
Obstructions on the
Dutch Continental Shelf (DCS)
DCS
Rob Lambij
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Obstructions on the DCS

DCS (EZZ) is roughly 1.5 times the Netherlands

On and in the seabed are:

- Shipwrecks (>10.000)
- Airplane wrecks
- Ammunition
- Lost ship cargo / ship parts
- Offshore pipelines / constructions / wellheads
- Telecom cables
- High voltage cables

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Pipelines on the DCS

- Since 1975, 1ste 36inch gas pipeline L10 – Uithuizermeeden
- Total 241 pipelines
- Length < 4,500km of pipelines
- Inside pipe diameters 2 - 42 inch
- Pipelines < 16 inch should be buried
- 24 pipelines are decommissioned (190km)
  17 gas, 4 oil, 3 others. Inside pipe diameters varies from 2 - 14 inch
  (they have not been removed)

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Telecom cables on the DCS

Telecom cables to / from the Netherlands

Known: 38

Unknown: ?

Removed: 1

Telecom cables crossings DCS

Known: 6

Unknown: many

Removed: 0

Approximate 6.000 to 10.000km of telecom cables on the DCS

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Telecom cables to / from the Netherlands

Year	From	To	Cable name
1853	Orfordness (UK)	Scheveningen (NL), 4 kabels	- - -
1858	Dunwich (UK)	Zandvoort (NL)	- - -
1862	Lowestoft (UK)	Zandvoort (NL)	- - -
1884	Benacre (UK)	Zandvoort (NL)	Holland 1
1900	Benacre (UK)	Zandvoort (NL)	Holland 2
1922	Aldeburgh (UK)	Domburg (NL)	UK - NL1
1924	Aldeburgh (UK)	Domburg (NL)	UK - NL2
1926	Aldeburgh (UK)	Domburg (NL)	UK - NL3
1937	Aldeburgh (UK)	Domburg (NL)	UK - NL4
1937	Aldeburgh (UK)	Domburg (NL)	UK - NL5
1947	Aldeburgh (UK)	Domburg (NL)	UK - NL6
1950	Römo (Den)	Terschelling (NL)	NLNo 1
1954	Lowestoft (UK)	Scheveningen (NL), 2 kabels	- - -
1956	Den Helder (UK)	Esbjerg (Den)	- - -
1968	Covehithe (UK)	Katwijk (NL)	UK - NL7
1972	Aldeburgh (UK)	Domburg (NL)	UK - NL8
1975	Broadstairs (UK)	Domburg (NL)	UK - NL9
1979	Lowestoft (UK)	Egmond (NL)	UK - NL10
1984	Aldeburgh (UK)	Domburg (NL)	UK - NL11

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Telecom cables to / from the Netherlands

Year	From	To	Cable name
1989	Aldeburgh (UK)	Domburg (NL)	UK - NL12
1992	Norden (Ger)	Terschelling - Alkmaar (NL)	TAT - 10
1994	Aldeburgh (UK)	Domburg (NL)	UK - NL13
1994	Castricum (NL)	Lowestoft (UK)	Rembrandt - 1
1995	Veume (Bel)	Egmond (NL)	RIOJA 2B/3B
1995	Maade (Den)	Egmond (NL)	ODIN1
1997	Winterton (UK)	Egmond (NL)	UK - NL14
1997	Aldeburgh (UK)	Zandvoort, NL	Hermes - 2
1998	Lowestoft (UK)	IJmuiden (NL)	ULYSSES 2
1999	Aldeburgh (UK)	Domburg (NL)	UK - NL15
1999	Lowestoft (UK)	Zandvoort (NL)	Circe North
1999	Sizewell (UK)	Zandvoort (NL)	Concerto 1N
1999	Zandvoort (NL)	Zeebrugge (Bel)	Concerto 1E
1999	Sennon (UK)	Beverwijk (NL)	AC - 1
1999	Beverwijk (NL)	Westerland (Ger)	AC - 1
2000	Lowestoft (UK)	Beverwijk (NL)	Pangea South
2001	Norden (Ger)	Katwijk (NL)	TAT – 10-D
2001	Katwijk (NL)	St. Valery (Fr)	TAT - 14
2002	Hunmanby (UK)	Eemshaven (NL)	TGN Northern Europe

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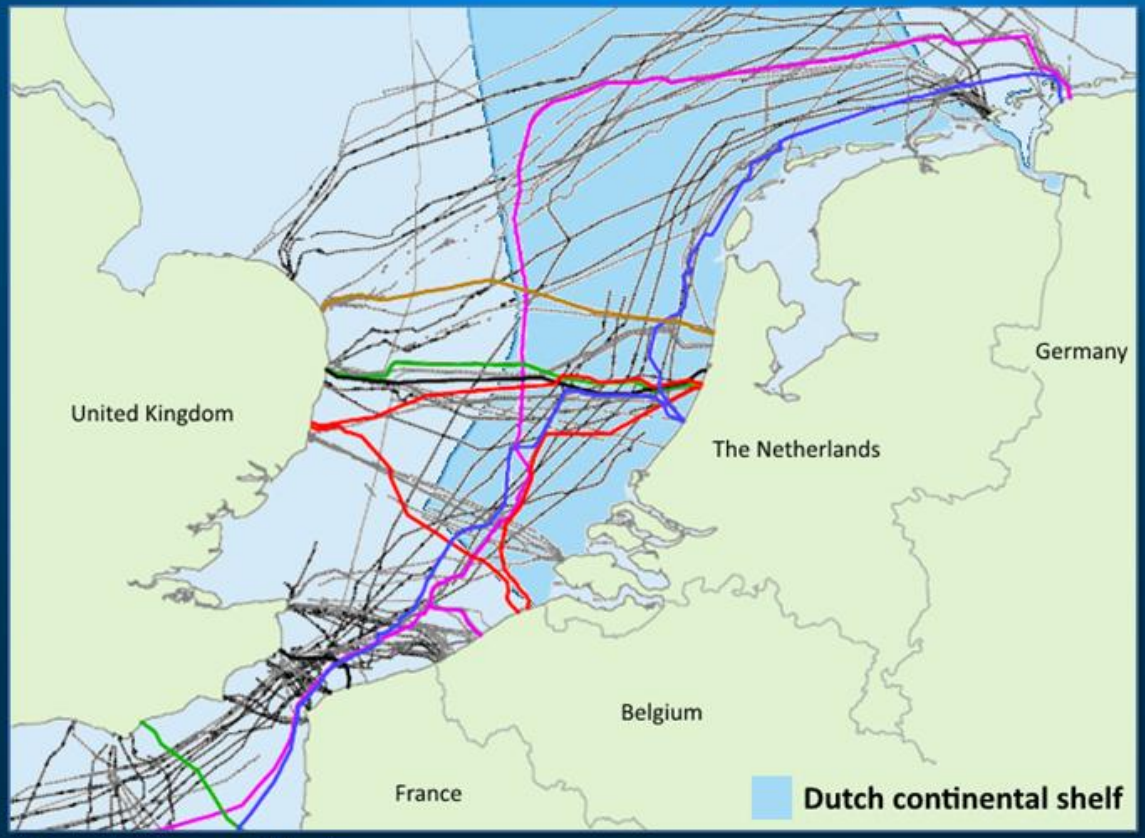
Telecom cables on the DCS



Colored telecom cables in use

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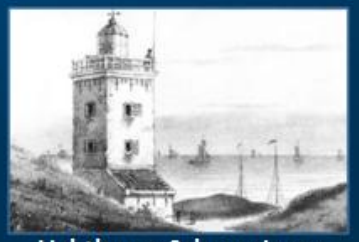
1853, 1st telegraph cable from the United Kingdom to the Netherlands

- From lighthouse Orfordness to Scheveningen (possible lighthouse Scheveningen)
- Distance of about 120 NM (approximately 220km)
- Electric & International Telegraph Co.
- Cable diameter approximately 1.8cm
- Cable-lay vessel ss. *Monarch*
- Between 1853 - 1855, 4 individual cables were laid

Lighthouse Orfordness



Lighthouse Scheveningen

Source: History of the Atlantic Cable & Undersea Communications

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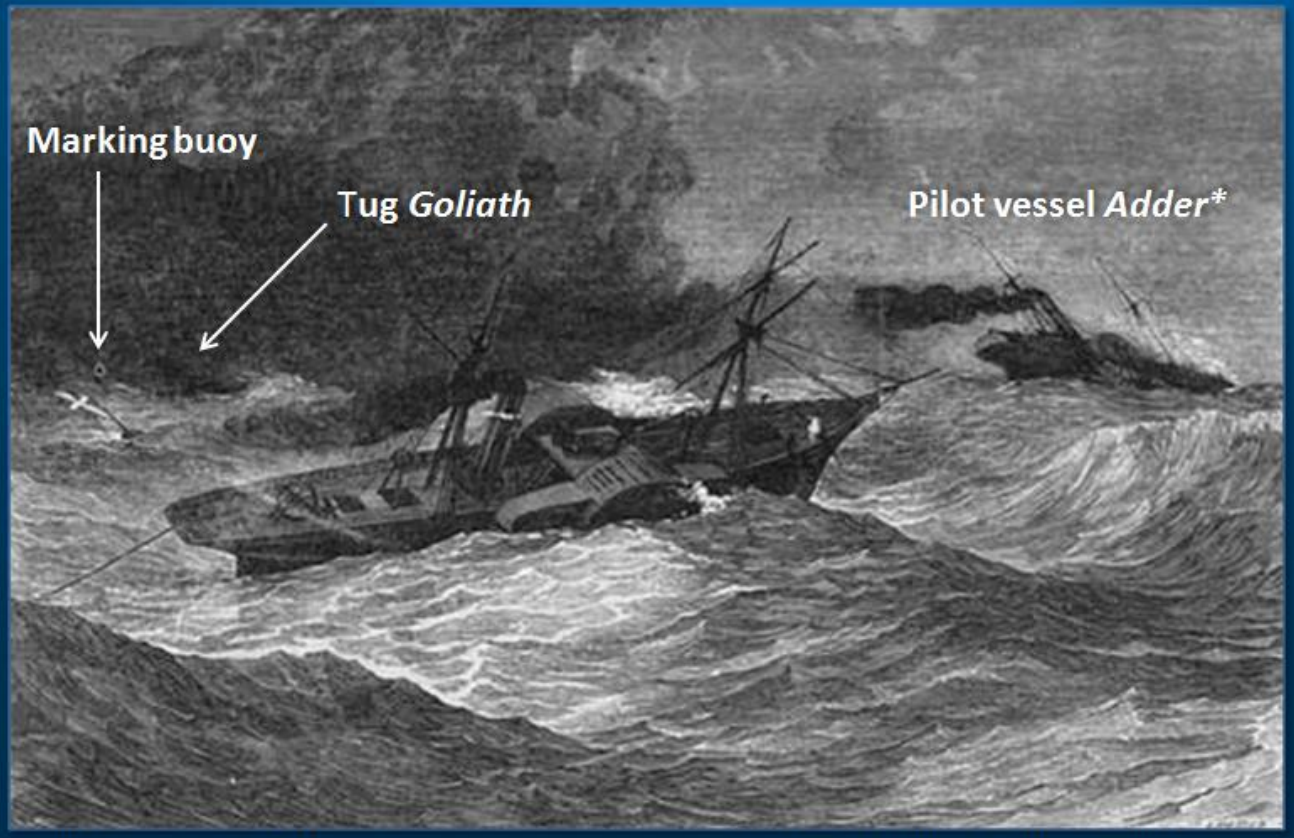
1853, 1st telegraph cable from the United Kingdom to the Netherlands



Cable-lay vessel ss. *Monarch*

*Zr.Ms. Adder lent by the Dutch Admiralty

Source: History of the Atlantic Cable & Undersea Communications

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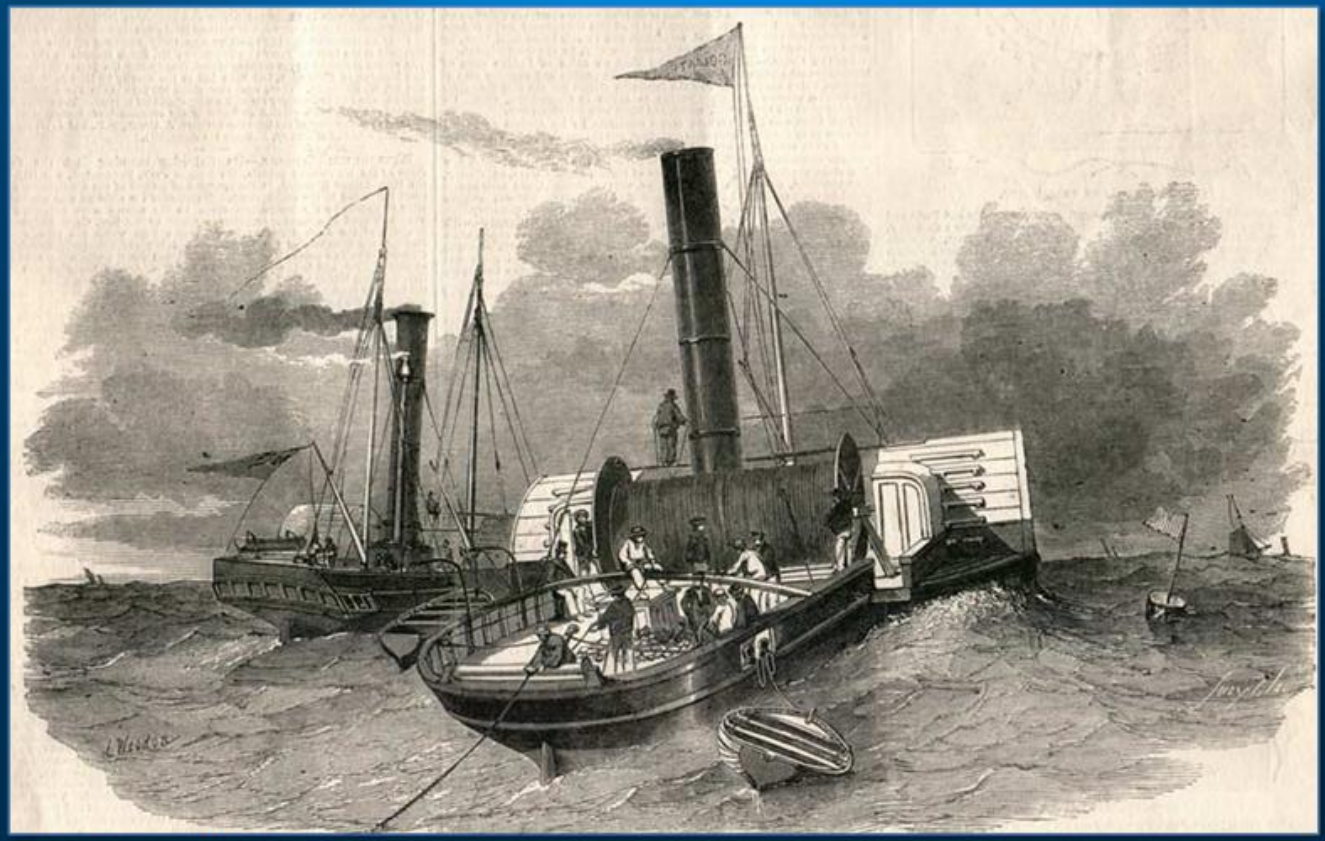
1853, 1st telegraph cable from the United Kingdom to the Netherlands



Cable-lay vessel near marking bouy

Source: History of the Atlantic Cable & Undersea Communications

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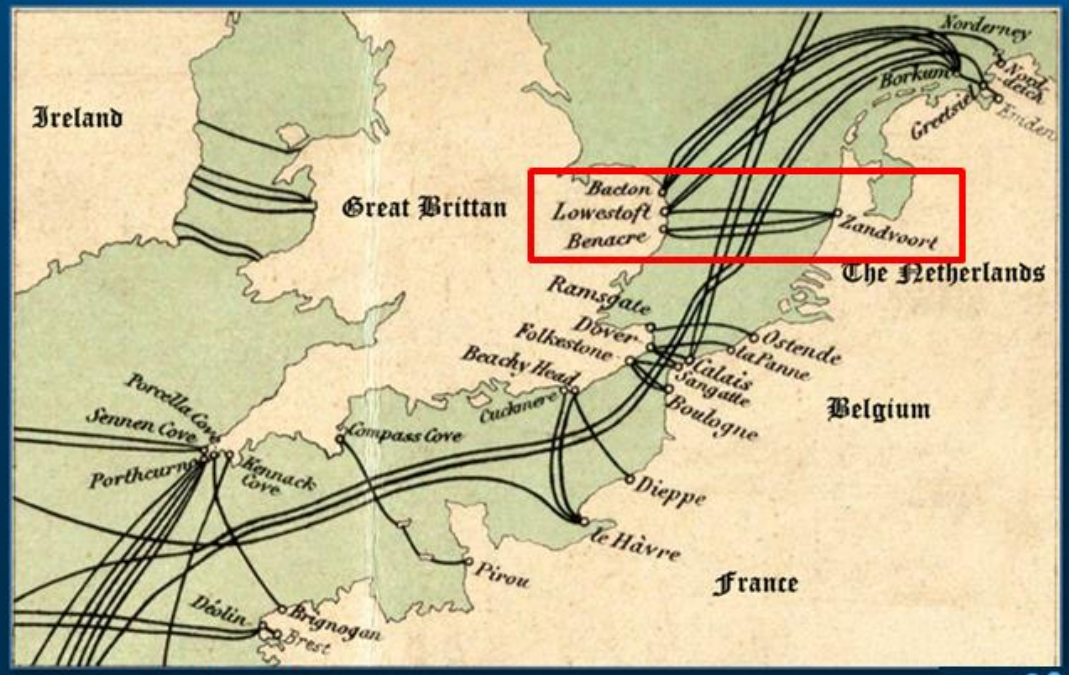
More cables from the United Kingdom to the Netherlands

Year	From	To	Cable name
1853	Orfordness (UK)	Scheveningen (NL), 4 cables	- - -
1858	Dunwich (UK)	Zandvoort (NL)	- - -
1862	Lowestoft (UK)	Zandvoort (NL)	- - -
1884	Benacre (UK)	Zandvoort (NL)	Holland 1
1900	Benacre (UK)	Zandvoort (NL)	Holland 2



Telegraph cables in 1901

Source: History of the Atlantic Cable & Undersea Communications

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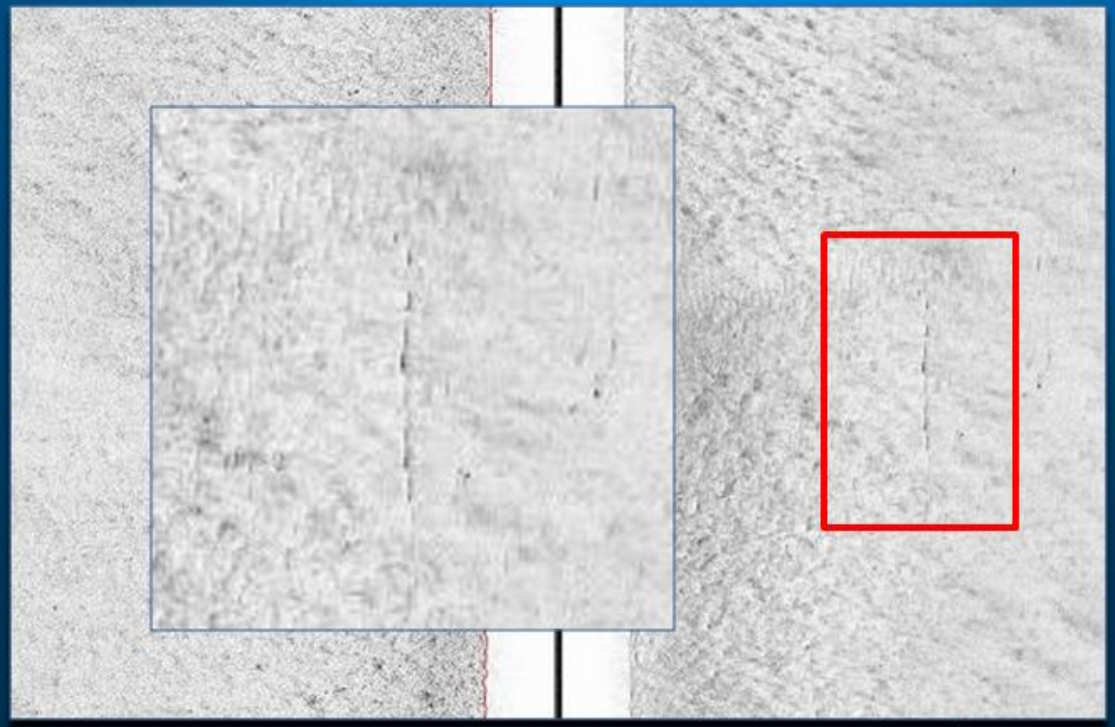
RWS survey 2001, Noord Hinder, Schouwenbank, Twin



- 100m port site -

- 100m - starboard site -

Side-scan sonar image

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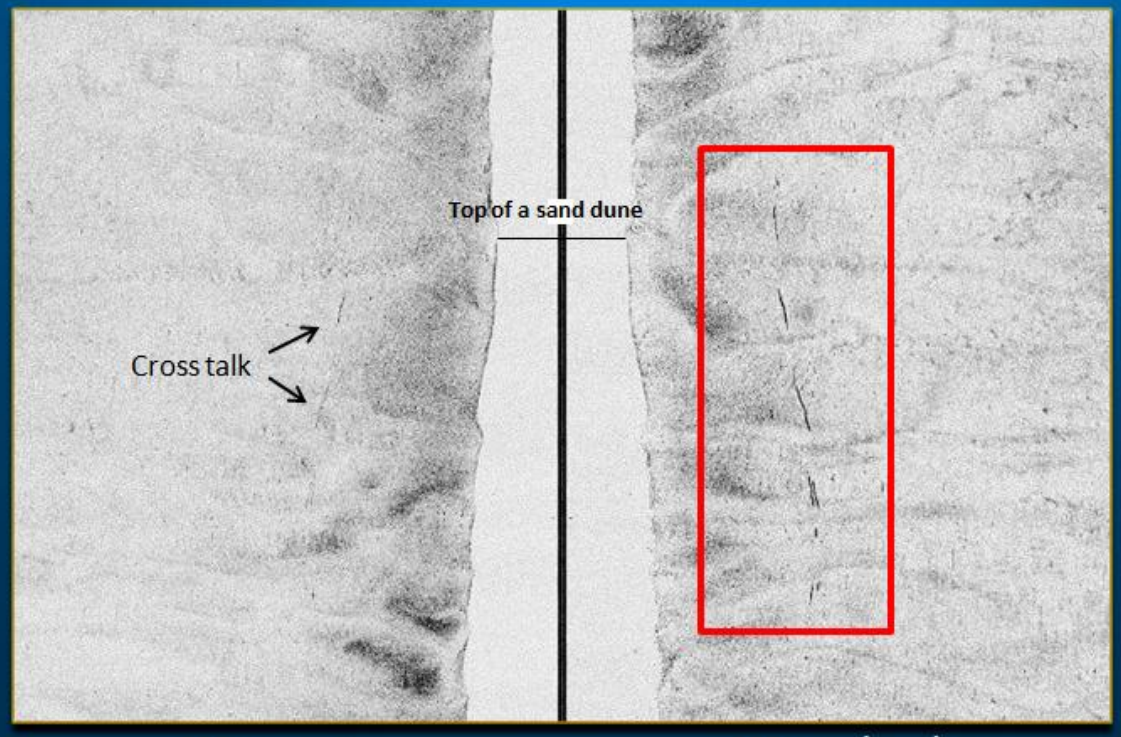
RWS survey 2001, Noord Hinder, Schouwenbank, Twin



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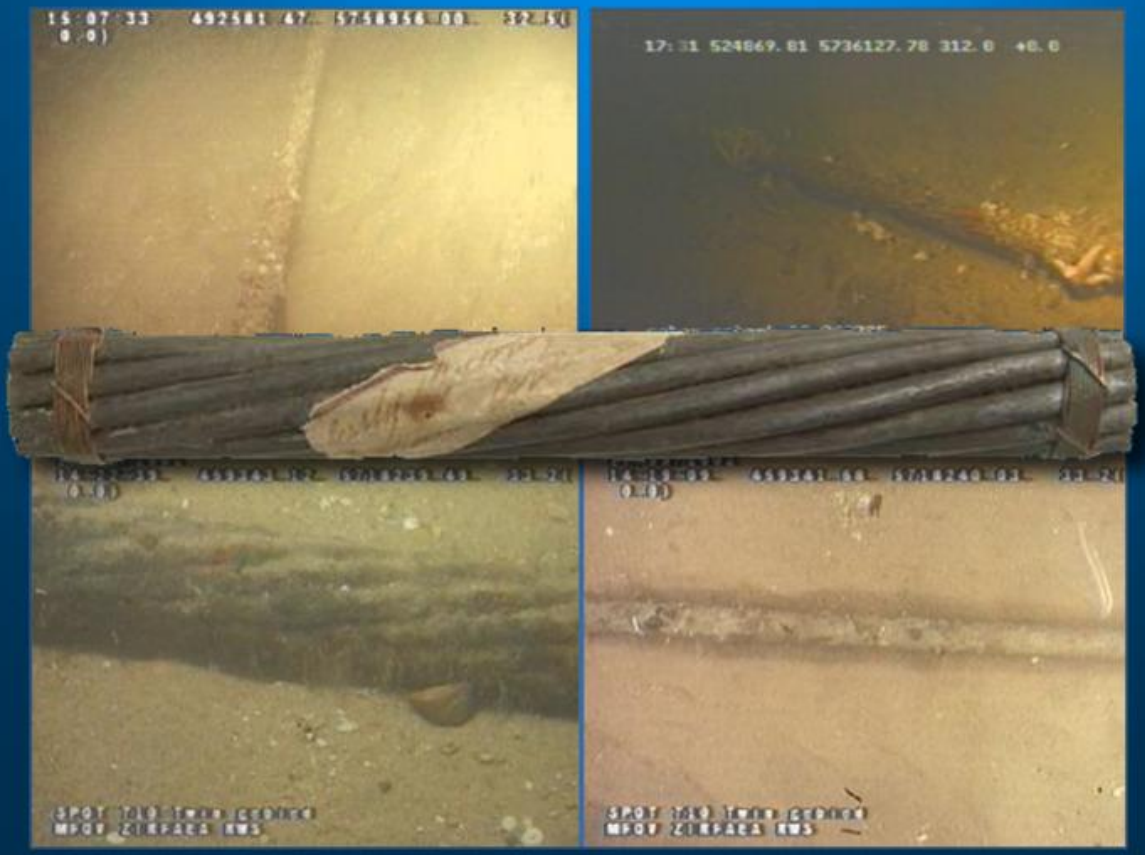

ROV images

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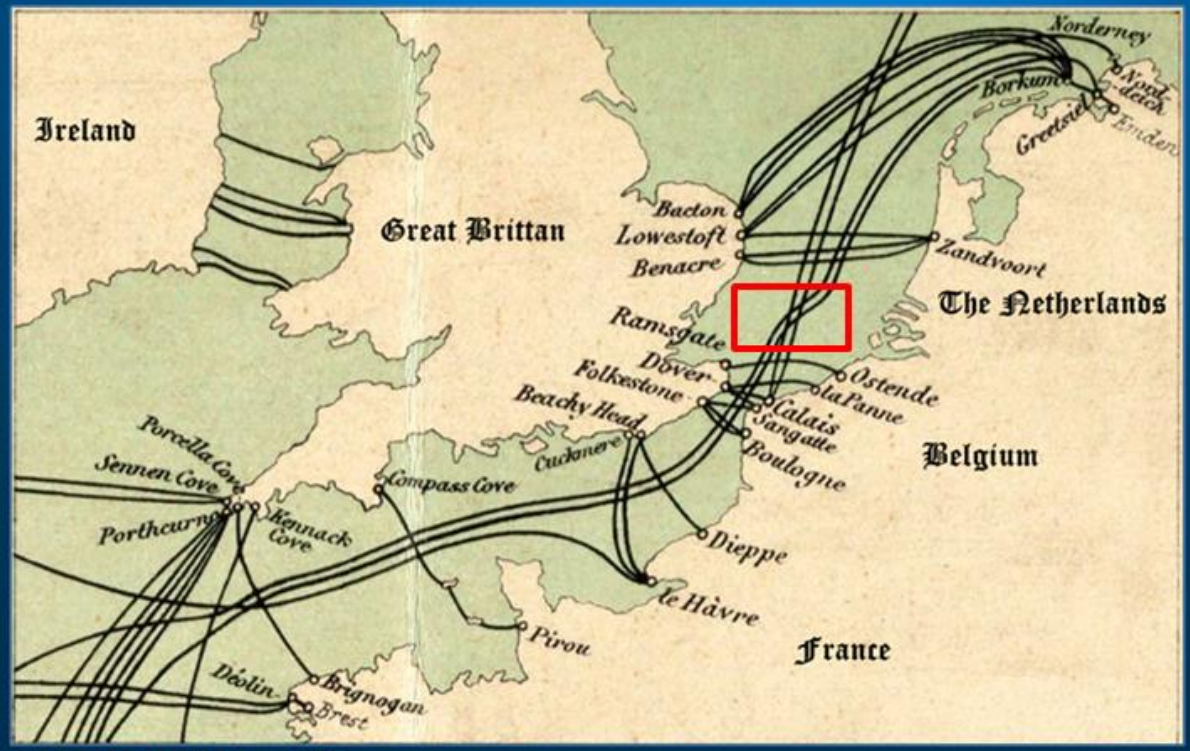
RWS survey 2002, Noord Hinder, Schouwenbank, Twin



Telegraph cables in 1901

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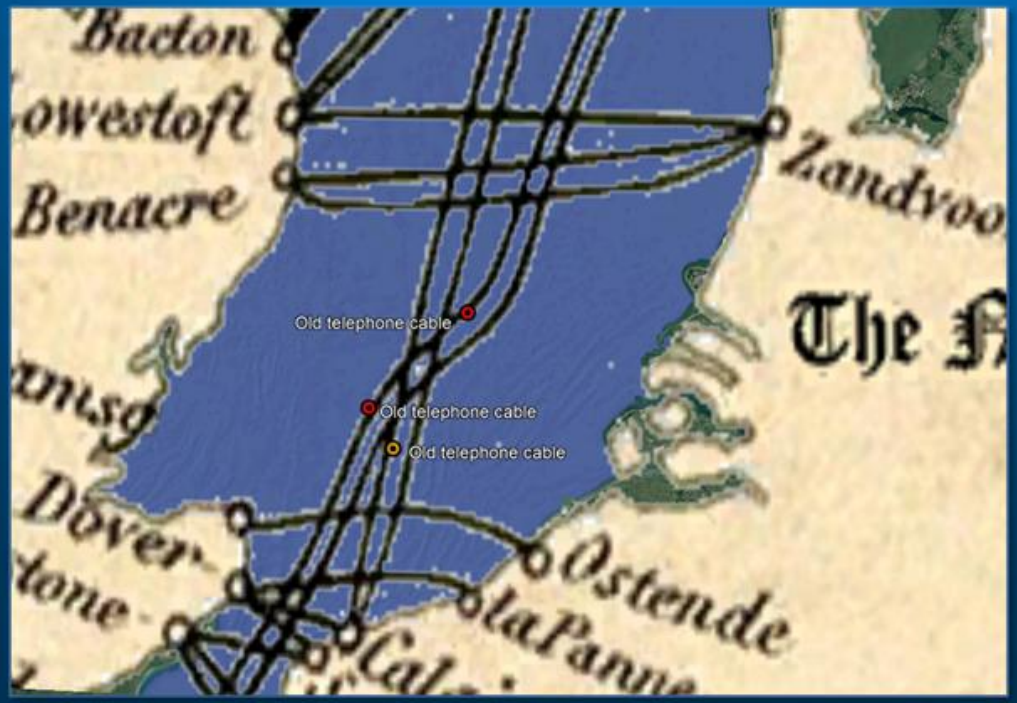

Situation 1901 and 2001 add in Google Earth

Color	Year	From	To
Orange	?	Calais (France)	Denmark
Red	1900	Borkum (Germany)	Fayal (Azores)

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Removal of telecom cables

According to national laws, in most countries the telecom cable has to be remove in the national territorial waters, means within the 12 nm zone

Only 1 telecom cable, the retired submarine cable TAT-10 D routed along the German and Dutch coast, is more than 95% removed within the 12 nm zone

TAT-10D	Fiber-optic telecom cable
From:	Norden (Germany)
To:	Katwijk (the Netherlands)
In operation:	1995
Decommissioned:	2003
Removed:	2007 (within the 12 nm zone)

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Installation of cables and pipelines on the DCS

- On the basis of the principle of efficient use of space, submarine cables and pipelines must other operating functions interfere as little as possible
- Submarine cables and pipelines must be installed in such a way that they present no risk or obstacle for shipping and fishing
- This means that they must be dug deep enough so that, in principle, there is safe fishing and boating can be
- Submarine cables are vulnerable to harm
- Pipeline and high-voltage power cable operators must report to the supervisors every year
  This obligation does not apply to telecom cable operators

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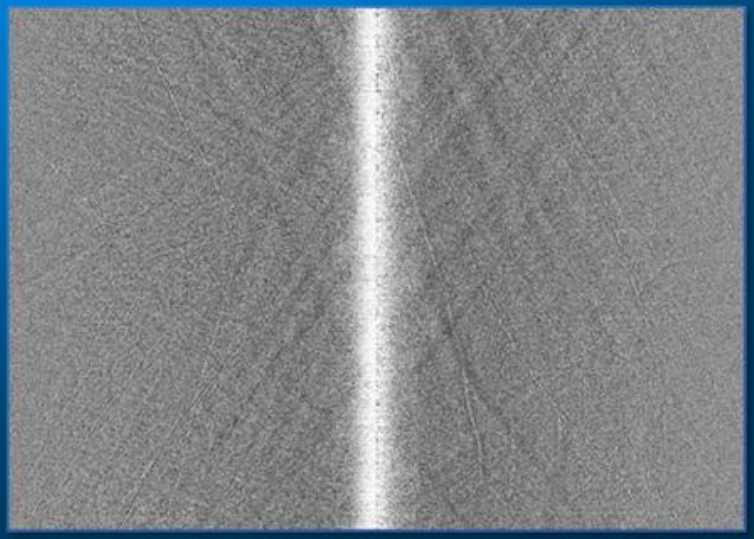
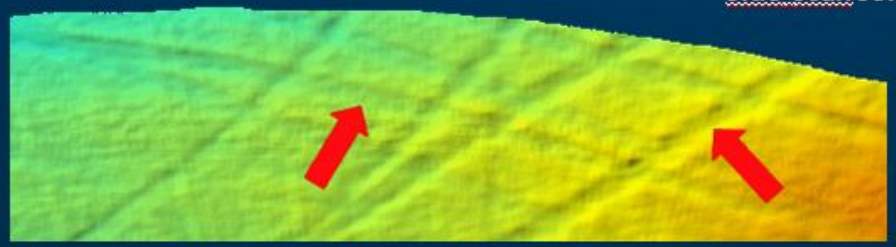
Fishery and telecom cables

Traditional beam-trawl fishery

12 metres beam-trawl net



Side-scan sonar image of beam-trawl marks



Multibeam echosounder image of beam-trawl marks

Penetration depth up to 10cm

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Fishery and telecom cables

Electric pulse wing trawling

SumWing trawling gear

Penetration depth up to 6 cm

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Fishery and telecom cables

Animation SumWing trawling designed by HFK Engineering

In Januari 2018 the European parliament votes to end electric pulse fishing

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Fishery and telecom cables

Cable damage Concerto North telecom cable

- On 16 September 2014 signal loss was detected in the Concerto North telecom cable
- The telecom cable connects the United Kingdom and the Netherlands
- Orange Marine has repaired the damage at the coordinates 52°21',120N 002°49',677E
- The damage was caused by fishing gear
- After investigation by Interoute the cable owner, found that the Dutch beam trawler GO-31 (equipped with SumWing trawling gears) must have caused damage to the cable
- Interoute claims damages in the amount of € 104,407.80 and USD 554,222.62 of the owner of the GO-31
- The owner of the GO-31 denies that the telecom cable is damaged by his action
- Interoute launched a lawsuit

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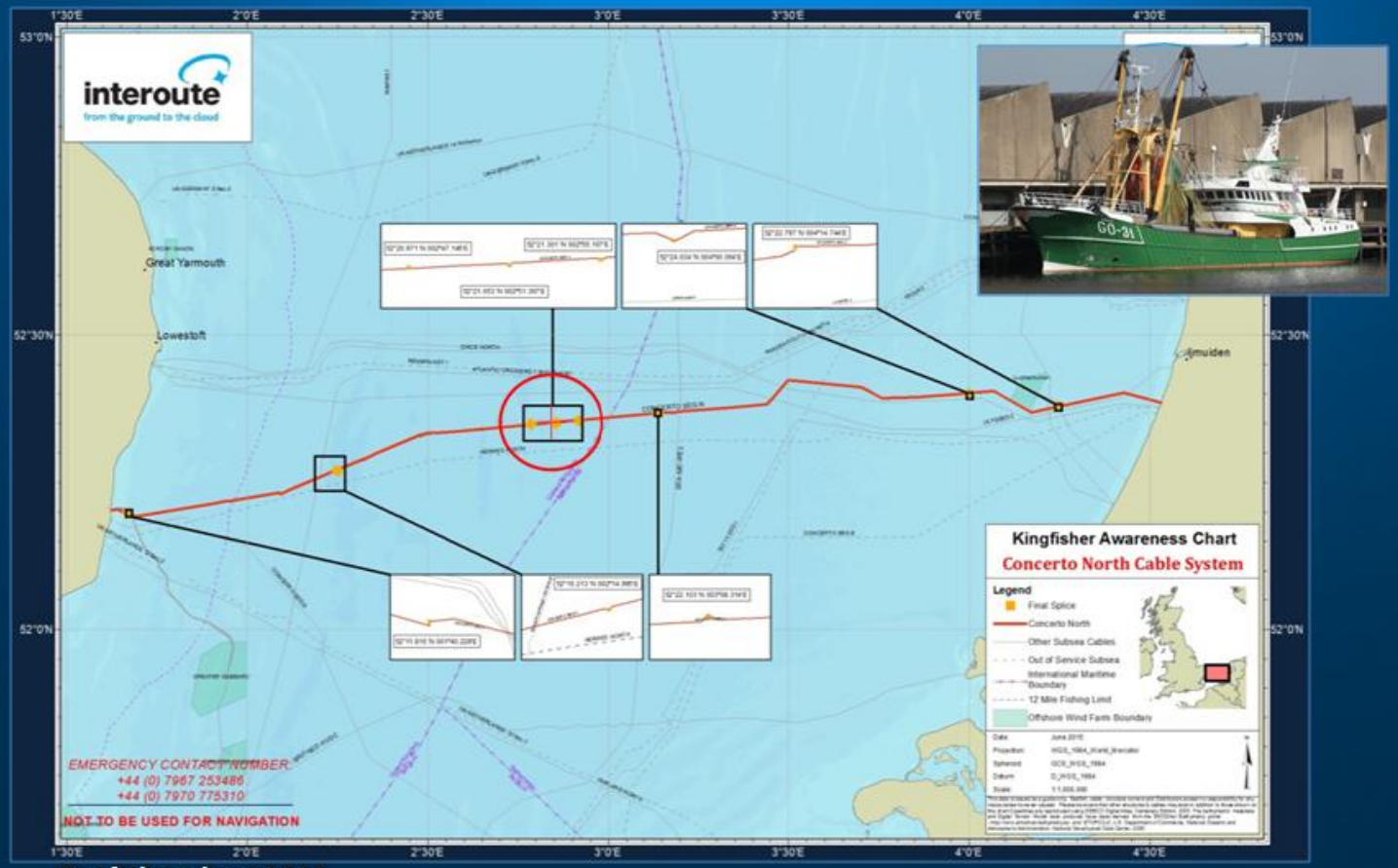
Fishery and telecom cables



Kingfisher chart 2015

Cable repairs

Position GO-31

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Fishery and telecom cables

Judgment of the Amsterdam Court of Appeal

- Final verdict February 12, 2018
- The Court rejects the claims of Interoute

- Interoute must ensure that the cable has a depth of 0.6 meters in the seabed with the ground cover maintained as much as possible

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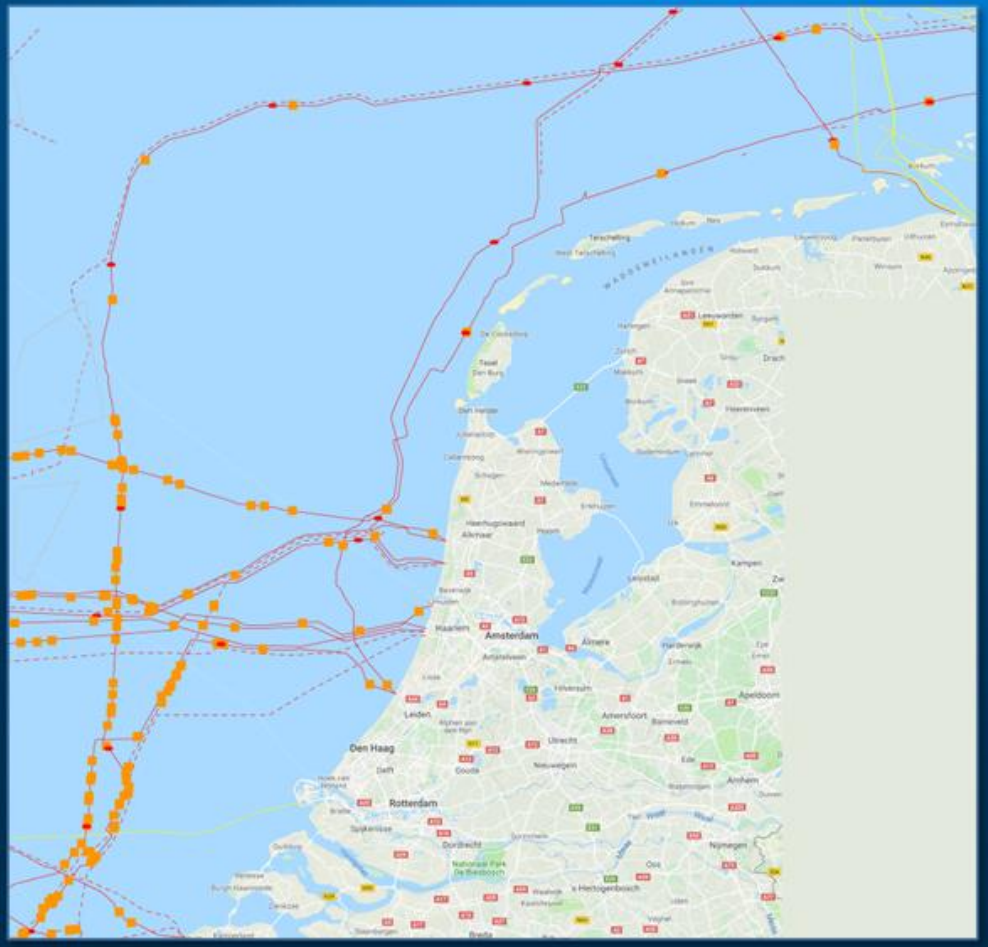
Telecom cable repairs on the DCS



Cable repairs

Kis-Orca image

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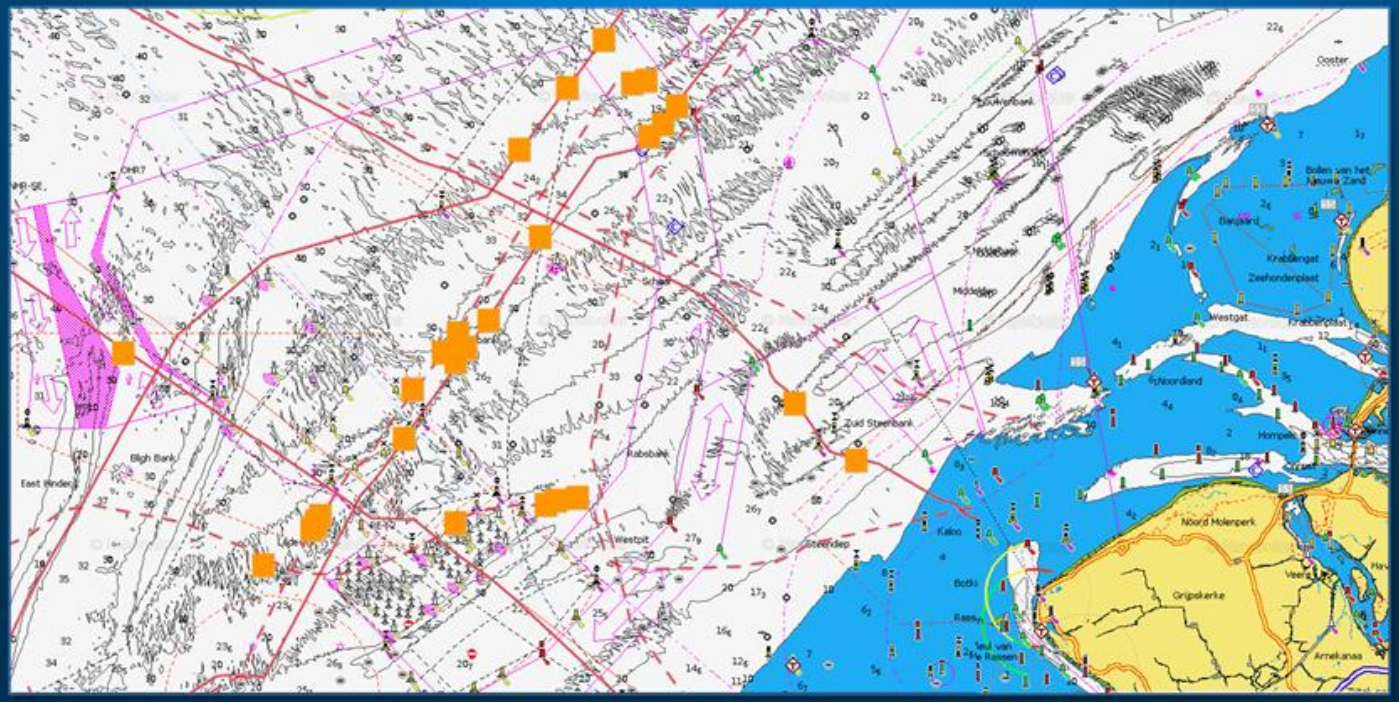
Telecom cable repairs on the DCS



Area of sand dunes and dynamic sand-wave ripples

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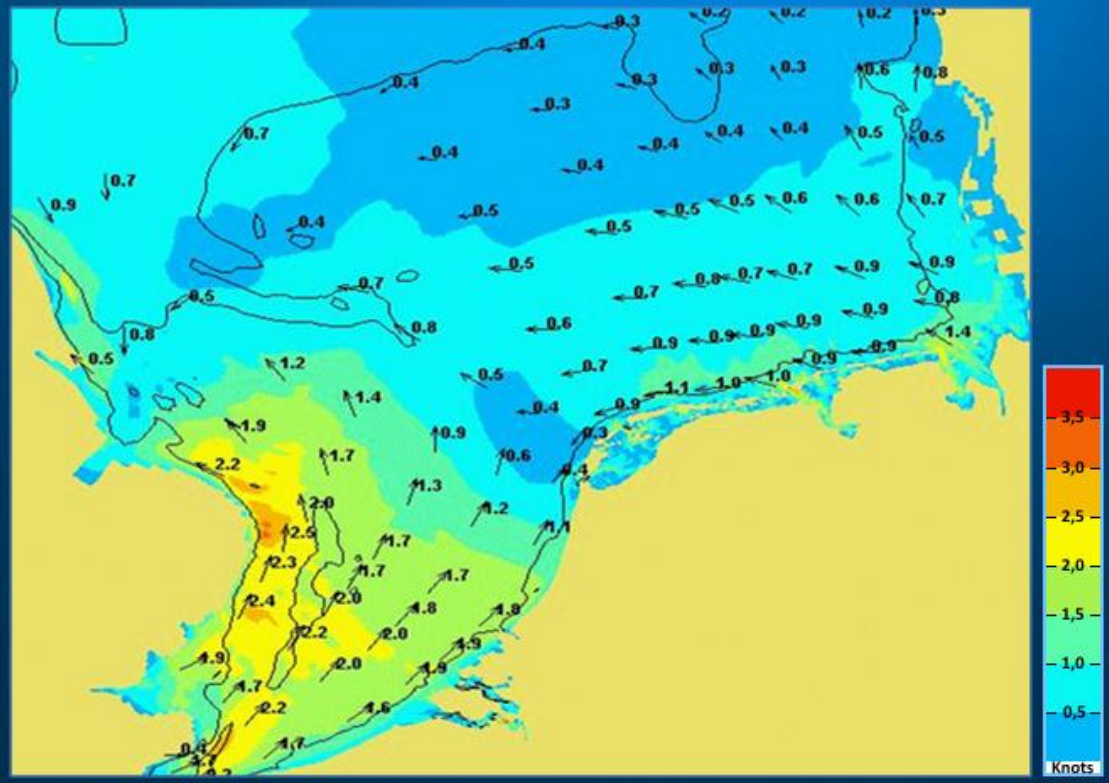
Telecom cable repairs on the DCS



Tidel current speeds (spring tide)

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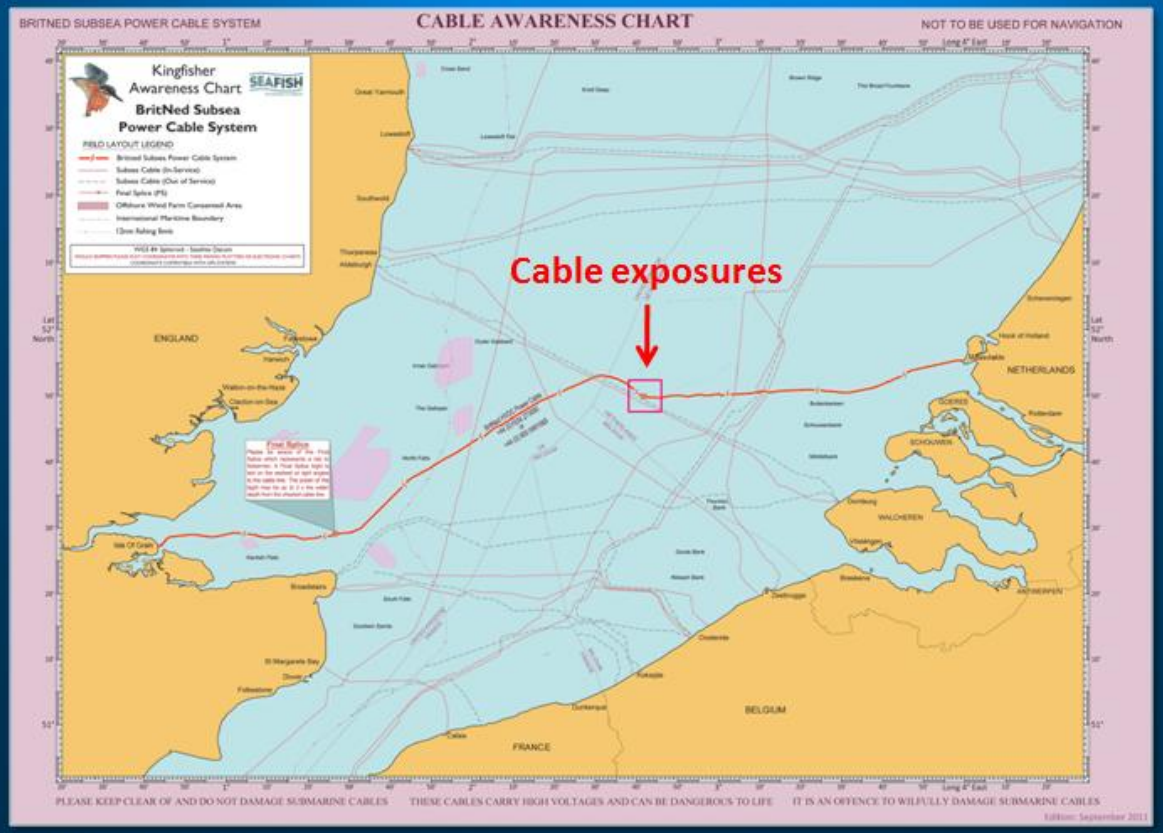
Britned high-voltage cable repair on the DCS



November 2012

12 cable exposures, 3 lengths ranging from 3 metres to even 77 metres

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Designated wind farms areas between 2024 and 2030

TenneT substation

9 designated wind farm areas
(+/- 1400 windmills)

Existing wind farms

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It gets even busier in the future on the DCS

In the coming years the North Sea will be a construction site

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Is this the future for the Dutch fishery?

Fishing on a postage stamp after Brexit?

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