

Revised proposal (SOP) for a SETAC Advisory Group: Plant Advisory Group (formerly Aquatic Macrophyte Ecotoxicology Group (AMEG))

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Introduction

In 2009 the Aquatic Macrophyte Ecotoxicology Group was established as a global SETAC Advisory Group. In recent years, a lack of scientific knowledge was identified in the field of terrestrial plant ecotoxicology and terrestrial plant risk assessment. As this field of expertise is closely linked to the focus of the Aquatic Macrophyte Ecotoxicology Group, we propose to extend the scientific field and scope of the Advisory Group to plants in general, thereby extending the name of the Advisory Group to Plant Advisory Group.

General purpose of SETAC Plant Advisory Group:

The aim of the SETAC Plant Advisory Group is to provide a scientific basis for, as well as scientific guidance in all aspects of aquatic macrophyte and terrestrial plant testing in laboratory and field, aquatic macrophyte and terrestrial plant risk assessment methodologies and aquatic macrophyte and terrestrial plant ecotoxicology and ecology, for the benefit of the overall risk assessment of chemicals. The group will accomplish these goals by being a forum for communication, cooperation, scientific discussion and collaboration among scientists in academia, business and government.

Scope

The Plant Advisory Group will be a platform for discussions and collaborations on the use and role of aquatic macrophytes and terrestrial plants in ecotoxicological science and regulation. Aquatic macrophytes are typically defined as autotrophic organisms that have become adapted for life wholly or partially in water and that are large enough to be seen with the naked eye. We include in this definition macro-algae like *Chara* and salt-water organisms like sea-grasses and brown algae. Aquatic macrophytes cover all growth forms including emergent, floating-leaved, free-floating and submerged forms as well as life forms like hydrophytes, amphiphytes and helophytes. The Plant Advisory Group will also serve as a forum where issues related to aquatic macrophytes will be discussed taking into account regulatory needs e.g. as defined in the Water Framework Directive (WFD) and the revised pesticide directive (EU Directive 91/414).

Terrestrial Plants are autotrophic organisms growing on land. Their survival on land requires special adaptations to prevent them from drying out and to aid them in obtaining nutrients and in reproducing. Besides these adaptations to water scarcity and desiccation, many terrestrial plants can tolerate considerable periods of submersion by flooding. Terrestrial plants can go through their life cycle which might differ between

species but often include seeds / spores, juvenile plants, adult plants and resting or overwintering stages.

Objectives

1. To provide information on and to discuss the current *status quo* regarding aquatic macrophyte and terrestrial plant testing in single species laboratory studies, multispecies laboratory studies, multispecies outdoor studies, mesocosm studies and field studies, on aquatic macrophyte and terrestrial plant risk assessment and aquatic macrophyte and terrestrial plant ecotoxicology.
2. To provide a scientific basis for substance-specific aquatic macrophyte and terrestrial plant risk assessment (e.g. for plant protection products (EU Directive 91/414, USA FIFRA and Canadian PCPA)), biocides (EU Directive 98/8/EG and USA FIFRA), chemicals in general (REACH, USA TSCA).
3. To provide a scientific basis for retrospective aquatic macrophyte and terrestrial plant risk assessment with emphasis on field-based approaches and multiple stress scenarios (e.g. WFD and USA Clean Water Act).
4. To build and extend a global network of plant experts from academia, regulatory authorities and business.
5. To provide an overview of ongoing activities and new initiatives in the subject area via the SETAC website and an email distribution list.
6. To organize sessions (e.g. platform or poster) and short courses at the SETAC annual meetings.
7. To organize or actively participate in expert workshops, especially in the areas of new testing methodologies and risk assessment.
8. To build regulatory confidence in the application of new methods for testing and risk assessment and through effective communication and knowledge exchange e.g. in short courses.
9. To be actively involved in the development of guidance on aquatic macrophyte and terrestrial plant testing and aquatic macrophyte and terrestrial plant risk assessment in support of current and future legislation.

In the registration process for Plant Protection Products (PPPs) in the EU under Regulation 1107/2009, a tiered approach to studies and risk assessments is recommended for non-target terrestrial plants. However, when PPPs and in particular herbicides fail the risk assessment based on standard studies (i.e. glasshouse studies according to OECD 208 & 227) there is no guidance for higher tier options or defined studies that leads to refinements of the associated risk assessment. The tiered approach states that extended laboratory, semi-field and field studies may be conducted. However, there is little information provided on how to implement these types of studies and very little information on how to use them to refine the risk assessments. Moreover, there is currently no guidance on how to evaluate specific protection goals as defined by EFSA for terrestrial plants. In addition, a general lack of procedures to define the terrestrial plant risk assessment was identified, there was an absence of available scientific data on the structure and functioning of off-crop plant communities, and a lack of data that could be directly used to assess the impact

of PPPs on those communities. A working group within the Plant Advisory Group will work on terrestrial plants and by organizing a workshop as a first step.

Deliverables of interest for the purposes of government, business and academia

Deliverables of the Plant Advisory Group:

- ring-tested protocol and OECD guideline for *Myriophyllum*;
- guidelines for aquatic macrophyte species and aquatic macrophyte testing other than *Lemna*;
- proposals for use of Species Sensitivity Distributions (SSDs) with aquatic macrophytes as a higher tier tool for the purpose of refined risk assessments.
- guidance for higher-tier-testing of non-target terrestrial plants in the context of the risk assessment for plant protection products.

Long-term deliverables:

- recommendations for Higher Tier studies with aquatic macrophytes and terrestrial plants, including the assessment of recovery;
- recommendations for emergent plant tests;
- linking lab to field with field based monitoring or assessments;

A deliverable focusing on retrospective aquatic macrophyte risk assessment in the context of e.g. the WFD or the Clean Water Act might be possible in the future.

Organisation

The Plant Advisory Group is open to any interested scientist or student. SETAC membership is not required, but may be preferred because of access to the SETAC website and preferential rates for meeting attendance.

SETAC members can become a Plant Advisory Group member by selecting the Plant Advisory Group in their personal profile on the SETAC website. Non-SETAC members should send an email to the chair or the co-chair of the Plant Advisory Group.

Members of the Plant AG will adhere to the SETAC Constitution and By-Laws.

The Plant Advisory Group is led and organized by a chair and a co-chair from different SETAC Geographic Units. They are supported by a Steering Committee (SC) comprised of chairs of working groups and other SC members with specific tasks. The Steering Committee will not exceed a maximum number of 12 members. Every member on the Committee has a very specific role and set of responsibilities. If members do not perform their tasks, they will lose their place on the executive or on the Steering Committee. All Steering Committee members should be SETAC members.

Members of the Steering Committee are appointed by vote of the Plant Advisory Group members, e.g. during an annual meeting or via email. The first Steering Committee was formed by the founding members of the Advisory Group. This Steering Committee was not elected but was constituted by a group of active participants from the AMRAP workshop in order to establish the Advisory Group. After the first two years each SC member has to be elected again or replaced by another scientist by the vote of the Advisory Group members. The Advisory Group SC will renew itself every three years. To ensure continuity in the work, not more than half of the SC should be renewed at once. If an SC member resigns in between, a new member should be elected within a year.

Chair and co-chair are proposed by the members of the Steering Committee and are representing different Geographical Units. Chair and co-chair are appointed by the SWC President.

A first meeting of the Steering Committee and the Advisory Group were scheduled during the SETAC Europe Annual meeting in Göteborg, Sweden on the 1st of June and the 2nd of June 2009, respectively.

Currently, the following scientists have been elected and are member of the Advisory Group Steering Committee:

Academia:

Mark Hanson, University of Manitoba, CA, co-chair

Chris Wilson (University of Florida, US)

Udo Hommen, Fraunhofer IME, DE

Gertie Arts, Alterra WUR, NL, chair

Business:

Jo Davies, Syngenta, UK

Margit Dollinger (Bayer CropScience, DE)

Jeff Giddings (Compliance International, US)

Stefania Loutseti, DuPont, GR

Government:

Véronique Poulsen, AFSSA, FR

Katja Knauer, BLW, CH

Silvia Mohr, UBA, DE

In 2011, the SC has elected Gertie Arts and Mark Hanson as chairs.

Members of the steering committee are evenly distributed over the three stakeholder groups (Academia, Business and Government). A 4th member of the Government Stakeholder group could not be fulfilled. The female:male ratio is 7:4. Three members currently represent North America. Africa, Asia/Pacific and Latin America are currently not represented yet.

As the Plant Advisory Group is intended to be a global Advisory Group, the aim is an even distribution over the different stakeholder groups and an adequate representation of the Geographical Units. Therefore, specific activities to include representatives of all Geographical Units into the Advisory Group and the Steering Committee are undertaken.

Communication

Communication among members of the Plant Advisory Group will be via email, a discussion forum on the SETAC website, annual meetings (SETAC Europe annual meeting and SETAC North America annual meeting) and other SETAC meetings, including regional chapters.

Communication to other Advisory groups and SETAC organization will be accomplished via annual reports to the SETAC World Council (via the Executive Director), the SETAC Globe and sessions at SETAC meetings. In the context of the terrestrial plant activities, a liaison will be appointed with the SETAC Soil Advisory Group.

Communication to the public at large will be organized via the SETAC web site and announcements / papers in scientific journals (including non-SETAC journals).

Tasks of Steering Committee

The Steering Committee has started by producing a full proposal for the Advisory Group. The Steering Committee has submitted the first proposal to SETAC at the beginning of March 2009. Other tasks include constructing a presence on the SETAC website, writing announcements in SETAC Globe, organizing group meetings of which the first meeting has taken place during the 19th SETAC Europe meeting in Göteborg, setting up a forum for interested experts from the different stakeholder groups and students, making a scientific agenda for Advisory Group meetings for the next years, and organizing sessions for future SETAC meetings.

Tasks of Steering Committee on the short term:

- Formulating a communication plan including the communication to other SAGs, branches and Geographical Units within SETAC;
- Co-ordination / supervision of the Advisory Group follow-up activities;
- Constructing a website and SETAC community online;
- Announcing the Advisory Group in SETAC Globe;
- Announcing the Advisory Group in Journal / website;
- Making proposal for the scientific agenda for the next years;
- Organize sessions for future SETAC meetings and other scientific meetings (e.g. WFD; plant congresses);

References

Maltby, L., Arnold, D., Arts, G., Davies, J., Heimbach, F., Pickl, C., Poulsen, V. (eds.), (in press). Aquatic Macrophyte Risk Assessment for Pesticides. Guidance from the AMRAP workshop in Wageningen (NL), 14-16 January 2008.

Arts, G., J. Davies, M. Dobbs, P. Ebke, M. Hanson, U. Hommen, K. Knauer, S. Loutseti, L. Maltby, S. Mohr, A. Poovey & V. Poulsen (2010). AMEG: the new SETAC advisory group on aquatic macrophyte ecotoxicology. *Environ Sci Pollut Res* 17(4):820–823.