



**CLIMATE CHANGE:
2021 and Beyond**

Preparing our communities for the future.

Great Lakes and St. Lawrence Cities Initiative Presents:

Understanding Climate Change – Physical Changes in the
Region Over the Next Century

Understanding Shoreline Behaviour and Erosion

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Shoreline erosion is a natural process

- Periods of erosion and deposition
- Source areas, transport pathways, accumulation zones
- Temporal and spatial perspectives
- Holistic - connected and dynamic (constantly changing)
- Shoreline behaves according to the setting and conditions



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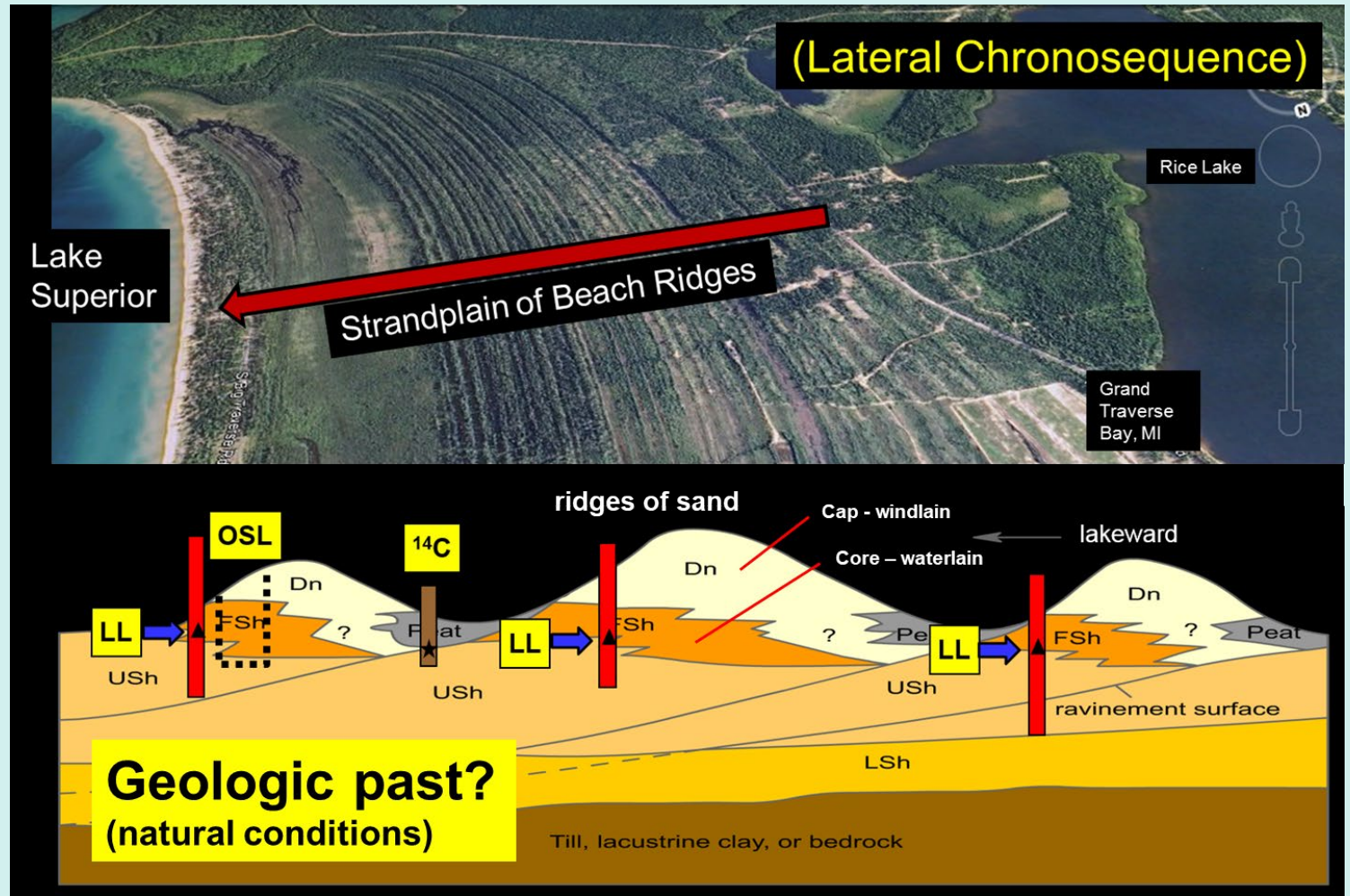
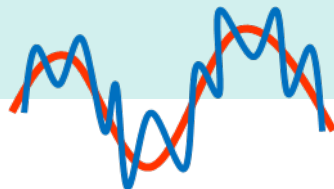


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Geologists found patterns of shorelines

Superimposed Patterns

- Decadal (individual ridges)
- Centennial (groups of ridges)
- Millennial (sets of ridges)



Summary of Great Lakes Shoreline Research - Johnston and others (2014) <http://dx.doi.org/10.1144/SP388.22>

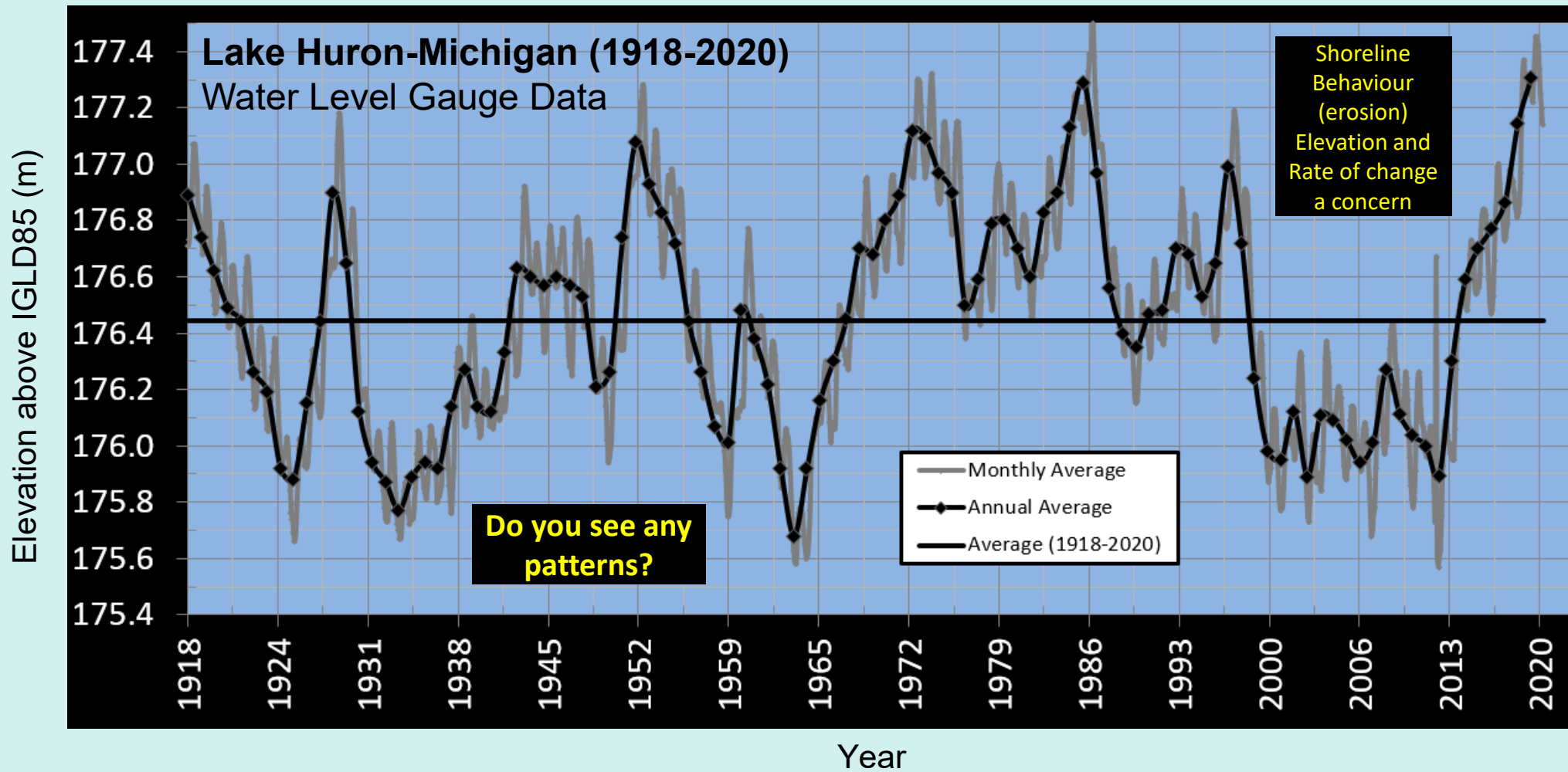


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Natural variation and Human influence



High Lake Level



Low Lake Level



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Climate Change and Human Activity

➤ Expect variability and extremes

- ✓ Change in frequency and magnitude, intensify
- ✓ Impact LL, sediment supply, waves, currents...

➤ Relatively high LL, trending upwards

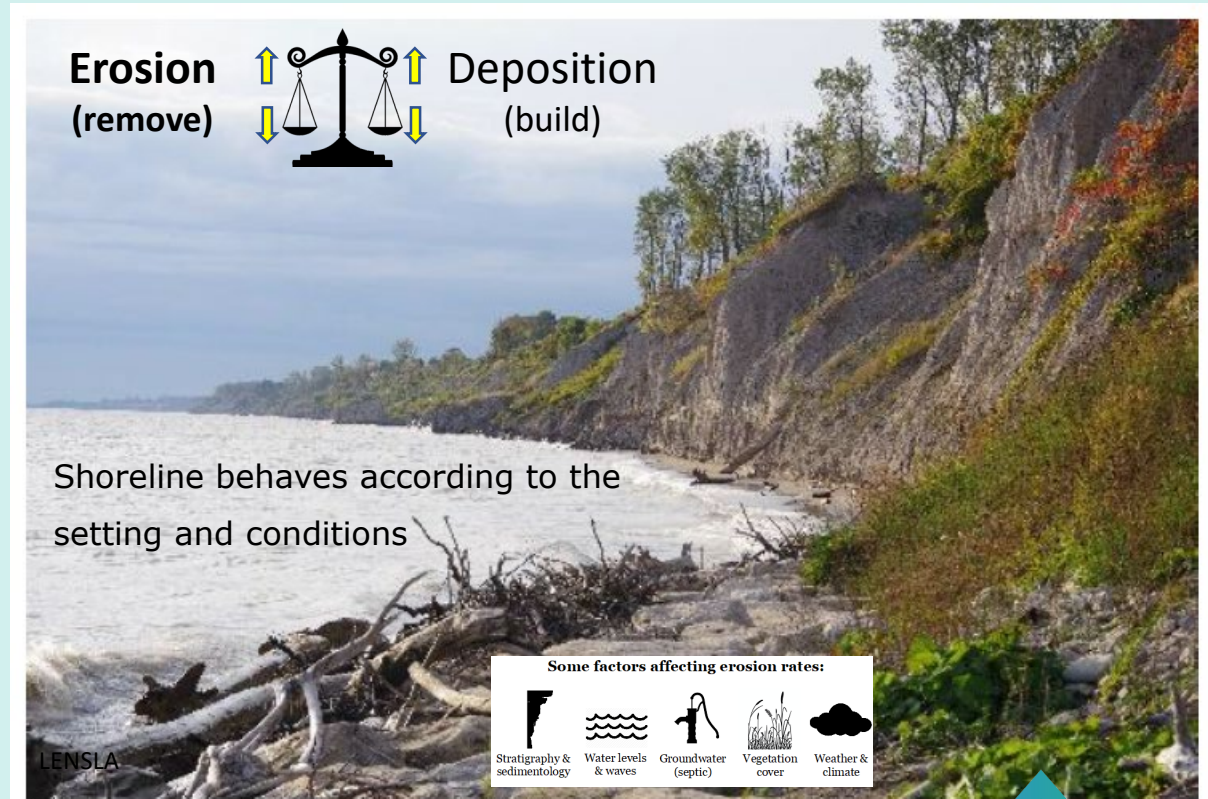
- ✓ Elevation and rates of change concerning

➤ Reduction in Sediment Supply

- ✓ Dams in rivers, structures along shoreline
- ✓ Human Behaviour impacts Shoreline Behaviour
- ✓ Designate erosion areas, transport pathways, accumulation zones

➤ Coordinated effort, holistic approach

- ✓ Think about your neighbor, account for short- and long-term, be flexible



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