

Regional Operational Plan SF.2A.2013.11

**Operational Plan: Kodiak Road System Coho Salmon
Escapement Monitoring**

by

Tyler Polum

May 2013

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.

Weights and measures (metric)		General		Mathematics, statistics	
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	<i>e</i>
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, χ^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	
		corporate suffixes:		(simple)	r
Weights and measures (English)		Company	Co.	covariance	cov
cubic feet per second	ft ³ /s	Corporation	Corp.	degree (angular)	°
foot	ft	Incorporated	Inc.	degrees of freedom	df
gallon	gal	Limited	Ltd.	expected value	<i>E</i>
inch	in	District of Columbia	D.C.	greater than	>
mile	mi	et alii (and others)	et al.	greater than or equal to	≥
nautical mile	nmi	et cetera (and so forth)	etc.	harvest per unit effort	HPUE
ounce	oz	exempli gratia		less than	<
pound	lb	(for example)	e.g.	less than or equal to	≤
quart	qt	Federal Information Code	FIC	logarithm (natural)	ln
yard	yd	id est (that is)	i.e.	logarithm (base 10)	log
		latitude or longitude	lat. or long.	logarithm (specify base)	log ₂ , etc.
Time and temperature		monetary symbols (U.S.)	\$, ¢	minute (angular)	'
day	d	months (tables and figures): first three letters	Jan, ..., Dec	not significant	NS
degrees Celsius	°C	registered trademark	®	null hypothesis	H ₀
degrees Fahrenheit	°F	trademark	™	percent	%
degrees kelvin	K	United States	U.S.	probability	P
hour	h	(adjective)		probability of a type I error (rejection of the null hypothesis when true)	α
minute	min	United States of America (noun)	USA	probability of a type II error (acceptance of the null hypothesis when false)	β
second	s	U.S.C.	United States Code	second (angular)	"
		U.S. state	use two-letter abbreviations (e.g., AK, WA)	standard deviation	SD
Physics and chemistry				standard error	SE
all atomic symbols				variance	
alternating current	AC			population sample	Var var
ampere	A				
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 SF.2A.2013.11

**KODIAK ROAD SYSTEM COHO SALMON ESCAPEMENT
MONITORING**

by

Tyler Polum

Alaska Department of Fish and Game, Sportfish, Kodiak

Alaska Department of Fish and Game
Sport Fish

April 2013

The Regional Operational Plan Series was established in 2012 to archive and provide public access to operational plans for fisheries projects of the Divisions of Commercial Fisheries and Sport Fish, as per joint-divisional Operational Planning Policy. Documents in this series are planning documents that may contain raw data, preliminary data analyses and results, and describe operational aspects of fisheries projects that may not actually be implemented. All documents in this series are subject to a technical review process and receive varying degrees of regional, divisional, and biometric approval, but do not generally receive editorial review. Results from the implementation of the operational plan described in this series may be subsequently finalized and published in a different department reporting series or in the formal literature. Please contact the author if you have any questions regarding the information provided in this plan. Regional Operational Plans are available on the Internet at: <http://www.adfg.alaska.gov/sf/publications/>

*Tyler Polum,
Alaska Department of Fish and Game, Sportfish,
351 Research Court
Kodiak, AK 99615*

This document should be cited as:

Polum, T. B. 2013. Kodiak road system coho salmon escapement monitoring. Alaska Department of Fish and Game, Division of Sport Fish, Regional Operational Plan ROP.SF.2A.2013.11, Kodiak.

The Alaska Department of Fish and Game (ADF&G) administers all programs and activities free from discrimination based on race, color, national origin, age, sex, religion, marital status, pregnancy, parenthood, or disability. The department administers all programs and activities in compliance with Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, Title II of the Americans with Disabilities Act (ADA) of 1990, the Age Discrimination Act of 1975, and Title IX of the Education Amendments of 1972.

If you believe you have been discriminated against in any program, activity, or facility please write:

ADF&G ADA Coordinator, P.O. Box 115526, Juneau, AK 99811-5526

U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive, MS 2042, Arlington, VA 22203

Office of Equal Opportunity, U.S. Department of the Interior, 1849 C Street NW MS 5230, Washington DC 20240

The department's ADA Coordinator can be reached via phone at the following numbers:

(VOICE) 907-465-6077, (Statewide Telecommunication Device for the Deaf) 1-800-478-3648,

(Juneau TDD) 907-465-3646, or (FAX) 907-465-6078

For information on alternative formats and questions on this publication, please contact:

ADF&G, Division of Sport Fish, Research and Technical Services, 333 Raspberry Rd, Anchorage AK 99518 (907) 267-2375

Signature Page

Project Title: Kodiak Road System Coho Salmon Escapement Monitoring

Project leader(s): Donn Tracy, Kodiak Area Biologist
Tyler Polun, Fisheries Biologist

Division, Region and Area Sportfish Division, Region 2, Kodiak Management Area

Period Covered FY14-16

Field Dates: October 8-November 17

Plan Type: Category I

Approval

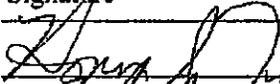
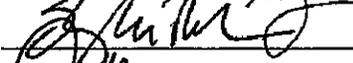
Title	Name	Signature	Date
Project leader	Donn Tracy		5/29/13
Project leader	Tyler Polun		5/20/13
Research Coordinator	Jack Erickson		5/24/13

TABLE OF CONTENTS

	Page
LIST OF FIGURES	II
LIST OF APPENDICES	II
PURPOSE.....	1
OBJECTIVES.....	1
METHODS.....	3
Study Design	3
SCHEDULE AND DELIVERABLES	5
RESPONSIBILITIES	5
REFERENCE CITED.....	5
APPENDIX A – GPS WAYPOINTS FOR KODIAK ROAD SYSTEM COHO SALMON SURVEY STREAMS ...	6
APPENDIX B - KODIAK ROAD SYSTEM COHO SALMON SURVEY SCHEDULE	26
APPENDIX C - KODIAK MANAGEMENT AREA SALMON SURVEY DATA FORM	28

LIST OF FIGURES

Figure	Page
Figure 1.-Major Kodiak road system coho salmon drainages.....	2

LIST OF APPENDICES

Appendix	Page
Appendix A1.-American River coho salmon stream survey GPS waypoints.....	7
Appendix A2.-Chiniak River coho salmon stream survey GPS waypoints.....	9
Appendix A3.-Felton Creek coho salmon stream survey GPS waypoints.....	10
Appendix A4.-Myrtle Creek coho salmon stream survey GPS waypoints	12
Appendix A5.-Olds River coho salmon stream survey GPS waypoints	13
Appendix A6.-Pasagshak River coho salmon stream survey site map and GPS waypoints.....	16
Appendix A7.-Roslyn River coho salmon stream survey GPS waypoints	18
Appendix A8.-Russian Creek coho salmon stream survey GPS waypoints	20
Appendix A9.-Salonie Creek coho salmon stream survey GPS waypoints.....	22
Appendix A10.-Sargent Creek coho salmon stream survey GPS waypoints.....	24
Appendix A11.-West Twin Creek coho salmon stream survey GPS waypoints	25
Appendix B1.-Calendar schedule and frequency of Kodiak road system coho salmon surveys	27
Appendix C1.-Kodiak Management Area salmon stream survey data form	29

PURPOSE

Aerial and ground surveys of coho salmon escapement in up to 17 streams along the Kodiak road system have been conducted since 1974. Continuing to collect ground survey data from 13 important road system coho salmon streams will aid in detecting trends in escapement of these stocks and assist fisheries managers to develop future management strategies and evaluate current escapement goals.

OBJECTIVES

Objectives for the escapement surveys of road system coho salmon stocks are as follows:

1. Count the number of visible coho salmon in each of 10 selected streams during at least one survey of each stream conducted approximately between 8 October and 27 October.
2. Count the number of visible coho salmon in the American and Olds Rivers during two or more surveys of each river conducted approximately between 8 October and 27 October.
3. Count the number of visible coho salmon in the Pasagshak River drainage during at least three surveys conducted approximately between 20 October and 17 November.

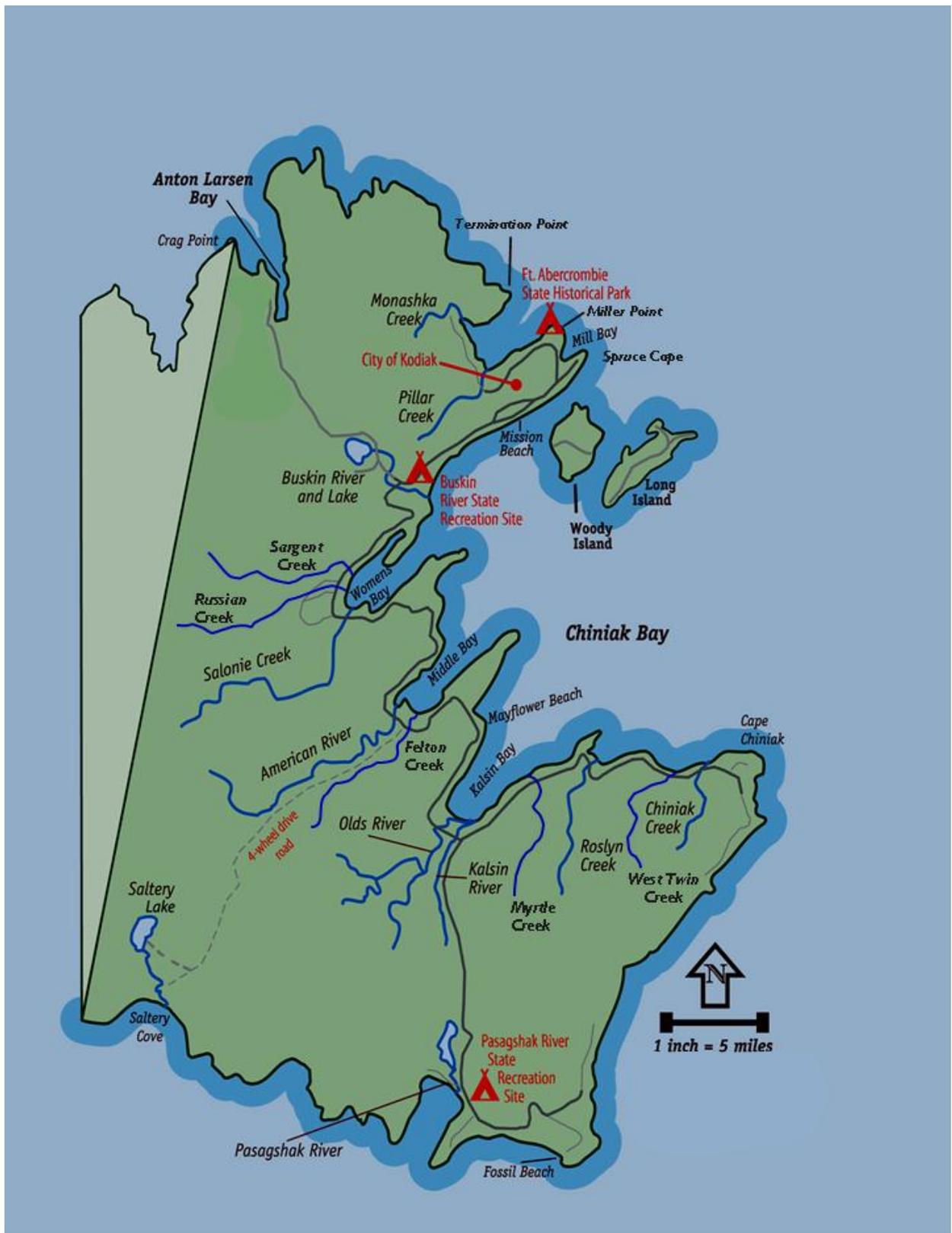


Figure 1.- Major Kodiak road system coho salmon drainages.

METHODS

STUDY DESIGN

The ground-based surveys will be conducted on foot by qualified department staff and will be timed opportunistically to coincide with peak spawning periods as determined through a combination of factors, including timing of past escapement surveys, in-season anecdotal reports of spawning activity, and preference for optimal water levels and viewing conditions. Acceptable survey conditions can vary significantly from stream to stream. Conditions that are taken into consideration include sunlight (direct, indirect, presence of shadows), wind conditions, precipitation sufficient to obscure visibility, water clarity and depth (sufficient to observe all underwater structures in the deepest pools). Survey routes will be standardized for each stream using periodically updated GPS waypoints to identify starting and stopping destinations as well as tributary and stream branch confluence locations (Appendix A). During standard survey route coverage and acceptable water levels and viewing conditions, the count from a stream survey will be interpreted as a minimum number of spawning salmon escaping to that stream and will therefore be viewed only as an index of total escapement. Such indices will be assumed to be positively related to total escapement (but in an unknown manner) and comparable among years for each stream. Trends of usable indexes over years will therefore be assumed to reflect trends in actual escapements.

Ten streams to be surveyed at least once during the project will include the following:

Chiniak River	Roslyn River
Felton Creek	Russian Creek
Monashka Creek	Salonie Creek
Myrtle Creek	Sargent Creek
Pillar Creek	West Twin Creek

One additional survey will be conducted for each of these streams when conditions are favorable and minimum survey objectives for other streams have been achieved. At least two surveys will be conducted annually for the American and Olds rivers whenever circumstances permit (i.e., when conditions are favorable and minimum survey objectives for other drainages have been achieved). A minimum of three and up to five surveys will be conducted annually for the Pasagshak River drainage; under normal circumstances it's unlikely that additional surveys will be necessary to obtain relatively accurate escapement indices for this drainage.

A schedule of surveys by stream and target survey frequency is provided in Appendix B.

The current coho salmon Sustainable Escapement Goal (SEG) for the Pasagshak drainage is an index based count of 1,200-3,300 (Nemeth et al. 2010) based on foot surveys. Sport Fish Division has used foot surveys of the tributaries of Lake Rose Tead since the 1980's to monitor Pasagshak coho salmon escapement. These foot surveys have produced a peak escapement index that has averaged approximately 3,400 fish annually for the past ten years (Tracy et al. *in prep*). Because tributary streams are relatively short with low discharge and shallow depth, a peak count under favorable conditions should provide a reasonably accurate spot estimate of escapement. However, the number of fish in the

tributaries at any one time may not accurately reflect the actual magnitude of total escapement, because not all of the fish enter the tributaries at the same time. In addition, live fish are frequently depredated by bears, and carcasses are removed immediately by eagles and other scavengers, making it impossible to obtain cumulative numbers of spawners during an individual foot survey.

The accuracy of coho salmon counts obtained for Salonie Creek and the American and Olds River drainages are likewise complicated by similar factors. In addition, these drainages include long spawning tributaries difficult to sufficiently cover on foot during a single outing. Numerous deep pools located in the main stem channels where visibility is significantly hampered by refraction, downed trees and undercut stream banks also make accurate counts difficult to obtain. Oftentimes, relatively large aggregations of fish are only partially observable in these pools even under the most favorable survey conditions. Consequently, counts for these streams should never be considered as more than an estimated partial accounting of instantaneous escapement. In order to maximize opportunity for obtaining accurate index counts for the American and Olds rivers, for which currently there are coho salmon SEG ranges of 400-900 and 1,000-2,200 spawners, respectively (Nemeth et al. 2010), repeat surveys (up to three per year) of these two drainages will be prioritized whenever favorable conditions exist.

The number of salmon counts conducted through surveys from the remaining 10 drainages is also influenced by previously identified factors, although to a variably lesser extent. Survey results under favorable conditions for Pillar and Monashka creeks should represent a census taken of the inriver escapement at that time. A census can be realized due to low discharge, shallow water depth, and fish barriers enclosing the escapement to a creek segment less than one mile in length. Several other streams, such as Chiniak River, West Twin and Myrtle Creeks share similar water depth and discharge characteristics but lack barriers to fish passage, necessitating substantially greater geographic coverage of each stream and its tributaries. Under only the best of circumstances will counts obtained from surveys of these and the other streams (Roslyn River, Sargent, Russian, and Felton creeks) represent a reasonable estimate of spontaneous inriver escapement.

DATA COLLECTION

Survey observers will record all coho salmon observed during surveys on a handheld counter. Additional data recorded during each survey will include the following:

1. Stream name and the corresponding reaches surveyed (including all tributaries). Survey reaches will be identified using new and previously documented waypoint coordinates from a GPS (no waypoints required at Monashka and Pillar Creeks).
2. Date.
3. Type of survey.
4. Weather condition.
5. Stream level.
6. Water visibility.
7. Total number of live salmon, by species, observed.
8. Total number of dead salmon, by species, observed.

9. Observer comments on noted factors or variables that may have affected survey results.

The survey data will be summarized by species and stream. The survey conditions, total number of live and dead salmon, by species, counted in each reach and stream will be recorded in field note books and subsequently transcribed to the CF Division Area 'Q' Stream Survey form (Appendix C). Stream survey data will also be entered into the CF Division-Region IV stream survey electronic database maintained in the Kodiak Regional Office. Summarized index counts will be presented in the Report of Selected Sport Fisheries in the Kodiak Management Area in tables including historical survey data. The notebooks and original fish survey forms will be archived in the Sport Fish Division-Kodiak Area office.

SCHEDULE AND DELIVERABLES

1. Data collection: 8 October - 17 November.
2. Data reduction: completed by 30 November.
3. Reporting: inclusion of survey results in the most recent 'Report of Selected Sport Fisheries in the Kodiak Management Area.'

RESPONSIBILITIES

Project personnel and their respective duties are as follows:

1. Donn Tracy, Area Management Biologist
Duties: draft operational plan; procure equipment and supervise seasonal staff; conduct index surveys; administer the project budget; hire seasonal field staff; co-author project reports.
2. Tyler Polum, Fishery Biologist
Duties: draft operational plan; procure equipment and supervise seasonal staff; conduct index surveys; oversee data reduction; hire seasonal field staff; co-author project reports.

REFERENCE CITED

- Nemeth, M. J., M. J. Witteveen, M. B. Foster, H. Finkle, J. W. Erickson, J. S. Schmidt, S. J. Fleischman, and D. Tracy. 2010. Review of escapement goals in 2010 for salmon stocks in the Kodiak Management Area, Alaska. Alaska Department of Fish and Game, Fishery Manuscript Series No. 10-09, Anchorage.
- Tracy, D. J., Schmidt J. S. and T. Polum. *In prep.* Report of Selected Sport Fisheries of the Kodiak Management Area, 2010 - 2011. Alaska Department of Fish and Game, Sport Fish Division, Fishery Management Report, Anchorage.

**APPENDIX A – GPS WAYPOINTS FOR KODIAK
ROAD SYSTEM COHO SALMON SURVEY STREAMS**

Appendix A1.-American River coho salmon stream survey GPS waypoints.

Way point	Latitude	Longitude	Comment
1	N 57° 38. 735'	W 152° 30. 593'	START HERE, BELOW BRIDGE,
2	N 57° 38. 584'	W 152° 30. 527'	MAJOR FORK TO LEFT (FELTON CREEK)
4	N 57° 38. 335'	W 152° 31. 476'	VERY BRAIDED IN 2002; ALL REJOIN; RIGHT HANDED BRAIDED
5	N 57° 38. 277'	W 152° 31. 476'	#4 REJOINS MAIN CHANNEL
6	N 57° 38. 231'	W 152° 31. 476'	SMALL CREEK IN BRUSH; NOT SURVEYED IN 2002; 0 COHO IN 2001
7	N 57° 38. 161'	W 152° 31. 476'	SLOUGH TO RIGHT. 0 COHO IN 2002-2003
8	N 57° 38. 232'	W 152° 31. 476'	END OF SLOUGH MARKED BY WAY POINT #7
9	N 57° 38. 092'	W 152° 32. 297'	FORK TO LEFT W/ SLOUGH ~50 YD. IN LENGTH; FISH OFTEN SCHOOL JUST BELOW THE ENTRANCE
10	N 57° 38. 056'	W 152° 32. 319'	SMALL SLOUGH.
11	N 57° 38. 156'	W 152° 32. 407'	CONFLUENCE OF EAST AND WEST SIDE TRIBUTARIES AT 'DOLLY HOLE'; TERMINUS OF 2002 SURVEY
*12-20 ARE WAY POINTS FOR WEST TRIBUTARY OF CONFLUENCE AT WAY POINT #11			
12	N 57° 38. 105'	W 152° 32. 779'	FORK IN WEST TRIBUTARY CREEK ~1/8 MILE ABOVE 'DOLLY HOLE';
*13-16 ARE WAY POINTS ON EAST CHANNEL OF FORK AT WAY POINT #12			
13	N 57° 37. 934'	W 152° 32. 981'	SLOUGH ON RIGHT (WEST) OFF EAST CHANNEL OF FORK MARKED BY WAY POINT #12; ~ ¼ MILE ABOVE FORK; SPRING FED, W/ LARGE #'S OF SPAWNING DOLLIES DURING 2003 AND 2004
14	N 57° 37. 842'	W 152° 33. 073'	FORK IN EAST CHANNEL OF FORK AT WAY POINT #12; TERMINUS OF 2003 SURVEY; LARGE #'S OF SPAWNING DOLLIES PRESENT IN 2003 AND 2004
15	N 57° 37. 807'	W 152° 33. 101'	TERMINUS OF EAST (LEFT SIDE FACING UPSTREAM)CHANNEL OF FORK MARKED BY WAY POINT #14
16	N 57° 37. 852'	W 152° 33. 158'	TERMINUS OF WEST (RIGHT SIDE FACING UPSTREAM)CHANNEL OF FORK MARKED BY WAY POINT #14; SPRING UPWELLING, LOTS OF DV SPAWNING IN 2004

Appendix A1.-Page2 of 2.

Way point	Latitude	Longitude	Comment
*17-19 ARE WAY POINTS ON EAST CHANNEL OF FORK AT WAY POINT #12			
17	N 57.38.009	W152.33.475'	FORK IN WEST CHANNEL OF FORK AT WAY POINT #12;
18	N 57.37.884	W152.33.846'	2004 SURVEY TERMINUS OF WEST (RIGHT SIDE FACING UPSTREAM)CHANNEL OF FORK MARKED BY WAY POINT #17; ORIGIN AT CASCADE OFF RAYMOND PEAK ~ 1/8 MILE AWAY
19	N 57° 37. 863'	W 152° 33. 844'	TERMINUS OF EAST (LEFT SIDE FACING UPSTREAM)CHANNEL OF FORK MARKED BY WAY POINT #17; SITE OF RECENTLY CONSTRUCTED BEAVER DAM WHICH WOULD BLOCK PASSAGE OF FISH AT NORMAL WATER LEVELS
*20-25 ARE WAY POINTS FOR EAST SIDE TRIBUTARY OF CONFLUENCE AT WAY POINT #11			
20	N 57° 37. 747'	W 152° 32. 802'	TRIBUTARY TO WEST (RIGHT FACING UPSTREAM) JUST AFTER CLAY BANK ~ ½ MILE ABOVE CONFLUENCE AT WAY POINT #11
21	N 57° 37. 674'	W 152° 33.366'	TERMINUS OF WEST TRIBUTARY, SPRING FED (4 COHO)
22	N 57° 37. 717'	W 152° 32. 730'	ENTRANCE OF EAST TRIBUTARY AFTER CLAY BANK ~ 75 YD. ABOVE TRIBUTARY TO THE WEST (BRUSHY AT ENTRANCE).
23	N 57° 37. 631'	W 152° 32. 743'	SMALL RIVULET TO EAST (LEFT FACING UPSTREAM), NOT SURVEYED IN 2004 (NOT ENOUGH WATER)
24	N 57° 37. 549'	W 152° 33.082'	SMALL SLOUGH TO EAST (LEFT FACING UPSTREAM), GOES ~ 200 YD.
25	N 57° 37. 572'	W 152° 33.115'	END OF EAST TRIBUTARY MARKED BY WAY POINT #22 (INTER-GRAVEL; 0 COHO IN 2004)

Notes:

- East side tributary past the confluence at #11: 1st trib and slough on (right) past clay bank - counted total of 4 coho in both tribs and 44 coho between confluence and ending point on survey.
- West side tributary past the confluence at #11: - counted total of 46 coho, most within ½ mile above confluence
- Way points recorded during 2004 survey:1927 map datum.

Appendix A2.-Chiniak River coho salmon stream survey GPS waypoints.

Way point	Latitude	Longitude	Comment
1	57.37.205	152.12.123	STARTING POINT BELOW BRIDGE CLIMB ON ROCK PILE ON SOUTH SIDE OF RIVER
2	57.37.122	152.12.004	1ST FORK TO LEFT
3	57.36.954	152.12.201	#2 REFORKS GO ~1/4 MILE UP LEFT STREAM
4	57.36.945	152.12.186	END OF #3 (RIGHT FORK)
5	57.36.951	152.12.264	FORK TO RIGHT
6	57.36.871	152.12.326	#5 FORKS TO LEFT
7	57.36.851	152.12.335	#6 FORKS - GO TO THE RIGHT (DON'T GO LEFT)
8	57.36.841	152.12.400	END OF #7 ROCKY AREA - WALK BACK TO #6 TAKE RIGHT FORK
9	57.36.819	152.12.618	STOP HERE ON #6 STREAM KEEPS GOING (0 COHO)
10	57.36.844	152.12.311	SLOUGH TO LEFT
11	57.36.794	152.12.313	END OF #10 SLOUGH
12	57.36.928	152.12.234	FORK TO LEFT
13	57.36.578	152.12.176	#12 REJOINS MAIN CHANNEL
14	57.36.545	152.12.124	SMALL TRIBUTARY TO RIGHT
15	57.36.252	152.12.624	TERMINUS OF #14 TRIBUTARY; RUNS ONLY AT HIGH WATER; STOPPED AT LAST POOL
16	57.36.200	152.13.595	CREEK TO LEFT (DIDN'T GO UP) SMALL CREEK TO LEFT NO IDEA ON COORDINATES WILL REJOIN MAIN RIVER BETWEEN #17 & #18
17	57.35.727	152.13.500	WHERE FORK 18 REJOINS RIVER BRAIDED HERE
18	57.35.726	152.13.527	BRANCH TO LEFT OF THE BRAIDED AREA
19	57.35.280	152.14.108	STOPPED HERE BEGINNING OF VALLEY LOTS OF TRIBS

Notes:

- Way points recorded during 2004 survey:1927 map datum.

Appendix A3.-Felton Creek coho salmon stream survey GPS waypoints.

Way point	Latitude	Longitude	Comment
1	N 57° 38. 574'	W 152° 30. 509'	CONFLUENCE OF FELTON CREEK AND AND AMERICAN RIVER
2	N 57° 38. 376'	W 152° 30. 437'	CHINIAK HIGHWAY BRIDGE
3	N 57° 38. 333'	W 152° 30. 451'	SMALL TRIB TO LEFT
4	N 57° 38. 259'	W 152° 30. 471'	END SURVEY POINT OF #3, ANOTHER SMALL TRIB TO L. ~25 YDS, DIDN'T GO UP
5	N 57° 38. 188'	W 152° 30. 989'	SMALL TRIB TO LEFT, GO ~ 75 YARDS
6	N 57° 38. 166'	W 152° 31. 059'	SMALL CREEK TO RIGHT, GO ~75 YDS UPSTREAM,
7	N 57° 38. 116'	W 152° 31. 096'	FORK TO LEFT, GO ~ 100 YDS UPSTREAM, 0 COHO
8	N 57° 38. 081'	W 152° 31. 124'	CHANNEL TO LEFT REJOINS MAIN CREEK
9	N 57° 38. 052'	W 152° 31. 159'	FORK TO LEFT
10	N 57° 37. 997'	W 152° 31. 209'	# 9 - REJOINS MAIN RIVER CHANNEL
11	N 57° 38. 023'	W 152° 31. 214'	SMALL CREEK TO RIGHT ENDS ~200 YDS, IN A SPRING
12	N 57° 37. 921'	W 152° 31. 310'	CREEK TO LEFT
13	N 57° 37. 863'	W 152° 31. 379'	TERMINUS OF SURVEY ON CREEK IDENTIFIED BY WAYPOINT #12
14A	N 57° 37. 933'	W 152° 31. 373'	RIVER SPLITS - REJOINS UPSTREAM
14B	N 57° 37. 940'	W 152° 31. 859'	MAIN EAST CHANNEL JOINS MAIN WESTERN CHANNEL (SMALL ISLAND IN MIDDLE)
NOTE THE NEXT TWO ARE COUNTING DOWN STREAM ON WESTERN CHANNEL DIDN'T GO FAR BEFORE STOPPING IN 2004			
14C	N 57° 37. 964'	W 152° 31. 438'	VERY SMALL TRIB DOWNRIVER ON WESTERN CHANNEL, DIDN'T GO UP IN 2004
14D	N 57° 37. 961'	W 152° 31. 387'	STOPPING LOCATION OF COUNTING IN 2004 ON WESTERN CHANNEL.
15	N 57° 37. 945'	W 152° 31. 858'	FORK TO EAST (LEFT), IS ANOTHER FORK JUST BEFORE LOOKS LIKE SLOUGH AND JOINS ON THIS ONE.
16	N 57° 37. 864'	W 152° 31. 977'	FORK OFF # 15 TO EAST (LEFT) ~ 500 YDS. NO WAY POINT OF STOPPING LOCATION.

Appendix A3.-Page2 of 2.

Way point	Latitude	Longitude	Comment
17	N 57° 37. 845'	W 152° 32. 021'	END OF # 15, SPRING FEED
18	N 57° 37. 945'	W 152° 31. 858'	
19	N 57° 37.998'	W 152° 31. 965'	MAIN CHANNEL FORKS (20 & 21)
20	N 57° 37.908'	W 152° 32.082'	EAST (LEFT) FORK 2004 SURVEY TERMINUS
21	N 57° 38.008'	W 152° 32.090'	WEST (RIGHT) FORK 2004 TERMINUS IN SLOUGH (ENDS @ SALTERY ROAD)

Notes:

*Waypoints taken during stream surveys conducted 2001-2004; 1927 map datum.

Appendix A4.-Myrtle Creek coho salmon stream survey GPS waypoints.

Way point	Latitude	Longitude	Comment
1	57.36.462	152.24.233	MOUTH OF FURTHEST WESTERN CHANNEL
2	57.36.398	152.24.276	MOUTH OF RIVER ANOTHER CHANNEL IS OFF TO EAST REJOINS BELOW BRIDGE
3	57.36.351	152.24.160	EAST BRANCH OFF MAIN RIVER
4	57.36.341	152.24.143	#3 REJOINS MAIN RIVER
5	57.35.960	152.24.063	SMALL TRIB TO LEFT
6	57.35.961	152.24.027	#6 REJOINS MAIN RIVER
7	57.35.956	152.24.104	SMALL TRIB TO WEST
8	57.35.730	152.24.078	#8 REJOINS MAIN CHANNEL SLOUGH TO SOUTH DOESN'T GO FAR
9	57.35.833	152.24.169	SMALL CHANNEL TO EAST
10	57.35.815	152.24.155	#10 REJOINS MAIN CHANNEL
11	57.35.769	152.24.114	CHANNEL TO EAST
12	57.35.742	152.24.112	#12 REJOINS MAIN CHANNEL
13	57.35.717	152.24.073	TINY FEEDER CREEK TO WEST DIDN'T GO UP.
14	57.35.599	152.23.738	LOCATION OF FIRST SET OF FALLS. 1.1 MILES UPRIVER
15	57.36.362	152.24.183	END SURVEY 1/8MILE UP FROM HERE LARGEST FALLS

Notes:

- Waypoints taken during 2005 survey; 1927 datum.
- Observer suspects additional coho salmon upstream of 2005 survey terminus.

Appendix A5.-Olds River coho salmon stream survey GPS waypoints.

Way point	Latitude	Longitude	Comment
1	57.35.350	152.27.870	START BELOW BRIDGE AT 1 ST TRIB THAT IS TO WEST (R) LOOKING TOWARDS OCEAN
2	57.35.271	152.28.144	SMALL TRIB JUST BELOW ROAD WEST (R). TYPICALLY 0 COHO
3A	57.35.319	152.28.296	WEST (R) SLOUGH JUST ABOVE BRIDGE
3B	57.35.236	152.28.594	FIRST FORK IN #3
3C	57.35.178	152.29.084	2 ND FORK IN #3; END HERE
4A	57.35.159	152.28.155	2 ND TRIB TO WEST (R) AFTER THE BRIDGE.
4B	57.34.966	152.27.990	STOPPED HERE ON # 4.
5	57.35.106	152.28.086	SMALL SLOUGH TO EAST (L). GO ~200 YDS. UPSTREAM
6A	57.34.912	152.28.134	SMALL TRIB TO EAST (L).
6B	57.34.547	152.28.394	LARGE NUMBER OF FISH SPAWNING, ENDS IN A SERIES OF POOLS ~1/2 MILE UPSTREAM
7A	57.34.836	152.28.292	MOUTH OF SMALL STREAM TO EAST (L), ON MAIN CHANNEL, HAS A SERIES OF LARGE POOLS AND A SMALL FEEDER STREAM OFF TO THE RIGHT JUST BELOW 1 ST POOL.
7B	57.34.746	152.28.174	STOPPING LOCATION OF MAIN POOL AND FEEDER STREAM TO THE LEFT, PASS UNDER BARBWIRE FENCE ONCE.
7C	57.34.697	152.28.274	STOPPING LOCATION OF SMALL FEEDER STREAM OFF TO THE RIGHT OF # 7
8A	57.34.511	152.28.529	EAST ARM SLOUGH (MOST FISH TYPICALLY SEEN JUST BEFORE & AFTER HAIRPIN CURVE IN SLOUGH
8B	57.34.404	152.28.436	STOPPING POINT OF EAST ARM SLOUGH

Appendix A5.-Page 2 of 3.

Way point	Latitude	Longitude	Comment
THE FOLLOWING WAY POINTS ARE ONLY THE MAIN RIVER AND ITS TRIBUTARIES FROM THE 'FENCE LINE HOLE' UPSTREAM INCLUDING THE RIVER SECTION ABOVE THE DESIGNATED ATV CROSSING:			
9	57.34.071	152.29.493	UPPER END (NEAR TERMINUS) OF WEST BRANCH OF TWO TRIBUTARIES FLOWING INTO MAIN RIVER AT THE 'FENCE LINE HOLE'; TO ACCESS THIS WAY POINT AT THE START OF THE SURVEY, TRAVEL ~ ½ MILE ON ATV TRAVEL PAST THE DESIGNATED OLDS RIVER CROSSING AND HEAD DUE EAST ~ 1/3 MILE
10	57.34.126	152.29.420	SITE OF SEMI-DRAINED BEAVER DAM ADJACENT TO WEST BRANCH TRIBUTARY IDENTIFIED BY WAY POINT #1 (DAM ACTIVE IN 2001-2003; INACTIVE IN 2004); COHO OBSERVED INSIDE POND DURING 2002 SURVEY
11	57.34.153	152.29.453	CONVERGENCE OF WEST BRANCH TRIBUTARY CREEK IDENTIFIED BY WAY POINT #1 WITH EAST BRANCH TRIBUTARY AT THE 'FENCE LINE HOLE' ON MAIN RIVER
12	57.33.941	152.29.414	1 ST FORK IN EAST SIDE TRIBUTARY IDENTIFIED BY WAY POINT #1; EAST BRANCH OF THIS FORK NEARLY DRY IN 2004 - NOT SURVEYED
13	57.33.803	152.29.556	2004 SURVEY TERMINUS OF WEST BRANCH FORK IDENTIFIED BY WAY POINT #4; STREAM CONTINUES FOR AT LEAST ¼ MILE; FISH OBSERVED IN HOLE APPROXIMATELY 200 YD. BELOW THIS WAY POINT
14	57.34.235	152.29.402	MOUTH OF EAST SIDE TRIBUTARY OFF MAIN RIVER ~ ½ MILE ABOVE 'FENCE LINE HOLE'; LARGE SCHOOL OF FISH TYPICALLY IN DEEP HOLE IN MAIN RIVER AT THIS LOCATION

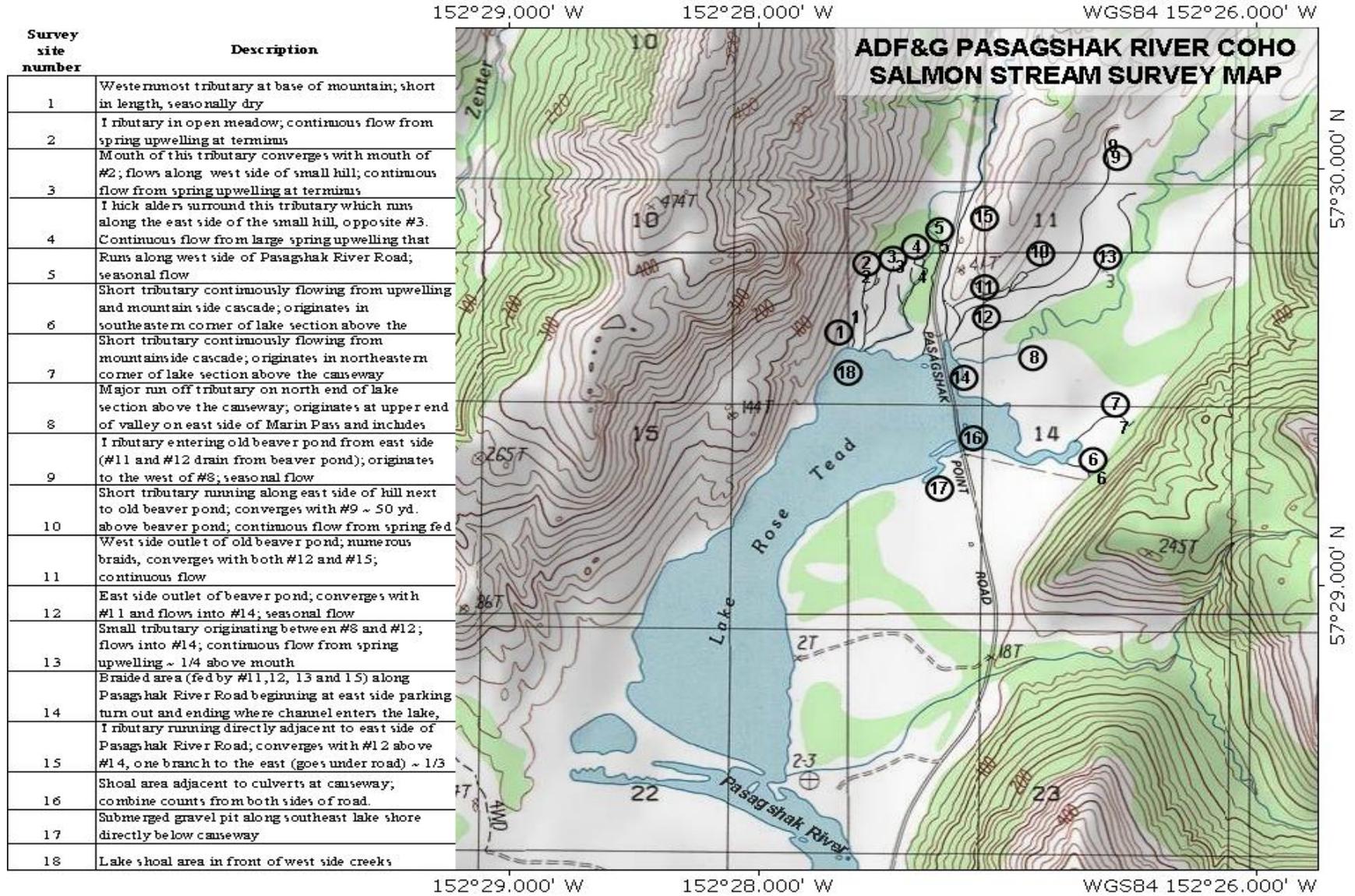
Appendix A5.-Page 3 of 3.

Way point	Latitude	Longitude	Comment
15	57.34.343	152.29.595	2004 SURVEY TERMINUS ON EAST SIDE CREEK IDENTIFIED BY WAY POINT # 6; CREEK CONTINUES FOR AT LEAST ¼ MILE
THE FOLLOWING ARE WAY POINTS ON MAIN RIVER ABOVE 4-WHEELER CROSSING			
16	57.34.559	152.29. 890	MAIN RIVER AT DESIGNATED 4-WHEEL CROSSING
17	57.34.611	152.30. 186	SMALL TRIB ON WEST (R), 1 COHO, APPROX. 200 YDS IN LENGTH TO BASE OF POUR OFF
18	57.34.510	152.30. 256	BRAID OF MAIN RIVER OFF TO WEST (R)RIGHT, REJOINS RIVER UNDER LOG JAM
19	57.34.535	152.30. 141	SLOUGH ON LEFT; TOTAL LENGTH OF 75 YARDS
20	57.34.373	152.31.138	2004 SURVEY TERMINUS ON MAIN RIVER ~ 1 ½ MILES ABOVE DESIGNATED ATV CROSSING, AT HOLE CONTAINING ~ 50 FISH
21	57.34.341	152.30. 868	SMALL FEEDER TO LEFT, DOESN'T GO FAR DUE TO LITTLE WATER
22	57.34.151	152.31. 776	FEEDER CREEK ON WEST (R) OFF UPPER VALLEY. WON'T HOLD FISH AS POUR OFFS AND CASCADES. (~200 YDS. DOWNSTREAM OF #7)
23	57.34.123	152.31. 849	FEEDER CREEK ON WEST (R) RIGHT, OFF UPPER VALLEY, ~ 200 YDS UPSTREAM OF # 7
24	57.34.059	152.31. 989	SMALL FEEDER ON EAST (L); 0 FISH, POOR HABITAT, CASCADES QUICKLY
25	57.33.803	152.32. 488	LARGE POOL WITH 40 COHO IN 2003
26	57.33.763	152.32. 539	2003 SURVEY TERMINUS ON MAIN RIVER SMALL CASCADING TRIB ON EAST (L), STOPPED HERE. ~100 YDS ABOVE LARGE POOL. ~ 2.5 MILES ABOVE CROSSING

Notes:

- Way points recorded during 2001- 2004 surveys; 1927 map datum.

Appendix A6.-Pasagshak River coho salmon stream survey site map and GPS waypoints.



Appendix A6.-Page 2 of 2.

Site Number	Mouth		Terminus		Tributaries
1	57.29.606	152.27.552	57.29.605	152.27.546	
2	57.29.599	152.27.455	57.29.769	152.27.428	
			57.29.605	152.27.546	Top of branch to left (E.)
3	57.29.599	152.27.455	57.29.762	152.27.281	
4	57.29.599	152.27.455	57.29.909	152.27.132	
			57.29.693	152.27.286	First trib to the right (W)
			57.29.790	152.27.235	First trib to the left (E)
	57.29.801	152.27.213	57.29.813	152.27.200	Second trib to the right (W)
			57.29.831	152.27.222	Second trib to the left (E)
5	57.29.597	152.27.173	57.29.835	152.27.254	
6	57.29.344	152.26.852	57.29.312	152.26.560	
7	57.29.387	152.26.581	57.29.438	152.26.367	
8	57.29.458	152.26.875			
	57.29.981	152.26.212	57.30.159	152.25.753	First fork to right (E)
	57.30.014	152.26.265	57.30.165	152.26.125	First branch to left (W) rejoins main river at terminus
	57.30.113	152.26.198	57.30.179	152.26.194	Branch to left (W) off above branch.
	57.30.085	152.26.085	57.30.305	152.25.747	Second fork to right (E); inter-gravel/dry above this point in 2005
9	57.29.590	152.27.120	57.29.852	152.26.501	
10	57.29.758	152.26.802	57.30.852	152.26.728	
11	57.29.740	152.26.885	57.26.513	152.27.083	
12	57.29.740	152.26.885	57.26.513	152.27.083	
13	57.29.540	152.27.188	57.29.736	152.26.717	
	57.29.614	152.26.885	not applicable		Location of first beaver pond on #13
14	57.26.513	152.27.083	not applicable		
15	57.29.650	152.27.278	57.30.590	152.26.981	
	57.30.167	152.27.039			Fork to left (W). Stop at culvert under road.
16	not needed				
17	not needed				
18	not needed				

Appendix A7.-Roslyn River coho salmon stream survey GPS waypoints.

Way point	Latitude	Longitude	Comment
1	57.37.165	152.19.054	START HERE, BELOW BRIDGE, 1 ST HOLDING POOL - DOWNED TREES IN RIVER ON A BEND
2	57.37.211	152.19.374	MAJOR FORK TO LEFT
3	57.37.133	152.19.281	REJOINS RIVER BELOW BRIDGE, BE SURE TO COUNT POOL UPSTREAM FROM CULVERT
4	57.37.128	152.19.336	LOCATION OF BRIDGE
5	57.37.064	152.19.440	TRIB TO RIGHT
6	57.37.072	152.19.557	STOPPED HERE ON #5
7	57.37.001	152.19.625	CHANNEL TO RIGHT; COORDINATES UPDATED IN 2004
8	57.36.953	152.19.703	# 7 REJOINS RIVER HERE
9A	57.36.972	152.19.719	NEXT SLOUGH ON RIGHT ABOVE #7
9B	57.36.982	152.19.767	UPPER END OF ABOVE SLOUGH (2004 COORDINATES)
9C	57.36.948	152.19.712	2 ND SLOUGH ON RIGHT ABOVE #7, EMPTIES OUT FROM LARGE MEADOW
9D	57.36.878	152.19.757	NEXT SLOUGH ON RIGHT, ~ 100' LONG
10	57.36.949	152.19.710	SLOUGH TO RIGHT
11	57.36.894	152.19.952	END OF #10
12	57.36.872	152.19.746	UNKNOWN
13	57.36.902	152.19.775	UNKNOWN
14	57.36.546	152.20.333	UNKNOWN
15	57.36.456	152.20.776	UNKNOWN
16	57.36.292	152.20.700	SMALL CHANNEL TO R (DOWNED TREES IN MAIN CHANNEL)
17A	57.36.270	152.20.745	MAIN TRIB TO RIGHT(DOWNED TREES IN RIVER); UPDATED COORDINATES FROM 2004 SURVEY
17B	57.36.195	152.21.243	CASCADE FALLS DRAINING INTO LEFT SIDE OF #17
18	57.36.096	152.21.551	END OF #17 IN 2004
19	57.35.765	152.21.044	1 ST LARGE POOL TO R. W/ SLOUGH OFF IT
20	57.35.673	152.21.297	END OF SLOUGH
21	57.35.727	152.21.057	SMALL STREAM TO L. LOTS OF CHANNELS, FOLLOW ALL -ENDS IN LARGE POND

Appendix A7.-Page 2 of 2.

Way point	Latitude	Longitude	Comment
22	57.35.598	152.21.018	LARGE POND-SPAWNING HABITAT ~25 COHO IN 2001; SMALL FEEDER CREEKS OFF POND, TOO BOGGY TO WALK
23	57.35.463	152.21.168	GOOD SIZED CHANNEL TO RIGHT
24	57.35.415	152.21.167	#23 BREAKS OFF MAIN CHANNEL
25	57.35.385	152.21.198	A BRANCH OF #23, BEFORE 23 REJOINS RIVER
26	57.35.364	152.21.236	SPAWNING HABITAT
27	57.35.345	152.21.280	BRANCH TO LEFT
28	57.35.328	152.21.271	#27 REFORKS (LEFT FORK)
29	57.35.247	152.21.150	END OF TRIB. #28
30	57.35.241	152.21.239	END OF TRIB. #27
31	57.35.300	152.21.219	SMALL TRIB TO RIGHT
32	57.35.281	152.21.235	#31 ENDS IN POND/SPAWNING AREA
33	57.35.213	152.21.117	2 ND SMALL CREEK AFTER #31, LOCATION IS END/SLOUGH
34	57.35.171	152.20.926	STOPPING POINT, JUST INTO TREES ON BOTH SIDES. PINES ON RIGHT SIDE OF RIVER.

Notes:

- Waypoints taken 2001 - 2004; 1927 datum.

Appendix A8.-Russian Creek coho salmon stream survey GPS waypoints.

Way point	Latitude	Longitude	Comment
1	57.42.415	152.34.041	STARTING POINT BELOW HIGHWAY BRIDGE
2	57.42.423	152.34.175	WEST (RIGHT SIDE FACING UPSTREAM) JUST ABOVE BRIDGE
3	57.42.436	152.34.546	TERMINUS OF TRIBUTARY IDENTIFIED BY WAY POINT #2; ENDS IN SPRING FED UPWELLING; 7 SPAWNING COHO IN 2004
4	57.42.411	152.34.204	EAST SIDE TRIBUTARY CREEK JUST ABOVE HIGHWAY BRIDGE ~ 1/8 MILE LONG; NEARLY DRY IN 2004
5	57.42.208	152.35.194	1 ST FORK IN MAIN CHANNEL; WEST BRANCH ULTIMATELY LEADS TO BRECHAN CONSTRUCTION SETTLING POND; EAST BRANCH ULTIMATELY DRAINS FROM RUSSIAN RIVER CANYON
*WAY POINT #'S 6- 11 PERTAIN ONLY TO THE <u>WEST SIDE</u> TRIBUTARY OF THE FORK IDENTIFIED BY WAY POINT #5			
6	57.42.202	152.35.390	SLOUGH ON WEST SIDE TRIBUTARY OF FORK IDENTIFIED BY WAY POINT #5 ~ 150 YD. UPSTREAM; FLOWS FROM TRIBUTARY IDENTIFIED BY WAY POINT #8
7	57.42.192	152.35.413	SHORT SLOUGH ON EAST SIDE OF WEST TRIBUTARY OF FORK IDENTIFIED BY WAY POINT #5 ~ 50 YD. ABOVE THE SLOUGH IDENTIFIED BY WAY POINT #6
8	57.42.207	152.35.438	FORK IN WEST TRIBUTARY OF FORK IDENTIFIED BY WAY POINT #5, ~ 20 YD. ABOVE WAY POINT #7; SLOUGH IDENTIFIED BY WAY POINT #8 STARTS ~ 20 YD. ABOVE THIS LOCATION
9	57.42.225	152.35.706	CONVERGENCE OF WEST TRIBUTARY OF FORK IDENTIFIED BY WAY POINT 8 WITH MIDDLE BAY ROAD - DRAINAGE CULVERT ALSO AT THIS LOCATION; CREEK ALSO SPLITS INTO 3 BRANCHES NEARBY - EACH OF WHICH ORIGINATES 100-150YD. UPSTREAM AS SEEPAGE FROM BRECHAN CONSTRUCTION SETTLING POND

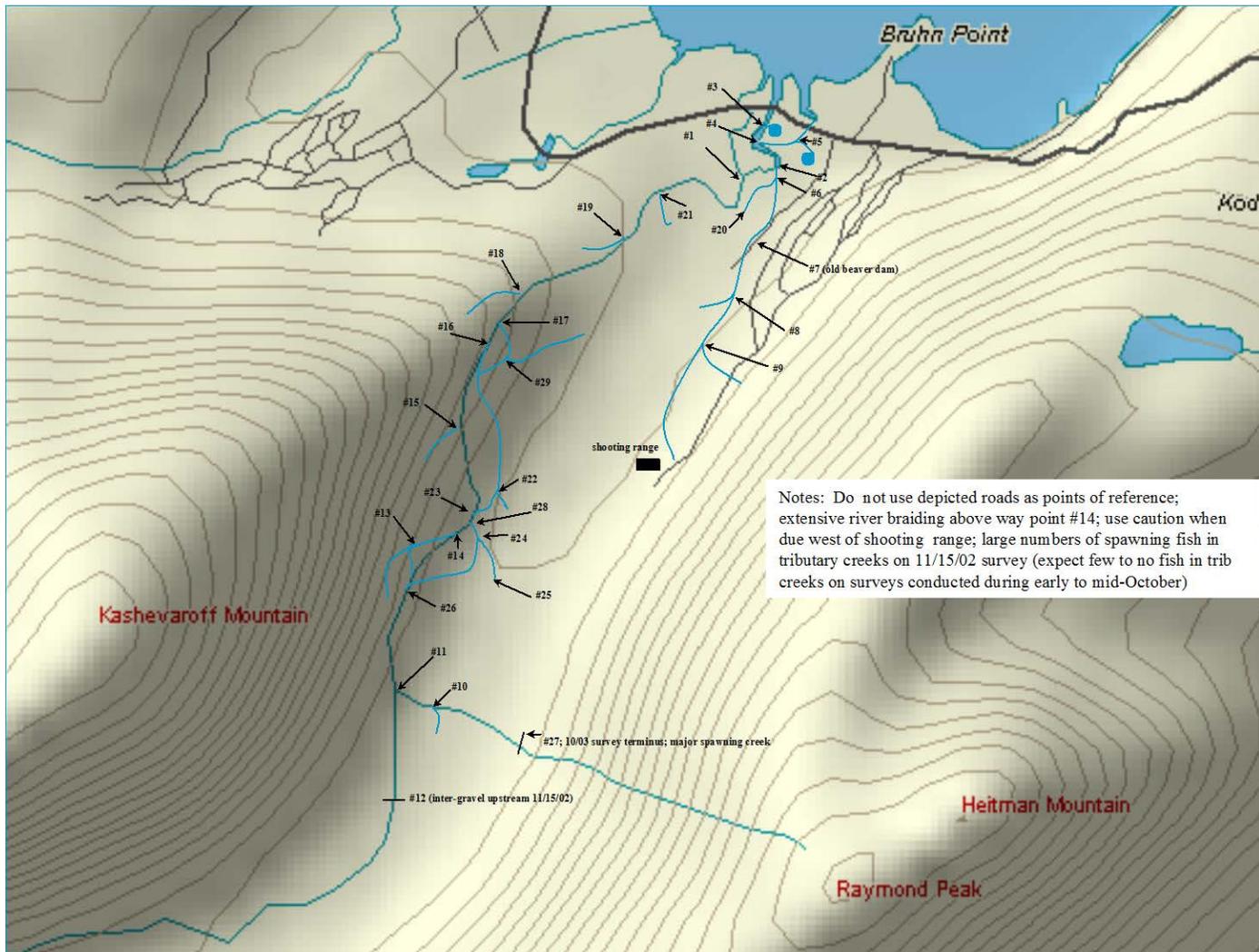
Appendix A8.-Page 2 of 2.

Way point	Latitude	Longitude	Comment
10	57.42.066	152.35.632	OUTFLOW CULVERT FROM BRECHAN CONSTRUCTION SETTLING POND INTO EAST BRANCH OF FORK IDENTIFIED BY WAY POINT #8; USE AS REFERENCE POINT ONLY;
11	57.41.823	152.36.274	TERMINUS OF EAST BRANCH OF FORK IDENTIFIED BY WAY POINT #8, ADJACENT TO THE UPPER END OF BRECHAN CONSTRUCTION SETTLING POND
*WAY POINT #'S 12- 16 PERTAIN ONLY TO THE <u>EAST SIDE</u> TRIBUTARY OF THE FORK IDENTIFIED BY WAY POINT #5			
12	57.41.822	152.35.697'	FORK IN EAST SIDE TRIBUTARY IDENTIFIED BY WAY POINT #5
13	57.41.768	152.35.844'	2004 SURVEY TERMINUS ON EAST BRANCH OF FORK IDENTIFIED BY WAY POINT #12
14	57.41.851	152.35.784'	FORK IN WEST BRANCH (MAIN)TRIBUTARY OF FORK IDENTIFIED BY #12
15	57.41.768	152.36.034'	FORK IDENTIFIED IN #14 REJOINS WEST (MAIN) BRANCH HERE
16	57.41.743	152.37.813'	2004 SURVEY TERMINUS ON WEST (MAIN) TRIBUTARY OF FORK IDENTIFIED BY #12, IN RUSSIAN RIVER CANYON; SIGNIFICANT NUMBERS OF COHO OBSERVED IN POOLS UP TO THIS LOCATION

Notes:

- Waypoints taken during stream surveys conducted 2001-2004; 1927 map datum.
- Total of 365 fish counted during 2004 survey dispersed through main river and tributaries, starting ~ ¼ mile above highway bridge.

Appendix A9.-Salonie Creek coho salmon stream survey GPS waypoints.



Way point	Latitude	Longitude	Way point	Latitude	Longitude
1	57.41.812	152.33.495	16	57.40.899	152.34.469
2	57.41.752	152.33.445	17	57.40.938	152.34.395
3	57.41.799	152.33.335	18	57.41.256	152.34.356
4	57.41.769	152.33.381	19	57.41.390	152.34.249
5	57.41.743	152.33.221	20	57.41.501	152.33.411
6	57.41.608	152.33.271	21	57.41.531	152.33.641
7	57.41.459	152.33.322	22	57.40.570	152.34.475
8	57.41.213	152.33.545	23	57.40.557	152.34.587
9	57.41.051	152.33.677	24	57.40.505	152.34.567
10	57.40.108	152.34.877	25	57.40.470	152.34.564
11	57.40.371	152.34.712	26	57.40.462	152.34.596
12	57.40.188	152.34.899	27	57.39.943	152.34.986
13	57.40.621	152.34.763	28	57.40.525	152.34.584
14	57.40.663	152.34.728	29	57.40.783	152.34.359
15	57.40.907	152.34.779			

Notes:

- Waypoints taken during stream surveys conducted 2001-2004; 1927 map datum.

Appendix A10.-Sargent Creek coho salmon stream survey GPS waypoints.

Way point	Latitude	Longitude	Comment
1	57.42.609	152.34.024	MOUTH OF WEST SIDE TRIBUTARY CREEK IMMEDIATELY ABOVE HIGHWAY BRIDGE
2	57.42.685	152.34.093	TERMINUS OF TRIB CREEK IDENTIFIED BY WAY POINT #1; 7 COHO IN 2004
3	57.42.584	152.34.137	1 ST SLOUGH ON EAST SIDE ~1/3 MILE ABOVE HIGHWAY BRIDGE; DRY IN 2004
4	57.43.131	152.35.153	MOUTH OF WEST SIDE TRIBUTARY CREEK BELOW PATTI NELSON'S HOUSE; NOT SURVEYED IN 2004; STEEP GRADIENT FROM ADJACENT HILLSIDE - PROBABLY DOESN'T HOLD SPAWNING FISH
5	57.43.042	152.35.965	WEST SIDE TRIB CREEK ~ 1/3 MILE UPSTREAM FROM TRIB IDENTIFIED BY WAY POINT 4; CASCADE FROM HILLSIDE, NOT SURVEYED IN 2004 - PROBABLY DOESN'T HOLD SPAWNING FISH
6	57.43.015	152.36.106	DEEP SLOUGH ON WEST SIDE ~ 100' IN LENGTH, ALWAYS CONTAINS FISH; 21 COHO IN 2004
7	57.42.785	152.36.698	DESIGNATED ATV CROSSING; USE AS REFERENCE POINT ONLY
8	57.42.683	152.36.855	MOUTH OF MAJOR TRIBUTARY CREEK ON EAST SIDE ~ ¼ MILE ABOVE ATV CROSSING; FORKS ~ 50' ABOVE CONFLUENCE; WEST (RIGHT SIDE) FORK SPRING FED WITH LITTLE WATER IN 2004 - NOT SURVEYED
9	57.42.590	152.36.854	2004 SURVEY TERMINUS OF EAST (LEFT SIDE) FORK OF TRIBUTARY CREEK IDENTIFIED BY WAY POINT #8
10	57.42.493	152.37.824	2004 SURVEY TERMINUS (~ 200 YD. UPSTREAM FROM 2003 TERMINUS); STEEP CANYON WALL ON BOTH SIDES

Notes:

- Waypoints taken during stream surveys conducted 2001-2004; 1927 map datum.
- Nearly all 160 fish counted during 2004 survey at or upstream of deep pools adjacent to residential homes starting ~ 1 mile above highway bridge

Appendix 11.-West Twin Creek coho salmon stream survey GPS waypoints.

Way point	Latitude	Longitude	Comment
1	57.37.256	152.16.208	1 ST SLOUGH ABOVE BRIDGE ON LEFT
2	57.37.164	152.16.876	2 ND SLOUGH ON LEFT
3	57.36.974	152.17.105	1 ST TRIB. CREEK ON RIGHT ~ 1 MILE ABOVE BRIDGE. SURVEY ALL DRAINAGE TO OPEN MEADOW. UPPER END - NO GPS
4	57.37.639	152.18.202	TRIB. CREEK LEADING TO OLD BEAVER POND, ~1.75 MILE ABOVE BRIDGE. BEAVER POND ~ 100 YD FROM MAIN CHANNEL
5	57.36.618	152.18.147	STOPPING POINT ON CREEK DRAINING INTO OLD BEAVER POND.
6	57.36.223	152.18.270	MOUTH OF TRIB CREEK ON LEFT ~ ½ MILE ABOVE BEAVER POND, VERY SMALL. DID NOT SURVEY
7	57.36.107	152.18.205	SLOUGH ON LEFT WITH SMALL RIVET AT UPPER END
8	57.36.118	152.18.230	SLOUGH ON RIGHT, ~ 100 YARDS, W/ VERY SMALL FEEDER AT UPPER END
9	57.35.995	152.18.322	SMALL TRIB CREEK ON LEFT ~ 1/8 MILE ABOVE PREVIOUS POINT
10	57.35.929	152.18.449	TERMINUS OF 2004 SURVEY ON MAIN CREEK CHANNEL

Notes:

- Waypoints taken during stream surveys conducted 2001-2004; 1927 map datum.
- Nearly all 78 fish counted during 2004 survey in pools below highway bridge; last fish seen just above way point #3.

**APPENDIX B - KODIAK ROAD SYSTEM COHO SALMON
SURVEY SCHEDULE**

Appendix B1.- Schedule and frequency of Kodiak road system coho salmon surveys.

<u>Stream (ASC #)^a</u>	<u>Target survey date(s)</u>	<u>Target survey frequency</u>
American River (259-231)	Oct 8 – 27	3
Chiniak River (259-254)	Oct. 10 – 27	2
Felton Creek (259-234)	Oct 8 – 27	2
Monashka Creek (259-101)	Oct 8 – 20	2
Myrtle Creek(259-245)	Oct. 10 – 27	2
Olds River (259-242)	Oct 8 – 27	3
Pasagshak River (259-411)	Oct. 20, 27; Nov. 3, 10, 17	5
Pillar Creek (259-102)	Oct 8 – 20	2
Roslyn River (259-251)	Oct 15 – 27	2
Russian Creek (259-222)	Oct. 15 – 27	2
Salonie Creek (259-223)	Oct 15 – 27	2
Sargent Creek (259-221)	Oct. 15 – 27	2
West Twin Creek (259-252)	Oct. 10 – 27	2

^aReference number for the *Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes* (11 AAC 195.010).

**APPENDIX C - KODIAK MANAGEMENT AREA SALMON
SURVEY DATA FORM**

Appendix C1.-Kodiak Management Area salmon stream survey data form.

**SALMON STREAM SURVEY
MANAGEMENT AREA Q**

PAGE _____

VISIBILITY TYPE OF SURVEY
 E=EXCELLENT AERIAL _____
 G=GOOD FOOT _____
 F=FAIR OTHER _____
 P=POOR

Observer		Weather		Pilot:	
Date		General Location	Kodiak Archipelago	Aircraft:	
Time Out		Tide			
		Distance Surveyed			

NUMBERS OF FISH

REMARKS

Stream Number	Stream Name	Vis	Kings	Reds	Coho	Pink	Chum	REMARKS	
		Bay							
		Mouth							
		Stream							