

Minutes
Inaugural Meeting
of
**SETAC Advisory Group: Aquatic Macrophytes Ecotoxicology Group
(AMEG)**
Göteborg, Sweden
2 June 2009, 10.00 – 11.00 h

Agenda

1. Welcome and opening of meeting by Chair;
2. Introduction to AMEG, history of AMEG and scope of the Advisory Committee by chair;

See “AMEG Presentation”.

3. "Development of a proposed test method for the rooted aquatic macrophyte *Myriophyllum*" by the AMRAP *Myriophyllum* work group.

See Presentation “AMRAP *Myriophyllum* test protocol”

4. Future activities of AMEG and discussion with AMEG members on expectations from AMEG, experience/activities outside EU / NA and AMRAP, suggestions for future activities of AMEG.

See “AMEG Presentation”, 2nd part.

Discussion

- Many questions were posed on the *Myriophyllum* test protocol, e.g. on the species choice (*Myriophyllum spicatum* and/or *Myriophyllum aquaticum*), the test vessel size, the length and the standardization of the pre-growth period, the material of the plant internal container (plastic versus glass), the sediment choice, plant culturing and handling;
- The experience with the proposed sediment was that the peat component was influencing water quality and peat particles even entered the water layer. Moreover, it seemed to be difficult to get the sediment mixed. The first argument can be corrected by adding a thin layer of coarse quartz sand on top of the sediment in order to reduce suspension of sediment into the water.
- The advantages and drawbacks of a macrophyte test with and a macrophyte test without sediment were discussed. Is a sediment necessary for macrophyte growth, what are the implications for exposure, what is the rationale behind a test with sediment and a test without sediment ?
- The adding of nutrients to the sediment was discussed.

Many of the topics addressed above will be part of the pre-/ring-testing of the *Myriophyllum* test.

Specific interests of Advisory Group members included:

- Higher Tier mesocosm studies with macrophytes, including the assessment of recovery;
- emergent plant tests;
- issues related to the Water Framework Directive.



1st meeting of

Aquatic Macrophytes Ecotoxicology Group AMEG



Program 1st meeting AMEG

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3. "Development of a proposed test method for the rooted aquatic macrophyte *Myriophyllum*" by the AMRAP *Myriophyllum* work group;
4. Future activities of AMEG and discussion with AMEG members on expectations from AMEG, experience/activities outside EU / NA and AMRAP, suggestions for future activities of AMEG.



History of AMEG

- AMRAP Guidance document almost finalized; It includes:
 - *status quo* of the work groups;
 - **Guidance on Aquatic Macrophyte Risk Assessment** in Guidance chapter;
 - **publication scheduled later in 2009;**

- platform needed to facilitate discussions of the work and future dissemination of results of AMRAP work groups;



AMEG



Steering Committee

Academia:

Mark Hanson, University of Manitoba, CA
Lorraine Maltby, University of Sheffield, UK,
Udo Hommen, Fraunhofer IME, DE
Gertie Arts, Alterra WUR, NL (chair)

Business:

Jo Davies, Syngenta, GB
Peter Ebke, MESOCOSM GmbH, DE
Stefania Loutseti, DuPont, GR
Michael Dobbs, BayerCropscience, US

Government:

Véronique Poulsen, AFSSA, FR
Angela Poovey, US Army, US (co-chair)
Katja Knauer, BLW, CH
Silvia Mohr, UBA, DE



New Steering Committee members

- 1st rotation after 2 years;
- Partly renewal of SC;
- Aim to incorporate members from other continents.



Aims of AMEG

- Platform for :
 - Scientific discussions and collaboration:
 - on the use and role of aquatic macrophytes in ecotoxicological science and regulation;
 - Provide science based proposals for macrophyte testing and macrophyte risk assessment;
 - Build a global network of macrophyte experts.



Scope

- Global tripartite structure;
- Including all aspects of macrophyte ecotoxicology ;
- Focus on substance-specific aquatic macrophyte risk assessment in the context of regulation;
- Including retrospective aquatic macrophyte risk assessment (e.g. WFD and Clean Water Act).



Future activities



Future Activities: priorities

SETAC:

- AMEG community will be constructed online;
- Announcement of AMEG in SETAC Globe;
- Announcement of AMEG in Journal;
- Mailing list with experts and interested scientists;



Future Activities: priorities

Sessions / meetings 2009:

- Organisation of sessions during future SETAC meetings and other scientific meetings:
 - Meeting of AMEG during next SETAC North America;
 - Submitted session proposal for Kampala meeting (Africa);
 - Presentation of AMEG in other meetings e.g. SETAC branches (poster / platform).



Other future activities

- Co-ordination / supervision of the AMRAP follow-up activities;
- Organisation of SETAC short courses;
- To participate in expert workshops, esp. in the areas of new testing methodologies and risk assessment;
- To build regulatory confidence in the application of new methods;
- To be actively involved in the development of guidance;



Workgroups follow-up from AMRAP

-Workgroup 1: Proposal for criteria when an additional macrophyte has to be tested. *Chair: Eric Bruns. [Validation](#)*

-Workgroup 2: Generating a draft protocol for a laboratory test with *Myriophyllum*; *Chair: Peter Dohmen. [Ring-testing](#)*

-- Workgroup 3: Generating an overview of laboratory toxicity methods for testing aquatic macrophytes other than *Lemna*; *Chair: Peter Ebke. [Data](#)*

-- Workgroup 4: SSD workgroup. *Chair: Stefania Loutseti.*



Specific interests to be explored

Specific interests of Advisory Group members



**Proposed test method for the rooted aquatic
macrophyte *Myriophyllum* sp.**

AMRAP *Myriophyllum* Work Group



Outline of presentation



- Aquatic Macrophyte Risk Assessment for Pesticides (AMRAP) workshop
 - Initiation of workshop;
 - Recommendations;
 - AMRAP *Myriophyllum* Work Group;
- Details of proposed test method and protocol;
- Future developments.



Initiation of AMRAP work group



•AMRAP was initiated in response to regulatory uncertainty that

- Current PPP RA (based on algae and *Lemna*) for aquatic macrophytes in the EU under Directive 91/414/EEC may not provide adequate protection for other aquatic macrophyte species;



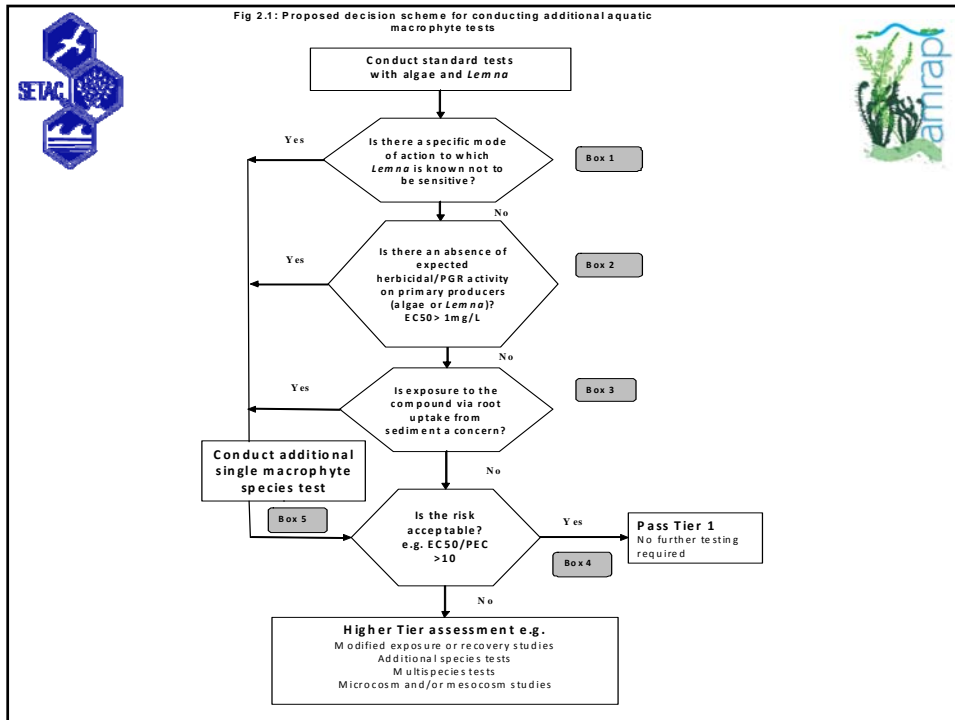
AMRAP Guidance document: Recommendation 1



An additional test with a rooted macrophyte species is recommended for compounds when the following questions are confirmed:

- Is there a specific mode of action to which *Lemna* is known not sensitive ?
- Is there an absence of expected herbicidal/PGR activity on primary producers (algae or *Lemna*)? $EC_{50} > 1\text{mg/L}$;
- Is exposure to the compound via root uptake from sediment a concern?





AMRAP Recommendation 2

Recognising the need for an additional test with another test species, it was agreed that the effectiveness and reproducibility of an agreed test protocol using a rooted macrophyte (*Myriophyllum* sp) should be assessed in a ring test.



AMRAP Recommendation 3



When assessing growth in additional aquatic macrophyte tests, the recommended measurements are biomass and shoot length.



AMRAP workgroup 2



Work Group 2 was charged with developing a standardized laboratory test for an alternative test species under circumstances where *Lemna* is not considered the most appropriate test species, i.e. a *Myriophyllum* test; Chair Peter Dohmen.





Draft protocol



Test species and duration

- *Myriophyllum aquaticum* and *M. spicatum* both suitable as test species;
- Therefore (initially) similar protocols for both species;

- Test exposure duration: 7 days (*M. aquaticum*) or 14 days (*M. spicatum*)*.

** Increase test duration by one week for compounds causing slow or delayed response*



Draft protocol



Sediment and media

- Sediment : artificial sediment (OECD guideline 219) with additional nutrients (N and P);

- Nutrient media: Smart & Barko, AAP or M4 (to be decided);



Draft protocol



Endpoints and measurements

- Endpoints: shoots, height, weight, length, number;
- Analytical measurements of compound concentrations (beginning, end, intermediate);



Draft protocol



Test conditions

- Light intensity $100-120 \mu\text{E}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$;
- Photosynthetically active radiation (400-700 nm) (equivalent to about 8 000 lux);
- Light:dark ratio of 16:8 h;
- Temperature in test vessels $20 \pm 2 \text{ }^\circ\text{C}$.



Future developments



- Pre-testing of growth media in 2009;
- Ring-testing of draft protocol is planned for 2009;
- Adapting / finalizing protocol;
- Result: validated test method;
- Proposal to include data in the risk assessment following acceptance of approach by the regulatory community;
- Eventually propose method as OECD guideline.



Discussion and questions



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