WULCA

A LIFE CYCLE INITIATIVE PROJECT

WULCA ecosystem meeting

June 13th, 2014

Agenda

- Definition of work inside and outside of WULCA
  - Article from Christian Bouchard and coll.
- Timeline and expected deliverables
- Link with Global Guidance project
- Work leader and contributors

Life cycle impact assessment of water use on ecosystems

Preliminary list of authors: Bouchard C., Bulle C., Margni M. *(other names may be added depending on the final content of the paper and its contributors)*

Paper's to be submitted by the end of Summer 2014

Objective:

Analyze the complementarity and compatibility of proposed methods for the Life Cycle Assessment Impacts (LCAI) of water use on ecosystems

Content:

1. Description of the proposed characterization factors by different authors for each analyzed work
2. Complementarity of the proposed approaches
3. Compatibility of the proposed approaches

Life cycle impact assessment of water use on ecosystems

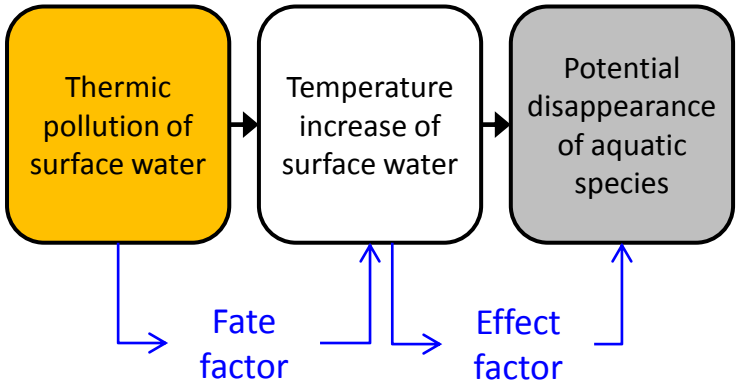
Description of methods

Analyzed research works:

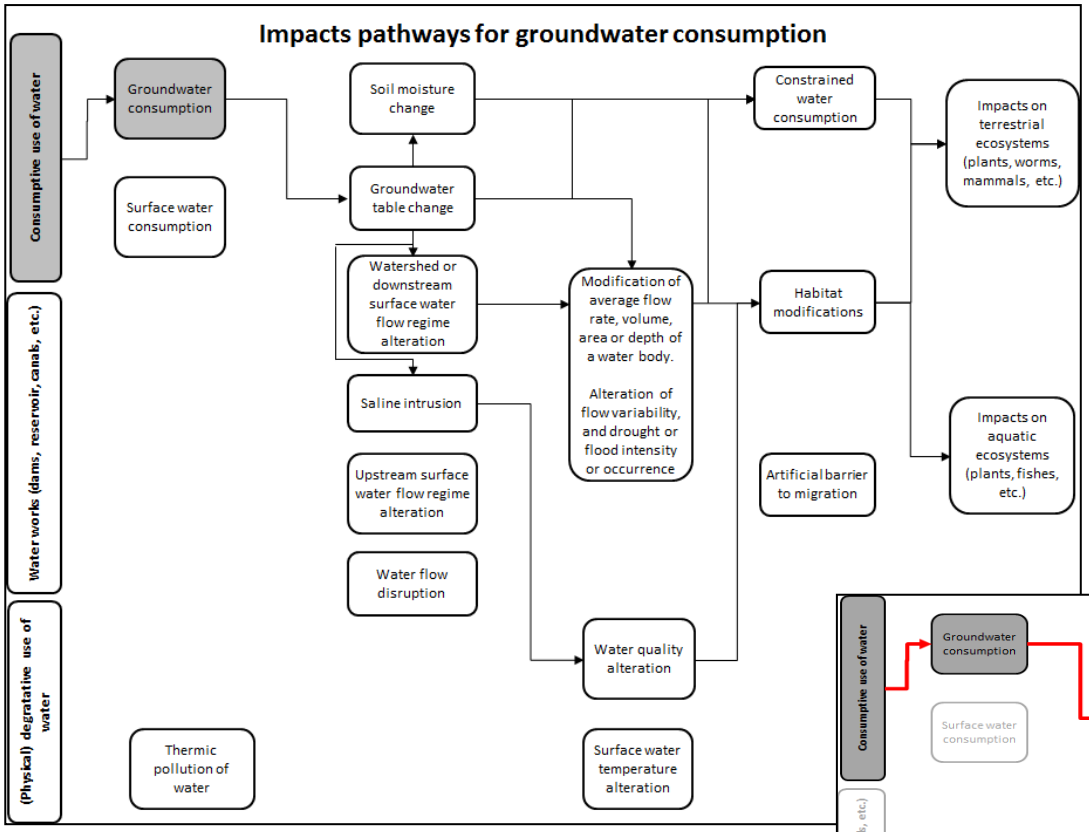
- *Pfister et al. (2009) (surface water and groundwater use)*
- *Verones et al. (2010) (thermal pollution)*
- *Hanafiah et al. (2011) (surface water use)*
- *Van Zelm et al. (2011) (groundwater use)*
- *Verones et al. (2012) (wetland; case study)*
- *Maendly & Humbert (..) (water dams)*
- *Tendall (2013) (surface water use)*
- *Verones et al. (2013A & B) (wetlands; international)*
- *Amores et al. (2013) (wetland; saline intrusion)*

Example

Verones et al. (2010)



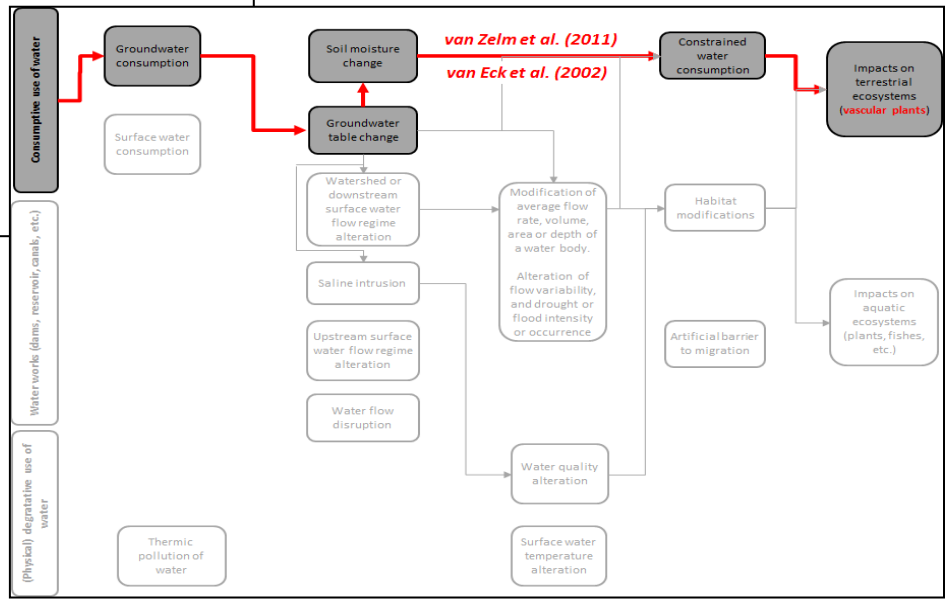
Life cycle impact assessment of water use on ecosystems



Pathways for groundwater consumption

Complementarity of the proposed approaches

Example



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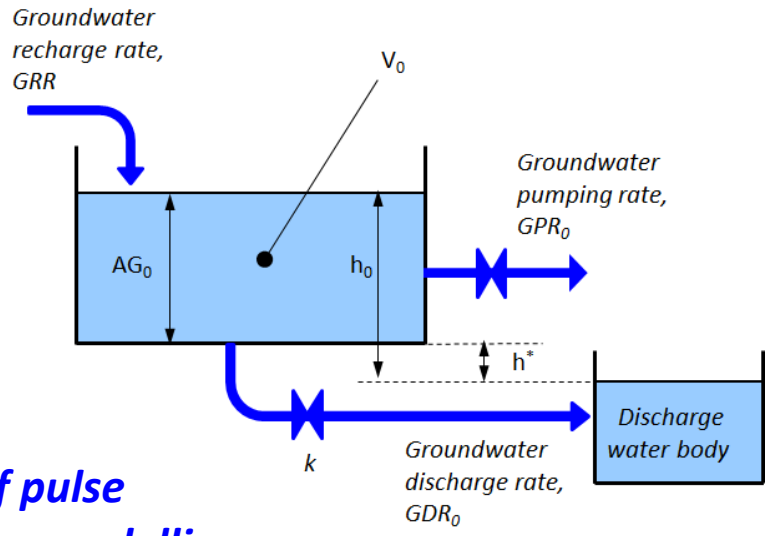
Compatibility of the proposed approaches

Fate modelling

1. **Basic inventory** *(released mass of pollutant, used water volume, amount of released heat, transformed land surface, etc.)* → **pulse environmental intervention modelling**
2. **2D inventory** *(environmental intervention amount & type, and time of use or occupation)* → **occupation/use modelling + restoration/relaxation modelling**

Effect or damage modelling

- Type of ecosystems
- Species
- PDF versus PAF
- per m^2 versus per m^3



Example of pulse intervention modelling