Background

Dr. Marcus W Beck, Ecosystem Ecologist and Data Scientist

B.Sc., A.A., Zoology

M.Sc., Conservation Biology, Fisheries and Aquatic Biology track

Ph.D, Conservation Biology, Fisheries and Biology track, Statistics minor

Path to GED

2002-2009

- BSc in Zoology
- Intern for FWC
- MSc in Conservation Biology

Path to GED

2002-2009

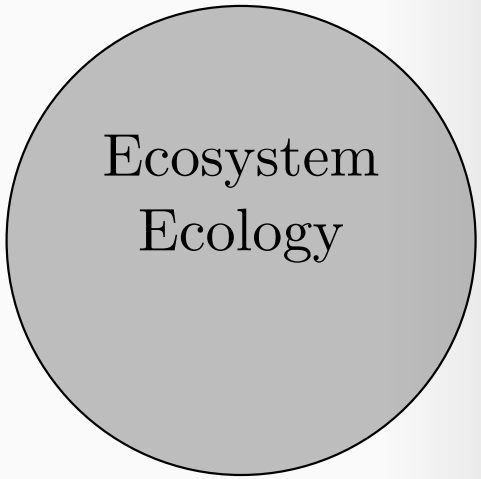
- BSc in Zoology
- Intern for FWC
- MSc in Conservation Biology

2010-present

- Intern for MNDNR
- PhD in Conservation Biology
- Post-doc at GED

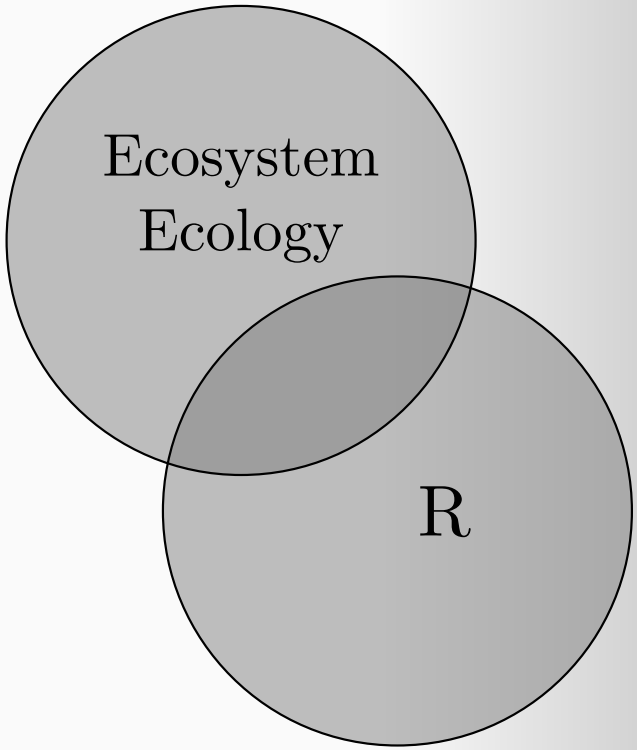
My interests

- Water quality
- Biological monitoring
- Eutrophication
- Aquatic Macrophytes
- Ecosystem metabolism



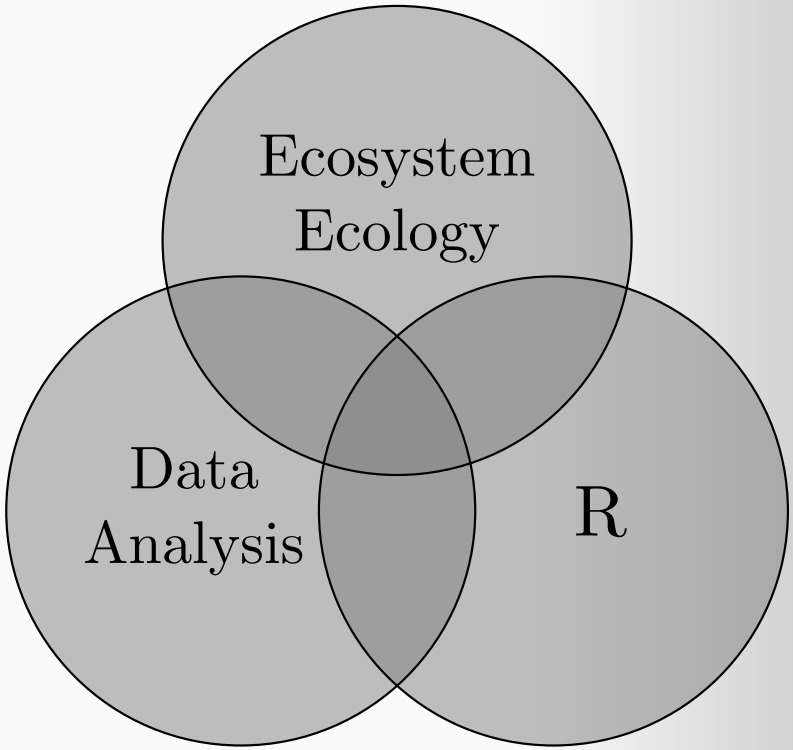
My interests

- NeuralNetTools
- SWMPr
- WtRegDO
- WRTDStidal
- ggord
- rStrava



My interests

- Indicator development
- Time series methods
- Reproducible research
- Visualization and graphics
- Model comparisons



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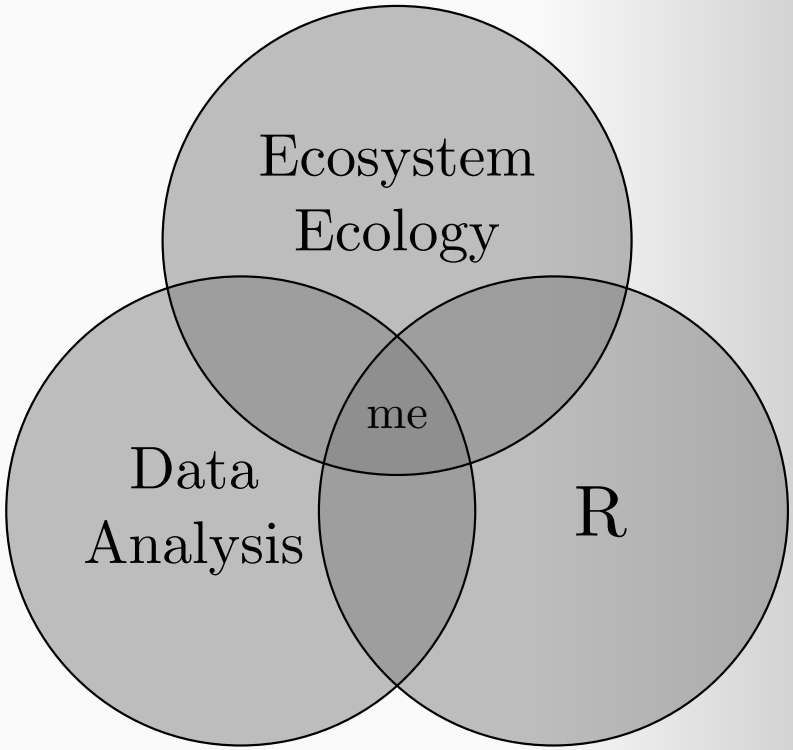
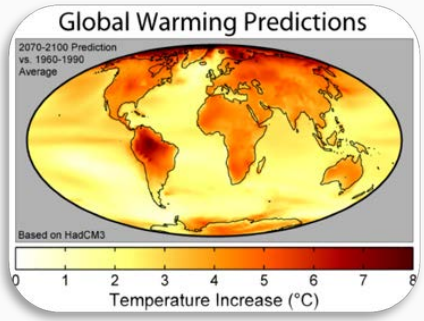


Past work - Biological assessment of lakes

Nutrients

Climate change



Lakeshore development

Hydrology

Acidification

Habitat degradation

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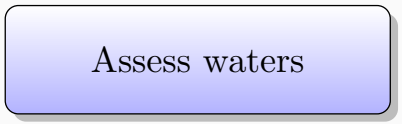

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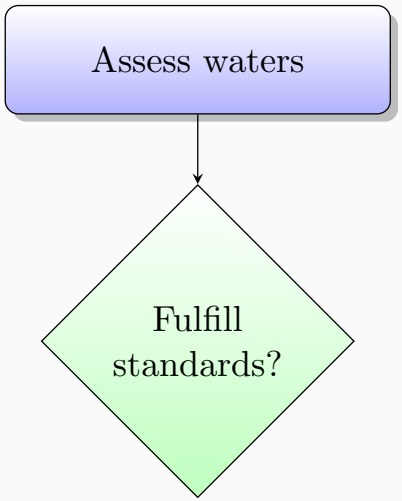

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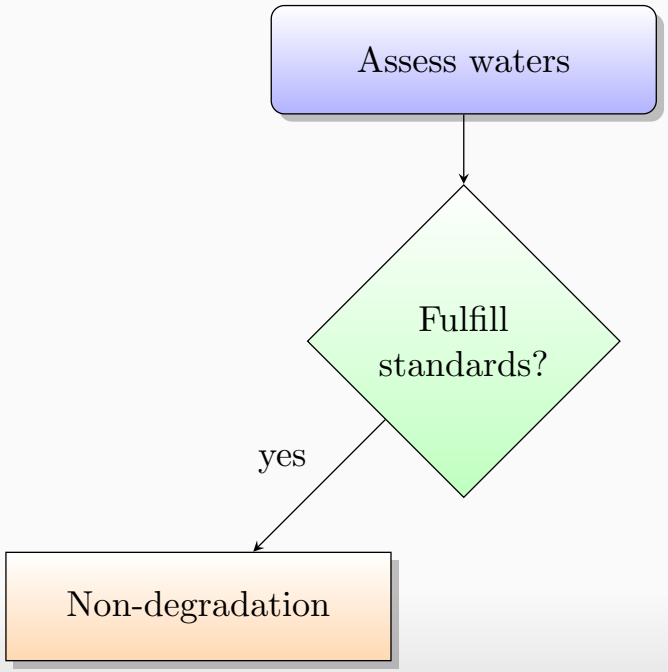

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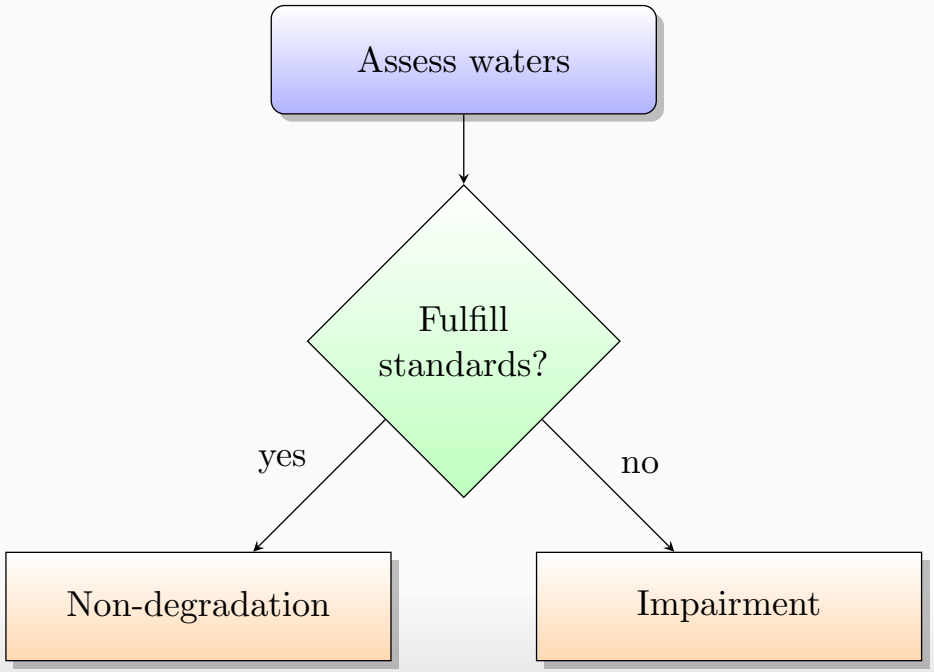

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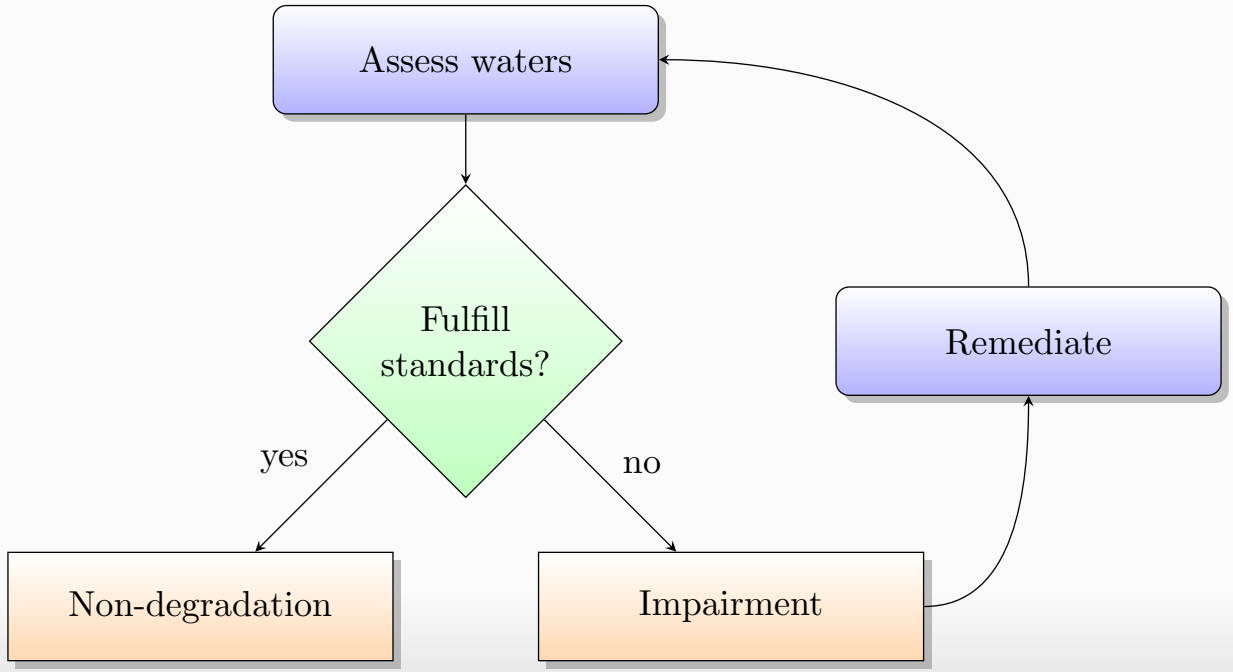

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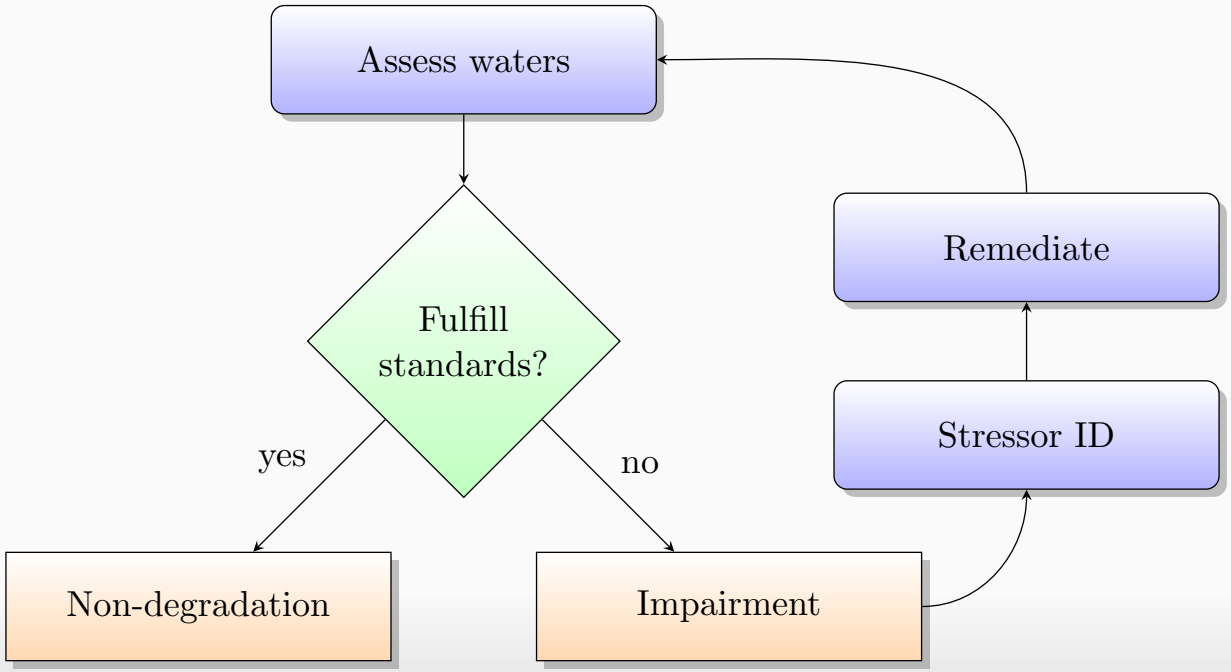

Current work - Evaluating estuarine condition

How can we leverage monitoring data to develop our conceptual model of eutrophication?

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Nutrient Loading

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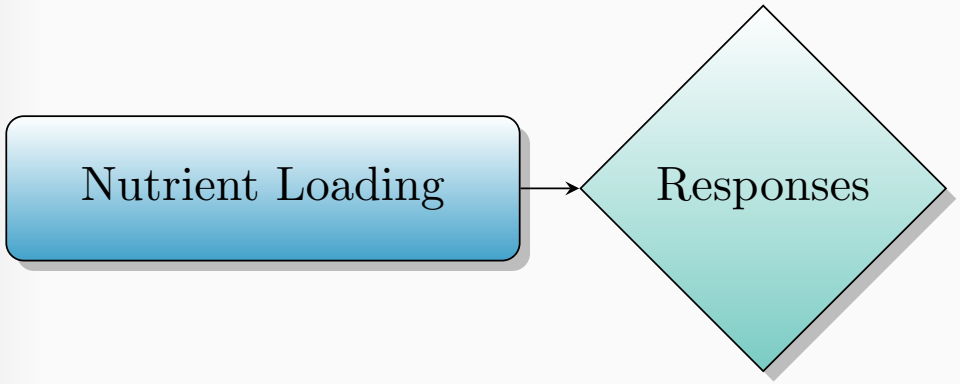

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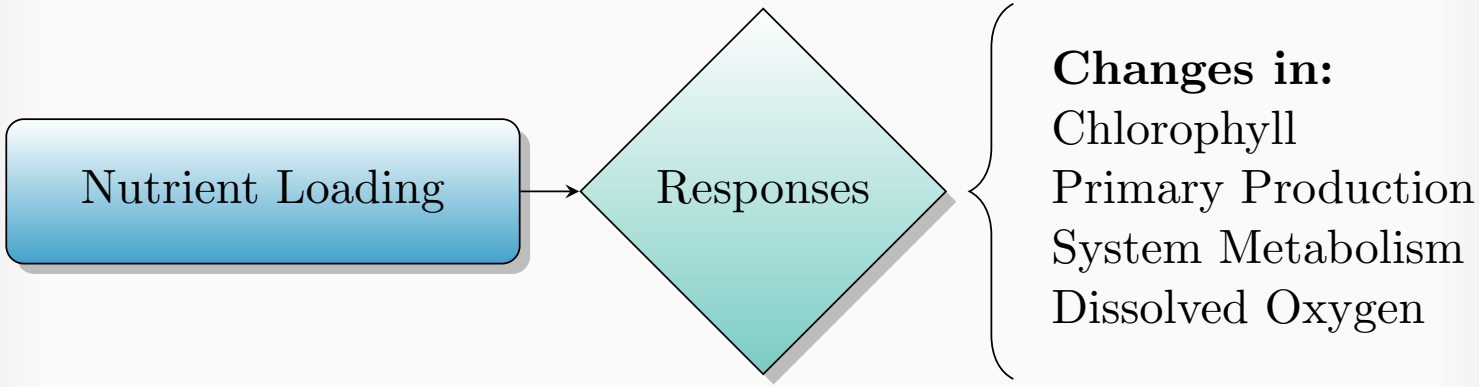

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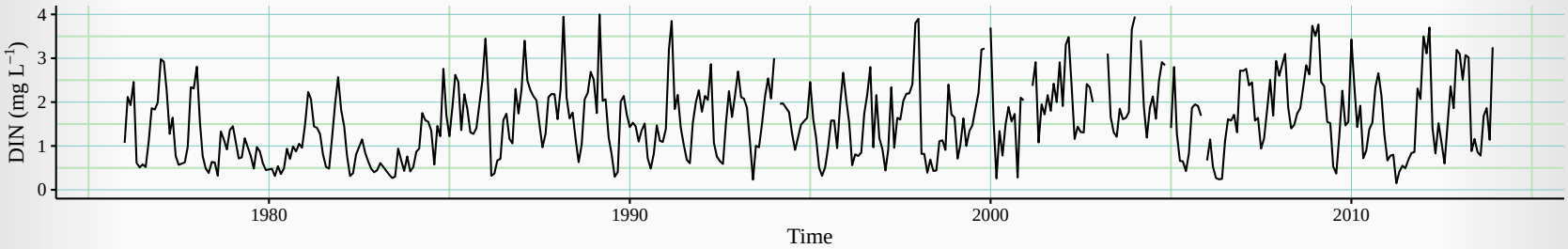


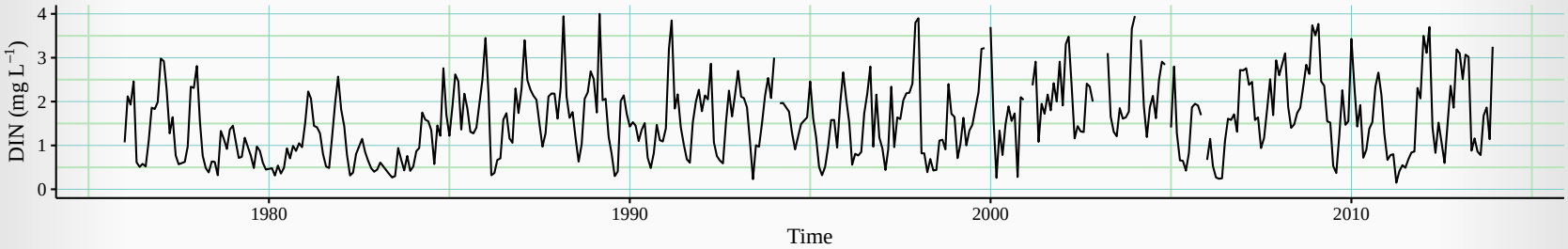
Climate
precipitation
temperature
wind events
ENSO effects

Local
light/turbidity
residence time
invasive species
trophic effects

Regional/historical
watershed inputs
point sources
management actions flow changes

Current work - Evaluating estuarine condition

Observed data represents effects of many processes



Models should describe components to evaluate effects

Current work - Evaluating estuarine condition

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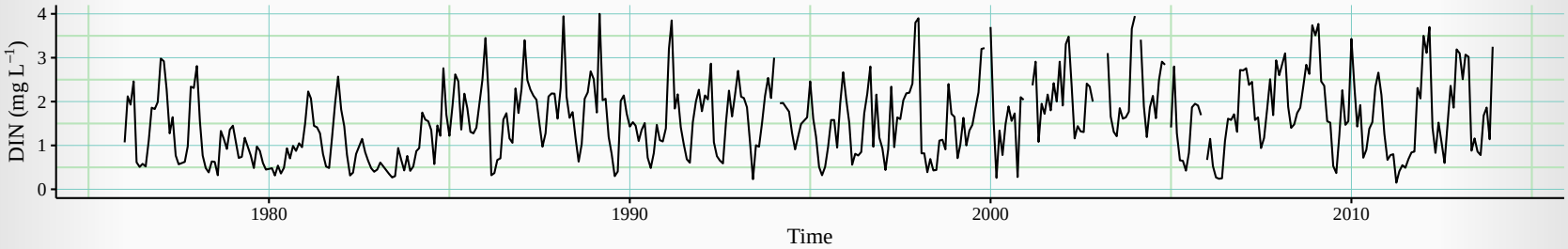

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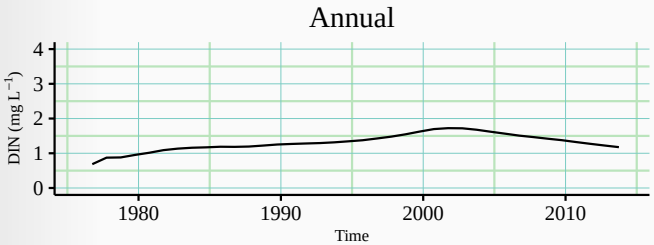

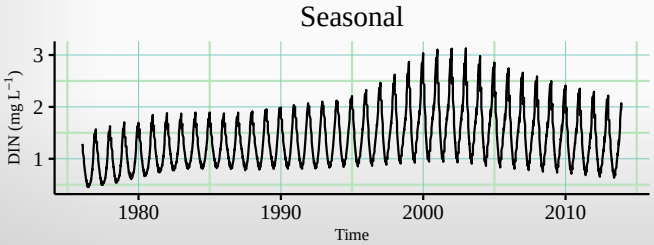

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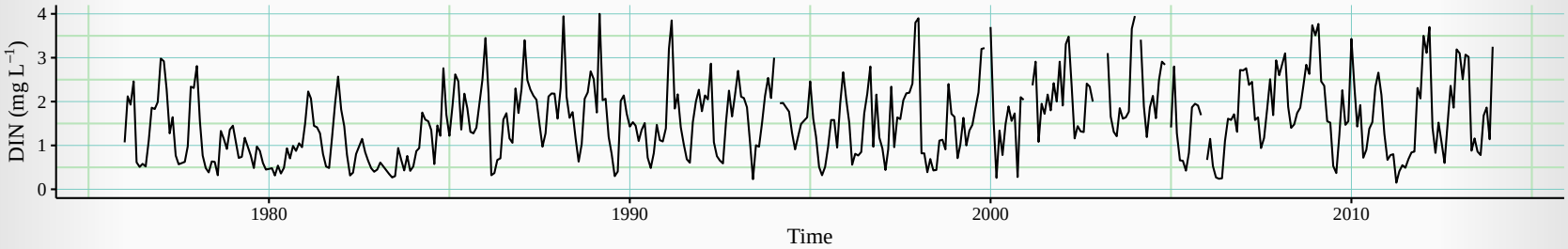

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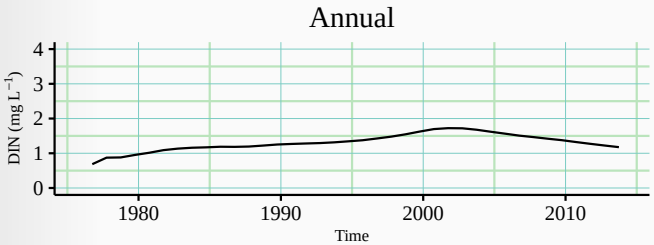

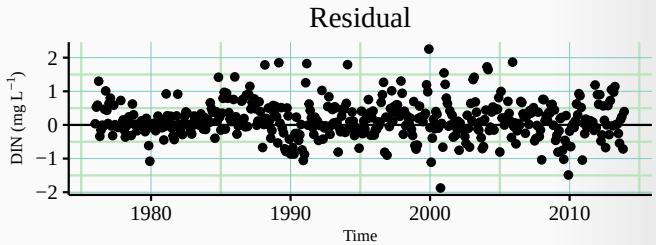

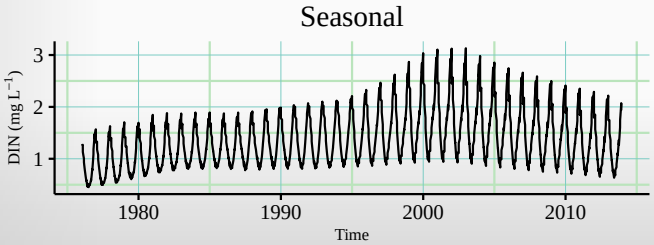

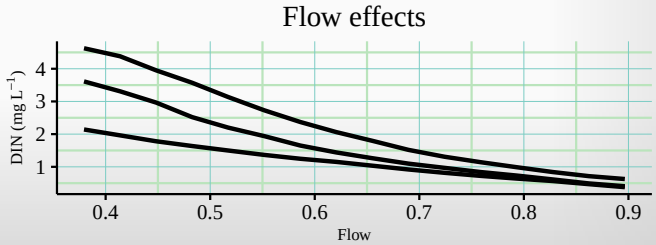

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LIMNOLOGY and OCEANOGRAPHY: METHODS

ASLO

Limnol. Oceanogr.: Methods 00, 2015, 00–00

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Improving estimates of ecosystem metabolism by reducing effects of tidal advection on dissolved oxygen time series

Marcus W. Beck,*[1] James D. Hagy III,[2] Michael C. Murrell[2]

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Data analysis

Novel application of WRTDS method and online viz products