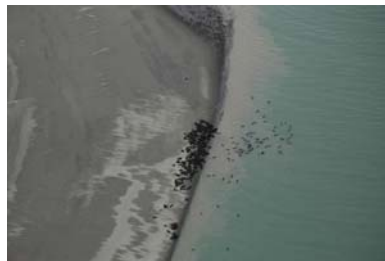
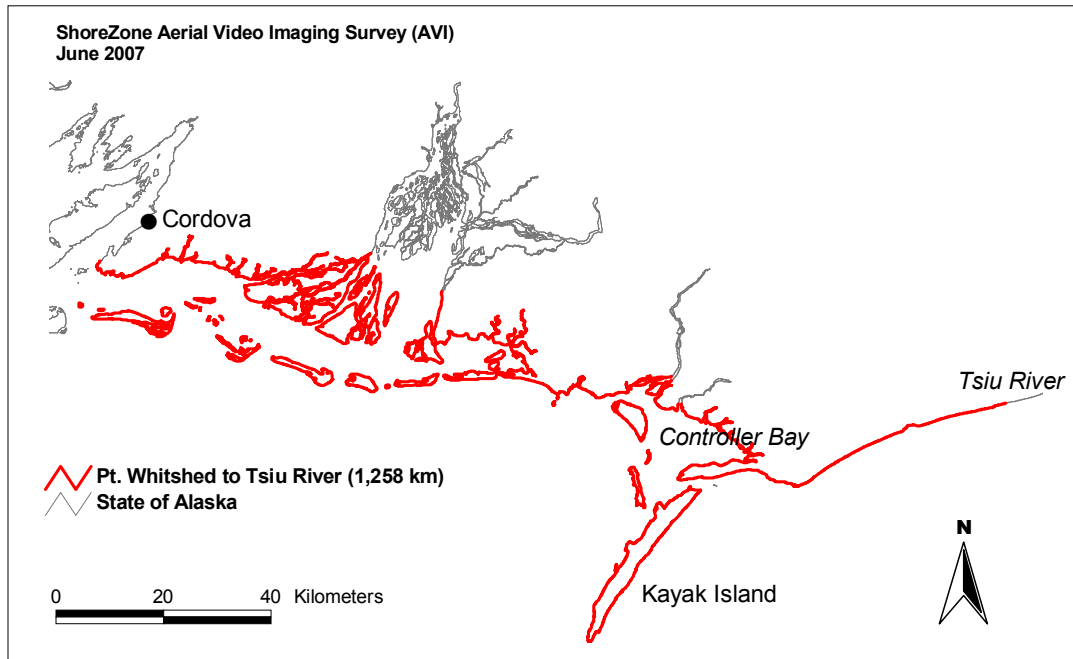


# FLIGHT REPORT

## ShoreZone Aerial Video Imaging (AVI) Survey Copper River Delta to Tsiu River (Northern Gulf of Alaska) June 2007



Coastal & Ocean  
Resources Inc.

Prepared for  
Prince William Sound Regional Citizens' Advisory Council  
and the Alaska State Department of Natural Resources  
by



ShoreZone

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**ShoreZone** is a coastal habitat mapping and classification system in which georeferenced aerial imagery is collected specifically for the interpretation and integration of geological and biological features of the intertidal zone and nearshore environment. Oblique low-altitude aerial video and digital still imagery of the coastal zone is collected during summer low tides (zero tide level or lower), usually from a helicopter flying at <100 m altitude. The flight trackline is recorded at 1-second intervals using Fugawi electronic navigation software and is continuously monitored in-flight to ensure all shorelines have been imaged. Video and still imagery collected are georeferenced and time-synchronized. Video imagery is accompanied by continuous, simultaneous commentary by a geologist and a biologist aboard the aircraft. The imagery and commentary are later used in the definition of discrete along-shore coastal habitat units and the “mapping” of observed physical, geomorphic, sedimentary, and biological features in those units.

The purpose of this flight report is to summarize the field activities of the ShoreZone aerial video imaging (AVI) survey conducted in **Eastern Prince William Sound, the Copper River Delta, and Controller Bay** during the low-tide window of **5-6 June 2007**. The survey was conducted by Coastal & Ocean Resources Inc. (CORI, Sidney, British Columbia) under contract with the Prince William Sound Regional Citizens’ Advisory Council (PWSRCAC) and the Alaska State Department of Natural Resources (AK DNR). This survey and data complement the surveys conducted in Prince William Sound under contract with NOAA National Marine Fisheries Service (NMFS). A coastal ecologist from Archipelago Marine Research Ltd. (AMR, Victoria, British Columbia) was sub-contracted by CORI to provide biological expertise.

The length of shoreline imaged during the survey and delivered with this report is **1,258 km**. Owing to weather, the aircraft was unable to fly any further eastward than the Tsiu River, thus there is a 78-km gap in imagery between there and Icy Bay, where the Southeast Alaska ShoreZone data set begins.

Table 1 provides a summary of crew affiliations and responsibilities. Table 2 provides a summary of shoreline imaged from each type of aircraft. The aircraft used in this survey included a Bell 206 Jet Ranger helicopter chartered from Maritime Helicopters in Homer (June 5) and a Cessna 206 fixed-wing chartered from Cordova Air Services (June 6). Imagery collected from the helicopter is flown westward (southward), looking onshore out of the left side of the aircraft. Imagery collected using the fixed-wing is flown eastward (northward), looking onshore out the right side of the aircraft.

The tables and figures on the following pages summarize, by video tape number, the extent and location of the AVI data and imagery collected. Maps for each tape are annotated with representative geographic names, trackline times (in hh:mm:ss UTC in 24-hour clock time), and photo numbers. The six-digit UTC time is imprinted on the video imagery that is provided on DVD with this report.

The shapefiles and GIS data that accompany this report on CD illustrate the flight trackline positions at 1-second intervals (displayed by tape number), as well as the digitized shoreline segments flown.

Table 1. Southeast Alaska AVI Flight Personnel and Responsibilities (Team Sockeye - SY).

<b>Crew Member</b>	<b>Individual / Affiliation</b>	<b>Responsibilities</b>
<i>Geomorphologist</i>	Jodi Harney CORI, Sidney BC	survey coordination, videography, geologic commentary, post-flight data processing, project reporting
<i>Coastal Ecologist</i>	Heather Anderson AMR, Victoria BC	digital photography, biologic commentary, post-flight data processing
<i>Navigator</i>	Kalen Morrow, CORI, Sidney BC	in-flight navigation, post-flight data processing
<i>Pilot</i>	Rick Farish Maritime Helicopters Juneau, Alaska	Jet Ranger Helicopter
<i>Pilot</i>	Dave Erbey Cordova Air Services Cordova, Alaska	Cessna 206 Fixed-Wing

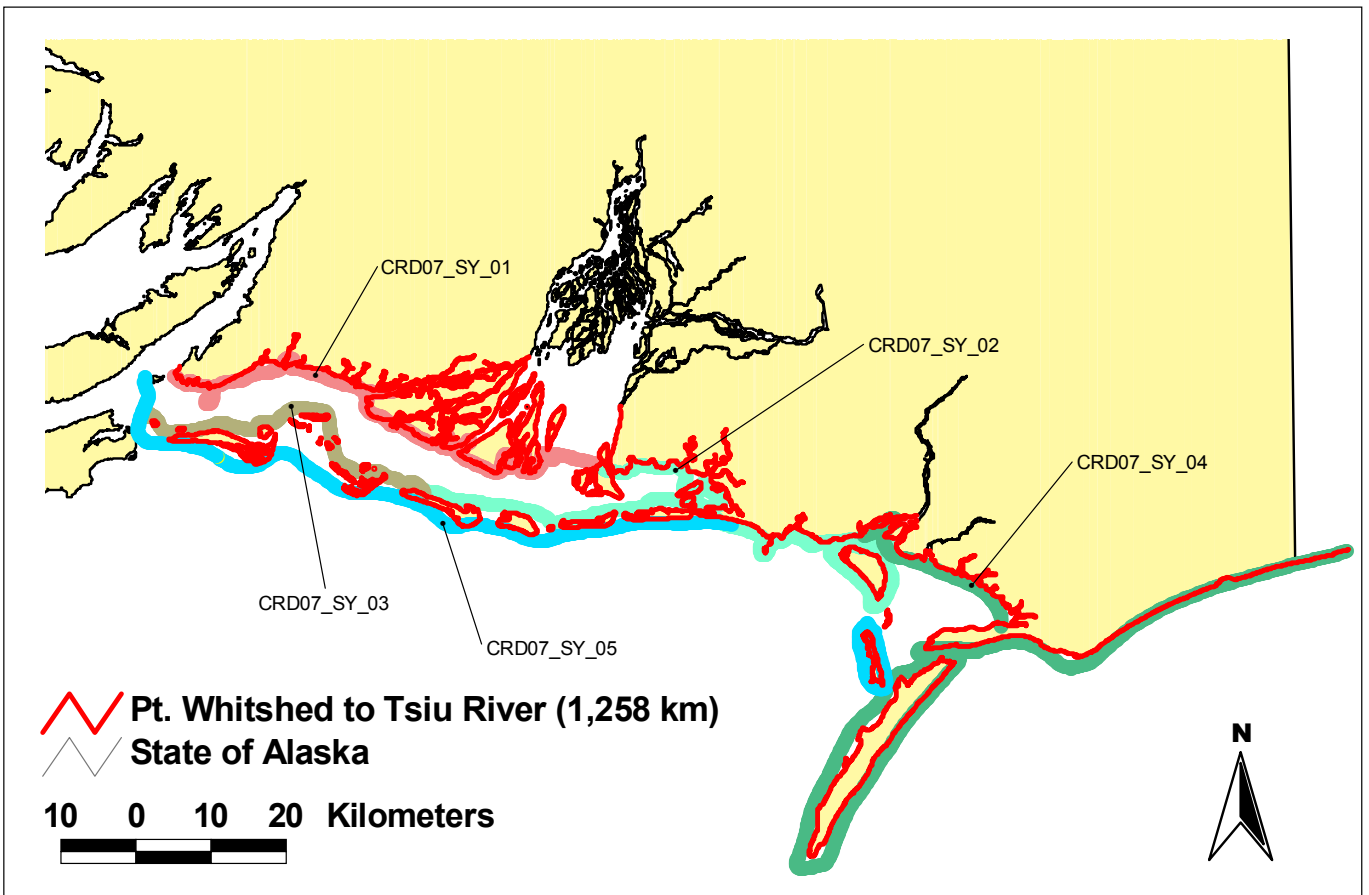
Table 2. Summary of shoreline collected in Copper River Delta and Controller Bay.

<b>Date</b>	<b>Aircraft</b>	<b>Shoreline</b>
5 June 2007	Jet Ranger Helicopter	Eastern Prince William Sound Copper River Delta Pt. Whitshed to Katalla (flying south, looking left)
6 June 2007	Cessna 206 Fixed-Wing	Tsiu River to Cape Suckling Controller Bay Kanak, Kayak, Wingam Islands (flying north, looking right)

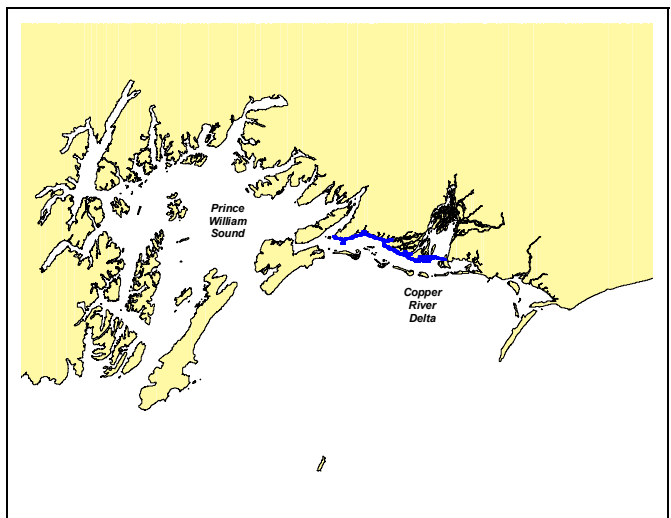
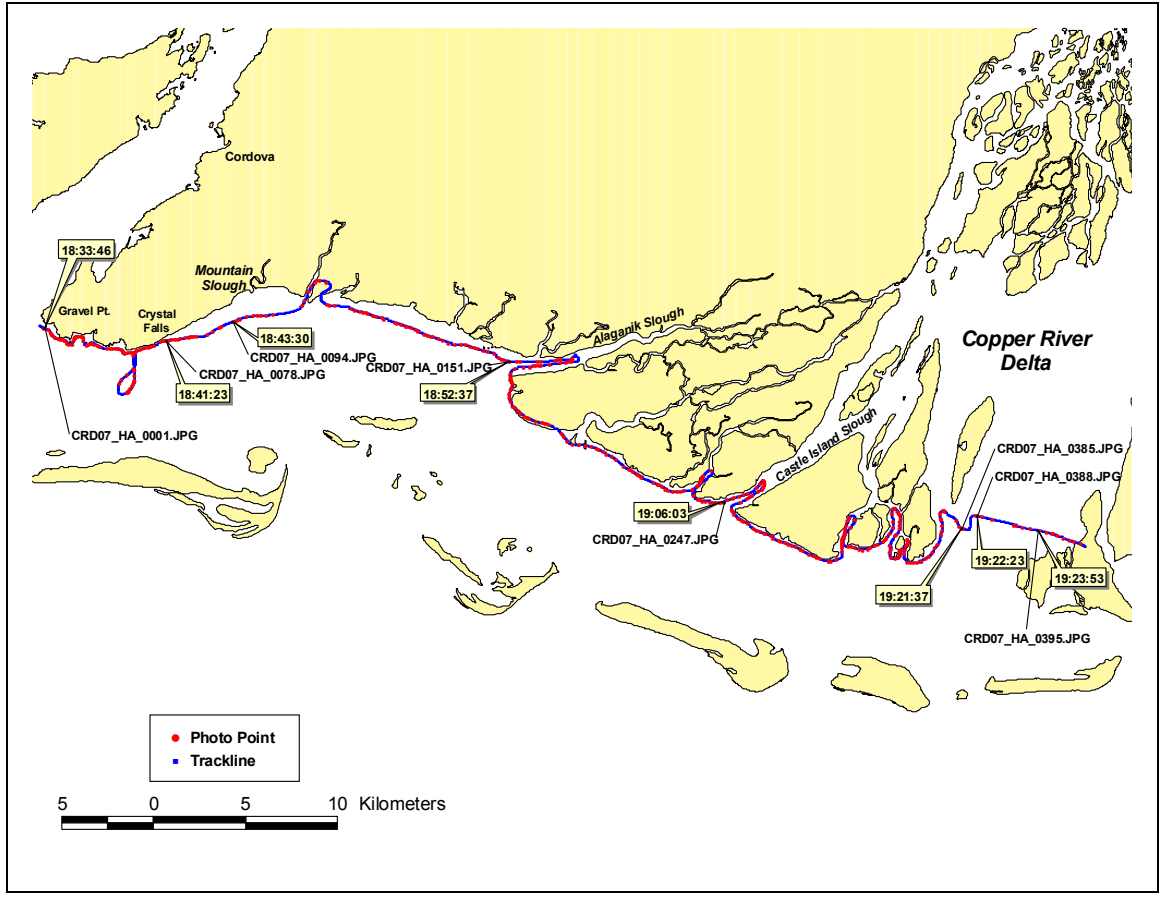
**2007 Copper River Delta Aerial Video Imaging Survey  
Team Sockeye (SY)**

**Survey Maps and Tape Logs  
5 – 6 June 2007**

DVDs CRD07\_SY01 to CRD07\_SY05



Flight trackline map showing the location and extent of specific videotapes (DVDs) for the June 2007 Team Sockeye survey of the Copper River Delta, Controller Bay, and the outer coast to the Tsiu River.



**CRD07\_SY\_01**  
**05 June 07**

**2007 Copper River Delta Aerial Video Imaging Survey  
Team Sockeye (SY)  
Tape Log**

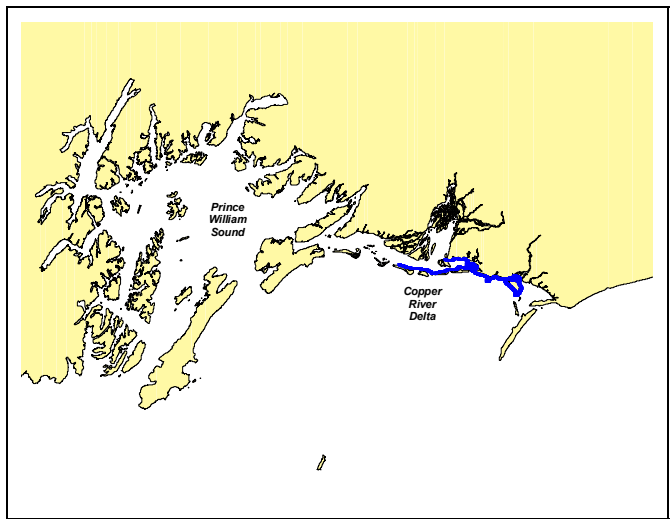
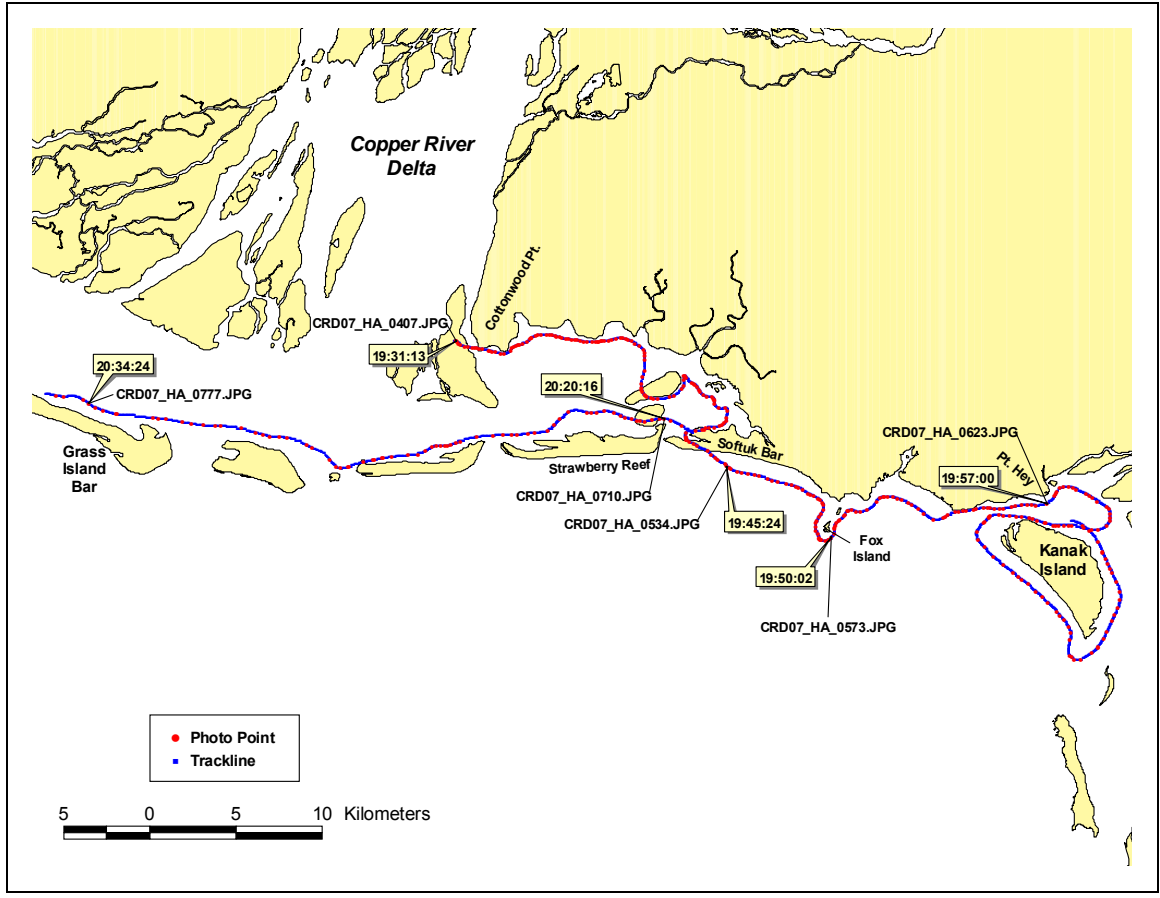
**Tape Number:** CRD07\_SY\_01

**General Location:** Gravel Pt. to Copper River  
**Date:** 5 June 2007  
**Time Start:** 183333 (UTC) (1033 ADT)  
**Fuel Break:** none  
**Time Stop:** 192527 (UTC) (1125 ADT)  
**Tape Length:** 51:54  
**Geo:** Harney  
**Bio:** Anderson  
**Nav:** Morrow

**Weather:** Light wind, high ceiling, good visibility, sunny periods

<b>Time (UTC)</b>	<b>Location</b>	<b>Photo No.</b>
183346	Gravel Point	CRD07_HA_0001.JPG
184123	Waterfall near Crystal Falls	CRD07_HA_0078.JPG
184330	Mountain Slough	CRD07_HA_0094.JPG
185237	Alaganik Slough	CRD07_HA_0151.JPG
190603	Castle Island Slough	CRD07_HA_0247.JPG
192137	Kokinhenik Island and flock of eagles, Copper River delta	CRD07_HA_0385.JPG
192223	Sand flat and seal haulout, Copper River delta	CRD07_HA_0388.JPG
192353	Copper River Delta	CRD07_HA_0395.JPG

Imagery and survey begin at endpoint of tape DV18 from 19May07.  
 Flying east in helicopter; imaging to left of aircraft.



**CRD07\_SY\_02**  
**05 June 07**



**2007 Copper River Delta Aerial Video Imaging Survey  
Team Sockeye (SY)  
Tape Log**

**Tape Number:** CRD07\_SY\_02

**General Location:** Copper River delta to Kanak Island and inner shoreline of barrier islands off Copper River delta

**Date:** 5 June 2007

**Time Start:** 193105 (UTC) (1131 ADT)

**Break:** 201206 to 201936

**Time Stop:** 203537 (UTC) (1235 ADT)

**Tape Length:** 57:00

**Geo:** Morrow

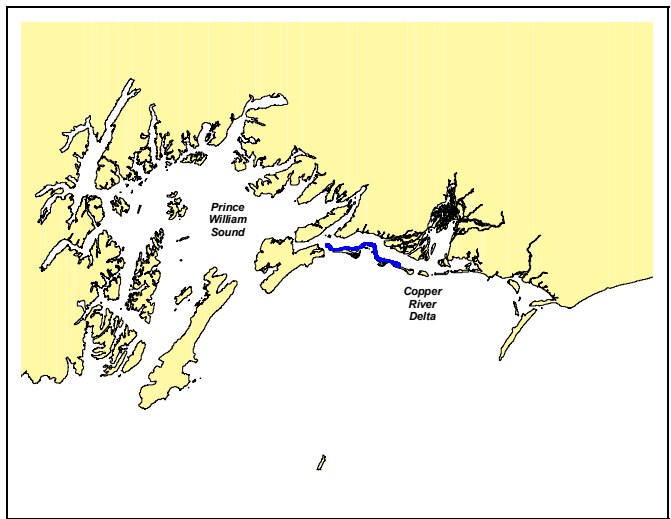
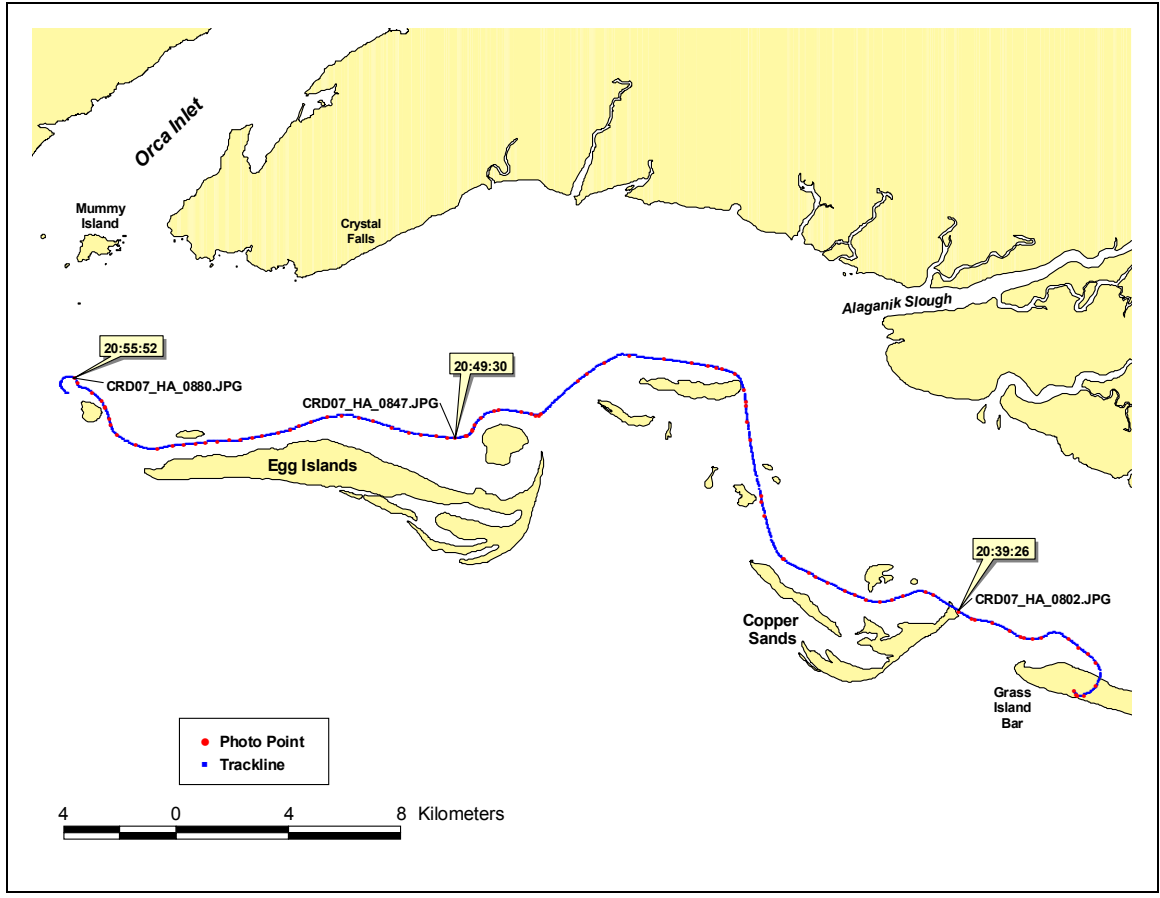
**Bio:** Anderson

**Nav:** Harney

**Weather:** Light wind, high ceiling, good visibility, sunny periods

<b>Time (UTC)</b>	<b>Location</b>	<b>Photo No.</b>
193113	Cottonwood Point	CRD07_HA_0407.JPG
194524	Outer Softuk Bar	CRD07_HA_0534.JPG
195002	Fox Island (off Point Martin)	CRD07_HA_0573.JPG
195700	Point Hey, Controller Bay	CRD07_HA_0623.JPG
202016	Inner shoreline, Strawberry Reef	CRD07_HA_0710.JPG
203424	Inner shoreline, Grass Island Bar	CRD07_HA_0777.JPG

Flying west in helicopter; imaging to left of aircraft.  
Setdown and switch at Cottonwood Point tape change.



**CRD07\_SY\_03**  
**05 June 07**

**2007 Copper River Delta Aerial Video Imaging Survey  
Team Sockeye (SY)  
Tape Log**

**Tape Number:** CRD07\_SY\_03

**General Location:** Inner shoreline of barrier islands off Copper River delta

**Date:** 5 June 2007

**Time Start:** 203626 (UTC) (1236 ADT)

**Break:** None

**Time Stop:** 205626 (UTC) (1256 ADT)

**Tape Length:** 20:00

**Geo:** Morrow

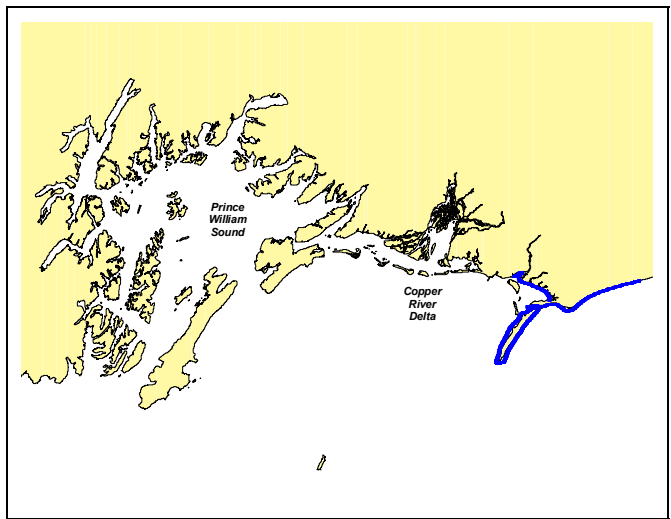
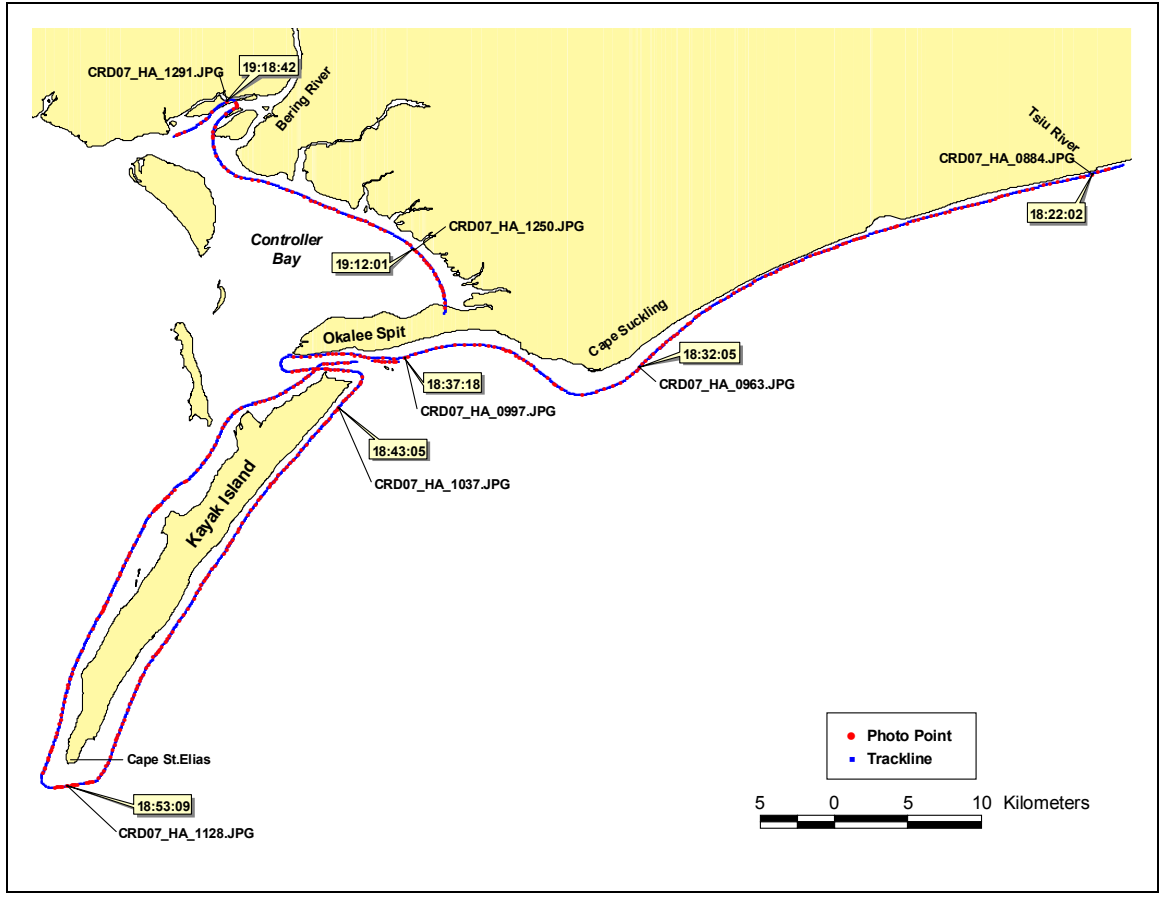
**Bio:** Anderson

**Nav:** Harney

**Weather:** Light wind, high ceiling, good visibility, sunny periods

<b>Time (UTC)</b>	<b>Location</b>	<b>Photo No.</b>
203926	Inner shoreline, Copper Sands	CRD07 HA 0802
204930	Inner shoreline, Egg Islands	CRD07 HA 0847
205552	Otter haul-out, western end of barrier islands	CRD07 HA 0880

Flying west in helicopter; imaging to left of aircraft.



**CRD07\_SY\_04**  
**06 June 07**

**2007 Copper River Delta Aerial Video Imaging Survey  
Team Sockeye (SY)  
Tape Log**

**Tape Number:** CRD07\_SY\_04

**General Location:** Tsiu River to Controller Bay

**Date:** 6 June 2007

**Time Start:** 182122 (UTC) (1021 ADT)

**Break:** 190730 to 190753, 190840 to 191025

**Time Stop:** 192003 (UTC) (1120 ADT)

**Tape Length:** 56:29

**Geo:** Morrow

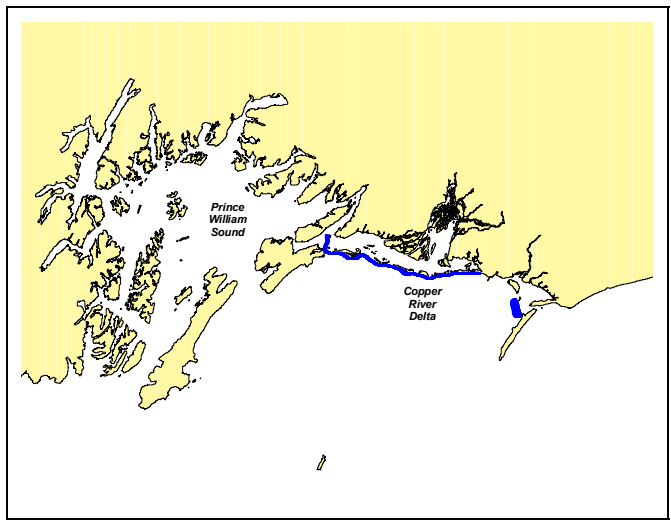
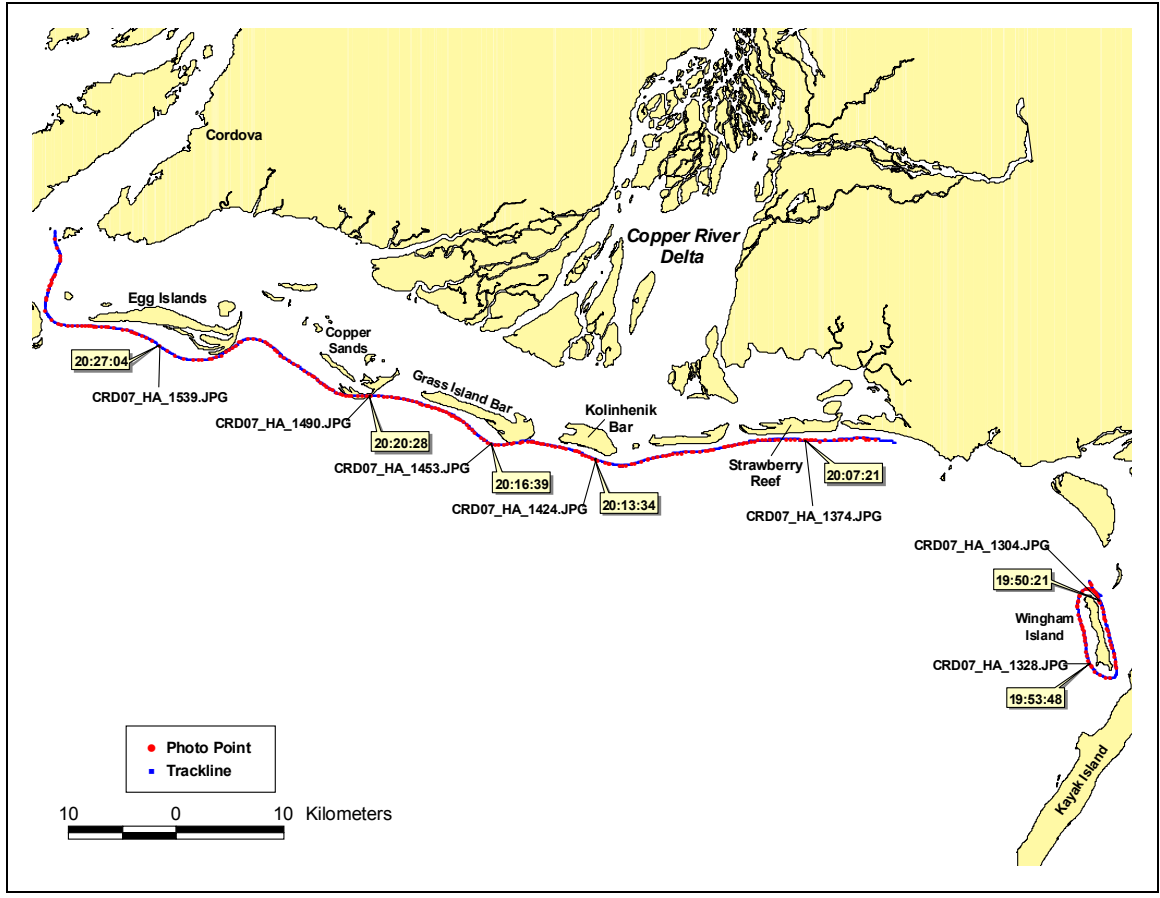
**Bio:** Anderson

**Nav:** Harney

**Weather:** Light wind, high ceiling, good visibility, sunny periods

<b>Time (UTC)</b>	<b>Location</b>	<b>Photo No.</b>
182202	Tsiu River	CRD07_HA_0884.JPG
183205	Cape Suckling	CRD07_HA_0963.JPG
183718	Okalee Spit	CRD07_HA_0997.JPG
184305	Northeast Kayak Island	CRD07_HA_1037.JPG
185309	Cape St. Elias	CRD07_HA_1128.JPG
191201	Controller Bay	CRD07_HA_1250.JPG
191842	Bering River	CRD07_HA_1291.JPG

Flying west in fixed wing; imaging to right of aircraft.



**CRD07\_SY\_05**  
**06 June 07**

**2007 Copper River Delta Aerial Video Imaging Survey  
Team Sockeye (SY)  
Tape Log**

**Tape Number:** CRD07\_SY\_05

**General Location:** Wingham Island and outer shoreline of barrier islands off delta

**Date:** 6 June 2007

**Time Start:** 194936 (UTC) (1149 ADT)

**Break:** 195658 to 200450

**Time Stop:** 203258 (UTC) (1231 ADT)

**Tape Length:** 35:28

**Geo:** Harney

**Bio:** Anderson

**Nav:** Morrow

**Weather:** Light wind, high ceiling, good visibility, sunny periods

<b>Time (UTC)</b>	<b>Location</b>	<b>Photo No.</b>
195021	NW Wingham Island	CRD07_HA_1304.JPG
195348	SW Wingham Island	CRD07_HA_1328.JPG
200721	Outer shoreline, Strawberry Reef	CRD07_HA_1374.JPG
201334	Outer shoreline, Kokinhenik Bar	CRD07_HA_1424.JPG
201639	Outer shoreline, Grass Island Bar	CRD07_HA_1453.JPG
202028	Outer shoreline, Copper Sands	CRD07_HA_1490.JPG
202704	Outer shoreline, Egg Island	CRD07_HA_1539.JPG

Flying west in fixed wing; imaging to right of aircraft.



















**2007 Copper River Delta Aerial Video Imaging Survey  
Team Sockeye (SY)**

**Sample Photos  
5 – 6 June 2007**

**Team Sockeye (SY) Sample Photos (June 5, 2007)**

	
<p>Whitshed Point CRD07_HA_0001.JPG</p>	<p>Crystal Falls CRD07_HA_0078.JPG</p>
	
<p>Alagnik Slough CRD07_HA_0113.JPG</p>	<p>Outer coast, Strawberry Reef CRD07_HA_0534.JPG</p>
	
<p>Fox Island CRD07_HA_0573.JPG</p>	<p>Inner coast, Strawberry Reef CRD07_HA_0710.JPG</p>
	
<p>Grass Island Bar CRD07_HA_0784.JPG</p>	<p>Sea otters on sand flats, west of delta CRD07_HA_0880</p>

**Team Sockeye (SY) Sample Photos (June 6, 2007)**

	
<p>Outer Coast near Bering Glacier CRD07_HA_0946.JPG</p>	<p>Cape Suckling CRD07_HA_0963.JPG</p>
	
<p>Kayak Island CRD07_HA_1037.JPG</p>	<p>Cape St. Elias CRD07_HA_1128.JPG</p>
	
<p>Controller Bay CRD07_HA_1250.JPG</p>	<p>BeringRiver CRD07_HA_1291.JPG</p>
	
<p>Wingham Island CRD07_HA_1316.JPG</p>	<p>Wingham Island CRD07_HA_1328.JPG</p>