Towards spatial planning for the sustainable management of the BPNS

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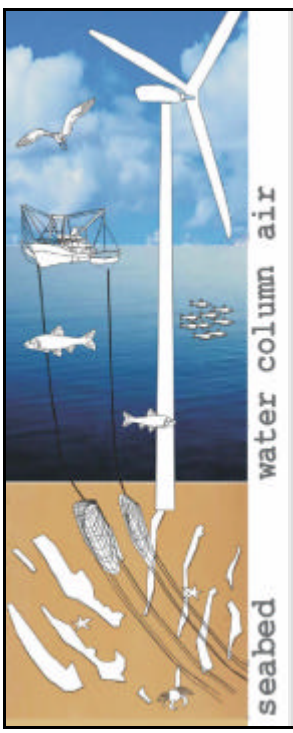


Content

- Setting the scene

- Activities in the Belgian part of the North Sea (BPNS):
  * Analysis
  * Impacts
  * Conflicts

- Scenarios & visions for spatial planning

- Conclusion

Location of the BPNS

Map sources:

- **GAUFRE**: Maes, F., Schrijvers, J., Van Lancker, V., Verfaillie, E., Degraer, S., Derous, S., De Wachter, B., Volckaert, A., Vanhulle, A., Vandenabeele, P., Cliquet, A., Douvere, F., Lambrecht, J. & Makgill, R., Towards a spatial structure plan for the sustainable management of the sea. BELSPO-SPSD II, June 2005, 539. Short reference: Maes, F. *et al* (2005)

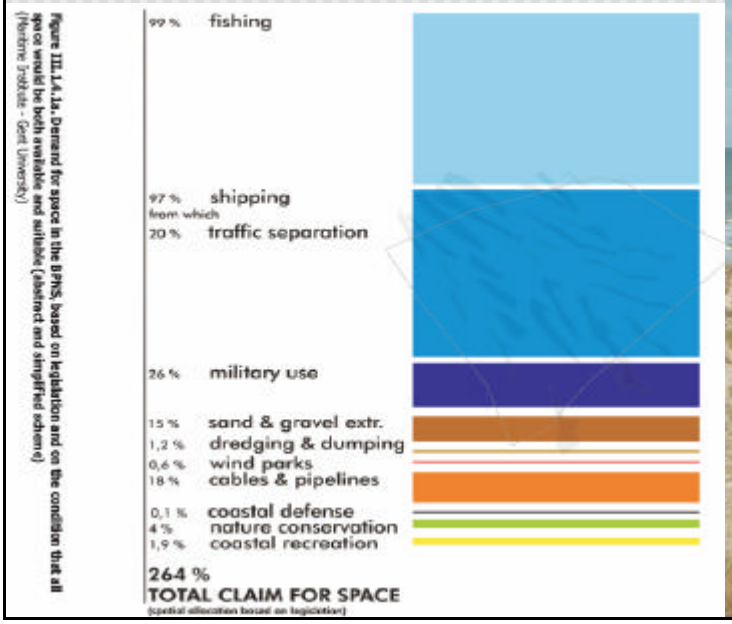
- **A Flood of Space**. Towards a spatial structure plan for the sustainable management of the North Sea, Belgian Science Policy, 2005, 204. Reference: Maes, F., Schrijvers, J. & Vanhulle, A. (2005).

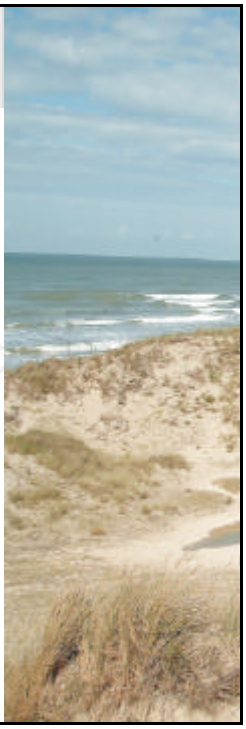
Analysis
-What activities take place at sea?
-Where do they take place?
-Why?

Answers?
-Legal
-Historical
-International
-Economics

And what about management
-Driving forces
-Short/long term perspective
-Politics vs science
-Biodiversity

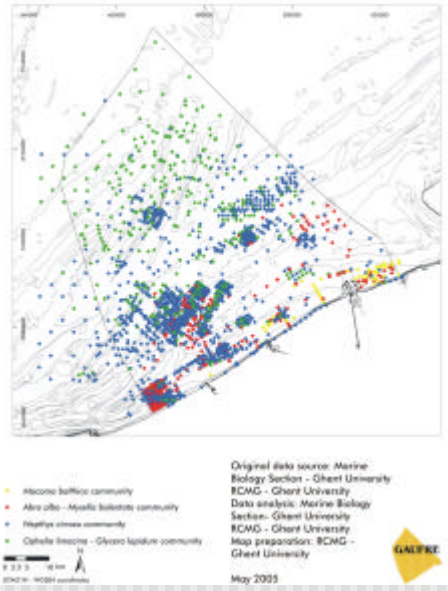
Increasing spatial claims contra ecosystem management



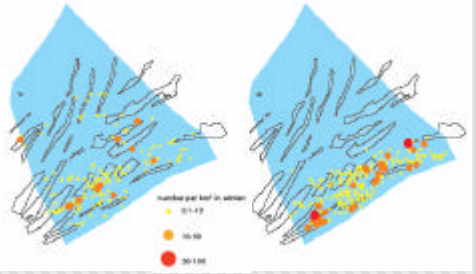


Environmental indicators: from monitoring to mapping and interpretation

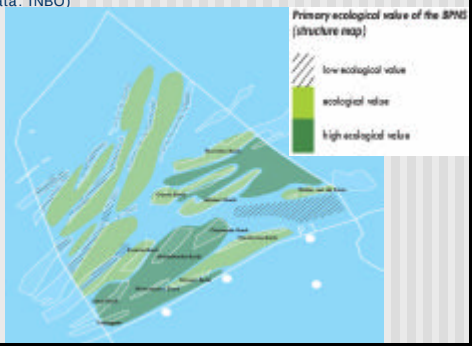
From monitoring to mapping ecological values



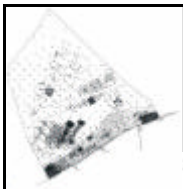
Distribution of four soft-sediment macrobenthic communities (data: Marine Biology – UGent)

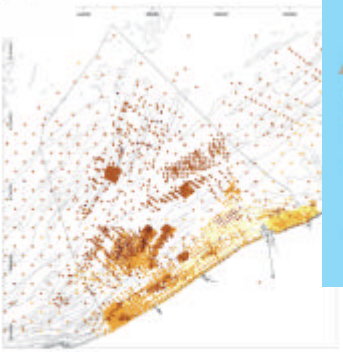


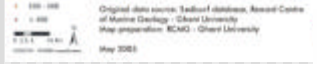
Red-throated diver (left) and great crested grebe (right) in winter (data: INBO)



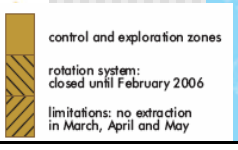
Sand grain size: from monitoring to ... GIS maps and ... spatial structure maps ... to concession zones ...



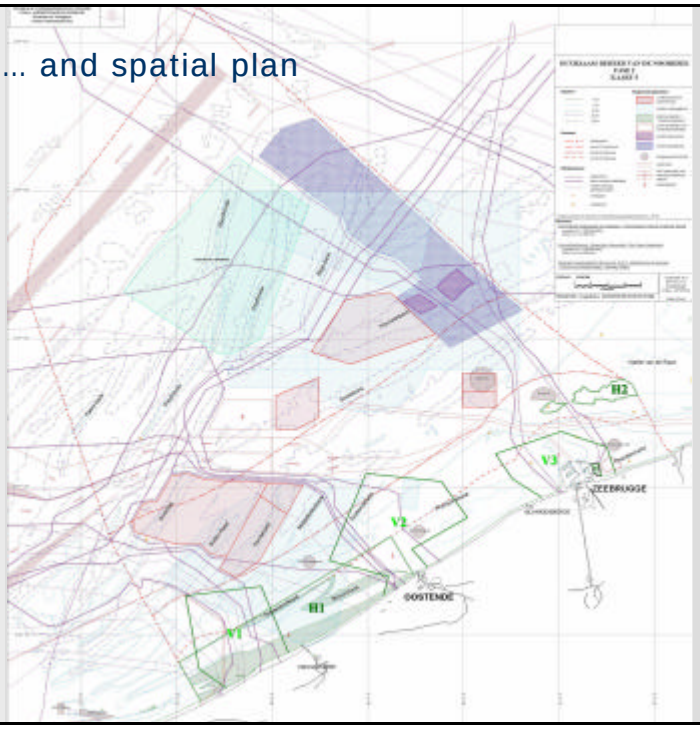




Sand grain size (data: Renard Centre – UGent)

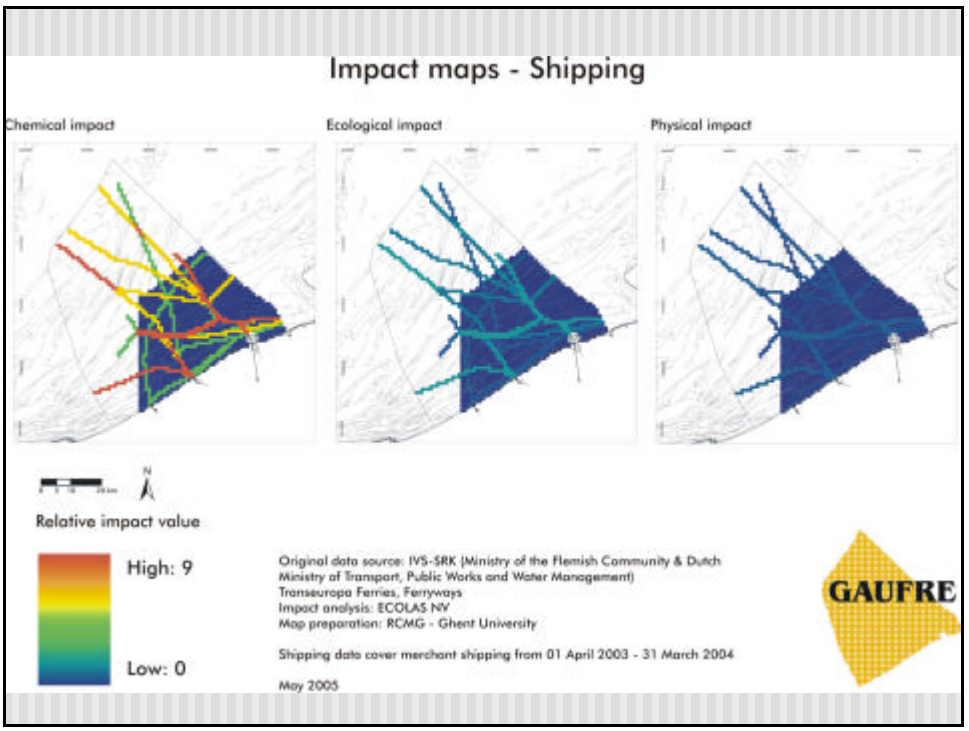


… and spatial plan



Activities in the BPNS: Impacts

Category	*Subcategory*	*Specification*
Physical disturbance	Landscape	Visual disturbance.
	Sediment morphology	Small-scale spatial disturbance.
	Sediment composition	Mostly changes in particle size distribution.
	Waves & currents	Changes in hydrodynamics, direction and magnitude of waves and / or currents.
	Topography	Large-scale spatial disturbance.
	Noise	Increase of the level or amount of sound in the marine environment beyond its natural range.
	Light pollution	Introduction of a source of light that would not naturally occur in the marine environment.
	Temperature	Changes in the environment's natural temperature range.
	Turbidity/ light penetration	Change in the extent to which light penetrates the water column.
Chemical disturbance	Oxygen	Changes in the environment's natural oxygen range.
	Oil	This is restricted to the oil itself excluding micropollutants (PAHs, metals).
	Micropollutants	Introduction of substances that are normally not found in the marine environment. Includes heavy metals, organic pollutants, POP's, pesticides ... etc
	Air pollution	Includes NO_x, VOC, SO_x, CO_2 ... etc.
	Solid waste	Introduction of all types of garbage and solid waste.
	Eutrophication	Due to nutrients outflow, nutrient release or due to waste (e.g. fish offal, sewage).
Ecological disturbance	Habitat change	Change in the physical, chemical and ecological characteristics.
	Benthos	Change in biodiversity, biomass or interactions of benthic organisms.
	Birds	Change in biodiversity, biomass or interactions of birds.
	Exotic species/ introductions (incl. pathogens)	Introduction of species to the marine environment that do not occur naturally or historically (exotic species) or of disease-producing organisms, either from terrestrial or marine sources (pathogens).
	Fish stocks	Change in biodiversity, biomass or interactions of fish.
	Trophicrelations	Change in trophicinteractions of benthos, birds and fish.



Activities in the BPNS:
Conflicts
Positive interactions

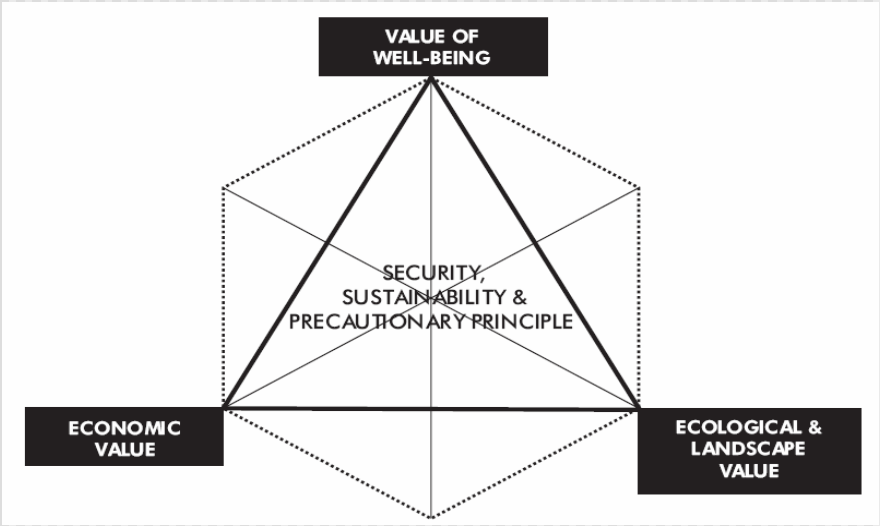
Map II.4h. Fisheries: conflicts with other uses
(Data analysis and Map preparation: Maritime Institute - Gent University)

conflicts

Map II.4i. Fisheries: positive interactions with other uses
(Data analysis and Map preparation: Maritime Institute - Gent University)

Scenarios & visions for planning

Planning drivers & core values of sustainable management



Core values of sustainable management:

Well-being

Economic

Ecological/landscape

Developing scenarios

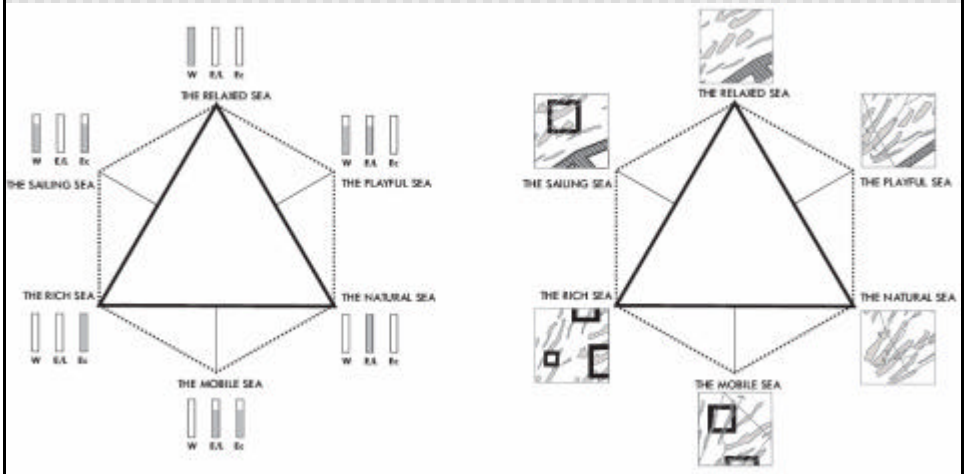
RICH SEA

>>> STRESSES ECONOMIC POTENTIAL (EP), ECOLOGY AND LANDSCAPE ARE LESS IMPORTANT (E/L), WELL-BEING IS IN BETWEEN (V or W/B)

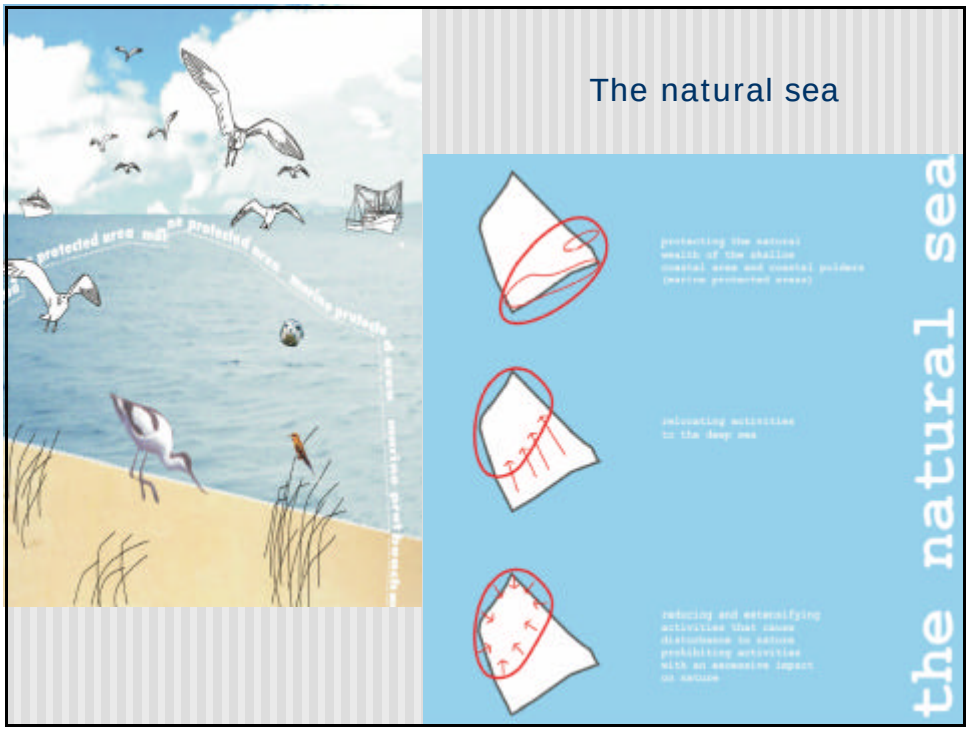
FOR EACH SCENARIO:
>>> IDENTIFY A VISION AND POINTS OF DEPARTURE BASED ON CORE VALUES

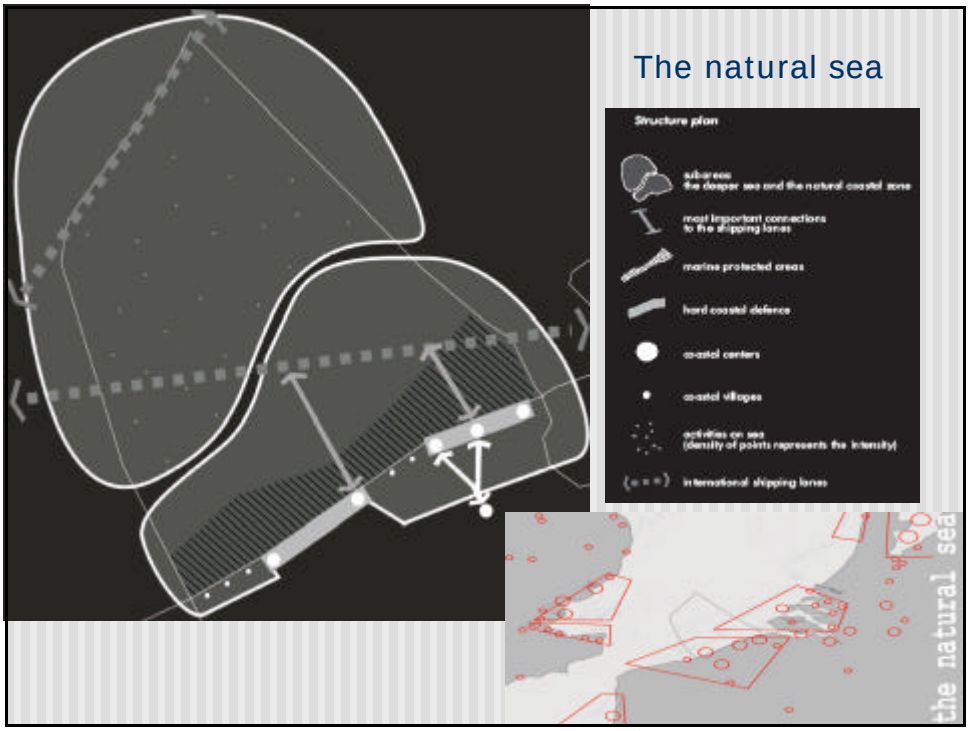
>>> TRANSLATE VISION IN A SLOGAN, A MOTTO

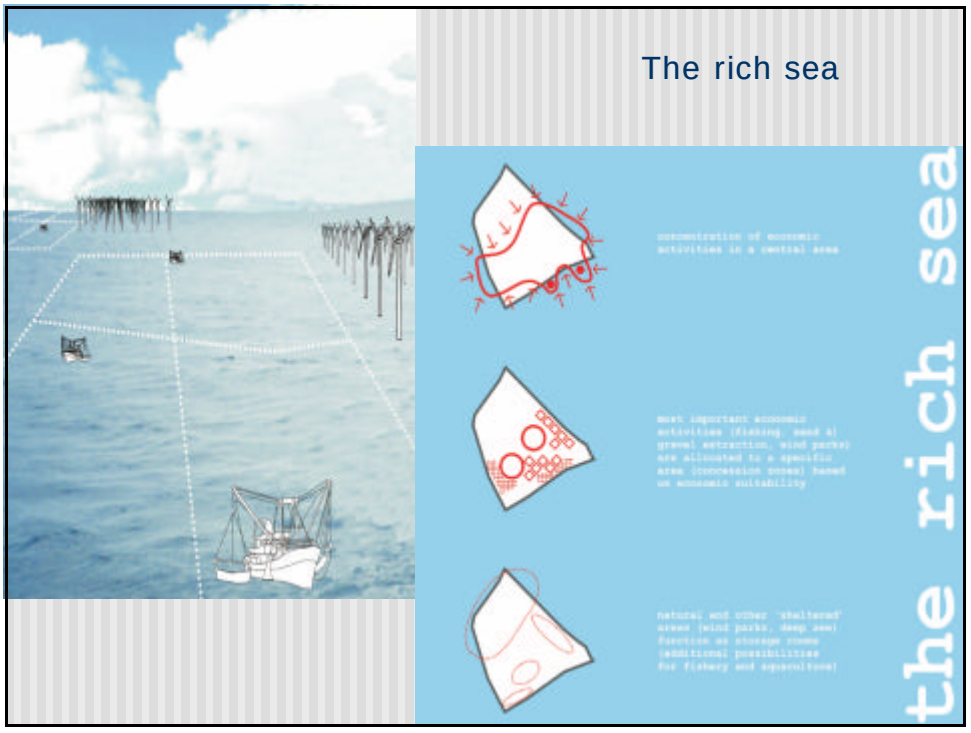
Six scenario's & visions



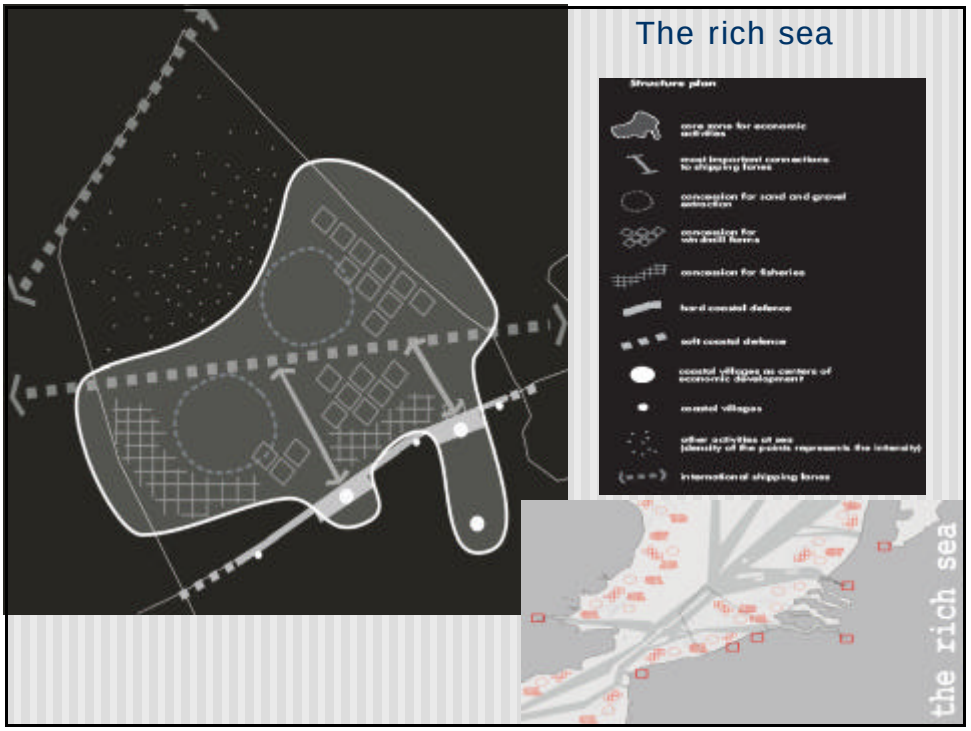
Translating scenarios in spatial structure plans




The natural sea
Structure plan
subareas
the deeper sea and the natural coastal zone
most important connections
to the shipping lanes
marine protected areas
hard coastal defence
coastal centers
coastal villages
activities on sea
(density of points represents the intensity)
international shipping lanes
the natural sea


The rich sea
concentration of economic
activities in a central area
most important economic
activities (fishing, sand &
gravel extraction, wind parks)
are allocated to a specific
area (concession zones) based
on economic suitability
natural and other 'sheltered'
areas (wind parks, deep sea)
function as storage rooms
(additional possibilities
for fishery and aquaculture)
the rich sea

The rich sea



Conclusion on mapping

Marine spatial planning should be fully based on all available information and guided by sustainable management, that can be translated for the public into more easily understandable core values.

GIS and structure maps make it easier to facilitate discussion on marine spatial planning, including the designation of certain areas to certain activities or the exclusion of activities in certain areas.

Conclusion

Spatial planning, the supporting scenarios and visions to it, do not intend to replace scientific data. A spatial planning process uses all existing scientific data available and can complement lack of scientific data, but also reveals data gaps.

And now?

- Assess and improve marine science in a holistic perspective
- Fill data gaps & improve planning and mapping
- Discuss scenario's with stakeholders and public
- Use public participation and scientific interpretation to guide politics on marine spatial planning
- Seek co-operation with neighbouring countries towards transnational spatial planning