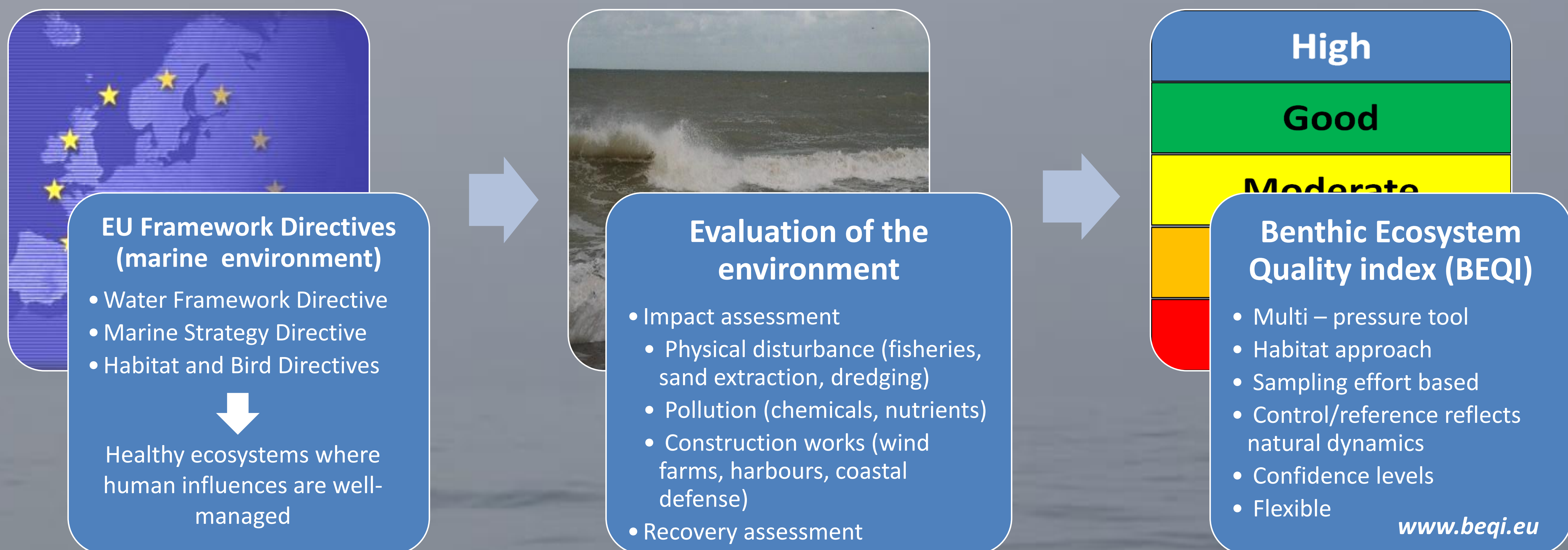
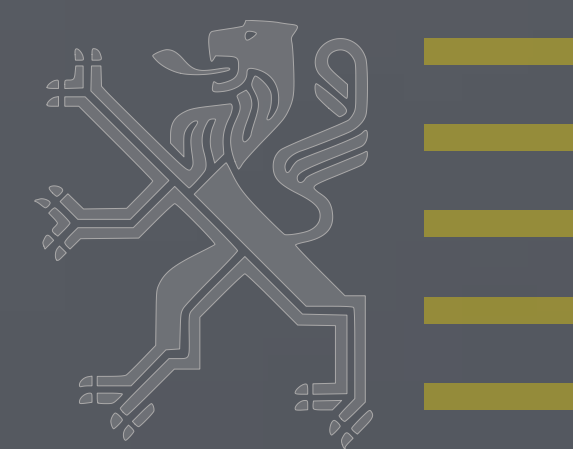


# How To Measure The Impact Degree Of Different Anthropogenic Pressures?



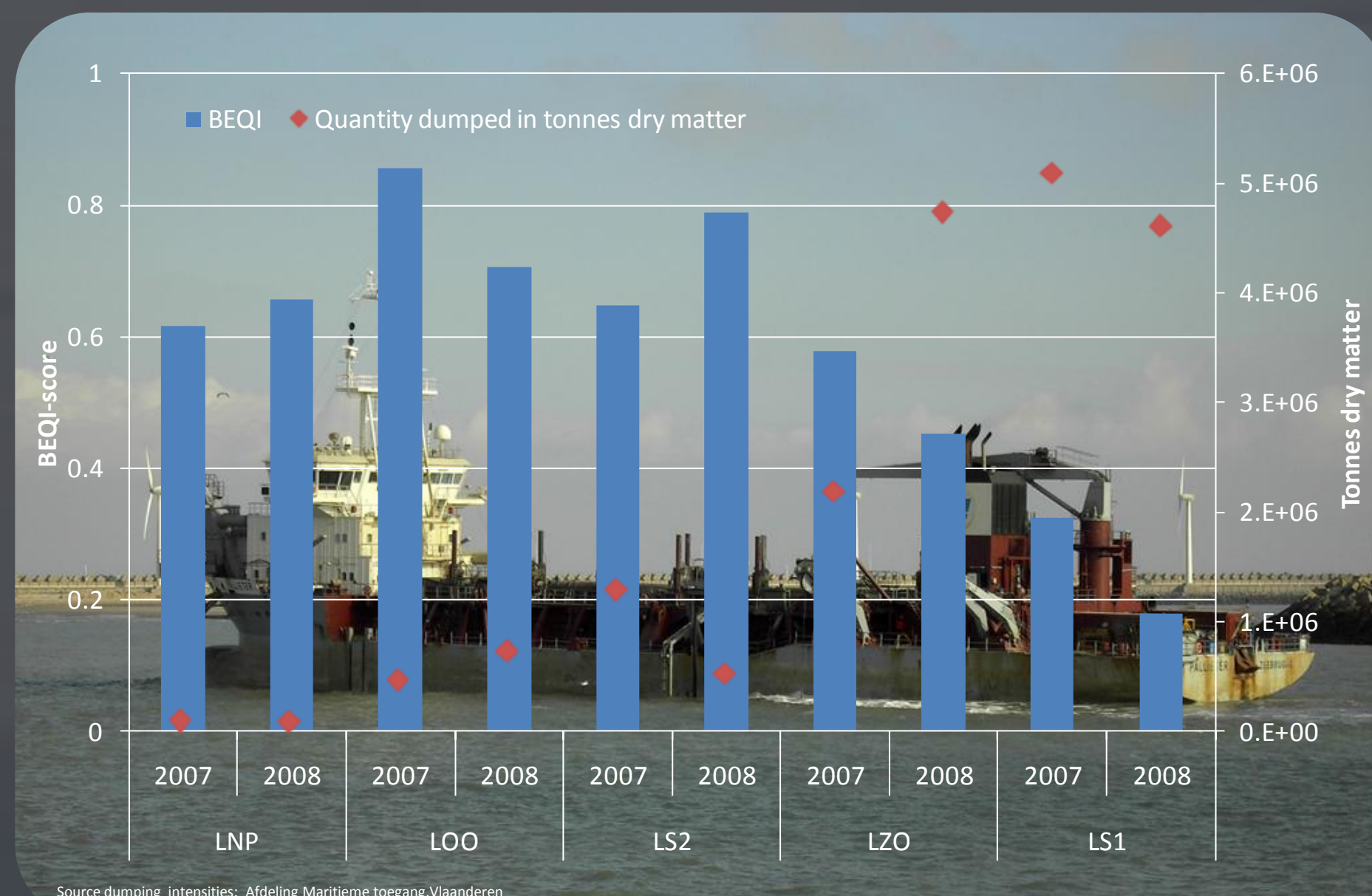
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## MEASURING IMPACT DEGREES: CASE STUDIES

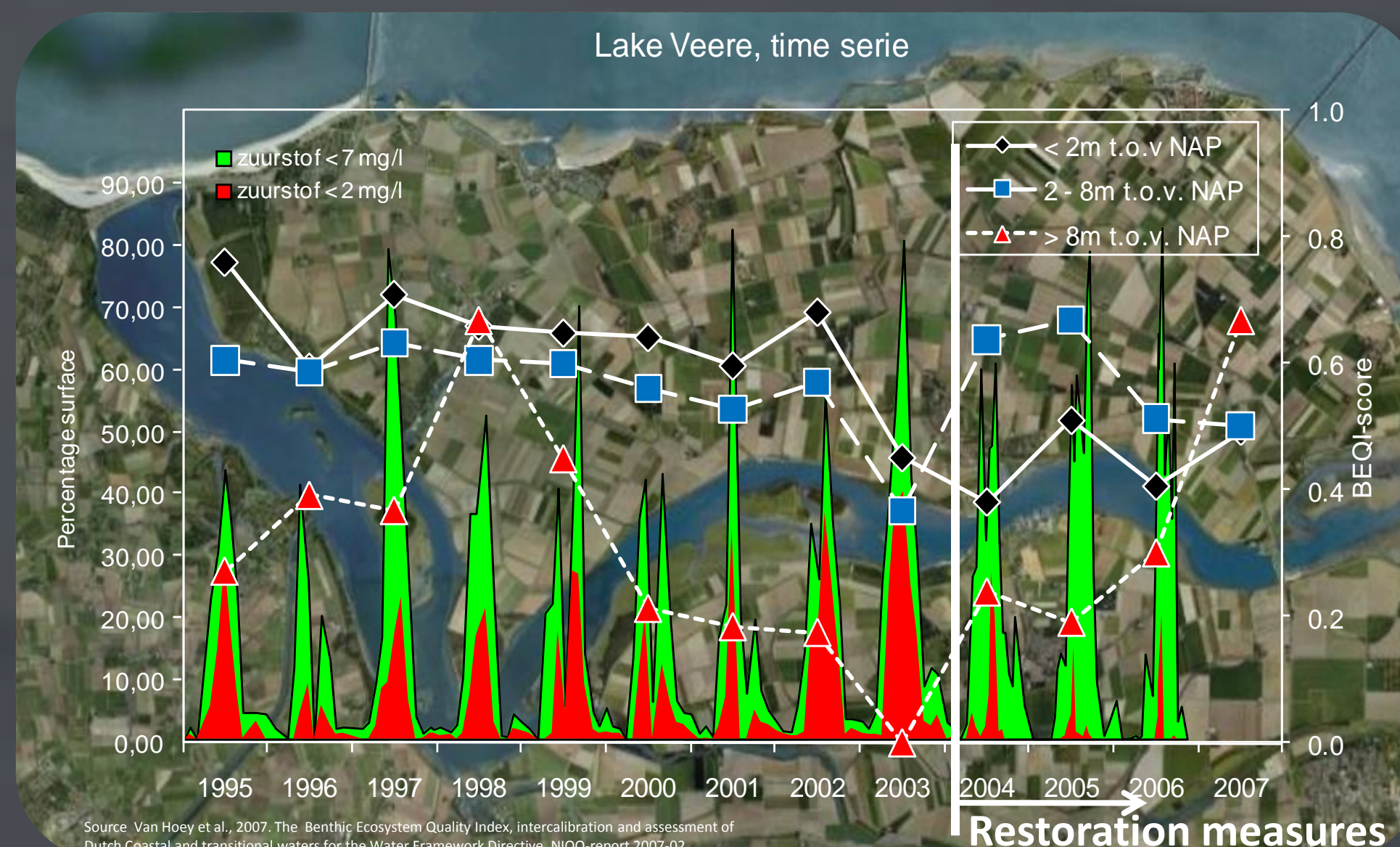
### Dumping of dredged material (Belgium)



#### Impact on benthos when BEQI < 0.6

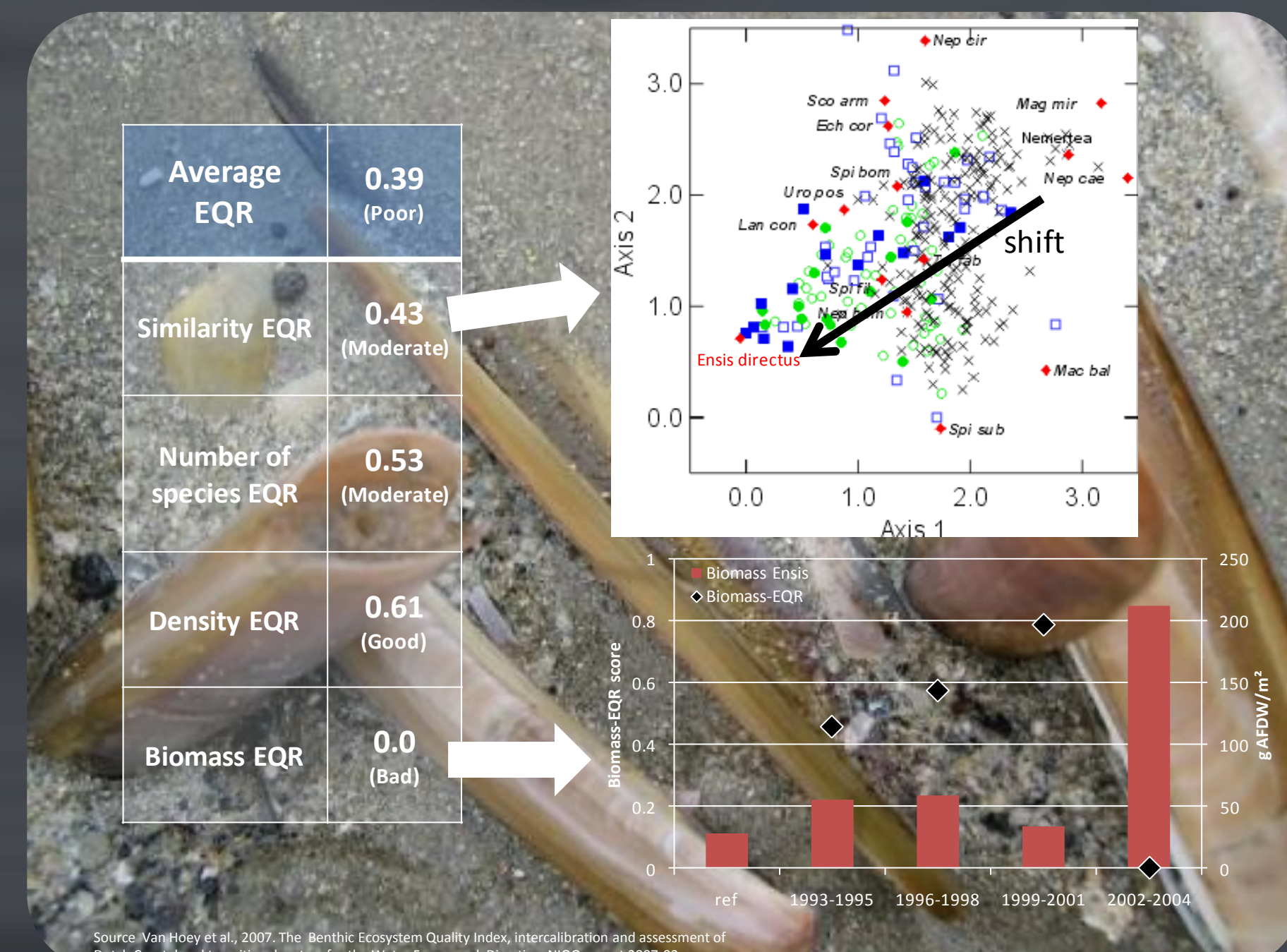
- Dumping site **Zeebrugge Oost**: sandy mud habitat & high dumping intensity  
→ benthos slightly impacted
- Dumping site **LS1**: heterogeneous muddy-sand habitat & very high dumping intensity  
→ benthos impacted
- Other sites with lower dumping intensities not impacted

### Organic enrichment (Lake Veere, NL)



- Ecological status in Lake Veere bad, mainly in the deepest habitat (< 8m) due to oxygen depletion as a consequence of eutrophication and stratification
- Management action: again water exchange through inlet in Oosterschelde dam  
→ **Benthos recovery in deepest habitat**  
→ **Other habitats still affected**, partly due to changed salinity patterns.

### Alien species (*Ensis directus*) (NL coast)



Due to the dominance of *Ensis directus*:

- Benthos species composition changed  
→ **Similarity EQR moderate**
- Biomass quadrupled in last 10 years  
→ **Biomass EQR bad**
- Number of species slightly decreased  
→ **Number of species EQR moderate.**

The need for adequate control/reference areas, free of impact

Sampling strategy spatially and temporally adapted to impact type

### Impact assessment: Points of attention !!

Biological assessment has to coincide with detailed knowledge on impact frequency and intensity

Indexes summarize patterns, but they do not provide full explanations of observed patterns

## CONCLUSION

- **Biotic indices** are evidence based tools which can be used for the management of human impacts in marine systems
- **Comparison of impact degrees** by means of biotic indices is possible, provided that enough scientific information is available.

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