

Ship Traffic Management and Traffic Organization with Moving Havens



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e-Navigation

Human Factors

Human-Machine Interface

Information Design

Route Exchange

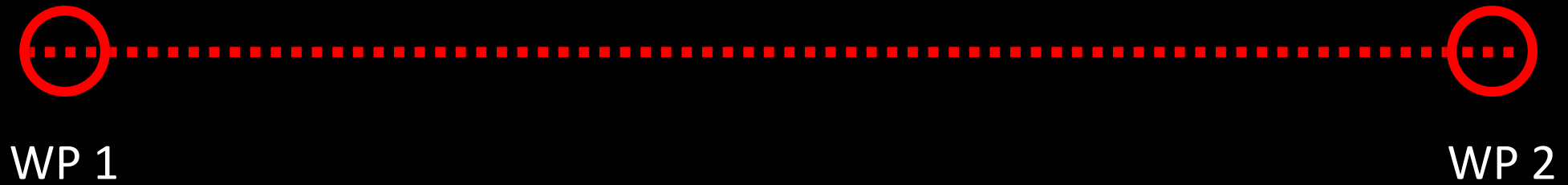
STM

“Intended and suggested routes”

“Moving Havens” (submarine operation)



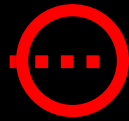
Voyage plan



Voyage plan

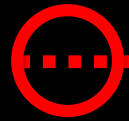


WP 1

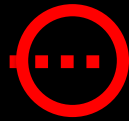


WP 2

Voyage plan

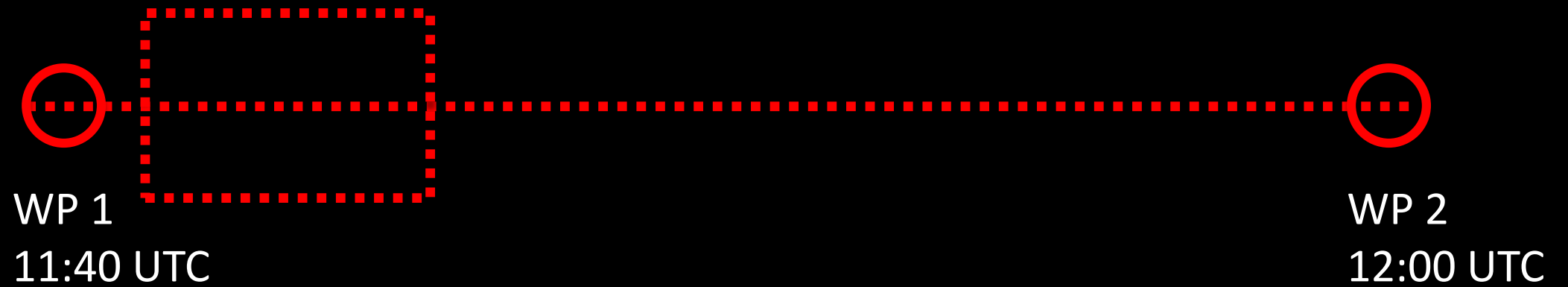


WP 1
11:40 UTC

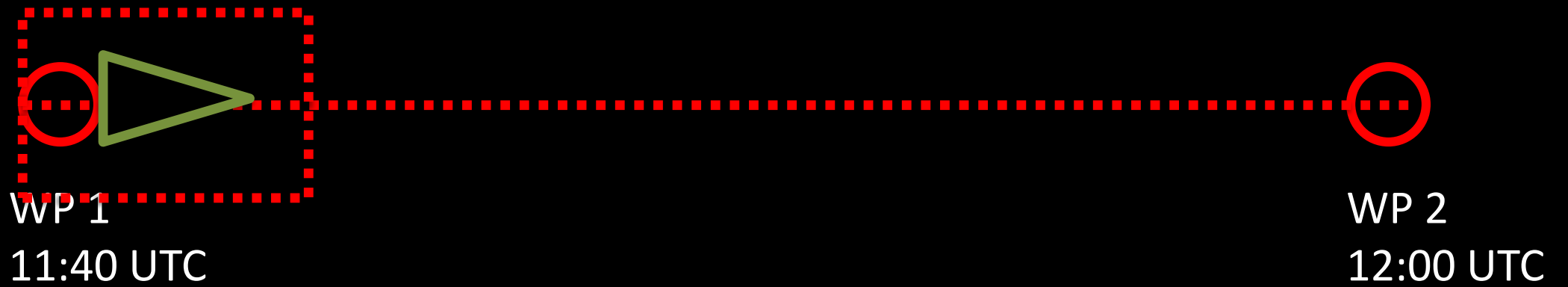


WP 2
12:00 UTC

Moving haven



Moving havens



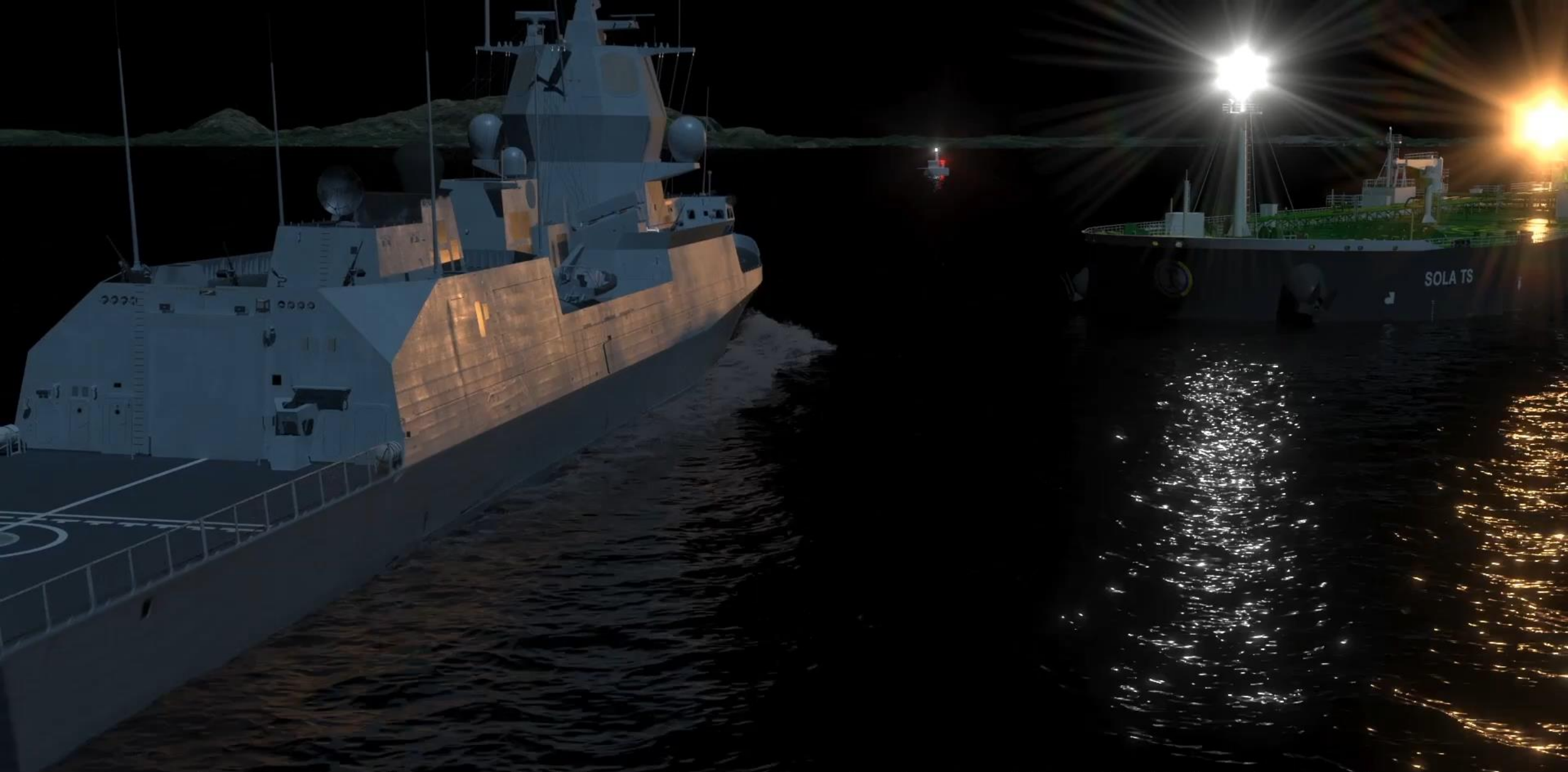
MASS infrastructure



STM/TOS infrastructure



The Helge Ingstad accident November 2018

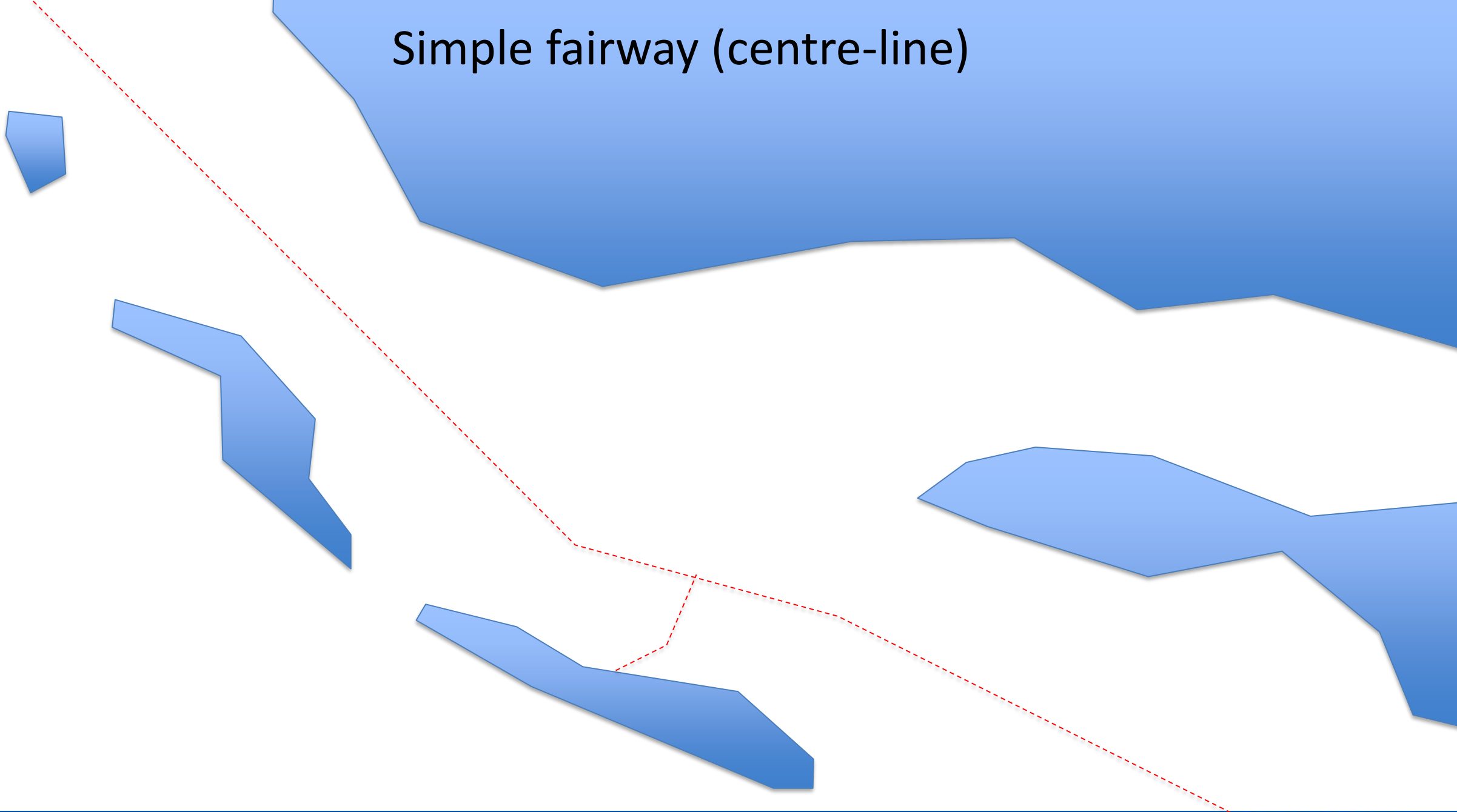


In the early hours of 8 November 2018, the frigate HNoMS Helge Ingstad and the tanker Sola TS collided in the Hjeltefjord near Bergen.

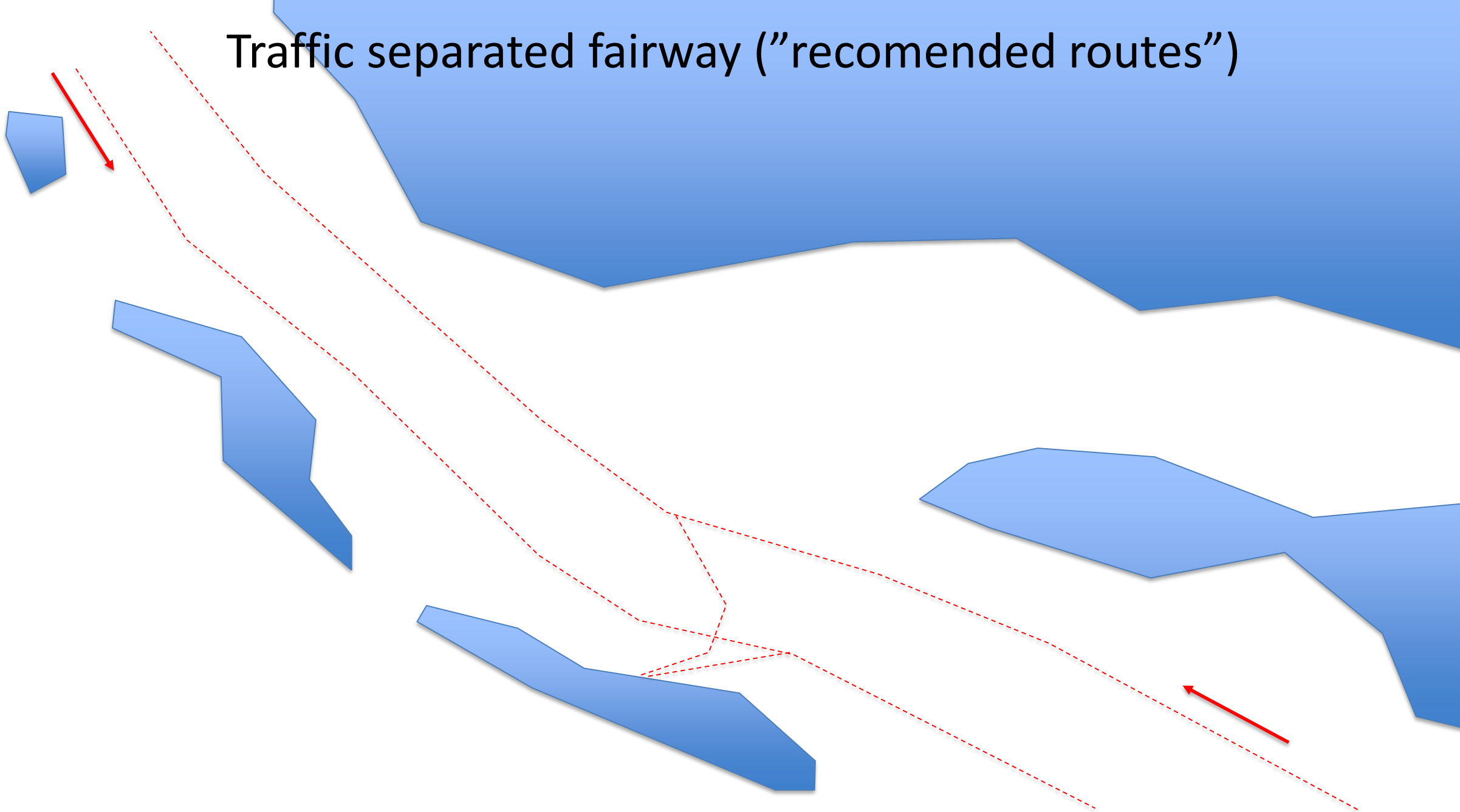
Human Error? No, Bad Design

(Donald Norman)

Simple fairway (centre-line)



Traffic separated fairway ("recomended routes")



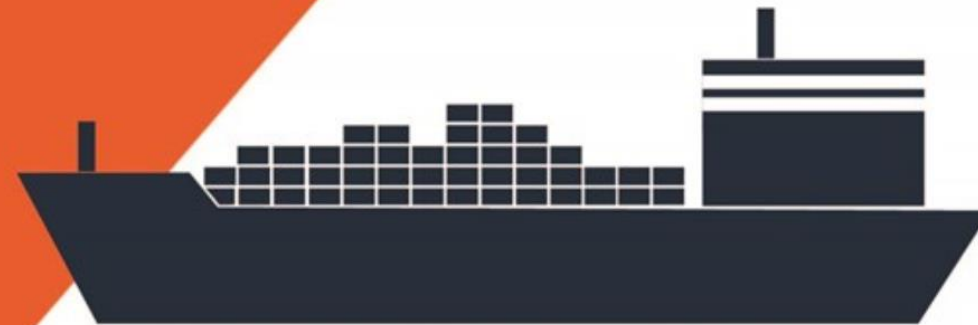
Digital rutetjeneste - routeinfo.no

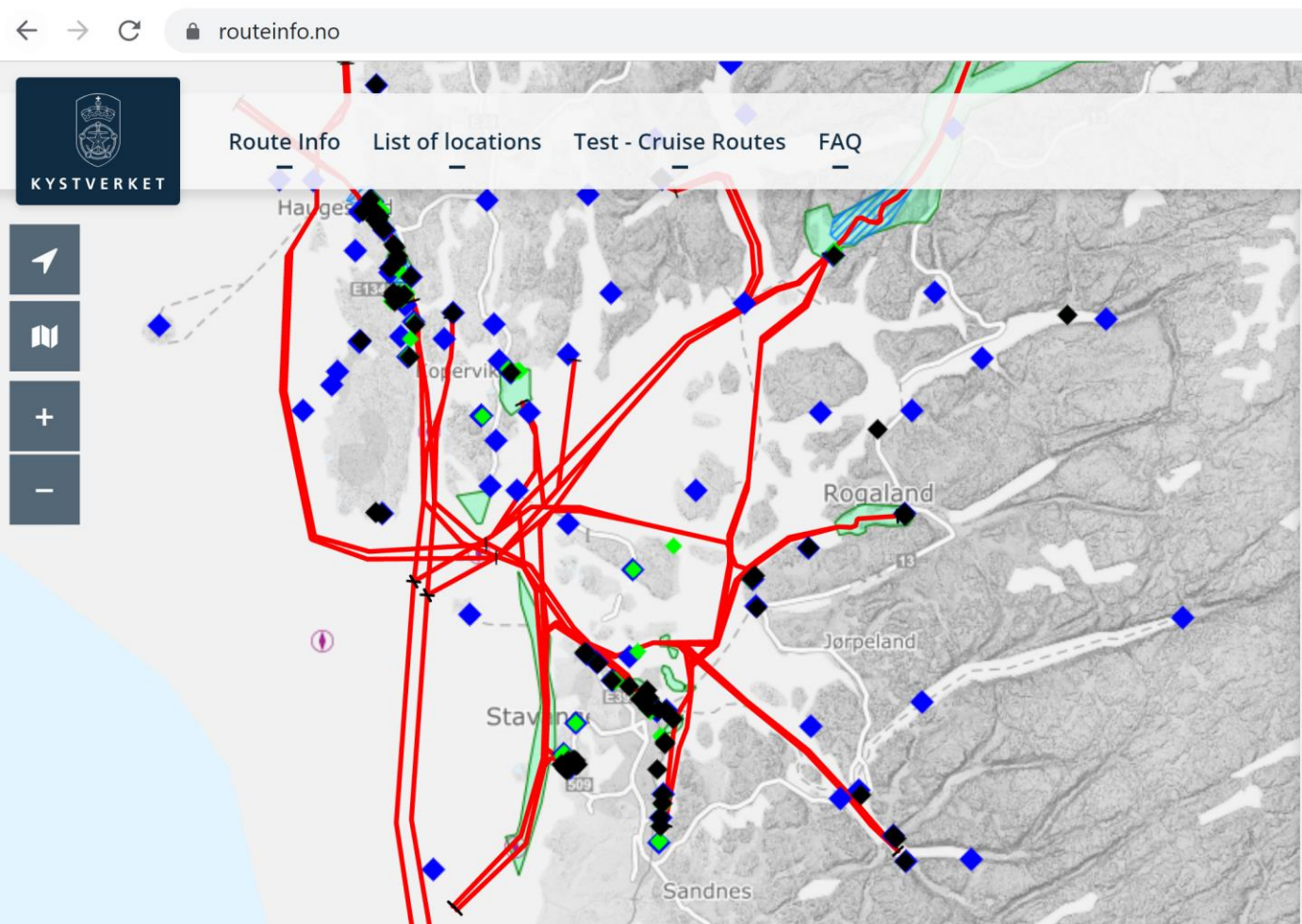


KYSTVERKET

Den digitale rutetjenesten er tilgjengelig for fartøy som anløper havner i farvannet mellom svenskegrensen i øst og Haugesund i sørvest. Tjenesten blir trinnvis gjort tilgjengelig fra sør til nord og vil dekke hele kysten i løpet av 2020.

ROUTEINFO.NO





routeinfo.no

KYSTVERKET

Route Info List of locations Test - Cruise Routes FAQ

Haugesund

Stavanger

Rogaland

Jørpeland

Sandnes

Search routes and locations

Routes and Route information from the Norwegian Coastal Administration (NCA)

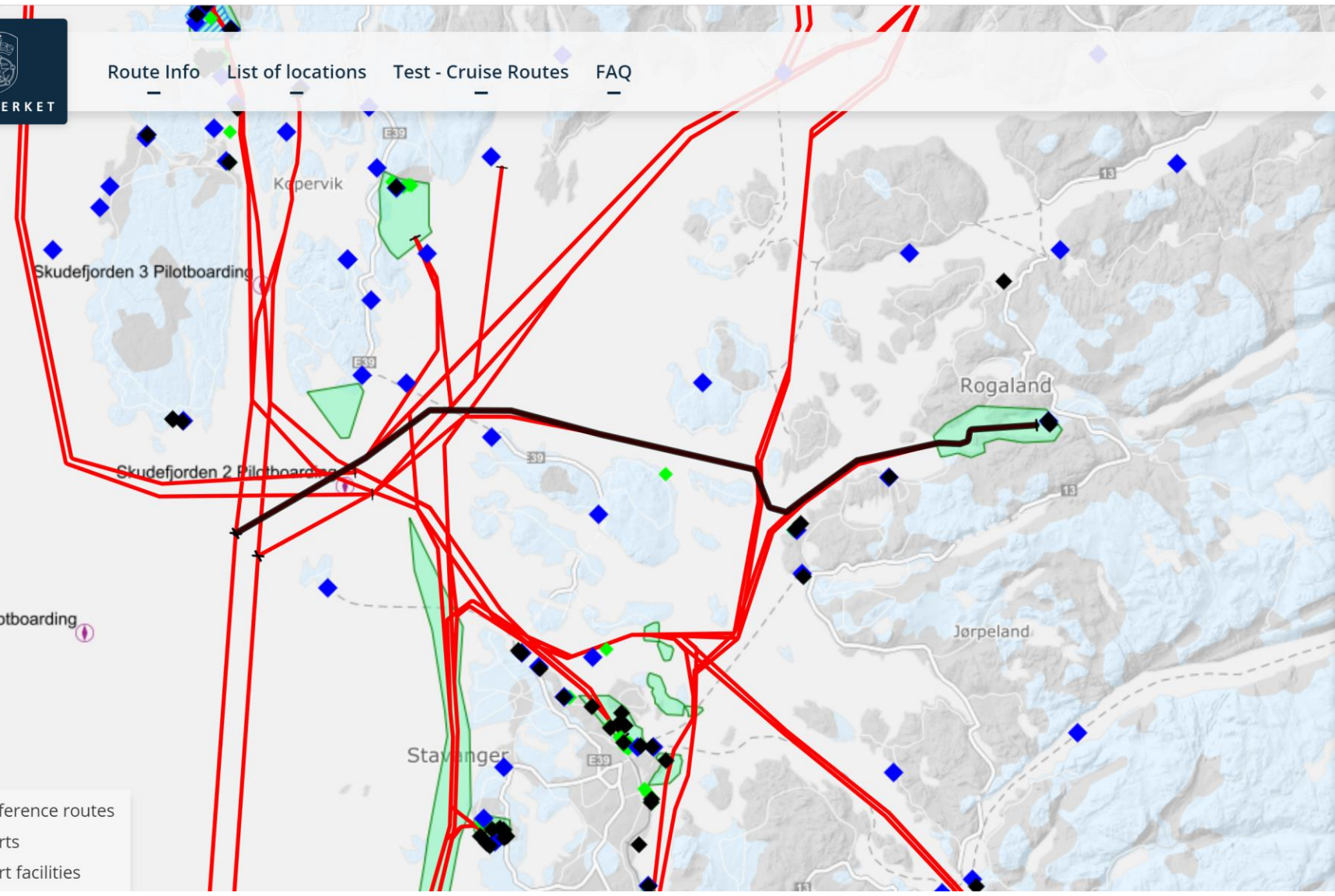
[Disclaimer!](#)

Find NCA's reference routes by searching for port/port facility/quay or route name in the search field above, or navigate and select directly in the map. When a route is selected, important route information is displayed. Download the routes in RTZ-format (WGS84) to bring the route into any navigation platform for route planning. On board the vessel assure the routines given for route-import are followed.

15.11.2019: NCA have decided to adjust terminologi to assure the routes are used in the right way. The term «Recommended Routes» have been replaced with «Reference Routes» See more about reference routes and other issues in FAQ.

Videoguide 1: [How to use a reference route](#)
Videoguide 2: [Route information](#)

<https://www.routeinfo.no/>



- Reference routes
- Ports
- Port facilities

Search routes and locations

Route: Ardal_Skudefjorden_Out

Routename: NCA_Ardal_Skudefjorden_Out_20190704.rtz

Download RTZ 1.0

Route Info

Sailing Distance: 28.8 nautical miles

Local Regulations for Use of PEC
150 meter LOA

Local Regulations (VTS)
Section 109 - 111

VTS information
Kvitsøy VTS, [Fact sheet](#)

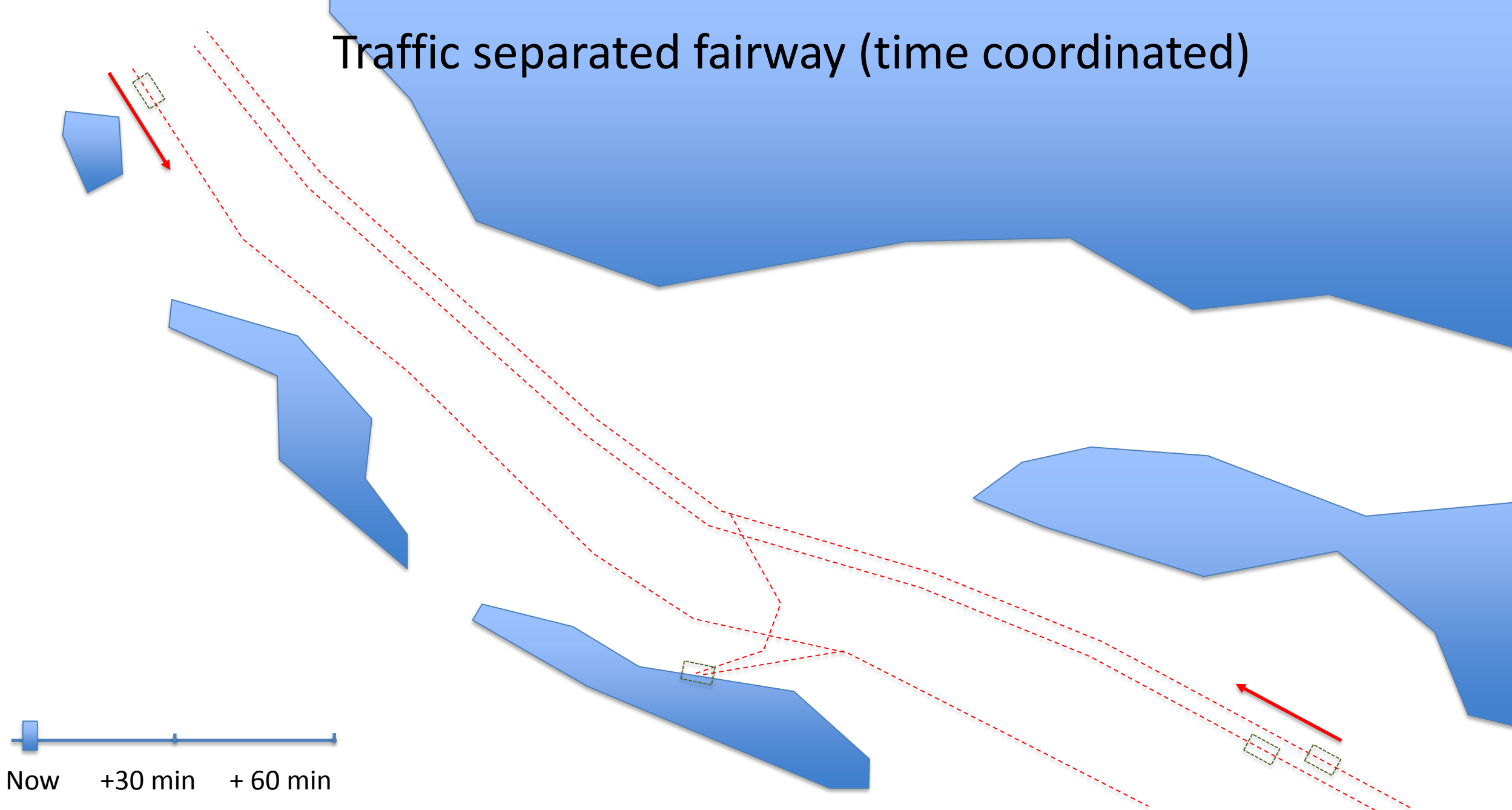
Connected locations
Ports incl. anchorage: Breiviga (Strand), Fiskå - Strand (Strand), Tau (Strand), Årdal - Hjelmeland (Hjelmeland)

Port facilities: Fiskå Mølle, Fiskå (Strand), Monier AS avd. Årdal i Ryfylke (Hjelmeland), Nordmarka kommunal kai (Strand), Norsk Stein avd. Tau (Strand), Norstone Årdal (Hjelmeland), Vestkorn Milling AS (Strand)

```
<?xml version="1.0"?>
<route xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" version="1.0" xmlns="http://www.cirm.org/RTZ/1/0">
  <routeInfo routeName="NCA_Ardal_Skundefjorden_Out_20190704" validityPeriodStart="2019-07-04T02:00:00+02:00"
validityPeriodStop="2020-08-14T02:00:00+02:00" vesselName="Norwegian Coastal Administration"
vesselVoyage="NO-320010" />
  <waypoints>
    <defaultWaypoint radius="0.10">
      <leg starboardXTD="0.04" portsideXTD="0.04" safetyContour="30.00" safetyDepth="30.00"
geometryType="Loxodrome" staticUKC="0.00" dynamicUKC="0.00" />
    </defaultWaypoint>
    <waypoint id="1" name="Ardal">
      <position lat="59.14432287" lon="6.1542135" />
    </waypoint>
    <waypoint id="2" name="Kvannholmen">
      <position lat="59.14189573" lon="6.08508445" />
    </waypoint>
    <waypoint id="3" name="Smaskjaerene">
      <position lat="59.13572616" lon="6.08322484" />
      <leg starboardXTD="0.07" portsideXTD="0.07" />
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  </waypoints>
</route>
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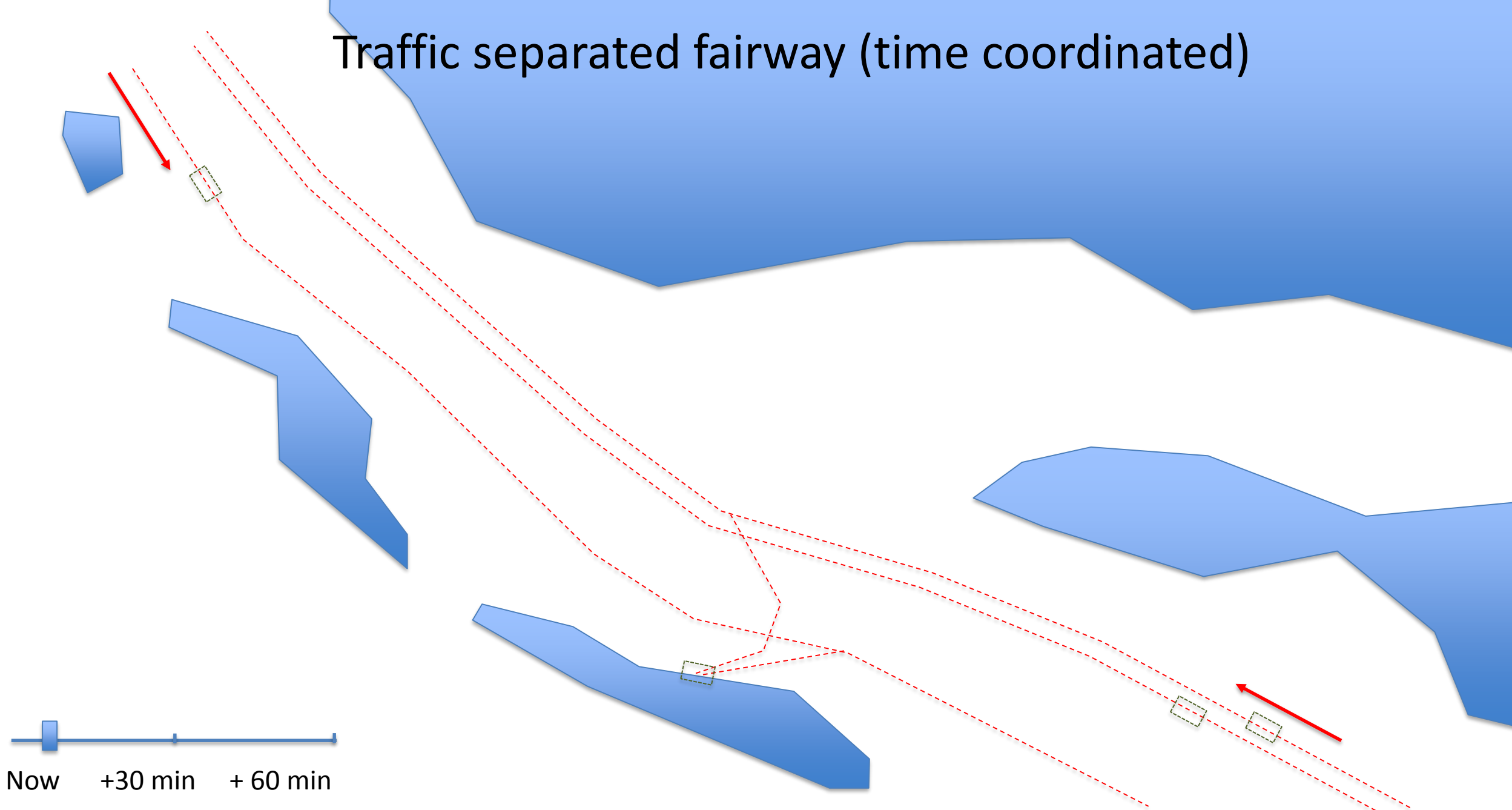
Rout: Ardal_Skundefjorden_Out
Rout name
NCA_Ardal_Skundefjorden_Out_20190704.rtz

Traffic separated fairway (time coordinated)



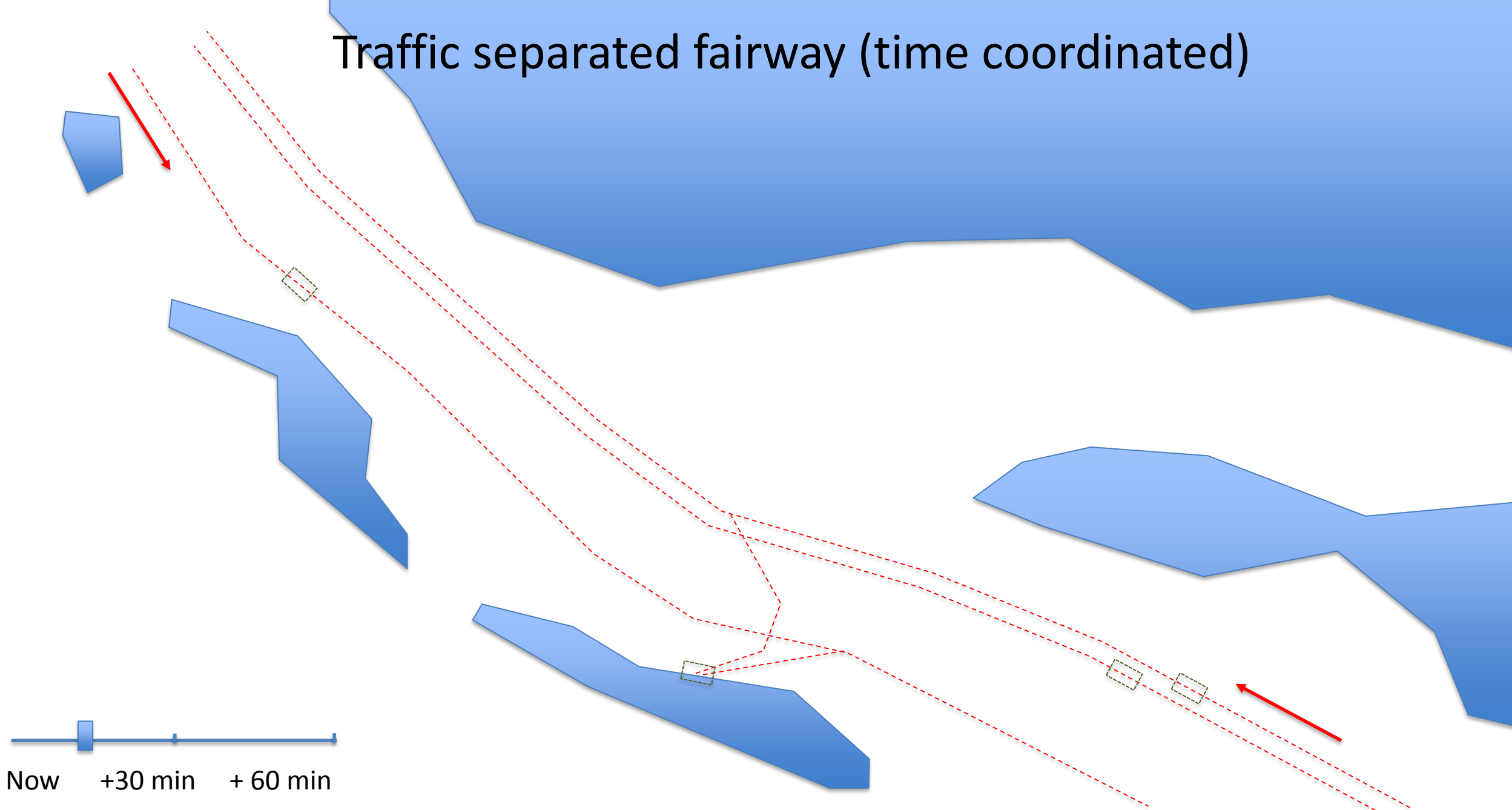
Now +30 min +60 min

Traffic separated fairway (time coordinated)



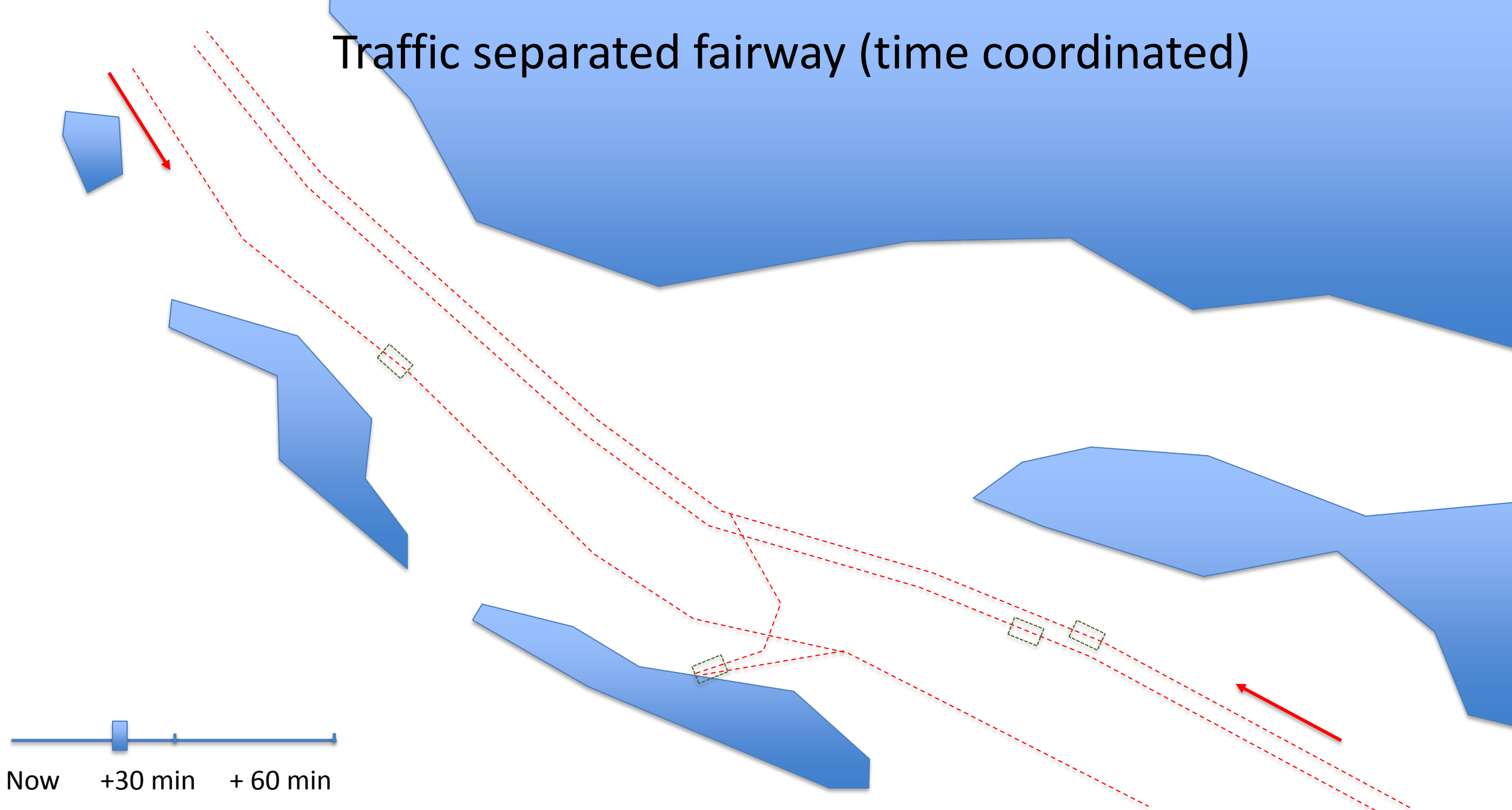
Now +30 min +60 min

Traffic separated fairway (time coordinated)



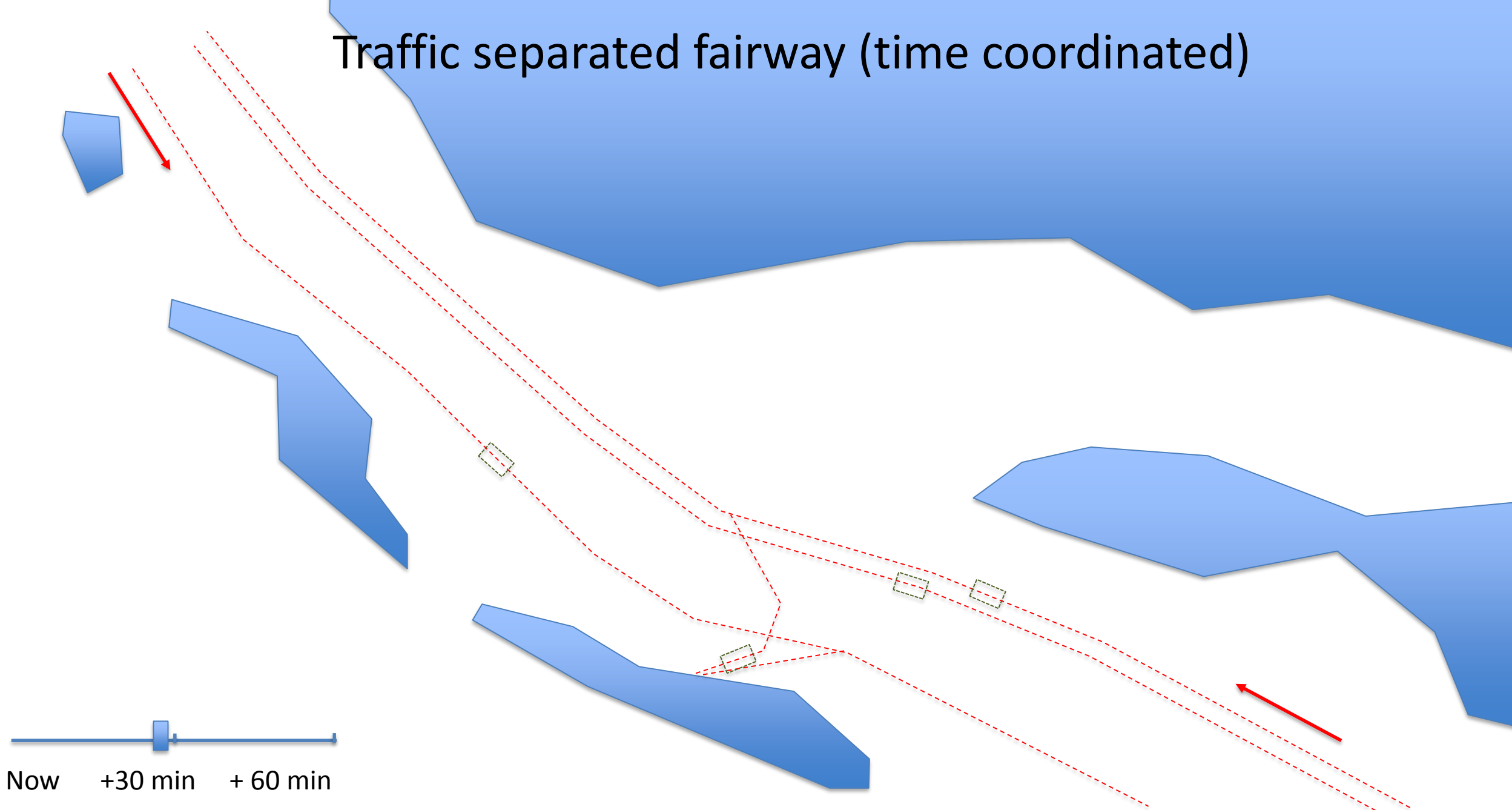
Now +30 min +60 min

Traffic separated fairway (time coordinated)



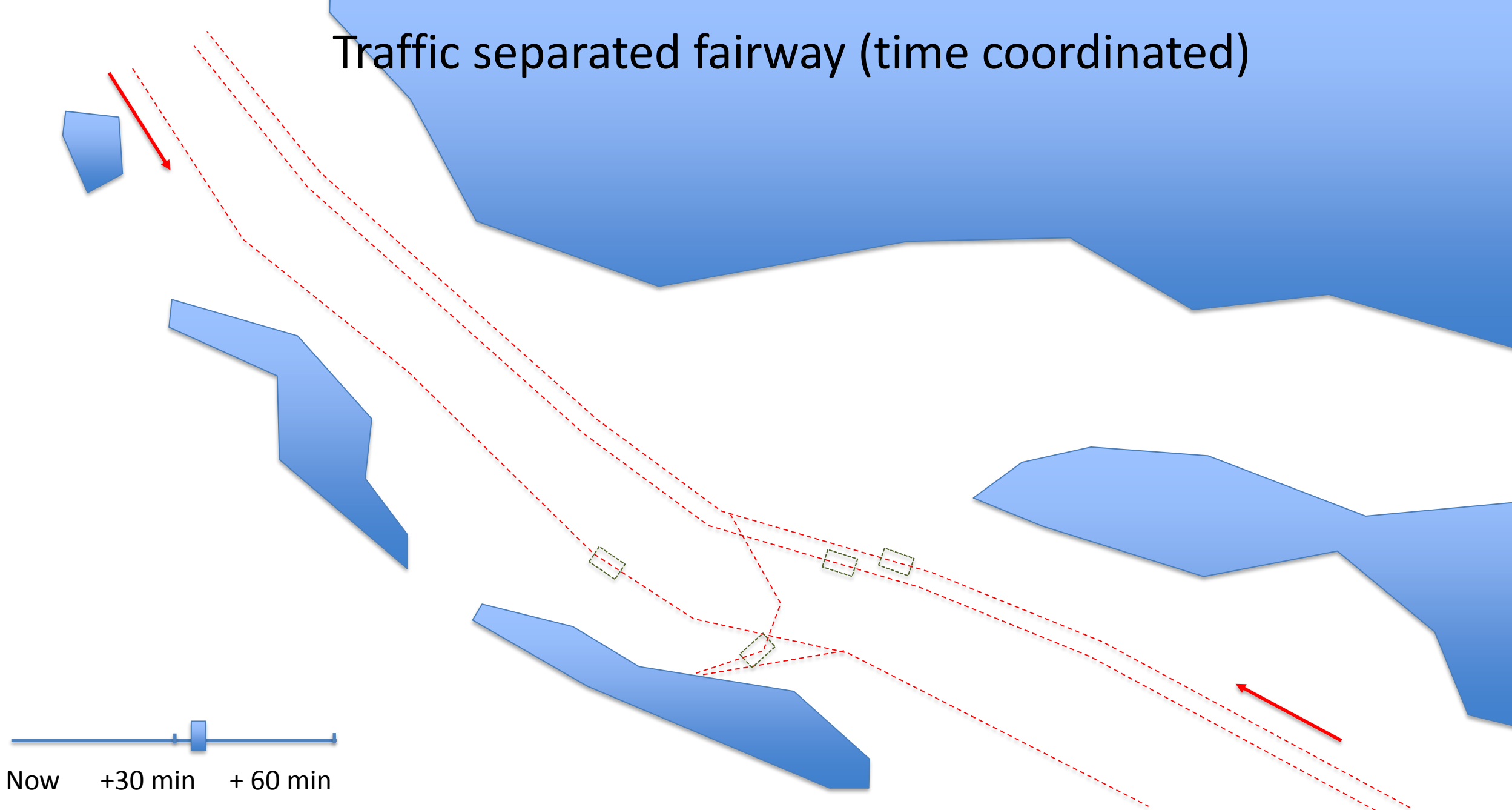
Now +30 min +60 min

Traffic separated fairway (time coordinated)



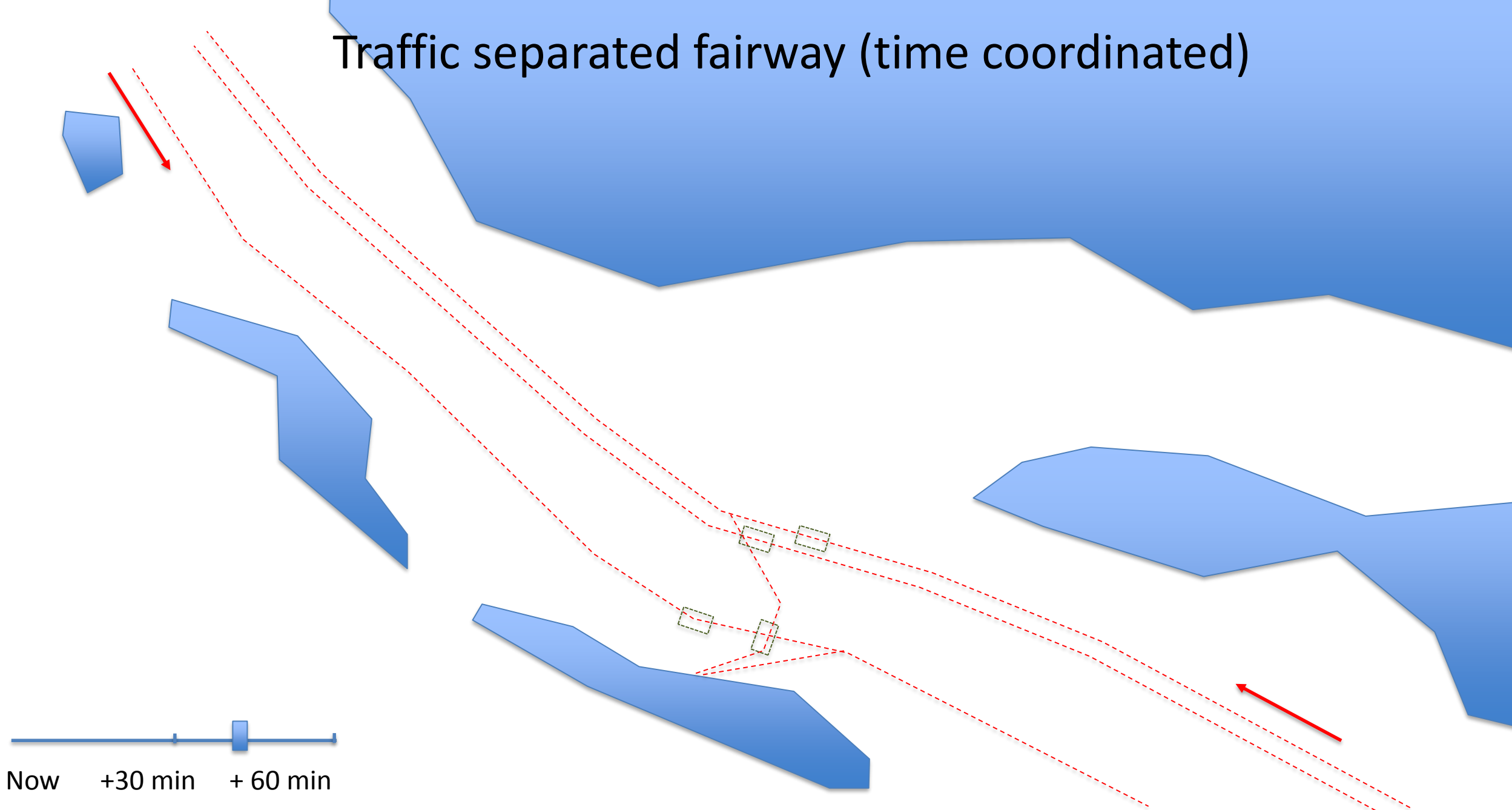
Now +30 min +60 min

Traffic separated fairway (time coordinated)



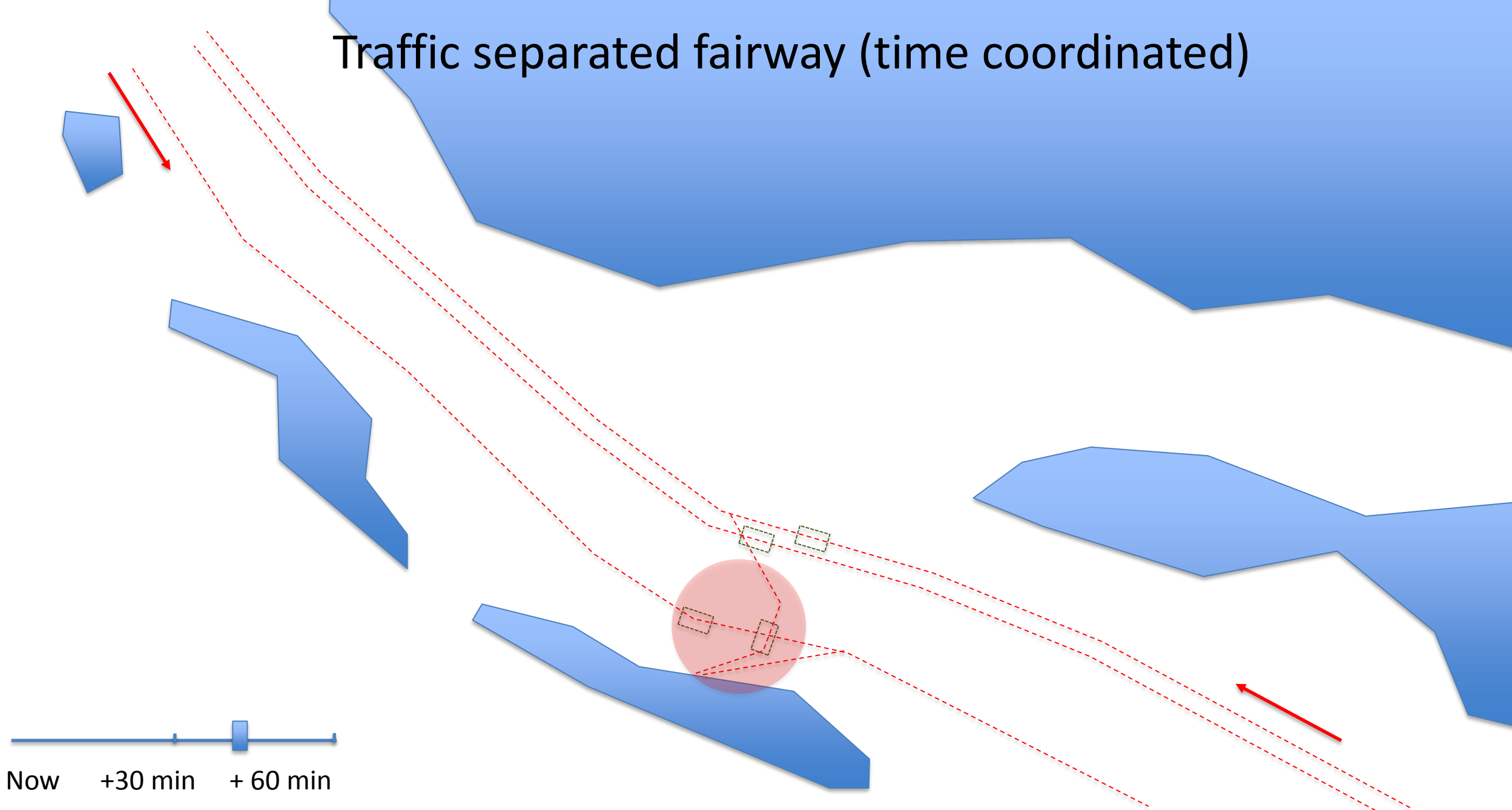
Now +30 min +60 min

Traffic separated fairway (time coordinated)

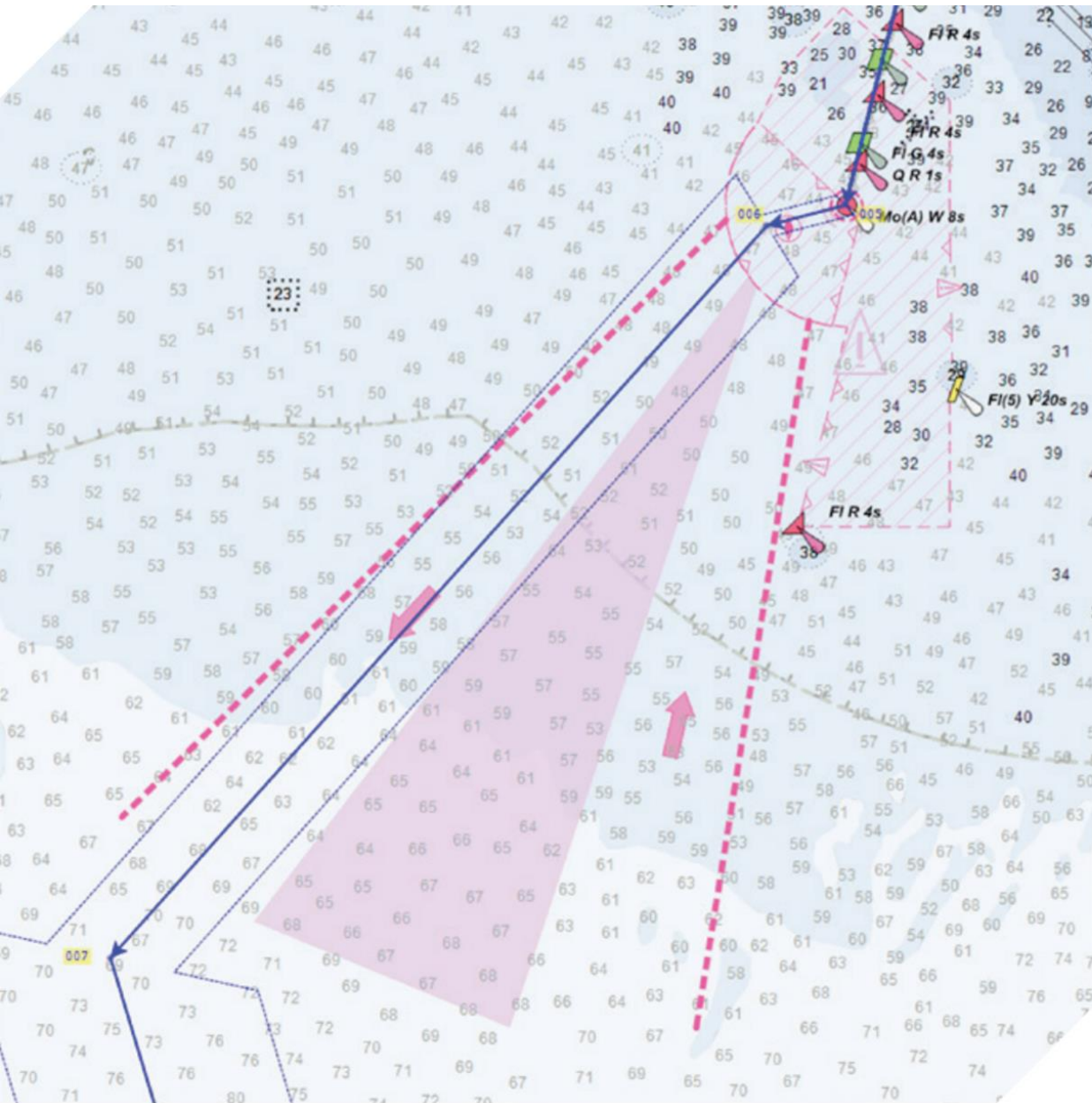


Now +30 min +60 min

Traffic separated fairway (time coordinated)

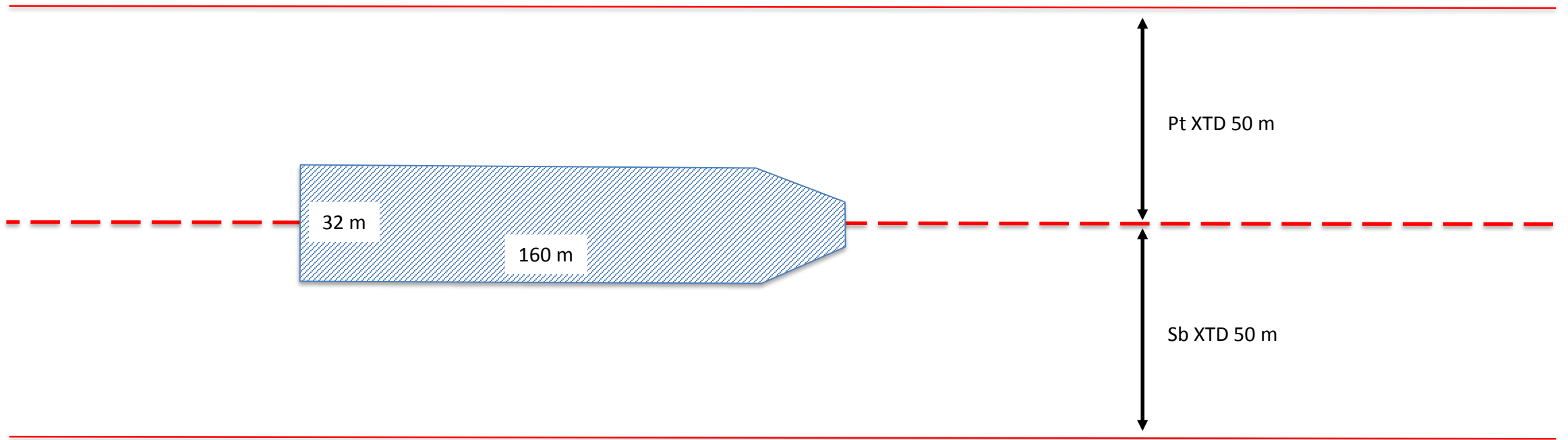


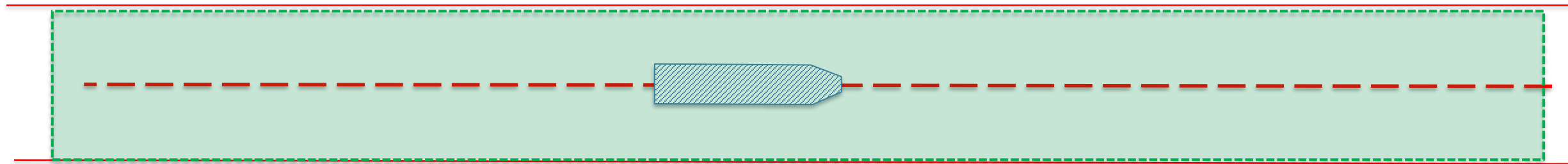
Now +30 min +60 min



When Cross Track Distances are properly set to each leg of a voyage plan then route checking assists in checking for potential obstructions, dangers and insufficient depths.

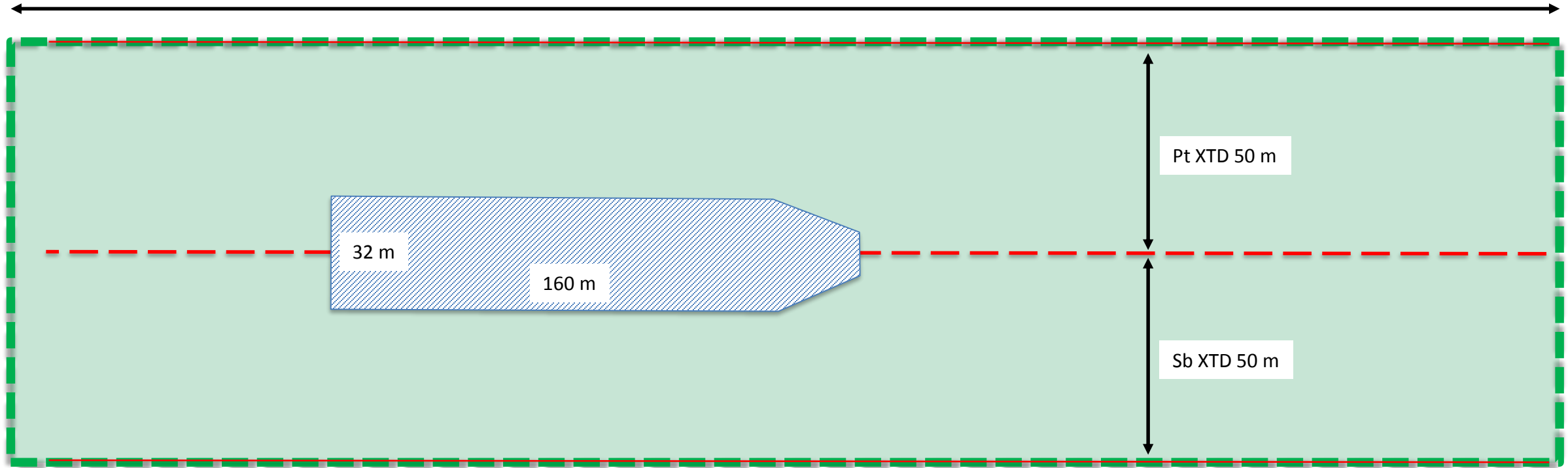




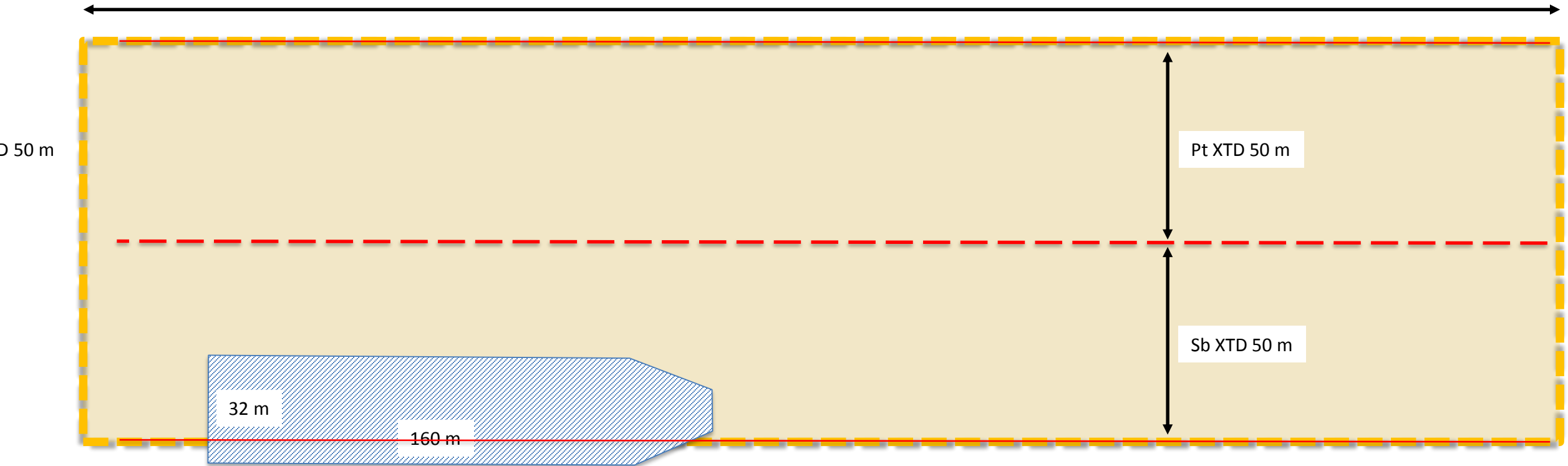


In 15 kn a 3-minute Moving Haven will be 7.5 cables long (1389 m)

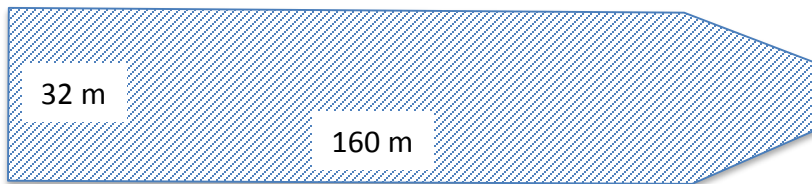
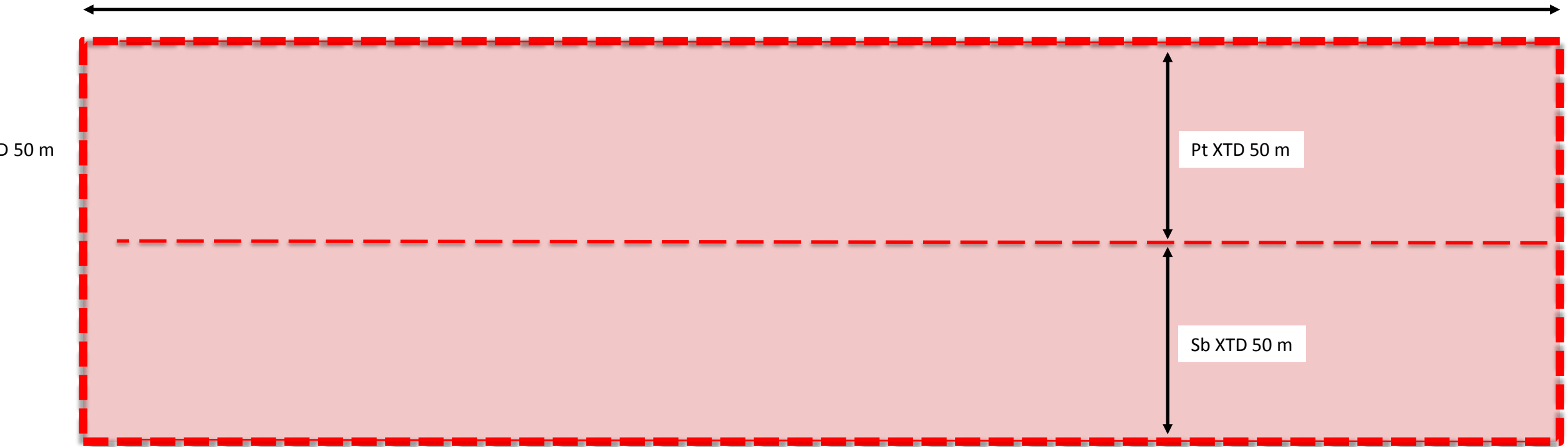
With 15 knots a 1 minute Moving Haven will be 2.5 cables long (463 m)

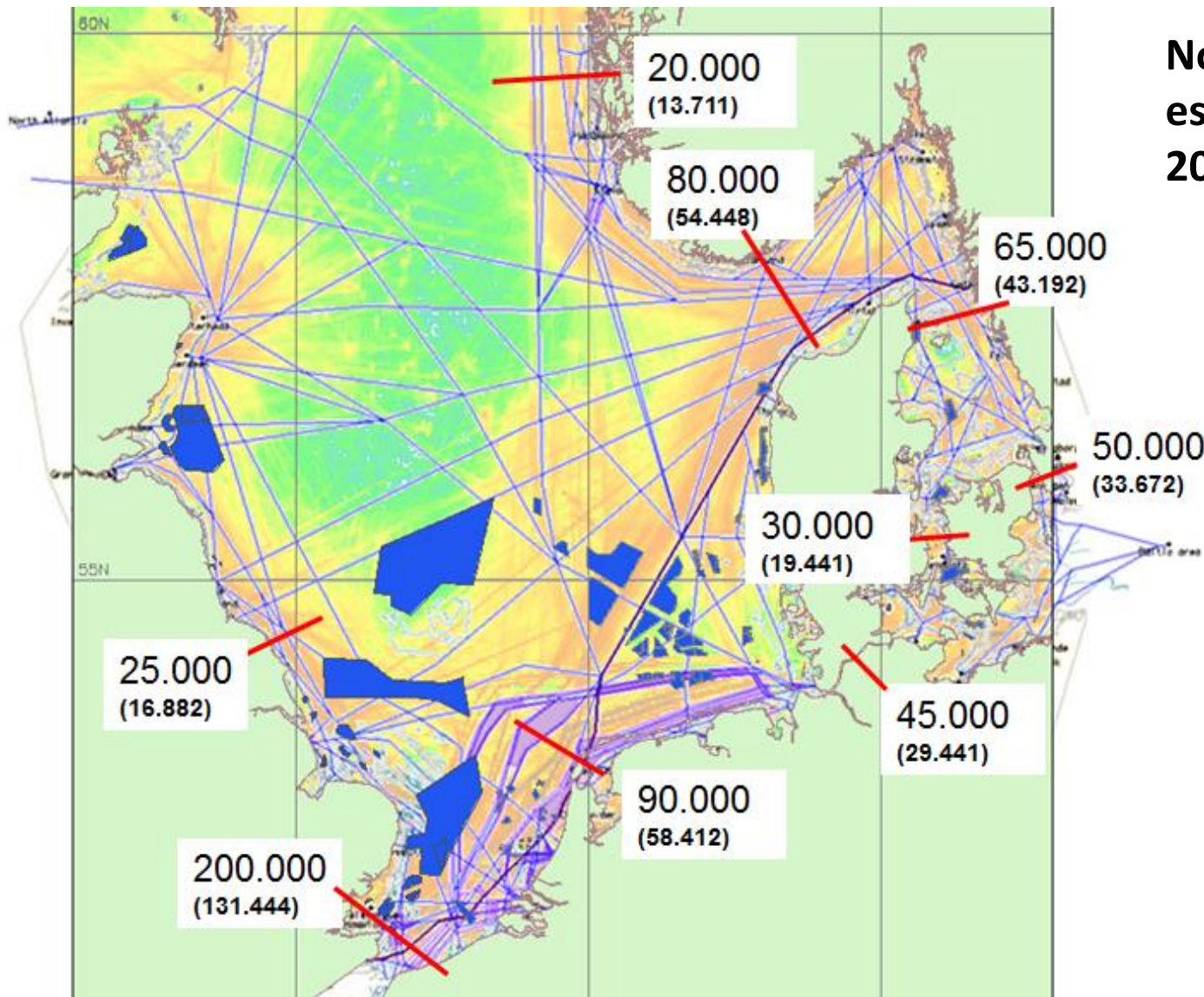


With 15 knots a 1 minute Moving Haven will be 2.5 cables long (463 m)



With 15 knots a 1 minute Moving Haven will be 2.5 cables long (463 m)

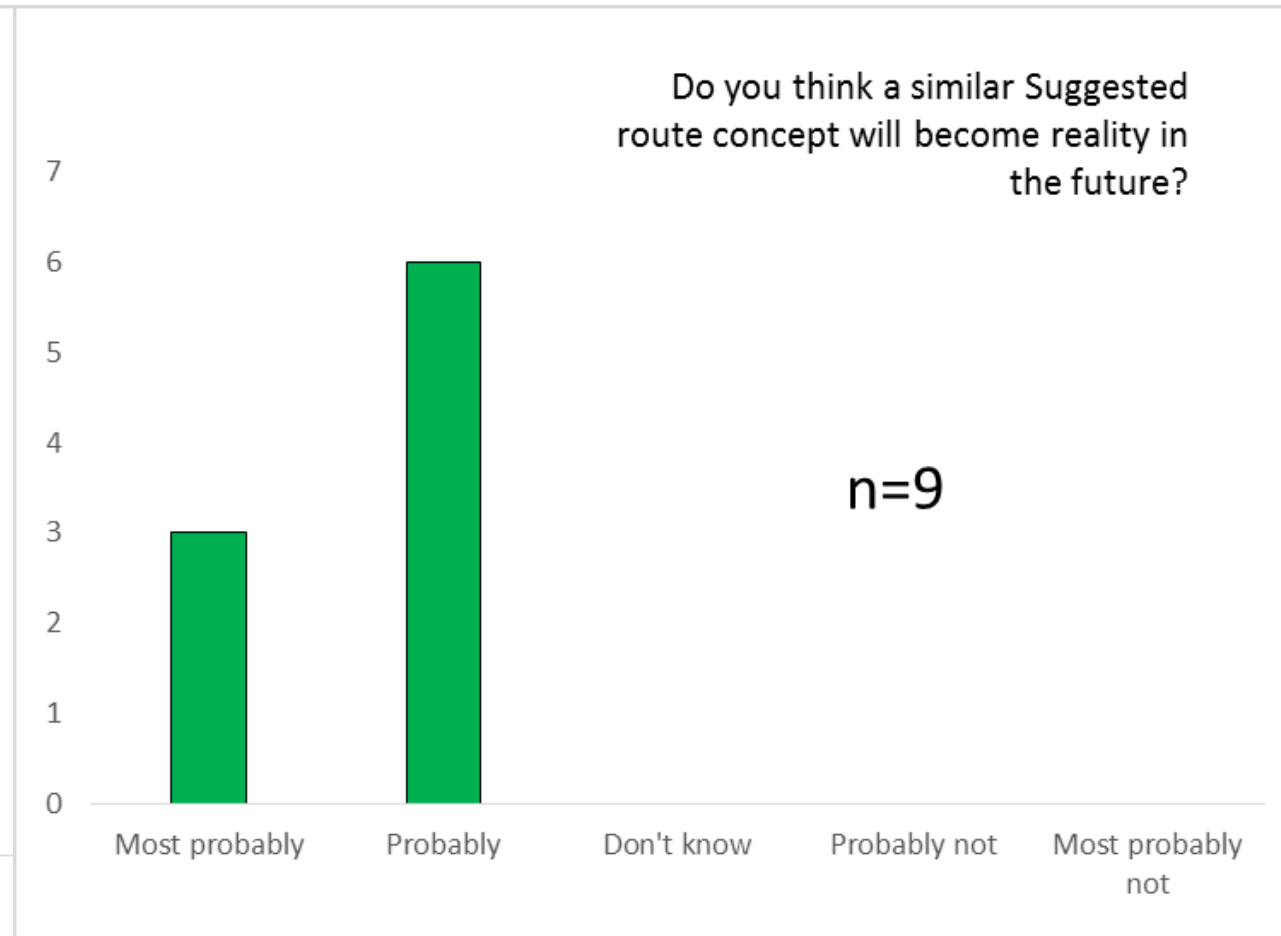
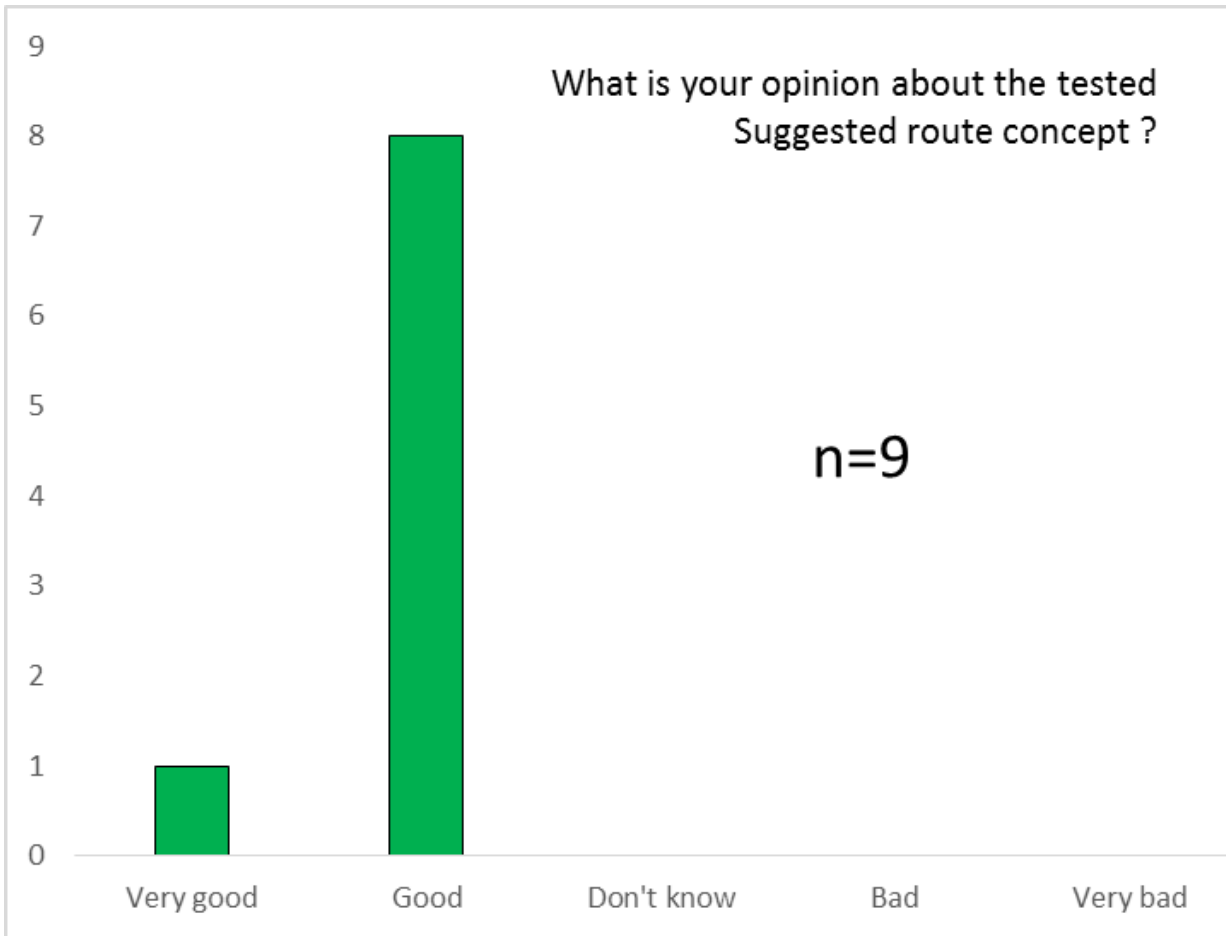




North Sea Region estimated traffic 2025 (2012)



Results from the survey of Suggested route service



Porathe, T., Lutzhoft, L. & Praetorius, G. 2013. Communicating intended routes in ECDIS: Evaluating technological change. *Accident Analysis and Prevention*, Elsevier 2013 Nov; 60:366-70



ACCSEAS

Accessibility for Shipping, Efficiency Advantages and Sustainability

File Interact Layers Tools Layouts Panels Help

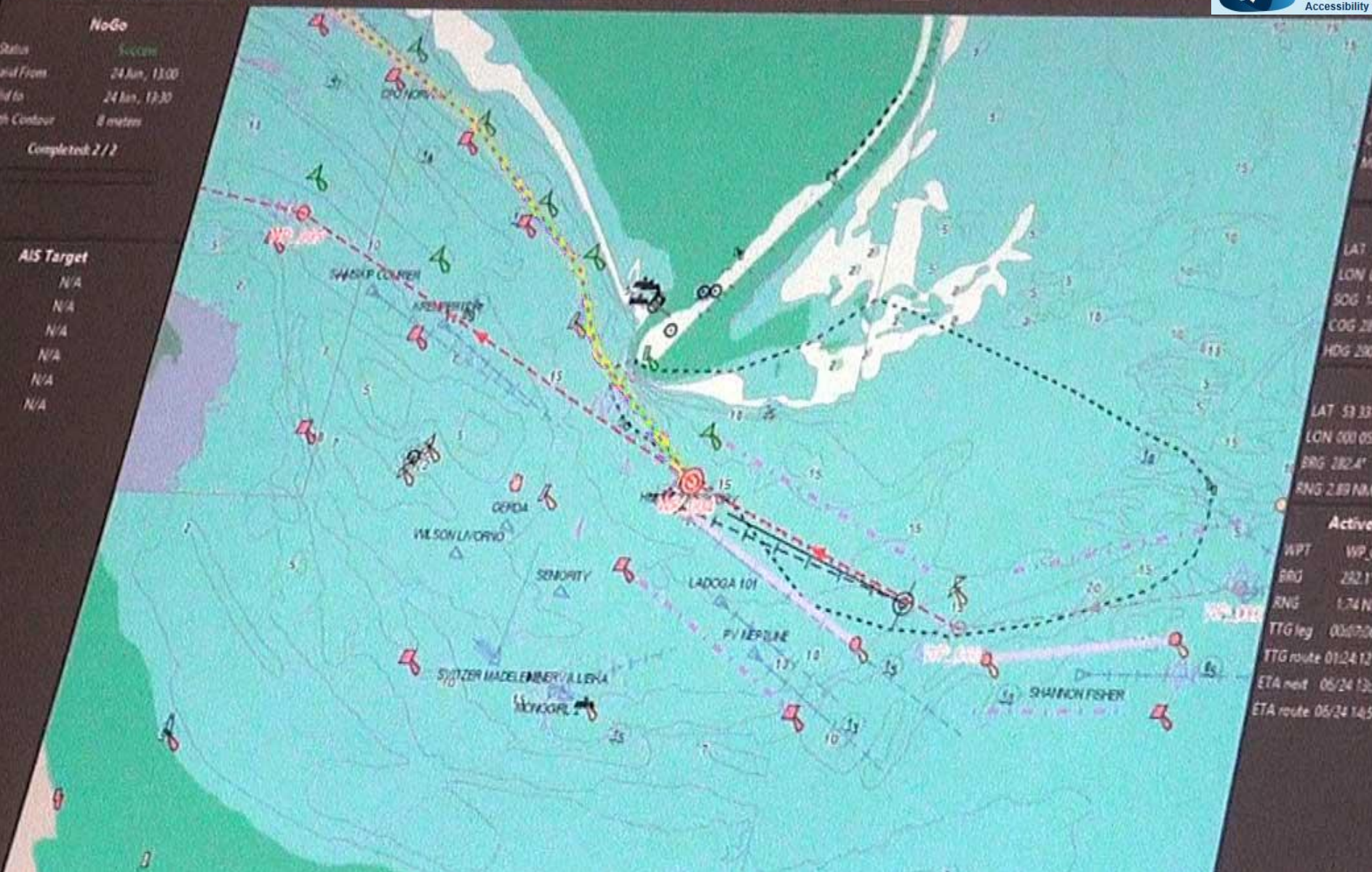


NoGo

Status **Success**
 Valid From 24 Jun, 13:00
 Valid to 24 Jun, 13:30
 Depth Contour 8 meters
 Completed 2 / 2

AIS Target

Name	N/A
Call Sign	N/A
SOG	N/A
COG	N/A
DST	N/A
BRG	N/A



06/24/2014 13:27:00

Scale: 700%

Own Ship

Name: ACCSEAS
 Callign: ACCSEAS
 MMSI: 232975563

PNT

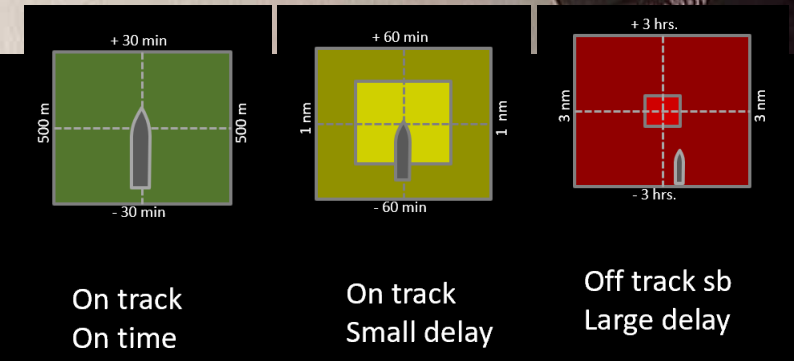
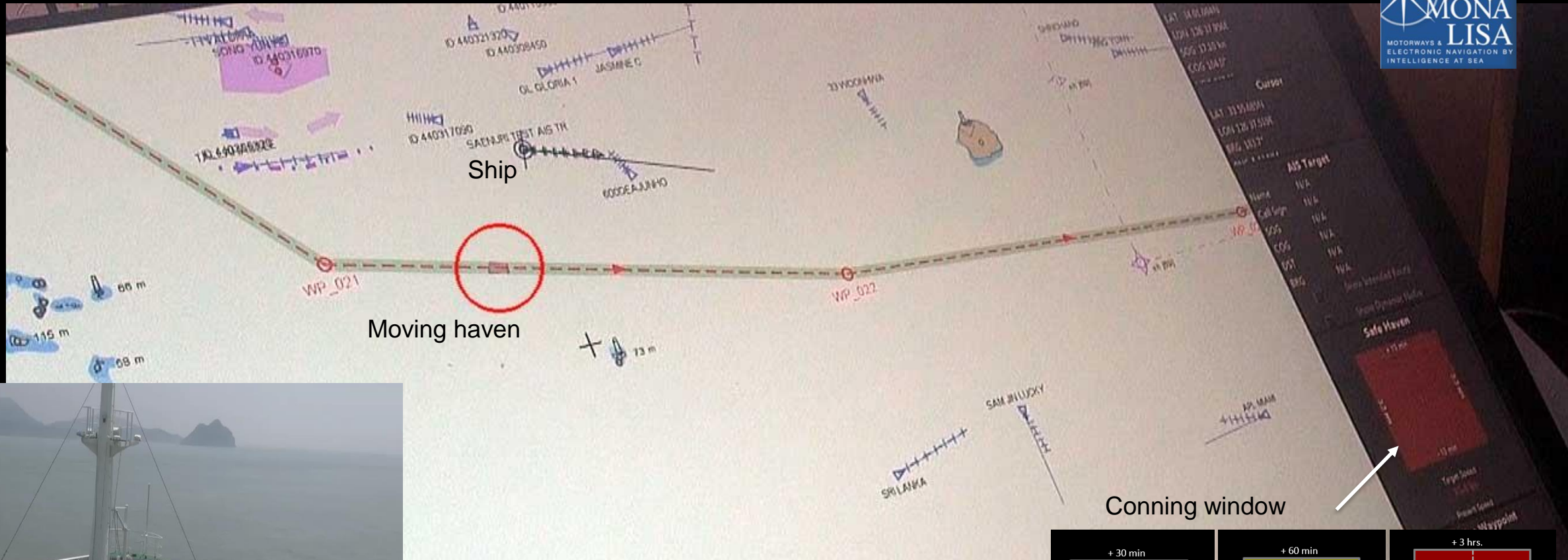
LAT 53.32.969N
 LON 008.10.077E
 SOG 14.70 kn
 COG 287.1°
 HDG 290.0°

Cursor

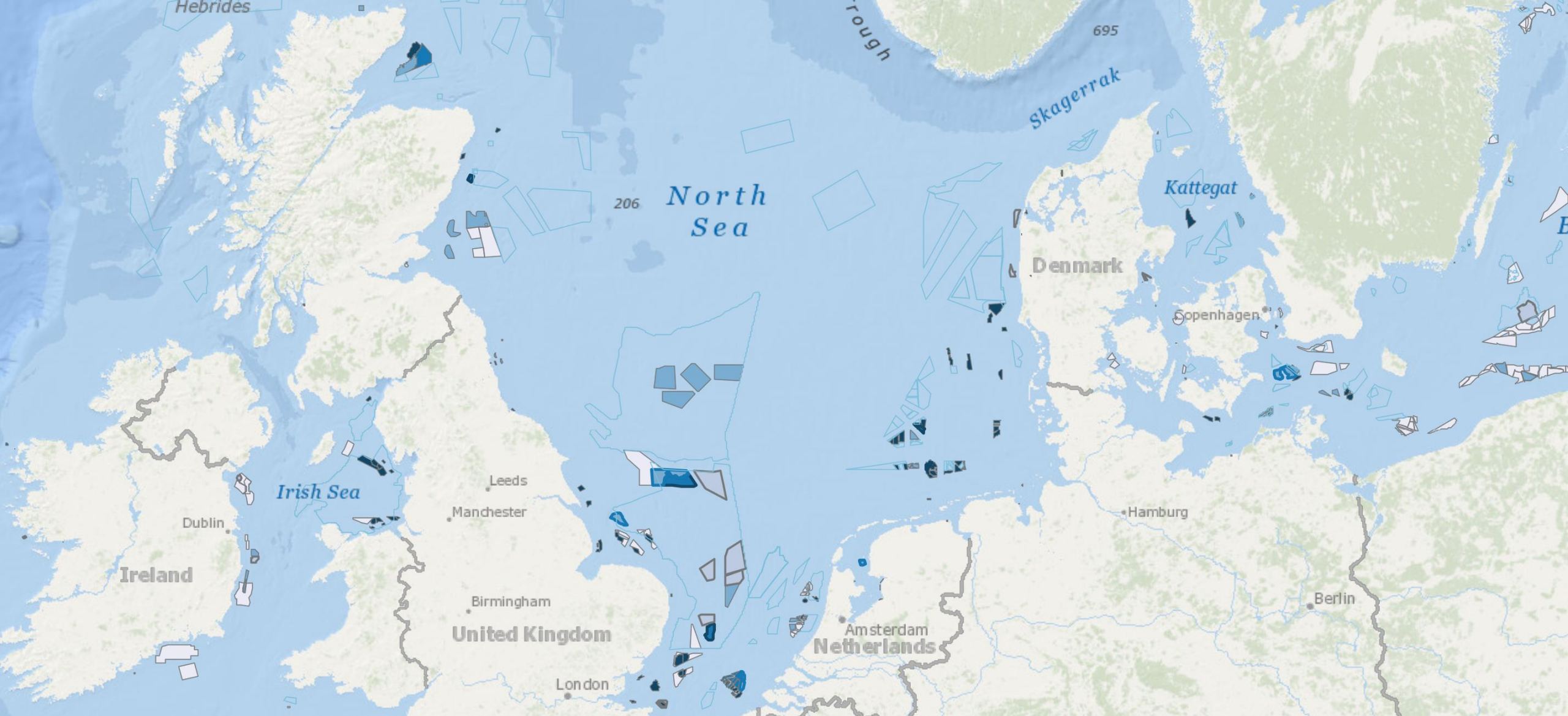
LAT 53.33.591N
 LON 008.05.329E
 BRG 282.4°
 RNG 2.89 NM

Active Waypoint

WPT WP_004
 BRG 282.1°
 RNG 1.74 NM
 TTG leg 00:07:06
 TTG route 01:24:12
 ETA next 06/24 13:34:09(0)
 ETA route 06/24 14:51:14(0)



Safe haven in ECDIS during a technical tests Korea 2013



<https://www.4coffshore.com>

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<https://www.salmar.no/en/frontpage-modules/offshore-fish-farming/>



<https://www.salmar.no/en/frontpage-modules/offshore-fish-farming/>

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