Assess ecological risks of toxicants

UP-DOWN

risk assessment approach

Matthias Liess
The Living Planet Index is an indicator of the state of the world's biodiversity: it measures trends in populations of vertebrate species living in terrestrial, freshwater, and marine ecosystems.
- Identifying vulnerable species / traits

- Consider in prospective risk assessment

- Validate protection level (under- overprotective)
Ecosystem & Prediction

(1)

Retrospective Risk Assessment

(2)
Top down
Deconstruction to building blocks

(3)
Traits & Processes

Prospective Risk Assessment

(4)
Bottom up
Holistic synthesis of building blocks

Toxicant related Analyses
Ecosystem & Prediction

Bottom up
Holistic synthesis of building blocks

Top down
Deconstruction to building blocks

Traits & Processes

Retrospective Risk Assessment

Prospective Risk Assessment


ET&C

Mittwoch, 8. Mai 13
Retrospective

Risk Assessment
non-point pesticide Risk


Kattwinkel et al. 2011 Climate change, agricultural insecticide exposure, and risk for freshwater communities. Ecological applications.
Prospective Risk Assessment
Random selection
Trait related selection

- **Insensitive**
  - Anabolia sp.
  - Caloperyx sp.
- **Plurivoltine**
  - Plurivoltine
  - Sensitive, univoltine
  - Migration
  - Early emergence
  - Ephemera sp.
  - Gammarus sp.
  - Chironomus sp.
  - Pisidium sp.
  - Baetis sp.
- **Sensitive, univoltine**
  - Caloperyx sp.
  - Anabolia
  - Ephemera sp.