



**The FPS Economy and the RV Belgica:
15 years of successful collaboration!
To be continued?**

Jean-Marc Delporte
President of the Executive Committee
FPS Economy, SMEs, Self-employed and Energy

**Create the conditions for a competitive,
balanced and sustainable market for goods
and services in Belgium**



Skills versus Strategic Axes matrix:





Management of sand extraction in the Belgian part of the North Sea:

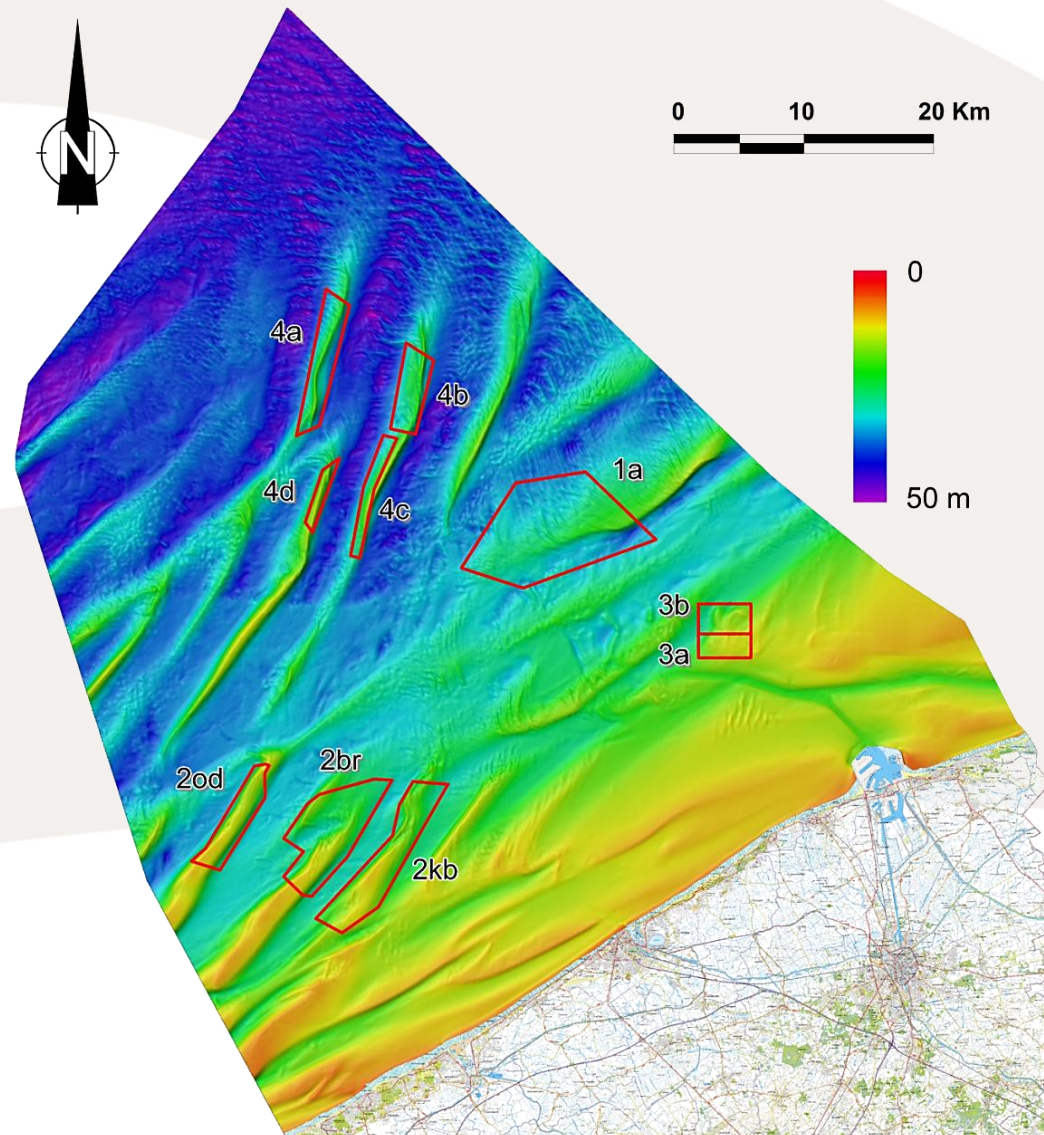
- Area: 10 control zones
 - $2 \cdot 10^6 \text{ m}^3 / \text{y}$ for building industry
 - $2 \cdot 10^6 \text{ m}^3 / \text{y}$ for beach replenishment

- Management - Grant of licenses

- Legislation - *Dura lex, sed lex*:



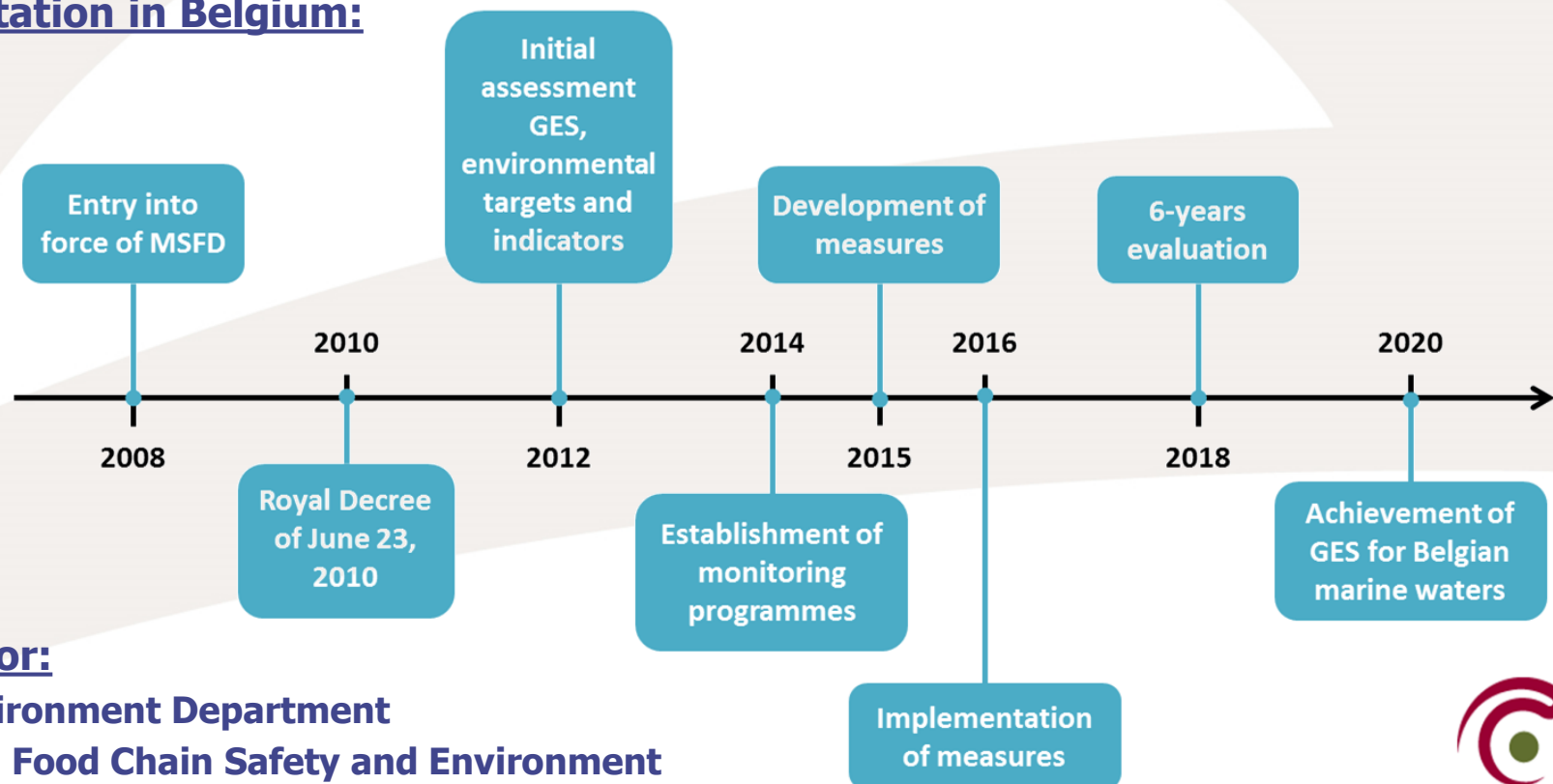
- Control
 - Extracted volumes
 - Impact on the marine environment



Seabed Monitoring = a legal obligation!

- **National regulation:**
 - Law “Continental shelf” 13/06/1969
- **European Marine Strategy Framework Directive “MSFD” - 2008/56/EEC:**

Implementation in Belgium:



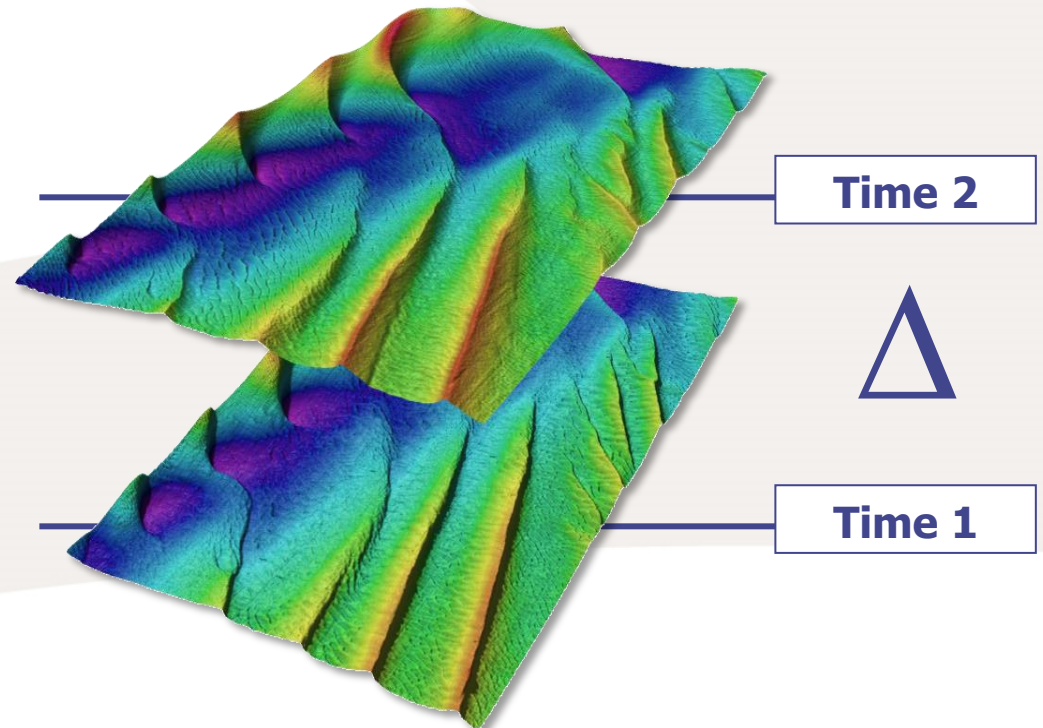
Coordinator:

Marine Environment Department
FPS Health, Food Chain Safety and Environment



Multibeam Echosounder (MBES):

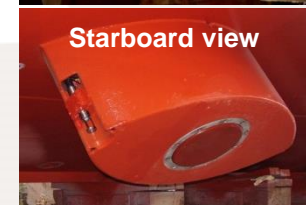
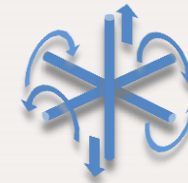
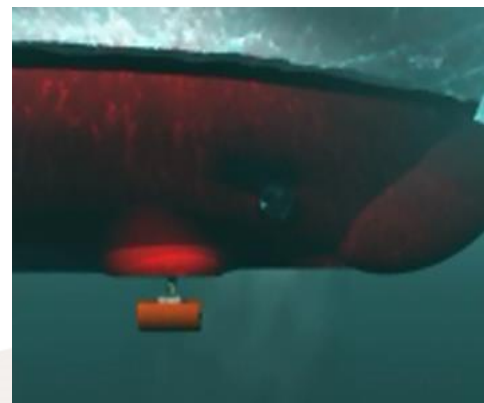
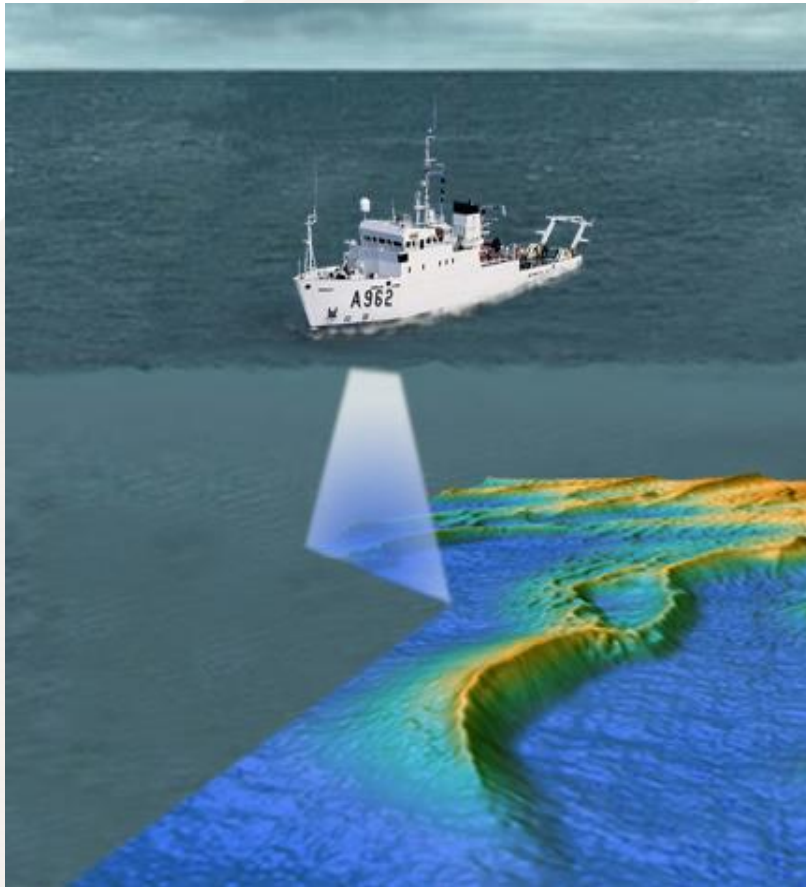
- XY Z m \rightarrow Δ bathymetry – geomorphology
- XY Backscatter Strength BS dB \rightarrow Δ sediment interface



1984
RV Belgica

1999
EM1002 MBES
100 kHz

2008
EM3002 dual MBES
300 kHz



FPS Economy
Continental Shelf Service

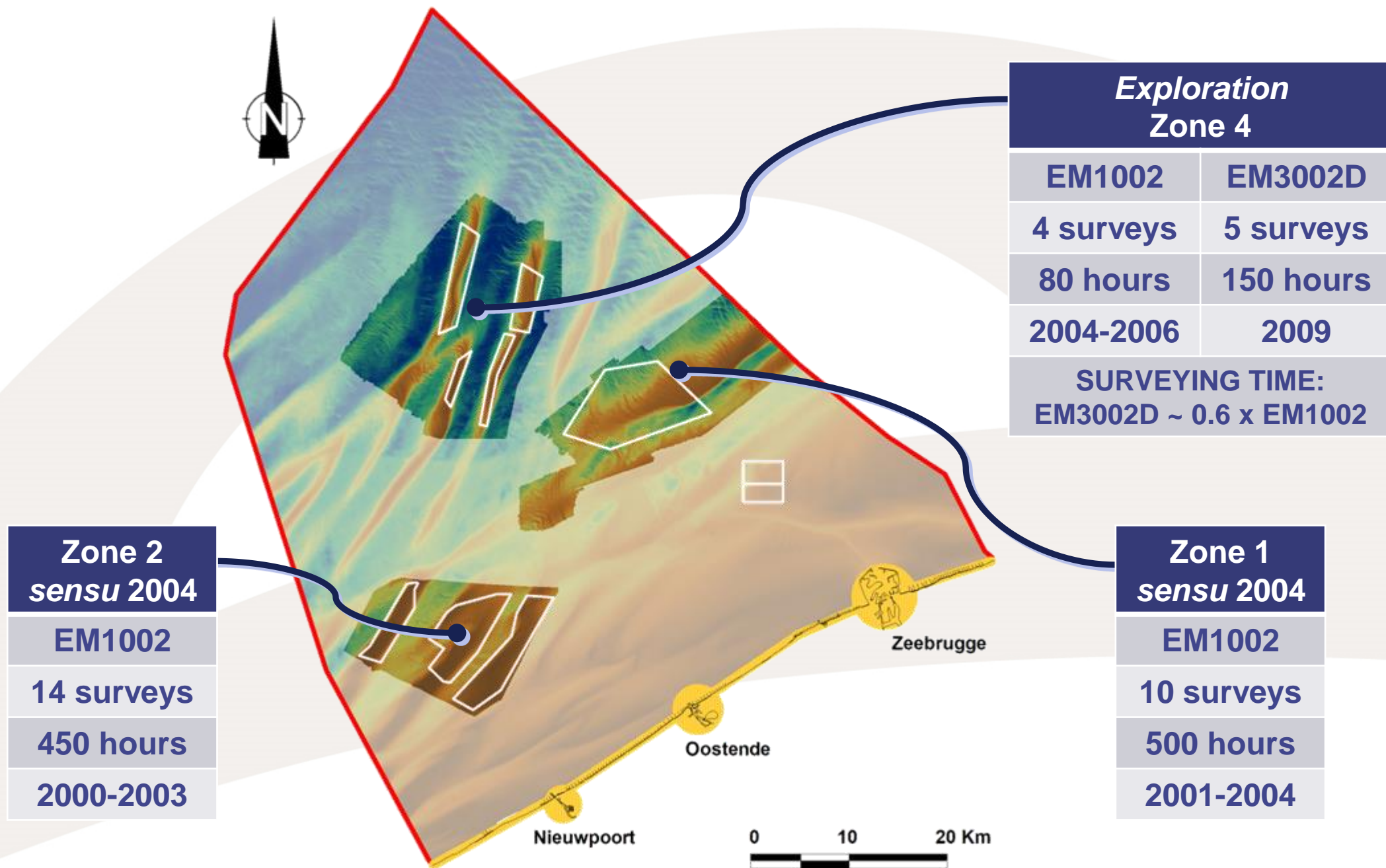
RBINS
OD Natural Environment

Purchase
Maintenance

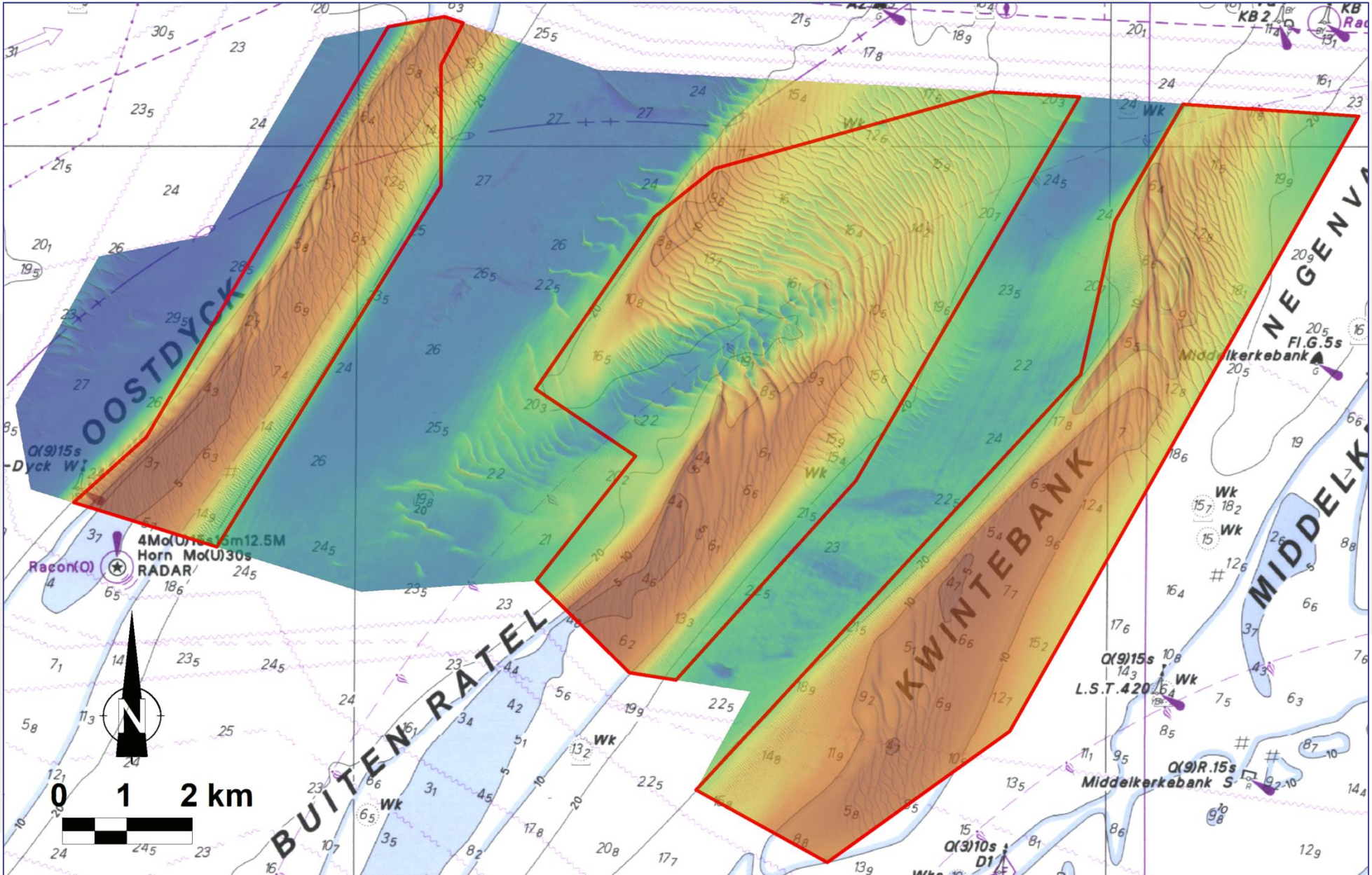


Installation
Navigation

High resolution cartography Sand extraction control zones



Zone 2 reference surface - time 0 = 2000-2003



15 years monitoring the sand extraction areas A unique and exceptional dataset

RV Belgica
MBES
EM1002
EM3002d

Δ Bathy-morphology
Δ Backscatter Strength

MSFD D6 & D7

ODMA
09/10/2007
06/03/2008
01/07/2008
09/09/2008
10/12/2008
10/12/2008
16/04/2009
06/10/2009
23/02/2010
24/11/2010
04/05/2011
21/09/2011
08/03/2012
15/03/2013
19/11/2013

BRMA
08/10/2007
21/02/2008
04/03/2008
01/07/2008
08/09/2008
08/12/2008
08/12/2008
15/04/2009
06/10/2009
23/02/2010
07/09/2010
25/11/2010
04/05/2011
07/03/2012
10/05/2012
20/09/2012
14/03/2013
19/11/2013

KWS1
28/11/2001
23/04/2008
26/02/2009
26/02/2009
24/11/2010
24/11/2010
10/02/2011
10/02/2011
18/09/2012

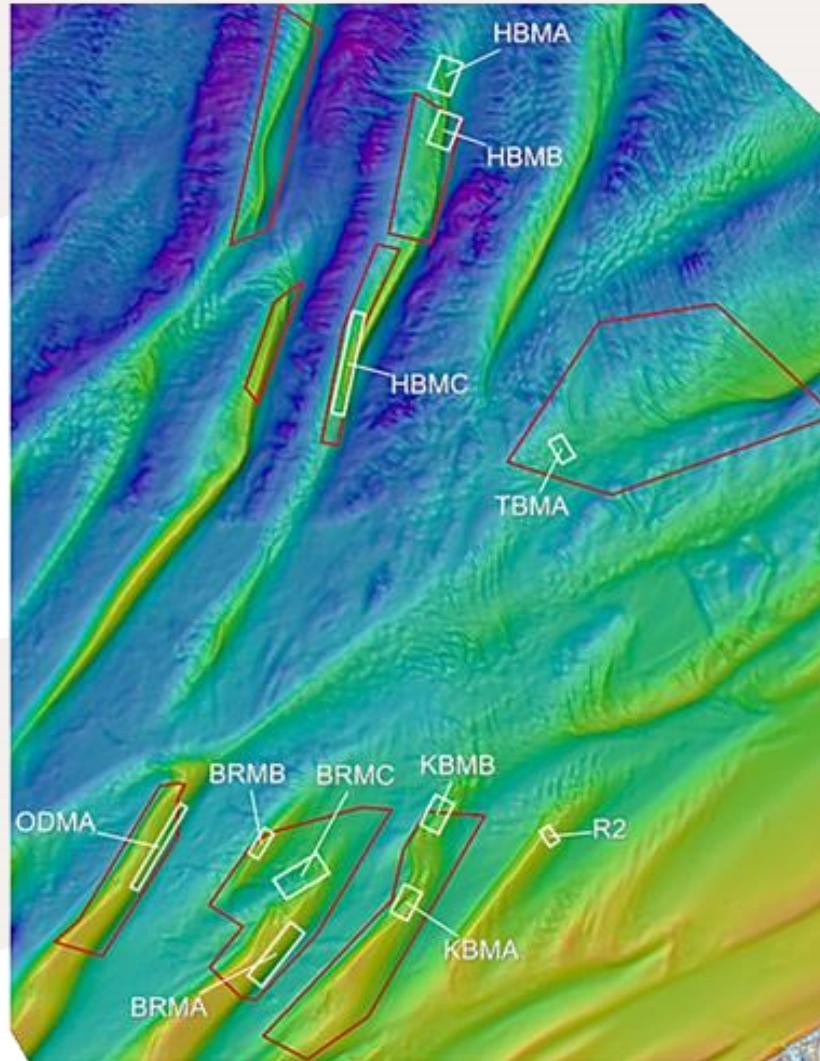
BRMB
09/10/2007
20/02/2008
02/07/2008
09/09/2008
09/12/2008
09/12/2008
15/04/2009
02/09/2009
06/10/2009
23/02/2010
07/09/2010
24/11/2010
04/05/2011
21/09/2011
06/03/2012
20/09/2012
14/03/2013
19/11/2013

BRMC
25/02/2010
26/05/2010
26/05/2010
06/09/2010
24/11/2010
24/11/2010
04/05/2011
08/09/2011
07/03/2012
10/05/2012
19/09/2012
28/11/2012
13/03/2013
15/05/2013
18/11/2013

KWS2
28/11/2001
27/02/2009
27/02/2009
23/11/2010
23/11/2010
10/02/2011
10/02/2011
10/02/2011

R2
18/11/1999
28/01/2000
31/05/2000
29/09/2000
22/02/2001
30/11/2001
13/02/2002
06/09/2002
12/12/2002
04/03/2003
11/06/2003
02/10/2003
19/03/2004
22/03/2004
08/07/2004
16/09/2004
07/12/2004
09/03/2005
14/06/2005
13/09/2005
03/03/2006
18/04/2006
19/09/2006
09/03/2007
10/07/2007
12/09/2007
20/02/2008
01/07/2008
24/02/2010
06/09/2010
04/05/2011
22/09/2011
09/03/2012
21/09/2012

KWGS
27/11/2001
24/04/2008
26/02/2009
26/02/2009
24/11/2010
24/11/2010
10/02/2011
10/02/2011
18/09/2012



HBMB
06/05/2011
22/09/2011
02/04/2012

HBMA
05/05/2011
23/09/2011
03/04/2012

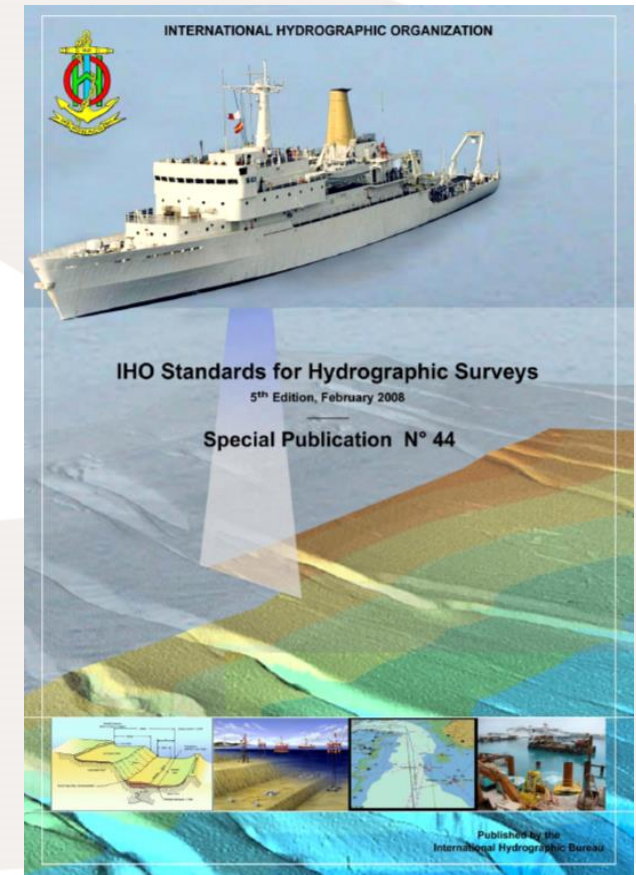
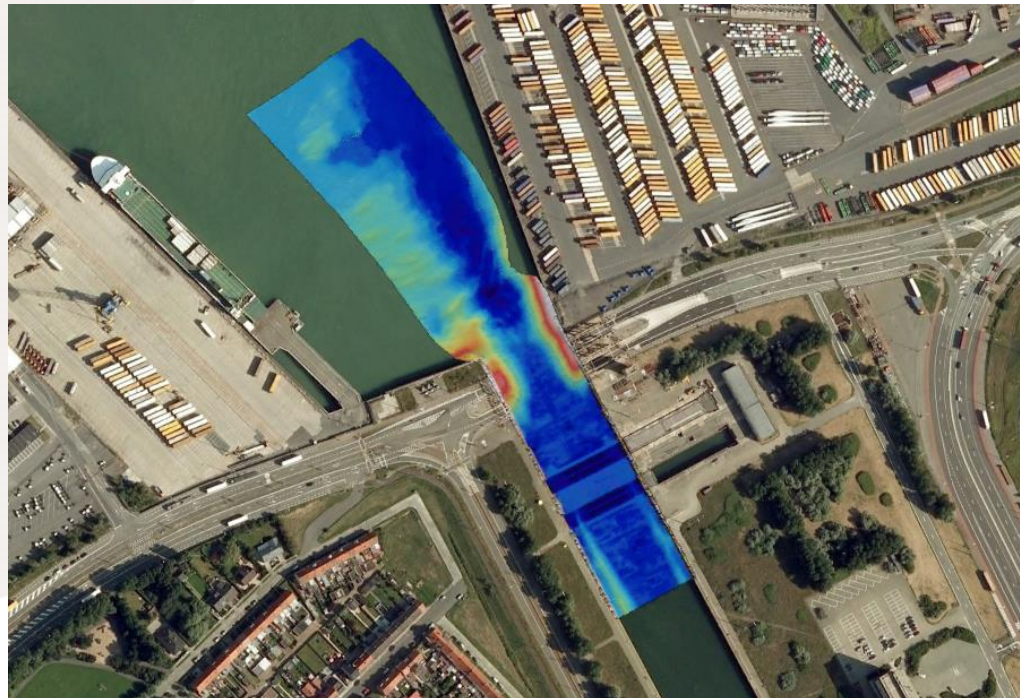
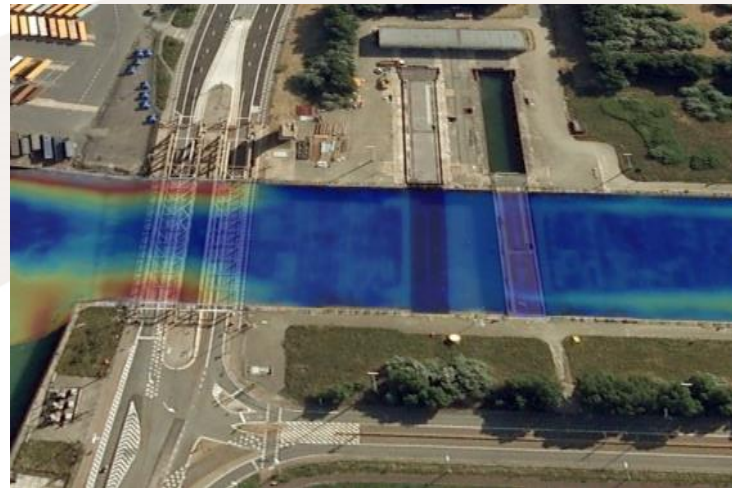
HBMC
02/04/2012
09/05/2012
14/03/2013
03/10/2013

TBMA
11/12/2008
11/12/2008
20/09/2011
20/11/2013

KBMB
03/03/2003
12/06/2003
30/09/2003
18/03/2004
08/07/2004
16/09/2004
12/10/2004
06/12/2004
08/03/2005
13/06/2005
14/09/2005
02/03/2006
19/04/2006
19/09/2006
08/03/2007
09/07/2007
12/09/2007
21/02/2008
30/06/2008
10/09/2008
26/02/2009
26/02/2009
17/04/2009
07/10/2009
23/02/2010
25/11/2010
04/05/2011
20/09/2011
07/03/2012
21/09/2012
12/03/2013

KBMA
16/11/1999
28/09/2000
21/02/2001
27/11/2001
12/02/2002
04/09/2002
12/12/2002
03/03/2003
10/06/2003
01/10/2003
18/03/2004
09/07/2004
15/09/2004
12/10/2004
07/12/2004
08/03/2005
15/06/2005
13/09/2005
26/10/2005
03/03/2006
19/04/2006
19/09/2006
08/03/2007
10/07/2007
11/09/2007
19/02/2008
30/06/2008
09/09/2008
07/10/2009
24/02/2010
04/05/2011
04/05/2011
07/03/2012
18/09/2012
13/03/2013

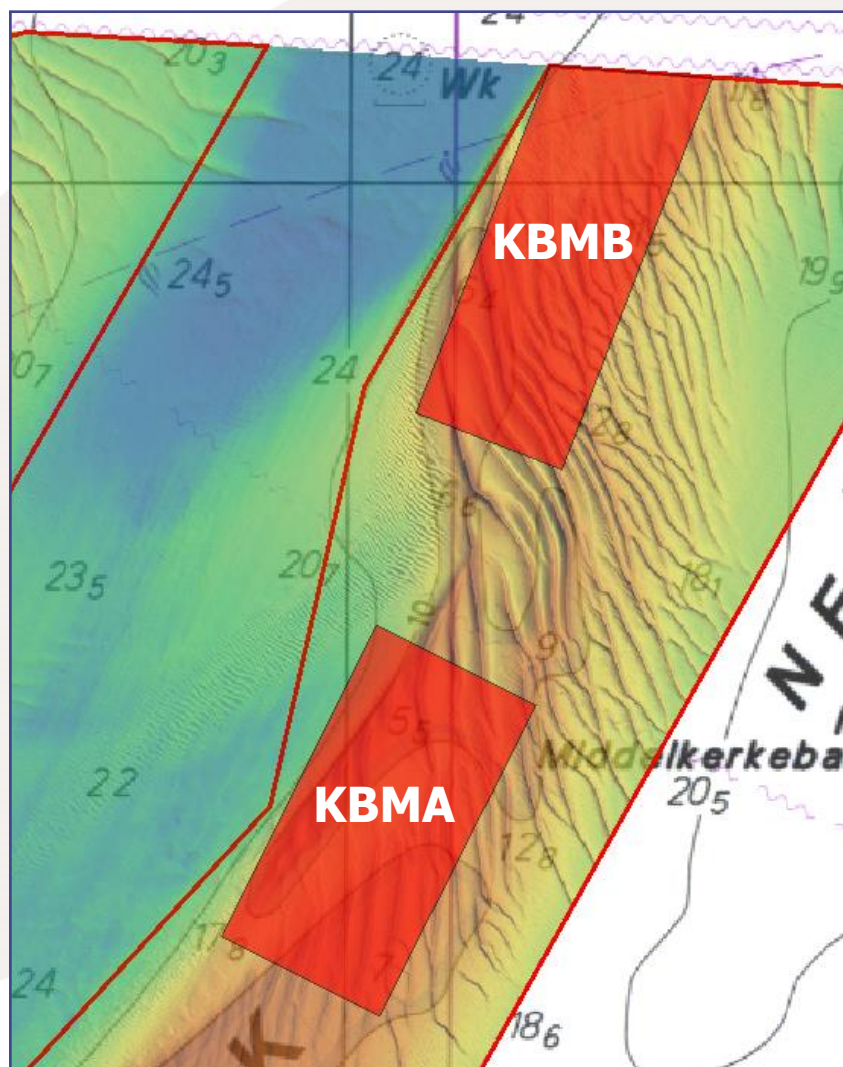
Regular comparison with absolute level:



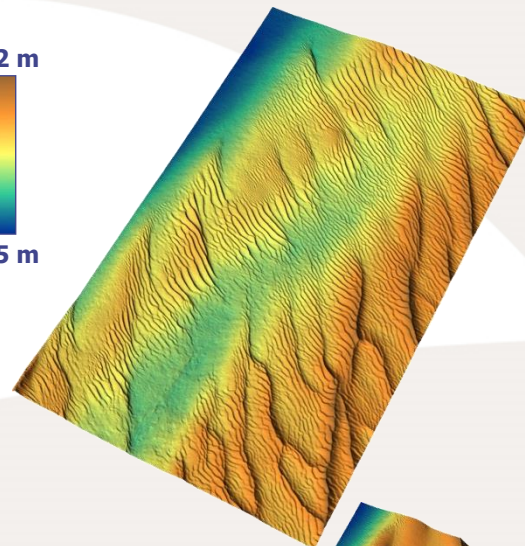
**RV Belgica MBES
IHO S44 special order:**



Closure of 2 areas where the extraction has exceeded the limit of 5 meters below the reference surface:



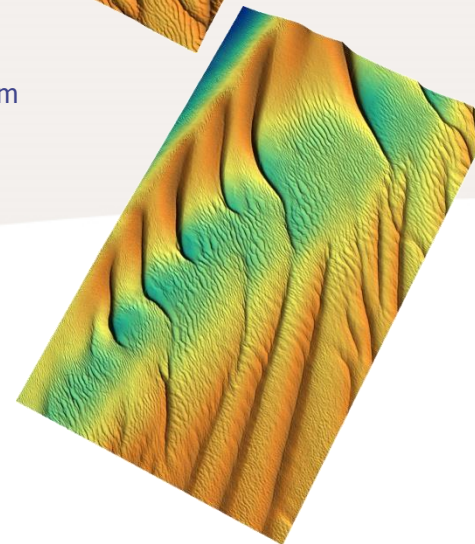
-12 m
-25 m



KBMB
closed
in 2009

0 500 m

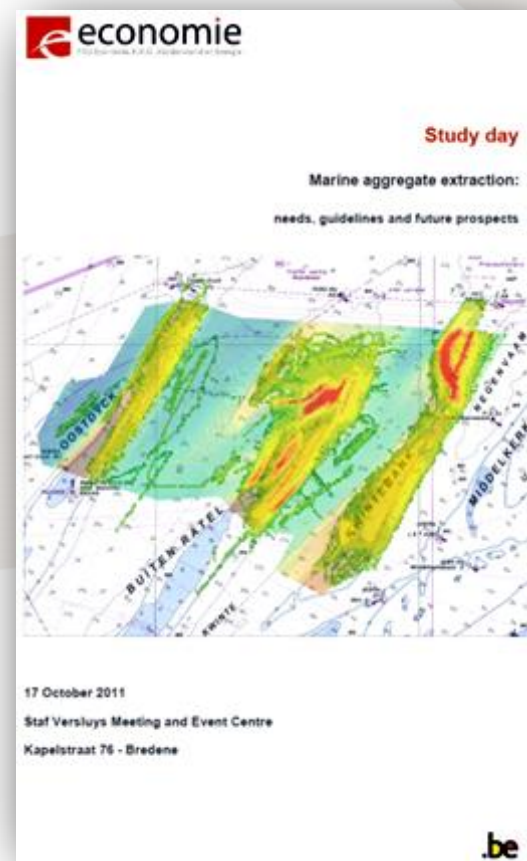
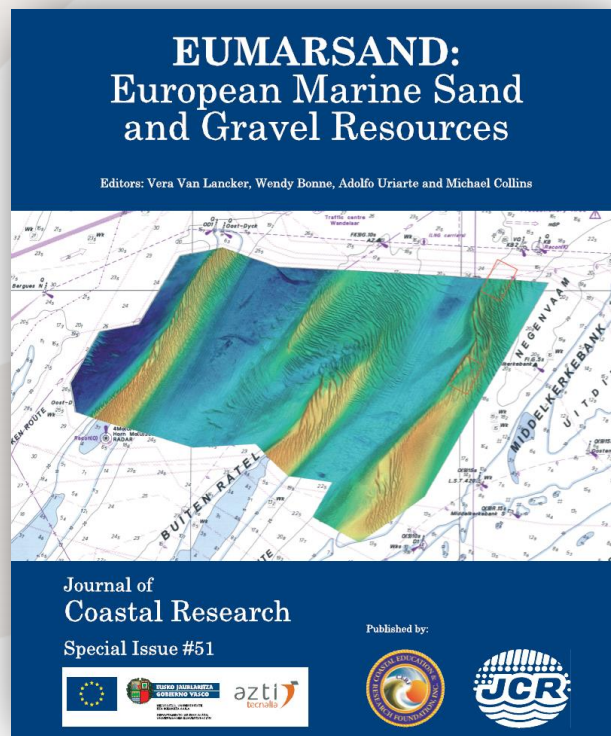
-7 m
-21 m



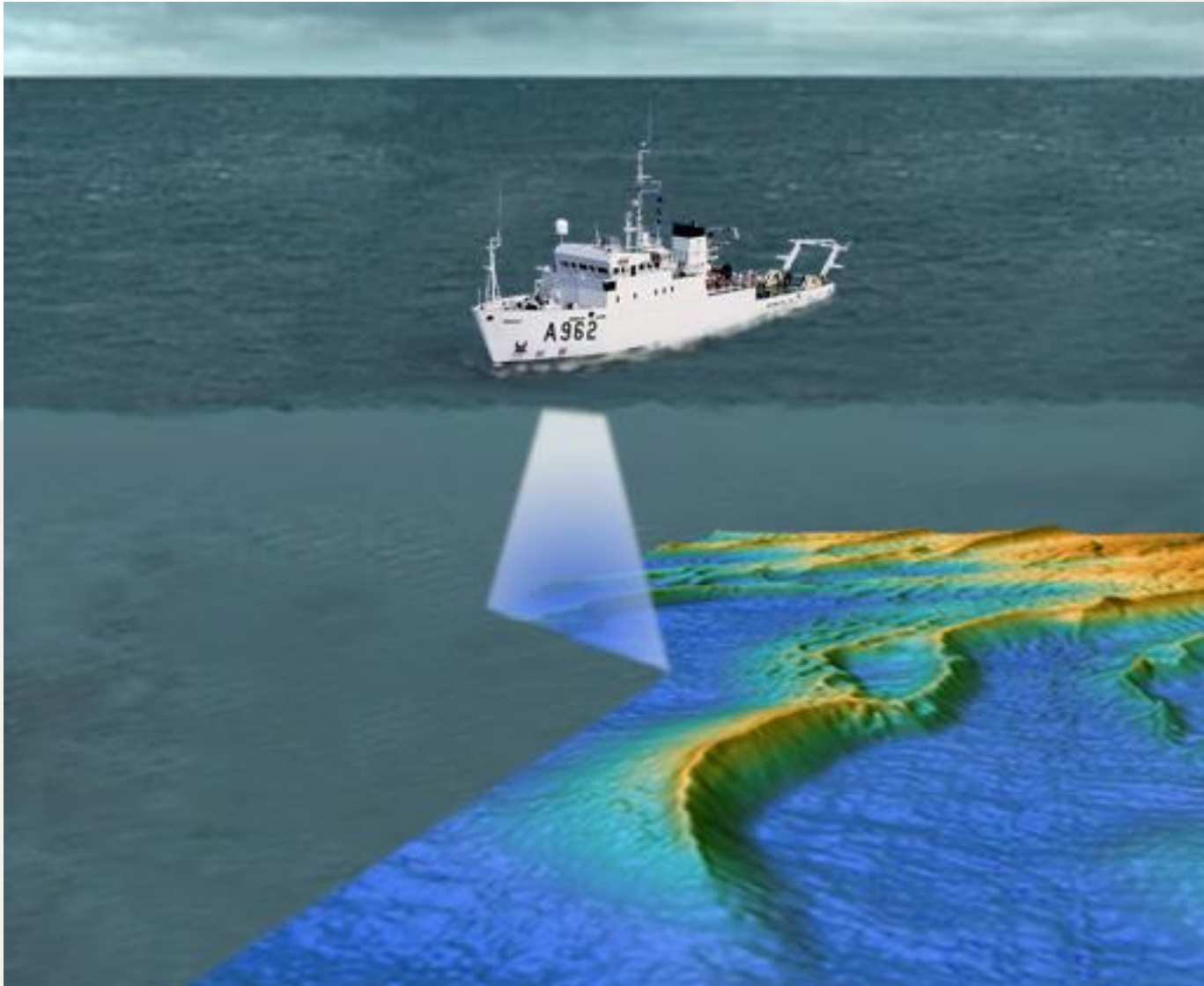
KBMA
Closed
in 2003

Global conclusions on a decennial time-scale:

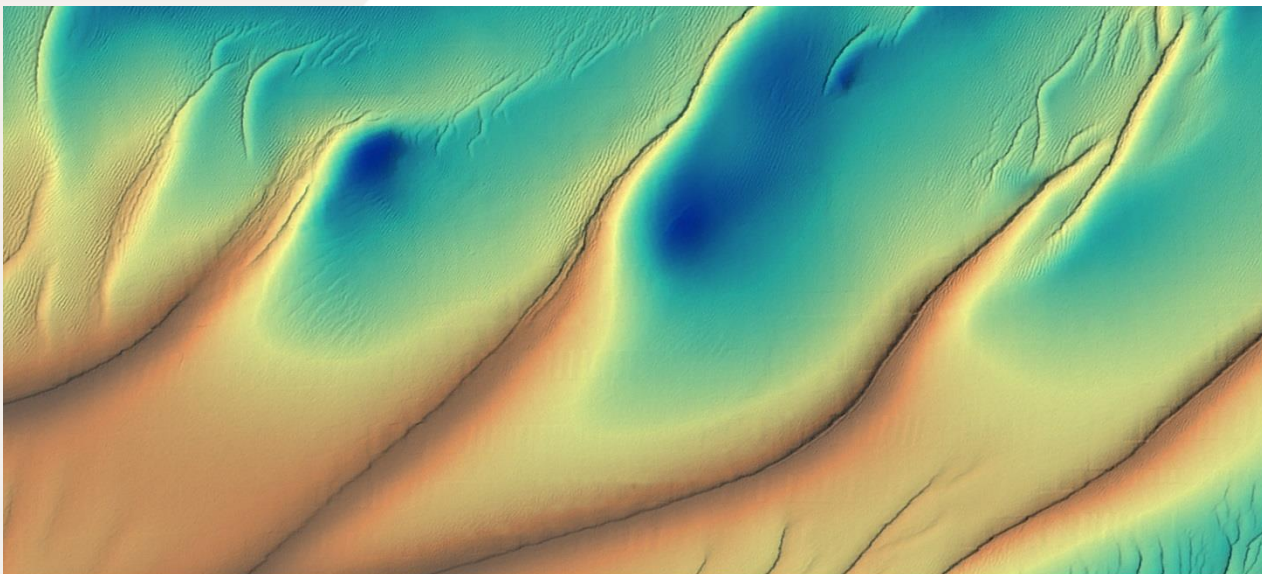
- Extraction has a local non-cumulative impact
- Sand is a non-renewable resource



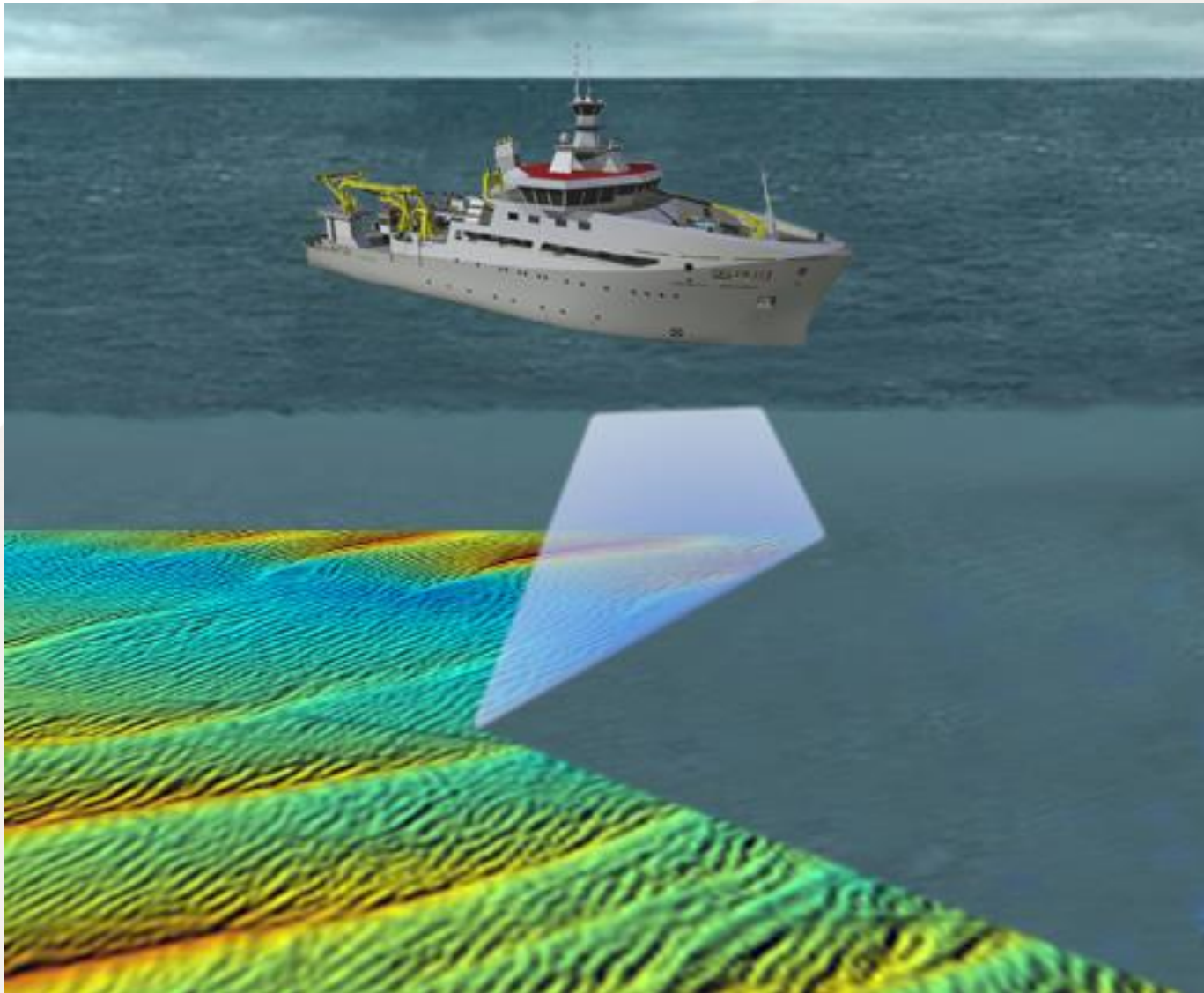
Present and near future



- Monitoring of sand extraction areas is ongoing.
- Last data collected May 5th 2014.
- Monitoring of sand extraction areas will continue until the end of the RV Belgica...
- After?



- RV Simon Stevin will have to ensure all the monitoring demand?
Not realistic!
- MSFD monitoring programs including monitoring of sand extraction will be slowed down and may be stopped?
- Consequences?



A modern research vessel operating as the Belgica is:

- A *sine qua non* condition for ensuring our legal mission.
- Essential to a thorough knowledge and innovative management of economic resources in the Belgian part of the North Sea.

The FPS Economy wishes to support the Belgica II project along two axes:

- Financing and maintenance of a very shallow water MBES and its auxiliary sensors. This MBES will be made available to the scientific community.
- Provide technical expertise for the selection and evaluation (Harbor and Sea Acceptance Tests) of MBESs that may be installed on board this future research vessel.

Special thanks to:

The commanders and the crew members of the RV Belgica.

Our colleagues who have contributed and continue to contribute to the maintenance and proper functioning of this gallant ship which celebrates its 30 years.