RPAS and Mapping

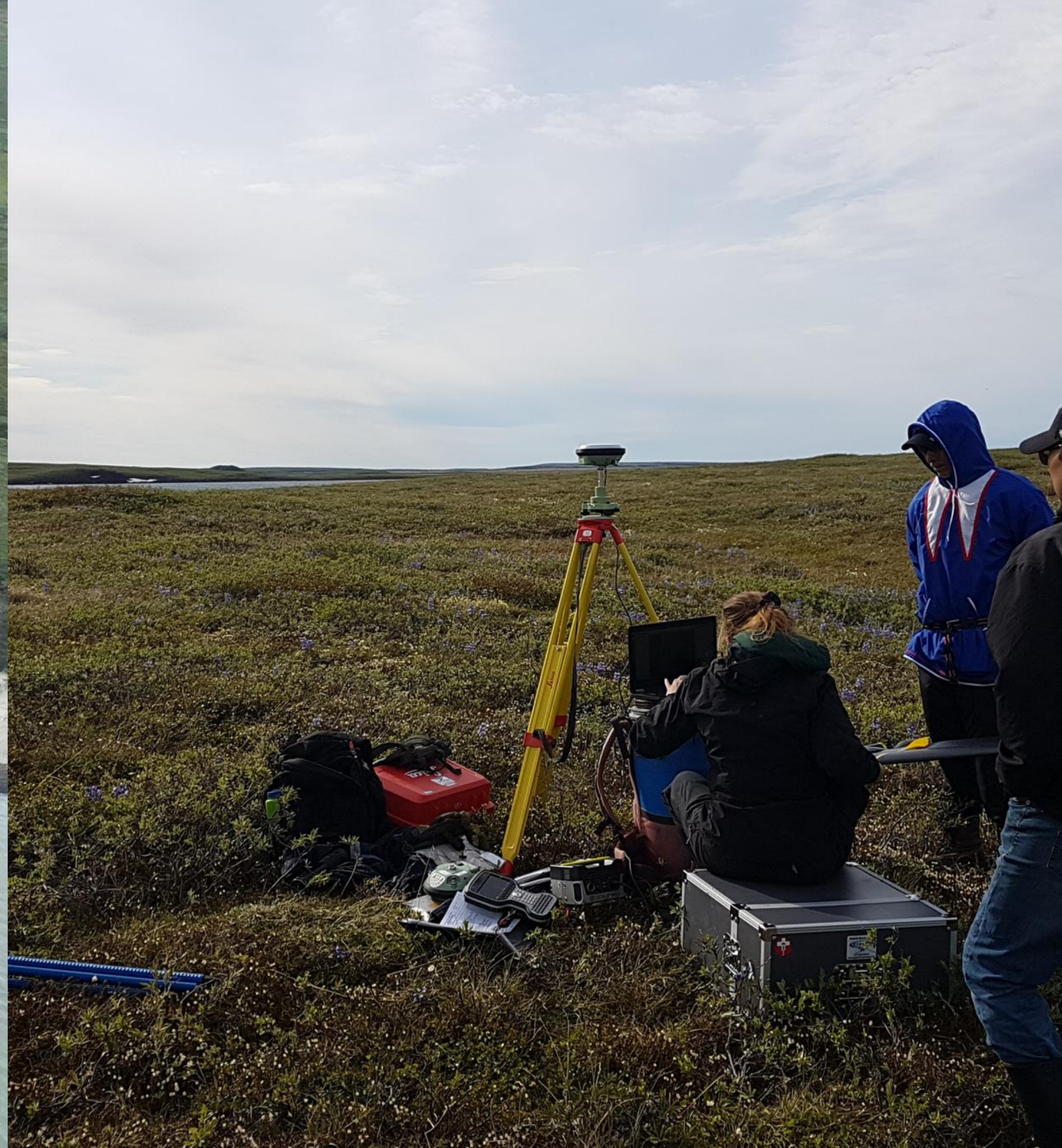
Fieldwork Process and Analysis

We capture pictures of the sites with drones

We then use those pictures to create 3D models and maps of the sites

With this we can track change over time

Access sites by helicopter or boat



Fly with multiple drones

We use the multi-rotor drone to capture photos and video

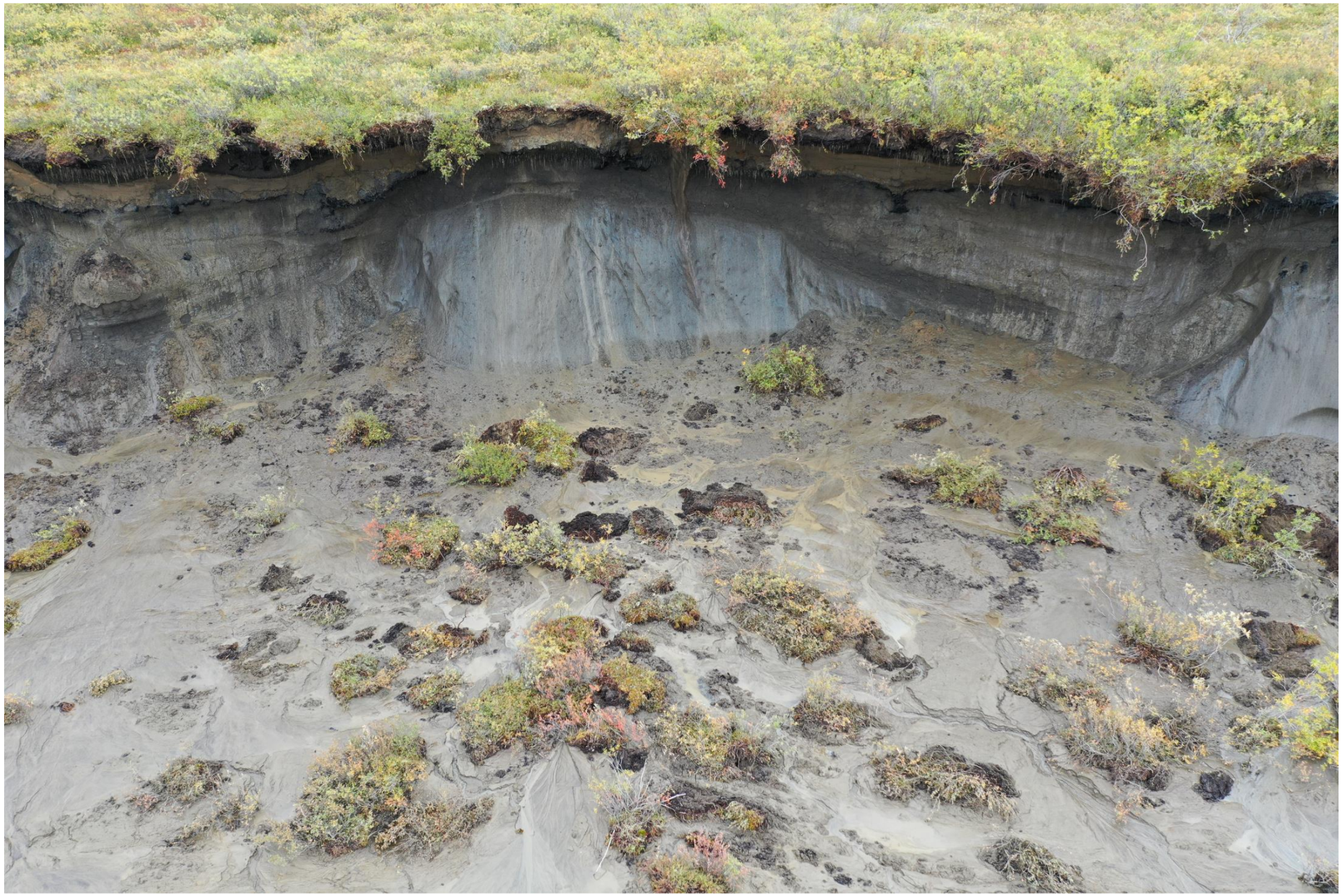
This includes:

- Small details such as vegetation plots

We use the multi-rotor drone to capture photos and video

This includes:

- Headwall and cliff edge surveys



We use the multi-rotor drone to capture photos and video

This includes:

- Oblique landscape or whole site photos

We use the multi-rotor drone to capture photos and video

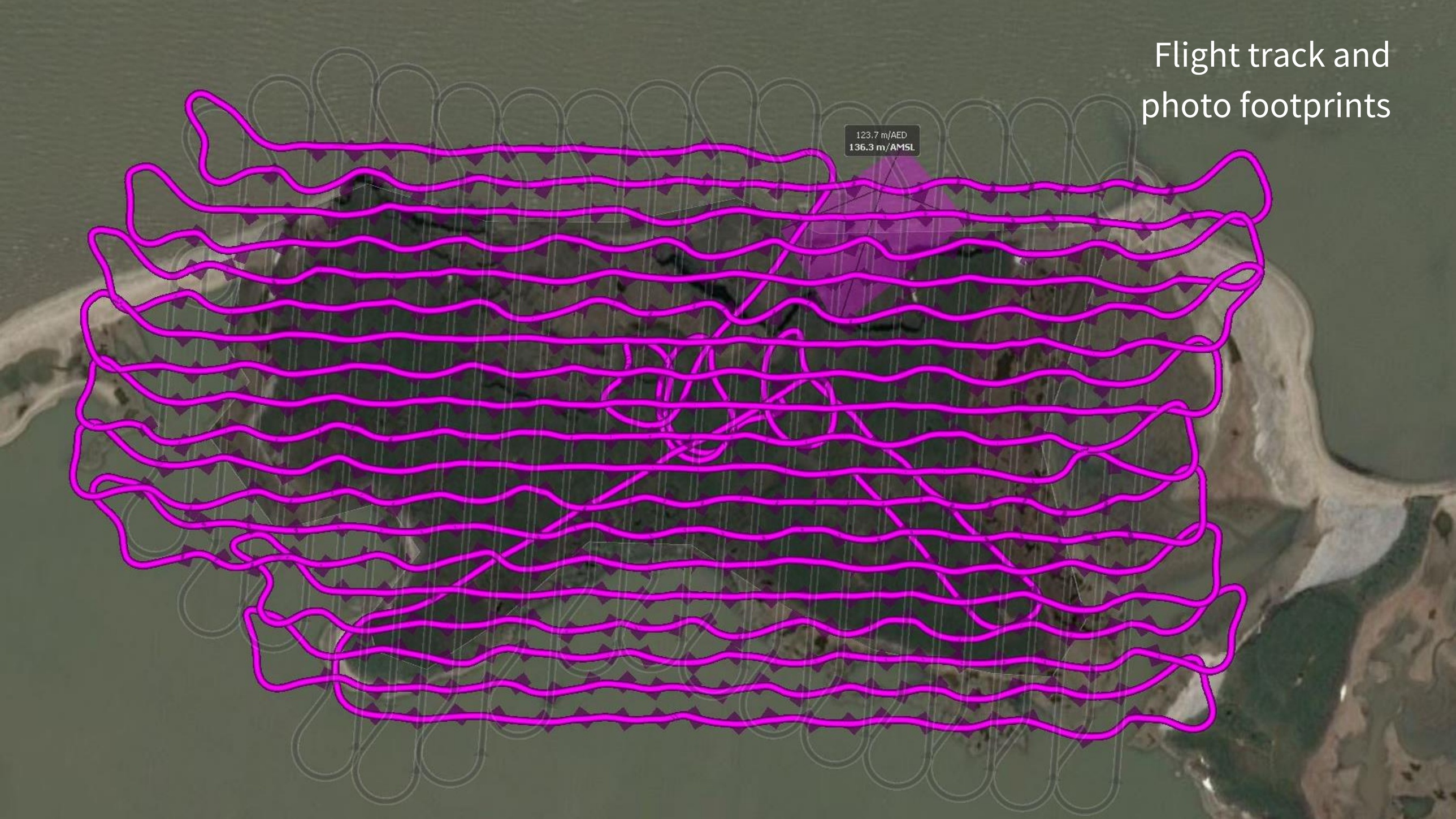
This includes:

- Fieldwork documentation

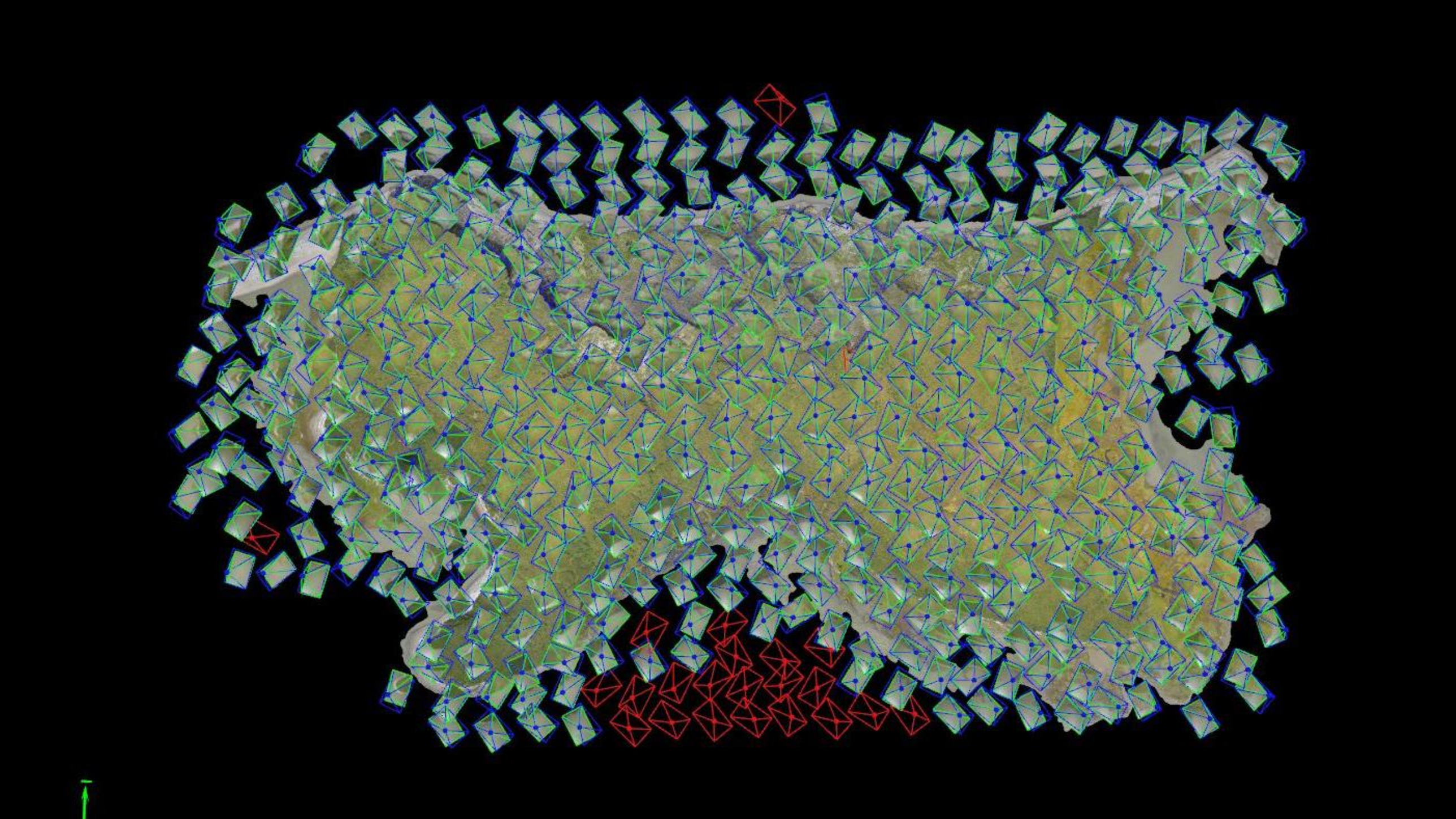
We use the fixed wing drone to capture photos straight down

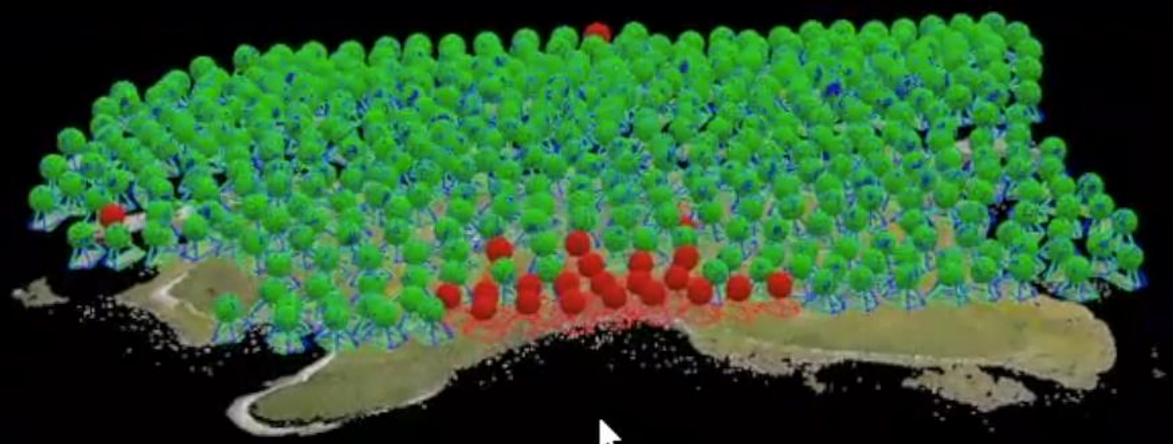
Multiple cameras includes:

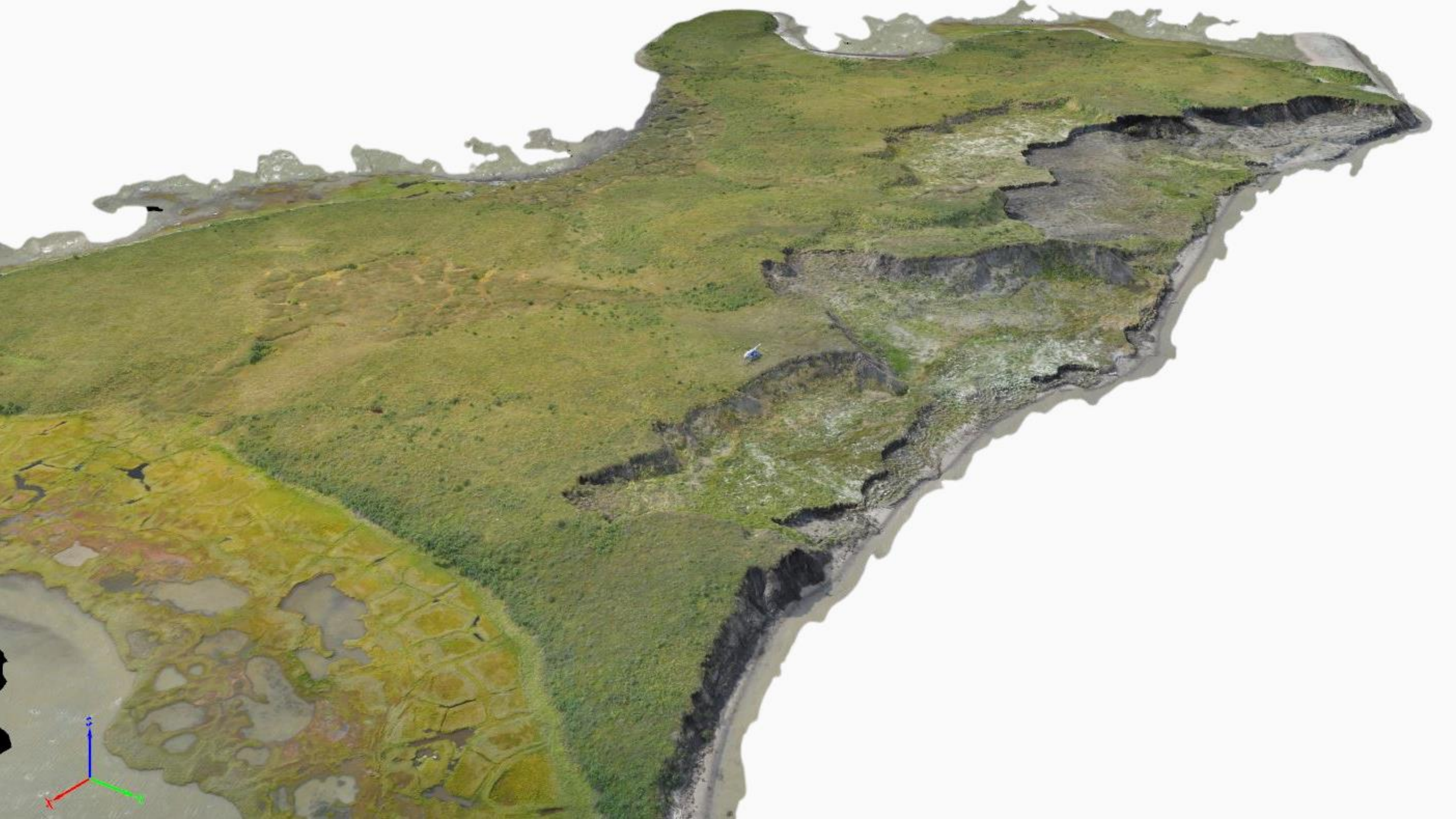
- RGB (what we see)
- Thermal
- Multispectral



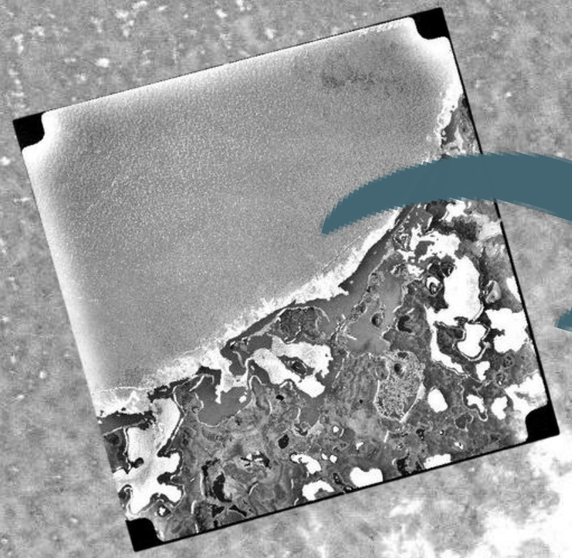
Flight track and photo footprints



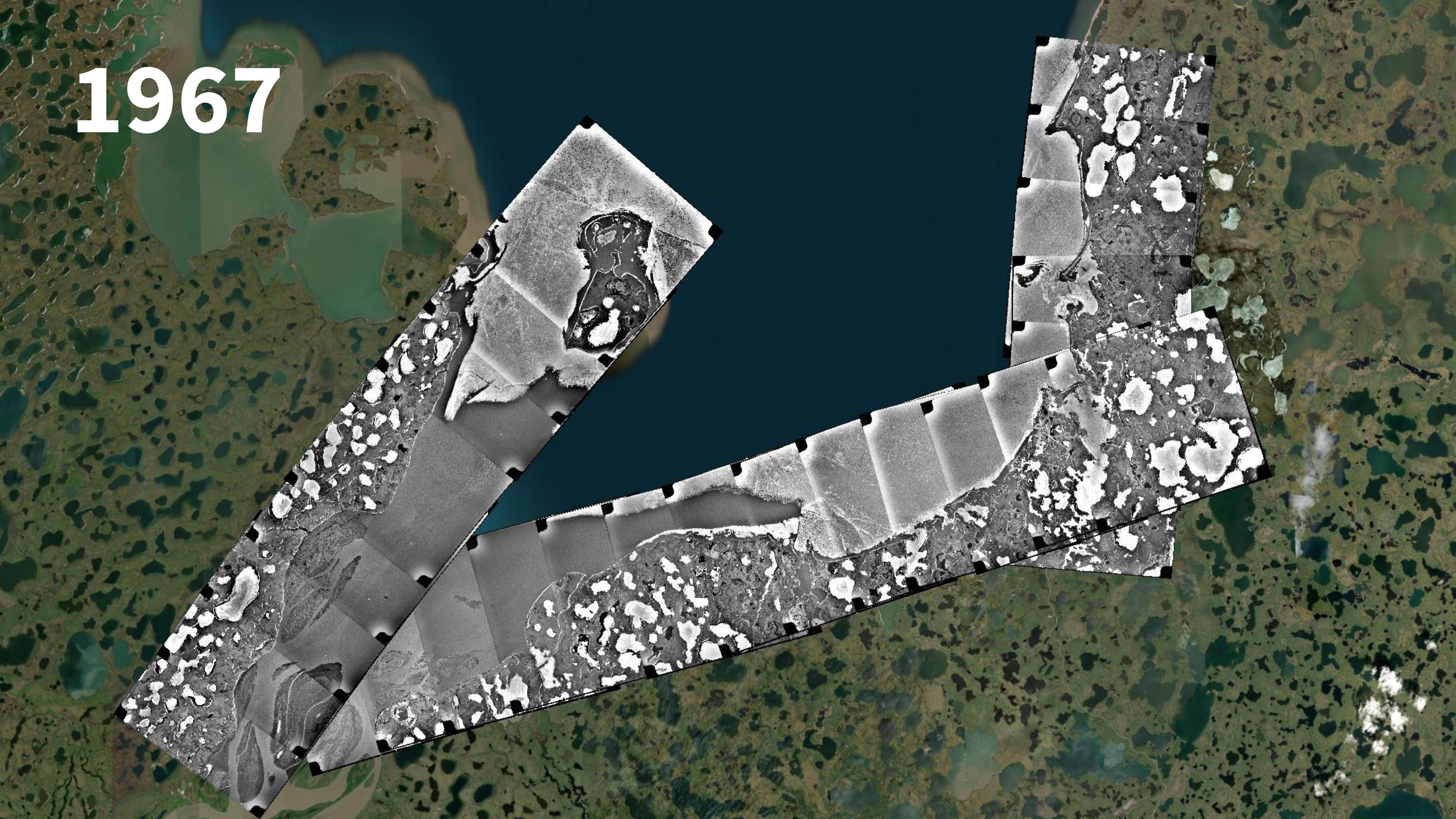




COMPARISONS TO HISTORIC IMAGERY



1967


1967


2004

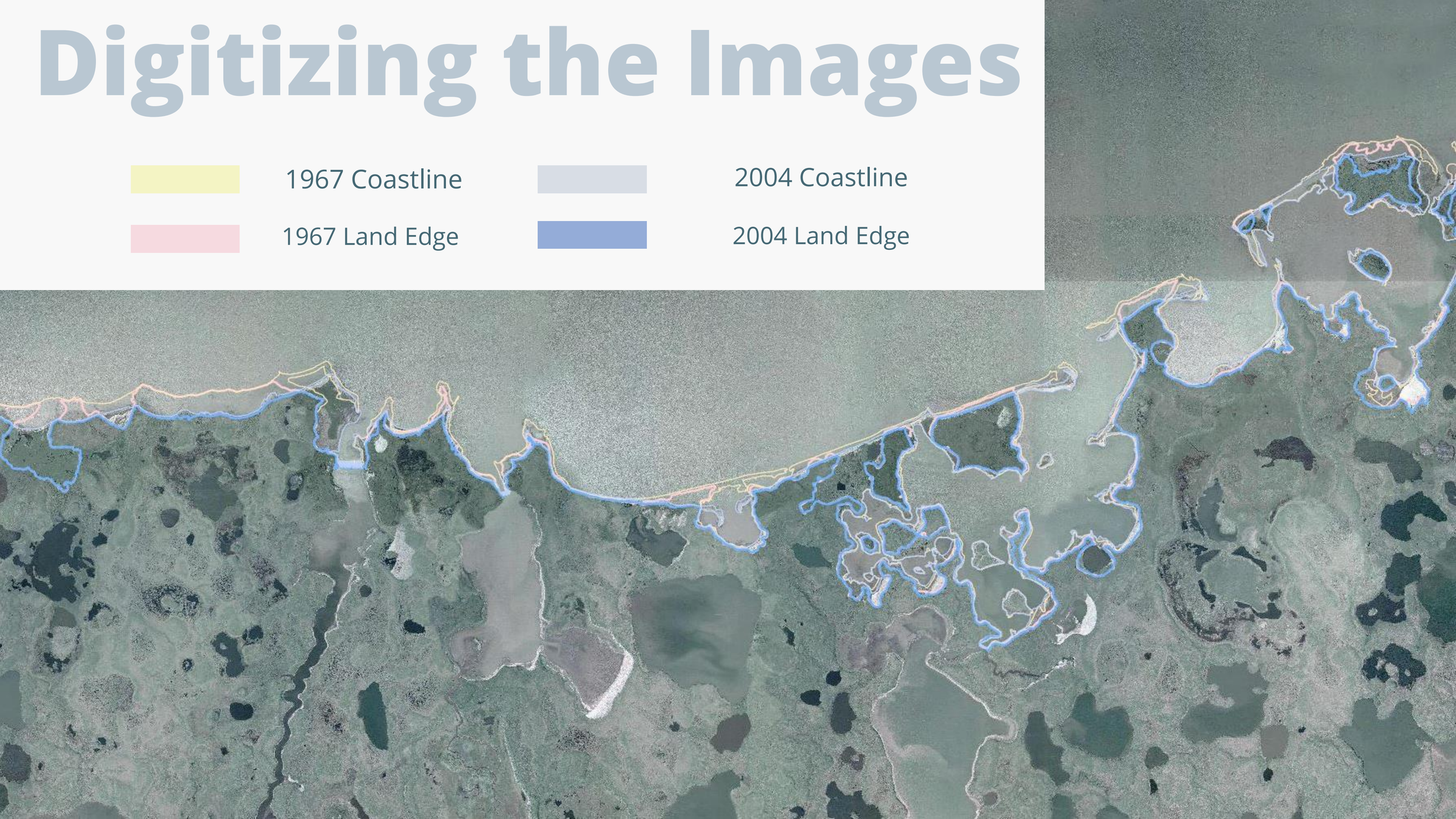
Digitizing the Images

1967 Coastline

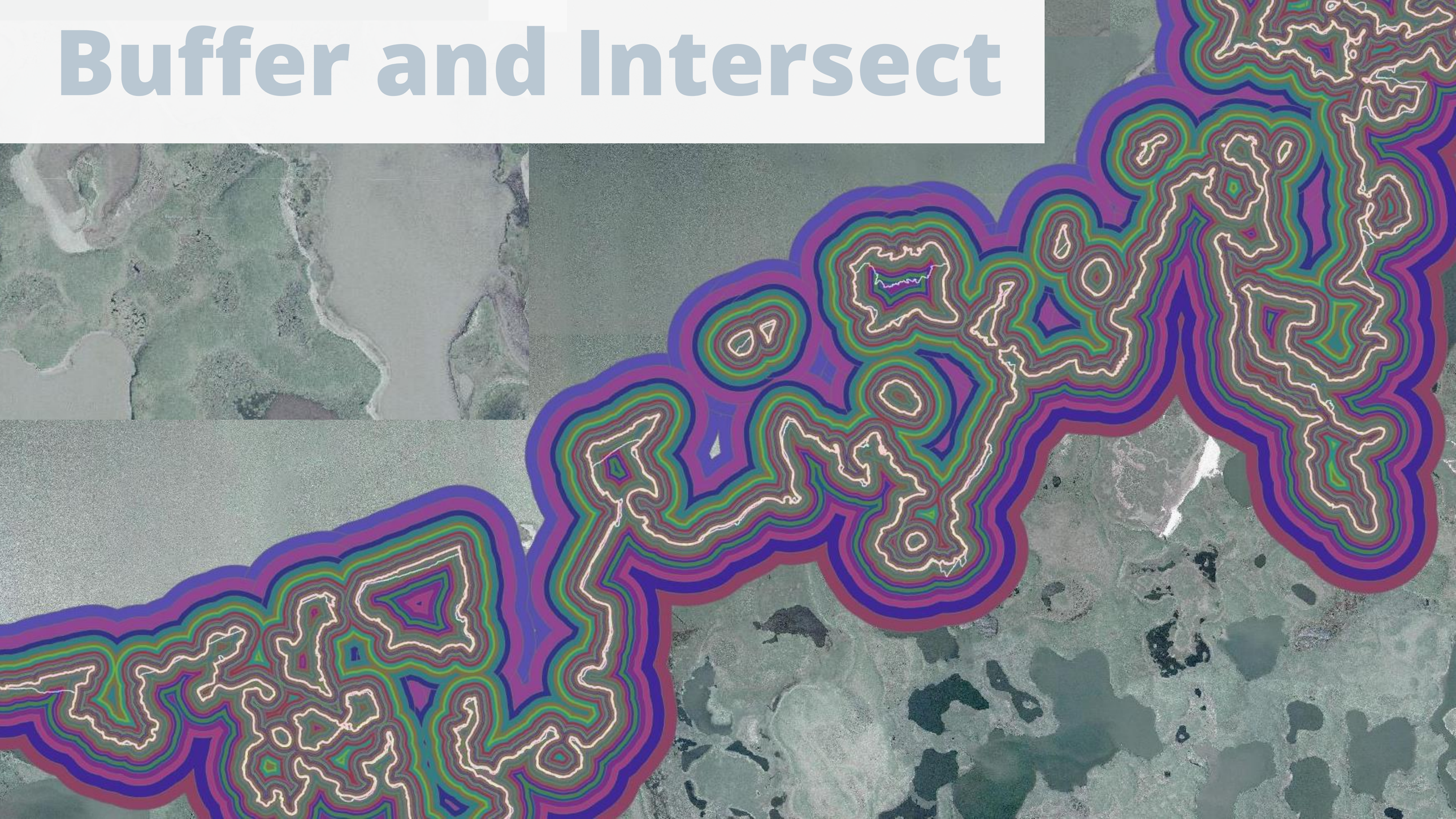
2004 Coastline

1967 Land Edge

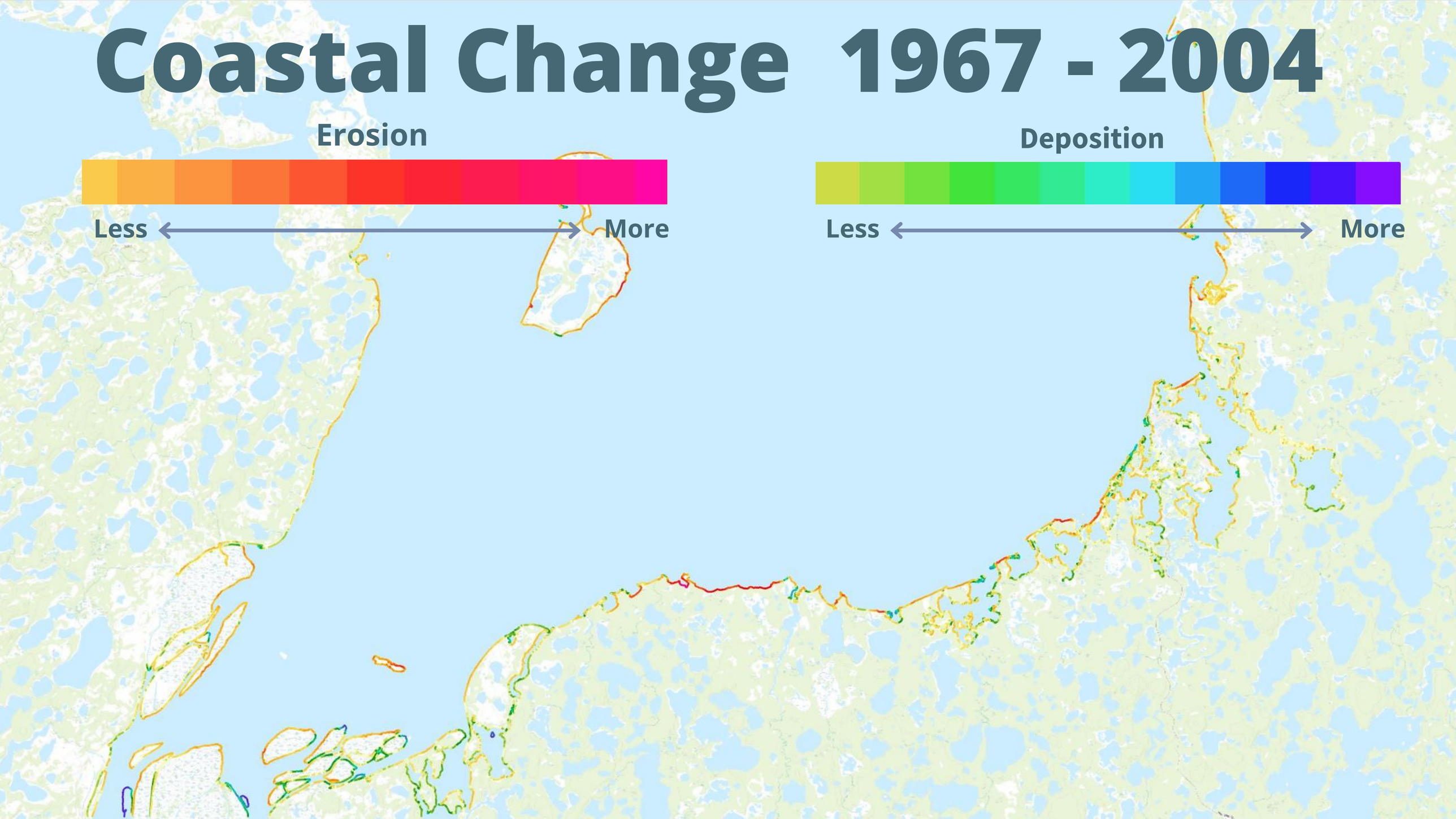
2004 Land Edge

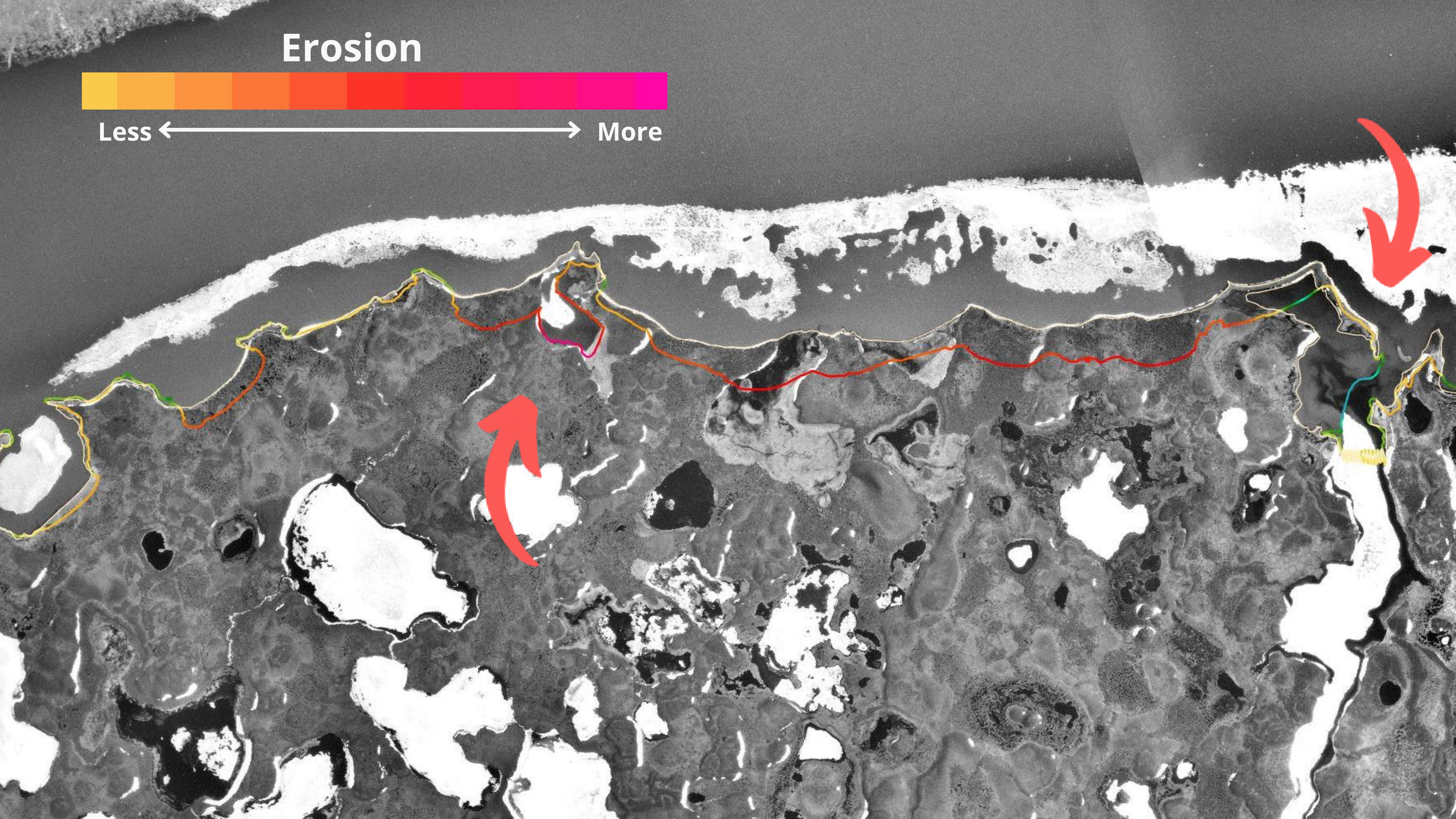


Buffer and Intersect



Coastal Change 1967 - 2004




Erosion
Less
More

Thaw Slumps

Headwall

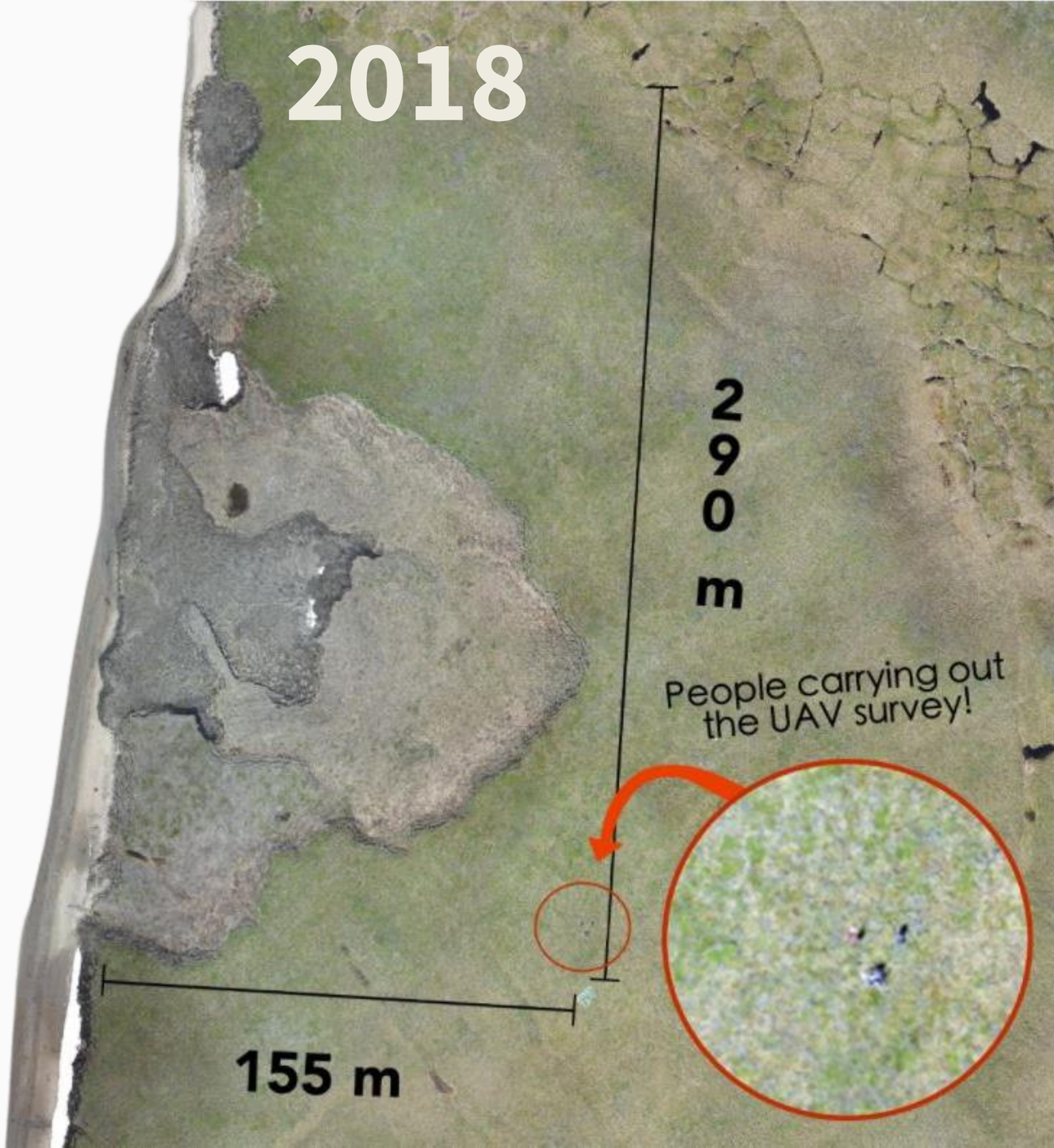
The active edge of the slump, retreating backwards as material thaws

Kugmallit Bay

We have repeated drone surveys each year since 2018*

Galiptut

This slump is to the northeast of Tuktoyaktuk



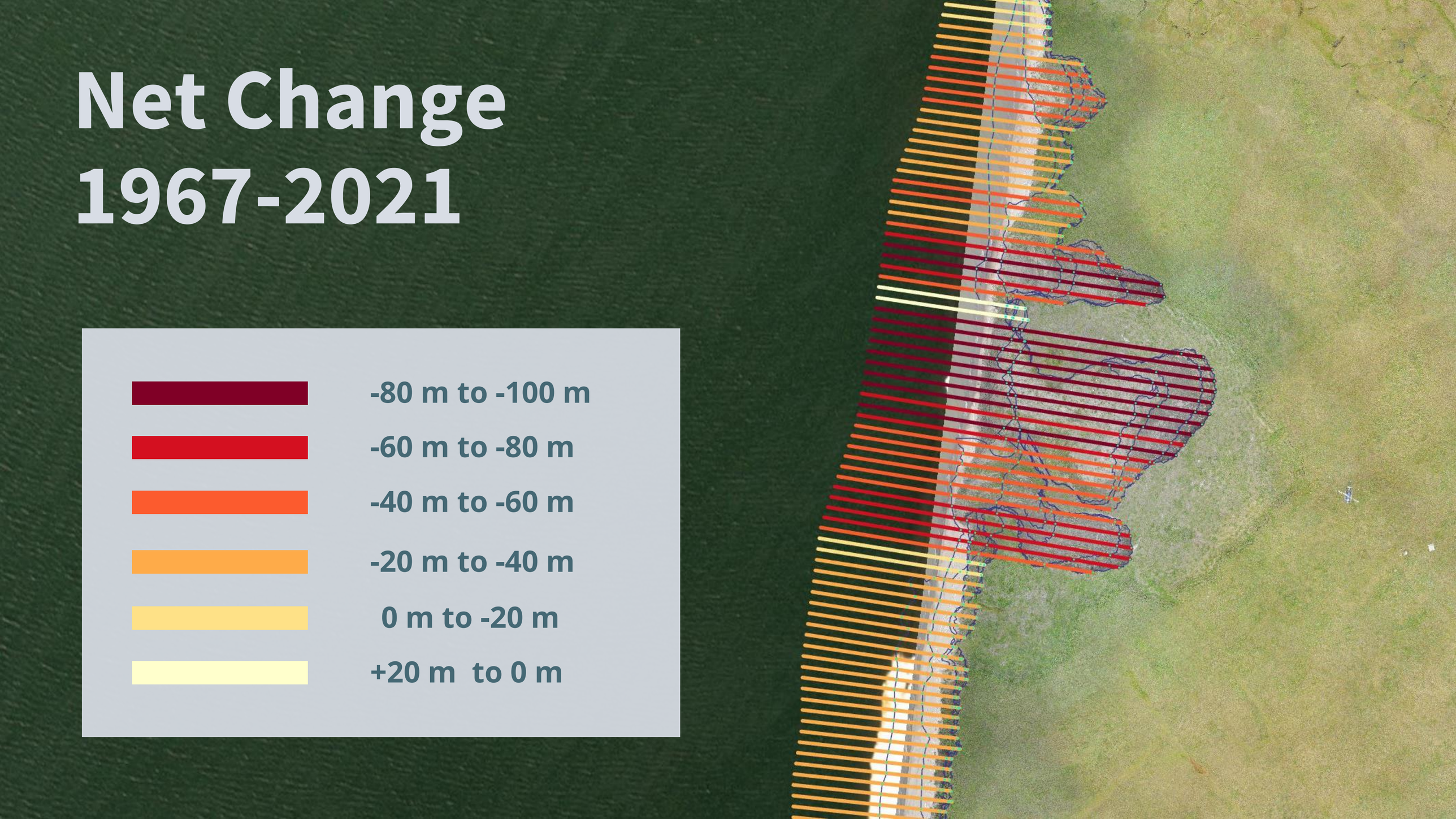
Change Over Time

Galiptut Headwall

Legend

- 1967
- 2004
- 2018
- 2019
- 2020
- 2021

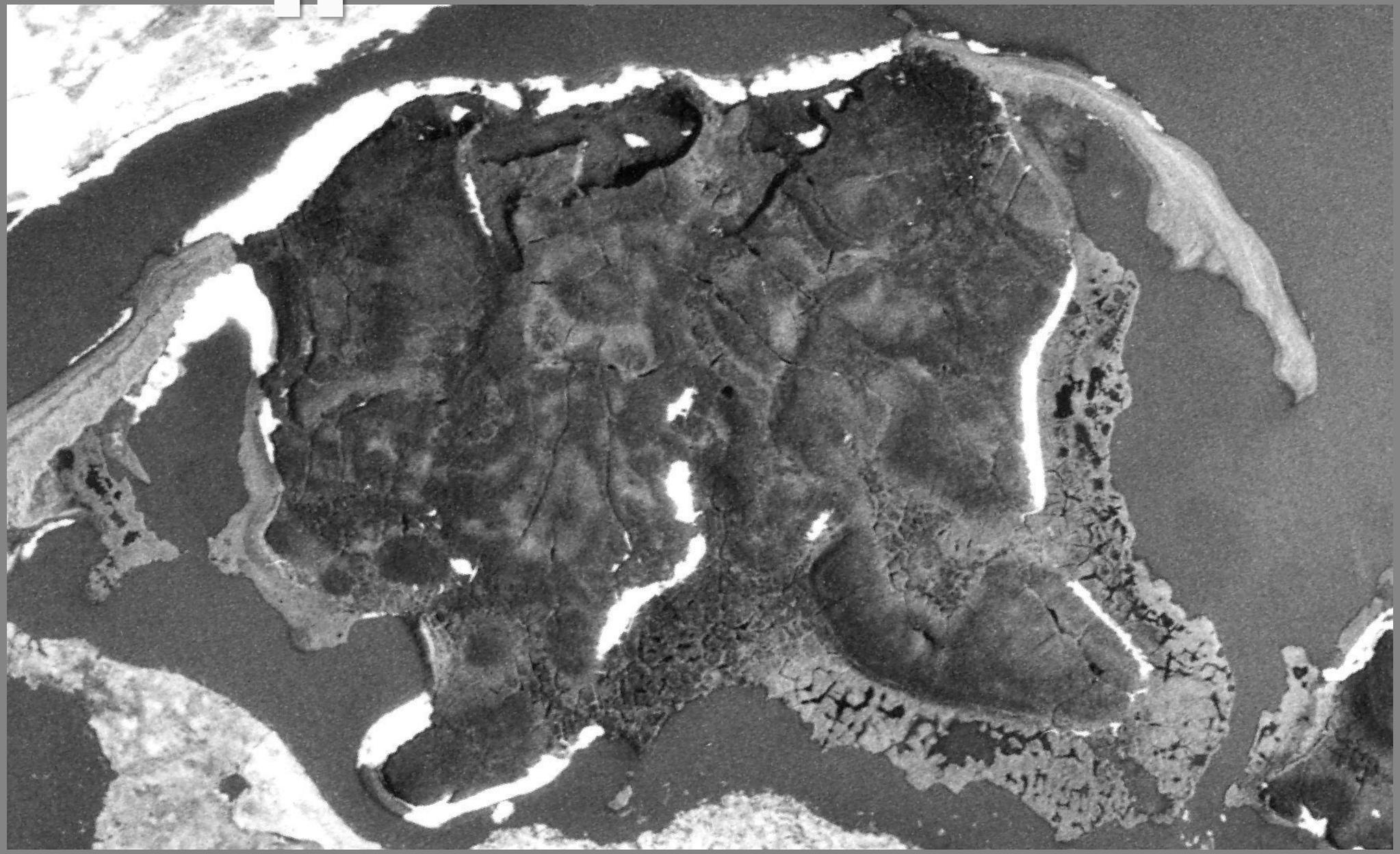
Net Change 1967-2021



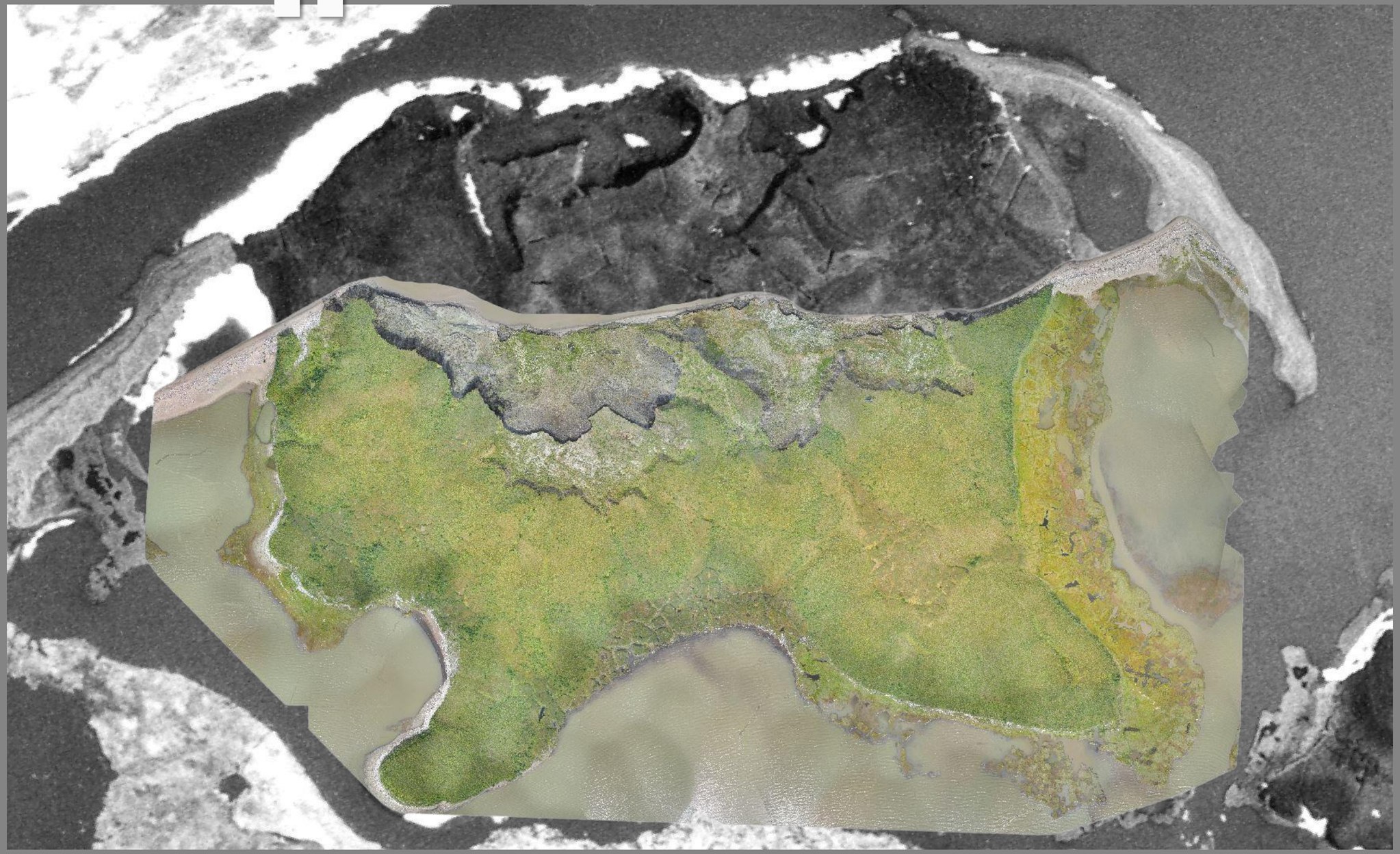
Linear Regression Rate 1967-2021

Linear Regression Rate 2018-2021

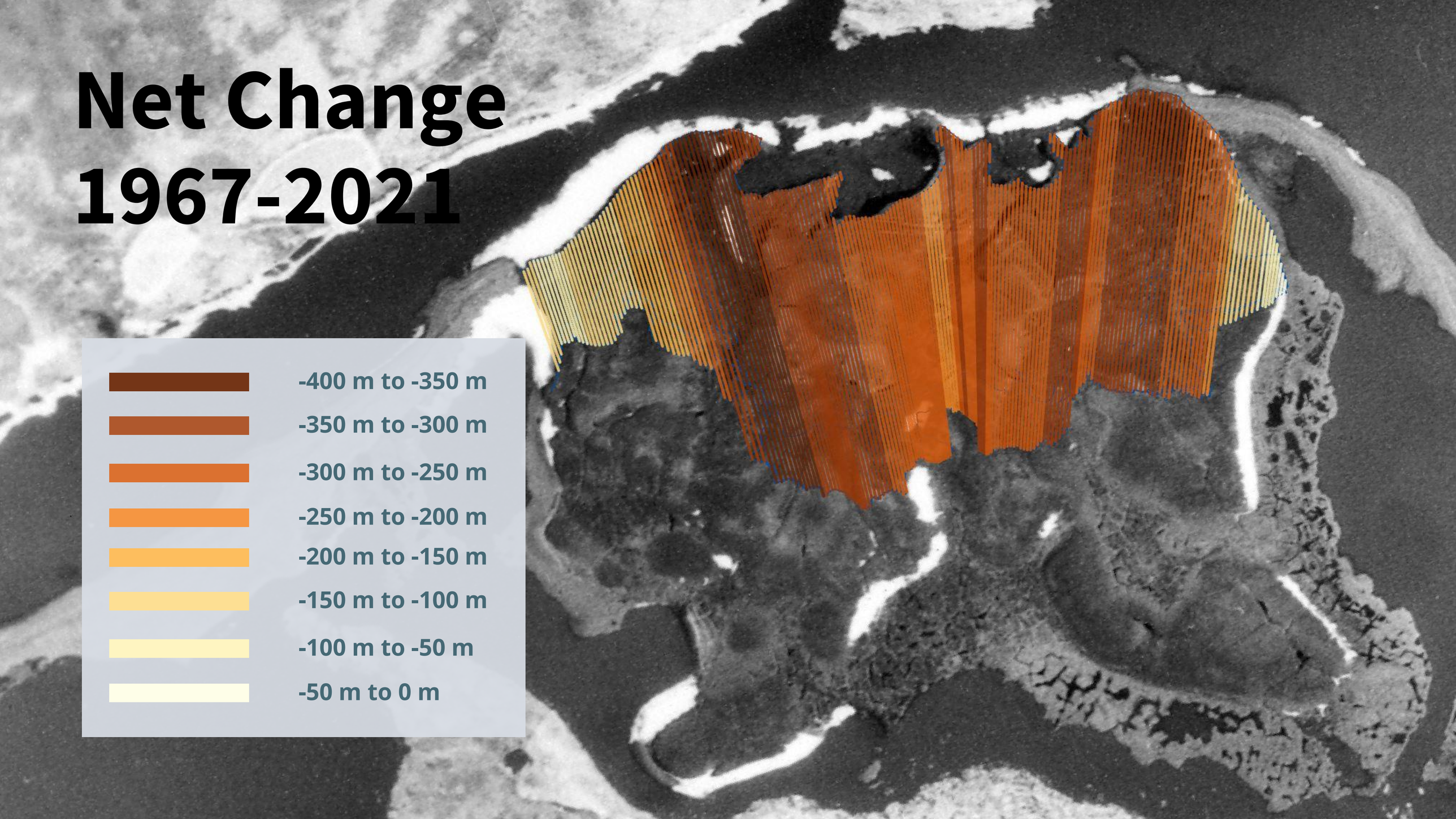
Imnaqpaaluk



Imnaqpaaluk



Net Change 1967-2021

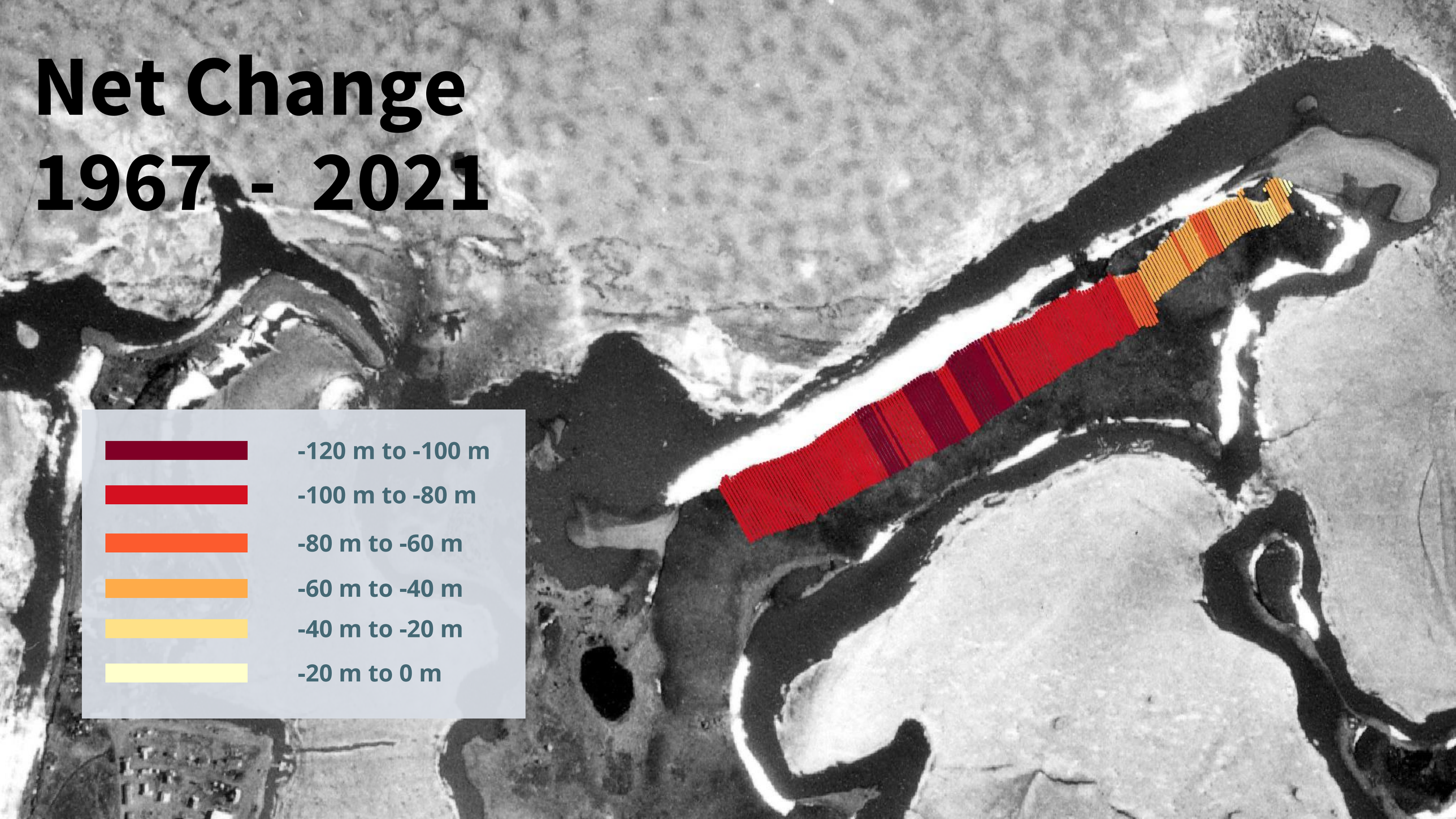


Tuktoyaktuk Island

1967

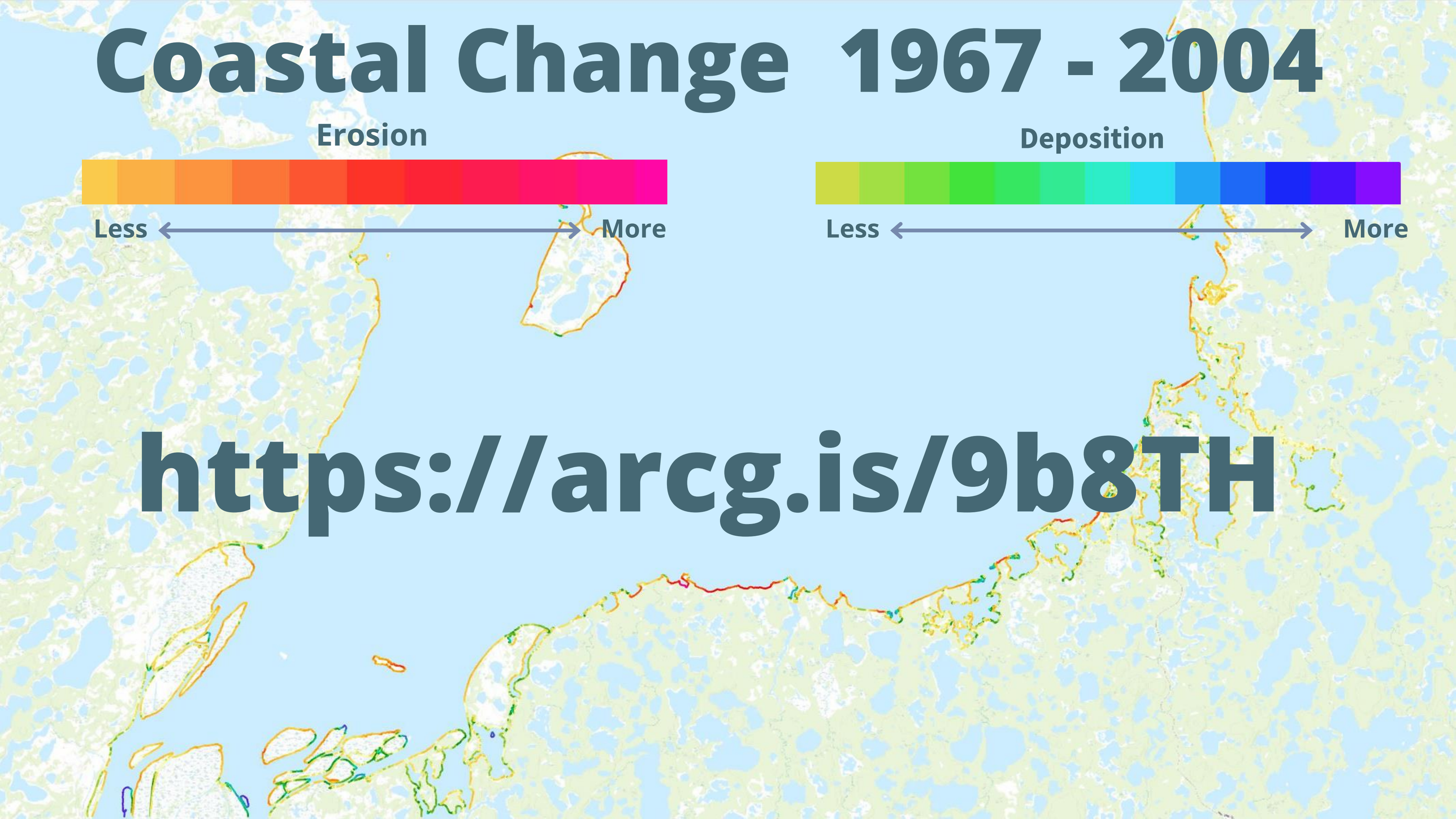
2021

Net Change 1967 - 2021



Linear Regression Rate 1967-2021 & 2004-2021

Coastal Change 1967 - 2004



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Thaw Slump Headwall NWT

3D Model

ARI_GIS

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