

**Westward Region Lake Sampling and Kodiak Island  
Limnology Laboratory Processing Schedule, 2014**

by

**Darin C. Ruhl**

April 2014

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Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



## Symbols and Abbreviations

The following symbols and abbreviations, and others approved for the *Système International d'Unités* (SI), are used without definition in the following reports by the Divisions of Sport Fish and of Commercial Fisheries: Fishery Manuscripts, Fishery Data Series Reports, Fishery Management Reports, and Special Publications. All others, including deviations from definitions listed below, are noted in the text at first mention, as well as in the titles or footnotes of tables, and in figure or figure captions.

<b>Weights and measures (metric)</b>		<b>General</b>		<b>Mathematics, statistics</b>	
centimeter	cm	Alaska Administrative Code	AAC	<i>all standard mathematical signs, symbols and abbreviations</i>	
deciliter	dL	all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.	alternate hypothesis	$H_A$
gram	g	all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.	base of natural logarithm	$e$
hectare	ha	at	@	catch per unit effort	CPUE
kilogram	kg	compass directions:		coefficient of variation	CV
kilometer	km	east	E	common test statistics	(F, t, $\chi^2$ , etc.)
liter	L	north	N	confidence interval	CI
meter	m	south	S	correlation coefficient	
milliliter	mL	west	W	(multiple)	R
millimeter	mm	copyright	©	correlation coefficient (simple)	r
		corporate suffixes:		covariance	cov
<b>Weights and measures (English)</b>		Company	Co.	degree (angular)	$^\circ$
cubic feet per second	ft <sup>3</sup> /s	Corporation	Corp.	degrees of freedom	df
foot	ft	Incorporated	Inc.	expected value	$E$
gallon	gal	Limited	Ltd.	greater than	>
inch	in	District of Columbia	D.C.	greater than or equal to	$\geq$
mile	mi	et alii (and others)	et al.	harvest per unit effort	HPUE
nautical mile	nmi	et cetera (and so forth)	etc.	less than	<
ounce	oz	exempli gratia	e.g.	less than or equal to	$\leq$
pound	lb	(for example)		logarithm (natural)	ln
quart	qt	Federal Information Code	FIC	logarithm (base 10)	log
yard	yd	id est (that is)	i.e.	logarithm (specify base)	log <sub>2</sub> , etc.
		latitude or longitude	lat. or long.	minute (angular)	'
<b>Time and temperature</b>		monetary symbols (U.S.)	\$, ¢	not significant	NS
day	d	months (tables and figures): first three letters	Jan, ..., Dec	null hypothesis	$H_0$
degrees Celsius	°C	registered trademark	®	percent	%
degrees Fahrenheit	°F	trademark	™	probability	P
degrees kelvin	K	United States (adjective)	U.S.	probability of a type I error (rejection of the null hypothesis when true)	$\alpha$
hour	h	United States of America (noun)	USA	probability of a type II error (acceptance of the null hypothesis when false)	$\beta$
minute	min	U.S.C.	United States Code	second (angular)	"
second	s	U.S. state	use two-letter abbreviations (e.g., AK, WA)	standard deviation	SD
<b>Physics and chemistry</b>				standard error	SE
all atomic symbols				variance	
alternating current	AC			population	Var
ampere	A			sample	var
calorie	cal				
direct current	DC				
hertz	Hz				
horsepower	hp				
hydrogen ion activity (negative log of)	pH				
parts per million	ppm				
parts per thousand	ppt, ‰				
volts	V				
watts	W				

***REGIONAL OPERATIONAL PLAN CF.4K.2014.16***

**WESTWARD REGION LAKE SAMPLING AND KODIAK  
ISLAND LIMNOLOGY LABORATORY PROCESSING  
SCHEDULE, 2014**

by

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Alaska Department of Fish and Game, Division of Commercial Fisheries, Kodiak

Alaska Department of Fish and Game  
Division of Commercial Fisheries

April 2014

Funding for the majority of the 2014 Lake Assessment Project is provided by the Kodiak Regional Aquaculture Association and Black Lake Habitat Fund (AKSSF; project 44721). Afognak Lake is monitored as part of the U.S. Fish and Wildlife Service, Office of Subsistence Management, Fisheries Resource Monitoring (FRM) Program (project 07-401).

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**SIGNATURE/TITLE PAGE**

Project Title: Westward Region Lake Sampling and Kodiak Island  
Limnology Laboratory Processing Schedule, 2014

Project Leader(s): *Darin C. Ruhl, Fishery Biologist II*

Division, Region and Area: Division of Commercial Fisheries, Region IV, Kodiak

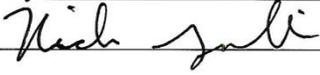
Project Nomenclature:

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Plan Type: Category I

**Approval**

Title	Name	Signature	Date
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## ABSTRACT

The Lake Assessment Project for Kodiak and Afognak islands was started in 1987 as part of a comprehensive study to examine and prioritize the region's salmon production potential. The Alaska Department of Fish and Game (ADF&G), Near Island Laboratory (NIL) was established in 2000 to continue these investigations, and since then has expanded sample collection and analysis throughout the Westward Region. In 2013, the ADF&G NIL moved into a new ADF&G building and was renamed the ADF&G Kodiak Island Laboratory (KIL). This report provides the specific lake assessment sample collection schedule and sample processing protocol for the KIL in 2014.

Key words: Limnology, lake assessment, water sample collection, zooplankton, laboratory analyses, Kodiak Island, Afognak Island, Alaska Peninsula

## PURPOSE

Assess the chemical, biological, and physical characteristics of lake ecosystems to help managers assess rearing potential for juvenile sockeye salmon (*Oncorhynchus nerka*).

## BACKGROUND

The Alaska Department of Fish and Game (ADF&G) began sampling Kodiak and Afognak Island lakes for limnological data in 1963. Limnological sampling was invigorated and expanded in 1989 with concern for the effects of the Exxon Valdez oil spill. As part of the Kodiak Regional Comprehensive Salmon Plan established in 1992, limnological and fishery investigations were also initiated to determine a strategy for rehabilitation of depressed sockeye salmon *Oncorhynchus nerka* stocks and also to evaluate the potential for stocking barriered lakes without anadromous fish. The limnology program was expanded to the Alaska Peninsula in 2000 and was designed to work in conjunction with the fishery and smolt monitoring projects to assess salmon rearing habitat projects. The 2014 Lake Assessment Project consists of a joint limnological sampling program with Kodiak Regional Aquaculture Association (KRAA) on Kodiak and Afognak islands. Alaska Peninsula limnology investigations will continue to be conducted solely by ADF&G in 2014. The Lake Assessment Project supports the long-term goals of the Kodiak Regional Comprehensive Salmon Plan (KRPT 1992; Honnold et al. 1996; Schrof et al. 2000) and has become an integral part of salmon enhancement, rehabilitation, and biological monitoring projects within the Kodiak Management Area.

The 2014 Lake Assessment Project consists of field sampling and laboratory processing of samples from 23 Kodiak and Afognak Island lakes (Tables 1 and 2; Figure 1). Limnological sampling will be conducted at Afognak, Akalura, Big Waterfall, Crescent, Dry Spruce, Frazer, Hidden, Karluk, Laura, Little Kitoi, Little Waterfall, Lower Jennifer, Lower Olga, O'Malley, Red (Ayakulik), Ruth, Saltery, Spiridon, Thumb, Uganik, Upper Jennifer, Upper Malina, and Upper Olga lakes. Additionally in 2014, the Kodiak Island Laboratory (KIL) will process and analyze zooplankton and nutrient samples from Bear, Black, Chignik, McLees, and Orzinski lakes (Tables 1 & 2; Figure 2) located on the Alaska Peninsula.

To assist ADF&G programs in other regions of the state, the NIL/KIL processed zooplankton samples sent from the ADF&G, Region I, Division of Commercial Fisheries (CF, Southeast) for the past nine years (2005 to 2013) and nutrient samples for the past five years (2009 to 2013). In 2014, zooplankton samples from Chilkat, Chilkoot, Coghill, and McDonald lakes located in Southeast Alaska will be processed and the data summarized at the KIL (Table 1). Additionally, McDonald Lake will have nutrients processed and analyzed in 2014. The NIL/KIL processed nutrient samples sent from Norton Sound Economic Development Corporation (NSEDC) for the

past six years (2008 to 2013) and zooplankton samples since 2010 from Salmon Lake in Nome. Nutrient and zooplankton samples from Salmon Lake will be processed at the KIL in 2014 (Tables 1 & 2).

## **OBJECTIVES**

1. Estimate water chemistry, seasonal nutrient concentrations, and chlorophyll-*a* concentrations.
2. Estimate the seasonal mean density, biovolume, and size of each genus or species of macrozooplankton in each sampled lake.
3. Estimate the seasonal mean density, biomass, and size of each of the genus and species of phytoplankton from Afognak, Chignik, Frazer, Hidden, Karluk, Little Waterfall, and Spiridon lakes.
4. Estimate the light penetration, euphotic volume, and euphotic zone depth of each sampled lake.
5. Determine the temperature and dissolved oxygen depth profiles of each sampled lake.

## **METHODS**

Instrument measurements, water samples, zooplankton, and phytoplankton samples will be collected from each lake as summarized below and in Table 1. Sample collection, processing, and nutrient analyses will follow the methods outlined in Ruhl (2013). The dates of nutrient analysis and the samples included in each analysis will tentatively follow Table 2. The Black Lake Habitat Project goals, objectives, and methods are covered in the specific statement of work (Finkle 2012). The Afognak Lake project goals, objectives, and methods are comprehensively covered in the specific project operational plan (Thomsen et al. 2013). The samples will be processed and data compiled and entered into the ADF&G limnology database.

## SCHEDULE AND DELIVERABLES

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Date	Activity
April 1-May 9	Prepare for field season
May 12-October 15	Take monthly limnology samples, process water and zooplankton samples, enter data
May 27-December 11	Analyze all collected water samples for nutrient levels, send off phytoplankton samples
December 14-January 15	Review limnology database entries, analyze data, and compile season reports

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### LOCATION, FREQUENCY, AND COLLECTION TYPE

#### Afognak Island Lakes – 4 Week Intervals

##### **Afognak Lake:** (station 1 and 2)

1. Instrument readings (DO/Temperature, Light, and Secchi)
2. Zooplankton tow
3. 1 meter water sample (station 1 only)

##### **Big Waterfall Lake:** (station 1)

1. Instrument readings (DO/Temperature, Light, and Secchi)
2. Zooplankton tow

##### **Hidden Lake:** (station 1)

1. Instrument readings (DO/Temperature, Light, and Secchi)
2. Zooplankton tow
3. 1 and 30 meter water samples

##### **Laura Lake:** (station 1)

1. Instrument readings (DO/Temperature, Light, and Secchi)
2. Zooplankton tow

##### **Little Waterfall Lake:** (station 1)

1. Instrument readings (DO/Temperature, Light, and Secchi)

2. Zooplankton tow
3. 1 and 15 meter water samples

**Upper Malina Lake:** (station 2)

1. Instrument readings (DO/Temperature, Light, and Secchi)
2. Zooplankton tow

**Alaska Peninsula Lakes – 4 Week Intervals**

**Bear Lake:** (station 2 and 4)

1. Instrument readings (DO/Temperature, Light, and Secchi)
2. Zooplankton tow
3. 1 & 29 meter water samples

**Black Lake:** (station 1)

1. Instrument readings (DO/Temperature, Light, and Secchi)
2. Zooplankton tow
3. 1 meter water sample

**Chignik Lake:** (station 1 thru 4)

1. Instrument readings (DO/Temperature, Light, and Secchi)
2. Zooplankton tow
3. 1 & 29 meter water samples (station 2 & 4 only)

**McLees Lake:** (station 1)

1. Instrument readings (DO/Temperature, Light, and Secchi)
2. Zooplankton tow

**Orzinski Lake:** (station 1)

1. Instrument readings (DO/Temperature, Light, and Secchi)
2. Zooplankton tow
3. 1 meter water sample

**Kodiak Island lakes – 4 Week Intervals**

**Akalura Lake:** (station 1)

1. Instrument readings (DO/Temperature, Light, and Secchi)
2. Zooplankton tow
3. 1 meter water sample

**Crescent Lake:** (station 1)

1. Instrument readings (DO/Temperature, Light, and Secchi)

2. Zooplankton tow

**Dry Spruce Lake:** (station 1)

1. Instrument readings (DO/Temperature, Light, and Secchi)
2. Zooplankton tow

**Frazer Lake:** (station 1 & 3)

1. Instrument readings (DO/Temperature, Light, and Secchi)
2. Zooplankton tow
3. 1 & 30 meter water samples (station 1)
4. 1 & 50 meter water samples (station 3)
5. Isotope tow (station 3)

**Karluk Lake:** (station 3, 4, and 7)

1. Instrument readings (DO/Temperature, Light, and Secchi)
2. Zooplankton tow
3. 1 and 30 meter water samples
4. Isotope tow at station 3 and 4 only

**Lower Olga Lake:** (station 1)

1. Instrument readings (DO/Temperature, Light, and Secchi)
2. Zooplankton tow
3. 1 meter water sample

**O'Malley Lake:** (station 1)

1. Instrument readings (DO/Temperature, Light, and Secchi)
2. Zooplankton tow
3. 1 meter water sample
4. Isotope tow

**Red (Aykulik) Lake:** (station 1)

1. Instrument readings (DO/Temperature, Light, and Secchi)
2. Zooplankton tow
3. 1 & 30 meter water samples
4. Isotope tow

**Saltery Lake:** (station 1)

1. Instrument readings (DO/Temperature, Light, and Secchi)
2. Zooplankton tow

**Spiridon Lake:** (station 1 and 2)

1. Instrument readings (DO/Temperature, Light, and Secchi)
2. Zooplankton tow
3. 1 & 50 meter water samples
4. Isotope tow (station 1)

**Thumb Lake:** (station 1)

1. Instrument readings (DO/Temperature, Light, and Secchi)
2. Zooplankton tow
3. 1 meter water sample
4. Isotope tow

**Uganik Lake:** (station 1)

1. Instrument readings (DO/Temperature, Light, and Secchi)
2. Zooplankton tow
3. 1 & 50 meter water samples

**Upper Olga Lake:** ( station 1)

1. Instrument readings (DO/Temperature, Light, and Secchi)
2. Zooplankton tow
3. 1 & 50 meter water samples

**Kitoy Bay Lakes – 6 Week Intervals**

**Little Kitoy Lake:** (station 1)

1. Instrument readings (DO/Temperature, Light, and Secchi)
2. Zooplankton tow

**Lower Jennifer Lake:** (station 1)

1. Instrument readings (DO/Temperature, Light, and Secchi)
2. Zooplankton tow

**Ruth Lake:** (station 1)

1. Instrument readings (DO/Temperature, Light, and Secchi)
2. Zooplankton tow

**Upper Jennifer Lake:** (station 1)

1. Instrument readings (DO/Temperature, Light, and Secchi)
2. Zooplankton tow

Note: Kitoy Bay Hatchery personnel (KRAA) will collect data from Little Kitoy, Lower Jennifer, Ruth, and Upper Jennifer lake stations.

# RESPONSIBILITIES

## SAMPLE PROCESSING

1. Process and analyze water samples from prescribed Kodiak and Afognak Island lakes at the KIL for the following nutrients, water chemistry parameters, and algal pigment concentrations:
  - alkalinity
  - chlorophyll *a*
  - filterable reactive phosphorous (FRP)
  - nitrate + nitrite (N+N)
  - pH
  - phaeophytin *a*
  - reactive silicon (SI)
  - total ammonia (TA)
  - total filterable phosphorous (TFP)
  - total Kjeldahl nitrogen (TKN)
  - total phosphorus (TP)
  
2. Process and analyze water samples from Bear, Black, Chignik, and Orzinski lakes on the Alaska Peninsula at the KIL for the following nutrients, water chemistry parameters, and algal pigment concentrations:
  - chlorophyll *a*
  - FRP
  - N + N
  - phaeophytin *a*
  - TA
  - TFP
  - TKN
  - TP
  - SI
  
3. Process and analyze water samples from Salmon Lake in Nome at the KIL for the following nutrients, water chemistry parameters, and algal pigment concentrations:
  - chlorophyll *a*
  - color
  - FRP

- N + N
  - phaeophytin *a*
  - TA
  - TFP
  - TKN
  - TP
4. Process and analyze water samples from McDonald Lake in Southeast Alaska at the KIL for the following nutrients and water chemistry parameters:
    - N + N
    - TKN
    - TP
  5. Process zooplankton samples from Kodiak and Afognak Islands, Alaska Peninsula, Southeast, and Nome lakes for seasonal mean density, biomass, and size of each genus or species of macrozooplankton at the KIL.
  6. Preserve and process phytoplankton samples from unfiltered water samples from Kodiak and Afognak Islands, and Alaska Peninsula lakes. Phytoplankton sample analysis will be subcontracted to BSA Environmental Services Inc. and processed by John Beaver (Appendix A1). Contract phytoplankton samples will consist of the following:

**Afognak Island**

- Afognak (5 samples; st 1, 1 m)
- Hidden (5 samples; st 1, 1 m)
- Little Waterfall (5 samples; st 1, 1 m)

**Alaska Peninsula**

- Chignik (8 samples; st 2, 1 and 29 m)

**Kodiak Island**

- Frazer (12 samples; st 1 and 3, 1 m)
- Karluk (12 samples; st 3 and 4, 1 m)
- Lower Olga (5 samples; st 1, 1 m)
- Spiridon (12 samples; st 1 and 2, 1 m)
- Upper Olga (5 samples; st 1, 1 m)

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## **TABLES AND FIGURES**

Table 1.–Limnology sampling schedule and number of water, zooplankton, and phytoplankton samples, by lake, in Kodiak and Afognak islands, and Alaska Peninsula, 2014.

	Number of		Sampling Month							Sampling Interval (Weeks)	Times to Sample in 2014	Number of Samples		
	Stations	Lakes	Project	May	June	July	August	September	October			Water	Zooplankton	Phytoplankton
<u>Afognak Lakes</u>														
Afognak	2		Stock status	W, Z, P	W, Z, P	4	5	5	10	5				
Big Waterfall	1		Stocking	Z	Z	Z	Z	Z		4	5	0	5	0
Hidden	1		Stocking/EA compliance	W, Z, P		4	5	10	5	5				
Laura	1		General monitoring	Z	Z	Z	Z	Z		4	5	0	5	0
Little Kitoi	1		Stocking	Z	Z		Z	Z		6	4	0	4	0
Little Waterfall	1		Stocking	W, Z, P		4	5	10	5	5				
Lower Jennifer	1		Stocking	Z	Z		Z	Z		6	4	0	4	0
Ruth	1		Stocking	Z	Z		Z	Z		6	4	0	4	0
Upper Jennifer	1		Stocking	Z	Z		Z	Z		6	4	0	4	0
Upper Malina	1		General monitoring	Z	Z	Z	Z	Z		4	5	0	5	0
<u>Kodiak Lakes</u>														
Akalura	1		General monitoring	Z	Z	Z	Z	Z		5	5	5	5	0
Crescent	1		Stocking	Z	Z	Z	Z	Z		4	5	0	5	0
Dry Spruce	1		General monitoring	Z	Z	Z	Z	Z		4	5	0	5	0
Frazer	2		General monitoring	W, Z, P	W, Z, P	4	6	24	12	12				
Karluk	3		General monitoring	W, Z, P	W, Z, P	4	6	36	18	0				
Lower Olga	1		General monitoring	W, Z, P		4	5	5	5	5				
O'Malley	1		General monitoring	W, Z	W, Z	4	6	6	6	0				
Red	1		General monitoring	W, Z		4	5	10	5	0				
Saltery	1		Broodstock monitoring	Z	Z	Z	Z	Z		4	5	0	5	0
Spiridon	2		Stocking/EA compliance	W, Z, P	W, Z, P	4	6	24	12	12				
Thumb	1		General monitoring	W, Z		4	5	5	5	0				
Uganik	1		General monitoring	W, Z		4	5	10	5	0				
Upper Olga	1		General monitoring	W, Z, P		4	5	10	5	5				
<u>Kodiak and Afognak Totals:</u>														
		23										160	144	49
<u>Peninsula Lakes</u>														
Bear	2		General monitoring	W, Z	W, Z	W, Z	W, Z			4	4	16	8	0
Black	1		General monitoring	W, Z	W, Z	W, Z	W, Z			4	4	4	4	0
Chignik	4		General monitoring	W, Z, P	W, Z, P	W, Z, P	W, Z, P			4	4	16	16	8
McLees	1		General monitoring	Z	Z	Z	Z			4	3	0	3	0
Orzinski	1		General monitoring		W, Z	W, Z	W, Z			4	3	3	3	0
<u>Peninsula Totals:</u>														
		5										39	34	8
<u>Outside Region</u>														
<u>Contracts</u>														
Region I (South East)		4										24	54	0
Region III (Nome)		1										12	12	0
<u>Totals All:</u>														
		33										235	244	57

Notes: Exact sampling dates are not provided to account for inclement weather and to allow for project cost-sharing. May sample dates are dependent on when the lakes become ice free.

W = water sampling, Z = zooplankton sampling, P = phytoplankton sampling

Table 2.–Limnology nutrient experiment schedule and number of water samples to be tested, by date, from Kodiak and Afognak islands, and Alaska Peninsula 2014.

Test Date	Experiment	# Samples	Samples Included
May 27-28th	Chl a	30	May
June 25-27th	TA/N+N	60	May, June
July 1-3rd	TFP/FRP	60	May, June
July 8-9th	TP	60	May, June
July 22-23rd	TKN or Chl a	90/60	May, June, July
August 20-22nd	TA/N+N	60	July, August
August 25-27th	TFP/FRP	60	July, August
September 1-3rd	TKN or TP	60	July, August
September 29-30th	Chl a	60	August, September
October 1-3rd	Chl a	38	Ak Peninsula
October 6-8th	TA/N+N	68	September, Ak Peninsula
October 15-17th	TP	68	September, Ak Peninsula
October 20-23rd	TFP/FRP	60	September, October
October 30-31st	TP	60	September, October
November 4-7th	SI	128	May, June, July, Ak Peninsula
November 12-14th	TFP/FRP	74	Ak Peninsula, Contract
November 17-19th	TKN	74	Ak Peninsula, Contract
November 20-21st	Chl a	16	October
November 24-26th	TKN	60	September, October
December 1-3rd	SI	90	August, September, October
December 3-5th	TA/N+N	52	October, Contract
December 8-10th	TP	36	Contract
December 11th	Color	12	Contract (Nome)

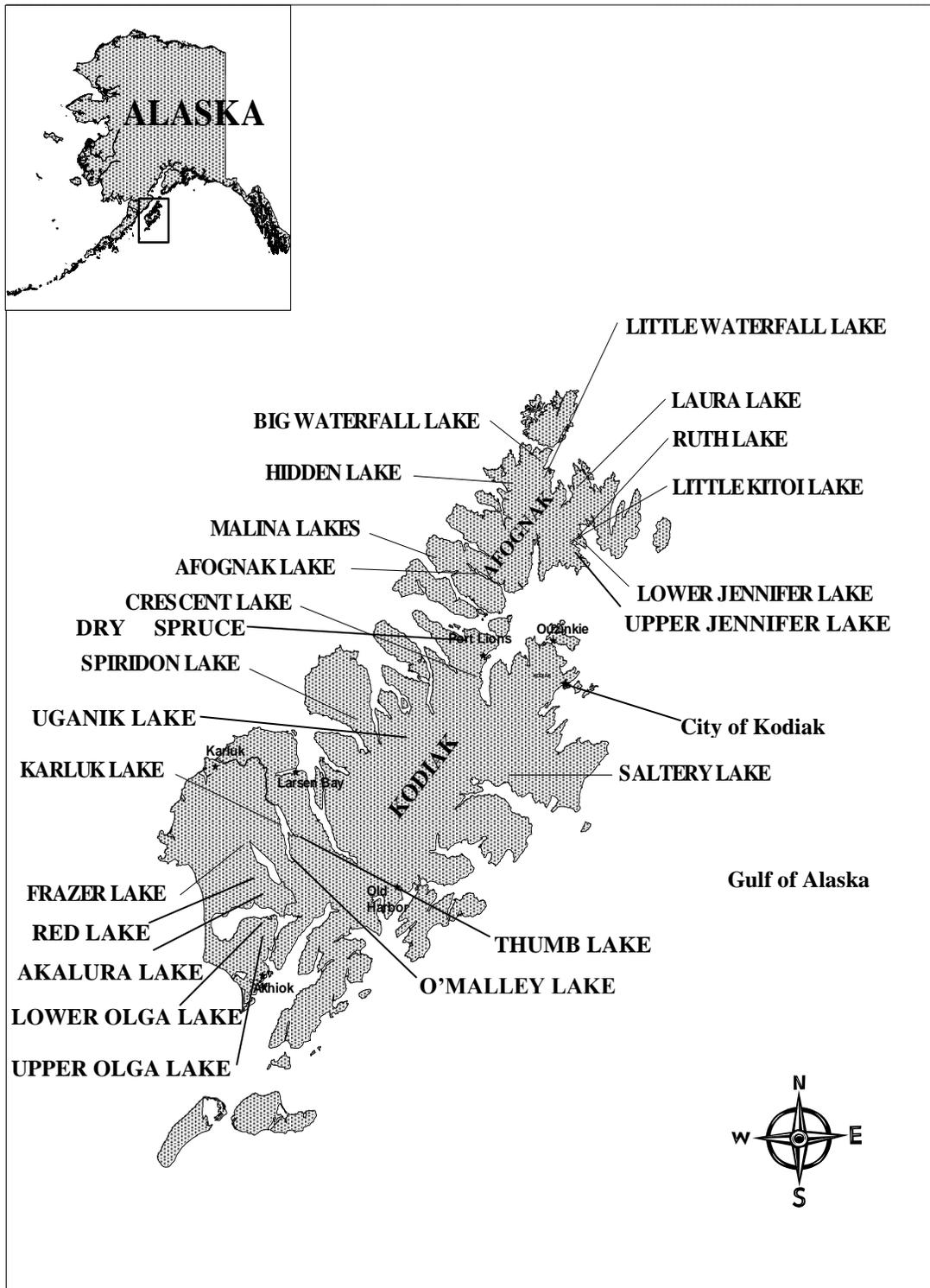


Figure 1.—Locations of lakes on Kodiak and Afognak islands scheduled for limnology sampling in 2014.

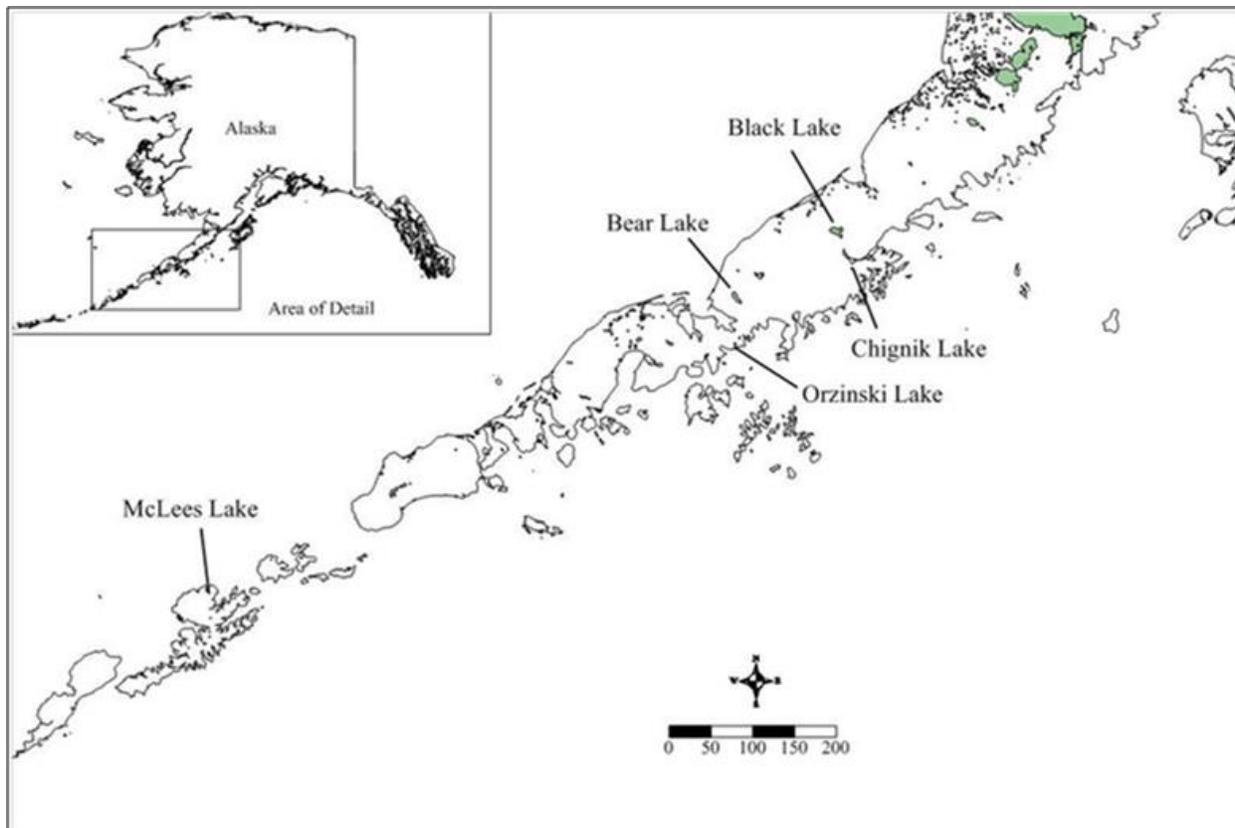


Figure 2.—Locations of lakes on the Alaska Peninsula scheduled for limnology sampling in 2014.



**APPENDIX A. KODIAK ISLAND LIMNOLOGY  
LABORATORY SAMPLE PROCESSING AND  
CONTRACTUAL CONTACT LIST FOR 2014**

Appendix A1.–Kodiak Island Limnology Laboratory sample processing and contractual contact list for 2014.

Contact	Processing/Analysis	Institution	Address	Phone Number
Uttam Saha	Total Kjeldahl Nitrogen (TKN)	University of Georgia, Feed and Environmental Water Laboratory	2300 College Station Rd. Athens, GA 30602	(605) 688-5466
David Parks	Total Kjeldahl Nitrogen (TKN)	University of Georgia, Feed and Environmental Water Laboratory	2300 College Station Rd. Athens, GA 30602	(605) 688-5466
John Beaver	Phytoplankton	BSA Environmental Services Inc.	23400 Mercantile Rd., Suite 8 Beachwood, OH 44122	(216) 765-0582
Michael Agbeti	Phytoplankton	Bio-Limno Research and Consulting, Inc.	28 Stone Gate Dr. Halifax, Nova Scotia B3N 3J2 Canada	(902) 425-8989
Kerry Parish	Quality Control Testing	Department of Fisheries & Oceans	4222 Columbia Valley Highway Cultus Lake, B.C. V2R 5B6	(604) 824-4704
Kevin Keith	Nome Water/Zooplankton Contract	Norton Sound Economic Development Corporation	P.O. Box 358 Nome, AK 99762	(907) 443-2477
Charlie Lean	Nome Water/Zooplankton Contract	Norton Sound Economic Development Corporation	P.O. Box 358 Nome, AK 99762	(907) 443-2477
Andrew Piston	SE Water/Zooplankton Contract	Alaska Dept. Of Fish and Game	2030 Sea Level Dr. #205 Ketchikan, AK 99901	(907) 225-9677
Malika Brunette	SE Water/Zooplankton Contract	Alaska Dept. Of Fish and Game	2030 Sea Level Dr. #205 Ketchikan, AK 99901	(907) 225-9677
Steve Heint	SE Zooplankton Contract	Alaska Dept. Of Fish and Game	2030 Sea Level Dr. #205 Ketchikan, AK 99901	(907) 225-9677
Randall Bachman	SE Zooplankton Contract	Alaska Dept. Of Fish and Game	P.O. Box 330 Haines, AK 99827	(907) 766-2830
Tommy Sheridan	SE Zooplankton Contract	Alaska Dept. Of Fish and Game	401 Railroad Ave. Cordova, AK 99574	(907) 424-3212
Amanda Wiese	SE Zooplankton Contract	Alaska Dept. Of Fish and Game	401 Railroad Ave. Cordova, AK 99574	(907) 424-3212