NatureCoast Symposium

#NatureCoast2017

use #hashtags

Nature Coast
BUILDING WITH NATURE

STW
Nieuwe technologie mogelijk maken

Rijkswaterstaat
Ministerie van Infrastructuur en Milieu

EcoShape

provincie ZUID HOLLAND

Kansen voor West
G4P4

STW
Nieuwe technologie mogelijk maken

Start of Kustgenese (1985)

Samenvatting van de bijdragen
aan het colloquium

KUSTONTWIKKELING
VERLEDEN, HEDEN
TOEKOMST

in samenwerking met:
Rijkswaterstaat, Dienst Getijde Wateren

WATERLOOPKUNDIG LABORATORIUM

mei 1985

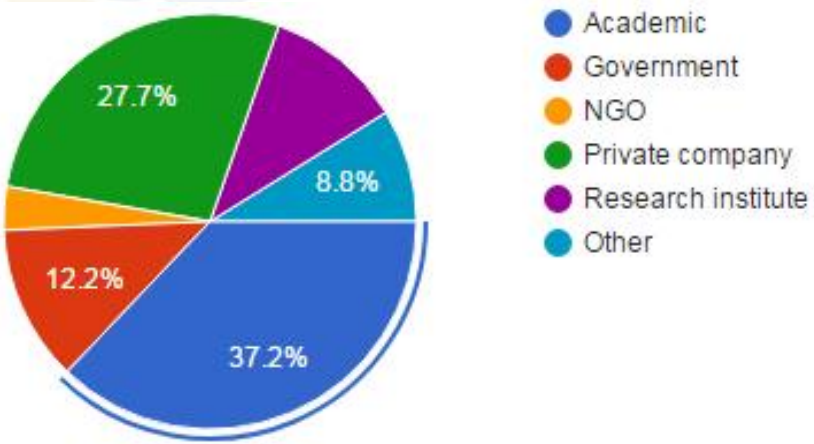
INHOUD

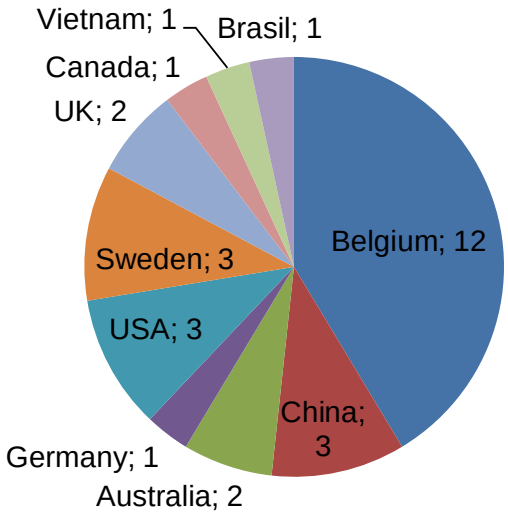
Nature Coast
BUILDING WITH NATURE

April 29th, 1987

(source: Ad Stolk)

Who is attending this symposium?





Propositions

1. What is the first word that comes to your mind when you think of The Sand Motor?

2. How many times have you visited The Sand Motor?

3. Which aspects of The Sand Motor do you consider a success?

URL: respond.cc Session key: 658054

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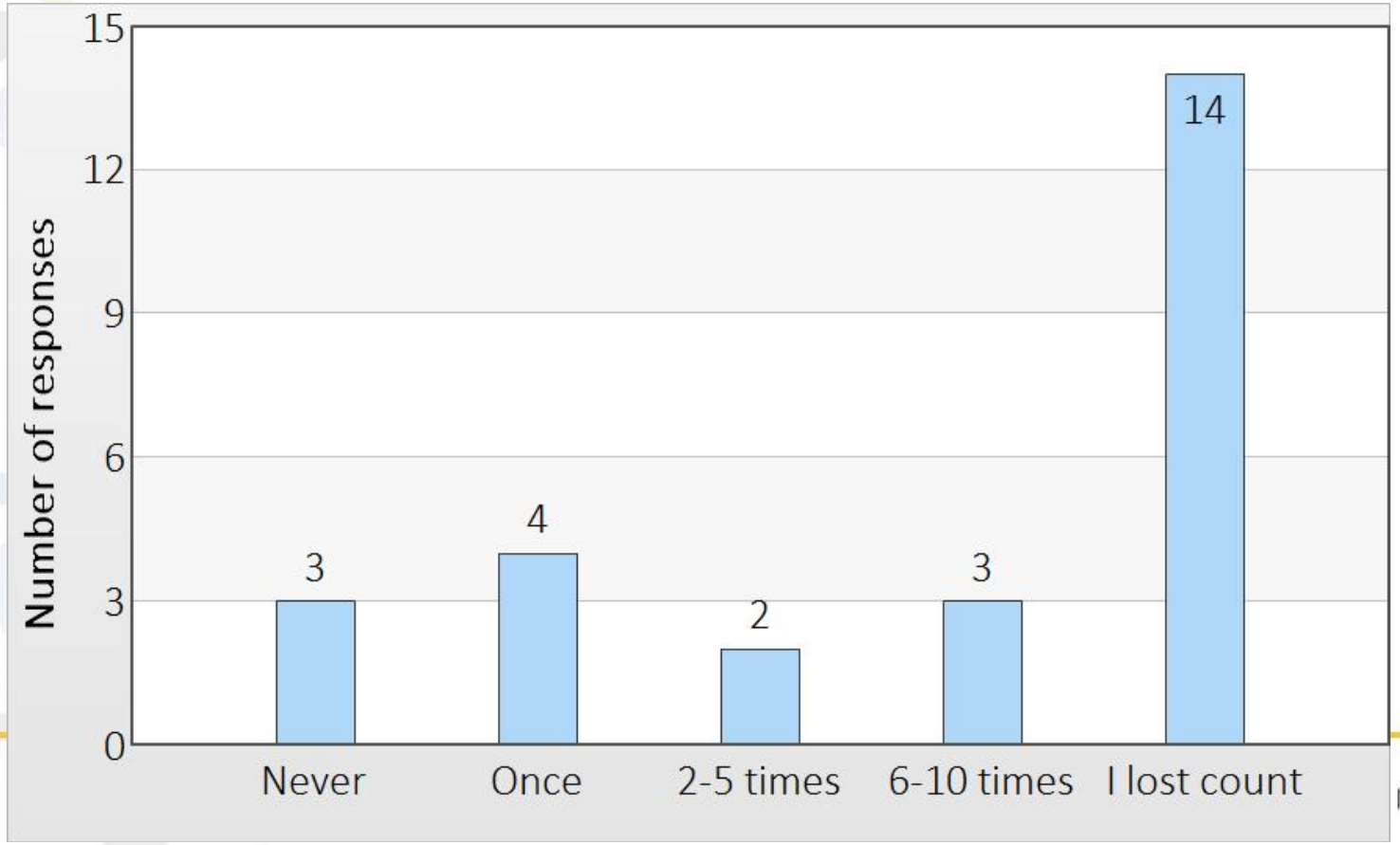
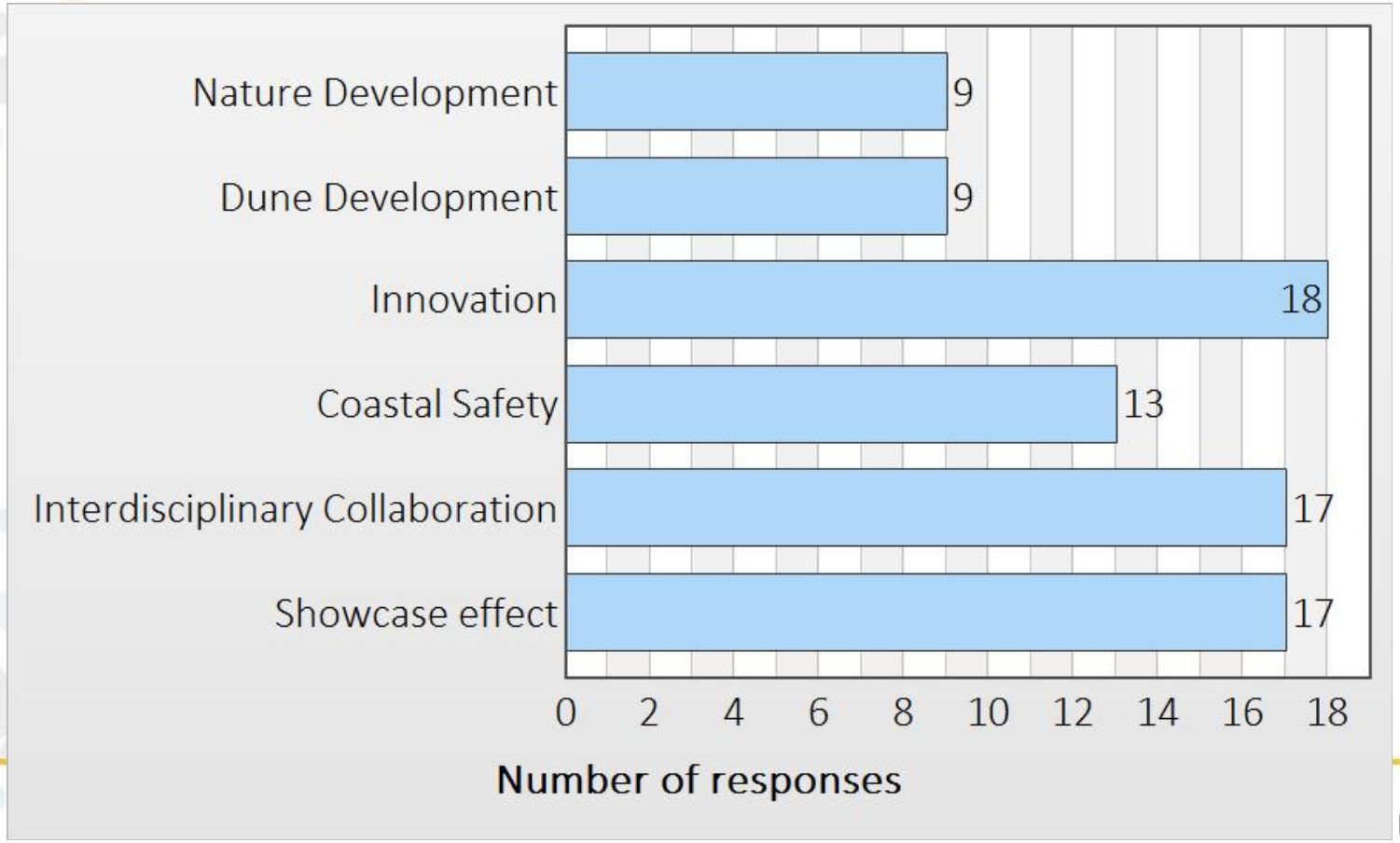
1. First word that comes to mind

2. How many times have you visited The Sand Motor?



3. Successful aspects of Sand Motor



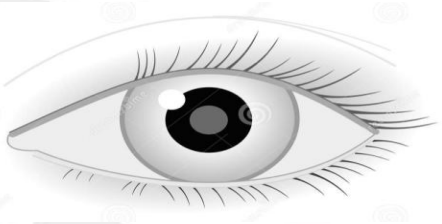
Introduction NatureCoast
&
Sand Motor – The Story

Alexander van Oudenhoven
Vera Vikolainen
Arjen Luijendijk

NatureCoast Research Program

- Interdisciplinary research project
- Funded by STW – Dutch Science Foundation (€ 5.5 mln)
- Strong involvement of end-users
- Builds on MEP, EFRO and NEMO (3 PhDs)

Monitor



Understand

Design

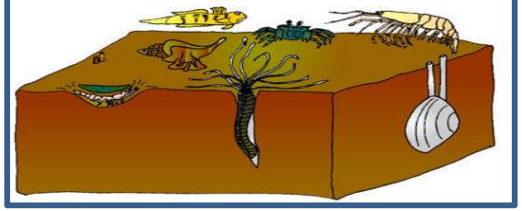
End-users


Deltares
Enabling Delta Life
Boskalis
Van Oord
IMARES
WAGENINGEN UR
Deltaprogramma
Rijkswaterstaat
Ministerie van Verkeer en Waterstaat
provincie ZUID HOLLAND
Royal HaskoningDHV
Enhancing Society Together
Witteveen + Bos
ARCADIS
dunea
DUIN & WATER
Hoogheemraadschap van Delfland
Hoogheemraadschap van Rijnland
bosschap
Natuurmonumenten
NORTEK B.V.
REDDINGSBRIGADE Nederland
Provincie Noord-Holland
PWN
SVASEK HYDRAULICS
Unie van Waterschappen

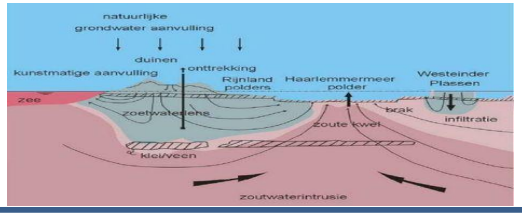
Science projects

S1. Coastal Safety

S3. Marine ecology

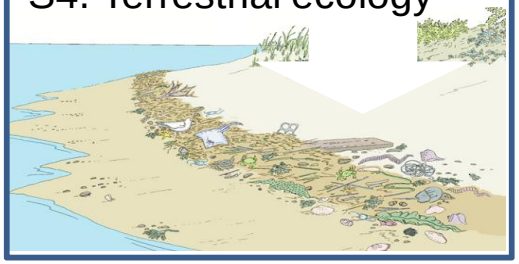


S5. Hydrology & Geochemistry



S2. Dune formation

S4. Terrestrial ecology



S6. Governance

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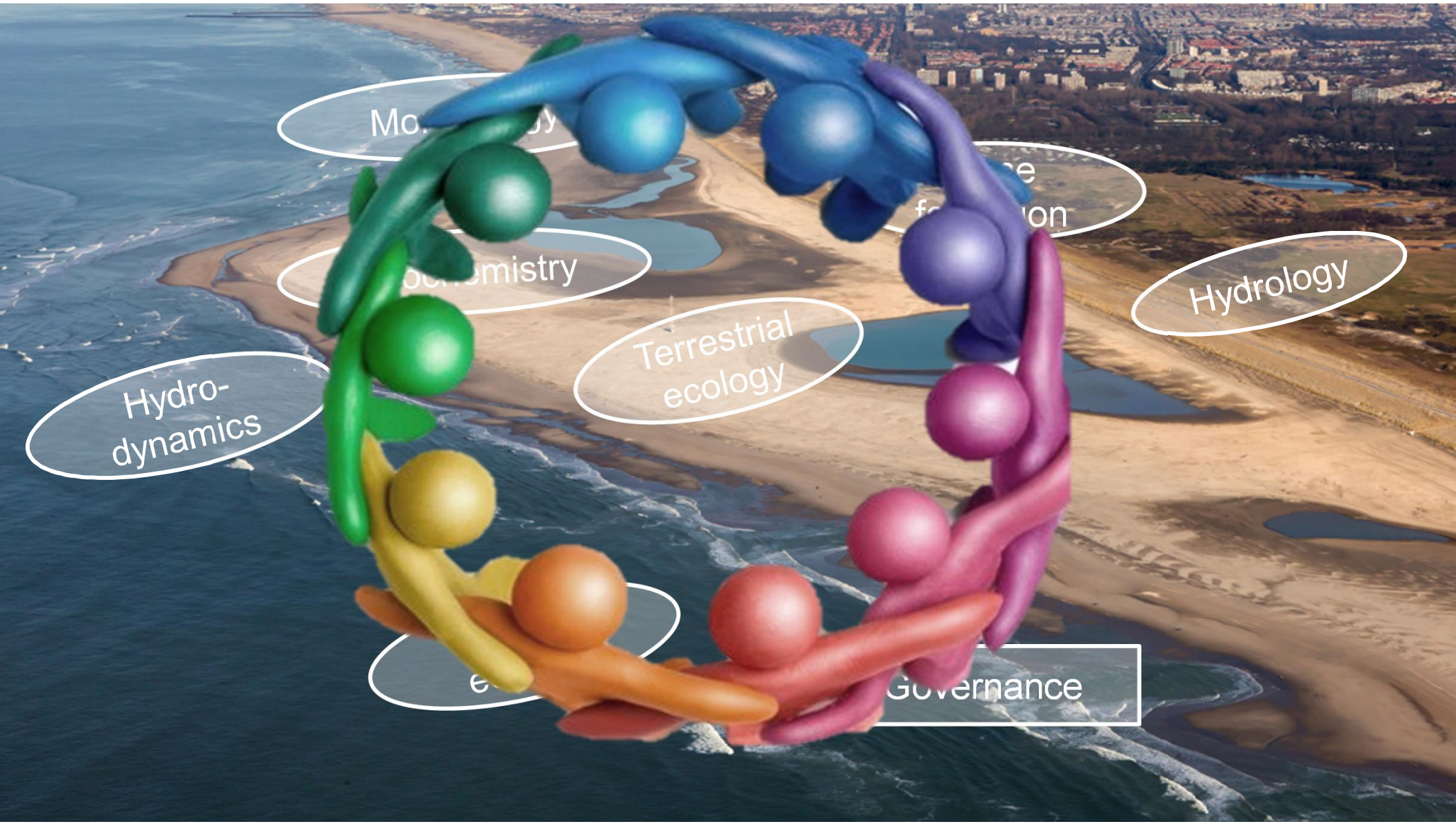
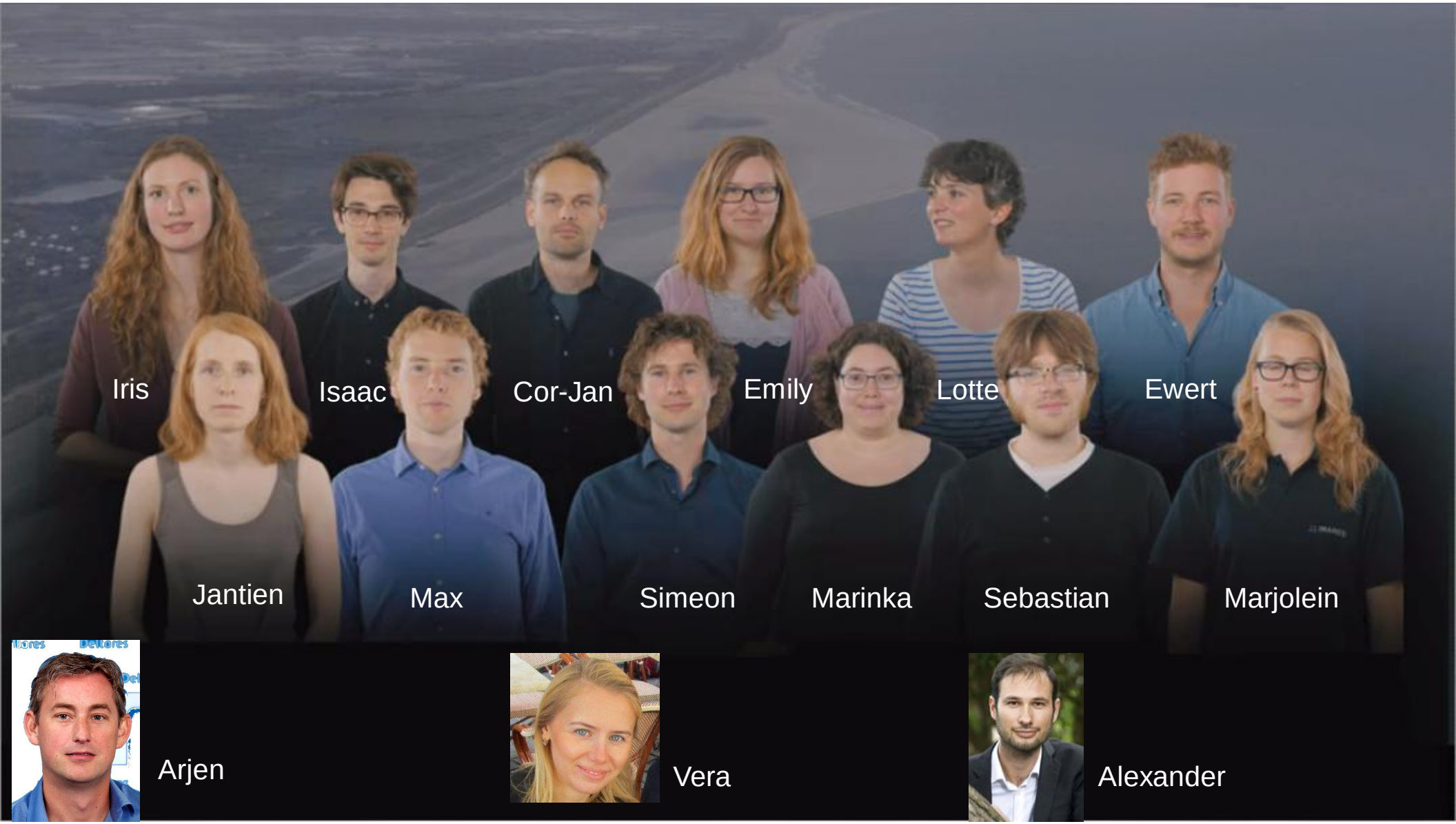

Hydrology
Terrestrial ecology
Hydro-dynamics
Governance



Arjen

Vera

Alexander

The roles of the postdocs

- Integration
  - –Phd days, field campaigns, writing week
- Utilization
  - –Collaborate with end-users, design workshops, sandy strategies
- Dissemination
  - o End user meetings, media, excursions, this symposium, related programs & projects

Arjen Luijendijk
TU Delft & Deltares
Postdoc on Physical feasibility worldwide

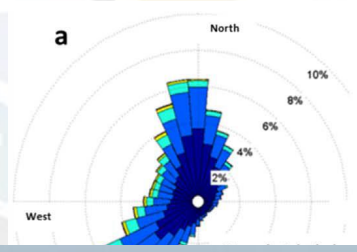
Vera Vikolainen

Alexander van Oudenhoven
CML, Leiden University
Post-doc on Ecosystem services

Sand Engine – The Story

The Delfland Coast

The Delfland Coast



2011: 21,5 mln m^3

5 km

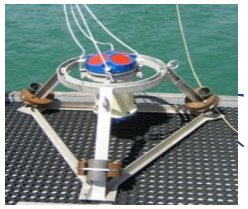
9 8 7 6 5 4 3 2 1 0 -1 -2 -3 -4 -5 -6 -7 -8 -9 -10 -11 -12 -13 -14 -15 -16 -17 -18 -19 -20 -21 -22 -23 -24

photos: Rijkswaterstaat; Joop van Houdt


brackish dune lake
head
lagoon
Solleveld
dunes
spit
channel
Tidal flats
beach

Services of the Sand Motor

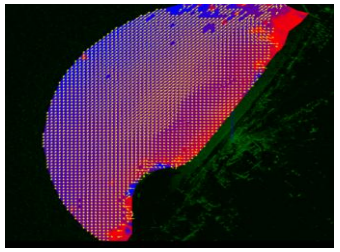
In-situ measurements & remote sensing



ADCP

Ecological sampling

Wave buoy



Radar

Video

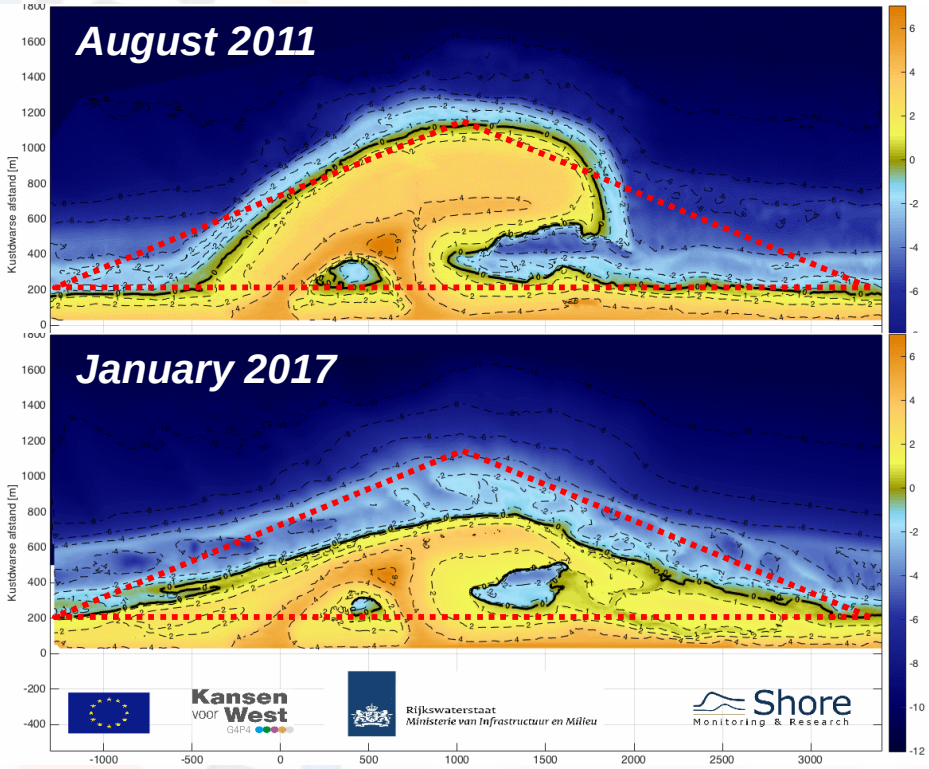
Laser

Jetski

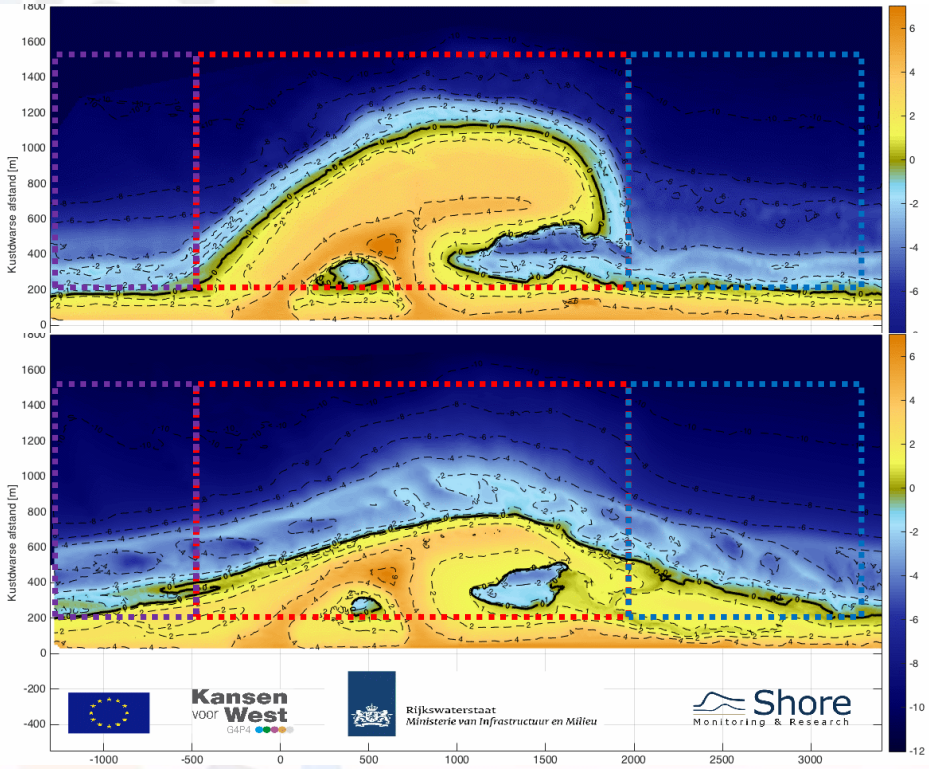
Satellite images

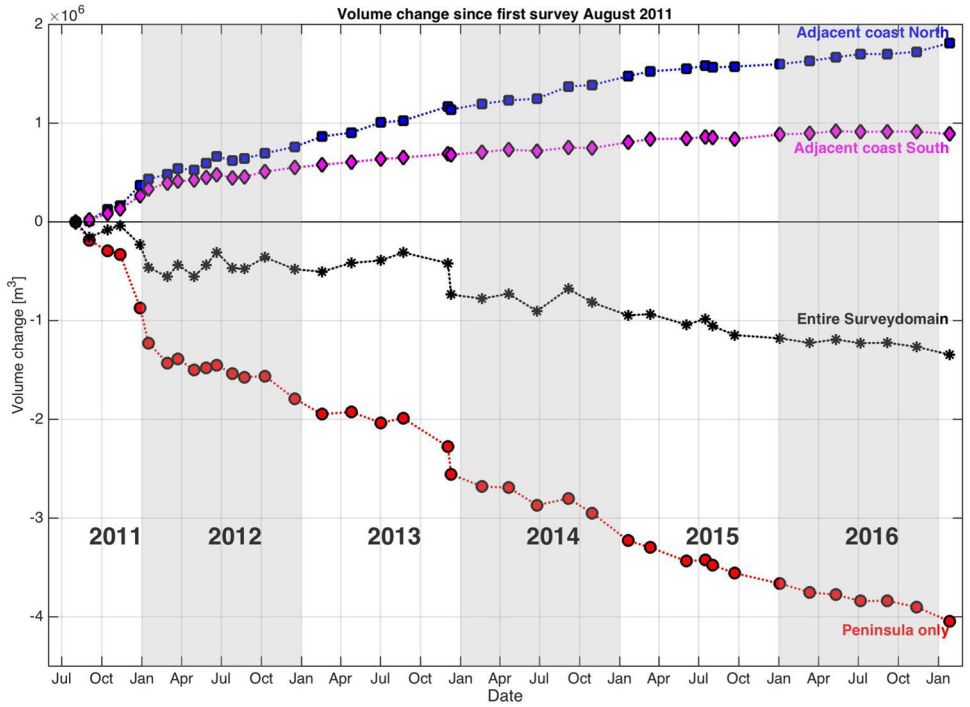
Nature Coast

Evolution and volume changes



Evolution and volume changes





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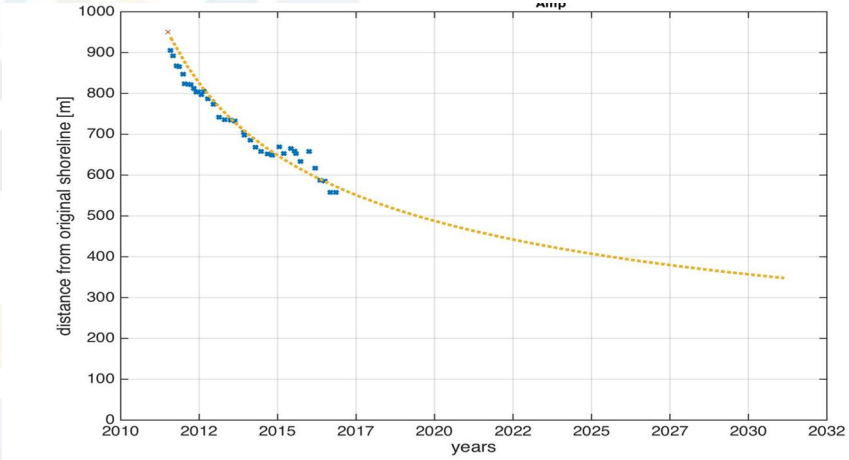
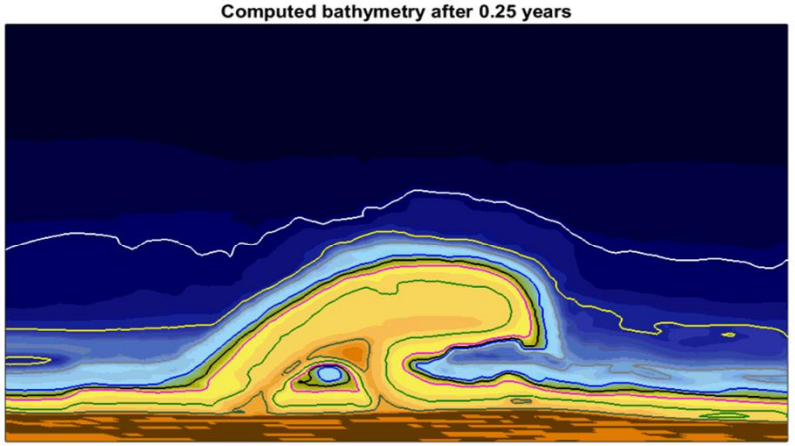
How will it evolve?

Using a fit function



Using a process-based model



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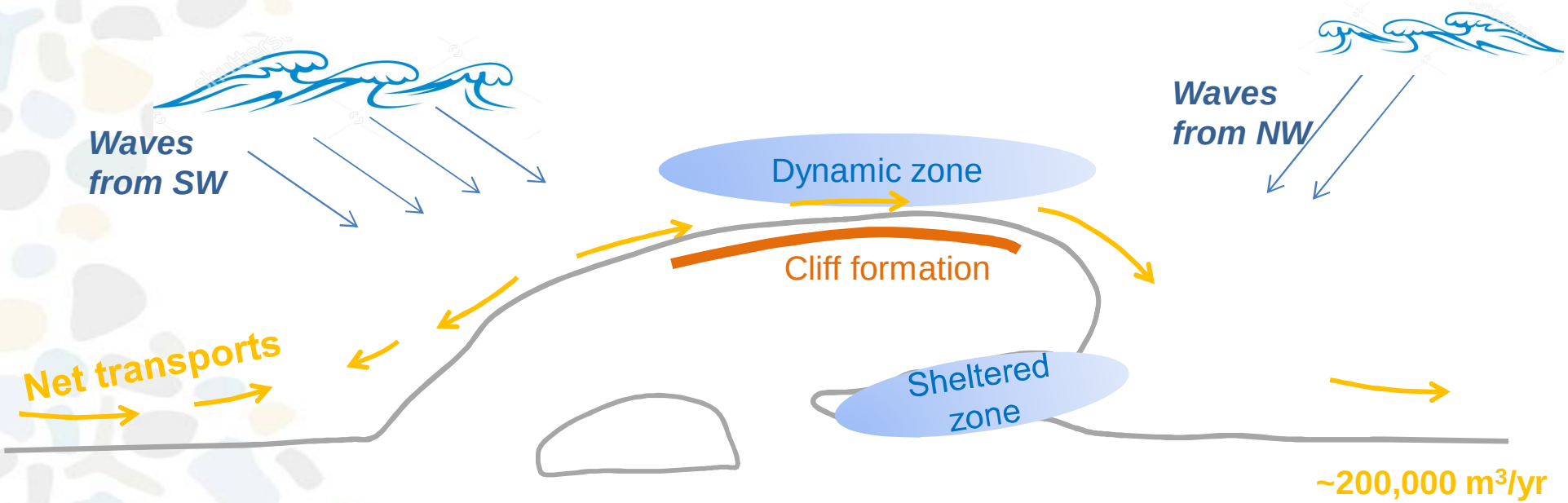
However, reality is more complex

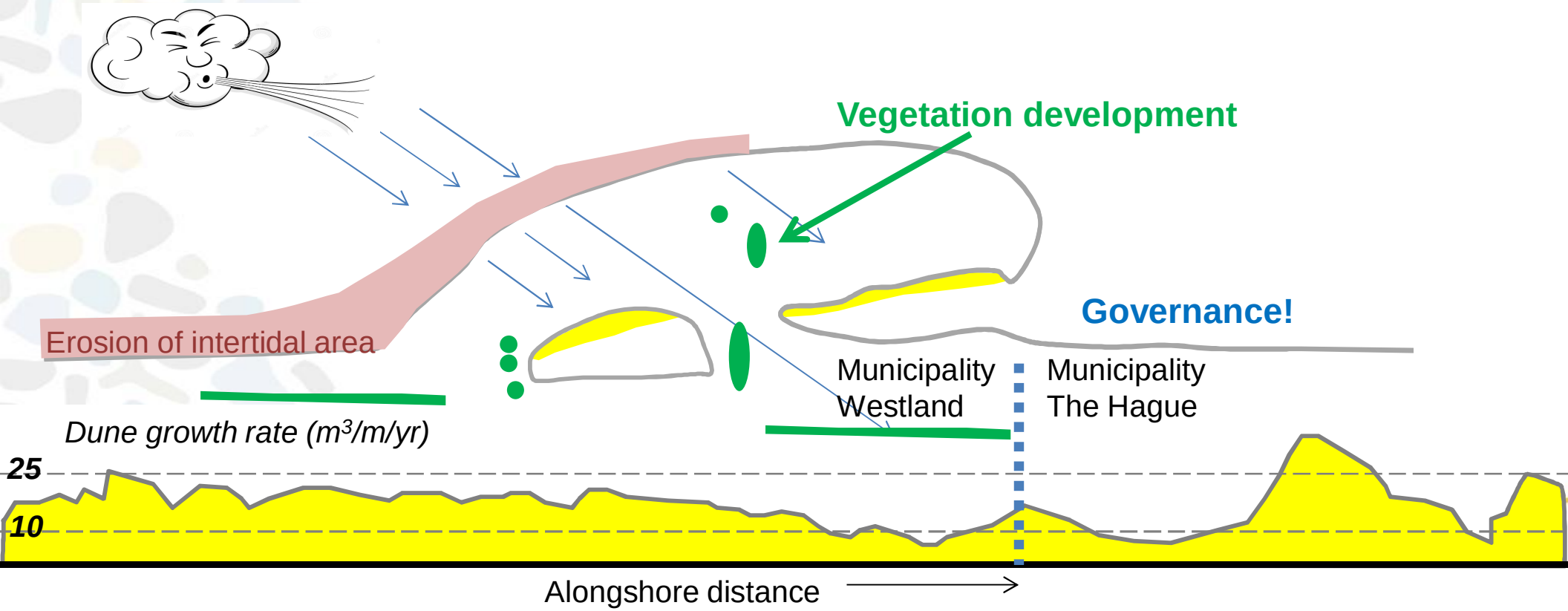
Understanding its behaviour

Forcing type: **Waves** Wind Tide



Understanding its behaviour

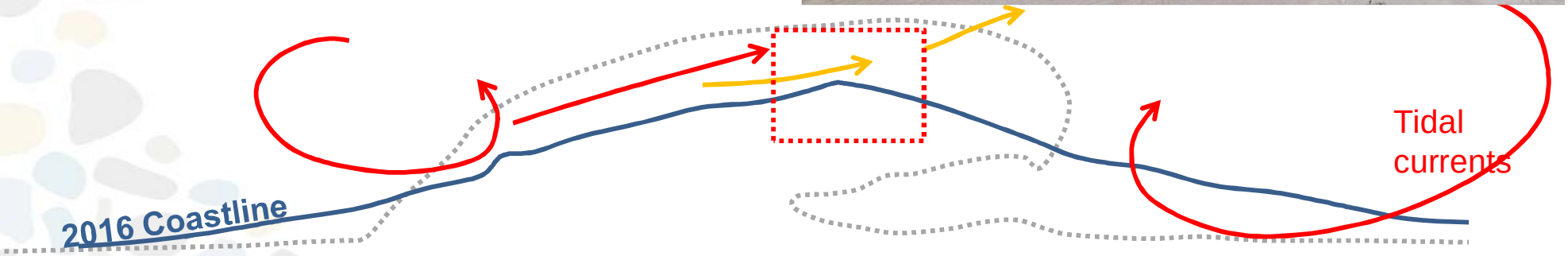
Forcing type: Waves Wind Tide



Understanding

Forcing type: Waves Wind Tide

Sed
to d



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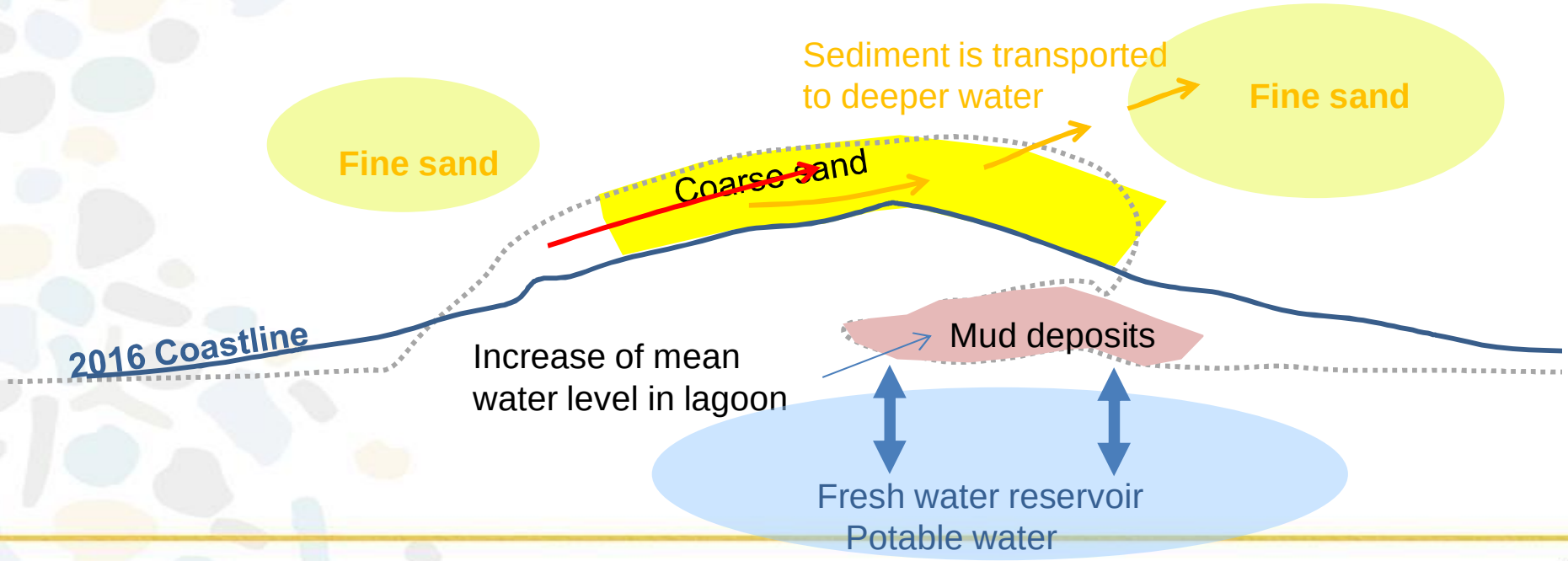
Understanding its behaviour

Forcing type: Waves Wind Tide



Some interdisciplinary findings

- Tidal currents increase the area of sediment sorting around a sandy intervention; this influences habitat areas and fish.
- The elevation, fresh water lens, and governance are important factors for growth of vegetation and dunes on emerged sandy developments.
- Bed composition of the dredged material influences dune formation.
- Explaining behaviour of a BwN pilot demands simultaneous, multi-disciplinary measurements.