High-Resolution Imagery for the Coastal Areas of Bering Land Bridge NP (BELA) and Cape Krusenstern NM (CAKR), Northwest Alaska

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Inventory & Monitoring Program
Arctic Network

National Park Service
US Department of Interior

DRAFT Overview of Imagery to Distribute -- January 16, 2007

See also: instaar.colorado.edu/QGISL/ARCN/

Introduction

This powerpoint presentation is a draft summary of high-resolution orthorectified imagery that will be made publicly available soon. The imagery covers the coastal and nearshore areas of BELA, CAKR, and surrounding coastlines.

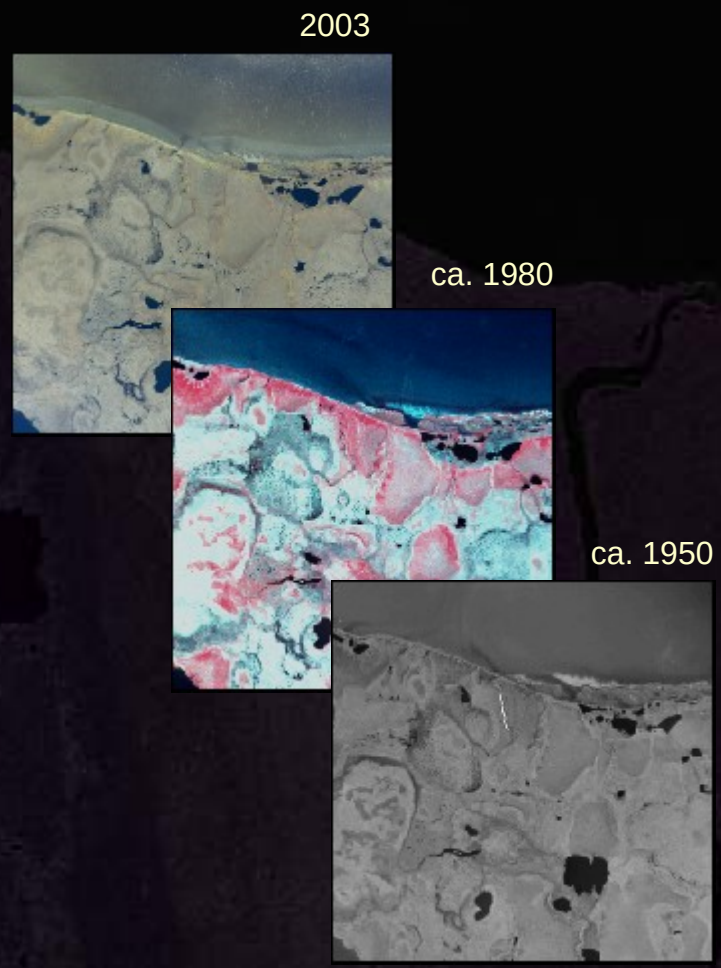
The imagery was completed as part of a study on coastal erosion, funded by the Arctic Network Inventory and Monitoring Program. Beyond analysis of coastal change, the imagery will be of interest to land managers, scientists, and others for observation and study of natural features and ecosystems.

Imagery

2003 orthophoto mosaic (100 GB)

orthorectified historic aerial photography (75 GB):

- approx. 1980 and
- approx. 1950



Goals

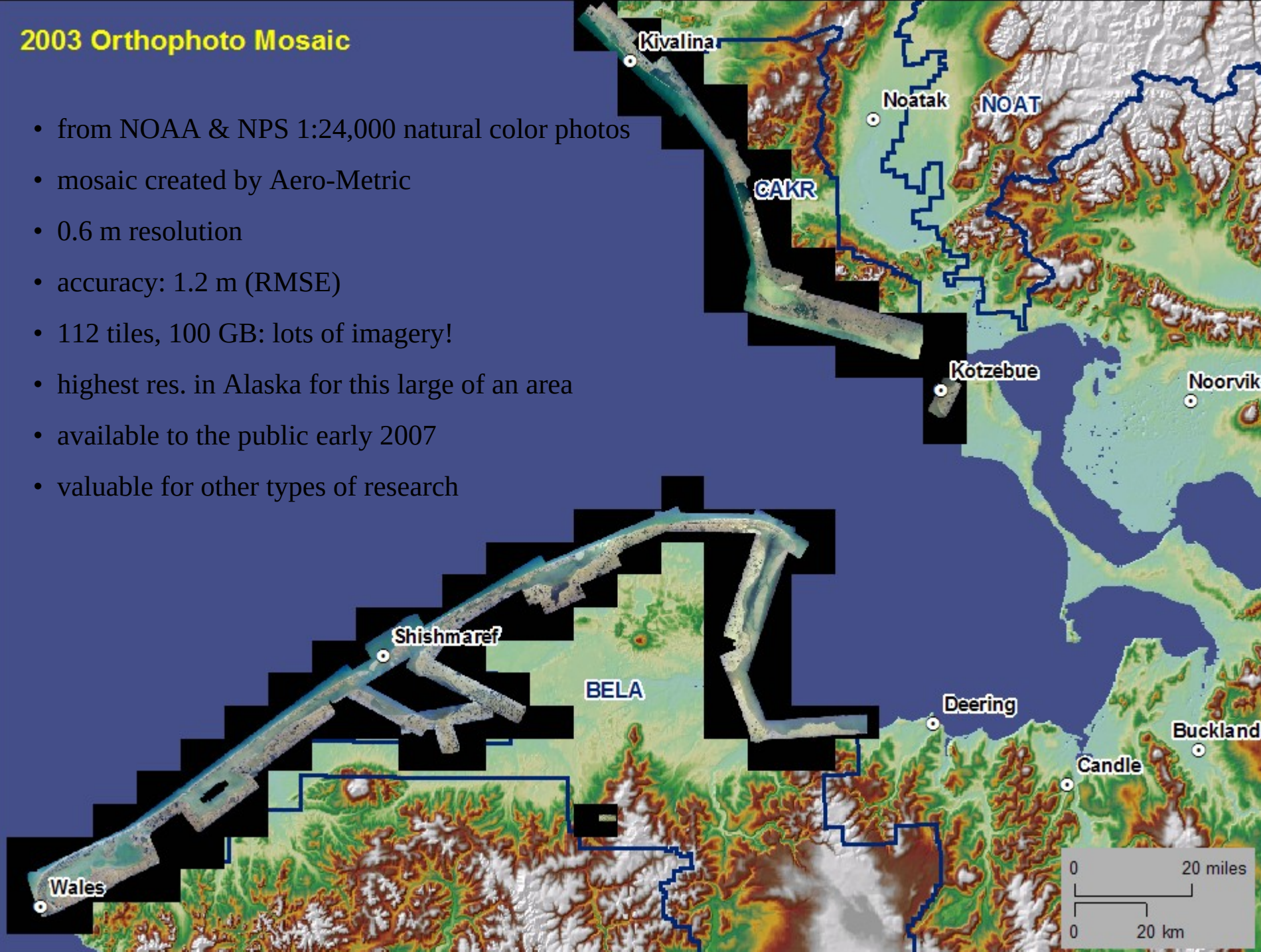
Before the imagery can be distributed, decisions need to made about distribution of the data.

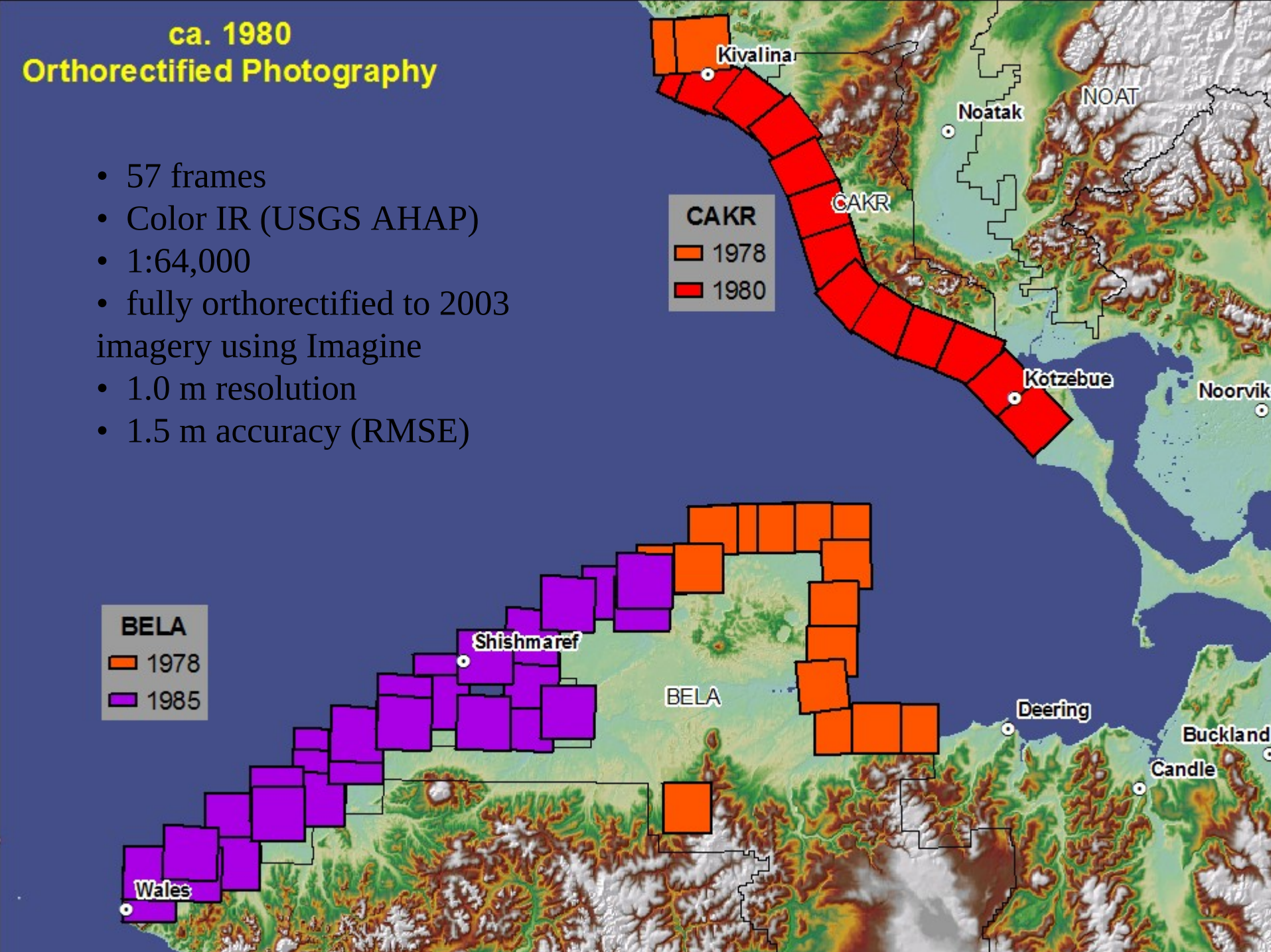
- 175 GB of data to be shared most likely on external hard drive by request
- FGDC metadata will be distributed with the data, but needs to be also available through one or more online catalogs
- Contact information is needed for the metadata as soon as possible

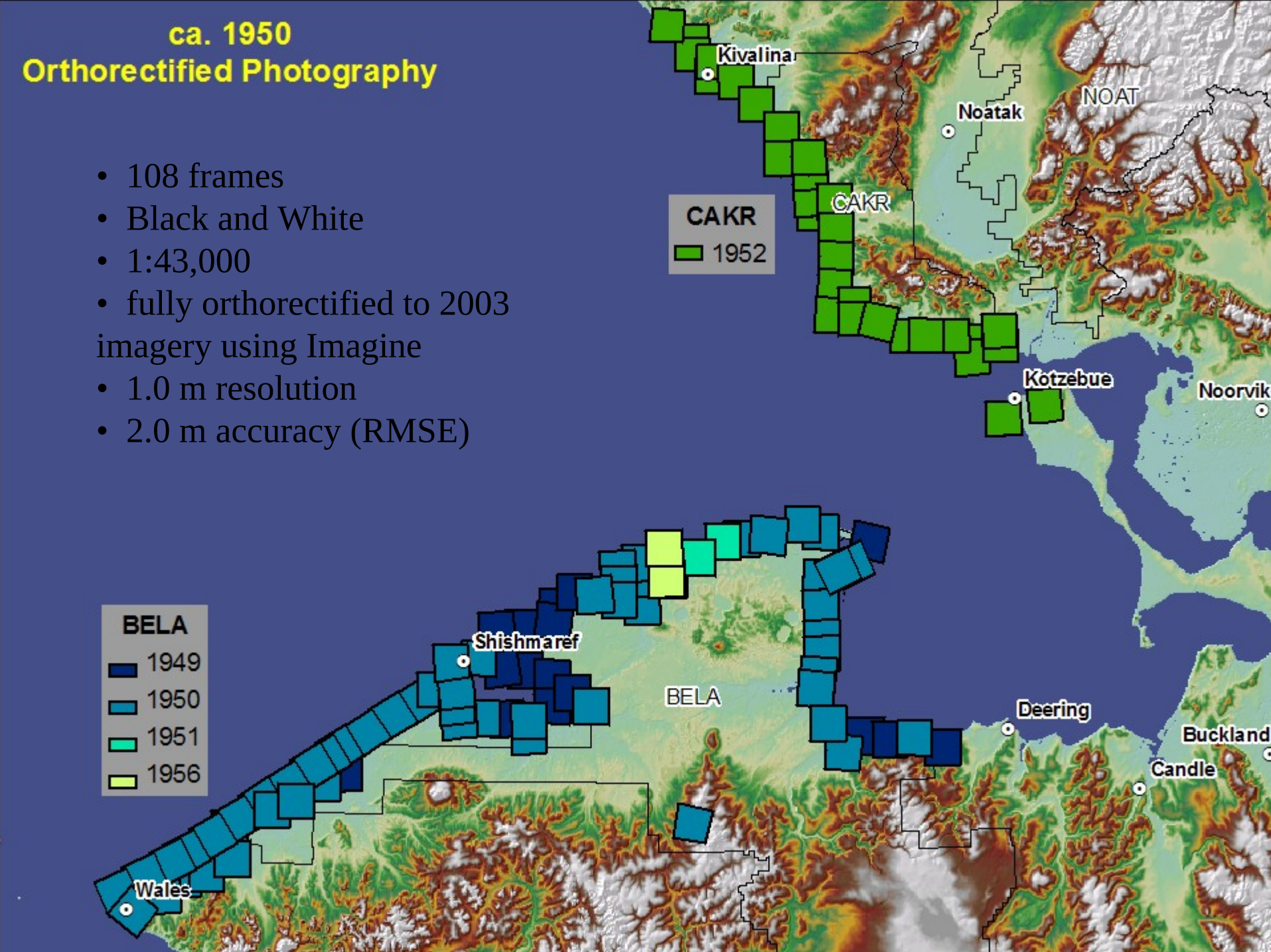

Study Area
Kivalina
Noatak
Cape
Krusenstern
N. M.
Chukchi Sea
Kotzebue
0 20 40 60 Miles
0 20 40 60 80 km
Shishmaref
Bering Land
Bridge N.P.
Deering
Candle
Wales

2003 Orthophoto Mosaic

- from NOAA & NPS 1:24,000 natural color photos
- mosaic created by Aero-Metric
- 0.6 m resolution
- accuracy: 1.2 m (RMSE)
- 112 tiles, 100 GB: lots of imagery!
- highest res. in Alaska for this large of an area
- available to the public early 2007
- valuable for other types of research




ca. 1980
Orthorectified Photography
• 57 frames
• Color IR (USGS AHAP)
• 1:64,000
• fully orthorectified to 2003 imagery using Imagine
• 1.0 m resolution
• 1.5 m accuracy (RMSE)
CAKR
1978
1980
BELA
1978
1985
Kivalina
Noatak
NOAT
CAKR
Kotzebue
Noorvik
Shishmaref
BELA
Deering
Buckland
Candle
Wales

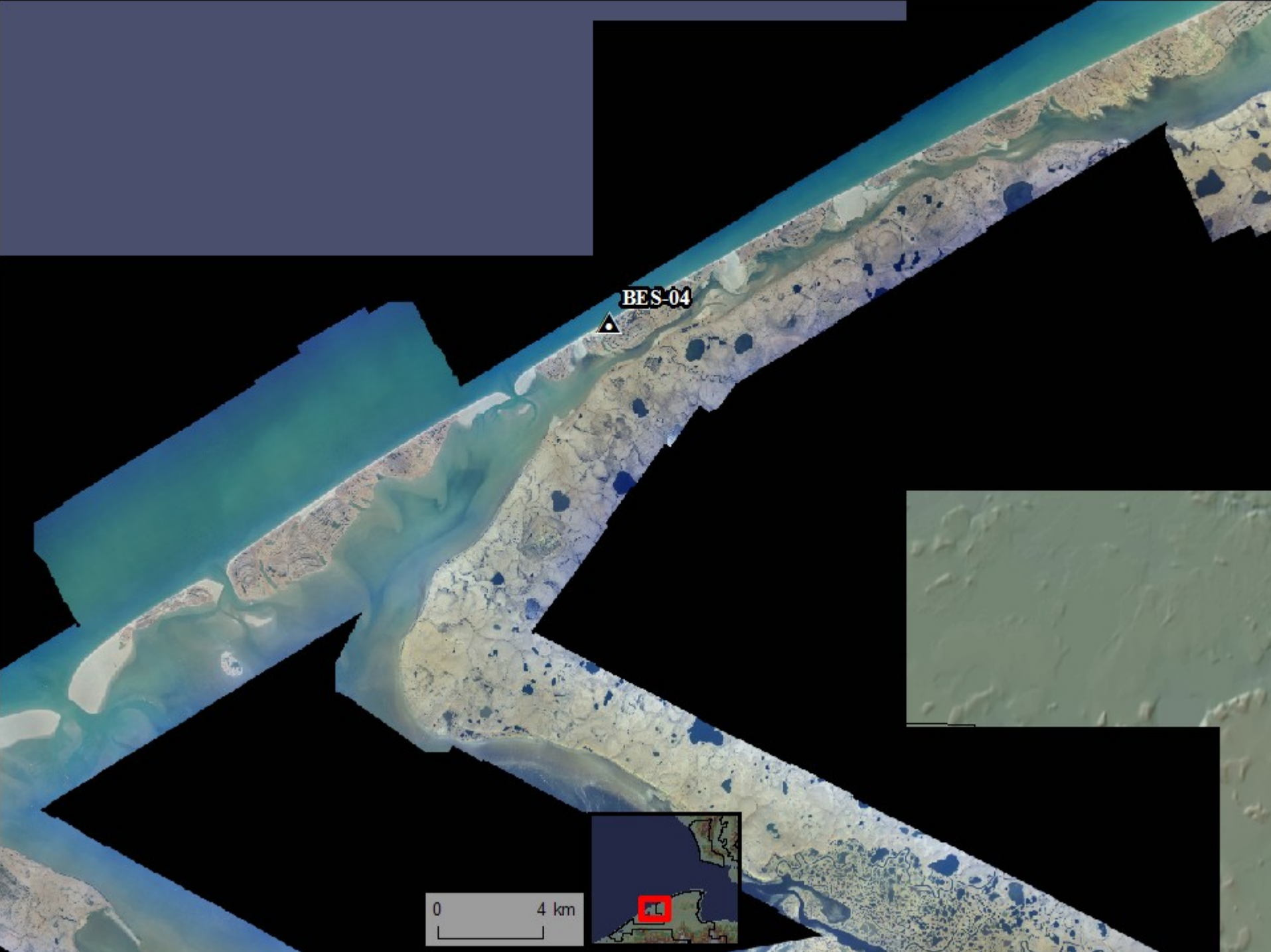

ca. 1950
Orthorectified Photography
• 108 frames
• Black and White
• 1:43,000
• fully orthorectified to 2003 imagery using Imagine
• 1.0 m resolution
• 2.0 m accuracy (RMSE)
Kivalina
Noatak
NOAT
CAKR
CAKR
1952
Kotzebue
Noorvik
BELA
1949
1950
1951
1956
Shishmaref
BELA
Deering
Buckland
Candle
Wales

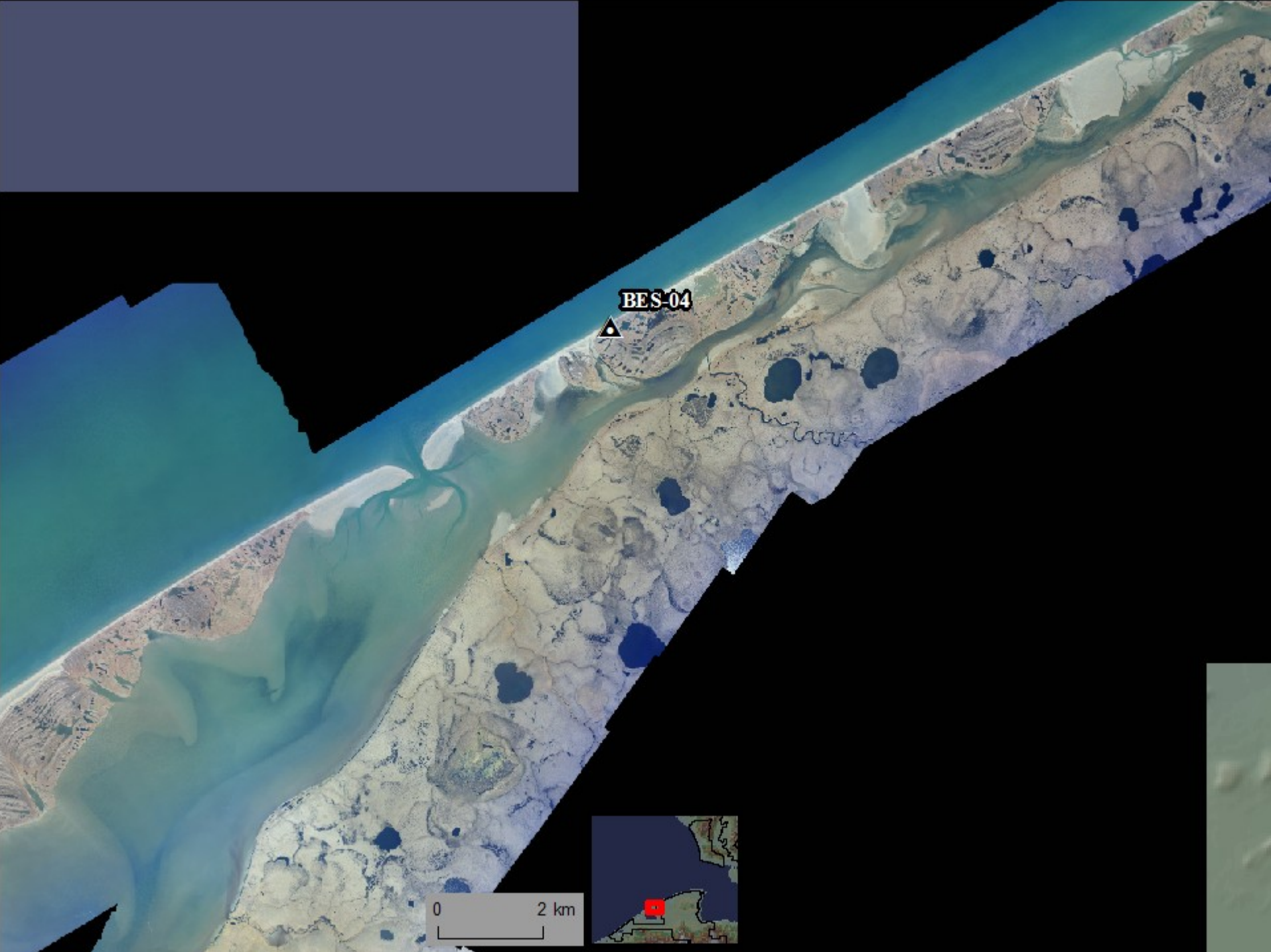
Zooming In ...

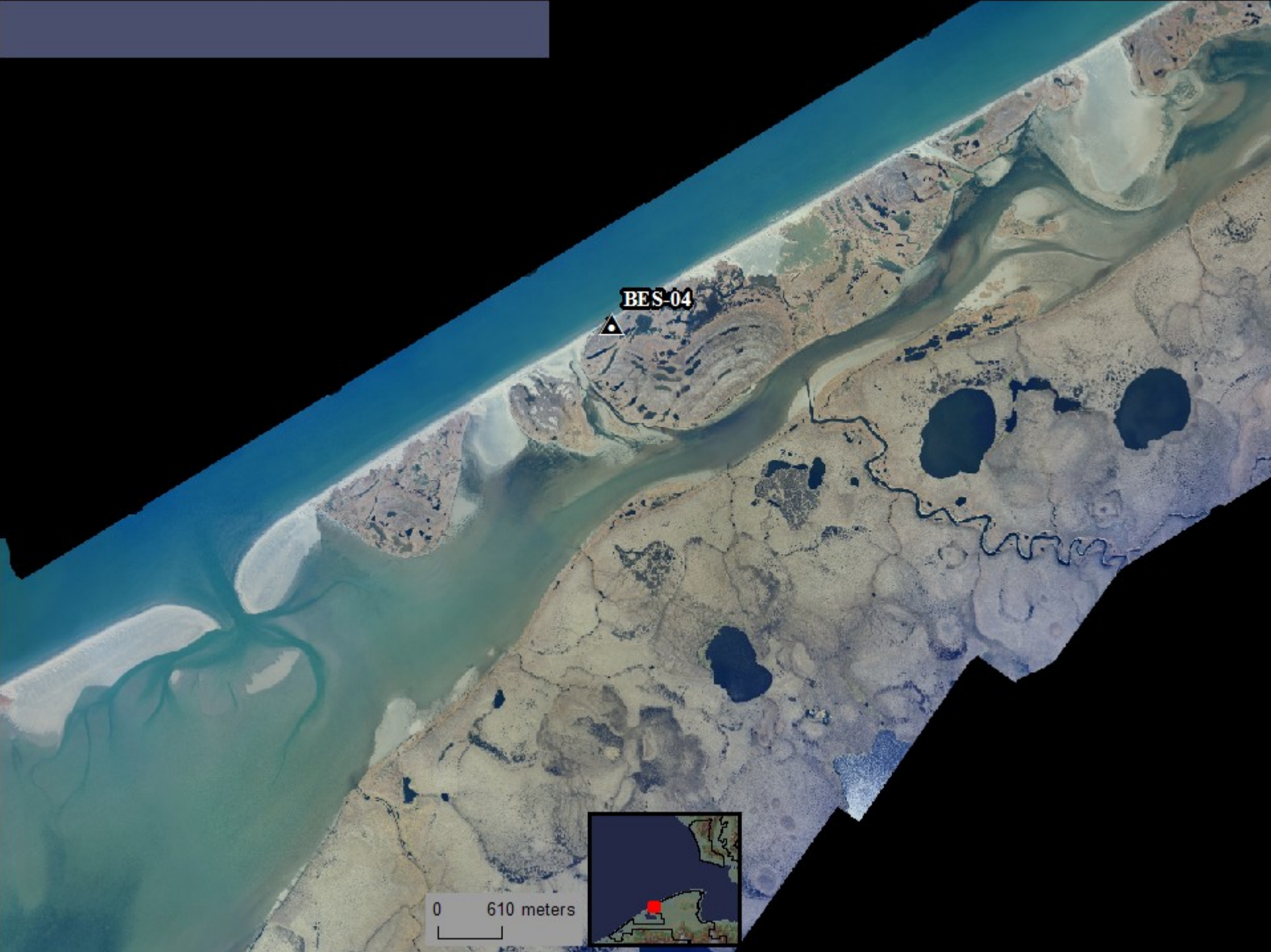

CES-12
CES-01
CES-02
CES-03
CES-04
CES-07
CES-11
CES-06
CES-10
BES-09
BES-13
BES-14
BES-15
BES-05
BES-12
BES-08
BES-04
BES-02
BES-03
BES-01
0
40 km

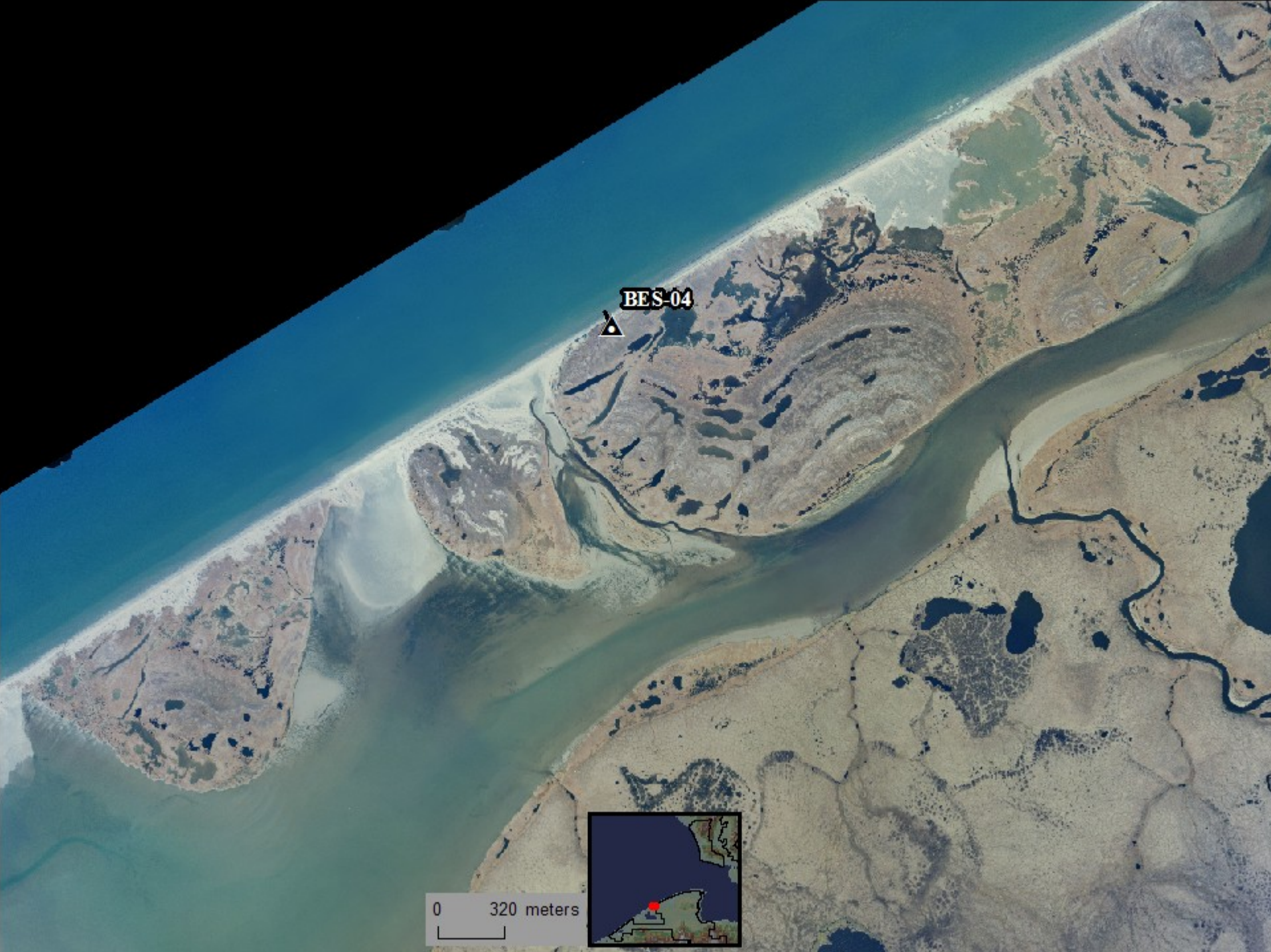

BES-01
BES-02
BES-03
BES-04
BES-05
BES-07
BES-08
BES-10
BES-11
BES-12
BES-13
BES-14
BES-15
0
20 km

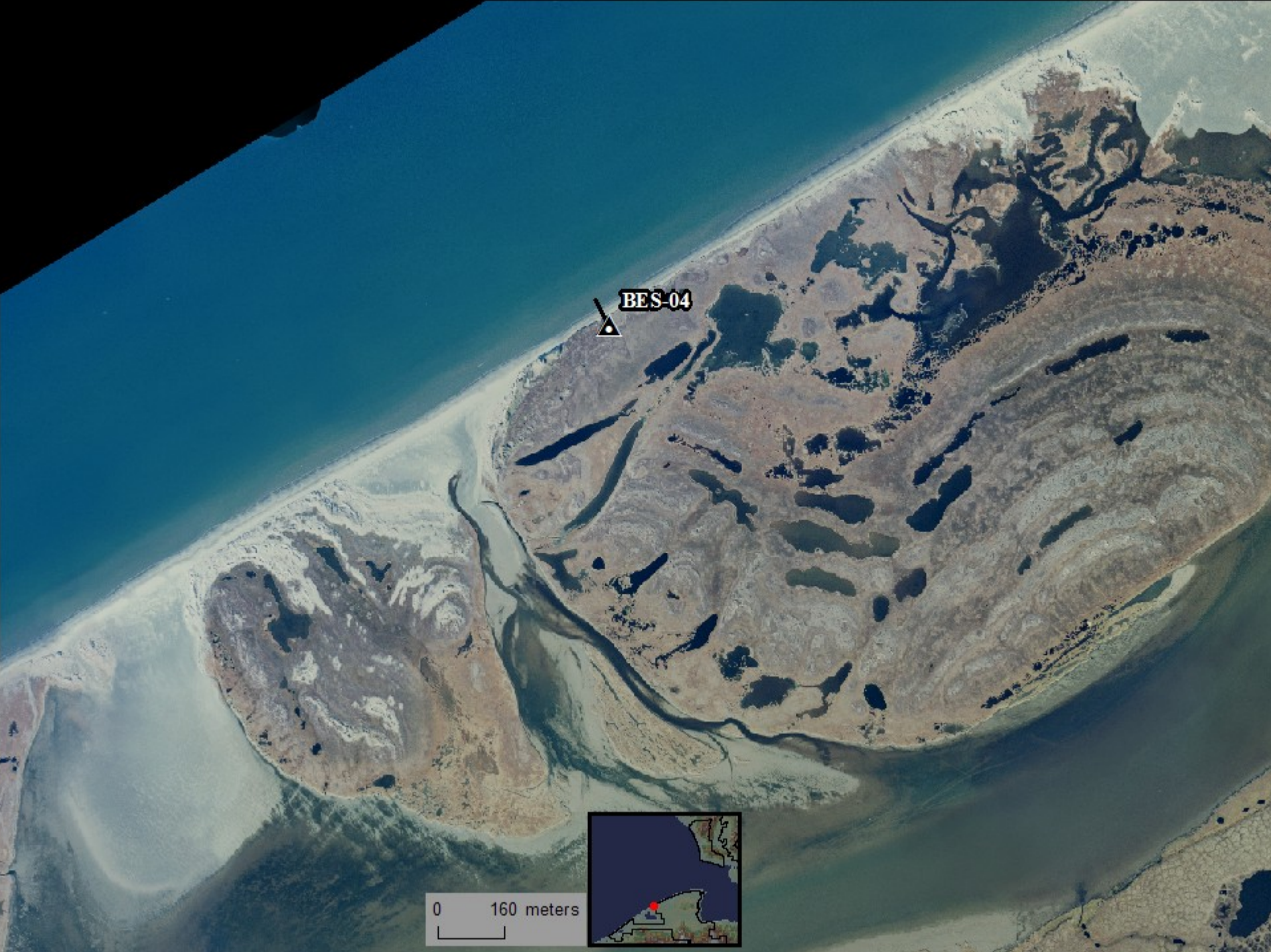

BES-07
BES-08
BES-06
BES-05
BES-04
0
8 km


BES-04
0
4 km


BES-04
0
2 km


BES-04
0
610 meters


BES-04
0
320 meters

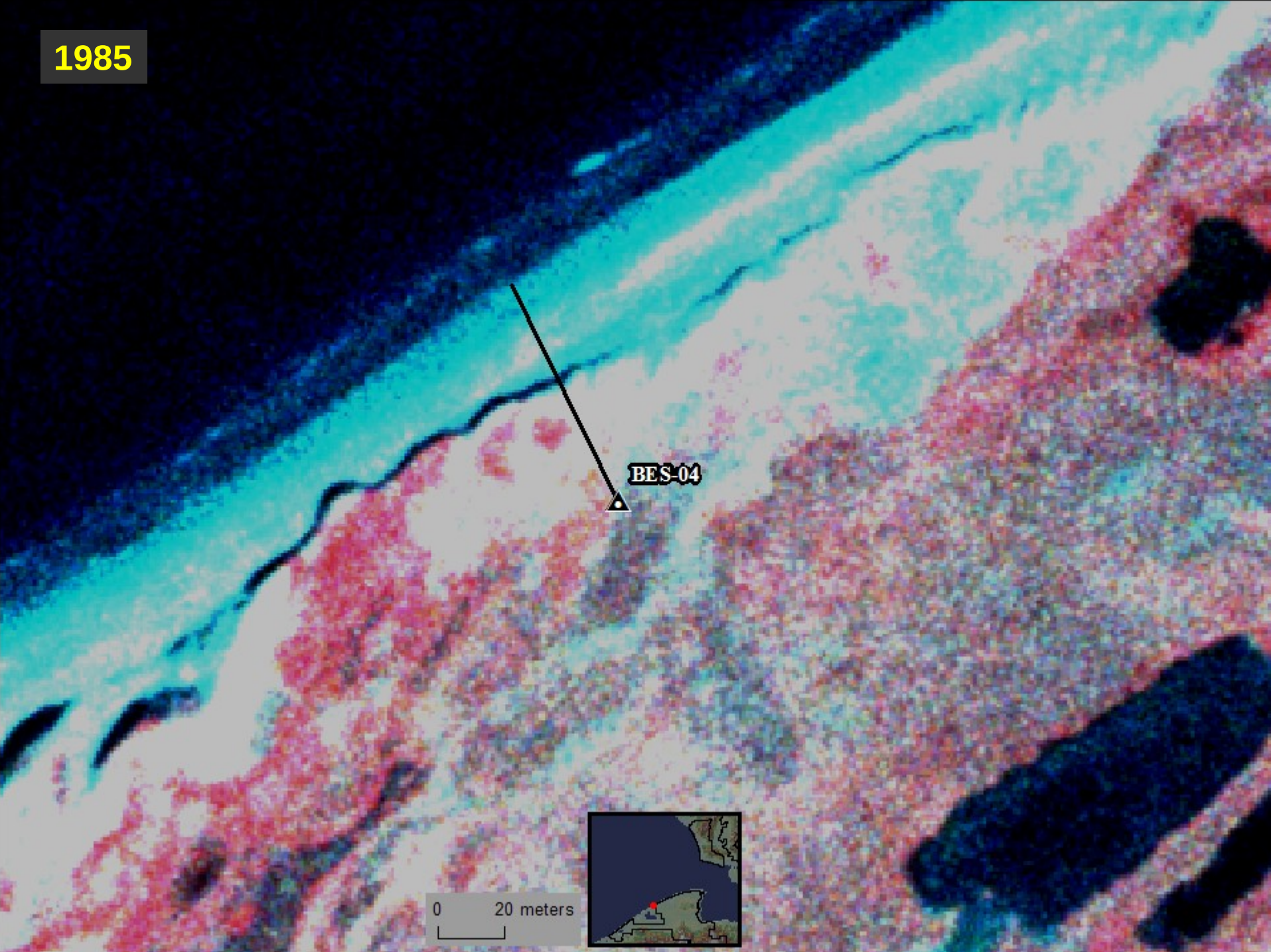

BES-04
0
160 meters


BES-04
0
80 meters

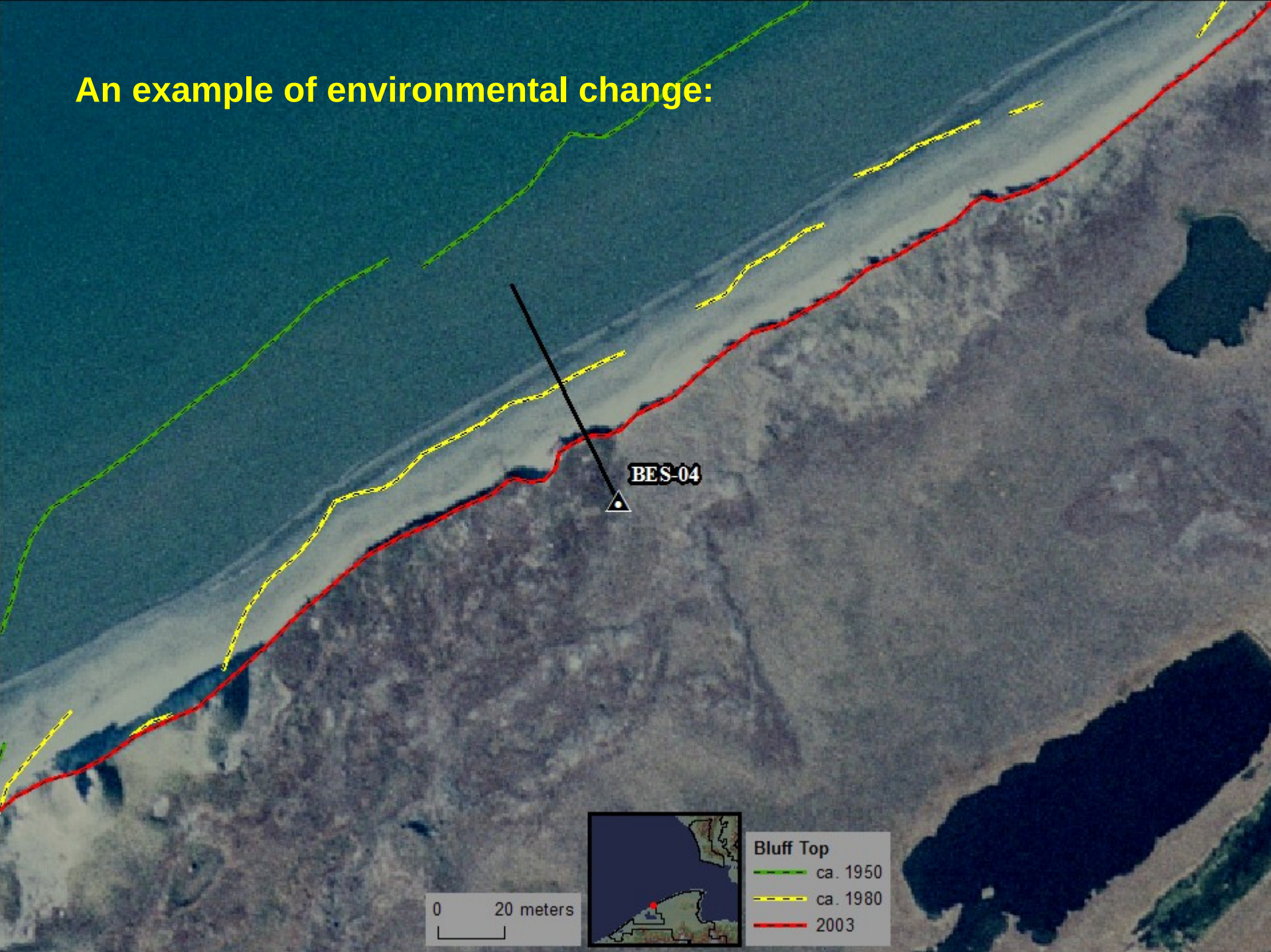

BES-04
0
40 meters


2003
BES-04
0
20 meters


1949
BES-04
0
20 meters


1985
BES-04
0
20 meters

An example of environmental change:




2003 Orthophoto Mosaic
Kotzebue
0
0.03 miles
0
0.03 km


2003 Orthophoto Mosaic
Serpentine Hot Springs
0
0.03 miles
0
0.03 km


2003 Orthophoto Mosaic
Cape Espenberg
0
0.03 miles
0
0.03 km


2003 Orthophoto Mosaic
Anigaaq Ranger Station
0
0.03 miles
0
0.03 km


2003 Orthophoto Mosaic
Red Dog Port
0
0.03 miles
0
0.03 km

Hard Drive For Distribution:

After the FGDC metadata is complete, Manley et al. will distribute the hard drive ready for distribution, with:

- readme file
- 2003 orthophoto mosaic (112 tiles)
  - image files (.tif, .tfw, .aux, .rrd)
  - sid files (.sid, .sdw)
  - metadata files (.txt, .html, .xml)
- ca. 1980 orthorectified photos (57 frames)
  - image files (.tif, .aux, .rrd) *Note: georeferencing info. embedded in .tif*
  - metadata files (.txt, .html, .xml)
- ca. 1950 orthorectified photos (108 frames)
  - image files (.tif, .aux, .rrd) *Note: georeferencing info. embedded in .tif*
  - metadata files (.txt, .html, .xml)
- accessory layers
  - index shapefiles *Note: attributed with a great deal of information*
    - 2003 tiles
    - ca. 1980 frames
    - ca. 1950 frames
  - 2003 image extent showing NPS vs. NOAA source areas

Hard Drive For NPS Only:

Manley et al. will also provide the following files, which need not be distributed widely (321 GB):

- NOAA 2003 LIDAR DEM (82 GB)
- NOAA 2003 air photo scans (134 GB)
- NPS 2003 air photo scans (34 GB)
- ca. 1980 air photo scans (53 GB)
- ca. 1950 air photo scans (18 GB)

Conclusions

- High-resolution imagery will be valuable for land management and scientific research.

- The imagery should be made available to all of the NPS, as well as other agencies and the public.

- Needed: Plan for distribution

- ASAP: contact information for FGDC metadata:

  Name, organization, address, telephone number, email address, and link to a website for more information

Any questions or concerns:

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