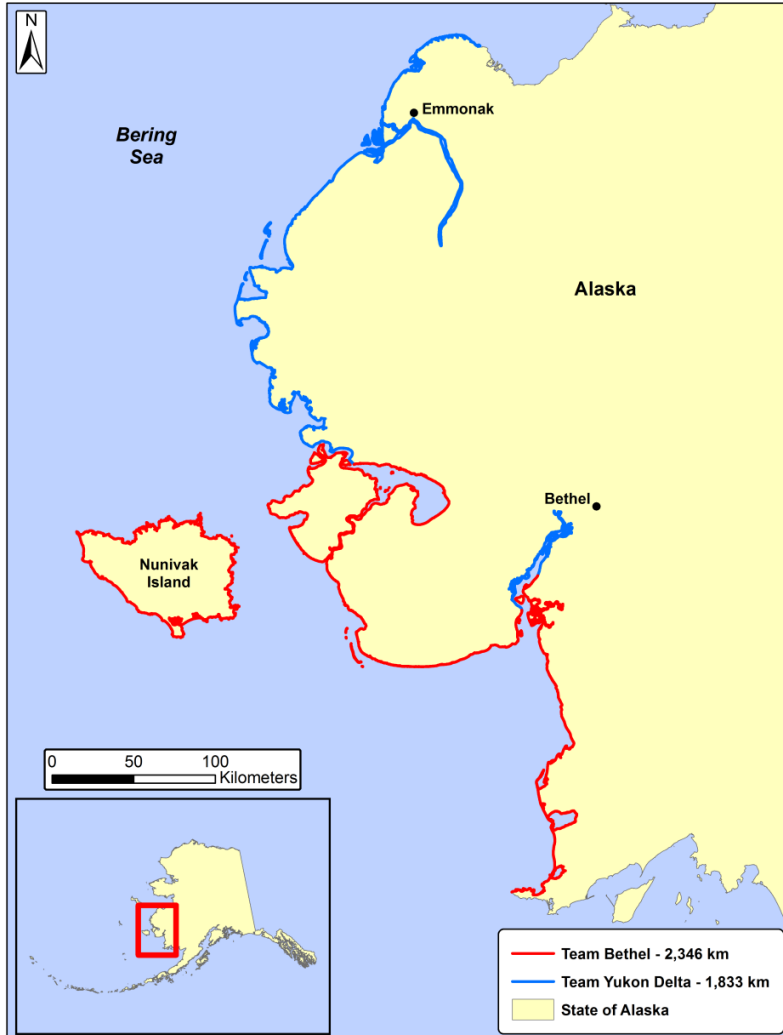


FLIGHT REPORT
ShoreZone Aerial Video Imaging (AVI) Survey
Yukon-Kuskokwim Delta
Team Bethel (BT) July 18-23, 2014
Team Yukon Delta (YK) August 7-11, 2014



Prepared for:
NOAA NMFS
Juneau, Alaska

prepared by
Coastal & Ocean Resources
Victoria, BC



The purpose of this flight report is to summarize the field activities of the ShoreZone aerial video imaging (AVI) surveys conducted out of Nunivak Island and Bethel, Alaska during July 18-23 and August 7-11, 2014 respectively. The surveys were conducted by Coastal & Ocean Resources (CORI), under NOAA NMFS Alaska Region Contract AB-133F-13-CQ-0038 Task 0004. Tables 1 and 3 provide a summary of crew affiliations and responsibilities.

The tables and figures on the following pages summarize the extent and location of the 4,179 km (*based on the digital Alaska Coastline 1:63,360) of aerial video imagery collected by the teams. The teams utilized a Robinson R-44 helicopter chartered from Herman's Helicopters in Bethel and Bering Air in Nome, Alaska. Imagery was collected looking at the shoreline from the left side of the aircraft with the doors removed. A total of 39 HD master tapes (including extra imagery of the Yukon River) were collected during the survey and recorded to MP4 format (Tables 2 and 4). This report contains a summary table for each tape, illustrating its location, length, and key geographic points. Maps for each tape are annotated with representative geographic names, trackline times (hh:mm:ss UTC; UTC time is 8 hours ahead of Alaska Daylight Time) and photo numbers. The six-digit UTC time is also imprinted on the video imagery that is provided on hard drive with this report.

All photos are supplied on hard drive, organized by tape number for each team, consistent with the ShoreZone image library. A total of 28,514 photos were collected by the teams. The GIS data that accompany this report illustrate the flight trackline positions at 1-second intervals. Data and imagery are linked by a date time code (yyyymmddhhmmss). When processing is complete, all imagery will be posted online at the NOAA ShoreZone web site:

<http://www.fakr.noaa.gov/shorezone/default.htm>

TABLE OF CONTENTS

SUMMARY	2
TABLE OF CONTENTS	3
1.0 Team Bethel Survey Data	
1.1 Tapes: BS14_BT_01 to BS14_BT_24	5
2.0 Team Yukon Delta Survey Data	
2.1 Tapes BS14_YK_01 to BS14_YK_15.....	57
References	90
Acknowledgements	90
Access and Use Constraints	90

LIST OF TABLES

Table	Description	Page
1	Flight Personnel and Responsibilities, Team Bethel	6
2	Summary of Video Tapes, Team Bethel.....	6
3	Flight Personnel and Responsibilities, Team Yukon Delta.....	58
4	Summary of Video Tapes, Team Yukon Delta.....	58

This Page Left Blank to Facilitate Double-Sided Printing

Team Bethel Survey Data

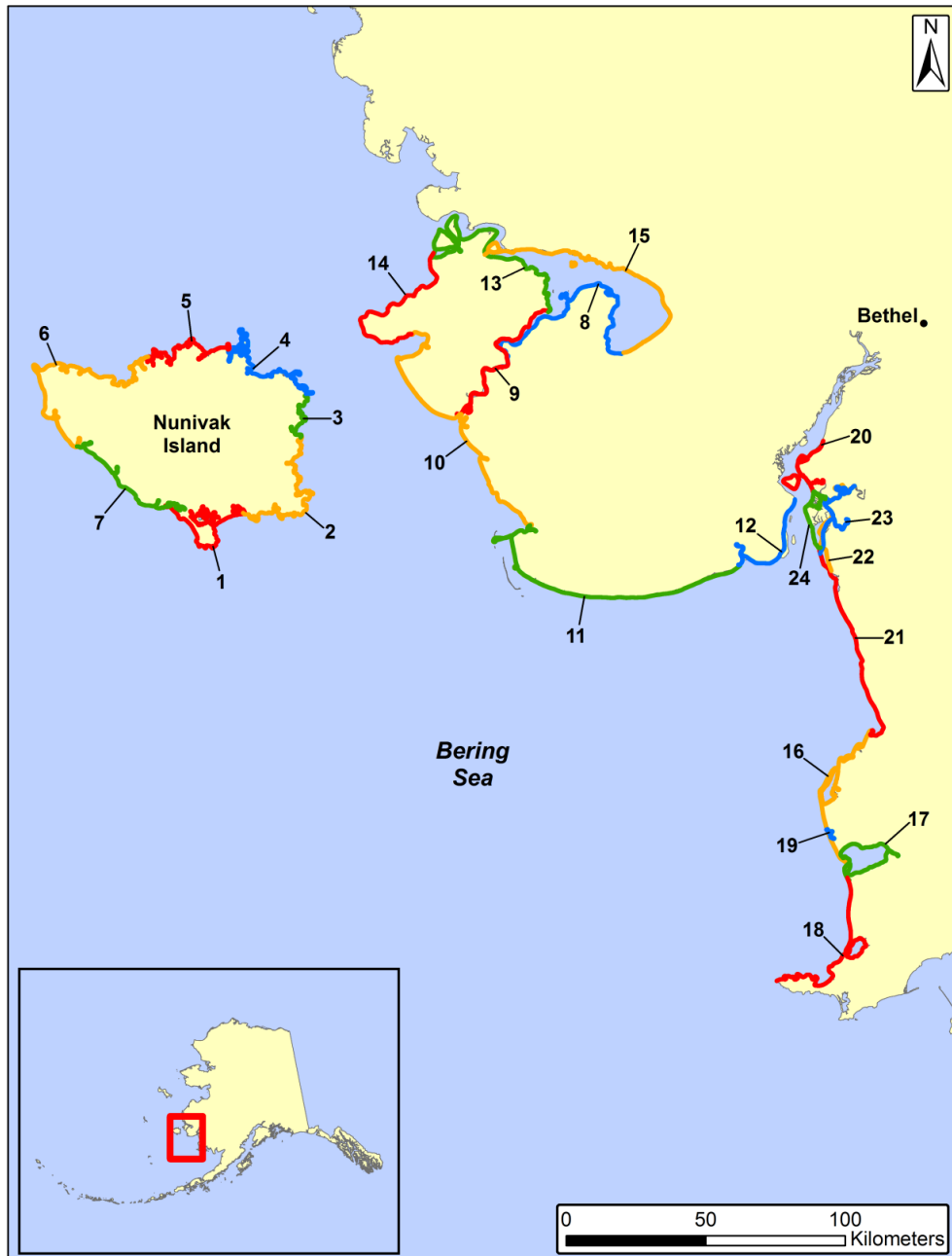
Table 1. Flight Personnel and Responsibilities: Team Bethel (BT)

Crew Member	Individual/ Affiliation	Responsibilities
<i>Geomorphologist</i>	Sean Daley Kalen Morrow Coastal and Ocean Resources, Victoria, BC	Videography, geomorphic commentary, in-flight navigation, survey coordination, post-flight data processing
<i>Coastal Ecologist</i>	Sarah Cook Coastal and Ocean Resources, Victoria, BC	Digital photography, biologic commentary
<i>Pilot</i>	Stan Herman Herman's Helicopters, Bethel, Alaska	

Table 2. Survey Tapes: Team Bethel (BT)

Tape Number	Location
BS14_BT_01	South Nunivak Island, Duchikthluk Bay
BS14_BT_02	SE Nunivak Island, Cape Corwin
BS14_BT_03	East Nunivak Island, Cape Manning
BS14_BT_04	Mekoryuk, Nunivak Island
BS14_BT_05	North Nunivak Island, Dahtkit Cove
BS14_BT_06	Cape Mohican, Nunivak Island
BS14_BT_07	West Nunivak Island
BS14_BT_08	Baird Inlet, Kolavinarak River
BS14_BT_09	Kolavinarak River, Baird Inlet
BS14_BT_10	Kangirlvar Bay, Kinak Bay
BS14_BT_11	Cape Avinof, Kwigillingok
BS14_BT_12	Ishkowik River, Kuskokwim River
BS14_BT_13	Baird Inlet, Ninglick River, Kigigak Island
BS14_BT_14	Nelson Island, Toksook Bay
BS14_BT_15	Barid Inlet
BS14_BT_16	Jacksmith Bay, Carter Bay, Goodnews Bay
BS14_BT_17	Goodnews Bay, Platinum
BS14_BT_18	Chagvan Bay, Cape Newenham
BS14_BT_19	Nanvakfak Lake
BS14_BT_20	Kuskokwim River
BS14_BT_21	Quinhagak, Jacksmith Bay
BS14_BT_22	Kuskokwim River, Eek River
BS14_BT_23	Eek River, Apokak Slough
BS14_BT_24	Eek Island, Kuskokwim River

ShoreZone Aerial Video Imaging (AVI) Survey
Team Bethel (BT) July 18-23, 2014
Survey Maps and Tape Logs
Video Tapes: BS14_BT_01 to BS14_BT_24



Flight trackline map showing the location and extent of video tapes for the July 18-23, 2014 Team Bethel (BT) survey in Western Alaska.



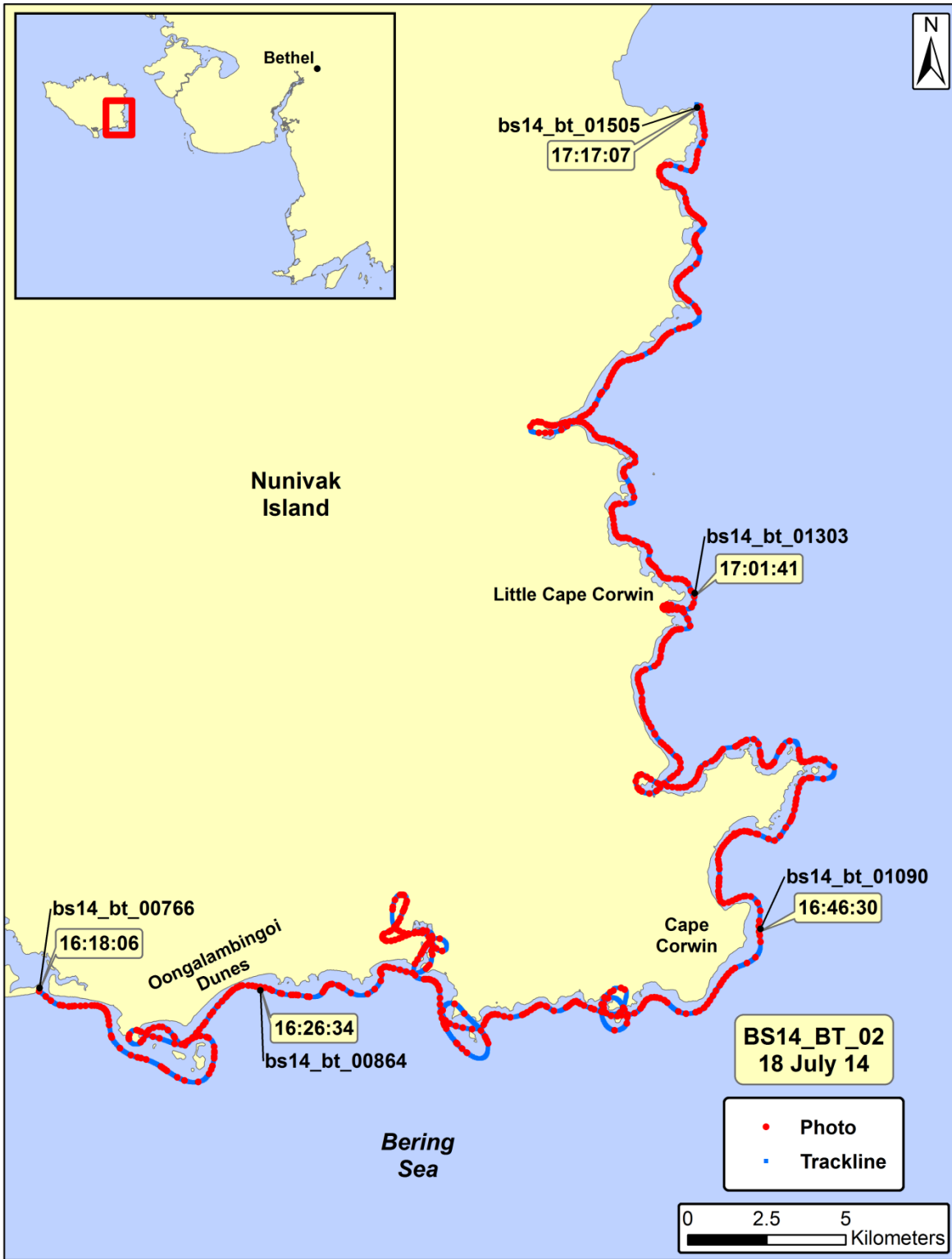
**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Bethel (BT)**

Tape: BS14_BT_01

Date 18 July 2014

General Location: South Nunivak Island, Duchikthluk Bay
Time Start (UTC): 15:14:10 **Geo:** Morrow
Time End (UTC): 16:17:08 **Bio:** Cook
Tape Length: 62 min 58 sec **Pilot:** Hermens
Weather: Fog, mist

Time (UTC)	Location	Photo
15:14:11	Bangookbit Dunes	bs14_bt_00001
15:27:16	Cape Mendenhall	bs14_bt_00163
15:45:56	Duchikthluk Bay	bs14_bt_00400
16:03:22	Nunathloogagamiutbingoi Dunes	bs14_bt_00588
16:17:08	Nunathloogagamiutbingoi Dunes	bs14_bt_00764



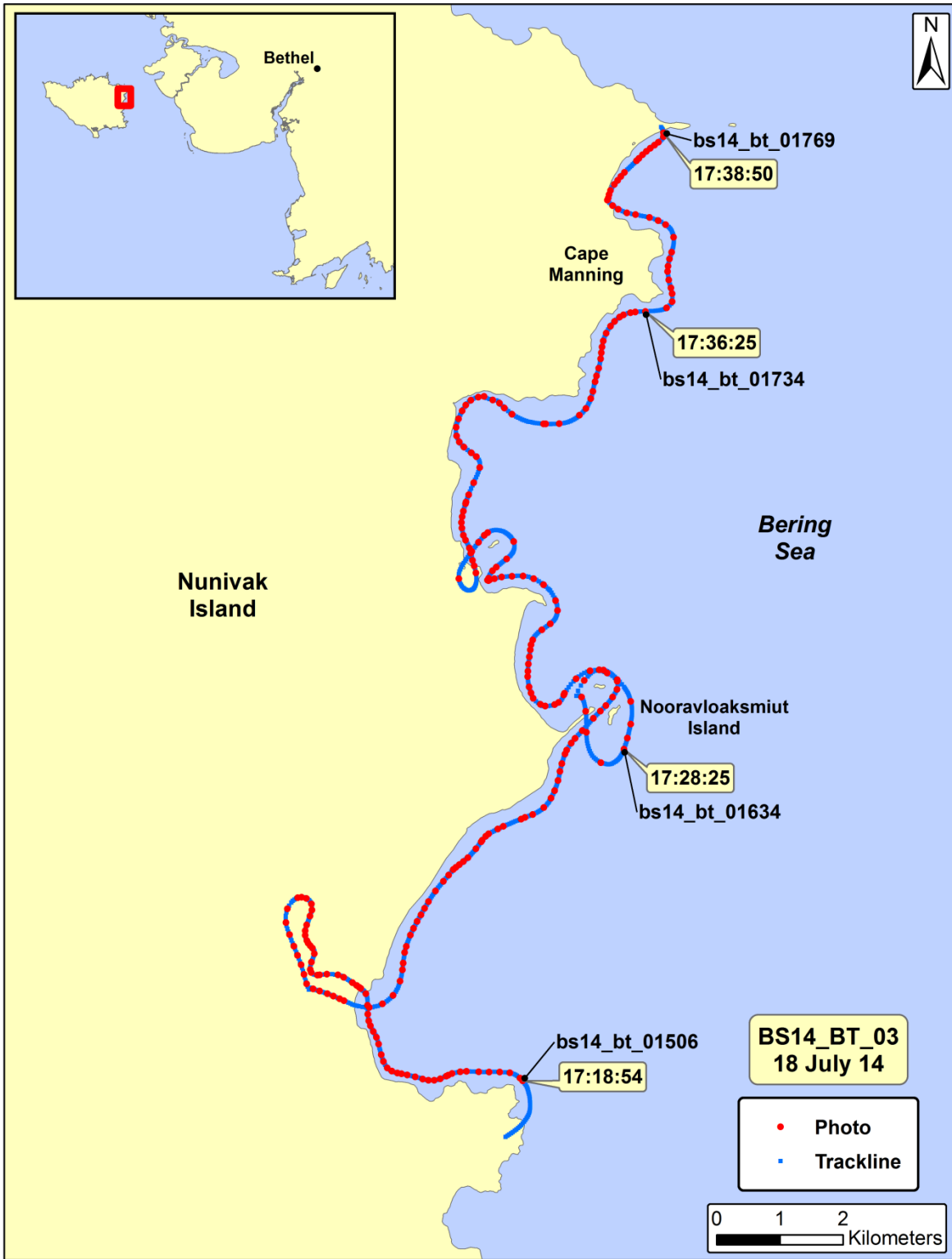
**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Bethel (BT)**

Tape: BS14_BT_02

Date 18 July 2014

General Location: SE Nunivak Island, Cape Corwin
Time Start (UTC): 16:18:06 **Geo:** Morrow
Time End (UTC): 17:17:17 **Bio:** Cook
Tape Length: 59 min 11 sec **Pilot:** Hermens
Weather: Fog, mist

Time (UTC)	Location	Photo
16:18:06	Nunathloogagamiutbingoi Dunes	bs14_bt_00766
16:26:34	Oongalambingoi Dunes	bs14_bt_00864
16:46:30	Cape Corwin	bs14_bt_01090
17:01:41	Little Cape Corwin	bs14_bt_01303
17:17:07	East Nunivak Island	bs14_bt_01505



**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Bethel (BT)**

Tape: BS14_BT_03

Date 18 July 2014

General Location: East Nunivak Island, Cape Manning
Time Start (UTC): 17:18:19 **Geo:** Morrow
Time End (UTC): 17:38:54 **Bio:** Cook
Tape Length: 20 min 35 sec **Pilot:** Hermens
Weather: Fog, mist

Time (UTC)	Location	Photo
17:18:54	East Nunivak Island	bs14_bt_01506
17:28:25	Nooravloaksmiut Island	bs14_bt_01634
17:36:25	Cape Manning	bs14_bt_01734
17:38:50	North of Cape Manning, Nunivak Island	bs14_bt_01769



**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Bethel (BT)**

Tape: BS14_BT_04

Date 18 July 2014

General Location: Mekoryuk, Nunivak Island

Time Start (UTC): 18:39:40

Geo: Morrow

Time End (UTC): 19:37:40

Bio: Cook

Tape Length: 58 min 0 sec

Pilot: Hermens

Weather: Fog, mist

Time (UTC)	Location	Photo
18:39:47	North of Cape Manning, Nunivak Island	bs14_bt_01770
18:54:55	Triangle Island	bs14_bt_01966
19:10:54	Jingeeruk Point, Nunivak Island	bs14_bt_02198
19:20:01	Cape Etolin	bs14_bt_02343
19:37:38	Mekoryuk	bs14_bt_02636



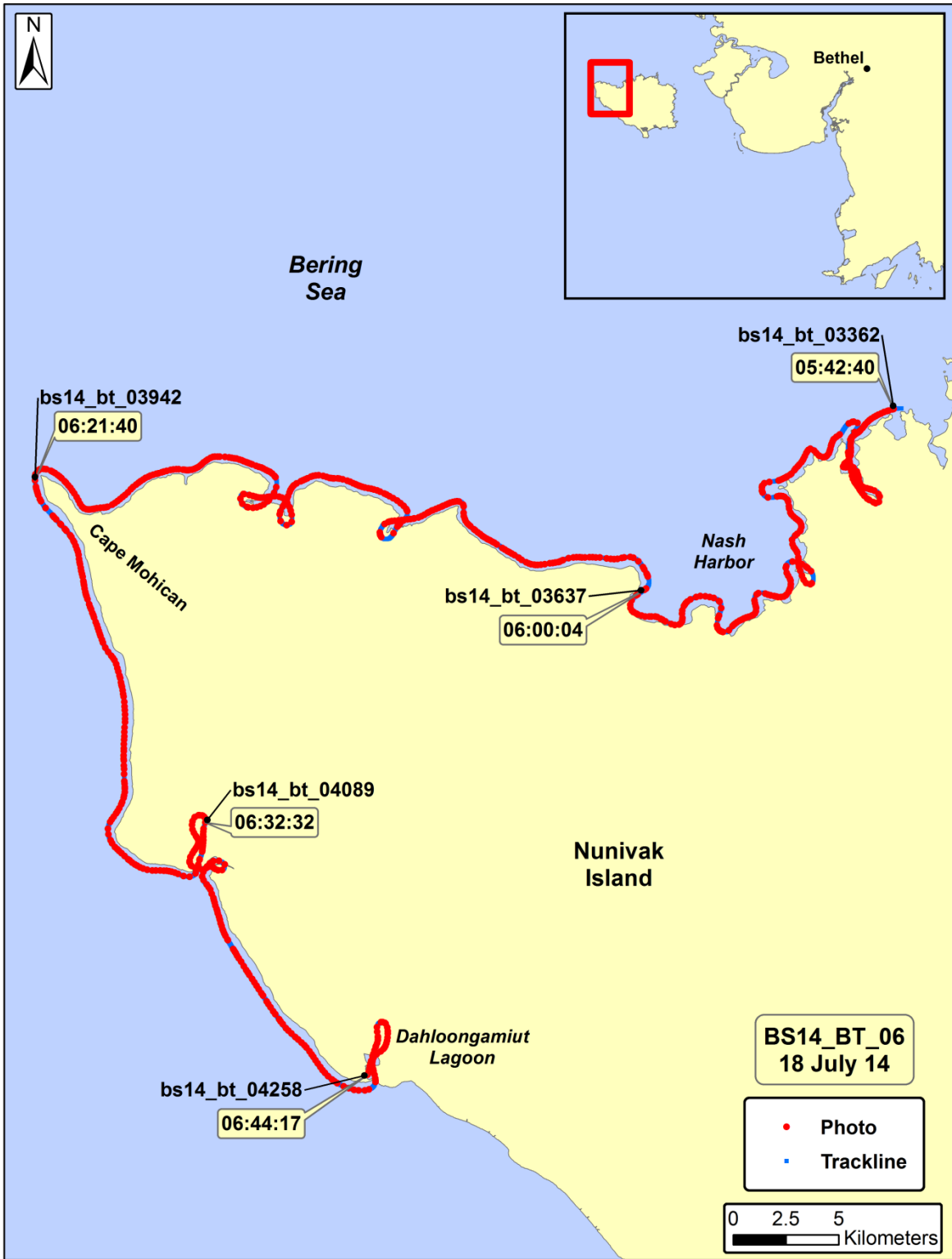
**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Bethel (BT)**

Tape: BS14_BT_05

Date 18 July 2014

General Location: North Nunivak Island, Dahtkit Cove
Time Start (UTC): 19:38:20 **Geo:** Morrow
Time End (UTC): 20:21:08 **Bio:** Cook
Tape Length: 42 min 48 sec **Pilot:** Hermens
Weather: Fog, mist

Time (UTC)	Location	Photo
19:38:28	Mekoryuk	bs14_bt_02637
19:45:54	lookswarat Bay	bs14_bt_02776
19:54:44	Kikartik Rock	bs14_bt_02937
20:03:07	Dahtkit Cove	bs14_bt_03072
20:21:05	West of Nariksmiut River	bs14_bt_03359



**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Bethel (BT)**

Tape: BS14_BT_06

Date 18 July 2014

General Location: Cape Mohican, Nunivak Island
Time Start (UTC): 05:42:30 **Geo:** Daley
Time End (UTC): 06:44:17 **Bio:** Cook
Tape Length: 61 min 47 sec **Pilot:** Hermens
Weather: Sunny, clear

Time (UTC)	Location	Photo
05:42:40	West of Nariksmiut River	bs14_bt_03362
06:00:04	Nash Harbor	bs14_bt_03637
06:21:40	Cape Mohican	bs14_bt_03942
06:32:32	Dooksook Lagoon	bs14_bt_04089
06:44:17	Dahloongamiut Lagoon	bs14_bt_04258



**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Bethel (BT)**

Tape: BS14_BT_07

Date 18 July 2014

General Location: West Nunivak Island

Time Start (UTC): 06:44:44

Geo: Daley

Time End (UTC): 07:23:05

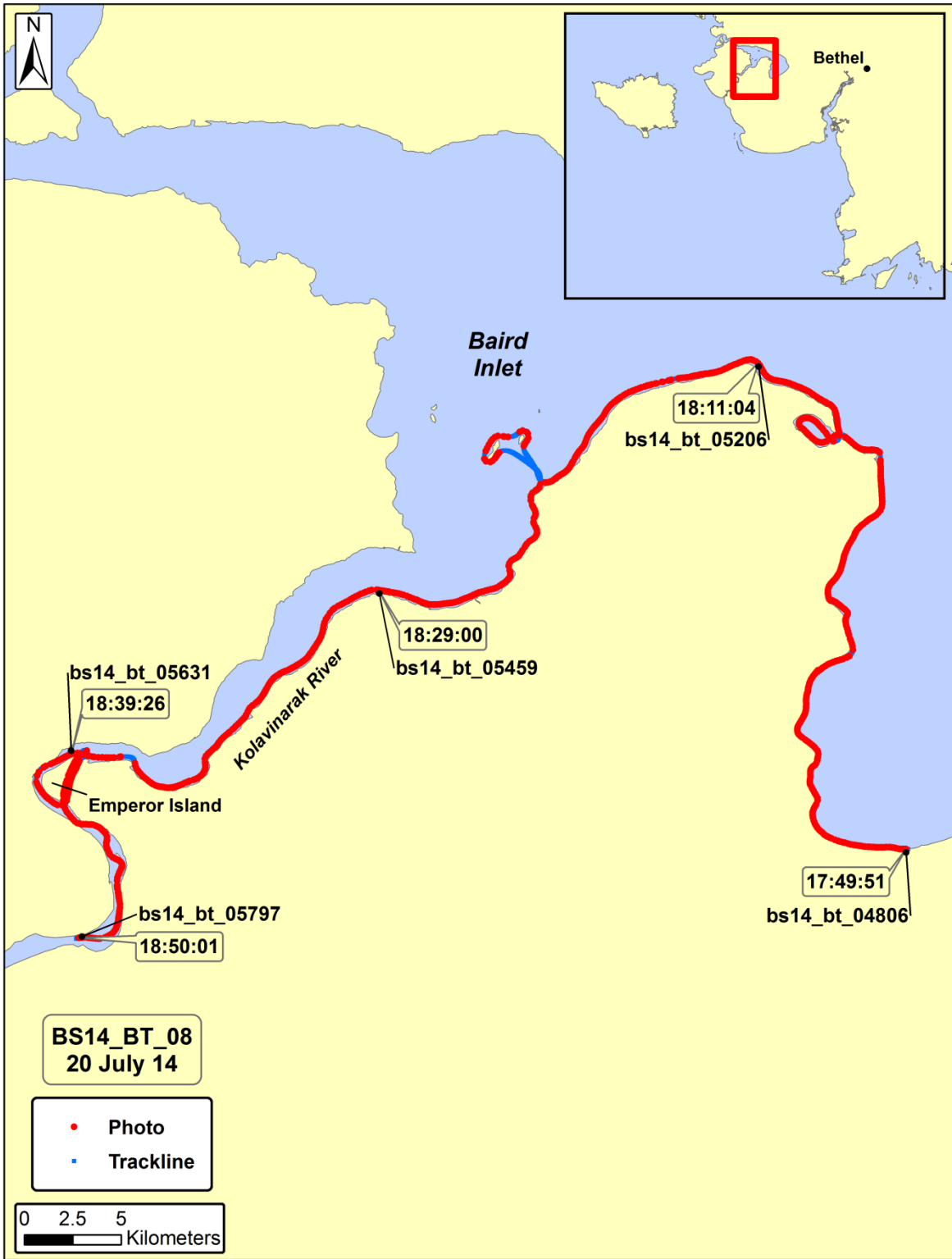
Bio: Cook

Tape Length: 38 min 21 sec

Pilot: Hermens

Weather: Sunny, clear

Time (UTC)	Location	Photo
06:44:52	Dahloongamiut Lagoon	bs14_bt_04260
06:57:00	Chakwakamiut River	bs14_bt_04430
07:07:42	Binajoaksmiut River	bs14_bt_04607
07:22:51	Bangookbit Dunes	bs14_bt_04805



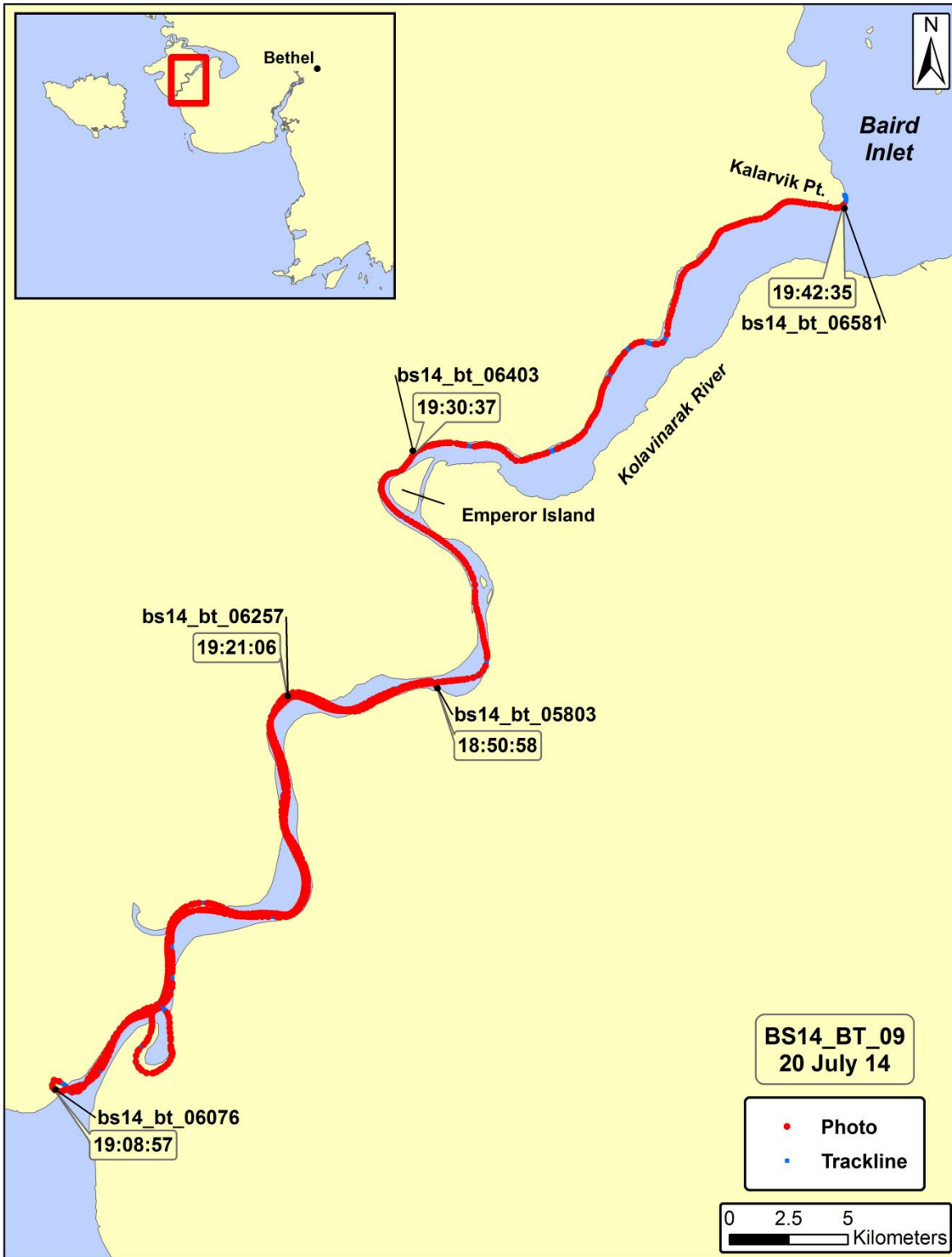
**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Bethel (BT)**

Tape: BS14_BT_08

Date 20 July 2014

General Location: Baird Inlet, Kolavinarak River
Time Start (UTC): 17:49:48 **Geo:** Morrow
Time End (UTC): 18:50:06 **Bio:** Cook
Tape Length: 60 min 18 sec **Pilot:** Hermens
Weather: Sunny, clear

Time (UTC)	Location	Photo
17:49:51	South side Baird Inlet	bs14_bt_04806
18:11:04	South side Baird Inlet	bs14_bt_05206
18:29:00	Entrance to Kolavinarak River	bs14_bt_05459
18:39:26	Emperor Island, Kolavinarak River	bs14_bt_05631
18:50:01	Kolavinarak River	bs14_bt_05797



**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Bethel (BT)**

Tape: BS14_BT_09

Date 20 July 2014

General Location: Kolavinarak River, Baird Inlet
Time Start (UTC): 18:50:54 **Geo:** Morrow
Time End (UTC): 19:42:50 **Bio:** Cook
Tape Length: 51 min 56 sec **Pilot:** Hermens
Weather: Sunny, clear

Time (UTC)	Location	Photo
18:50:58	South side of the Kolavinarak River	bs14_bt_05803
19:08:57	Mouth of the Kolavinarak River	bs14_bt_06076
19:21:06	North side of the Kolavinarak River	bs14_bt_06257
19:30:37	Opposite Emperor Island, Kolavinarak River	bs14_bt_06403
19:42:35	Kalarvik Point, Baird Inlet	bs14_bt_06581



**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Bethel (BT)**

Tape: BS14_BT_10

Date 20 July 2014

General Location: Kangirlvar Bay, Kinak Bay

Time Start (UTC): 20:45:34

Geo: Morrow

Time End (UTC): 21:46:12

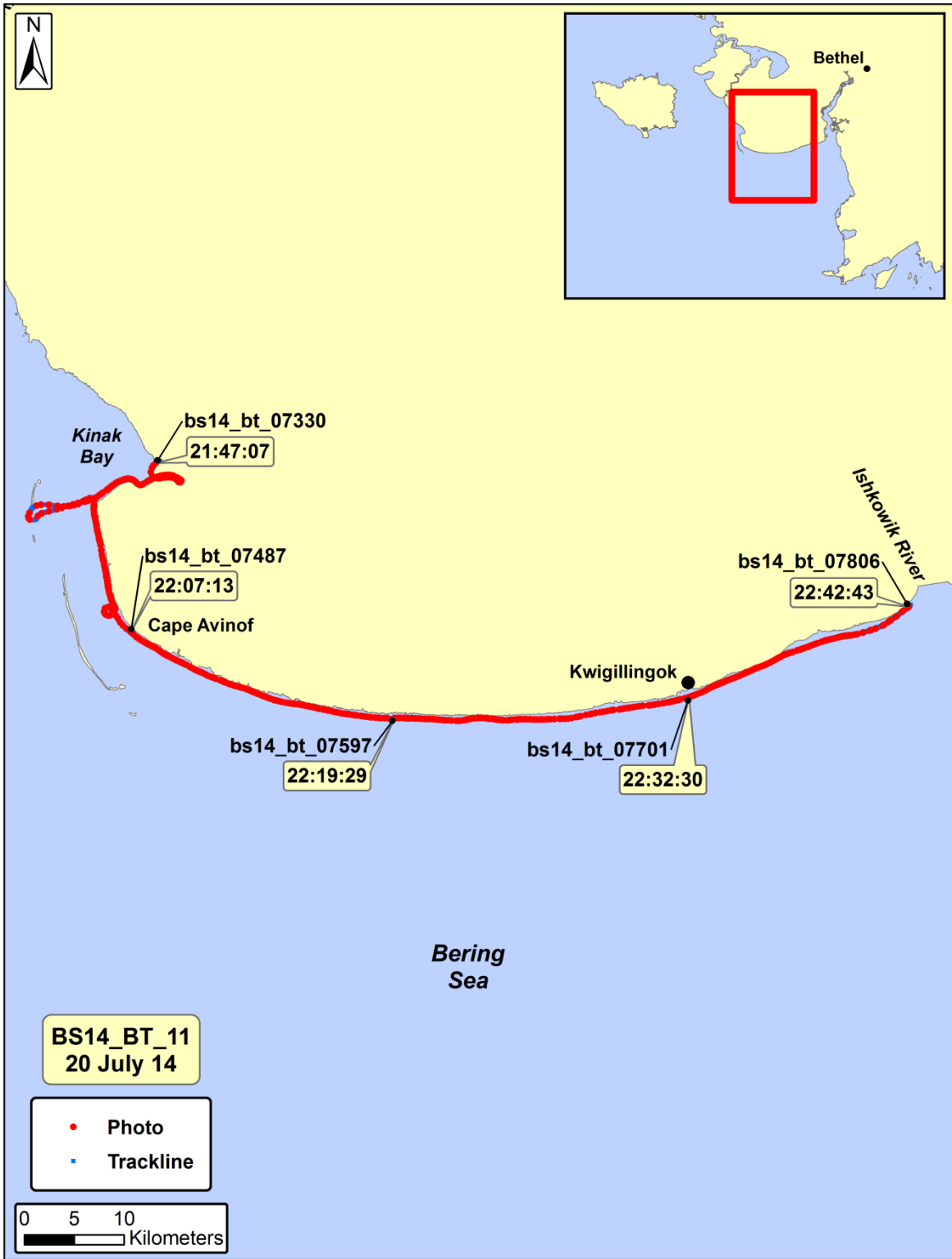
Bio: Cook

Tape Length: 60 min 38 sec

Pilot: Hermens

Weather: Sunny, clear

Time (UTC)	Location	Photo
20:45:39	Toksook Bay	bs14_bt_06583
20:59:32	Chinigyak Cape	bs14_bt_06812
21:14:28	Kolavinarak River	bs14_bt_06982
21:28:53	Kinia River	bs14_bt_07148
21:46:04	Kinak River, Kinak Bay	bs14_bt_07326



**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Bethel (BT)**

Tape: BS14_BT_11

Date 20 July 2014

General Location: Cape Avinof, Kwigillingok

Time Start (UTC): 21:46:50

Geo: Morrow

Time End (UTC): 22:42:50

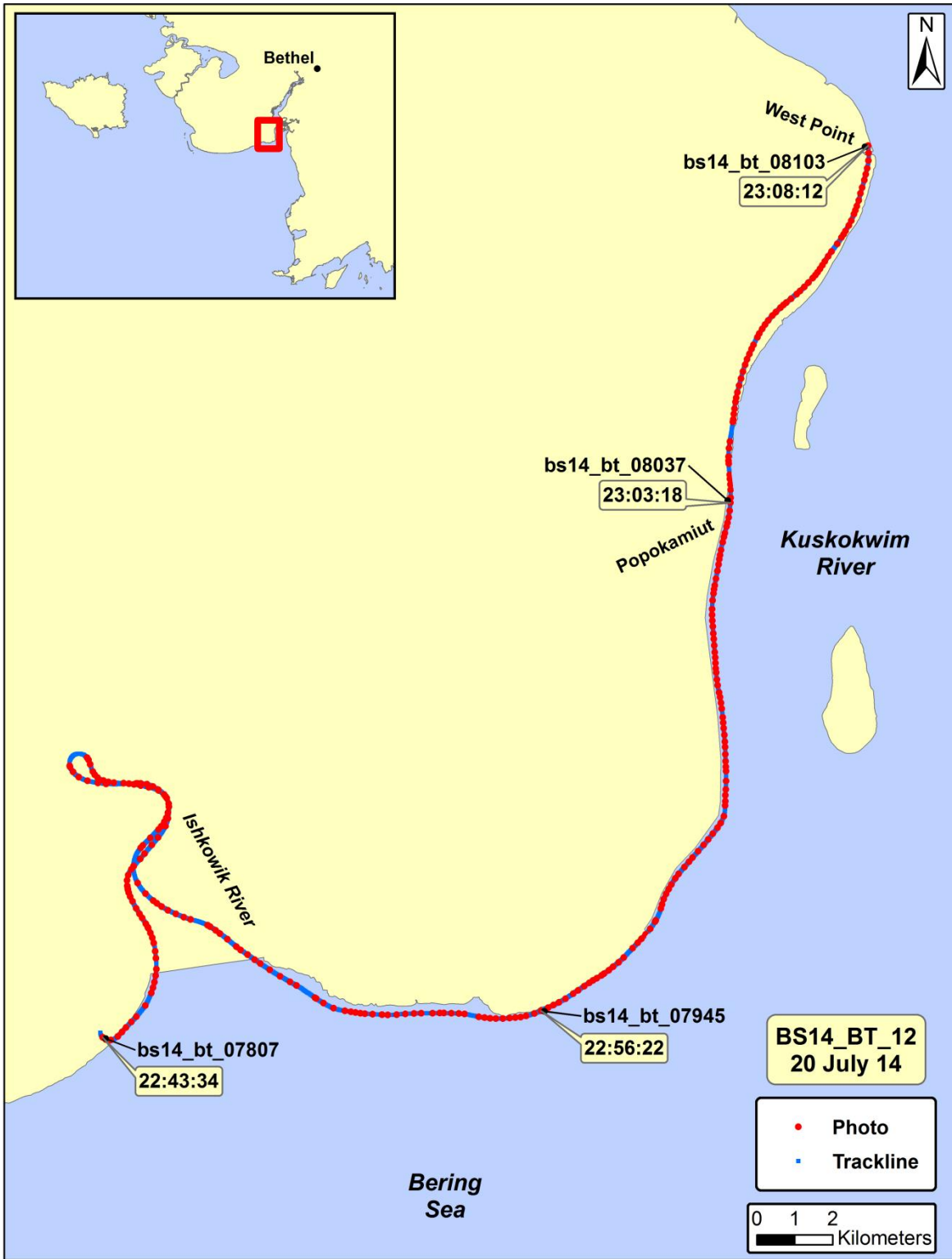
Bio: Cook

Tape Length: 56 min 00 sec

Pilot: Hermens

Weather: Sunny, clear

Time (UTC)	Location	Photo
21:47:07	Kuguklik River Kinak Bay	bs14_bt_07330
22:07:13	Cape Avinof	bs14_bt_07487
22:19:29	Bird Paradise	bs14_bt_07597
22:32:30	Kwigillingok	bs14_bt_07701
22:42:43	Ishkowik River	bs14_bt_07806



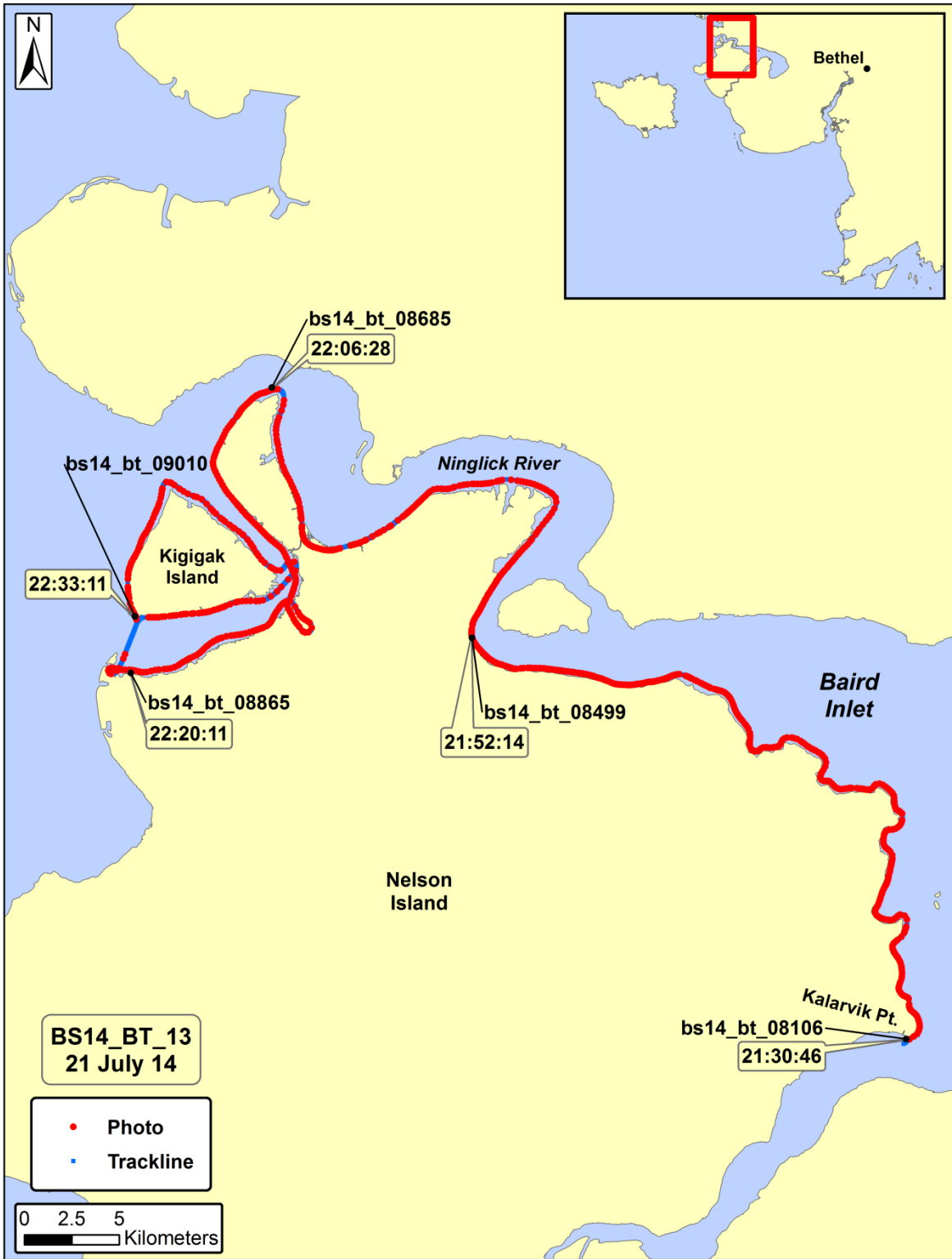
**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Bethel (BT)**

Tape: BS14_BT_12

Date 20 July 2014

General Location: Ishkowik River, Kuskokwim River
Time Start (UTC): 22:43:30 **Geo:** Morrow
Time End (UTC): 23:08:12 **Bio:** Cook
Tape Length: 24 min 42 sec **Pilot:** Hermens
Weather: Sunny, clear

Time (UTC)	Location	Photo
22:43:34	Ishkowik River	bs14_bt_07807
22:56:22	West entrance to Kuskokwim River	bs14_bt_07945
23:03:18	Popokamiut	bs14_bt_08037
23:08:12	West Point, Kuskokwim River	bs14_bt_08103



**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Bethel (BT)**

Tape: BS14_BT_13

Date 21 July 2014

General Location: Baird Inlet, Ninglick River, Kigigak Island
Time Start (UTC): 21:30:38 **Geo:** Daley
Time End (UTC): 22:33:12 **Bio:** Cook
Tape Length: 62 min 34 sec **Pilot:** Hermens
Weather: Overcast, low ceiling, wind

Time (UTC)	Location	Photo
21:30:46	Kalarvik Point, Baird Inlet	bs14_bt_08106
21:52:14	Entrance to Ninglick River, Nelson Island	bs14_bt_08499
22:06:28	Kumlunak Peninsula, Ninglick River	bs14_bt_08685
22:20:11	South channel Ninglick River exit, Nelson Island	bs14_bt_08865
22:33:11	Kigigak Island	bs14_bt_09010



**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Bethel (BT)**

Tape: BS14_BT_14

Date 21 July 2014

General Location: Nelson Island, Toksook Bay

Time Start (UTC): 22:33:46

Geo: Daley

Time End (UTC): 23:06:26

Bio: Cook

Tape Length: 32 min 40 sec

Pilot: Hermens

Weather: Overcast, low ceiling, wind

Time (UTC)	Location	Photo
22:33:46	South channel Ninglick River exit, Nelson Island	bs14_bt_09013
22:44:01	Ikalugtulik River, Nelson Island	bs14_bt_09162
22:55:22	Cape Vancouver	bs14_bt_09354
23:06:20	Toksook Bay	bs14_bt_09576



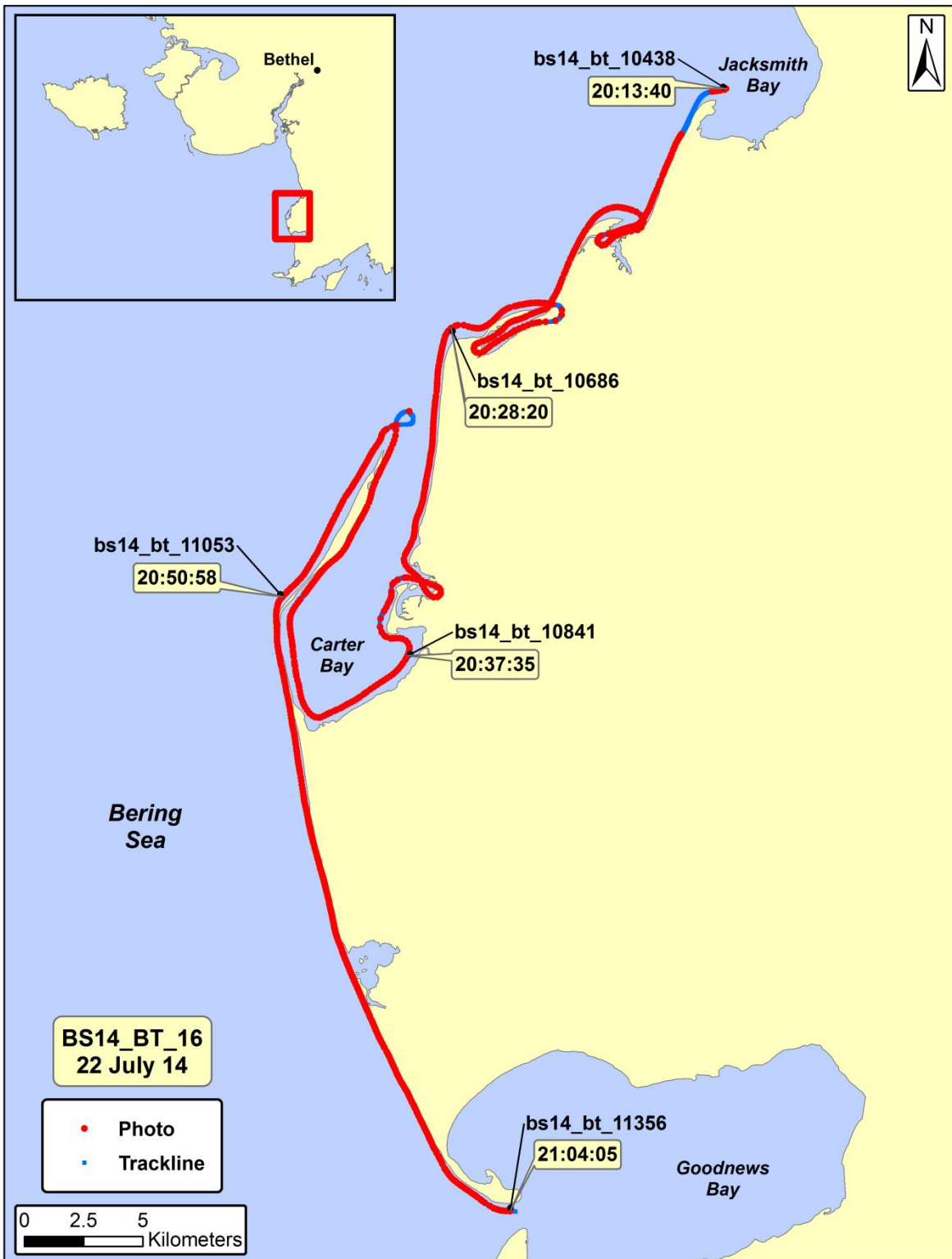
**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Bethel (BT)**

Tape: BS14_BT_15

Date 21 July 2014

General Location:	Barid Inlet	Geo:	Daley
Time Start (UTC):	00:06:36	Bio:	Cook
Time End (UTC):	01:09:00	Pilot:	Hermens
Imagery Break:	00:29:55 to 00:31:49		
Tape Length:	60 min 30 sec		
Weather:	Overcast, low ceiling, wind		

Time (UTC)	Location	Photo
00:07:11	Ninglick River entrance, Baird Inlet	bs14_bt_09577
00:32:36	Kogalurpak Lake, north Baird Inlet	bs14_bt_09890
00:49:53	Kagaluk Lake, north Baird Inlet	bs14_bt_10158
00:57:46	East Baird Inlet	bs14_bt_10252
01:09:00	South Baird Inlet	bs14_bt_10435



**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Bethel (BT)**

Tape: BS14_BT_16

Date 22 July 2014

General Location: Jacksmith Bay, Carter Bay, Goodnews Bay
Time Start (UTC): 20:13:40 **Geo:** Morrow
Time End (UTC): 21:04:10 **Bio:** Cook
Tape Length: 50 min 30 sec **Pilot:** Hermens
Weather: Rain showers, patchy fog, low ceiling

Time (UTC)	Location	Photo
20:13:40	Jacksmith Bay	bs14_bt_10438
20:28:20	Takiketak	bs14_bt_10686
20:37:35	Carter Bay	bs14_bt_10841
20:50:58	Carter Spit	bs14_bt_11053
21:04:05	North Spit, Goodnews Bay	bs14_bt_11356



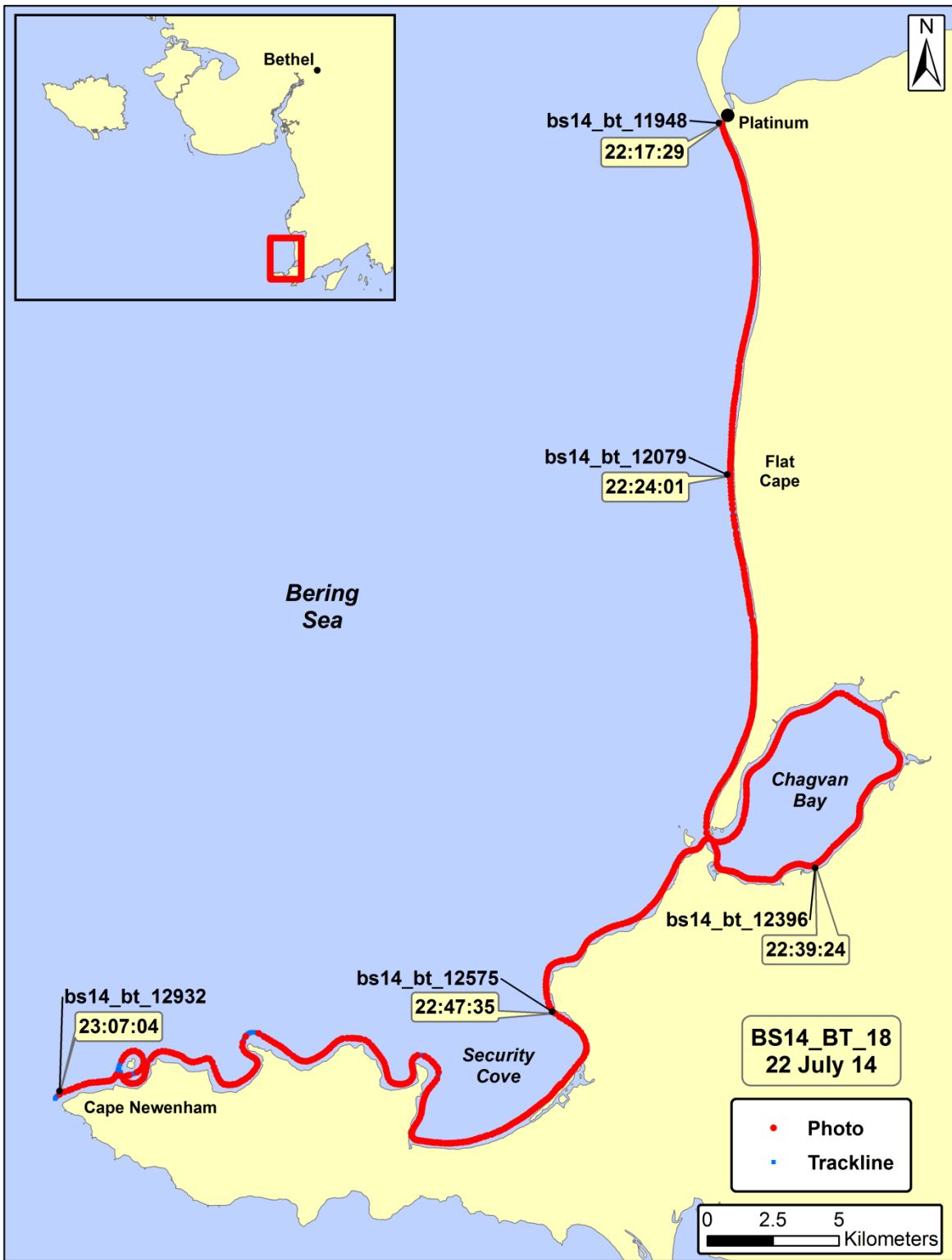
**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Bethel (BT)**

Tape: BS14_BT_17

Date 22 July 2014

General Location: Goodnews Bay, Platinum
Time Start (UTC): 21:08:30 **Geo:** Morrow
Time End (UTC): 21:38:26 **Bio:** Cook
Tape Length: 29 min 56 sec **Pilot:** Hermens
Weather: Rain showers, patchy fog, low ceiling

Time (UTC)	Location	Photo
21:08:32	North Spit, Goodnews Bay	bs14_bt_11359
21:19:27	Goodnews Bay	bs14_bt_11585
21:29:06	South side Goodnews Bay	bs14_bt_11734
21:38:23	Platinum	bs14_bt_11944



**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Bethel (BT)**

Tape: BS14_BT_18

Date 22 July 2014

General Location: Chagvan Bay, Cape Newenham
Time Start (UTC): 22:17:28 **Geo:** Morrow
Time End (UTC): 23:07:12 **Bio:** Cook
Tape Length: 49 min 44 sec **Pilot:** Hermens
Weather: Rain showers, patchy fog, low ceiling

Time (UTC)	Location	Photo
22:17:29	Platinum	bs14_bt_11948
22:24:01	Flat Cape	bs14_bt_12079
22:39:24	Chagvan Bay	bs14_bt_12396
22:47:35	Security Cove	bs14_bt_12575
23:07:04	Cape Newenham	bs14_bt_12932



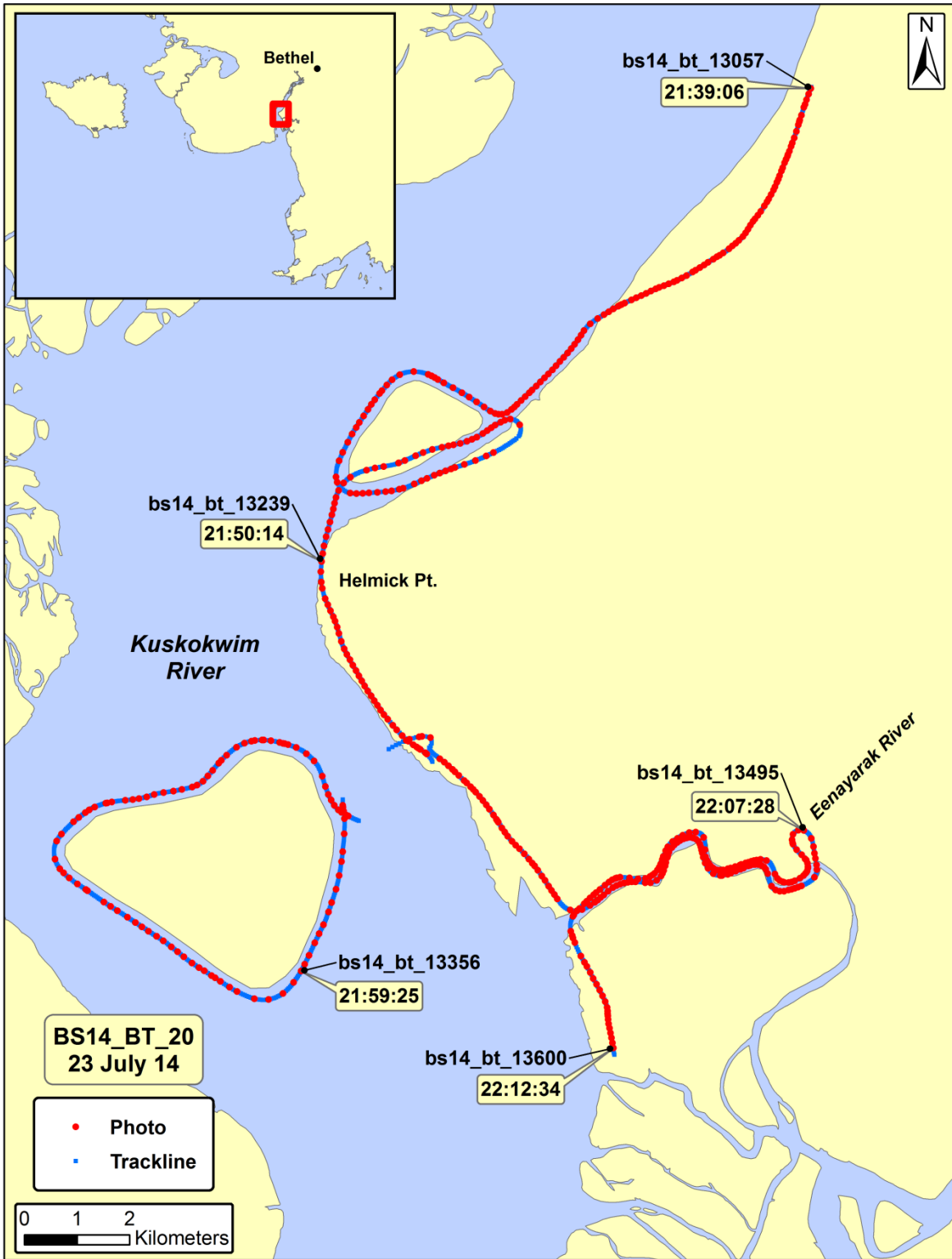
**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Bethel (BT)**

Tape: BS14_BT_19

Date 22 July 2014

General Location: Nanvakfak Lake
Time Start (UTC): 00:02:26 **Geo:** Morrow
Time End (UTC): 00:09:06 **Bio:** Cook
Tape Length: 6 min 40 sec **Pilot:** Hermens
Weather: Rain showers, patchy fog, low ceiling

Time (UTC)	Location	Photo
00:02:28	Entrance to Nanvakfak Lagoon	bs14_bt_12937
00:06:38	Entrance to Nanvakfak Lake	bs14_bt_13006
00:09:03	Entrance to Nanvakfak Lagoon	bs14_bt_13052



**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Bethel (BT)**

Tape: BS14_BT_20

Date 23 July 2014

General Location: Kuskokwim River

Time Start (UTC): 21:39:05

Geo: Daley

Time End (UTC): 22:12:38

Bio: Cook

Tape Length: 33 min 33 sec

Pilot: Hermens

Weather: Rain showers, fog, low cloud

Time (UTC)	Location	Photo
21:39:06	East side Kuskokwim River	bs14_bt_13057
21:50:14	Helmick Point	bs14_bt_13239
21:59:25	Kuskokwim River island	bs14_bt_13356
22:07:28	Eenayarak River	bs14_bt_13495
22:12:34	East bank Kuskokwim River near Eek Island	bs14_bt_13600



**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Bethel (BT)**

Tape: BS14_BT_21

Date 23 July 2014

General Location: Quinhagak, Jacksmith Bay

Time Start (UTC): 22:21:24

Geo: Daley

Time End (UTC): 22:57:24

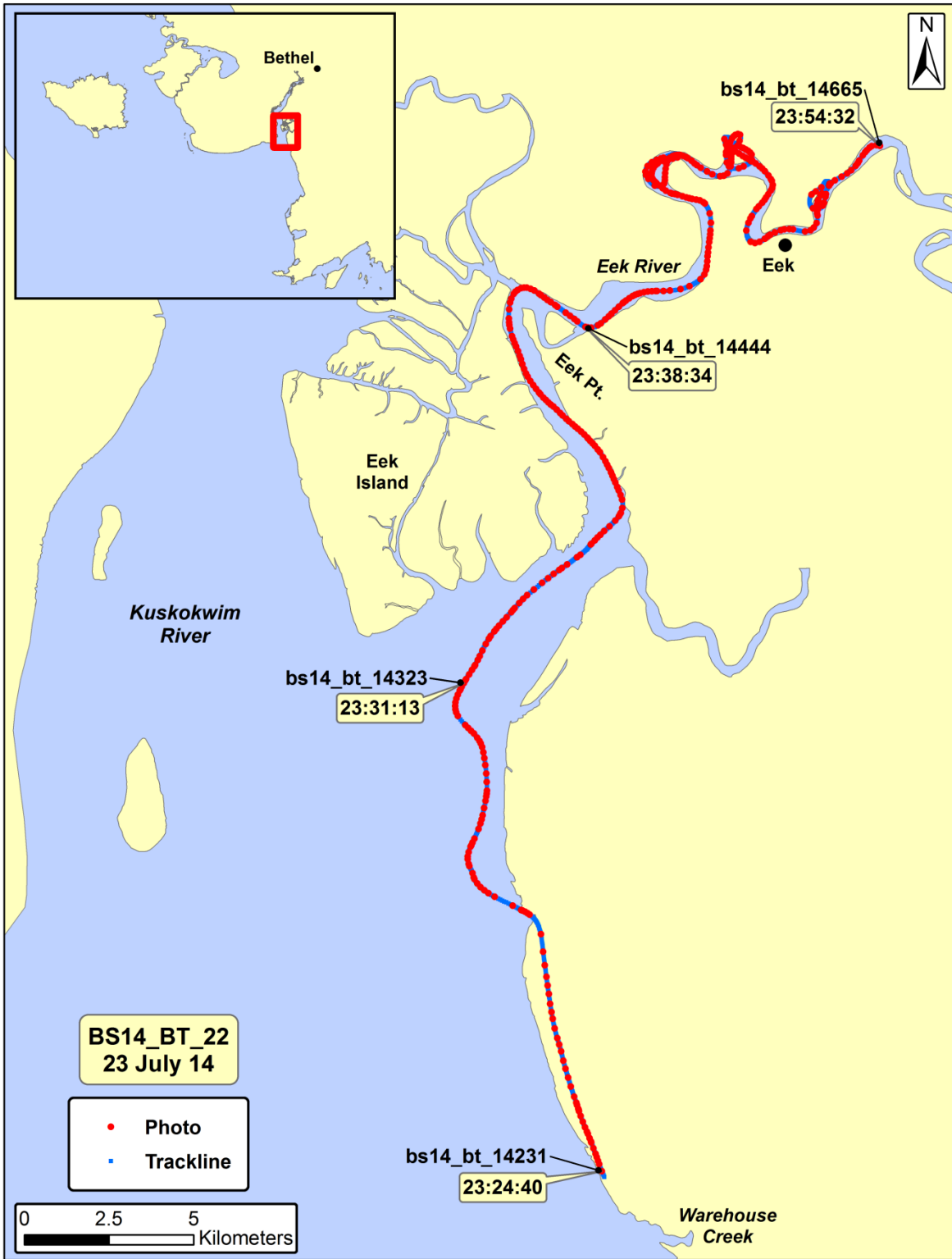
Bio: Cook

Tape Length: 36 min 0 sec

Pilot: Hermens

Weather: Rain showers, fog, low cloud

Time (UTC)	Location	Photo
22:21:27	Kuskokwak Channel, Kuskokwim River mouth	bs14_bt_13607
22:26:32	Warehouse Creek	bs14_bt_13683
22:39:09	Quinhagak	bs14_bt_13888
22:47:00	Sayalik Creek	bs14_bt_14032
22:57:24	Jacksmith Bay	bs14_bt_14225



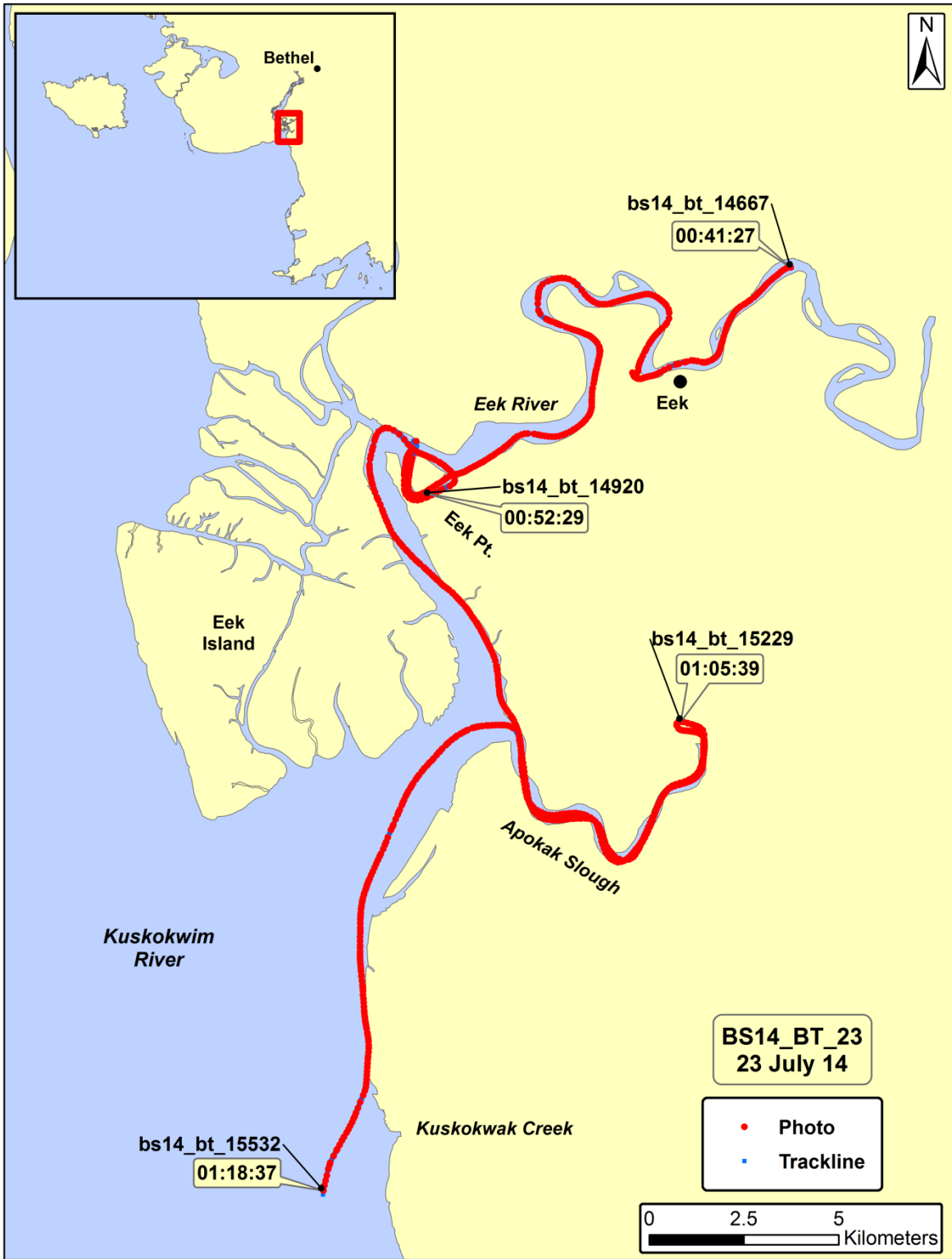
**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Bethel (BT)**

Tape: BS14_BT_22

Date 23 July 2014

General Location: Kuskokwim River, Eek River
Time Start (UTC): 23:24:35 **Geo:** Daley
Time End (UTC): 23:54:32 **Bio:** Cook
Tape Length: 29 min 57 sec **Pilot:** Hermens
Weather: Rain showers, fog, low cloud

Time (UTC)	Location	Photo
23:24:40	Kuskokwim River mouth	bs14_bt_14231
23:31:13	Eek Island	bs14_bt_14323
22:38:34	Opposite Eek Point, Eek River	bs14_bt_14444
23:54:32	Eek River, north of Eek	bs14_bt_14665



**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Bethel (BT)**

Tape: BS14_BT_23

Date 23 July 2014

General Location: Eek River, Apokak Slough

Time Start (UTC): 00:41:26

Geo: Daley

Time End (UTC): 01:18:40

Bio: Cook

Tape Length: 37 min 14 sec

Pilot: Hermens

Weather: Rain showers, fog, low cloud

Time (UTC)	Location	Photo
00:41:27	Eek River, north of Eek	bs14_bt_14667
00:52:29	Eek Point, Eek River	bs14_bt_14920
01:05:39	Apokak Slough	bs14_bt_15229
01:18:37	Kuskokwak Creek	bs14_bt_15532



**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Bethel (BT)**

Tape: BS14_BT_24

Date 23 July 2014

General Location: Eek Island, Kuskokwim River
Time Start (UTC): 01:26:50 **Geo:** Daley
Time End (UTC): 01:58:54 **Bio:** Cook
Tape Length: 32 min 04 sec **Pilot:** Hermens
Weather: Rain showers, fog, low cloud

Time (UTC)	Location	Photo
01:26:55	NE corner of Eek Island	bs14_bt_15535
01:35:56	Eek Island	bs14_bt_15718
00:42:22	Eek Island	bs14_bt_15863
01:47:53	West side of Eek Island	bs14_bt_15954
01:58:53	Kuskokwak Creek, Kuskokwim River mouth	bs14_bt_16187

This Page Left Blank to Facilitate Double-Sided Printing

Team Yukon Delta Survey Data

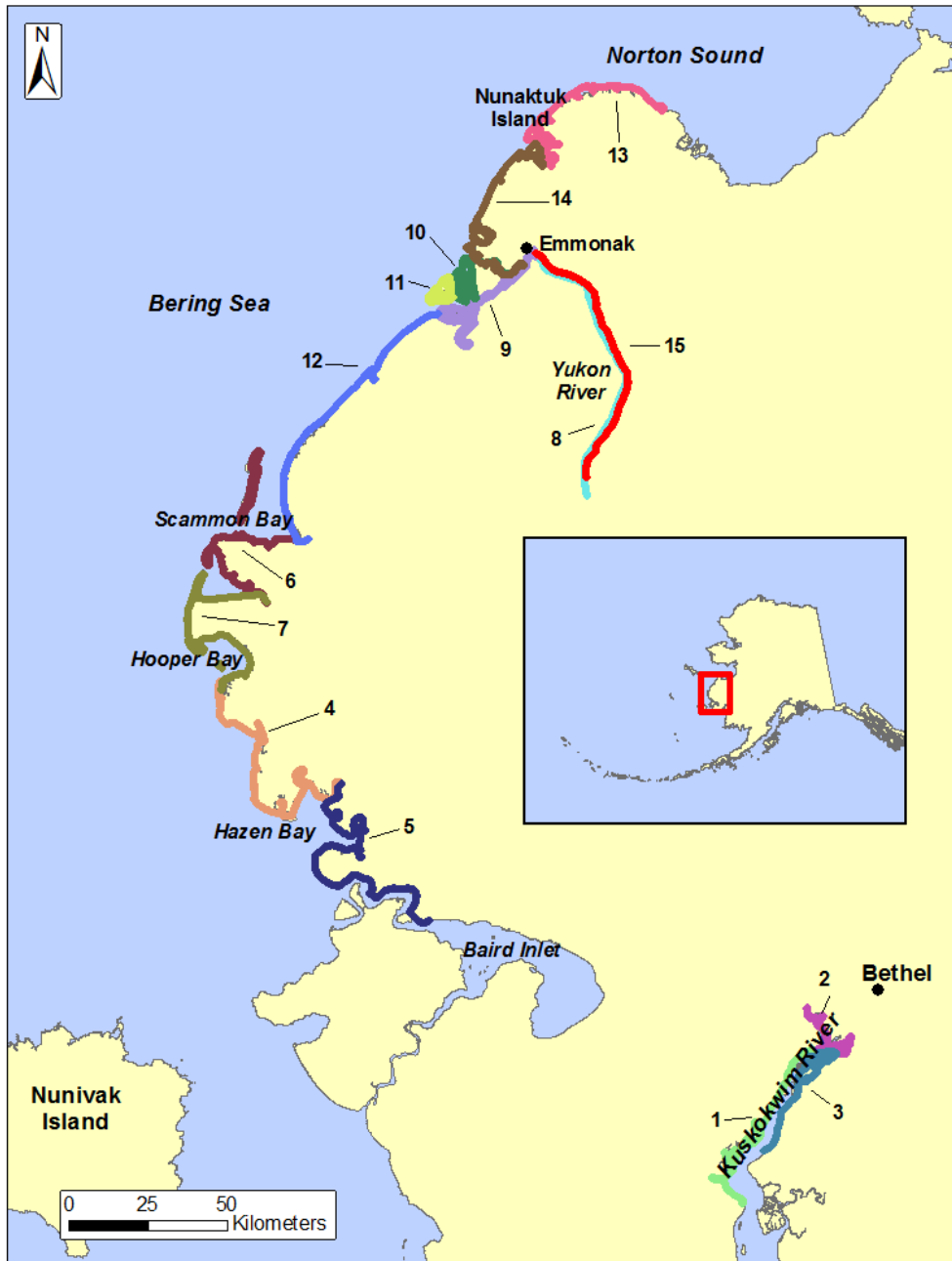
Table 3. Flight Personnel and Responsibilities: Team Yukon Delta (YK)

Crew Member	Individual/ Affiliation	Responsibilities
<i>Geomorphologist</i>	Sean Daley Kalen Morrow Coastal and Ocean Resources, Victoria, BC	Videography, geomorphic commentary, in-flight navigation, survey coordination, post-flight data processing
<i>Coastal Ecologist</i>	Sarah Cook Coastal and Ocean Resources, Victoria, BC	Digital photography, biologic commentary
<i>Pilot</i>	Alon Sheetrit Bering Air, Nome, Alaska	

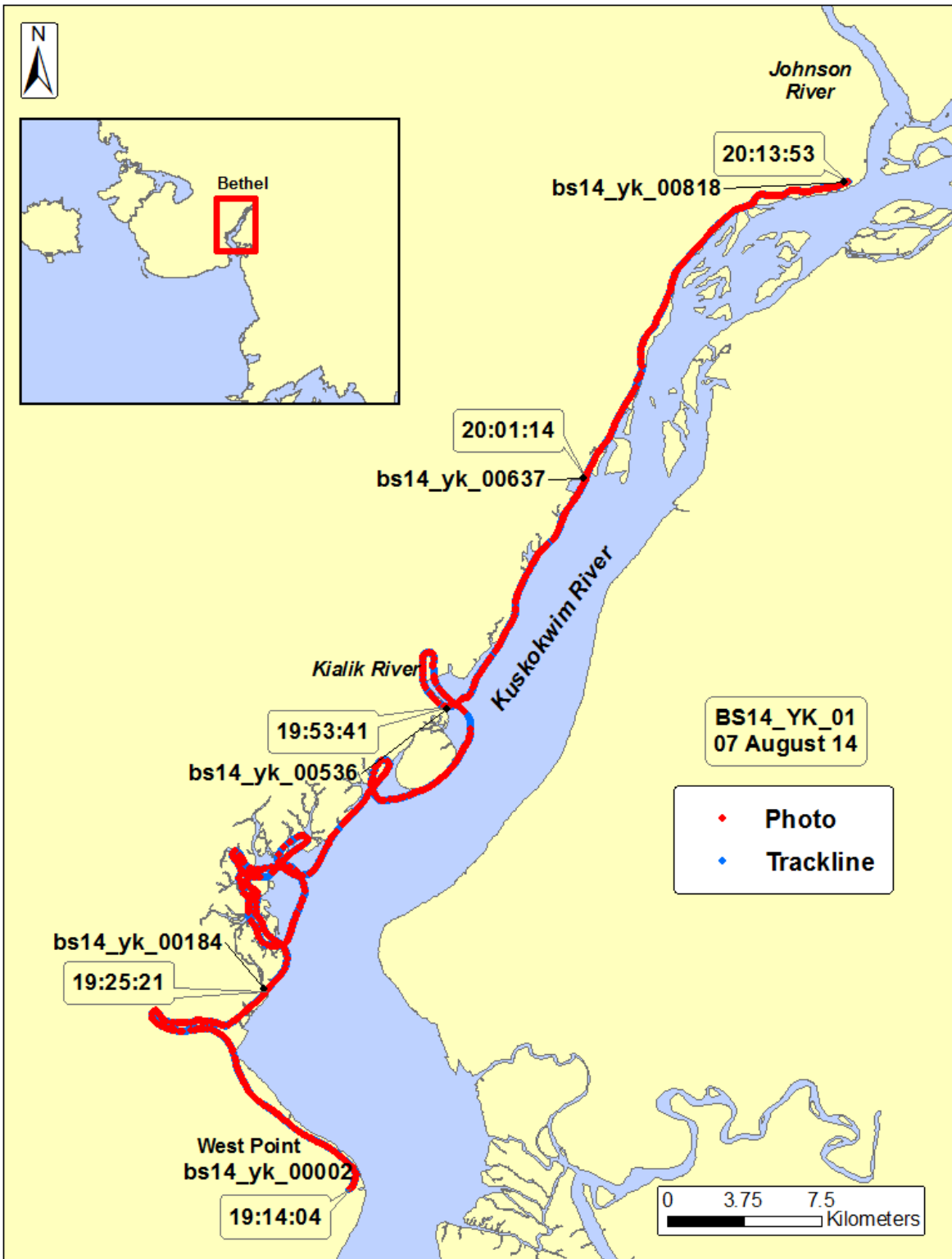
Table 4. Survey Tapes: Team Yukon Delta (YK)

Tape Number	Location
BS14_YK_01	Kuskokwim River
BS14_YK_02	Johnson River, Fish Camp Island
BS14_YK_03	Kuskokwim River, Lomavik Slough
BS14_YK_04	Angyoyaravak Bay, Hazen Bay
BS14_YK_05	Hazen Bay, Baird Inlet
BS14_YK_06	Scammon Bay, Kokechik Bay
BS14_YK_07	Kokechik Bay, Hooper Bay
BS14_YK_08	Yukon River
BS14_YK_09	Kwikluak Pass, Munson Island
BS14_YK_10	Avogon Island
BS14_YK_11	Flat Island
BS14_YK_12	Black River, Scammon Bay
BS14_YK_13	Okshokwewhik River, Kawanak Pass
BS14_YK_14	Kawanak Pass, Kwikluak Pass
BS14_YK_15	Yukon River

ShoreZone Aerial Video Imaging (AVI) Survey
Team Yukon Delta (YK) August 7-11, 2014
Survey Maps and Tape Logs
Video Tapes: BS14_YK_01 to BS14_YK_15



Flight trackline map showing the location and extent of video tapes for the August 7-11, 2014 Team Yukon Delta (YK) survey Western Alaska.



**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Yukon Delta (YK)**

Tape: BS14_YK_01

Date 07 August 2014

General Location: Kuskokwim River

Time Start (UTC): 19:14:00

Geo: Daley

Time End (UTC): 20:13:57

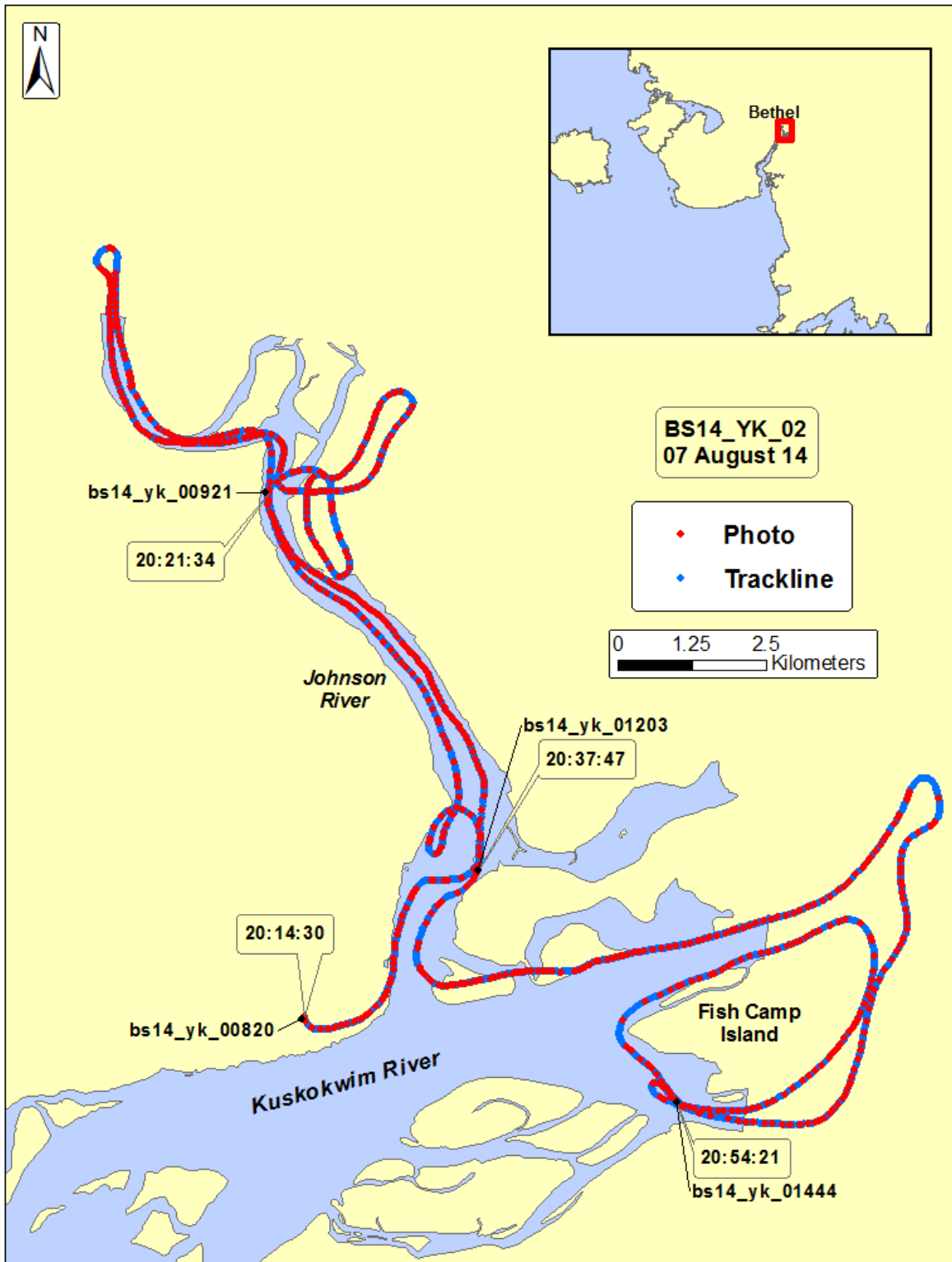
Bio: Cook

Tape Length: 59 min 57 sec

Pilot: Sheetrit

Weather: Rain, wind

Time (UTC)	Location	Photo
19:14:04	West Point, Kuskokwim River	bs14_yk_00002
19:25:21	Kinak River	bs14_yk_00184
19:53:41	Kialik River	bs14_yk_00536
20:01:14	Kuskowim River	bs14_yk_00637
20:13:53	Johnson River entrance	bs14_yk_00818



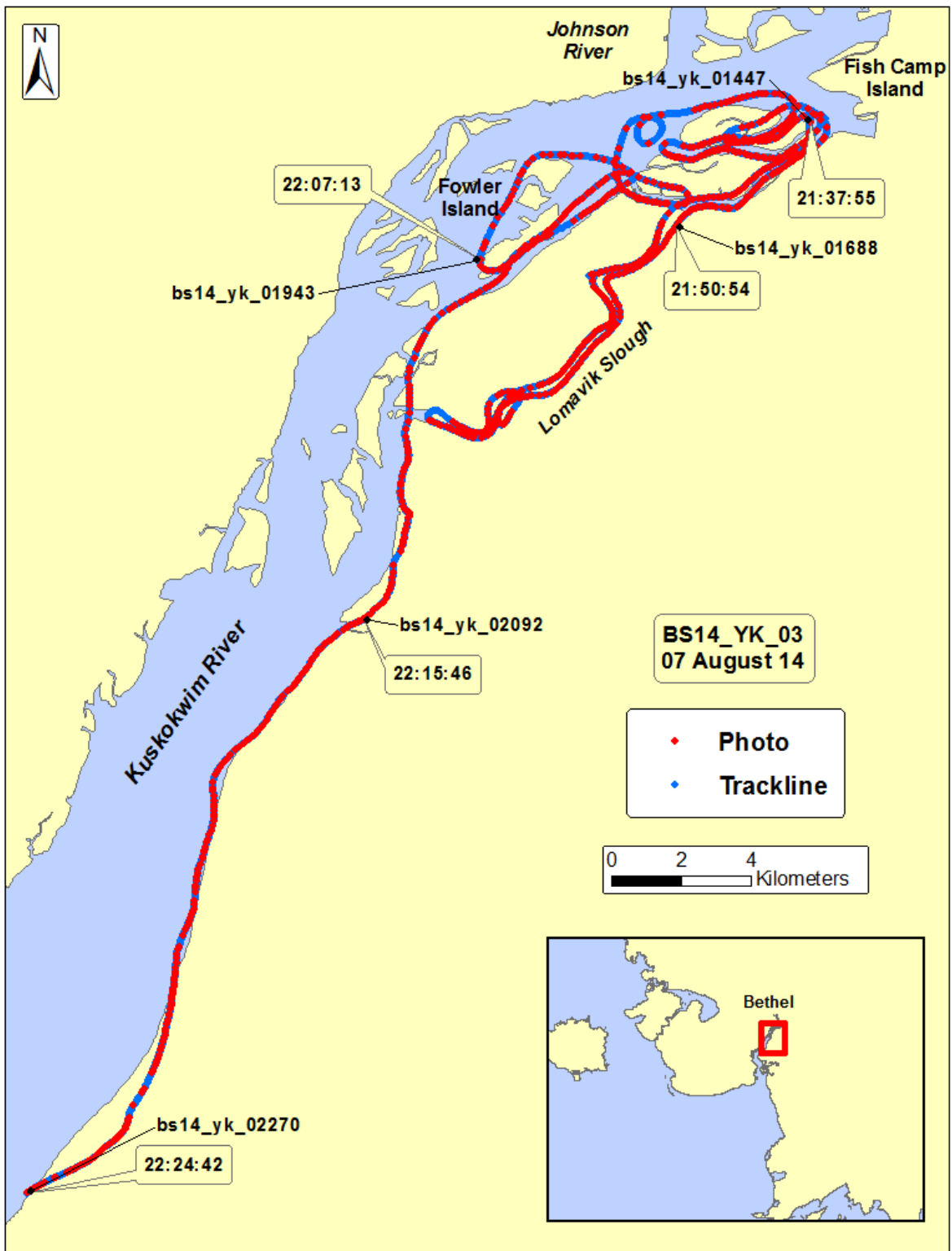
**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Yukon Delta (YK)**

Tape: BS14_YK_02

Date 07 August 2014

General Location: Johnson River; Fish Camp Island
Time Start (UTC): 20:14:30 **Geo:** Daley
Time End (UTC): 20:54:24 **Bio:** Cook
Tape Length: 39 min 54 sec **Pilot:** Sheetrit
Weather: Rain, wind

Time (UTC)	Location	Photo
20:14:30	Johnson River entrance	bs14_yk_00820
20:21:34	Johnson River	bs14_yk_00921
20:37:47	South Johnson River	bs14_yk_01203
20:54:21	Fish Camp Island	bs14_yk_01444



**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Yukon Delta (YK)**

Tape: BS14_YK_03

Date 07 August 2014

General Location: Kuskokwim River

Time Start (UTC): 21:37:50

Geo: Daley

Time End (UTC): 22:24:43

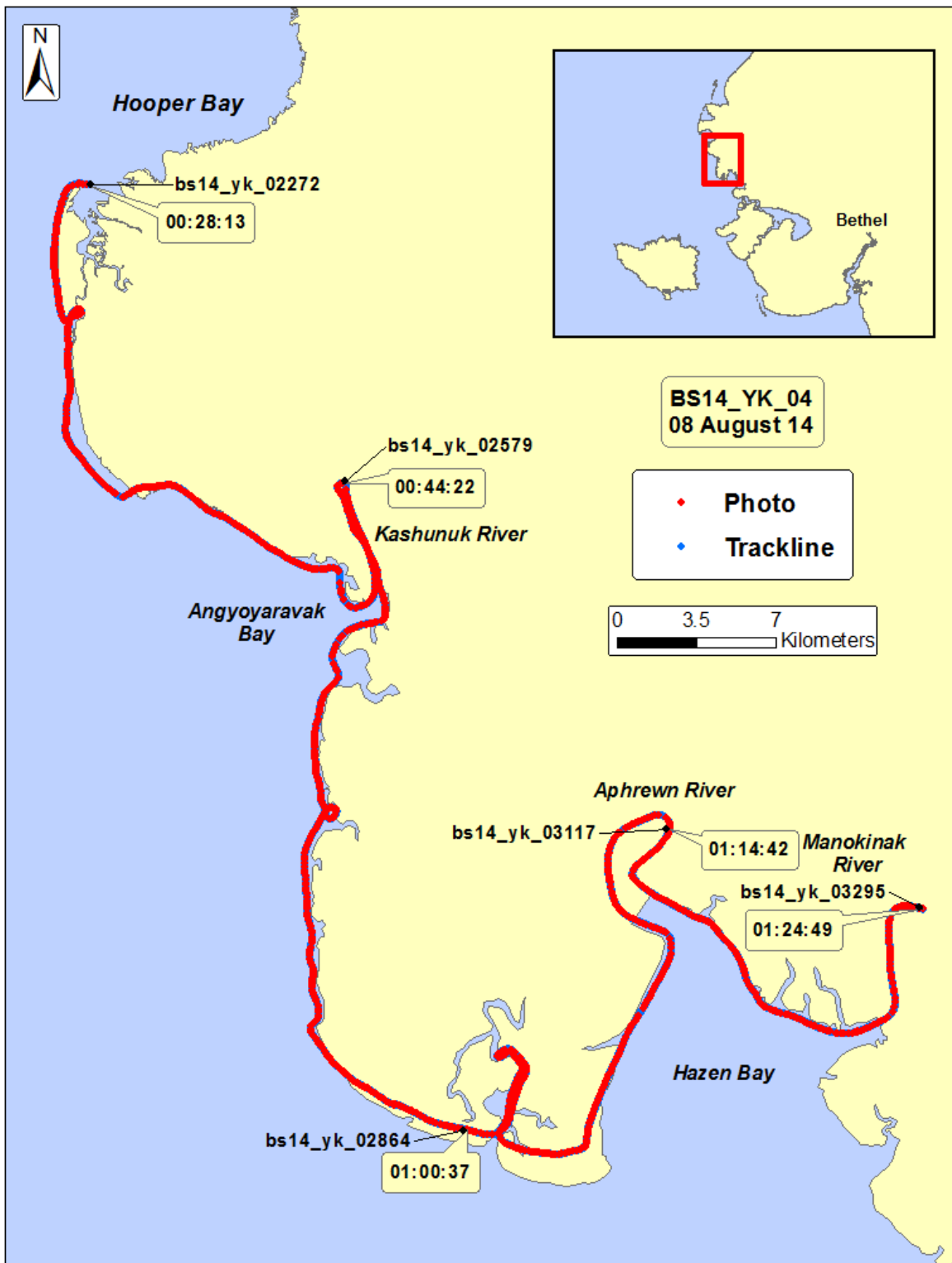
Bio: Cook

Tape Length: 46 min 53 sec

Pilot: Sheetrit

Weather: Rain, wind

Time (UTC)	Location	Photo
21:37:55	South of Fish Camp Island	bs14_yk_01447
21:50:54	Lomavik Slough	bs14_yk_01688
22:07:13	Fowler Island	bs14_yk_01943
22:15:46	Kuskokwim River	bs14_yk_02092
22:24:42	North of Helmick Point, Kuskokwim River	bs14_yk_02270



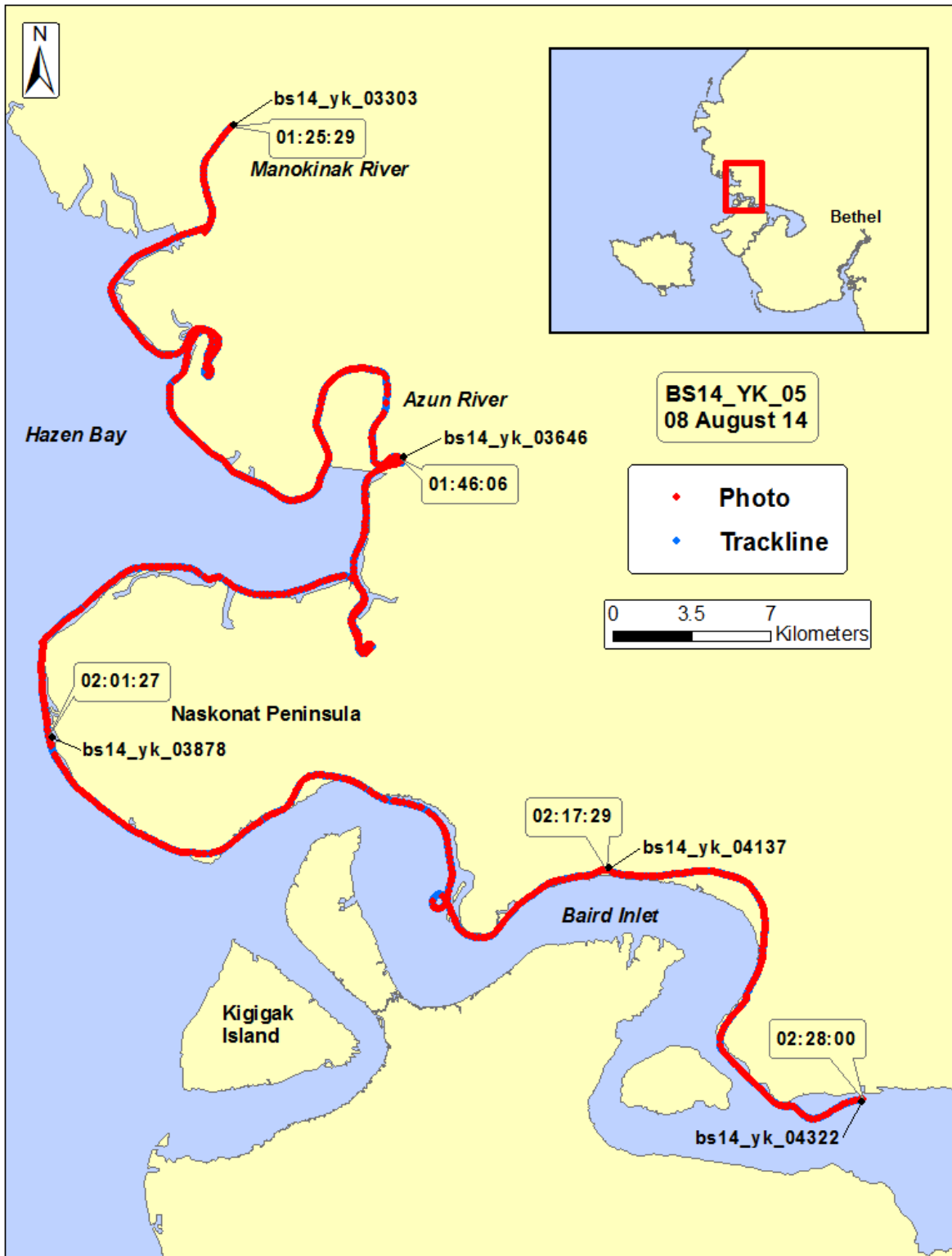
**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Yukon Delta (YK)**

Tape: BS14_YK_04

Date 08 August 2014

General Location: South Hooper Bay, Hazen Bay
Time Start (UTC): 00:28:12 **Geo:** Morrow
Time End (UTC): 01:24:50 **Bio:** Cook
Tape Length: 56 min 38 sec **Pilot:** Sheetrit
Weather: Rain, wind

Time (UTC)	Location	Photo
00:28:13	South Hooper Bay	bs14_yk_02272
00:44:22	Kashunuk River	bs14_yk_02579
01:00:37	Opagyarak River	bs14_yk_02864
01:14:42	Aphrewn River	bs14_yk_03117
01:24:49	Manokinak River	bs14_yk_03295



**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Yukon Delta (YK)**

Tape: BS14_YK_05

Date 08 August 2014

General Location: Hazen Bay, Baird Inlet

Time Start (UTC): 01:25:26

Geo: Morrow

Time End (UTC): 02:28:00

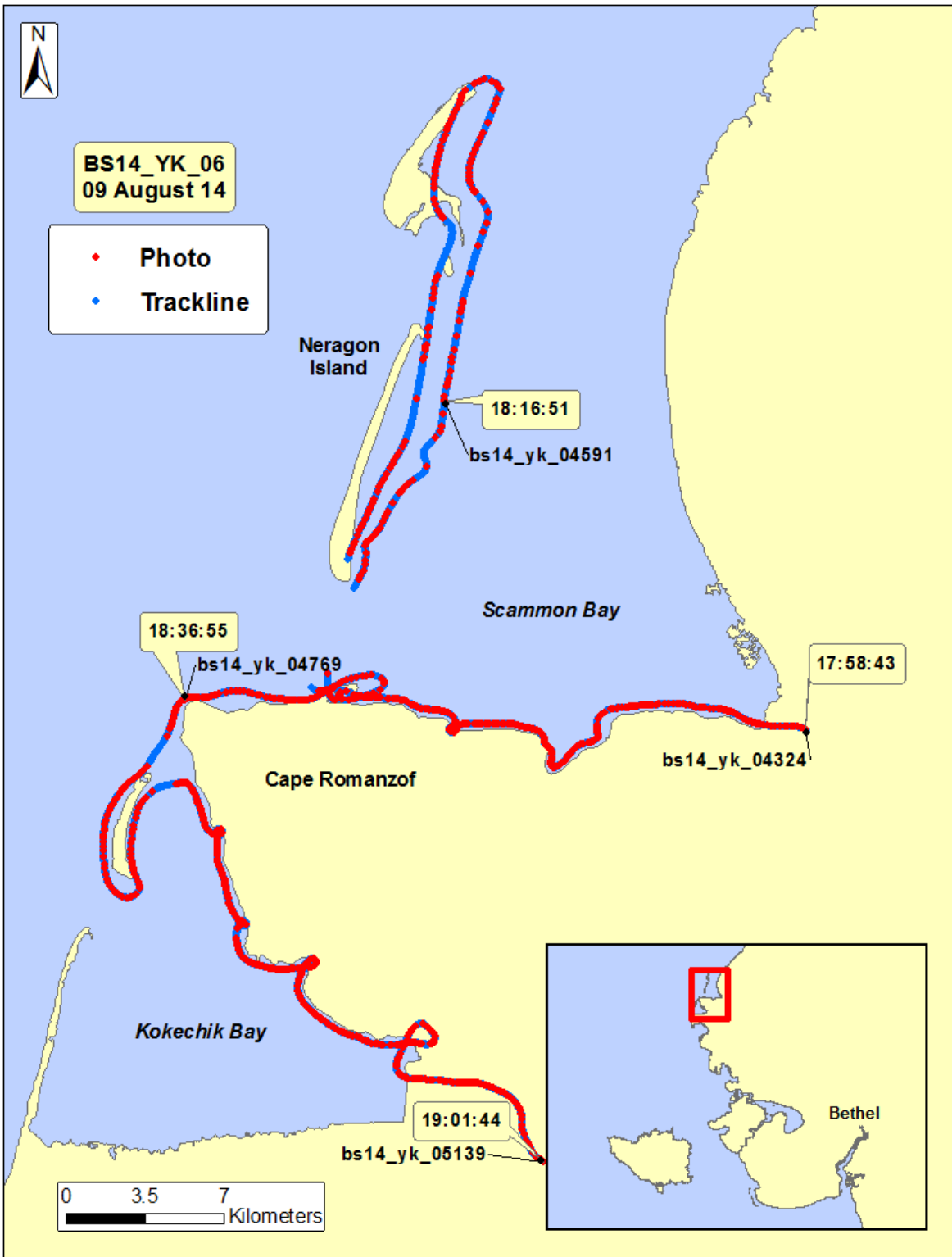
Bio: Cook

Tape Length: 62 min 34 sec

Pilot: Sheetrit

Weather: Rain, wind

Time (UTC)	Location	Photo
01:25:29	Manokinak River	bs14_yk_03303
01:46:06	Azun River	bs14_yk_03646
02:01:27	Naskonat Peninsula	bs14_yk_03878
02:17:29	Newtok, Baird Inlet	bs14_yk_04137
02:28:00	Baird Inlet	bs14_yk_04322



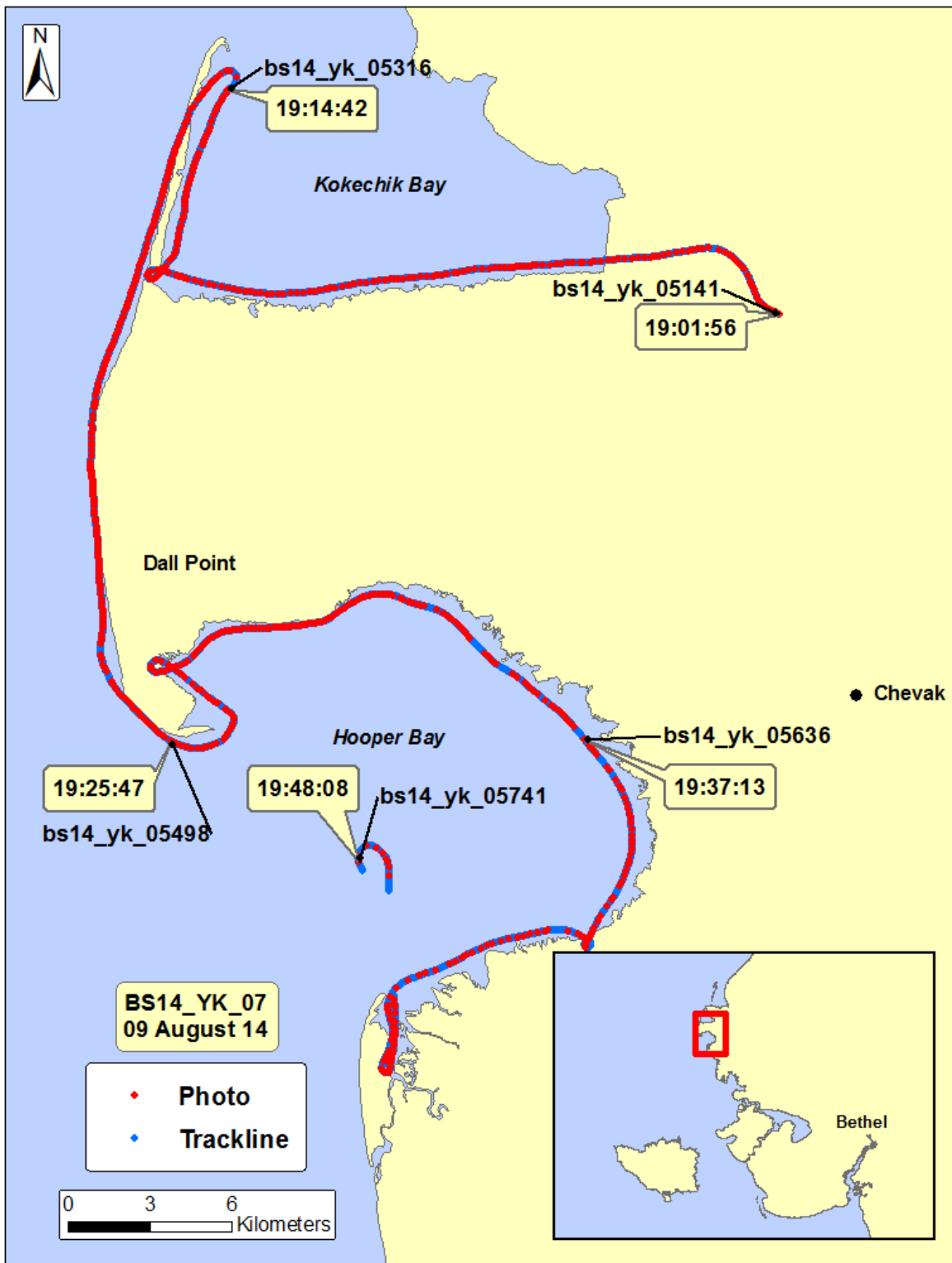
**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Yukon Delta (YK)**

Tape: BS14_YK_06

Date 09 August 2014

General Location: Scammon Bay, Kokechik Bay
Time Start (UTC): 17:58:42 **Geo:** Daley
Time End (UTC): 19:01:44 **Bio:** Cook
Imagery Break: 18:10:58 to 18:12:55 **Pilot:** Sheetrit
Tape Length: 59 min 15 sec
Weather: Sunny

Time (UTC)	Location	Photo
17:58:43	Scammon Bay	bs14_yk_04324
18:16:51	Neragon Island	bs14_yk_04591
18:36:55	Cape Romanzof	bs14_yk_04769
19:01:44	Kokechik Bay	bs14_yk_05139



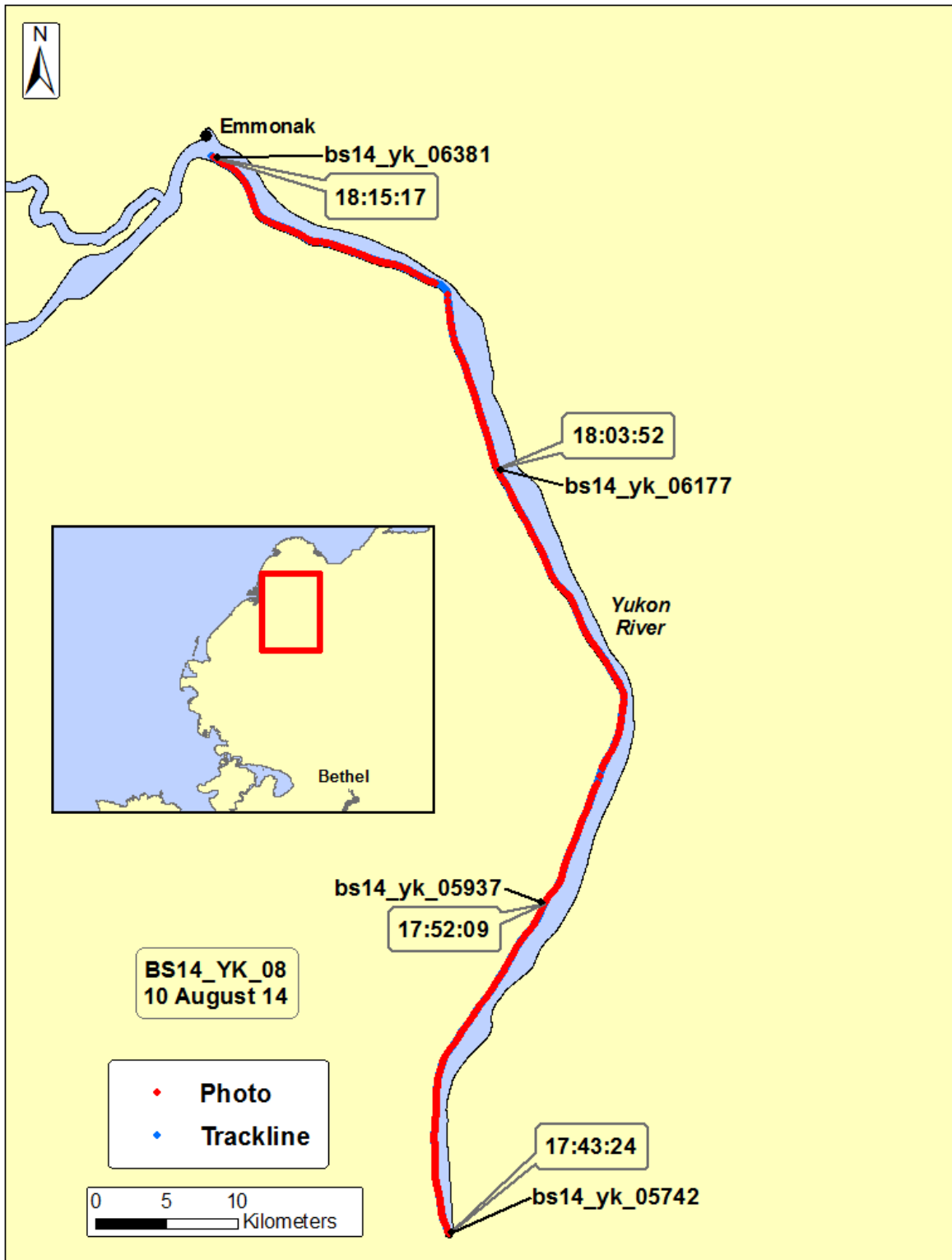
**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Yukon Delta (YK)**

Tape: BS14_YK_07

Date 09 August 2014

General Location: Kokechik Bay; Hooper Bay
Time Start (UTC): 19:01:56 **Geo:** Daley
Time End (UTC): 19:48:17 **Bio:** Cook
Imagery Break: 19:45:45 to 19:47:04 **Pilot:** Sheetrit
Tape Length: 46 min 21 sec
Weather: Sunny

Time (UTC)	Location	Photo
19:01:56	Kokechik Bay	bs14_yk_05141
19:14:42	Kokechik Bay; barrier spit	bs14_yk_05316
19:25:47	Dall Point	bs14_yk_05498
19:37:13	Hooper Bay	bs14_yk_05636
19:48:08	Sand Islet, Hooper Bay	bs14_yk_05741



**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Yukon Delta (YK)**

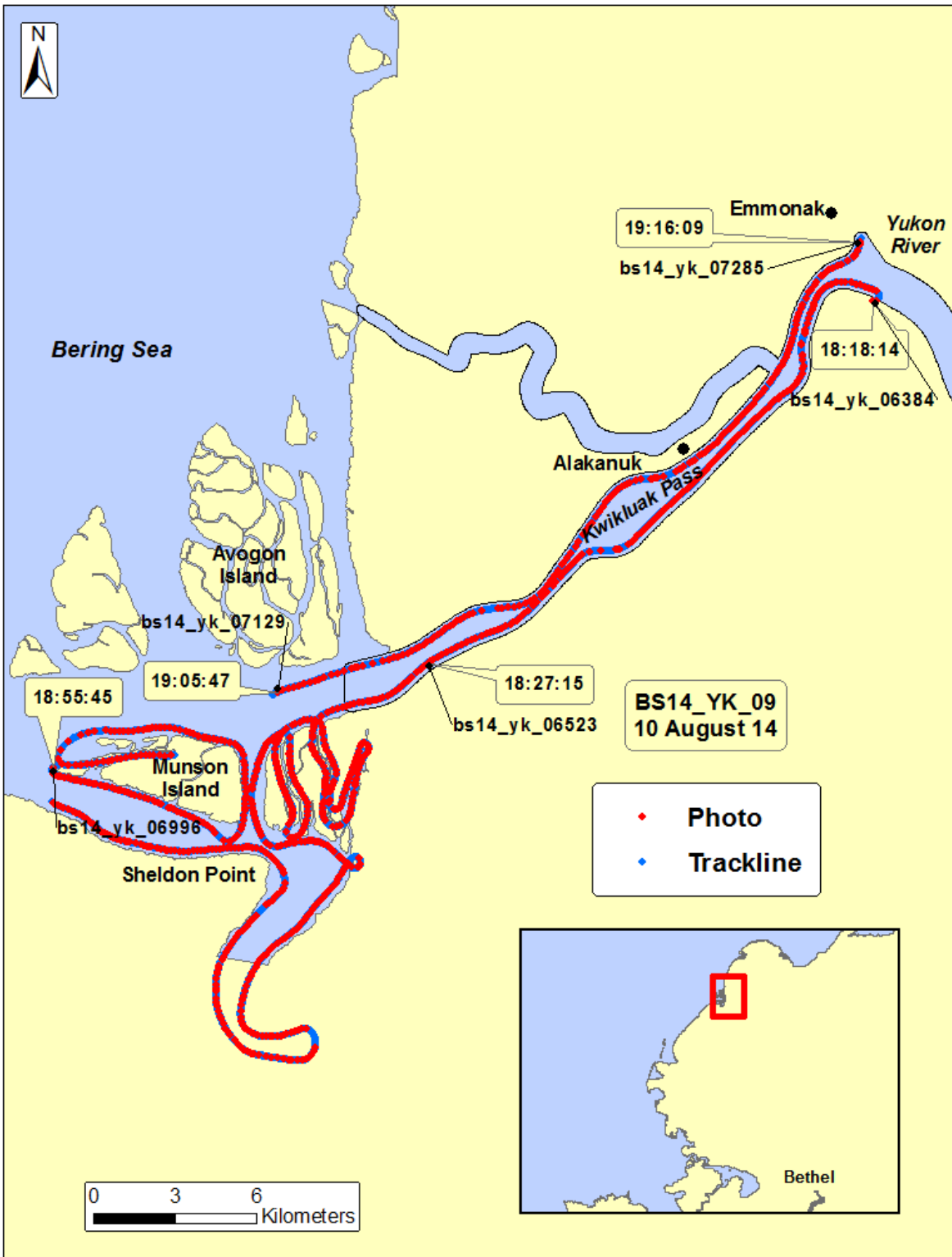
Tape: BS14_YK_08

Date 10 August 2014

General Location: Yukon River
Time Start (UTC): 17:43:24
Time End (UTC): 18:15:22
Tape Length: 31 min 58 sec
Weather: Sunny

Geo: Morrow
Bio: Cook
Pilot: Sheetrit

Time (UTC)	Location	Photo
17:43:24	South Yukon River	bs14_yk_05742
17:52:09	Yukon River	bs14_yk_05937
18:03:52	Yukon River	bs14_yk_06177
18:15:17	Emmonak	bs14_yk_06381



**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Yukon Delta (YK)**

Tape: BS14_YK_09

Date 10 August 2014

General Location: Emmonak; Kwikluak Pass

Time Start (UTC): 18:18:14

Geo: Morrow

Time End (UTC): 19:16:12

Bio: Cook

Imagery Break: 19:01:10 to 19:05:41

Pilot: Sheetrit

Tape Length: 55 min 52 sec

Weather: Sunny

Time (UTC)	Location	Photo
18:18:14	Emmonak	bs14_yk_06384
18:27:15	Kwikluak Pass	bs14_yk_06523
18:55:45	Munson Island	bs14_yk_06996
19:05:47	South Avogon Island	bs14_yk_07129
19:16:09	Emmonak	bs14_yk_07285



**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Yukon Delta (YK)**

Tape: BS14_YK_10

Date 10 August 2014

General Location: Avogon Island

Time Start (UTC): 20:11:46

Geo: Morrow

Time End (UTC): 20:56:14

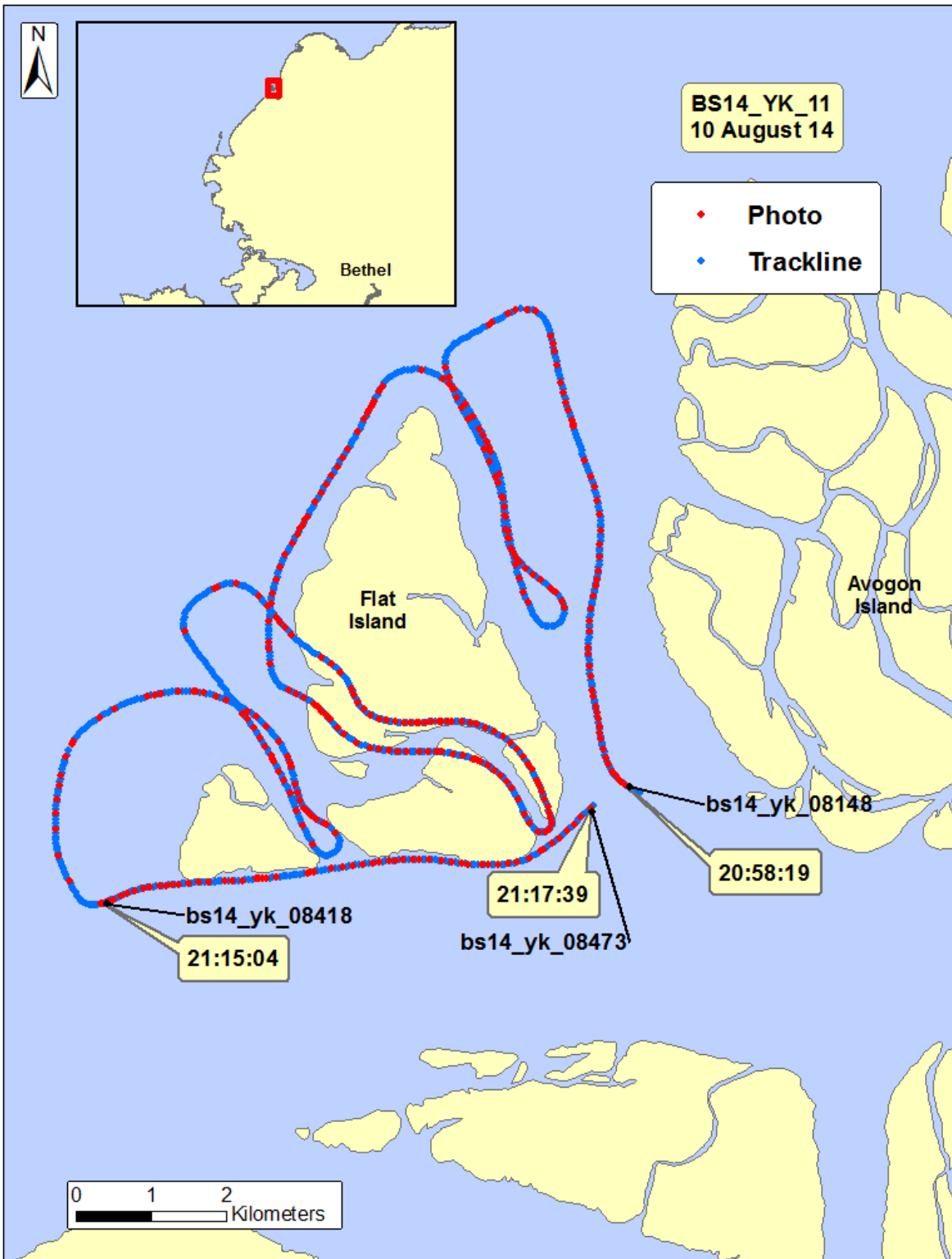
Bio: Cook

Tape Length: 44 min 27 sec

Pilot: Sheetrit

Weather: Sunny

Time (UTC)	Location	Photo
20:11:48	Alakanuk	bs14_yk_07287
20:32:20	North Avogon Island	bs14_yk_07678
20:56:11	South Avogon Island	bs14_yk_08136



**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Yukon Delta (YK)**

Tape: BS14_YK_11

Date 10 August 2014

General Location: Flat Island

Time Start (UTC): 20:58:14

Geo: Morrow

Time End (UTC): 21:17:40

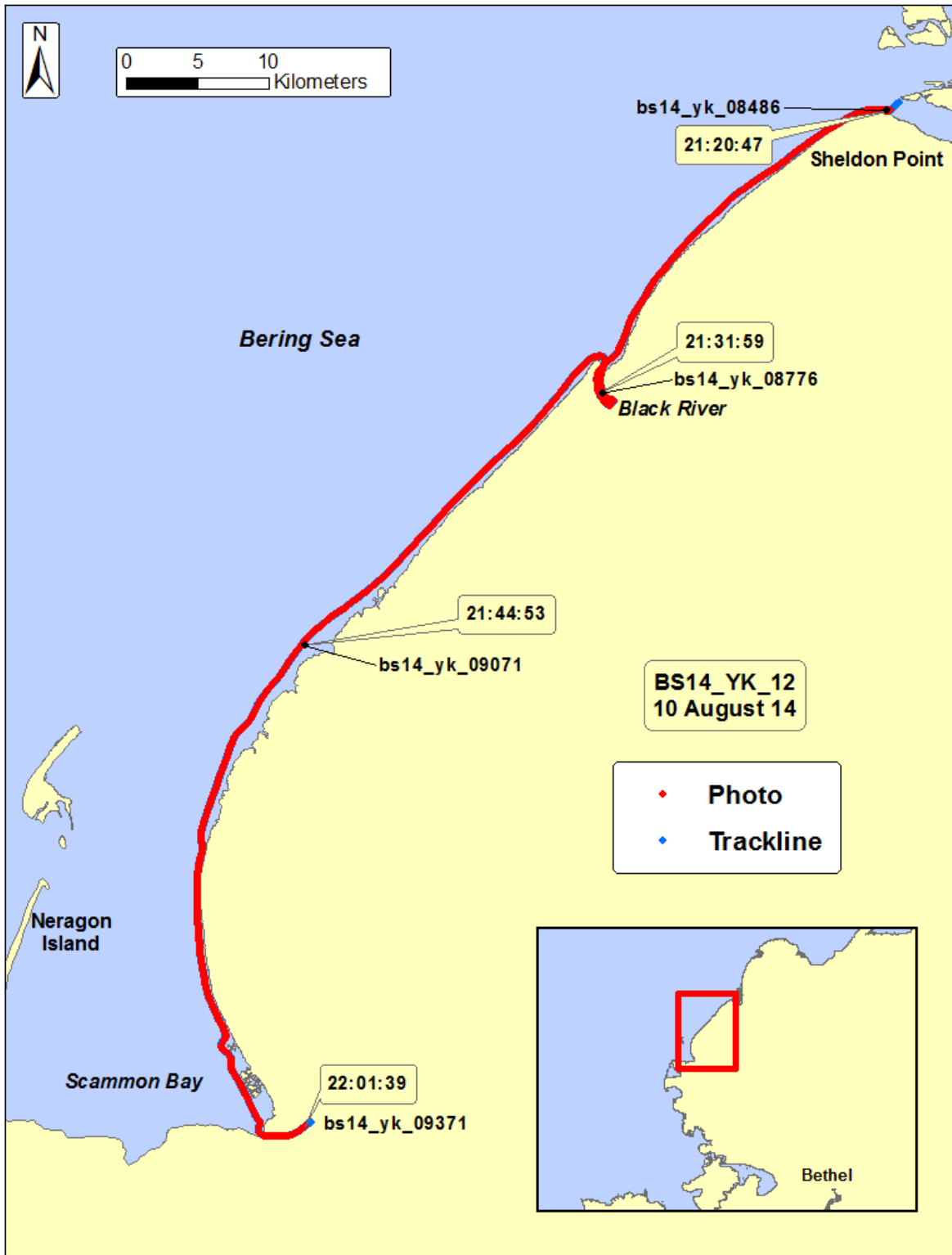
Bio: Cook

Tape Length: 19 min 26 sec

Pilot: Sheetrit

Weather: Sunny

Time (UTC)	Location	Photo
20:58:19	East Flat Island	bs14_yk_08148
21:15:04	West Flat Island	bs14_yk_08418
21:17:39	East Flat Island	bs14_yk_08473



**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Yukon Delta (YK)**

Tape: BS14_YK_12

Date 10 August 2014

General Location: Black River; Scammon Bay

Time Start (UTC): 21:20:30

Geo: Morrow

Time End (UTC): 22:01:52

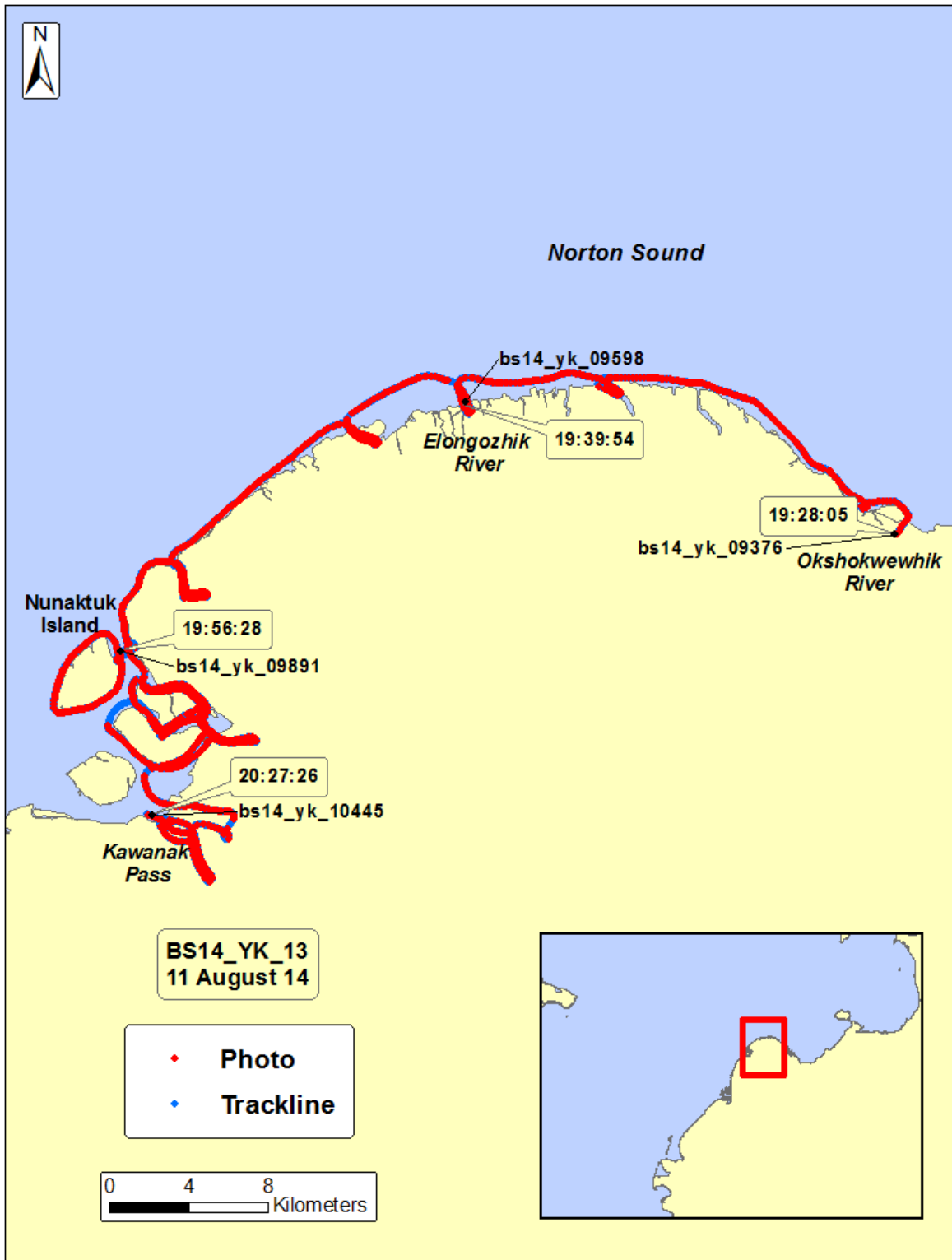
Bio: Cook

Tape Length: 41 min 22 sec

Pilot: Sheetrit

Weather: Sunny

Time (UTC)	Location	Photo
21:20:47	Sheldon Point	bs14_yk_08486
21:31:59	Black River	bs14_yk_08776
21:44:53	Bird Paradise	bs14_yk_09071
22:01:39	Scammon Bay	bs14_yk_09371



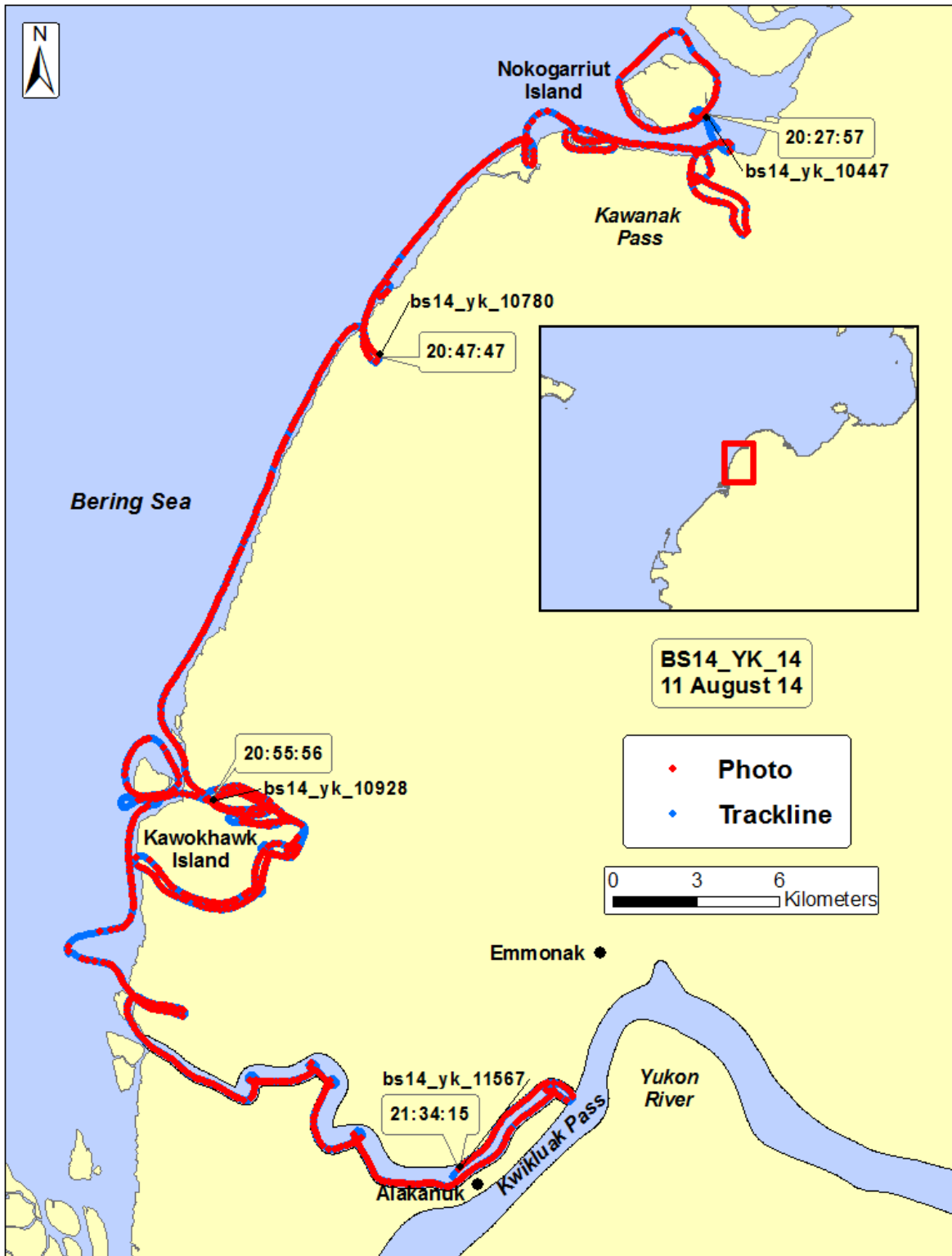
**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Yukon Delta (YK)**

Tape: BS14_YK_13

Date 11 August 2014

General Location: Okshokwewhik River; Kawanak Pass
Time Start (UTC): 19:28:04 **Geo:** Daley
Time End (UTC): 20:27:28 **Bio:** Cook
Tape Length: 59 min 24 sec **Pilot:** Sheetrit
Weather: Sunny

Time (UTC)	Location	Photo
19:28:05	Okshokwewhik River	bs14_yk_09376
19:39:54	Elongozhik River	bs14_yk_09598
19:56:28	Nunaktuk Island	bs14_yk_09891
20:27:26	Kawanak Pass	bs14_yk_10445



**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Yukon Delta (YK)**

Tape: BS14_YK_14

Date 11 August 2014

General Location: Kawanak Pass; Alakanuk

Time Start (UTC): 20:27:42

Geo: Daley

Time End (UTC): 21:34:22

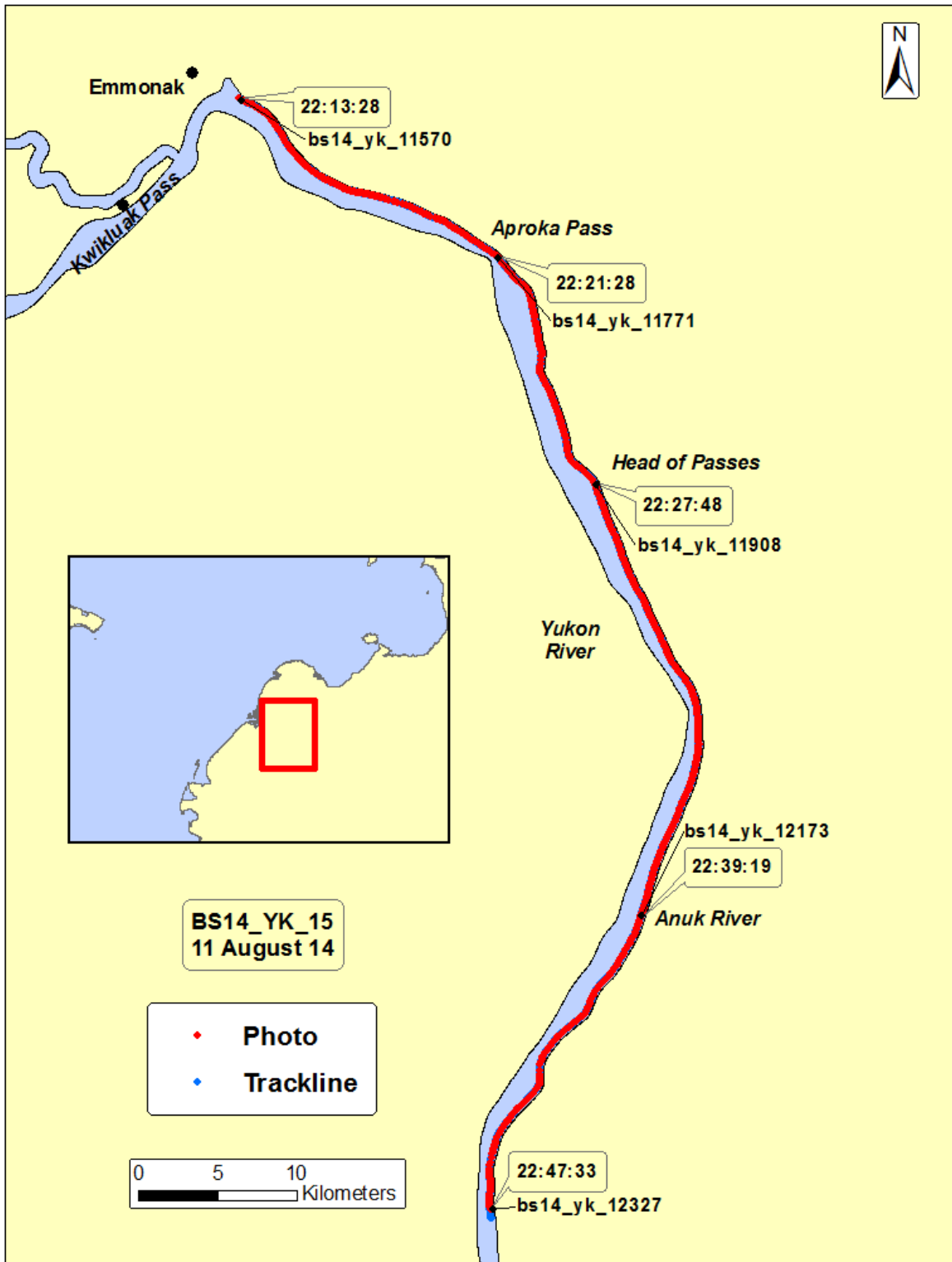
Bio: Cook

Tape Length: 66 min 40 sec

Pilot: Sheetrit

Weather: Sunny

Time (UTC)	Location	Photo
20:27:57	Kawanak Pass	bs14_yk_10447
20:47:47	Bird Paradise	bs14_yk_10780
20:55:56	Kawokhawk Island	bs14_yk_10928
21:34:15	Alakanuk	bs14_yk_11567



**2014 Bering Sea Alaska Aerial Video Imaging Survey
Team Yukon Delta (YK)**

Tape: BS14_YK_15

Date 11 August 2014

General Location: Yukon River
Time Start (UTC): 22:13:27
Time End (UTC): 22:47:48
Tape Length: 34 min 21 sec
Weather: Sunny

Geo: Daley
Bio: Cook
Pilot: Sheetrit

Time (UTC)	Location	Photo
22:13:28	Emmonak	bs14_yk_11570
22:21:28	Aproka Pass	bs14_yk_11771
22:27:48	Head of Passes	bs14_yk_11908
22:39:19	Anuk River	bs14_yk_12173
22:47:33	South Yukon River	bs14_yk_12327

References

Harper, J.R. and M.C. Morris 2014. Alaska ShoreZone Coastal Habitat Mapping Protocol. Report prepared by Nuka Research and Planning LLC of Seldovia for the Bureau of Ocean Energy Management (BOEM), Anchorage, AK, 144 p.

<http://alaskafisheries.noaa.gov/shorezone/chmprotocol0114.pdf>

Acknowledgments

The ShoreZone program is a partnership of scientists, GIS specialists, web specialists, non-profit organizations, and governmental agencies. We gratefully acknowledge the support of organizations working in partnership for the Alaska ShoreZone effort, including: Alaska Department of Fish and Game, Alaska Department of Natural Resources, Archipelago Marine Research Ltd., Bureau of Ocean Energy Management, Coastal and Ocean Resources, Cook Inlet Regional Citizens' Advisory Council, Exxon Valdez Oil Spill Trustee Council, National Park Service, NOAA National Marine Fisheries Service, Prince William Sound Regional Citizens' Advisory Council, The Nature Conservancy, US Fish and Wildlife Service, the University of Alaska and the US Forest Service.

Access and Use Constraints

Protocols for data access and distribution are established by the program partner agencies. Please see www.shorezone.org for a list of partner agencies and related web sites. Video imagery can be viewed and digital stills downloaded online at: <http://alaskafisheries.noaa.gov/shorezone/default.htm>

Any hardcopies or published data sets utilizing ShoreZone products shall clearly indicate their source. To ensure distribution of the most current public information or for correct interpretation, contact the ShoreZone project manager at Coastal and Ocean Resources, Inc. At the time of publication, that person is Dr. Carl Schoch (carl@coastalandoceans.com).

To effectively and appropriately use ShoreZone data, the user shall refer to the ShoreZone Coastal Habitat Mapping Protocol (2014) available at:

<http://alaskafisheries.noaa.gov/shorezone/chmprotocol0114.pdf>

Data provided are derived from large, regional databases that are continually being updated and modified. The accuracy of some information is subject to change. Any published data sets utilizing ShoreZone products (printed, digital, or online) shall clearly indicate their source. If the user has modified the data in any way, the user is obligated to describe the types of modifications performed. The user specifically agrees not to misrepresent these data, nor to imply that changes made were approved by the ShoreZone program or its partners.



Cape Mohican, Nunivak Island – bs14_bt_03936.jpg

