

Is one of your ecotoxicological studies showing potential concern for risk assessment?



Ecological modelling can support answering many arising questions such as:

- Which life stage or developmental phase of an organism is most susceptible to an exposure?
- Can recovery be expected after an initial effect on individuals and/or populations of non-target organisms?
- How much recovery time will an individual and/or population need?
- What are the effects we can expect under different exposure, in other regions and/or at changed environmental conditions?
- How does variation in temperature and pH influence ecotoxicological effects?
- How will an impact discovered in laboratory experiments influence real world population development?
- Is there a possibility to alter the environmental load for a compound so that it can pass the ERA without compromising on the efficiency against the target organism?

Is the use of ecological modelling supported within ERA?

Guidance Documents

EFSA Guidance Documents ask for Ecological Modelling, especially at higher tier levels of the Environmental Risk Assessment. This is to enhance the understanding of experimental results and to learn more about how populations of the organisms deal with the investigated exposure.

Scientific Opinion

A recent EFSA Scientific Opinion specifies the state of the art of toxicokinetic/toxicodynamic (TKTD) effect models for ERA of pesticides for aquatic organisms.

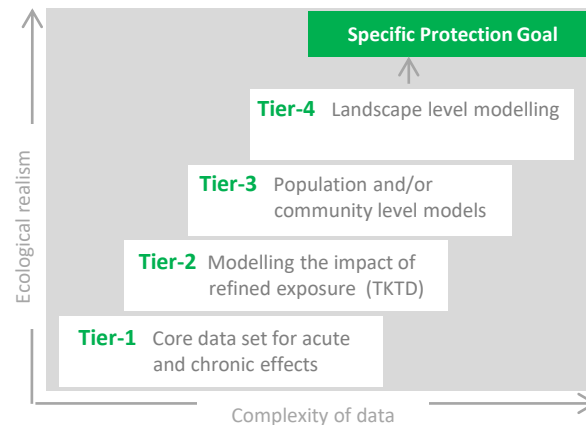
Good Modelling Practice (GMP)

We follow EFSA's GMP principles by fully documenting:

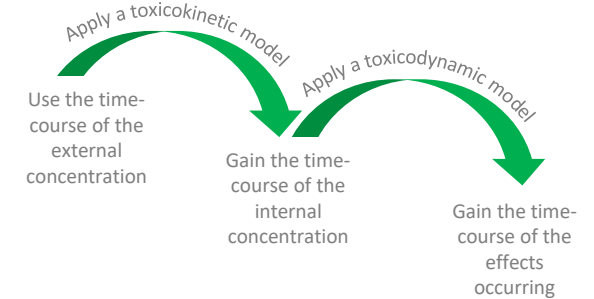
- Problem definition
- Model conceptualisation, formalization, and implementation
- Model setup
- Model results including the sensitivity and uncertainty analysis

That's not only for our own standards. It's to achieve full acceptance by regulatory bodies.

The main concept for ecotoxicological modelling is establishing its way into the tiered ERA.



What is toxicokinetic/toxicodynamic modelling?



How can we help?

Every member of our team has extensive experience in planning and conducting ecotoxicological studies and on average has more than eight years of experience in ecological and ecotoxicological modelling.

We are experts in applying the main concept of ecotoxicological modelling (toxicokinetic/toxicodynamic modelling) across all levels of the tiered ERA covering the aquatic and terrestrial environment.

Additionally, we are actively involved in current developments of new models and new modelling concepts within the international modelling community.

ibacon's modelling portfolio

Data assessment for modelling in compliance with recent standards.

GUTS (Generalized Unified Threshold model of Survival). A TKTD model for the extrapolation of survival data to other environmental conditions.

DEBtox (Dynamic Energy Budget model). Tailored towards TKTD modelling for the extrapolation of sublethal toxicity data to other environmental conditions.

DEB-IBM (DEB model interlinked with an Individual Based Model). Tailored towards TKTD modelling for the extrapolation of sublethal toxicity data to other environmental conditions at the population level.

BEEHAVE A model for honey bee colony dynamics (including foraging at the landscape level).

COMPASS (Comprehensive Model for Pesticide Activity in Soils). A framework combining fate, distribution and effect at the spatial scale.

What does ibacon do?

ibacon supports chemical industries since 1994 with efficient experimental laboratory and field studies for the environmental risk assessment of their products.

∞ Physical-chemical properties

∞ Stability testing of formulated products

∞ Analytical chemistry

- Method development and validation
- 5-batch and residue analysis, certificate of analysis, etc.
- Fully equipped analytical laboratory (LC/MS/MS, HPLC, GC/MS, etc.)

∞ Environmental fate

- Adsorption / desorption
- Aerobic and anaerobic transformation in soil and sediment
- Soil photolysis
- Soil dissipation and accumulation
- Phototransformation in water
- Hydrolysis
- Bioaccumulation (fish, worm, arthropods)

∞ Ecotoxicology

- Aquatic organisms (e.g. algae, daphnia, fish, lemna)
- Higher tier test systems available (aquatic macrophytes, sediment dwelling organisms, etc.)
- Endocrine disruptors
- Microbiological activity
- Honeybees and other non target arthropods
- Efficacy trials on arthropods
- Non target soil macroorganisms (earthworm, collembola, etc.)
- Soil microorganisms
- Terrestrial plants
- Activated sludge respiration inhibition
- Biotic degradation / biodegradability

∞ Ecological modelling

- Data assessment for modelling
- GUTS
- DEB
- BEEHAVE
- COMPASS

∞ Regulatory services

∞ Tailor-made packages across our portfolio to meet your needs

Why Ecological modelling?

Experience shows that experimental data cannot answer all questions risk assessors have. Additional experiments may be too laborious, too time-consuming, collide with the 3Rs principles, or are technically unfeasible. This is where Ecological Modelling can help.

www.ibacon.com

Get in touch!

Contact us at modelling@ibacon.com with your questions and find out how we can assist you.



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We think ahead – we think of you



Enhancing the value of your data

for the Environmental Risk Assessment



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