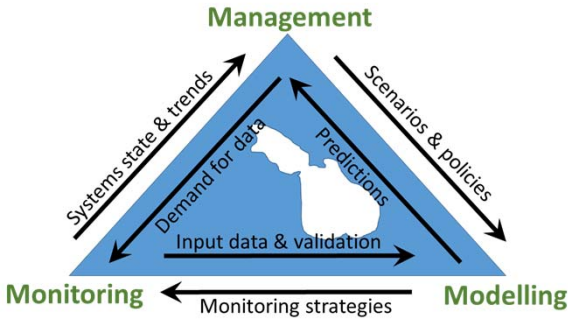



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## Modelling of Lake Sevan for informed management

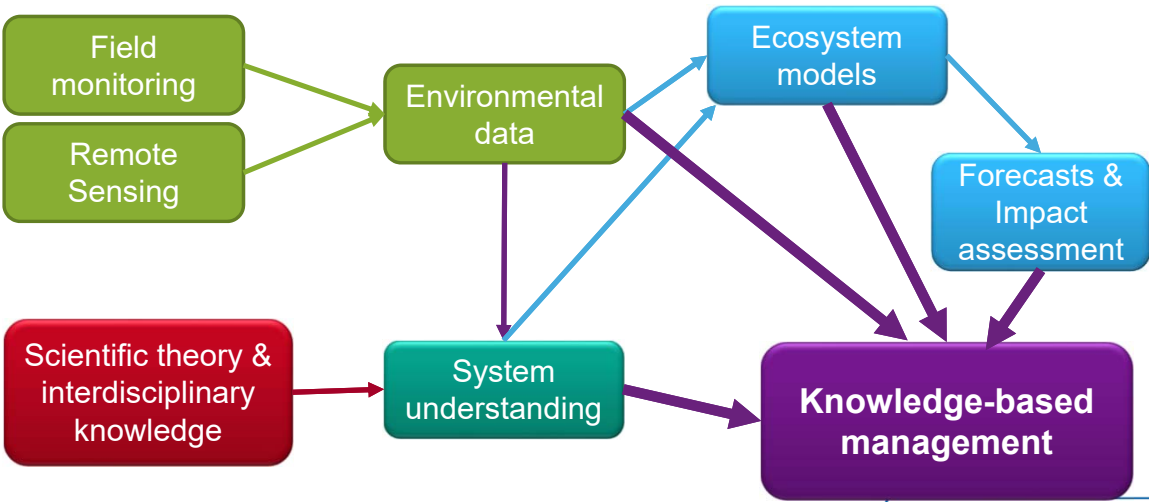


Karsten Rinke, Muhammed Shikhani,  
Chenxi Mi and Martin Schultze

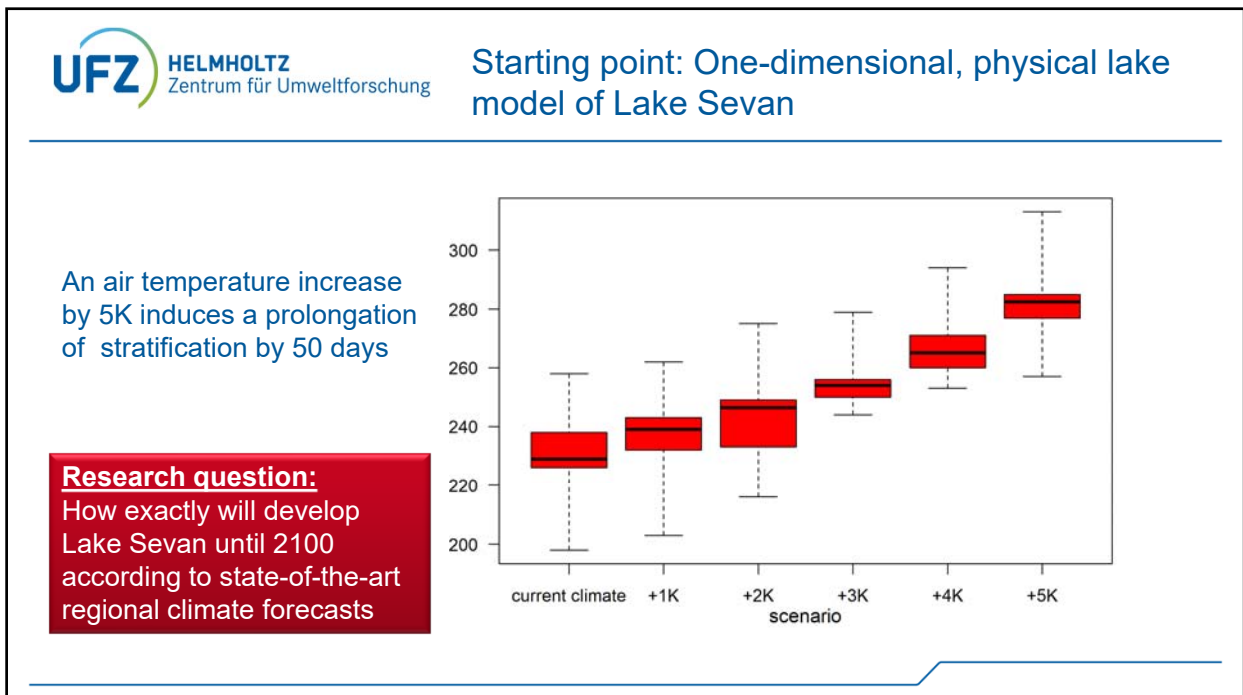
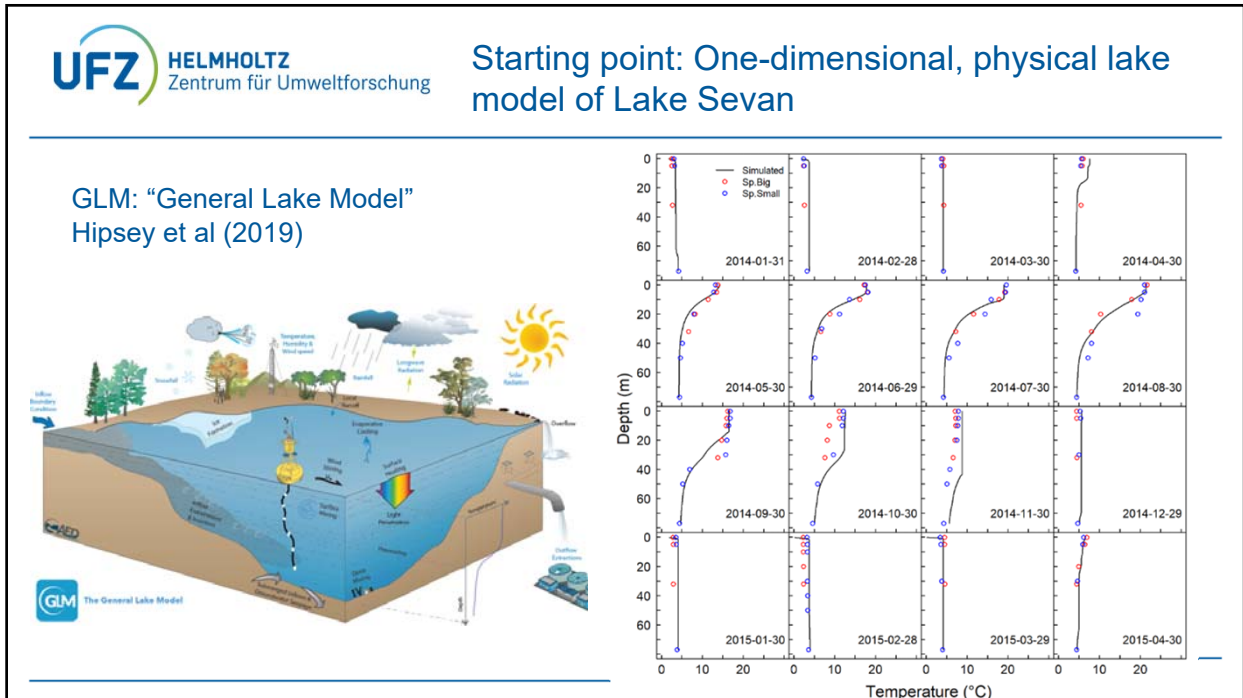
Helmholtz-Centre for Environmental Research  
– UFZ, Department Lake Research,  
Brückstrasse 3a, 39114 Magdeburg

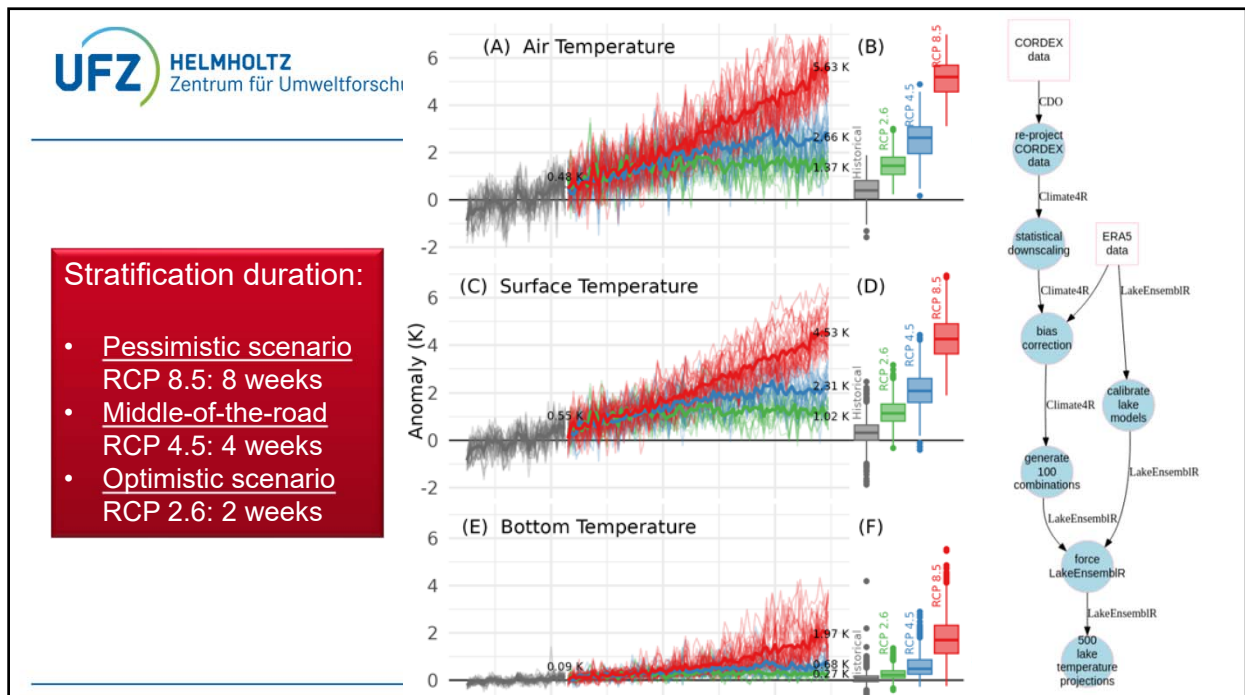
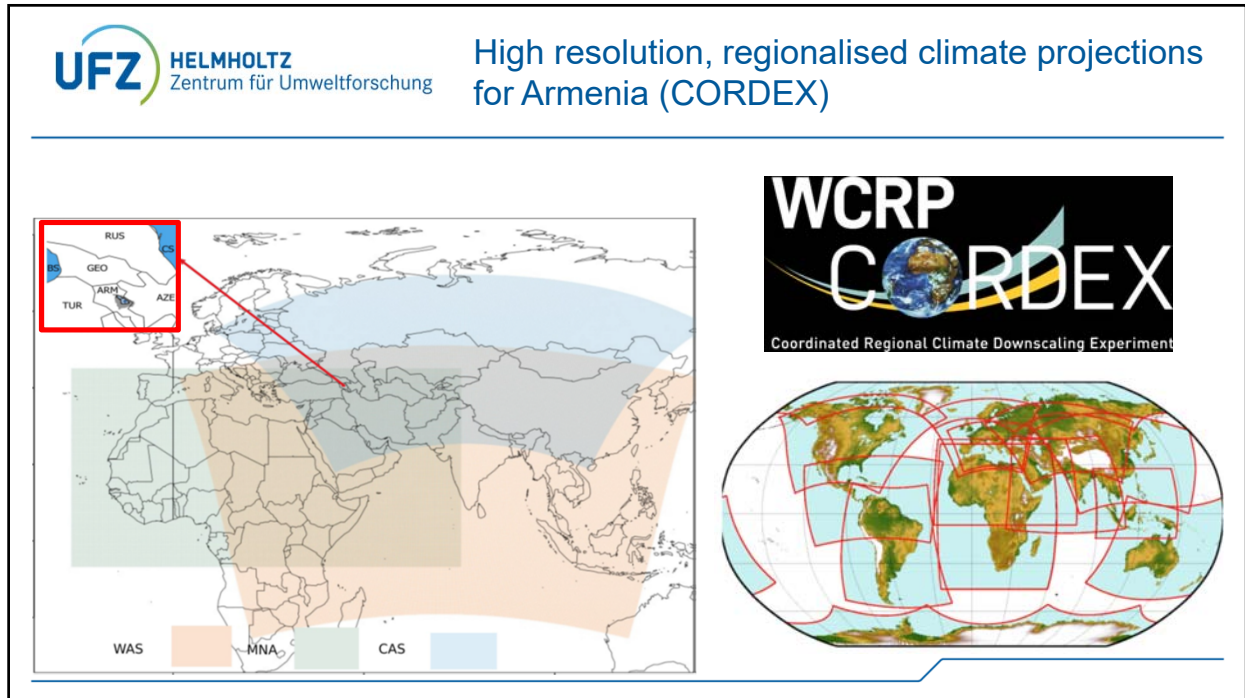
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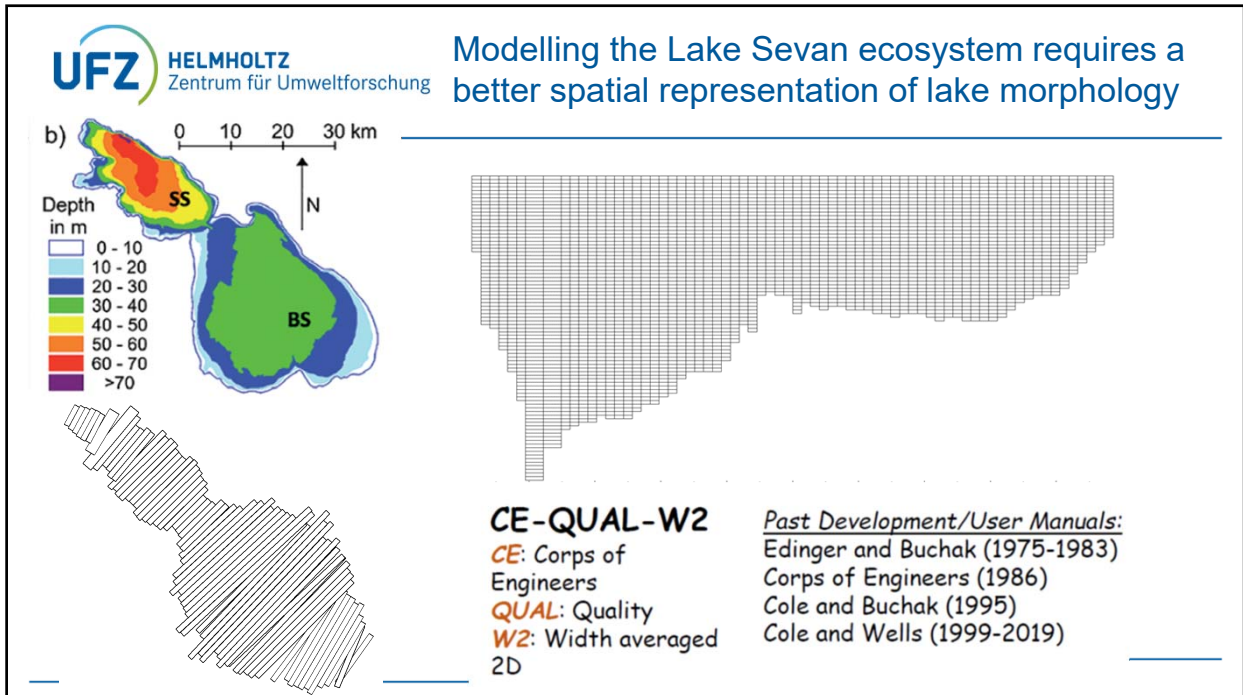
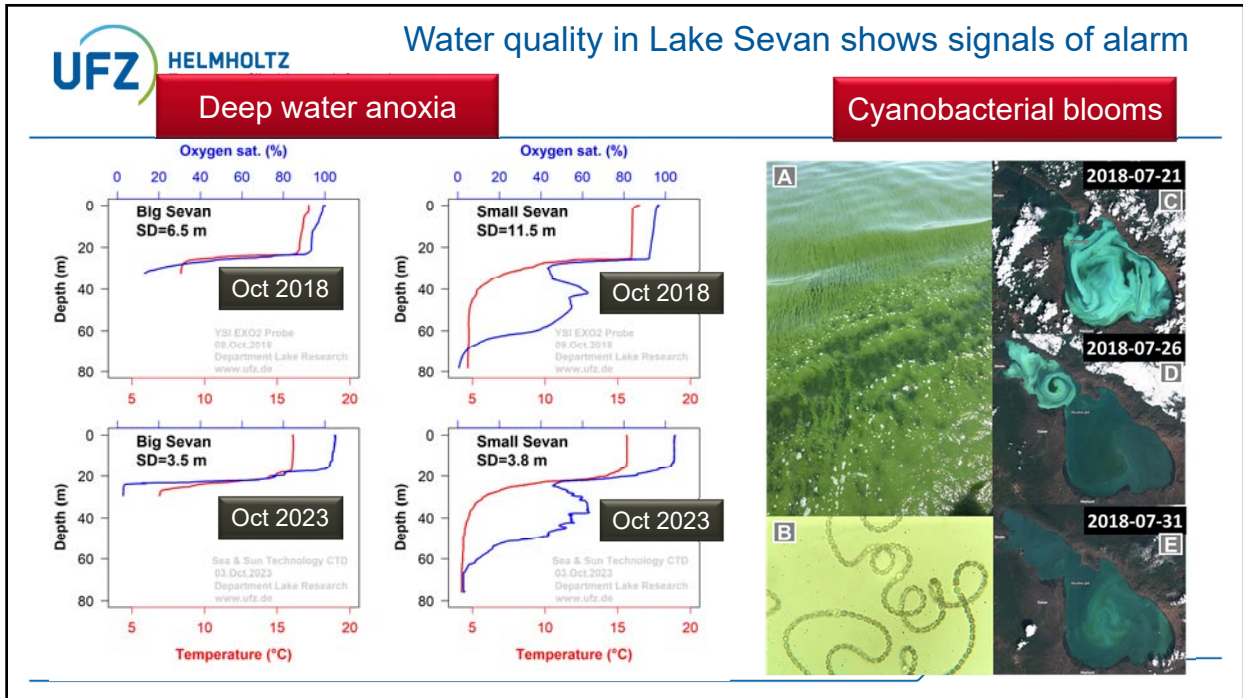
## Knowledge-based Management

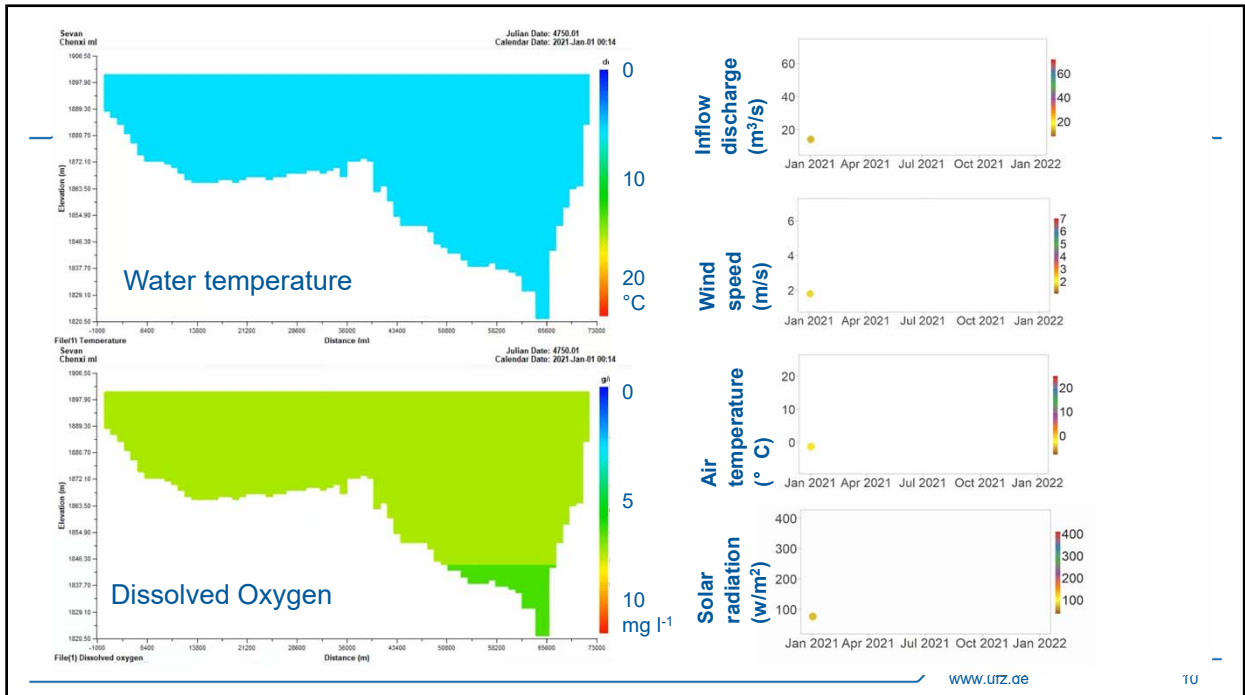
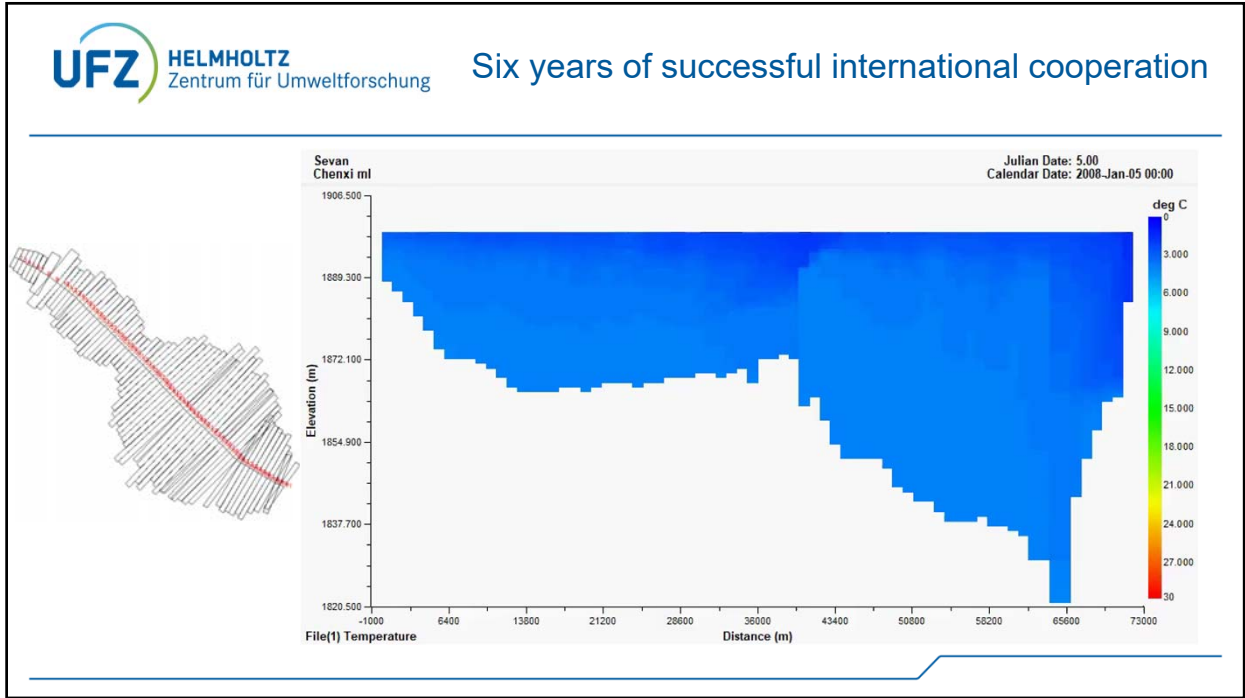


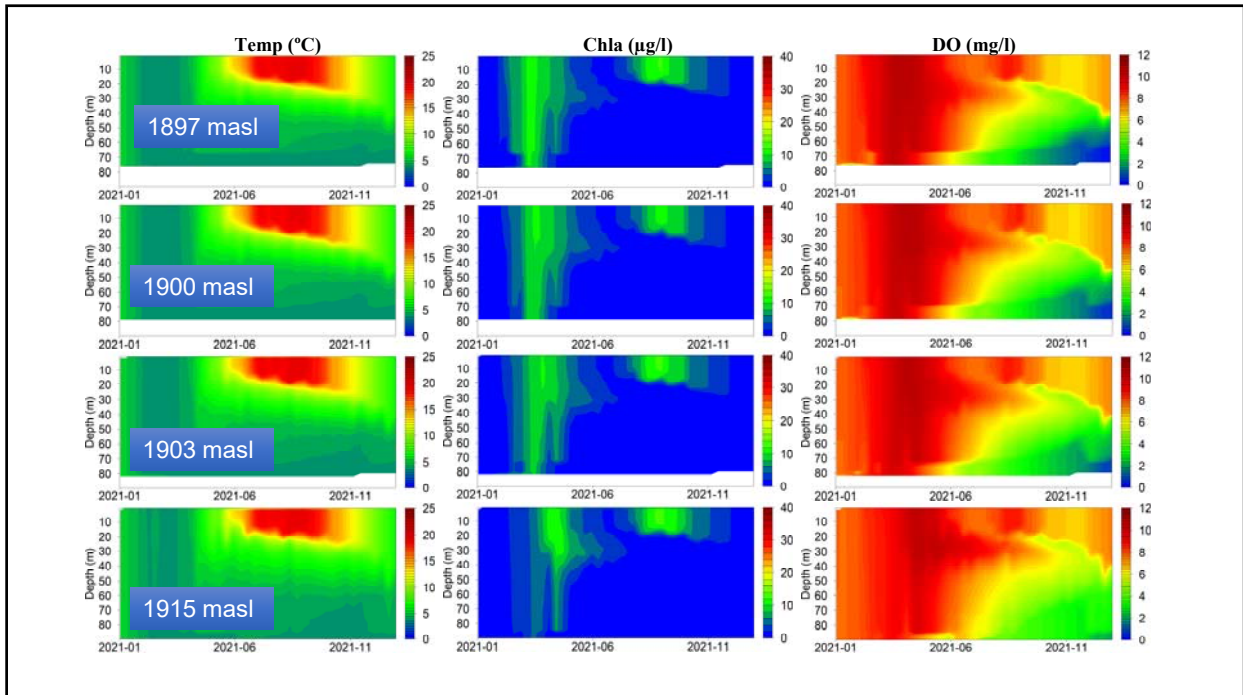
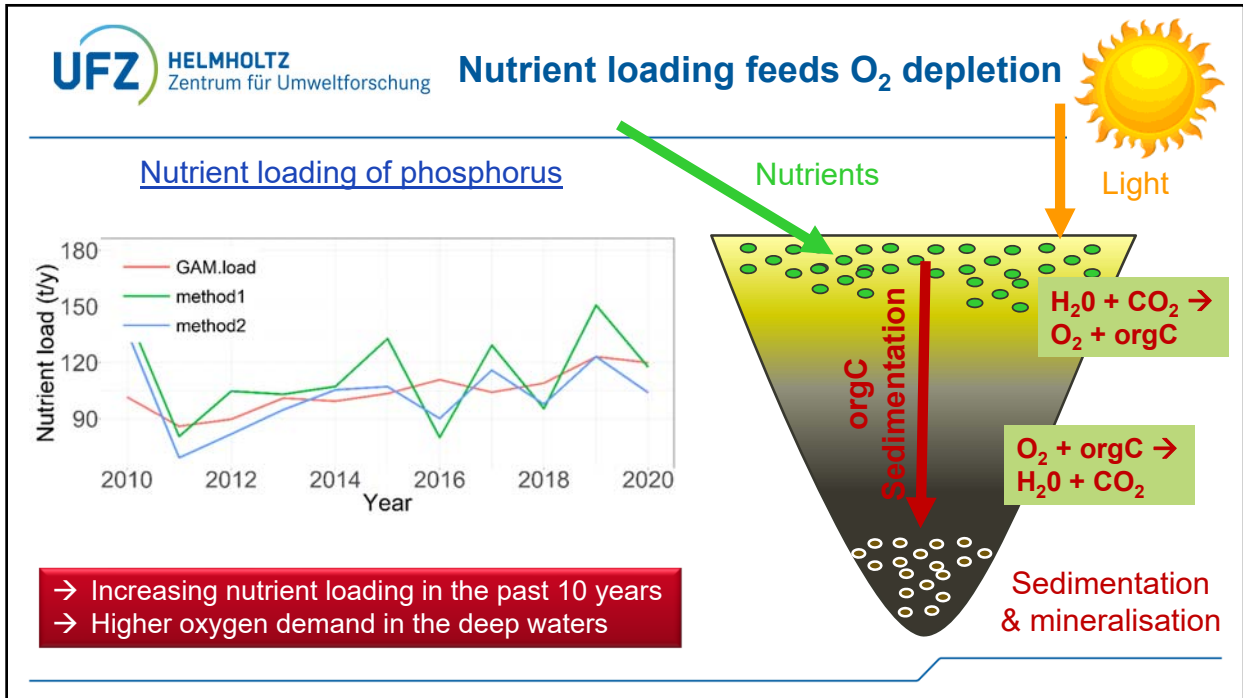
```
graph TD; FM[Field monitoring] --> ED[Environmental data]; RS[Remote Sensing] --> ED; ST[Scientific theory & interdisciplinary knowledge] --> SU[System understanding]; ED --> EM[Ecosystem models]; ED --> SU; EM --> FI[Forecasts & Impact assessment]; EM --> KBM[Knowledge-based management]; SU --> KBM; FI --> KBM;
```



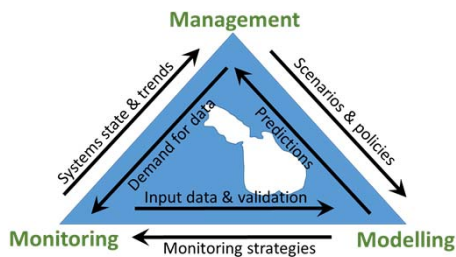






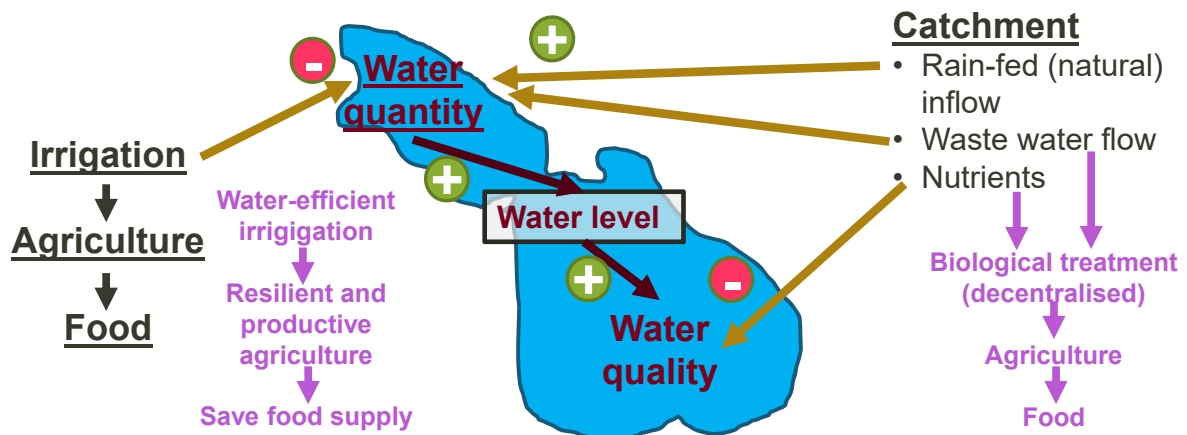


### Take home messages



- Lake models are able to simulate hydrodynamics and ecosystem dynamics of lake Sevan
- Lake Sevan will be substantially changed by global warming having warmer surface temperatures, deep water warming and prolonged stratification
- These changes will intensify deep water anoxia and promote cyanobacteria
- Higher water levels make the lake more resistant against anoxia
- Increasing nutrient loading pose a real risk → nutrient reduction is required → use models to find out how much this reduction has to be
- Good monitoring is the basis of both, develop modelling tools and define management targets

### Lake Sevan is a key element for future water security of Armenia





# Thanks for your attention



**REPUBLIC OF ARMENIA**  
**MINISTRY OF ENVIRONMENT**



**Federal Ministry**  
**of Education**  
**and Research**



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