

## **Advances in Bioaccumulation Assessment: from Models to the Field**

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This session, which was organized by the global SETAC Advisory Group for Advances in Bioaccumulation Assessment, explored the full spectrum of advances in bioaccumulation assessment. Information on the uptake and elimination of substances by aquatic organisms is vital for understanding their potential for bioaccumulation in aquatic and terrestrial systems. Bioaccumulation data are used for hazard identification of chemicals, PBT chemical screening and risk assessment. In addition, bioaccumulation assessment is one of the central topic areas related to SETAC's mission "*to support the development of principles and practices for protection, enhancement, and management of sustainable environmental quality and ecosystem integrity*".

In the morning sessions, the presentations focused on field and laboratory bioaccumulation studies. Highlights included the proceedings of the SETAC-HESI-EPA "Lab-Field Bioaccumulation Workshop", which took place in New Orleans in November 2009. This workshop was initiated because laboratory experiments (most notably, bioconcentration factors) on bioaccumulative pollutants often do not correlate with collected field data. The workshop explored three main questions:

1. How do laboratory and field measurements of bioaccumulation compare?
2. Why don't laboratory measures of bioaccumulation align with field data?
3. What are the main sources of variation in BCF/BAF/BSAF/BMF/TMF determined in the field?

A series of manuscripts reporting the discussions and conclusions from the workshop will be published in the journal *Integrated Environmental Assessment and Management*. The entire morning session, which focused on this laboratory and field comparison, drew a large crowd, emphasizing the importance of discussing these issues and disseminating the results of focused workshops.

The afternoon session focused on the optimization and validation of *in vitro* methods for metabolism assessment, predictive models to translate *in vitro* data into *in vivo* bioaccumulation estimates, and other bioaccumulation assessment models. The cost of bioaccumulation testing, practicality issues (*e.g.*, screening of large chemical inventories) and animal welfare considerations have driven the need for reliable alternative methodologies. Modeling, *in vitro* methods, modified *in vivo* test strategies, and field data collection are vital components of a tiered testing approach to address bioaccumulation testing for regulatory purposes and the results presented in this session indicate that these techniques have been reaching a scientific maturity that will allow practical implementation in the future.

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