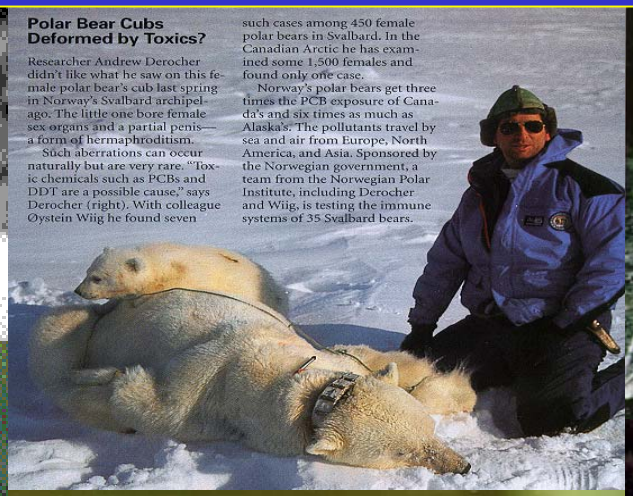
ENDIS-RISKS

Endocrine disruption in the Scheldt estuary: distribution, exposure and effects

Project partners

- Laboratory for Environmental Toxicology and Aquatic Ecology, Ghent University, Belgium
- Section Marine Biology, Ghent University, Belgium
- Laboratory for Chemical Analysis, Ghent University, Belgium
- Management Unit of the North Sea Mathematical Models, Belgium
- National Institute for Coastal and Marine Management, The Netherlands
- Flanders Marine Institute, Belgium
- Users committee (IN, RIVO, AWZ, VMM, UA, CEMO, RWS, SIC, UG-MI, OSTC)

Endocrine disruption…



Polar Bear Cubs Deformed by Toxics?

Researcher Andrew Derocher didn't like what he saw on this female polar bear's cub last spring in Norway's Svalbard archipelago. The little one bore female sex organs and a partial penis—a form of hermaphroditism.

Such aberrations can occur naturally but are very rare. "Toxic chemicals such as PCBs and DDT are a possible cause," says Derocher (right). With colleague Øystein Wiig he found seven such cases among 450 female polar bears in Svalbard. In the Canadian Arctic he has examined some 1,500 females and found only one case.

Norway's polar bears get three times the PCB exposure of Canada's and six times as much as Alaska's. The pollutants travel by sea and air from Europe, North America, and Asia. Sponsored by the Norwegian government, a team from the Norwegian Polar Institute, including Derocher and Wiig, is testing the immune systems of 35 Svalbard bears.

ENDIS-RISKS: project goals

1. Evaluate the **distribution** of endocrine disrupters in the Scheldt estuary
2. **Evaluate the exposure** of biota from the Scheldt estuary to endocrine disrupters
3. Ecotoxicological **evaluation of the effects** of endocrine disrupters present in the Scheldt estuary in the resident mysid population
4. **Risk assessment** of endocrine disrupters present in the Scheldt estuary
5. **Reporting, communication and valorisation**

Project planning

2002	2003	2004	2005	2006

Task 1 distribution EDCs in Scheldt estuary

Task 2 evaluation results Task 1

Task 3.1 effects lab

Task 3.2 effects field

Task 4 risk assessment

Task 5 valorisation communication reporting

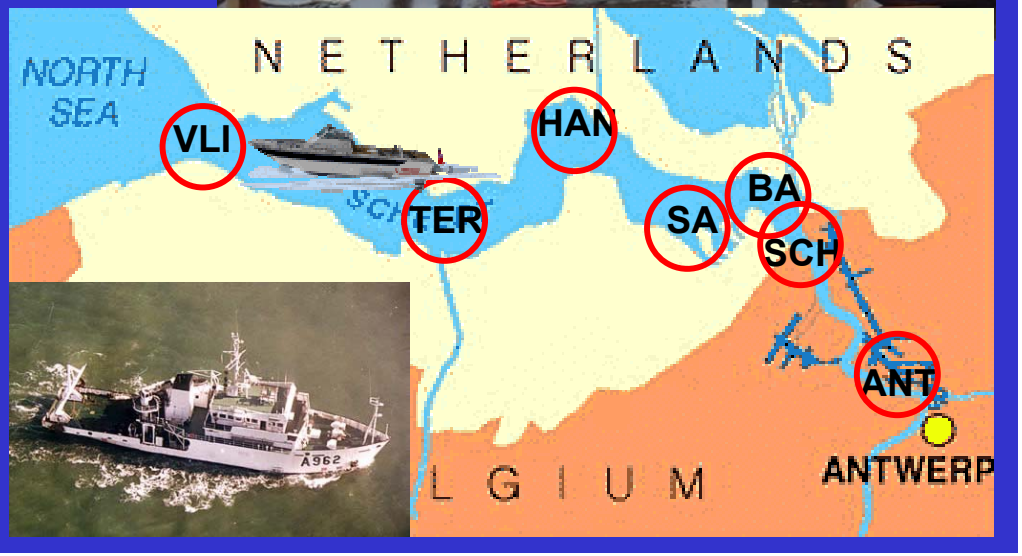
Task 1. Distribution

A. Sampling Scheldt estuary (~SISCO)

B. Chemical analyses

C. Analyses on biota

D. In vitro analyses



Task 2. Evaluation

End 2003

- **Define priority substances**
- **Compare exposure concentrations with available effect data (ED-North, …)**
- **Plan/adapt the following campaigns**
- **Plan the toxicity testing in the laboratory**

Task 3. Ecotoxicological evaluation Mysids in the laboratory/field

Laboratory

- **Acute** (< 96h)
- **Sub-chronic** (3-4 weeks)
- **Chronic** (10-12 weeks)

Field

- *In situ* studies in the Scheldt estuary to validate sensitive endpoints from the laboratory experiments

Task 4. Risk assessment

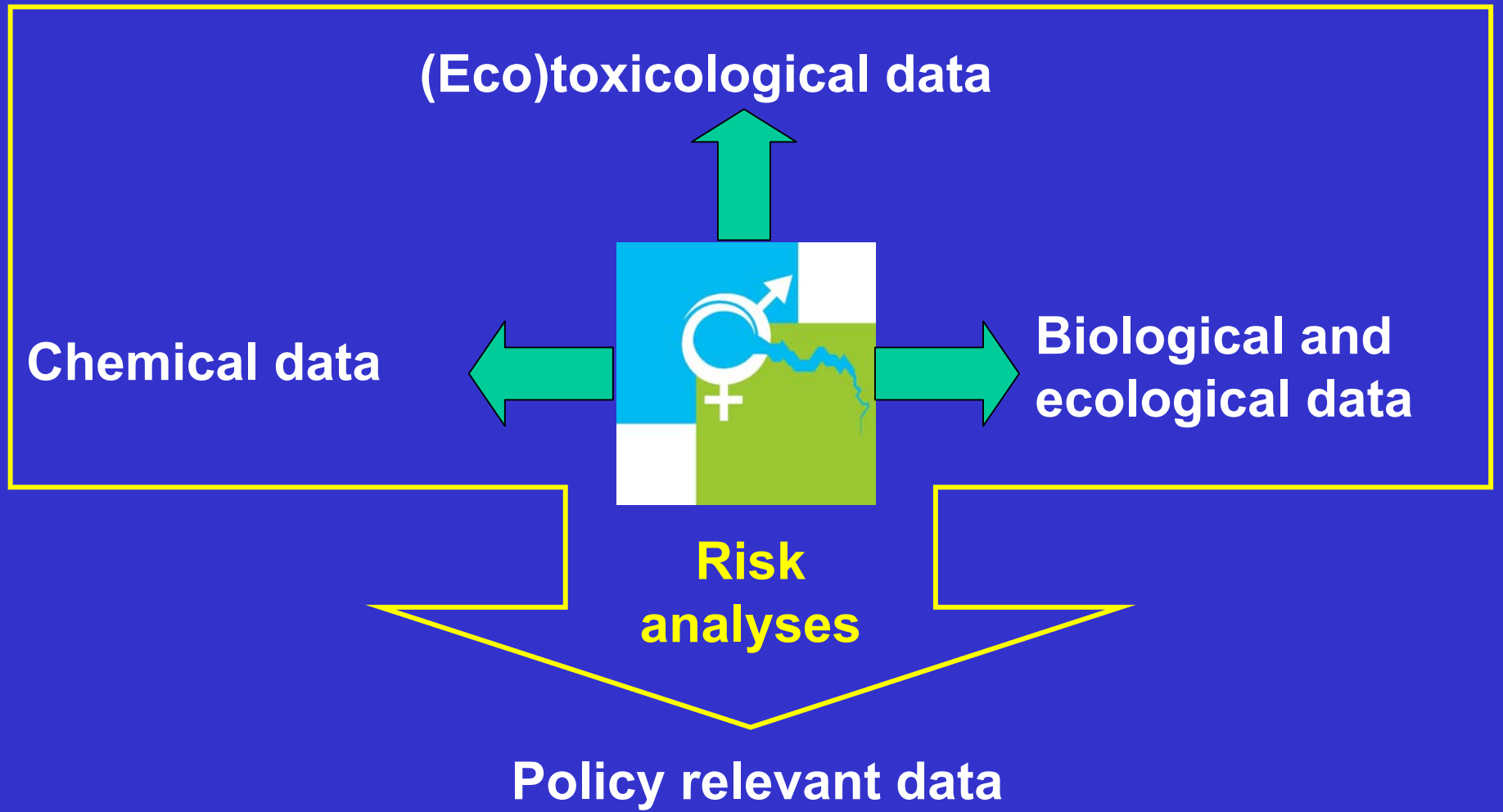
- Integrated risk assessment for the Scheldt estuary with reference to endocrine disrupting substances
- Recommendations for a sustainable management and priority substances will be developed

Is endocrine disruption 'an issue' in the Scheldt estuary ???

Task 5. Reporting, communication and valorisation

- All results will be published in peer-reviewed journals
- Transfer (and discussion) of the obtained knowledge and insights to national and international representatives of policy-making and policy-supporting governmental services
- Contribute to the international contractual engagements of Belgium
- Diffusion of data and results through scientific databases
- Interactive communication forum during the project (ENDIS-RISKS website)
- The results of the project will be brought together in a book which will include the datasets on CD-rom and the main research results

Output ENDIS-RISKS



ENDIS-RISKS
website and brochure

Website

http://www.vliz.be/projects/endis

Project brochure available

Questions

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