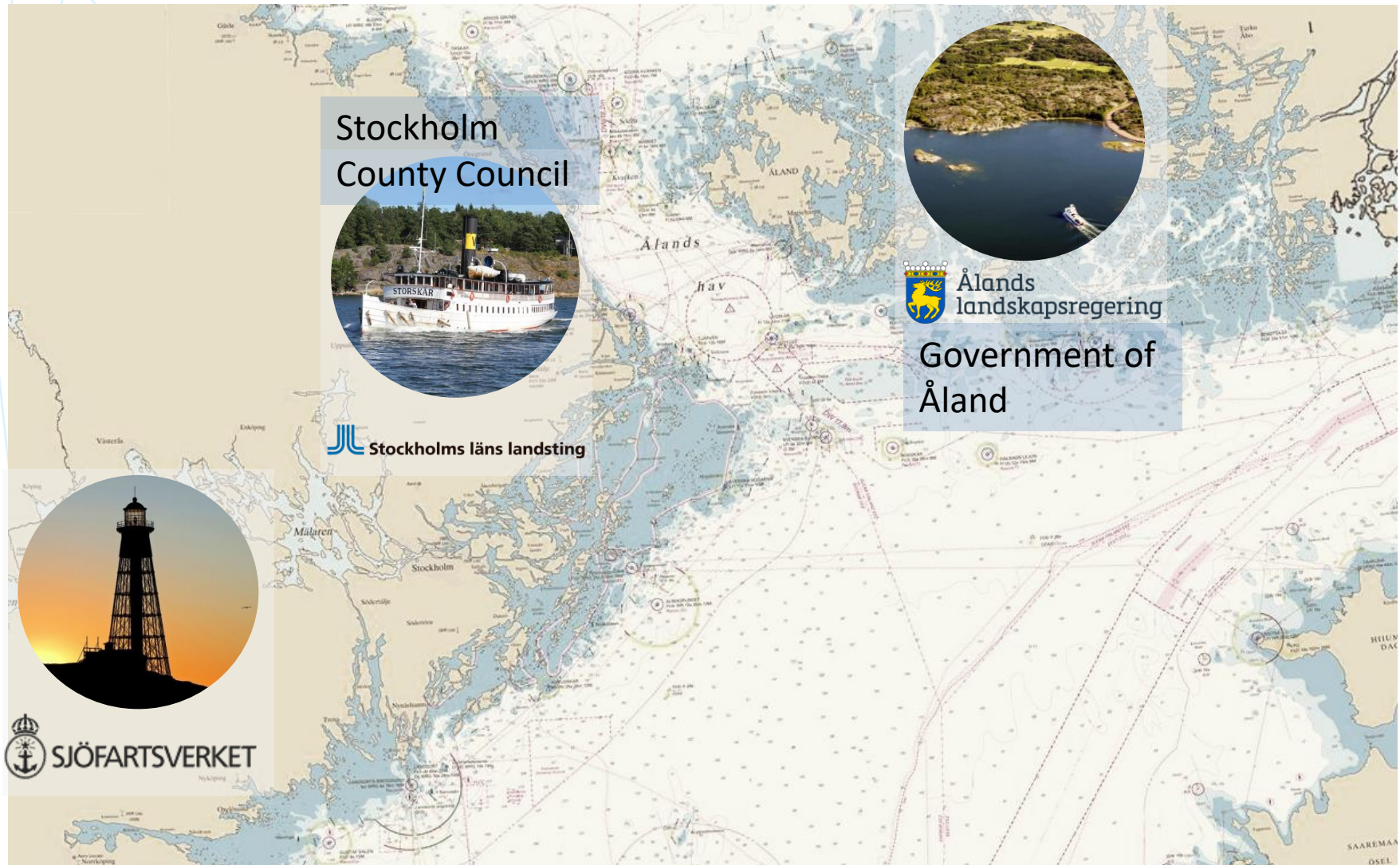




Assuring Depth of fairways for  
Archipelago Public Transportation

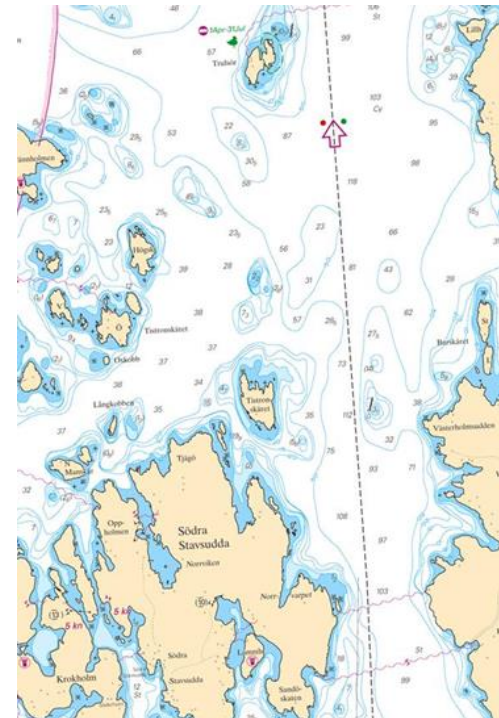




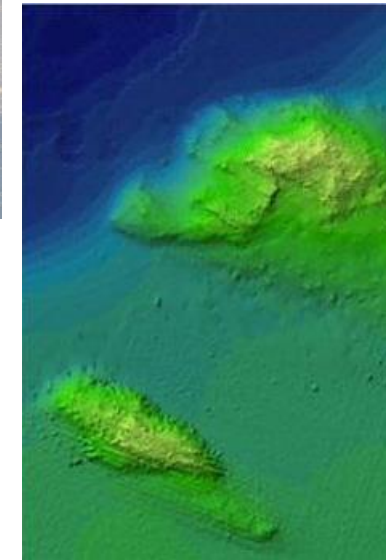
## ADAPT – optimizing seagoing public transport in an archipelagic environment 2016-2019

Safe, time- and fuel efficient routes in Stockholm och Åland archipelago through:

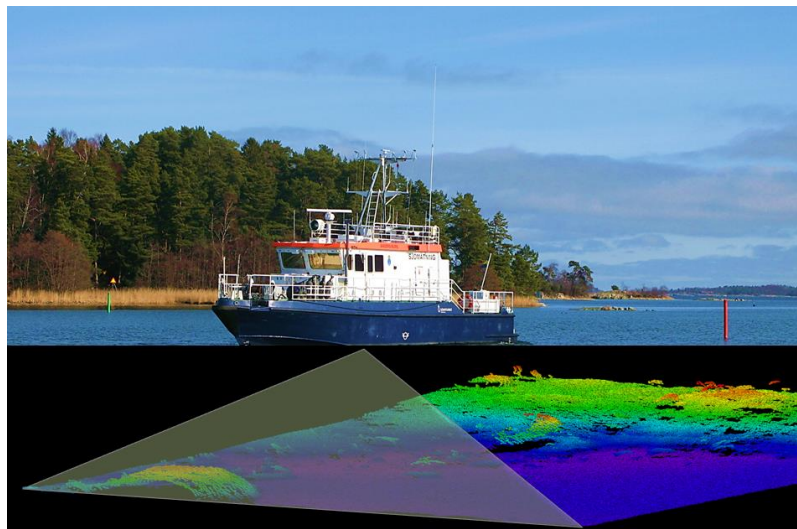
- Reliable nautical charts for identified routes
- A toolbox with methods and processes for navigation and route planning.
- Propose optimized and adjusted routes for the archipelago public transport.



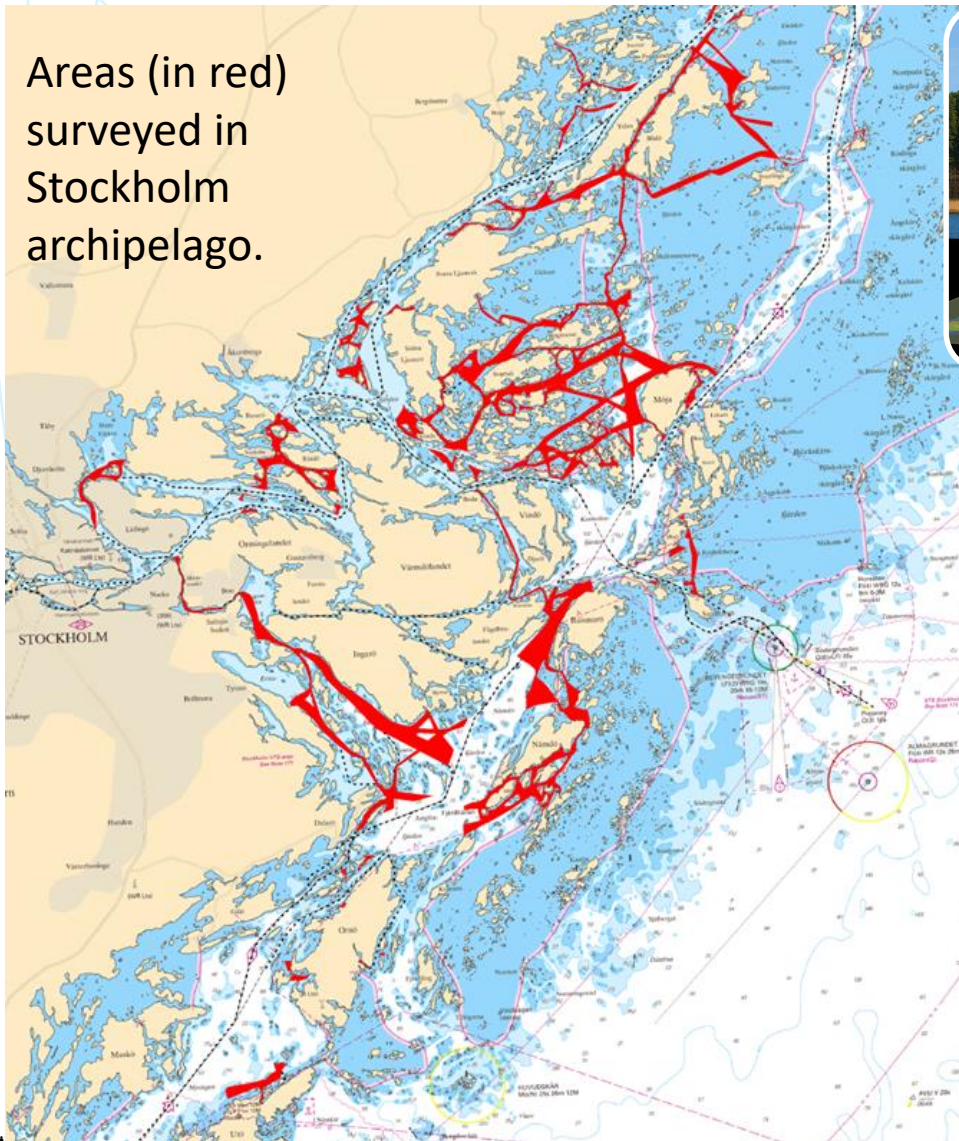
- ADAPT is ongoing  
March 2016 – November 2019
- Budget 2,2 million €
- The project is realized through the support of the EU Regional development fond  
Interreg Central Baltic.  
Co-financing rate 75 %.



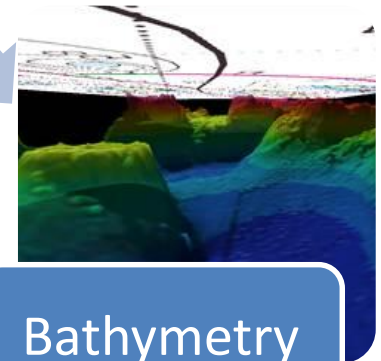
# Why hydrographic surveying?



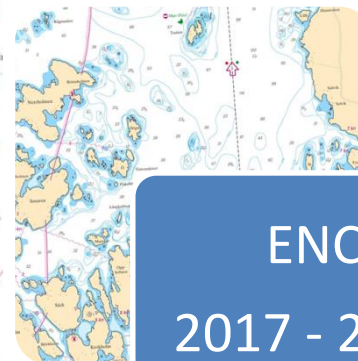
Areas (in red)  
surveyed in  
Stockholm  
archipelago.



Surveying  
2016 - 2017



Bathymetry  
2016 - 2018

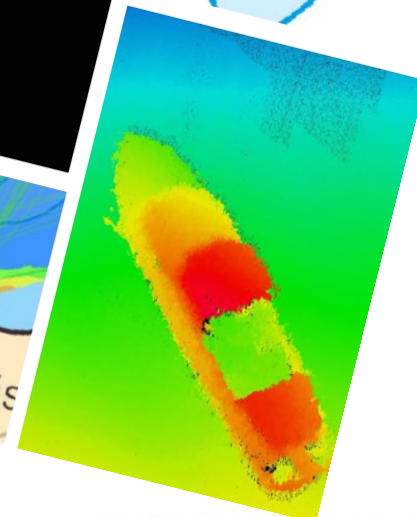
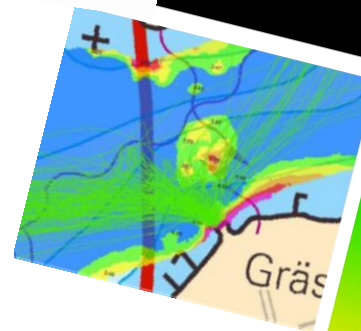
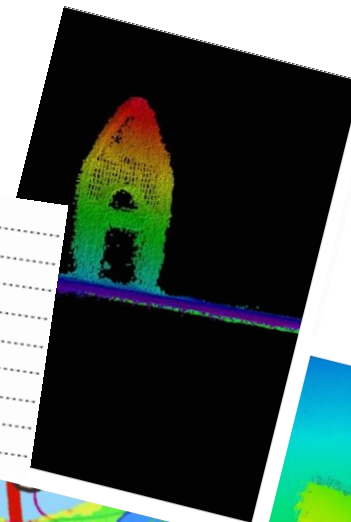


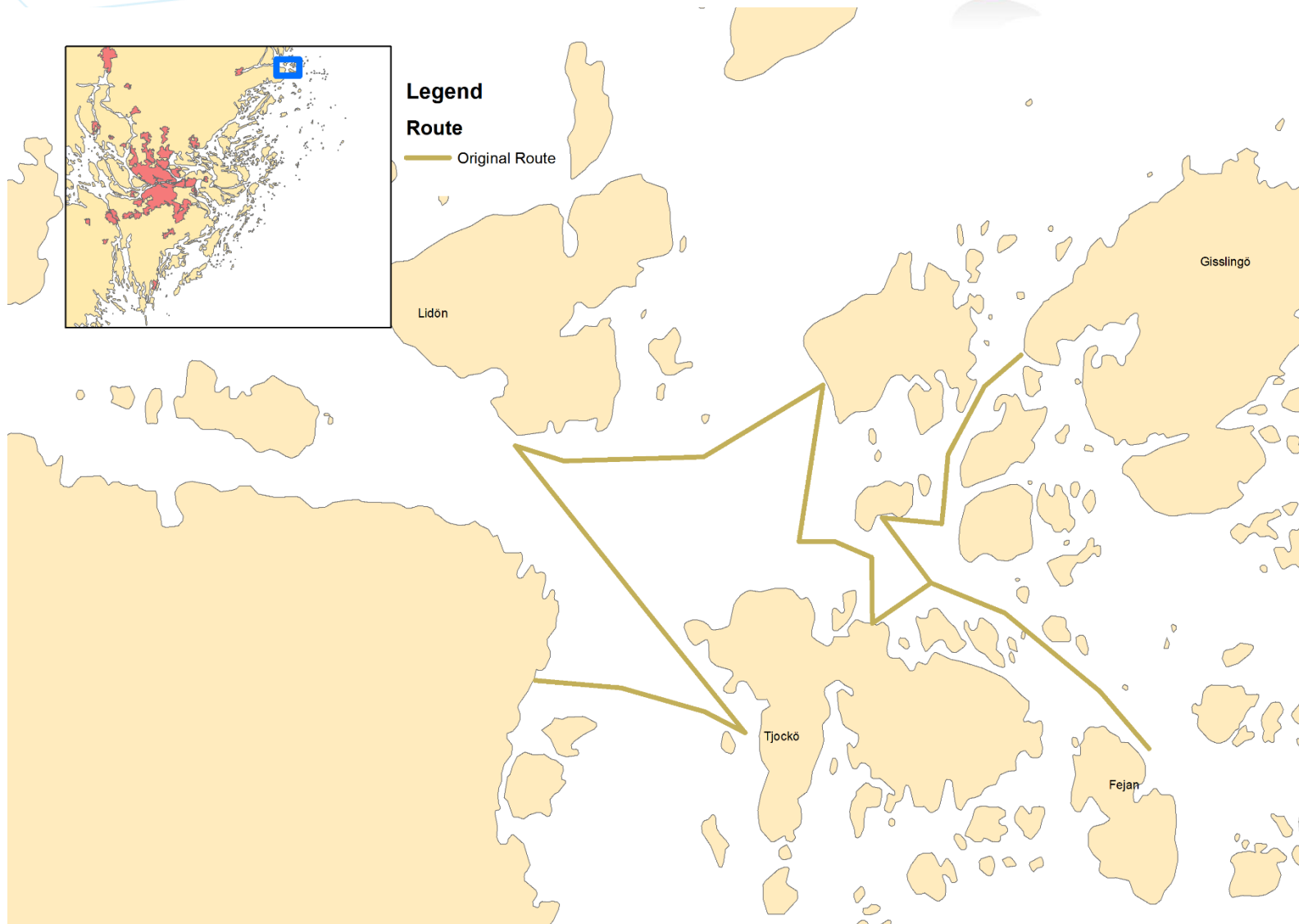
ENC  
2017 - 2019

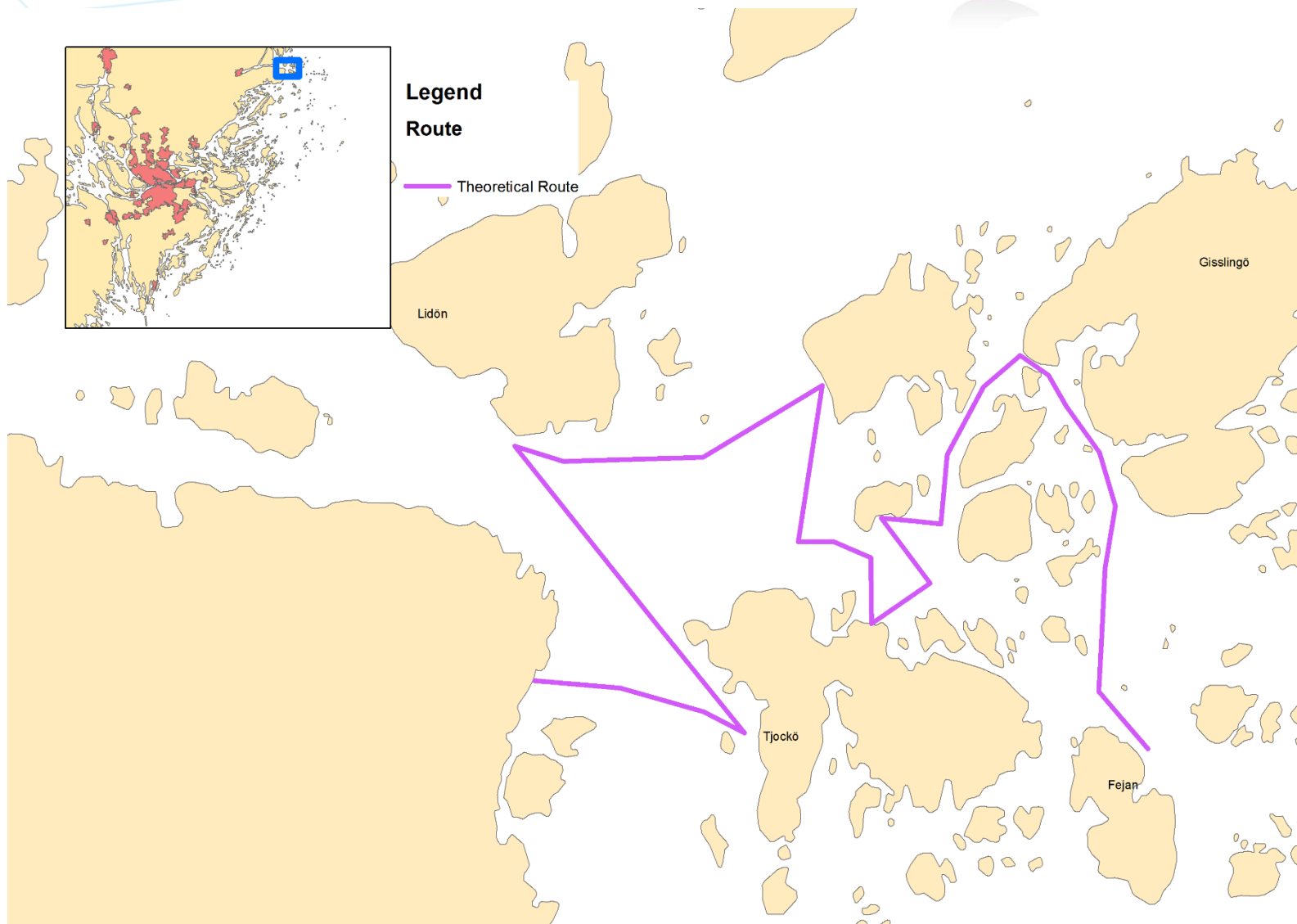
- 50 Notices to Mariners with over 100 identified dangers for navigational safety in Stockholm archipelago!

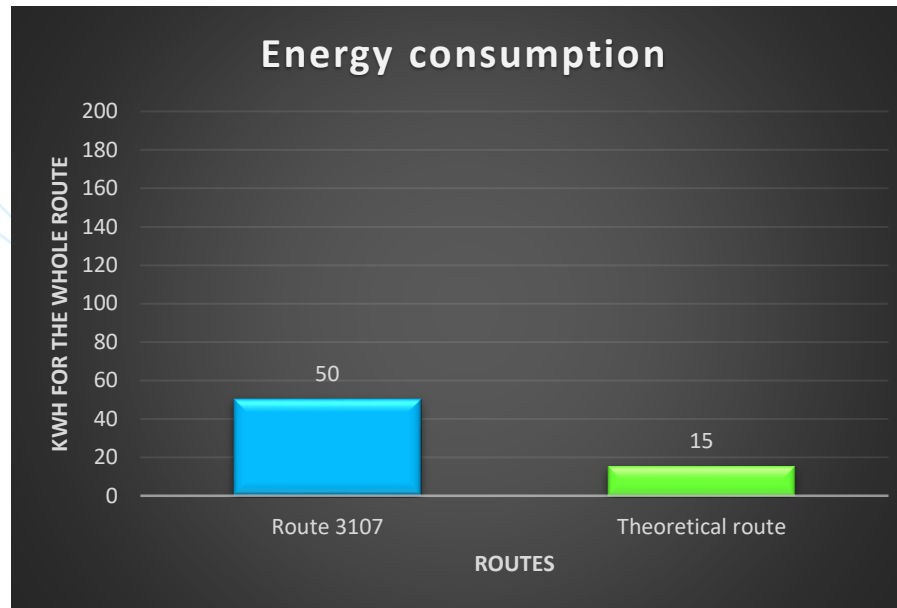
Notis 11101 – norr om Utö  
 Notis 11104 – Utö  
 Notis 11110 – Öja  
 Notis 11132 – väster om Ornö  
 Notis 11185 – söder om Dalarö och norr om Aspön  
 Notis 11236 – nordväst om Ornö  
 Notis 11238 – väster om Ornö  
 Notis 11239 – väster om Ornö  
 Notis 11280 – Nämndö  
 Notis 11332 – söder om Nämndö  
 Notis 11338 – Erstaviken  
 Notis 11356 – Sandhamn  
 Notis 11362 – Vindö  
 Notis 11420 – norr om Nämndö  
 Notis 11421 – norr om Nämndö  
 Notis 11422 – sydväst om Runmarö  
 Notis 11423 – Telegrafholmen  
 Notis 11434 – Stavsås  
 Notis 11458 – norr om Kapellskäer  
 Notis 11493 – Harö  
 Notis 11537 – öster om Blidö  
 Notis 11538 – Norröra  
 Notis 11542 – öster om Blidö  
 Notis 11615 – nordost om Norra Ljusterö  
 Notis 11619 – norr om Svanö  
 Notis 11709 – norr om Norra Ljusterö  
 Notis 11710 – norr om Grinda  
 Notis 11713 – sydost om Nämndö  
 Notis 11720 – söder om Lidingö  
 Notis 11733 – norr om Ornö  
 Notis 11820 – nordväst om Ornö  
 Notis 11875 – norr om Öja  
 Notis 11914 – Rådmansö  
 Notis 11918 – Nämndö – Uvön  
 Notis 11919 – norr om Nämndö  
 Notis 11924 – sydväst om Nämndö  
 Notis 11960 – Norra Berghamn  
 Notis 11961 – sydväst om Käckskär  
 Notis 11988 – Ångsö – Vadersö – Löpar – Asken  
 Notis 12036 – söder om Svartsö  
 Notis 12094 – norr om Möja  
 Notis 12182 – Ingmarö – Äppelrö  
 Notis 12353 – Svartsö, Oxholmen, Alsvik  
 Notis 12415 – öster om Nynäshamn  
 Notis 12446 – sydväst om Utö  
 Notis 12485 – öster om Nynäshamn  
 Notis 12650 – östnordost om Ingmarso

Notis 12779 – sydost om Dalarö  
 Notis 12905 – Saltsjöbaden  
 Notis 13147 – Möja  
 Notis 13198 – Storholmen – Träskö  
 Notis 13225 – Möja  
 Notis 13249 – Blidö mfl.  
 Notis 12469(P) – Nämndö  
 Notis 12518(P) – Stora Blåbärsholmen mfl.  
 Notis 12522(P) – Lidingö









## Original route

**Rävsnäs – Fejan (via Gisslingö)**

Energy consumption: 50 kWh /person

Travel time: 01:50:00

CO<sup>2</sup>-emission: 11,8 kg /person & voyage

## Alternativ route Rävsnäs – Fejan

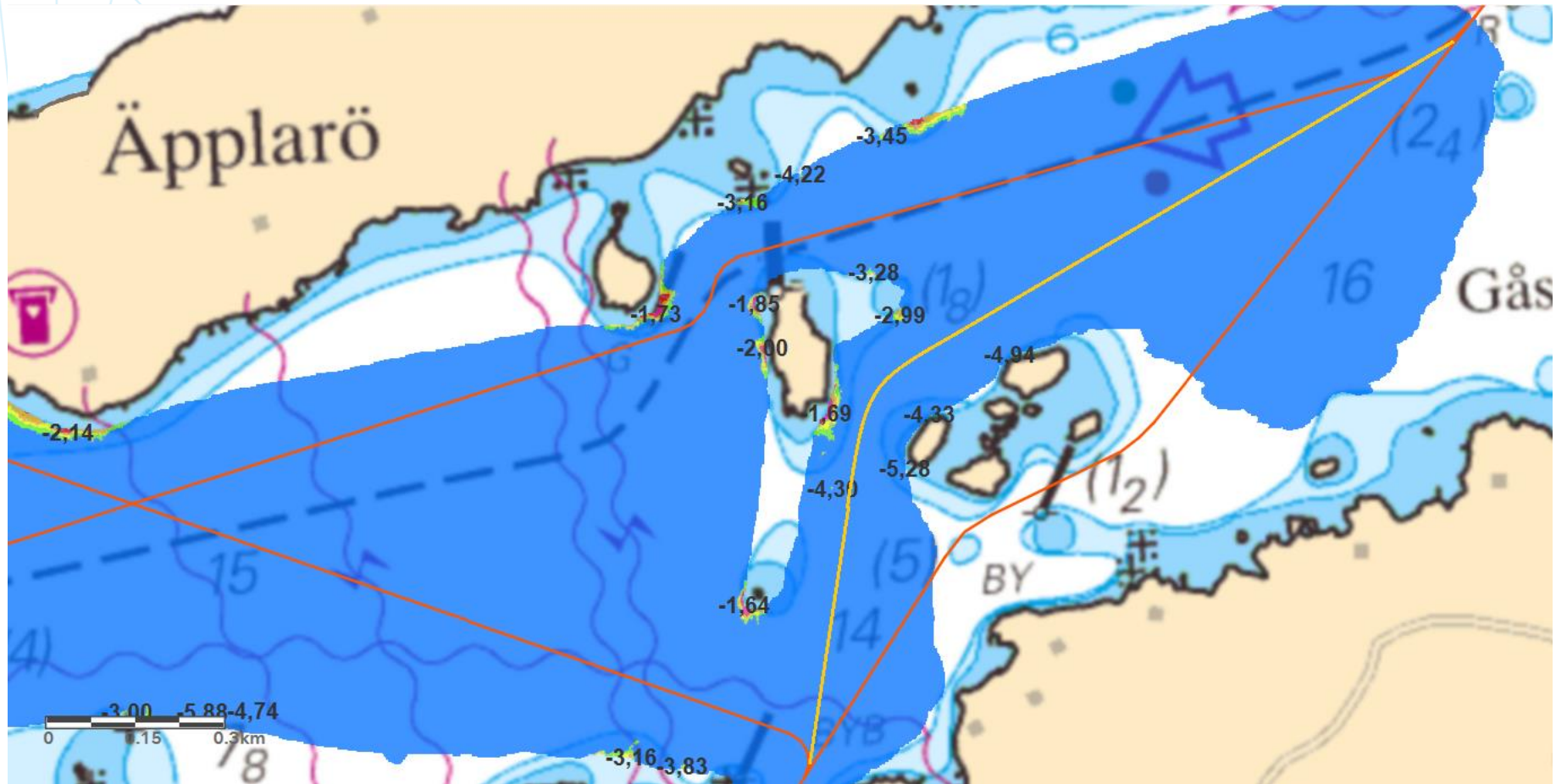
Energy consumption : 15 kWh /person

Travel time: 01:25:00

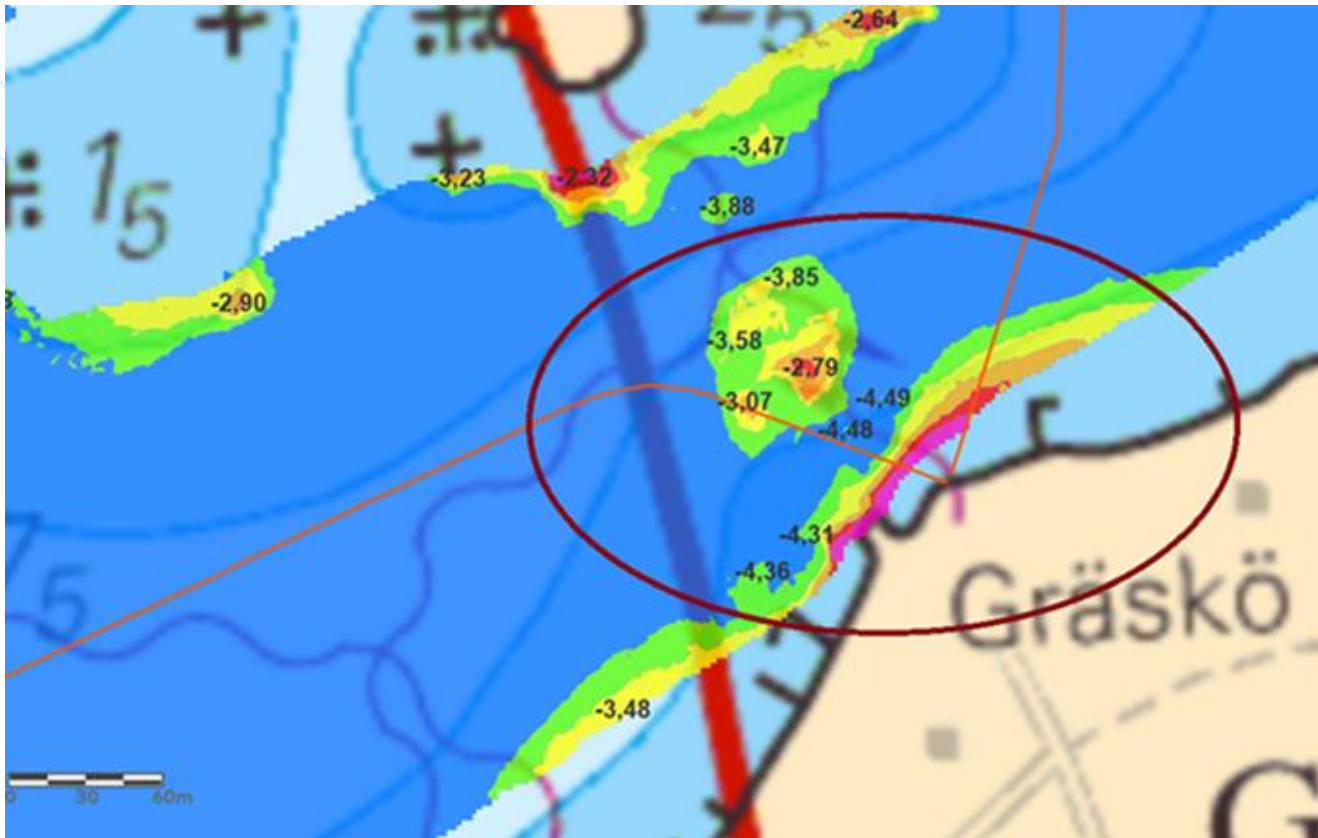
CO<sup>2</sup>-emission: 3,5 kg /person & voyage



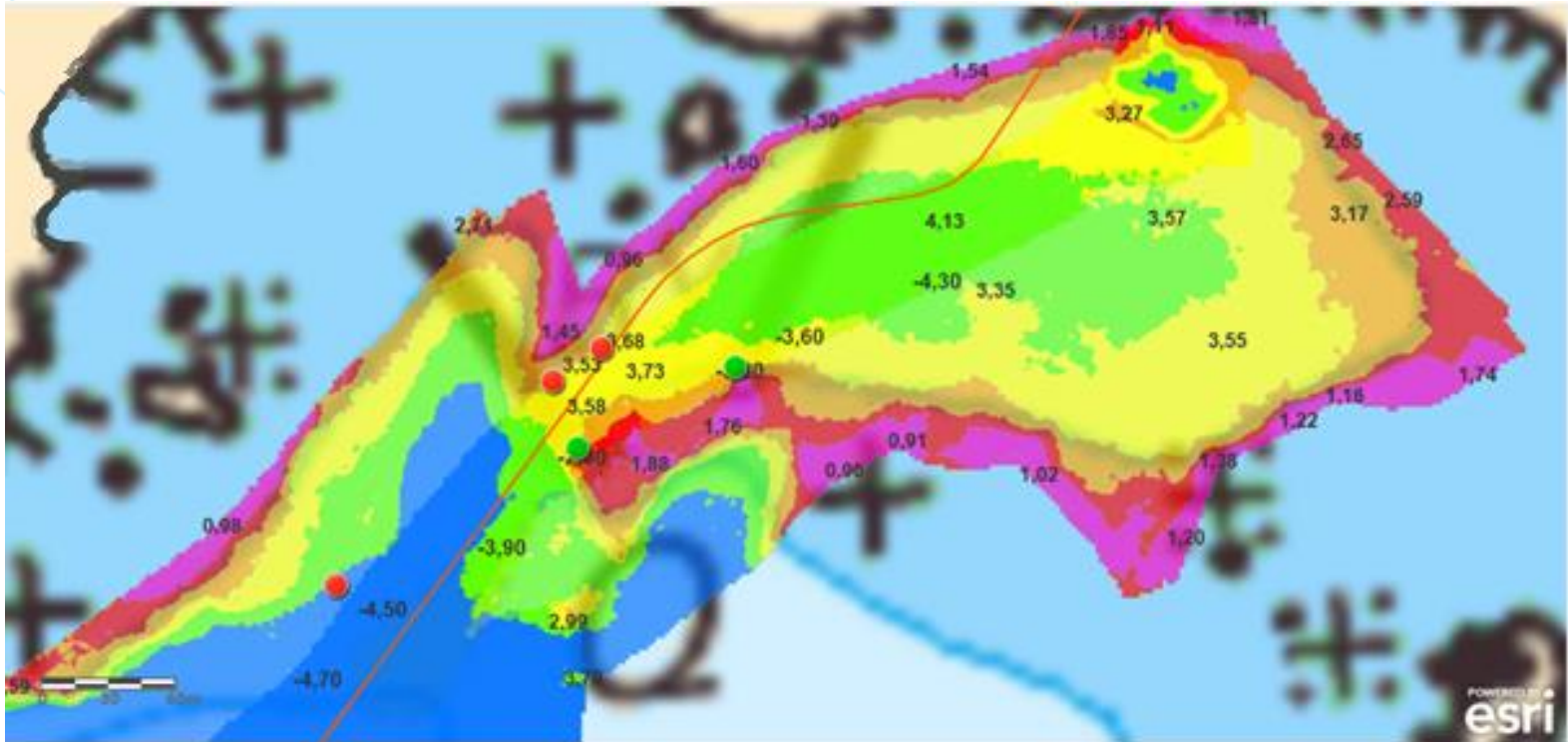
Suggested route adjustment Norröra and Söderöra which results in a better weather shelter and a time- and fuel saving route.



The suggested route will result in less erosion problems.



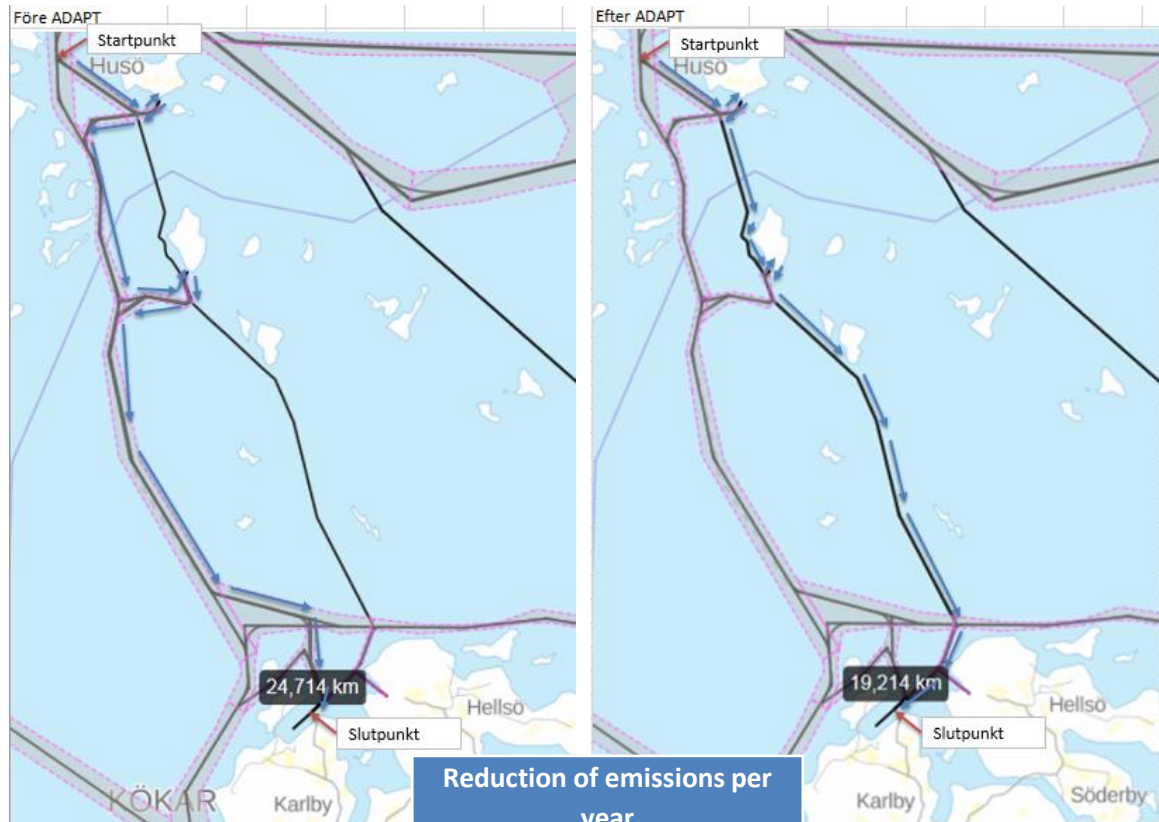
Safety improvement. Leading lines and buoys will be changed.



In the approach to Söderöra jetty the new hydrographic survey resulted in new buoys & leading lines which in combination with updated ENC's will provide a safer passage through shallow waters.

## Route Kökar – Husö

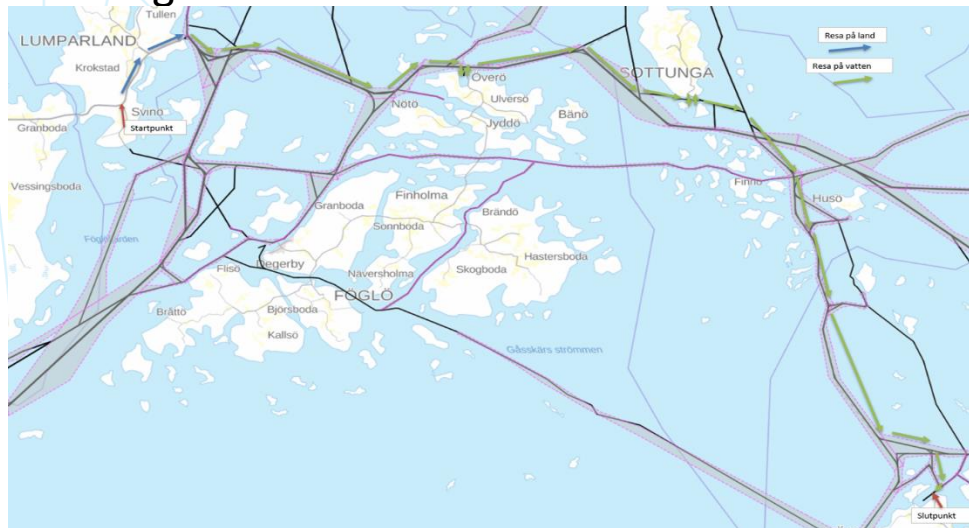
- Recommended draught adjusted to 3,6 m (north) and 4,1 m (south)
- Better weather shelter
- Time saving:
  - 16 min/voyage (whole)
  - 10 min/voyage (north)
  - 6 min/voyage (south)(264 h/year)



### Reduction of emissions per year

|              |                          |
|--------------|--------------------------|
| - 156 408,00 | kg CO <sub>2</sub> /year |
| - 3 234,00   | kg NO <sub>x</sub> /year |
| - 0,29       | kg SO <sub>x</sub> /year |

## Existing route



## Föglö- Sottunga - Kökar

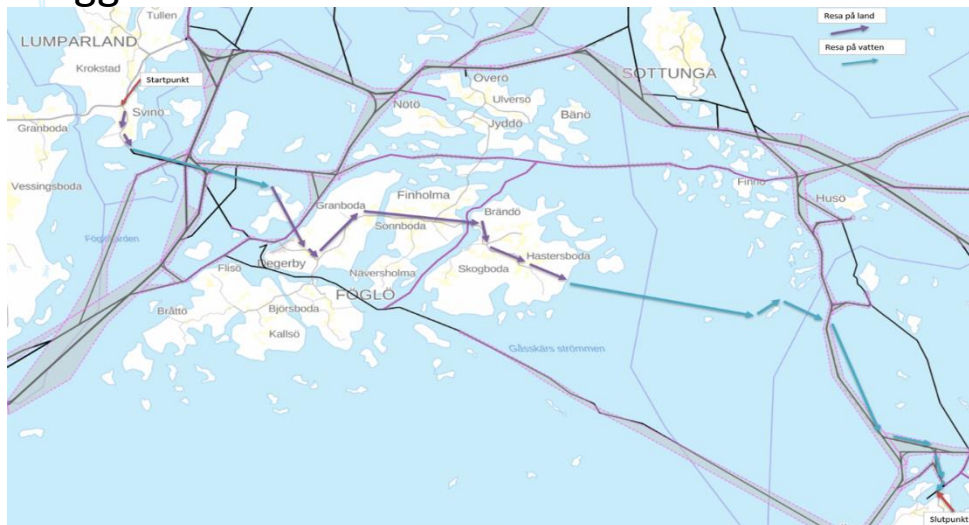
Tot. travel time: 2 h 40 min

Tot. fuel consumption: 676,26 l

Dist. land: 4,7 km

Dist. sea: 49,1 km

## Suggested route



## Intermodalt alternativ Föglö - Kökar

Tot. travel time: 1 h 50 min

Tot. fuel consumption : 393,56 l

Dist. land: 19,9 km

Dist. sea: 28,2 km

### Reduced emission per year

- 1 380 000,00 kg CO<sub>2</sub>/year

- 28 000,00 kg NO<sub>x</sub>/year

- 3 kg SO<sub>x</sub>/year



Sottunga original route (blue)

Tot. travel time: 23 min

Distance sea: 6,8 km

Alternativ route (red)

Tot. travel time: 13 min

Distance sea: 3,4 km

| Reduction of emissions per year |                          |
|---------------------------------|--------------------------|
| - 218 120,00                    | kg CO <sub>2</sub> /year |
| - 4 510,00                      | kg NO <sub>x</sub> /year |
| - 0,41                          | kg SO <sub>x</sub> /year |

[www.sjofartsverket.se/adapt](http://www.sjofartsverket.se/adapt)

<http://database.centralbaltic.eu/project/31>

Project leader, Linn Gardell

Linn.gardell@sjofartsverket.se

