

*GEF BALTIC SEA REGIONAL PROJECT
PHASE 1: 2003 – 2005*

BSRP WORKSHOP ON SHIP OF OPPORTUNITY MEASUREMENTS IN THE BALTIC

**Helsinki, Finland
14-15 October 2004**

COMPILED BY
INGA LIPS



BSRP Large Marine Ecosystem Component implemented by:
International Council for the Exploration of the Sea



**Minutes of the
BSRP C1 LL SOOP ACTIVITIES WORKSHOP**

**Helsinki, Finland
14-15 October 2004**

1. WELCOME AND OPENING OF THE MEETING

The BSRP C1 LL SOOP activities workshop was hosted by the Finnish Institute of Marine Research (FIMR), Helsinki, Finland, on 14-15 October 2004. Altogether 16 persons from Estonia, Poland, Sweden and Finland attended the workshop. The list of participants is attached as Annex 1 and the meeting agenda as Annex 2.

The meeting was opened by Inga Lips, and the participants introduced themselves as well their institutes and special fields of expertise.

2. PRESENTATIONS AND VISIT ONBOARD SILJA SERENADE

Bärbel Müller Karulis as the leader of the Productivity Coordination Center (under which the LL SOOP Activities belong) gave a short overview of the Baltic Sea Regional Project in general, and then Inga Lips introduced the new SOOP line and partner institute selection procedure. The selected SOOP line between Gdynia and Karlskrona is operated by Stena Line, and the Institute of Meteorology and Water Management (IMWM) will be responsible for operating the SOOP monitoring programme. The Swedish Meteorological and the Hydrological Institute (SMHI) is interested in a cooperation regarding the Gdynia-Karlskrona SOOP line.

Mika Raateoja (Alg@line) gave a comprehensive overview of Alg@line's SOOP-approach and pointed out its positive and negative sides. His presentation was followed by introduction of real-time data transmission techniques presented by Bertil Håkansson from SMHI. All presentations can be seen at <http://www.fimr.fi/en/itamerikanta/uutiset/604.html>.

A visit onboard Silja Serenade to see one set of the SOOP equipment installed onboard a passenger ferry was organized by FIMR. In the machinery room Petri Maunula introduced the automatic equipment and data transmission to PC.

Back to the Institute the workshop continued with a demonstration of SOOP equipment by Mika Larinmaa (Navarc OY). Then Mika Raateoja and Petri Maunula (Alg@line) presented the technical aspects connected with the installation and maintenance of the SOOP system. Details of the technical specifications/needs of the system can be found at the web page mentioned above. Mika Larinmaa pointed out that it is important to use the transparent plastic hose before the fluorometer to avoid reflectance of the beam and that the pipe lines should be replaced several times per year to avoid contamination by biofouling. Mika Raateoja suggested to use a high flow rate, then biofouling should not be a big problem and the replacing of lines can be done once per year.

Juha Flinkman (Alg@line) introduced the Continuous Plankton Recorder (CPR) and Eija Rantajärvi (Alg@line) showed the development of database system ALGABASE. Seppo Kaitala (Alg@line) gave an example of using SOOP data for validation of satellite images and Inga Lips demonstrated how SOOP data together with HELCOM COMBINE

monitoring, satellite and meteorological data are implemented to assess the state of the environment of Gulf of Finland.

3. ROUNDTABLE DISCUSSIONS

The roundtable discussion was started on October 14. Because the SMHI representatives, Bertil Håkansson and Arne Sjöqvist, had to leave on the same evening, issues concerning the cooperation with SMHI opened the discussion. The roundtable discussion continued on October 15.

Top 1: Cooperation with SMHI

To provide the legal framework for the participation of IMWM in the SOOP activities, an institute agreement will have to be made between the BSRP/HELCOM and IMWM. Participants also felt the need for a Memorandum of Understanding (MoU) between the BSRP, SMHI and IMWM. This kind of official document would enable IMWM to apply for future funding for the SOOP line from Polish authorities. The already existing Alg@line MoU will be taken as an example and Inga Lips and Bertil Håkansson will compile the first draft. The first draft should be ready for mid November. It was also agreed that in the first stage this would not become part of the Alg@line Consortium MoU.

Bertil Håkansson pointed out, that the main interest of SMHI in a SOOP line between Poland and Sweden would access to operational data on sea surface temperature. If the BSRP covered the investment cost of a data transmission module (estimated cost 8 000 €), SMHI would provide funding for automated data transmission via Orbcom satellite for a period of three years. The transmission costs were estimated at 1 300 €/year. During this three-year period SMHI also offers to provide reinvestment funding in case equipment – also including other components than SST measurements and data transmission – might fail. SMHI is also prepared to provide support and maintenance when the ferry is in Karlskrona. Further, SMHI offers to cover half of the installation cost of the SOOP equipment (piping, flow-through instrumentation, water sampler) on board the ferry as technician work and covering the bills/invoice sent by IMWM, based on an estimated total cost of 5 000 – 10 000 €. SMHI also offered to assist in negotiations with the ferry company. It is understood that IMWM should carry out all chemical and biological analysis, but some financial support might be possible and has to be discussed in more detail. After the three-year period of support by SMHI, SMHI will evaluate the output from the SOOP cooperation and will decide on future financial support.

Options for data transmission were discussed in more detail. While Inga Lips suggested that GSM could be cheaper, Mika Raateoja pointed out, that GSM covers only coastal area. Data would therefore be received with a delay of up to 12 hours, which would be satisfactory for IMWM, but too slow for the operational data needs of SMHI.

It was further concluded that issues connected with the data transmission in real time and the equipment that is needed for that will need more discussion between BSRP, SMHI

and IMWM. Bärbel Müller-Karulis agreed to discuss the issue in the BSRP and Bertil Håkansson agreed to discuss the financial issues at SMHI.

Włodzimierz Krzyminski (IMWM) raised the question about the ownership of the SOOP equipment, and Inga Lips and Bärbel Müller-Karulis both stated that the equipment owner will be IMWM. A contract will be drafted between BSRP and IMWM, stating the principles of equipment ownership.

Inga Lips pointed out that an agreement should also be formed between Stena Line - the ferry company operating the SOOP line - and IMWM. However, according to Bertil Håkansson, ferry companies are often reluctant to enter written contracts. Bertil Håkansson offered to organize a meeting between Swedish, Polish and Stena technicians and it was concluded that a written contract between Stena Line and IMWM is not obligatory, but it is important to meet the representatives of the Ship Company and make good agreements. It was agreed that the Polish partners will visit the ferry Stena Baltica in the first half of November.

Top 2: Support from Stena Line

Bertil Håkansson reported on his meeting with the representative of Stena Line:

- Stena Line is very positive to co-operation on monitoring of the Baltic Sea
- They will support the project with manpower, covering the handling of the CPR and a daily service of the ferry box system itself
- They are interested to present real-time data on screen for passengers, including information about the project, partners and make references to HELCOM

Contact person at Stena Line: Johan Roos, Environmental Co-ordinator Ship Management (johan.roos@stenaline.com), at Stena Line Scandinavia AB, SE-405 19 Göteborg.

Top 3: Sampling strategy and sample analysis

Włodzimierz Krzyminski emphasized that IMWM is able and ready to conduct chemical and biological analysis, but input with respect to the optimum sampling strategy is needed. Inga Lips suggested, that the overall hydrological conditions and already existing data should be taken into account designing a sampling strategy, while available man power and funding might limit the scope of the programme. As the main limitation, Włodzimierz Krzyminski stated, that IMWM presently can process only one or two phytoplankton sample per day, while Inga Lips, reported, that specialists at the Estonian Marine Institute usually handle three, when biomass is low, even four samples per day.

Inga Lips emphasised, that the meaning of SOOP measurements is high temporal coverage. The sampling for chlorophyll *a*, phytoplankton and if possible also for nutrients should be performed once per week. Laboratory chlorophyll *a* measurements, which are required for the validation of the onboard fluorometer should be done at least on a weekly basis.

It was decided that IMWM together with SMHI would work out the sampling strategy. It was also discussed that part of the samples could be counted using the semi quantitative method. Inga Lips also suggested that IMWM should use the PhytoCount (Kahma OY) programme for phytoplankton analyses. She also stated that is also important that IMWM will participate in the Alg@line phytoplankton (and also other parameter) intercalibration exercises.

Top 4: Database and data policy

Within Alg@line, data are freely accessed and used by all consortium partners but official permission is required for others. Alg@line will most likely continue to use this data policy. Włodzimierz Krzyminski preferred an approach similar to the EuroGOOS data policy, where data should be freely available for non-commercial use. This kind of policy enhances possible co-operations and also funding opportunities. It was agreed that data should be available for HELCOM. The BSRP will be responsible data exchange during the project period and the GIS Coordination Center headed by Gedas Vaitkus offered to provide data handling.

Juha Flinkman gave the example of the SAFFOS data policy where data are free but services are charged for.

Also IMWM and SMHI have to find a compromise regarding the data exchange. IMWM is satisfied of getting data once per day not every hour, which is the intention of SMHI. It was agreed that IMWM and SMHI would prepare the concept of data transfer during the following month (by mid November). Some parts of this concept should be elaborated together with the GIS CC. Gedas Vaitkus promised to define these necessary parts of this concept.

Top 5: Presentation of information

IMWM, SMHI and GIS CC will jointly work out the approaches to present data on the web to the public.

Top 6: CPR measurements

Juha Flinkman gave an extensive overview of the CPR, its installation and management needs during his presentation. He promised to send all informative/necessary materials to IMWM. He also promised to make the first calculations about the material expenses for the first year and was willing to assist in any possible way. Bärbel Müller-Karulis said she would then check how to cover these costs from the BSRP budget at least during the first year of measurements. Włodzimierz Krzyminski stated that he will meet the

representative of Stena Line in a month to discuss installation possibilities and potential costs of installation for the CPR.

Juha Flinkman also suggested contacting SAHFOS for assistance.

Bertil Håkansson was interested in cooperation concerning the zooplankton sample analysis with Sea Fisheries Institute, Gdynia, Poland represented by Piotr Margonski in this workshop.

It was agreed that for zooplankton analysis the same method would be used in FIMR and in the BSRP.

Top 7: SOOP system and CPR procurement procedures

Inga Lips explained that the SOOP equipment installed in the machinery room will be ordered as a whole package and said that she draft the system technical specifications in the near future and send these together with a tentative price list as informative material to all workshop participants. Juha Flinkman promised to provide help in drafting the CPR technical specifications.

Top 8: Assistance from Alg@line during equipment installation

Mika Raateoja stated that Alg@line is willing and ready to assist with the installation of SOOP equipment onboard Stena Baltica, but BSRP should cover the travel costs for the Alg@line technical specialist Petri Maunula (minimum 2 days). Alg@line will provide the know-how and manpower. Petri Maunula expressed his willingness to provide assistance and Włodzimierz Krzyminski welcomed the offer. Bärbel Müller-Karulis promised to discuss the funding opportunities with BRSP Assistant Coordinator Andris Andrushaitis.

Top 9: Future cooperation with Alg@line

It was agreed that the new SOOP line between Gdynia and Karlskrona will initially be separate from the Alg@line consortium, but will get all possible support from it. Also databases will be kept separately, the merge of the databases might happen in the future. It was agreed that data from the new SOOP line will be organized in a format similar to the Alg@line database, keeping in mind the possible merging of these databases. If IMWM will start sending the data to the Alg@line database in the future then the initial data checking, calibration procedures and data storing will be done by IMWM. All specifications will be written in the data policy documentation in case of merging these two databases.

ANNEX 1

LIST OF WORKSHOP PARTICIPANTS

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BSRP Lead Laboratory on Ship of Opportunity Activities Invites to take part at the

**SOOP Workshop
14-15 October 2004
Helsinki, Finland**

Agenda:

Thursday, October 14

- 10:30 Welcome & Introduction of participants
- 10:45 Brief introduction of the BSRP project (Bärbel Müller-Karulis)
- 11:00 Introduction of establishment of the new SOOP line in the southern Baltic Sea (Inga Lips, EMI)
- 11:10 Outline of the Alg@line SOOP-approach and Pros and Cons of it (Mika Raateoja, FIMR)
- 11:45 Real-time data transmission and operational use of data (Bertil Håkansson, SMHI)
- 12:00 **LUNCH**
- 13:00 Visit onboard Silja Serenade to see one of the Alg@lines SOOP systems
- 15:20 **Coffee/Tea**
- 15:30 Technical issues connected with the installation and maintenance of the SOOP system (Petri Maunula, FIMR)
- 15:50 Roundtable discussion about cooperation between IMWM, SMHI, Stena Line and BSRP (installation, technical matters, responsibilities – maintenance and laboratory analyses)
- ~18:00 Adjourn for the day

Friday, October 15

- 09:00 CPR adopted for use in the Baltic Sea (Juha Flinkman, FIMR)
- 09:30 ALGABASE (Eija Rantajärvi, FIMR)
- 10:00 Preliminary validation of TERRA/AQUA MODIS images with Alg@line measurements (Seppo Kaitala, FIMR)
- 10:30 **Coffee/Tea**
- 10:45 The use of SOOP measurements for marine environment monitoring (Inga Lips, EMI)
- 11:15 Discussions
- 13:30 Meeting adjournment