

**AG/Committee Name: Global Advisory Group for Bioaccumulation Assessments ('B' SAG)**  
**Submitted by: Henriette Selck, Mark Lampi**  
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**Council/Board Liaison: Miguel A Mora (mmora@tamu.edu)**  
**Staff liaison: Bruce Vignon**  
**Technical Committee liaison: Katherine von Stackelberg**

### **Organization**

The purpose of the Global SETAC Advisory Group on Bioaccumulation Assessments ('B' SAG) is to advance the state of bioaccumulation science, and increase the use of sound science in decision-making through the use of models, *in vitro*, and *in vivo* data for bench-scale, site-specific and regional bioaccumulation assessments. For more information see <http://www.setac.org/node/361>.

### **Activities Summary**

**Report on the workshop on “In vivo Methods for Bioaccumulation Assessment”** May 18, 2012 in Berlin, Germany, with participation of B-SAG members. The workshop was organized by HESI Bioaccumulation Project Committee in conjunction with the German Federal Environment Agency (UBA) (<http://www.hesiglobal.org/i4a/pages/index.cfm?pageid=3604>).

- Full workshop summary was published in SETAC Globe and is the most read Globe article to date.
  - <http://ww2.setac.org/globe/2012/october/experts-review.html>
- Current HESI committee focus areas include the following:
  - In vitro:
    - S9 protocols (isolation and incubation) have been published in *Current Protocols* <http://www.currentprotocols.com/WileyCDA/CPUnit/refId-tx1410.html>
  - Hepatocyte work: A multi-laboratory comparison of cryopreserved rainbow trout hepatocytes as a model system for measurement of in vitro metabolism is underway through a collaborative project with USEPA, DuPont, and the University of Bern. The group is evaluating 6 chemicals and results should be available by the end of 2012. A manuscript will be developed, submitted, and published in 2013.
  - TMF: An article on “Improving the quality and scientific understanding of trophic magnification factors (TMFs) for bioaccumulative chemicals” is being prepared by an expert group as a short communication. The overall purpose is to highlight outstanding research and regulatory needs in this area.
  - Dietary efficiency modeling: A project on model-based evaluation of existing data to improve algorithms for predication of chemical uptake from dietary sources was recently funded by the HESI Committee, with additional support provided by Environment Canada. Work by Jon Arnot is underway with completion of the project anticipated in June 2013. A project advisory team has been formed to regularly discuss progress and next steps.
  - Terrestrial Bioaccumulation Workshop: A workshop is planned for January 8 – 10, 2013 in Miami, Florida that will highlight current state of the science and identify needs and next steps. A workshop planning team has developed charge questions and it is anticipated that the workshop will result in a series of 4 publications.

For additional details on the committee, contact Michelle Embry ([membry@ilsil.org](mailto:membry@ilsil.org))

***Report on the initiative to revise the OECD 305 guideline***

The draft OECD 305 guideline was accepted by the WNT, and has subsequently been finalized.

- The testing of only one test concentration can be considered sufficient, when it is likely that the BCF is independent of the test concentration.
- A minimised aqueous exposure test design in which a reduced number of sample points is possible, if specific criteria are met.
- Fish lipid content must be measured so that BCF can be expressed on a 5% lipid content basis.
- Greater emphasis on kinetic BCF estimation.
- For certain groups of substances, a dietary exposure test will be proposed, where this is considered more suitable than an aqueous exposure test.
- Correction for changes in fish weight during the test (so called growth dilution correction).

It is planned that a guidance document will be developed to support the implementation of the guideline itself. The guidance document will cover a number of technical issues that are not completely explained in the guideline, including discussion of the relative merits of various methods for calculation of BCF values (e.g. sequential fitting procedures vs. simultaneous fitting of uptake and depuration curves), methods for calculating standard errors and confidence intervals for various measurements, rationales for some of the changes in the guideline, and perhaps some discussion of conversion of BMF values to BCF values, as there is currently no agreed method that has proven to be generally applicable.

***SETAC Berlin:*** BSAG organized a session on ‘Bioaccumulation – impact of environmental, biological and ecological variation’, chaired by M Nendza and H Selck. The session was very successful and included 3 timeslots (incl. a poster spotlight), a poster corner and a large number of posters.

In addition, BSAG prepared a poster for the SETAC Berlin (and Long Beach) meetings ‘Global Bioaccumulation Advisory Group (BSAG)’

- ***Short course*** on ‘In vitro methods for the determination of test chemicals metabolism utilizing fish liver subcellular fractions and hepatocytes’. Karla Johanning, Helmut Segner, Heike Laue. SETAC Berlin

***SETAC Long Beach***

- BSAG has organized a session ‘Sediment to tissue and tissue to sediment: bioaccumulation measurements, modeling, and remedial decision making’ chairs: N Judd and H Selck. This session explores innovations in bioaccumulation evaluation and modeling from experimental (i.e., laboratory and field based efforts) to applied approaches.

**Future Plans**

- ***Role of BSAG in education*** – guidelines. BSAG will initiate discussions at business and planning meetings.
- ***White paper on B focus areas:***
  - Bioaccumulation in the terrestrial environment

- application of TMFs in terrestrial ecosystems
- studies on the influence of ecosystem characteristics on TMF
- Comparative studies between laboratory and field
  - Paired laboratory and field measurements
  - co-located organism and sediment samples
  - Lab test with sediment using the same, or taxonomically-related organisms.
- Studies on actual bioavailable chemical conc in food items
  - BC in natural sediments & effect of different sed components (BC, LOM etc) for chemical AE in different organisms
- Improve data for parameterization and confidence in model output (validation issue)
- Widening the suite of chemicals measured (hydrophobic, hydrophilic, metals, etc)

### **Membership Communications**

- Identification and communication with decision-makers and scientists to create and apply information on new bioaccumulation-related tests and assessment approaches
- Organizing regular business meetings and technical sessions at SETAC meetings
- Hosting workshops on emerging issues and offer short courses.
- SAG communities webpage. Needs improvement, it is currently not updated

### **B-SAG Steering Committee (2012)**

#### ***Academia:***

Henriette Selck (Co-Chair, Roskilde University)  
 Frank Gobas (Simon Fraser University, Canada)  
 Jon Arnot (University of Toronto, Canada)  
 Dayanthi Nuggeoda (RMIT University, Australia)  
 Heather Leslie (IVM, VU University, The Netherlands)

#### ***Business:***

Mark Lampi (Co-Chair, Exxon Mobil, USA)  
 Dan Salvito (RIFM, USA)  
 Michelle Embry (ILSI-HESI, USA)  
 Marc Leonard (L'Oreal, France)

#### ***Government:***

Derek Muir (Environment Canada)  
 Theo Traas (RIVM, The Netherlands)  
 Marlies Halder (ECVAM, Italy)  
 Larry Burkhard (USEPA)  
 Mark Bonnell (Environment Canada)

*The chairs will rotate off end of 2013.*