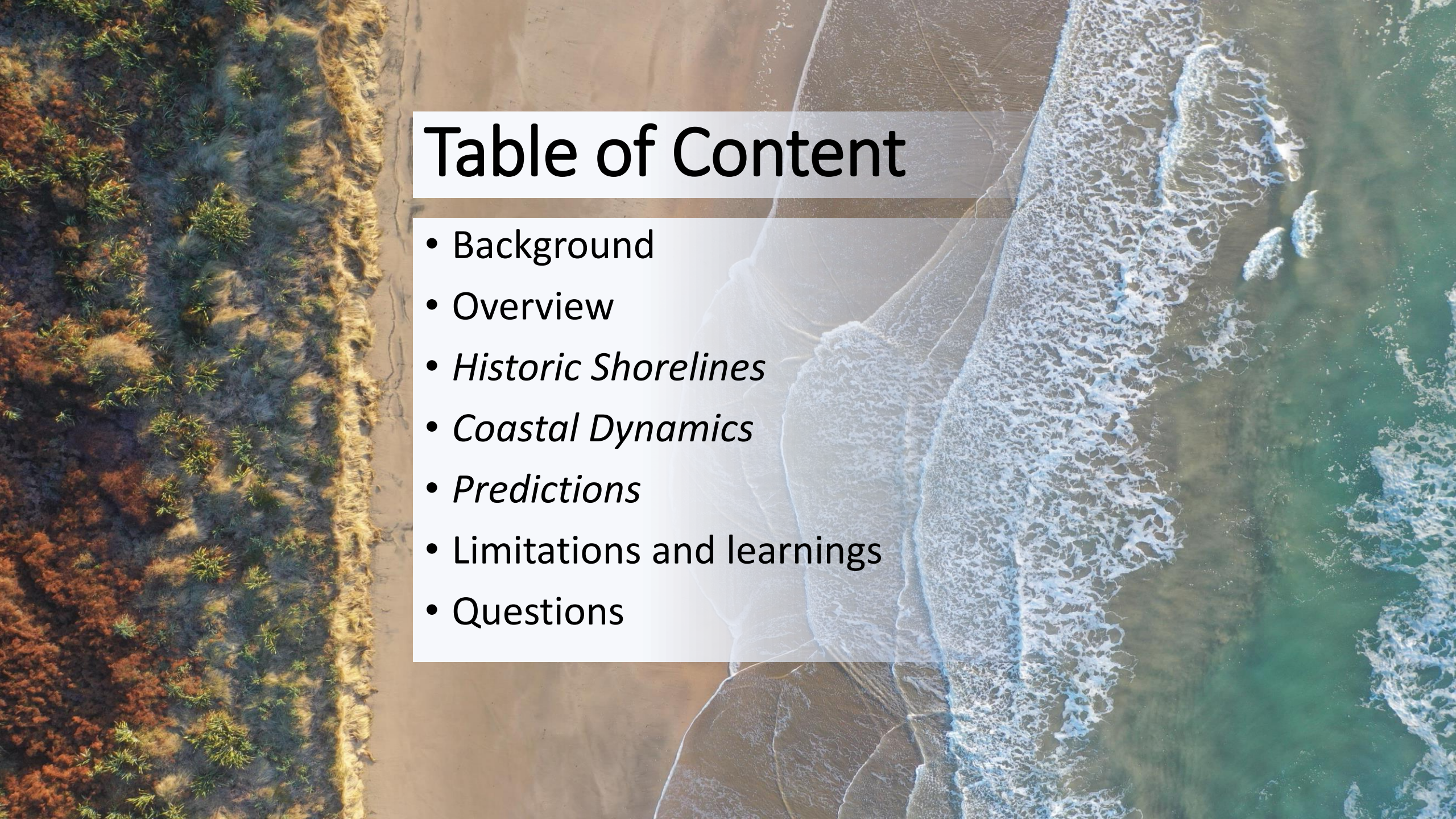
Using Historic Satellite and 3D UAV Imagery to Map the Dynamics of the Coast at Sites with Anthropogenic Debris in Southland, New Zealand

Cassandra Newman

Masters Thesis



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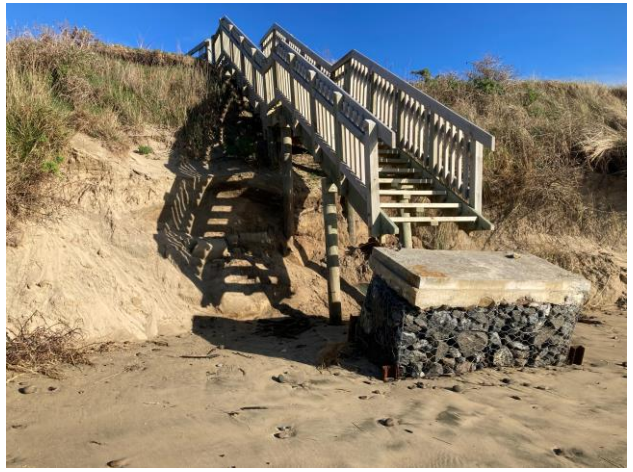
The overall aim of this research was to investigate the ability of a generalised GIS methodology to quantify coastal dynamics at different locations with anthropogenic debris.

GIS = Geographical Information System

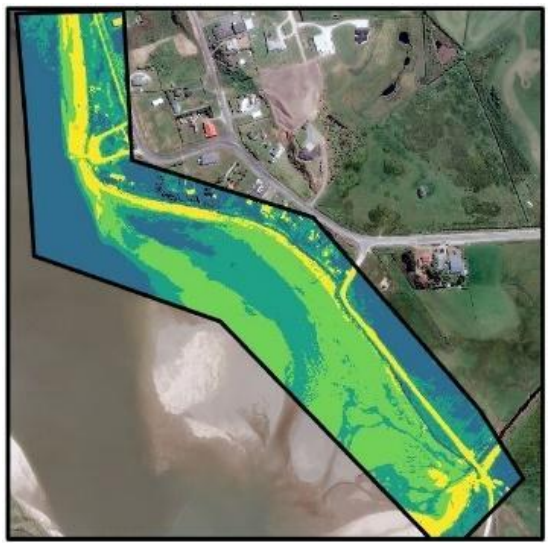


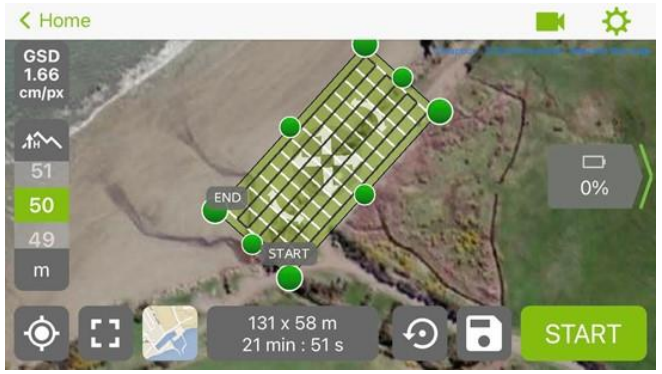
Monkey Island

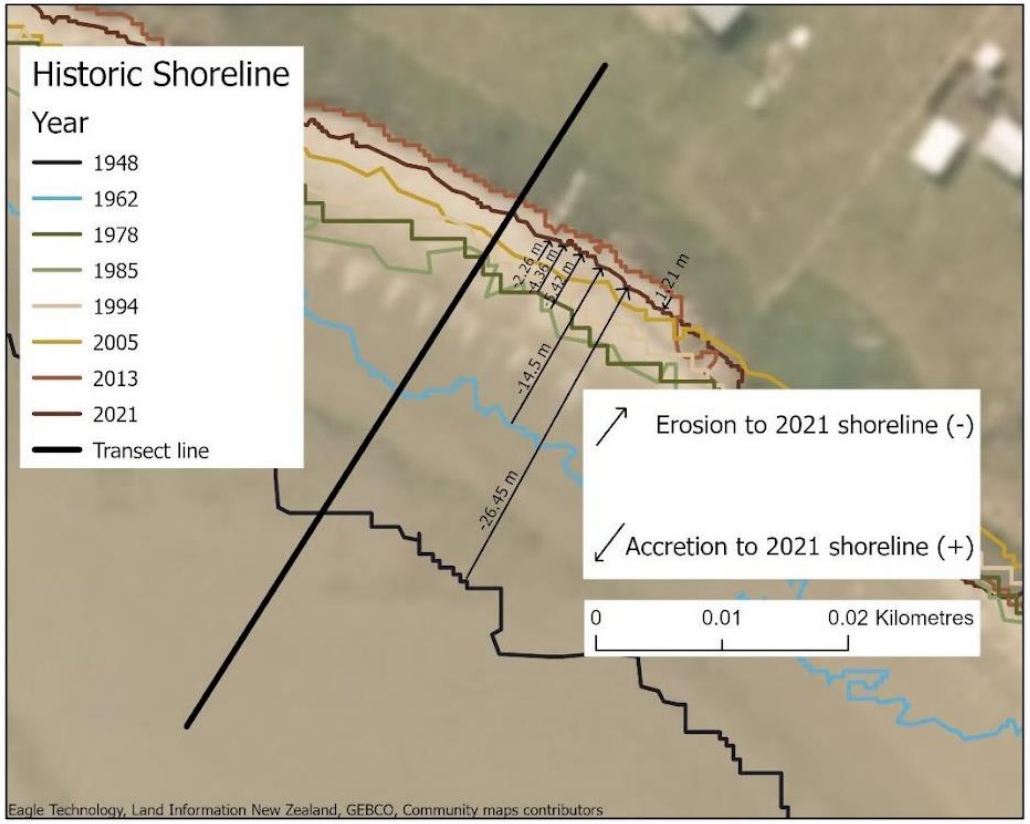
Fortrose

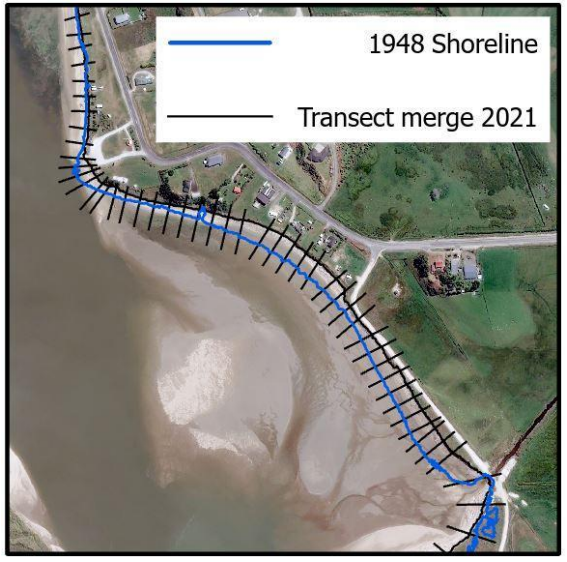
Colac Bay

Porpoise Bay



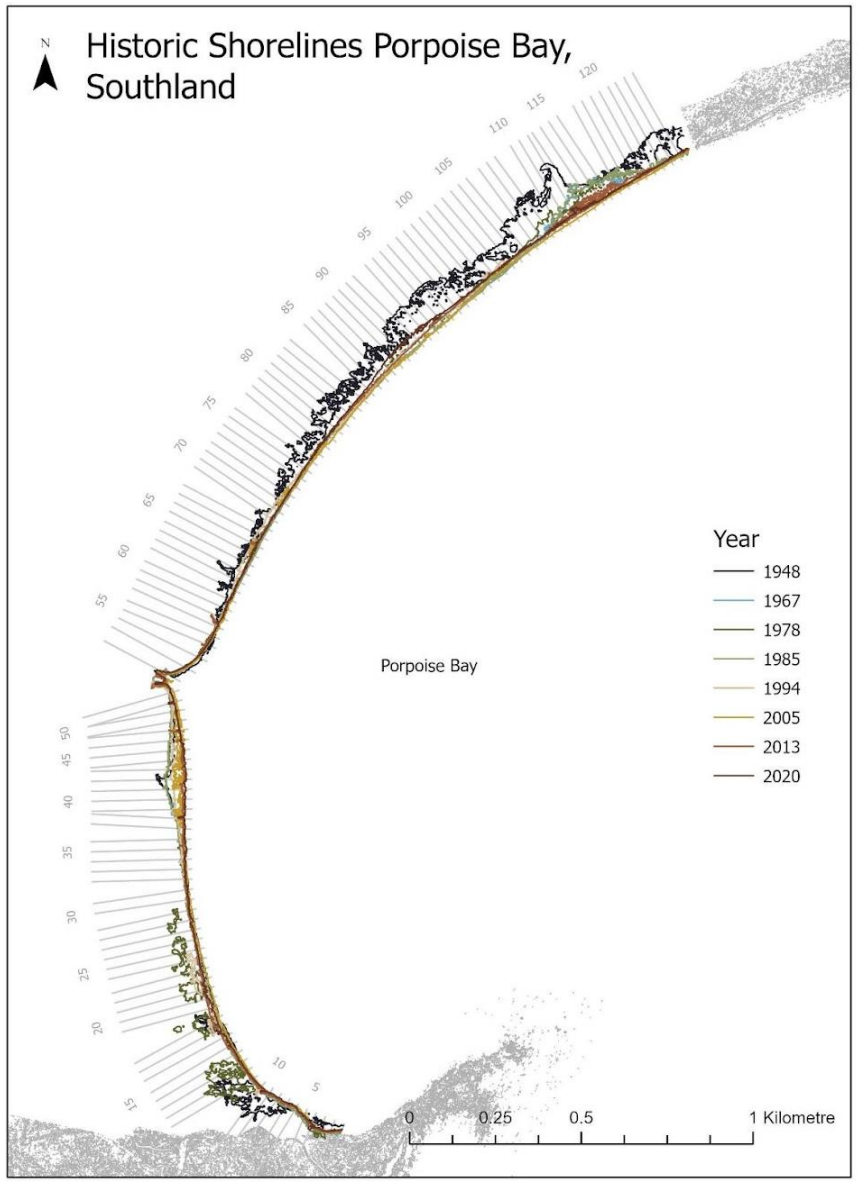

Home
GSD
1.66
cm/px
51
50
49
m
END
START
0%
131 x 58 m
21 min : 51 s
START

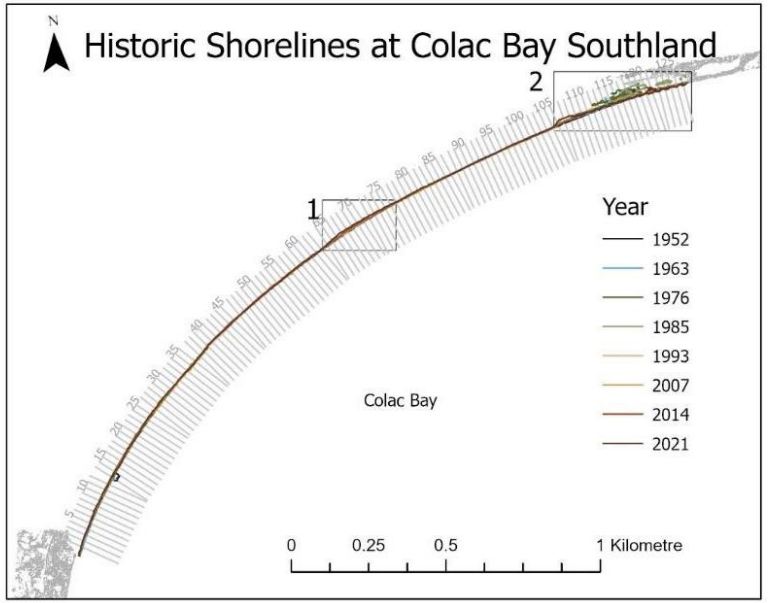

Historic Shoreline
Year
1948
1962
1978
1985
1994
2005
2013
2021
Transect line
-2.26 m
-3.24 m
-3.41 m
-1.21 m
-14.5 m
-26.45 m
Erosion to 2021 shoreline (-)
Accretion to 2021 shoreline (+)
0
0.01
0.02 Kilometres
Eagle Technology, Land Information New Zealand, GEBCO, Community maps contributors

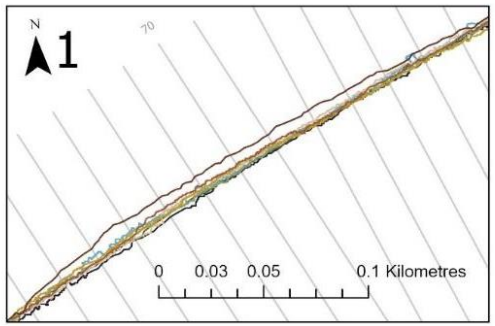

1948 Shoreline
Transect merge 2021

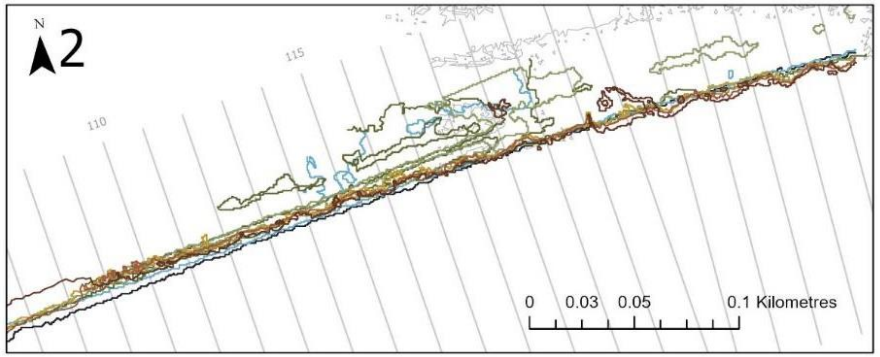
Transect 1948 - 2021

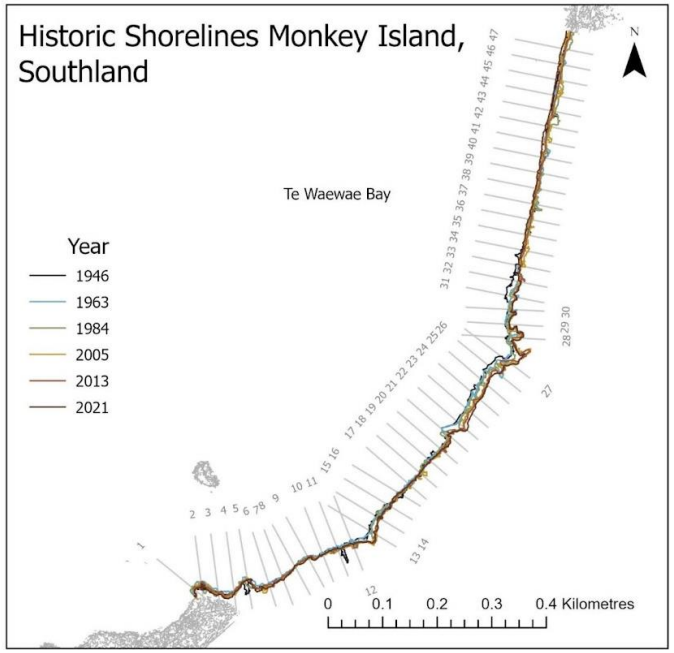
Historic Shorelines

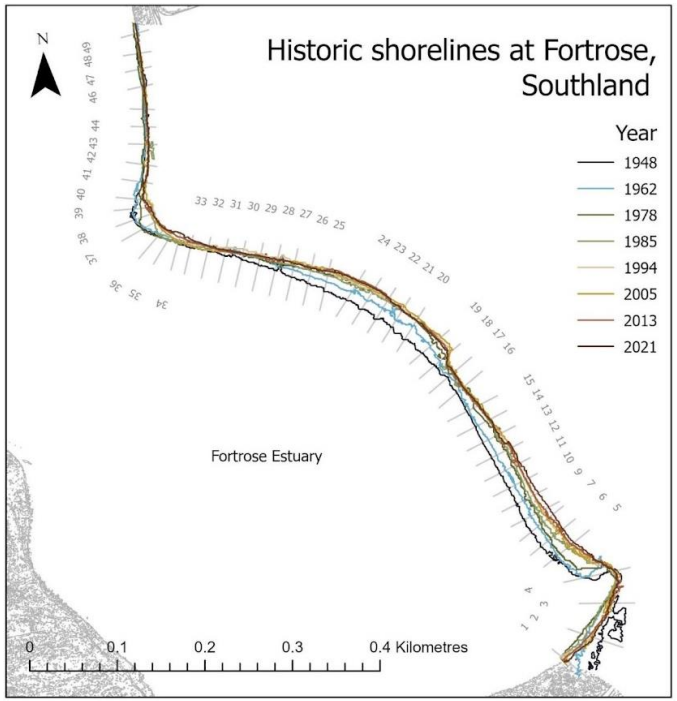




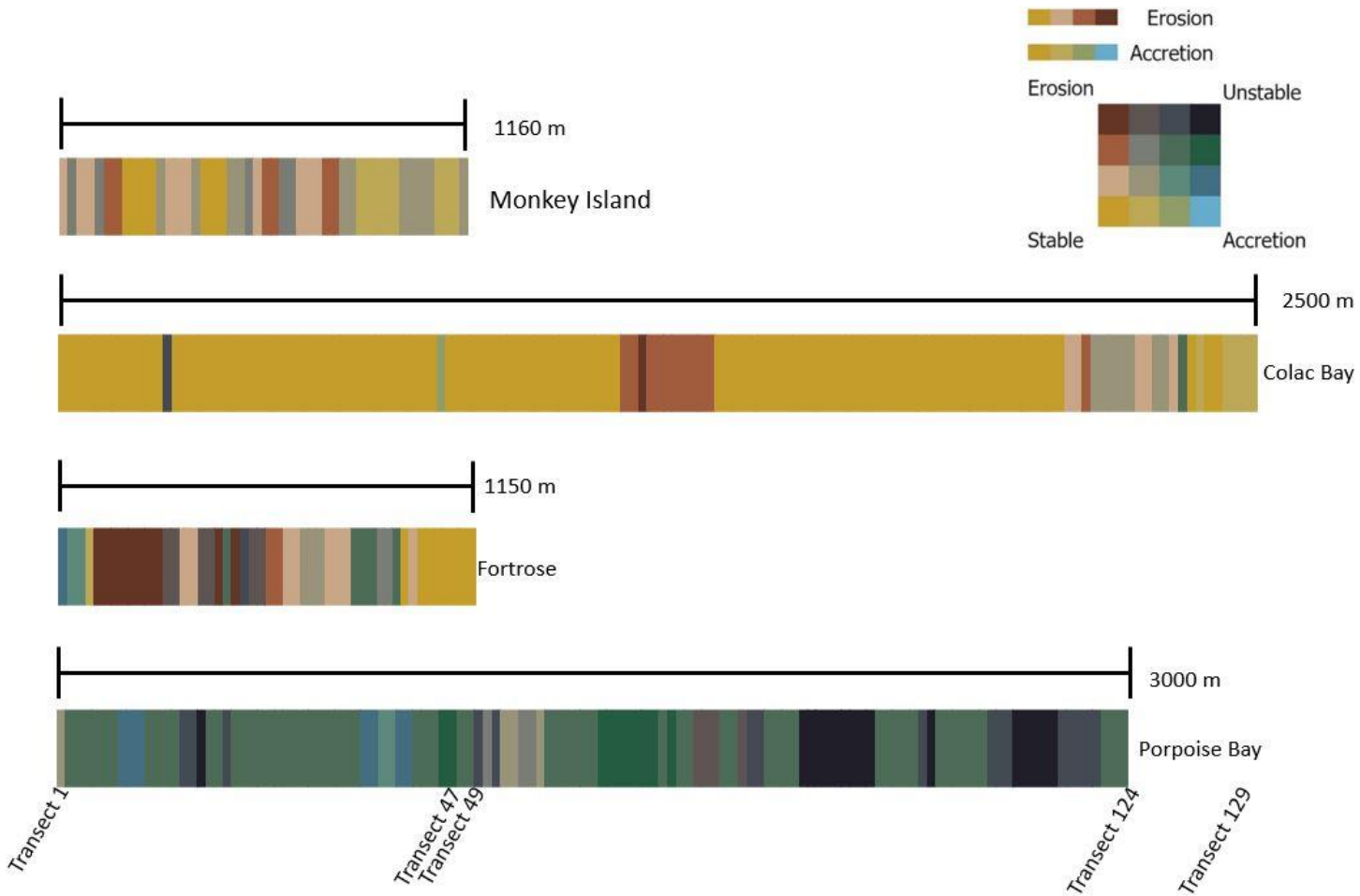


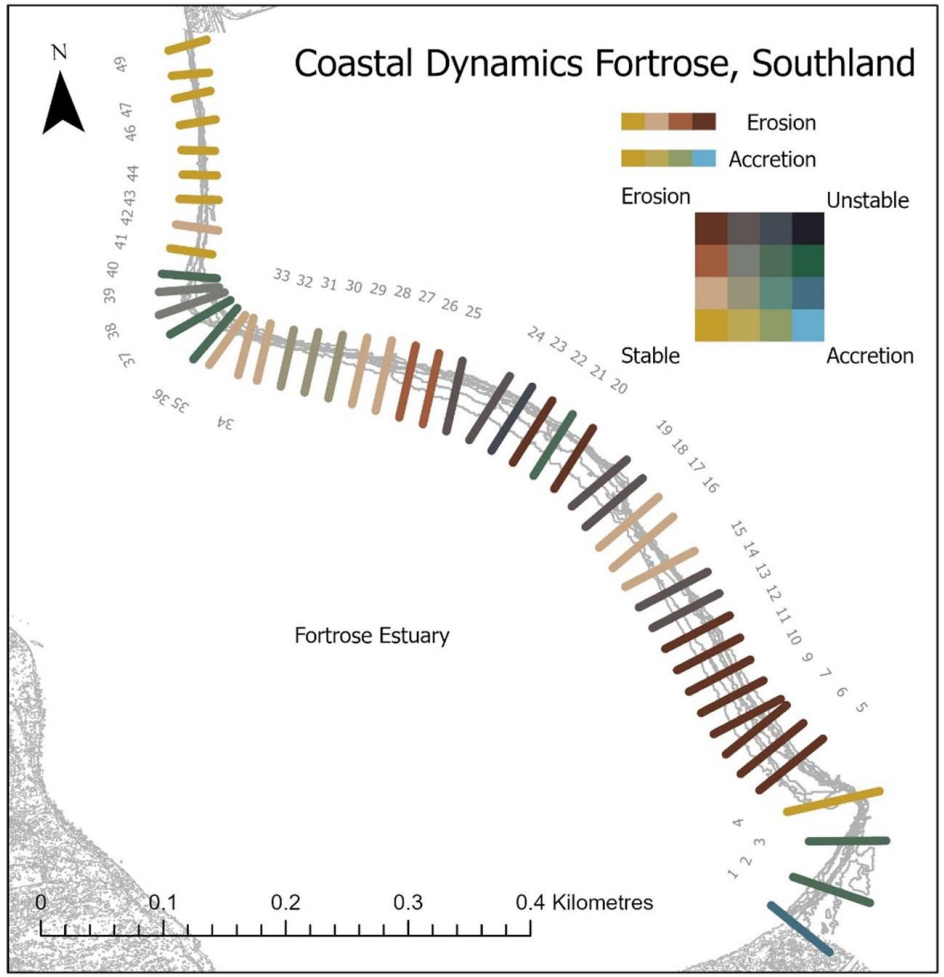




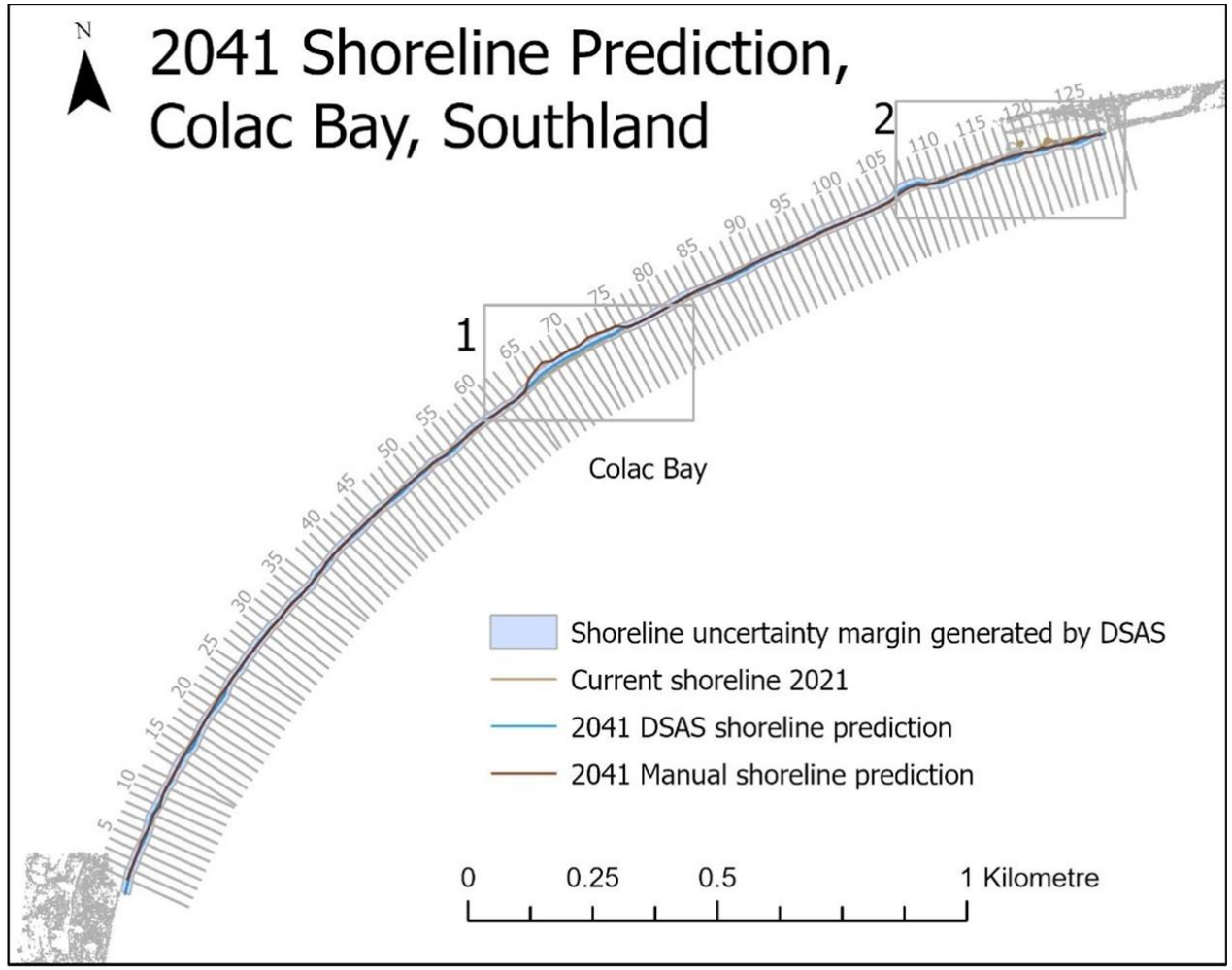


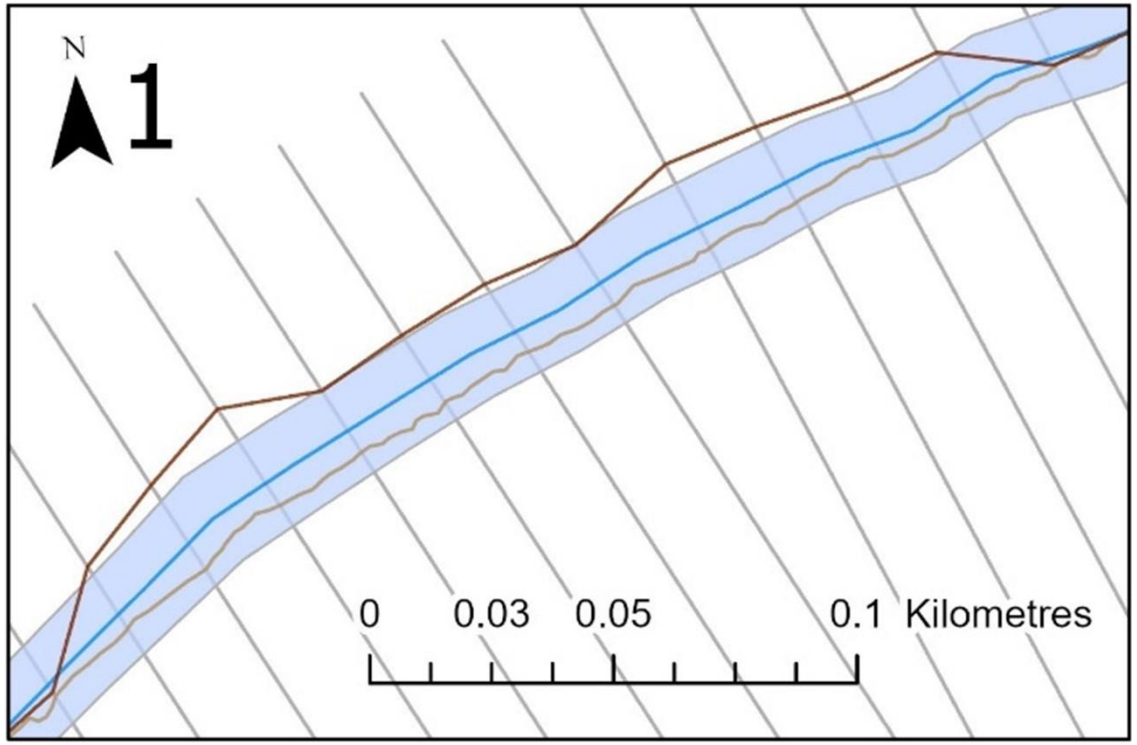
Coastal Dynamics



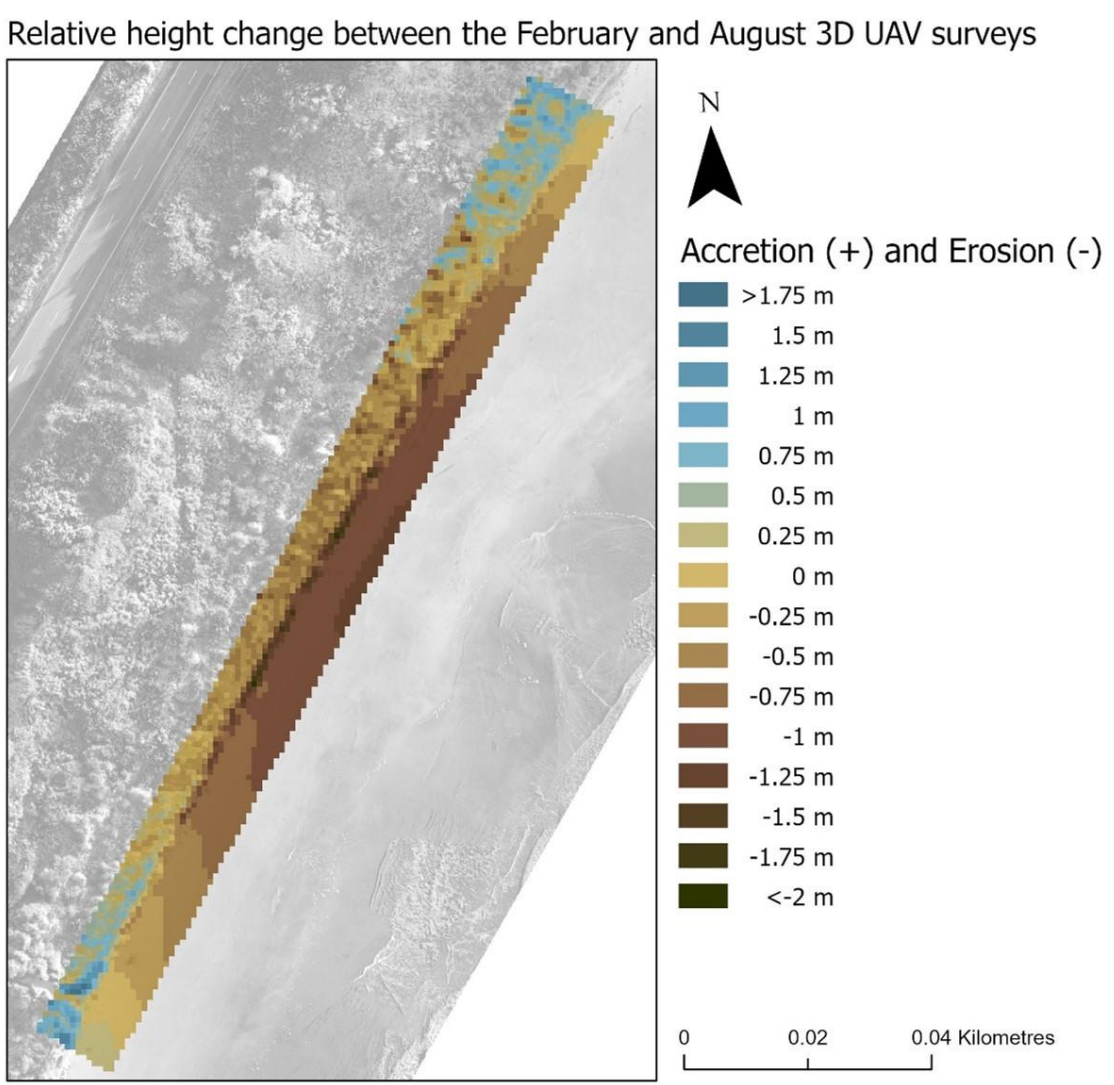


Predictions

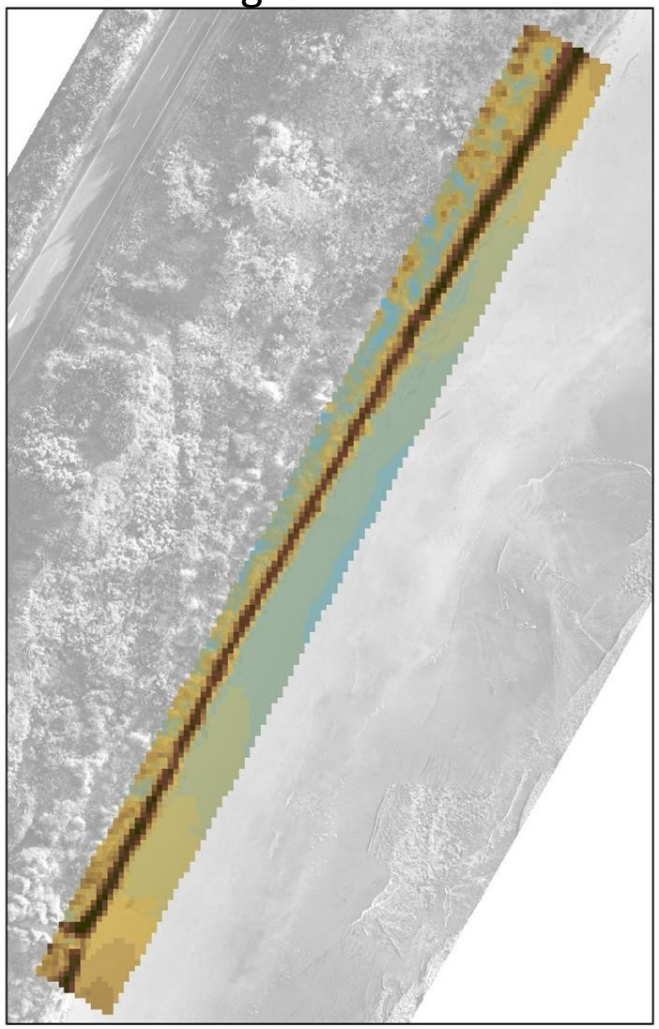




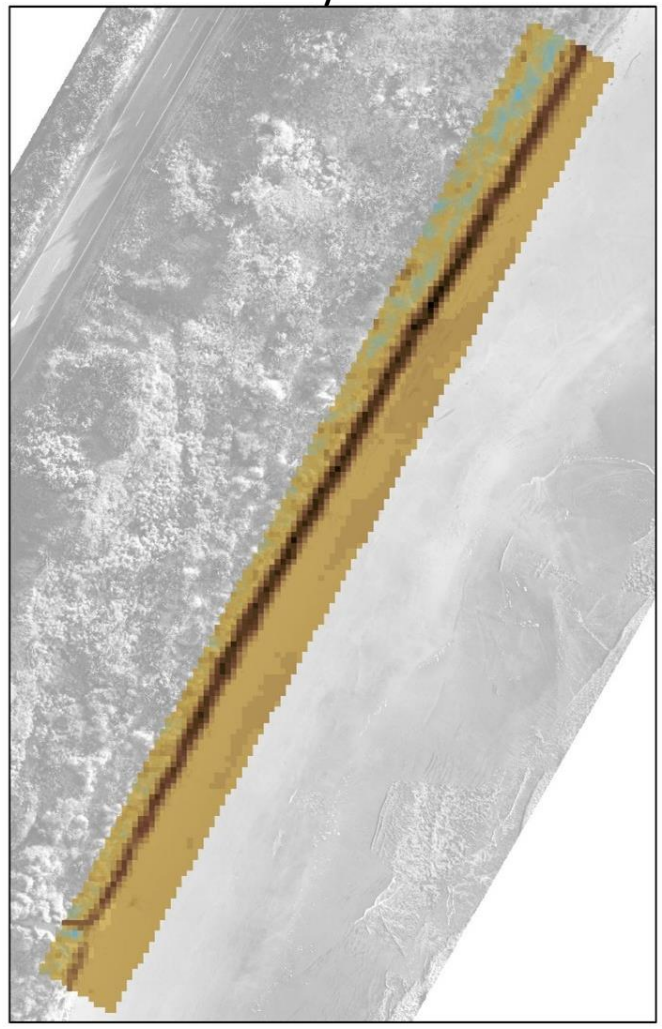
Volumetric Change

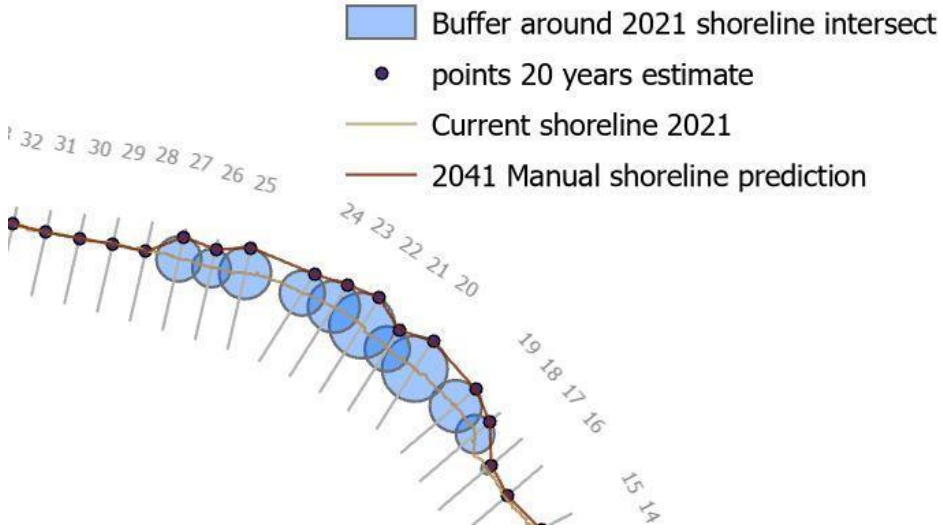


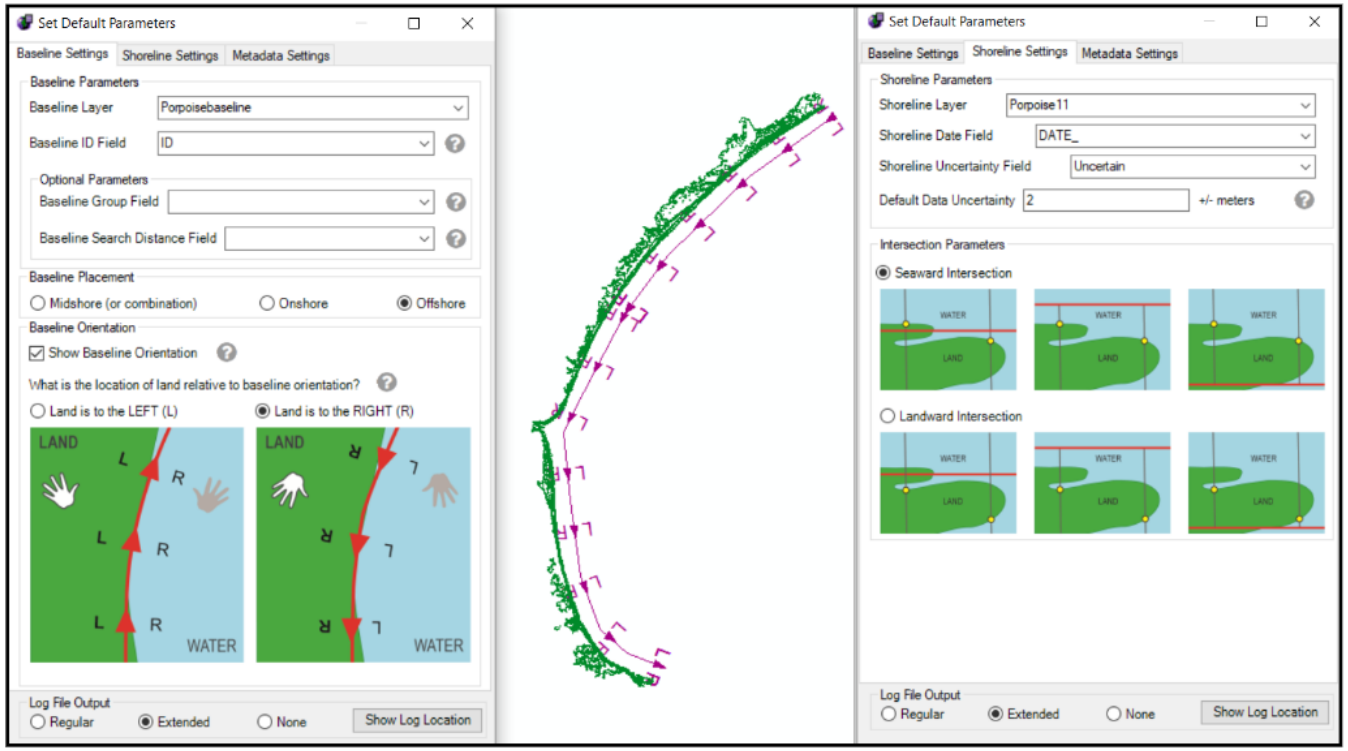
August to December



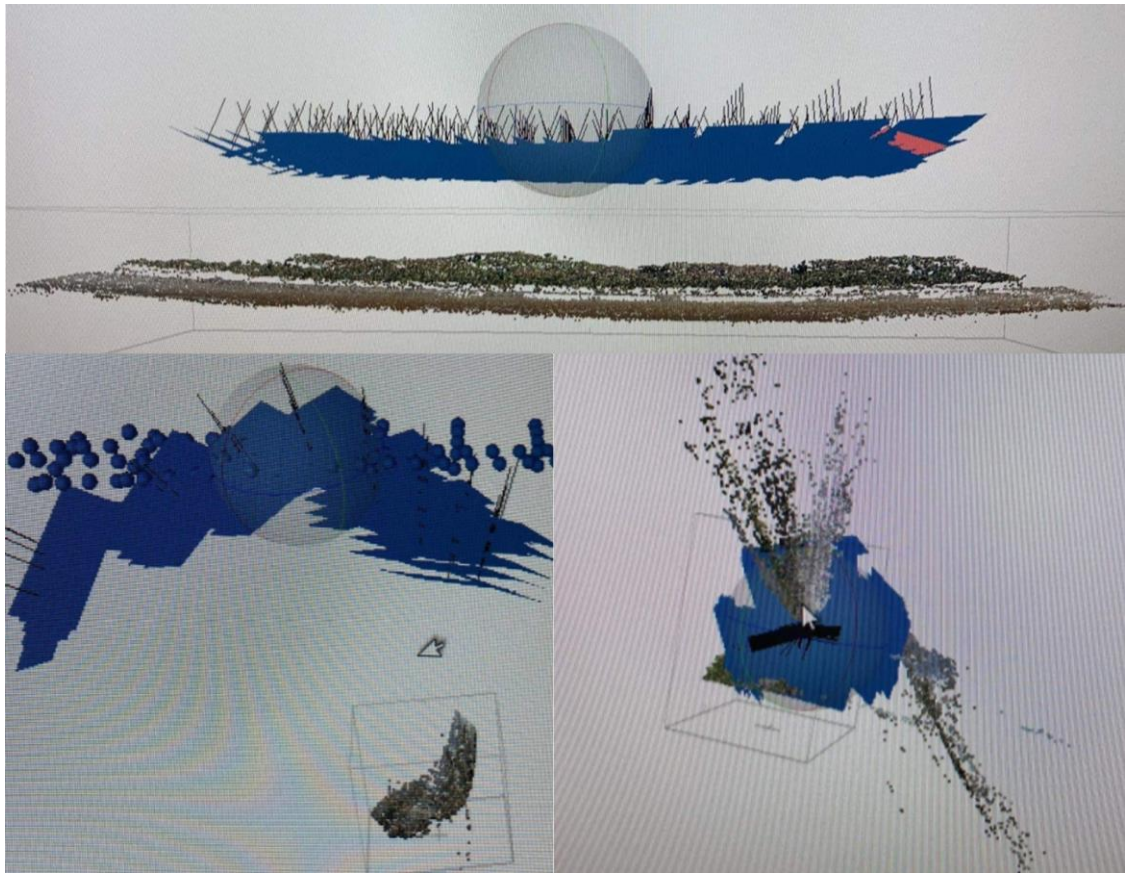
February to December




Buffer around 2021 shoreline intersect
points 20 years estimate
Current shoreline 2021
2041 Manual shoreline prediction
32 31 30 29 28 27 26 25
24 23 22 21 20
19 18 17 16
15 14


Set Default Parameters
Baseline Settings
Shoreline Settings
Metadata Settings
Baseline Parameters
Baseline Layer
Porpoisebaseline
Baseline ID Field
ID
Optional Parameters
Baseline Group Field
Baseline Search Distance Field
Baseline Placement
Midshore (or combination)
Onshore
Offshore
Baseline Orientation
Show Baseline Orientation
What is the location of land relative to baseline orientation?
Land is to the LEFT (L)
Land is to the RIGHT (R)
LAND
WATER
Log File Output
Regular
Extended
None
Show Log Location

Set Default Parameters
Baseline Settings
Shoreline Settings
Metadata Settings
Shoreline Parameters
Shoreline Layer
Porpoise11
Shoreline Date Field
DATE_
Shoreline Uncertainty Field
Uncertain
Default Data Uncertainty
2
+/- meters
Intersection Parameters
Seaward Intersection
Landward Intersection
WATER
LAND
Log File Output
Regular
Extended
None
Show Log Location



Questions?