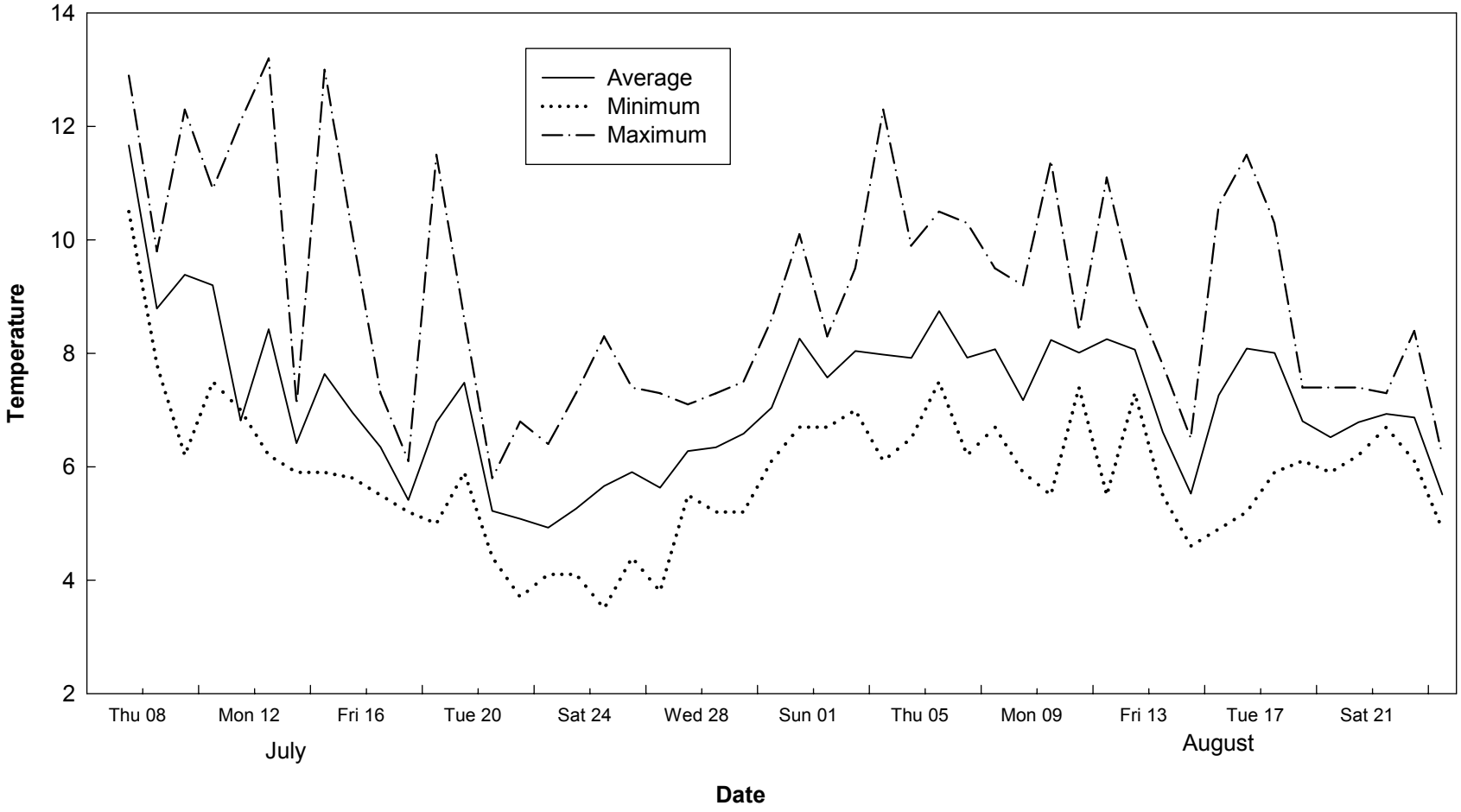


Figure 4.1 Mean, minimum, and maximum daily temperatures recorded in Stream C1 from 7 July to 23 August, 2005 Jericho AEMP.

4.2 WATER CHEMISTRY

4.2.1 Carat Lake Freshwater Intake (JERWQ1)

In general samples were in accordance with Canadian Drinking Water Quality Guidelines (CDWQG) with the exception of aluminum, copper, lead, and turbidity (Table 4.1). A sample collected 20 July 2005 had a total aluminum concentration of 1.44 mg/L which was 14.4 times above the recommended guideline value of 0.10 mg/L (Table 4.1). Copper concentration during this sampling period (1.64 mg/L) was also above the CDWQG for the aesthetic objective of 1.0 mg/L. The total lead concentration during this sampling period of 0.138 mg/L was 13.8 times above the CDWQ recommended guideline value of 0.01 mg/L. Copper, lead, and aluminum concentrations were below the CDWQ recommended guidelines for all other sampling periods. In addition, there is evidence of the presence of fecal coliform contamination as 1 CFU was found in the 20 July 2005 sampling period. A quality control duplicate sample was taken in the field during the 20 July 2005 monitoring and values for lead (0.0004 mg/L), copper (0.0025 mg/L), and aluminum (0.023 mg/L) were all in accordance with CDWQ guidelines. Moreover, the fecal coliform was below detection in the duplicate sample. As such, it is likely that the sample with high metal concentrations was contaminated prior to or during analyses. Turbidity values were above the recommended CDWQG of 1.0 NTU for the July and August (2.0 NTU) sampling periods and were at guideline levels (1.0 NTU) for the September sampling period.

Table 4.1 Selected water chemistry parameters for monitoring station JERWQ1 and comparisons to drinking water quality guidelines, 2005 Jericho AEMP.

Parameter	June 30/05	July 20/05	July 31/05	August 31/05	Sept 28/05	CDWQG		
						Maximum	Average	Aesthetic
Fecal Coliforms (CFU/100mL)	<1	**1**	<1	<1	<1	*		
Field pH	7		7.1	6.45	6.93	6.5 to 8.5		
pH @ 25°C		7.03				6.5 to 8.5		
TDS (mg/L)		12						500
Turbidity (NTU)		2		2	1	1		5
Chloride (mg/L)		0.6						250
Fluoride (mg/L)		0.06				1.5		
Nitrate (mg/L)		0.05				45		
Nitrite (mg/L)		<0.05				3.2		
Sulphate (mg/L)		1.7						500
Total Aluminum (mg/L)	0.055	**1.44**	0.021	0.060	0.030	0.1		
Total Antimony (mg/L)	<0.0001	0.0033	<0.0001	<0.0001	<0.0001		0.006	
Total Arsenic (mg/L)	<0.0004	0.0007	<0.0004	<0.0004	<0.0004	0.005		
Total Boron (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010	5		
Total Cadmium (mg/L)	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	0.005		
Total Chromium (mg/L)	<0.0009	0.0010	<0.0009	<0.0009	<0.0009	0.05		
Total Copper (mg/L)	<0.0010	**1.64**	0.0012	0.0029	0.0011			1
Total Lead (mg/L)	<0.0001	**0.138**	0.0001	0.0004	<0.0001	0.01		
Total Manganese (mg/L)	0.009		0.008	0.004	0.002			0.05
Total Mercury (mg/L)	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	0.001		
Total Selenium (mg/L)	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	0.01		
Total Sodium (mg/L)	0.8	<0.5	0.6	0.8	<0.5			200
Total Uranium (mg/L)	0.00016	0.00017	0.00013	0.00018	0.00013	0.02	0.02	
Total Zinc (mg/L)	<0.002	0.093	<0.002	0.019	0.003			5

* Guidelines recommend that no sample should contain coliform bacteria.

4.2.2 PKCA Discharge (JERWQ2)

Effluent quality guidelines were met for all parameters for both maximum average concentration guidelines and maximum concentration for individual grab sample guidelines (Table 4.2). In one instance lab pH was below the required value of 6 to 8 (June; 5.75); however, the field pH value was in accordance with guidelines (7.30).

Table 4.2 Water chemistry parameters for monitoring station JERWQ2 and comparisons to effluent quality requirements, 2005 Jericho AEMP.

Parameter	June	July	Aug	Sept	Mean	Requirements	
						Chronic	Max Grab
Field pH	7.30	-	6.45	6.77	6.84	6 to 8	6 to 8
BOD	<2	<2	<2	<2	-	15	25
Fecal Coliforms	<1	<1	<1	<1	-	10	20
TSS	1	10	1	1	3.25	15	25
TDS	5	5	5	24	9.75	2000	4000
pH @ 25°C	5.75	6.69	6.77	7.27	6.62	6 to 8	6 to 8
Nitrite	<0.05	<0.05	<0.05	<0.05	-	2.5	5
Nitrate	0.07	0.025	0.11	0.60	0.20	28	56
Chloride	0.7	0.9	1.2	1.7	1.1	500	1000
Ammonia	<0.1	<0.1	<0.1	<0.1	-	6	12
Total Zinc	0.001	0.003	0.006	0.006	0.004	0.25	0.5
Total Uranium	0.00010	0.00019	0.00030	0.00033	0.00023	0.5	1
Total Phosphorus	0.025	0.025	0.055	0.025	0.0325	0.2	0.400
Total Nickel	<0.0006	<0.0006	<0.0006	<0.0006	-	0.05	0.1
Total Molybdenum	<0.0005	<0.0005	<0.0005	<0.0005	-	0.73	1.5
Total Lead	0.00005	0.0003	0.00005	0.00005	0.00011	0.01	0.02
Total Copper	0.0005	0.0048	0.0020	0.0018	0.0022	0.02	0.04
Total Chromium	<0.0009	<0.0009	<0.0009	<0.0009	-	0.087	0.17
Total Cadmium	<0.0002	<0.0002	<0.0001	<0.0001	-	0.00012	0.0024
Total Arsenic	0.0002	0.0004	0.0002	0.0002	0.0003	0.05	0.1
Total Aluminum	0.026	0.080	0.027	0.012	0.036	1.5	3
Dissolved Aluminum	0.013	0.013	0.006	0.006	0.010	1	2

4.2.3 Aquatics Effects Monitoring

The following parameters were found to be below analytical detection limits for all sites included in the aquatic effects monitoring program for water chemistry: nitrite, phosphate, hydroxide, carbonate, ammonia, total thallium, total silver, total selenium, total potassium, total manganese, total molybdenum, total mercury, total cobalt, total cadmium, total boron, total beryllium, dissolved potassium, dissolved selenium, dissolved phosphorus, dissolved mercury, dissolved cobalt, dissolved cadmium, dissolved arsenic, dissolved manganese, dissolved beryllium, and dissolved antimony. As such comparisons among sites were not possible.

There were many instances where all values were below detection limits with the exception of one or two samples. As such, comparisons among sites or calculation of means were not either possible or useful. For total suspended solids only one value was above the detection limit and was recorded for all sites and sampling periods (7.0 mg/L) at JERWQ12 on 1 June 2005.

Arsenic concentrations were below the analytical detection limit (0.0004 mg/L) for all sites and sampling periods with the exception of site JERWQ3 where arsenic levels in the August and September sampling periods were 0.0007 and 0.0005, respectively. Dissolved vanadium concentrations were below detection (0.0005 mg/L) for all sites and sampling periods with the exception of site JERWQ4 where a value of 0.0005 mg/L was recorded for the mid-December sampling period. Dissolved thallium concentrations were below detection (0.00005 mg/L) for all sites and sampling periods with the exception of sites JERWQ4 and JERWQ12 where values of 0.0007 mg/L and 0.00016 mg/L, respectively, were recorded in the July sampling period. Dissolved silver concentrations were below detection (0.0002 mg/L) for all sites and sampling periods with the exception of sites JERWQ4 where a value of 0.0003 was recorded in the May sampling period. Dissolved molybdenum concentrations were below detection (0.0003 mg/L) for all sites and sampling periods with the exception of sites JERWQ4 and JERWQ10 where a value of 0.0004 mg/L was recorded for both sites in the May sampling period. Dissolved boron concentrations were below detection (0.0004 mg/L) for all sites and sampling periods with the exception of site JERWQ3 where a value of 0.0004 mg/L was recorded for the June sampling period.

Table 4.3 Physical test parameters mean values and standard deviations for water quality monitoring sites in the summer season (late-May to late-September).

Site		Conductivity (uS/cm)	Hardness as CaCO3 (mg/L)	pH	Total Dissolved Solids (mg/L)	Turbidity (NTU)
JERWQ3	Mean	24.00	8.27	6.60	11.50	2.00
	SD	1.83	1.18	0.62	8.96	0.00
JERWQ4	Mean	15.90	4.00	6.43	20.00	0.91
	SD	2.76	2.00	0.83	17.80	0.80
JERWQ5	Mean	14.67	bd	5.99	8.67	1.33
	SD	3.06	bd	0.83	6.35	0.58
JERWQ6	Mean	16.58	4.00	6.72	18.75	1.29
	SD	4.74	1.73	0.35	12.20	0.89
JERWQ7	Mean	14.75	bd	6.31	24.25	1.50
	SD	3.59	bd	0.71	29.35	0.58
JERWQ8	Mean	16.63	4.33	6.61	23.50	1.16
	SD	4.27	2.31	0.18	21.42	0.98
JERWQ9	Mean	14.25	3.00	6.03	13.75	1.50
	SD	3.20	0.00	0.68	17.50	0.58
JERWQ10	Mean	15.23	4.00	6.66	15.67	1.38
	SD	1.97	1.73	0.33	12.90	1.07
JERWQ11	Mean	15.27	4.33	6.75	17.00	1.40
	SD	3.93	2.31	0.45	12.53	1.04
JERWQ12	Mean	35.25	13.75	6.66	20.25	0.75
	SD	7.37	3.60	0.49	16.66	0.29
JERWQ13	Mean	21.68	9.10	6.44	13.75	1.58
	SD	4.51	2.81	0.74	17.50	1.18
JERWQ14	Mean	17.75	7.08	6.47	18.25	1.13
	SD	1.71	0.46	0.78	13.33	0.63
JERWQ15	Mean	17.33	6.33	6.18	19.33	1.00
	SD	0.58	2.89	0.72	24.83	0.00

In general mean conductivity was highest at near-field site JERWQ12 (35.3 uS/cm; located in Stream C1) followed by site near-field site JERWQ3 (24.0 uS/cm; located in Stream C3) (Table 4.3). In comparison to the other monitored stream (Stream C4) and other monitored sites in lakes these values were elevated. The same trend was evident for hardness (as calcium carbonate) with the highest values occurring at site JERWQ12 followed by site JERWQ3. Mean turbidity was low for all sites (<2.0 NTU) and were in accordance with CWQG for the Protection of Freshwater Aquatic Life at all monitoring stations. Total dissolved solid concentrations were variable in space and time and ranged from a low of 8.47 mg/L at far-field site JERWQ5 to a high of 24.24 mg/L at far-field site JERWQ7. pH was similar among sites and ranged from 5.99 to 6.66 indicating slightly acidic conditions in all waterbodies.

Table 4.4 Dissolved anions and nutrient mean concentrations (mg/L) and standard deviations for water quality monitoring sites in the summer season (late-May to late-September).

Site		Alkalinity as CaCO3	Acidity as CaCO3	HCO_3	Cl	SO_4	NO_3	TOC	TIC
JERWQ3	Mean	10.25	2.25	12.50	1.25	1.11	0.058	2.50	2.25
	SD	0.96	1.26	1.29	0.47	1.04	0.045	1.00	1.26
JERWQ4	Mean	7.50	1.88	9.50	0.30	0.78	0.028	3.08	0.88
	SD	2.38	1.03	2.38	0.14	0.50	0.017	0.83	0.48
JERWQ5	Mean	7.00	2.67	8.33	0.23	1.07	bd	2.50	1.17
	SD	1.73	1.15	2.31	0.06	0.47	bd	0.58	0.76
JERWQ6	Mean	8.50	1.88	10.00	0.35	1.08	0.036	2.93	1.55
	SD	5.07	1.03	6.06	0.13	0.74	0.038	0.83	0.53
JERWQ7	Mean	6.75	2.00	8.00	0.33	1.68	0.031	2.25	1.50
	SD	1.50	0.82	2.00	0.10	1.23	0.013	0.50	0.58
JERWQ8	Mean	8.75	2.13	10.50	0.28	0.81	bd	3.03	1.40
	SD	5.56	1.18	6.40	0.15	0.47	bd	0.82	0.78
JERWQ9	Mean	6.50	2.00	8.25	0.20	0.79	0.034	2.00	0.75
	SD	1.29	0.82	1.50	0.00	0.37	0.018	0.82	0.29
JERWQ10	Mean	5.83	1.83	8.00	0.25	1.02	0.020	2.33	1.03
	SD	3.25	1.26	3.00	0.07	0.67	0.009	0.58	0.06
JERWQ11	Mean	7.00	1.50	8.33	0.30	0.73	0.029	2.30	1.50
	SD	0.00	0.87	0.58	0.17	0.42	0.029	0.52	0.50
JERWQ12	Mean	11.00	3.50	13.50	2.23	0.53	0.440	2.50	2.25
	SD	2.16	1.91	2.65	0.91	0.36	0.119	0.58	0.96
JERWQ13	Mean	8.50	1.88	10.75	0.85	1.12	0.096	5.18	2.23
	SD	1.91	1.03	2.22	0.30	0.95	0.094	1.39	0.40
JERWQ14	Mean	9.75	2.50	11.75	0.28	0.36	bd	5.00	1.63
	Mean	1.26	1.00	1.26	0.13	0.23	bd	0.00	0.75
JERWQ15	SD	9.33	2.67	11.67	0.27	bd	0.062	4.00	1.67
	Mean	1.15	1.15	1.53	0.15	bd	0.032	1.00	0.58

Chloride concentrations were highest at near-field stream sites JERWQ12 (2.23 mg/L) and JERWQ3 (1.25 mg/L) followed by Lake C1 site JERWQ13 (0.85 mg/L); concentrations of chloride at all other sites ranged from 0.20 mg/L to 0.35 mg/L (Table 4.4). Acidity was also highest at near-field site JERWQ12 (2.50 mg/L) compared to all other sites. Total organic carbon concentrations were highest at Lake C1 site JERWQ13 (5.18 mg/L) followed by Lake C4 site JERWQ14 (5.00 mg/L) and Stream C4 site JERWQ15 (4.00 mg/L). Total inorganic carbon was comparatively high at near-field stream sites JERWQ3 and JERWQ12 as well as Lake C1 site JERWQ13.

Table 4.5 Dissolved metal mean concentrations (mg/L) and standard deviations for water quality monitoring sites in the summer season (late-May to late-September).

Site		Al	Ba	Ca	Cr	Cu	Fe	Pb
JERWQ3	Mean	0.024	0.0034	1.80	0.0004	0.0033	0.039	0.00005
	SD	0.006	0.0013	0.27	0.0005	0.0019	0.049	0.00005
JERWQ4	Mean	0.024	0.0021	1.08	bd	0.0025	0.007	bd
	SD	0.014	0.0007	0.22	bd	0.0021	0.004	bd
JERWQ5	Mean	0.020	0.0019	1.12	0.0003	0.0038	0.009	bd
	SD	0.022	0.0008	0.10	0.0002	0.0022	0.008	bd
JERWQ6	Mean	0.013	bd	1.25	bd	0.0020	bd	0.00007
	SD	0.002	bd	0.26	bd	0.0016	bd	0.00004
JERWQ7	Mean	0.015	bd	1.25	bd	0.0035	bd	bd
	SD	0.006	bd	0.10	bd	0.0020	bd	bd
JERWQ8	Mean	0.011	0.0023	1.27	bd	0.0012	0.035	bd
	SD	0.001	0.0012	0.29	bd	0.0014	0.057	bd
JERWQ9	Mean	0.013	0.0019	1.13	0.0003	0.0028	bd	0.00006
	SD	0.010	0.0008	0.10	0.0002	0.0017	bd	0.00006
JERWQ10	Mean	0.016	0.0016	1.10	bd	0.0015	bd	0.00005
	SD	0.004	0.0002	0.26	bd	0.0014	bd	0.00003
JERWQ11	Mean	0.007	0.0015	1.33	bd	0.0013	bd	0.00006
	SD	0.003	0.0001	0.32	bd	0.0011	bd	0.00003
JERWQ12	Mean	0.033	0.0070	3.53	0.0005	0.0046	0.009	0.00017
	SD	0.013	0.0012	0.95	0.0005	0.0024	0.008	0.00026
JERWQ13	Mean	0.041	0.0026	1.77	bd	0.0033	0.022	bd
	SD	0.007	0.0017	0.25	bd	0.0023	0.014	bd
JERWQ14	Mean	0.024	0.0019	1.88	0.0005	0.0040	0.033	0.00008
	Mean	0.012	0.0008	0.30	0.0004	0.0025	0.040	0.00012
JERWQ15	SD	0.029	0.0032	1.87	bd	0.0034	0.032	bd
	Mean	0.012	0.0014	0.32	bd	0.0026	0.028	bd

Mean dissolved aluminum concentrations were highest at JERWQ13 (0.041 mg/L), JERWQ12 (0.033 mg/L) followed by sites JERWQ15 (0.029 mg/L), JERWQ3 and JERWQ14 (0.024 mg/L) (Table 4.5). Mean values at all sites were above the recommended 0.005 mg/L CWQG for the Protection of Freshwater Aquatic Life for aluminum when pH<6.5, Ca<4 mg/L and DOC<2mg/L (which was the case for most sites).

Mean total dissolved copper was highest at near-field stream site JERWQ12 (0.0046 mg/L) followed by sites JERWQ14 (0.0040 mg/L) and JERWQ5 (0.0038 mg/L). Lowest values were recorded at far-field site JERWQ8 (0.0012 mg/L). Mean values at all sites except far-field site JERWQ8, control site JERWQ10, and control site JERWQ11 were above the recommended 0.002 mg/L CWQG for the Protection of Freshwater Aquatic Life.

Concentrations of dissolved lead and chromium were substantially below the recommended 0.001 mg/L CWQG for the Protection of Freshwater Aquatic Life for all sites; highest values were found at near-field site JERWQ12 however.

Table 4.6 Dissolved metal mean concentrations and standard deviations for water quality monitoring sites in the summer season (late-May to late-September).

Site		Mg	Ni	Si	Na	Sr	U	Zn
JERWQ3	Mean	0.74	0.00031	0.48	1.23	0.0064	0.00009	0.0038
	SD	0.35	0.00018	0.13	0.25	0.0006	0.00003	0.0043
JERWQ4	Mean	0.37	0.00019	0.23	0.85	0.0061	0.00014	0.0038
	SD	0.23	0.00010	0.07	0.37	0.0026	0.00005	0.0034
JERWQ5	Mean	0.40	0.00013	0.23	0.61	0.0048	0.00012	0.0035
	SD	0.18	0.00009	0.04	0.26	0.0007	0.00003	0.0050
JERWQ6	Mean	0.56	0.00035	0.16	0.68	0.0063	0.00011	0.0035
	SD	0.24	0.00017	0.02	0.05	0.0016	0.00002	0.0033
JERWQ7	Mean	0.49	0.00021	0.22	bd	0.0051	0.00014	0.0018
	SD	0.17	0.00012	0.04	bd	0.0005	0.00008	0.0010
JERWQ8	Mean	0.60	0.00033	0.17	0.48	0.0062	0.00010	0.0020
	SD	0.17	0.00013	0.03	0.20	0.0024	0.00001	0.0014
JERWQ9	Mean	0.43	0.00009	0.17	0.65	0.0050	0.00009	0.0015
	SD	0.20	0.00008	0.04	0.19	0.0005	0.00002	0.0010
JERWQ10	Mean	0.40	0.00027	0.21	0.70	0.0057	0.00015	0.0023
	SD	0.25	0.00006	0.01	0.10	0.0014	0.00004	0.0023
JERWQ11	Mean	0.49	0.00030	0.23	0.70	0.0058	0.00010	0.0023
	SD	0.24	0.00017	0.01	0.10	0.0013	0.00001	0.0023
JERWQ12	Mean	1.23	0.00028	0.70	0.80	0.0149	0.00021	0.0018
	SD	0.35	0.00027	0.49	0.18	0.0024	0.00009	0.0010
JERWQ13	Mean	0.65	0.00030	0.59	0.33	0.0066	0.00068	0.0018
	SD	0.38	0.00008	0.10	0.14	0.0005	0.00022	0.0010
JERWQ14	Mean	0.56	0.00015	0.25	0.54	0.0055	0.00017	0.0018
	Mean	0.21	0.00012	0.12	0.20	0.0015	0.00003	0.0015
JERWQ15	SD	0.63	0.00022	0.28	0.55	0.0046	0.00020	0.0020
	Mean	0.12	0.00014	0.13	0.26	bd	0.00002	0.0017

Mean concentrations of dissolved nickel and zinc were substantially below the recommended 0.025 mg/L and 0.030 mg/L, respectively, CWQG for the Protection of Freshwater Aquatic Life for all sites (Table 4.6). Magnesium concentrations were highest at near-field stream sites JERWQ12 (1.23 mg/L) followed by site JERWQ3 (0.74 mg/L).

Table 4.7 Total metal mean concentrations and standard deviations for water quality monitoring sites in the summer season (late-May to late-September).

Site		Al	Sb	Ba	Ca	Cr	Cu	Fe	Pb
JERWQ3	Mean	0.037	bd	bd	1.80	0.0011	0.0008	0.050	0.00011
	SD	0.009	bd	bd	0.37	0.0012	0.0006	bd	0.00013
JERWQ4	Mean	0.025	0.00017	bd	1.12	0.0001	0.0018	0.020	0.00011
	SD	0.014	0.00022	bd	0.26	bd	0.0018	bd	0.00013
JERWQ5	Mean	0.054	0.00009	bd	1.08	0.0009	bd	0.030	0.00018
	SD	0.039	0.00008	bd	0.05	0.0008	bd	0.028	0.00022
JERWQ6	Mean	0.020	0.00016	bd	1.38	0.0004	0.0006	0.035	0.00006
	SD	0.005	0.00011	bd	0.41	0.0002	0.0003	0.021	0.00003
JERWQ7	Mean	0.028	bd	bd	1.15	0.0010	0.0007	0.050	bd
	SD	0.018	bd	bd	0.02	0.0010	0.0004	0.000	bd
JERWQ8	Mean	0.016	0.00020	bd	1.34	bd	0.0009	0.085	bd
	SD	0.007	0.00015	bd	0.31	bd	0.0005	0.049	bd
JERWQ9	Mean	0.024	0.00005	bd	1.10	0.0010	0.0010	0.035	0.00006
	SD	0.009	0.00000	bd	0.09	0.0012	0.0006	0.021	0.00003
JERWQ10	Mean	0.018	0.00005	bd	1.07	bd	0.0007	0.030	0.00005
	SD	0.003	0.00000	bd	0.16	bd	0.0003	bd	0.00000
JERWQ11	Mean	0.011	bd	0.0084	1.33	bd	0.0010	0.020	0.00005
	SD	0.000	bd	0.0109	0.23	bd	0.0004	bd	0.00000
JERWQ12	Mean	0.045	bd	0.0064	3.45	0.0008	0.0018	bd	0.00014
	SD	0.015	bd	0.0035	0.91	0.0007	0.0003	bd	0.00018
JERWQ13	Mean	0.050	0.00022	bd	1.90	bd	0.0017	bd	bd
	SD	0.009	0.00020	bd	0.39	bd	0.0005	bd	bd
JERWQ14	Mean	0.035	0.00006	bd	1.72	0.0012	0.0008	0.130	0.00019
	Mean	0.010	0.00003	bd	0.35	0.0016	0.0007	0.113	0.00028
JERWQ15	SD	0.041	bd	bd	1.75	bd	bd	0.050	bd
	Mean	0.016	bd	bd	0.34	bd	bd	bd	bd

Mean total aluminum concentrations were highest at JERWQ13 (0.050 mg/L), JERWQ12 (0.045 mg/L) followed by sites JERWQ15 (0.041 mg/L), JERWQ3 (0.037 mg/L), and JERWQ14 (0.035 mg/L). Moreover, mean values at all sites were above the recommended 0.005 mg/L CWQG for the Protection of Freshwater Aquatic Life when pH<6.5, Ca<4 mg/L and DOC<2mg/L (which was the case for most sites). Mean total copper concentrations were below the recommended GWQG of 0.002 mg/L for the Protection of Freshwater Aquatic Life for all sites. It is suspect that mean total copper concentrations were lower than mean dissolved copper concentrations for all sites. However, laboratory results were verified through quality control comparisons and field results were verified by comparisons of duplicate samples. It is recommended that duplicate laboratories be used for copper analyses in the future. Mean concentrations of total lead and chromium were substantially below the recommended 0.001 mg/L CWQG for the

Protection of Freshwater Aquatic Life for all sites. Highest values for total chromium were found at near-field sites JERWQ12 and JERWQ3, however.

Table 4.8 Total metal mean concentrations (mg/L) and standard deviations for water quality monitoring sites in the summer season (late-May to late-September).

Site		Mg	P	Si	Na	Sr	U	Va	Zn
JERWQ3	Mean	0.92	0.025	0.48	1.23	0.0060	0.000076	0.000238	0.0060
	SD	0.16	bd	0.19	0.22	0.0008	0.000035	0.000206	0.0063
JERWQ4	Mean	0.52	0.020	0.23	0.69	0.0059	0.000140	0.000088	0.0011
	SD	0.22	0.010	0.05	0.08	0.0013	0.000037	0.000075	0.0002
JERWQ5	Mean	0.53	bd	0.24	0.61	0.0047	0.000111	0.000200	0.0030
	SD	0.02	bd	0.03	0.30	0.0011	0.000061	0.000141	0.0023
JERWQ6	Mean	0.67	0.020	0.21	0.67	0.0065	0.000118	0.000125	0.0028
	SD	0.16	0.011	0.04	0.10	0.0017	0.000021	0.000119	0.0035
JERWQ7	Mean	0.49	bd	0.22	0.48	0.0044	0.000119	0.000263	0.0018
	SD	0.16	bd	0.03	0.27	0.0006	0.000066	0.000236	0.0015
JERWQ8	Mean	0.68	0.020	0.19	0.62	0.0067	0.000105	0.000100	0.0012
	SD	0.17	0.011	0.05	0.13	0.0016	0.000006	0.000071	0.0004
JERWQ9	Mean	0.54	bd	0.17	0.59	0.0048	0.000089	0.000200	0.0028
	SD	0.03	bd	0.03	0.23	0.0006	0.000048	0.000212	0.0035
JERWQ10	Mean	0.48	0.042	0.21	0.58	0.0055	0.000147	0.000150	0.0017
	SD	0.21	0.047	0.00	0.33	0.0005	0.000023	0.000087	0.0012
JERWQ11	Mean	0.63	0.018	0.24	0.53	0.0056	0.000117	0.000150	0.0015
	SD	0.13	0.012	0.01	0.24	0.0008	0.000035	0.000087	0.0009
JERWQ12	Mean	1.25	0.025	0.96	0.69	0.0151	0.000218	0.000188	0.0033
	SD	0.17	0.000	0.37	0.30	0.0033	0.000113	0.000155	0.0026
JERWQ13	Mean	0.94	0.023	0.56	0.56	0.0067	0.000735	0.000103	0.0013
	SD	0.21	0.005	0.09	0.24	0.0010	0.000152	0.000068	0.0006
JERWQ14	Mean	0.66	0.035	0.24	0.43	0.0047	0.000185	0.000350	0.0018
	SD	0.11	0.021	0.12	0.22	0.0000	0.000066	0.000238	0.0015
JERWQ15	Mean	0.66	bd	0.24	0.40	0.0051	0.000240	0.000200	0.0023
	SD	0.12	bd	0.11	0.26	bd	0.000017	0.000100	0.0023

Mean concentrations of total zinc was substantially below the recommended 0.030 mg/L CWQG for the Protection of Freshwater Aquatic Life for all sites. Magnesium concentrations were highest at near-field stream site JERWQ12 (1.25 mg/L) followed by site JERWQ3 (0.92 mg/L).

For sites JERWQ4, JERWQ9, JERWQ10, and JERWQ11 samples were also taken in mid-December and were not included in the mean calculations to allow for comparisons among sites. Similar to summer data, aluminum (dissolved and total) and total copper concentrations were above recommended CWQG for the Protection of Freshwater Aquatic Life (0.005 mg/L and 0.002 mg/L, respectively). Values of dissolved aluminum ranged from a low of 0.0005 mg/L at site JERWQ11 to a high of 0.051 mg/L at site JERWQ4. Values of total aluminum ranged from a low of 0.0008 mg/L at site JERWQ11 to a high of 0.059 mg/L at site JERWQ4. Values of total copper ranged from a low of 0.0026 at sites JERWQ4 and JERWQ10 to a

high of 0.0058 mg/L at site JERWQ11. Values of dissolved copper were below detection at sites JERWQ4 and JERWQ9 but were 0.0025 mg/L and 0.0040 mg/L at sites JERWQ10 and JERWQ11, respectively. Concentrations of lead, chromium, nickel, and zinc were substantially below CWQG recommended values at all sites.

For sites JERWQ16, JERWQ17, JERWQ18, JERWQ19, and JERWQ20 samples were only taken in July 2005. Conductivity was similar among sites and within the range reported for other monitoring sites (Table 4.9). Dissolved and total aluminum concentrations were above the recommended CWQG for the Protection of Freshwater Aquatic Life (0.005 mg/L) for all sites excluding site JERWQ18 where the total aluminum concentration was below the detection limit of 0.02 mg/L. Values of total copper ranged from a low of below detection (<0.001) at sites JERWQ18, JERWQ19, and JERWQ20 to a high of 0.0015 mg/L at site JERWQ17. All values were below the recommended CWQG for the Protection of Freshwater Aquatic Life (0.002 mg/L). Concentrations of lead, chromium, nickel, and zinc were substantially below CWQG recommended values at all sites.

Table 4.9 Physical test parameters values for water quality monitoring sites monitored in July only.

Site	Conductivity (uS/cm)	Hardness as CaCO3 (mg/L)	pH	Total Dissolved Solids (mg/L)	Turbidity (NTU)
JERWQ16	15.0	6.4	6.47	20	2
JERWQ17	16.0	6.7	7.2	bd	1
JERWQ18	17.0	7.2	6.92	24	3
JERWQ19	14.0	bd	5.43	16	2
JERWQ20	13.0	bd	5.35	bd	1

Table 4.10 Anion and nutrient concentrations for water quality monitoring sites monitored in July only.

Site	Alkalinity as CaCO3	Acidity as CaCO3	HCO_3	Cl	SO_4	NO_3	TOC	TIC
JERWQ16	8	3	9	0.2	bd	bd	3	2
JERWQ17	7	3	9	0.3	bd	0.06	3	2
JERWQ18	8	2	9	0.5	bd	bd	3	2
JERWQ19	7	3	8	0.2	bd	bd	3	bd
JERWQ20	5	3	6	0.2	0.9	bd	3	bd

Table 4.11 Dissolved metal concentrations for water quality monitoring sites monitored in July only.

Site	Al	Ca	Fe	Pb	Mg	Si	Na	Sr	Zn
JERWQ16	0.022	1.5	0.0034	bd	0.6	0.0003	0.5	0.27	0.00006
JERWQ17	0.021	1.6	0.0044	0.01	0.7	0.0002	0.5	0.25	<0.00005
JERWQ18	0.016	1.7	0.0038	0.04	0.7	0.0002	0.6	0.18	<0.00005
JERWQ19	0.013	1.1	0.0035	bd	0.5	0.0003	0.6	0.19	0.00013
JERWQ20	0.017	1.2	0.0048	bd	0.5	0.0002	0.6	0.23	0.00011

Table 4.12 Total metal concentrations for water quality monitoring sites monitored in July only.

Site	Al	Ca	Cu	Pb	Mg	P	Si	Na	U	Va
JERWQ16	0.025	1.47	0.0011	0.0001	0.67	0.073	0.27	bd	0.00006	0.0001
JERWQ17	0.029	1.59	0.0015	0.0002	0.75	0.063	0.25	0.6	0.00005	0.0002
JERWQ18	bd	1.68	bd	bd	0.73	bd	0.17	0.6	0.00008	0.0002
JERWQ19	0.027	1.15	bd	bd	0.57	bd	0.19	0.6	0.00016	0.0002
JERWQ20	0.030	1.05	bd	bd	0.55	bd	0.24	0.6	0.00016	0.0001

Dissolved and total aluminum concentrations were above the recommended CWQG for the Protection of Freshwater Aquatic Life (0.005 mg/L) for all sites excluding site JERWQ18 where the total aluminum concentration was below the detection limit of 0.02 mg/L. Values of total copper ranged from a low of below detection (<0.001) at sites JERWQ18, JERWQ19, and JERWQ20 to a high of 0.0015 mg/L at site JERWQ17. All values were below the recommended CWQG for the Protection of Freshwater Aquatic Life (0.002 mg/L). Concentrations of lead, chromium, nickel, and zinc were substantially below CWQG recommended values at all sites.

Statistical Comparisons

For statistical comparisons of parameters among sites recorded in the summer sampling period, comparisons were done when at least three values were above the analytical detection limit; the other values were recorded as half the detection limit. Therefore the number of values (n) was always four per site. This method precluded many comparisons among sites where only three values were recorded for the duration of the sampling period or more than one parameter value recorded for a site was below the analytical detection limit.

Table 4.13 Sites that met the criteria for statistical analyses (n=4, >3 samples above detection limit) for a given parameter. Sites with x met the criteria and sites with - did not.

Parameter	JER WQ3	JER WQ4	JER WQ5	JER WQ6	JER WQ7	JER WQ8	JER WQ9	JER Q12	JER WQ13	JER WQ14
Turbidity	x	-	-	x	x	-	x	-	x	x
Hardness*	-	-	-	-	-	-	x	x	-	x
TDS	x	x	-	x	x	x	x	x	x	x
Alkalinity	x	x	-	x	x	x	x	x	x	x
Sulphate	x	x	-	x	x	x	x	-	x	-
pH	x	x	-	x	x	x	x	x	x	x
Nitrate*	-	-	-	-	-	-	-	x	x	-
Conductivity*	x	x	-	x	x	x	x	x	x	x
Chloride*	x	x	-	x	x	x	x	x	x	x
Bicarbonate	x	x	-	x	x	x	x	x	x	x
Acidity	x	x	x	x	x	x	x	x	x	x
TOC	x	x	x	x	x	x	x	x	x	x
TIC*	x	-	-	x	x	x	-	x	x	x
Total Va*	x	-	x	-	x	-	-	x	x	x
Total U*	x	x	x	x	x	x	x	x	x	x
Total Na*	x	x	x	x	-	x	x	x	x	-
Total Si*	x	-	x	-	x	-	x	x	-	x
Total Mg*	x	x	x	x	x	x	x	x	x	x
Total Cu*	-	x	-	-	-	-	-	x	x	-
Total Ca*	x	x	x	x	x	x	x	x	x	x
Total Al*	x	x	x	x	x	x	x	x	x	x
Dissolved Ca*	x	x	x	x	x	-	x	x	-	x
Dissolved Mg*	x	-	-	x	x	-	-	x	-	x
Dissolved Na*	x	x	x	x	-	-	x	x	-	x
Dissolved U*	x	x	x	x	x	x	x	x	x	x
Dissolved Si*	x	-	x	-	x	-	x	x	-	x
Dissolved Ni*	x	-	-	x	x	x	-	-	x	-
Dissolved Fe	x	-	-	-	-	-	-	-	x	-
Dissolved Cu	x	-	x	x	x	-	x	x	x	x
Dissolved Ba*	x	x	-	-	-	-	-	x	-	-
Dissolved Al*	x	x	x	x	x	x	x	x	x	x

* Indicates a statistical difference between sites at an alpha level of 0.05.

The results of the statistical comparisons among water chemistry sites showed statistically significant differences between sites for 21 out of the possible 31 parameters outlined in Table 4.9. Mean turbidity, alkalinity, pH, acidity, sulphate concentrations, total dissolved solid (TDS) concentrations, bicarbonate concentrations, total organic carbon concentrations, dissolved iron concentrations, and dissolved copper concentrations were not statistically different between sites ($p>0.05$), where comparisons were possible.

Data were sufficient only for comparisons of mean hardness between sites JERWQ9, JERWQ12, and JERWQ14. Mean hardness was highest at JERWQ12 followed by JERWQ14 and then JERWQ9; all differences were significant ($p\leq0.05$). Mean conductivity was significantly higher at site JERWQ12 than

all other sites ($p<0.02$). Mean conductivity was also higher at site JERWQ3 than site JERWQ9 ($p=0.05$) whereas mean conductivity at all other sites was not statistically different. Mean chloride concentrations followed the same pattern as shown for conductivity. Mean chloride concentration was significantly higher at site JERWQ12 than all other sites ($p<0.02$). Mean chloride concentration at site JERWQ3 was higher than all sites ($p<0.04$) excluding sites JERWQ12 and JERWQ13. All other sites were not statistically different from each other in terms of mean chloride concentrations.

Data were sufficient only to allow comparisons of mean nitrate between sites JERWQ12 and JERWQ13; mean nitrate concentrations were significantly higher at site JERWQ12 than JERWQ13.

Mean total inorganic carbon concentration was significantly higher at site JERWQ14 than all other sites ($p\leq0.05$) excluding site JERWQ13. Further, mean total inorganic carbon concentration at site JERWQ13 was higher than site JERWQ8 ($p=0.05$). All other sites were not statistically different from each other. Mean total vanadium concentration was significantly higher at site JERWQ14 than all other sites ($p<0.01$) excluding site JERWQ13 ($p=0.09$). All other sites were not statistically different from each other. Mean dissolved nickel concentration was significantly higher at site JERWQ14 than all other sites ($p<0.01$). All other sites were not statistically different from each other. Mean dissolved uranium concentration was significantly higher at site JERWQ14 than all other sites ($p<0.01$). All other sites were not statistically different from each other.

Mean total uranium concentration was significantly higher at site JERWQ13 than sites JERWQ8, JERWQ9, and JERWQ3 ($p<0.05$). All other sites were not statistically different from each other. Mean dissolved uranium concentration was significantly higher at site JERWQ14 than all other sites ($p<0.01$). All other sites were not statistically different from each other.

Mean total sodium was significantly higher at site JERWQ3 than all sites excluding JERWQ4 and JERWQ12. Mean total sodium was significantly lower at site JERWQ14 than all sites excluding site JERWQ13. All other sites were not statistically different from each other. Similar to total sodium trends among sites, mean dissolved sodium was significantly higher at site JERWQ3 than all sites ($p<0.04$) excluding JERWQ4 and JERWQ12. All other sites were not statistically different from each other.

Mean total silicon concentration was significantly higher at site JERWQ12 than all other sites ($p<0.02$). All other sites were not statistically different from each other. Mean dissolved silicon concentration was significantly higher at site JERWQ12 than all other sites ($p<0.02$) excluding site JERWQ3. Site JERWQ3

also had a significantly higher mean dissolved silicon concentration than site JERWQ14. All other comparisons of concentrations among sites were not statistically significant.

Mean total magnesium was significantly higher at site JERWQ12 than all sites excluding JERWQ3. Mean total magnesium was significantly lower at site JERWQ14 than sites JERWQ3 and JERWQ12. All other sites were not statistically different from each other. Mean dissolved magnesium was significantly higher at sites JERWQ13 and JERWQ14 than sites JERWQ3, JERWQ6, and JERWQ3 but not site JERWQ12. Mean dissolved magnesium was significantly lower at sites JERWQ6 and JERWQ7 than sites JERWQ13, JERWQ14, and JERWQ12. All other sites were not statistically different from each other.

Data were sufficient only for comparisons of mean total copper concentrations between sites JERWQ4, JERWQ12, JERWQ13, and JERWQ14. Mean total copper was significantly higher at site JERWQ14 than sites JERWQ4 ($p=0.02$) and JERWQ12 ($p=0.02$) but not site JERWQ13 ($p=0.72$).

Similar to magnesium, mean total calcium concentration was significantly higher at site JERWQ12 than all sites ($p<0.01$). All other sites were not statistically different from each other. Mean dissolved calcium was significantly higher at site JERWQ12 than all other sites ($P<0.01$). Mean dissolved calcium was also significantly higher at site JERWQ3 than sites JERWQ13 and JERWQ14 ($P\leq0.01$). All other sites were not statistically different from each other in terms of mean dissolved calcium concentrations.

Mean total aluminum concentration was significantly higher at sites JERWQ13 and JERWQ14 than all other sites ($p<0.03$) but were not statistically different in mean concentrations from each other. All other sites were not statistically different from each other. Mean dissolved aluminum concentration was significantly higher at site JERWQ13 than site JERWQ8 ($p=0.04$). All other differences in dissolved aluminum concentration between sites were not statistically significant.

Mean dissolved barium concentration was significantly higher at site JERWQ12 than all other sites ($p<0.05$) excluding site JERWQ14 ($p=0.10$). Remaining sites were not statistically different from each other.

Quality Control

Duplicate samples were taken at the time of collection and prior to analysis in the laboratory to determine accuracy of analysis. Duplicate samples taken by Tahera at the time of collection showed slight variability

in results (Table 4.14). All duplicate samples, except for one (JERWQ1), had at least 70 % of measured parameters with less than 5 % error.

Table 4.14 Number of parameters and percent error between duplicates taken by Tahera, 2005 Jericho AEMP.

% Error	JERWQ1		JERWQ5		JERWQ6		JERWQ9		JERWQ11		JERWQ15	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
100	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
90-99	8	10.7	2	3.4	0	0.0	1	1.3	1	1.3	0	0.0
80-89	3	4.0	1	1.7	0	0.0	0	0.0	1	1.3	0	0.0
70-79	1	1.3	0	0.0	0	0.0	0	0.0	0	0.0	1	1.3
60-69	1	1.3	2	3.4	1	1.3	0	0.0	1	1.3	1	1.3
50-59	5	6.7	0	0.0	1	1.3	4	5.1	0	0.0	4	5.3
40-49	2	2.7	0	0.0	0	0.0	1	1.3	1	1.3	0	0.0
30-39	2	2.7	0	0.0	3	4.0	3	3.8	4	5.3	1	1.3
20- 29	4	5.3	1	1.7	0	0.0	2	2.5	3	3.9	4	5.3
10- 19	7	9.3	3	5.1	7	9.3	4	5.1	6	7.9	5	6.7
5- 9	0	0.0	3	5.1	4	5.3	2	2.5	5	6.6	4	5.3
0.1 - 4	3	4.0	5	8.5	3	4.0	4	5.1	8	10.5	6	8.0
< 0.1	39	52.0	42	71.2	56	74.7	58	73.4	46	60.5	49	65.3
Totals	75	100.0	59	100.0	75	100.0	79	100.0	76	100.0	75	100.0

Lab duplicates showed little variability in results. Greater than 79 % of measured parameters for all lab duplicate samples had a percent error of less than 5 % and at least 69 % of parameters in each sample had a percent error of less that 0.1 % (Table 4.15). Only a few parameters were found to have a percent error greater than 10 %.

Table 4.15 Number of parameters and percent error between laboratory duplicates, Jericho AEMP 2005.

% Error	JERWQ3		JERWQ4		JERWQ11		JERWQ13		JERWQ14		JERWQ2		JERWQ10	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
100	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
90-99	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
80-89	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
70-79	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
60-69	0	0.0	0	0.0	1	1.3	0	0.0	1	1.4	0	0.0	0	0.0
50-59	2	2.6	0	0.0	1	1.3	0	0.0	1	1.4	0	0.0	1	1.3
40-49	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.3
30-39	0	0.0	0	0.0	1	1.3	1	1.4	0	0.0	0	0.0	2	2.6
20- 29	3	3.8	0	0.0	0	0.0	0	0.0	2	2.8	0	0.0	0	0.0
10- 19	5	6.4	3	4.3	1	1.3	1	1.4	3	4.2	4	7.3	8	10.5
5- 9	6	7.7	5	7.1	5	6.6	4	5.7	4	5.6	3	5.5	1	1.3
0.1 - 4	8	10.3	4	5.7	7	9.2	6	8.6	6	8.3	3	5.5	5	6.6
< 0.1	54	69.2	58	82.9	60	78.9	58	82.9	55	76.4	45	81.8	58	76.3
Totals	78	100.0	70	100.0	76	100.0	70	100.0	72	100.0	55	100.0	76	100.0

4.3 DISSOLVED OXYGEN AND TEMPERATURE

Lakes were sampled for temperature and dissolved oxygen during April, July, and August 2005. Raw data are presented in Appendix C.

At the surface dissolved oxygen levels in April were high and likely approached saturation (14.3 mg/L in Jericho Lake to 17.4 mg/L in Carat Lake) (Figure 4.2). Oxygen levels decreased with depth. Close to the lake bottom dissolved oxygen levels were low in Carat Lake (approximately 1 mg/L). This may have been due to disturbance of the lake bottom. Temperatures did not vary: they ranged from 0 ^{o}C at the surface to a maximum of 3.2 ^{o}C close to the bottom.

In July dissolved oxygen concentrations at all stations ranged from 11.0 to 14.0 mg/L (Figure 4.3). Dissolved oxygen concentrations at the surface were generally lower than they were at the bottom, which likely was due to differences in water temperature. Water temperatures ranged from 4.4 to 10.9^{o}C with no evidence of stratification.

During August dissolved oxygen concentrations approximated 11.0 mg/L regardless of depth with two exceptions; Lake C3 and Carat Lake. Concentrations ranged from 15.0 and 13.0 mg/L at the surface to approximately 11.0 mg/L a few meters below the surface, in each lake respectively. In August, Control Lake and Cigar Lake were stratified (Figure 4.4). The thermocline occurred at 15 m and 13 m depths, respectively.

4.4 SECCHI DEPTH

Raw data are presented in Appendix E.

Secchi depths at monitored stations ranged from 4.0 m in Carat Lake to 8.5 m in Jericho Lake. The secchi depths at Control Lake and Lake C3 approximated values encountered in Carat Lake; 5.5 and 5.0 m respectively. The value recorded at Cigar Lake (7.5 m) was close to that measured in Jericho Lake.

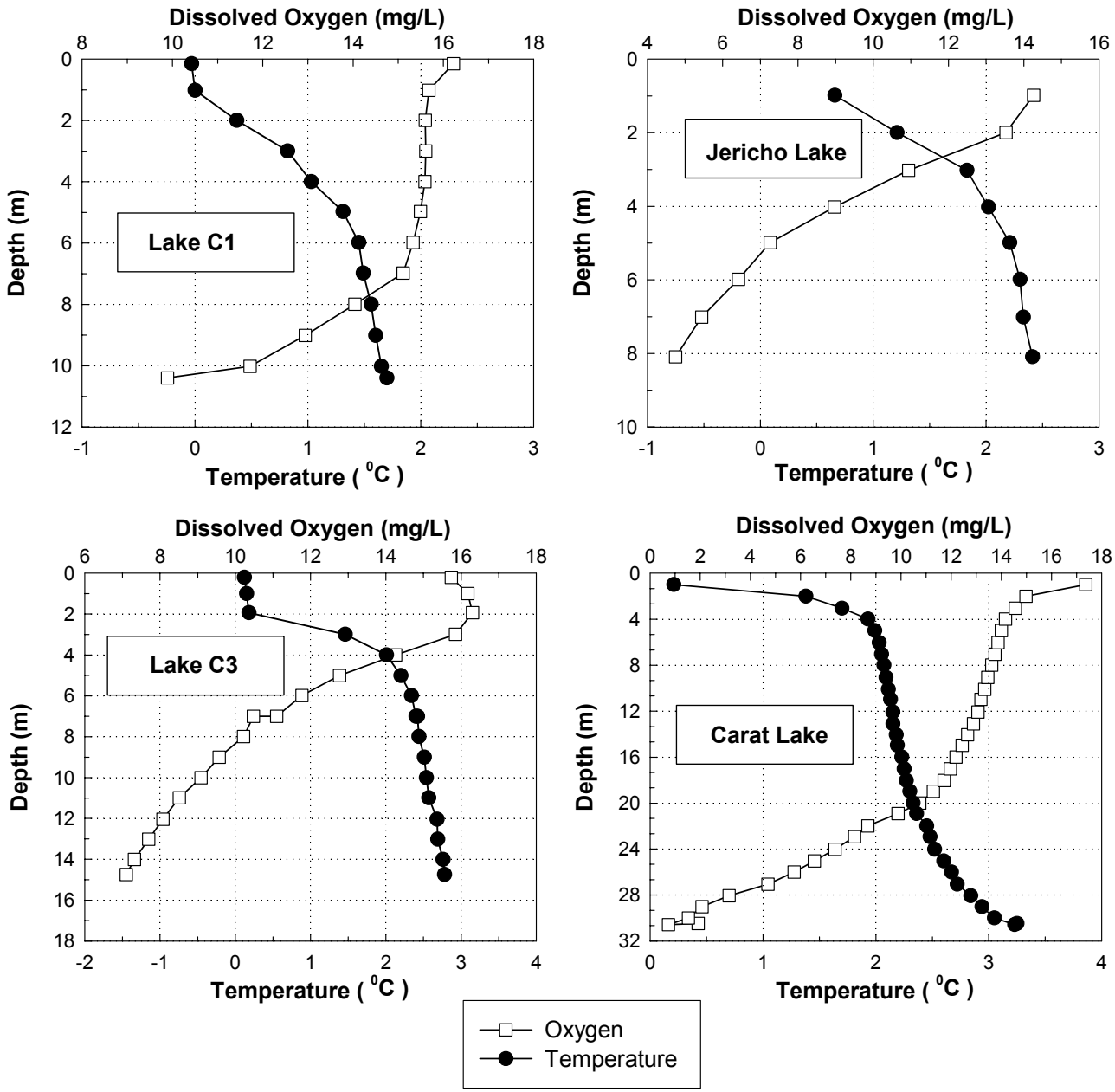


Figure 4.2 Dissolved oxygen and temperature profiles at stations monitored in April, 2005 Jericho AEMP.

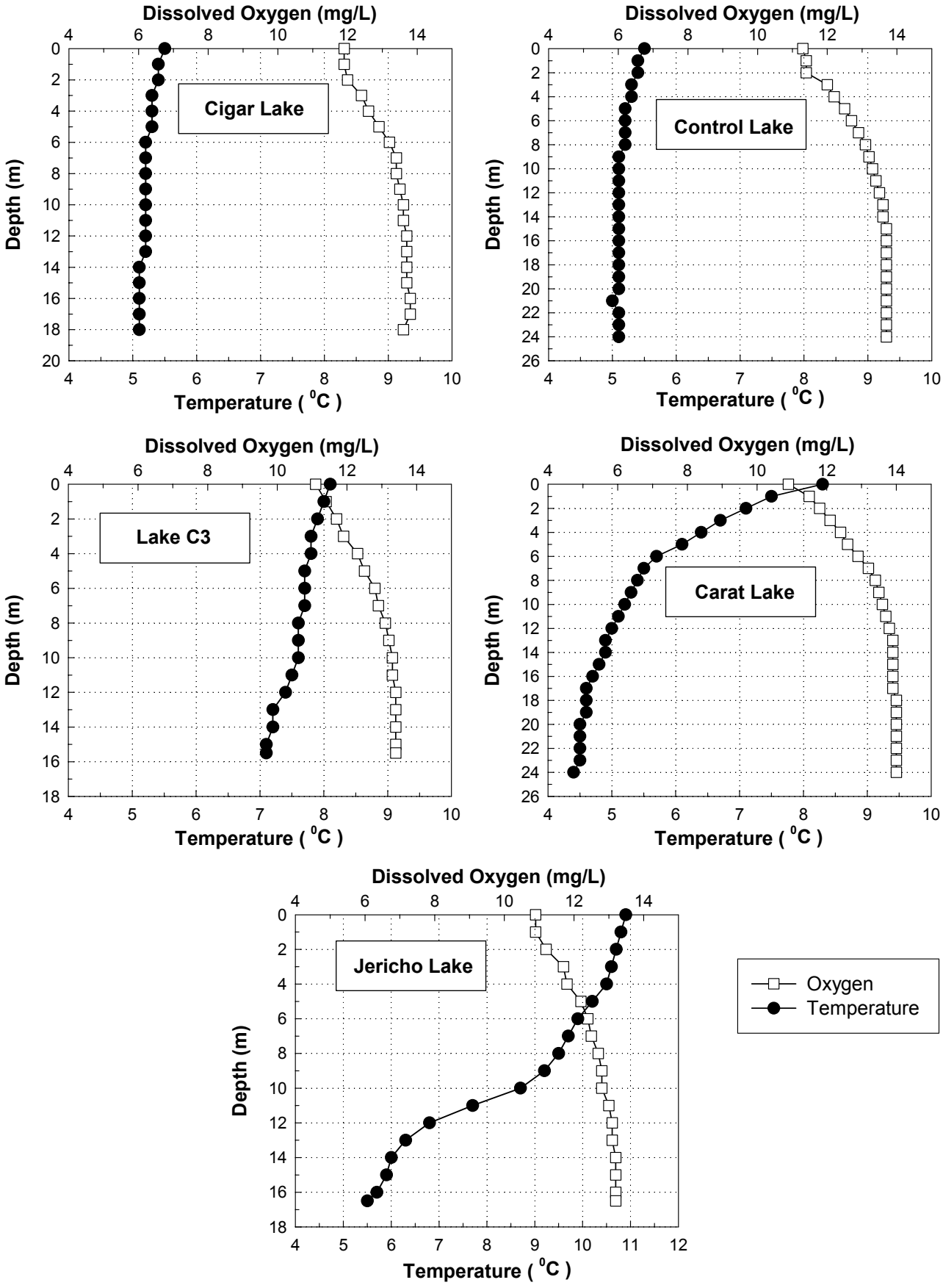


Figure 4.3 Dissolved oxygen and temperature at stations monitored in July, 2005 Jericho AEMP.

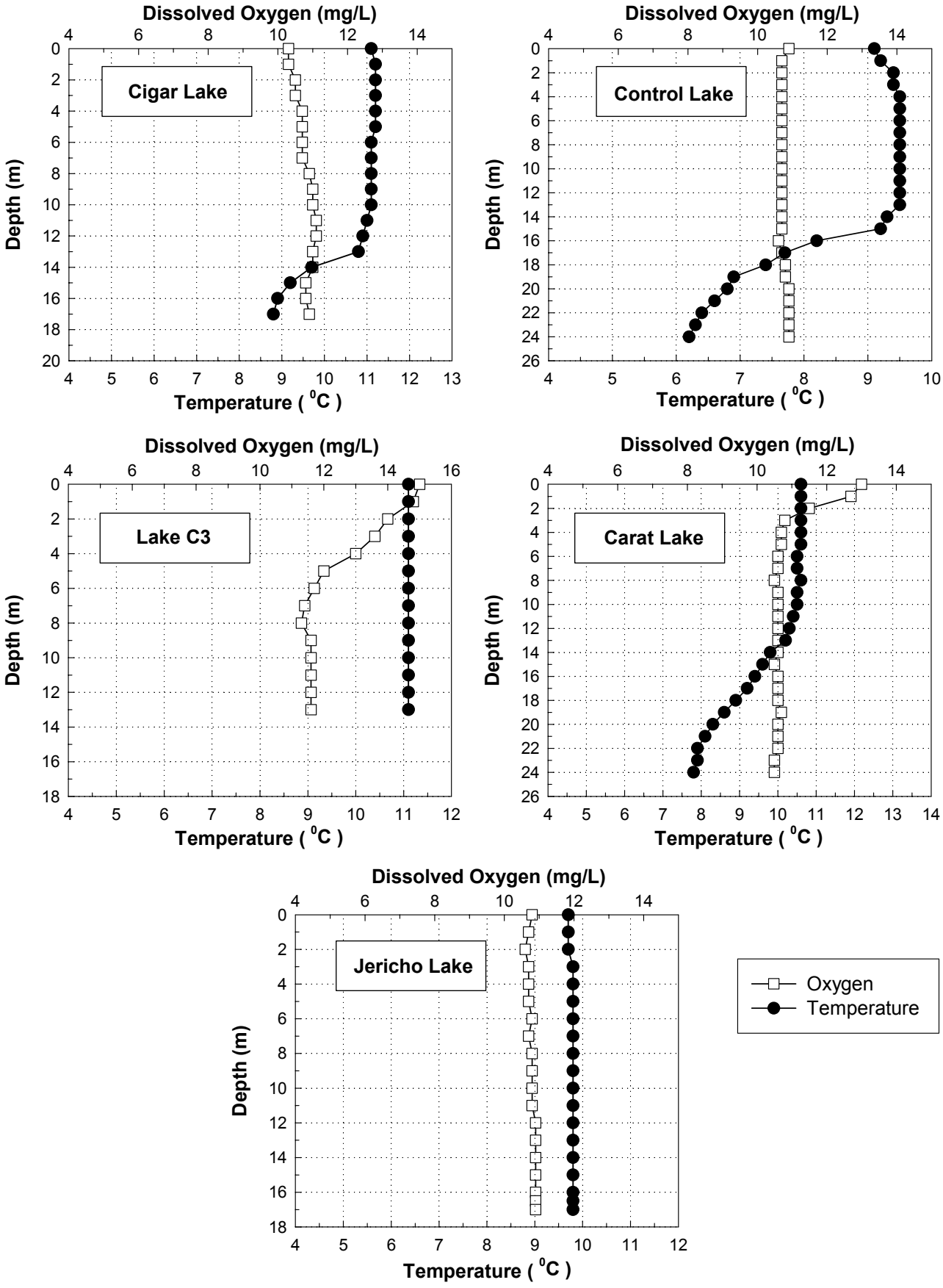


Figure 4.4 Dissolved oxygen and temperature profiles at stations monitored in August, 2005 Jericho AEMP.

4.5 SEDIMENT DEPOSITION

Most sediment deposition traps were deployed in August 2004 and remained in place until July 2005. Traps deployed in July 2005 immediately east and west of the Carat Lake causeway were lost as a result of strong winds moving the silt curtain that had been deployed to mitigate sediment transport during construction of the freshwater intake. Therefore, no data are available for these two stations. They were redeployed in August 2005 and will be retrieved in 2006.

Summary information is presented in Table 4.16 and raw data are presented in Appendix D.

Table 4.16 Sediment deposition data at stations monitored between 2004 and 2005, 2005 Jericho AEMP.

Lake	Station	Days at Large	Total Weight (mg)	Ashed Weight (mg)	Percent Ashed Weight	Sedimentation Rate ($mg/cm^2/day$)
Control	JER-SD23	314	2.02E+03	1.89E+03	94.0	7.59E-02
Cigar	JER-SD25	318	4.43E+01	2.20E+01	49.6	8.82E-04
Jericho	JER-SD26	317	1.01E+02	5.03E+01	49.7	2.04E-03
Lake C3	JER-SD20	317	1.19E+02	7.48E+01	62.8	3.01E-03
Carat (near)	JER-SD19	314	2.50E+02	1.99E+02	79.8	8.08E-03
Carat (far)	JER-SD07	314	2.60E+02	2.17E+02	83.4	8.79E-03

The days at large for stations in the Jericho study area ranged from 314 to 318 days. The sediment weights varied among the stations with the lowest at Cigar Lake and the highest at Control Lake. Total weight and ashed weight at both stations in Carat Lake and the station at Control Lake were elevated compared to other stations.

The percent of sediment on filters also varied among the stations. At Cigar and Jericho Lake stations there was less than 50% of the total sediment consisted of inorganic materials. This was compared to 80% and 83% at stations on Carat Lake. Control Lake had the highest percentage (94%).

These data indicate that deposition of sediments (excluding organic material such as zooplankton) was highest at the two stations in Carat Lake and the single station in Control Lake. Based on the ashed weight values, sedimentation rates at these three sites ranged between 8.08 $mg/cm^2/day \times 10^{-3}$ and 75.89 $mg/cm^2/day \times 10^{-3}$. This represented a 2 to 8 fold difference over sites with low sedimentation rates (i.e., Cigar, Jericho, and Lake C3).

4.6 PHYTOPLANKTON

Summary information is presented in Table 4.17 and Figure 4.5. Raw data are presented in Appendix E.

Taxa Richness

Mean taxa richness ranged from 59.4 to 75.0 for all stations. The Jericho Lake station had significantly higher mean richness (75.0) than all other sites. The Control Lake station exhibited the next highest mean taxa richness (66.3) and had significantly higher taxa richness than both Lake C3 (53.6) and Carat Lake (57.7).

Table 4.17 Phytoplankton parameter summary metrics at stations, 2005 Jericho AEMP.

Parameter	Lake	Station	Sample Size	Mean	Standard Deviation	Minimum	Maximum	Significance[a]
Richness (No. taxa)	Cigar	JER-AB11	7	59.4	4.9	49.0	63.0	BC
	Control	JER-AB10	6	66.3	3.9	61.0	71.0	B
	C3	JER-AB04	7	53.6	6.9	41.0	61.0	C
	Carat	JER-AB06	6	57.7	6.0	50.0	68.0	C
	Jericho	JER-AB08	7	75.0	5.4	69.0	83.0	A
Diversity (Simpson's D)	Cigar	JER-AB11	7	0.74	0.05	0.66	0.81	A
	Control	JER-AB10	6	0.73	0.04	0.69	0.79	AB
	C3	JER-AB04	7	0.71	0.09	0.59	0.80	AB
	Carat	JER-AB06	6	0.60	0.09	0.47	0.70	C
	Jericho	JER-AB08	7	0.64	0.07	0.56	0.74	BC
Total Density (cells/mL)	Cigar	JER-AB11	7	3126.2	636.0	2225.3	3953.0	B
	Control	JER-AB10	6	2911.1	287.1	2560.8	3261.6	B
	C3	JER-AB04	7	2990.1	462.3	2455.6	3629.2	B
	Carat	JER-AB06	6	3301.6	653.5	2485.1	4083.7	B
	Jericho	JER-AB08	7	4778.9	517.0	4028.9	5206.5	A
Total Biovolume ($\mu m^3/mL$)	Cigar	JER-AB11	7	227140.7	40126.4	166627.8	279111.3	BC
	Control	JER-AB10	6	282033.9	76950.3	229090.6	421333.3	AB
	C3	JER-AB04	7	157963.5	38511.8	112491.4	204813.2	C
	Carat	JER-AB06	6	291002.0	74335.5	183662.5	406395.0	AB
	Jericho	JER-AB08	7	356234.0	77591.3	237490.2	470560.3	A
Chlorophyll *a* (mg/m^3)	Cigar	JER-AB11	7	0.32	0.13	0.15	0.57	C
	Control	JER-AB10	6	0.56	0.14	0.44	0.77	AB
	C3	JER-AB04	7	0.38	0.16	0.15	0.62	BC
	Carat	JER-AB06	6	0.44	0.18	0.10	0.62	ABC
	Jericho	JER-AB08	7	0.62	0.12	0.44	0.77	A

[a] See Section 3.6.2 for description of statistical methods.

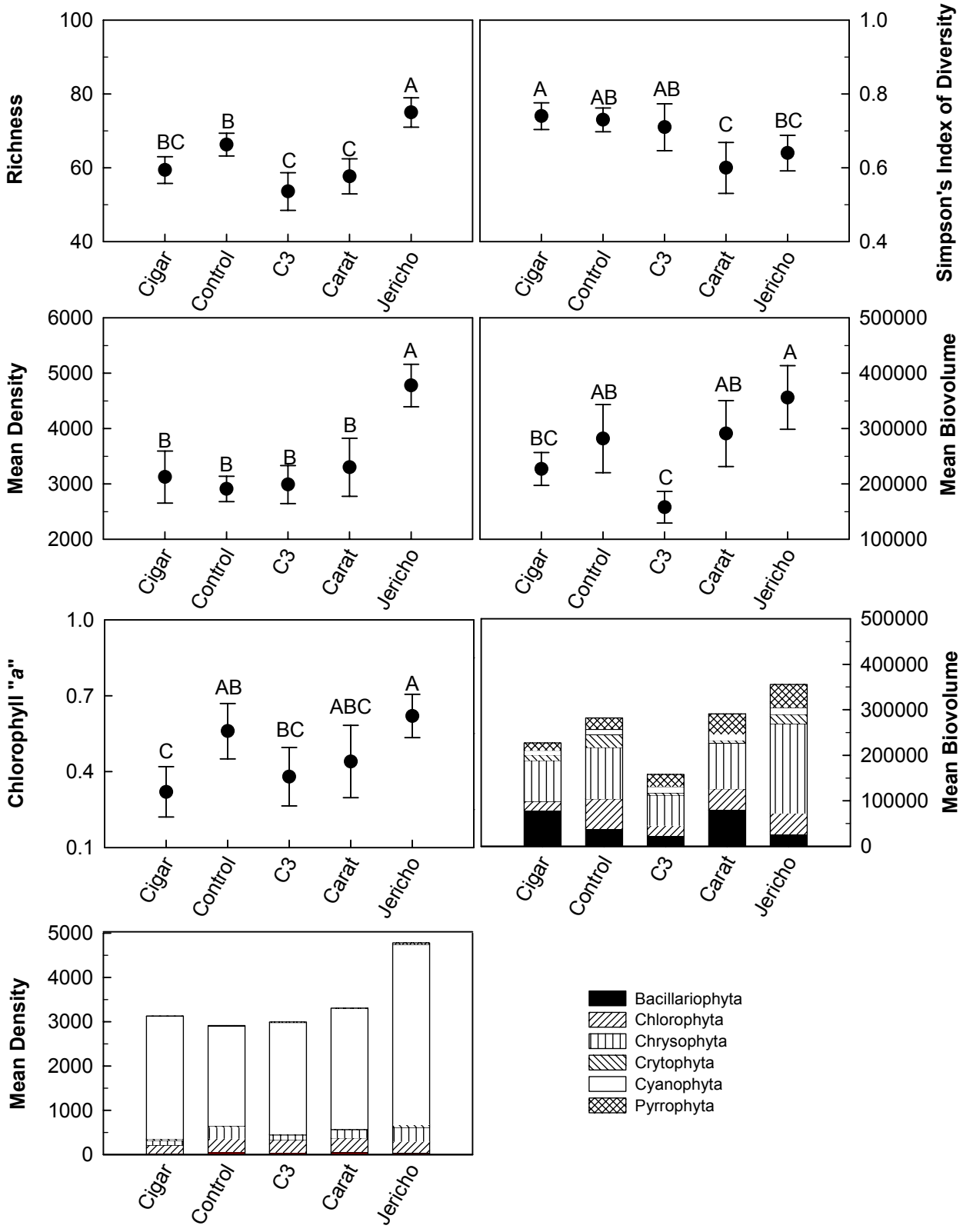


Figure 4.5 Phytoplankton parameter summary metrics, 2005 Jericho AEMP. Error bars represent 95% confidence intervals. Letter indicates statistical signficance. Density units are in number of organisms per milliliter. Biomass units are in micrometers cubed per milliliter. Chlorophyll "*a*" units are in milligrams per cubic meter.

Mean taxa richness at individual stations demonstrated yearly variability. For example, the mean taxa richness at the Control Lake station (26.5) was the lowest of all stations surveyed in 2004 whereas in 2005 this station had the second highest richness (66.3). Moreover, not all waterbodies exhibited extreme changes in richness and the directionality (increase or decrease) of richness between years was not consistent; mean richness increased in Cigar Lake, Control Lake, Lake C3, and Carat Lake but decreased in Jericho Lake. Within station variability was also substantially higher in the 2005 sampling period compared to the 2004 sampling period.

Simpson's Index of Diversity

Mean Simpson's Index of Diversity values were highest at Cigar Lake, Control Lake, and Lake C3 stations and lowest at Carat Lake and Jericho Lake stations. In terms of statistical significance, the Cigar Lake station had significantly higher mean Simpson's diversity than the Carat Lake and Jericho Lake stations but was not different in diversity from the Control Lake and Lake C3 stations. The Control Lake and Lake C3 stations also had significantly higher Simpson's Index of Diversity values than the Carat Lake station.

The relationships between waterbodies, in terms of Simpson's Index of Diversity, were similar between the 2004 and 2005 sampling periods; mean Simpson's diversity was highest at Cigar Lake, Control Lake, and Lake C3 stations and lowest at Carat Lake and Jericho Lake stations. In addition Simpson's Index of Diversity values were similar between years; the mean Simpson's D value ranged from 0.51 to 0.75 in 2004 and 0.60 to 0.74 in 2005.

Total Density

Mean total density was significantly higher at the Jericho Lake station (4778.9 cells/mL) than all other stations (range 2911.1 to 3301.6 cells/mL). There were no statistical differences in mean total densities between the remaining stations.

There were notable differences in mean density for stations between 2004 to 2005 which affected the density relationships between stations. Lake C3 and Control Lake stations maintained densities within 10% of 2004 values whereas Carat Lake station density decreased 23%. Jericho Lake station density increased 24%, and Cigar Lake station density increased 40% from 2004 to 2005. High yearly variation in densities at some sites may decrease the ability to detect future potential impacts of mining at these sites and necessitates continued yearly monitoring.

Total Biovolume

Mean biovolume comparisons between stations did not follow the same pattern as found for mean density, likely due to differences in community composition between sites. Although mean biovolume was highest at the Jericho Lake station (similar to density comparisons), values were not statistically higher than mean biovolumes at the Control Lake station or the Carat Lake station. The Lake C3 station had lower mean biovolume than all other stations; this relationship was statistically significant for all stations excluding the Cigar Lake station.

Interestingly, stations that had the lowest biovolumes in 2004 (Carat and Jericho) had the highest biovolumes in 2005 as a result of yearly fluctuations in phytoplankton biovolume at each station. Specifically, biovolume at the Cigar Lake station, Control Lake station, and Lake C3 station decreased by 55%, 31%, and 53%, respectively, in 2005 compared to 2004 whereas biovolume at the Carat Lake and Jericho Lake stations increased by 22% and 17%, respectively, in 2005 compared to 2004.

Chlorophyll *a*

Chlorophyll *a* concentrations relationships between stations were roughly similar to that found for biovolume. Mean values were highest at the Jericho Lake station (0.62 mg/m^3) followed by the Control Lake (0.56 mg/m^3) and Carat Lake (0.44 mg/m^3) stations and after that the Lake C3 (0.38 mg/m^3) and the Cigar Lake (0.32 mg/m^3) stations. In terms of statistical significance, the Jericho Lake station was significantly higher in chlorophyll *a* concentrations than the Cigar Lake and Lake C3 stations.

The Cigar Lake station had the lowest chlorophyll *a* concentration in both the 2004 (0.38 mg/m^3) and 2005 (0.32 mg/m^3) sampling periods compared to all other stations. This is somewhat surprising as in 2004 Cigar Lake exhibited the highest biovolume of all sites whereas in 2005 biovolume was among the lowest of all stations. However, the high biovolume at the Cigar Lake station in 2004 was largely comprised of Chyrsophytes which use chlorophyll *c* rather than chlorophyll *a* as the main photosynthetic pigment and may explain why chlorophyll *a* remained low while biovolume was high. This suggests that community composition can alter interpretation of biomass indices (such as chlorophyll *a* concentrations) and as such should be used in combination with other indices (biovolume, cell density).

Major Taxa

The phytoplankton data (density and biovolume) were summarized by major taxonomic group and presented in Figure 4.6. In terms of density, the dominant group in all waterbodies was Cyanophyta. Cyanophyta comprised over 77% of the total density of phytoplankton for all stations.

Chrysophyta was the dominant group in all waterbodies based on biovolume; 34% to 55% of the total biovolume at each station was dominated by Chrysophyta. Bacillariophyta percent of total biovolume ranged from 13% to 35% for all stations and was highest at Cigar Lake (35%) and Carat Lake stations (27%). Chlorophyta percent of total biovolume ranged from 9% to 24% at all stations with the Control Lake station highest. Pyrrophyta percent of total biovolume ranged from 7% to 17% at all stations. Cyanophyta and Cryptophyta made up less than 10% of the total biovolume at all stations.

The dominance of Cyanophyta, in terms of density, was consistent between years; in 2004 the dominant group in all waterbodies was also Cyanophyta. Similarly, Crysophyta was the dominant group in 2004 and 2005 based on biovolume. However, Crysophyta was less dominant, in terms of biomass, at the Cigar Lake station in 2005 compared to 2004. All other sites maintained similar phytoplankton biomass composition from 2004 to 2005.

4.7 ZOOPLANKTON

Summary information is presented in Table 4.18 and Figure 4.6. Raw data are presented in Appendix F.

Taxa Richness

Zooplankton taxa richness was variable among waterbodies and mean richness ranged from 14.5 taxa (Jericho Lake) to 19 taxa (Control Lake). Mean taxa richness was significantly higher at the Control Lake station than at all other stations, excluding the Lake C3 station. Mean taxa richness was significantly lower at the Jericho Lake and Carat Lake stations than the Control Lake and Lake C3 stations.

In comparison to 2004 data, richness was significantly higher in 2005; mean number of taxa ranged from 10.1 at the Cigar Lake station to 12.4 at the Control Lake station in 2004. This suggests that species richness is variable between years. The Control Lake station exhibited the highest richness in both years. Conversely, in 2005 the Jericho Lake station exhibited the lowest richness whereas in 2004 the Cigar Lake and Carat Lake stations had the lowest taxa richness values.

Simpson's Index of Diversity

Zooplankton Simpson's Index of Diversity ranged from 0.804 to 0.833 for all waterbodies. Due to very small variances within stations significant differences between stations were found. The Jericho Lake station (0.804) had significantly lower mean Simpson's Index of Diversity values compared to all other stations, excluding Carat Lake. The Control Lake station (0.833) had significantly higher Simpson's Index of Diversity values than Carat Lake (0.817) and Jericho Lake (0.804) stations.

Mean Simpson's Index of Diversity values were higher in 2005 compared to 2004 for all waterbodies; mean values in 2004 ranged from 0.596 to 0.776 for all stations. The Cigar Lake station, which had the significantly lowest mean Simpson's D value recorded in 2004 (0.596), did not exhibit the lowest value in 2005.

Table 4.18 Zooplankton parameter summary metrics at stations, 2005 Jericho AEMP.

Parameter	Lake	Station	Sample Size	Mean	Standard Deviation	Minimum	Maximum	Significance[a]
Richness (No. taxa)	Cigar	JER-AB11	6	16.3	1.4	14	18	BC
	Control	JER-AB10	5	19	0.7	18	20	A
	C3	JER-AB04	6	17.5	1.6	15	20	AB
	Carat	JER-AB06	5	15.2	1.5	13	17	C
	Jericho	JER-AB08	6	14.5	1.0	13	16	C
Diversity Index (Simpson's D)	Cigar	JER-AB11	6	0.825	0.010	0.814	0.840	AB
	Control	JER-AB10	5	0.833	0.007	0.826	0.842	A
	C3	JER-AB04	6	0.831	0.006	0.822	0.840	AB
	Carat	JER-AB06	5	0.817	0.008	0.811	0.827	BC
	Jericho	JER-AB08	6	0.804	0.011	0.790	0.823	C
Total Density ($No./m^3$)	Cigar	JER-AB11	6	18224.5	5971.0	9969.8	25630.2	BC
	Control	JER-AB10	5	20553.4	3221.5	17223.0	25910.2	AB
	C3	JER-AB04	6	9627.1	2945.7	5232.2	13336.4	C
	Carat	JER-AB06	5	29051.2	3541.7	24813.9	33015.8	A
	Jericho	JER-AB08	6	22267.1	11153.5	9237.9	40036.0	AB
Cladocera Density ($No./m^3$)	Cigar	JER-AB11	6	159.4	76.4	93.8	291.3	B
	Control	JER-AB10	5	84.0	23.8	50.4	100.8	B
	C3	JER-AB04	6	16.1	18.5	0	47.4	C
	Carat	JER-AB06	5	295.7	72.0	184.8	369.7	A
	Jericho	JER-AB08	6	27.4	24.8	0	67.2	C
Copepoda Density ($No./m^3$)	Cigar	JER-AB11	6	9600.3	3155.7	5152.9	13532.0	AB
	Control	JER-AB10	5	11110.1	2054.5	8620.0	14299.3	A
	C3	JER-AB04	6	4406.8	1404.2	2331.7	4406.7	B
	Carat	JER-AB06	5	13987.3	1759.6	12222.1	16404.0	A
	Jericho	JER-AB08	6	12589.8	7146.7	5011.0	24734.1	A
Rotifera Density ($No./m^3$)	Cigar	JER-AB11	6	8464.8	2857.4	4716.1	11806.9	BC
	Control	JER-AB10	5	9359.2	1246.3	8502.3	11560.4	BC
	C3	JER-AB04	6	5204.2	1588.7	2889.1	7094.8	C
	Carat	JER-AB06	5	14768.2	1880.1	12314.5	17027.8	A
	Jericho	JER-AB08	6	9649.9	4179.4	4219.4	152297.6	B

[a] See Section 3.7.2 for description of statistical methods.

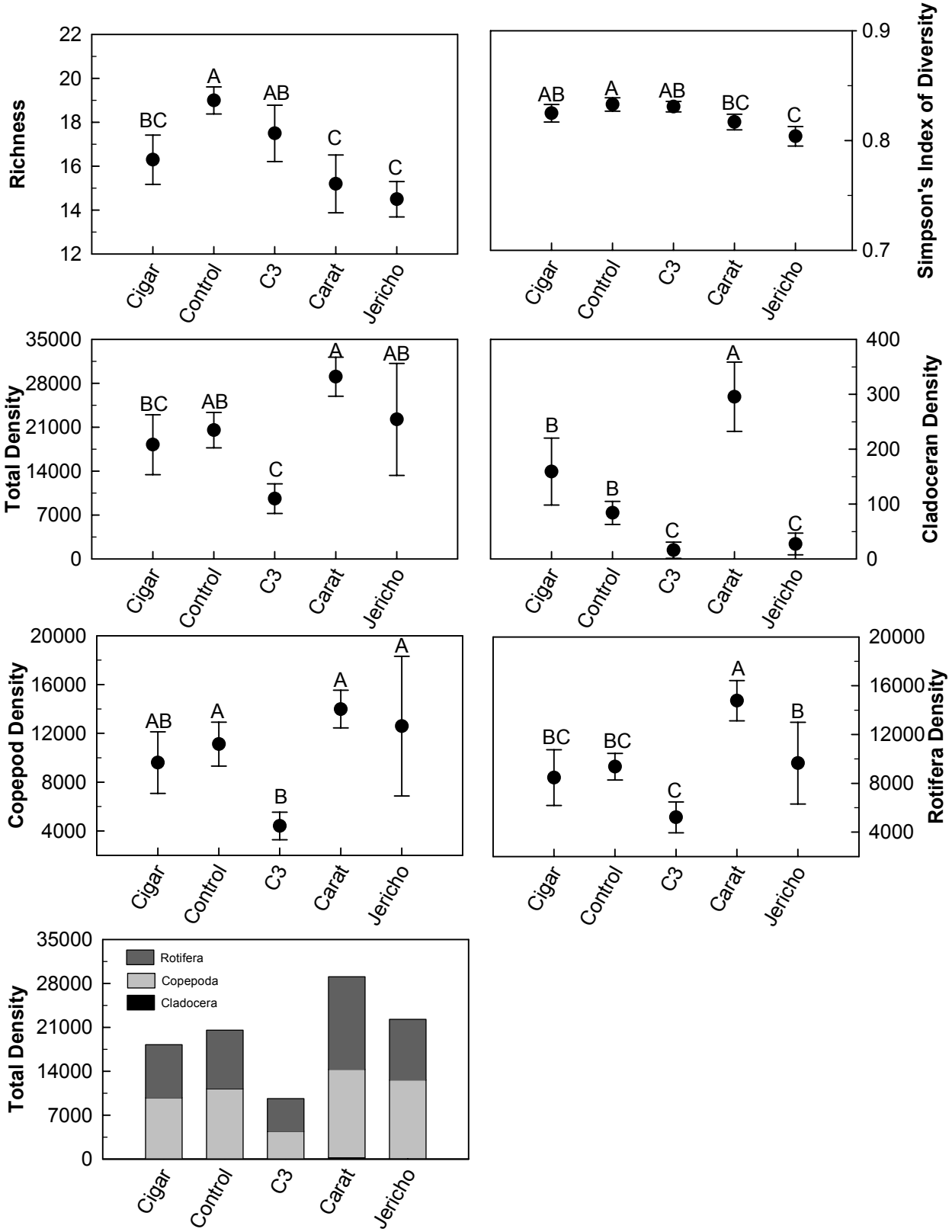


Figure 4.6 Zooplankton parameter summary metrics at stations, 2005 Jericho AEMP. Error bars represent 95% confidence intervals. Letter indicates statistical signficance.

Total Density

Mean density of zooplankton ranged from a low of 9,627.1 organisms/m^3 (Lake C3) to a high of 29,051.2 organims/m^3 (Carat Lake). Mean density was lowest at the Lake C3 station; this station had significantly lower densities than all stations except the Cigar Lake station. The highest densities were found at the Carat Lake station; this station had significantly higher mean densities than the Cigar Lake and Lake C3 stations. Mean total density of zooplankton were similar among Cigar Lake, Control Lake, and Jericho Lakes stations.

Mean density of zooplankton in the 2005 sampling period was substantially lower than for the 2004 sampling period. Mean values in 2004 ranged from a low of 15,338.8 organisms/m^3 to a high of 22,647.5 organisms/m^3. Moreover there were not significant differences among waterbodies for the 2004 sampling period, suggesting that zooplankton abundance is variable between years and differences between stations are either not always statistically detectable or present.

Cladoceran Density

Similar to the overall trend in total zooplankton density among waterbodies, mean cladoceran density was significantly higher at the Carat Lake station (295.7 organisms/m^3) than all other waterbodies/stations. Lake C3 and Jericho Lake stations had significantly lower mean densities than all other stations (16.1 organisms/m^3 and 27.4 organisms/m^3). Cigar Lake and Control Lake stations had similar mean cladoceran densities.

Compared to 2004, patterns of density were similar with the Carat Lake station having the highest cladoceran density and the Lake C3 station having the lowest density; in 2004 mean values ranged from 80.8 organisms/m^3 at the Lake C3 station to 415.9 organisms/m^3 at the Carat Lake station.

Copepod Density

Similar to the pattern for overall densities, the Lake C3 station had significantly lower mean copepod density than all other stations excluding Cigar Lake. All other sites had similar densities; however, the Carat Lake station exhibited the highest densities (this relationship was not significant).

Rotifer Density

Similar to the pattern the overall density of zooplankton between waterbodies, the Lake C3 station had the lowest mean density of rotifers (5204.2 organisms/m^3) and Carat Lake station had the highest (14,768.2 organisms/m^3). The Carat Lake station had a significantly higher mean density of rotifers than all other

stations; however, due to high variability within stations, only the Lake C3 station was statistically significantly lower than the Carat Lake and Jericho Lake stations. The Cigar Lake, Control Lake, and Jericho Lake stations all had similar densities.

Dominant Taxa

The dominant taxonomic zooplankton groups in terms of density were Rotifera and Copepoda; density was approximately equally divided between these two groups for all stations. Cladocerans comprised less than or equal to 1% of all organisms present at all stations.

Data from 2005 data contrast 2004 data which showed copepods (including Cyclopoida) to be the dominant taxonomic group. However, Cladocerans remained a small component, in terms of relative density, of the zooplankton community.

Quality Control

QA/QC of identifications showed that 25 out of 26 taxa were identified in the QA/QC identification compared to the initial identification. *Asplanchna* sp. was the only species that was not encountered during the QA/QC identifications, but since it was extremely rare (0.1% in only one sample of Carat Lake) its being overlooked was not questioned.

Sub-sampling precision met required standards in all samples with respect to both the entire sample and each dominant taxon. QA/QC enumerations and percent errors for total density and for each taxon were calculated on one sample from Carat Lake, Cigar Lake, and Lake C3 which were selected randomly and accounted for 10% of the samples. Enumeration efficiency was above 94% for all samples and ranged from 94.3 to 99.7 %. Percent errors for the community and all dominant taxa (≥ 10%) were below 20% for all samples. This level of percent error was also obtained for most of the common taxa (≥ 1%). In addition determination of taxa dominance was 100% accurate for all samples. These findings suggest acceptable accuracy for the identifications and enumerations performed.

4.8 BENTHIC MACROINVERTEBRATES

Summary information is presented in Table 4.19 and Figure 4.7. Raw data are presented in Appendix G.

Taxa Richness

Mean taxa richness was highest at the control sites; the Control Lake station had a mean richness of 15.2 and the Cigar Lake station had mean richness of 14.6. The lowest mean richness was found at the Jericho Lake station (12.0). Mean taxa richness at the Control Lake station was significantly higher than at the Jericho Lake station. Taxa richness was statistically similar among all other stations

Table 4.19 Benthic macroinvertebrate parameter summary metrics at stations, 2005 Jericho AEMP.

Parameter	Lake	Station	Sample	Mean	SD	Minimum	Maximum	Significance
Richness (No. taxa)	Cigar	JER-AB25	5	14.6	1.8	13	17	AB
	Control	JER-AB23	5	15.2	0.8	14	16	A
	C3 (near)	JER-AB20	5	14.4	2.1	12	17	AB
	C3 (far)	JER-AB05	5	12.8	1.5	11	15	AB
	Carat (near)	JER-AB19	5	13.2	1.1	12	15	AB
	Carat (far)	JER-AB07	5	14.0	0	14	14	AB
	Jericho	JER-AB26	5	12.0	1.7	11	15	B
Diversity (Simpson's D)	Cigar	JER-AB25	5	0.73	0.04	0.70	0.78	DC
	Control	JER-AB23	5	0.84	0.02	0.81	0.87	AB
	C3 (near)	JER-AB20	5	0.83	0.07	0.71	0.85	AB
	C3 (far)	JER-AB05	5	0.70	0.09	0.58	0.81	D
	Carat (near)	JER-AB19	5	0.84	0.02	0.80	0.86	AB
	Carat (far)	JER-AB07	5	0.86	0.01	0.84	0.86	AB
	Jericho	JER-AB26	5	0.81	0.02	0.78	0.84	BC
Total Density (No./m^2)	Cigar	JER-AB25	5	17069.4	1087.4	16313.0	18604.0	A
	Control	JER-AB23	5	5756.5	866.3	4771.0	6612.0	B
	C3 (near)	JER-AB20	5	6098.7	1809.9	5162.0	7337.0	B
	C3 (far)	JER-AB05	5	14294.1	2097.7	11281.0	17212.0	A
	Carat (near)	JER-AB19	5	6603.3	1357.2	5336.0	8584.0	B
	Carat (far)	JER-AB07	5	7270.3	2135.9	4234.0	9831.0	B
	Jericho	JER-AB26	5	9410.5	3873.4	5423.0	14790.0	B
Chironomid Density (No./m^2)	Cigar	JER-AB25	5	12449.7	923.5	11542	13920	A
	Control	JER-AB23	5	2351.9	483.1	1595	2726	DE
	C3 (near)	JER-AB20	5	1713.9	751.3	1059	2973	E
	C3 (far)	JER-AB05	5	2621.6	426.4	1929	3016	CD
	Carat (near)	JER-AB19	5	2856.5	615.8	2422	3770	CD
	Carat (far)	JER-AB07	5	3697.5	973.4	3277	5046	BC
	Jericho	JER-AB26	5	4990.9	1085.3	3364	6206	B
Oligochaete Density (No./m^2)	Cigar	JER-AB25	5	446.6	309.9	145	885	A
	Control	JER-AB23	5	342.2	118.9	261	522	A
	C3 (near)	JER-AB20	5	432.1	305.3	160	885	A
	C3 (far)	JER-AB05	5	130.5	99.4	29	203	**B**
	Carat (near)	JER-AB19	5	139.2	88.6	73	290	AB
	Carat (far)	JER-AB07	5	301.6	118.9	102	392	AB
	Jericho	JER-AB26	5	81.2	39.2	29	131	B

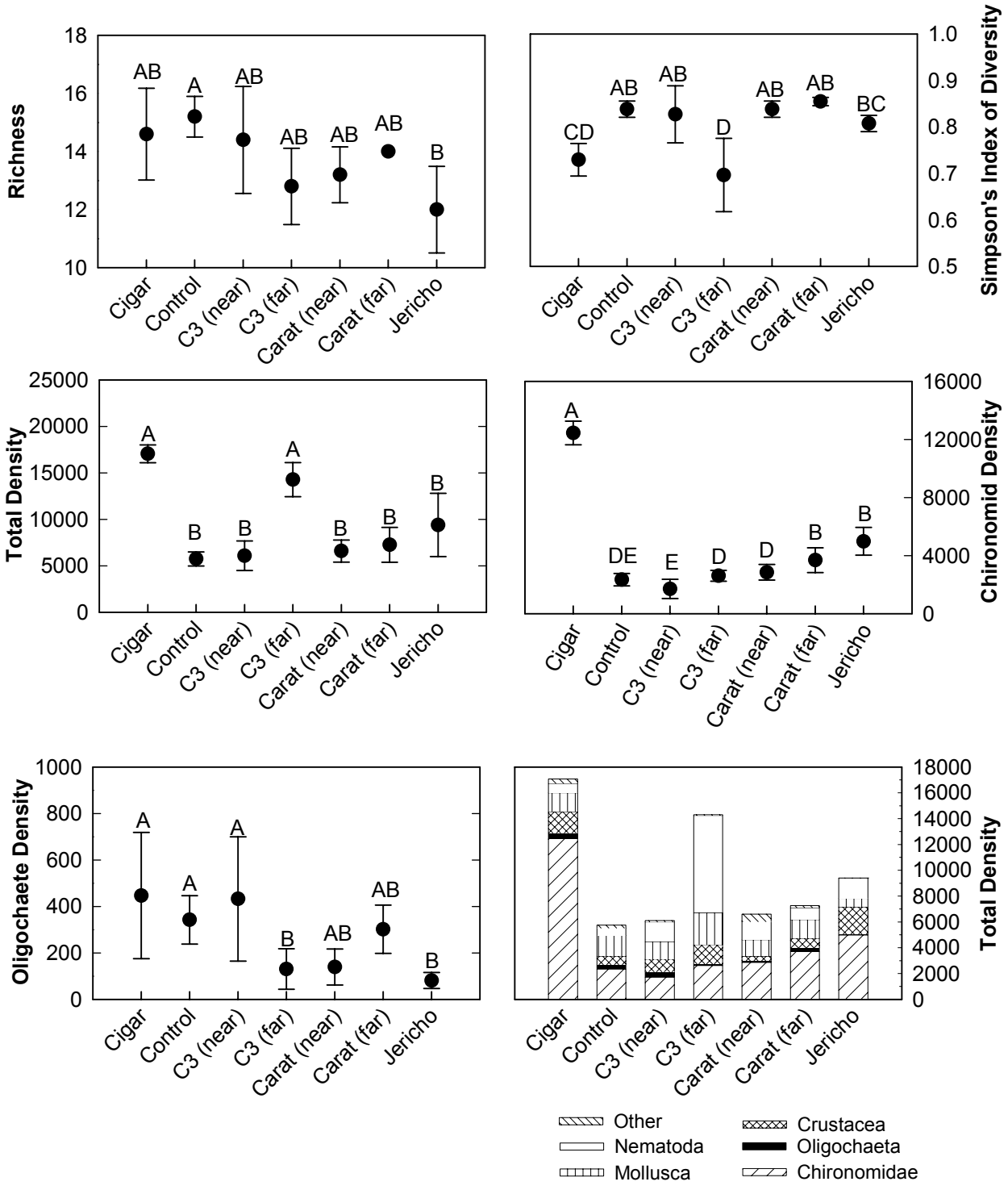


Figure 4.7 Benthic invertebrate parameters summary metrics, 2005 Jericho AEMP. Error bars represent 95% confidence intervals. Letter indicates statistical significance.Density units are number of organisms per square meter and richness units are number of organisms.

Despite that the range of mean taxa richness was similar in 2005 (12.0 to 15.2) compared to 2004 (11.8 to 14.2) there were differences in richness among stations. Specifically, in 2004 the lowest mean taxa richness occurred at near and far-field stations in Carat Lake (11.8) whereas in 2005 the Jericho Lake station exhibited the lowest taxa richness (12.0). Similar to 2005, the Control Lake and Cigar Lake stations had the highest mean taxa richness in 2004.

Simpson's Index of Diversity

Mean Simpson's Index of Diversity values were lowest at the far-field station in Lake C3 (0.70) followed by the Cigar Lake station (0.73). This resulted due to dominance of oligochaetes at the far-field Lake C3 station and chironomids at the Cigar Lake station which decreased taxa evenness. All other stations ranged in Simpson's Index of Diversity from 0.81 to 0.86, indicating a more even distribution of taxa at these stations.

Data from 2005 are similar to that of 2004; mean Simpson's Index of Diversity values ranged from 0.76 to 0.82. The one exception was Cigar Lake. The mean Simpson's D value of 0.71 was significantly less than mean values recorded for the remaining four waterbodies. The Cigar Lake station exhibited higher range of replicate values compared to other stations, which may have influenced the mean value at this station.

Total Density

Mean total density of benthic invertebrates varied significantly among waterbodies. Mean density was lowest at the Control Lake station (5756.5 organisms/m^2) and highest at the Cigar Lake station (17,069.4 organisms/m^2). Cigar Lake and Lake C3 far-field station had significantly higher mean invertebrate densities than all other stations. That Lake C3 far-field station had significantly higher mean invertebrate density as compared to the near-field site suggests high within lake variability.

Patterns of total density of benthic macroinvertebrates between stations were similar between the 2004 and 2005 sampling periods; the Cigar Lake station had the highest invertebrate density in both years whereas all remaining sites had lower densities. Since the far-field sites in Lake C3 and Carat Lake were only added for the 2005 sampling period comparisons to previous data were not possible. Invertebrate densities were higher at all stations in 2005 compared to 2004 indicating year-to-year variation in densities. Specifically, in 2004 mean density values ranged from 4346.2 organisms/m^2 to 10,494.2 organisms/m^2 whereas in 2005 they ranged from 5756.5 organisms/m^2 to 17,069.4 organisms/m^2.

Chironomid Density

Chironomid density was significantly higher at the Cigar Lake station as compared to all other stations. The mean value recorded at the Cigar Lake station (12449.7 organisms/m^2) was approximately 2.5 times higher than the next closet mean value (Jericho Lake station: 4990.9 organisms/m^2). Significant differences were also found between the remaining sites. The Jericho Lake and Carat Lake far-field stations had significantly higher densities than all remaining sites. Further, the Lake C3 near-field station had significantly lower densities than all other sites.

The pattern of high chironomid density at the Cigar Lake station compared to all other sampling stations found in 2005 also occurred in 2004; the mean value recorded at the Cigar Lake station (6925.7 organisms/m^2) in 2004 was approximately 2.5 times higher than the next closet mean value (Control Lake station; 2635.1 organisms/m^2). Interestingly, in 2004 chironomid densities for the remaining stations were not statistically different whereas in 2005 there were significant differences found between the remaining stations in terms of chironomid densities. This was likely due to decreases within station variation in 2005 and a subsequent increase in power to detect differences between stations.

Oligochaete Density

Mean oligochaete density was significantly higher at the Cigar Lake, Control Lake, and near-field Lake C3 stations than at the far-field Lake C3 and Jericho Lake stations. It is expected that oligochaete densities would be higher at the Cigar Lake station because overall density of organisms were higher. However, at the Control Lake station and near-field Lake C3 station oligochaetes densities were higher than at other stations (excluding Cigar Lake station) despite mean total densities being lower than these stations.

Similar to 2004 data, oligochaete density replicates at the Cigar Lake and near-field Lake C3 station exhibited greater within station variation compared to other stations. In 2004, the Cigar Lake station had substantially higher variation in mean oligochaete density than in 2005.

Dominant Taxonomic Groups

Dominant taxonomic groups varied among monitored stations (Figure 4.6). Chironomids were the numerically dominant taxa at all stations except Lake C3, where nematodes were the most dominant taxonomic group. Although chironomids were generally the dominant taxa this dominance varied among stations (see previous section). Interestingly, high total mean densities found at the Lake C3 and Cigar Lake stations were the result of increases in nematodes and chironomids, respectively, rather than a

proportional increase in all taxa. Although oligochaetes can be numerically dominant in these systems, oligochaetes were found at the lowest densities compared to other taxonomic groups at all sites. Mollusca followed by Crustacea were important taxonomic groups at all sites. Overall, data suggest that 1) the importance of major taxonomic groups was not consistent among stations and 2) that increases in a single taxonomic group (nematodes or chironomids) can lead to high overall station invertebrate density.

Comparison of 2005 data to 2004 data suggests dominant taxa can vary yearly at some stations. For example, although chironomids were also the numerically dominant taxa at most stations in 2004, at the Jericho Lake station Crustacea (cladocera and copepoda) were the dominant taxonomic group. This was not the case in 2005 where chironomids were the dominant taxa at this station. With this one exception, overall community composition (in terms of dominant groups) was very similar between years.

Quality Control

QA/QC procedures were completed for sorting precision, identification accuracy and computer data entry. Residues from two randomly selected samples (10% of total samples) were resorted by a person not involved in the first sorting. The sorting errors were found to be no more than 1.77% (mean 0.67%), which allowed the assumption of a 95% recovery from all samples, as required by Environment Canada (1993). A reference collection of selected taxa more complicated for identification was completed and was verified by a qualified taxonomist (Robert Saunders, Calgary).

The total numbers of taxa and numbers of individuals per sample were manually calculated from rough data, and again computed following computer data entry. Similar results ensured correct data entry. To ensure that data integrity and correctness were further maintained, spreadsheets were verified by recalculating sums of columns and rows at every stage of data computation.

4.9 FISH TISSUE

Summary data are presented in Table 4.20 to Table 4.25. Raw data are presented in Appendix I.

Mean fork lengths of lake trout were lower for fish collected in Cigar Lake (414.4 mm) compared to Jericho Lake (480.7 mm) (Table 4.20). Size ranges of collected lake trout were relatively narrow in both Cigar Lake (365 mm to 515 mm) and Jericho Lake (420 to 611 mm). This range was reflected in the age distribution of lake trout collected; lake trout collected from Cigar Lake were 12 to 21 years old and lake trout collected in Jericho Lake were 10 to 28 years old. Round whitefish collected from Cigar Lake were

also shorter than those collected from Jericho Lake; mean fork lengths were 378.0 mm and 407.2 mm for fish collected from Cigar Lake and Jericho Lake, respectively. Round whitefish captured from Cigar Lake were also slightly older than fish collected from Jericho Lake on average (11 years old and 10 years old, respectively). The age range of round whitefish captured was higher for fish from Cigar Lake (11 to 16 years old) than Jericho Lake (8 to 12 years old). Slimy sculpin collected from Stream W (75.6 mm) were substantially larger on average than fish collected from Jericho Lake (41.4 mm).

Table 4.20 Summary of biological characteristics of fish collected for tissue metal contaminants, 2005 Jericho AEMP.

Species	Lake	Sample Size	Length (mm)[a]				Age (years)			
			Mean	Standard Deviation	Min.	Max.	Mean	Standard Deviation	Min.	Max.
Lake trout	Cigar Lake	10	414.4	42.5	365	515	15.1	3.0	12	21
	Jericho Lake	10	480.7	60.7	420	611	15.0	5.8	10	28
Round whitefish	Cigar Lake	6	378.0	21.6	352	415	11.0	2.7	11	16
	Jericho Lake	4	407.2	20.1	385	430	10.0	1.8	8	12
Slimy sculpin	Stream W	10	75.6	6.9	66.0	85.5	-	-	-	-
	Jericho Lake	5	41.4	8.6	29.1	49.1	-	-	-	-

[a] Fork length for lake trout and round whitefish; total length for slimy sculpin.

The concentrations of most metal contaminants in fish tissues were above analytical detection limits (Table 4.21). Seven metals met the criteria for minimum sample size ($n \geq 4$ above detection limit) to allow statistical comparisons of the monitored lakes as follows:

- aluminum - lake trout and round whitefish (liver and muscle); slimy sculpin (whole fish)
- cadmium - lake trout and round whitefish (liver), slimy sculpin (whole fish)
- copper - lake trout and round whitefish (liver and muscle); slimy sculpin (whole fish)
- mercury - lake trout and round whitefish (liver and muscle); slimy sculpin (whole fish)
- molybdenum - lake trout and round whitefish (liver); slimy sculpin (whole fish)
- nickel - lake trout and round whitefish (liver and muscle); slimy sculpin (whole fish)
- zinc - lake trout and round whitefish (liver and muscle); slimy sculpin (whole fish)

Metal concentrations were compared to age of lake trout and round whitefish to establish if there were significant linear relationships (Table 4.22). There was a significant positive relationship between mercury concentrations in lake trout liver and muscle tissue and age for fish collected from both Jericho Lake and Cigar Lake.

Table 4.21 Number of fish tissue samples above analytical detection limits for selected metals associated with potential mine discharge, 2005 Jericho AEMP.

Species	Tissue	Lake	Number above detection limit									
			n	Aluminum	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Molybdenum	Nickel	Zinc
Lake trout	Liver	Cigar	10	10	0	10	0	10	0	10	10	10	10
		Jericho	10	10	0	10	0	10	1	10	10	9	10
	Muscle	Cigar	10	10	0	1	0	10	0	10	0	10	10
		Jericho	10	10	0	0	0	10	0	10	0	9	10
Round whitefish	Liver	Cigar	6	6	0	6	0	6	0	6	6	6	6
		Jericho	4	4	0	4	0	4	0	4	4	4	4
	Muscle	Cigar	6	6	0	0	0	6	0	6	0	6	6
		Jericho	4	4	0	0	0	4	0	4	0	4	4
Slimy sculpin	Whole	Stream W	10	10	0	8	0	10	0	10	10	10	10
		Jericho	5	5	0	5	0	5	0	5	5	5	5

Table 4.22 Linear regression of metal concentrations in tissues and fish age for selected metals that met the criteria for minimum sample size ($n \geq 4$ above detection limit) of the monitored waterbodies, 2005 Jericho AEMP.

Species	Tissue	Lake	R^2 values						
			Al	Cd	Cu	Hg	Mo	Ni	Zn
Lake trout	Liver	Cigar	0.28	0.00	0.22	0.41*	0.05	0.12	0.21
		Jericho	0.28	0.10	0.03	0.82*	0.19	0.07	0.01
	Muscle	Cigar	0.10	-	0.05	0.34**	-	0.00	0.01
		Jericho	0.06	-	0.01	0.55*	-	0.09	0.05
Round whitefish	Liver	Cigar	0.85*	0.91*	0.02	0.32	0.52	0.60**	0.57**
		Jericho	0.35	0.90*	0.12	0.54	0.53	0.01	0.09
	Muscle	Cigar	0.08	-	0.00	0.23	-	0.30	0.04
		Jericho	0.05	-	0.25	0.71	-	0.09	0.00

* Indicates statistical significance ($p \leq 0.05$) and ** indicates marginal significance ($p \leq 0.10$).

For round whitefish collected from Cigar Lake there were significant positive relationships between aluminum, cadmium, nickel, and zinc concentrations in liver tissue and fish age. For round whitefish collected from Jericho Lake, only cadmium had a significant positive relationship with fish age. Ageing structures were not taken for slimy sculpin and the use of composite samples precluded comparisons of fish length to metal concentrations for this species.

To avoid age as a confounding variable when comparing fish tissue metal concentrations prior to analyses age differences between waterbodies were tested using t-tests or Mann-Whitney U tests. If age was determined to be not statistically different between waterbodies it was assumed that relationships between age and tissue metal burdens would not confound the statistical results.

Mean metal concentrations for the selected metals are presented in Table 4.23 and illustrated in Figures 4.8 to 4.10. Statistical comparisons of means are presented in Table 4.24.

Table 4.23 Metal concentrations in fish tissue summary metrics, 2005 Jericho AEMP.

Species	Tissue	Waterbody		Al	Cd	Cu	Hg	Mo	Ni	Zn
Lake trout	Liver	Cigar	Mean ± SD	2.27±2.41	0.28±0.11	12.16±6.03	0.21±0.12	0.12±0.05	0.44±0.14	35.56±5.32
			Range	2.90-9.60	0.10-0.43	1.94-21.60	0.07-0.49	0.06-0.20	0.20-0.64	25.60-42.60
		Jericho	Mean ± SD	3.72±1.45	0.17±0.11	10.30±5.57	0.41±0.34	0.16±0.07	0.30±0.15	37.96±6.18
			Range	1.00-5.50	0.09-0.47	1.97-21.40	0.13-1.05	0.07-0.27	0.03-0.48	24.90-45.60
	Muscle	Cigar	Mean ± SD	2.91±1.21	-	1.06±1.29	0.16±0.06	-	0.10±0.07	3.57±0.014
			Range	1.50-5.20	-	0.28-4.64	0.03-0.0.26	-	0.04-0.23	3.33-3.72
		Jericho	Mean ± SD	1.36±0.68	-	0.36±0.09	0.31±0.19	-	0.10±0.06	3.47±0.21
			Range	0.80-2.90	-	0.23-0.53	0.11-0.55	-	0.04-0.24	3.16-3.76
Round whitefish	Liver	Cigar	Mean ± SD	3.60±4.17	0.12±0.09	2.50±0.17	0.10±0.06	0.13±0.05	0.57±0.18	27.45±3.68
			Range	1.00-12.00	0.07-0.30	2.20-2.70	0.04-0.19	0.10-0.20	0.30-0.74	22.50-32.70
		Jericho	Mean ± SD	1.75±1.45	0.07±0.03	2.33±0.49	0.10±0.02	0.13±0.05	0.51±0.15	25.82±2.30
			Range	0.50-3.80	0.04-0.10	1.83-2.99	0.080.12	0.100.20	0.32-0.67	22.40-27.20
	Muscle	Cigar	Mean ± SD	1.87±0.64	-	0.49±0.22	0.08±0.07	-	0.08±0.03	3.72±0.12
			Range	1.40-3.10	-	0.32-0.92	0.04-0.21	-	0.03-0.10	3.61-3.87
		Jericho	Mean ± SD	2.05±0.51	-	0.39±0.08	0.08±0.02	-	0.07±0.03	3.85±0.21
			Range	1.70-2.80	-	0.33-0.50	0.06-0.10	-	0.04-0.10	3.56-4.02
Slimy sculpin	Whole	Stream W	Mean ± SD	19.42± 8.80	0.02±0.01	0.90±0.12	0.06±0.02	0.03±0.01	0.14±0.03	26.79±4.13
			Range	11.00-36.60	0.01-0.03	0.73-1.10	0.04-0.08	0.02-0.03	0.10-0.18	23.40-37.30
		Jericho	Mean ± SD	14.92±3.89	0.02±0.00	1.23±0.75	0.02±0.00	0.03±0.01	0.12±0.04	27.7±0.90
			Range	10.80-20.40	0.02-0.02	0.81-2.57	0.02-0.03	0.02-0.03	0.09-0.18	26.90-28.80

Age was not significantly different between waterbodies for any fish species and therefore eliminated the need for ANCOVA; t-tests or Mann-Whitney U tests were used to determine significant differences, depending on the sample size.

For round whitefish, metal concentrations were not significantly different between Jericho Lake and Cigar Lake for either liver or muscle tissue (Figure 4.9). However, sample sizes were low and reduced the statistical power to detect differences. For lake trout, there were significant differences in metal concentrations between Jericho Lake and Cigar Lake for both liver and muscle tissue. Mean aluminum liver concentrations were significantly higher in Jericho Lake (far-field; 3.72 µg/g) compared to the control Cigar Lake (control; 2.27 µg/g) as were mean mercury concentrations (0.41 µg/g and 0.21 µg/g, respectively). In contrast, mean cadmium (0.28 µg/g and 0.17 µg/g) and mean nickel liver concentrations (0.44 µg/g to 0.30 µg/g) were significantly higher in Cigar Lake compared to Jericho Lake, respectively. Copper and zinc lake trout liver and muscle concentrations were not statistically different between waterbodies. Interestingly, lake trout muscle tissue aluminum was significantly higher in Cigar Lake (2.91 µg/g) than Jericho Lake (1.36 µg/g), which was opposite to results for liver tissue. Mercury in lake trout muscle tissue was significantly higher in Jericho Lake than Cigar Lake (0.31µg/g and 0.16µg/g, respectively) which was consistent with results for liver tissue mercury concentrations.

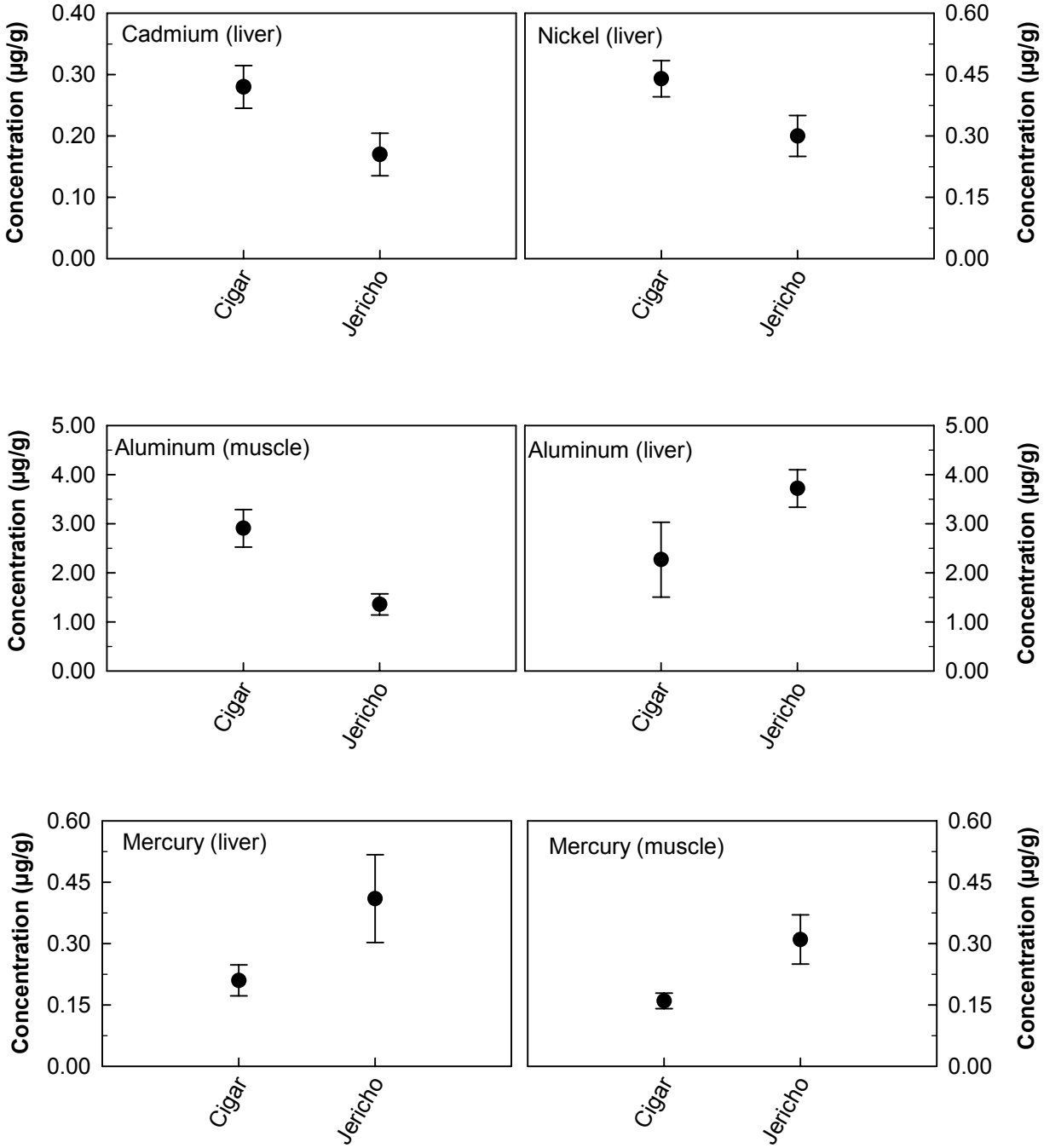


Figure 4.8 Selected metal contaminants in lake trout tissues summary metrics ($\bar{x} \pm$ 95% CI), 2005 Jericho AEMP.

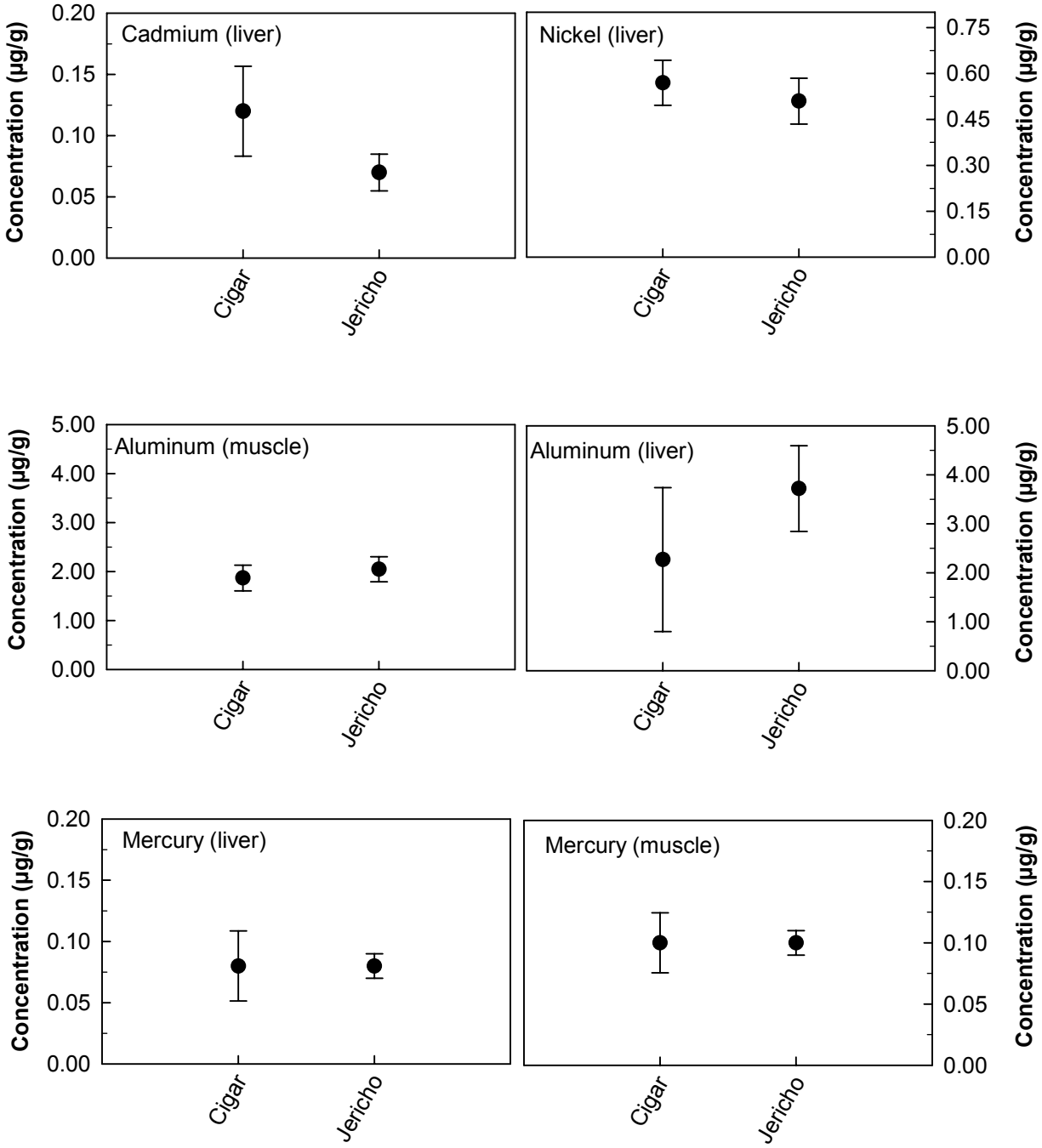


Figure 4.9 Selected metal contaminants in round whitefish tissues summary metrics ($\bar{x} \pm$ 95% CI), 2005 Jericho AEMP.

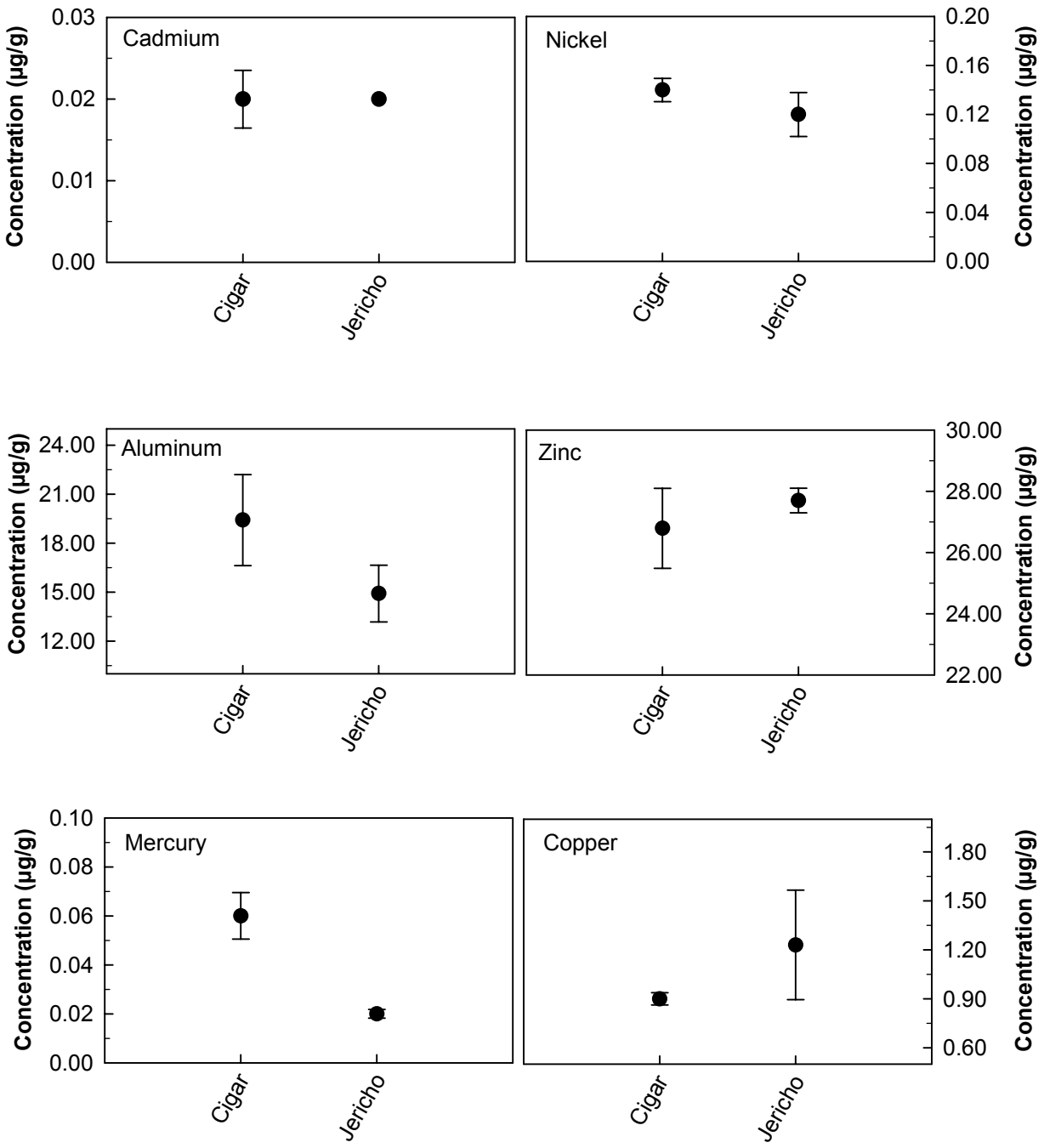


Figure 4.10 Selected metal contaminants in slimy sculpin whole fish tissues summary metrics ($\bar{x} \pm$ 95% CI), 2005 Jericho AEMP.

Mean mercury concentration in slimy sculpin whole fish tissue was higher in Stream W (0.06 µg/g) compared to Jericho Lake. Whole body slimy sculpin concentrations of all other metals were not statistically different between waterbodies.

Table 4.24 Statistical comparisons of mean metal concentrations in fish tissues, 2005 Jericho AEMP.

Species	Tissue	Waterbody	Al	Cd	Cu	Hg	Mo	Ni	Zn
Lake trout	Liver	Cigar Lake	2.27	0.28	12.16	0.21	0.12	0.44	35.56
		Jericho Lake	3.72	0.17	10.30	0.41	0.16	0.30	37.96
		Significance	0.01*	0.04*	0.48	0.10**	0.13	0.06**	0.36
	Muscle	Cigar Lake	2.91	-	1.06	0.16	-	0.10	3.57
		Jericho Lake	1.36	-	0.36	0.31	-	0.10	3.47
		Significance	0.01*		0.12	0.04*		0.89	0.24
Round whitefish	Liver	Cigar Lake	3.60	0.12	2.50	0.10	0.13	0.57	27.45
		Jericho Lake	1.75	0.07	2.33	0.10	0.13	0.51	25.82
		Significance	0.28	0.38	0.29	1.0	0.79	0.39	0.52
	Muscle	Cigar Lake	1.87	-	0.49	0.08	-	0.08	3.72
		Jericho Lake	2.05	-	0.39	0.08	-	0.07	3.85
		Significance	0.33		0.39	0.20		0.91	0.28
Slimy sculpin	Whole	Stream W	19.42	-	0.90	0.06	0.03	0.14	26.79
		Jericho Lake	14.92	-	1.23	0.02	0.03	0.12	27.7
		Significance	0.19	-	0.38	<0.01*	1.0	0.35	0.48

* Indicates statistical significance ($p \leq 0.05$) and ** indicates marginal significance ($p \leq 0.10$).

Comparison to 2004 Baseline

Cigar Lake and Stream W were the only waterbodies sampled in both 2004 and 2005.

For cadmium, 100% of liver samples for round whitefish and lake trout collected in Cigar Lake were above analytical detection limits in 2004 and 2005. Means for lake trout and round whitefish were 0.28 µg/g and 0.12 µg/g in 2005 and 0.28 µg/g and 0.12 µg/g in 2004, respectively, indicating no change in cadmium concentrations between years.

For copper, 100% of liver samples for round whitefish and lake trout collected in Cigar Lake were above analytical detection limits in 2004 and 2005. In 2004 muscle tissue was below detection limits for all Cigar Lake samples whereas in 2005 100% of the samples were above detection limits. Means for lake trout and round whitefish liver were 12.2 µg/g and 2.50 µg/g in 2005 and 12.8 µg/g and 2.0 µg/g in 2004, respectively, indicating little change in copper concentrations between years.

For mercury, 100% of liver and muscle samples for round whitefish and lake trout collected in Cigar Lake were above analytical detection limits in 2004 and 2005. Means for lake trout and round whitefish liver mercury concentrations were 0.21 µg/g and 0.10 µg/g in 2005 and 0.15 µg/g and 0.05 µg/g in 2004, respectively, indicating little change in mercury liver concentrations between years. Means for lake trout and round whitefish muscle mercury concentrations were 0.16 µg/g and 0.08 µg/g in 2005 and 0.10 µg/g and 0.02 µg/g in 2004, respectively, indicating higher concentrations in recent years.

For zinc, 100% of liver and muscle samples for round whitefish and lake trout collected in Cigar Lake were above analytical detection limits in 2004 and 2005. Means for lake trout and round whitefish liver zinc concentrations were 35.6 µg/g and 27.5 µg/g in 2005 and 37.5 µg/g and 25.7 µg/g in 2004, respectively, indicating little change in liver zinc concentrations between years. Means for lake trout and round whitefish muscle zinc concentrations were 3.6 µg/g and 3.7 µg/g in 2005 and 4.9 µg/g and 4.2 µg/g in 2004, respectively, indicating slightly lower zinc tissue concentrations in recent years.

For molybdenum, 100% of sample collected from Cigar Lake were below the detection limits in 2004 whereas 100% of liver tissues were above the analytical detection limit in 2005 for lake trout and round whitefish. Similarly in 2004, 100% of samples collected from Cigar Lake were below the detection limits for nickel in 2004 whereas 100% of the samples were above the analytical detection limits. In 2004, only 40% lake trout liver and 20% lake trout muscle samples collected in Cigar Lake were above the analytical detection limit for aluminum. For round whitefish only 5% of liver and muscle tissues were above analytical detection for aluminum. In 2005, 100% of the samples collected in Cigar Lake were above the analytical detection limit for aluminum for both species and tissue types. This could suggest concentrations are increasing. However, for slimy sculpin collected in Stream W 90% and 100% fish were above detection limits for aluminum in 2004 and 2005, respectively.

Quality Control

One of each lake trout and round whitefish muscle tissue samples were submitted as split samples for quality control analyses. Table 4.25 presents a summary of comparisons between the duplicate samples for selected metal contaminants. For all metals where sample 1 was below the detection limit sample 2 was also found to be below the detection limit. For samples above the detection limit absolute differences in metal concentrations varied from 0.0% (Jericho, nickel) to 291.7% (Cigar, copper). Maximum percent differences were recorded for copper (291.7% and 20.0%), nickel (78.6%), and aluminum (40.4% and 47.1%). Mean percent difference for all remaining metals did not exceed 8.1%. High variability in metal

concentrations for copper and aluminum suggest that laboratory analyses can be variable and as such incorporation of routine splits when analyzing for these metals may be required.

Table 4.25 Percent difference in metal concentrations between processed and quality control samples, 2005 Jericho AEMP.

Metal	Cigar Lake			Jericho Lake		
	Sample 1	Sample 2	% Difference	Sample 1	Sample 2	% Difference
Aluminum	5.2	3.1	40.4	1.7	2.5	-47.1
Antimony	<0.1	<0.1	0.0	<0.1	<0.1	0.0
Arsenic	<0.05	<0.05	0.0	<0.05	<0.05	0.0
Cadmium	<0.01	<0.01	0.0	<0.01	<0.01	0.0
Copper	0.84	3.29	-291.7	0.35	0.42	-20.0
Iron	2.4	2.5	-4.2	3.9	4.1	-5.1
Lead	<0.06	<0.07	0.0	<0.07	<0.06	0.0
Mercury	0.172	0.186	-8.1	0.0874	0.0873	0.1
Molybdenum	<0.01	<0.01	0.0	<0.01	<0.01	0.0
Nickel	0.14	0.03	78.6	0.08	0.08	0.0
Silver	<0.04	<0.04	0.0	<0.04	<0.04	0.0
Sodium	299	294	1.7	383	388	-1.3
Zinc	3.33	3.49	-4.8	4.02	4.1	-2.0
Zirconium	<0.01	<0.01	0.0	<0.01	<0.01	0.0

4.10 FISH COMMUNITY CHARACTERISTICS

4.10.1 Fish Community

Species Composition

Family, common name and scientific name of all fish species recorded while fish sampling during the 2005 Jericho AEMP are listed in Table 4.26. Species name abbreviations are also shown. All raw data are presented in Appendix H.

Table 4.26 Fish species recorded in the Jericho Study Area in 2005.

Family	Common Name	Label	Scientific Name
Salmonidae	Lake trout	LKTR	*Salvelinus namaycush*
	Arctic char	ARCH	*Salvelinus alpinus*
	Round whitefish	RNWH	*Prosopium cylindraceum*
Gadidae	Burbot	BURB	*Lota lota*
Cottidae	Slimy sculpin	SLSC	*Cottus cognatus*

Relative Abundance

Large-Fish Sampling

Gill net sampling was conducted only on Jericho and Cigar Lakes. Session data were combined to determine relative abundance.

Jericho Lake was sampled 4 days with 12 gill net sets while Cigar Lake was sampled 3 days with 7 gill net sets. Catch rates varied between the two lakes and between fish species (Table 4.27). Lake trout was the most abundant species captured in both lakes. For lake trout, catch rate was 3.61 fish/ 100 m^2/ 12 hours in Jericho Lake, while it was 2.86 fish/ 100 m^2/ 12 hours in Cigar Lake. Arctic char was the second most abundant species in Jericho Lake (1.50 fish/ 100 m^2/ 12 hours) followed by round whitefish (0.30 fish/ 100 m^2/ 12 hours). In Cigar Lake round whitefish (0.45 fish/ 100 m^2/ 12 hours) were slightly more abundant then Arctic char (0.30 fish/ 100 m^2/ 12 hours).

Table 4.27 Gill net catch rates while sampling for tissue fish in 2005, Jericho AEMP.

Lake	No. of Gillnets	Total Time	Total Effort	Lake Trout		Arctic Char		Round Whitefish		All species	
		(Hours)	(100m^2/12 h)	No.	CPUE[a]	No.	CPUE	No.	CPUE	No.	CPUE
Jericho	12	71:45	13.31	48	3.61	20	1.50	4	0.30	72	5.41
Cigar	7	37:56	7.03	38	2.86	4	0.30	6	0.45	48	6.82

[a] Catch per unit effort (number of fish/100m^2/12 h)

Small-Fish Sampling

Backpack electrofishing was conducted in July and August on Cigar Lake, Jericho Lake, and Stream W, which drains into Willingham Lake. Sampling effort focused on slimy sculpin for tissue analysis; therefore other fish species were not targeted.

Slimy sculpin catch rates were low in both Cigar and Jericho Lakes (Table 4.28). Catch rates for slimy sculpin in Cigar Lake were 0.06 fish/minute and 0.20 fish/minute in July and August respectively. Two Arctic char and one lake trout were also noted in Cigar Lake in August. Jericho Lake was sampled twice in July. Slimy sculpin catch rates for these two sampling events were 0.55 fish/minute and 0.98 fish/minute. Stream W was sampled three times. Sampling on 11 July included sampling of the lake margin of Willingham Lake near Stream W to increase the sample of slimy sculpin available for metal contaminant analysis. Slimy sculpin catch rates were 0.74 fish/min, 0.68 fish/minute and 0.70 fish/minute. Numerous lake trout and Artic char juveniles were observed in Stream W. One burbot was also recorded in Stream W.

Table 4.28 Backpack electrofishing catch rates during sampling for slimy sculpin tissue fish in 2005, Jericho AEMP.

Waterbody	Effort (s)	Sample Date	Slimy sculpin	
			No.	CPUE[a]
Cigar Lake	2010	11/07/2005	2	0.06
Cigar Lake	1206	12/08/2005	4	0.20
Jericho Lake	1629	10/07/2005	15	0.55
Jericho Lake	4030	12/07/2005	66	0.98
Stream W	3313	11/07/2005	41	0.74
Stream W	621	12/07/2005	7	0.68
Stream W	2674	12/08/2005	31	0.70

[a] Catch per-unit effort (fish/minute)

Density Estimates

Density estimates were generated for fish in Stream C1 and Stream C3 in July and August to document stream use (Table 4.29). In both streams density estimates decreased from July to August for all species. Slimy sculpin were the most species in both streams during both periods. Lake trout density decreased between July and August in Stream C1. No lake trout or Arctic char were found in Stream C3 in August.

Table 4.29 Density estimates of fish in Stream C1 and Stream C3, 2005 Jericho AEMP.

Stream	Species	July			August		
		Population Estimate	Upper Confidence Interval	Lower Confidence Interval	Population Estimate	Upper Confidence Interval	Lower Confidence Interval
Stream C1	Slimy sculpin	86	95.2	79.0	66	70.4	64.0
	Lake trout	43	44.0	43.0	-	-	-
Stream C3	Slimy sculpin	53	59.2	50.0	30	32.1	30.0
	Lake trout	2	6.9	2.0	-	-	-
	Arctic char	3	6.1	3.0	-	-	-

4.10.2 Biological Characteristics

Length and Age

Large Fish

Median, maximum, and minimum fork lengths and age were calculated for lake trout, round whitefish, and Arctic char captured by gill netting (Table 4.30).

In Cigar Lake, lake trout had a median length of 406.5 mm and ranged in size from 230 to 915 mm. A subsample of these fish indicated median age of 14, a minimum age of 12, and maximum age of 21. Round whitefish ranged from 352 to 415 mm length with a median of 376.5 mm. These fish had a median

age of 10.5 and a minimum age of 8 and maximum age of 16. Arctic char ranged from 422 to 450 mm and had a median of 433.5 mm. Arctic char were not sacrificed for aging structures, and therefore, were not aged.

In Jericho Lake, lake trout had a median length of 442.0 mm and ranged in size from 226 to 611 mm. A subsample of these fish had a median age of 13 with a minimum age of 10 and maximum age of 28. Round whitefish size ranged between 385 and 430 mm; median length was 407.0 mm. These fish had a median age of 10 with a minimum and maximum age of 8 and 12 respectively. Arctic char ranged in length from 358 to 584 mm with a median length of 450.5 mm.

Table 4.30 Median, maximum, and minimum fork length and age of fish species captured by gill netting in 2005, Jericho AEMP.

Species	Lake	Total Catch	Length			Age			
			Median	Minimum	Maximum	Sample Size	Median	Minimum	Maximum
Lake trout	Cigar	38	406.5	230	915	10	14	12	21
	Jericho	45	442.0	226	611	10	13	10	28
Round whitefish	Cigar	6	376.5	352	415	6	10.5	8	16
	Jericho	4	407.0	385	430	4	10	8	12
Arctic char	Cigar	4	433.5	422	450	-	-	-	-
	Jericho	16	450.5	358	584	-	-	-	-

Length-at-age relationships were determined for lake trout and round whitefish used for fish tissue analyses. Growth rates of lake trout and round whitefish were low (Figure 4.11).

Small Fish

Median, maximum and minimum lengths were calculated for small fish (Table 4.31). Slimy sculpin lengths varied between streams and lakes. Median length was 41 mm in Jericho Lake, 65 mm in Cigar Lake and 62 mm in Stream W. Median length of slimy sculpin were 53 mm in Stream C1 and 60 mm in Stream C3. Overall lengths varied from a minimum of 18 mm in Stream C1 to a maximum of 100 mm in Stream W.

Lake trout captured in Stream C1 had a median length of 59 mm and ranged from 31 to 124 mm. Lake trout caught in the Stream C3 had a median length of 32 mm and ranged from 29 to 80 mm. One lake trout captured in Cigar Lake had a fork length of 77 mm. Two Arctic char captured in Cigar Lake had lengths of 58 and 61 mm. Arctic char captured in Stream C3 had a median length of 68 mm and ranged from 33 to 71 mm. A 202 mm burbot was also captured in Stream W.

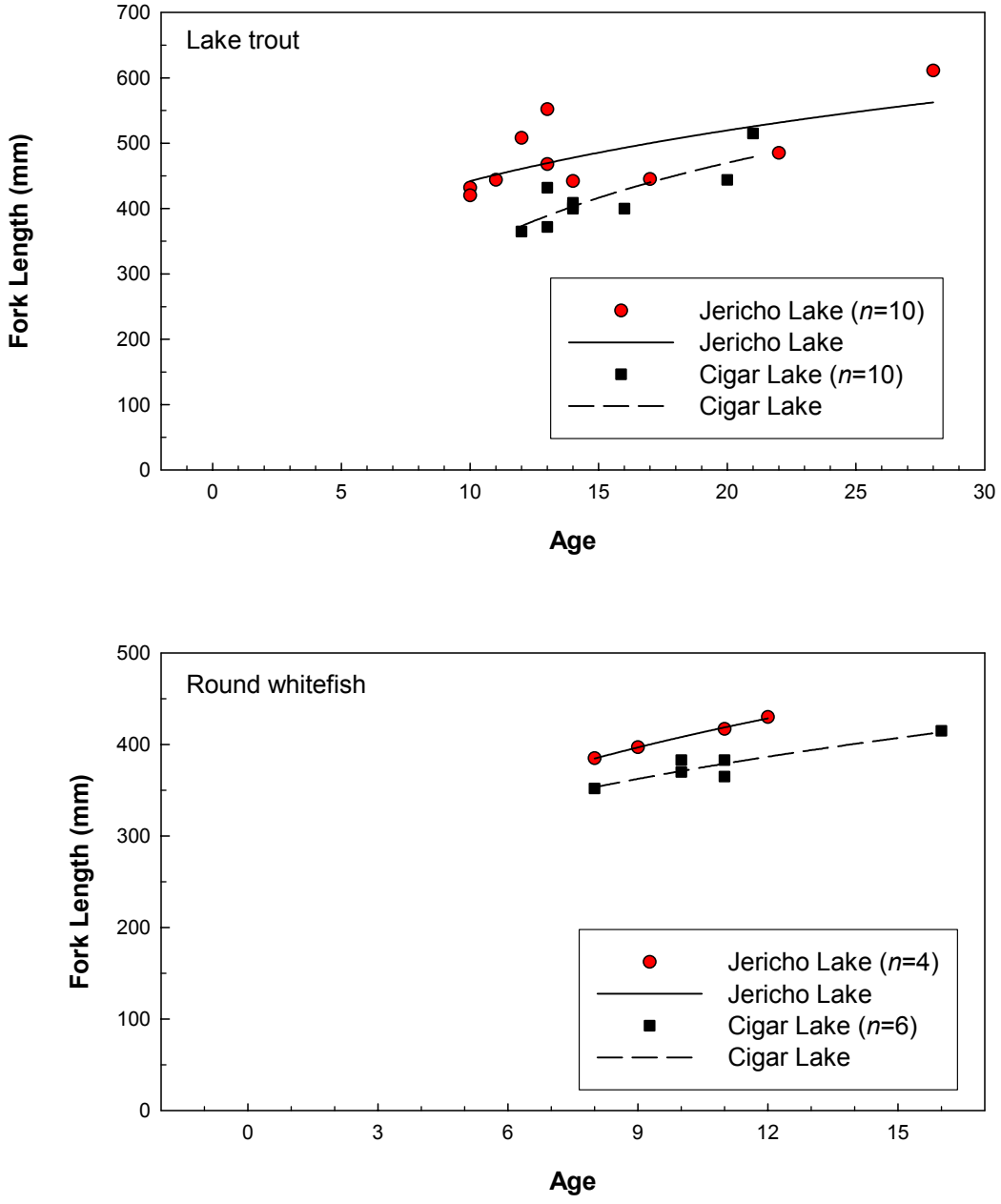


Figure 4.11 Length-at-age relationships of lake trout and round whitefish tissue fish sampled in Cigar Lake and Jericho Lake, 2005 Jericho AEMP.
Best fit regression curve for age-length relationship generated using a two-parameter logrithmic equation [$y=a*\ln(x-x_o)$].

Table 4.31 Median, maximum and minimum length of fish species captured by backpack electrofishing, 2005 Jericho AEMP.

Species	Lake	Sample Size	Length (mm)[a]		
			Median	Minimum	Maximum
Slimy sculpin	Jericho	81	41	21	75
	Cigar	6	65	54	68
	Stream C1	164	53	18	83
	Stream C3	88	60	23	88
	Stream W[b]	79	62	33	100
Lake trout	Jericho	0	-	-	-
	Cigar	1	71	71	71
	Stream C1	51	59	31	124
	Stream C3	16	32	29	80
	Stream W	0	-	-	-
Arctic char	Jericho	0	-	-	-
	Cigar	2	60	58	61
	Stream C1	0	-	-	-
	Stream C3	3	68	33	71
	Stream W	0	-	-	-
Burbot	Stream W	1	202	-	-

[a] Fork length for lake trout and Arctic char; total length for slimy sculpin and burbot
[b] Includes slimy sculpin from Willingham Lake

Length-weight relationships for lake trout, round whitefish and Arctic char are presented in Figure 4.12 and Figure 4.13.

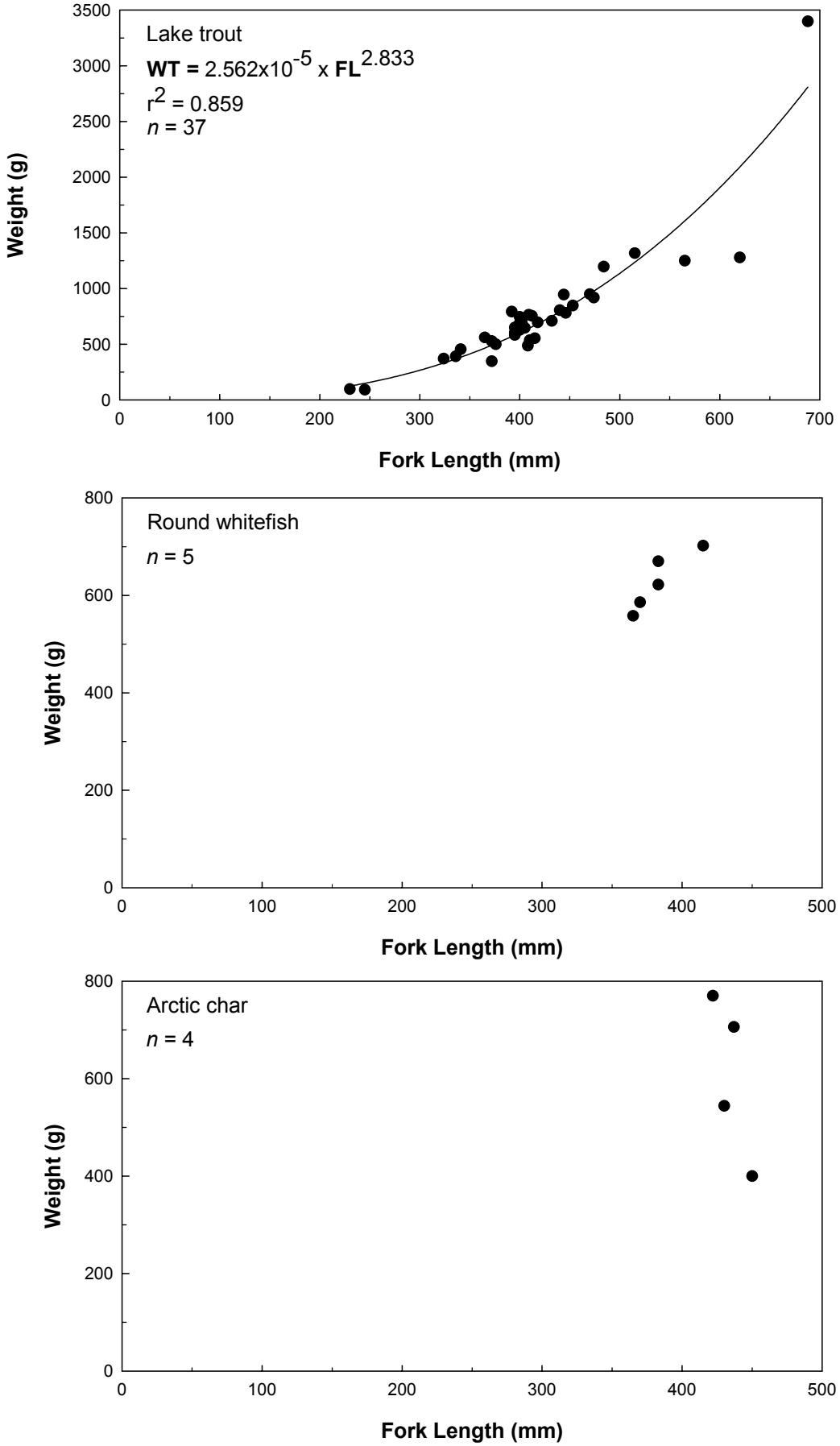


Figure 4.12 Length-weight regression of lake trout, round whitefish and Arctic char captured by gill netting in Cigar Lake, 2005 Jericho AEMP.
(Best fit regression curve for length-weight relationship generated using a two-parameter power equation [$y = a * x^b$]).

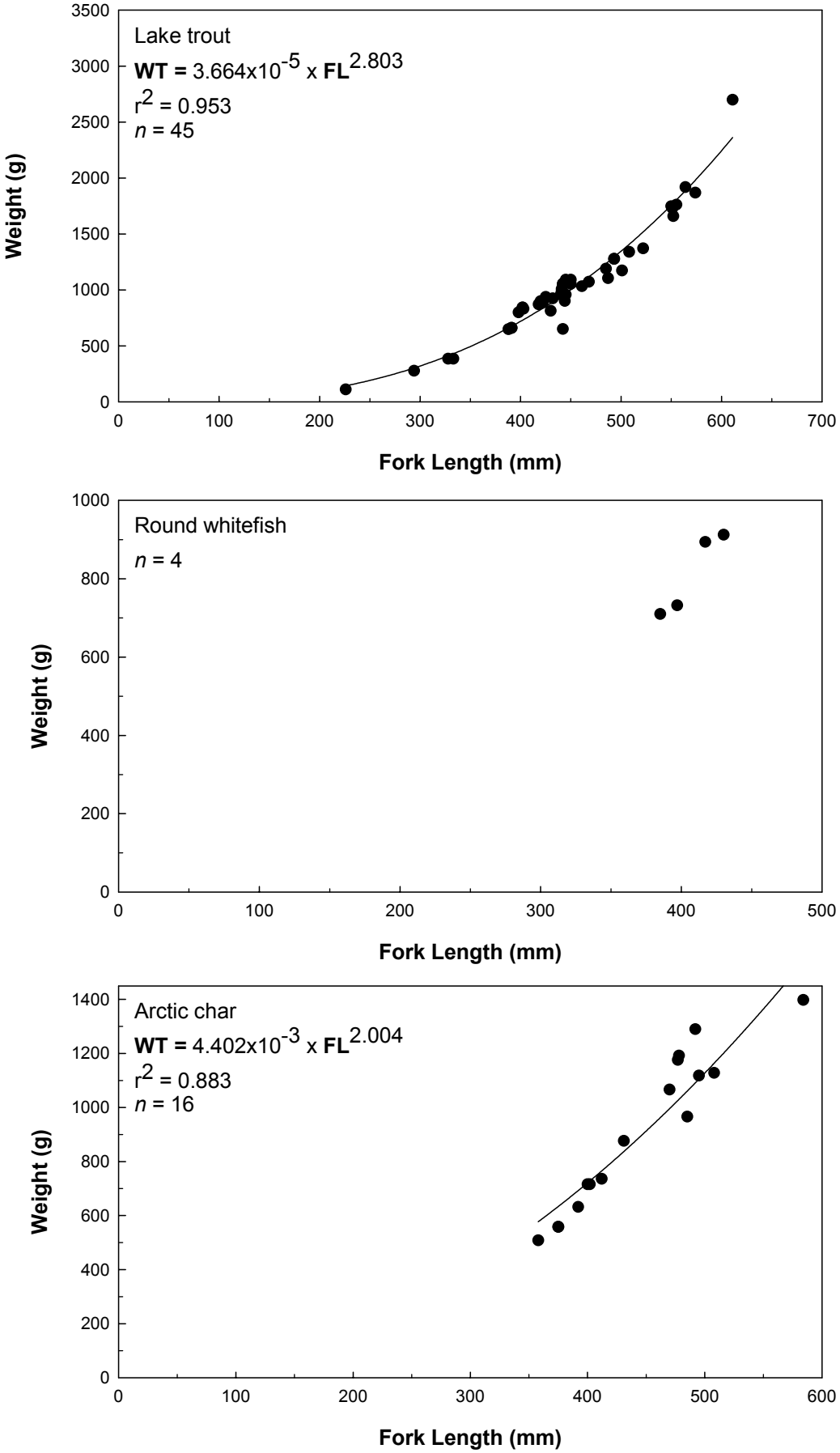


Figure 4.13 Length-weight regression of lake trout, round whitefish and Arctic char captured by gill netting in Jericho Lake, 2005 Jericho AEMP. Best fit regression curve for length-weight relationship generated using a two-parameter power equation [$y = a * x^b$]).

Body Condition

Fulton's body condition was used to provide a general index of fish health in Cigar and Jericho Lakes (Table 4.32). Mean body condition was 0.95 for lake trout, 1.15 for round whitefish and 0.75 for Arctic char in Cigar Lake. Mean body condition values were higher for all species in Jericho Lake. Mean body condition in Jericho Lake was 1.10 for lake trout, 1.20 for round whitefish and 1.02 for Arctic char.

Table 4.32 Mean Fulton body condition index (K) of fish collected by gill net in 2005, Jericho AEMP.

Species	Lake	Sample Size	Mean	Standard Deviation	Standard Error
Lake trout	Cigar	37	0.95	0.17	0.027
	Jericho	45	1.10	0.11	0.016
Round whitefish	Cigar	6	1.15	0.11	0.045
	Jericho	4	1.20	0.05	0.024
Arctic char	Cigar	4	0.75	0.25	0.124
	Jericho	16	1.02	0.12	0.030

Sex and Maturity

Sex ratios and maturity were determined for fish captured in Jericho and Cigar Lakes (Table 4.33). In both lakes 72% of lake trout captured were male. For round whitefish 67% of fish in Cigar Lake and 25% in Jericho Lake were male. All Arctic char captured in Cigar Lake were female and in Jericho Lake 50% were female.

Table 4.33 Sex ratios and percent maturity of fish captured by gill netting in 2005, Jericho AEMP

Species	Lake	Total Catch	Sex				Maturity					
			Males		Females		Immature		Mature		Non-spawner	
			No.	%	No.	%	No.	%	No.	%	No.	%
Lake trout	Cigar	18	13	72	5	28	6	33	7	39	5	28
	Jericho	25	18	72	7	28	5	20	12	48	8	32
Round whitefish	Cigar	6	4	67	2	33	-	-	6	100	-	-
	Jericho	4	1	25	3	75	-	-	4	100	-	-
Arctic char	Cigar	2	-	0	2	100	-	-	-	-	2	100
	Jericho	8	4	50	4	50	5	62	1	13	2	25

In Cigar Lake 33% of lake trout captured were classified as immature, 39% were mature and 28% were non-spawners. In Jericho Lake 18% of lake trout were immature, 43% were mature and 29% were non-spawners. All round whitefish captured in Cigar Lake and Jericho Lake were classified as mature. All Arctic char captured in Cigar Lake were classified as non-spawners whereas in Jericho Lake 62% were immature, 13% mature and 25% were non-spawners. Gonad weight was measured for all tissue fish.

Table 4.34 shows the maturity code and gonad weight of each tissue fish sampled. Appendix H describes maturity codes used.

Table 4.34 Maturity and gonad weight of sampled fish, 2005 Jericho AEMP.

Lake	Species	Fork Length (mm)	Weight (g)	Age (years)	Maturity Code[a]	Gonad Weight (g)
Cigar	Lake trout	365	562	12	5	10
		372	528	13	12	2
		400	746	14	12	22
		400	690	16	5	18
		402	692	14	5	14
		405	648	14	2	2
		409	764	14	5	12
		432	710	13	2	0
		444	946	20	12	12
		515	1318	21	12	46
	Round whitefish	352	574	8	17	8
		365	558	11	15	26
		370	586	10	2	<1
		383	670	10	5	24
		383	622	11	5	28
		415	702	16	5	16
Jericho	Lake trout	420	880	10	5	16
		432	926	10	5	10
		442	1056	14	12	60
		444	902	11	2	<1
		445	1092	17	12	84
		468	1074	13	5	8
		485	1190	22	5	32
		508	1340	12	2	<1
		552	1660	13	2	<1
		611	2700	28	5	90
	Round whitefish	385	710	8	5	6
		397	732	9	15	38
		417	894	11	15	22
		430	912	12	15	12

[a] See Appendix H for maturity code descriptions

This page left intentionally blank.

5.0 SUMMARY

Indicators monitored in 2005 during the Jericho AEMP included temperature in Stream C1, water chemistry, dissolved oxygen and temperature profiles, sediment deposition, phytoplankton, zooplankton, benthic invertebrates, metal concentrations in fish tissues, and fish community characteristics.

In general, water chemistry and physical parameters were within recommended Canadian guidelines for drinking water and protection of freshwater aquatic life and effluent guidelines specified in the water license. For the Carat Lake Freshwater Intake site (JERWQ1) Canadian Drinking Water Quality Guidelines were only exceeded in a single sample; this was likely due to sample contamination rather than high concentrations of metals at the sampling location. Monitoring at the PKCA discharge site (WQ2) indicated that water quality at this site was in accordance with all effluent guidelines outlined in the water license. Most water chemistry and physical parameters at sites monitored for water quality as part of the Aquatics Effects Monitoring Program were in accordance with recommended Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life. Two exceptions were dissolved copper and aluminum. Dissolved copper concentrations were above the recommended guidelines at all sites excluding sites in the north basin of Jericho Lake, Control Lake, and Cigar Lake. The widespread distribution of elevated copper levels may be indicative of naturally high concentrations in this region. In addition, inconsistencies in laboratory results between dissolved and total copper concentrations potentially indicate that values for copper are inaccurate (either due to laboratory methodology or contamination during sampling). Aluminum concentrations were also elevated at all sites and above the recommended Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life in both summer and winter (where comparisons were possible). The guideline value was based on sites having a pH < 6.5, low calcium concentrations and low dissolved organic carbon (DOC) concentrations. Although sites did have low calcium and DOC concentrations, the pH at most sites was within 0.2 of 6.5 and therefore the higher guideline value of 0.10 mg/L may be more applicable; using this guideline all sites were in accordance. Total and dissolved aluminum concentrations were highest at monitoring stations in Stream C1 and Lake C1 and could indicate potential impacts at these sites.

Dissolved oxygen concentrations were near saturation at the water surface in all monitored lakes and, though concentrations decreased with depth, concentrations remained above 4 mg/L at all monitored sites excluding Cigar Lake. Very low dissolved oxygen concentrations recorded near the lake bottom (1 mg/L) have potential to influence distribution and abundance of benthic biota. During July 2005 there was no

indication that waterbodies had stratified and dissolved oxygen concentrations at all stations were above 11.0 mg/L. In August 2005 thermal stratification occurred in Control Lake and Cigar Lake whereas stratification was not evident in Lake C3, Jericho Lake and Carat Lake. Whether a lake undergoes thermal stratification has direct or indirect consequences on lake trophic position, planktonic and benthic biota, and fish communities. In addition length of thermal stratification is of importance. In order to understand the potential influence of summer stratification on aquatic biota, monitoring should be completed at several intervals during the open water season.

Sediment deposition rate was substantially higher in the Control Lake compared to other waterbodies. This indicated that some unknown process in the lake lead to relatively high sedimentation rate. Excluding Control Lake, there were indications that the near-field and far-field sites on Carat Lake had increased sedimentation rates compared to all other sites. In addition the percent of the accumulated material that was comprised of sediment as opposed to organics was high at the Carat Lake sites in comparison to other lakes (excluding Control Lake). This indicates that much of the deposition at Carat Lake is coming from outside sources.

Phytoplankton density, biovolume and chlorophyll *a* concentrations can be indicators of overall lake primary productivity. Jericho Lake was found to be the highest for each of these proxies as compared to all other lakes. Carat Lake and Control Lake also showed higher productivity than Cigar Lake and Lake C3 in terms of mean biovolume and chlorophyll *a* concentrations. Overall, lake primary productivity was highly variable spatially and near-field and far-field sites did not have predictably higher or lower productivity than control lakes. Moreover, phytoplankton productivity is highly variable from year to year; for example, Jericho Lake was consistently lower in terms of total phytoplankton biovolume than all other waterbodies in 2004. High temporal and spatial variability suggests establishment of a predictable baseline condition in terms of overall phytoplankton productivity may be tenuous and determining effects outside of natural variability will be difficult. However, community structure in terms of dominant taxonomic groups was consistent among waterbodies and among years, indicating that phytoplankton community structure is stable and assessment of deviation from this state is a more favourable monitoring tool.

Zooplankton densities were highly variable among waterbodies with highest densities occurring in Carat Lake and lowest densities in Lake C3. Community composition was relatively consistent among waterbodies for the dominant taxonomic groups. However; although Cladocerans made up a very small proportion of the overall community in terms of density, numbers were substantially higher in

Jericho Lake than all other lakes and lower in Lake C3 and Control Lake than all other lakes. This indicated that zooplankton communities are variable among waterbodies. In addition between year comparisons show that zooplankton overall abundance is highly variable between years and patterns are not consistent between waterbodies. Again, high temporal and spatial variability in baseline data may mean that potential effects on zooplankton communities are difficult to determine.

Benthic invertebrate community densities were variable among years (highest densities in 2005); however, patterns among sites were consistent. Cigar Lake had significantly higher densities than all other sites in both years. In general, chironomids were the dominant taxonomic group in all waterbodies in 2005; however, at Lake C3 nematodes dominated. Interestingly dominance of taxonomic groups varied between years and highlights high between year variation in benthic communities.

Of ten metals of interest in fish tissues, seven contained sufficient data for statistical analyses for one or more species and tissue type. These were aluminium, copper, mercury, nickel, zinc (all fish tissues in all species monitored), cadmium, and molybdenum (lake trout and round whitefish liver; slimy sculpin whole fish). Metal concentrations in round whitefish tissues were not significantly different among Cigar Lake and Jericho Lake for all comparisons. Aluminium (liver) and mercury (muscle and liver) tissue concentrations were significantly higher in Jericho Lake compared to Cigar Lake (control). In contrast, cadmium and nickel liver concentrations were higher in Cigar Lake compared to Jericho Lake. Interestingly, aluminum concentration in lake trout muscle tissue was significantly higher in Cigar Lake than Jericho Lake, which is opposite to results for liver tissue. Copper and zinc lake trout liver and muscle concentrations were not statistically different between waterbodies. Mean mercury concentration in slimy sculpin whole fish tissue was higher in Stream W compared to Jericho Lake. Whole body slimy sculpin concentrations of all other metals were not statistically different between waterbodies.

Comparisons, where available, of 2004 metal tissue data to 2005 data in Cigar Lake indicated that tissue concentrations for the majority of metals were not different between years.

Fish community characteristics of large-sized fish were determined for Jericho Lake and Cigar Lake. Lake trout were the most abundant species in both lakes. In Jericho Lake Artic char were the second most numerous species followed by round whitefish. In Cigar Lake round whitefish were the second most abundant followed by Artic char. Overall all species in Jericho Lake had larger median lengths and higher mean body condition than in Cigar Lake, while median age of all species was higher in Cigar Lake. In both lakes growth rates were slow for all species.

Fish community characteristics were also determined for small-sized fish in Jericho Lake, Cigar Lake, Stream C1, Stream C3, and Stream W. Small-fish abundance in Jericho Lake and Cigar Lake were low. Slimy sculpin catch rates were consistent in Stream W throughout all sampling periods. Population estimates of Stream C1 and Stream C3 showed a decrease in density of all species within the streams between July and August.

6.0 LITERATURE CITED

Alberta Environment. 1990. Selected Methods for the Monitoring of Benthic Invertebrates in Alberta Rivers. Ass. Div., Env. Qual. Monit. Branch. 41 p.

Brandlowa, J., Z. Brandl and C.H Fernando. 1972. The Cladocera of Ontario with remarks on some species and distribution. Can. J. Zool. 50: 1373-1403.

Brinkhurst, R.O. 1986. Guide to the freshwater aquatic microdrile oligochaetes of North America. Can. Spec. Publ. Fish. Aquat. Sci. 84. 259 p.

Brooks, J.L. 1957. The systematics of North American Daphnia. Memoirs of Connecticut Academy of Arts and Sciences 13: 1-180.

Chengalath, R.C., C.H. Fernando and M.G. George. 1971. The Planktonic Rotifera of Ontario with keys to genera and species. University of Waterloo Biology Series, Waterloo, ON. 40 p.

Clifford, H.F. 1991. Aquatic invertebrates of Alberta. University of Alberta. Press, Edmonton. 538 p.

Diavik Diamond Mines Inc (2003). Sediment Deposition Compilation Study. pp 27 + appendices.

Deevey, E.S. Jr. and G.B. Deevey. 1971. The American species of *Eubosmina* Seligo (Crustacea, Cladocera). Limnol. Oceanogr. 16: 201-218.

Dodson, S.I. and D.G. Frey. 1991. Cladocera and other Brachiopoda. In: J.H. Thorp and A.P. Covich editors, Ecology and Classification of North American Freshwater Invertebrates. Acad Press, Inc. 911 p.

Elliot, J.M. 1977. Some methods for the statistical analysis of samples of benthic invertebrates. Freshw. Biol. Ass. Sc., 25. 156 p.

Environment Canada. 1993. Guidelines for monitoring benthos in freshwater environments. EVS Consultants. 81 p.

Environment Canada. 2002. Metal Mining Guidance Document for Aquatic Environmental Effects Monitoring.

Findlay, D, L. and H.J. Kling. 2003. Protocols for monitoring biodiversity: Phytoplankton in Freshwater. (WWW document). URL http://www.eman-rese.ca/eman/ecotools/protocols/freshwater/phytoplankton/intro.html

Grothe, D.W. and D. R. Grothe. 1977. An illustrated key to the planktonic rotifers of the Laurentian Great Lakes. U.S. Environmental Protection Agency, Chicago, IL. 53 p.

Lund, J.W.G., C. Kipping and E.D. LeCren. 1958. The inverted microscope method of estimating algal numbers and the statistical basis of estimation of counting. Hydrobiologia 11:143-70.

Mackay, W.C., G.R. Ash, and H.J. Norris (eds.). 1990. Fish Ageing Methods for Alberta. RL&L Environmental Services Ltd. in association with Alberta Fish and Wildlife Division and the University of Alberta, Edmonton. 113 p.

Mainstream Aquatics Ltd. and AMEC Earth and Environmental. 2005. Jericho Diamond Project – Aquatic Effects Monitoring Plan. Prepared for Tahera Diamond Corporation. Report No. 04006E: 55 p.

McAlpine, J.F., B.V. Peterson, G.E. Shewell, H.J. Teskey, J.R. Fockeroth and D.M. Wood (Eds). 1981. Manual of Nearctic Diptera. Vol 1, Agriculture Canada. Monograph 27. 674 p.

Merritt, R.W. and K.W. Cummins (Eds). 1984. An Introduction to the Aquatic Insects of North America, 2nd ed. Kendall/Hunt Publ. Comp. Dubuque, Iowa. 722 p.

Moss, B. 1967a. A spectrophotometric method for the estimation of percentage degradation of chlorophyll *a* to phaeopohytin in extracts of algae. Limnology and Oceanography 12: 335-340.

Moss, B. 1967b. A note on the estimation of chlorophyll *a* in freshwater algal communities. Limnology and Oceanography 12: 340-342.

Mudroch A, and MacKnift S. (1991) CRC Handbook of Techniques for Aquatic Sediments Sampling. CSR Press, pp 112-119.

Oliver, D.R. and M.E. Roussel. 1983. The Insects and Arachnids of Canada, Part 11. The Genera of Larval Midges of Canada. Diptera: Chironomidae. Agriculture Canada Publ. 1746. 263 p.

Paterson, M. 2003. Protocols for monitoring biodiversity: Zooplankton in Fresh Waters. (WWW document). URL http://www.eman-rese.ca/eman/ecotools/protocols/freshwater/zooplankton/intro.html

Pennak, RW. 1978. Freshwater invertebrates of the United States, 2nd edition. John Wiley and Sons Inc., New York, NY. 803 p.

Pennak, R.W. 1989. Freshwater Invertebrates of the United States, 3rd ed. John Wiley and Sons, New York. 628 p.

Prescott, G.W. 1970. Algae of the Western Great Lakes area. Wm. C. Brown Co. Publishers, Dubuque, Iowa. 977 p.

Rosenburg, D.M., I.J. Davies, D.G. Cobb, and A.P. Wiens. 2003. Protocols for monitoring biodiversity: Benthic Macroinvertebrates in Fresh Waters. (WWW document). URL http://www.eman-rese.ca/eman/ecotools/protocols/freshwater/benthics/intro.html

Ruttner-Kolisko, A. 1974. Plankton, Rotifers, Biology and Taxonomy. Schwezerbart'sche Verlags., Stuttgart. 146 p.

Sokal, R.R., and F.J. Rohlf. 1981. Biometry. W.H. Freeman and Co., San Francisco. 859 p.

Stemberger, R.S. 1979. A Guide to Rotifers of the Laurentian Great Lakes. US Envir. Prot. Agency, Envir. Mon. Support Lab, Cincinnati, Ohio. 182 p.

Stewart, K.W., and B.P. Stark. 1988. Nymphs of North American Stonefly Genera (Plecoptera). Thomas Say Foundation, Ent. Soc. Am., Vol. XII. 460 p.

Taft, C.E., and C.W. Taft. 1971. The algae of Western Lake Erie. Bulletin Ohio Biological Surveys 4: 1-189.

Thorp, J.H. and A.P. Covich. 1991. Ecology and classification of North American freshwater invertebrates. Academic Press. 911 p.

United States Environmental Protection Agency. 2000. Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories Volume 1 - Fish Sampling and Analysis (Third Edition). EPA 823-B-00-007.

Webber, C.I. 1971. A guide to the common diatoms of water pollution surveillance system stations. U.S. Environmental Protection Agency, National Environmental Research Centre Analytical Quality Control Laboratory, Cincinnati, Ohio.

Wiggins, G.B. 1977. Larvae of the North American caddisfly genera (Trichoptera). University of Toronto Press, Toronto, Canada. 401 p.

Wilson, M.S. 1959. Calanoida. In: Edmondson, W.T. (Ed) Freshwater Biology. 2nd ed. John Wiley and Sons, New York, N.Y.

Wrona, F.J., J.M. Culp and R.W. Davies. 1982. Macroinvertebrate subsampling: a simplified apparatus and approach. Can. J. Fish. Aquat. Sci. 39: 1051-1054.

Yeatman, H.C. 1959. Cyclopoida. In: Edmondson, W.T. (Ed) Freshwater Biology. 2nd ed. John Wiley and Sons, New York, N.Y.

Zippin, C. 1958. The removal method of population estimation. Journal of Wildlife Management 22 (1): 89-91.

Appendix A1-1. Water chemistry data, Jericho AEMP 2005.

Site	Collection Date	Sample No.	Air Temp (°C)	Wind Speed (km/h)	Wind Direction	Water Temp (°C)	Field pH	Lab pH @ 25°C	Field Conductivity (us/cm)	Lab Conductivity @ 25°C (us/cm)	Oxidation Reduction Potential (mV)	Biochemical Oxygen Demand (mg/L)	MF - Fecal Coliforms (CFU/ 100mL)	Turbidity (NTU)	Total Suspended Solids @105°C (mg/L)	Hardness as CaCO3 (mg/L)	Dissolved Solids 180°C (mg/L)	Alkalinity as CaCO3 (mg/L)
JERWQ01	30/06/05	1431873	13	n/m	N	4	7		n/m		n/m		<1		<2			
JERWQ01	20/07/05	1623260						7.03		19			1	2	<2		12	6
JERWQ01	31/07/05	1725162	16	n/m	NW	11	7.1		n/m		n/m		<1		<2			
JERWQ01	31/08/05	2241616	6	13	NW	7.6	6.45		8.05		49.2		<1	2	<2			
JERWQ01	28/09/05	2953838	-8	30	SE	2.41	6.93		13.7		112		<1	1	<2			
JERWQ02	30/06/05	1432238	13	n/m	N	8	7.3	5.75	n/m	25	n/m	<2	<1	2	<2		<10	10
JERWQ02	24/07/05	1647366						6.69		20		<2	<1	3	10	6.1	<10	8
JERWQ02	31/08/05	2241981	6	13	NW	7.7	6.45	6.77	27.7	25	64.4	<2	<1	1	<2	7.2	<10	12
JERWQ02	28/09/05	2954204	-8	30	SE	2.37	6.77	7.27	42.2	36	44	<2	<1	2	<2	<0.1	24	11
JERWQ03	30/06/05	1432603	15	n/m	N	10	7	5.75	n/m	22	n/m			2	<2		24	11
JERWQ03	29/07/05	1699596		n/m			6.5	6.54	n/m	23	n/m			2	2	8.9	<10	10
JERWQ03	28/08/05	2258783	3	25	W	5.1	6.40	7	30.5	26	53.1			2	<2	9	<10	11
JERWQ03	24/09/05	2808472	-6	5	N	0.06	6.86	7.10	26	25	131			2	2	6.9	12	9
JERWQ04	18/05/05	L270061-1						7.0		19.6				0.15	<3	7	30	6
JERWQ04	28/06/05	1424203						5.32		16				2	<2	<6	40	9
JERWQ04	30/07/05	1721875	15	n/m	NE	11	6.9	7.14	n/m	13	n/m			1	<2	<6	<10	5
JERWQ04	29/08/05	2260974	0	15	NE	8.7	7.08	6.26	14.71	15	49.3			<1	<2	<6	<10	10
JERWQ04	10/12/05	05-13323-D						6.73		22				<1			40	17
JERWQ05	28/06/05	1423838						5.45		18				1	<2	<6	16	9
JERWQ05	29/07/05	1699961		n/m			7	5.58	n/m	14	n/m			1	<2	<6	<10	6
JERWQ05	28/08/05	2259148	3	25	W	7.8	6.87		15.56		47.4							
JERWQ05	24/09/05	2808837	-6	5	N	0.76	7.23	6.94	13	12	160			2	<2	<6	<10	6
JERWQ06	18/05/05	L270061-2						7.1		17.3				0.15	<3	6	30	5
JERWQ06	31/07/05	1722240	16	n/m	NW	10	6.9	6.75	n/m	13	n/m			2	<2	<6	<10	6
JERWQ06	30/08/05	2261705	2	10	E	8.8	6.46	6.25	15.71	13	39.7			2	<2	<6	12	7
JERWQ06	10/12/05	05-13324						6.76		23				1	<2		28	16
JERWQ07	30/06/05	1432968	13	n/m	N	5	6.9	5.72	n/m	20	n/m			1	<2		<10	9
JERWQ07	29/07/05	1700326		n/m			7	5.66	n/m	13	n/m			2	2	<6	12	6
JERWQ07	26/08/05	2204360	18	20	E	11.2	6.85	6.91	16.18	14	53.1			1	<2	<6	12	6
JERWQ07	24/09/05	2809202	-6	5	N	5.82	7.54	6.94	13	12	170			2	<2	<6	68	6
JERWQ08	26/05/05	L273414-1						6.7		20.5				0.15	<3	7	40	6
JERWQ08	30/07/05	1722606	15	n/m	NE	11	6.9	6.60	n/m	14	n/m			2	<2	<6	<10	5
JERWQ08	29/08/05	2261339	0	15	NE	8.7	7.32	6.36	15.75	12	43.7			2	<2	<6	<10	7
JERWQ08	13/12/05	05-13325						6.76		20				<1	<2		44	17

Appendix A1-1. Water chemistry data, Jericho AEMP 2005.

Site	Collection Date	Sample No.	Air Temp (°C)	Wind Speed (km/h)	Wind Direction	Water Temp (°C)	Field pH	Lab pH @ 25°C	Field Conductivity (us/cm)	Lab Conductivity @ 25°C (us/cm)	Oxidation Reduction Potential (mV)	Biochemical Oxygen Demand (mg/L)	MF - Fecal Coliforms (CFU/ 100mL)	Turbidity (NTU)	Total Suspended Solids @105°C (mg/L)	Hardness as CaCO3 (mg/L)	Dissolved Solids 180°C (mg/L)	Alkalinity as CaCO3 (mg/L)
JERWQ09	28/06/05	1424568						5.46		19				1	<2	<6	40	8
JERWQ09	29/07/05	1700692		n/m			6.8	5.55	n/m	13	n/m			2	<2	<6	<10	5
JERWQ09	28/08/05	2259878	3	25	W	7.9	6.85	6.16	15.5	12	50.4			2	<2	<6	<10	7
JERWQ09	24/09/05	2809568	-6	5	N	2.8	7.25	6.93	13	13	190			1	<2	<6	<10	6
JERWQ09	13/12/05	05-13326						6.81		22				1	<2		28	18
JERWQ10	18/05/05	L270061-3						7.0		16.7				0.15	<3	6	30	<5
JERWQ10	30/07/05	1722971	15	n/m	NE	10	5.9	6.62	n/m	13	n/m			2	<2	<6	<10	6
JERWQ10	29/08/05	2260609	0	15	NE	8.7	6.98	6.35	14.58	16	49.5			2	<2	<6	12	9
JERWQ10	20/12/05	05-13455						6.74		19				1		7.1	<10	19
JERWQ11	17/05/05	L270061-4						7.2		19.8				0.20	<3	7	30	7
JERWQ11	30/07/05	1723336	15	n/m	NE	8	6.5	6.73	n/m	13	n/m			2	<2	<6	16	7
JERWQ11	29/08/05	2260244	0	15	NE	9.1	7.29	6.31	15.92	13	55.7			2	<2	<6	<10	7
JERWQ11	20/12/05	05-13453						6.88		20				2		8.1	<10	18
JERWQ12	01/06/05	L273414-6						6.8						6.0	7			
JERWQ12	28/06/05	1422742						6.06		31				1	<2	11.4	44	10
JERWQ12	29/07/05	1701057		n/m			6.8	6.48	n/m	46	n/m			1	<2	18.7	16	14
JERWQ12	26/08/05	2204726	18	20	E	8.1	6.80	7.15	40.3	34	50.1			<1	<2	14.1	16	11
JERWQ12	24/09/05	2810298	-6	5	N	1.04	6.58	6.94	31	30	162			<1	<2	10.8	<10	9
JERWQ13	26/05/05	L273414-2						7.1		27.7				0.30	<3	12	40	10
JERWQ13	30/06/05	1433334	13	n/m	N	8	7.2	5.71	n/m	20	n/m			3	<2		<10	10
JERWQ13	29/07/05	1701422		n/m			7.2	5.89	n/m	17	n/m			2	<2	6.4	<10	6
JERWQ13	26/08/05	2205091	18	20	E	9.9	7.03	7.05	26.9	22	48.3			1	<2	8.9	<10	8
JERWQ14	28/06/05	1422377						5.73		18				1	<2	6.4	36	10
JERWQ14	29/07/05	1701787		n/m			7.1	5.87	n/m	16	n/m			1	<2	7.2	<10	11
JERWQ14	26/08/05	2205456	18	20	E	10.8	7.20	7.09	20.4	17	52.0			<1	<2	7.4	20	8
JERWQ14	24/09/05	2811029	-6	5	N	1.94	7.3	7.20	20	20	161			2	<2	7.3	12	10
JERWQ15	28/06/05	1423108						5.57		17				1	<2	<6	48	10
JERWQ15	30/07/05	1702153		n/m			7	5.99	n/m	17	n/m			1	<2	8.1	<10	10
JERWQ15	26/08/05	2205821	18	20	E	8.9	6.43	6.97	21.8	18	57.7			1	<2	7.9	<10	8
JERWQ16	31/07/05	1723701	16	n/m	NW	12	7.2	6.47	n/m	15	n/m			2	<2	6.4	20	8
JERWQ17	31/07/05	1724067	16	n/m	NW	12	7.3	7.20	n/m	16	n/m			1	<2	6.7	<10	7
JERWQ18	31/07/05	1724432	16	n/m	NW	13	7.2	6.92	n/m	17	n/m			3	<2	7.2	24	8
JERWQ19	30/07/05	1702518		n/m			6.9	5.43	n/m	14	n/m			2	<2	<6	16	7
JERWQ20	29/07/05	1702883		n/m			6.9	5.35	n/m	13	n/m			1	<2	<6	<10	5

Appendix A1-2. Water chemistry data, Jericho AEMP 2005.

Parameter	JERWQ01	JERWQ01	JERWQ01	JERWQ01	JERWQ01	JERWQ02	JERWQ02	JERWQ02
Date	June	July	July	August	September	June	July	August
Sulphate (mg/L)		1.7				3.9	<0.5	0.5
Phosphate-Ortho-Phosphorus		<0.2				<0.2	<0.2	<0.2
Nitrite - Nitrogen (mg/L)		<0.05				<0.05	<0.05	<0.05
Nitrate - Nitrogen (mg/L)		0.05				0.07	<0.05	0.11
Hydroxide (as CaCO3) (mg/L)		<1				<1	<1	<1
Fluoride (mg/L)		0.06				0.04	0.06	0.02
Chloride (mg/L)		0.6				0.7	0.9	1.2
Carbonate (mg/L)		<1				<1	<1	<1
Bicarbonate (mg/L)		8				12	10	15
Balance (+ions/-ions)		0.36					0.98	0.74
Acidity as CaCO3 (mg/L)	4	3				3	3	3
Carbon (Total Organic) (mg/L)		3				2	3	4
Ammonia - Nitrogen (mg/L)		<0.1				<0.1	<0.1	<0.1
Carbon (Total Inorganic) (mg/L)		<1				2	2	4
Total Iron (mg/L)	0.11		0.05	0.07	0.03			
Total Manganese (mg/L)	0.009		0.008	0.004	0.002			
Total Zinc (mg/L)	<0.002	0.093	<0.002	0.019	0.003	<0.002	0.003	0.006
Total Vanadium (mg/L)	0.0002	0.0010	0.0002	0.0004	0.0005	<0.0001	0.0004	0.0004
Total Uranium (mg/L)	0.00016	0.00017	0.00013	0.00018	0.00013	0.00010	0.00019	0.00030
Total Thallium (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Total Strontium (mg/L)				0.0055	0.0057			0.0049
Total Sodium (mg/L)	0.8	<0.5	0.6	0.8	<0.5	1.0	1.3	1.5
Total Silver (mg/L)	<0.0002	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Total Silicon (mg/L)	0.26	0.50	0.19	0.26	0.18	0.18	0.20	0.16
Total Selenium (mg/L)	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
Total Potassium (mg/L)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total Phosphorus (mg/L)	<0.050	<0.050	0.062	0.089	<0.050	<0.050	<0.050	0.055
Total Nickel (mg/L)	<0.0006	0.0112	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
Total Molybdenum (mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Total Mercury (mg/L)	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0002	<0.000200	<0.0001
Total Magnesium (mg/L)	0.59	0.62	0.58	0.61	0.52	0.61	0.70	0.81
Total Lead (mg/L)	<0.0001	0.138	0.0001	0.0004	<0.0001	<0.0001	0.0003	<0.0001
Total Copper (mg/L)	<0.0010	1.64	0.0012	0.0029	0.0011	<0.0010	0.0048	0.0020
Total Cobalt (mg/L)	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Chromium (mg/L)	<0.0009	0.0010	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009
Total Calcium (mg/L)	1.14	1.13	1.19	1.38	1.19	1.15	1.31	1.79
Total Cadmium (mg/L)	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0002	<0.0002	<0.0001
Total Boron (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Total Beryllium (mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Total Barium (mg/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total Arsenic (mg/L)	<0.0004	0.0007	<0.0004	<0.0004	<0.0004	<0.0004	0.0004	<0.0004
Total Antimony (mg/L)	<0.0001	0.0033	<0.0001	<0.0001	<0.0001	0.0004	<0.0001	<0.0001
Total Aluminum (mg/L)	0.055	1.44	0.021	0.060	0.030	0.026	0.080	0.027
Dissolved Calcium (mg/L)	1.20	0.6	1.12	1.39	0.65	1.3	1.4	1.8
Dissolved Magnesium (mg/L)	0.56	<0.5	0.52	<0.50	<0.50	0.6	0.7	0.7
Dissolved Potassium (mg/L)	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	0.6
Dissolved Sodium (mg/L)	<0.5	<0.5	<0.5	0.7	<0.5	0.8	1.4	1.4
Dissolved Zinc (mg/L)	0.003	0.048	<0.002	0.021	0.004	0.006	<0.002	0.007
Dissolved Vanadium (mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Uranium (mg/L)	0.00014	<0.00005	0.00009	0.00012	0.00008	0.00010	0.00013	0.00021
Dissolved Thallium (mg/L)	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Dissolved Strontium (mg/L)				0.0064	0.0054			0.0062
Dissolved Silver (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Dissolved Silicon (mg/L)	0.22	0.18	0.16	0.21	0.20	0.18	0.21	0.12
Dissolved Selenium (mg/L)	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Dissolved Phosphorus (mg/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Dissolved Nickel (mg/L)	0.0003	0.0022	0.0003	0.0006	<0.0001	0.0004	<0.0001	0.0003
Dissolved Molybdenum (mg/L)	<0.0003	0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Dissolved Mercury (mg/L)	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0002	<0.000200	<0.0001
Dissolved Manganese (mg/L)	0.003	0.002	0.002	<0.001	<0.001	0.001	0.002	<0.01
Dissolved Lead (mg/L)	<0.00005	0.0278	<0.00005	<0.00005	<0.00005	<0.00005	0.00007	<0.00005
Dissolved Iron (mg/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.12	<0.10
Dissolved Copper (mg/L)	0.0037	0.213	0.0034	0.0026	0.0025	0.0061	0.0044	0.0027
Dissolved Cobalt (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Dissolved Chromium (mg/L)	<0.0004	0.0010	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Dissolved Cadmium (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Dissolved Boron (mg/L)	0.008	<0.004	<0.004	<0.004	<0.004	0.006	<0.004	<0.004
Dissolved Beryllium (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Barium (mg/L)	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Dissolved Arsenic (mg/L)	0.0002	0.0002	<0.0001	0.0002	0.0002	<0.0001	0.0001	0.0002
Dissolved Antimony (mg/L)	<0.0001	0.0006	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Aluminum (mg/L)	0.014	0.024	0.011	0.009	0.005	0.013	0.013	0.006

Appendix A1-2. Water chemistry data, Jericho AEMP 2005.

Parameter	JERWQ02	JERWQ03	JERWQ03	JERWQ03	JERWQ03	JERWQ04	JERWQ04	JERWQ04
Date	September	June	July	August	September	May	June	July
Sulphate (mg/L)	1.3	2.6	<0.5	0.6	1.0	1.45	0.6	<0.5
Phosphate-Ortho-Phosphorus	<0.20	<0.2	<0.2	<0.2	<0.20	<0.001	<0.2	<0.2
Nitrite - Nitrogen (mg/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.002	<0.05	<0.05
Nitrate - Nitrogen (mg/L)	0.60	<0.05	<0.05	0.06	0.12	0.010	<0.05	<0.05
Hydroxide (as CaCO3) (mg/L)	<1	<1	<1	<1	<1	<5	<1	<1
Fluoride (mg/L)	0.05	0.04	0.05	0.03	0.05		0.04	0.07
Chloride (mg/L)	1.7	0.9	0.8	1.6	1.7	<1	0.3	0.2
Carbonate (mg/L)	<1	<1	<1	<1	<1	<5	<1	<1
Bicarbonate (mg/L)	14	13	12	14	11	8	11	7
Balance (+ions/-ions)	0.58		1.03	0.85	0.77	Low EC	0.65	0.98
Acidity as CaCO3 (mg/L)	3	2	4	2	1	<5	2	3
Carbon (Total Organic) (mg/L)	5	3	1	3	3	3.3	3	4
Ammonia - Nitrogen (mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	0.019	<0.1	<0.1
Carbon (Total Inorganic) (mg/L)	2	1	4	2	2	1.5	<1	<1
Total Iron (mg/L)	<0.10				<0.10			
Total Manganese (mg/L)	<0.01				<0.01	0.0025		
Total Zinc (mg/L)	0.006	<0.002	<0.002	0.014	0.008	0.0015	<0.002	<0.002
Total Vanadium (mg/L)	0.0005	<0.0001	0.0003	0.0001	0.0005	<0.00005	<0.0001	<0.0001
Total Uranium (mg/L)	0.00033	0.00010	0.00010	0.00008	<0.00005	0.00018	0.00015	0.00014
Total Thallium (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005		<0.00005	<0.00005
Total Strontium (mg/L)	0.0069			0.0066	0.0054	0.0068		
Total Sodium (mg/L)	1.5	1.0	1.1	1.5	1.3	0.670	0.7	0.6
Total Silver (mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0002	<0.0002
Total Silicon (mg/L)	0.22	0.27	0.48	0.45	0.73		0.29	0.20
Total Selenium (mg/L)	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0001	<0.0008	<0.0008
Total Potassium (mg/L)	<0.5	<0.5	<0.5	<0.5	<0.5	0.40	<0.5	<0.5
Total Phosphorus (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050	0.005	<0.050	<0.050
Total Nickel (mg/L)	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	0.00034	<0.0006	<0.0006
Total Molybdenum (mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.00006	<0.0005	<0.0005
Total Mercury (mg/L)	<0.0001	<0.0002	<0.0002	<0.0001	<0.0001	<0.00002	<0.0002	<0.0002
Total Magnesium (mg/L)	1.11	0.68	0.99	1.02	0.98	0.799	<0.50	0.53
Total Lead (mg/L)	<0.0001	<0.0001	<0.0001	0.0003	<0.0001	<0.00005	<0.0001	0.0003
Total Copper (mg/L)	0.0018	<0.0010	<0.0010	<0.0010	0.0016	0.0011	0.0013	0.0044
Total Cobalt (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Chromium (mg/L)	<0.0009	<0.0009	<0.0009	<0.0009	0.0029	0.00012	<0.0009	<0.0009
Total Calcium (mg/L)	2.63	1.25	1.95	2	2	1.51	0.93	1.04
Total Cadmium (mg/L)	<0.0001	<0.0002	<0.0002	<0.0001	<0.0001	<0.00005	<0.0002	<0.0002
Total Boron (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010	0.001	<0.010	<0.010
Total Beryllium (mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005
Total Barium (mg/L)	<0.005	<0.005	<0.005	<0.005	<0.005	0.00226	<0.005	<0.005
Total Arsenic (mg/L)	<0.0004	<0.0004	<0.0004	0.0007	0.0005	0.00022	<0.0004	<0.0004
Total Antimony (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00007	0.0005	<0.0001
Total Aluminum (mg/L)	0.012	0.031	0.035	0.031	0.050	0.0181	0.046	0.022
Dissolved Calcium (mg/L)	1.7	1.4	1.9	1.9	2.0	1.4	1.0	1
Dissolved Magnesium (mg/L)	<0.5	0.7	1.0	1.0	<0.5	0.71	<0.5	<0.5
Dissolved Potassium (mg/L)	<0.5	<0.5	<0.5	<0.5	<0.5	0.3	<0.5	<0.5
Dissolved Sodium (mg/L)	1.7	0.9	1.2	1.5	1.3	1.4	0.7	0.6
Dissolved Zinc (mg/L)	0.004	0.003	0.010	<0.002	<0.002	0.005	0.008	<0.002
Dissolved Vanadium (mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0001	<0.0005	<0.0005
Dissolved Uranium (mg/L)	0.00016	0.00010	0.00013	0.00009	0.00005	0.0002	0.00014	0.00010
Dissolved Thallium (mg/L)	<0.00002	<0.00002	0.00007	<0.00002	<0.00002	<0.00005	<0.00002	<0.00002
Dissolved Strontium (mg/L)	0.0079			0.0060	0.0068	0.0079		
Dissolved Silver (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.0003	<0.00005	<0.00005
Dissolved Silicon (mg/L)	0.20	0.31	0.50	0.49	0.63		0.31	0.19
Dissolved Selenium (mg/L)	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Dissolved Phosphorus (mg/L)	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005
Dissolved Nickel (mg/L)	0.0011	0.0004	0.0004	0.0004	<0.0001	0.0003	<0.0001	0.0002
Dissolved Molybdenum (mg/L)	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.0004	<0.0003	<0.0003
Dissolved Mercury (mg/L)	<0.0001	<0.0002	<0.0002	<0.0001	<0.0001		<0.0002	<0.0002
Dissolved Manganese (mg/L)	<0.001	<0.001	0.003	<0.01	<0.001	0.002	<0.001	<0.001
Dissolved Lead (mg/L)	<0.00005	<0.00005	<0.00005	0.00012	<0.00005	<0.0001	<0.00005	<0.00005
Dissolved Iron (mg/L)	<0.01	0.01	0.03	0.11	<0.01	0.012	<0.01	0.01
Dissolved Copper (mg/L)	0.0043	0.0043	0.0044	<0.0010	0.0040	0.0009	0.0050	0.0035
Dissolved Cobalt (mg/L)	<0.00005	<0.00005	<0.00005	0.00007	<0.00005	<0.0001	<0.00005	<0.00005
Dissolved Chromium (mg/L)	<0.0004	<0.0004	<0.0004	<0.0004	0.0011	<0.0004	<0.0004	<0.0004
Dissolved Cadmium (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.00005	<0.00005
Dissolved Boron (mg/L)	<0.004	0.004	<0.004	<0.004	<0.004	0.003	<0.004	<0.004
Dissolved Beryllium (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001
Dissolved Barium (mg/L)	<0.003	<0.003	0.004	0.004	0.004	0.0023	<0.003	0.003
Dissolved Arsenic (mg/L)	0.0003	0.0002	0.0001	0.0002	0.0001	<0.0004	0.0001	<0.0001
Dissolved Antimony (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0004	<0.0001	<0.0001
Dissolved Aluminum (mg/L)	0.006	0.026	0.031	0.020	0.018	0.02	0.044	0.016

Appendix A1-2. Water chemistry data, Jericho AEMP 2005.

Parameter	JERWQ04	JERWQ04	JERWQ05	JERWQ05	JERWQ05	JERWQ05	JERWQ06	JERWQ06
Date	August	December	June	July	August	September	May	July
Sulphate (mg/L)	0.8	1.8	0.9	0.7		1.6	1.27	<0.5
Phosphate-Ortho-Phosphorus	<0.2	<0.20	<0.2	<0.2		<0.20	<0.001	<0.2
Nitrite - Nitrogen (mg/L)	<0.05	<0.05	<0.05	<0.05		<0.05	<0.002	<0.05
Nitrate - Nitrogen (mg/L)	0.05	0.05	<0.05	<0.05		<0.05	<0.006	<0.05
Hydroxide (as CaCO3) (mg/L)	<1	<1	<1	<1		<1	<5	<1
Fluoride (mg/L)	<0.02	0.04	0.04	0.05		0.04		0.05
Chloride (mg/L)	0.2	0.3	0.2	0.2		0.3	<1	0.2
Carbonate (mg/L)	<1	<1	<1	<1		<1	<5	<1
Bicarbonate (mg/L)	12	21	11	7		7	6	7
Balance (+ions/-ions)	0.53		0.71	0.93		0.53	Low EC	1.06
Acidity as CaCO3 (mg/L)	2	2	2	4		2	<5	2
Carbon (Total Organic) (mg/L)	2	4	3	3	2	2	2.7	3
Ammonia - Nitrogen (mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.037	<0.1
Carbon (Total Inorganic) (mg/L)	1	2	<1	1		2	1.2	1
Total Iron (mg/L)	0.02	<0.10			0.01	<0.10		
Total Manganese (mg/L)		<0.01			<0.002	<0.01	0.0011	
Total Zinc (mg/L)	<0.002	0.004	<0.002	0.005	<0.002	0.005	0.0010	<0.002
Total Vanadium (mg/L)	0.0002	0.0005	0.0001	0.0002	0.0001	0.0004	<0.00005	0.0001
Total Uranium (mg/L)	0.00009	0.00014	0.00013	0.00017	0.00012	<0.00005	0.00014	0.00012
Total Thallium (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005		<0.00005
Total Strontium (mg/L)	0.0049	0.0097			0.0054	0.0039	0.0059	
Total Sodium (mg/L)	0.8	0.7	0.9	0.5	0.8	<0.5	0.584	0.6
Total Silver (mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0002
Total Silicon (mg/L)	0.20	0.38	0.26	0.19	0.24	0.25		0.19
Total Selenium (mg/L)	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0001	<0.0008
Total Potassium (mg/L)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.36	<0.5
Total Phosphorus (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.004	<0.050
Total Nickel (mg/L)	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	0.00029	<0.0006
Total Molybdenum (mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.00006	<0.0005
Total Mercury (mg/L)	<0.0001	<0.00005	<0.0002	<0.0002	<0.0001	<0.0001	<0.00002	<0.0002
Total Magnesium (mg/L)	0.50	0.88	0.54	0.51	0.55	0.50	0.698	0.56
Total Lead (mg/L)	<0.0001	<0.0001	0.0005	<0.0001	<0.0001	0.0001	<0.00005	<0.0001
Total Copper (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	<0.0010
Total Cobalt (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Chromium (mg/L)	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	0.0021	0.00010	<0.0009
Total Calcium (mg/L)	1.00	1.95	1.05	1.02	1.10	1.14	1.34	1.13
Total Cadmium (mg/L)	<0.0001	<0.0001	<0.0002	<0.0002	<0.0001	<0.0001	<0.00005	<0.0002
Total Boron (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.001	<0.010
Total Beryllium (mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005
Total Barium (mg/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00178	<0.005
Total Arsenic (mg/L)	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.00020	<0.0004
Total Antimony (mg/L)	<0.0001	0.0008	0.0002	<0.0001	<0.0001	<0.0001	0.00009	<0.0001
Total Aluminum (mg/L)	0.015	0.059	0.057	0.032	0.020	0.108	0.0137	0.021
Dissolved Calcium (mg/L)	0.9	1.8	1.2	1.1	0.98	1.2	1.3	1.1
Dissolved Magnesium (mg/L)	<0.5	0.9	0.6	0.5	<0.50	<0.5	0.68	0.5
Dissolved Potassium (mg/L)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.4	<0.5
Dissolved Sodium (mg/L)	0.7	0.6	0.8	0.6	0.8	<0.5	0.7	0.7
Dissolved Zinc (mg/L)	<0.002	0.003	0.011	<0.002	<0.002	<0.002	0.004	<0.002
Dissolved Vanadium (mg/L)	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0001	<0.0005
Dissolved Uranium (mg/L)	0.00010	0.00021	0.00014	0.00012	0.00012	0.00008	0.0001	0.00010
Dissolved Thallium (mg/L)	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00005	<0.00002
Dissolved Strontium (mg/L)	0.0042	0.0094			0.0043	0.0053	0.0067	
Dissolved Silver (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0002	<0.00005
Dissolved Silicon (mg/L)	0.19	0.53	0.28	0.19	0.23	0.23		0.18
Dissolved Selenium (mg/L)	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Dissolved Phosphorus (mg/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005
Dissolved Nickel (mg/L)	0.0002	0.0005	<0.0001	0.0002	0.0002	<0.0001	0.0002	0.0003
Dissolved Molybdenum (mg/L)	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.0002	<0.0003
Dissolved Mercury (mg/L)	<0.0001	<0.00005	<0.0002	<0.0002	<0.0001	<0.0001		<0.0002
Dissolved Manganese (mg/L)	<0.01	<0.010	<0.001	<0.001	<0.001	<0.001	0.001	<0.001
Dissolved Lead (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.00005
Dissolved Iron (mg/L)	<0.10	<0.10	0.02	<0.01	<0.01	<0.01	0.005	<0.01
Dissolved Copper (mg/L)	<0.0010	0.0026	0.0049	0.0051	<0.0010	0.0046	0.0008	0.0036
Dissolved Cobalt (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.00005
Dissolved Chromium (mg/L)	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.0006	<0.0004	<0.0004
Dissolved Cadmium (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.00005
Dissolved Boron (mg/L)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.002	<0.004
Dissolved Beryllium (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
Dissolved Barium (mg/L)	<0.003	0.003	<0.003	0.003	<0.003	<0.003	0.0018	<0.003
Dissolved Arsenic (mg/L)	<0.0001	0.0003	0.0003	<0.0001	0.0002	0.0002	<0.0004	<0.0001
Dissolved Antimony (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0004	<0.0001
Dissolved Aluminum (mg/L)	0.014	0.051	0.052	0.014	0.011	0.004	0.01	0.012

Appendix A1-2. Water chemistry data, Jericho AEMP 2005.

Parameter	JERWQ06	JERWQ06	JERWQ07	JERWQ07	JERWQ07	JERWQ07	JERWQ08	JERWQ08
Date	August	December	June	July	August	September	May	July
Sulphate (mg/L)	0.8	2.0	3.4	0.9	0.7	1.7	1.38	<0.5
Phosphate-Ortho-Phosphorus	<0.2	<0.20	<0.2	<0.2	<0.2	<0.20	<0.001	<0.2
Nitrite - Nitrogen (mg/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.002	<0.05
Nitrate - Nitrogen (mg/L)	0.09	<0.05	0.05	<0.05	<0.05	<0.05	0.013	<0.05
Hydroxide (as CaCO3) (mg/L)	<1	<1	<1	<1	<1	<1	<5	<1
Fluoride (mg/L)	<0.02	0.04	0.04	0.06	0.03	0.04		0.06
Chloride (mg/L)	0.3	0.4	0.4	0.2	0.4	0.3	<1	0.2
Carbonate (mg/L)	<1	<1	<1	<1	<1	<1	<5	<1
Bicarbonate (mg/L)	8	19	11	7	7	7	8	6
Balance (+ions/-ions)	0.74			1.02	0.89	0.51	Low EC	1.07
Acidity as CaCO3 (mg/L)	2	3	2	3	2	1	<5	3
Carbon (Total Organic) (mg/L)	2	4	2	2	3	2	3.1	3
Ammonia - Nitrogen (mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.023	<0.1
Carbon (Total Inorganic) (mg/L)	2	2	1	1	2	2	2.1	<1
Total Iron (mg/L)	0.02	<0.10			<0.10	<0.10		
Total Manganese (mg/L)		<0.01			<0.01	<0.01	0.0039	
Total Zinc (mg/L)	<0.002	0.008	<0.002	<0.002	0.004	<0.002	0.0018	<0.002
Total Vanadium (mg/L)	0.0003	<0.0005	<0.0001	0.0002	0.0002	0.0006	<0.00005	0.0001
Total Uranium (mg/L)	0.00009	0.00012	0.00012	0.00017	0.00016	<0.00005	0.00011	0.00010
Total Thallium (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005		<0.00005
Total Strontium (mg/L)	0.0052	0.0085			0.0048	0.0040	0.0065	
Total Sodium (mg/L)	0.8	0.7	0.8	0.6	<0.5	<0.5	0.588	0.5
Total Silver (mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0002
Total Silicon (mg/L)	0.18	0.25	0.20	0.26	0.21	0.19		0.15
Total Selenium (mg/L)	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0001	<0.0008
Total Potassium (mg/L)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.38	<0.5
Total Phosphorus (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.004	<0.050
Total Nickel (mg/L)	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	0.00036	<0.0006
Total Molybdenum (mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.00006	<0.0005
Total Mercury (mg/L)	<0.0001	<0.00005	<0.0002	<0.0002	<0.0001	<0.0001	<0.00002	<0.0002
Total Magnesium (mg/L)	0.53	0.89	0.56	0.57	0.56	<0.50	0.748	0.55
Total Lead (mg/L)	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	<0.0001
Total Copper (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	0.0012	<0.0010	0.0010	0.0015
Total Cobalt (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Chromium (mg/L)	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	0.0025	0.00016	<0.0009
Total Calcium (mg/L)	1.08	1.98	1.12	1.16	1.17	1.13	1.52	1.05
Total Cadmium (mg/L)	<0.0001	<0.0001	<0.0002	<0.0002	<0.0001	<0.0001	<0.00005	<0.0002
Total Boron (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.001	<0.010
Total Beryllium (mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005
Total Barium (mg/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00247	<0.005
Total Arsenic (mg/L)	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.00016	<0.0004
Total Antimony (mg/L)	0.0002	0.0003	<0.0001	<0.0001	<0.0001	<0.0001	0.00014	<0.0001
Total Aluminum (mg/L)	0.019	0.027	<0.020	0.050	0.034	0.018	0.0113	<0.020
Dissolved Calcium (mg/L)	1.0	1.6	1.2	1.4	1.2	1.2		1.1
Dissolved Magnesium (mg/L)	<0.5	0.8	0.6	0.6	0.5	<0.5		0.5
Dissolved Potassium (mg/L)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5
Dissolved Sodium (mg/L)	0.7	0.6	<0.5	<0.5	<0.5	<0.5		0.6
Dissolved Zinc (mg/L)	<0.002	0.008	0.003	0.002	<0.002	<0.002	0.004	<0.002
Dissolved Vanadium (mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0001	<0.0005
Dissolved Uranium (mg/L)	0.00010	0.00014	0.00011	0.00012	0.00026	0.00008	0.0001	0.00009
Dissolved Thallium (mg/L)	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00005	<0.00002
Dissolved Strontium (mg/L)	0.0046	0.0077			0.0047	0.0054	0.0052	
Dissolved Silver (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0002	<0.00005
Dissolved Silicon (mg/L)	0.17	0.14	0.21	0.25	0.25	0.16		0.16
Dissolved Selenium (mg/L)	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Dissolved Phosphorus (mg/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.001	<0.005
Dissolved Nickel (mg/L)	0.0003	0.0006	0.0003	0.0003	0.0002	<0.0001	0.0003	0.0003
Dissolved Molybdenum (mg/L)	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.0002	<0.0003
Dissolved Mercury (mg/L)	<0.0001	<0.00005	<0.0002	<0.0002	<0.0001	<0.0001		<0.0002
Dissolved Manganese (mg/L)	<0.01	<0.010	0.003	<0.001	<0.01	<0.001	0.003	<0.001
Dissolved Lead (mg/L)	0.00010	0.00011	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.00005
Dissolved Iron (mg/L)	<0.10	<0.10	<0.01	<0.01	<0.10	<0.01	0.010	<0.01
Dissolved Copper (mg/L)	<0.0010	0.0030	0.0039	0.0047	<0.0010	0.0049	<0.0006	0.0033
Dissolved Cobalt (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.00005
Dissolved Chromium (mg/L)	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.0004	<0.0004	<0.0004
Dissolved Cadmium (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.00005
Dissolved Boron (mg/L)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.004	<0.004
Dissolved Beryllium (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001
Dissolved Barium (mg/L)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.0023	<0.003
Dissolved Arsenic (mg/L)	<0.0001	0.0002	0.0002	<0.0001	0.0003	0.0002	<0.0004	<0.0001
Dissolved Antimony (mg/L)	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0004	<0.0001
Dissolved Aluminum (mg/L)	0.015	0.015	0.013	0.018	0.022	0.007	0.01	0.011

Appendix A1-2. Water chemistry data, Jericho AEMP 2005.

Parameter	JERWQ08	JERWQ08	JERWQ09	JERWQ09	JERWQ09	JERWQ09	JERWQ09	JERWQ10
Date	August	December	June	July	August	September	December	May
Sulphate (mg/L)	0.7	0.9	1.1	0.9	0.9	<0.5	1.0	1.31
Phosphate-Ortho-Phosphorus	<0.2	<0.20	<0.2	<0.2	<0.2	<0.20	<0.20	<0.001
Nitrite - Nitrogen (mg/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.002
Nitrate - Nitrogen (mg/L)	<0.05	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	0.009
Hydroxide (as CaCO3) (mg/L)	<1	<1	<1	<1	<1	<1	<1	<5
Fluoride (mg/L)	<0.02	0.03	0.04	0.06	<0.02	0.03	0.03	
Chloride (mg/L)	0.2	0.2	0.2	0.2	0.2	0.2	0.4	<1
Carbonate (mg/L)	<1	<1	<1	<1	<1	<1	<1	<5
Bicarbonate (mg/L)	8	20	10	7	9	7	22	5
Balance (+ions/-ions)	0.75		0.75	0.96	0.71	0.65		Low EC
Acidity as CaCO3 (mg/L)	2	3	2	3	2	1	3	<5
Carbon (Total Organic) (mg/L)	2	4	1	3	2	2	4	3.0
Ammonia - Nitrogen (mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.008
Carbon (Total Inorganic) (mg/L)	1	2	<1	<1	1	1	2	1.1
Total Iron (mg/L)	0.12	<0.10			0.02	<0.10	<0.10	
Total Manganese (mg/L)		<0.01				<0.01	<0.01	0.0009
Total Zinc (mg/L)	<0.002	<0.002	<0.002	<0.002	<0.002	0.008	0.003	0.0010
Total Vanadium (mg/L)	0.0002	<0.0005	<0.0001	<0.0001	0.0002	0.0005	0.0005	<0.00005
Total Uranium (mg/L)	0.00010	0.00011	0.00012	0.00013	0.00008	<0.00005	0.00011	0.00016
Total Thallium (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	
Total Strontium (mg/L)	0.0053	0.0084			0.0052	0.0043	0.0110	0.0058
Total Sodium (mg/L)	0.8	0.6	0.7	0.7	0.7	<0.5	0.8	0.596
Total Silver (mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001
Total Silicon (mg/L)	0.17	0.24	0.20	0.13	0.16	0.19	0.33	
Total Selenium (mg/L)	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0001
Total Potassium (mg/L)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.36
Total Phosphorus (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.005
Total Nickel (mg/L)	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	0.0016	0.00030
Total Molybdenum (mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.00006
Total Mercury (mg/L)	<0.0001	<0.00005	<0.0002	<0.0002	<0.0001	<0.0001	<0.00005	<0.00002
Total Magnesium (mg/L)	0.54	0.90	0.51	0.57	0.56	0.52	1.02	0.671
Total Lead (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.00005
Total Copper (mg/L)	<0.0010	<0.0010	<0.0010	0.0016	<0.0010	0.0013	<0.0010	0.0010
Total Cobalt (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Chromium (mg/L)	<0.0009	<0.0009	<0.0009	<0.0009	<0.0009	0.0028	<0.0009	0.00011
Total Calcium (mg/L)	1.10	1.68	0.99	1.11	1.11	1.20	2.51	1.25
Total Cadmium (mg/L)	<0.0001	<0.0001	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.00005
Total Boron (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.001
Total Beryllium (mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002
Total Barium (mg/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00183
Total Arsenic (mg/L)	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.00021
Total Antimony (mg/L)	0.0002	0.0004	<0.0001	<0.0001	<0.0001	<0.0001	0.0005	0.00005
Total Aluminum (mg/L)	0.020	0.024	0.028	0.021	0.012	0.033	0.032	0.0171
Dissolved Calcium (mg/L)	1.1	1.6	1.1	1.2	1.0	1.2	1.8	1.4
Dissolved Magnesium (mg/L)	0.5	0.8	0.6	0.6	<0.5	<0.5	0.9	0.69
Dissolved Potassium (mg/L)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.4
Dissolved Sodium (mg/L)	<0.5	0.6	0.9	0.5	0.7	0.5	0.7	0.8
Dissolved Zinc (mg/L)	<0.002	0.002	0.003	<0.002	<0.002	<0.002	0.003	0.005
Dissolved Vanadium (mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0001
Dissolved Uranium (mg/L)	0.00010	0.00012	0.00012	0.00008	0.00008	0.00008	0.00012	0.0002
Dissolved Thallium (mg/L)	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00005
Dissolved Strontium (mg/L)	0.0045	0.0090			0.0046	0.0053	0.0094	0.0067
Dissolved Silver (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0002
Dissolved Silicon (mg/L)	0.20	0.14	0.23	0.14	0.15	0.15	0.26	
Dissolved Selenium (mg/L)	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Dissolved Phosphorus (mg/L)	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	
Dissolved Nickel (mg/L)	0.0002	0.0005	<0.0001	0.0002	<0.0001	<0.0001	0.0014	0.0003
Dissolved Molybdenum (mg/L)	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.0004
Dissolved Mercury (mg/L)	<0.0001	<0.00005	<0.0002	<0.0002	<0.0001	<0.0001	<0.00005	
Dissolved Manganese (mg/L)	<0.01	<0.010	<0.001	<0.001	<0.01	<0.001	<0.010	0.001
Dissolved Lead (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	0.00015	<0.00005	<0.00005	<0.0001
Dissolved Iron (mg/L)	0.12	<0.10	<0.01	<0.01	<0.10	<0.01	<0.10	0.006
Dissolved Copper (mg/L)	<0.0010	<0.0010	0.0027	0.0040	<0.0010	0.0040	0.0032	0.0008
Dissolved Cobalt (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001
Dissolved Chromium (mg/L)	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.0005	<0.0004	<0.0004
Dissolved Cadmium (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001
Dissolved Boron (mg/L)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.002
Dissolved Beryllium (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005
Dissolved Barium (mg/L)	<0.003	0.004	0.003	<0.003	<0.003	<0.003	0.003	0.0018
Dissolved Arsenic (mg/L)	<0.0001	0.0002	0.0001	<0.0001	0.0002	0.0001	0.0002	<0.0004
Dissolved Antimony (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0004
Dissolved Aluminum (mg/L)	0.013	0.010	0.027	<0.010	0.012	0.009	0.014	0.02

Appendix A1-2. Water chemistry data, Jericho AEMP 2005.

Parameter	JERWQ10	JERWQ10	JERWQ10	JERWQ11	JERWQ11	JERWQ11	JERWQ11	JERWQ12
Date	July	August	December	May	July	August	December	June
Sulphate (mg/L)	<0.5	1.5	0.8	1.04	<0.5	0.9	<0.5	
Phosphate-Ortho-Phosphorus	<0.2	<0.2	<0.20	<0.001	<0.2	<0.2		
Nitrite - Nitrogen (mg/L)	<0.05	<0.05	<0.05	<0.002	<0.05	<0.05	<0.05	
Nitrate - Nitrogen (mg/L)	<0.05	<0.05	<0.05	<0.006	<0.05	0.06	<0.05	
Hydroxide (as CaCO3) (mg/L)	<1	<1	<1	<5	<1	<1	<1	
Fluoride (mg/L)	0.05	<0.02	0.04		0.06	0.02	0.05	
Chloride (mg/L)	0.2	0.3	0.1	<1	0.2	0.2	0.1	
Carbonate (mg/L)	<1	<1	<1	<5	<1	<1	<1	
Bicarbonate (mg/L)	8	11	23	8	8	9	22	
Balance (+ions/-ions)	0.88	0.51	0.44	Low EC	0.96	0.73	0.56	
Acidity as CaCO3 (mg/L)	3	2	2	<5	2	2	3	<5
Carbon (Total Organic) (mg/L)	2	2	4	2.9	2	2	3	
Ammonia - Nitrogen (mg/L)	<0.1	<0.1	<0.1	<0.005	<0.1	<0.1		
Carbon (Total Inorganic) (mg/L)	1	1	2	1.5	1	2	2	
Total Iron (mg/L)		0.03	<0.10			0.02	<0.10	
Total Manganese (mg/L)			<0.01	0.0006			<0.01	
Total Zinc (mg/L)	0.003	<0.002	0.004	0.0026	<0.002	<0.002	0.010	
Total Vanadium (mg/L)	0.0002	0.0002	0.0003	<0.00005	0.0002	0.0002	0.0004	
Total Uranium (mg/L)	0.00016	0.00012	0.00017	0.00015	0.00012	0.00008	0.00016	
Total Thallium (mg/L)	<0.00005	<0.00005	<0.00005		<0.00005	<0.00005	<0.00005	
Total Strontium (mg/L)		0.0051	0.0073	0.0061		0.0050	0.0076	
Total Sodium (mg/L)	<0.5	0.9	0.7	0.640	<0.5	0.7	0.9	
Total Silver (mg/L)	<0.0002	<0.0002	<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	
Total Silicon (mg/L)	0.21	0.21	0.32		0.24	0.23	0.35	
Total Selenium (mg/L)	<0.0008	<0.0008	<0.0008	<0.0001	<0.0008	<0.0008	<0.0008	
Total Potassium (mg/L)	<0.5	<0.5	<0.5	0.42	<0.5	<0.5	0.6	
Total Phosphorus (mg/L)	0.095	<0.050	<0.050	0.004	<0.050	<0.050	<0.050	
Total Nickel (mg/L)	0.0006	0.0013	<0.0006	0.00024	<0.0006	<0.0006	<0.0006	
Total Molybdenum (mg/L)	<0.0005	<0.0005	<0.0005	<0.00006	<0.0005	<0.0005	<0.0005	
Total Mercury (mg/L)	<0.0002	<0.0001	<0.00005	<0.00002	<0.0002	<0.0001	<0.00005	
Total Magnesium (mg/L)	0.51	<0.50	0.77	0.722	0.54	<0.50	0.87	
Total Lead (mg/L)	<0.0001	<0.0001	0.0001	<0.00005	<0.0001	<0.0001	0.0002	
Total Copper (mg/L)	<0.0010	<0.0010	0.0025	0.0012	0.0013	<0.0010	0.0040	
Total Cobalt (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Total Chromium (mg/L)	<0.0009	<0.0009	<0.0009	0.00013	<0.0009	<0.0009	<0.0009	
Total Calcium (mg/L)	0.98	0.98	1.46	1.59	1.21	1.18	1.90	
Total Cadmium (mg/L)	<0.0002	<0.0001	<0.0001	<0.00005	<0.0002	<0.0001	<0.0001	
Total Boron (mg/L)	<0.010	<0.010	<0.010	0.001	<0.010	<0.010	<0.010	
Total Beryllium (mg/L)	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	
Total Barium (mg/L)	<0.005	<0.005	<0.005	0.00163	<0.005	0.021	<0.005	
Total Arsenic (mg/L)	<0.0004	<0.0004	<0.0004	0.00017	<0.0004	<0.0004	<0.0004	
Total Antimony (mg/L)	<0.0001	<0.0001	0.0012	0.00014	<0.0001	<0.0001	<0.0001	
Total Aluminum (mg/L)	0.022	0.016	<0.005	0.0105	<0.020	0.011	0.008	
Dissolved Calcium (mg/L)	1.0	0.9	1.6	1.7	1.2	1.1	1.9	
Dissolved Magnesium (mg/L)	<0.5	<0.5	0.8	0.73	0.5	<0.5	0.8	
Dissolved Potassium (mg/L)	<0.5	<0.5	<0.5	0.4	<0.5	<0.5	<0.5	
Dissolved Sodium (mg/L)	0.6	0.7	0.5	0.8	0.6	0.7	0.7	
Dissolved Zinc (mg/L)	<0.002	<0.002	0.004	0.005	<0.002	<0.002	0.010	
Dissolved Vanadium (mg/L)	<0.0005	<0.0005	<0.0005	<0.0001	<0.0005	<0.0005	<0.0005	
Dissolved Uranium (mg/L)	0.00013	0.00012	0.00011	0.0001	0.00011	0.00009	0.00011	
Dissolved Thallium (mg/L)	<0.00002	<0.00002	<0.00002	<0.00005	<0.00002	<0.00002	<0.00002	
Dissolved Strontium (mg/L)		0.0047	0.0075	0.0067		0.0048	0.0073	
Dissolved Silver (mg/L)	<0.00005	<0.00005	<0.00005	<0.0002	<0.00005	<0.00005	<0.00005	
Dissolved Silicon (mg/L)	0.20	0.22	0.33		0.23	0.22	0.34	
Dissolved Selenium (mg/L)	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	
Dissolved Phosphorus (mg/L)	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	
Dissolved Nickel (mg/L)	0.0002	0.0003	<0.0001	0.0002	0.0002	0.0005	<0.0001	
Dissolved Molybdenum (mg/L)	<0.0003	<0.0003	<0.0003	0.0002	<0.0003	<0.0003	<0.0003	
Dissolved Mercury (mg/L)	<0.0002	<0.0001	<0.00005		<0.0002	<0.0001	<0.00005	
Dissolved Manganese (mg/L)	<0.001	<0.01	<0.010	0.001	<0.001	<0.01	<0.010	
Dissolved Lead (mg/L)	<0.00005	0.00008	<0.00005	<0.0001	<0.00005	0.00009	0.00010	
Dissolved Iron (mg/L)	<0.01	<0.10	<0.10	0.007	<0.01	<0.10	<0.10	
Dissolved Copper (mg/L)	0.0031	<0.0010	0.0026	0.0009	0.0026	<0.0010	0.0038	
Dissolved Cobalt (mg/L)	<0.00005	<0.00005	<0.00005	<0.0001	<0.00005	0.00006	<0.00005	
Dissolved Chromium (mg/L)	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	
Dissolved Cadmium (mg/L)	<0.00005	0.00009	<0.00005	<0.0001	<0.00005	0.00008	<0.00005	
Dissolved Boron (mg/L)	<0.004	<0.004	<0.004	<0.002	<0.004	<0.004	<0.004	
Dissolved Beryllium (mg/L)	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	
Dissolved Barium (mg/L)	<0.003	<0.003	0.010	0.0016	<0.003	<0.003	0.018	
Dissolved Arsenic (mg/L)	<0.0001	0.0002	0.0003	<0.0004	<0.0001	0.0002	0.0003	
Dissolved Antimony (mg/L)	<0.0001	<0.0001	<0.0001	<0.0004	<0.0001	<0.0001	<0.0001	
Dissolved Aluminum (mg/L)	0.014	0.013	0.014	<0.01	<0.010	0.011	<0.002	

Appendix A1-2. Water chemistry data, Jericho AEMP 2005.

Parameter	JERWQ12	JERWQ12	JERWQ12	JERWQ12	JERWQ13	JERWQ13	JERWQ13	JERWQ13
Date	June	July	August	September	May	June	July	August
Sulphate (mg/L)	<0.5	1	0.6	<0.5	0.97	2.5	0.5	0.5
Phosphate-Ortho-Phosphorus	<0.2	<0.2	<0.2	<0.20	<0.001	<0.2	<0.2	<0.2
Nitrite - Nitrogen (mg/L)	<0.05	<0.05	<0.05	<0.05	<0.002	<0.05	<0.05	<0.05
Nitrate - Nitrogen (mg/L)	0.59	0.43	0.30	0.44	0.014	0.06	0.08	0.23
Hydroxide (as CaCO3) (mg/L)	<1	<1	<1	<1	<5	<1	<1	<1
Fluoride (mg/L)	0.03	0.05	0.03	0.03		0.03	0.05	0.02
Chloride (mg/L)	1.4	3.5	2.2	1.8	1	0.6	0.6	1.2
Carbonate (mg/L)	<1	<1	<1	<1	<5	<1	<1	<1
Bicarbonate (mg/L)	12	17	14	11	12	13	8	10
Balance (+ions/-ions)	0.99	0.96	0.98	0.90	Low EC		0.93	0.94
Acidity as CaCO3 (mg/L)	2	4	2	6	<5	2	3	2
Carbon (Total Organic) (mg/L)	2	3	3	2	6.7	4	4	6
Ammonia - Nitrogen (mg/L)	<0.1	<0.1	<0.1	<0.1	0.019	<0.1	<0.1	<0.1
Carbon (Total Inorganic) (mg/L)	1	2	3	3	2.7	2	2	<1
Total Iron (mg/L)			<0.10	<0.10				<0.10
Total Manganese (mg/L)			<0.01	<0.01	0.0015			<0.01
Total Zinc (mg/L)	<0.002	<0.002	0.005	0.006	0.0021	<0.002	<0.002	<0.002
Total Vanadium (mg/L)	<0.0001	0.0001	0.0002	0.0004	0.00006	<0.0001	0.0001	0.0002
Total Uranium (mg/L)	0.00037	0.00023	0.00016	0.00011	0.00096	0.00066	0.00069	0.00063
Total Thallium (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005		<0.00005	<0.00005	<0.00005
Total Strontium (mg/L)			0.0174	0.0127	0.0074			0.0060
Total Sodium (mg/L)	0.8	0.8	<0.5	0.9	0.670	0.8	0.5	<0.5
Total Silver (mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0002	<0.0002	<0.0002
Total Silicon (mg/L)	0.62	1.21	0.66	1.35		0.61	0.46	0.62
Total Selenium (mg/L)	<0.0008	<0.0008	<0.0008	<0.0008	0.0001	<0.0008	<0.0008	<0.0008
Total Potassium (mg/L)	<0.5	<0.5	<0.5	<0.5	0.25	<0.5	<0.5	<0.5
Total Phosphorus (mg/L)	<0.050	<0.050	<0.050	<0.050	0.016	<0.050	<0.050	<0.050
Total Nickel (mg/L)	<0.0006	<0.0006	<0.0006	<0.0006	0.00040	<0.0006	<0.0006	<0.0006
Total Molybdenum (mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.00006	<0.0005	<0.0005	<0.0005
Total Mercury (mg/L)	<0.0002	<0.0002	<0.0001	<0.0001	<0.00002	<0.0002	<0.0002	<0.0001
Total Magnesium (mg/L)	1.02	1.40	1.36	1.21	1.21	0.73	0.82	1
Total Lead (mg/L)	<0.0001	<0.0001	<0.0001	0.0004	<0.00005	<0.0001	<0.0001	<0.0001
Total Copper (mg/L)	0.0014	0.0017	0.0020	0.0022	0.0024	0.0013	0.0014	0.0018
Total Cobalt (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Chromium (mg/L)	<0.0009	<0.0009	<0.0009	0.0019	0.00025	<0.0009	<0.0009	<0.0009
Total Calcium (mg/L)	2.58	4.69	3.51	3.02	2.36	1.50	1.67	2.07
Total Cadmium (mg/L)	<0.0002	<0.0002	<0.0001	<0.0001	<0.00005	<0.0002	<0.0002	<0.0001
Total Boron (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.001	<0.010	<0.010	<0.010
Total Beryllium (mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005
Total Barium (mg/L)	<0.005	0.011	0.006	0.006	0.00245	<0.005	<0.005	<0.005
Total Arsenic (mg/L)	<0.0004	<0.0004	<0.0004	<0.0004	0.00020	<0.0004	<0.0004	<0.0004
Total Antimony (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	0.00022	0.0001	0.0005	<0.0001
Total Aluminum (mg/L)	0.064	0.048	0.034	0.033	0.0520	0.060	0.050	0.038
Dissolved Calcium (mg/L)	2.8	4.9	3.4	3.0		1.5	1.8	2.0
Dissolved Magnesium (mg/L)	1.1	1.6	1.4	0.8		0.7	<0.5	1.0
Dissolved Potassium (mg/L)	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5	<0.5
Dissolved Sodium (mg/L)	1.0	0.9	0.6	0.7		<0.5	0.5	<0.5
Dissolved Zinc (mg/L)	0.003	0.002	<0.002	<0.002	0.002	0.003	<0.002	<0.002
Dissolved Vanadium (mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	0.0002	<0.0005	<0.0005	<0.0005
Dissolved Uranium (mg/L)	0.00035	0.00018	0.00016	0.00015	0.0010	0.00063	0.00053	0.00057
Dissolved Thallium (mg/L)	<0.00002	0.00016	<0.00002	<0.00002	<0.00005	<0.00002	<0.00002	<0.00002
Dissolved Strontium (mg/L)			0.0166	0.0132	0.0069			0.0062
Dissolved Silver (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	<0.0002	<0.00005	<0.00005	<0.00005
Dissolved Silicon (mg/L)	0.65	0.13	0.71	1.32		0.65	0.47	0.65
Dissolved Selenium (mg/L)	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Dissolved Phosphorus (mg/L)	<0.005	<0.005	<0.005	<0.005	0.002	<0.005	<0.005	<0.005
Dissolved Nickel (mg/L)	<0.0001	0.0006	0.0004	<0.0001	0.0003	0.0004	0.0003	0.0002
Dissolved Molybdenum (mg/L)	<0.0003	<0.0003	<0.0003	<0.0003	0.0002	<0.0003	<0.0003	<0.0003
Dissolved Mercury (mg/L)	<0.0002	<0.0002	<0.0001	<0.0001		<0.0002	<0.0002	<0.0001
Dissolved Manganese (mg/L)	0.008	0.003	<0.01	0.007	0.001	0.004	0.002	<0.01
Dissolved Lead (mg/L)	0.00005	<0.00005	<0.00005	0.00056	<0.0001	<0.00005	<0.00005	<0.00005
Dissolved Iron (mg/L)	0.02	<0.01	<0.10	<0.01	0.023	0.02	0.04	<0.10
Dissolved Copper (mg/L)	0.0049	0.0064	0.0011	0.0061	0.0014	0.0064	0.0039	0.0016
Dissolved Cobalt (mg/L)	0.00007	<0.00005	<0.00005	<0.00005	<0.0001	<0.00005	<0.00005	<0.00005
Dissolved Chromium (mg/L)	0.0004	<0.0004	<0.0004	0.0013	<0.0004	<0.0004	<0.0004	<0.0004
Dissolved Cadmium (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.00005	<0.00005	<0.00005
Dissolved Boron (mg/L)	<0.004	<0.004	<0.004	<0.004	0.003	<0.004	<0.004	<0.004
Dissolved Beryllium (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001
Dissolved Barium (mg/L)	0.008	0.008	0.006	0.006	0.0023	<0.003	0.005	<0.003
Dissolved Arsenic (mg/L)	0.0002	<0.0001	0.0002	<0.0001	<0.0004	0.0001	<0.0001	0.0002
Dissolved Antimony (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0004	<0.0001	<0.0001	<0.0001
Dissolved Aluminum (mg/L)	0.049	0.039	0.023	0.022	0.05	0.040	0.036	0.036

Appendix A1-2. Water chemistry data, Jericho AEMP 2005.

Parameter	JERWQ14	JERWQ14	JERWQ14	JERWQ14	JERWQ15	JERWQ15	JERWQ15	JERWQ16
Date	June	July	August	September	June	July	August	July
Sulphate (mg/L)	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	<0.5
Phosphate-Ortho-Phosphorus	<0.2	<0.2	<0.2	<0.20	<0.2	<0.2	<0.2	<0.2
Nitrite - Nitrogen (mg/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nitrate - Nitrogen (mg/L)	<0.05	<0.05	<0.05	<0.05	<0.05	0.08	0.08	<0.05
Hydroxide (as CaCO3) (mg/L)	<1	<1	<1	<1	<1	<1	<1	<1
Fluoride (mg/L)	0.03	0.05	0.02	0.03	0.03	0.05	0.02	0.05
Chloride (mg/L)	0.1	0.3	0.4	0.3	0.1	0.3	0.4	0.2
Carbonate (mg/L)	<1	<1	<1	<1	<1	<1	<1	<1
Bicarbonate (mg/L)	12	13	10	12	12	13	10	9
Balance (+ions/-ions)	0.83	0.77	0.95	0.81	0.75	0.85	0.95	0.98
Acidity as CaCO3 (mg/L)	2	4	2	2	2	4	2	3
Carbon (Total Organic) (mg/L)	5	5	5	5	3	4	5	3
Ammonia - Nitrogen (mg/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carbon (Total Inorganic) (mg/L)	<1	2	2	2	1	2	2	2
Total Iron (mg/L)			<0.10	0.21			<0.10	
Total Manganese (mg/L)			<0.01	<0.01			<0.01	
Total Zinc (mg/L)	<0.002	<0.002	<0.002	0.004	<0.002	<0.002	0.005	<0.002
Total Vanadium (mg/L)	0.0002	0.0002	0.0003	0.0007	0.0001	0.0002	0.0003	0.0001
Total Uranium (mg/L)	0.00020	0.00021	0.00024	0.00009	0.00023	0.00023	0.00026	0.00006
Total Thallium (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Total Strontium (mg/L)			0.0047	0.0047			0.0051	
Total Sodium (mg/L)	0.7	0.5	<0.5	<0.5	0.7	<0.5	<0.5	<0.5
Total Silver (mg/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Total Silicon (mg/L)	0.20	0.09	0.29	0.36	0.23	0.14	0.36	0.27
Total Selenium (mg/L)	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
Total Potassium (mg/L)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total Phosphorus (mg/L)	<0.050	<0.050	<0.050	0.066	<0.050	<0.050	<0.050	0.073
Total Nickel (mg/L)	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
Total Molybdenum (mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Total Mercury (mg/L)	<0.0002	<0.0002	<0.0001	<0.0001	<0.0002	<0.0002	<0.0001	<0.0002
Total Magnesium (mg/L)	0.52	0.63	0.70	0.78	0.52	0.72	0.73	0.67
Total Lead (mg/L)	<0.0001	<0.0001	<0.0001	0.0006	<0.0001	<0.0001	<0.0001	0.0001
Total Copper (mg/L)	<0.0010	<0.0010	<0.0010	0.0018	<0.0010	<0.0010	<0.0010	0.0011
Total Cobalt (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Chromium (mg/L)	<0.0009	<0.0009	<0.0009	0.0036	<0.0009	<0.0009	<0.0009	<0.0009
Total Calcium (mg/L)	1.34	1.56	1.84	2.14	1.36	1.90	1.99	1.47
Total Cadmium (mg/L)	<0.0002	<0.0002	<0.0001	<0.0001	<0.0002	<0.0002	<0.0001	<0.0002
Total Boron (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Total Beryllium (mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Total Barium (mg/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total Arsenic (mg/L)	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Total Antimony (mg/L)	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Aluminum (mg/L)	0.050	0.029	0.027	0.034	0.059	0.034	0.030	0.025
Dissolved Calcium (mg/L)	1.6	1.8	1.8	2.3	1.5	2.1	2.0	1.5
Dissolved Magnesium (mg/L)	0.6	0.7	0.7	<0.5	0.5	0.7	0.7	0.6
Dissolved Potassium (mg/L)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dissolved Sodium (mg/L)	0.7	0.6	<0.5	0.6	0.7	0.7	<0.5	0.5
Dissolved Zinc (mg/L)	0.004	<0.002	<0.002	<0.002	0.004	<0.002	<0.002	<0.002
Dissolved Vanadium (mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Uranium (mg/L)	0.00019	0.00015	0.00021	0.00014	0.00022	0.00018	0.00021	0.00006
Dissolved Thallium (mg/L)	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Dissolved Strontium (mg/L)			0.0044	0.0065			0.0046	
Dissolved Silver (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Dissolved Silicon (mg/L)	0.21	0.10	0.34	0.36	0.25	0.16	0.42	0.27
Dissolved Selenium (mg/L)	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Dissolved Phosphorus (mg/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Dissolved Nickel (mg/L)	<0.0001	0.0003	0.0002	<0.0001	<0.0001	0.0003	0.0003	0.0003
Dissolved Molybdenum (mg/L)	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Dissolved Mercury (mg/L)	<0.0002	<0.0002	<0.0001	<0.0001	<0.0002	<0.0002	<0.0001	<0.0002
Dissolved Manganese (mg/L)	0.005	<0.001	<0.01	<0.001	0.010	0.001	<0.01	<0.001
Dissolved Lead (mg/L)	<0.00005	<0.00005	<0.00005	0.00026	<0.00005	<0.00005	<0.00005	<0.00005
Dissolved Iron (mg/L)	0.03	0.09	<0.10	<0.01	0.03	0.06	<0.10	<0.01
Dissolved Copper (mg/L)	0.0054	0.0060	<0.0010	0.0041	0.0041	0.0056	<0.0010	0.0034
Dissolved Cobalt (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	0.00008	<0.00005	<0.00005	<0.00005
Dissolved Chromium (mg/L)	0.0007	<0.0004	<0.0004	0.0009	<0.0004	<0.0004	<0.0004	<0.0004
Dissolved Cadmium (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Dissolved Boron (mg/L)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Dissolved Beryllium (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Barium (mg/L)	0.003	<0.003	<0.003	<0.003	0.004	0.004	<0.003	<0.003
Dissolved Arsenic (mg/L)	0.0002	<0.0001	0.0002	0.0002	0.0001	<0.0001	0.0002	<0.0001
Dissolved Antimony (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Aluminum (mg/L)	0.041	0.020	0.022	0.012	0.043	0.019	0.025	0.022

Appendix A1-2. Water chemistry data, Jericho AEMP 2005.

Parameter	JERWQ17	JERWQ18	JERWQ19	JERWQ20
Date	July	July	July	July
Sulphate (mg/L)	<0.5	<0.5	0.8	0.9
Phosphate-Ortho-Phosphorus	<0.2	<0.2	<0.2	<0.2
Nitrite - Nitrogen (mg/L)	<0.05	<0.05	<0.05	<0.05
Nitrate - Nitrogen (mg/L)	0.06	<0.05	<0.05	<0.05
Hydroxide (as CaCO3) (mg/L)	<1	<1	<1	<1
Fluoride (mg/L)	0.05	0.05	0.05	0.05
Chloride (mg/L)	0.3	0.5	0.2	0.2
Carbonate (mg/L)	<1	<1	<1	<1
Bicarbonate (mg/L)	9	9	8	6
Balance (+ions/-ions)	1.01	1.06	0.79	1.03
Acidity as CaCO3 (mg/L)	3	2	3	3
Carbon (Total Organic) (mg/L)	3	3	3	3
Ammonia - Nitrogen (mg/L)	<0.1	<0.1	<0.1	<0.1
Carbon (Total Inorganic) (mg/L)	2	2	<1	<1
Total Iron (mg/L)				
Total Manganese (mg/L)				
Total Zinc (mg/L)	<0.002	<0.002	<0.002	<0.002
Total Vanadium (mg/L)	0.0002	0.0002	0.0002	0.0001
Total Uranium (mg/L)	0.00005	0.00008	0.00016	0.00016
Total Thallium (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005
Total Strontium (mg/L)				
Total Sodium (mg/L)	0.6	0.6	0.6	0.6
Total Silver (mg/L)	<0.0002	<0.0002	<0.0002	<0.0002
Total Silicon (mg/L)	0.25	0.17	0.19	0.24
Total Selenium (mg/L)	<0.0008	<0.0008	<0.0008	<0.0008
Total Potassium (mg/L)	<0.5	<0.5	<0.5	<0.5
Total Phosphorus (mg/L)	0.063	<0.050	<0.050	<0.050
Total Nickel (mg/L)	<0.0006	<0.0006	<0.0006	<0.0006
Total Molybdenum (mg/L)	<0.0005	<0.0005	<0.0005	<0.0005
Total Mercury (mg/L)	<0.0002	<0.0002	<0.0002	<0.0002
Total Magnesium (mg/L)	0.75	0.73	0.57	0.55
Total Lead (mg/L)	0.0002	<0.0001	<0.0001	<0.0001
Total Copper (mg/L)	0.0015	<0.0010	<0.0010	<0.0010
Total Cobalt (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001
Total Chromium (mg/L)	<0.0009	<0.0009	<0.0009	<0.0009
Total Calcium (mg/L)	1.59	1.68	1.15	1.05
Total Cadmium (mg/L)	0.0012	<0.0002	<0.0002	<0.0002
Total Boron (mg/L)	<0.010	<0.010	<0.010	<0.010
Total Beryllium (mg/L)	<0.0005	<0.0005	<0.0005	<0.0005
Total Barium (mg/L)	<0.005	<0.005	<0.005	<0.005
Total Arsenic (mg/L)	<0.0004	<0.0004	<0.0004	<0.0004
Total Antimony (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001
Total Aluminum (mg/L)	0.029	<0.020	0.027	0.030
Dissolved Calcium (mg/L)	1.6	1.7	1.1	1.2
Dissolved Magnesium (mg/L)	0.7	0.7	0.5	0.5
Dissolved Potassium (mg/L)	<0.5	<0.5	<0.5	<0.5
Dissolved Sodium (mg/L)	0.5	0.6	0.6	0.6
Dissolved Zinc (mg/L)	<0.002	<0.002	<0.002	<0.002
Dissolved Vanadium (mg/L)	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Uranium (mg/L)	<0.00005	<0.00005	0.00013	0.00011
Dissolved Thallium (mg/L)	<0.00002	<0.00002	<0.00002	<0.00002
Dissolved Strontium (mg/L)				
Dissolved Silver (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005
Dissolved Silicon (mg/L)	0.25	0.18	0.19	0.23
Dissolved Selenium (mg/L)	<0.0004	<0.0004	<0.0004	<0.0004
Dissolved Phosphorus (mg/L)	<0.005	<0.005	<0.005	<0.005
Dissolved Nickel (mg/L)	0.0002	0.0002	0.0003	0.0002
Dissolved Molybdenum (mg/L)	<0.0003	<0.0003	<0.0003	<0.0003
Dissolved Mercury (mg/L)	<0.0002	<0.0002	<0.0002	<0.0002
Dissolved Manganese (mg/L)	<0.001	<0.001	<0.001	<0.001
Dissolved Lead (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005
Dissolved Iron (mg/L)	0.01	0.04	<0.01	<0.01
Dissolved Copper (mg/L)	0.0044	0.0038	0.0035	0.0048
Dissolved Cobalt (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005
Dissolved Chromium (mg/L)	<0.0004	<0.0004	<0.0004	<0.0004
Dissolved Cadmium (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005
Dissolved Boron (mg/L)	<0.004	<0.004	<0.004	<0.004
Dissolved Beryllium (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Barium (mg/L)	<0.003	<0.003	<0.003	<0.003
Dissolved Arsenic (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Antimony (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Aluminum (mg/L)	0.021	0.016	0.013	0.017

Appendix A2-1.Percent error of water chemistry field duplicate samples, Jericho AEMP 2005.

Parameter	JERWQ01			JERWQ05			JERWQ06			JERWQ09			JERWQ11			JERWQ15		
	Sample		% Error	Sample		% Error	Sample		% Error	Sample		% Error	Sample		% Error	Sample		% Error
Collect Date/Time	7/20/05	7/20/05		8/28/05	8/28/05		7/31/05	7/31/05		9/24/05	9/24/05		12/20/05	12/20/05		6/28/05	6/28/05	
Sample No.	1623625	1623260		2259513	2259148		1725528	1722240		2809568	2809933		05-13454	05-13453		1423473	1423108	
Sample Class	F1	M		F1	M		F1	M		M	F1		F1	M		F1	M	
Air Temperature				3	3			16		-6	-6							
Wind Speed				25	25			n/m		5	5							
Wind Direction				W	W			NW		N	N							
Water Temperature				7.8	7.8			10		2.8	2.78							
Field pH				6.87	6.87			6.9		7.25	7.18							
Field Conductivity				15.56	15.56			n/m		13	13							
Oxidation Reduction Potential				47.4	47.4			n/m		190	192							
Biochemical Oxygen Demand																		
MF - Fecal Coliforms	<1	1	100.0															
Turbidity	2	2	100.0	2			1	2	50.0	1	2	50.0	2	2	100.0	2	1	50.0
Total Suspended Solids @105°C	2	<2	100.0	<2			<2	<2	100.0	<2	2	100.0				<2	<2	100.0
T-Hardness as CaCO3				<6			<6	<6	100.0	<6	<6	100.0	8	8.1	98.8	6.6	<6	90.9
T-Dissolved Solids180°C	<10	12	83.3	<10			28	<10	35.7	<10	16	62.5	<10	<10	100.0	20	48	41.7
T-Alkalinity as CaCO3	6	6	100.0	7			7	6	85.7	6	5	83.3	19	18	94.7	9	10	90.0
Sulphate	0.9	1.7	52.9	1.1			<0.5	<0.5	100.0	<0.5	0.8	62.5	0.6	<0.5	83.3	<0.5	<0.5	100.0
Phosphate-Ortho-Phosphorus	<0.2	<0.2	100.0	<0.2			<0.2	<0.2	100.0	<0.20	<0.20	100.0	<0.20			<0.2	<0.2	100.0
pH @ 25°C	6.94	7.03	98.7	6.30			6.99	6.75	96.6	6.93	6.91	99.7	6.87	6.88	99.9	5.53	5.57	99.3
Nitrite - Nitrogen	<0.05	<0.05	100.0	<0.05			<0.05	<0.05	100.0	<0.05	0.06	83.3	<0.05	<0.05	100.0	<0.05	<0.05	100.0
Nitrate - Nitrogen	<0.05	0.05	100.0	0.09			<0.05	<0.05	100.0	<0.05	<0.05	100.0	<0.05	<0.05	100.0	<0.05	<0.05	100.0
Hydroxide (as CaCO3)	<1	<1	100.0	<1			<1	<1	100.0	<1	<1	100.0	<1	<1	100.0	<1	<1	100.0
Fluoride	0.05	0.06	83.3	0.02			0.05	0.05	100.0	0.03	0.03	100.0	0.05	0.05	100.0	0.03	0.03	100.0
Conductivity @ 25°C	15	19	78.9	12			15	13	86.7	13	13	100.0	23	20	87.0	16	17	94.1
Chloride	0.5	0.6	83.3	0.3			0.2	0.2	100.0	0.2	0.3	66.7	0.3	0.1	33.3	0.3	0.1	33.3
Carbonate	<1	<1	100.0	<1			<1	<1	100.0	<1	<1	100.0	<1	<1	100.0	<1	<1	100.0
Bicarbonate	7	8	87.5	8			8	7	87.5	7	7	100.0	23	22	95.7	11	12	91.7
Balance (+ions/-ions)	0.37	0.36	97.3	0.69			0.85	1.06	80.2	0.65	0.62	95.4	0.50	0.56	89.3	0.90	0.75	83.3
Acidity as CaCO3	2	3	66.7	2			3	2	66.7	1	1	100.0	3	3	100.0	2	2	100.0
Carbon (Total Organic)	2	3	66.7	2	2	100.0	2	3	66.7	2	2	100.0	4	3	75.0	3	3	100.0
Ammonia - Nitrogen	<0.1	<0.1	100.0	<0.1	<0.1	100.0	<0.1	<0.1	100.0	<0.1	<0.1	100.0	<0.1			<0.1	<0.1	100.0
Carbon (Total Inorganic)	1	<1	100.0	2			1	1	100.0	1	2	50.0	2	2	100.0	<1	1	100.0
Total Iron				0.05	0.01	20.0				<0.10	0.10	100.0	<0.10	<0.10	100.0			

Appendix A2-1.Percent error of water chemistry field duplicate samples, Jericho AEMP 2005.

Parameter	JERWQ01			JERWQ05			JERWQ06			JERWQ09			JERWQ11			JERWQ15		
	Sample		% Error	Sample		% Error	Sample		% Error	Sample		% Error	Sample		% Error	Sample		% Error
Total Manganese					<0.002					<0.01	<0.01	100.0	<0.01	<0.01	100.0			
Total Zinc	0.012	0.093	12.9	0.006	<0.002	33.3	<0.002	<0.002	100.0	0.008	0.006	75.0	0.008	0.010	80.0	<0.002	<0.002	100.0
Total Vanadium	0.0002	0.0010	20.0	0.0003	0.0001	33.3	0.0001	0.0001	100.0	0.0005	0.0005	100.0	0.0005	0.0004	80.0	0.0001	0.0001	100.0
Total Uranium	0.00013	0.00017	76.5	0.00011	0.00012	91.7	0.00013	0.00012	92.3	<0.00005	<0.00005	100.0	0.00015	0.00016	93.8	0.00022	0.00023	95.7
Total Thallium	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0
Total Strontium				0.0053	0.0054	98.1				0.0043	0.0043	100.0	0.0074	0.0076	97.4			
Total Sodium	<0.5	<0.5	100.0	0.8	0.8	100.0	<0.5	0.6	83.3	<0.5	<0.5	100.0	0.8	0.9	88.9	0.7	0.7	100.0
Total Silver	<0.0002	0.0005	40.0	<0.0002	<0.0002	100.0	<0.0002	<0.0002	100.0	<0.0002	<0.0002	100.0	<0.0002	<0.0002	100.0	<0.0002	<0.0002	100.0
Total Silicon	0.24	0.50	48.0	0.27	0.24	88.9	0.20	0.19	95.0	0.19	0.19	100.0	0.33	0.35	94.3	0.23	0.23	100.0
Total Selenium	<0.0008	<0.0008	100.0	<0.0008	<0.0008	100.0	<0.0008	<0.0008	100.0	<0.0008	<0.0008	100.0	<0.0008	<0.0008	100.0	<0.0008	<0.0008	100.0
Total Potassium	<0.5	<0.5	100.0	<0.5	<0.5	100.0	<0.5	<0.5	100.0	<0.5	<0.5	100.0	0.5	0.6	83.3	<0.5	<0.5	100.0
Total Phosphorus	<0.050	<0.050	100.0	<0.050	<0.050	100.0	<0.050	<0.050	100.0	<0.050	<0.050	100.0	<0.050	<0.050	100.0	<0.050	<0.050	100.0
Total Nickel	<0.0006	0.0112	5.4	<0.0006	<0.0006	100.0	<0.0006	<0.0006	100.0	<0.0006	<0.0006	100.0	<0.0006	<0.0006	100.0	<0.0006	<0.0006	100.0
Total Molybdenum	<0.0005	<0.0005	100.0	<0.0005	<0.0005	100.0	<0.0005	<0.0005	100.0	<0.0005	<0.0005	100.0	<0.0005	<0.0005	100.0	<0.0005	<0.0005	100.0
Total Mercury	<0.0002	<0.0002	100.0	<0.0001	<0.0001	100.0	<0.0002	<0.0002	100.0	<0.0001	<0.0001	100.0	<0.00005	<0.00005	100.0	<0.0002	<0.0002	100.0
Total Magnesium	0.64	0.62	96.9	0.56	0.55	98.2	0.56	0.56	100.0	0.52	0.54	96.3	0.85	0.87	97.7	<0.50	0.52	96.2
Total Lead	0.0004	0.138	0.3	0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0	0.0001	0.0002	50.0	0.0023	0.0002	8.7	<0.0001	<0.0001	100.0
Total Copper	0.0025	1.64	0.2	<0.0010	<0.0010	100.0	<0.0010	<0.0010	100.0	0.0013	0.0012	92.3	0.0025	0.0040	62.5	<0.0010	<0.0010	100.0
Total Cobalt	<0.0001	0.0002	50.0	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0
Total Chromium	<0.0009	0.0010	90.0	<0.0009	<0.0009	100.0	<0.0009	<0.0009	100.0	0.0028	0.0026	92.9	0.0009	<0.0009	100.0	<0.0009	<0.0009	100.0
Total Calcium	1.47	1.13	76.9	1.17	1.10	94.0	1.11	1.13	98.2	1.20	1.36	88.2	1.86	1.90	97.9	1.12	1.36	82.4
Total Cadmium	<0.0002	<0.0002	100.0	<0.0001	<0.0001	100.0	<0.0002	<0.0002	100.0	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0	<0.0002	<0.0002	100.0
Total Boron	<0.010	<0.010	100.0	<0.010	<0.010	100.0	<0.010	<0.010	100.0	<0.010	<0.010	100.0	<0.010	<0.010	100.0	<0.010	<0.010	100.0
Total Beryllium	<0.0005	<0.0005	100.0	<0.0005	<0.0005	100.0	<0.0005	<0.0005	100.0	<0.0005	<0.0005	100.0	<0.0005	<0.0005	100.0	<0.0005	<0.0005	100.0
Total Barium	<0.005	<0.005	100.0	<0.005	<0.005	100.0	<0.005	<0.005	100.0	<0.005	<0.005	100.0	<0.005	<0.005	100.0	<0.005	<0.005	100.0
Total Arsenic	0.0004	0.0007	57.1	<0.0004	<0.0004	100.0	<0.0004	<0.0004	100.0	<0.0004	<0.0004	100.0	<0.0004	<0.0004	100.0	<0.0004	<0.0004	100.0
Total Antimony	<0.0001	0.0033	3.0	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0	<0.0001	0.0014	7.1	0.0006	<0.0001	16.7	0.0002	<0.0001	50.0
Total Aluminum	0.023	1.44	1.6	0.025	0.020	80.0	<0.020	0.021	95.2	0.033	0.033	100.0	<0.005	0.008	62.5	0.045	0.059	76.3
Dissolved Calcium	0.5	0.6	83.3	1.0	0.98	98.0	1.0	1.1	90.9	1.2	1.2	100.0	1.9	1.9	100.0	1.7	1.5	88.2
Dissolved Magnesium	<0.5	<0.5	100.0	<0.5	<0.50	100.0	<0.5	0.5	100.0	<0.5	<0.5	100.0	0.8	0.8	100.0	0.6	0.5	83.3
Dissolved Potassium	<0.5	<0.5	100.0	<0.5	<0.5	100.0	<0.5	<0.5	100.0	<0.5	<0.5	100.0	<0.5	<0.5	100.0	<0.5	<0.5	100.0
Dissolved Sodium	<0.5	<0.5	100.0	0.7	0.8	87.5	0.7	0.7	100.0	0.5	<0.5	100.0	0.6	0.7	85.7	0.7	0.7	100.0
Dissolved Zinc	0.011	0.048	22.9	<0.002	<0.002	100.0	<0.002	<0.002	100.0	<0.002	<0.002	100.0	0.007	0.010	70.0	0.005	0.004	80.0
Dissolved Vanadium	<0.0005	<0.0005	100.0	<0.0005	<0.0005	100.0	<0.0005	<0.0005	100.0	<0.0005	<0.0005	100.0	<0.0005	<0.0005	100.0	<0.0005	<0.0005	100.0

Appendix A2-1.Percent error of water chemistry field duplicate samples, Jericho AEMP 2005.

Parameter	JERWQ01			JERWQ05			JERWQ06			JERWQ09			JERWQ11			JERWQ15		
	Sample		% Error	Sample		% Error	Sample		% Error	Sample		% Error	Sample		% Error	Sample		% Error
Dissolved Uranium	0.00007	<0.00005	71.4	0.00011	0.00012	91.7	0.00009	0.00010	90.0	0.00008	0.00007	87.5	0.00011	0.00011	100.0	0.00023	0.00022	95.7
Dissolved Thallium	<0.00002	<0.00002	100.0	<0.00002	<0.00002	100.0	<0.00002	<0.00002	100.0	<0.00002	<0.00002	100.0	<0.00002	<0.00002	100.0	<0.00002	<0.00002	100.0
Dissolved Strontium				0.0044	0.0043	97.7				0.0053	0.0053	100.0	0.0074	0.0073	98.6			
Dissolved Silver	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0
Dissolved Silicon	0.16	0.18	88.9	0.24	0.23	95.8	0.18	0.18	100.0	0.15	0.15	100.0	0.33	0.34	97.1	0.26	0.25	96.2
Dissolved Selenium	<0.0004	<0.0004	100.0	<0.0004	<0.0004	100.0	<0.0004	<0.0004	100.0	<0.0004	<0.0004	100.0	<0.0004	<0.0004	100.0	<0.0004	<0.0004	100.0
Dissolved Phosphorus	<0.005	<0.005	100.0	<0.005	<0.005	100.0	<0.005	<0.005	100.0	<0.005	<0.005	100.0	<0.005	<0.005	100.0	<0.005	<0.005	100.0
Dissolved Nickel	0.0002	0.0022	9.1	0.0002	0.0002	100.0	0.0002	0.0003	66.7	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0
Dissolved Molybdenum	<0.0003	0.0003	100.0	<0.0003	<0.0003	100.0	<0.0003	<0.0003	100.0	<0.0003	<0.0003	100.0	<0.0003	<0.0003	100.0	<0.0003	<0.0003	100.0
Dissolved Mercury	<0.0002	<0.0002	100.0	<0.0001	<0.0001	100.0	<0.0002	<0.0002	100.0	<0.0001	<0.0001	100.0	<0.00005	<0.00005	100.0	<0.0002	<0.0002	100.0
Dissolved Manganese	<0.001	0.002	50.0	<0.01	<0.001	10.0	<0.001	<0.001	100.0	<0.001	<0.001	100.0	<0.010	<0.010	100.0	0.003	0.010	30.0
Dissolved Lead	0.00025	0.0278	0.9	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	0.00006	0.00010	60.0	0.00010	<0.00005	50.0
Dissolved Iron	<0.01	<0.01	100.0	<0.10	<0.01	10.0	<0.01	<0.01	100.0	<0.01	<0.01	100.0	<0.10	<0.10	100.0	0.04	0.03	75.0
Dissolved Copper	0.0052	0.213	2.4	<0.0010	<0.0010	100.0	0.0031	0.0036	86.1	0.0040	0.0041	97.6	0.0035	0.0038	92.1	0.0039	0.0041	95.1
Dissolved Cobalt	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	<0.00005	0.00008	62.5
Dissolved Chromium	0.0005	0.0010	50.0	<0.0004	<0.0004	100.0	<0.0004	<0.0004	100.0	0.0005	0.0004	80.0	<0.0004	<0.0004	100.0	0.0004	<0.0004	100.0
Dissolved Cadmium	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0
Dissolved Boron	<0.004	<0.004	100.0	<0.004	<0.004	100.0	<0.004	<0.004	100.0	<0.004	<0.004	100.0	<0.004	<0.004	100.0	<0.004	<0.004	100.0
Dissolved Beryllium	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0
Dissolved Barium	<0.003	<0.003	100.0	<0.003	<0.003	100.0	<0.003	<0.003	100.0	<0.003	<0.003	100.0	0.017	0.018	94.4	<0.003	0.004	75.0
Dissolved Arsenic	0.0002	0.0002	100.0	0.0002	0.0002	100.0	<0.0001	<0.0001	100.0	0.0001	0.0002	50.0	0.0002	0.0003	66.7	0.0001	0.0001	100.0
Dissolved Antimony	<0.0001	0.0006	16.7	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0
Dissolved Aluminum	0.010	0.024	41.7	0.013	0.011	84.6	0.011	0.012	91.7	0.009	0.005	55.6	<0.002	<0.002	100.0	0.046	0.043	93.5

Appendix A2-2. Percent error of water chemistry lab duplicate samples, Jericho AEMP 2005.

Parameter	JERWQ03			JERWQ04			JERWQ11		
	Sample		% Error	Sample		% Error	Sample		% Error
Collect Date/Time	9/24/05	9/24/05		7/30/05	7/30/05		12/20/05	12/20/05	
Sample No.	05-9589-D	2808472		05-6614-D	1721875		05-13453-D	05-13453	
Sample Class	L1	M		L1	M		L1	M	
Air Temperature		-6			15				
Wind Speed		5			n/m				
Wind Direction		N			NE				
Water Temperature		0.06			11				
Field pH		6.86			6.9				
Field Conductivity		26			n/m				
Oxidation Reduction Potential		131			n/m				
Biochemical Oxygen Demand									
MF - Fecal Coliforms									
Turbidity	2	2	100.0	1	1	100.0	1	2	50.0
Total Suspended Solids @105°C		2			<2				
T-Hardness as CaCO3	6.7	6.9	97.1	<6	<6	100.0	8.1	8.1	100.0
T-Dissolved Solids180°C	12	12	100.0	<10	<10	100.0	<10	<10	100.0
T-Alkalinity as CaCO3	8	9	88.9	5	5	100.0	18	18	100.0
Sulphate	1	1.0	100.0	<0.5	<0.5	100.0	<0.5	<0.5	100.0
Phosphate-Ortho-Phosphorus	<0.20	<0.20	100.0	<0.2	<0.2	100.0			
pH @ 25°C	7.11	7.10	99.9	6.81	7.14	95.4	6.90	6.88	99.7
Nitrite - Nitrogen	<0.05	<0.05	100.0	<0.05	<0.05	100.0	<0.05	<0.05	100.0
Nitrate - Nitrogen	0.12	0.12	100.0	<0.05	<0.05	100.0	<0.05	<0.05	100.0
Hydroxide (as CaCO3)	<1	<1	100.0	<1	<1	100.0	<1	<1	100.0
Fluoride	0.04	0.05	80.0	0.06	0.07	85.7	0.05	0.05	100.0
Conductivity @ 25°C	24	25	96.0	12	13	92.3	20	20	100.0
Chloride	1.7	1.7	100.0	0.2	0.2	100.0	0.3	0.1	33.3
Carbonate	<1	<1	100.0	<1	<1	100.0	<1	<1	100.0
Bicarbonate	10	11	90.9	6	7	85.7	21	22	95.5
Balance (+ions/-ions)	0.79	0.77	97.5	1.06	0.98	92.5	0.56	0.56	100.0
Acidity as CaCO3	1	1	100.0		3		3	3	100.0
Carbon (Total Organic)	4	3	75.0		4		3	3	100.0
Ammonia - Nitrogen	<0.1	<0.1	100.0		<0.1				
Carbon (Total Inorganic)	1	2	50.0		<1		2	2	100.0
Total Iron	<0.10	<0.10	100.0				<0.10	<0.10	100.0
Total Manganese	<0.01	<0.01	100.0				<0.01	<0.01	100.0
Total Zinc	0.007	0.008	87.5	<0.002	<0.002	100.0	0.010	0.010	100.0
Total Vanadium	0.0004	0.0005	80.0	<0.0001	<0.0001	100.0	0.0004	0.0004	100.0
Total Uranium	<0.00005	<0.00005	100.0	0.00012	0.00014	85.7	0.00015	0.00016	93.8
Total Thallium	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0
Total Strontium	0.0052	0.0054	96.3				0.0074	0.0076	97.4
Total Sodium	1.3	1.3	100.0	0.6	0.6	100.0	0.9	0.9	100.0
Total Silver	<0.0002	<0.0002	100.0	<0.0002	<0.0002	100.0	<0.0002	<0.0002	100.0
Total Silicon	0.69	0.73	94.5	0.21	0.20	95.2	0.34	0.35	97.1
Total Selenium	<0.0008	<0.0008	100.0	<0.0008	<0.0008	100.0	<0.0008	<0.0008	100.0
Total Potassium	<0.5	<0.5	100.0	<0.5	<0.5	100.0	0.6	0.6	100.0
Total Phosphorus	<0.050	<0.050	100.0	<0.050	<0.050	100.0	<0.050	<0.050	100.0
Total Nickel	<0.0006	<0.0006	100.0	<0.0006	<0.0006	100.0	<0.0006	<0.0006	100.0
Total Molybdenum	<0.0005	<0.0005	100.0	<0.0005	<0.0005	100.0	<0.0005	<0.0005	100.0
Total Mercury	<0.0001	<0.0001	100.0	<0.0002	<0.0002	100.0	<0.00005	<0.00005	100.0
Total Magnesium	0.95	0.98	96.9	0.53	0.53	100.0	0.86	0.87	98.9
Total Lead	<0.0001	<0.0001	100.0	0.0003	0.0003	100.0	0.0003	0.0002	66.7
Total Copper	0.0014	0.0016	87.5	0.0040	0.0044	90.9	0.0037	0.0040	92.5
Total Cobalt	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0
Total Chromium	0.0025	0.0029	86.2	<0.0009	<0.0009	100.0	<0.0009	<0.0009	100.0
Total Calcium	1.90	2	95.0	1.07	1.04	97.2	1.91	1.90	99.5

Appendix A2-2. Percent error of water chemistry lab duplicate samples, Jericho AEMP 2005.

Parameter	JERWQ03			JERWQ04			JERWQ11		
	Sample		% Error	Sample		% Error	Sample		% Error
Total Cadmium	<0.0001	<0.0001	100.0	<0.0002	<0.0002	100.0	<0.0001	<0.0001	100.0
Total Boron	<0.010	<0.010	100.0	<0.010	<0.010	100.0	<0.010	<0.010	100.0
Total Beryllium	<0.0005	<0.0005	100.0	<0.0005	<0.0005	100.0	<0.0005	<0.0005	100.0
Total Barium	<0.005	<0.005	100.0	<0.005	<0.005	100.0	<0.005	<0.005	100.0
Total Arsenic	0.0005	0.0005	100.0	<0.0004	<0.0004	100.0	<0.0004	<0.0004	100.0
Total Antimony	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0
Total Aluminum	0.051	0.050	98.0	0.021	0.022	95.5	0.007	0.008	87.5
Dissolved Calcium	1.9	2.0	95.0	1.0	1	100.0	1.9	1.9	100.0
Dissolved Magnesium	<0.5	<0.5	100.0	<0.5	<0.5	100.0	0.8	0.8	100.0
Dissolved Potassium	<0.5	<0.5	100.0	<0.5	<0.5	100.0	<0.5	<0.5	100.0
Dissolved Sodium	1.3	1.3	100.0	0.6	0.6	100.0	0.7	0.7	100.0
Dissolved Zinc	<0.002	<0.002	100.0	<0.002	<0.002	100.0	0.011	0.010	90.9
Dissolved Vanadium	<0.0005	<0.0005	100.0	<0.0005	<0.0005	100.0	<0.0005	<0.0005	100.0
Dissolved Uranium	<0.00005	0.00005	100.0	0.00010	0.00010	100.0	0.00012	0.00011	91.7
Dissolved Thallium	<0.00002	<0.00002	100.0	<0.00002	<0.00002	100.0	<0.00002	<0.00002	100.0
Dissolved Strontium	0.0067	0.0068	98.5				0.0074	0.0073	98.6
Dissolved Silver	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0
Dissolved Silicon	0.70	0.63	90.0	0.19	0.19	100.0	0.34	0.34	100.0
Dissolved Selenium	<0.0004	<0.0004	100.0	<0.0004	<0.0004	100.0	<0.0004	<0.0004	100.0
Dissolved Phosphorus	<0.005	<0.005	100.0	<0.005	<0.005	100.0	<0.005	<0.005	100.0
Dissolved Nickel	<0.0001	<0.0001	100.0	0.0002	0.0002	100.0	<0.0001	<0.0001	100.0
Dissolved Molybdenum	<0.0003	<0.0003	100.0	<0.0003	<0.0003	100.0	<0.0003	<0.0003	100.0
Dissolved Mercury	<0.0001	<0.0001	100.0	<0.0002	<0.0002	100.0	<0.00005	<0.00005	100.0
Dissolved Manganese	<0.001	<0.001	100.0	<0.001	<0.001	100.0	<0.010	<0.010	100.0
Dissolved Lead	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	0.00010	0.00010	100.0
Dissolved Iron	<0.01	<0.01	100.0	<0.01	0.01	100.0	<0.10	<0.10	100.0
Dissolved Copper	0.0040	0.0040	100.0	0.0032	0.0035	91.4	0.0040	0.0038	95.0
Dissolved Cobalt	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0
Dissolved Chromium	0.0010	0.0011	90.9	<0.0004	<0.0004	100.0	<0.0004	<0.0004	100.0
Dissolved Cadmium	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0
Dissolved Boron	<0.004	<0.004	100.0	<0.004	<0.004	100.0	<0.004	<0.004	100.0
Dissolved Beryllium	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0
Dissolved Barium	0.004	0.004	100.0	0.003	0.003	100.0	0.018	0.018	100.0
Dissolved Arsenic	0.0002	0.0001	50.0	<0.0001	<0.0001	100.0	0.0003	0.0003	100.0
Dissolved Antimony	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0
Dissolved Aluminum	0.017	0.018	94.4	0.015	0.016	93.8	<0.002	<0.002	100.0

Appendix A2-2. Percent error of water chemistry lab duplicate samples, Jericho AEMP 2005.

Parameter	JERWQ13			JERWQ14			JERWQ02		
	Sample		% Error	Sample		% Error	Sample		% Error
Collect Date/Time	6/30/05	6/30/05		6/28/05	6/28/05		7/24/05	7/24/05	
Sample No.	05-5824-D	1433334		05-5794-D	1422377		05-6410-D	1647366	
Sample Class	L1	M		L1	M		L1	M	
Air Temperature		13							
Wind Speed		n/m							
Wind Direction		N							
Water Temperature		8							
Field pH		7.2							
Field Conductivity		n/m							
Oxidation Reduction Potential		n/m							
Biochemical Oxygen Demand								<2	
MF - Fecal Coliforms								<1	
Turbidity	3	3	100.0	1	1	100.0		3	
Total Suspended Solids @105°C		<2			<2			10	
T-Hardness as CaCO3				6.5	6.4	98.5	6.1	6.1	100.0
T-Dissolved Solids180°C	<10	<10	100.0	40	36	90.0		<10	
T-Alkalinity as CaCO3	9	10	90.0	9	10	90.0		8	
Sulphate	2.4	2.5	96.0	<0.5	<0.5	100.0		<0.5	
Phosphate-Ortho-Phosphorus	<0.2	<0.2	100.0	<0.2	<0.2	100.0		<0.2	
pH @ 25°C	5.74	5.71	99.5	5.70	5.73	99.5		6.69	
Nitrite - Nitrogen	<0.05	<0.05	100.0	<0.05	<0.05	100.0		<0.05	
Nitrate - Nitrogen	0.06	0.06	100.0	<0.05	<0.05	100.0		<0.05	
Hydroxide (as CaCO3)	<1	<1	100.0	<1	<1	100.0		<1	
Fluoride	0.03	0.03	100.0	0.03	0.03	100.0		0.06	
Conductivity @ 25°C	20	20	100.0	17	18	94.4		20	
Chloride	0.4	0.6	66.7	0.3	0.1	33.3		0.9	
Carbonate	<1	<1	100.0	<1	<1	100.0		<1	
Bicarbonate	12	13	92.3	11	12	91.7		10	
Balance (+ions/-ions)				0.85	0.83	97.6		0.98	
Acidity as CaCO3		2			2			3	
Carbon (Total Organic)	4	4	100.0	4	5	80.0		3	
Ammonia - Nitrogen		<0.1			<0.1			<0.1	
Carbon (Total Inorganic)	2	2	100.0	<1	<1	100.0		2	
Total Iron									
Total Manganese									
Total Zinc	<0.002	<0.002	100.0	<0.002	<0.002	100.0	0.003	0.003	100.0
Total Vanadium	<0.0001	<0.0001	100.0	0.0002	0.0002	100.0	0.0004	0.0004	100.0
Total Uranium	0.00066	0.00066	100.0	0.00020	0.00020	100.0	0.00018	0.00019	94.7
Total Thallium	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0
Total Strontium									
Total Sodium	0.8	0.8	100.0	0.7	0.7	100.0	1.1	1.3	84.6
Total Silver	<0.0002	<0.0002	100.0	<0.0002	<0.0002	100.0	<0.0002	<0.0002	100.0
Total Silicon	0.62	0.61	98.4	0.20	0.20	100.0	0.20	0.20	100.0
Total Selenium	<0.0008	<0.0008	100.0	<0.0008	<0.0008	100.0	<0.0008	<0.0008	100.0
Total Potassium	<0.5	<0.5	100.0	<0.5	<0.5	100.0	<0.5	<0.5	100.0
Total Phosphorus	<0.050	<0.050	100.0	<0.050	<0.050	100.0	<0.050	<0.050	100.0
Total Nickel	<0.0006	<0.0006	100.0	<0.0006	<0.0006	100.0	<0.0006	<0.0006	100.0
Total Molybdenum	<0.0005	<0.0005	100.0	<0.0005	<0.0005	100.0	<0.0005	<0.0005	100.0
Total Mercury	<0.0002	<0.0002	100.0	<0.0002	<0.0002	100.0	<0.000200	<0.000200	100.0
Total Magnesium	0.73	0.73	100.0	0.52	0.52	100.0	0.66	0.70	94.3
Total Lead	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0	0.0003	0.0003	100.0
Total Copper	0.0013	0.0013	100.0	<0.0010	<0.0010	100.0	0.0050	0.0048	96.0
Total Cobalt	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0
Total Chromium	<0.0009	<0.0009	100.0	<0.0009	<0.0009	100.0	<0.0009	<0.0009	100.0
Total Calcium	1.51	1.50	99.3	1.32	1.34	98.5	1.31	1.31	100.0

Appendix A2-2. Percent error of water chemistry lab duplicate samples, Jericho AEMP 2005.

Parameter	JERWQ13			JERWQ14			JERWQ02		
	Sample		% Error	Sample		% Error	Sample		% Error
Total Cadmium	<0.0002	<0.0002	100.0	<0.0002	<0.0002	100.0	<0.0002	<0.0002	100.0
Total Boron	<0.010	<0.010	100.0	<0.010	<0.010	100.0	<0.010	<0.010	100.0
Total Beryllium	<0.0005	<0.0005	100.0	<0.0005	<0.0005	100.0	<0.0005	<0.0005	100.0
Total Barium	<0.005	<0.005	100.0	<0.005	<0.005	100.0	<0.005	<0.005	100.0
Total Arsenic	<0.0004	<0.0004	100.0	<0.0004	<0.0004	100.0	0.0004	0.0004	100.0
Total Antimony	0.0001	0.0001	100.0	<0.0001	0.0001	100.0	<0.0001	<0.0001	100.0
Total Aluminum	0.066	0.060	90.9	0.046	0.050	92.0	0.072	0.080	90.0
Dissolved Calcium	1.6	1.5	93.8	1.6	1.6	100.0	1.4	1.4	100.0
Dissolved Magnesium	0.7	0.7	100.0	0.6	0.6	100.0	0.7	0.7	100.0
Dissolved Potassium	<0.5	<0.5	100.0	<0.5	<0.5	100.0	<0.5	<0.5	100.0
Dissolved Sodium	<0.5	<0.5	100.0	0.8	0.7	87.5	1.2	1.4	85.7
Dissolved Zinc	0.003	0.003	100.0	0.004	0.004	100.0	<0.002	<0.002	100.0
Dissolved Vanadium	<0.0005	<0.0005	100.0	<0.0005	<0.0005	100.0	<0.0005	<0.0005	100.0
Dissolved Uranium	0.00061	0.00063	96.8	0.00019	0.00019	100.0	0.00013	0.00013	100.0
Dissolved Thallium	<0.00002	<0.00002	100.0	<0.00002	<0.00002	100.0	<0.00002	<0.00002	100.0
Dissolved Strontium									
Dissolved Silver	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0
Dissolved Silicon	0.64	0.65	98.5	0.22	0.21	95.5	0.22	0.21	95.5
Dissolved Selenium	<0.0004	<0.0004	100.0	<0.0004	<0.0004	100.0	<0.0004	<0.0004	100.0
Dissolved Phosphorus	<0.005	<0.005	100.0	<0.005	<0.005	100.0	<0.005	<0.005	100.0
Dissolved Nickel	0.0004	0.0004	100.0	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0
Dissolved Molybdenum	<0.0003	<0.0003	100.0	<0.0003	<0.0003	100.0	<0.0003	<0.0003	100.0
Dissolved Mercury	<0.0002	<0.0002	100.0	<0.0002	<0.0002	100.0	<0.000200	<0.000200	100.0
Dissolved Manganese	0.004	0.004	100.0	0.005	0.005	100.0	0.002	0.002	100.0
Dissolved Lead	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	0.00006	0.00007	85.7
Dissolved Iron	0.02	0.02	100.0	0.04	0.03	75.0	0.12	0.12	100.0
Dissolved Copper	0.0060	0.0064	93.8	0.0050	0.0054	92.6	0.0042	0.0044	95.5
Dissolved Cobalt	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0
Dissolved Chromium	<0.0004	<0.0004	100.0	0.0007	0.0007	100.0	<0.0004	<0.0004	100.0
Dissolved Cadmium	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0	<0.00005	<0.00005	100.0
Dissolved Boron	<0.004	<0.004	100.0	<0.004	<0.004	100.0	<0.004	<0.004	100.0
Dissolved Beryllium	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0
Dissolved Barium	<0.003	<0.003	100.0	0.003	0.003	100.0	<0.003	<0.003	100.0
Dissolved Arsenic	0.0001	0.0001	100.0	0.0001	0.0002	50.0	0.0001	0.0001	100.0
Dissolved Antimony	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0	<0.0001	<0.0001	100.0
Dissolved Aluminum	0.040	0.040	100.0	0.040	0.041	97.6	0.012	0.013	92.3

Appendix A2-2. Percent error of water chemistry lab duplicate samples, Jericho AEMP 2005.

Parameter	JERWQ10		
	Sample		% Error
Collect Date/Time	8/29/05	8/29/05	
Sample No.	05-8089-D	2260609	
Sample Class	M	M	
Air Temperature		0	
Wind Speed		15	
Wind Direction		NE	
Water Temperature		8.7	
Field pH		6.98	
Field Conductivity		14.58	
Oxidation Reduction Potential		49.5	
Biochemical Oxygen Demand			
MF - Fecal Coliforms			
Turbidity	2	2	100.0
Total Suspended Solids @105°C		<2	
T-Hardness as CaCO3	<6	<6	100.0
T-Dissolved Solids180°C	<10	12	83.3
T-Alkalinity as CaCO3	10	9	90.0
Sulphate	0.9	1.5	60.0
Phosphate-Ortho-Phosphorus	<0.2	<0.2	100.0
pH @ 25°C	6.19	6.35	97.5
Nitrite - Nitrogen	<0.05	<0.05	100.0
Nitrate - Nitrogen	<0.05	<0.05	100.0
Hydroxide (as CaCO3)	<1	<1	100.0
Fluoride	<0.02	<0.02	100.0
Conductivity @ 25°C	14	16	87.5
Chloride	0.2	0.3	66.7
Carbonate	<1	<1	100.0
Bicarbonate	12	11	91.7
Balance (+ions/-ions)	0.52	0.51	98.1
Acidity as CaCO3		2	
Carbon (Total Organic)	2	2	100.0
Ammonia - Nitrogen	<0.1	<0.1	100.0
Carbon (Total Inorganic)	1	1	100.0
Total Iron	0.02	0.03	66.7
Total Manganese			
Total Zinc	<0.002	<0.002	100.0
Total Vanadium	0.0002	0.0002	100.0
Total Uranium	0.00010	0.00012	83.3
Total Thallium	<0.00005	<0.00005	100.0
Total Strontium	0.0051	0.0051	100.0
Total Sodium	0.8	0.9	88.9
Total Silver	<0.0002	<0.0002	100.0
Total Silicon	0.22	0.21	95.5
Total Selenium	<0.0008	<0.0008	100.0
Total Potassium	<0.5	<0.5	100.0
Total Phosphorus	<0.050	<0.050	100.0
Total Nickel	0.0013	0.0013	100.0
Total Molybdenum	<0.0005	<0.0005	100.0
Total Mercury	<0.0001	<0.0001	100.0
Total Magnesium	<0.50	<0.50	100.0
Total Lead	<0.0001	<0.0001	100.0
Total Copper	<0.0010	<0.0010	100.0
Total Cobalt	<0.0001	<0.0001	100.0
Total Chromium	<0.0009	<0.0009	100.0
Total Calcium	1	0.98	98.0

Appendix A2-2. Percent error of water chemistry lab duplicate samples, Jericho AEMP 2005.

Parameter	JERWQ10		
	Sample		% Error
Total Cadmium	<0.0001	<0.0001	100.0
Total Boron	<0.010	<0.010	100.0
Total Beryllium	<0.0005	<0.0005	100.0
Total Barium	<0.005	<0.005	100.0
Total Arsenic	<0.0004	<0.0004	100.0
Total Antimony	<0.0001	<0.0001	100.0
Total Aluminum	0.016	0.016	100.0
Dissolved Calcium	0.9	0.9	100.0
Dissolved Magnesium	<0.5	<0.5	100.0
Dissolved Potassium	<0.5	<0.5	100.0
Dissolved Sodium	0.7	0.7	100.0
Dissolved Zinc	<0.002	<0.002	100.0
Dissolved Vanadium	<0.0005	<0.0005	100.0
Dissolved Uranium	<0.00005	0.00012	41.7
Dissolved Thallium	<0.00002	<0.00002	100.0
Dissolved Strontium	0.0045	0.0047	95.7
Dissolved Silver	<0.00005	<0.00005	100.0
Dissolved Silicon	0.22	0.22	100.0
Dissolved Selenium	<0.0004	<0.0004	100.0
Dissolved Phosphorus	<0.005	<0.005	100.0
Dissolved Nickel	0.0003	0.0003	100.0
Dissolved Molybdenum	<0.0003	<0.0003	100.0
Dissolved Mercury	<0.0001	<0.0001	100.0
Dissolved Manganese	<0.01	<0.01	100.0
Dissolved Lead	0.00007	0.00008	87.5
Dissolved Iron	<0.10	<0.10	100.0
Dissolved Copper	<0.0010	<0.0010	100.0
Dissolved Cobalt	<0.00005	<0.00005	100.0
Dissolved Chromium	<0.0004	<0.0004	100.0
Dissolved Cadmium	0.00008	0.00009	88.9
Dissolved Boron	<0.004	<0.004	100.0
Dissolved Beryllium	<0.0001	<0.0001	100.0
Dissolved Barium	<0.003	<0.003	100.0
Dissolved Arsenic	0.0002	0.0002	100.0
Dissolved Antimony	<0.0001	<0.0001	100.0
Dissolved Aluminum	0.016	0.013	81.3

Appendix B1. Water temperature data recorded in Stream C1, Jericho AEMP 2005.

Date	Mean	Minimum	Maximum	Range
7-Jul	11.67	10.50	12.90	2.40
8-Jul	8.79	7.80	9.80	2.00
9-Jul	9.39	6.20	12.30	6.10
10-Jul	9.20	7.50	10.90	3.40
11-Jul	6.82	7.00	12.10	5.10
12-Jul	8.43	6.20	13.20	7.00
13-Jul	6.41	5.90	7.10	1.20
14-Jul	7.64	5.90	13.00	7.10
15-Jul	6.96	5.80	10.10	4.30
16-Jul	6.35	5.50	7.30	1.80
17-Jul	5.41	5.20	6.10	0.90
18-Jul	6.79	5.00	11.50	6.50
19-Jul	7.48	5.90	8.60	2.70
20-Jul	5.22	4.40	5.80	1.40
21-Jul	5.08	3.70	6.80	3.10
22-Jul	4.93	4.10	6.40	2.30
23-Jul	5.26	4.10	7.30	3.20
24-Jul	5.66	3.50	8.30	4.80
25-Jul	5.90	4.40	7.40	3.00
26-Jul	5.63	3.80	7.30	3.50
27-Jul	6.28	5.50	7.10	1.60
28-Jul	6.34	5.20	7.30	2.10
29-Jul	6.59	5.20	7.50	2.30
30-Jul	7.04	6.10	8.60	2.50
31-Jul	8.26	6.70	10.10	3.40
1-Aug	7.58	6.70	8.30	1.60
2-Aug	8.04	7.00	9.50	2.50
3-Aug	7.98	6.10	12.30	6.20
4-Aug	7.92	6.50	9.90	3.40
5-Aug	8.75	7.50	10.50	3.00
6-Aug	7.93	6.20	10.30	4.10
7-Aug	8.08	6.70	9.50	2.80
8-Aug	7.18	5.90	9.20	3.30
9-Aug	8.24	5.50	11.40	5.90
10-Aug	8.01	7.40	8.40	1.00
11-Aug	8.25	5.50	11.10	5.60
12-Aug	8.07	7.30	9.00	1.70
13-Aug	6.61	5.50	7.80	2.30
14-Aug	5.53	4.60	6.50	1.90
15-Aug	7.26	4.90	10.60	5.70
16-Aug	8.09	5.20	11.50	6.30
17-Aug	8.01	5.90	10.30	4.40
18-Aug	6.80	6.10	7.40	1.30
19-Aug	6.52	5.90	7.40	1.50
20-Aug	6.79	6.20	7.40	1.20
21-Aug	6.93	6.70	7.30	0.60
22-Aug	6.87	6.10	8.40	2.30
23-Aug	5.51	4.90	6.20	1.30

Appendix C1. Dissolved oxygen profile sample data (UTM locations [NAD 27, Zone 12]), Jericho AEMP 2005.

Waterbody	Site	Surveyer	Sample Date/Time	Easting	Northing	Total Depth (m)	Water Depth (m)	Water Temp. (°C)	Dissolved Oxygen (mg/L)
Lake C3	JERDO04	Mainstream	08/07/05 16:15	474625	7319920	16.1	0.0	8.1	11.1
Lake C3	JERDO04	Mainstream	08/07/05 16:15	474625	7319920	16.1	1.0	8.0	11.4
Lake C3	JERDO04	Mainstream	08/07/05 16:15	474625	7319920	16.1	2.0	7.9	11.7
Lake C3	JERDO04	Mainstream	08/07/05 16:15	474625	7319920	16.1	3.0	7.8	11.9
Lake C3	JERDO04	Mainstream	08/07/05 16:15	474625	7319920	16.1	4.0	7.8	12.3
Lake C3	JERDO04	Mainstream	08/07/05 16:15	474625	7319920	16.1	5.0	7.7	12.5
Lake C3	JERDO04	Mainstream	08/07/05 16:15	474625	7319920	16.1	6.0	7.7	12.8
Lake C3	JERDO04	Mainstream	08/07/05 16:15	474625	7319920	16.1	7.0	7.7	12.9
Lake C3	JERDO04	Mainstream	08/07/05 16:15	474625	7319920	16.1	8.0	7.6	13.1
Lake C3	JERDO04	Mainstream	08/07/05 16:15	474625	7319920	16.1	9.0	7.6	13.2
Lake C3	JERDO04	Mainstream	08/07/05 16:15	474625	7319920	16.1	10.0	7.6	13.3
Lake C3	JERDO04	Mainstream	08/07/05 16:15	474625	7319920	16.1	11.0	7.5	13.3
Lake C3	JERDO04	Mainstream	08/07/05 16:15	474625	7319920	16.1	12.0	7.4	13.4
Lake C3	JERDO04	Mainstream	08/07/05 16:15	474625	7319920	16.1	13.0	7.2	13.4
Lake C3	JERDO04	Mainstream	08/07/05 16:15	474625	7319920	16.1	14.0	7.2	13.4
Lake C3	JERDO04	Mainstream	08/07/05 16:15	474625	7319920	16.1	15.0	7.1	13.4
Lake C3	JERDO04	Mainstream	08/07/05 16:15	474625	7319920	16.1	15.5	7.1	13.4
Carat Lake	JERDO06	Mainstream	10/07/05	477425	7320769	31.6	0.0	8.3	10.9
Carat Lake	JERDO06	Mainstream	10/07/05	477425	7320769	31.6	1.0	7.5	11.5
Carat Lake	JERDO06	Mainstream	10/07/05	477425	7320769	31.6	2.0	7.1	11.8
Carat Lake	JERDO06	Mainstream	10/07/05	477425	7320769	31.6	3.0	6.7	12.1
Carat Lake	JERDO06	Mainstream	10/07/05	477425	7320769	31.6	4.0	6.4	12.4
Carat Lake	JERDO06	Mainstream	10/07/05	477425	7320769	31.6	5.0	6.1	12.6
Carat Lake	JERDO06	Mainstream	10/07/05	477425	7320769	31.6	6.0	5.7	12.9
Carat Lake	JERDO06	Mainstream	10/07/05	477425	7320769	31.6	7.0	5.5	13.2
Carat Lake	JERDO06	Mainstream	10/07/05	477425	7320769	31.6	8.0	5.4	13.4
Carat Lake	JERDO06	Mainstream	10/07/05	477425	7320769	31.6	9.0	5.3	13.5
Carat Lake	JERDO06	Mainstream	10/07/05	477425	7320769	31.6	10.0	5.2	13.6
Carat Lake	JERDO06	Mainstream	10/07/05	477425	7320769	31.6	11.0	5.1	13.7
Carat Lake	JERDO06	Mainstream	10/07/05	477425	7320769	31.6	12.0	5.0	13.8
Carat Lake	JERDO06	Mainstream	10/07/05	477425	7320769	31.6	13.0	4.9	13.9
Carat Lake	JERDO06	Mainstream	10/07/05	477425	7320769	31.6	14.0	4.9	13.9
Carat Lake	JERDO06	Mainstream	10/07/05	477425	7320769	31.6	15.0	4.8	13.9
Carat Lake	JERDO06	Mainstream	10/07/05	477425	7320769	31.6	16.0	4.7	13.9
Carat Lake	JERDO06	Mainstream	10/07/05	477425	7320769	31.6	17.0	4.6	13.9
Carat Lake	JERDO06	Mainstream	10/07/05	477425	7320769	31.6	18.0	4.6	14.0
Carat Lake	JERDO06	Mainstream	10/07/05	477425	7320769	31.6	19.0	4.6	14.0
Carat Lake	JERDO06	Mainstream	10/07/05	477425	7320769	31.6	20.0	4.5	14.0
Carat Lake	JERDO06	Mainstream	10/07/05	477425	7320769	31.6	21.0	4.5	14.0
Carat Lake	JERDO06	Mainstream	10/07/05	477425	7320769	31.6	22.0	4.5	14.0
Carat Lake	JERDO06	Mainstream	10/07/05	477425	7320769	31.6	23.0	4.5	14.0
Carat Lake	JERDO06	Mainstream	10/07/05	477425	7320769	31.6	24.0	4.4	14.0
Jericho Lake	JERDO08	Mainstream	09/07/05 11:43	478560	7323661	17.1	0.0	10.9	10.9
Jericho Lake	JERDO08	Mainstream	09/07/05 11:43	478560	7323661	17.1	1.0	10.8	10.9
Jericho Lake	JERDO08	Mainstream	09/07/05 11:43	478560	7323661	17.1	2.0	10.7	11.2
Jericho Lake	JERDO08	Mainstream	09/07/05 11:43	478560	7323661	17.1	3.0	10.6	11.7
Jericho Lake	JERDO08	Mainstream	09/07/05 11:43	478560	7323661	17.1	4.0	10.5	11.8

Appendix C1. Dissolved oxygen profile sample data (UTM locations [NAD 27, Zone 12]), Jericho AEMP 2005.

Waterbody	Site	Surveyer	Sample Date/Time	Easting	Northing	Total Depth (m)	Water Depth (m)	Water Temp. (°C)	Dissolved Oxygen (mg/L)
Jericho Lake	JERDO08	Mainstream	09/07/05 11:43	478560	7323661	17.1	5.0	10.2	12.2
Jericho Lake	JERDO08	Mainstream	09/07/05 11:43	478560	7323661	17.1	6.0	9.9	12.4
Jericho Lake	JERDO08	Mainstream	09/07/05 11:43	478560	7323661	17.1	7.0	9.7	12.5
Jericho Lake	JERDO08	Mainstream	09/07/05 11:43	478560	7323661	17.1	8.0	9.5	12.7
Jericho Lake	JERDO08	Mainstream	09/07/05 11:43	478560	7323661	17.1	9.0	9.2	12.8
Jericho Lake	JERDO08	Mainstream	09/07/05 11:43	478560	7323661	17.1	10.0	8.7	12.8
Jericho Lake	JERDO08	Mainstream	09/07/05 11:43	478560	7323661	17.1	11.0	7.7	13.0
Jericho Lake	JERDO08	Mainstream	09/07/05 11:43	478560	7323661	17.1	12.0	6.8	13.1
Jericho Lake	JERDO08	Mainstream	09/07/05 11:43	478560	7323661	17.1	13.0	6.3	13.1
Jericho Lake	JERDO08	Mainstream	09/07/05 11:43	478560	7323661	17.1	14.0	6.0	13.2
Jericho Lake	JERDO08	Mainstream	09/07/05 11:43	478560	7323661	17.1	15.0	5.9	13.2
Jericho Lake	JERDO08	Mainstream	09/07/05 11:43	478560	7323661	17.1	16.0	5.7	13.2
Jericho Lake	JERDO08	Mainstream	09/07/05 11:43	478560	7323661	17.1	16.5	5.5	13.2
Control Lake	JERDO10	Mainstream	08/07/05 19:30	473773	7318682	44	0.0	5.5	11.3
Control Lake	JERDO10	Mainstream	08/07/05 19:30	473773	7318682	44	1.0	5.4	11.4
Control Lake	JERDO10	Mainstream	08/07/05 19:30	473773	7318682	44	2.0	5.4	11.4
Control Lake	JERDO10	Mainstream	08/07/05 19:30	473773	7318682	44	3.0	5.3	12.0
Control Lake	JERDO10	Mainstream	08/07/05 19:30	473773	7318682	44	4.0	5.3	12.2
Control Lake	JERDO10	Mainstream	08/07/05 19:30	473773	7318682	44	5.0	5.2	12.5
Control Lake	JERDO10	Mainstream	08/07/05 19:30	473773	7318682	44	6.0	5.2	12.7
Control Lake	JERDO10	Mainstream	08/07/05 19:30	473773	7318682	44	7.0	5.2	12.9
Control Lake	JERDO10	Mainstream	08/07/05 19:30	473773	7318682	44	8.0	5.2	13.1
Control Lake	JERDO10	Mainstream	08/07/05 19:30	473773	7318682	44	9.0	5.1	13.2
Control Lake	JERDO10	Mainstream	08/07/05 19:30	473773	7318682	44	10.0	5.1	13.3
Control Lake	JERDO10	Mainstream	08/07/05 19:30	473773	7318682	44	11.0	5.1	13.4
Control Lake	JERDO10	Mainstream	08/07/05 19:30	473773	7318682	44	12.0	5.1	13.5
Control Lake	JERDO10	Mainstream	08/07/05 19:30	473773	7318682	44	13.0	5.1	13.6
Control Lake	JERDO10	Mainstream	08/07/05 19:30	473773	7318682	44	14.0	5.1	13.6
Control Lake	JERDO10	Mainstream	08/07/05 19:30	473773	7318682	44	15.0	5.1	13.7
Control Lake	JERDO10	Mainstream	08/07/05 19:30	473773	7318682	44	16.0	5.1	13.7
Control Lake	JERDO10	Mainstream	08/07/05 19:30	473773	7318682	44	17.0	5.1	13.7
Control Lake	JERDO10	Mainstream	08/07/05 19:30	473773	7318682	44	18.0	5.1	13.7
Control Lake	JERDO10	Mainstream	08/07/05 19:30	473773	7318682	44	19.0	5.1	13.7
Control Lake	JERDO10	Mainstream	08/07/05 19:30	473773	7318682	44	20.0	5.1	13.7
Control Lake	JERDO10	Mainstream	08/07/05 19:30	473773	7318682	44	21.0	5.0	13.7
Control Lake	JERDO10	Mainstream	08/07/05 19:30	473773	7318682	44	22.0	5.1	13.7
Control Lake	JERDO10	Mainstream	08/07/05 19:30	473773	7318682	44	23.0	5.1	13.7
Control Lake	JERDO10	Mainstream	08/07/05 19:30	473773	7318682	44	24.0	5.1	13.7
Cigar Lake	JERDO11	Mainstream	08/07/05 11:00	469716	7320270	18.1	0.0	5.5	11.9
Cigar Lake	JERDO11	Mainstream	08/07/05 11:00	469716	7320270	18.1	1.0	5.4	11.9
Cigar Lake	JERDO11	Mainstream	08/07/05 11:00	469716	7320270	18.1	2.0	5.4	12.0
Cigar Lake	JERDO11	Mainstream	08/07/05 11:00	469716	7320270	18.1	3.0	5.3	12.4
Cigar Lake	JERDO11	Mainstream	08/07/05 11:00	469716	7320270	18.1	4.0	5.3	12.6
Cigar Lake	JERDO11	Mainstream	08/07/05 11:00	469716	7320270	18.1	5.0	5.3	12.9
Cigar Lake	JERDO11	Mainstream	08/07/05 11:00	469716	7320270	18.1	6.0	5.2	13.2
Cigar Lake	JERDO11	Mainstream	08/07/05 11:00	469716	7320270	18.1	7.0	5.2	13.4
Cigar Lake	JERDO11	Mainstream	08/07/05 11:00	469716	7320270	18.1	8.0	5.2	13.4

Appendix C1. Dissolved oxygen profile sample data (UTM locations [NAD 27, Zone 12]), Jericho AEMP 2005.

Waterbody	Site	Surveyer	Sample Date/Time	Easting	Northing	Total Depth (m)	Water Depth (m)	Water Temp. (°C)	Dissolved Oxygen (mg/L)
Cigar Lake	JERDO11	Mainstream	08/07/05 11:00	469716	7320270	18.1	9.0	5.2	13.5
Cigar Lake	JERDO11	Mainstream	08/07/05 11:00	469716	7320270	18.1	10.0	5.2	13.6
Cigar Lake	JERDO11	Mainstream	08/07/05 11:00	469716	7320270	18.1	11.0	5.2	13.6
Cigar Lake	JERDO11	Mainstream	08/07/05 11:00	469716	7320270	18.1	12.0	5.2	13.7
Cigar Lake	JERDO11	Mainstream	08/07/05 11:00	469716	7320270	18.1	13.0	5.2	13.7
Cigar Lake	JERDO11	Mainstream	08/07/05 11:00	469716	7320270	18.1	14.0	5.1	13.7
Cigar Lake	JERDO11	Mainstream	08/07/05 11:00	469716	7320270	18.1	15.0	5.1	13.7
Cigar Lake	JERDO11	Mainstream	08/07/05 11:00	469716	7320270	18.1	16.0	5.1	13.8
Cigar Lake	JERDO11	Mainstream	08/07/05 11:00	469716	7320270	18.1	17.0	5.1	13.8
Cigar Lake	JERDO11	Mainstream	08/07/05 11:00	469716	7320270	18.1	18.0	5.1	13.6
Carat Lake	JERDO06	Mainstream	11/08/05 17:05	477479	7320747	31	0.0	10.6	13.0
Carat Lake	JERDO06	Mainstream	11/08/05 17:05	477479	7320747	31	1.0	10.6	12.7
Carat Lake	JERDO06	Mainstream	11/08/05 17:05	477479	7320747	31	2.0	10.6	11.5
Carat Lake	JERDO06	Mainstream	11/08/05 17:05	477479	7320747	31	3.0	10.6	10.8
Carat Lake	JERDO06	Mainstream	11/08/05 17:05	477479	7320747	31	4.0	10.6	10.7
Carat Lake	JERDO06	Mainstream	11/08/05 17:05	477479	7320747	31	5.0	10.6	10.7
Carat Lake	JERDO06	Mainstream	11/08/05 17:05	477479	7320747	31	6.0	10.5	10.6
Carat Lake	JERDO06	Mainstream	11/08/05 17:05	477479	7320747	31	7.0	10.5	10.6
Carat Lake	JERDO06	Mainstream	11/08/05 17:05	477479	7320747	31	8.0	10.6	10.5
Carat Lake	JERDO06	Mainstream	11/08/05 17:05	477479	7320747	31	9.0	10.5	10.6
Carat Lake	JERDO06	Mainstream	11/08/05 17:05	477479	7320747	31	10.0	10.5	10.6
Carat Lake	JERDO06	Mainstream	11/08/05 17:05	477479	7320747	31	11.0	10.4	10.6
Carat Lake	JERDO06	Mainstream	11/08/05 17:05	477479	7320747	31	12.0	10.3	10.6
Carat Lake	JERDO06	Mainstream	11/08/05 17:05	477479	7320747	31	13.0	10.2	10.6
Carat Lake	JERDO06	Mainstream	11/08/05 17:05	477479	7320747	31	14.0	9.8	10.6
Carat Lake	JERDO06	Mainstream	11/08/05 17:05	477479	7320747	31	15.0	9.6	10.5
Carat Lake	JERDO06	Mainstream	11/08/05 17:05	477479	7320747	31	16.0	9.4	10.6
Carat Lake	JERDO06	Mainstream	11/08/05 17:05	477479	7320747	31	17.0	9.2	10.6
Carat Lake	JERDO06	Mainstream	11/08/05 17:05	477479	7320747	31	18.0	8.9	10.6
Carat Lake	JERDO06	Mainstream	11/08/05 17:05	477479	7320747	31	19.0	8.6	10.7
Carat Lake	JERDO06	Mainstream	11/08/05 17:05	477479	7320747	31	20.0	8.3	10.6
Carat Lake	JERDO06	Mainstream	11/08/05 17:05	477479	7320747	31	21.0	8.1	10.6
Carat Lake	JERDO06	Mainstream	11/08/05 17:05	477479	7320747	31	22.0	7.9	10.6
Carat Lake	JERDO06	Mainstream	11/08/05 17:05	477479	7320747	31	23.0	7.9	10.5
Carat Lake	JERDO06	Mainstream	11/08/05 17:05	477479	7320747	31	24.0	7.8	10.5
Lake C3	JERDO04	Mainstream	12/08/05 13:20	474640	731984	14	0.0	11.1	15.0
Lake C3	JERDO04	Mainstream	12/08/05 13:20	474640	731984	14	1.0	11.1	14.8
Lake C3	JERDO04	Mainstream	12/08/05 13:20	474640	731984	14	2.0	11.1	14.0
Lake C3	JERDO04	Mainstream	12/08/05 13:20	474640	731984	14	3.0	11.1	13.6
Lake C3	JERDO04	Mainstream	12/08/05 13:20	474640	731984	14	4.0	11.1	13.0
Lake C3	JERDO04	Mainstream	12/08/05 13:20	474640	731984	14	5.0	11.1	12.0
Lake C3	JERDO04	Mainstream	12/08/05 13:20	474640	731984	14	6.0	11.1	11.7
Lake C3	JERDO04	Mainstream	12/08/05 13:20	474640	731984	14	7.0	11.1	11.4
Lake C3	JERDO04	Mainstream	12/08/05 13:20	474640	731984	14	8.0	11.1	11.3
Lake C3	JERDO04	Mainstream	12/08/05 13:20	474640	731984	14	9.0	11.1	11.6
Lake C3	JERDO04	Mainstream	12/08/05 13:20	474640	731984	14	10.0	11.1	11.6
Lake C3	JERDO04	Mainstream	12/08/05 13:20	474640	731984	14	11.0	11.1	11.6

Appendix C1. Dissolved oxygen profile sample data (UTM locations [NAD 27, Zone 12]), Jericho AEMP 2005.

Waterbody	Site	Surveyer	Sample Date/Time	Easting	Northing	Total Depth (m)	Water Depth (m)	Water Temp. (°C)	Dissolved Oxygen (mg/L)
Lake C3	JERDO04	Mainstream	12/08/05 13:20	474640	731984	14	12.0	11.1	11.6
Lake C3	JERDO04	Mainstream	12/08/05 13:20	474640	731984	14	13.0	11.1	11.6
Control Lake	JERDO10	Mainstream	14/08/05 9:45	473737	7318698	37	0.0	9.1	10.9
Control Lake	JERDO10	Mainstream	14/08/05 9:45	473737	7318698	37	1.0	9.2	10.7
Control Lake	JERDO10	Mainstream	14/08/05 9:45	473737	7318698	37	2.0	9.4	10.7
Control Lake	JERDO10	Mainstream	14/08/05 9:45	473737	7318698	37	3.0	9.4	10.7
Control Lake	JERDO10	Mainstream	14/08/05 9:45	473737	7318698	37	4.0	9.5	10.7
Control Lake	JERDO10	Mainstream	14/08/05 9:45	473737	7318698	37	5.0	9.5	10.7
Control Lake	JERDO10	Mainstream	14/08/05 9:45	473737	7318698	37	6.0	9.5	10.7
Control Lake	JERDO10	Mainstream	14/08/05 9:45	473737	7318698	37	7.0	9.5	10.7
Control Lake	JERDO10	Mainstream	14/08/05 9:45	473737	7318698	37	8.0	9.5	10.7
Control Lake	JERDO10	Mainstream	14/08/05 9:45	473737	7318698	37	9.0	9.5	10.7
Control Lake	JERDO10	Mainstream	14/08/05 9:45	473737	7318698	37	10.0	9.5	10.7
Control Lake	JERDO10	Mainstream	14/08/05 9:45	473737	7318698	37	11.0	9.5	10.7
Control Lake	JERDO10	Mainstream	14/08/05 9:45	473737	7318698	37	12.0	9.5	10.7
Control Lake	JERDO10	Mainstream	14/08/05 9:45	473737	7318698	37	13.0	9.5	10.7
Control Lake	JERDO10	Mainstream	14/08/05 9:45	473737	7318698	37	14.0	9.3	10.7
Control Lake	JERDO10	Mainstream	14/08/05 9:45	473737	7318698	37	15.0	9.2	10.7
Control Lake	JERDO10	Mainstream	14/08/05 9:45	473737	7318698	37	16.0	8.2	10.6
Control Lake	JERDO10	Mainstream	14/08/05 9:45	473737	7318698	37	17.0	7.7	10.7
Control Lake	JERDO10	Mainstream	14/08/05 9:45	473737	7318698	37	18.0	7.4	10.8
Control Lake	JERDO10	Mainstream	14/08/05 9:45	473737	7318698	37	19.0	6.9	10.8
Control Lake	JERDO10	Mainstream	14/08/05 9:45	473737	7318698	37	20.0	6.8	10.9
Control Lake	JERDO10	Mainstream	14/08/05 9:45	473737	7318698	37	21.0	6.6	10.9
Control Lake	JERDO10	Mainstream	14/08/05 9:45	473737	7318698	37	22.0	6.4	10.9
Control Lake	JERDO10	Mainstream	14/08/05 9:45	473737	7318698	37	23.0	6.3	10.9
Control Lake	JERDO10	Mainstream	14/08/05 9:45	473737	7318698	37	24.0	6.2	10.9
Cigar Lake	JERDO11	Mainstream	11/08/05 12:17	469712	7320267	18	0.0	11.1	10.3
Cigar Lake	JERDO11	Mainstream	11/08/05 12:17	469712	7320267	18	1.0	11.2	10.3
Cigar Lake	JERDO11	Mainstream	11/08/05 12:17	469712	7320267	18	2.0	11.2	10.5
Cigar Lake	JERDO11	Mainstream	11/08/05 12:17	469712	7320267	18	3.0	11.2	10.5
Cigar Lake	JERDO11	Mainstream	11/08/05 12:17	469712	7320267	18	4.0	11.2	10.7
Cigar Lake	JERDO11	Mainstream	11/08/05 12:17	469712	7320267	18	5.0	11.2	10.7
Cigar Lake	JERDO11	Mainstream	11/08/05 12:17	469712	7320267	18	6.0	11.1	10.7
Cigar Lake	JERDO11	Mainstream	11/08/05 12:17	469712	7320267	18	7.0	11.1	10.7
Cigar Lake	JERDO11	Mainstream	11/08/05 12:17	469712	7320267	18	8.0	11.1	10.9
Cigar Lake	JERDO11	Mainstream	11/08/05 12:17	469712	7320267	18	9.0	11.1	11.0
Cigar Lake	JERDO11	Mainstream	11/08/05 12:17	469712	7320267	18	10.0	11.1	11.0
Cigar Lake	JERDO11	Mainstream	11/08/05 12:17	469712	7320267	18	11.0	11.0	11.1
Cigar Lake	JERDO11	Mainstream	11/08/05 12:17	469712	7320267	18	12.0	10.9	11.1
Cigar Lake	JERDO11	Mainstream	11/08/05 12:17	469712	7320267	18	13.0	10.8	11.0
Cigar Lake	JERDO11	Mainstream	11/08/05 12:17	469712	7320267	18	14.0	9.7	11.0
Cigar Lake	JERDO11	Mainstream	11/08/05 12:17	469712	7320267	18	15.0	9.2	10.8
Cigar Lake	JERDO11	Mainstream	11/08/05 12:17	469712	7320267	18	16.0	8.9	10.8
Cigar Lake	JERDO11	Mainstream	11/08/05 12:17	469712	7320267	18	17.0	8.8	10.9
Jericho Lake	JERDO08	Mainstream	14/08/05 15:00	478521	7323654	18.4	0.0	9.7	10.8
Jericho Lake	JERDO08	Mainstream	14/08/05 15:00	478521	7323654	18.4	1.0	9.7	10.7

Appendix C1. Dissolved oxygen profile sample data (UTM locations [NAD 27, Zone 12]), Jericho AEMP 2005.

Waterbody	Site	Surveyer	Sample Date/Time	Easting	Northing	Total Depth (m)	Water Depth (m)	Water Temp. (°C)	Dissolved Oxygen (mg/L)
Jericho Lake	JERDO08	Mainstream	14/08/05 15:00	478521	7323654	18.4	2.0	9.7	10.6
Jericho Lake	JERDO08	Mainstream	14/08/05 15:00	478521	7323654	18.4	3.0	9.8	10.7
Jericho Lake	JERDO08	Mainstream	14/08/05 15:00	478521	7323654	18.4	4.0	9.8	10.7
Jericho Lake	JERDO08	Mainstream	14/08/05 15:00	478521	7323654	18.4	5.0	9.8	10.7
Jericho Lake	JERDO08	Mainstream	14/08/05 15:00	478521	7323654	18.4	6.0	9.8	10.8
Jericho Lake	JERDO08	Mainstream	14/08/05 15:00	478521	7323654	18.4	7.0	9.8	10.7
Jericho Lake	JERDO08	Mainstream	14/08/05 15:00	478521	7323654	18.4	8.0	9.8	10.8
Jericho Lake	JERDO08	Mainstream	14/08/05 15:00	478521	7323654	18.4	9.0	9.8	10.8
Jericho Lake	JERDO08	Mainstream	14/08/05 15:00	478521	7323654	18.4	10.0	9.8	10.8
Jericho Lake	JERDO08	Mainstream	14/08/05 15:00	478521	7323654	18.4	11.0	9.8	10.8
Jericho Lake	JERDO08	Mainstream	14/08/05 15:00	478521	7323654	18.4	12.0	9.8	10.9
Jericho Lake	JERDO08	Mainstream	14/08/05 15:00	478521	7323654	18.4	13.0	9.8	10.9
Jericho Lake	JERDO08	Mainstream	14/08/05 15:00	478521	7323654	18.4	14.0	9.8	10.9
Jericho Lake	JERDO08	Mainstream	14/08/05 15:00	478521	7323654	18.4	15.0	9.8	10.9
Jericho Lake	JERDO08	Mainstream	14/08/05 15:00	478521	7323654	18.4	16.0	9.8	10.9
Jericho Lake	JERDO08	Mainstream	14/08/05 15:00	478521	7323654	18.4	17.0	9.8	10.9
Jericho Lake	JERDO08	Mainstream	14/08/05 15:00	478521	7323654	18.4	18.0	9.8	10.9
Lake C3	JERDO04	Tahera	29/04/05			14.8	0.2	0.1	15.7
Lake C3	JERDO04	Tahera	29/04/05			14.8	1.0	0.2	16.2
Lake C3	JERDO04	Tahera	29/04/05			14.8	1.9	0.2	16.3
Lake C3	JERDO04	Tahera	29/04/05			14.8	3.0	1.5	15.9
Lake C3	JERDO04	Tahera	29/04/05			14.8	4.0	2.0	14.3
Lake C3	JERDO04	Tahera	29/04/05			14.8	5.0	2.2	12.8
Lake C3	JERDO04	Tahera	29/04/05			14.8	6.0	2.3	11.8
Lake C3	JERDO04	Tahera	29/04/05			14.8	7.0	2.4	11.1
Lake C3	JERDO04	Tahera	29/04/05			14.8	7.0	2.4	10.5
Lake C3	JERDO04	Tahera	29/04/05			14.8	8.0	2.4	10.2
Lake C3	JERDO04	Tahera	29/04/05			14.8	9.0	2.5	9.6
Lake C3	JERDO04	Tahera	29/04/05			14.8	10.0	2.5	9.1
Lake C3	JERDO04	Tahera	29/04/05			14.8	11.0	2.6	8.5
Lake C3	JERDO04	Tahera	29/04/05			14.8	12.0	2.7	8.1
Lake C3	JERDO04	Tahera	29/04/05			14.8	13.0	2.7	7.7
Lake C3	JERDO04	Tahera	29/04/05			14.8	14.0	2.8	7.3
Lake C3	JERDO04	Tahera	29/04/05			14.8	14.8	2.8	7.1
Jericho Lake	JERDO08	Tahera	26/04/05			8.3	8.1	2.4	4.8
Jericho Lake	JERDO08	Tahera	26/04/05			8.3	7.0	2.3	5.4
Jericho Lake	JERDO08	Tahera	26/04/05			8.3	6.0	2.3	6.4
Jericho Lake	JERDO08	Tahera	26/04/05			8.3	5.0	2.2	7.3
Jericho Lake	JERDO08	Tahera	26/04/05			8.3	4.0	2.0	9.0
Jericho Lake	JERDO08	Tahera	26/04/05			8.3	3.0	1.8	10.9
Jericho Lake	JERDO08	Tahera	26/04/05			8.3	2.0	1.2	13.5
Jericho Lake	JERDO08	Tahera	26/04/05			8.3	1.0	0.7	14.3
Carat Lake	JERDO06	Tahera	26/04/05			30.6	30.5	3.3	1.9
Carat Lake	JERDO06	Tahera	26/04/05			30.6	30.6	3.2	0.7
Carat Lake	JERDO06	Tahera	26/04/05			30.6	30.0	3.1	1.5
Carat Lake	JERDO06	Tahera	26/04/05			30.6	29.0	2.9	2.1
Carat Lake	JERDO06	Tahera	26/04/05			30.6	28.1	2.8	3.2

Appendix C1. Dissolved oxygen profile sample data (UTM locations [NAD 27, Zone 12]), Jericho AEMP 2005.

Waterbody	Site	Surveyer	Sample Date/Time	Easting	Northing	Total Depth (m)	Water Depth (m)	Water Temp. (°C)	Dissolved Oxygen (mg/L)
Carat Lake	JERDO06	Tahera	26/04/05			30.6	27.1	2.7	4.7
Carat Lake	JERDO06	Tahera	26/04/05			30.6	26.0	2.7	5.7
Carat Lake	JERDO06	Tahera	26/04/05			30.6	25.0	2.6	6.6
Carat Lake	JERDO06	Tahera	26/04/05			30.6	24.0	2.5	7.4
Carat Lake	JERDO06	Tahera	26/04/05			30.6	22.9	2.5	8.2
Carat Lake	JERDO06	Tahera	26/04/05			30.6	22.0	2.5	8.7
Carat Lake	JERDO06	Tahera	26/04/05			30.6	20.9	2.4	9.9
Carat Lake	JERDO06	Tahera	26/04/05			30.6	20.0	2.3	10.8
Carat Lake	JERDO06	Tahera	26/04/05			30.6	19.0	2.3	11.3
Carat Lake	JERDO06	Tahera	26/04/05			30.6	18.0	2.3	11.7
Carat Lake	JERDO06	Tahera	26/04/05			30.6	17.0	2.3	12.0
Carat Lake	JERDO06	Tahera	26/04/05			30.6	16.0	2.2	12.2
Carat Lake	JERDO06	Tahera	26/04/05			30.6	15.0	2.2	12.4
Carat Lake	JERDO06	Tahera	26/04/05			30.6	14.0	2.2	12.7
Carat Lake	JERDO06	Tahera	26/04/05			30.6	13.1	2.2	12.9
Carat Lake	JERDO06	Tahera	26/04/05			30.6	12.1	2.2	13.1
Carat Lake	JERDO06	Tahera	26/04/05			30.6	11.0	2.1	13.2
Carat Lake	JERDO06	Tahera	26/04/05			30.6	10.1	2.1	13.3
Carat Lake	JERDO06	Tahera	26/04/05			30.6	9.1	2.1	13.5
Carat Lake	JERDO06	Tahera	26/04/05			30.6	8.0	2.1	13.6
Carat Lake	JERDO06	Tahera	26/04/05			30.6	7.1	2.1	13.8
Carat Lake	JERDO06	Tahera	26/04/05			30.6	6.0	2.0	13.9
Carat Lake	JERDO06	Tahera	26/04/05			30.6	5.0	2.0	14.0
Carat Lake	JERDO06	Tahera	26/04/05			30.6	4.0	1.9	14.2
Carat Lake	JERDO06	Tahera	26/04/05			30.6	3.0	1.7	14.6
Carat Lake	JERDO06	Tahera	26/04/05			30.6	2.0	1.4	15.0
Carat Lake	JERDO06	Tahera	26/04/05			30.6	1.0	0.2	17.4
Lake C1	JERDO13	Tahera	29/04/05			10.4	0.2	0.0	16.2
Lake C1	JERDO13	Tahera	29/04/05			10.4	1.0	0.0	15.7
Lake C1	JERDO13	Tahera	29/04/05			10.4	2.0	0.4	15.6
Lake C1	JERDO13	Tahera	29/04/05			10.4	3.0	0.8	15.6
Lake C1	JERDO13	Tahera	29/04/05			10.4	4.0	1.0	15.6
Lake C1	JERDO13	Tahera	29/04/05			10.4	5.0	1.3	15.5
Lake C1	JERDO13	Tahera	29/04/05			10.4	6.0	1.5	15.3
Lake C1	JERDO13	Tahera	29/04/05			10.4	7.0	1.5	15.1
Lake C1	JERDO13	Tahera	29/04/05			10.4	8.0	1.6	14.0
Lake C1	JERDO13	Tahera	29/04/05			10.4	9.0	1.6	12.9
Lake C1	JERDO13	Tahera	29/04/05			10.4	10.0	1.7	11.7
Lake C1	JERDO13	Tahera	29/04/05			10.4	10.4	1.7	9.9

Appendix D1. Sedimentation sampling data (UTM locations [NAD 27, Zone 12]), Jericho AEMP 2005.

Waterbody	Site Label	Sample Date/Time	Easting	Northing	Lake Depth (m)	Substrate					
						Organic (%)	Silt (%)	Sand (%)	Gravel (%)	Cobble (%)	Boulder (%)
Carat	JERSD07	10/07/05 12:30	478319	7321070	6.3		95	5			
Carat	JERSD19	10/07/05 10:30	478172	7320116	6.0		90	10			
Lake C3	JERSD20	11/08/05 15:15	475012	7319303	6.2		95	5			
Control	JERSD10	08/07/05 20:00	475316	4317994	6.0		95	5			
Cigar	JERSD11	11/07/05 10:20	470313	7320250	6.1		100				
Jericho	JERSD08	10/07/05 14:40	479090	7323672	6.0		95	5			

Appendix D2. Sedimentation data, Jericho AEMP 2005.

Carat Lake (JERSD07)

Filter Number	28	29	30	31	Total Weight
Dry Weight	0.037347	0.048165	0.089939	0.084276	0.259727
Ashed Weight	0.028684	0.033317	0.077588	0.077102	0.216691
Ash Free Dry Weight	0.008663	0.014848	0.012351	0.007174	0.043036
Filter Weight	0.114422*	0.114422*	0.114422*	0.114422*	

Carat Lake (JERSD19)

Filter Number	25	26	27	Total Weight
Dry Weight	0.078850	0.104809	0.065900	0.249559
Ashed Weight	0.062092	0.081481	0.055534	0.199108
Ash Free Dry Weight	0.016758	0.023328	0.010366	0.050451
Filter Weight	0.114422*	0.114422*	0.114422*	

Lake C3 (JERSD20)

Filter Number	14	15	16	Total Weight
Dry Weight	0.038207	0.062737	0.018114	0.119058
Ashed Weight	0.024508	0.046628	0.003688	0.074824
Ash Free Dry Weight	0.013698	0.016110	0.014426	0.044234
Filter Weight	0.114466	0.113710	0.116178	

Control Lake (JERSD23)

Filter Number	1	2	3	20	21	22	23	24	Total Weight
Dry Weight	0.090452	0.064561	0.293369	0.095996	0.348247	0.463062	0.478600	0.181350	2.015637
Ashed Weight	0.082007	0.059981	0.277552	0.087654	0.333846	0.438991	0.451787	0.162399	1.894217
Ash Free Dry Weight	0.008444	0.004581	0.015817	0.008342	0.014401	0.024072	0.024813	0.018952	0.119421
Filter Weight	0.113597	0.117653	0.115172	0.113073	0.114422*	0.114422*	0.114422*	0.114422*	

Cigar Lake (JERSD25)

Filter Number	17	18	19	Total Weight
Dry Weight	0.001867	0.028706	0.013722	0.044295
Ashed Weight	0.000449	0.015848	0.005656	0.021954
Ash Free Dry Weight	0.001418	0.012857	0.008066	0.022342
Filter Weight	0.112522	0.114443	0.112620	

Jericho Lake (JERSD26)

Filter Number	4	5	6	7	8	9	10	11	12	13	Total Weight
Dry Weight	0.007980	0.004119	0.008581	0.002636	0.007846	0.012778	0.017922	0.023715	0.011007	0.004590	0.101175
Ashed Weight	0.002821	0.002875	0.007126	0.002146	0.007137	0.002864	0.008102	0.009938	0.006755	0.000504	0.050268
Ash Free Dry Weight	0.005159	0.001245	0.001455	0.000490	0.000709	0.009914	0.009820	0.013777	0.004252	0.004086	0.050907
Filter Weight	0.113588	0.114141	0.117021	0.113726	0.112424	0.113708	0.113321	0.117733	0.113655	0.115680	

* Mean filter weight of weighed filter weights (n =20)

Appendix E1. Phytoplankton sampling data (UTM locations [NAD 27, Zone 12]), Jericho AEMP 2005.

Waterbody	Site Label	Sample Date/Time	Easting	Northing	Replicate	Total Depth (m)	Depth Sampled (m)	Secchi Depth (m)	Sampling Conditions	Cloud Cover (%)	Air Temp. (ºC)	Water Temp. (°C)
Carat Lake	JERAB06	12/08/05 10:15	477479	7320747	1	31	8	4.0	High	100	8	9.5
Carat Lake	JERAB06	12/08/05 10:26	477479	7320747	2	31	8	4.0	High	100	8	9.5
Carat Lake	JERAB06	12/08/05 10:43	477479	7320747	3	31	8	4.0	High	100	8	9.5
Carat Lake	JERAB06	12/08/05 10:51	477479	7320747	4	31	8	4.0	High	100	8	9.5
Carat Lake	JERAB06	12/08/05 11:01	477479	7320747	5	31	8	4.0	High	100	8	9.5
Carat Lake	JERAB06	12/08/05 11:10	477479	7320747	6	31	8	4.0	High	100	8	9.5
Control Lake	JERAB10	14/08/05 11:15	473737	7318698	1	35	11	5.5	Low	100	5	9.1
Control Lake	JERAB10	14/08/05 11:32	473737	7318698	2	35	11	5.5	Low	100	5	9.1
Control Lake	JERAB10	14/08/05 11:51	473737	7318698	3	35	11	5.5	Low	100	5	9.1
Control Lake	JERAB10	14/08/05 11:51	473737	7318698	4	35	11	5.5	Low	100	5	9.1
Control Lake	JERAB10	14/08/05 12:09	473737	7318698	5	35	11	5.5	Low	100	5	9.1
Control Lake	JERAB10	14/08/05 12:27	473737	7318698	6	35	11	5.5	Low	100	5	9.1
Control Lake	JERAB10	14/08/05 12:45	473737	7318698	7	35	11	5.5	Low	100	5	9.1
Lake C3	JERAB04	12/08/05 14:25	474640	7319840	1	14	10	5.0	High	100	9	10.0
Lake C3	JERAB04	12/08/05 14:34	474640	7319840	2	14	10	5.0	High	100	9	10.0
Lake C3	JERAB04	12/08/05 14:47	474640	7319840	3	14	10	5.0	High	100	9	10.0
Lake C3	JERAB04	12/08/05 15:00	474640	7319840	4	14	10	5.0	High	100	9	10.0
Lake C3	JERAB04	12/08/05 15:11	474640	7319840	5	14	10	5.0	High	100	9	10.0
Lake C3	JERAB04	12/08/05 15:25	474640	7319840	6	14	10	5.0	High	100	9	10.0
Lake C3	JERAB04	12/08/05 15:25	474640	7319840	7	14	10	5.0	High	100	9	10.0
Jericho Lake	JERAB08	14/08/05 15:25	478521	7323654	1	18	17	8.5	Moderate	100	5	9.0
Jericho Lake	JERAB08	14/08/05 15:50	478521	7323654	2	18	17	8.5	Moderate	100	5	9.0
Jericho Lake	JERAB08	14/08/05 16:11	478521	7323654	3	18	17	8.5	Moderate	100	5	9.0
Jericho Lake	JERAB08	14/08/05 16:26	478521	7323654	4	18	17	8.5	Moderate	100	5	9.0
Jericho Lake	JERAB08	14/08/05 16:42	478521	7323654	5	18	17	8.5	Moderate	100	5	9.0
Jericho Lake	JERAB08	14/08/05 16:54	478521	7323654	6	18	17	8.5	Moderate	100	5	9.0
Jericho Lake	JERAB08	14/08/05 16:54	478521	7323654	7	18	17	8.5	Moderate	100	5	9.0
Cigar Lake	JERAB11	11/08/05 13:50	469712	7320267	1	18	15	7.5	Low	98	8	10.0
Cigar Lake	JERAB11	11/08/05 14:26	469712	7320267	2	18	15	7.5	Low	98	8	10.0
Cigar Lake	JERAB11	11/08/05 14:40	469712	7320267	3	18	15	7.5	Low	98	8	10.0
Cigar Lake	JERAB11	11/08/05 14:50	469712	7320267	4	18	15	7.5	Low	98	8	10.0
Cigar Lake	JERAB11	11/08/05 15:15	469712	7320267	5	18	15	7.5	Low	98	8	10.0
Cigar Lake	JERAB11	11/08/05 15:30	469712	7320267	6	18	15	7.5	Low	98	8	10.0
Cigar Lake	JERAB11	11/08/05 15:30	469712	7320267	7	18	15	7.5	Low	98	8	10.0

Appendix E2-1. Phytoplankton density (cells/ml) biovolume (µm³/ml) data, Jericho AEMP 2005.

Carat Lake JER-AB06

Taxonomic Group	Replicate 1				Replicate 2				Replicate 3				Replicate 4				Replicate 5				Replicate 6			
	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P
BACILLARIOPHYTA																								
Achnanthes flexella								P												P				P
Achnanthes lanceolata								P												P				
Achnanthes minutissima				P								P				P				P				P
Achnanthes minutissima v. cryptocephala				P																				
Anomoeoneis sp.																P								
Asterionalla formosa								P																
Cocconeis sp.																				P				P
Cyclotella glomerata	6.1	103.0	632.6		26.0	103.0	2679.5		13.2	103.0	1357.3		8.3	103.0	853.4		8.6	103.0	884.1		3.0	103.0	306.5	
Cyclotella ocellata	17.9	348.2	6237.3		18.8	391.4	7352.7		30.4	391.4	11890.0		20.7	391.4	8105.7		28.6	391.4	11195.7		30.9	391.4	12080.3	
Cymbella affinis												P												
Cymbella cuspidata												P												
Cymbella sp.				P								P				P								P
Diatoma elongatum												P					1.4	118.6	169.5					P
Diatoma hiemale								P																P
Eunotia arcus v. bidentata								P																
Eunotia flexuosa								P																
Eunotia praerupta				P																				
Eunotia sp.				P												P				P				
Fragilaria sp.				P				P									0.3	278.2	73.2					
Fragilaria pinnata								P								P								
Frustulia vulgaris																P				P				P
Gomphonema angustatum								P								P				P				P
Melosira distans	1.9	2015.4	3928.0					P	4.4	2015.4	8851.6		2.1	2015.4	4214.2		5.7	2015.4	11530.1					
Navicula sp.				P				P												P				
Navicula cryptocephala				P				P				P				P				P				P
Navicula lanceolata								P																
Nedium iridis v. amphigomphus												P												P
Nitzschia sp.1				P				P								P				P				P
Nitzschia sp 2								P																
Pinnularia sp.								P								P								P
Stauroneis anceps								P																
Stephanodiscus astraea	14.0	5016.4	70260.1		12.6	4279.7	53722.5		21.1	4279.7	90232.3		11.2	4279.7	47743.8		14.8	4279.7	63381.7		13.3	4279.7	56722.6	
Surirella sp.				P																				
Synedra sp.	1.7	114.4	195.0		2.1	93.7	199.3		1.7	173.2	300.5		1.9	173.2	332.3		1.1	155.8	163.8		2.0	93.7	185.2	
Tabellaria fenestrata				P									0.4	3036.3	1190.2									P
Tabellaria flocculosa				P				P				P	0.5	1355.3	708.8					P				P
Unidentified diatom								P								P								P
Total Bacillariophyta	41.7		81253.0		59.5		63954.0		70.8		112631.7		45.1		63148.5		60.5		87398.0		49.1		69294.5	

Note: **P** present but not encountered in routine cell counts.

Appendix E2-1. Phytoplankton density (cells/ml) biovolume (µm³/ml) data, Jericho AEMP 2005.

Carat Lake JER-AB06

Taxonomic Group	Replicate 1				Replicate 2				Replicate 3				Replicate 4				Replicate 5				Replicate 6			
	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P
CRYPTOPHYTA																								
Cryptomonas ovata	4.1	3706.8	15175.7													P	0.5	3706.8	1949.8					P
Cryptomonas reflexa	3.1	841.2	2582.6						4.8	841.2	4041.2		2.8	841.2	2323.5		1.4	841.2	1203.0					P
Katablepharis ovalis	10.2	189.4	1938.3		1.4	189.4	273.7		5.9	189.4	1109.0		1.4	189.4	261.5		2.9	189.4	541.8					
Rhodomonas minuta	1.0	243.0	248.6		1.4	243.0	351.1		15.5	243.0	3761.0		8.3	243.0	2012.8		7.2	243.0	1737.5		1.5	243.0	361.3	
Total Cryptophyta	**18.4**		**19945.2**		**2.9**		**624.8**		**26.1**		**8911.2**		**12.4**		**4597.8**		**12.0**		**5432.1**		**1.5**		**361.3**	
CHRYSOPHYTA																								
Bitrichia longispina	3.1	132.0	405.2		0.5	132.0	68.8		0.5	132.0	70.5		2.6	132.0	341.7					P	2.0	132.0	260.8	
Chromulina sp.									2.9	388.9	1138.8													
Chrysococcus sp.	47.1	160.1	7537.6		70.8	160.1	11336.7		84.9	160.1	13594.9		33.1	160.1	5305.3		22.9	160.1	3663.8		11.9	160.1	1905.2	
Chrysosphaerella rodhei																	47.8	362.8	17354.8					
Chrysostephanosphaera globulifera									1.5	586.6	858.8					P	1.4	586.6	838.8		1.5	586.6	867.0	
Dinobryon cylindricum	10.2	1812.7	18552.9		15.8	1815.7	28753.7		9.5	2160.8	20583.8		12.9	1813.6	23466.8		14.1	2631.1	37174.4		14.3	1771.0	25273.6	
Dinobryon sertularia					3.6	996.5	3636.2		7.0	980.4	6817.8		2.6	996.4	2604.7		1.6	988.5	1558.9		2.0	996.4	1969.0	
Dinobryon sociale	9.2	1097.5	10109.2		7.2	1097.5	7867.0		10.2	1097.5	11183.7		4.2	1097.5	4589.8		9.0	1097.5	9907.2		12.5	1097.5	13733.2	
Dinobryon tabellariae	1.0	1518.7	1553.6		1.0	1518.7	1584.0		0.5	1518.7	811.0													
Ishtmochloron trispinatum												P												
Kephyrion sp.	2.0	246.5	504.5						1.5	276.5	404.8						1.4	276.5	395.4					
Kephyrion boreale				P	1.4	1042.6	1506.5		5.7	1042.6	5894.8		6.9	1042.6	7197.0		1.4	1042.6	1490.9		1.3	1042.6	1373.1	
Mallomonas spa	0.5	3113.6	1516.3		0.5	3113.6	1622.2		1.6	3113.6	4984.9		1.6	3113.6	4882.1		1.6	3113.6	4910.1		1.3	3113.6	4100.6	
Mallomonas spb								P	1.1	1252.8	1338.0		1.4	1252.8	1730.1									
Ochromonas spa	10.7	325.5	3498.8		7.2	325.5	2352.0		13.2	325.5	4289.2						1.4	325.5	465.5		4.5	325.5	1452.5	
Ochromonas spb.												P												
Ochromonas stellaris	13.4	2110.9	28279.7		2.9	2110.9	6100.5														1.5	2110.9	3138.9	
Pseudokephyrion angulosum								P				P												
Stichogloea doederleinii	127.9	424.3	54275.0		89.1	443.4	39516.8		99.9	353.8	35353.4		47.9	459.4	21982.9		89.4	405.3	36230.6		70.8	49.1	3478.5	
Synura sp.	28.3	287.6	8125.0																					
Unidentified statospore	3.1	1082.4	3322.9					P					2.8	1082.4	2988.4						2.6	1082.4	2850.9	
Total Chrysophyta	**256.5**				**200.2**				**239.9**				**115.9**				**192.1**				**126.1**			
PYRROPHYTA																								
Glenodinium sp.					1.4	684.4	988.9					P	1.0	684.4	715.8		1.4	684.4	978.6					
Gymnodinium spa	1.5	1954.2	2855.0		1.4	1954.2	2823.7									P	1.4	1954.2	2794.4					
Gymnodinium spb	1.0	3305.2	3219.3													P								
Gymnodinium helveticum								P																
Gymnodinium uberrimum					1.0	42138.3	43950.2		0.4	42138.3	15085.5					P	2.6	42135.3	110773.6		1.5	42138.3	62659.6	
Peridinium sp.								P								P				P				
unidentified cyst									7.3		2371.8		0.5		2371.8					P				
Total Pyrrophyta	**2.4**		**6074.3**		**3.9**		**47762.8**		**7.7**		**32447.4**		**1.6**		**1956.3**		**5.5**		**114546.7**		**1.5**		**62659.6**	
EUGLENOPHYTA																								
Total Euglenophyta																								

Note: **P** present but not encountered in routine cell counts.

Appendix E2-1. Phytoplankton density (cells/ml) biovolume (µm³/ml) data, Jericho AEMP 2005.

Carat Lake JER-AB06

Taxonomic Group	Replicate 1				Replicate 2				Replicate 3				Replicate 4				Replicate 5				Replicate 6			
	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P
CHLOROPHYTA																								
Actinastrum hantzschii																	8.6	23.3	199.7					
Ankistrodesmus convolutus	15.4	32.2	493.7		14.8	56.2	829.3		18.5	31.9	591.7		11.5	32.2	369.9		10.7	27.8	298.7		23.8	49.1	1169.4	
Ankistrodesmus falcatus	86.3	62.3	5375.2		61.6	45.1	2781.7		59.0	52.3	3086.4		64.7	37.9	2451.8		79.3	41.5	3291.5		156.3	16.5	2577.0	
Arthrodesmus triangularis	1.1	603.7	661.6						3.5	603.7	2094.7		1.6	603.7	946.6		2.5	622.5	1554.5		5.3	603.7	3180.1	
Cosmarium phaseolus v. phaseolus	1.0	1248.9	1216.5					P	0.5	1248.9	666.9		4.1	1248.9	5173.1					P				P
Cosmarium subcrenatum								P																
Crucigenia quadrata	28.7	7.8	224.9		11.6	6.1	70.3					P				P				P				P
Dictyosphaerium ehrenbergianum	10.2	164.8	1686.4		59.2	164.8	9762.1		13.1	164.8	2150.9		16.6	164.8	2729.8		4.2	164.8	693.0		4.6	164.8	759.6	
Elakatothrix gelatinosa	26.0	27.2	708.0		52.0	26.0	1352.5		59.7	38.7	2306.8		35.9	35.2	1265.3		47.2	23.5	1109.6		100.4	23.0	2304.7	
Elakatothrix viridis				P	1.4	319.0	460.9						0.5	319.0	166.8		1.4	319.0	456.1					P
Euastrum elegans									0.5	6980.8	3727.8													
Kirchneriella sp.									7.3	25.2	184.4													
Mougeotia sp. a					0.5	4401.9	2293.4					P				P								P
Oocystis elliptica				P	1.6	167.0	260.5																	
Oocystis lacustris	34.8	212.2	7384.3		23.8	212.2	5059.7		26.0	212.2	5514.4		36.6	212.2	7764.0		68.7	212.2	14568.0		23.8	212.2	5050.4	
Sphaerocystis schroeteri	58.1	237.7	13806.0		102.6	428.9	44001.2		82.7	342.3	28313.2		26.2	204.5	5365.8		194.5	219.9	42770.3		57.6	311.7	17966.6	
Sphaerozosma granulatum	2.9	452.2	1321.7		3.1	452.2	1414.4		2.1	452.2	965.4					P	1.4	452.2	646.6		3.0	452.2	1345.2	
Staurastrum sp. 3													1.4	2688.7	3713.0					P				
Staurastrum sp 4												P												
Tetraedron arthrodesmiforme	10.2	10.7	109.7		10.1	10.7	108.4		14.6	10.7	156.9		2.8	10.7	29.6		11.4	10.7	122.6		7.4	10.7	79.7	
Unidentified quadriflagellate				P				P																
Unidentified filament #1				P				P	1.5	435.4	637.4													
Total Chlorophyta	**274.7**		**32988.0**		**342.4**		**68394.4**		**289.1**		**50396.9**		**201.8**		**29975.7**		**430.0**		**65710.6**		**382.2**		**34432.7**	
CYANOPHYTA																								
Agmenellum quadruplicatum	165.8	7.1	1175.4		524.6	7.2	3772.1		117.1	7.2	842.2						359.0	7.2	2581.5		110.1	7.2	791.5	
Anacystis montana								P																
Aphanocapsa elachista	286.6	8.8	2525.9		177.2	8.8	1561.8		84.9	12.0	1016.5		211.2	8.8	1861.9		138.7	8.8	1222.8		208.2	7.1	1473.7	
Aphanothece clathrata	1925.2	2.9	5663.9		2641.6	3.0	8030.5		1717.3	2.5	4238.3		1789.4	3.3	5815.5		2093.9	3.3	6805.2		1637.7	2.5	4081.1	
Dactylococcopsis linearis												P												
Gomphosphaeria naegelianum	144.2	14.9	2150.7		93.8	14.9	1399.5		41.6	14.9	621.0		60.6	14.9	904.5		544.1	14.9	8115.7		874.6	14.9	13045.1	
Lyngbya limnetica	108.5	6.7	722.9		37.6	6.7	250.3		43.8	6.7	291.6		47.1	6.7	313.5		88.8	6.7	592.0		62.5	6.7	416.3	
Oscillatoria sp.								P																
Pseudanabaena sp.												P												
Total Cyanophyta	**2630.2**		**12238.7**		**3474.8**		**15014.2**		**2004.8**		**7009.7**		**2108.3**		**8895.4**		**3224.6**		**19317.2**		**2893.1**		**19807.8**	
Total density (cells/mL)	**3224.0**				**4083.7**				**2638.3**				**2485.1**				**3924.7**				**3453.5**			
Total biovolume (µm³ /mL)			**290179.9**				**300094.5**				**262405.4**				**183662.5**				**406395.0**				**246959.1**	
Total Number of Taxa per Sample	**56.0**				**68.0**				**59.0**				**55.0**				**58.0**				**50.0**			

Note: **P** present but not encountered in routine cell counts.

Appendix E2-2. Phytoplankton density (cells/ml) biovolume (µm³/ml) data, Jericho AEMP 2005.

Cigar Lake JER-AB11

Taxonomic Group	Replicate 1				Replicate 2				Replicate 3				Replicate 4				Replicate 5				Replicate 6				Replicate 7			
	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P
BACILLARIOPHYTA																												
Achnanthes flexella																P				P				P				P
Achnanthes lanceolata				P								P				P												P
Achnanthes minutissima																P								P				P
Achnanthes minutissima v. cryptocephala				P				P								P				P				P				P
Cyclotella glomerata	2.9	103.0	293.9					P				P				P				P				P				P
Cyclotella ocellata	17.1	419.4	7179.6		6.5	419.4	2713.9		11.5	419.4	4823.4		16.5	419.4	6915.8		14.6	419.4	6111.8		6.6	419.4	2765.1					P
Cymbella affinis												P												P				P
Cymbella lunata																P												
Cymbella sp.				P																								
Eunotia praerupta												P																
Eunotia serra																P												
Eunotia sp.																P												P
Fragilaria sp.												P												P				P
Fragilaria crotonensis																				P	0.3	125.3	41.4					
Fragilaria pinnata												P																P
Frustulia vulgaris				P				P				P				P				P				P				P
Gomphonema angustatum																								P				
Mastogloia sp.								P																				
Melosira distans																P												P
Navicula sp.																P				P								
Navicula lanceolata												P				P												P
Neidium sp.				P								P				P												
Nitzschia sp.1				P				P				P				P												
Nitzschia sigmoidea																P												P
Pinnularia sp.				P				P								P												P
Pinnularia abaujensis v. rostrata																												P
Pinnularia biceps								P																				
Rhizosolenia longiseta	2.2	0.6	920.0		0.6	920.0	532.7		6.8	920.0	6282.5		2.2	920.0	2000.9		0.9	920.0	856.5						2.7	920.0	2466.5	
Stauroneis anceps																				P								
Stephanodiscus astraea	12.1	5322.1	64280.1		12.2	5322.1	65057.1		9.2	5322.1	48979.1		13.2	5322.1	70267.4		20.4	5372.1	109595.8		12.7	5322.1	67340.3		15.4	5322.1	82050.5	
Surirella sp.																								P				P
Synedra sp.	1.3	143.5	180.2		2.0	124.4	251.9		1.0	124.4	119.8		1.5	124.4	191.4		1.3	124.4	160.2		0.8	124.4	100.5		3.0	124.4	374.1	
Synedra ulna																				P								
Tabellaria fenestrata																				P								
Tabellaria flocculosa				P				P				P				P				P				P				P
Total Bacillariophyta	**35.5**		**72853.8**		**21.3**		**68555.5**		**28.5**		**60204.8**		**33.4**		**79375.6**		**37.2**		**116724.3**		**20.4**		**70247.2**		**21.1**		**84891.0**	
CRYPTOPHYTA																												
Cyanomonas sp.								P	1.4	254.3	365.7					P								P				
Cryptomonas curvata												P	1.4	2791.2	4002.5													

Note: **P** present but not encountered in routine cell counts.

Appendix E2-2. Phytoplankton density (cells/ml) biovolume (µm³/ml) data, Jericho AEMP 2005.

Cigar Lake JER-AB11

Taxonomic Group	Replicate 1				Replicate 2				Replicate 3				Replicate 4				Replicate 5				Replicate 6				Replicate 7			
	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P
Cryptomonas ovata					0.6	3356.6	1943.5						2.2	3356.6	7300.7					P					0.3	3356.6	933.1	
Cryptomonas reflexa					1.7	1168.1	2027.8		0.5	1168.1	596.9		2.3	1168.1	2699.5		6.1	1245.0	7620.4		4.3	1168.1	5031.0		5.0	1168.1	5840.5	
Katablepharis ovalis					5.2	176.5	914.0		7.2	176.5	1269.0		11.5	174.5	2001.6		5.5	176.5	977.3		11.9	174.5	2070.9		13.5	176.5	2389.0	
Rhodomonas minuta					2.3	207.0	479.1		5.5	207.0	1144.1					P	78.9	178.5	14084.2		35.1	195.7	6860.8		67.7	171.3	11587.7	
Total Cryptophyta	**0.0**		**0.0**		**9.8**		**5364.4**		**14.7**		**3375.6**		**17.4**		**16004.4**		**90.6**		**22681.9**		**51.2**		**13962.7**		**86.5**		**20750.4**	
CHRYSOPHYTA																												
Bitrichia longispina								P								P				P								
Chromulina sp.																	1.4	481.9	666.9		4.0	481.9	1906.3		4.5	481.9	2173.7	
Chrysococcus sp.	14.3	155.1	2212.7		6.5	155.1	1003.7						8.6	155.1	1334.5		4.2	155.1	644.0					P	16.5	155.1	2565.2	
Chrysostephanosphaera globulifera					1.3	586.6	759.0														4.0	586.6	2320.5					
Dinobryon barvaricum																								P				P
Dinobryon cylindricum	14.3	1934.4	27626.7		8.2	2110.4	17303.3		12.9	2091.8	27005.0		14.0	2320.7	32387.6		13.6	2046.3	27830.0		20.5	2463.5	50403.8		21.4	1831.6	39177.5	
Dinobryon sertularia	3.6	1128.8	4058.1		5.0	1132.9	5683.7		5.1	1203.6	6154.1		4.6	1064.7	4919.9		6.1	1139.9	6976.0		4.3	1132.9	4879.3		12.0	1127.4	13560.6	
Dinobryon sociale	17.5	1058.9	18546.7		20.5	1092.8	22447.6		11.1	1058.9	11775.0		16.9	1058.9	17872.1		12.1	1058.9	12822.2		9.4	1055.5	9894.2		15.3	1058.9	16177.9	
Dinobryon tabellariae				P	1.7	2040.0	3541.5					P	1.1	2040.0	2217.5		0.4	2040.0	728.3		3.3	2040.0	6725.9					P
Ishtmochloron trispinatum																					1.3	818.5	1079.6					
Kephyrion boreale	2.7	1002.6	2702.0		1.3	1002.6	1297.4		14.4	1002.6	14413.5		2.2	1002.6	2180.7					P	14.5	1002.6	14542.8					
Mallomonas spa				P				P	1.4	2292.3	3296.3		1.1	2292.3	2491.7					P	0.6	2292.3	1460.2					P
Mallomonas spb								P				P				P	1.6	1634.5	2610.4						1.5	1634.5	2458.3	
Ochromonas spa					2.6	485.4	1256.1		22.3	485.4	10815.5		22.9	485.4	11135.8		19.4	485.4	9405.0		17.1	485.4	8320.7		18.0	485.4	8757.0	
Ochromonas spb.								P				P				P	1.4	563.2	779.5		0.5	563.2	303.0		6.0	563.2	3387.2	
Ochromonas stellaris					1.2	2937.6	3398.9		1.5	2937.6	4506.3					P	0.5	2937.6	1562.8	P				P	2.8	2937.6	8160.8	
Pseudokephyrion sp.					1.7	286.4	497.1		2.9	286.4	823.3		1.4	286.4	410.6					P	1.3	286.4	377.7					
Pseudokephyrion angulosum																												
Stichogloea doederleinii	16.7	364.6	6090.9		16.8	388.3	6516.3		47.1	388.3	18283.6		28.8	399.8	11520.6		21.3	278.3	5924.4		71.2	388.3	27652.6		21.0	388.3	8174.1	
Synura sp.																					10.5	115.5	1218.8		4.5	115.5	521.2	
Unidentified statospore	2.7	802.7	2163.3					P	4.3	802.7	3462.1		7.2	802.7	5755.4					P	2.6	802.7	2117.5		4.5	802.7	3621.0	
Total Chrysophyta	**71.8**		**63400.3**		**66.8**		**63704.5**		**123.0**		**100534.7**		**108.8**		**92226.6**		**81.9**		**69949.6**		**165.2**		**133203.0**		**128.2**		**108734.6**	
PYRROPHYTA																												
Glenodinium sp.	1.4	599.9	856.0					P	3.1	599.9	1840.4		1.4	599.9	860.2		1.4	599.9	830.2		5.3	599.9	3164.4		1.4	599.9	833.2	
Gymnodinium spa	2.2	2145.0	4624.5					P	1.5	2145.0	3290.4		1.4	2145.0	3075.9		1.6	2145.0	3425.5		1.3	2145.0	2829.2		0.6	2145.0	1192.6	
Gymnodinium spb					1.3	2127.3	2752.8										1.2	2127.3	2548.5									
Gymnodinium helveticum												P																
Gymnodinium uberrimum				P				P	2.8	16314.9	45877.4		1.1	16314.9	17734.3					P				P	0.6	16314.9	9071.1	
unidentified cyst												P									0.5	5568.3	2995.8		0.6	5568.3	3096.0	
Total Pyrrophyta	**3.6**		**5480.5**		**1.3**		**2752.8**		**7.4**		**51008.2**		**4.0**		**21670.4**		**4.2**		**6804.3**		**7.1**		**8989.3**		**3.1**		**14192.9**	
EUGLENOPHYTA																												
Trachelomonas sp.				P																								
Total Euglenophyta																												

Note: **P** present but not encountered in routine cell counts.

Appendix E2-2. Phytoplankton density (cells/ml) biovolume (µm³/ml) data, Jericho AEMP 2005.

Cigar Lake JER-AB11

Taxonomic Group	Replicate 1				Replicate 2				Replicate 3				Replicate 4				Replicate 5				Replicate 6				Replicate 7			
	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P
CHLOROPHYTA																												
Ankistrodesmus convolutus	46.6	22.0	1024.2		60.6	13.8	836.6		44.2	21.3	943.2		48.6	23.5	1142.9		45.0	15.4	693.8		47.4	16.1	762.9		46.4	12.8	592.1	
Ankistrodesmus falcatus	27.5	35.1	964.8		31.5	20.2	635.4		29.9	26.9	805.0		28.0	32.2	899.0		23.3	18.5	431.4		44.5	20.3	904.0		24.6	45.5	1116.7	
Arthrodesmus incus				P					0.5	1043.0	533.0					P				P	0.5	1043.0	561.1					P
Arthrodesmus triangularis																				P								
Botryococcus sp.				P								P												23.9	131.4	3139.5	
Chlamydomonas sp. a					1.3	646.2	836.2																					
Chlamydomonas sp. b					5.2	766.3	3967.2					P												P				
Cosmarium phaseolus v. phaseolus	0.5	1099.5	592.6		0.6	1099.5	636.6					P									1.3	1099.5	1450.2					P
Crucigenia quadrata												P																
Dictyosphaerium ehrenbergianum	5.4	66.2	357.1		5.2	66.2	342.5		5.8	66.2	380.5						18.0	66.2	1190.5		4.0	66.2	261.7		3.0	66.2	198.9	
Elakatothrix gelatinosa	28.5	19.0	542.3		42.7	16.6	706.8		43.4	25.6	1110.3		17.4	20.5	356.3		34.6	21.2	732.7		52.1	21.4	1113.6		31.6	23.4	737.7	
Elakatothrix viridis					1.3	470.8	609.3					P																
Euastrum binale								P																				
Mougeotia sp. a	1.1	3092.4	3333.6																									
Nephrocytium sp.					1.3	69.6	90.0																					
Oocystis elliptica	2.2	407.3	878.1		9.8	407.3	4006.2					P	20.1	407.3	8175.7					P				P	6.7	407.3	2715.2	
Oocystis lacustris	24.3	192.0	4655.8		1.7	192.0	333.3		7.2	192.0	1374.2					P				P	5.3	192.0	1012.7		7.8	192.0	1493.2	
Quadrigula closterioides				P																								P
Sphaerocystis schroeteri	45.7	299.2	13657.3		11.6	299.2	3462.3		5.6	299.2	1682.5		35.8	299.2	10724.5		8.3	399.8	3320.6		21.1	299.2	6312.1	P	77.8	299.2	23269.5	
Sphaerozosma granulatum	3.0	425.1	1293.6		2.6	425.1	1100.2		1.5	425.1	652.1		1.4	425.1	609.6		2.8	425.1	1176.7					P				P
Staurastrum sp.1																								P				
Tetraedron arthrodesmiforme	8.6	5.5	47.4		11.6	5.5	64.5		12.9	5.5	71.6		15.8	5.5	87.3		8.3	5.5	46.0		7.9	5.5	43.8		24.1	5.5	133.1	
Unidentified quadriflagellate	1.4	215.2	307.0																									
Unidentified filament #1	4.3	603.9	2584.5		1.2	603.9	698.7						0.6	603.6	346.5		1.4	603.6	835.4					P				P
Unidentified filament #2	0.5	1004.7	541.5									P					5.3	1004.7	5348.2									
Total Chlorophyta	**199.5**		**30779.9**		**188.2**		**18325.7**		**151.0**		**7552.4**		**167.7**		**22341.8**		**147.0**		**13775.1**		**184.0**		**12422.2**		**245.7**		**33396.1**	
CYANOPHYTA																												
Agmenellum quadruplicatum	40.0	4.6	184.3		6.5	4.6	29.8		79.7	4.6	367.2		150.6	4.6	693.6		260.2	4.6	1198.8		329.7	4.6	1518.8		338.3	4.6	1558.5	
Anabaena sp.	5.7	48.9	278.8		3.5	48.9	169.7					P				P				P	7.5	48.9	368.4					
Aphanocapsa elachista	158.4	7.8	1236.3		89.1	7.8	695.8		266.0	7.8	2076.4		199.3	5.2	1041.4		366.8	5.6	2039.4		270.3	7.8	2110.5		849.5	7.3	6217.3	
Aphanothece clathrata	897.3	2.1	1870.9		1193.3	2.1	2460.5		822.3	2.1	1695.6		1197.3	2.1	2468.9		1137.7	1.7	1987.6		1591.6	2.1	3348.8		768.3	2.1	1584.2	
Dactylococcopsis linearis	7.5	39.1	294.9		4.1	39.1	158.3		11.5	39.1	449.5		13.0	39.1	510.0		26.6	39.1	1040.2		18.3	39.1	715.5		36.1	39.1	1410.4	
Gomphosphaeria naegelianum	65.6	9.0	590.3		103.0	9.0	926.4		61.9	9.0	556.5		276.2	9.0	2484.3		193.7	9.0	1742.7		88.4	9.0	794.7		309.7	9.0	2785.9	
Lyngbya limnetica	740.4	3.1	2278.2		1132.4	3.1	3484.5		1017.8	3.1	3131.9		1032.4	3.1	3176.8		908.0	3.1	2793.9		1089.2	3.1	3351.5		1166.7	3.1	3590.0	
Pseudanabaena sp.																				P	25.1	11.2	280.6					
Total Cyanophyta	**1915.0**		**6733.7**		**2531.8**		**7925.0**		**2259.2**		**8277.1**		**2868.9**		**10375.0**		**2893.1**		**10802.6**		**3420.1**		**12488.8**		**3468.6**		**17146.4**	
Total density (cells/mL)	**2225.3**				**2819.2**				**2583.8**				**3200.1**				**3253.9**				**3848.1**				**3953.0**			
Total biovolume (µm³ /mL)			**144807.8**				**133399.2**				**155181.4**				**185045.2**				**143998.6**				**180217.1**				**217647.6**	
Total Number of Taxa per Sample	**49**				**59**				**61**				**62**				**59**				**63**				**63**			

Note: **P** present but not encountered in routine cell counts.

Appendix E2-3. Phytoplankton density (cells/ml) biovolume (µm³/ml) data, Jericho AEMP 2005.

Jericho Lake JER-AB08

Taxonomic Group	Replicate 1				Replicate 2				Replicate 3				Replicate 4				Replicate 5				Replicate 6				Replicate 7			
	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P
BACILLARIOPHYTA																												
Achnanthes flexella												P																P
Achnanthes minutissima				P				P	1.7	69.9	118.4					P	1.8	69.9	126.5					P				P
Achnanthes minutissima v. cryptocephala																												P
Amphora sp.												P								P								
Asterionalla formosa								P																				P
Cocconeis sp.				P				P																				
Cyclotella glomerata													7.4	113.6	841.9		14.5	113.6	1645.4					P	19.4	113.6	2207.4	
Cyclotella ocellata	10.0	413.3	4116.9		14.6	413.3	6047.0		13.6	413.3	5606.0		15.8	413.3	6510.3		11.8	413.3	4865.4		11.0	413.3	4565.3		17.5	413.3	7229.5	
Cymbella affinis																								P				
Cymbella minuta				P				P				P												P				
Diatoma elongatum	1.3	156.0	196.2		0.9	156.0	142.5																	P				P
Diatoma hiemale								P				P												P				P
Diploneis sp.																P												
Epithemia sorex				P												P												
Eunotia flexuosa								P				P				P				P				P				P
Eunotia sp.				P								P																
Fragilaria sp.								P																P				
Fragilaria pinnata																P												
Frustulia vulgaris				P				P								P				P				P				P
Gomphonema angustatum				P																				P				
Hannaea arcus																								P				P
Melosira distans				P				P				P					1.6	472.3	745.3		2.7	1472.3	3923.6					
Navicula sp 2				P																								
Navicula cryptocephala								P								P	0.8	356.0	280.9									
Navicula radiosa				P				P								P				P								
Navicula viridula				P								P																P
Neidium sp.												P																P
Nitzschia sp.1				P				P				P								P								
Nitzschia sp 2				P																								
Nitzschia palea								P				P				P								P				P
Pinnularia sp.				P								P				P				P				P				
Rhizosolenia longiseta	2.2	900.4	1981.8		5.0	900.4	4528.1		8.5	900.4	7632.7		2.8	900.4	2519.3		3.9	900.4	3552.1		3.7	900.4	3315.3		1.0	900.4	873.4	
Stauroneis anceps				P																								P
Stephanodiscus astraea	4.7	3968.4	18714.9		5.6	3968.4	22302.3		6.2	3968.4	24465.1		3.3	3968.4	13131.4		2.0	3968.4	7825.7		1.8	3968.4	7305.8		2.0	3968.4	8079.6	
Surirella sp.												P				P								P				
Synedra sp.	12.7	141.0	1795.4		11.9	68.6	814.4		5.1	112.7	572.3		1.6	100.0	157.8		2.0		113.1		9.3	155.0	1445.3		7.4	113.1	833.3	
Synedra sp. Smaller				P								P					1.8	93.7	169.7		0.9	93.7	83.2		1.6	93.7	145.4	
Tabellaria fenestrata								P																P				
Tabellaria flocculosa	0.4	1253.5	527.7					P				P				P				P				P				P
Total Bacillariophyta	**31.3**		**27332.9**		**38.1**		**33834.5**		**35.0**		**38394.5**		**30.9**		**23160.8**		**40.1**		**19433.9**		**29.4**		**20638.5**		**48.9**		**19368.6**	

Note: **P** present but not encountered in routine cell counts.

Appendix E2-3. Phytoplankton density (cells/ml) biovolume (µm³/ml) data, Jericho AEMP 2005.

Jericho Lake JER-AB08

Taxonomic Group	Replicate 1				Replicate 2				Replicate 3				Replicate 4				Replicate 5				Replicate 6				Replicate 7			
	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P
CRYPTOPHYTA																												
Cyanomonas sp.				P				P				P				P	0.9	313.1	283.7									
Cryptomonas curvata					1.7	3814.1	6350.5		0.8	3814.1	3222.9		3.7	3814.1	14135.0		2.0	3814.1	7521.4									P
Cryptomonas ovata								P	1.3	1682.0	2131.1					P	2.4	1382.0	3271.2		1.8	1682.0	3096.6		1.6	1682.1	2610.6	
Cryptomonas reflexa	5.7	959.4	5465.5		4.2	940.0	3913.3		5.6	781.1	4403.0		2.8	940.0	2665.9		6.3	940.0	5933.5		0.9	940.0	834.7		1.9	940.0	1822.7	
Katablepharis ovalis	39.8	137.9	5493.4		32.9	164.6	5418.5		40.6	136.5	5543.0		50.0	140.5	7028.6		54.3	166.2	9029.5		1.8	140.9	259.4		19.4	140.9	2738.9	
Rhodomonas minuta	6.6	217.8	1445.9		20.1	217.8	4380.7		44.1	222.4	9803.1		42.6	185.3	7896.3		54.3	194.1	10544.4		14.7	217.8	3207.0		15.5	274.0	4240.3	
Total Cryptophyta	**52.2**		**12404.9**		**58.9**		**20063.0**		**92.4**		**25103.1**		**99.2**		**31725.8**		**120.2**		**36583.7**		**19.3**		**7397.7**		**38.4**		**11412.5**	
CHRYSOPHYTA																												
Bitrichia longispina	3.8	104.8	395.3		5.8	104.8	610.6		3.4	104.8	355.3		5.7	104.8	594.3		12.7	104.8	1328.1		3.7	104.8	385.7		7.8	100.3	779.7	
Chromulina sp.	3.8	348.6	1315.4		3.7	348.6	1275.3		10.2	348.6	3547.7		32.9	348.6	11468.1		1.8	348.6	631.4									
Chrysidastrum catenatum				P				P	3.0	744.8	2203.0		3.8	744.8	2816.7		1.6	744.8	1175.2		1.8	744.8	1322.7					
Chrysochromulina parva	26.6	75.6	2007.3		12.8	75.6	967.4		8.5	75.6	640.6																	
Chrysococcus sp.	46.5	137.2	6378.3		58.5	137.2	8030.4		74.6	137.2	10236.3		85.2	137.2	11697.1		106.9	137.2	14661.8		11.0	137.2	1515.7		62.2	137.2	8534.1	
Chrysoikos skujai	1.7	233.9	388.3														1.8	233.9	423.7									
Chrysosphaerella rodhei																				P	23.9	362.8	8681.6					
Chrysostephanosphaera globulifera									1.7	453.0	767.8										1.8	453.0	834.0					
Dinobryon barvaricum									4.5	2210.2	9957.1														1.4	2210.2	3001.5	
Dinobryon cylindricum	9.7	2020.6	19695.1		15.8	2198.8	34780.7		12.7	2123.5	26920.2		18.2	2026.8	36885.8		13.6	2231.1	30445.9		9.3	2153.2	19927.5		9.9	2153.2	21296.9	
Dinobryon sertularia	59.8	1016.9	60774.0		37.4	1053.0	39378.4		26.3	992.5	26144.1		15.4	795.3	12285.1		19.9	996.7	19793.4		18.4	1169.6	21559.8					P
Dinobryon sociale	3.2	727.6	2313.0		44.5	928.6	41299.8		22.0	1122.6	24743.6		24.3	1048.0	25433.5		17.2	1050.3	18023.1		34.9	970.4	33900.5		24.5	823.7	20181.2	
Dinobryon tabellariae	4.2	2230.0	9254.3		1.7	2230.0	3712.9		0.8	2230.0	1884.3					P	0.8	2230.0	1759.4					P	0.8	2230.0	1730.5	
Ishtmochloron trispinatum	1.7	305.0	506.3		2.5	305.0	761.9		0.8	305.0	257.7		0.6	305.0	193.1					P	0.9	305.0	270.9					
Kephyrion boreale	13.3	757.2	10056.7		4.6	757.2	3506.7		10.2	757.2	7703.3		16.7	757.2	12629.0		12.7	757.2	9599.4		12.9	757.2	9757.6		17.5	757.2	13245.4	
Mallomonas spa	2.5	2617.1	6582.0		3.3	2617.1	8714.9					P	5.9	2617.1	15464.4		9.1	1448.3	13140.2		8.0	3286.8	26274.8		9.5	3268.2	31060.9	
Mallomonas spb	1.3	1459.7	1836.2					P					1.9	1459.7	2760.2					P								
Ochromonas spa	48.1		596.2		25.6		596.2		31.4		596.2		13.0		596.2		14.5		596.2		14.7		596.2		3.9		596.2	
Ochromonas spb.	6.6	282.3	1874.2						3.4	282.3	957.1					P	3.6	282.3	1022.3									P
Ochromonas stellaris	5.0	2734.9	13759.2		3.5	2734.9	9676.0		4.2	2734.9	11557.6		0.9	2734.9	2584.5		3.7	2734.9	10250.3						2.3	2734.9	6364.1	
Ophiocytium sp.												P																
Pseudokephyrion sp.	1.7	187.4	311.1		0.8	187.4	156.1		5.1	187.4	953.1		22.6	187.4	4241.6		3.6	187.4	678.8						4.9	187.4	910.6	
Pseudokephyrion angulosum				P								P					1.8	603.8	1093.5									
Stichogloea doederleinii	93.0	404.6	37619.0		121.6	426.8	51911.9		87.3	354.3	30933.6		109.3	520.6	56923.4		79.7	405.4	32306.3		71.8	459.1	32962.7		73.9	405.4	29942.4	
Synura sp.				P									46.3	1078.8	49977.9		21.7	450.6	9792.1									
Unidentified statospore	6.6		686.3		12.8		686.3		3.4		686.3		3.7		686.3		12.7		686.3		11.0		686.3		3.9		686.3	
Total Chrysophyta	**338.9**		**208327.9**		**355.0**		**228835.7**		**313.5**		**180784.7**		**406.5**		**256232.7**		**339.3**		**183464.0**		**224.2**		**173755.8**		**222.3**		**142032.5**	
PYRROPHYTA																												
Glenodinium sp.	18.2	609.6	11116.5		25.5	558.3	14246.8		32.2	441.4	14218.3		32.4	587.9	19066.6		30.8	521.1	16044.1		11.0	507.8	5609.3		5.8	507.5	2959.3	
Gymnodinium spa	2.5	3401.3	8554.2		0.8	3401.3	2833.3		5.1	3401.3	17298.9		4.6	3401.3	15758.1		7.2	3401.3	24638.8		5.3	3401.3	18125.4		1.9	3401.3	6612.1	
Gymnodinium spb	3.1	1801.1	5662.5		6.7	1801.1	11995.1		15.3	1794.8	27386.7		14.2	1801.1	25600.3		1.2	1801.1	2184.7		5.5	1801.1	9947.3		1.9	1801.1	3501.3	

Note: **P** present but not encountered in routine cell counts.

Appendix E2-3. Phytoplankton density (cells/ml) biovolume (µm³/ml) data, Jericho AEMP 2005.

Jericho Lake JER-AB08

Taxonomic Group	Replicate 1				Replicate 2				Replicate 3				Replicate 4				Replicate 5				Replicate 6				Replicate 7			
	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P
Gymnodinium helveticum												P																
Gymnodinium uberrimum				P	0.4	13364.3	5559.5					P	2.2	13364.3	29441.4		1.6	13364.3	21088.8		1.8	13364.3	23734.9		0.8	13364.3	10370.7	
unidentified cyst																				P								
Total Pyrrophyta	**23.9**		**25333.2**		**33.4**		**34634.6**		**52.6**		**58903.9**		**53.5**		**89866.4**		**40.8**		**63956.4**		**23.7**		**57416.9**		**10.5**		**23443.3**	
EUGLENOPHYTA																												
Lepocinclis sp.								P	1.7	3218.0	5454.5																	
Trachelomonas sp.				P																P								
Total Euglenophyta									**1.7**		**5454.5**																	
CHLOROPHYTA																												
Ankistrodesmus convolutus	18.7	28.4	530.5		32.9	26.2	860.9		15.1	28.4	429.5		25.9	20.5	531.3		19.3	31.2	603.4		28.5	28.4	810.5		20.1	47.7	958.5	
Ankistrodesmus falcatus	61.2	19.2	1173.2		116.8	17.8	2080.5		99.7	30.9	3086.3		101.9	10.4	1060.1		105.2	34.9	3665.9		67.7	26.8	1812.3		102.0	28.6	2923.3	
Arthrodesmus incus	0.6	1232.0	774.9													P												
Arthrodesmus triangularis	3.6	420.0	1518.7		5.4	558.2	3020.3		7.6	450.1	3423.7		3.8	520.0	1966.5		7.1	681.5	4839.1		7.1	549.3	3903.0		5.4	520.0	2823.9	
Botryococcus sp.	15.1	232.4	3508.1		34.1	232.4	7933.8		10.1	232.4	2357.3										57.7	232.4	13419.1					P
Chlamydomonas sp. a				P					1.7	635.9	1077.9		1.9	635.9	1202.6		3.6	635.9	2303.4		5.5	635.9	3516.7		0.8	635.9	493.5	
Cosmarium phaseolus v. phaseolus	3.3	1529.5	5077.9		1.7	1529.5	2546.6		2.5	1529.5	3877.3		4.7	1529.5	7229.9		2.4	1529.5	3620.3		1.8	1529.5	2815.8		1.6	1524.5	2366.0	
Cosmarium subcrenatum													1.9	19236.1	35644.4													
Crucigenia quadrata					11.0	8.7	95.6		13.5	8.7	117.8													P				
Dictyosphaerium ehrenbergianum	12.6	169.5	2131.8		8.3	169.5	1411.1		27.1	169.5	4598.1		7.6	169.5	1281.9						8.9	169.5	1505.5		54.4	169.5	9224.1	
Elakatothrix gelatinosa	24.9	19.1	476.0		29.3	23.9	698.2		31.4	21.6	677.3		32.9	20.4	672.4		26.7	18.8	503.3		29.5	20.6	607.2		38.9	21.8	846.5	
Elakatothrix viridis	1.9	265.4	500.7		2.5	265.4	662.9		1.7	265.4	449.8					P				P	1.8	265.4	488.5		1.9	265.4	515.9	
Euastrum binale																P					0.9	2156.6	1915.1					
Euastrum elegans					0.8	50180.2	41800.1									P				P								
Gonatozygon sp				P																								
Hyalotheca sp								P																				
Kirchneriella sp.												P									1.8	25.2	46.4					
Mougeotia sp. a												P				P												P
Nephrocytium sp.				P																								
Oocystis elliptica	1.7	155.7	258.5									P									7.4	155.7	1146.7		0.8	155.7	120.8	
Oocystis lacustris	13.3	220.1	2923.5		7.3	220.1	1610.2		3.4	220.1	746.4		2.8	220.1	624.3		19.9	220.1	4385.1		12.9	220.1	2836.5		19.4	220.1	4278.3	
Scenedesmus sp.				P																								P
Schroederia setigera								P																				
Sphaerocystis schroeteri	5.0	192.6	959.0		31.1	192.6	5986.7		127.2	192.6	24485.7		10.4	192.6	2002.6		24.4	192.6	4707.9		11.0	142.5	1573.6		2.9	192.6	561.3	
Sphaerozosma granulatum	7.3	387.6	2844.5		6.7	418.6	2787.9		5.1	350.5	1777.6		6.6	418.6	2770.3		4.7	418.6	1981.7		1.8	424.8	754.4		5.4	418.6	2273.5	
Staurastrum sp. 2				P	0.8	7071.3	5819.7		3.4	7071.3	23978.7										0.3	7071.3	2071.9					
Staurastrum sp. 3												P																
Tetraedron arthrodesmiforme	8.3		9.5		21.9		10.8		11.9		10.8		18.5		10.8		14.5		10.8		5.5		10.8		7.8		10.8	
Tetraedron minimum								P				P				P	1	334	263					P	1	334	259	
Unidentified filament #1				P				P	6	583	3447		2	583	1102					P	4	632	2247		2	583	904	
Total Chlorophyta	**177.4**		**22756**		**310.7**		**77552**		**367.3**		**74659**		**220.9**		**56289**		**228.7**		**27030**		**253.8**		**41530**		**263.8**		**28633**	

Note: **P** present but not encountered in routine cell counts.

Appendix E2-3. Phytoplankton density (cells/ml) biovolume (µm³/ml) data, Jericho AEMP 2005.

Jericho Lake JER-AB08

Taxonomic Group	Replicate 1				Replicate 2				Replicate 3				Replicate 4				Replicate 5				Replicate 6				Replicate 7			
	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P
CYANOPHYTA																												
Agmenellum quadruplicatum	59.76	4.703	281.05		501.1	5.086	2548.6		293.3	4.489	1316.7		298.4	4.818	1437.5		220.9	5.476	1209.9		232	4.818	1117.6		235.2	4.818	1133	
Anabaena sp.				P	25.81	64.014	1652.1		2.535	64.014	162.28		14.18	34.014	482.35		16.57	64.014	1060.6					P	7.758	64.014	496.62	
Anacystis montana																P												
Aphanocapsa elachista	220.8	5.939	1311.3		378.6	5.774	2185.9		476.4	8.276	3942.8		378	5.774	2182.8		594	4.821	2863.8		397.6	5.443	2164.3		330.4	5.774	1907.8	
Aphanothece clathrata	2885	1.782	5141.6		3072	1.696	5210.9		2636	1.908	5030.3		3139	1.62	5085.6		1878	1.472	2764.5		3354	1.675	5618.2		2356	1.721	4054.8	
Dactylococcopsis linearis	1.258	66.426	83.564		21.95	66.426	1457.8		16.11	66.426	1069.9					P					3.682	66.426	244.58		9.326	66.426	619.49	
Gomphosphaeria naegelianum	405.6	11.892	4823.6		168.2	11.892	1999.9		426	11.892	5065.5		158.8	11.892	1888.8		370.8	11.892	4409.7		438.8	11.892	5218		206.4	11.892	2454.1	
Lyngbya limnetica	430	5.002	2150.7		142.7	5.002	713.54		445.9	5.002	2230.4		303.9	5.002	1520.2		179.3	5.002	896.82		209.9	5.002	1049.7		386.8	5.002	1934.6	
Oscillatoria sp.	37.25	43.802	1631.7					P	13.56	43.802	594.13	P																
Pseudanabaena sp.	1.887	19.687	37.149		4.163	19.687	81.957		33.81	19.687	665.54		34.98	19.687	688.67													
Total Cyanophyta	**4042**		**15461**		**4315**		**15851**		**4344**		**20078**		**4328**		**13286**		**3260**		**13205**		**4636**		**15412**		**3532**		**12600**	
Total density (cells/mL)	**4665**				**5111**				**5207**				**5138**				**4029**				**5187**				**4116**			
Total biovolume (µm³ /mL)			**311615**				**410771**				**403377**				**470560**				**343674**				**316151**				**237490**	
Total Number of Taxa per Sample	**81**				**76**				**83**				**74**				**70**				**72**				**69**			

Note: **P** present but not encountered in routine cell counts.

Appendix E2-4. Phytoplankton density (cells/ml) biovolume (µm³/ml) data, Jericho AEMP 2005.

Lake C3 JER-AB04

Taxonomic Group	Replicate 1				Replicate 2				Replicate 3				Replicate 4				Replicate 5				Replicate 6				Replicate 7			
	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P
BACILLARIOPHYTA																												
Achnanthes lanceolata																								P				
Achnanthes minutissima	2.0	66.1	133.3		4.4	66.1	287.9		4.5	66.1	297.1		4.2	66.1	276.3		2.7	66.1	181.1					P	1.4	66.1	95.7	
Achnanthes minutissima v. cryptocephala								P								P				P								
Amphipleura sp.																								P				
Amphora sp.								P												P								
Anomoeoneis sp.																P												
Asterionalla formosa																				P								
Caloneis sp.				P																								P
Cocconeis placentula v. euglypta								P				P				P				P								
Cyclotella glomerata				P	4.4	70.8	308.3		7.5	70.8	530.4		9.8	70.8	690.6		9.6	70.8	678.8		2.8	70.8	196.8		5.8	70.8	410.0	
Cyclotella ocellata	12.6	335.1	4224.8		19.9	335.1	6653.8		15.7	335.1	5275.6		38.6	335.1	12929.7		21.2	335.1	7118.3		21.5	335.1	7209.7		34.5	209.1	7213.1	
Cymbella affinis				P												P								P				
Cymbella minuta				P				P												P								
Diatoma elongatum								P				P																
Diatoma hiemale	4.0	60.9	245.6									P												P				P
Eunotia arcus v. bidentata				P												P												
Eunotia bidentula																								P				
Eunotia flexuosa																P				P				P				P
Eunotia suecica																P												
Eunotia sp.								P												P								
Fragilaria pinnata																												P
Frustulia vulgaris				P				P				P				P								P				P
Gomphonema angustatum								P												P				P				
Melosira distans	1.0	1331.0	1343.0					P	0.5	1331.0	636.2					P	6.9	1331.0	9121.3					P				P
Meridion circulare																P												
Navicula sp.												P								P								P
Navicula cryptocephala				P								P								P				P				
Nitzschia sp.1																				P								
Nitzschia sp 2	0.8	160.1	122.5		1.5	160.1	232.6					P				P				P				P				P
Nitzschia angustata				P																								
Nitzschia filiformis												P												P				
Pinnularia sp.				P				P								P								P				
Rhizosolenia longiseta	4.7	937.8	4418.1		1.5	937.8	1362.7		0.5	937.8	448.3		0.6	937.8	515.8		1.4	937.8	1285.8		1.4	937.8	1304.5					P
Stephanodiscus astraea	3.1	2786.0	8522.4		1.9	2786.0	5271.1		1.0	2786.0	2666.2		3.0	2786.0	8307.9		2.2	2786.0	6148.7		4.3	2786.0	11862.8		3.1	2786.0	8681.2	
Surirella angusta								P								P												
Synedra sp.	1.0	115.5	117.8		7.6	115.5	881.1		1.4	115.5	165.8		2.6	115.5	301.9		3.2		115.5		2.1	115.5	246.0		2.3	115.5	269.9	
Synedra sp. Smaller				P	6.3	90.9	571.6		3.0	90.9	272.5		1.6	90.9	140.9		1.1	90.9	100.2		1.1	90.9	96.8		1.1	90.9	99.9	
Synedra ulna																				P								
Tabellaria fenestrata																								P				

Note: **P** present but not encountered in routine cell counts.

Appendix E2-4. Phytoplankton density (cells/ml) biovolume (µm³/ml) data, Jericho AEMP 2005.

Lake C3 JER-AB04

Taxonomic Group	Replicate 1				Replicate 2				Replicate 3				Replicate 4				Replicate 5				Replicate 6				Replicate 7			
	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P
Tabellaria flocculosa				P	4.1	1370.9	5557.8					P	7.6	1370.9	10369.7		3.9	1370.9	5294.5		4.8	1370.9	6566.8		0.6	1370.9	754.0	
Unidentified diatom												P																
Unidentified diatom				P																								
Total Bacillariophyta	**29.2**		**19127.4**		**51.3**		**21126.9**		**34.1**		**10292.1**		**67.8**		**33532.7**		**52.1**		**30295.2**		**37.9**		**27483.4**		**48.8**		**17523.8**	
CRYPTOPHYTA																												
Cryptomonas ovata	0.3	3559.4	907.6		0.5	3558.4	1925.1		0.5	558.4	266.9						1.4	3558.4	4878.5									
Cryptomonas reflexa					5.9	733.2	4358.6		4.5	733.2	3297.7		1.4	733.2	1022.0		3.3	733.2	2427.5									
Katablepharis ovalis					4.4	156.0	680.0		19.5	156.0	3040.9		1.4	156.0	217.5		11.0	156.0	1710.4									
Rhodomonas minuta					18.2	281.5	5111.5		17.1	281.5	4806.6		1.1	281.5	309.7		1.1	221.2	235.6		0.6	281.5	154.8					
Total Cryptophyta	**0.3**		**907.6**		**29.0**		**12075.1**		**41.5**		**11412.1**		**3.9**		**1549.1**		**16.7**		**9251.9**		**0.6**		**154.8**		**0.0**		**0.0**	
CHRYSOPHYTA																												
Bitrichia longispina	7.1	123.7	873.3		14.5	123.7	1796.5		13.5	123.7	1669.0		2.8	123.7	344.9		17.8	103.7	1847.8		3.2	123.7	395.0		4.9	117.1	579.1	
Chrysococcus sp.	31.3	186.0	5817.3		43.6	186.0	8107.3		34.5	186.0	6416.1		22.3	186.0	4150.9		5.5	186.0	1019.9		4.2	186.0	776.3		7.2	186.0	1347.7	
Chrysosphaerella rodhei	45.4	193.0	8760.5																									
Chrysostephanosphaera globulifera	1.0	481.4	491.1		4.4	481.4	2098.1		1.5	481.4	721.7		2.8	481.4	1342.7		1.1	481.4	531.0		0.5	481.4	256.1		1.4	481.4	697.6	
Dinobryon cylindricum	5.0	1992.7	10049.4		4.4	1687.4	7353.7		7.1	1706.9	12156.6		5.0	1687.4	8354.4		5.0	1724.3	8673.2		5.3	1687.4	8982.1		3.8	1778.5	6841.9	
Dinobryon sertularia	8.5	884.4	7552.5		12.3	976.5	12057.0		16.3	1051.5	17146.1		4.4	976.5	4297.6		10.0	976.5	9810.0					P	5.9	887.3	5242.1	
Dinobryon sociale	5.6	872.6	4894.2		13.1	872.6	11406.9		10.1	872.6	8831.1		9.4	872.6	8160.1		17.5	872.6	15247.0		8.9	872.6	7778.8		14.1	872.6	12305.6	
Dinobryon tabellariae	1.0	2223.9	2268.4		1.6	2223.9	3607.2		3.0	2223.9	6669.5						1.4	2223.9	3049.0					P				P
Ishtmochloron trispinatum	1.0	248.8	251.1					P				P				P								P				P
Kephyrion sp.	2.0	316.6	638.7					P	4.5	316.6	1424.2																	
Kephyrion boreale	2.0	755.0	1522.7		7.3	755.0	5483.2		4.5	766.7	3448.4		7.0	755.0	5263.5		8.2	755.0	6208.0		1.6	755.0	1205.7		5.8	755.0	4375.0	
Mallomonas spa	5.0	3152.1	15668.9		4.3	3152.1	13629.5		1.0	3152.1	3016.5		4.0	3152.1	12570.4		3.9	3154.1	12181.0		4.3	3152.1	13421.5					P
Mallomonas spb	1.0	2761.0	2785.8																	P	0.5	2761.0	1468.9					
Ochromonas spa	9.1	402.3	3652.0		13.8	425.5	5871.3		34.5	425.5	14674.3		4.2	425.4	1778.1		19.2	425.1	8154.0		11.1	425.1	4730.8		11.6	425.1	4927.7	
Ochromonas spb.					2.9	499.5	1451.0		4.5	499.5	2246.8						1.4	499.5	684.8									
Ochromonas stellaris	1.0	1997.9	2015.9		1.1	1997.9	2159.8		3.0	1997.9	5991.8		0.6	1997.9	1098.9					P	0.5	1997.9	1062.9					P
Pseudokephyrion sp.				P	5.8		409.5		4.5		409.5		1.4		409.5		1.4		409.5		1.6		409.5		1.6		409.5	
Pseudokephyrion angulosum																												P
Stichogloea doederleinii	19.2	365.1	6997.5		1.5	365.1	530.5		21.0	365.1	7664.6		8.4	365.1	3054.9		8.0	365.1	2920.9		10.4	365.1	3789.6		7.7	365.1	2809.2	
Synura sp.																												
Unidentified statospore	5.0	435.5	2196.4		4.4	435.5	1898.0						2.8	435.5	1214.7						10.7	435.5	4638.4		4.3	435.5	1892.8	
Total Chrysophyta	**150.3**		**76435.6**		**134.9**		**79829.2**		**163.5**		**93918.6**		**74.8**		**52202.1**		**100.3**		**70888.1**		**62.8**		**49160.0**		**68.6**		**41694.0**	
PYRROPHYTA																												
Glenodinium sp.				P	3.2	656.8	2130.1		3.8	656.8	2513.7		0.6	656.8	361.3		4.4	656.8	2899.3									
Gymnodinium spa	2.0		2539.8		7.0		2539.8		5.3		2539.8		0.6		2539.8		4.7		2539.8		1.1		2539.8		3.3		2589.8	
Gymnodiniug spb				P	1.4	2129.6	2877.0		3.3	2129.6	7131.9		3.2	2129.6	6735.8		3.6	2129.6	7636.6		1.6	2129.6	3400.9		4.3	2129.6	9255.1	
Gymnodinium uberrimum	0.1	21119.2	2682.1		0.5	21119.2	11425.5		1.5	21119.2	31657.6		0.6	21119.2	11615.5		0.6	21119.2	11657.8					P				
Peridinium sp.												P																
unidentified cyst												P								P					2.0	5568.3	11131.1	
Total Pyrrophyta	**2.1**		**7805.0**		**12.2**		**34280.0**		**13.9**		**54667.9**		**4.8**		**20109.5**		**13.2**		**34105.5**		**2.7**		**6105.8**		**9.6**		**28924.9**	

Note: **P** present but not encountered in routine cell counts.

Appendix E2-4. Phytoplankton density (cells/ml) biovolume (µm³/ml) data, Jericho AEMP 2005.

Lake C3 JER-AB04

Taxonomic Group	Replicate 1				Replicate 2				Replicate 3				Replicate 4				Replicate 5				Replicate 6				Replicate 7			
	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P
EUGLENOPHYTA																												
Trachelomonas sp.				P				P																				
Total Euglenophyta																												
CHLOROPHYTA																												
Ankistrodesmus convolutus	27.7	24.9	689.7		27.6	25.2	693.9		49.0	17.3	849.3		35.6	18.2	648.0		30.2	23.1	695.8		56.3	20.9	1180.0		58.4	17.1	1001.3	
Ankistrodesmus falcatus	82.3	43.4	3574.4		125.9	31.2	3922.5		144.5	39.8	5746.0		70.7	48.9	3455.9		101.1	28.0	2833.7		74.8	26.3	1965.8		87.2	19.8	1721.9	
Arthrodesmus triangularis	2.0	574.4	1171.2		2.3	574.4	1319.4		2.9	574.4	1648.6		4.2	574.4	2402.8		2.2	574.4	1267.7		3.2	574.4	1834.7		0.3	574.4	158.0	
Botryococcus sp.				P				P	3.8	253.3	969.4		36.3	253.6	9207.2		80.9	253.6	20506.3					P				P
Chlamydomonas sp. a				P				P	3.0	333.5	1000.1					P	0.6	333.5	184.1					P				P
Cosmarium phaseolus v. phaseolus	1.0	878.4	896.0		1.6	878.4	1424.8					P	1.7	878.4	1450.3						2.1	878.4	1870.2		2.2	878.4	1930.8	
Crucigenia quadrata	139.2	11.3	1571.4									P								P								
Cylindrocystis sp.	0.5	4247.7	2166.3		0.5	4247.7	2298.0		0.5	4247.7	2030.4																	
Dictyosphaerium ehrenbergianum	2.0	73.4	148.1					P	8.1	73.4	597.1		11.2	73.4	819.1		13.8	73.4	1012.6					P				
Elakatothrix gelatinosa	18.9	17.6	331.8		17.1	20.2	344.3		40.1	17.6	705.4		43.2	19.1	825.2		19.2	15.7	301.3		28.5	17.6	501.5		22.5	17.9	402.9	
Elakatothrix viridis	1.0	484.8	494.5					P	1.5	484.8	726.7					P					1.4	484.8	674.4					
Euastrum binale												P																
Euastrum elegans												P																
Gonatozygon sp				P																								
Kirchneriella sp.	6.1	11.9	72.2						1.5	11.9	17.9																	
Mougeotia sp. a																	0.6	4839.0	2671.1					P				
Oocystis elliptica					1.5	448.8	652.1					P				P					4.3	448.8	1911.1					
Oocystis lacustris	24.2	143.4	3471.9		13.1	143.4	1874.9		16.1	143.4	2311.8		15.3	143.4	2199.9		37.0				15.2	143.4	2175.5		9.1	143.4	1299.2	
Quadrigula closterioides	3.3	45.3	150.3					P	1.9	45.3	86.8					P	3.9	45.3	175.1					P	2.2	45.3	99.7	
Sphaerocystis schroeteri	31.3	183.0	5721.7		30.3	183.0	5549.8		21.0	183.0	3841.2		25.1	183.0	4593.0		19.2	183.0	3510.9		36.5	183.0	6671.3		44.9	183.0	8218.5	
Sphaerozosma granulatum	2.0	336.3	685.7		1.5	336.3	488.7		1.5	336.3	504.1		1.1	336.3	369.9		3.9	336.3	1298.8		1.6	336.3	537.1		3.3	336.6	1109.8	
Staurastrum sp.1				P				P																				
Staurastrum sp 4								P								P												
Tetraedron arthrodesmiforme	25.2	10.6	266.8		20.3	11.5	234.1		34.5	12.2	419.2		8.4	11.1	93.1		20.6	14.2	291.8		19.5	11.6	225.8		17.4	11.6	201.7	
Unidentified filament #1					1.5	625.7	909.1					P	0.6	625.7	344.1					P	0.5	625.7	332.9		2.2	625.7	1375.2	
Unidentified filament #2													1.7	528.1	871.3		2.7	528.1	1431.6					P	2.9	528.1	1530.3	
Unidentified chain								P																				
Total Chlorophyta	**366.7**		**21412.0**		**243.1**		**19711.9**		**329.9**		**21453.9**		**254.9**		**27279.8**		**335.6**		**36181.0**		**243.8**		**19880.3**		**252.5**		**19049.2**	
CYANOPHYTA																												
Agmenellum quadruplicatum					181.6	6.6	1196.0		208.4	6.6	1372.9		90.6	6.6	597.1		202.8	6.6	1336.1		98.8	6.6	655.6		191.2	6.6	1259.7	
Anabaena sp.	3.6	70.5	251.7		5.8	70.5	409.7		7.2	70.5	506.1		18.7	70.5	1319.0						5.6	70.5	392.4		2.3	70.5	158.9	
Aphanocapsa elachista	469.0	9.3	4352.2		428.5	11.2	4805.8		397.4	6.3	2520.4		305.4	6.6	2011.6		575.6	8.1	4646.9		368.6	5.3	1969.2		488.3	6.7	3285.0	
Aphanothece clathrata	905.8		2.3		2255.9		2.3		1220.6		2.3		1428.0		2.3		1254.0		2.5		1221.3		1.4		1944.3		1.7	
Dactylococcopsis linearis	10	50	481					P	10	50	522		13	50	624		11	50	545		4	50	212		9	50	432	
Gomphosphaeria naegelianum	281	12	3340		175	12	2078		361	12	4281		315	12	3740		891	12	10572		390	12	4624		140	12	1657	
Lyngbya limnetica	296.6	8.085	2397.6		59.56	8.085	481.52		132	8.085	1066.8		136.7	8.085	1104.9		33.66	8.085	272.11		19.69	8.085	159.22		42.87	8.085	346.56	

Note: **P** present but not encountered in routine cell counts.

Appendix E2-4. Phytoplankton density (cells/ml) biovolume (µm³/ml) data, Jericho AEMP 2005.

Lake C3 JER-AB04

Taxonomic Group	Replicate 1			Replicate 2			Replicate 3			Replicate 4			Replicate 5			Replicate 6			Replicate 7		
	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P
Oscillatoria sp.					52.29	43.8	2290.5																	
Pseudanabaena sp.				P				P				P	15.34	15.85	243.12									
Unidentified trichome																				P				
Total Cyanophyta	**1966**		**12901**		**3159**		**16437**		**2337**		**13069**		**2322**		**12915**		**2968**		**20507**		**2108**		**9707**		**2817**		**10382**
Total density (cells/mL)	**2515**				**3629**				**2920**				**2729**				**3486**				**2456**				**3197**		
Total biovolume (µm³ /mL)			**138589**				**183460**				**204813**				**147589**				**201229**				**112491**				**117574**
Total Number of Taxa per Sample	**56**				**61**				**61**				**53**				**51**				**52**				**41**		

Note: **P** present but not encountered in routine cell counts.

Appendix E2-5. Phytoplankton density (cells/ml) biovolume (µm³/ml) data, Jericho AEMP 2005.

Control Lake JER-AB10

Taxonomic Group	Replicate 1				Replicate 2				Replicate 3				Replicate 4				Replicate 5				Replicate 6				Replicate 7			
	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P
BACILLARIOPHYTA																												
Achnanthes flexella																P												P
Achnanthes lanceolata																								P				
Achnanthes minutissima	1.4	81.5	117.1		1.4	81.5	112.2		4.0	81.5	328.9		2.9	81.5	232.4		1.3	81.5	104.7					P	1.4	81.5	116.5	
Achnanthes minutissima v. cryptocephala																								P				
Amphipleura sp.																												P
Amphora sp.																								P				
Asterionalla formosa				P								P																
Cocconeis sp.									0.7	732.4	492.9																	P
Cyclotella glomerata					11.0	78.9	868.9		25.6	74.6	1907.4		5.7	78.9	450.0		12.0	78.9	945.8		22.5	78.9	1772.9		20.0	78.9	1579.1	
Cyclotella ocellata	40.3	388.3	15629.8		20.7	388.3	8021.5		37.2	388.3	14458.0		32.8	388.3	12740.2		31.5	388.3	12225.8		40.7	388.3	15820.9		31.5	388.3	12217.6	
Cymbella minuta								P								P				P				P				P
Cymbella sp.																								P				
Diatoma hiemale												P												P				
Eunotia arcus v. bidentata				P																P								
Eunotia exigua								P				P																
Eunotia flexuosa								P				P								P								
Eunotia praerupta				P								P																
Eunotia sp.	1.4		0.0									P								P								P
Fragilaria pinnata												P																
Frustulia vulgaris				P				P				P								P								
Gomphonema sp.																								P				
Gomphonema angustatum								P												P				P				P
Hannaea arcus								P																				P
Melosira sp.																								P				
Melosira distans				P				P	1.7	1498.5	2520.5		1.3	1498.5	1985.5					P				P	3.4	1498.5	5126.4	
Navicula cryptocephala				P								P				P												
Navicula cuspidata				P																								
Navicula lanceolata																P								P				
Navicula tripunctata																								P				
Navicula viridula																												P
Neidium sp.																												P
Nitzschia sp.1								P				P				P												
Nitzschia sp 2								P				P				P				P				P				
Nitzschia sigmoidea								P																P				P
Pinnularia sp.				P				P				P				P				P				P				P
Stephanodiscus astraea	5.9	3889.3	23044.1		5.5	3889.3	21200.6		3.2	3889.3	12430.2		6.2	3889.3	24245.9		4.9		3889.3		5.4	3889.3	21111.1		7.8	3889.3	30414.3	
Surirella sp.																								P				
Synedra sp.	2.2	124.8	278.6		3.5	124.8	437.6	P	1.3	124.8	168.0		1.0	124.8	124.0		2.8	111.3	309.4		4.0	86.3	341.3		4.7	94.3	440.6	
Synedra sp. Smaller																												P

Note: **P** present but not encountered in routine cell counts.

Appendix E2-5. Phytoplankton density (cells/ml) biovolume (µm³/ml) data, Jericho AEMP 2005.

Control Lake JER-AB10

Taxonomic Group	Replicate 1				Replicate 2				Replicate 3				Replicate 4				Replicate 5				Replicate 6				Replicate 7			
	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P
Synedra ulna								P				P																
Tabellaria fenestrata												P								P				P				
Tabellaria flocculosa				P				P	1.3	1018.2	1370.5		2.9	1018.2	2904.9		1.3	1018.2	1308.4					P	1.4	1018.2	1456.0	
Unidentified diatom																P				P				P				P
Total Bacillariophyta	**51.3**		**39069.7**		**42.0**		**30640.7**		**75.1**		**33676.3**		**52.8**		**42683.0**		**53.7**		**33807.7**		**72.6**		**39046.1**		**70.3**		**51350.5**	
CRYPTOPHYTA																												
Cyanomonas sp.																												P
Cryptomonas curvata													2.1	4362.4	9261.4					P	2.2	4362.4	9619.1		1.7	4362.4	7590.6	
Cryptomonas erosa	7.6	1873.9	14160.9		11.9	2049.7	24303.8					P								P								
Cryptomonas ovata	5.5	1860.6	10225.7		2.0	1860.6	3728.6					P	1.3	1860.6	2465.3					P	1.4	1867.6	2623.9		2.0	1860.6	3637.4	
Cryptomonas reflexa				P	2.8	1017.5	2803.1		12.2	1682.5	20570.3		6.6	864.5	5727.2		9.0	910.7	8223.3		13.3	1071.9	14307.5		14.7	927.5	13599.5	
Katablepharis ovalis	8.6	214.1	1846.5		9.6	201.3	1941.0		14.8	135.9	2011.6		12.8	174.4	2238.5		23.1	162.8	3766.8		16.9	153.8	2593.2		17.2	203.1	3485.8	
Rhodomonas minuta	8.6	214.0	1846.3		16.5	214.0	3537.6		13.5	214.0	2880.3		11.4	214.0	2442.8		9.9	214.0	2110.0		9.8	214.0	2105.1	P	12.9	234.8	3022.0	
Total Cryptophyta	**30.3**		**28079.4**		**42.8**		**36314.2**		**40.5**		**25462.2**		**34.3**		**22135.2**		**42.0**		**14100.1**		**43.7**		**31248.8**		**48.4**		**31335.4**	
CHRYSOPHYTA																												
Bitrichia longispina	2.7	121.5	333.9		5.5	121.5	669.3		4.0	121.5	490.5		7.1	121.5	866.6		6.4	121.5	780.7		2.7	121.5	329.7		5.7	121.5	695.0	
Chromulina sp.	11.5	339.0	3898.8		1.4	339.0	466.8		4.0	339.0	1368.5		5.7	339.0	1934.3		2.6	339.0	871.6		8.4	339.0	2857.8		4.3	339.0	1454.6	
Chrysidastrum catenatum								P				P																
Chrysochromulina parva	17.3	74.7	1288.7		5.5	74.7	411.5		2.7	74.7	201.0		7.1	74.7	532.8		6.4	74.7	480.0		7.0	74.7	524.8		1.4	74.7	106.8	
Chrysococcus sp.					79.9	193.4	15447.3		192.4	136.8	26325.8		74.2	136.8	10148.2		152.9	155.6	23794.6		176.3	100.9	17785.2		14.7	120.0	1759.2	
Chrysoikos skujai																				P								
Chrysosphaerella rodhei																												P
Chrysostephanosphaera globulifera	4.3	418.8	1806.4						1.3	818.8	1101.3																	
Dinobryon cylindricum	13.8	2164.6	29855.7		21.7	1899.9	41212.0		12.8	2355.2	30108.7		14.6	1964.1	28624.1		18.1	1793.9	32400.3		19.7	1919.9	37781.8		15.6	2023.9	31651.0	
Dinobryon sociale	3.4	1173.0	4029.3		8.3	1173.0	9693.8		8.2	1135.2	9338.4		11.9	1284.5	15316.1		8.9	1173.0	10389.3		5.2	1173.0	6097.3		11.0	1159.4	12748.9	
Dinobryon tabellariae	0.7	2111.0	1450.2					P								P				P				P	2.0	2111.0	4126.9	
Ishtmochloron trispinatum	1.4	818.5	1177.0		1.4	818.5	1127.1													P	0.7	818.5	555.8					
Kephyrion sp.				P	9.6		246.5		1.3		246.5		1.4		246.5		2.6		246.5		5.6		246.5		4.3		246.5	
Kephyrion boreale	2.9	734.0	2110.3		6.9	734.0	5054.4		4.0	734.0	2963.2		4.3	734.0	3141.5					P	5.6	734.0	4125.1		1.4	734.0	1049.6	
Mallomonas spa	0.7	2052.0	1409.7		0.7	2052.0	1409.7		4.0	2052.0	8284.1		3.3	2052.0	6796.3		1.4	2052.0	2850.3		4.8	2052.0	9747.2		3.3	2052.0	6685.5	
Mallomonas spb																	1.4	1305.8	1813.8						0.7	1305.8	851.4	
Ochromonas spa	133.9	398.6	53396.1		38.6	345.5	13323.1		47.1	393.0	18509.6		39.9	381.3	15230.2		57.8	396.0	22900.7		34.7	379.8	13164.1		30.0	356.3	10700.2	
Ochromonas spb.	5.8	335.1	1927.2					P	6.7	335.1	2255.0		2.9	335.1	956.1		5.1	335.1	1722.8		14.1	335.1	4708.4		5.7	335.1	1917.2	
Ochromonas stellaris	4.1	2096.4	8641.4		4.1	2096.4	8662.4		3.4	2096.4	7052.3		1.3	2096.4	2777.7		13.4	2096.4	28068.8		4.1	2096.4	8536.6		2.6	2096.4	5469.5	
Pseudokephyrion sp.																P				P								
Pseudokephyrion angulosum					1.4		1114.1																					
Stichogloea doederleinii	20.6	313.5	6459.8		15.4	312.4	4800.5		8.1	312.4	2522.6		20.5	401.1	8238.1		14.2	392.7	5591.4		4.2	377.1	1589.6		25.7	312.4	8043.5	
Synura sp.					2.8	640.2	1763.6																	P				P
Unidentified statospore					4.1	671.4	2774.4					P	1427.0	671.4	958156.3		2.1	671.4	1399.3		4.9	671.4	3302.2		4.3	671.4	2881.2	
Total Chrysophyta	**223.2**		**117784.7**		**207.1**		**110726.2**		**300.2**		**110852.7**		**1621.3**		**1053070.2**		**293.3**		**133697.3**		**298.0**		**112490.7**		**132.7**		**91198.4**	

Note: **P** present but not encountered in routine cell counts.

Appendix E2-5. Phytoplankton density (cells/ml) biovolume (µm³/ml) data, Jericho AEMP 2005.

Control Lake JER-AB10

Taxonomic Group	Replicate 1				Replicate 2				Replicate 3				Replicate 4				Replicate 5				Replicate 6				Replicate 7			
	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P
PYRROPHYTA																												
Glenodinium sp.	0.7	631.7	434.0		5.5	631.7	3480.0		17.5	631.7	11051.4		1.4	631.7	901.4		2.8	631.7	1755.5		16.2	631.7	10206.9		5.7	631.7	3613.9	
Gymnodinium spa	2.1	2302.0	4744.4					P	2.0	2302.0	4647.7		2.3	2302.0	5338.3		2.8	2197.5	6106.8		2.8	2302.0	6468.6		8.6	2302.0	19755.6	
Gymnodinium spb	6.9	7768.7	53362.9									P								P								
Gymnodinium uberrimum								P	0.2	16967.1	3766.7		3.2	16967.1	54498.4									P				P
Peridinium sp.	1.4	14100.0	19415.7																	P								
Total Pyrrophyta	**11.0**		**77957.0**		**5.5**		**3480.0**		**19.7**		**19465.8**		**7.0**		**60738.1**		**5.6**		**7862.3**		**19.0**		**16675.4**		**14.3**		**23369.5**	
EUGLENOPHYTA																												
Trachelomonas sp.												P				P								P	0.7	1053.5	686.9	
Total Euglenophyta																									**0.7**		**686.9**	
CHLOROPHYTA																												
Ankistrodesmus convolutus	11.5	23.9	274.9		21.9	22.2	486.5		15.1	16.2	245.2		38.0	1.0	39.3		21.0	27.6	579.0		26.0	20.1	523.2		37.2	26.0	966.6	
Ankistrodesmus falcatus	64.4	41.3	2663.0		107.2	46.1	4945.6		89.8	26.0	2331.1		78.8	17.7	1398.1		87.0	35.7	3110.0		87.6	9.5	830.7		105.0	46.3	4866.2	
Arthrodesmus triangularis	1.4	496.1	681.7					P	1.3	496.1	667.3		3.3	496.1	1643.1		4.9	496.1	2412.6		0.7	495.0	336.1		1.3	496.1	646.4	
Botryococcus sp.	34.5	198.3	6840.8					P	49.5	198.3	9808.7						22.9	198.3	4544.9		13.6	198.3	2690.9		10.5	198.3	2089.1	
Chlamydomonas sp. b	1.4	632.1	868.5		4.1	632.1	2611.9					P	2.1	632.1	1320.5		1.3	632.1	812.3		1.4	632.1	888.1		2.9	632.1	1808.5	
Cosmarium sp																P												
Cosmarium phaseolus v. phaseolus																P												
Crucigenia quadrata				P								P				P				P					34.3			
Dictyosphaerium ehrenbergianum	4.3	133.1	574.1						10.1	133.1	1343.4		21.2	133.1	2821.6		2.4	133.1	323.6					P				P
Elakatothrix gelatinosa	19.6	24.1	472.5		15.4	21.9	338.1		20.2	23.2	467.8		20.0	18.1	362.3		24.4	24.0	586.8		36.5	21.2	773.4		17.2	23.1	396.9	
Elakatothrix viridis				P					1.3	192.2	258.5									P								
Euastrum binale												P																
Euastrum elegans								P	1.3	6980.8	9389.2																	
Gonatozygon sp				P																								
Hyalotheca sp																P												
Kirchneriella sp.												P					3.9	3.0	11.6		1.4	3.0	4.2					
Mougeotia sp. a					2.8	9685.7	26674.3																	P				
Nephrocytium sp.																									1.4	69.6	99.5	
Oocystis lacustris	43.8	211.5	9275.6		6.9	211.5	1456.7		16.1	211.5	3416.2		11.4	211.5	2414.3		27.0	262.5	7086.0		26.7	211.5	5647.3		21.5	211.5	4538.2	
Oocystis elliptica				P					8.8	979.4	8569.8														196.0	979.4	191962.4	
Oocystis sp.																									2.0	1383.3	2704.4	
Scenedesmus sp.																				P								
Schroederia setigera									0.7	64.3	43.3																	
Sphaerocystis schroeteri	130.8	211.9	27717.9		22.0	211.9	4669.0		1.3	211.9	285.0		4.3	211.9	906.8		41.7	211.9	8830.6		40.7	211.9	8632.9		15.7	211.9	3333.4	
Sphaerozosma granulatum	1.4	428.5	616.2		2.8	428.5	1180.6		1.3	428.5	576.8		1.4	428.5	611.5		0.3	428.5	148.7		1.4	428.5	581.5		2.9	428.5	1226.1	
Staurastrum sp. 3																P												
Tetraedron arthrodesmiforme	11.5		11.9		41.3		9.6		29.6		16.0		31.4		8.9		37.3		50.4		39.3		9.8		32.9		13.0	
Tetraedron minimum				P																								
Tetraedron tumidulum													1	597	395													

Note: **P** present but not encountered in routine cell counts.

Appendix E2-5. Phytoplankton density (cells/ml) biovolume (µm³/ml) data, Jericho AEMP 2005.

Control Lake JER-AB10

Taxonomic Group	Replicate 1				Replicate 2				Replicate 3				Replicate 4				Replicate 5				Replicate 6				Replicate 7			
	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P	Density	Volume	Bio-Vol	P
Unidentified quadriflagellate																								P				
Unidentified filament #1													1.427	435.36	621.26													
Unidentified filament #2				P												P	1.389	1004.7	1395.6		1.357	1004.7	1363.4					
Total Chlorophyta	**324.7**		**50122**		**224.4**		**42761**		**246.6**		**37875**		**214**		**12813**		**275.4**		**31721**		**276.7**		**22656**		**480.7**		**215064**	
CYANOPHYTA																												
Agmenellum quadruplicatum	135.1	5.202	702.98		191.4	5.088	974.06		422.6	5.202	2198.2		269.6	5.202	1402.6		266.4	5.202	1385.9		261.3	5.119	1337.8		111.6	5.202	580.34	
Anabaena sp.	13.74	69.65	956.92		7.348	69.65	511.79		17.49	69.65	1218.5						6.426	69.65	447.57									
Anacystis montana																								P				
Aphanocapsa elachista	447.1	5.919	2646.4		537.1	7.467	4010.8		275.9	4.443	1225.7		302.4	8.606	2602.8		392	5.66	2218.7		195.3	6.302	1230.8		246	6.352	1562.6	
Aphanothece clathrata	1021	2.74	2796.8		1285	2.363	3036.5		1476	3.199	4722.6		1561	2.231	3481.9		1409	2.717	3827.3		1742	3.092	5387		1429	2.836	4052.1	
Dactylococcopsis linearis																	1.389	16.75	23.266									
Gomphosphaeria naegelianum	303.7	15.299	4645.5		577.8	15.299	8840.4		223.4	15.299	3417.6		318	15.299	4864.9					P	352.9	15.299	5398.5		139.5	15.299	2133.4	
Lyngbya limnetica								P					48.36	17.337	838.42									P				
Trichodesmium sp.																				P								
Unidentified trichome					8.26	16.432	135.73	P																				
Total Cyanophyta	**1920**		**11749**		**2607**		**17509**		**2416**		**12783**		**2499**		**13191**		**2075**		**7902.8**		**2552**		**13354**		**1926**		**8328.5**	
Total density (cells/mL)	**2561**				**3129**				**3098**				**4429**				**2745**				**3262**				**2673**			
Total biovolume (µm³ /mL)			**5874.3**				**8754.6**				**6391.3**				**6595.3**				**3951.4**				**6677**				**4164.3**	
Total Number of Taxa per Sample		**61**				**65**				**71**				**63**				**68**				**71**				**65**		

Note: **P** present but not encountered in routine cell counts.

Appendix F1. Zooplankton sampling data (UTM locations [NAD 27, Zone 12]), Jericho AEMP 2005.

Waterbody	Site Label	Sample Date/Time	Easting	Northing	Replicate	Total Depth (m)	Depth Sampled (m)	Secchi Depth (m)	Area (cm^2)	Sampling Conditions	Cloud Cover (%)	Air Temp. (°C)	Water Temp. (°C)
Carat Lake	JERAB06	11/08/05 17:15	477479	7320747	1	31.0	16.0	4.0	132.72	High	80	8.0	9.5
Carat Lake	JERAB06	11/08/05 17:30	477479	7320747	2	31.0	16.0	4.0	132.72	High	80	8.0	9.5
Carat Lake	JERAB06	11/08/05 17:38	477479	7320747	3	31.0	16.0	4.0	132.72	High	80	8.0	9.5
Carat Lake	JERAB06	11/08/05 17:47	477479	7320747	4	31.0	16.0	4.0	132.72	High	80	8.0	9.5
Carat Lake	JERAB06	11/08/05 17:56	477479	7320747	5	31.0	16.0	4.0	132.72	High	80	8.0	9.5
Carat Lake	JERAB06	11/08/05 18:06	477479	7320747	6	31.0	16.0	4.0	132.72	High	80	8.0	9.5
Cigar Lake	JERAB11	11/08/05 12:20	469707	7320291	1	18.0	16.5	7.5	132.72	High	100	8.0	10.0
Cigar Lake	JERAB11	11/08/05 12:41	469707	7320291	2	18.0	16.5	7.5	132.72	High	100	8.0	10.0
Cigar Lake	JERAB11	11/08/05 12:50	469707	7320291	3	18.0	16.5	7.5	132.72	High	100	8.0	10.0
Cigar Lake	JERAB11	11/08/05 13:06	469707	7320291	4	18.0	16.5	7.5	132.72	High	100	8.0	10.0
Cigar Lake	JERAB11	11/08/05 13:15	469707	7320291	5	18.0	16.5	7.5	132.72	High	100	8.0	10.0
Cigar Lake	JERAB11	11/08/05 13:23	469707	7320291	6	18.0	16.5	7.5	132.72	High	100	8.0	10.0
Cigar Lake	JERAB11	11/08/05 13:23	469707	7320291	7	18.0	16.5	7.5	132.72	High	100	8.0	10.0
Jericho Lake	JERAB08	12/08/05 17:15	478552	7323659	1	17.2	16.5	6.3	132.72	Low	100	8.5	11.0
Jericho Lake	JERAB08	12/08/05 17:20	478552	7323659	2	17.2	16.5	6.3	132.72	Low	100	8.5	11.0
Jericho Lake	JERAB08	12/08/05 17:33	478552	7323659	3	17.2	16.5	6.3	132.72	Low	100	8.5	11.0
Jericho Lake	JERAB08	12/08/05 17:41	478552	7323659	4	17.2	16.5	6.3	132.72	Low	100	8.5	11.0
Jericho Lake	JERAB08	12/08/05 17:51	478552	7323659	5	17.2	16.5	6.3	132.72	Low	100	8.5	11.0
Jericho Lake	JERAB08	12/08/05 17:59	478552	7323659	6	17.2	16.5	6.3	132.72	Low	100	8.5	11.0
Jericho Lake	JERAB08	12/08/05 17:59	478552	7323659	7	17.2	16.5	6.3	132.72	Low	100	8.5	11.0
Lake C3	JERAB04	12/08/05 13:24	474640	7319840	1	14.0	13.0	5.0	132.72	Low	100	9.0	10.0
Lake C3	JERAB04	12/08/05 13:34	474640	7319840	2	14.0	13.0	5.0	132.72	Low	100	9.0	10.0
Lake C3	JERAB04	12/08/05 14:43	474640	7319840	3	14.0	13.0	5.0	132.72	Low	100	9.0	10.0
Lake C3	JERAB04	12/08/05 13:50	474640	7319840	4	14.0	13.0	5.0	132.72	Low	100	9.0	10.0
Lake C3	JERAB04	12/08/05 13:57	474640	7319840	5	14.0	13.0	5.0	132.72	Low	100	9.0	10.0
Lake C3	JERAB04	12/08/05 14:10	474640	7319840	6	14.0	13.0	5.0	132.72	Low	100	9.0	10.0
Lake C3	JERAB04	12/08/05 14:10	474640	7319840	7	14.0	13.0	5.0	132.72	Low	100	9.0	10.0
Control Lake	JERAB10	14/08/05 9:50	473737	7318698	1	37.0	22.0	5.5	132.72	High	100	5.0	9.1
Control Lake	JERAB10	14/08/05 10:03	473737	7318698	2	37.0	22.0	5.5	132.72	High	100	5.0	9.1
Control Lake	JERAB10	14/08/05 10:15	473737	7318698	3	37.0	22.0	5.5	132.72	High	100	5.0	9.1
Control Lake	JERAB10	14/08/05 10:24	473737	7318698	4	37.0	22.0	5.5	132.72	High	100	5.0	9.1
Control Lake	JERAB10	14/08/05 10:36	473737	7318698	5	37.0	22.0	5.5	132.72	High	100	5.0	9.1
Control Lake	JERAB10	14/08/05 10:48	473737	7318698	6	37.0	22.0	5.5	132.72	High	100	5.0	9.1
Control Lake	JERAB10	14/08/05 11:10	473737	7318698	7	37.0	22.0	5.5	132.72	High	100	5.0	9.1

Appendix F2-1. Zooplankton species, density (no./m^3) and dominance (%) data, Jericho AEMP 2005.

Carat Lake JERAB06

Major taxon	Genus/ species	Replicate 1		Replicate 2		Replicate 3		Replicate 4		Replicate 5	
		Density	**%**	**Density**	**%**	**Density**	**%**	**Density**	**%**	**Density**	**%**
ROTIFERA	*Asplanchna* sp.					23.1	0.1				
	Conochilus unicornis	1548.0	6.2	1340.0	4.1	1340.0	4.1	1478.7	5.3	1224.5	4.5
	Kellicottia longispina	4412.9	17.8	6931.2	21.0	6168.8	19.0	5891.6	21.1	4990.5	18.4
	Keratella cochlearis	2402.8	9.7	2749.4	8.3	2726.3	8.4	2749.4	9.8	2564.6	9.5
	Keratella hiemalis					46.2	0.1	23.1	0.1	23.1	0.1
	Lecane luna			23.1	0.1	23.1	0.1				
	Lepadella patella										
	Monostyla bulla										
	Notholca acuminata										
	Polyarthra dolichoptera										
	Polyarthra vulgaris	3950.8	15.9	5175.3	15.7	6677.1	20.6	4066.3	14.5	4898.1	18.1
	Pompholyx sulcata									323.5	1.2
	Trichocerca cylindrica			23.1	0.1	23.1	0.1	23.1	0.1		
CLADOCERA	*Eubosmina longispina*	92.4	0.4	184.8	0.6	115.5	0.4	184.8	0.7	115.5	0.4
	Daphnia galeata mendotae										
	Daphnia longiremis							23.1	0.1		
	Daphnia middendorffiana										
	Holopedium gibberum	184.8	0.7	184.8	0.6	69.3	0.2	138.6	0.5	184.8	0.7
COPEPODA-Calanoida	Calanoid copepodid	970.4	3.9	993.5	3.0	970.4	3.0	854.9	3.1	785.5	2.9
	Calanoid nauplii	2194.9	8.8	2888.0	8.7	3234.6	10.0	2472.1	8.8	1571.1	5.8
	Heterocope septentrionalis										
	Leptodiaptomus sicilis	207.9	0.8	184.8	0.6	277.2	0.9	254.1	0.9	138.6	0.5
COPEPODA-Cyclopoida	Cyclopoid copepodid	300.4	1.2	184.8	0.6	277.2	0.9	46.2	0.2	92.4	0.3
	Cyclopoid nauplii	7555.1	30.4	10466.2	31.7	8848.9	27.3	8895.1	31.8	8779.6	32.5
	Cyclops scutifer	300.4	1.2	623.8	1.9	369.7	1.1	231.0	0.8	300.4	1.1
	Diacyclops bicuspidatus	693.1	2.8	1062.8	3.2	1224.5	3.8	623.8	2.2	1062.8	3.9
Total individuals		**24813.9**	**100.0**	**33015.8**	**100.0**	**32415.1**	**100.0**	**27956.0**	**100.0**	**27055.0**	**100.0**
Total taxa		**13**		**15**		**17**		**16**		**15**	

Appendix F2-2. Zooplankton species, density (no./m^3) and dominance (%) data, Jericho AEMP 2005.

Cigar Lake JERAB11

Major taxon	Genus/ species	Replicate 1		Replicate 2		Replicate 3		Replicate 4		Replicate 6		Replicate 7	
		Density	%	Density	%	Density	%	Density	%	Density	%	Density	%
ROTIFERA	*Asplanchna* sp.												
	Conochilus unicornis	4525.6	17.7	3150.2	15.8	4099.9	20.2	4256.8	19.8	1635.5	13.5	1523.5	15.3
	Kellicottia longispina	5085.7	19.8	3600.2	18.1	3786.3	18.6	4279.2	19.9	2778.1	23.0	2094.8	21.0
	Keratella cochlearis	851.4	3.3	843.8	4.2	896.2	4.4	918.6	4.3	380.9	3.2	448.1	4.5
	Keratella hiemalis												
	Lecane luna	67.2	0.3	37.5	0.2								
	Lepadella patella	44.8	0.2										
	Monostyla bulla					22.4	0.1	22.4	0.1				
	Notholca acuminata					44.8	0.2	22.4	0.1	11.2	0.1		
	Polyarthra dolichoptera												
	Polyarthra vulgaris	1008.2	3.9	543.8	2.7	694.5	3.4	873.8	4.1	436.9	3.6	436.9	4.4
	Pompholyx sulcata	224.0	0.9	168.8	0.8	246.4	1.2	291.3	1.4	212.8	1.8	201.6	2.0
	Trichocerca cylindrica									11.2	0.1	11.2	0.1
CLADOCERA	*Eubosmina longispina*	112.0	0.4	56.3	0.3	44.8	0.2	89.6	0.4	33.6	0.3		
	Daphnia galeata mendotae												
	Daphnia longiremis												
	Daphnia middendorffiana	22.4	0.1							11.2	0.1		
	Holopedium gibberum	156.8	0.6	37.5	0.2	156.8	0.8	67.2	0.3	67.2	0.6	100.8	1.0
COPEPODA-Calanoida	Calanoid copepodid	1075.4	4.2	712.5	3.6	918.6	4.5	672.1	3.1	470.5	3.9	369.7	3.7
	Calanoid nauplii	1030.6	4.0	768.8	3.9	515.3	2.5	627.3	2.9	593.7	4.9	324.9	3.3
	Heterocope septentrionalis	22.4	0.1	18.8	0.1	67.2	0.3						
	Leptodiaptomus sicilis	179.2	0.7	187.5	0.9	156.8	0.8	134.4	0.6	145.6	1.2	134.4	1.3
COPEPODA-Cyclopoida	Cyclopoid copepodid	716.9	2.8	656.3	3.3	1187.4	5.8	806.5	3.8	425.7	3.5	212.8	2.1
	Cyclopoid nauplii	7393.3	28.8	6506.7	32.7	4973.7	24.5	6407.6	29.9	3562.2	29.5	3058.2	30.7
	Cyclops scutifer	582.5	2.3	262.5	1.3	313.7	1.5	336.1	1.6	156.8	1.3	156.8	1.6
	Diacyclops bicuspidatus	2531.7	9.9	2325.2	11.7	2195.6	10.8	1657.9	7.7	1153.8	9.5	896.2	9.0
Total individuals		**25630.2**	**100.0**	**19876.3**	**100.0**	**20320.5**	**100.0**	**21463.1**	**100.0**	**12087.0**	**100.0**	**9969.8**	**100.0**
Total taxa		**18**		**16**		**17**		**16**		**17**		**14**	

Appendix F2-3. Zooplankton species, density (no./m^3) and dominance (%) data, Jericho AEMP 2005.

Jericho Lake JER-AB08

Major taxon	Genus/ species	Replicate 1		Replicate 2		Replicate 3		Replicate 4		Replicate 6		Replicate 7	
		Density	%	Density	%	Density	%	Density	%	Density	%	Density	%
ROTIFERA	*Asplanchna* sp.												
	Conochilus unicornis	1904.3	4.8	1837.1	6.4	1433.9	6.7	672.1	3.1	246.4	2.0	418.2	4.5
	Kellicottia longispina	6362.8	15.9	5175.3	18.1	4368.8	20.4	4615.2	21.2	2285.2	18.3	1695.2	18.4
	Keratella cochlearis	3607.1	9.0	2778.1	9.7	2822.9	13.2	2128.4	9.8	1277.0	10.2	1075.4	11.6
	Keratella hiemalis	22.4	0.1										
	Lecane luna									11.2	0.1		
	Lepadella patella											7.5	0.1
	Monostyla bulla	67.2	0.2			44.8	0.2	22.4	0.1			7.5	0.1
	Notholca acuminata												
	Polyarthra dolichoptera	67.2	0.2	67.2	0.2	22.4	0.1	22.4	0.1	33.6	0.3	7.5	0.1
	Polyarthra vulgaris	2643.7	6.6	1792.3	6.3	1769.9	8.2	1501.1	6.9	1187.4	9.5	851.4	9.2
	Pompholyx sulcata	560.1	1.4	515.3	1.8	649.7	3.0	716.9	3.3	403.3	3.2	156.8	1.7
	Trichocerca cylindrica	44.8	0.1										
CLADOCERA	*Eubosmina longispina*	22.4	0.1	67.2	0.2	44.8	0.2	22.4	0.1			7.5	0.1
	Daphnia galeata mendotae												
	Daphnia longiremis												
	Daphnia middendorffiana												
	Holopedium gibberum												
COPEPODA-Calanoida	Calanoid copepodid	224.0	0.6	156.8	0.5	22.4	0.1	44.8	0.2	22.4	0.2	7.5	0.1
	Calanoid nauplii	10776.3	26.9	7684.6	26.9	4839.3	22.5	4973.7	22.9	2800.5	22.4	2210.5	23.9
	Heterocope septentrionalis			22.4	0.1			22.4	0.1	11.2	0.1		
	Leptodiaptomus sicilis	425.7	1.1	492.9	1.7	134.4	0.6	492.9	2.3	201.6	1.6	74.7	0.8
COPEPODA-Cyclopoida	Cyclopoid copepodid	291.3	0.7	179.2	0.6	22.4	0.1	44.8	0.2				
	Cyclopoid nauplii	12501.5	31.2	7438.1	26.0	5063.3	23.6	6317.9	29.0	3875.9	31.0	2621.3	28.4
	Cyclops scutifer					22.4	0.1						
	Diacyclops bicuspidatus	515.3	1.3	403.3	1.4	201.6	0.9	156.8	0.7	145.6	1.2	97.1	1.1
Total individuals		**40036.0**	**100.0**	**28610.0**	**100.0**	**21463.1**	**100.0**	**21754.3**	**100.0**	**12501.5**	**100.0**	**9237.9**	**100.0**
Total taxa		**16**		**14**		**15**		**15**		**13**		**14**	

Appendix F2-4. Zooplankton species, density (no./m^3) and dominance (%) data, Jericho AEMP 2005.

Lake C3 JER-AB04

Major taxon	Genus/ species	Replicate 1		Replicate 2		Replicate 3		Replicate 4		Replicate 6		Replicate 7	
		Desnity	**%**	**Density**	**%**	**Density**	**%**	**Density**	**%**	**Density**	**%**	**Density**	**%**
ROTIFERA	*Asplanchna* sp.												
	Conochilus unicornis	440.8	3.5	142.2	1.5			440.8	3.3	56.9	0.7	159.2	3.0
	Kellicottia longispina	3255.9	26.1	2066.3	22.3	2369.7	25.6	2701.4	20.3	1857.8	22.7	1120.4	21.4
	Keratella cochlearis	810.4	6.5	502.4	5.4	597.2	6.4	753.6	5.7	426.5	5.2	295.7	5.7
	Keratella hiemalis												
	Lecane luna	14.2	0.1	9.5	0.1							11.4	0.2
	Lepadella patella	14.2	0.1			9.5	0.1			28.4	0.3		
	Monostyla bulla	28.4	0.2			19.0	0.2	28.4	0.2	9.5	0.1	5.7	0.1
	Notholca acuminata	28.4	0.2			9.5	0.1	14.2	0.1	19.0	0.2	11.4	0.2
	Polyarthra dolichoptera	71.1	0.6	75.8	0.8	47.4	0.5	28.4	0.2	19.0	0.2	22.7	0.4
	Polyarthra vulgaris	1891.0	15.2	1772.5	19.1	1895.7	20.4	2417.0	18.1	1649.3	20.1	1137.4	21.7
	Pompholyx sulcata	540.3	4.3	293.8	3.2	199.1	2.1	497.6	3.7	255.9	3.1	125.1	2.4
	Trichocerca cylindrica			9.5	0.1	9.5	0.1			9.5	0.1		
CLADOCERA	*Eubosmina longispina*			9.5	0.1	47.4	0.5			19.0	0.2	5.7	0.1
	Daphnia galeata mendotae												
	Daphnia longiremis												
	Daphnia middendorffiana												
	Holopedium gibberum									9.5	0.1	5.7	0.1
COPEPODA-Calanoida	Calanoid copepodid	142.2	1.1	104.3	1.1	142.2	1.5	199.1	1.5	85.3	1.0	39.8	0.8
	Calanoid nauplii	1805.7	14.5	1668.2	18.0	1459.7	15.7	2118.5	15.9	1412.3	17.2	659.7	12.6
	Heterocope septentrionalis	42.7	0.3	19.0	0.2					19.0	0.2		
	Leptodiaptomus sicilis	128.0	1.0	180.1	1.9	151.7	1.6	341.2	2.6	208.5	2.5	216.1	4.1
COPEPODA-Cyclopoida	Cyclopoid copepodid	99.5	0.8	75.8	0.8	161.1	1.7	184.8	1.4	85.3	1.0	45.5	0.9
	Cyclopoid nauplii	2715.6	21.8	2037.9	22.0	1848.3	19.9	3071.1	23.0	1715.6	20.9	1154.5	22.1
	Cyclops scutifer	56.9	0.5	47.4	0.5	9.5	0.1	28.4	0.2	9.5	0.1	17.1	0.3
	Diacyclops bicuspidatus	369.7	3.0	265.4	2.9	293.8	3.2	511.8	3.8	293.8	3.6	199.1	3.8
Total individuals		**12454.9**	**100.0**	**9279.6**	**100.0**	**9270.1**	**100.0**	**13336.4**	**100.0**	**8189.5**	**100.0**	**5232.2**	**100.0**
Total taxa		**18**		**17**		**17**		**15**		**20**		**18**	

Appendix F2-5. Zooplankton species, density (no./m^3) and dominance (%) data, Jericho AEMP 2005.

Control Lake JER-AB10

Major taxon	Genus/ species	Replicate 1		Replicate 2		Replicate 3		Replicate 4		Replicate 5	
		Density	**%**	**Density**	**%**	**Density**	**%**	**Density**	**%**	**Density**	**%**
ROTIFERA	*Asplanchna* sp.										
	Conochilus unicornis	941.0	4.6	1209.8	6.2	2268.4	8.8	1445.1	8.4	1344.2	6.8
	Kellicottia longispina	2923.7	14.4	2856.5	14.5	3444.6	13.3	2806.1	16.3	2923.7	14.9
	Keratella cochlearis	2318.8	11.4	1915.5	9.8	2621.3	10.1	1629.9	9.5	1982.7	10.1
	Keratella hiemalis	50.4	0.2	16.8	0.1	100.8	0.4	33.6	0.2	84.0	0.4
	Lecane luna					33.6	0.1	16.8	0.1		
	Lepadella patella			33.6	0.2	16.8	0.1			33.6	0.2
	Monostyla bulla	33.6	0.2	33.6	0.2			33.6	0.2		
	Notholca acuminata					33.6	0.1	16.8	0.1		
	Polyarthra dolichoptera	50.4	0.2	67.2	0.3	117.6	0.5	117.6	0.7	67.2	0.3
	Polyarthra vulgaris	2470.0	12.1	2671.7	13.6	2806.1	10.8	2285.2	13.3	2268.4	11.6
	Pompholyx sulcata	168.0	0.8	201.6	1.0	117.6	0.5	117.6	0.7	67.2	0.3
	Trichocerca cylindrica										
CLADOCERA	*Eubosmina longispina*	16.8	0.1	16.8	0.1	16.8	0.1	33.6	0.2	50.4	0.3
	Daphnia galeata mendotae	16.8	0.1	16.8	0.1						
	Daphnia longiremis										
	Daphnia middendorffiana										
	Holopedium gibberum	33.6	0.2	67.2	0.3	33.6	0.1	67.2	0.4	50.4	0.3
COPEPODA-Calanoida	Calanoid copepodid	235.2	1.2	117.6	0.6	436.9	1.7	168.0	1.0	201.6	1.0
	Calanoid nauplii	4368.8	21.5	3763.9	19.2	5108.1	19.7	2856.5	16.6	3864.7	19.7
	Heterocope septentrionalis	16.8	0.1			16.8	0.1			33.6	0.2
	Leptodiaptomus sicilis	252.0	1.2	134.4	0.7	100.8	0.4	151.2	0.9	50.4	0.3
COPEPODA-Cyclopoida	Cyclopoid copepodid	151.2	0.7	252.0	1.3	302.5	1.2	168.0	1.0	184.8	0.9
	Cyclopoid nauplii	5545.0	27.2	5662.6	28.8	7023.6	27.1	4503.2	26.1	5376.9	27.4
	Cyclops scutifer	16.8	0.1	84.0	0.4	201.6	0.8	100.8	0.6	100.8	0.5
	Diacyclops bicuspidatus	756.1	3.7	520.9	2.7	1109.0	4.3	672.1	3.9	941.0	4.8
Total individuals		**20365.2**	**100.0**	**19642.7**	**100.0**	**25910.2**	**100.0**	**17223.0**	**100.0**	**19625.9**	**100.0**
Total taxa		**19**		**19**		**20**		**19**		**18**	

Appendix F3-1. Zooplankton taxa identification QAQC, Jericho AEMP 2005.

Major taxon	Genus/species	Initial identification	QA/QC identification
ROTIFERA	*Asplanchna* sp.	x	
	Conochilus unicornis	x	x
	Kellicottia longispina	x	x
	Keratella cochlearis	x	x
	Keratella hiemalis	x	x
	Lecane luna	x	x
	Lepadella patella	x	x
	Monostyla bulla	x	x
	Notholca acuminata	x	x
	Polyarthra dolichoptera	x	x
	Polyarthra vulgaris	x	x
	Pompholyx sulcata	x	x
	Trichocerca cylindrica	x	x
CLADOCERA	*Eubosmina longispina*	x	x
	Daphnia galeata mendotae	x	x
	Daphnia longiremis	x	x
	Daphnia middendorffiana	x	x
	Holopedium gibberum	x	x
COPEPODA-Calanoida	Calanoid copepodid	x	x
	Calanoid nauplii	x	x
	Heterocope septentrionalis	x	x
	Leptodiaptomus sicilis	x	x
COPEPODA-Cyclopoida	Cyclopoid copepodid	x	x
	Cyclopoid nauplii	x	x
	Cyclops scutifer	x	x
	Diacyclops bicuspidatus	x	x

Appendix F3-2. Zooplankton subsampling precision (% S.E. as % of mean; precision ≥ 10 % highlighted), Jericho AEMP 2005.

Carat Lake JERAB06

Genus/species	Replicate 1				Replicate 2				Replicate 3				Replicate 4				Replicate 5			
	Mean of n=3	%	S.E.	% S.E.	Mean of n=3	%	S.E.	% S.E.	Mean of n=3	%	S.E.	% S.E.	Mean of n=3	%	S.E.	% S.E.	Mean of n=3	%	S.E.	% S.E.
Asplanchna sp.	0.0	0.0	0.0		0.0	0.0	0.0		0.3	0.1	0.3	100.0	0.0	0.0	0.0		0.0	0.0	0.0	
Conochilus unicornis	22.3	6.2	3.2	14.2	19.3	4.1	3.3	17.2	19.3	4.1	3.4	17.5	21.3	5.3	2.3	10.9	17.7	4.5	1.5	8.2
Kellicottia longispina	63.7	17.8	10.5	16.5	100.0	21.0	2.0	2.0	89.0	19.0	7.5	8.4	85.0	21.1	6.4	7.6	72.0	18.4	2.0	2.8
Keratella cochlearis	34.7	9.7	4.1	11.8	39.7	8.3	2.0	5.1	39.3	8.4	2.6	6.6	39.7	9.8	4.9	12.4	37.0	9.5	6.8	18.4
Keratella hiemalis	0.0	0.0	0.0		0.0	0.0	0.0		0.7	0.1	0.3	50.0	0.3	0.1	0.3	100.0	0.3	0.1	0.3	100.0
Lecane luna	0.0	0.0	0.0		0.3	0.1	0.3	100.0	0.3	0.1	0.3	100.0	0.0	0.0	0.0		0.0	0.0	0.0	
Lepadella patella	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Monostyla bulla	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Notholca acuminata	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Polyarthra dolichoptera	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Polyarthra vulgaris	57.0	15.9	4.0	7.1	74.7	15.7	4.2	5.6	96.3	20.6	8.7	9.1	58.7	14.5	3.2	5.4	70.7	18.1	8.4	11.9
Pompholyx sulcata	0.0	0.0	0.0		2.7	0.0	0.7	25.0	4.0	0.0	0.6	14.4	5.3	0.0	0.7	12.5	4.7	1.2	0.3	7.1
Trichocerca cylindrica	0.0	0.0	0.0		0.0	0.1	0.0		0.0	0.1	0.0		0.0	0.1	0.0		0.0	0.0	0.0	
Eubosmina longispina	1.3	0.4	0.3	25.0	2.7	0.6	1.3	50.0	1.7	0.4	0.7	40.0	2.7	0.7	1.2	45.1	1.7	0.4	0.3	20.0
Daphnia galeata mendotae	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Daphnia longiremis	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.3	0.1	0.3	100.0	0.0	0.0	0.0	
Daphnia middendorffiana	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Holopedium gibberum	2.7	0.7	0.9	33.1	2.7	0.6	0.3	12.5	1.0	0.2	0.0	0.0	2.0	0.5	1.0	50.0	2.7	0.7	0.3	12.5
Calanoid copepodid	14.0	3.9	1.7	12.4	14.3	3.0	0.9	6.2	14.0	3.0	2.1	14.9	12.3	3.1	1.9	15.0	11.3	2.9	4.7	41.2
Calanoid nauplii	31.7	8.8	2.2	6.9	41.7	8.7	5.0	11.9	46.7	10.0	4.7	10.0	35.7	8.8	3.3	9.2	22.7	5.8	2.7	12.0
Heterocope septentrionalis	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Leptodiaptomus sicilis	3.0	0.8	1.2	38.5	2.7	0.6	0.7	25.0	4.0	0.9	1.0	25.0	3.7	0.9	1.2	32.8	2.0	0.5	0.6	28.9
Cyclopoid copepodid	4.3	1.2	1.2	27.7	2.7	0.6	1.2	45.1	4.0	0.9	0.6	14.4	0.7	0.2	0.3	50.0	1.3	0.3	0.3	25.0
Cyclopoid nauplii	109.0	30.4	5.0	4.6	151.0	31.7	10.7	7.1	127.7	27.3	5.8	4.6	128.3	31.8	1.3	1.0	126.7	32.5	2.4	1.9
Cyclops scutifer	4.3	1.2	1.9	42.8	9.0	1.9	1.5	17.0	5.3	1.1	0.3	6.3	3.3	0.8	1.5	43.6	4.3	1.1	1.5	33.5
Diacyclops bicuspidatus	10.0	2.8	2.5	25.2	15.3	3.2	3.4	22.1	17.7	3.8	4.1	23.0	9.7	2.2	4.8	50.1	15.3	3.9	1.5	9.5
Total	358.0	100.0	6.7	1.9	478.7	100.0	9.2	1.9	471.3	100.0	19.3	4.1	409.0	100.0	10.0	2.4	390.3	100.0	21.4	5.5

Appendix F3-2. Zooplankton subsampling precision (% S.E. as % of mean; precision ≥ 10 % highlighted), Jericho AEMP 2005.

Cigar Lake JERAB11

Genus/species	Replicate 1				Replicate 2				Replicate 3				Replicate 4				Replicate 6				Replicate 7			
	Mean of n=3	%	S.E.	% S.E.	Mean of n=3	%	S.E.	% S.E.	Mean of n=3	%	S.E.	% S.E.	Mean of n=3	%	S.E.	% S.E.	Mean of n=3	%	S.E.	% S.E.	Mean of n=3	%	S.E.	% S.E.
Asplanchna sp.	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Conochilus unicornis	67.3	17.7	3.9	5.8	56.0	15.8	3.8	6.8	61.0	20.2	8.1	13.4	63.3	19.8	10.7	16.8	48.7	13.5	5.2	10.8	45.3	15.3	1.5	3.2
Kellicottia longispina	75.7	19.8	10.4	13.7	64.0	18.1	3.6	5.6	56.3	18.6	2.7	4.8	63.7	19.9	3.3	5.2	82.7	23.0	1.9	2.2	62.3	21.0	4.3	7.0
Keratella cochlearis	12.7	3.3	1.2	9.5	15.0	4.2	3.5	23.4	13.3	4.4	0.9	6.6	13.7	4.3	1.8	12.9	11.3	3.2	1.8	15.6	13.3	4.5	0.3	2.5
Keratella hiemalis	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Lecane luna	1.0	0.3	0.0	0.0	0.7	0.2	0.3	50.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Lepadella patella	0.7	0.2	0.3	50.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Monostyla bulla	0.0	0.0	0.0		0.0	0.0	0.0		0.3	0.1	0.3	100.0	0.3	0.1	0.3	100.0	0.0	0.0	0.0		0.0	0.0	0.0	
Notholca acuminata	0.0	0.0	0.0		0.0	0.0	0.0		0.7	0.2	0.3	50.0	0.3	0.1	0.3	100.0	0.3	0.1	0.3	100.0	0.0	0.0	0.0	
Polyarthra dolichoptera	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Polyarthra vulgaris	15.0	3.9	2.1	13.9	9.7	2.7	3.2	32.9	10.3	3.4	3.2	30.8	13.0	4.1	1.7	13.3	13.0	3.6	1.0	7.7	13.0	4.4	1.2	8.9
Pompholyx sulcata	3.3	0.9	0.9	26.5	3.0	0.8	0.6	19.2	3.7	1.2	0.3	9.1	4.3	1.4	0.7	15.4	6.3	1.8	0.9	13.9	6.0	2.0	0.0	0.0
Trichocerca cylindrica	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.3	0.1	0.3	100.0	0.3	0.1	0.3	100.0
Eubosmina longispina	1.7	0.4	0.7	40.0	1.0	0.3	0.6	57.7	0.7	0.2	0.3	50.0	1.3	0.4	0.9	66.1	1.0	0.3	0.0	0.0	0.0	0.0	0.0	
Daphnia galeata mendotae	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Daphnia longiremis	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Daphnia middendorffiana	0.3	0.1	0.3	100.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.3	0.1	0.3	100.0	0.0	0.0	0.0	
Holopedium gibberum	2.3	0.6	0.3	14.3	0.7	0.2	0.3	50.0	2.3	0.8	0.7	28.6	1.0	0.3	0.6	57.7	2.0	0.6	0.6	28.9	3.0	1.0	1.0	33.3
Calanoid copepodid	16.0	4.2	2.5	15.7	12.7	3.6	0.9	7.0	13.7	4.5	2.6	19.0	10.0	3.1	4.0	40.0	14.0	3.9	1.5	10.9	11.0	3.7	2.1	18.9
Calanoid nauplii	15.3	4.0	2.7	17.8	13.7	3.9	3.3	24.0	7.7	2.5	0.3	4.3	9.3	2.9	1.5	15.6	17.7	4.9	2.2	12.4	9.7	3.3	0.9	9.1
Heterocope septentrionalis	0.3	0.1	0.3	100.0	0.3	0.1	0.3	100.0	1.0	0.3	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Leptodiaptomus sicilis	2.7	0.7	0.7	25.0	3.3	0.9	0.9	26.5	2.3	0.8	0.3	14.3	2.0	0.6	0.6	28.9	4.3	1.2	1.5	33.5	4.0	1.3	0.6	14.4
Cyclopoid copepodid	10.7	2.8	2.3	21.9	11.7	3.3	0.3	2.9	17.7	5.8	1.9	10.5	12.0	3.8	2.1	17.3	12.7	3.5	2.9	22.9	6.3	2.1	0.7	10.5
Cyclopoid nauplii	110.0	28.8	1.2	1.0	115.7	32.7	2.3	2.0	74.0	24.5	4.7	6.4	95.3	29.9	3.5	3.7	106.0	29.5	7.6	7.2	91.0	30.7	2.5	2.8
Cyclops scutifer	8.7	2.3	0.9	10.2	4.7	1.3	2.7	58.5	4.7	1.5	0.9	18.9	5.0	1.6	1.5	30.6	4.7	1.3	1.8	37.8	4.7	1.6	0.3	7.1
Diacyclops bicuspidatus	37.7	9.9	5.4	14.2	41.3	11.7	1.2	2.9	32.7	10.8	2.3	7.1	24.7	7.7	1.3	5.4	34.3	9.5	2.7	7.9	26.7	9.0	2.7	10.2
Total	381.3	100.0	10.4	2.7	353.3	100.0	7.4	2.1	302.3	100.0	12.7	4.2	319.3	100.0	20.9	6.5	359.7	100.0	7.9	2.2	296.7	100.0	7.5	2.5

Appendix F3-2. Zooplankton subsampling precision (% S.E. as % of mean; precision ≥ 10 % highlighted), Jericho AEMP 2005.

Jericho Lake JERAB08

Genus/species	Replicate 1				Replicate 2				Replicate 3				Replicate 4				Replicate 6				Replicate 7			
	Mean of n=3	%	S.E.	% S.E.	Mean of n=3	%	S.E.	% S.E.	Mean of n=3	%	S.E.	% S.E.	Mean of n=3	%	S.E.	% S.E.	Mean of n=3	%	S.E.	% S.E.	Mean of n=3	%	S.E.	% S.E.
Asplanchna sp.	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Conochilus unicornis	28.3	4.8	3.2	11.2	27.3	6.4	3.2	11.6	21.3	6.7	1.5	6.8	10.0	3.1	1.5	15.3	7.3	2.0	0.3	4.5	18.7	4.5	1.9	9.9
Kellicottia longispina	94.7	15.9	7.8	8.2	77.0	18.1	3.1	4.0	65.0	20.4	7.1	10.9	68.7	21.2	5.2	7.5	68.0	18.3	4.0	5.9	75.7	18.4	2.2	2.9
Keratella cochlearis	53.7	9.0	2.6	4.9	41.3	9.7	4.6	11.2	42.0	13.2	1.5	3.6	31.7	9.8	3.2	10.0	38.0	10.2	2.0	5.3	48.0	11.6	5.6	11.6
Keratella hiemalis	0.3	0.1	0.3	100.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Lecane luna	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.3	0.1	0.3	100.0	0.0	0.0	0.0	
Lepadella patella	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.3	0.1	0.3	100.0
Monostyla bulla	1.0	0.2	0.0	0.0	0.0	0.0	0.0		0.7	0.2	0.7	100.0	0.3	0.1	0.3	100.0	0.0	0.0	0.0		0.3	0.1	0.3	100.0
Notholca acuminata	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Polyarthra dolichoptera	1.0	0.2	0.6	57.7	1.0	0.2	0.6	57.7	0.3	0.1	0.3	100.0	0.3	0.1	0.3	100.0	1.0	0.3	0.6	57.7	0.3	0.1	0.3	100.0
Polyarthra vulgaris	39.3	6.6	1.5	3.7	26.7	6.3	1.5	5.4	26.3	8.2	2.6	9.9	22.3	6.9	1.2	5.4	35.3	9.5	3.8	10.9	38.0	9.2	3.1	8.0
Pompholyx sulcata	8.3	1.4	1.3	16.0	7.7	1.8	0.9	11.5	9.7	3.0	1.9	19.2	10.7	3.3	0.3	3.1	12.0	3.2	0.6	4.8	7.0	1.7	0.6	8.2
Trichocerca cylindrica	0.7	0.1	0.7	100.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Eubosmina longispina	0.3	0.1	0.3	100.0	1.0	0.2	0.0	0.0	0.7	0.2	0.7	100.0	0.3	0.1	0.3	100.0	0.0	0.0	0.0		0.3	0.1	0.3	100.0
Daphnia galeata mendotae	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Daphnia longiremis	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Daphnia middendorffiana	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Holopedium gibberum	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Calanoid copepodid	3.3	0.6	0.7	20.0	2.3	0.5	0.3	14.3	0.3	0.1	0.3	100.0	0.7	0.2	0.3	50.0	0.7	0.2	0.3	50.0	0.3	0.1	0.3	100.0
Calanoid nauplii	160.3	26.9	2.9	1.8	114.3	26.9	3.8	3.3	72.0	22.5	9.5	13.2	74.0	22.9	6.8	9.2	83.3	22.4	5.6	6.7	98.7	23.9	2.2	2.2
Heterocope septentrionalis	0.0	0.0	0.0		0.3	0.1	0.3	100.0	0.0	0.0	0.0		0.3	0.1	0.3	100.0	0.3	0.1	0.3		0.0	0.0	0.0	
Leptodiaptomus sicilis	6.3	1.1	1.9	29.3	7.3	1.7	0.9	12.0	2.0	0.6	0.6	28.9	7.3	2.3	1.5	19.8	6.0	1.6	1.5	25.5	3.3	0.8	0.3	10.0
Cyclopoid copepodid	4.3	0.7	0.3	7.7	2.7	0.6	0.7	25.0	0.3	0.1	0.3	100.0	0.7	0.2	0.3	50.0	0.0	0.0	0.0		0.0	0.0	0.0	
Cyclopoid nauplii	186.0	31.2	1.2	0.6	110.7	26.0	9.4	8.4	75.3	23.6	4.8	6.4	94.0	29.0	5.6	5.9	115.3	31.0	8.4	7.2	117.0	28.4	10.4	8.9
Cyclops scutifer	0.0	0.0	0.0		0.0	0.0	0.0		0.3	0.1	0.3	100.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Diacyclops bicuspidatus	7.7	1.3	0.3	4.3	6.0	1.4	1.7	28.9	3.0	0.9	0.6	19.2	2.3	0.7	0.7	28.6	4.3	1.2	0.9	20.4	4.3	1.1	0.9	20.4
Total	595.7	100.0	16.7	2.8	425.7	100.0	11.1	2.6	319.3	100.0	4.9	1.5	323.7	100.0	5.0	1.5	372.0	100.0	13.6	3.6	412.3	100.0	14.3	3.5

Appendix F3-2. Zooplankton subsampling precision (% S.E. as % of mean; precision ≥ 10 % highlighted), Jericho AEMP 2005.

Lake C3 JERAB04

Genus/species	Replicate 1				Replicate 2				Replicate 3				Replicate 4				Replicate 6				Replicate 7			
	Mean of n=3	%	S.E.	% S.E.	Mean of n=3	%	S.E.	% S.E.	Mean of n=3	%	S.E.	% S.E.	Mean of n=3	%	S.E.	% S.E.	Mean of n=3	%	S.E.	% S.E.	Mean of n=3	%	S.E.	% S.E.
Asplanchna sp.	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Conochilus unicornis	10.3	3.5	2.8	27.6	5.0	1.5	2.1	41.6	0.0	0.0	0.0		10.3	3.3	1.5	14.1	2.0	0.7	0.6	28.9	9.3	3.0	0.9	9.4
Kellicottia longispina	76.3	26.1	11.3	14.8	72.7	22.3	1.2	1.7	83.3	25.6	4.9	5.9	63.3	20.3	1.5	2.3	65.3	22.7	6.1	9.3	65.7	21.4	2.4	3.7
Keratella cochlearis	19.0	6.5	6.4	33.8	17.7	5.4	0.3	1.9	21.0	6.4	3.6	17.2	17.7	5.7	0.9	5.0	15.0	5.2	1.2	7.7	17.3	5.7	2.3	13.5
Keratella hiemalis	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Lecane luna	0.3	0.1	0.3	100.0	0.3	0.1	0.3	100.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.7	0.2	0.3	50.0
Lepadella patella	0.3	0.1	0.3	100.0	0.0	0.0	0.0		0.3	0.1	0.3	100.0	0.0	0.0	0.0		1.0	0.3	0.6	57.7	0.0	0.0	0.0	
Monostyla bulla	0.7	0.2	0.7	100.0	0.0	0.0	0.0		0.7	0.2	0.3	50.0	0.7	0.2	0.3	50.0	0.3	0.1	0.3	100.0	0.3	0.1	0.3	100.0
Notholca acuminata	0.7	0.2	0.3	50.0	0.0	0.0	0.0		0.3	0.1	0.3	100.0	0.3	0.1	0.3	100.0	0.7	0.2	0.3	50.0	0.7	0.2	0.3	50.0
Polyarthra dolichoptera	1.7	0.6	1.2	72.1	2.7	0.8	0.7	25.0	1.7	0.5	0.3	20.0	0.7	0.2	0.3	50.0	0.7	0.2	0.7	100.0	1.3	0.4	0.7	50.0
Polyarthra vulgaris	44.3	15.2	3.8	8.5	62.3	19.1	7.1	11.3	66.7	20.4	5.0	7.5	56.7	18.1	2.7	4.7	58.0	20.1	5.1	8.8	66.7	21.7	3.7	5.6
Pompholyx sulcata	12.7	4.3	2.0	16.0	10.3	3.2	0.9	8.5	7.0	2.1	1.0	14.3	11.7	3.7	1.2	10.3	9.0	3.1	0.6	6.4	7.3	2.4	1.2	16.4
Trichocerca cylindrica	0.0	0.0	0.0		0.3	0.1	0.3	100.0	0.3	0.1	0.3	100.0	0.0	0.0	0.0		0.3	0.1	0.3	100.0	0.0	0.0	0.0	
Eubosmina longispina	0.0	0.0	0.0		0.3	0.1	0.3	100.0	1.7	0.5	0.7	40.0	0.0	0.0	0.0		0.7	0.2	0.3	50.0	0.3	0.1	0.3	100.0
Daphnia galeata mendotae	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Daphnia longiremis	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Daphnia middendorffiana	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Holopedium gibberum	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.3	0.1	0.3	100.0	0.3	0.1	0.3	100.0
Calanoid copepodid	3.3	1.1	0.7	20.0	3.7	1.1	1.2	32.8	5.0	1.5	3.1	61.1	4.7	1.5	0.7	14.3	3.0	1.0	0.0	0.0	2.3	0.8	0.7	28.6
Calanoid nauplii	42.3	14.5	1.8	4.2	58.7	18.0	3.4	5.8	51.3	15.7	2.2	4.3	49.7	15.9	4.1	8.2	49.7	17.2	3.7	7.5	38.7	12.6	6.2	16.1
Heterocope septentrionalis	1.0	0.3	0.6	57.7	0.7	0.2	0.7	100.0	0.0	0.0	0.0		0.0	0.0	0.0		0.7	0.2	0.7	100.0	0.0	0.0	0.0	
Leptodiaptomus sicilis	3.0	1.0	0.6	19.2	6.3	1.9	1.3	21.1	5.3	1.6	1.2	22.5	8.0	2.6	1.5	19.1	7.3	2.5	1.8	24.1	12.7	4.1	2.6	20.6
Cyclopoid copepodid	2.3	0.8	0.7	28.6	2.7	0.8	0.7	25.0	5.7	1.7	0.7	11.8	4.3	1.4	0.9	20.4	3.0	1.0	1.5	50.9	2.7	0.9	0.7	25.0
Cyclopoid nauplii	63.7	21.8	3.7	5.8	71.7	22.0	7.5	10.5	65.0	19.9	5.7	8.7	72.0	23.0	2.6	3.7	60.3	20.9	7.1	11.7	67.7	22.1	2.0	3.0
Cyclops scutifer	1.3	0.5	0.3	25.0	1.7	0.5	0.3	20.0	0.3	0.1	0.3	100.0	0.7	0.2	0.7	100.0	0.3	0.1	0.3	100.0	1.0	0.3	0.0	0.0
Diacyclops bicuspidatus	8.7	3.0	3.5	40.2	9.3	2.9	1.9	19.9	10.3	3.2	1.3	12.9	12.0	3.8	1.0	8.3	10.3	3.6	1.9	18.0	11.7	3.8	2.3	20.0
Total	292.0	100.0	5.5	1.9	326.3	100.0	11.9	3.6	326.0	100.0	6.7	2.0	312.7	100.0	6.8	2.2	288.0	100.0	20.4	7.1	306.7	100.0	6.8	2.2

Appendix F3-2. Zooplankton subsampling precision (% S.E. as % of mean; precision ≥ 10 % highlighted), Jericho AEMP 2005.

Control Lake JERAB10

Genus/species	Replicate 1				Replicate 2				Replicate 3				Replicate 4				Replicate 5			
	Mean of n=3	%	S.E.	% S.E.	Mean of n=3	%	S.E.	% S.E.	Mean of n=3	%	S.E.	% S.E.	Mean of n=3	%	S.E.	% S.E.	Mean of n=3	%	S.E.	% S.E.
Asplanchna sp.	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Conochilus unicornis	18.7	4.6	1.2	6.4	24.0	6.2	4.0	16.8	45.0	8.8	7.0	15.6	28.7	8.4	1.8	6.2	26.7	6.8	4.3	16.0
Kellicottia longispina	58.0	14.4	1.0	1.7	56.7	14.5	5.0	8.9	68.3	13.3	8.6	12.7	55.7	16.3	10.2	18.3	58.0	14.9	9.3	16.0
Keratella cochlearis	46.0	11.4	0.6	1.3	38.0	9.8	7.5	19.8	52.0	10.1	2.6	5.1	32.3	9.5	1.9	5.7	39.3	10.1	1.5	3.7
Keratella hiemalis	1.0	0.2	0.6	57.7	0.3	0.1	0.3	100.0	2.0	0.4	0.6	28.9	0.7	0.2	0.7	100.0	1.7	0.4	0.7	40.0
Lecane luna	0.0	0.0	0.0		0.0	0.0	0.0		0.7	0.1	0.3	50.0	0.3	0.1	0.3	100.0	0.0	0.0	0.0	
Lepadella patella	0.0	0.0	0.0		0.7	0.2	0.7	100.0	0.3	0.1	0.3	100.0	0.0	0.0	0.0		1.0	0.2	0.8	81.6
Monostyla bulla	0.7	0.2	0.3	50.0	0.7	0.2	0.3	50.0	0.0	0.0	0.0		0.7	0.2	0.3	50.0	0.0	0.0	0.0	
Notholca acuminata	0.0	0.0	0.0		0.0	0.0	0.0		0.7	0.1	0.3	50.0	0.3	0.1	0.3	100.0	0.0	0.0	0.0	
Polyarthra dolichoptera	1.0	0.2	0.6	57.7	1.3	0.3	0.3	25.0	2.3	0.5	0.7	28.6	2.3	0.7	0.3	14.3	1.3	0.3	0.3	25.0
Polyarthra vulgaris	49.0	12.1	0.6	1.2	53.0	13.6	3.5	6.6	55.7	10.8	4.8	8.7	45.3	13.3	2.3	5.1	45.0	11.6	1.7	3.8
Pompholyx sulcata	3.3	0.8	0.7	20.0	4.0	1.0	0.6	14.4	2.3	0.5	1.5	62.3	2.3	0.7	0.3	14.3	1.3	0.3	0.3	25.0
Trichocerca cylindrica	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Eubosmina longispina	0.3	0.1	0.3	100.0	0.3	0.1	0.3	100.0	0.3	0.1	0.3	100.0	0.7	0.2	0.3	50.0	1.0	0.3	1.0	100.0
Daphnia galeata mendotae	0.3	0.1	0.3	100.0	0.3	0.1	0.3	100.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Daphnia longiremis	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Daphnia middendorffiana	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Holopedium gibberum	0.7	0.2	0.3	50.0	1.3	0.3	0.3	25.0	0.7	0.1	0.7	100.0	1.3	0.4	0.7	50.0	1.0	0.3	0.6	57.7
Calanoid copepodid	4.7	1.2	1.2	25.8	2.3	0.6	1.3	57.1	8.7	1.7	2.3	26.9	3.3	1.0	0.3	10.0	4.0	1.0	1.2	28.9
Calanoid nauplii	86.7	21.5	11.3	13.1	74.7	19.2	3.9	5.3	101.3	19.7	8.1	8.0	56.7	16.6	4.6	8.2	76.7	19.7	4.8	6.3
Heterocope septentrionalis	0.3	0.1	0.3	100.0	0.0	0.0	0.0		0.3	0.1	0.3	100.0	0.0	0.0	0.0		0.7	0.2	0.3	50.0
Leptodiaptomus sicilis	5.0	1.2	1.0	20.0	2.7	0.7	1.2	45.1	2.0	0.4	0.6	28.9	3.0	0.9	0.6	19.2	1.0	0.3	0.6	57.7
Cyclopoid copepodid	3.0	0.7	0.6	19.2	5.0	1.3	0.6	11.5	6.0	1.2	1.5	25.5	3.3	1.0	0.3	10.0	3.7	0.9	0.3	9.1
Cyclopoid nauplii	110.0	27.2	5.9	5.3	112.3	28.8	4.1	3.6	139.3	27.1	5.2	3.7	89.3	26.1	3.2	3.6	106.7	27.4	1.5	1.4
Cyclops scutifer	0.3	0.1	0.3	100.0	1.7	0.4	0.7	40.0	4.0	0.8	1.5	38.2	2.0	0.6	0.6	28.9	2.0	0.5	0.6	28.9
Diacyclops bicuspidatus	15.0	3.7	2.0	13.3	10.3	2.7	2.7	25.8	22.0	4.3	3.1	13.9	13.3	3.9	2.4	18.0	18.7	4.8	2.4	12.9
Total	404.0	100.0	19.7	4.9	389.7	100.0	19.5	5.0	514.0	100.0	28.3	5.5	341.7	100.0	10.7	3.1	389.3	100.0	23.0	5.9

Appendix F3-3. Zooplankton enumeration accuracy, Jericho AEMP 2005.

[= (A-B) / A*100; dominant taxa (≥ 10%) marked yellow, common taxa (≥ 1%) marked grey].

Carat Lake JERAB06 (Replicate 3)

Taxa	**A** Initial number	Initial dominance	**B** QA/QC number	**C** QA/QC dominance	**D** % error
Asplanchna sp.	0.3	0.1	0	0.00	100.00
Conochilus unicornis	19.3	4.1	21	4.60	-8.62
Kellicottia longispina	89.0	18.9	101	22.10	-13.48
Keratella cochlearis	39.3	8.3	32	7.00	18.64
Keratella hiemalis	0.7	0.1	0	0.00	100.00
Lecane luna	0.3	0.1	0	0.00	100.00
Lepadella patella	0.0	0.0	0	0.00	
Monostyla bulla	0.0	0.0	1	0.22	
Notholca acuminata	0.0	0.0	0	0.00	
Polyarthra dolichoptera	0.0	0.0	0	0.00	
Polyarthra vulgaris	96.3	20.4	79	17.29	17.99
Pompholyx sulcata	4.0	0.8	3	0.66	25.00
Trichocerca cylindrica	0.0	0.0	0	0.00	
Eubosmina longispina	1.7	0.4	1	0.22	40.00
Daphnia galeata mendotae	0.0	0.0	0	0.00	
Daphnia longiremis	0.0	0.0	0	0.00	
Daphnia middendorffiana	0.0	0.0	0	0.00	
Holopedium gibberum	1.0	0.2	0	0.00	100.00
Calanoid copepodid	14.0	3.0	12	2.63	14.29
Calanoid nauplii	46.7	9.9	40	8.75	14.29
Heterocope septentrionalis	0.0	0.0	0	0.00	
Leptodiaptomus sicilis	4.0	0.8	1	0.22	75.00
Cyclopoid copepodid	4.0	0.8	3	0.66	25.00
Cyclopoid nauplii	127.7	27.1	138	30.20	-8.09
Cyclops scutifer	5.3	1.1	5	1.09	6.25
Diacyclops bicuspidatus	17.7	3.7	20	4.38	-13.21
Total	**471.3**	**100.0**	**457**	**100.00**	**3.04**

A = Mean number of individuals in subsamples from initial enumeration

B = Number of individuals in a subsample from QA/QC enumeration

C = Dominance (percent of individuals of a particular taxon in the entire QA/QC subsample)

D = Percent error (A - B) / A*100

Appendix F3-3. Zooplankton enumeration accuracy, Jericho AEMP 2005.

[= (A-B) / A*100; dominant taxa (≥ 10%) marked yellow, common taxa (≥ 1%) marked grey].

Cigar Lake JERAB 11 (Replicate 3)

Taxa	**A** Initial number	Initial dominance	**B** QA/QC number	**C** QA/QC dominance	**D** % error
Asplanchna sp.	0.0	0.0	0	0.00	
Conochilus unicornis	61.0	20.2	49	17.19	19.67
Kellicottia longispina	56.3	18.6	58	20.35	-2.96
Keratella cochlearis	13.3	4.4	12	4.21	10.00
Keratella hiemalis	0.0	0.0	0	0.00	
Lecane luna	0.0	0.0		0.00	
Lepadella patella	0.0	0.0	0	0.00	
Monostyla bulla	0.3	0.1	0	0.00	
Notholca acuminata	0.7	0.2	0	0.00	
Polyarthra dolichoptera	0.0	0.0	0	0.00	
Polyarthra vulgaris	10.3	3.4	9	3.16	12.90
Pompholyx sulcata	3.7	1.2	3	1.05	18.18
Trichocerca cylindrica	0.0	0.0	0	0.00	
Eubosmina longispina	0.7	0.2	1	0.35	-50.00
Daphnia galeata mendotae	0.0	0.0	0	0.00	
Daphnia longiremis	0.0	0.0	0	0.00	
Daphnia middendorffiana	0.0	0.0	0	0.00	
Holopedium gibberum	2.3	0.8	2	0.70	14.29
Calanoid copepodid	13.7	4.5	16	5.61	-17.07
Calanoid nauplii	7.7	2.5	10	3.51	-30.43
Heterocope septentrionalis	1.0	0.3	1	0.35	
Leptodiaptomus sicilis	2.3	0.8	1	0.35	57.14
Cyclopoid copepodid	17.7	5.8	16	5.61	9.43
Cyclopoid nauplii	74.0	24.5	76	26.67	-2.70
Cyclops scutifer	4.7	1.5	5	1.75	-7.14
Diacyclops bicuspidatus	32.7	10.8	26	9.12	20.41
Total	**302.3**	**100.0**	**285**	**100.00**	**5.73**

A = Mean number of individuals in subsamples from initial enumeration

B = Number of individuals in a subsample from QA/QC enumeration

C = Dominance (percent of individuals of a particular taxon in the entire QA/QC subsample)

D = Percent error (A - B) / A*100

Appendix F3-3. Zooplankton enumeration accuracy, Jericho AEMP 2005.

[= (A-B) / A*100; dominant taxa (≥ 10%) marked yellow, common taxa (≥ 1%) marked grey].

Lake C3 JERAB04 (Replicate 3)

Taxa	**A** Initial number	Initial dominance	**B** QA/QC number	**C** QA/QC dominance	**D** % error
Asplanchna sp.	0.0	0.0	0	0.00	
Conochilus unicornis	0.0	0.0	0	0.00	
Kellicottia longispina	83.3	25.6	77	23.69	7.60
Keratella cochlearis	21.0	6.4	15	4.62	28.57
Keratella hiemalis	0.0	0.0	0	0.00	
Lecane luna	0.0	0.0	1	0.31	
Lepadella patella	0.3	0.1	0	0.00	100.00
Monostyla bulla	0.7	0.2	1	0.31	
Notholca acuminata	0.3	0.1	0	0.00	
Polyarthra dolichoptera	1.7	0.5	1	0.31	
Polyarthra vulgaris	66.7	20.4	68	20.92	-2.00
Pompholyx sulcata	7.0	2.1	6	1.85	14.29
Trichocerca cylindrica	0.3	0.1	0	0.00	
Eubosmina longispina	1.7	0.5	0	0.00	100.00
Daphnia galeata mendotae	0.0	0.0	0	0.00	
Daphnia longiremis	0.0	0.0	0	0.00	
Daphnia middendorffiana	0.0	0.0	0	0.00	
Holopedium gibberum	0.0	0.0	0	0.00	
Calanoid copepodid	5.0	1.5	7	2.15	-40.00
Calanoid nauplii	51.3	15.7	53	16.31	-3.25
Heterocope septentrionalis	0.0	0.0	1	0.31	
Leptodiaptomus sicilis	5.3	1.6	4	1.23	25.00
Cyclopoid copepodid	5.7	1.7	4	1.23	29.41
Cyclopoid nauplii	65.0	19.9	77	23.69	-18.46
Cyclops scutifer	0.3	0.1	0	0.00	100.00
Diacyclops bicuspidatus	10.3	3.2	10	3.08	3.23
Total	**326.0**	**100.0**	**325**	**100.00**	**0.31**

A = Mean number of individuals in subsamples from initial enumeration

B = Number of individuals in a subsample from QA/QC enumeration

C = Dominance (percent of individuals of a particular taxon in the entire QA/QC subsample)

D = Percent error (A - B) / A*100

Appendix G1. Benthic macroinvertebrate sampling data (UTM locations [NAD 27, Zone 12]), Jericho AEMP 2005 .

Waterbody	Site Label	Sample Date/Time	Easting	Northing	Replicate	Depth Sampled (m)	Secchi Depth (m)	Area (cm^2)	Cloud Cover (%)	Water Temp. (ºC)	Substrate					
											Organic (%)	Silt (%)	Sand (%)	Gravel (%)	Cobble (%)	Boulder (%)
Cigar Lake	JERAB25	08/07/05 9:30	470304	7320234	1	5.0		690	100	5.0		95	5			
Cigar Lake	JERAB25	08/07/05 9:45	470304	7320234	2	5.0		690	100	5.0		95	5			
Cigar Lake	JERAB25	08/07/05 10:00	470304	7320234	3	5.0		690	100	5.0		95	5			
Cigar Lake	JERAB25	08/07/05 10:15	470304	7320234	4	5.0		690	100	5.0		95	5			
Cigar Lake	JERAB25	08/07/05 10:30	470304	7320234	5	5.0		690	100	5.0		95	5			
Cigar Lake	JERAB25	08/07/05 10:45	470304	7320234	6	5.0		690	100	5.0		95	5			
Lake C3	JERAB05	08/07/05 15:00	474679	7320043	1	5.3	4.4	690	100	8.0		97	3			
Lake C3	JERAB05	08/07/05 15:10	474679	7320043	2	5.3	4.4	690	100	8.0		97	3			
Lake C3	JERAB05	08/07/05 15:20	474679	7320043	3	5.3	4.4	690	100	8.0		97	3			
Lake C3	JERAB05	08/07/05 15:30	474679	7320043	4	5.3	4.4	690	100	8.0		97	3			
Lake C3	JERAB05	08/07/05 15:40	474679	7320043	5	5.3	4.4	690	100	8.0		97	3			
Lake C3	JERAB05	08/07/05 16:00	474679	7320043	6	5.3	4.4	690	100	8.0		97	3			
Control Lake	JERAB23	08/07/05 17:45	475289	7317979	1	4.9	5.0	690	100	5.1	5	92	3			
Control Lake	JERAB23	08/07/05 18:00	475289	7317979	2	4.9	5.0	690	100	5.1	5	92	3			
Control Lake	JERAB23	08/07/05 18:15	475289	7317979	3	4.9	5.0	690	100	5.1	5	92	3			
Control Lake	JERAB23	08/07/05 18:30	475289	7317979	4	4.9	5.0	690	100	5.1	5	92	3			
Control Lake	JERAB23	08/07/05 18:45	475289	7317979	5	4.9	5.0	690	100	5.1	5	92	3			
Control Lake	JERAB23	08/07/05 19:00	475289	7317979	6	4.9	5.0	690	100	5.1	5	92	3			
Lake C3	JERAB20	08/07/05 13:40	475014	7319282	1	5.2	4.4	690	100	8.0		95	5			
Lake C3	JERAB20	08/07/05 13:55	475014	7319282	2	5.2	4.4	690	100	8.0		95	5			
Lake C3	JERAB20	08/07/05 14:10	475014	7319282	3	5.2	4.4	690	100	8.0		95	5			
Lake C3	JERAB20	08/07/05 14:25	475014	7319282	4	5.2	4.4	690	100	8.0		95	5			
Lake C3	JERAB20	08/07/05 14:35	475014	7319282	5	5.2	4.4	690	100	8.0		95	5			
Lake C3	JERAB20	08/07/05 14:45	475014	7319282	6	5.2	4.4	690	100	8.0		95	5			
Jericho Lake	JERAB26	09/07/05 10:15	478769	7323672	1	5.0	5.8	690		10.9		100				
Jericho Lake	JERAB26	09/07/05 10:30	478769	7323672	2	5.0	5.8	690		10.9		100				
Jericho Lake	JERAB26	09/07/05 10:45	478769	7323672	3	5.0	5.8	690		10.9		100				
Jericho Lake	JERAB26	09/07/05 11:00	478769	7323672	4	5.0	5.8	690		10.9		100				
Jericho Lake	JERAB26	10/07/05 11:30	478769	7323672	5	5.0	5.8	690		10.9		100				
Jericho Lake	JERAB26	09/07/05 11:45	478769	7323672	6	5.0	5.8	690		10.9		100				

Appendix G1. Benthic macroinvertebrate sampling data (UTM locations [NAD 27, Zone 12]), Jericho AEMP 2005 .

Waterbody	Site Label	Sample Date/Time	Easting	Northing	Replicate	Depth Sampled (m)	Secchi Depth (m)	Area (cm^2)	Cloud Cover (%)	Water Temp. (ºC)	Substrate					
											Organic (%)	Silt (%)	Sand (%)	Gravel (%)	Cobble (%)	Boulder (%)
Carat Lake	JERAB07	07/07/05 17:30	478170	7321079	1	4.9	6.2	690	60	4.0		90	10			
Carat Lake	JERAB07	07/07/05 17:45	478170	7321079	2	4.9	6.2	690	60	4.0		90	10			
Carat Lake	JERAB07	07/07/05 18:00	478170	7321079	3	4.9	6.2	690	60	4.0		90	10			
Carat Lake	JERAB07	07/07/05 18:15	478170	7321079	4	4.9	6.2	690	60	4.0		90	10			
Carat Lake	JERAB07	07/07/05 18:25	478170	7321079	5	4.9	6.2	690	60	4.0		90	10			
Carat Lake	JERAB07	07/07/05 18:30	478170	7321079	6	4.9	6.2	690	60	4.0		90	10			
Carat Lake	JERAB19	10/07/05 10:00	478189	7320102	1	5.2	6.2	690		8.3		90	10			
Carat Lake	JERAB19	10/07/05 10:10	478189	7320102	2	5.2	6.2	690		8.3		90	10			
Carat Lake	JERAB19	10/07/05 10:20	478189	7320102	3	5.2	6.2	690		8.3		90	10			
Carat Lake	JERAB19	10/07/05 10:30	478189	7320102	4	5.2	6.2	690		8.3		90	10			
Carat Lake	JERAB19	10/07/05 10:45	478189	7320102	5	5.2	6.2	690		8.3		90	10			
Carat Lake	JERAB19	10/07/05 11:00	478189	7320102	6	5.2	6.2	690		8.3		90	10			

Appendix G2-1. Benthic macroinvertebrate species and number data, Jericho AEMP 2005.

Carat Lake JERAB07

Major taxon	Family, subfamily or tribe	Genus/ species	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	S.D.	%
			No.	No.	No.	No.	No.			
Nematoda			60	21	15	116	104	63.2	46.3	31.42
Oligochaeta	Enchytraeidae		10	6	1	8	12	7.4	4.2	2.86
	Lumbriculidae		3	1		4	2	2.0	1.6	1.07
	Naididae									
	Tubificidae		14	20	6	9	8	11.4	5.6	3.83
Pelecypoda	Sphaeriidae		106	95	76	128	94	99.8	19.1	12.96
Acari			9	10	7	9	22	11.4	6.0	4.09
Cladocera			1	10	5	8	8	6.4	3.5	2.38
Copepoda-Calanoida										
Copepoda-Cyclopoida			34	46	16	44	76	43.2	21.8	14.83
Copepoda-Harpacticoida										
Ostracoda	Candonidae									
	Cyclocypridae			2		4		1.2	1.8	1.21
Collembola	Isotomidae									
Plecoptera	Perlodidae	early nymphs								
Trichoptera	Limnephilidae	*Grensia* sp.					1	0.2	0.4	0.30
		early larvae			1			0.2	0.4	0.30
Diptera	Ceratopogonidae									
	Chironomidae									
	Tanypodinae		29	18	19	87	26	35.8	29.0	19.68
	Damesinae		1	3	5			1.8	2.2	1.47
	Prodiamesinae		4		4	4	1	2.6	1.9	1.32
	Orthocladiinae		78	79	37	74	120	77.6	29.4	19.97
	Chironomini		61	63	43	75	6	49.6	26.9	18.28
	Tanytarsini		102	63	57	108	108	87.6	25.4	17.24
	Empididae	*Chelifera* sp.								
	Tipulidae	*Limnophila* sp.								
Total individuals			**512**	**437**	**292**	**678**	**588**	**501.4**	**147.3**	**100.00**
Total taxa			**14**	**14**	**14**	**14**	**14**	**17.0**		

Appendix G2-2. Benthic macroinvertebrate species and number data, Jericho AEMP 2005.

Carat Lake JERAB19

Major taxon	Family, subfamily or tribe	Genus/ species	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	S.D.	%
			No.	No.	No.	No.	No.			
Nematoda			192	54	102	90	40	95.6	59.6	63.63
Oligochaeta	Enchytraeidae			4	6	4	14	5.6	5.2	5.53
	Lumbriculidae		1	1	4	2	1	1.8	1.3	1.39
	Naididae									
	Tubificidae		4	2			5	2.2	2.3	2.44
Pelecypoda	Sphaeriidae		80	88	73	110	94	89.0	14.2	15.15
Acari			38	36	43	33	48	39.6	5.9	6.35
Cladocera					12			2.4	5.4	5.73
Copepoda-Calanoida										
Copepoda-Cyclopoida			9	14	28	28	12	18.2	9.1	9.75
Copepoda-Harpacticoida			8		2	4	2	3.2	3.0	3.24
Ostracoda	Candonidae									
	Cyclocypridae									
Collembola	Isotomidae									
Plecoptera	Perlodidae	early nymphs								
Trichoptera	Limnephilidae	*Grensia* sp. early larvae		1	1	1	1	0.8	0.4	0.48
Diptera	Ceratopogonidae									
	Chironomidae									
	Tanypodinae		37	26	28	21	31	28.6	5.9	6.35
	Damesinae					2	1	0.6	0.9	0.96
	Prodiamesinae		5	4	5	5	3	4.4	0.9	0.96
	Orthocladiinae		85	50	108	103	70	83.2	23.9	25.55
	Chironomini		5	33			5	8.6	13.9	14.82
	Tanytarsini		128	54	54	81	41	71.6	34.7	37.11
	Empididae	*Chelifera* sp.								
	Tipulidae	*Limnophila* sp.								
Total individuals			**592**	**367**	**466**	**484**	**368**	**455.4**	**93.6**	**100.00**
Total taxa			**12**	**13**	**13**	**13**	**15**	**16.0**		

Appendix G2-3. Benthic macroinvertebrate species and number data, Jericho AEMP 2005.

Cigar Lake JERAB25

Major taxon	Family, subfamily or tribe	Genus/ species	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	S.D.	%
			No.	No.	No.	No.	No.			
Nematoda			72	32	40	56	56	51.2	15.6	20.80
Oligochaeta	Enchytraeidae		8	8	8			4.8	4.4	5.84
	Lumbriculidae		5	4	1	4	2	3.2	1.6	2.19
	Naididae									
	Tubificidae		48	33	1	16	16	22.8	18.1	24.10
Pelecypoda	Sphaeriidae		59	122	95	97	128	100.2	27.3	36.41
Acari			16	20	18	34	16	20.8	7.6	10.09
Cladocera			8		8		8	4.8	4.4	5.84
Copepoda-Calanoida										
Copepoda-Cyclopoida			64	96	88	80	80	81.6	11.9	15.82
Copepoda-Harpacticoida										
Ostracoda	Candonidae		8		8	16	48	16.0	18.8	25.02
	Cyclocypridae		24	8	24			11.2	12.1	16.18
Collembola	Isotomidae									
Plecoptera	Perlodidae	early nymphs								
Trichoptera	Limnephilidae	*Grensia* sp. early larvae			2			0.4	0.9	1.19
Diptera	Ceratopogonidae		8					1.6	3.6	4.77
	Chironomidae									
	Tanypodinae		23	8	18	22	38	21.8	10.8	14.44
	Damesinae		1			1	2	0.8	0.8	1.12
	Prodiamesinae		9	4	19	18	10	12.0	6.4	8.49
	Orthocladiinae		250	278	194	164	246	226.4	46.2	61.64
	Chironomini		75	87	29	50	1	48.4	34.7	46.30
	Tanytarsini		438	583	579	567	579	549.2	62.5	83.28
	Empididae	*Chelifera* sp.								
	Tipulidae	*Limnophila* sp.								
Total individuals			**1116**	**1283**	**1132**	**1125**	**1230**	**1177.2**	**75.0**	**100.00**
Total taxa			**17**	**13**	**16**	**13**	**14**	**18.0**		

Appendix G2-4. Benthic macroinvertebrate species and number data, Jericho AEMP 2005.

Jericho Lake JERAB26

Major taxon	Family, subfamily or tribe	Genus/ species	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	S.D.	%
			No.	No.	No.	No.	No.			
Nematoda			84	188	53	48	163	107.2	64.5	24.13
Oligochaeta	Enchytraeidae		8			4	4	3.2	3.3	1.25
	Lumbriculidae		1	4	2	3	2	2.4	1.1	0.43
	Naididae									
	Tubificidae									
Pelecypoda	Sphaeriidae		35	65	26	47	54	45.4	15.4	5.75
Acari				3	4		1	1.6	1.8	0.68
Cladocera			4	4			4	2.4	2.2	0.82
Copepoda-Calanoida										
Copepoda-Cyclopoida			52	80	60	36	105	66.6	26.7	9.99
Copepoda-Harpacticoida				248	20	4	104	75.2	105.4	39.47
Ostracoda	Candonidae									
	Cyclocypridae									
Collembola	Isotomidae						4	0.8	1.8	0.67
Plecoptera	Perlodidae	early nymphs								
Trichoptera	Limnephilidae	*Grensia* sp. early larvae								
Diptera	Ceratopogonidae									
	Chironomidae									
	Tanypodinae		30	17	30	14	28	23.8	7.7	2.88
	Damesinae		8				1	1.8	3.5	1.31
	Prodiamesinae		6		1	1	1	1.8	2.4	0.89
	Orthocladiinae		16	18	24	6	25	17.8	7.6	2.86
	Chironomini		205	137	155	71	164	146.4	49.0	18.33
	Tanytarsini		91	256	107	140	169	152.6	65.2	24.40
	Empididae	*Chelifera* sp.								
	Tipulidae	*Limnophila* sp.								
Total individuals			**540**	**1020**	**482**	**374**	**829**	**649.0**	**267.1**	**100.00**
Total taxa			**12**	**11**	**11**	**11**	**15**	**15.0**		

Appendix G2-5. Benthic macroinvertebrate species and number data, Jericho AEMP 2005.

Lake C3 JERAB20

Major taxon	Family, subfamily or tribe	Genus/ species	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	S.D.	%
			No.	No.	No.	No.	No.			
Nematoda			75	32	44	291	88	106.0	105.9	84.81
Oligochaeta	Enchytraeidae		6		8		12	5.2	5.2	4.18
	Lumbriculidae		3		2	1		1.2	1.3	1.04
	Naididae			20	12			6.4	9.2	7.38
	Tubificidae		2	19	5	10	49	17.0	19.0	15.23
Pelecypoda	Sphaeriidae		111	80	112	97	66	93.2	20.0	16.02
Acari			4	2	5	16		5.4	6.2	4.99
Cladocera			10	2	8		8	5.6	4.3	3.47
Copepoda-Calanoida			8					1.6	3.6	2.87
Copepoda-Cyclopoida			36	34	93	36	72	54.2	26.9	21.54
Copepoda-Harpacticoida										
Ostracoda	Candonidae		2		4			1.2	1.8	1.43
	Cyclocypridae		2	2	8	4	8	4.8	3.0	2.43
Collembola	Isotomidae									
Plecoptera	Perlodidae	early nymphs								
Trichoptera	Limnephilidae	*Grensia* sp.	1			1		0.4	0.5	0.44
		early larvae				1		0.2	0.4	0.36
Diptera	Ceratopogonidae									
	Chironomidae									
	Tanypodinae		26	14	27	7	6	16.0	10.1	8.07
	Damesinae									
	Prodiamesinae		6	4	5	3	2	4.0	1.6	1.27
	Orthocladiinae		35	23	102	56	19	47.0	33.9	27.20
	Chironomini		4	22	57	29	51	32.6	21.7	17.36
	Tanytarsini		25	10	14	29	15	18.6	8.0	6.42
	Empididae	*Chelifera* sp.								
	Tipulidae	*Limnophila* sp.								
Total individuals			**356**	**264**	**506**	**581**	**396**	**420.6**	**124.8**	**100.00**
Total taxa			**17**	**13**	**16**	**14**	**12**	**19.0**		

Appendix G2-6. Benthic macroinvertebrate species and number data, Jericho AEMP 2005.

Lake C3 JERAB05

Major taxon	Family, subfamily or tribe	Genus/ species	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	S.D.	%
			No.	No.	No.	No.	No.			
Nematoda			544	542	261	738	513	519.6	170.1	117.57
Oligochaeta	Enchytraeidae			8				1.6	3.6	2.47
	Lumbriculidae		1	2		2	1	1.2	0.8	0.58
	Naididae		4		8			2.4	3.6	2.47
	Tubificidae		9	4	6			3.8	3.9	2.69
Pelecypoda	Sphaeriidae		159	193	155	106	240	170.6	49.7	34.34
Acari			4	8	4		1	3.4	3.1	2.16
Cladocera			8	8	12	16	8	10.4	3.6	2.47
Copepoda-Calanoida										
Copepoda-Cyclopoida			72	80	124	112	48	87.2	30.8	21.27
Copepoda-Harpacticoida										
Ostracoda	Candonidae			4				0.8	1.8	1.24
	Cyclocypridae			4		16		4.0	6.9	4.79
Collembola	Isotomidae									
Plecoptera	Perlodidae	early nymphs								
Trichoptera	Limnephilidae	*Grensia* sp. early larvae								
Diptera	Ceratopogonidae									
	Chironomidae									
	Tanypodinae		25	12	35	49	62	36.6	19.6	13.57
	Damesinae				2		3	1.0	1.4	0.98
	Prodiamesinae		10	5	17	24	3	11.8	8.7	6.01
	Orthocladiinae		50	29	63	53	21	43.2	17.5	12.12
	Chironomini		40	24	38	17	55	34.8	14.8	10.25
	Tanytarsini		67	63	53	54	30	53.4	14.4	9.93
	Empididae	*Chelifera* sp.								
	Tipulidae	*Limnophila* sp.								
Total individuals			**993**	**986**	**778**	**1187**	**985**	**985.8**	**144.7**	**100.00**
Total taxa			**13**	**15**	**13**	**11**	**12**	**17.0**		

Appendix G2-7. Benthic macroinvertebrate species and number data, Jericho AEMP 2005.

Control Lake JERAB23

Major taxon	Family, subfamily or tribe	Genus/ species	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	S.D.	%
			No.	No.	No.	No.	No.			
Nematoda			58	23	52	26	41	40.0	15.4	25.85
Oligochaeta	Enchytraeidae		2		2			0.8	1.1	1.83
	Lumbriculidae		5	2	3	2	3	3.0	1.2	2.05
	Naididae									
	Tubificidae		29	26	13	17	14	19.8	7.3	12.15
Pelecypoda	Sphaeriidae		112	90	97	123	127	109.8	16.1	26.87
Acari			12	2	10	17	26	13.4	8.9	14.86
Cladocera					2			0.4	0.9	1.50
Copepoda-Calanoida										
Copepoda-Cyclopoida			39	32	56	31	18	35.2	13.9	23.23
Copepoda-Harpacticoida										
Ostracoda	Candonidae		4	2	6	2	8	4.4	2.6	4.36
	Cyclocypridae		6	2		6	14	5.6	5.4	8.98
Collembola	Isotomidae									
Plecoptera	Perlodidae	early nymphs			2			0.4	0.9	1.50
Trichoptera	Limnephilidae	*Grensia* sp. early larvae	1		4	2		1.4	1.7	2.80
Diptera	Ceratopogonidae									
	Chironomidae									
	Tanypodinae		32	27	21	17	24	24.2	5.7	9.57
	Damesinae		5			2	2	1.8	2.0	3.43
	Prodiamesinae		10	15	5	10	6	9.2	4.0	6.63
	Orthocladiinae		49	26	40	18	16	29.8	14.3	23.92
	Chironomini		72	67	109	51	122	84.2	30.0	50.15
	Tanytarsini		20	13	11	12	9	13.0	4.2	7.00
	Empididae	*Chelifera* sp.		2				0.4	0.9	1.50
	Tipulidae	*Limnophila* sp.					1	0.2	0.4	0.75
Total individuals			**456**	**329**	**433**	**336**	**431**	**397.0**	**59.7**	**100.00**
Total taxa			**16**	**14**	**16**	**15**	**15**	**20.0**		

Appendix G3-1. Number of benthic macroinvertebrates recovered from QAQC sorting and sorting efficiency, Jericho AEMP 2005.

	Taxa	Jericho Lake JERAB26 Replicate 4	Lake C3 JERAB05 Replicate 4	Cigar Lake JERAB25 Replicate 2	Carat Lake JERAB19 Replicate 4
Number	Nematoda		8	1	4
	Sphaeriidae		1		
	Acari		1		8
	Total organisms	0	10	1	12
Efficiency	Initial sort number	374	1187	1283	678
	Percent error	0.00	0.84	0.08	1.77

Appendix G3-2. Sampling precision for benthic macroinvertebrates data, Jericho AEMP 2005.

Waterbody	Station		Replicate sample					Mean	SD	95% CI of mean	Sample Precision
			1	2	3	4	5				
Carat Lake	JERAB07	Total Individuals	512	437	292	678	588	501.4	147.31	129.116	0.13
		Total Taxa	14	14	14	14	14	17.0			
Carat Lake	JERAB19	Total Individuals	592	367	466	484	368	455.4	93.60	82.0417	0.09
		Total Taxa	12	13	13	13	15	16.0			
Cigar Lake	JERAB25	Total Individuals	1116	1283	1132	1125	1230	1177.2	74.99	65.7316	0.03
		Total Taxa	17	13	16	13	14	18.0			
Jericho Lake	JERAB26	Total Individuals	540	1020	482	374	829	649.0	267.13	234.146	0.18
		Total Taxa	12	11	11	11	15	15.0			
Lake C3	JER-AB20	Total Individuals	356	264	506	581	396	420.6	124.82	109.41	0.13
		Total Taxa	17	13	16	14	12	19.0			
Lake C3	JERAB05	Total Individuals	993	986	778	1187	985	985.8	144.67	126.804	0.07
		Total Taxa	13	15	13	11	12	17.0			
Control Lake	JERAB23	Total Individuals	456	329	433	336	431	397.0	59.75	52.3681	0.07
		Total Taxa	16	14	16	15	15	20.0			

Appendix G4. Particle size analysis data, Jericho AEMP 2005.

Waterbody	Site Label	Date Sampled	Analysis Date	Matrix	Texture	Soil Texture[a]			Mass[b]	
						Sand (% by weight)	Silt (% by weight)	Clay (% by weight)	Dry Weight (g)	Wet Weight (g)
Cigar Lake	JERAB25	08/07/2005	02/11/2005	Soil	Loam	41	49.4	9.6	125	628
Lake C3	JERAB05	08/07/2005	02/11/2005	Soil	Silt Loam	26.7	57.3	16	97.3	604
Carat Lake	JERAB07	07/07/2005	02/11/2005	Soil	Silt Loam	38.6	51.8	9.6	322	745
Carat Lake	JERAB19	10/07/2005	02/11/2005	Soil	Loamy Sand	81	14.4	4.6	587	913
Control Lake	JERAB23	08/07/2005	02/11/2005	Soil	Silt Loam	43	51.8	5.2	286	725
Lake C3	JERAB20	08/07/2005	02/11/2005	Soil	Silt Loam	41	51	8	168	658
Jericho Lake	JERAB26	09/07/2005	02/11/2005	Soil	Sandy Loam	74.6	19.4	6	105	622

[a] = detection limit 0.1

[b] = detection limit 0.01

Appendix H1. Gill net sampling data (UTM locations [NAD 27,Zone 12]), Jericho AEMP 2005.

Waterbody	Site	Sample Label	Set Date/Time	Pull Date/Time	Inshore				Offshore				Set Position	Wind	Cloud Cover (%)
					Easting	Northing	Depth (m)	Substrate	Easting	Northing	Depth (m)	Substrate			
Jericho Lake	JERAB08	GNJE0101	09/07/05 13:30	10/07/05 9:40				Rock				Rock	Bottom	Moderate	15
Jericho Lake	JERAB08	GNJE0201	09/07/05 14:05	07/09/05 17:45	478333	7323642	3.4	Rock	478456	7323693	11.9	Rock	Bottom	Moderate	15
Jericho Lake	JERAB08	GNJE0301	09/07/05 14:52	09/07/05 18:10	478738	7323644	3.2	Rock	478810	7323707	8.2	Rock	Bottom	Moderate	25
Jericho Lake	JERAB08	GNJE0401	10/07/05 11:00	10/07/05 17:15			1.8	Sand			12.5	Sand	Bottom	Low	25
Jericho Lake	JERAB08	GNJE0501	10/07/05 11:50	10/07/05 16:15			3.5				7.5		Bottom	Low	25
Jericho Lake	JERAB08	GNJE0601	10/07/05 12:44	07/10/05 16:40	478405	7323729	7.5	Sand	478443	7323639	14.0	Sand	Bottom	Low	25
Jericho Lake	JERAB08	GNJE0701	11/07/05 9:50	12/07/05 17:30	479082	7323667	5.5	Sand	479050	7323753	10.5	Sand	Bottom	Moderate	30
Jericho Lake	JERAB08	GNJE0801	12/07/05 12:50	12/07/05 17:45	479108	7323657	1.8	Sand	479017	7323671	4.0	Sand	Surface	High	50
Jericho Lake	JERAB08	GNJE0801	11/08/05 10:45	11/08/05 17:30	479071	7323810	5.5	Sand	479064	7323713	6.5	Sand	Bottom	Moderate	90
Jericho Lake	JERAB08	GNJE0901	11/08/05 11:10	11/08/05 14:00	479111	7323672	5.0	Sand	479021	7323695	7.0	Sand	Bottom	Moderate	90
Jericho Lake	JERAB08	GNJE1001	11/08/05 12:24	11/08/05 17:00	478214	7323823	5.0	Rock	478217	7323724	5.5	Rock	Bottom	Moderate	90
Jericho Lake	JERAB08	GNJE1101	11/08/05 14:45	11/08/05 18:00	479053	7323810	4.0	Rock	479020	7323711	9.0	Rock	Bottom	Moderate	85
Cigar Lake	JERAB11	GNCI0101	11/07/05 11:15	11/07/05 16:00	470316	7320330	5.0	Rock			9.0	Rock	Bottom	Moderate	65
Cigar Lake	JERAB11	GNCI0201	11/07/05 12:04	11/07/05 16:30	469746	7320529	3.5	Rock	469726	7320437	10.0	Rock	Bottom	Moderate	50
Cigar Lake	JERAB11	GNCI0301	12/07/05 9:40	12/07/05 16:20	469849	7320468	3.5	Rock	469816	7320382	8.0	Rock	Bottom	Low	75
Cigar Lake	JERAB11	GNCI0401	12/07/05 10:20	12/07/05 16:45	469021	7320345	3.5	Rock	469085	7320424	9.0	Rock	Surface	Low	75
Cigar Lake	JERAB11	GNCI0701	12/08/05 10:20	12/08/05 16:00	469555	7320499	4.7	Rock	469529	7320414	15.5	Rock	Bottom	High	100
Cigar Lake	JERAB11	GNCI0801	12/08/05 10:35	12/08/05 15:15	469038	7320322	3.0	Rock	469101	7320391	7.5	Rock	Bottom	High	100
Cigar Lake	JERAB11	GNCI0901	12/08/05 11:10	12/08/05 16:30	470253	7320128	4.0	Sand	470229	7320206	6.1	Sand	Bottom	High	100

Appendix H2. Electrofishing effort and sampling locations (UTM locations [NAD 27, Zone 12]), Jericho AEMP 2005.

Waterbody	Site Label	Sample Label	Sampling Date/Time	Easting Start	Northing Start	Easting Stop	Northing Stop	Run	Distance Sampled (m)	Time Sampled (m)
Stream C3	JERAB03	EFSC301	08/07/05 13:55	475034	7319523	475224	7319486	1	200	919
Stream C3	JERAB03	EFSC302	08/07/05 13:55	475034	7319523	475224	7319486	2	200	1118
Stream C3	JERAB03	EFSC303	08/07/05 13:55	475034	7319523	475224	7319486	3	200	865
Stream C3	JERAB03	EFSC301	13/08/05 11:15	475097	7319303	4752870	7319270	1	200	1716
Stream C3	JERAB03	EFSC302	13/08/05 11:15	475097	7319303	4752870	7319270	2	200	1215
Stream C3	JERAB03	EFSC303	13/08/05 11:15	475097	7319303	4752870	7319270	3	200	1230
Stream C3	JERAB03	EFSC304	13/08/05 11:15	475097	7319303	4752870	7319270	4	200	1200
Stream C3	JERAB03	EFSC305	13/08/05 11:15	475097	7319303	4752870	7319270	5	200	716
Jericho Lake	JERAB08	EFJE01	10/07/05					1	> 200	1629
Jericho Lake	JERAB08	EFJE02	12/07/05					1	> 200	4030
Cigar Lake	JERAB11	EFCI01	11/07/05					1	> 200	2010
Cigar Lake	JERAB11	EFCI01	12/08/05					1	> 200	1206
Stream C1	JERAB12	EFSC101	07/07/05 11:15	478187	7319987	478258	7319803	1	200	1186
Stream C1	JERAB12	EFSC102	07/07/05 11:15	478187	7319987	478258	7319803	2	200	1179
Stream C1	JERAB12	EFSC103	07/07/05 11:15	478187	7319987	478258	7319803	3	200	1003
Stream C1	JERAB12	EFSC104	07/07/05 11:15	478187	7319987	478258	7319803	4	200	1046
Stream C1	JERAB12	EFSC105	07/07/05 11:15	478187	7319987	478258	7319803	5	200	1126
Stream C1	JERAB12	EFSC101	14/08/05 8:20	478186	731999	478262	7319824	1	200	1583
Stream C1	JERAB12	EFSC102	14/08/05 8:20	478186	731999	478262	7319824	2	200	1600
Stream C1	JERAB12	EFSC103	14/08/05 8:20	478186	731999	478262	7319824	3	200	1271
Stream C1	JERAB12	EFSC104	14/08/05 8:20	478186	731999	478262	7319824	4	200	1118
Stream C1	JERAB12	EFSC105	14/08/05 8:20	478186	731999	478262	7319824	5	200	1113
Stream C1	JERAB12	EFSC106	14/08/05 8:20	478186	731999	478262	7319824	6	200	850
Stream W	JERAB27	EFWL01	11/07/05	470921	7324546			1	> 200	3313
Stream W	JERAB27	EFWL02	12/07/05	470921	7324546			1	> 200	621
Stream W	JERAB27	EFWL01	12/08/05	470921	7324546			1	> 200	2674

Appendix H3. Sex and Maturity Code Descriptions, Jericho AEMP 2005.

Maturity Codes		**Class**	**Description**
Males	Females		
99		Immature A	Sex indeterminable due to small gonad size.
01	11	Immature B	Small gonad size; fish has never spawned and will not spawn during the coming spawning season.
02	12	Alternate	Small gonad size associated with large size; suggests alternate year spawner.
05	15	Developing	Definite gonad development in preparation for spawning
06	16	Resorbing	Definite gonad development, but fish has failed to spawn and is presently resorbing gonads.
07	17	Gravid	Sexual organs fill cavity testes white, drops of milt fall with pressure; eggs completely round, some already translucent.
08	18	Ripe	Roe or milt are extruded by slight pressure on the belly.
09	19	Spent	Spawning completed; resorbtion of residual ovarian tissue is not yet complete.
10	20	External	Sex determined by external characteristics
97		Adult	Based on fish size; sex not determined.
98		Juvenile	Based on fish size; sex not determined

Appendix H4. Biological characteristics of collected fish, Jericho AEMP 2005.

Waterbody	Site Label	Sample Date	Species	Fork Length (mm)	Weight (g)	Age (years)	Sexual Maturity[a]	Gonad Weight (g)	Capture Code[b]	Tissue ID
Cigar Lake	GNCI0101	11/07/05	Lake trout	400	630				0	
Cigar Lake	GNCI0101	11/07/05	Lake trout	376	500				0	
Cigar Lake	GNCI0101	11/07/05	Lake trout	336	392				1	
Cigar Lake	GNCI0101	11/07/05	Lake trout	440	806		1		1	
Cigar Lake	GNCI0101	11/07/05	Lake trout	392	794		5		1	
Cigar Lake	GNCI0101	11/07/05	Lake trout	484	1198		12		1	
Cigar Lake	GNCI0101	11/07/05	Arctic char	422	770				0	
Cigar Lake	GNCI0201	11/07/05	Lake trout	432	710	13	2	0	1	LCI0201
Cigar Lake	GNCI0201	11/07/05	Lake trout	395	650				0	
Cigar Lake	GNCI0201	11/07/05	Lake trout	915	10000+				0	
Cigar Lake	GNCI0201	11/07/05	Lake trout	515	1318	21	12	46	1	LCI0202
Cigar Lake	GNCI0201	11/07/05	Arctic char	437	706		12		1	
Cigar Lake	GNCI0201	11/07/05	Lake trout	365	562	12	5	10	1	LCI0203
Cigar Lake	GNCI0301	12/07/05	Lake trout	565	1250				0	
Cigar Lake	GNCI0301	12/07/05	Arctic char	450	400		12		1	
Cigar Lake	GNCI0301	12/07/05	Round whitefish	352	574	8	17	8	1	RCI0302
Cigar Lake	GNCI0301	12/07/05	Lake trout	372	528	13	12	2	1	LCI0310
Cigar Lake	GNCI0301	12/07/05	Lake trout	324	372				1	
Cigar Lake	GNCI0301	12/07/05	Lake trout	245	92		1		1	
Cigar Lake	GNCI0301	12/07/05	Lake trout	395	604				0	
Cigar Lake	GNCI0301	12/07/05	Lake trout	372	348				0	
Cigar Lake	GNCI0301	12/07/05	Lake trout	400	746	14	12	22	1	LCI0309
Cigar Lake	GNCI0301	12/07/05	Lake trout	444	946	20	12	12	1	LCI0305
Cigar Lake	GNCI0301	12/07/05	Arctic char	430	544				0	
Cigar Lake	GNCI0301	12/07/05	Lake trout	409	764	14	5	12	1	LCI0306
Cigar Lake	GNCI0401	12/07/05	Lake trout	341	456		1		1	
Cigar Lake	GNCI0401	12/07/05	Lake trout	415	554				0	
Cigar Lake	GNCI0401	12/07/05	Lake trout	412	756				1	
Cigar Lake	GNCI0401	12/07/05	Lake trout	402	692	14	5	14	1	LCI0404
Cigar Lake	GNCI0401	12/07/05	Round whitefish	370	586	10			1	RCI0401
Cigar Lake	GNCI0401	12/07/05	Lake trout	408	488				0	
Cigar Lake	GNCI0401	12/07/05	Lake trout	400	690	16			1	LCI0407
Cigar Lake	GNCI0401	12/07/05	Lake trout	410	536				0	
Cigar Lake	GNCI0401	12/07/05	Lake trout	405	648	14	2	2	1	LCI0408
Cigar Lake	GNCI0401	12/07/05	Lake trout	620	1280				0	
Cigar Lake	GNCI0701	12/08/05	Lake trout	688	3400				0	
Cigar Lake	GNCI0701	12/08/05	Lake trout	418	698				0	
Cigar Lake	GNCI0701	12/08/05	Lake trout	453	848				0	
Cigar Lake	GNCI0701	12/08/05	Lake trout	400	674		5		1	
Cigar Lake	GNCI0701	12/08/05	Lake trout	446	782		5		1	
Cigar Lake	GNCI0701	12/08/05	Lake trout	395	584				0	
Cigar Lake	GNCI0701	12/08/05	Round whitefish	383	670	10	5	24	1	RCI0704
Cigar Lake	GNCI0801	12/08/05	Lake trout	470	950				0	
Cigar Lake	GNCI0801	12/08/05	Lake trout	230	98		1		1	
Cigar Lake	GNCI0801	12/08/05	Lake trout	474	920				0	
Cigar Lake	GNCI0801	12/08/05	Round whitefish	365	558	11	15	26	1	RCI0803
Cigar Lake	GNCI0901	12/08/05	Round whitefish	383	622	11	5	28	1	RCI0905
Cigar Lake	GNCI0901	12/08/05	Round whitefish	415	702	16	5	16	1	RCI0906
Jericho Lake	GNJE0101	09/07/05	Arctic char	358	508				1	
Jericho Lake	GNJE0101	09/07/05	Arctic char	477	1176				1	

[a] See Appendix H3. for maturity code descriptions

[b] Capture Codes: 0 released alive; 1 mortality

Appendix H4. Biological characteristics of collected fish, Jericho AEMP 2005.

Waterbody	Site Label	Sample Date	Species	Fork Length (mm)	Weight (g)	Age (years)	Sexual Maturity[a]	Gonad Weight (g)	Capture Code[b]	Tissue ID
Jericho Lake	GNJE0101	09/07/05	Arctic char	375	558				1	
Jericho Lake	GNJE0101	09/07/05	Lake trout	432	926	10	5	10	1	LJE0101
Jericho Lake	GNJE0101	09/07/05	Lake trout	468	1074	13	5	8	1	LJE0102
Jericho Lake	GNJE0101	09/07/05	Lake trout	444	902	11	2	<1	1	LJE0103
Jericho Lake	GNJE0101	09/07/05	Lake trout	420	880	10	5	16	1	LJE0104
Jericho Lake	GNJE0101	09/07/05	Lake trout	611	2700	28	5	90	1	LJE0105
Jericho Lake	GNJE0101	09/07/05	Lake trout	485	1190	22	5	32	1	LJE0106
Jericho Lake	GNJE0101	09/07/05	Lake trout	422	886				1	
Jericho Lake	GNJE0201	09/07/05	Arctic char	392	632				0	
Jericho Lake	GNJE0201	09/07/05	Arctic char	375	558		11		1	
Jericho Lake	GNJE0201	09/07/05	Lake trout	508	1340	12	2	<1	1	LJE0207
Jericho Lake	GNJE0201	09/07/05	Arctic char	402	716				0	
Jericho Lake	GNJE0201	09/07/05	Lake trout	552	1660	13	2	<1	1	LJE0208
Jericho Lake	GNJE0201	09/07/05	Lake trout	420	900				0	
Jericho Lake	GNJE0301	09/07/05	Arctic char	492	1290		1		1	
Jericho Lake	GNJE0301	09/07/05	Arctic char	431	876		1		1	
Jericho Lake	GNJE0301	09/07/05	Arctic char	412	736		15		1	
Jericho Lake	GNJE0301	09/07/05	Arctic char	400	716		1		1	
Jericho Lake	GNJE0301	09/07/05	Lake trout	445	1092	17	12	84	1	LJE0109
Jericho Lake	GNJE0301	09/07/05	Lake trout	442	1056	14	12	60	1	LJE0110
Jericho Lake	GNJE0301	09/07/05	Arctic char	470	1066		12		1	
Jericho Lake	GNJE0401	10/07/05	Arctic char							
Jericho Lake	GNJE0401	10/07/05	Arctic char							
Jericho Lake	GNJE0401	10/07/05	Arctic char	508	1128				0	
Jericho Lake	GNJE0401	10/07/05	Round whitefish	385	710	8	5	6	1	RJE0413
Jericho Lake	GNJE0401	10/07/05	Round whitefish	430	912	12	15	12	1	RJE0412
Jericho Lake	GNJE0401	10/07/05	Round whitefish	417	894	11	15	22	1	RJE0411
Jericho Lake	GNJE0401	10/07/05	Lake trout	430	814		12		1	
Jericho Lake	GNJE0401	10/07/05	Lake trout							
Jericho Lake	GNJE0401	10/07/05	Lake trout							
Jericho Lake	GNJE0401	10/07/05	Lake trout	441	988		6		1	
Jericho Lake	GNJE0401	10/07/05	Lake trout	398	800		12		1	
Jericho Lake	GNJE0401	10/07/05	Lake trout	461	1034		5		1	
Jericho Lake	GNJE0401	10/07/05	Arctic char							
Jericho Lake	GNJE0501	10/07/05	Arctic char							
Jericho Lake	GNJE0501	10/07/05	Lake trout							
Jericho Lake	GNJE0601	10/07/05	Lake trout	450	1054				0	
Jericho Lake	GNJE0601	10/07/05	Lake trout	333	386				0	
Jericho Lake	GNJE0701	11/07/05	Lake trout	388	650				0	
Jericho Lake	GNJE0701	11/07/05	Lake trout	425	938				0	
Jericho Lake	GNJE0701	11/07/05	Lake trout	440	958				0	
Jericho Lake	GNJE0701	11/07/05	Lake trout	493	1278		5		1	
Jericho Lake	GNJE0701	11/07/05	Lake trout	442	652		5		1	
Jericho Lake	GNJE0701	11/07/05	Lake trout	391	662		1		1	
Jericho Lake	GNJE0701	11/07/05	Lake trout	391	662		1		1	
Jericho Lake	GNJE0701	11/07/05	Lake trout	442	1052		5		1	
Jericho Lake	GNJE0701	11/07/05	Lake trout	487	1106				0	
Jericho Lake	GNJE0701	11/07/05	Lake trout	402	844		5		1	
Jericho Lake	GNJE0701	11/07/05	Lake trout	522	1372				0	
Jericho Lake	GNJE0701	11/07/05	Lake trout	226	112				0	

[a] See Appendix H3. for maturity code descriptions

[b] Capture Codes: 0 released alive; 1 mortality

Appendix H4. Biological characteristics of collected fish, Jericho AEMP 2005.

Waterbody	Site Label	Sample Date	Species	Fork Length (mm)	Weight (g)	Age (years)	Sexual Maturity[a]	Gonad Weight (g)	Capture Code[b]	Tissue ID
Jericho Lake	GNJE0701	11/07/05	Lake trout	493	1278		5		1	
Jericho Lake	GNJE0701	11/07/05	Lake trout	574	1870				0	
Jericho Lake	GNJE0701	11/07/05	Arctic char	584	1398				0	
Jericho Lake	GNJE0701	11/07/05	Lake trout	328	386		12		1	
Jericho Lake	GNJE0701	11/07/05	Lake trout	564	1920				0	
Jericho Lake	GNJE0701	11/07/05	Arctic char	485	966		12		1	
Jericho Lake	GNJE0701	11/07/05	Arctic char	495	1118				0	
Jericho Lake	GNJE0701	11/07/05	Lake trout	403	832				0	
Jericho Lake	GNJE0701	11/07/05	Lake trout	402	844		5		1	
Jericho Lake	GNJE0801	11/08/05	Lake trout	445	958				0	
Jericho Lake	GNJE0801	11/08/05	Lake trout	555	1762				0	
Jericho Lake	GNJE0801	11/08/05	Lake trout	418	872				0	
Jericho Lake	GNJE0801	11/08/05	Lake trout	551	1730				0	
Jericho Lake	GNJE0801	11/08/05	Lake trout	294	278				0	
Jericho Lake	GNJE0801	11/08/05	Arctic char	478	1192		1		1	
Jericho Lake	GNJE0901	11/08/05	Lake trout	550	1748				0	
Jericho Lake	GNJE1001	11/08/05	Lake trout	501	1174		12		1	
Jericho Lake	GNJE1101	11/08/05	Round whitefish	397	732	9	15	38	1	RJE1115
Jericho Lake	GNJE1101	11/08/05	Lake trout	450	1092					
Jericho Lake	GNJE1101	11/08/05	Lake trout	441	1008		12		0	
Cigar Lake	EFCI01	11/07/05	Slimy sculpin	58	2					SCI0101
Cigar Lake	EFCI01	11/07/05	Slimy sculpin	54	<1					SCI0101
Cigar Lake	EFCI01	12/08/05	Slimy sculpin	68	<1					EFCI0401
Cigar Lake	EFCI01	12/08/05	Slimy sculpin	66	<1					EFCI0401
Cigar Lake	EFCI01	12/08/05	Slimy sculpin	65	4					EFCI0401
Cigar Lake	EFCI01	12/08/05	Slimy sculpin	65	2					EFCI0401
Cigar Lake	EFCI01	12/08/05	Lake trout	71	2					
Cigar Lake	EFCI01	12/08/05	Arctic char	61	2					
Cigar Lake	EFCI01	12/08/05	Arctic char	58	2					
Jericho Lake	EFJE01	10/07/05	Slimy sculpin	75	4					SJE0102
Jericho Lake	EFJE01	10/07/05	Slimy sculpin	50						SJE0101
Jericho Lake	EFJE01	10/07/05	Slimy sculpin	41						SJE0102
Jericho Lake	EFJE01	10/07/05	Slimy sculpin	40						SJE0102
Jericho Lake	EFJE01	10/07/05	Slimy sculpin	44	2					SJE0102
Jericho Lake	EFJE01	10/07/05	Slimy sculpin	48	2					SJE0101
Jericho Lake	EFJE01	10/07/05	Slimy sculpin	50	2					SJE0101
Jericho Lake	EFJE01	10/07/05	Slimy sculpin	50	1					SJE0101
Jericho Lake	EFJE01	10/07/05	Slimy sculpin	46						SJE0102
Jericho Lake	EFJE01	10/07/05	Slimy sculpin	41						SJE0101
Jericho Lake	EFJE01	10/07/05	Slimy sculpin	65	2					SJE0101
Jericho Lake	EFJE01	10/07/05	Slimy sculpin	44						SJE0101
Jericho Lake	EFJE01	10/07/05	Slimy sculpin	55	2					SJE0101
Jericho Lake	EFJE01	10/07/05	Slimy sculpin	41						SJE0101
Jericho Lake	EFJE01	10/07/05	Slimy sculpin	47						SJE0101
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	63	<1					SJE0104
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	30	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	56	<1					SJE0104
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	24	<1					SJE0104
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	43	<1					SJE0104
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	46	<1					SJE0104

[a] See Appendix H3. for maturity code descriptions

[b] Capture Codes: 0 released alive; 1 mortality

Appendix H4. Biological characteristics of collected fish, Jericho AEMP 2005.

Waterbody	Site Label	Sample Date	Species	Fork Length (mm)	Weight (g)	Age (years)	Sexual Maturity[a]	Gonad Weight (g)	Capture Code[b]	Tissue ID
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	42	<1					SJE0104
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	44	<1					SJE0104
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	40	<1					SJE0104
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	47	<1					SJE0104
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	24	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	23	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	28	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	43	<1					SJE0104
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	29	<1					SJE0105
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	53	2					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	45	<1					SJE0105
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	28	<1					SJE0105
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	43	<1					SJE0105
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	50	<1					SJE0105
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	50	<1					SJE0105
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	28	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	24	<1					SJE0105
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	40	<1					SJE0105
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	42	<1					SJE0104
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	24	<1					SJE0105
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	42	<1					SJE0105
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	45	<1					SJE0105
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	42	<1					SJE0105
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	26	<1					SJE0105
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	51	2					SJE0104
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	25	<1					SJE0105
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	46	<1					SJE0102
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	29	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	46	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	25	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	27	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	28	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	22	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	26	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	23	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	49	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	41	<1					SJE0102
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	52	<1					SJE0102
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	42	<1					SJE0102
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	52	2					SJE0102
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	25	<1					SJE0105
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	24	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	48	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	25	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	43	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	46	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	23	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	21	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	26	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	26	<1					SJE0103

[a] See Appendix H3. for maturity code descriptions

[b] Capture Codes: 0 released alive; 1 mortality

Appendix H4. Biological characteristics of collected fish, Jericho AEMP 2005.

Waterbody	Site Label	Sample Date	Species	Fork Length (mm)	Weight (g)	Age (years)	Sexual Maturity[a]	Gonad Weight (g)	Capture Code[b]	Tissue ID
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	26	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	23	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	21	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	23	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	26	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	24	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	25	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	24	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	29	<1					SJE0103
Jericho Lake	EFJE02	12/07/05	Slimy sculpin	24	<1					SJE0103
Stream C3	EFLC301	08/07/05	Lake trout	33						
Stream C3	EFLC301	13/08/05	Slimy sculpin	66						
Stream C3	EFLC301	13/08/05	Slimy sculpin	48						
Stream C3	EFLC301	08/07/05	Lake trout	35						
Stream C3	EFLC301	08/07/05	Lake trout	31						
Stream C3	EFLC301	08/07/05	Lake trout	32						
Stream C3	EFLC301	08/07/05	Lake trout	31						
Stream C3	EFLC301	08/07/05	Lake trout	29						
Stream C3	EFLC301	08/07/05	Lake trout	33						
Stream C1	EFLCA01	14/08/05	Slimy sculpin	64						
Stream C1	EFLCA01	14/08/05	Slimy sculpin	65						
Stream C1	EFLCA01	07/07/05	Slimy sculpin	33						
Stream C1	EFLCA01	14/08/05	Slimy sculpin	83						
Stream C1	EFLCA01	14/08/05	Slimy sculpin	56						
Stream C1	EFLCA01	14/08/05	Slimy sculpin	64						
Stream C1	EFLCA01	14/08/05	Slimy sculpin	66						
Stream C1	EFLCA01	07/07/05	Slimy sculpin	37						
Stream C1	EFLCA01	07/07/05	Slimy sculpin	31						
Stream C1	EFLCA01	07/07/05	Lake trout	33						
Stream C1	EFLCA01	14/08/05	Slimy sculpin	57						
Stream C1	EFLCA01	07/07/05	Slimy sculpin	36						
Stream C1	EFLCA01	07/07/05	Lake trout	41						
Stream C1	EFLCA01	07/07/05	Lake trout	32						
Stream C1	EFLCA01	07/07/05	Lake trout	31						
Stream C1	EFLCA01	07/07/05	Lake trout	33						
Stream C1	EFLCA01	07/07/05	Lake trout	56						
Stream C1	EFLCA01	07/07/05	Lake trout	69	4					
Stream C1	EFLCA01	07/07/05	Lake trout	33						
Stream C1	EFLCA01	07/07/05	Slimy sculpin	36						
Stream C1	EFLCA01	07/07/05	Slimy sculpin	58						
Stream C1	EFLCA01	07/07/05	Slimy sculpin	67						
Stream C1	EFLCA01	07/07/05	Slimy sculpin	36						
Stream C1	EFLCA01	07/07/05	Slimy sculpin	38						
Stream C1	EFLCA01	07/07/05	Slimy sculpin	35						
Stream C1	EFLCA01	07/07/05	Slimy sculpin	31						
Stream C1	EFLCA01	07/07/05	Slimy sculpin	34						
Stream C1	EFLCA01	07/07/05	Slimy sculpin	64	2					
Stream C1	EFLCA01	07/07/05	Slimy sculpin	38						
Stream C1	EFSC101	07/07/05	Lake trout	63	2					
Stream C1	EFSC101	07/07/05	Lake trout	59	2					

[a] See Appendix H3. for maturity code descriptions

[b] Capture Codes: 0 released alive; 1 mortality

Appendix H4. Biological characteristics of collected fish, Jericho AEMP 2005.

Waterbody	Site Label	Sample Date	Species	Fork Length (mm)	Weight (g)	Age (years)	Sexual Maturity[a]	Gonad Weight (g)	Capture Code[b]	Tissue ID
Stream C1	EFSC101	07/07/05	Lake trout	63	2				2	
Stream C1	EFSC101	07/07/05	Lake trout	65	2					
Stream C1	EFSC101	07/07/05	Lake trout	63	2					
Stream C1	EFSC101	07/07/05	Lake trout	61	2					
Stream C1	EFSC101	07/07/05	Lake trout	31						
Stream C1	EFSC101	07/07/05	Lake trout	68	2					
Stream C1	EFSC101	07/07/05	Lake trout	71	2					
Stream C1	EFSC101	07/07/05	Lake trout	62	2					
Stream C1	EFSC101	07/07/05	Lake trout	55						
Stream C1	EFSC101	07/07/05	Lake trout	58	2					
Stream C1	EFSC101	07/07/05	Lake trout	62	2					
Stream C1	EFSC101	07/07/05	Lake trout	56	2					
Stream C1	EFSC101	07/07/05	Lake trout	58	2					
Stream C1	EFSC101	07/07/05	Slimy sculpin	66					2	
Stream C1	EFSC101	07/07/05	Slimy sculpin	18						
Stream C1	EFSC101	07/07/05	Slimy sculpin	34						
Stream C1	EFSC101	07/07/05	Lake trout	64	2					
Stream C1	EFSC101	07/07/05	Slimy sculpin	64						
Stream C1	EFSC101	07/07/05	Slimy sculpin	42						
Stream C1	EFSC101	07/07/05	Slimy sculpin	37						
Stream C1	EFSC101	07/07/05	Slimy sculpin	43						
Stream C1	EFSC101	07/07/05	Slimy sculpin	36						
Stream C1	EFSC101	07/07/05	Slimy sculpin	37						
Stream C1	EFSC101	07/07/05	Slimy sculpin	37						
Stream C1	EFSC101	07/07/05	Slimy sculpin	36						
Stream C1	EFSC101	07/07/05	Slimy sculpin	32						
Stream C1	EFSC101	07/07/05	Slimy sculpin	40						
Stream C1	EFSC101	07/07/05	Slimy sculpin	35						
Stream C1	EFSC101	07/07/05	Slimy sculpin	50						
Stream C1	EFSC101	07/07/05	Slimy sculpin	49					2	
Stream C1	EFSC101	07/07/05	Slimy sculpin	50						
Stream C1	EFSC101	07/07/05	Slimy sculpin	41						
Stream C1	EFSC101	07/07/05	Slimy sculpin	44						
Stream C1	EFSC101	07/07/05	Slimy sculpin	48						
Stream C1	EFSC101	07/07/05	Slimy sculpin	41						
Stream C1	EFSC101	07/07/05	Slimy sculpin	46						
Stream C1	EFSC101	07/07/05	Slimy sculpin	59	2					
Stream C1	EFSC101	07/07/05	Slimy sculpin	70	2					
Stream C1	EFSC101	07/07/05	Slimy sculpin	52						
Stream C1	EFSC101	07/07/05	Slimy sculpin	55						
Stream C1	EFSC101	07/07/05	Slimy sculpin	55						
Stream C1	EFSC101	07/07/05	Slimy sculpin	65						
Stream C1	EFSC101	07/07/05	Slimy sculpin	56						
Stream C1	EFSC101	07/07/05	Slimy sculpin	42						
Stream C1	EFSC101	07/07/05	Lake trout	65	2					
Stream C1	EFSC101	14/08/05	Slimy sculpin	52						
Stream C1	EFSC101	14/08/05	Slimy sculpin	60						
Stream C1	EFSC101	14/08/05	Slimy sculpin	65						
Stream C1	EFSC101	14/08/05	Slimy sculpin	75						
Stream C1	EFSC101	14/08/05	Slimy sculpin	50						

[a] See Appendix H3. for maturity code descriptions

[b] Capture Codes: 0 released alive; 1 mortality

Appendix H4. Biological characteristics of collected fish, Jericho AEMP 2005.

Waterbody	Site Label	Sample Date	Species	Fork Length (mm)	Weight (g)	Age (years)	Sexual Maturity[a]	Gonad Weight (g)	Capture Code[b]	Tissue ID
Stream C1	EFSC101	14/08/05	Slimy sculpin	56						
Stream C1	EFSC101	14/08/05	Slimy sculpin	67						
Stream C1	EFSC101	14/08/05	Slimy sculpin	48						
Stream C1	EFSC101	14/08/05	Slimy sculpin	56						
Stream C1	EFSC101	14/08/05	Slimy sculpin	48						
Stream C1	EFSC101	14/08/05	Slimy sculpin	45						
Stream C1	EFSC101	14/08/05	Slimy sculpin	72						
Stream C1	EFSC101	14/08/05	Slimy sculpin	70						
Stream C1	EFSC101	14/08/05	Slimy sculpin	69						
Stream C1	EFSC101	14/08/05	Slimy sculpin	52						
Stream C1	EFSC101	14/08/05	Slimy sculpin	66						
Stream C1	EFSC101	14/08/05	Slimy sculpin	61						
Stream C1	EFSC101	07/07/05	Slimy sculpin	44						
Stream C1	EFSC101	07/07/05	Lake trout	56						
Stream C1	EFSC101	07/07/05	Lake trout	47						
Stream C1	EFSC101	14/08/05	Slimy sculpin	59						
Stream C1	EFSC101	07/07/05	Lake trout	57	2					
Stream C1	EFSC101	14/08/05	Slimy sculpin	64						
Stream C1	EFSC101	07/07/05	Lake trout	59	2					
Stream C1	EFSC101	14/08/05	Slimy sculpin	64						
Stream C1	EFSC101	07/07/05	Lake trout	62	2					
Stream C1	EFSC101	07/07/05	Lake trout	52	2					
Stream C1	EFSC101	07/07/05	Lake trout	58						
Stream C1	EFSC101	07/07/05	Lake trout	124	2					
Stream C1	EFSC101	14/08/05	Slimy sculpin	64						
Stream C1	EFSC101	14/08/05	Slimy sculpin	47						
Stream C1	EFSC101	14/08/05	Slimy sculpin	56						
Stream C1	EFSC101	14/08/05	Slimy sculpin	50						
Stream C1	EFSC101	14/08/05	Slimy sculpin	55						
Stream C1	EFSC101	07/07/05	Lake trout	58	2					
Stream C1	EFSC101	14/08/05	Slimy sculpin	52						
Stream C1	EFSC101	14/08/05	Slimy sculpin	65						
Stream C1	EFSC101	14/08/05	Slimy sculpin	64						
Stream C1	EFSC101	14/08/05	Slimy sculpin	57						
Stream C1	EFSC101	14/08/05	Slimy sculpin	56						
Stream C1	EFSC101	14/08/05	Slimy sculpin	53						
Stream C1	EFSC101	14/08/05	Slimy sculpin	47						
Stream C1	EFSC101	14/08/05	Slimy sculpin	58						
Stream C1	EFSC101	14/08/05	Slimy sculpin	52						
Stream C1	EFSC102	07/07/05	Lake trout	73	2					
Stream C1	EFSC102	07/07/05	Lake trout	73						
Stream C1	EFSC102	07/07/05	Lake trout	57						
Stream C1	EFSC102	07/07/05	Lake trout	64						
Stream C1	EFSC102	07/07/05	Lake trout	54	2					
Stream C1	EFSC102	07/07/05	Lake trout	72	4					
Stream C1	EFSC102	07/07/05	Lake trout	60						
Stream C1	EFSC102	07/07/05	Lake trout	61	2					
Stream C1	EFSC102	14/08/05	Slimy sculpin	45						
Stream C1	EFSC102	07/07/05	Lake trout	55						
Stream C1	EFSC102	07/07/05	Lake trout	38						

[a] See Appendix H3. for maturity code descriptions

[b] Capture Codes: 0 released alive; 1 mortality

Appendix H4. Biological characteristics of collected fish, Jericho AEMP 2005.

Waterbody	Site Label	Sample Date	Species	Fork Length (mm)	Weight (g)	Age (years)	Sexual Maturity[a]	Gonad Weight (g)	Capture Code[b]	Tissue ID
Stream C1	EFSC102	07/07/05	Lake trout	70	2					
Stream C1	EFSC102	14/08/05	Slimy sculpin	59						
Stream C1	EFSC102	14/08/05	Slimy sculpin	54						
Stream C1	EFSC102	14/08/05	Slimy sculpin	63						
Stream C1	EFSC102	14/08/05	Slimy sculpin	70						
Stream C1	EFSC102	14/08/05	Slimy sculpin	51						
Stream C1	EFSC102	14/08/05	Slimy sculpin	79						
Stream C1	EFSC102	14/08/05	Slimy sculpin	64						
Stream C1	EFSC102	14/08/05	Slimy sculpin	51						
Stream C1	EFSC102	14/08/05	Slimy sculpin	56						
Stream C1	EFSC102	14/08/05	Slimy sculpin	65						
Stream C1	EFSC102	07/07/05	Slimy sculpin	52						
Stream C1	EFSC102	07/07/05	Lake trout	62	2					
Stream C1	EFSC102	14/08/05	Slimy sculpin	52						
Stream C1	EFSC102	07/07/05	Slimy sculpin	66						
Stream C1	EFSC102	07/07/05	Slimy sculpin	74	4					
Stream C1	EFSC102	07/07/05	Slimy sculpin	72	2					
Stream C1	EFSC102	07/07/05	Slimy sculpin	58						
Stream C1	EFSC102	07/07/05	Slimy sculpin	57						
Stream C1	EFSC102	07/07/05	Slimy sculpin	71	4					
Stream C1	EFSC102	07/07/05	Slimy sculpin	68	2					
Stream C1	EFSC102	07/07/05	Slimy sculpin	71						
Stream C1	EFSC102	07/07/05	Slimy sculpin	40						
Stream C1	EFSC102	07/07/05	Slimy sculpin	38						
Stream C1	EFSC102	07/07/05	Slimy sculpin	45					2	
Stream C1	EFSC102	07/07/05	Slimy sculpin	51						
Stream C1	EFSC102	07/07/05	Slimy sculpin	71	2					
Stream C1	EFSC102	07/07/05	Slimy sculpin	52						
Stream C1	EFSC102	07/07/05	Slimy sculpin	63	2					
Stream C1	EFSC102	07/07/05	Slimy sculpin	44						
Stream C1	EFSC102	07/07/05	Slimy sculpin	56					2	
Stream C1	EFSC102	07/07/05	Slimy sculpin	42						
Stream C1	EFSC102	07/07/05	Slimy sculpin	51					2	
Stream C1	EFSC102	07/07/05	Slimy sculpin	54						
Stream C1	EFSC103	07/07/05	Slimy sculpin	77	4					
Stream C1	EFSC103	07/07/05	Slimy sculpin	65	2					
Stream C1	EFSC103	07/07/05	Slimy sculpin	37					2	
Stream C1	EFSC103	07/07/05	Slimy sculpin	41						
Stream C1	EFSC103	07/07/05	Slimy sculpin	41						
Stream C1	EFSC103	07/07/05	Slimy sculpin	53						
Stream C1	EFSC103	07/07/05	Slimy sculpin	48						
Stream C1	EFSC103	07/07/05	Slimy sculpin	44						
Stream C1	EFSC103	07/07/05	Slimy sculpin	50						
Stream C1	EFSC103	07/07/05	Slimy sculpin	79	4					
Stream C1	EFSC103	07/07/05	Slimy sculpin	45						
Stream C1	EFSC103	07/07/05	Slimy sculpin	68						
Stream C1	EFSC103	07/07/05	Slimy sculpin	36						
Stream C1	EFSC103	07/07/05	Lake trout	53	2					
Stream C1	EFSC103	07/07/05	Slimy sculpin	67						
Stream C1	EFSC103	14/08/05	Slimy sculpin	55						

[a] See Appendix H3. for maturity code descriptions

[b] Capture Codes: 0 released alive; 1 mortality

Appendix H4. Biological characteristics of collected fish, Jericho AEMP 2005.

Waterbody	Site Label	Sample Date	Species	Fork Length (mm)	Weight (g)	Age (years)	Sexual Maturity[a]	Gonad Weight (g)	Capture Code[b]	Tissue ID
Stream C1	EFSC103	14/08/05	Slimy sculpin	54						
Stream C1	EFSC103	14/08/05	Slimy sculpin	56						
Stream C1	EFSC103	07/07/05	Slimy sculpin	44						
Stream C1	EFSC103	07/07/05	Lake trout	57	2					
Stream C1	EFSC103	07/07/05	Lake trout	67	2					
Stream C1	EFSC103	07/07/05	Lake trout	72	2					
Stream C1	EFSC103	07/07/05	Slimy sculpin	72	2					
Stream C1	EFSC103	07/07/05	Slimy sculpin	50						
Stream C1	EFSC103	07/07/05	Slimy sculpin	54					2	
Stream C1	EFSC103	14/08/05	Slimy sculpin	42						
Stream C1	EFSC103	14/08/05	Slimy sculpin	44						
Stream C1	EFSC104	14/08/05	Slimy sculpin	64						
Stream C1	EFSC104	07/07/05	Slimy sculpin	44						
Stream C1	EFSC104	07/07/05	Slimy sculpin	45						
Stream C1	EFSC104	07/07/05	Slimy sculpin	44						
Stream C1	EFSC104	14/08/05	Slimy sculpin	52						
Stream C1	EFSC104	14/08/05	Slimy sculpin	70						
Stream C1	EFSC104	07/07/05	Slimy sculpin	45						
Stream C1	EFSC104	07/07/05	Lake trout	65						
Stream C1	EFSC105	14/08/05	Slimy sculpin	57						
Stream C1	EFSC105	07/07/05	Slimy sculpin	35						
Stream C1	EFSC105	07/07/05	Slimy sculpin	58						
Stream C1	EFSC105	07/07/05	Slimy sculpin	50						
Stream C1	EFSC105	07/07/05	Slimy sculpin	48						
Stream C1	EFSC105	14/08/05	Slimy sculpin	57						
Stream C1	EFSC105	14/08/05	Slimy sculpin	48						
Stream C1	EFSC105	14/08/05	Slimy sculpin	68						
Stream C1	EFSC105	07/07/05	Slimy sculpin	58						
Stream C1	EFSC106	14/08/05	Slimy sculpin	66						
Stream C1	EFSC106	14/08/05	Slimy sculpin	51						
Stream C1	EFSC106	14/08/05	Slimy sculpin	74						
Stream C1	EFSC106	14/08/05	Slimy sculpin	41						
Stream C1	EFSC106	14/08/05	Slimy sculpin	65						
Stream C1	EFSC106	14/08/05	Slimy sculpin	48						
Stream C3	EFSC301	08/07/05	Slimy sculpin	52						
Stream C3	EFSC301	08/07/05	Slimy sculpin	74	2					
Stream C3	EFSC301	08/07/05	Slimy sculpin	65	2					
Stream C3	EFSC301	08/07/05	Slimy sculpin	58						
Stream C3	EFSC301	08/07/05	Slimy sculpin	55					2	
Stream C3	EFSC301	08/07/05	Slimy sculpin	78	4					
Stream C3	EFSC301	08/07/05	Slimy sculpin	58						
Stream C3	EFSC301	08/07/05	Slimy sculpin	69	2					
Stream C3	EFSC301	08/07/05	Slimy sculpin	42						
Stream C3	EFSC301	08/07/05	Slimy sculpin	63	2					
Stream C3	EFSC301	08/07/05	Slimy sculpin	59						
Stream C3	EFSC301	08/07/05	Slimy sculpin	61	2					
Stream C3	EFSC301	08/07/05	Slimy sculpin	65						
Stream C3	EFSC301	08/07/05	Slimy sculpin	60	2					
Stream C3	EFSC301	08/07/05	Slimy sculpin	88	4					
Stream C3	EFSC301	08/07/05	Slimy sculpin	67	2					

[a] See Appendix H3. for maturity code descriptions

[b] Capture Codes: 0 released alive; 1 mortality

Appendix H4. Biological characteristics of collected fish, Jericho AEMP 2005.

Waterbody	Site Label	Sample Date	Species	Fork Length (mm)	Weight (g)	Age (years)	Sexual Maturity[a]	Gonad Weight (g)	Capture Code[b]	Tissue ID
Stream C3	EFSC301	08/07/05	Slimy sculpin	60	2					
Stream C3	EFSC301	08/07/05	Slimy sculpin	48						
Stream C3	EFSC301	08/07/05	Slimy sculpin	55						
Stream C3	EFSC301	08/07/05	Slimy sculpin	65	2					
Stream C3	EFSC301	08/07/05	Slimy sculpin	38						
Stream C3	EFSC301	08/07/05	Slimy sculpin	34						
Stream C3	EFSC301	08/07/05	Slimy sculpin	53						
Stream C3	EFSC301	13/08/05	Slimy sculpin	63						
Stream C3	EFSC301	13/08/05	Slimy sculpin	76						
Stream C3	EFSC301	13/08/05	Slimy sculpin	68						
Stream C3	EFSC301	13/08/05	Slimy sculpin	69						
Stream C3	EFSC301	08/07/05	Slimy sculpin	62	2					
Stream C3	EFSC301	13/08/05	Slimy sculpin	76						
Stream C3	EFSC301	08/07/05	Slimy sculpin	23						
Stream C3	EFSC301	13/08/05	Slimy sculpin	55						
Stream C3	EFSC301	13/08/05	Slimy sculpin	69						
Stream C3	EFSC301	13/08/05	Slimy sculpin	64						
Stream C3	EFSC301	13/08/05	Slimy sculpin	55						
Stream C3	EFSC301	13/08/05	Slimy sculpin	52						
Stream C3	EFSC301	08/07/05	Slimy sculpin	42						
Stream C3	EFSC301	13/08/05	Slimy sculpin	72						
Stream C3	EFSC301	13/08/05	Slimy sculpin	79						
Stream C3	EFSC301	08/07/05	Slimy sculpin	39						
Stream C3	EFSC301	08/07/05	Slimy sculpin	44						
Stream C3	EFSC301	08/07/05	Slimy sculpin	47						
Stream C3	EFSC301	08/07/05	Lake trout	80	6					
Stream C3	EFSC301	08/07/05	Arctic char	33						
Stream C3	EFSC301	13/08/05	Slimy sculpin	67						
Stream C3	EFSC301	13/08/05	Slimy sculpin	66						
Stream C3	EFSC301	13/08/05	Slimy sculpin	53						
Stream C3	EFSC301	08/07/05	Slimy sculpin	42						
Stream C3	EFSC302	08/07/05	Slimy sculpin	46						
Stream C3	EFSC302	08/07/05	Slimy sculpin	43						
Stream C3	EFSC302	08/07/05	Slimy sculpin	62						
Stream C3	EFSC302	08/07/05	Slimy sculpin	69	2					
Stream C3	EFSC302	08/07/05	Slimy sculpin	60						
Stream C3	EFSC302	08/07/05	Slimy sculpin	70	2					
Stream C3	EFSC302	08/07/05	Slimy sculpin	66	2					
Stream C3	EFSC302	08/07/05	Slimy sculpin	64						
Stream C3	EFSC302	08/07/05	Slimy sculpin	54						
Stream C3	EFSC302	08/07/05	Slimy sculpin	60						
Stream C3	EFSC302	08/07/05	Slimy sculpin	65	2					
Stream C3	EFSC302	08/07/05	Slimy sculpin	48						
Stream C3	EFSC302	08/07/05	Slimy sculpin	55						
Stream C3	EFSC302	13/08/05	Slimy sculpin	58						
Stream C3	EFSC302	13/08/05	Slimy sculpin	65						
Stream C3	EFSC302	08/07/05	Slimy sculpin	76						
Stream C3	EFSC302	13/08/05	Slimy sculpin	72						
Stream C3	EFSC302	13/08/05	Slimy sculpin	61						
Stream C3	EFSC302	13/08/05	Slimy sculpin	76						

[a] See Appendix H3. for maturity code descriptions

[b] Capture Codes: 0 released alive; 1 mortality

Appendix H4. Biological characteristics of collected fish, Jericho AEMP 2005.

Waterbody	Site Label	Sample Date	Species	Fork Length (mm)	Weight (g)	Age (years)	Sexual Maturity[a]	Gonad Weight (g)	Capture Code[b]	Tissue ID
Stream C3	EFSC302	13/08/05	Slimy sculpin	58						
Stream C3	EFSC302	13/08/05	Slimy sculpin	62						
Stream C3	EFSC302	08/07/05	Arctic char	71						
Stream C3	EFSC302	08/07/05	Arctic char	68						
Stream C3	EFSC302	08/07/05	Lake trout	31						
Stream C3	EFSC302	08/07/05	Slimy sculpin	54						
Stream C3	EFSC302	13/08/05	Slimy sculpin	64						
Stream C3	EFSC303	08/07/05	Slimy sculpin	52						
Stream C3	EFSC303	08/07/05	Slimy sculpin	55						
Stream C3	EFSC303	08/07/05	Slimy sculpin	45						
Stream C3	EFSC303	08/07/05	Slimy sculpin	61						
Stream C3	EFSC303	13/08/05	Slimy sculpin	70						
Stream C3	EFSC303	13/08/05	Slimy sculpin	63						
Stream C3	EFSC303	13/08/05	Slimy sculpin	54						
Stream C3	EFSC303	13/08/05	Slimy sculpin	60						
Stream C3	EFSC303	08/07/05	Slimy sculpin	62						
Stream C3	EFSC304	13/08/05	Slimy sculpin	77						
Stream C3	EFSC304	13/08/05	Slimy sculpin	55						
Stream C3	EFSC305	13/08/05	Slimy sculpin	61						
Stream W	EFWL01	11/07/05	Slimy sculpin	87	8					
Stream W	EFWL01	11/07/05	Slimy sculpin	52	2					
Stream W	EFWL01	11/07/05	Slimy sculpin	52	2					
Stream W	EFWL01	11/07/05	Slimy sculpin	64	2					
Stream W	EFWL01	11/07/05	Slimy sculpin	38	<1					
Stream W	EFWL01	11/07/05	Slimy sculpin	61	4					
Stream W	EFWL01	11/07/05	Slimy sculpin	62	2					
Stream W	EFWL01	11/07/05	Slimy sculpin	65	4					
Stream W	EFWL01	11/07/05	Slimy sculpin	48	<1					
Stream W	EFWL01	11/07/05	Slimy sculpin	38	<1					
Stream W	EFWL01	11/07/05	Slimy sculpin	40	<1					
Stream W	EFWL01	11/07/05	Slimy sculpin	33	<1					
Stream W	EFWL01	11/07/05	Slimy sculpin	50	2					
Stream W	EFWL01	11/07/05	Slimy sculpin	61	2					
Stream W	EFWL01	11/07/05	Slimy sculpin	58	2					
Stream W	EFWL01	11/07/05	Slimy sculpin	60	<1					
Stream W	EFWL01	11/07/05	Slimy sculpin	51	<1					
Stream W	EFWL01	11/07/05	Slimy sculpin	66	4					
Stream W	EFWL01	11/07/05	Slimy sculpin	37	<1					
Stream W	EFWL01	11/07/05	Slimy sculpin	41	<1					
Stream W	EFWL01	11/07/05	Slimy sculpin	47	<1					
Stream W	EFWL01	11/07/05	Slimy sculpin	33	<1					
Stream W	EFWL01	11/07/05	Slimy sculpin	49	2					
Stream W	EFWL01	11/07/05	Slimy sculpin	52	2					
Stream W	EFWL01	12/08/05	Slimy sculpin	65	2					EFWI1901
Stream W	EFWL01	11/07/05	Slimy sculpin	72	4					
Stream W	EFWL01	11/07/05	Slimy sculpin	46	<1					
Stream W	EFWL01	11/07/05	Slimy sculpin	53	2					
Stream W	EFWL01	11/07/05	Slimy sculpin	65	2					
Stream W	EFWL01	11/07/05	Slimy sculpin	74	4					
Stream W	EFWL01	11/07/05	Slimy sculpin	53	2					

[a] See Appendix H3. for maturity code descriptions

[b] Capture Codes: 0 released alive; 1 mortality

Appendix H4. Biological characteristics of collected fish, Jericho AEMP 2005.

Waterbody	Site Label	Sample Date	Species	Fork Length (mm)	Weight (g)	Age (years)	Sexual Maturity[a]	Gonad Weight (g)	Capture Code[b]	Tissue ID
Stream W	EFWL01	11/07/05	Slimy sculpin	54	<1					
Stream W	EFWL01	11/07/05	Slimy sculpin	50	2					
Stream W	EFWL01	11/07/05	Slimy sculpin	52	2					
Stream W	EFWL01	11/07/05	Slimy sculpin	69	2					
Stream W	EFWL01	11/07/05	Slimy sculpin	57	2					
Stream W	EFWL01	11/07/05	Slimy sculpin	60	2					
Stream W	EFWL01	12/08/05	Slimy sculpin	80	6					EFWI1201
Stream W	EFWL01	12/08/05	Slimy sculpin	80	2					EFWI1401
Stream W	EFWL01	11/07/05	Slimy sculpin	55	2					
Stream W	EFWL01	12/08/05	Slimy sculpin	75	4					EFWI1301
Stream W	EFWL01	12/08/05	Slimy sculpin	68	2					EFWI2001
Stream W	EFWL01	12/08/05	Slimy sculpin	84	4					EFWI1301
Stream W	EFWL01	12/08/05	Slimy sculpin	57	2					EFWI1201
Stream W	EFWL01	12/08/05	Slimy sculpin	91	8					EFWI1401
Stream W	EFWL01	12/08/05	Slimy sculpin	65	2					EFWI1201
Stream W	EFWL01	12/08/05	Slimy sculpin	61	2					EFWI1301
Stream W	EFWL01	12/08/05	Slimy sculpin	67	2					EFWI1101
Stream W	EFWL01	12/08/05	Slimy sculpin	100	8					EFWI1101
Stream W	EFWL01	12/08/05	Slimy sculpin	72	2					EFW1801
Stream W	EFWL01	12/08/05	Slimy sculpin	61	<1					EFW1701
Stream W	EFWL01	12/08/05	Slimy sculpin	74	4					EFW1701
Stream W	EFWL01	12/08/05	Slimy sculpin	91	6					EFW1701
Stream W	EFWL01	12/08/05	Burbot	202	46					
Stream W	EFWL01	12/08/05	Slimy sculpin	62	2					EFWI1201
Stream W	EFWL01	12/08/05	Slimy sculpin	60	<1					EFWI2001
Stream W	EFWL01	11/07/05	Slimy sculpin	40	<1					
Stream W	EFWL01	11/07/05	Slimy sculpin	75	2					
Stream W	EFWL01	11/07/05	Slimy sculpin	37	<1					
Stream W	EFWL01	12/08/05	Slimy sculpin	59	<1					EFWI1301
Stream W	EFWL01	12/08/05	Slimy sculpin	99	8					EFWI1801
Stream W	EFWL01	12/08/05	Slimy sculpin	58	<1					EFWI1401
Stream W	EFWL01	12/08/05	Slimy sculpin	74	4					EFWI2001
Stream W	EFWL01	12/08/05	Slimy sculpin	80	2					EFWI2001
Stream W	EFWL01	12/08/05	Slimy sculpin	95	8					EFWI1501
Stream W	EFWL01	12/08/05	Slimy sculpin	84	6					EFWI1901
Stream W	EFWL01	12/08/05	Slimy sculpin	62	<1					EFWI1601
Stream W	EFWL01	12/08/05	Slimy sculpin	72	2					EFWI1601
Stream W	EFWL01	12/08/05	Slimy sculpin	75	4					EFWI1601
Stream W	EFWL01	12/08/05	Slimy sculpin	75	4					EFWI1601
Stream W	EFWL01	12/08/05	Slimy sculpin	75	2					EFWI1501
Stream W	EFWL01	12/08/05	Slimy sculpin	71	4					EFWI1901
Stream W	EFWL01	11/07/05	Slimy sculpin	71	2					
Stream W	EFWL02	12/07/05	Slimy sculpin	71	4					
Stream W	EFWL02	12/07/05	Slimy sculpin	77	6					
Stream W	EFWL02	12/07/05	Slimy sculpin	57	2					
Stream W	EFWL02	12/07/05	Slimy sculpin	70	4					
Stream W	EFWL02	12/07/05	Slimy sculpin	52	2					
Stream W	EFWL02	12/07/05	Slimy sculpin	38	<1					
Stream W	EFWL02	12/07/05	Slimy sculpin	66	2					

[a] See Appendix H3. for maturity code descriptions

[b] Capture Codes: 0 released alive; 1 mortality

Appendix H5. Summary statistics of Stream C1 and Stream C3 fish population estimates, Jericho AEMP 2005.

Parameter	Stream C1			Stream C3			
	July		August	July			August
	Slimy sculpin	Lake trout	Slimy sculpin	Slimy sculpin	Lake trout	Arctic char	Slimy sculpin
Removal Pattern	31, 21, 18, 4, 5	26, 12, 4, 1, 0	34, 12, 5, 3, 4, 6	30, 15, 5	1, 1, 0	1, 2, 0	15, 8, 4, 2, 1
Total Catch	79	43	64	50	2	3	30
Population Estimate	86	43	66	53	2	3	30
Chi Square	4.382	1.206	15.259	0.476	0.929	2.932	0.389
Population Estimate Standard Error	4.646	0.514	2.207	3.065	0.384	0.709	1.007
Lower Confidence Interval	79	43	64	50	2	3	30
Upper Confidence Interval	95.236	44.037	70.41	59.151	6.884	6.05	32.06
Capture Probability	0.389	0.652	0.418	0.595	0.667	0.6	0.536
Capture Probability Standard Error	0.056	0.064	0.054	0.085	0.384	0.354	0.083
Lower Confidence Interval	0.277	0.522	0.31	0.425	-4.217	-0.925	0.365
Upper Confidence Interval	0.501	0.781	0.527	0.766	5.55	2.125	0.706
Actual calculated lower CI	76.76419	41.9634	61.58976	46.84884	-2.883589	0.05002093	27.93978

Appendix I1-1. Fish liver metal concentrations data, Jericho AEMP 2005.

Tissue Id	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Lithium	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Phosphorus	Potassium	Selenium	Silver	Sodium	Strontium	Titanium	Vanadium	Zinc	Zirconium	Moisture
LCI0201L	9.2	<0.3	<0.1	<0.01	<0.008	<0.3	0.43	68.6	0.11	0.1	18.6	1190	<0.1	0.06	161	1.8	0.191	0.2	0.64	4050	2430	1.9	<0.08	1480	0.11	<0.03	<0.08	39.1	<0.03	73.5
LCI0202L	9.6	<0.1	<0.05	0.024	<0.004	<0.1	0.26	49.9	0.009	0.14	1.94	791	0.1	0.03	192	4.06	0.14	0.1	0.35	4060	3150	1.31	<0.04	1380	0.058	<0.01	<0.04	25.6	<0.01	74.3
LCI0203L	5.1	<0.3	<0.1	0.046	<0.009	<0.3	0.3	57.4	0.02	0.09	13.6	427	<0.2	<0.06	161	1.7	0.492	0.1	0.43	4040	3130	1.8	<0.09	1680	0.092	<0.03	<0.09	36.3	<0.03	69.1
LCI0305L	7	<0.3	<0.1	0.02	<0.008	<0.3	0.31	79.5	0.035	0.1	12	906	<0.1	0.06	157	1.9	0.0742	0.1	0.29	3790	2850	1.6	<0.08	1510	0.12	<0.03	<0.08	38.4	<0.03	72
LCI0306L	5	<0.3	<0.1	0.02	<0.008	<0.3	0.34	52.1	0.037	0.1	21.6	1080	<0.1	0.06	175	1.9	0.276	0.2	0.38	4320	2900	2	<0.08	1630	0.068	<0.03	<0.08	38.8	<0.03	70.7
LCI0309L	2.9	<0.1	<0.06	0.007	<0.004	<0.1	0.16	89.8	0.034	0.03	5.41	354	<0.07	0.04	202	2.68	0.109	0.06	0.48	4690	3600	0.87	<0.04	1060	0.096	<0.01	<0.04	28.5	<0.01	71.2
LCI0310L	3	<0.3	<0.1	0.01	<0.008	<0.3	0.1	125	0.031	0.07	7.68	654	<0.1	0.06	169	1.4	0.274	0.1	0.2	4200	2580	2.1	<0.08	1790	0.19	<0.03	<0.08	39.4	<0.03	70.4
LCI0404L	5.2	<0.3	<0.1	<0.01	<0.009	<0.3	0.2	62.7	0.033	0.2	11.6	710	<0.1	0.06	163	1.7	0.208	0.1	0.63	4240	2870	2.1	<0.09	1700	0.083	<0.03	<0.09	33.9	<0.03	69.9
LCI0407L	8.5	<0.2	<0.06	<0.008	<0.005	<0.2	0.26	51.4	0.067	0.08	12.1	706	<0.08	0.04	164	1.5	0.119	0.1	0.51	3790	3050	1.2	0.06	1490	0.083	<0.02	<0.05	33	<0.02	67.6
LCI0408L	7.2	<0.3	<0.1	<0.01	<0.008	<0.3	0.43	79.7	0.056	0.2	17.1	914	<0.1	<0.05	166	2.1	0.22	0.1	0.49	4000	2640	1.9	0.1	1700	0.11	<0.03	<0.08	42.6	<0.03	73
RCI0302L	1.9	<0.2	<0.06	0.01	<0.005	<0.2	0.07	61.7	<0.01	0.1	2.54	115	<0.08	0.04	196	3.12	0.142	0.1	0.65	4260	3230	1.1	<0.05	1290	0.13	<0.02	<0.05	24.9	<0.02	67.4
RCI0401L	1.7	<0.2	<0.06	0.008	<0.005	<0.2	0.07	41.9	0.01	0.07	2.49	151	<0.08	0.04	156	2.62	0.0378	0.1	0.68	3630	2990	1.2	<0.05	1170	0.08	<0.02	<0.05	22.5	<0.02	69.2
RCI0803L	3	<0.4	<0.2	0.049	<0.01	<0.4	0.1	89.5	0.045	0.1	2.2	173	<0.2	0.1	230	3.3	0.0847	0.1	0.68	4800	3860	1.6	<0.1	1220	0.15	0.04	<0.1	26	0.04	70.1
RCI0704L	1	<0.3	<0.1	0.01	<0.009	<0.3	0.09	53.1	<0.02	0.09	2.7	181	<0.1	0.08	167	2.1	0.058	0.1	0.74	3940	3190	1.5	<0.09	1250	0.13	<0.03	<0.09	29.2	<0.03	70.7
RCI0905L	2	<0.4	<0.2	<0.02	<0.01	<0.4	0.1	45.4	<0.03	0.1	2.6	386	<0.2	0.08	174	1.9	0.114	0.2	0.4	4020	3330	1.6	<0.1	979	0.1	<0.04	<0.1	29.4	<0.04	67.4
RCI0906L	12	<0.4	<0.2	0.02	<0.01	<0.4	0.3	53.2	0.04	0.09	2.5	749	<0.2	<0.08	180	2.1	0.19	0.2	0.3	4320	3220	2.6	<0.1	1000	0.11	<0.04	<0.1	32.7	0.08	64.9
LJE0101L	3.7	<0.1	<0.06	<0.007	<0.004	<0.1	0.15	63.8	<0.01	0.08	10.6	442	0.1	0.05	172	1.81	0.156	0.17	<0.03	4290	3440	1.2	<0.04	1710	0.13	<0.01	<0.04	39.9	<0.01	70.4
LJE0102L	4.5	0.5	<0.1	0.01	<0.008	<0.3	0.2	82.1	<0.02	0.09	9.74	636	0.52	0.07	174	1.7	0.251	0.2	0.35	4030	3320	1.3	<0.08	2260	0.18	<0.03	<0.08	40.2	<0.03	73
LJE0103L	1	<0.2	<0.07	<0.009	<0.005	<0.2	0.1	78.4	<0.01	0.05	12	406	<0.09	0.05	179	1.74	0.197	0.1	0.03	4450	3230	1.3	<0.05	1790	0.16	<0.02	<0.05	42.5	<0.02	68.3
LJE0104L	3.7	<0.1	<0.06	<0.007	<0.004	<0.1	0.15	55.4	<0.01	0.03	15.8	316	<0.07	0.04	171	1.74	0.134	0.1	0.27	4200	3260	1.1	<0.04	1670	0.12	<0.01	<0.04	42.7	<0.01	71
LJE0105L	4.9	<0.2	<0.08	0.02	<0.006	<0.2	0.09	69.3	0.031	0.07	10.9	537	<0.1	0.07	148	1.2	1.05	0.2	0.1	3080	2910	1.4	<0.06	1780	0.12	<0.02	<0.06	36.9	<0.02	58.7
LJE0106L	5.5	<0.2	<0.07	<0.008	<0.005	<0.2	0.47	320	0.033	0.1	21.4	1040	0.18	0.06	203	2.16	0.904	0.27	0.28	4870	4210	2.51	<0.05	1590	0.416	<0.02	<0.05	45.6	<0.02	66.8
LJE0109L	3.2	<0.1	<0.05	0.01	<0.004	<0.1	0.17	101	0.028	0.08	1.97	448	0.08	0.04	224	2.61	0.425	0.08	0.46	4560	4210	0.87	<0.04	1620	0.136	0.04	<0.04	24.9	<0.01	73.6
LJE0110L	4.3	<0.1	<0.06	0.01	<0.004	<0.1	0.17	69.5	0.022	0.05	3.5	477	0.07	0.04	227	2.88	0.143	0.07	0.41	4800	4350	0.72	<0.042	1460	0.093	<0.01	<0.04	30.1	<0.01	72.1
LJE0207L	1.6	<0.2	<0.06	<0.008	<0.004	<0.2	0.1	75.8	0.051	0.05	8.93	500	<0.08	0.05	187	2.1	0.242	0.18	0.34	4170	3790	1.63	<0.04	1790	0.171	<0.02	<0.04	38.7	<0.02	69.7
LJE0208L	4.8	<0.1	<0.06	0.04	<0.004	<0.1	0.1	83.2	0.03	0.08	8.16	410	<0.07	0.05	161	1.58	0.63	0.2	0.48	3600	3240	2.42	<0.04	1930	0.143	0.1	<0.04	38.1	<0.01	71.4
RJE0411L	3.8	<0.2	<0.06	0.027	<0.004	<0.2	0.1	56.2	0.016	0.07	2.16	84.7	<0.08	0.05	197	2.26	0.116	0.1	0.48	4330	3720	0.96	<0.04	1250	0.12	0.08	<0.04	27.2	0.02	69.8
RJE0412L	1.7	<0.2	<0.06	0.008	<0.005	<0.2	0.1	58.9	<0.01	0.07	2.36	80.5	<0.08	0.04	199	2	0.0986	0.1	0.56	4320	3870	1.1	<0.05	1220	0.12	0.02	<0.05	26.6	0.04	67.9
RJE0413L	0.5	<0.2	<0.07	<0.008	<0.005	<0.2	0.04	49	<0.01	0.09	2.99	84.8	<0.08	0.04	188	2.25	0.0783	0.2	0.67	4280	3370	1.1	<0.05	1240	0.12	0.02	<0.05	27.1	<0.02	66.4
RJE1115L	1	<0.1	<0.05	0.036	<0.004	<0.1	0.04	73.7	<0.009	0.1	1.83	90	0.07	0.04	186	2.44	0.0942	0.1	0.32	4040	3670	0.83	<0.04	1510	0.2	<0.01	<0.04	22.4	<0.01	73.3

Appendix I1-2. Fish muscle metal concentrations data, Jericho AEMP 2005.

Tissue Id	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Lithium	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Phosphorus	Potassium	Selenium	Silver	Sodium	Strontium	Titanium	Vanadium	Zinc	Zirconium	Moisture
LCI0201M	3.2	<0.1	<0.04	0.017	<0.003	<0.1	<0.01	232	0.095	<0.01	0.64	3.8	<0.05	0.05	241	0.14	0.192	<0.01	0.23	2700	4170	0.27	<0.03	433	0.32	0.01	<0.03	3.6	<0.01	78.2
LCI0202M	2.3	0.34	<0.06	0.01	<0.004	<0.1	<0.01	228	<0.0097	<0.01	1.2	4.8	0.14	0.05	297	0.21	0.26	<0.01	0.18	2910	4500	0.38	<0.04	330	0.263	<0.01	<0.04	3.72	<0.01	72.3
LCI0203M	2.9	<0.1	<0.05	0.01	<0.004	<0.1	<0.01	111	<0.01	<0.01	4.64	2.8	<0.07	0.04	287	0.1	0.121	<0.01	0.1	2870	4320	0.33	<0.04	354	0.11	<0.01	<0.04	3.64	<0.01	72.7
LCI0305M	2.4	<0.1	<0.05	<0.006	<0.004	<0.1	<0.01	77	<0.0085	<0.01	0.86	4.1	<0.06	0.02	263	0.12	0.211	<0.01	0.04	2650	4150	0.32	<0.04	302	0.056	<0.01	<0.04	3.5	<0.01	75.5
LCI0306M	1.5	<0.1	<0.05	<0.006	<0.004	<0.1	<0.01	95.1	<0.0087	<0.01	0.38	3.1	<0.06	0.03	259	0.1	0.184	<0.01	0.07	2620	4110	0.36	<0.04	327	0.083	<0.01	<0.04	3.56	<0.01	75.2
LCI0309M	5.2	<0.1	<0.05	<0.006	<0.004	<0.1	<0.01	109	0.068	<0.01	0.84	2.4	<0.06	0.03	264	0.13	0.172	<0.01	0.14	2670	4050	0.34	<0.04	299	0.1	<0.01	<0.04	3.33	<0.01	74.6
LCI0310M	3	<0.1	<0.05	<0.006	<0.004	<0.1	<0.01	86.4	<0.008	<0.01	0.28	2.9	<0.06	0.03	266	0.1	0.175	<0.01	0.06	2720	4200	0.33	<0.04	302	0.072	<0.01	<0.04	3.69	<0.01	75.4
LCI0311M	3.1	<0.1	<0.05	<0.007	<0.004	<0.1	<0.01	98.3	0.01	<0.01	3.29	2.5	<0.07	0.03	268	0.1	0.186	<0.01	0.03	2700	4050	0.36	<0.04	294	0.089	<0.01	<0.04	3.49	<0.01	73.4
LCI0404M	2.3	<0.1	<0.05	0.01	<0.004	<0.1	0.08	203	<0.0088	<0.01	0.76	2.9	<0.06	0.04	260	0.09	0.153	<0.01	0.06	2720	4150	0.31	<0.04	321	0.229	<0.01	<0.04	3.35	<0.01	74.9
LCI0407M	1.6	<0.1	<0.05	0.017	<0.004	<0.1	<0.01	239	0.03	<0.01	0.35	4.4	<0.07	0.04	267	0.14	0.141	<0.01	0.04	2700	4080	0.36	<0.04	340	0.322	<0.01	<0.04	3.56	<0.01	73.5
LCI0408M	4.7	<0.1	<0.05	0.018	<0.004	<0.1	<0.01	96.1	0.044	0.01	0.69	3.9	<0.06	0.03	268	0.25	0.0334	<0.01	0.05	2700	4240	0.47	<0.04	263	0.14	0.05	<0.04	3.7	<0.01	74.8
RCI0302M	3.1	<0.1	<0.05	0.007	<0.004	<0.1	<0.01	137	0.077	<0.01	0.32	4.6	<0.07	0.04	271	0.14	0.212	<0.01	0.07	2830	4260	0.39	<0.04	368	0.148	<0.01	<0.04	3.87	<0.01	73.2
RCI0401M	1.7	<0.1	<0.05	0.022	<0.004	<0.1	<0.01	130	<0.009	<0.01	0.92	3.7	<0.06	0.03	265	0.2	0.0357	<0.01	0.03	2760	4300	0.48	<0.04	264	0.204	<0.01	<0.04	3.62	<0.01	74.2
RCI0803M	1.6	<0.1	<0.05	0.015	<0.004	<0.1	<0.01	126	<0.009	<0.01	0.39	3.4	<0.07	0.04	300	0.14	0.0515	<0.01	0.08	2840	4510	0.69	<0.04	365	0.181	<0.01	<0.04	3.62	<0.01	73.2
RCI0704M	1.4	<0.1	<0.05	0.009	<0.004	<0.1	<0.01	87.5	<0.0092	<0.01	0.4	4	<0.06	<0.03	304	0.1	0.0585	<0.01	0.07	2910	4520	0.57	<0.04	407	0.12	<0.01	<0.04	3.61	<0.01	73.6
RCI0905M	1.4	<0.1	<0.05	0.028	<0.004	<0.1	<0.01	202	<0.0093	<0.01	0.43	3.5	<0.07	0.05	306	0.18	0.0389	<0.01	0.1	2880	4460	0.5	<0.04	391	0.358	<0.01	<0.04	3.77	<0.01	73.3
RCI0906M	2	<0.1	<0.05	0.021	<0.004	<0.1	<0.01	162	<0.0093	<0.01	0.49	4.5	<0.07	0.05	290	0.16	0.0596	<0.01	0.1	2850	4620	0.77	<0.040	505	0.24	<0.01	<0.04	3.83	<0.01	73.2
LJE0101M	1	<0.1	<0.06	<0.007	<0.004	<0.1	<0.01	72	<0.010	<0.01	0.37	2.3	<0.07	<0.03	292	0.07	0.139	<0.01	0.08	2820	4420	0.27	<0.04	282	0.063	<0.01	<0.04	3.59	<0.01	71.2
LJE0102M	2.9	<0.1	<0.05	<0.007	<0.004	<0.1	<0.01	108	<0.0094	<0.01	0.31	3.4	<0.07	0.03	284	0.1	0.175	<0.01	0.04	2810	4480	0.27	<0.04	268	0.12	<0.01	<0.04	3.49	<0.01	73
LJE0103M	0.9	<0.1	<0.06	<0.007	<0.004	<0.1	<0.01	103	<0.0096	<0.01	0.39	3.1	<0.07	0.04	287	0.09	0.109	<0.01	0.1	2730	4320	0.28	<0.04	250	0.11	<0.01	<0.04	3.69	<0.01	72.4
LJE0104M	1.7	<0.1	<0.06	0.01	<0.004	<0.1	<0.01	163	<0.0099	<0.01	0.31	2.2	<0.07	0.04	296	0.1	0.155	<0.01	0.05	2890	4360	0.26	<0.04	273	0.222	<0.01	<0.04	3.76	<0.01	71.6
LJE0105M	0.8	<0.1	<0.06	0.01	<0.004	<0.1	<0.01	117	0.164	<0.01	0.32	3.4	<0.07	0.04	280	0.1	0.539	<0.01	0.07	2560	4260	0.3	<0.04	364	0.1	<0.01	<0.04	3.65	<0.01	72.1
LJE0106M	0.9	<0.1	<0.05	0.006	<0.004	<0.1	<0.01	118	0.051	<0.01	0.53	3.9	<0.06	0.03	257	0.1	0.519	<0.01	0.24	2500	4160	0.24	<0.04	274	0.11	<0.01	<0.04	3.23	<0.01	75.5
LJE0109M	1.8	<0.1	<0.06	<0.007	<0.004	<0.1	<0.01	97.9	<0.010	<0.01	0.29	2.7	<0.07	0.03	278	<0.07	0.521	<0.01	0.08	2680	4230	0.24	<0.04	254	0.086	<0.01	<0.04	3.16	<0.01	71.3
LJE0110M	1.8	<0.1	<0.06	0.017	<0.004	<0.1	<0.01	213	<0.01	<0.01	0.23	3	<0.07	0.04	262	0.09	0.189	<0.01	<0.03	2630	4110	0.26	<0.04	273	0.313	<0.01	<0.04	3.38	<0.01	71.1
LJE0207M	1	<0.1	<0.05	<0.007	<0.004	<0.1	<0.01	116	0.05	<0.01	0.39	3.4	<0.07	0.03	271	0.1	0.247	<0.01	0.1	2790	4520	0.21	<0.04	292	0.136	<0.01	<0.04	3.48	<0.01	72.7
LJE0208M	0.8	<0.1	<0.05	<0.006	<0.004	<0.1	<0.01	70.1	0.162	<0.01	0.46	5.1	<0.06	0.03	270	0.1	0.548	<0.01	0.15	2650	4310	0.27	<0.04	264	0.04	<0.01	<0.04	3.26	<0.01	74.2
RJE0411M	2.8	<0.1	<0.06	0.007	<0.004	<0.1	<0.01	101	<0.010	<0.01	0.33	3.1	<0.07	0.03	295	0.1	0.0994	<0.01	0.04	2980	4860	0.4	<0.04	337	0.12	<0.01	<0.04	3.56	<0.01	71.3
RJE0412M	1.7	<0.1	<0.05	0.008	<0.004	<0.1	<0.01	97.5	<0.0096	<0.01	0.35	3.9	<0.07	0.04	289	0.1	0.0874	<0.01	0.08	2900	4750	0.4	<0.04	383	0.12	<0.01	<0.04	4.02	<0.01	72.6
RJE0413M	1.9	<0.1	<0.05	0.023	<0.004	<0.1	<0.01	141	<0.009	<0.01	0.37	3	<0.07	0.04	317	0.18	0.0569	<0.01	0.07	3170	5170	0.42	<0.04	342	0.256	<0.01	<0.04	3.84	<0.01	73.2
RJE0414M	2.5	<0.1	<0.05	0.032	<0.004	<0.1	<0.01	219	<0.009	<0.01	0.42	4.1	<0.06	0.05	324	0.18	0.0873	<0.01	0.08	3270	5160	0.52	<0.04	388	0.435	<0.01	<0.04	4.1	<0.01	74.1
RJE1115M	1.8	<0.2	<0.06	0.025	<0.005	<0.2	<0.02	167	<0.011	<0.02	0.5	4.5	0.08	0.06	360	0.2	0.0776	<0.02	0.1	3550	5710	0.47	<0.05	383	0.31	0.24	<0.05	3.98	<0.02	68.9

Appendix I1-3. Slimy sculpin metal concentrations data, Jericho AEMP.

Tissue Id	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Lithium	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Phosphorus	Potassium	Selenium	Silver	Sodium	Strontium	Titanium	Vanadium	Zinc	Zirconium	Moisture
SJE0101	11.7	<0.1	<0.04	2.21	<0.003	<0.1	0.02	6960	0.04	0.04	0.88	45.7	0.06	0.52	294	5.02	0.0236	0.03	0.1	5060	2880	0.26	<0.033	947	13.2	0.3	0.04	27.4	0.02	77.8
SJE0102	16.7	<0.1	<0.04	2.55	<0.003	<0.1	0.02	7090	<0.008	0.08	0.81	77	0.06	0.53	266	8.42	0.0309	0.03	0.13	5210	2810	0.24	<0.034	861	12.6	0.37	0.06	28.8	0.02	77.5
SJE0103	20.4	<0.1	0.05	2.49	<0.003	<0.1	0.02	6640	0.062	0.05	1	80.2	<0.06	0.53	248	8.08	0.0231	0.03	0.1	4970	2620	0.21	<0.033	740	13.3	0.67	0.05	28.7	0.02	77.8
SJE0104	10.8	<0.1	<0.04	2.45	<0.003	<0.1	0.02	7170	0.052	0.03	2.57	50.1	<0.05	0.54	246	5.98	0.0212	0.02	0.09	4960	2180	0.21	<0.030	659	13.6	0.26	0.04	26.9	0.02	80.1
SJE0105	15	<0.1	<0.04	2.53	<0.003	<0.1	0.02	7080	0.03	0.04	0.91	84.9	<0.05	0.55	238	5.45	0.0215	0.02	0.18	4730	1600	0.21	<0.029	567	13.8	0.45	0.05	27.1	<0.01	78.1
EFWI1101	11	<0.1	<0.05	3.54	<0.004	<0.1	0.03	11500	<0.008	0.03	0.88	46.3	<0.06	0.89	294	2.77	0.0792	0.03	0.16	7030	2770	0.23	<0.035	1150	18.4	0.23	0.08	37.3	0.02	76.5
EFWI1201	13.5	<0.1	<0.05	2.13	<0.004	<0.1	0.02	6430	0.022	0.04	0.83	75.5	<0.06	0.49	239	2.43	0.0582	0.02	0.12	4750	2880	0.14	<0.04	942	9.75	0.3	0.08	24.9	0.02	76.4
EFWI1301	18	<0.1	<0.05	2.75	<0.004	<0.1	0.02	6740	0.02	0.05	0.95	109	<0.06	0.51	323	2.88	0.0495	0.03	0.14	4880	3220	0.15	<0.038	965	12	0.46	0.1	23.8	0.02	74.6
EFWI1401	31	<0.1	<0.05	3.55	<0.004	<0.1	0.03	8810	0.05	0.05	1	121	<0.06	0.71	276	3.54	0.075	0.03	0.16	6000	3080	0.22	<0.04	1060	13.9	0.99	0.17	28.6	0.03	75.5
EFWI1501	13.5	<0.1	<0.05	2.65	<0.004	<0.1	0.01	7530	0.022	0.04	1.1	72.8	<0.06	0.57	264	2.17	0.0842	0.03	0.17	5400	3090	0.21	<0.038	981	11.6	0.32	0.1	24.9	0.01	74.2
EFWI1601	15.9	<0.1	<0.05	3.21	<0.004	<0.1	0.02	7660	0.021	0.02	0.76	40.9	<0.06	0.59	320	2.48	0.0394	0.03	0.14	5410	2870	0.21	<0.036	907	12.5	0.37	0.06	24.6	0.02	75.6
EFWI1701	26.7	<0.1	<0.05	3.53	<0.004	<0.1	0.02	8700	0.054	0.03	0.99	67.8	<0.06	0.71	333	3.03	0.0646	0.03	0.18	5710	3000	0.2	<0.037	947	14.2	1.2	0.14	29	0.03	75.1
EFWI1801	13.6	<0.1	<0.05	2.41	<0.004	<0.1	<0.01	8410	0.012	0.02	0.73	39.4	<0.06	0.67	254	2.63	0.0746	0.02	0.1	5670	2960	0.15	<0.038	949	13.7	0.37	0.07	25.7	0.02	74.9
EFWI1901	36.6	<0.1	<0.05	2.94	<0.004	<0.1	0.02	7130	0.052	0.04	0.96	66.2	0.07	0.62	247	2.24	0.0763	0.02	0.12	5050	3010	0.17	<0.037	876	12.9	0.74	0.12	23.4	0.03	75.3
EFWI2001	14.4	<0.1	<0.05	2.82	<0.004	<0.12	0.02	7470	<0.008	0.03	0.83	42.1	<0.06	0.6	306	2.97	0.045	0.02	0.1	5240	3010	0.17	<0.035	945	12.2	0.43	0.08	25.7	0.02	76.4

Appendix J1-1. Precision (D) for density and richness of phytoplankton, zooplankton and benthic invertebrates, Jericho AEMP 2005.

Component	Lake	Station	Density	Richness
Phtyoplankton	Cigar	JER-AB11	0.06	0.01
	Control	JER-AB10	0.03	0.02
	C3	JER-AB04	0.05	0.05
	Carat	JER-AB06	0.08	0.04
	Jericho	JER-AB08	0.04	0.02
Zooplankton	Cigar	JER-AB11	0.13	0.04
	Control	JER-AB10	0.07	0.02
	C3	JER-AB04	0.12	0.04
	Carat	JER-AB06	0.05	0.04
	Jericho	JER-AB08	0.2	0.03
Benthic	Cigar	JER-AB25	0.03	0.06
invertebrates	Control	JER-AB23	0.07	0.02
	C3 (near)	JER-AB20	0.13	0.02
	C3 (far)	JER-AB05	0.06	0.06
	Carat (near)	JER-AB19	0.09	0.05
	Carat (far)	JER-AB07	0.13	0.04
	Jericho	JER-AB26	0.18	0.06

Appendix J1-2. Precision (D) for selected fish tissue metal concentrations, Jericho AEMP 2005.

Waterbody	Speices	Tissue	Al	Cd	Cu	Hg	Mo	Ni	Zn
Cigar	Lake trout	Liver	0.34*	0.12	0.16	0.18	0.13	0.10	0.05
		Muscle	0.13		0.38*	0.12		0.22*	0.00
	Round whitefish	Liver	0.47*	0.31*	0.03	0.24*	0.16	0.13	0.05
		Muscle	0.14		0.18	0.36*		0.15	0.01
Stream W	Slimy sculpin	Whole	0.14	0.16	0.04	0.11	0.11	0.07	0.05
Jericho	Lake trout	Liver	0.12	0.20	0.17	0.26*	0.14	0.16	0.05
		Muscle	0.16		0.08	0.19		0.19	0.02
	Round whitefish	Liver	0.41*	0.21*	0.11	0.10	0.19	0.15	0.04
		Muscle	0.12		0.10	0.13		0.21*	0.03
	Slimy sculpin	Whole	0.12	0.00	0.27*	0.00	0.15	0.15	0.01

*Above recommended precision (0.2)

Appendix J1-3. Predicted sample size required to achieve precision ≤ 0.2 for selected fish tissue contaminants, Jericho AEMP 2005.

Waterbody	Speices	Tissue	Al	Cd	Cu	Hg	Mo	Ni	Zn
Cigar	Lake trout	Liver	28						
		Muscle			37			12	
	Round whitefish	Liver	33	14		9			
		Muscle				19			
Stream W	Slimy sculpin	Whole							
Jericho	Lake trout	Liver				17			
		Muscle							
	Round whitefish	Liver	17	5					
		Muscle						5	
	Slimy sculpin	Whole			9				