Minutes of the WP2-Meeting on Scenarios October 15, 2010

Attendees/Mail To:

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Introduction:

We have agreed to run three nutrient load scenarios with our models. A reference scenario (ref), a scenario reflecting the Baltic Sea Action Plan (BSAP) and a business as usual (BAU) scenario. These scenarios will be implemented on top of the IPCC scenarios A1B and A2.

To make the IPCC scenarios available for the Baltic region, the information has been downscaled by integrations of the regional climate model RCAO forced with output from global GCMs.

The following table reflects the current state of the to-do list. Priorities have been assigned in order to span the length and width of the parameter space as quickly as possible. The rest of the scenarios will be done in an order that seems appropriate after initial results have been analyzed.

Planned Scenarios:

Climate change/Nutrient load scenarios	RCAO-ECHAM5 A1B_3	RCAO-ECHAM5 A1B_1	RCAO-ECHAM5 A2	RCAO-HadCM3 A1B
ref	1			2
BSAP	5			3
BAU	6			4

There are two versions of this table of experiments, which makes a total of 24 scenario runs. One with runoff data from Robinson's work and one with output from HYPE. We will first go ahead and start right away with Robinson's version. According to the access to high performance computer power, IOW will not be able to run all 24 scenarios in time. Instead scenarios of highest priority will be chosen.

Available Hindcasts:

There are two forcing data sets available for RCO hindcast simulations:

```
Period        | 1850-2007          | 1961-2007    |
RCO Forcing  | HiRes AFF (RCAO) | RCA-ERA40 |
------------------------------------------
```
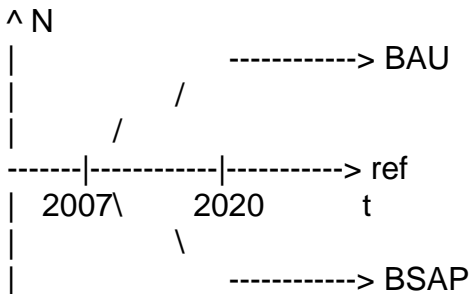
Met/nutrient loads	HiResAFF (RCAO)	RCA-ERA40
Load reconstruction	X	X

The long simulation 1850-2007 with HiResAFF will be done using BALTSEM and RCO-SCOBI.

Forcing Functions:

For the transient scenarios the future nutrient input into the Baltic
Sea will be represented by piecewise linear ramp functions. We have
agreed to run the models until the end of 2007, ramp to the beginning
of 2020 and then use constant nutrient concentrations (preserving the
climatological annual cycle) in
river runoff for BSAP and BAU. Point sources will be lumped into the
river runoff. The same functional form will be used for atmospheric
deposition of nutrients.

Functional representation of nutrient forcing

```
^ N
|                 ------------> BAU
|          /
|       /
-------|------------|-----------> ref
|   2007\     2020         t
|            \
|                 ------------> BSAP
```

The averaging period for reference concentration is 1995 - 2002. This
excludes some abnormal years in the early 2000s.

To-Do List:

- Christian will get spatially integrated concentrations for atmospheric
deposition of N and P in the future as input from Magnuz Engardt and
Joakim Langner.

Deadline: 5 Nov 2010

- For the reconstructions Thomas and Eduardo will provide Bo with their versions of reconstructed runoff 1850-2007.
Deadline: 15 Nov 2010

- Bo will make a compilation including Tuija's data and make a nice plot (colors at his discretion) and distribute it as a background for a decision on the nutrient input before ~1960. Basically correction compared to present version of loads.
Deadline: 30 Nov 2010

- Bo will provide sub-basin averaged data for concentration changes to be used in the BSAP and BAU scenarios.
Deadline: 5 Nov 2010

- Markus will check an earlier reconstruction of runoff for 1902-1998 and send to Bo.
Deadline: 30 Nov 2010