AG Name: Global SETAC Advisory Group on Bioaccumulation Assessments (BSAG)

Submitted by: Jon Arnot **Date: November 02, 2016**

Council/Board Liaison: Bruce Vigon

Executive Summary

Bioaccumulation science has been an active area of research over the last few decades. Recent regulations (e.g., Canadian Environmental Protection Act, 1999, and REACH legislation, 2007) have provided further motivation to improve bioaccumulation science for hazard and risk assessment. The Global SETAC Advisory Group on Bioaccumulation Assessments ("BSAG") was initiated in 2005. The primary objective of the BSAG is to advance the state of bioaccumulation science, and increase the use of sound science in decision-making through the use of field data, in vitro and in vivo experimental data, and in silico tools (i.e., mass balance and quantitative structure-activity relationship models) for site-specific and regional bioaccumulation, exposure and risk assessment. The BSAG provides a venue for the SETAC membership to meet and discuss various aspects of bioaccumulation science. The BSAG helps identify recent advancements in bioaccumulation science, including new bioaccumulation-related tests and assessment approaches, and communicate these developments with interested scientists and decision-makers in the regulatory community. The BSAG actively works with various entities involved in advancing bioaccumulation science to take advantage of the authoritative experts in SETAC, representing many environmental science disciplines and occupations encompassing tripartite representation from industry, government and academic scientists. For example, the BSAG and its members facilitate workshops, short courses, and conference sessions for scientists on emerging bioaccumulation issues to help disseminate new testing and tiered assessment methodologies to the community and into bioaccumulation assessment regulatory programs. For more information see http://www.setac.org/group/AGBioaccumulation.

Organization

The BSAG is currently comprised of 17 steering committee members, including two co-chairs:

- Jon Arnot (Co-Chair)
- Christian Schlechtriem (Co-Chair)

Activities Summary

Recent short-term and long–term involvement of BSAG in various forums/meetings include:

- SETAC North America (2016): Session on "Differing biotransformation capacity across species: measurements, modeling and implications for decision-making" co-chaired by Henriette Selck, Michelle Embry, Jon Arnot, 8 platforms and 10 posters presented.
- SETAC Europe (2016): Session on "Recent developments and current issues in bioaccumulation assessment" co-chaired by James Armitage, Caren Rauert, Katrine Borgå
- SETAC North America (2015): Session entitled "Bioaccumulation: Science & Regulation" co-chaired by Frank Gobas, Mark Bonnell and Jon Arnot. 24 abstracts submitted, 8 platforms and 16 posters presented.
- SETAC North America (2015): Session entitled "Building a Weight of Evidence for Bioaccumulation Assessment" co-chaired by Michelle Embry and Jon Arnot. 13 abstracts submitted, 8 platforms and 5 posters presented.
- SETAC North America (2015): Session entitled "Difficult Substances – Methods and Approaches for Risk Assessment" co-chaired by Frank Gobas, Philip Leber, Paul DeLeo, Karen Eisenreich, Duane Huggett, and Anne Kim.
- SETAC Europe (2015): Session entitled "Recent scientific developments in bioaccumulation research and assessment" co-chaired by Jon Arnot, Mark Lampi, Ester Papa and Dolf van Wijk. 29 abstracts submitted, 6 platforms and 23 posters presented.

Future Plans

SETAC Europe (2017): Several 'B' relevant sessions are proposed:

- Applying Bioaccumulation Data to Better Inform Human and Ecological Risk Assessment of Chemicals

Chairs: Jung-Hwan Kwon, Mark Bonnell, Beate Escher
- Integrating species trait, environmental compartment properties and chemical characteristics in assessment of bioaccumulation potential of chemicals
  Chairs: Nico van den Brink, Henriette Selck

Business and Planning Meetings

Recent BSAG Meetings were held at Barcelona (2015) and Nantes (2016) and another meeting is planned for Orlando (2016). Key discussion points include:

- In Vitro Test Guidelines. 2 draft test guidelines are under development under OECD, led by the HESI Bioaccumulation Committee:
  - Determination of in vitro intrinsic clearance using cryopreserved rainbow trout hepatocytes
  - Determination of in vitro intrinsic clearance using rainbow trout liver S9

  These guidelines and accompanying Guidance Document are being drafted and will be submitted to OECD for review by the WNT in Spring 2017. The results of a HESI-led ring-trial will accompany these materials in the form of a study report.
- An international ring-test on "Validation of an alternative, non-vertebrate, BCF test using the freshwater amphipod *Hyalella azteca*" is planned as part of project CEFIC-LRI ECO40.
- A new Guidance document to OECD TG 305 is currently in preparation and will be accomplished in 2017.
- TMF / ESB workshop. A small, HESI-sponsored scoping workshop was held at the SETAC Europe Annual Meeting in May 2016 to discuss the concept of using environmental specimen bank (ESB) data to generate trophic magnification factor (TMF) values for different chemicals. The workshop brought together approximately 15 people with backgrounds in bioaccumulation, food webs, ecology, and field sampling/study design. The scope of the discussion was limited to aquatic, limnic ecosystems, with the highest trophic level being fish, and the objectives were to: (1) identify/scope ongoing efforts within ESB programs and identify key areas (e.g., collection of lower trophic levels); (2) define food webs that can be used as a proof of concept; (3) perform a review of best practices regarding sampling, handling, and additional parameters to analyze (e.g., dietary descriptors) that could inform ongoing ESB work; (4) identify trophic links and gaps in ongoing ESB work; and (5) design/identify approaches and/or studies that would enable TMF calculations.

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.
- BSAG communities webpage: Needs updating.
- The BSAG includes some outreach and coordination with Exposure Modelling AG and Animal Alternatives AG.

Issues/Problems

To our knowledge there are no recognized issues or problems the group is encountering which would require feedback or assistance from the council or board.

Current Steering Committee (2016)

Academia:
Beate Escher (UFZ, Germany)
Frank Gobas (Simon Fraser University, Canada)
Heather Leslie (VU University, The Netherlands)
Dayanthi Nugegoda (RMIT University, Australia)
Henriette Selck (Roskilde University)
Business:
Jon Arnot (Co-Chair, ARC Arnot Research and Consulting, Canada)
Michelle Embry (ILSI-HESI, USA)
Mark Lampi (Exxon Mobil, USA)
Aurelia Lapczynski (RIFM, USA)

Marc Leonard (L'Oreal, France)
Dan Salvito (RIFM, USA)
Christian Schlectriem (Co-Chair, Fraunhofer, Germany)
Government:
Mark Bonnell (Environment Canada)
Larry Burkhard (USEPA)
Marlies Halder (ECVAM, Italy)
Derek Muir (Environment Canada)
Theo Traas (RIVM, The Netherlands)

No. active members:
Total membership: 257 members listed in the group directory