

MEMO: Mnemiopsis Ecology and Modelling: Observation of an invasive comb jelly in the North Sea.



Stakeholder meeting

Ostend, 19 November 2013

Johan Robbens





MEMO- Stakeholdermeeting



- General – What is Memo
- Characterization of the spatio-temporal distribution of *M. leidyi*.
 - How to catch
 - How to identify
 - Distribution
- A better understanding of the biology, physiology and feeding behaviour of this invasive comb jelly.
 - Life cycle
 - Foodweb
- Development of applied models and operational tools
 - Socio Economics
 - Modelling
- Conclusion





MEMO



- What?
- Interreg 2 Seas (Channel and North Sea- 4-member countries)
- Priority 2; promoting and developing a safe and healthy environment
- 2b- develop activities to prevent and cope with natural, technological and human risk and to guarantee the quality of the environment

- 5partners
 - ILVO (Johan Robbens (C) + Kris Hostens)
 - Ifremer (Elvire Antajan)
 - ULCO- University du Littoral Cote d' Opale (Dorothee Vincent/Jean Michel Brylinski)
 - Cefas (Sophie Pitois)
 - Stichting Deltares (Jan Van Dalfsen/Victor Langendries)





MEMO



- Risk assessment and impact evaluation of *Mnemiopsis leidyi* in the 2 seas areas



Incentive for the project



Mnemiopsis leidyi

- Consumes everything from zooplankton to fish larvae- up to ten times its bodyweight per day
- Black sea (80s)/Caspian sea(90s) scenario: did destroy the ecosystem to a dead-end ecosystem
- First observation in 2-Seas area



Black Sea



- 1980s – Black Sea *Mnemiopsis leidyi* was introduced in the Black Sea in the 1980s, where only one species of comb jelly, the small sea gooseberry *Pleurobrachia pileus* occurred until then. The most likely cause of its introduction is accidentally by ballast water. The first Black Sea record was in 1982.
- By 1989, the Black Sea population had reached the highest level, with some 400 specimens per m³ of water in optimal conditions. Afterwards, due to depletion of foodstocks resulting in lower carrying capacity, the population dropped somewhat.
- In the Black Sea, *M. leidyi* eats eggs and larvae of pelagic fish. It caused a dramatic drop in fish populations, notably the commercially important anchovy *Engraulis encrasicolus*, by competing for the same food sources and eating the young and eggs. Biological control was tried with *Beroe ovata*, another comb jelly, with some degree of success; it appears as if a fairly stable predator-prey dynamic has been reached.



Caspian sea



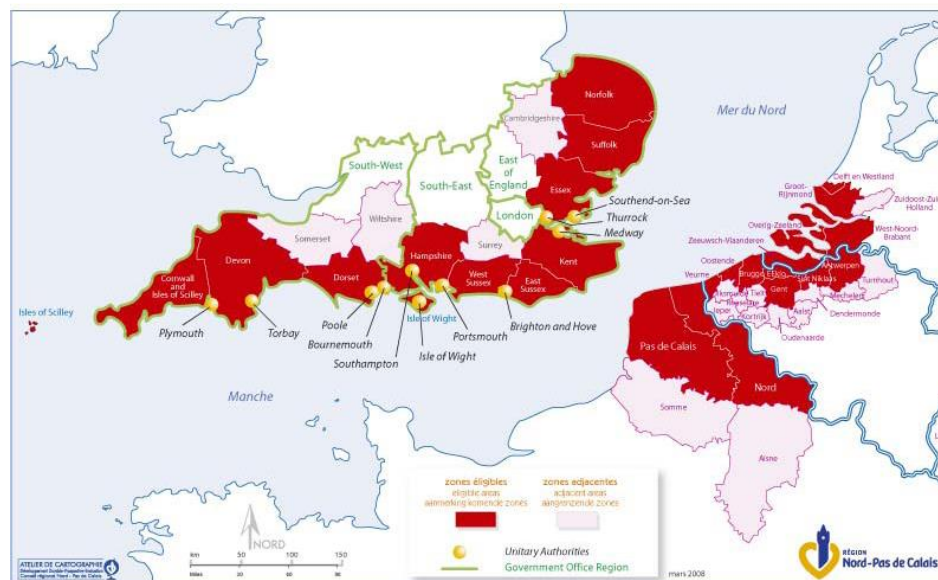
In 1999 the species was introduced in the Caspian Sea.

The result was that 75% of the zooplankton was depleted, thereby affecting the entire food chain of the lake.





- Since 2005/2006 first observations in 2 Seas area



2 Mers Seas Zeeën
INTERREG IV A
"Investing in your future"
Crossborder cooperation programme
2007-2013 Part-financed by the European Union
(European Regional Development Fund)

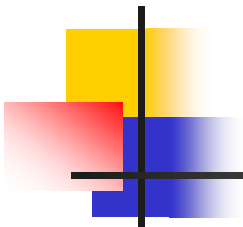


MEMO



- Risk assessment and impact evaluation of *Mnemiopsis* in the 2 seas areas
- Three activities
 - Spatio-temporal distribution
 - Physiology of *Mnemiopsis*
 - Applied cases





2 Mers Seas Zeeën
INTERREG IV A
FRANCE - ENGLAND - IRLAND - ESCOTLAND



“Investing in your future”
Crossborder cooperation programme
2007-2013 Part-financed by the European Union
(European Regional Development Fund)



Conclusion



MEMO

- Case is good example of joined effort to analyse risk of invasive species. Risk assessment is done with science based methods (and expertise of different institutes).





Conclusion



Funding

- Interreg:

Good instrument to study interregional (maritime) problems

