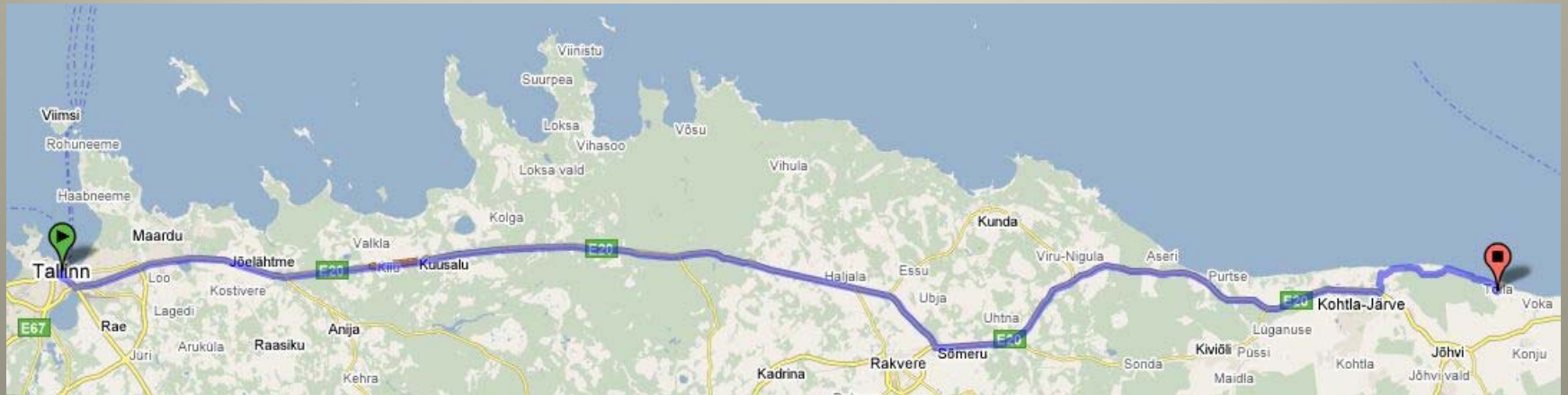


# EFFECT OF A SMALL BRAKEWATER ON COASTAL EVOLUTION

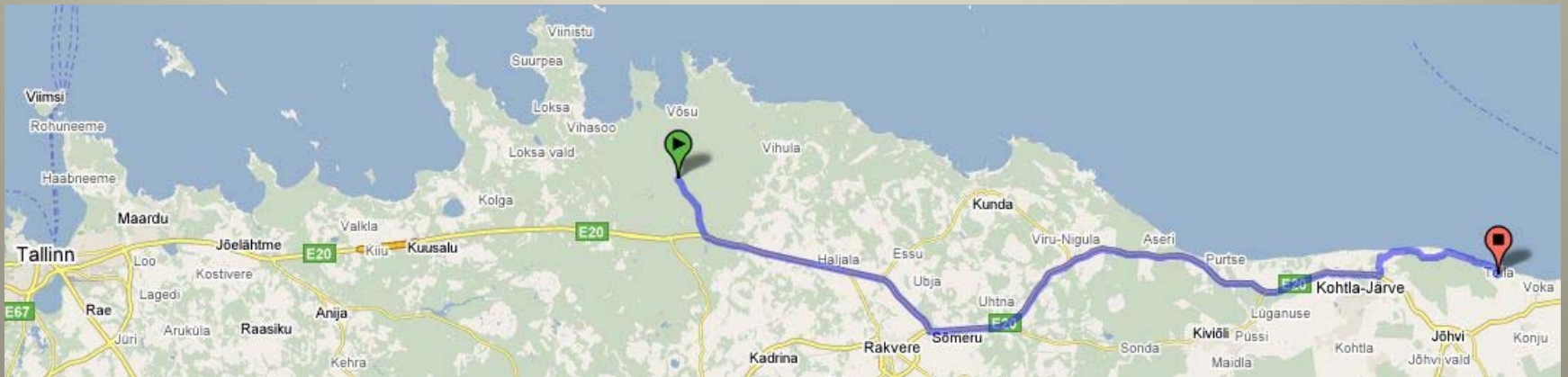
Andres Kask

Faculty of Civil Engineering  
at Tallinn University of Technology

# Tallinn to Toila 170 km



# Palmse to Toila 104 km

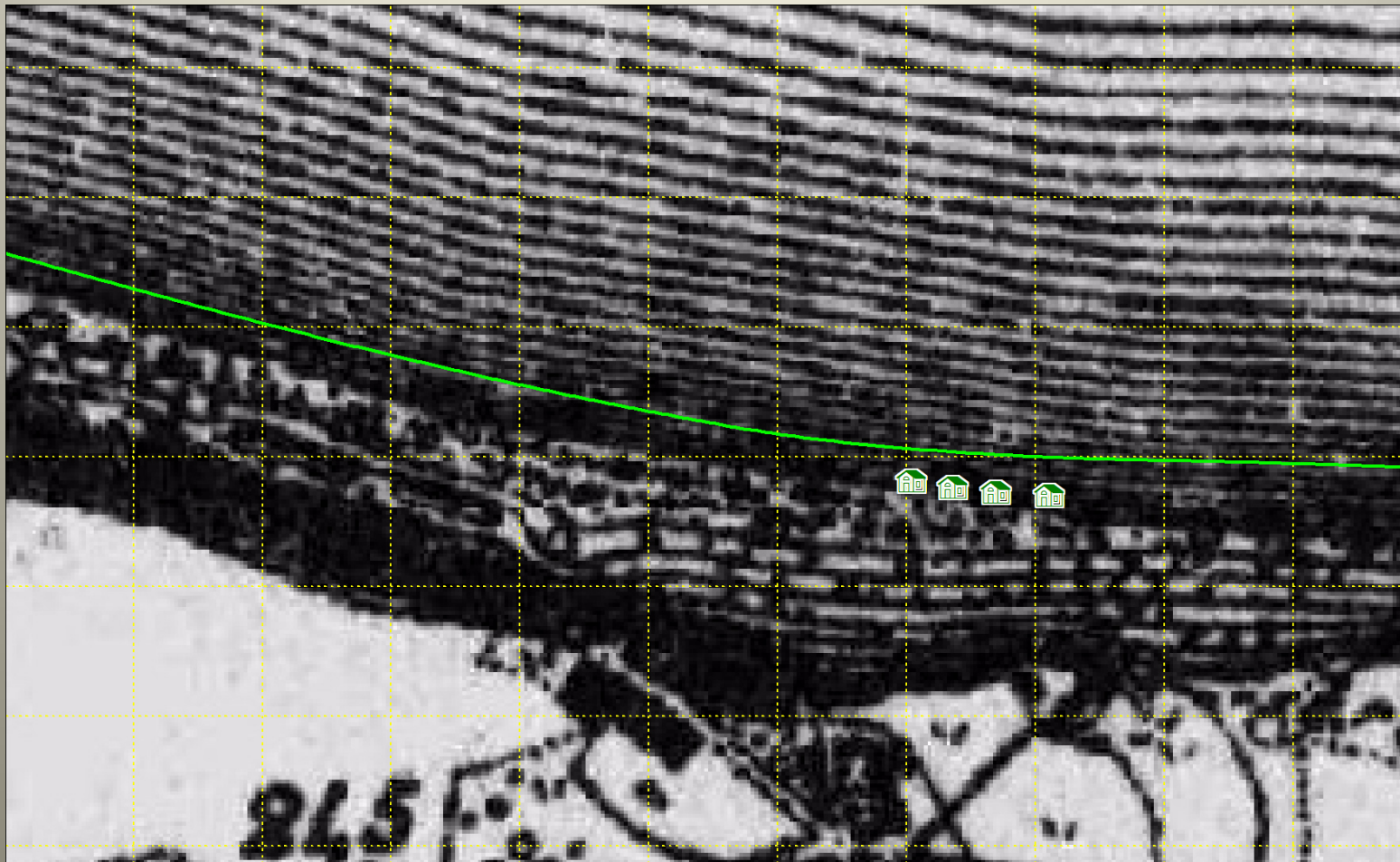


1910

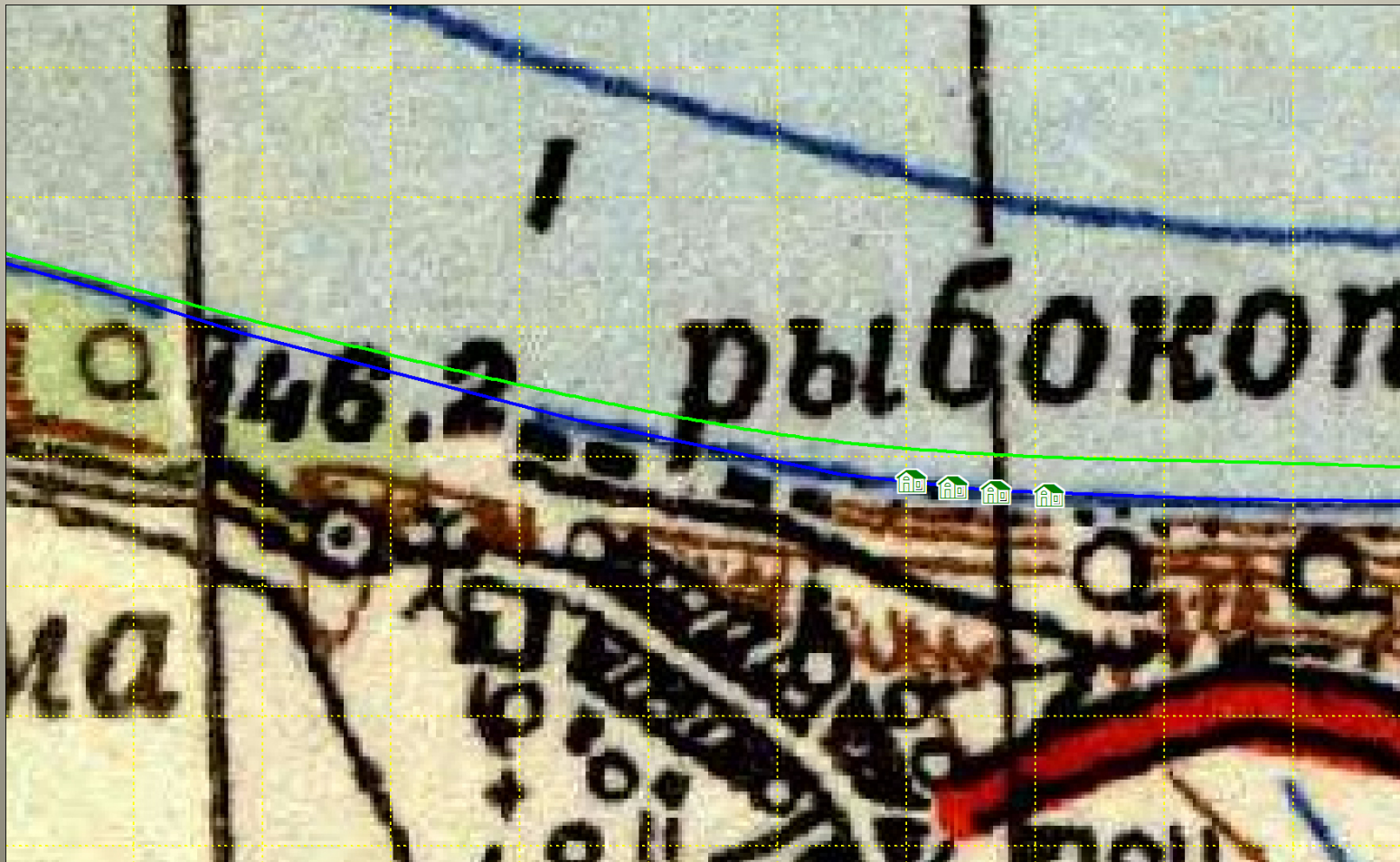




# 1891 ...1912

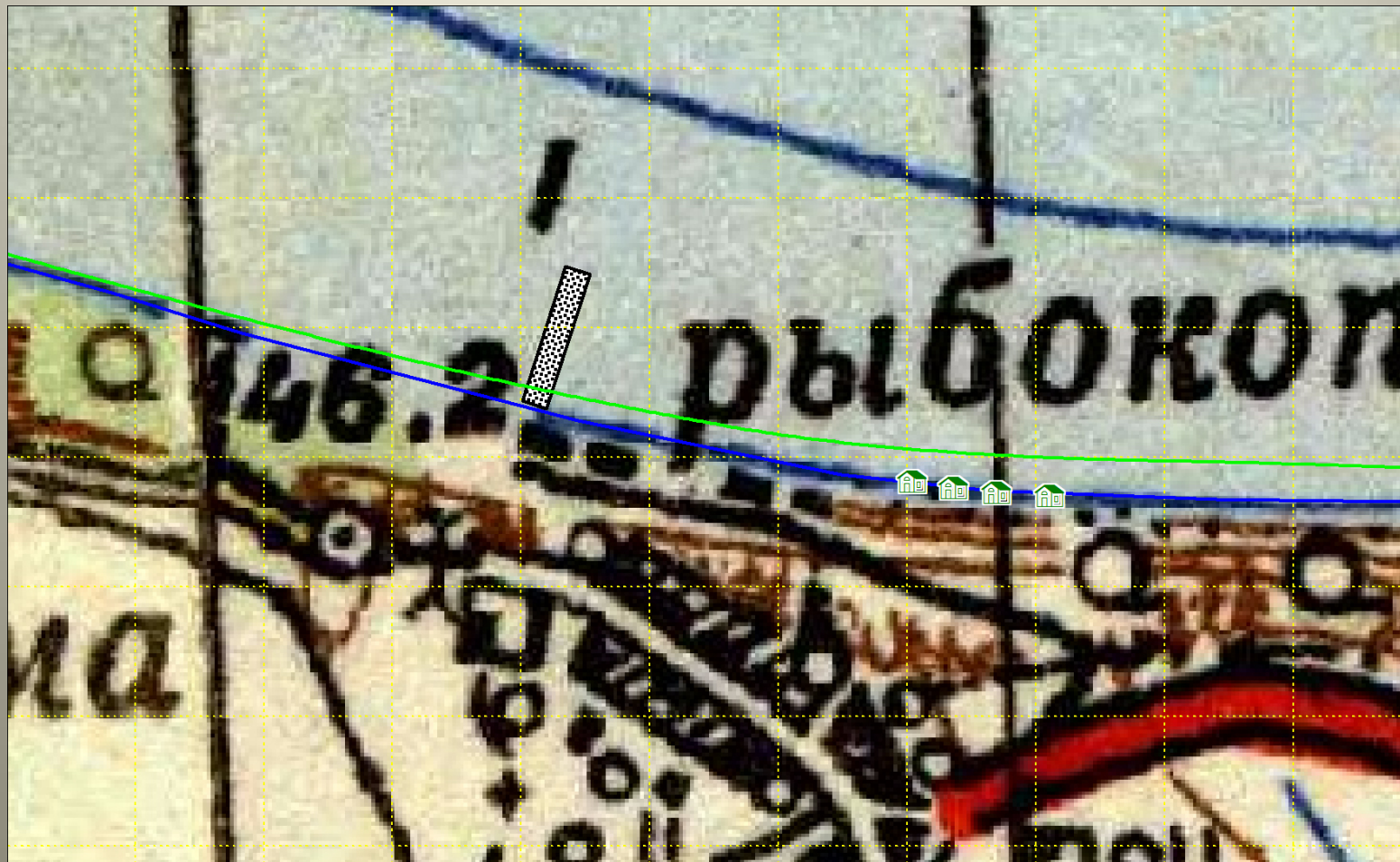


1945...1967





# 1967...



1967...

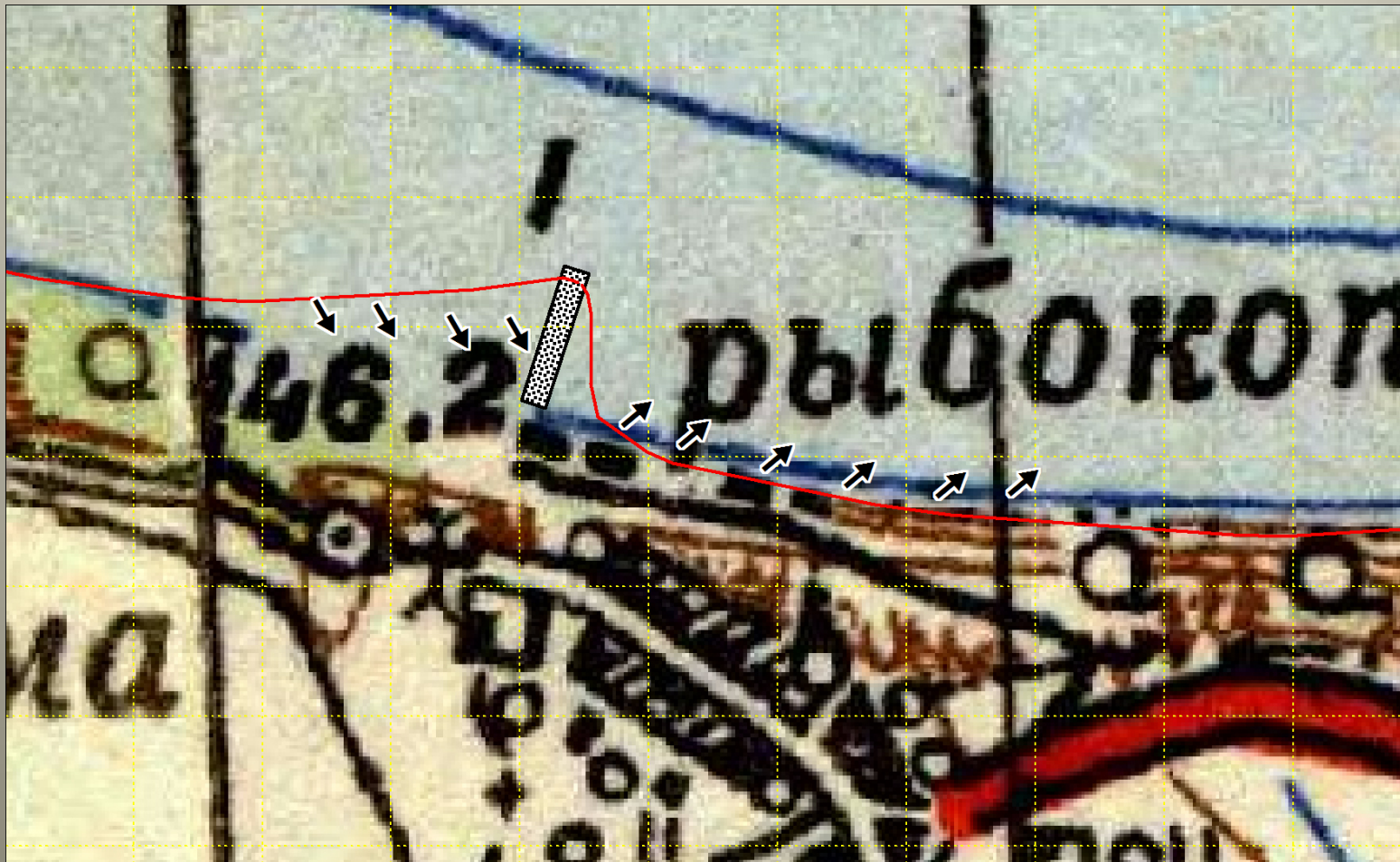




1967...

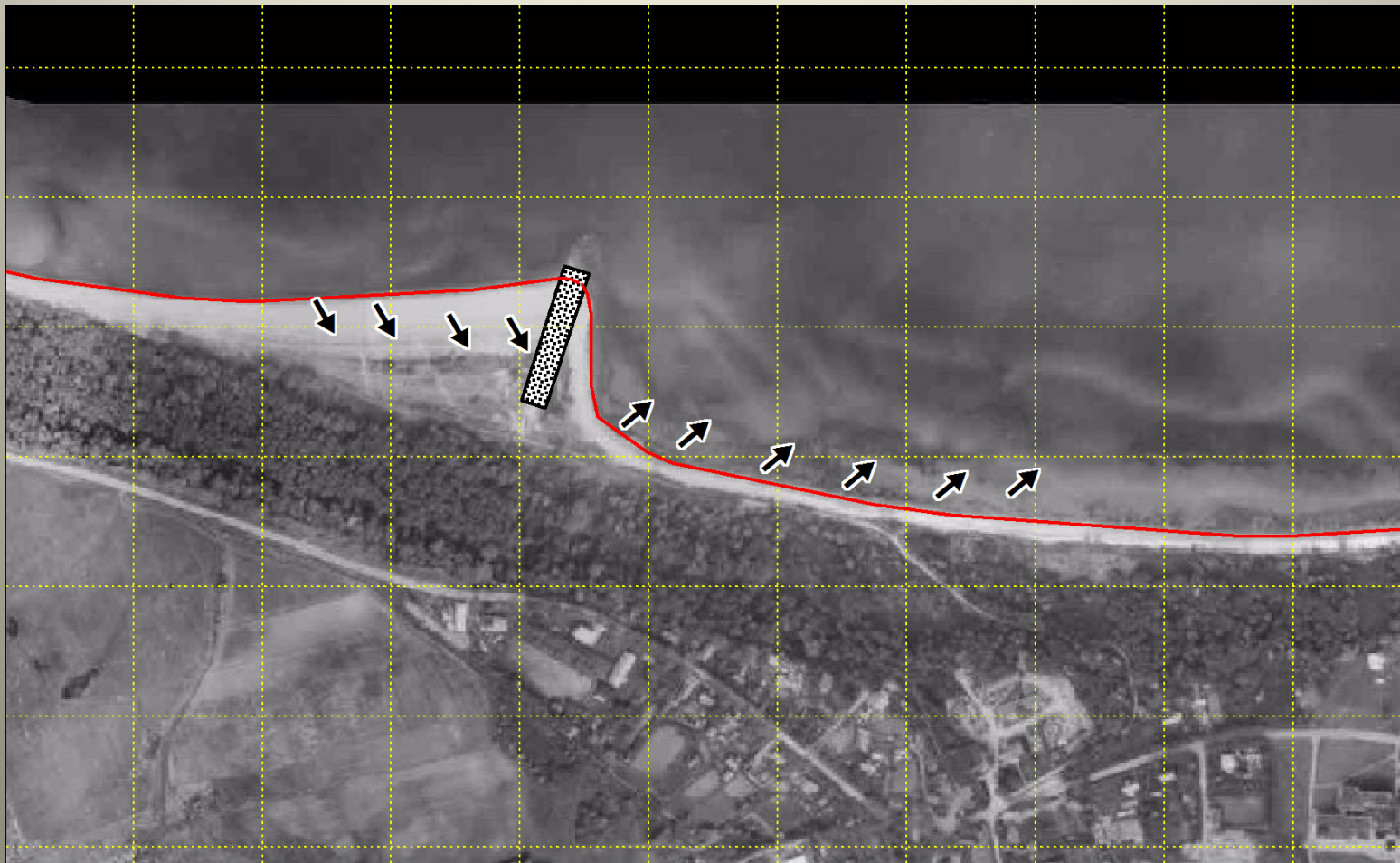


1967...2005





2003



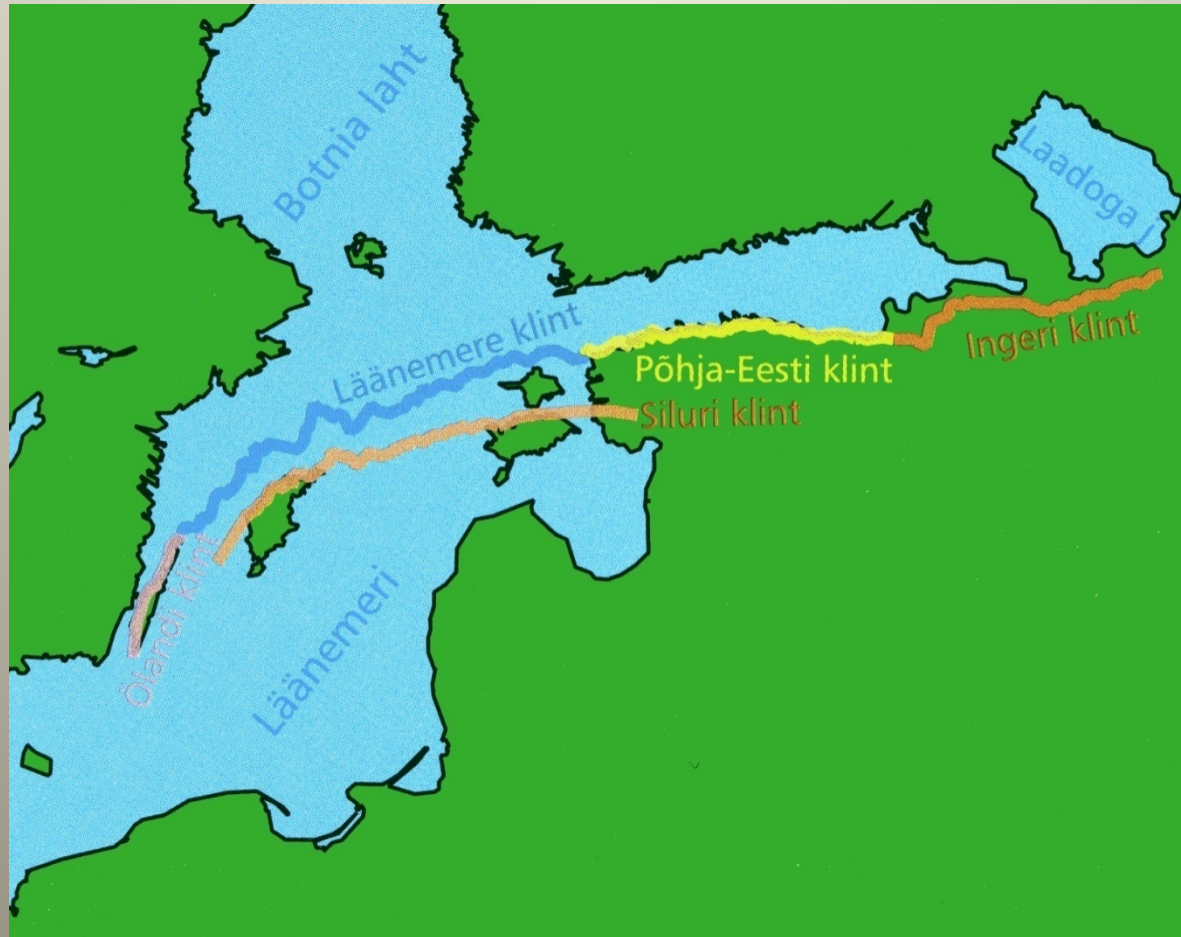
2003



# Geology of Kings cape region



# North Estonian Cliff part of Baltic Cliff



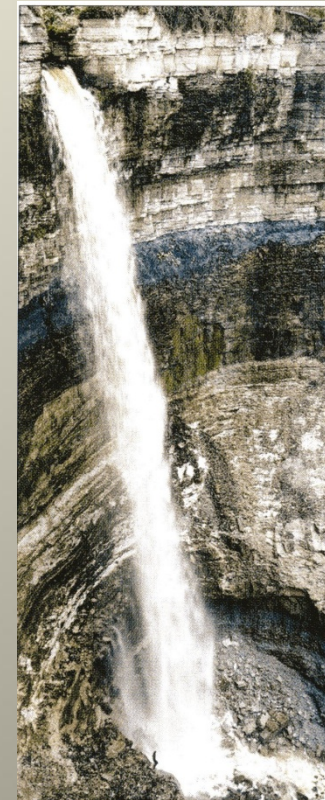
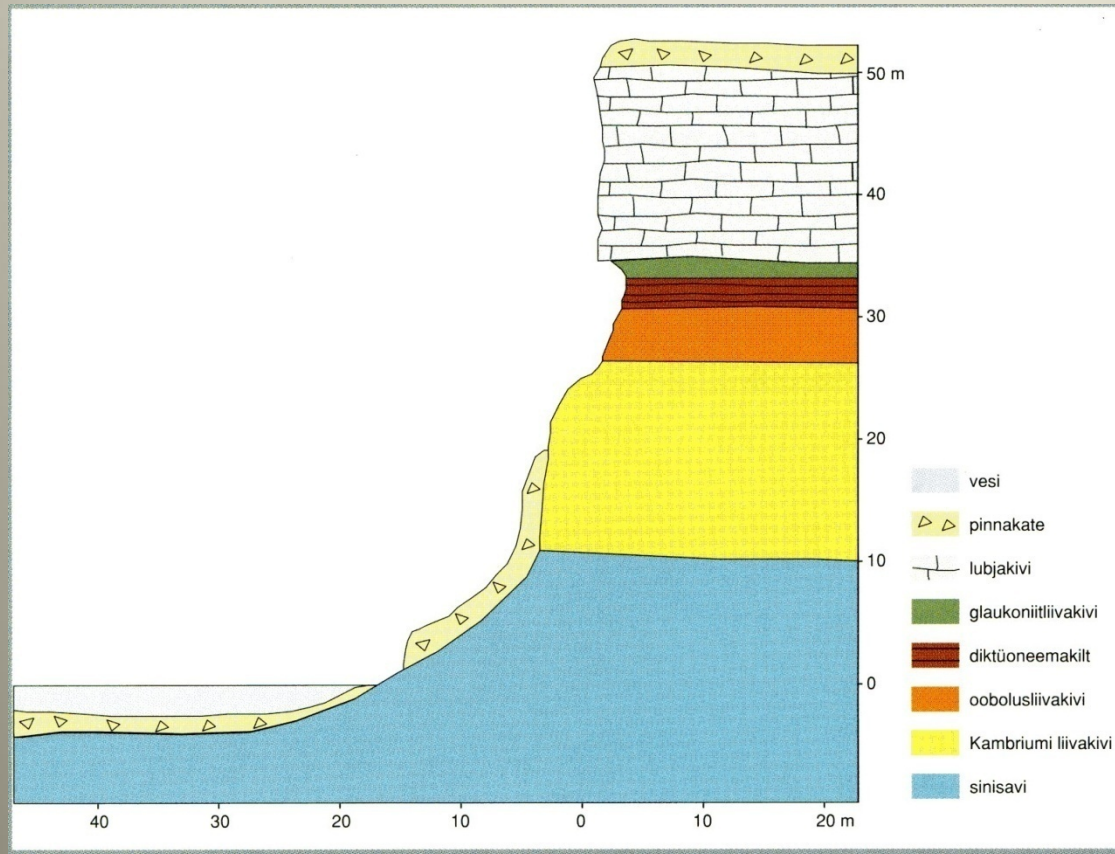
# North-Estonian Cliff





# Ordovician (490-445 million years b.)

## Cambrian (540-490 million years b.)



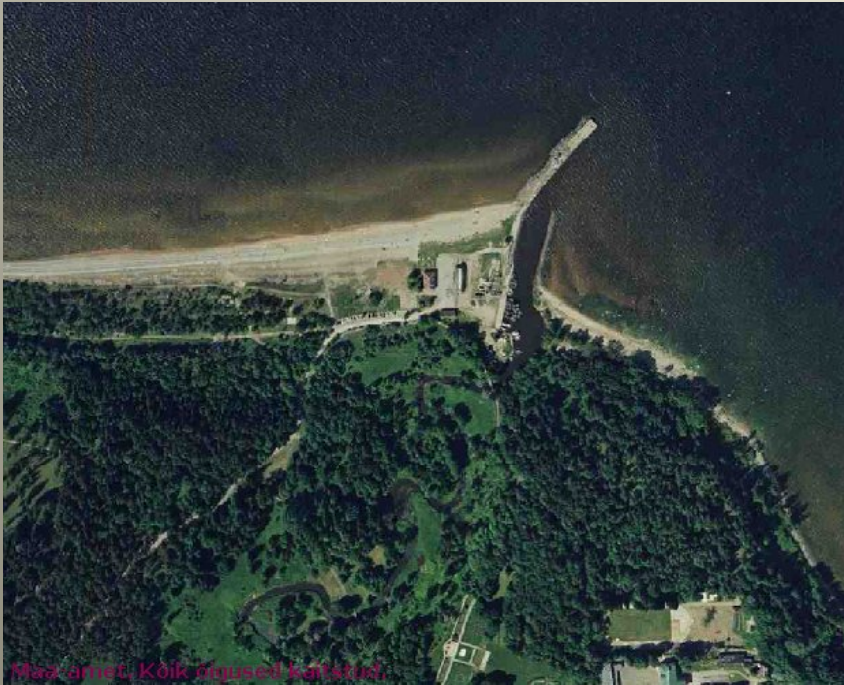




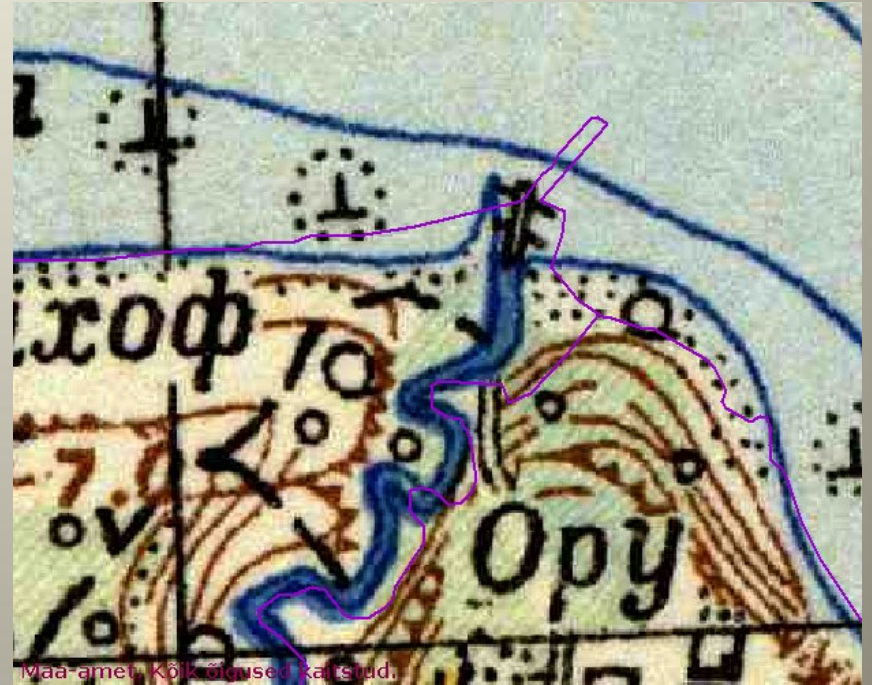




# Toila harbour



Maa-amet, Kõik õigused kaitsitud.



Maa-amet, Kõik õigused kaitsitud.



# Erosion east of Toila harbour



# Conclusions

- Hydrotechnical structure on shoreline may influence coastal processes
- Investigations of hydrodynamic and sedimentation conditions needed
- Kings Cape Brakewater removal helps to restore the sediment supply
- Before and after removal monitoring of beach profiles should be done