

Nitrogen movement through the braidplain

Naomi Wells

06 July 2022



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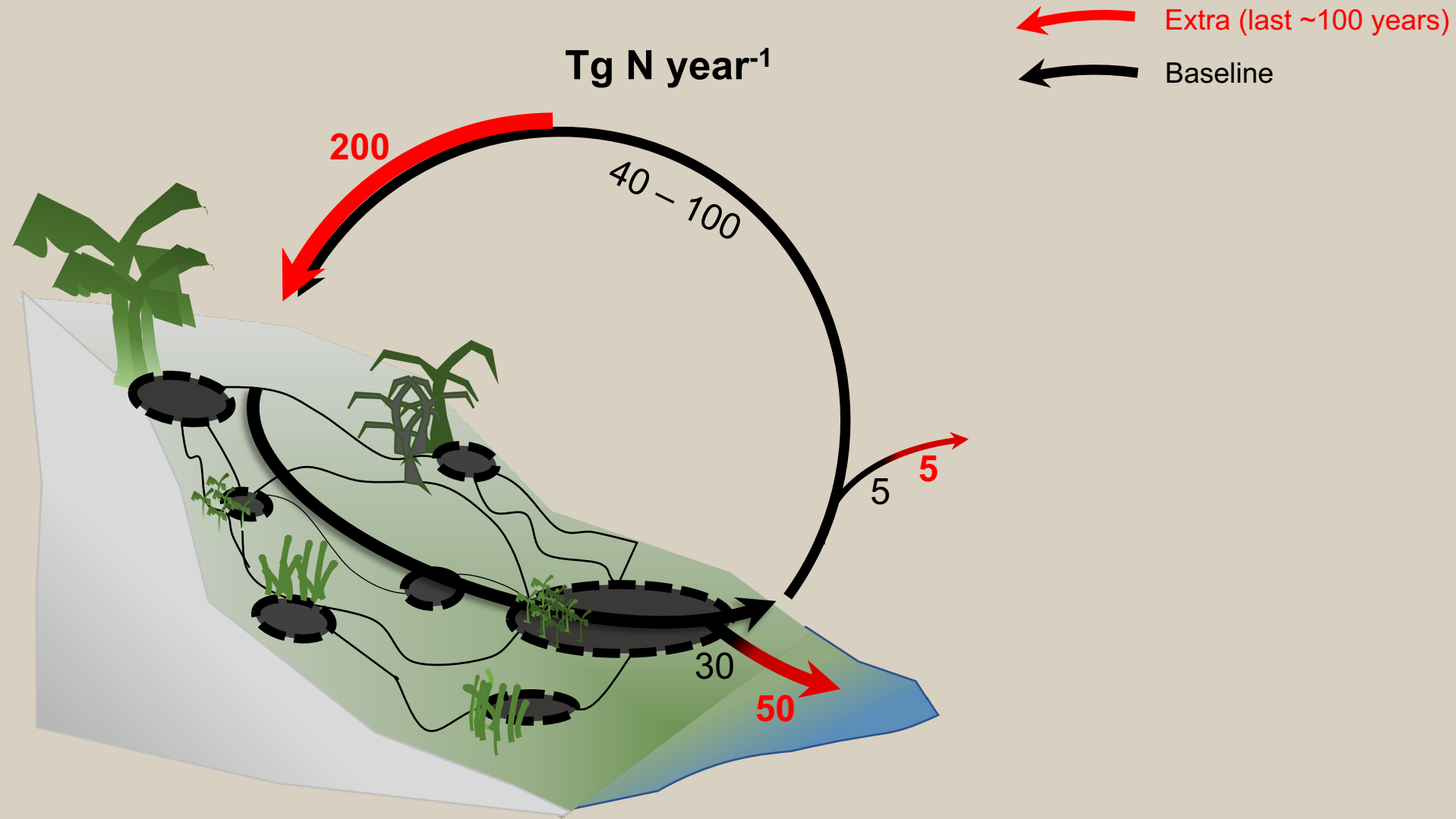
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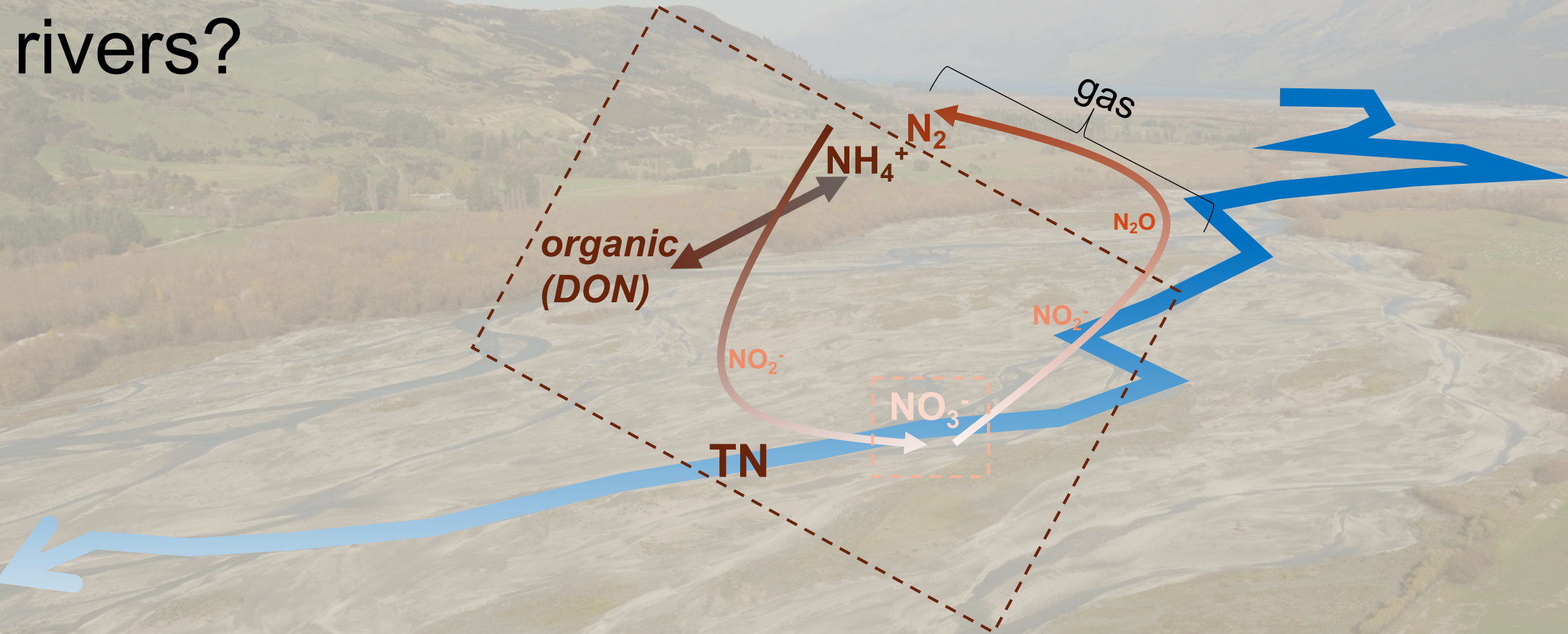
Photo: ORC

 @15nswells

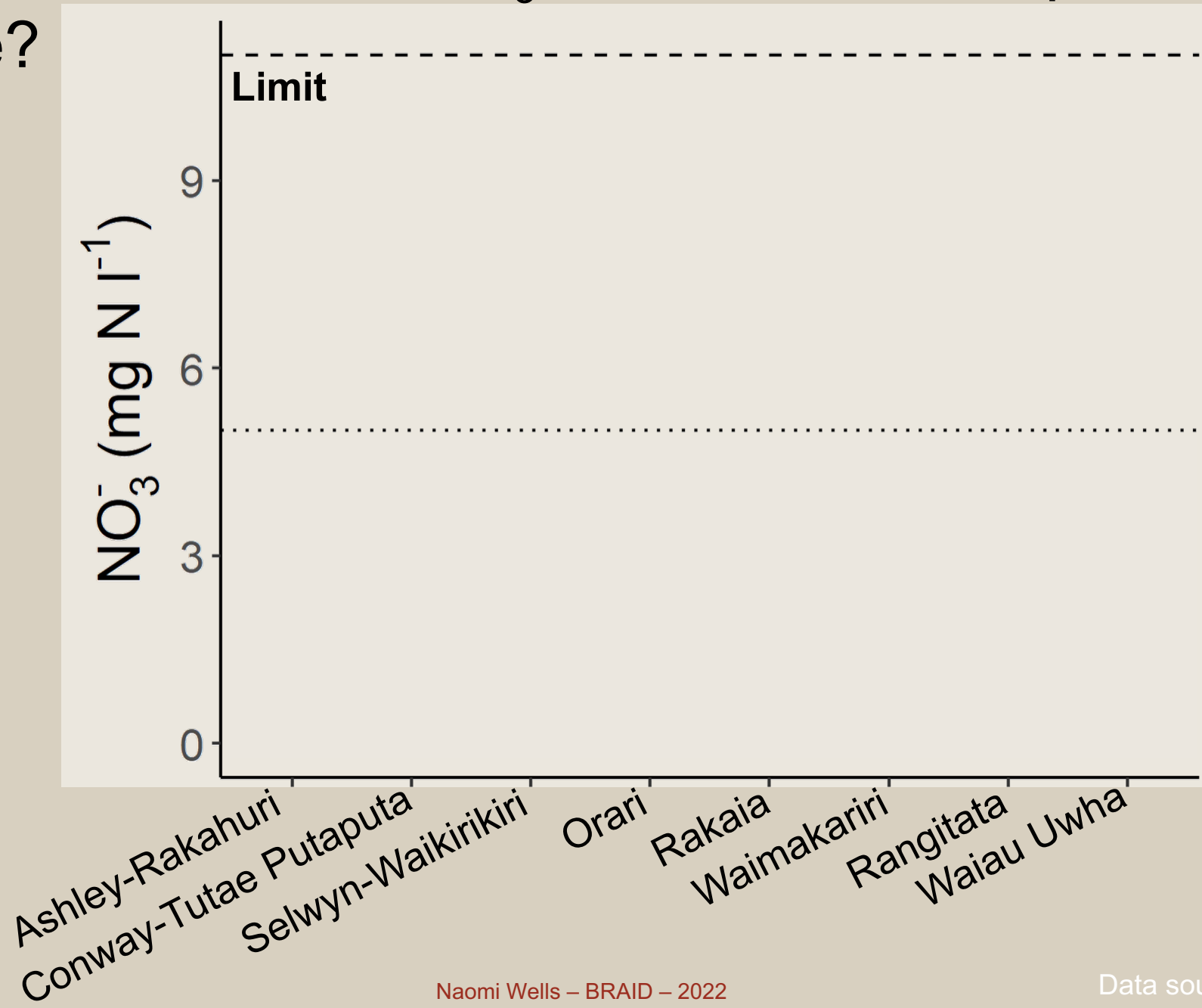
Why nitrogen movement through rivers matters?



So how can we measure nitrogen moving through rivers?

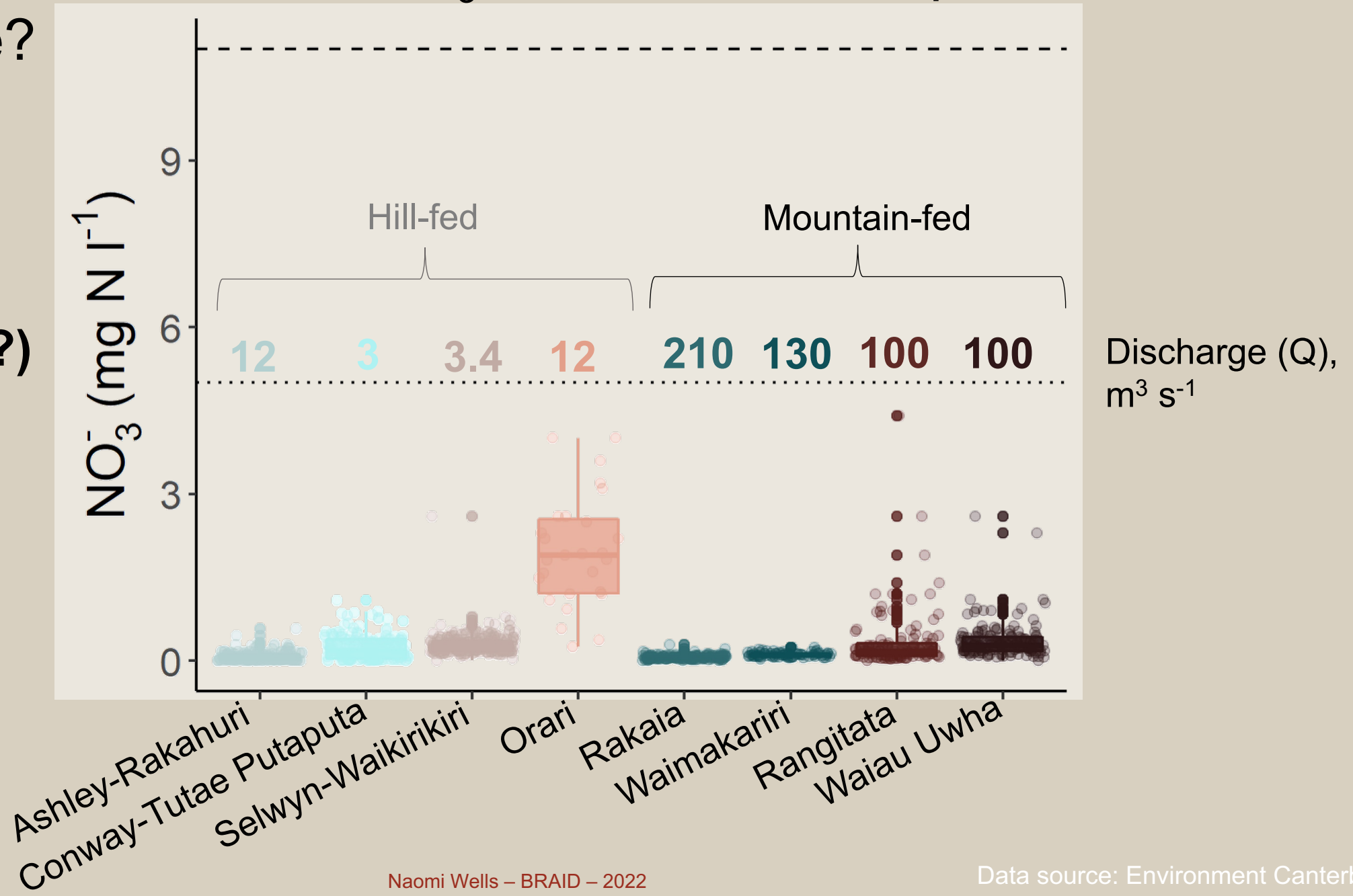


Does the concentration of NO_3^- in braided rivers pose a threat to (human) life?

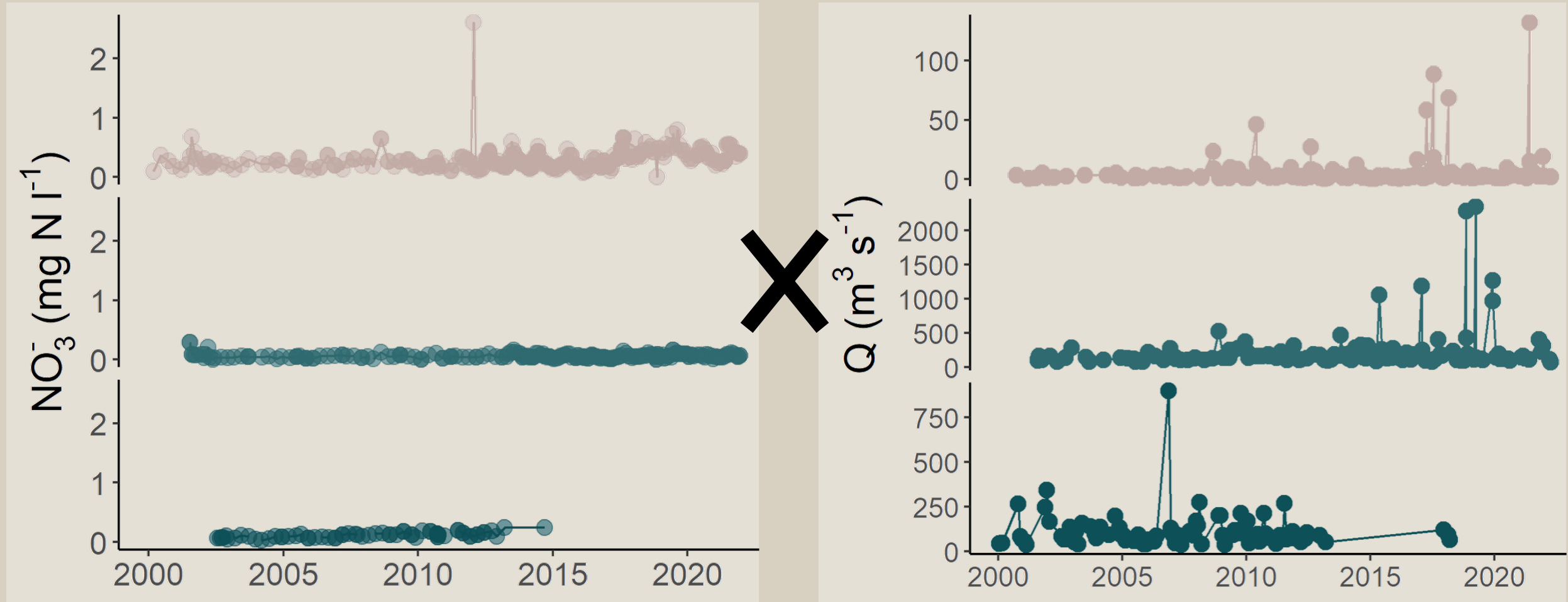


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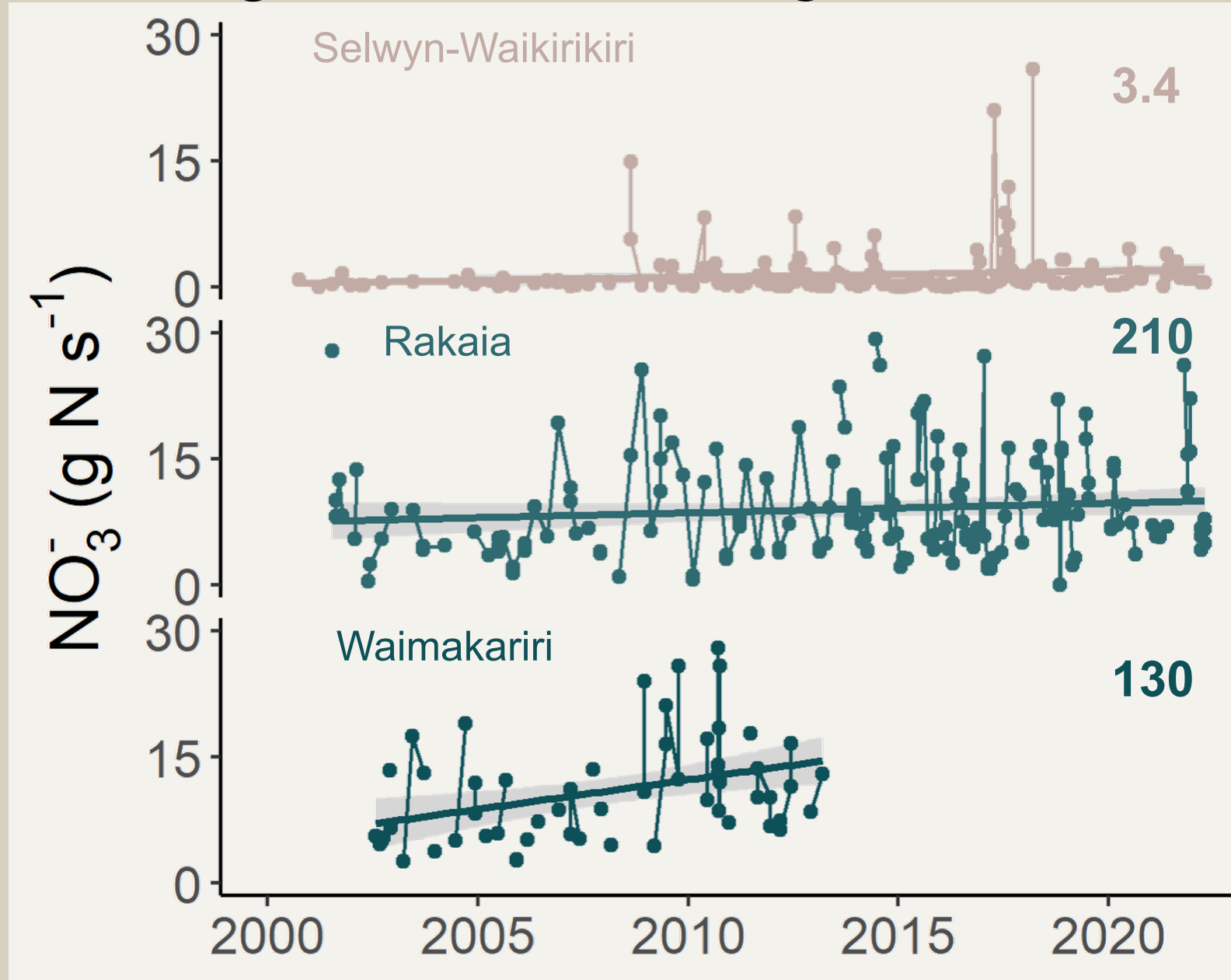
Dilution! (?)



How much nitrogen *moves through* our braided rivers?



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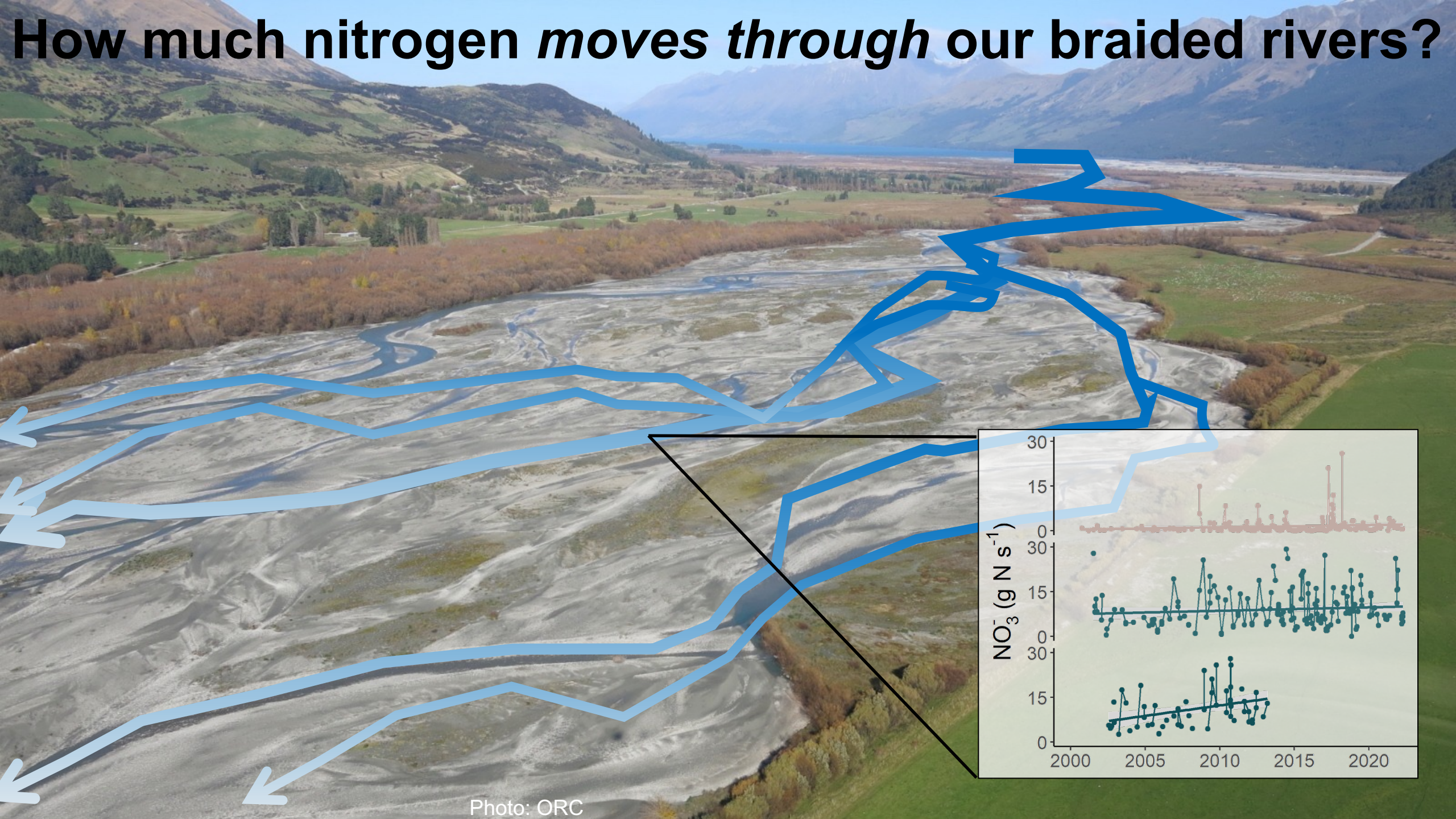
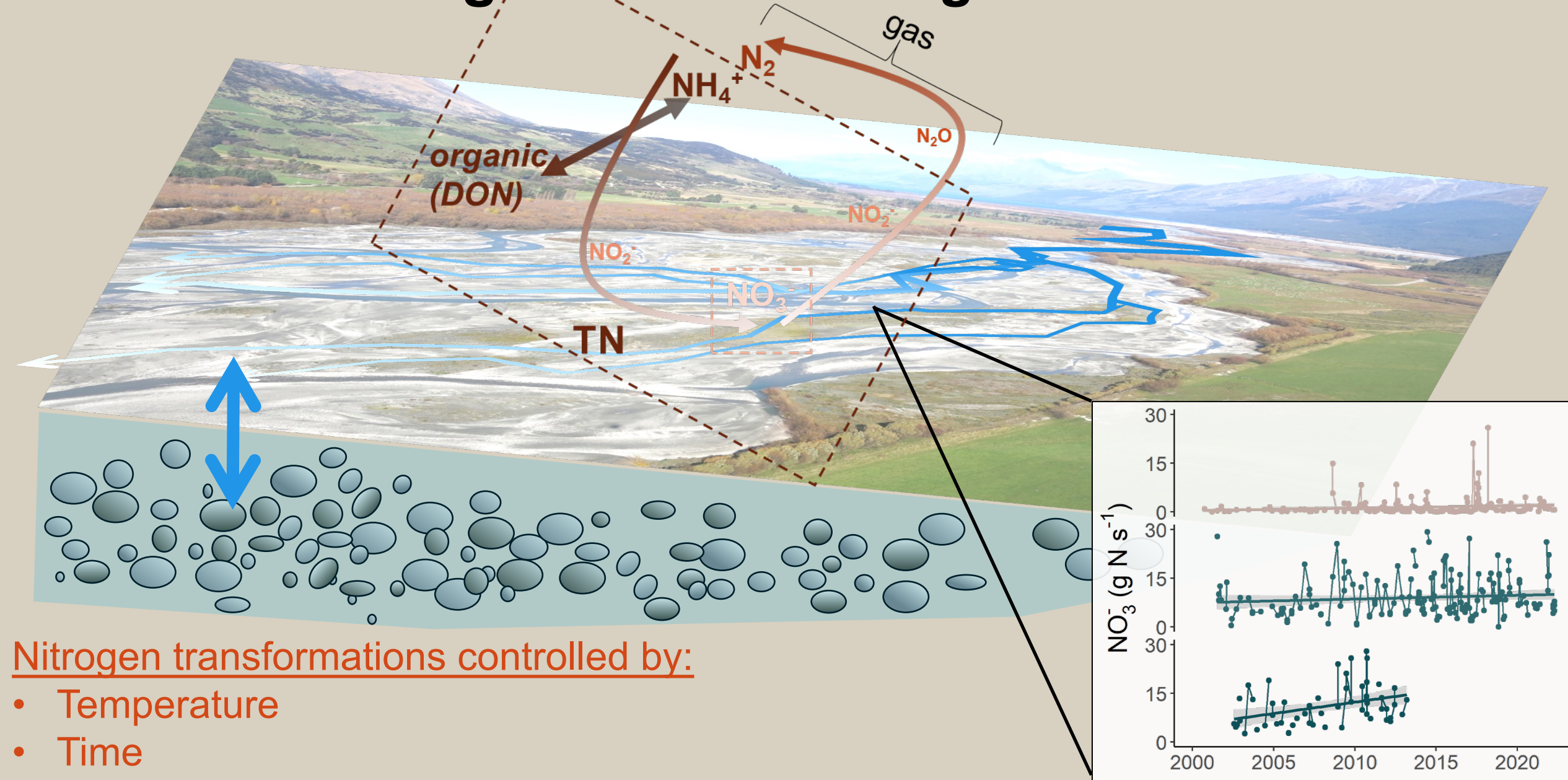
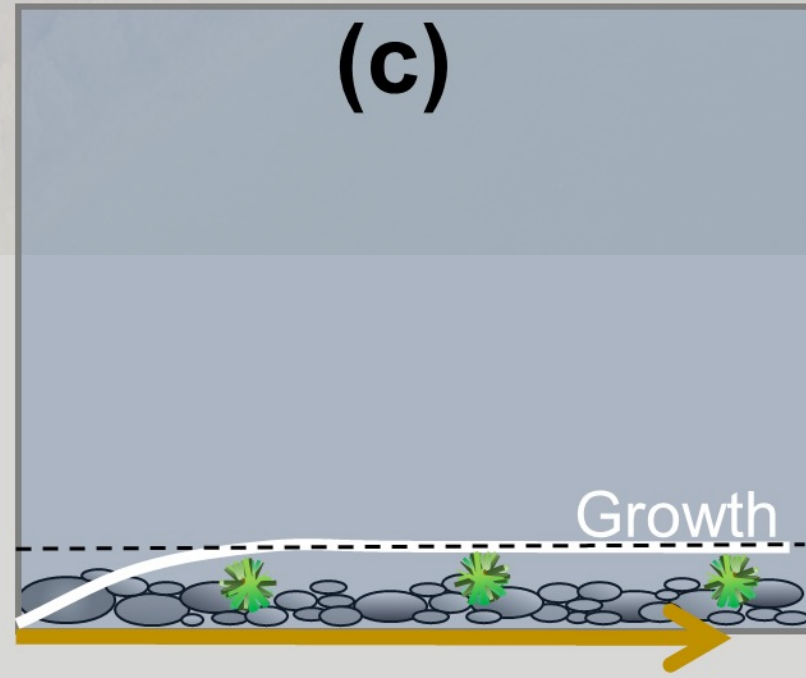
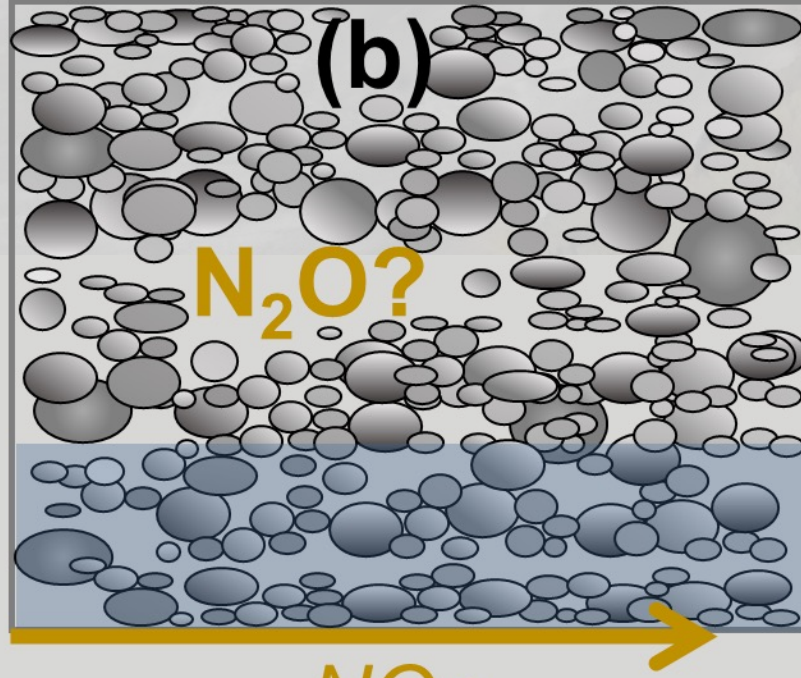
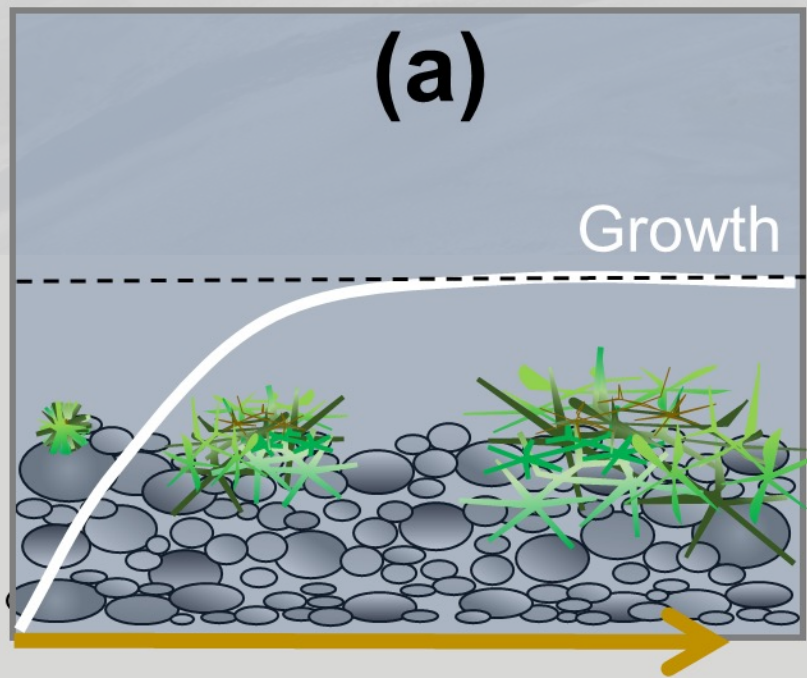
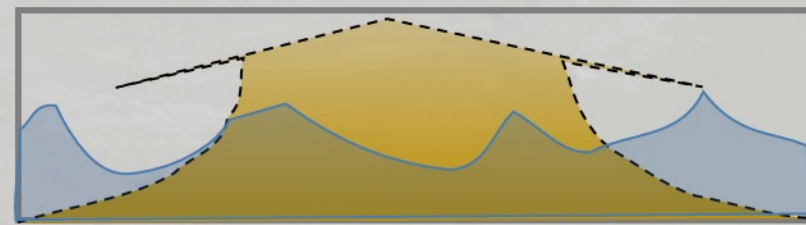
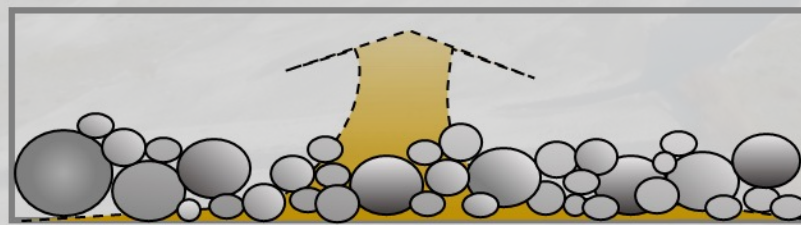
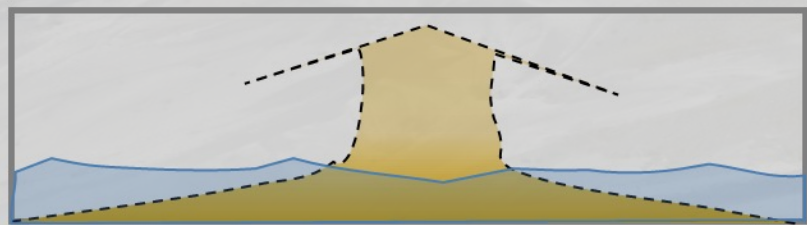


Photo: ORC

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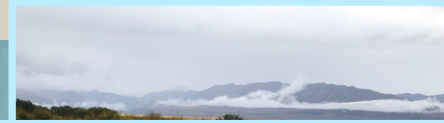
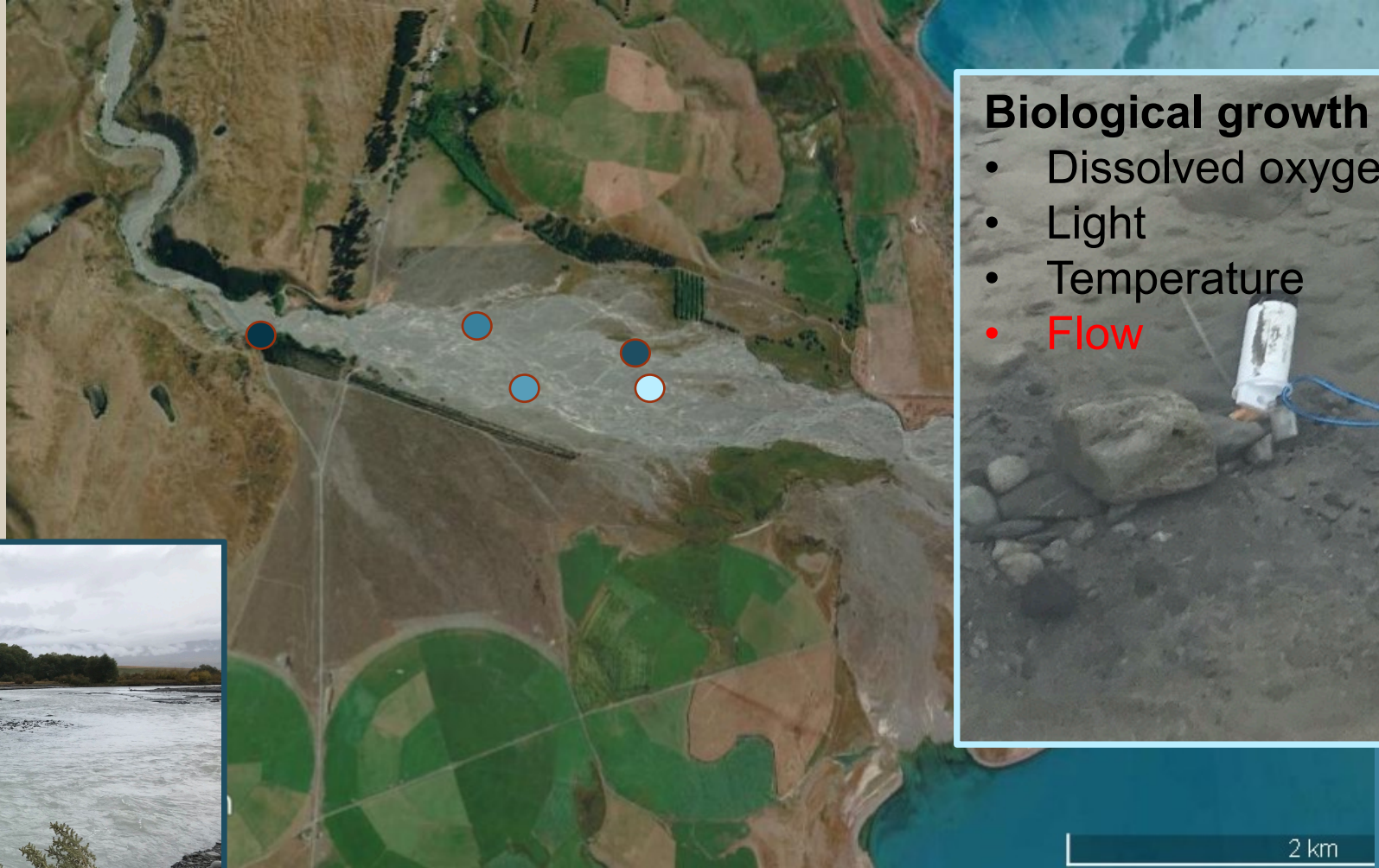




NO_3^-

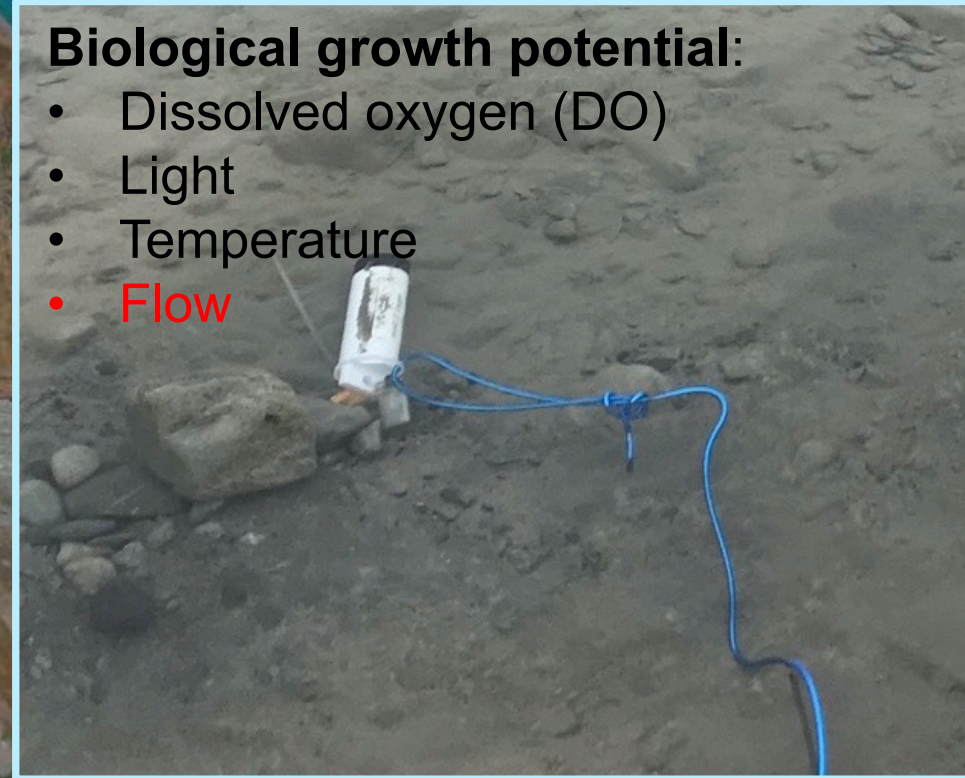
How much nitrogen is consumed, emitted, retained, and/or discharged across different parts of the braid plain?

Holly Harris (UC)

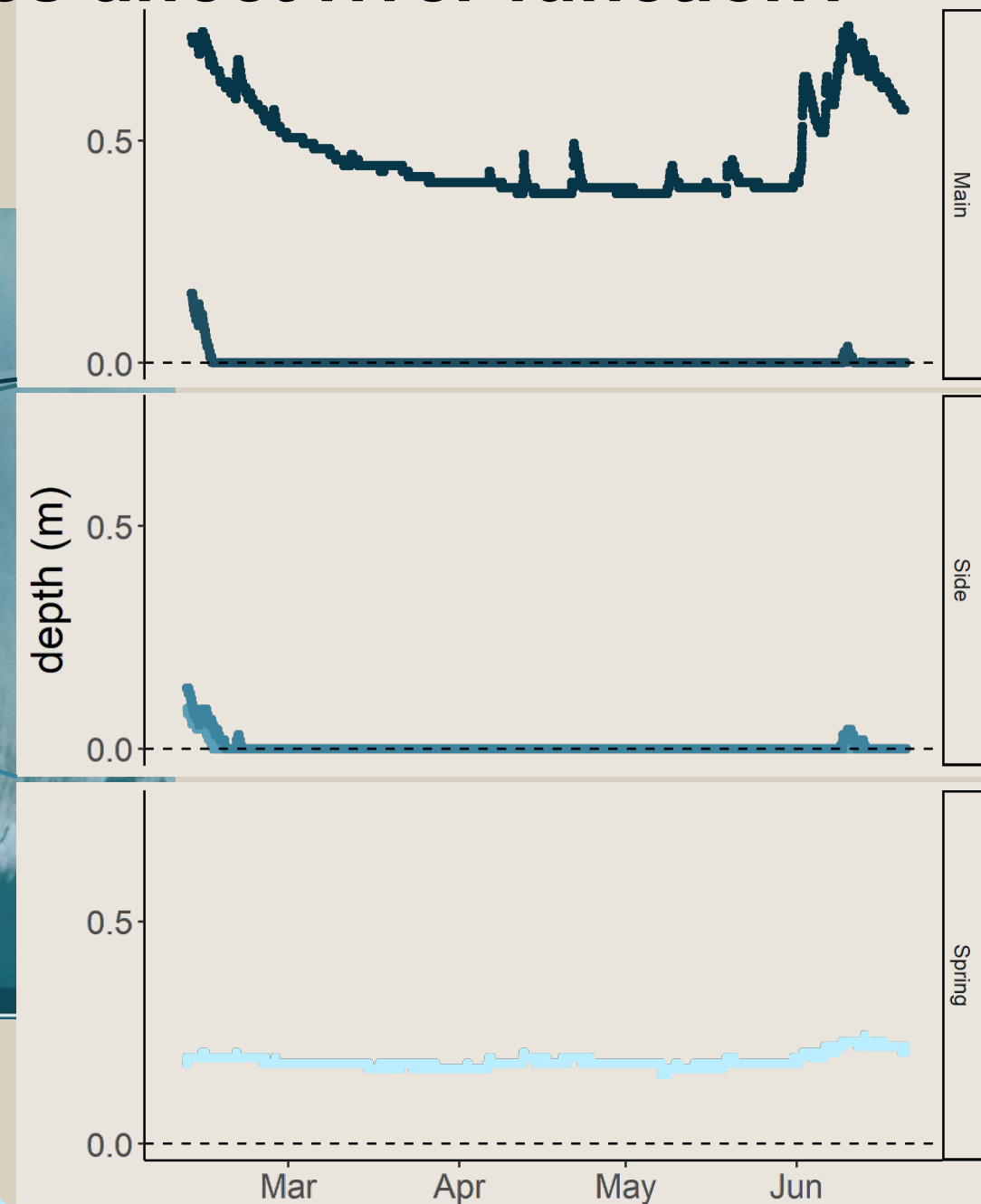


Biological growth potential:

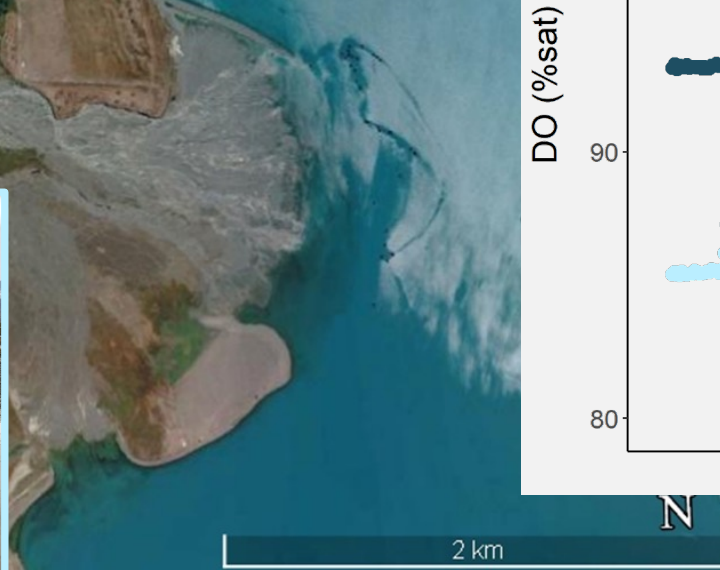
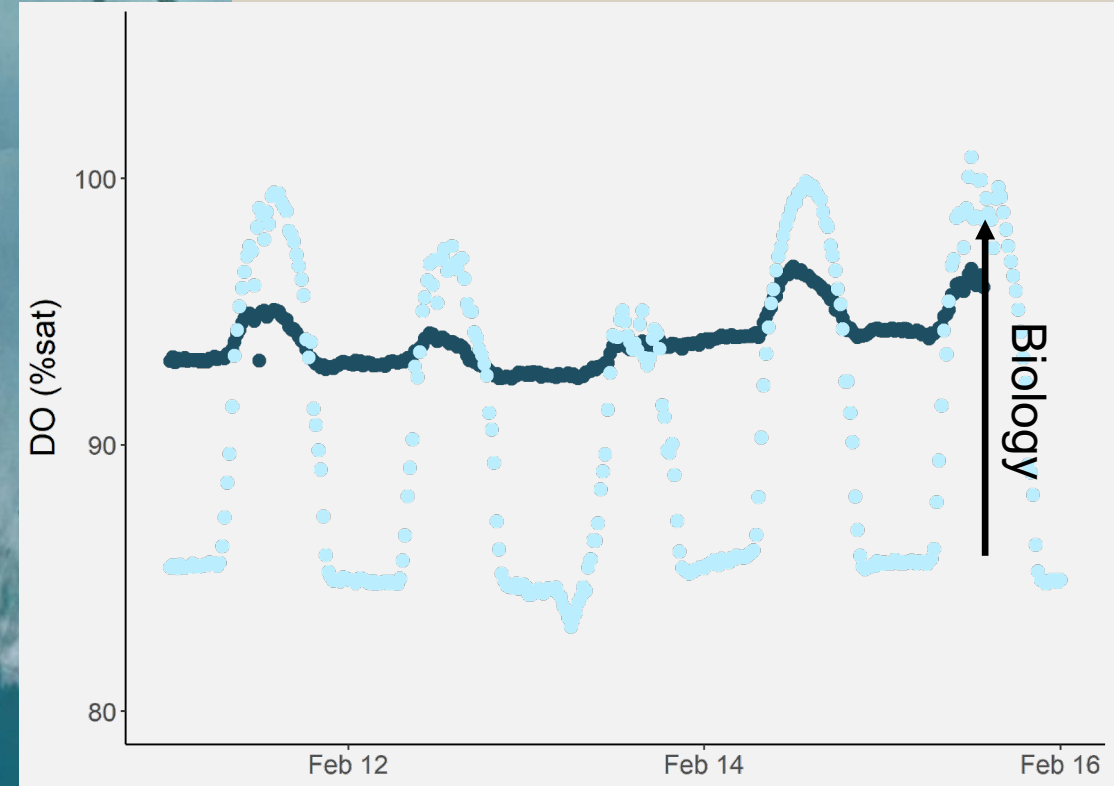
- Dissolved oxygen (DO)
- Light
- Temperature
- **Flow**



How do cross-braid flow differences affect river function?

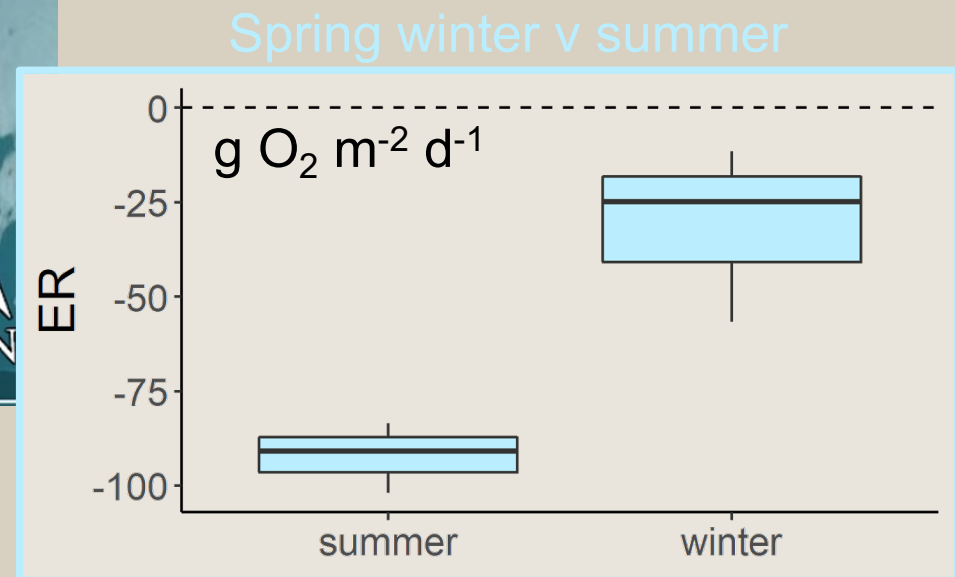
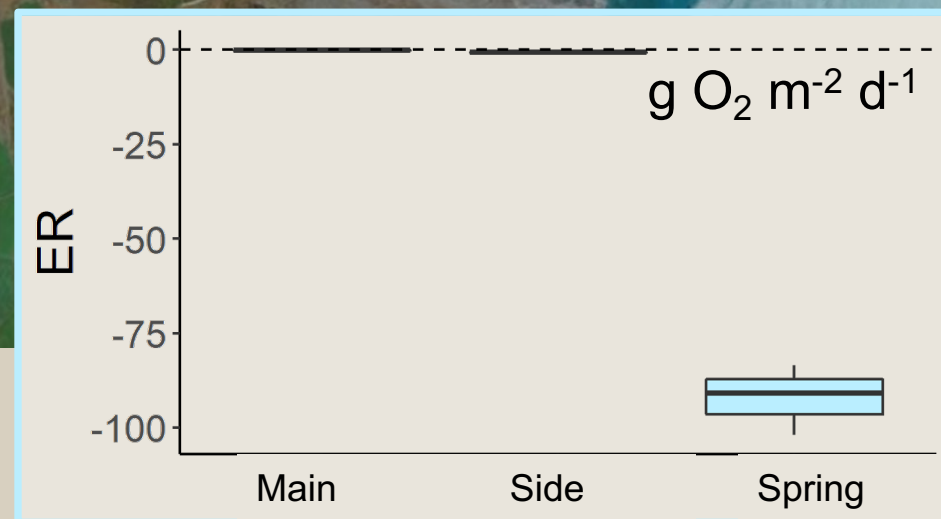
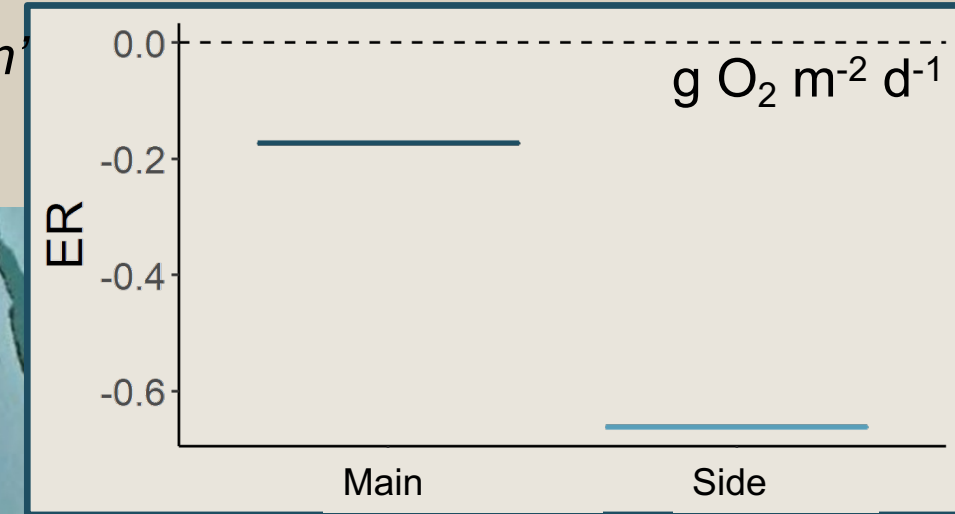


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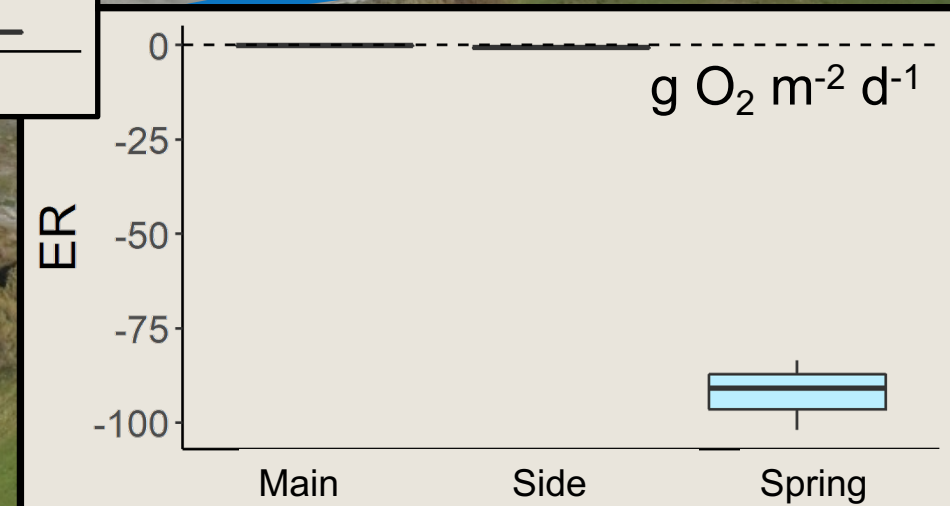
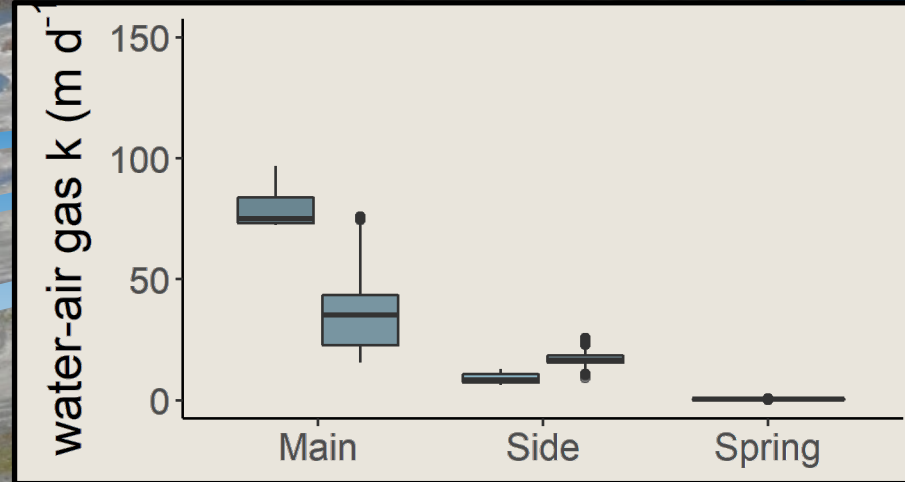
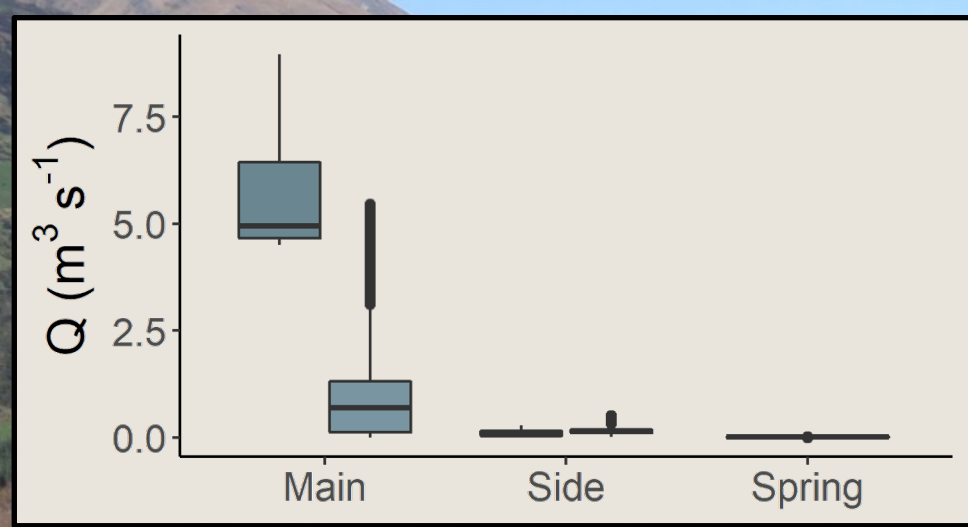


Changing flow → changing biological function

ER = 'ecosystem respiration'



Changing flow → changing biology →
changing nitrogen?



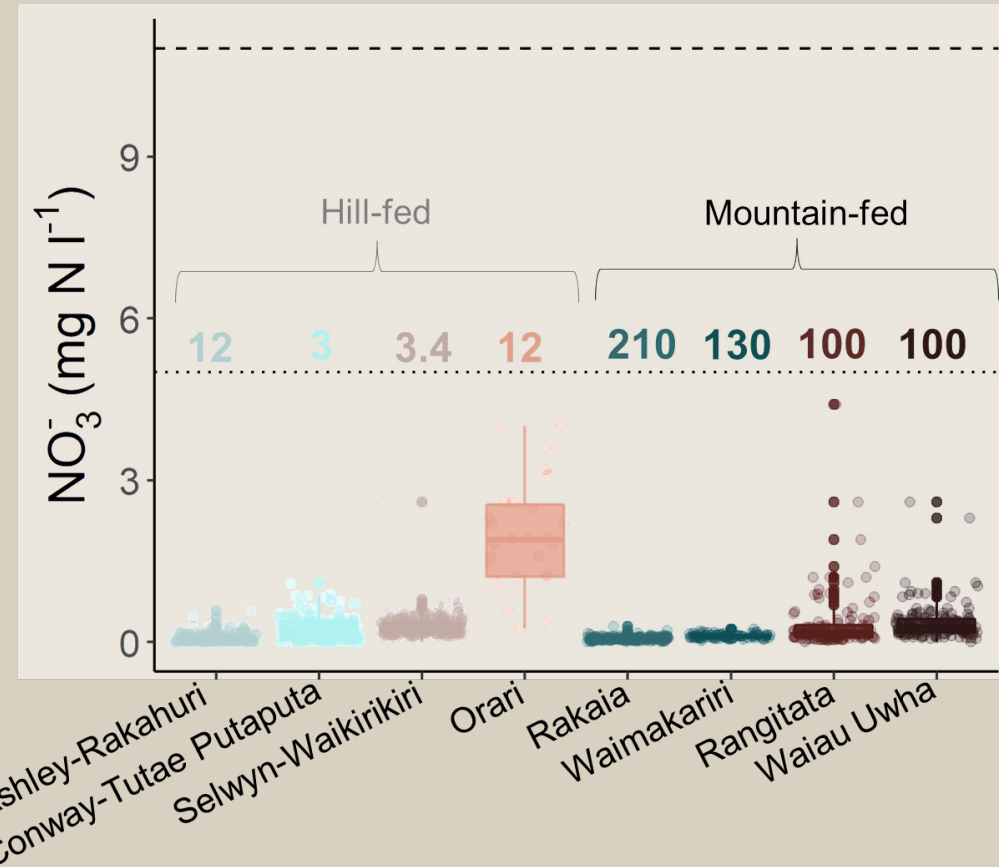
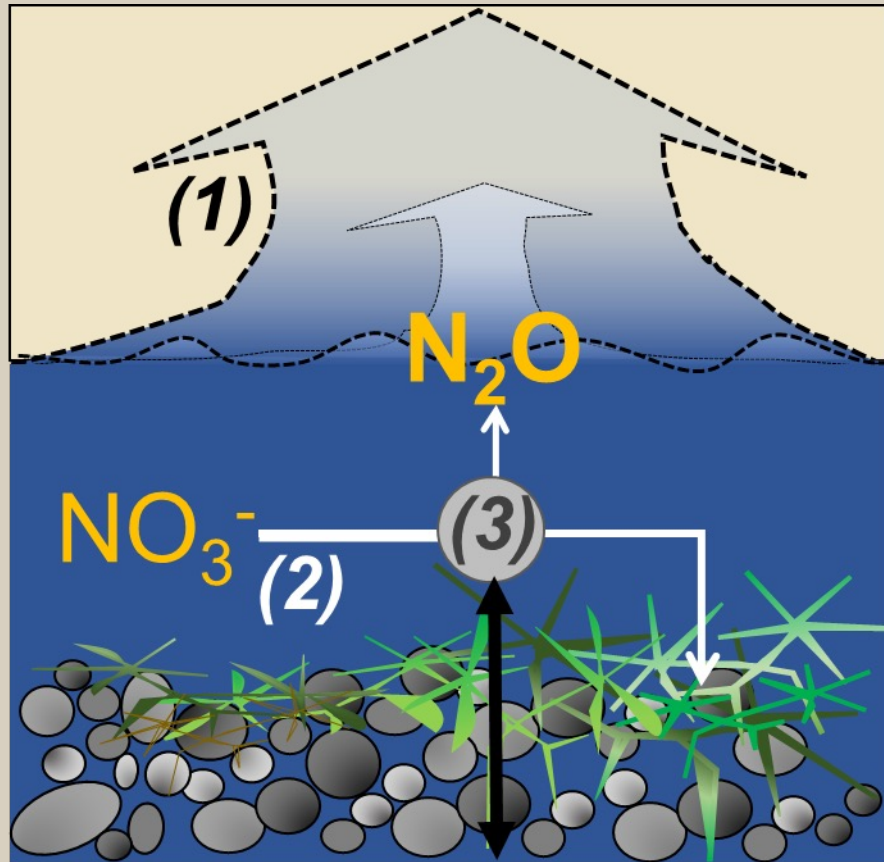
Next steps

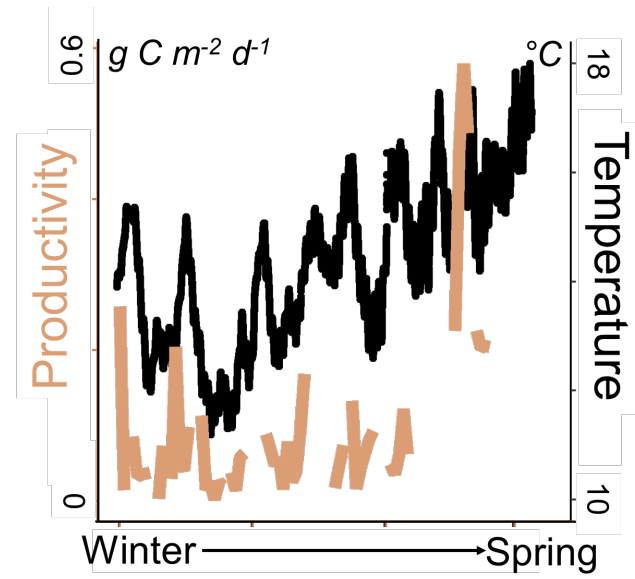
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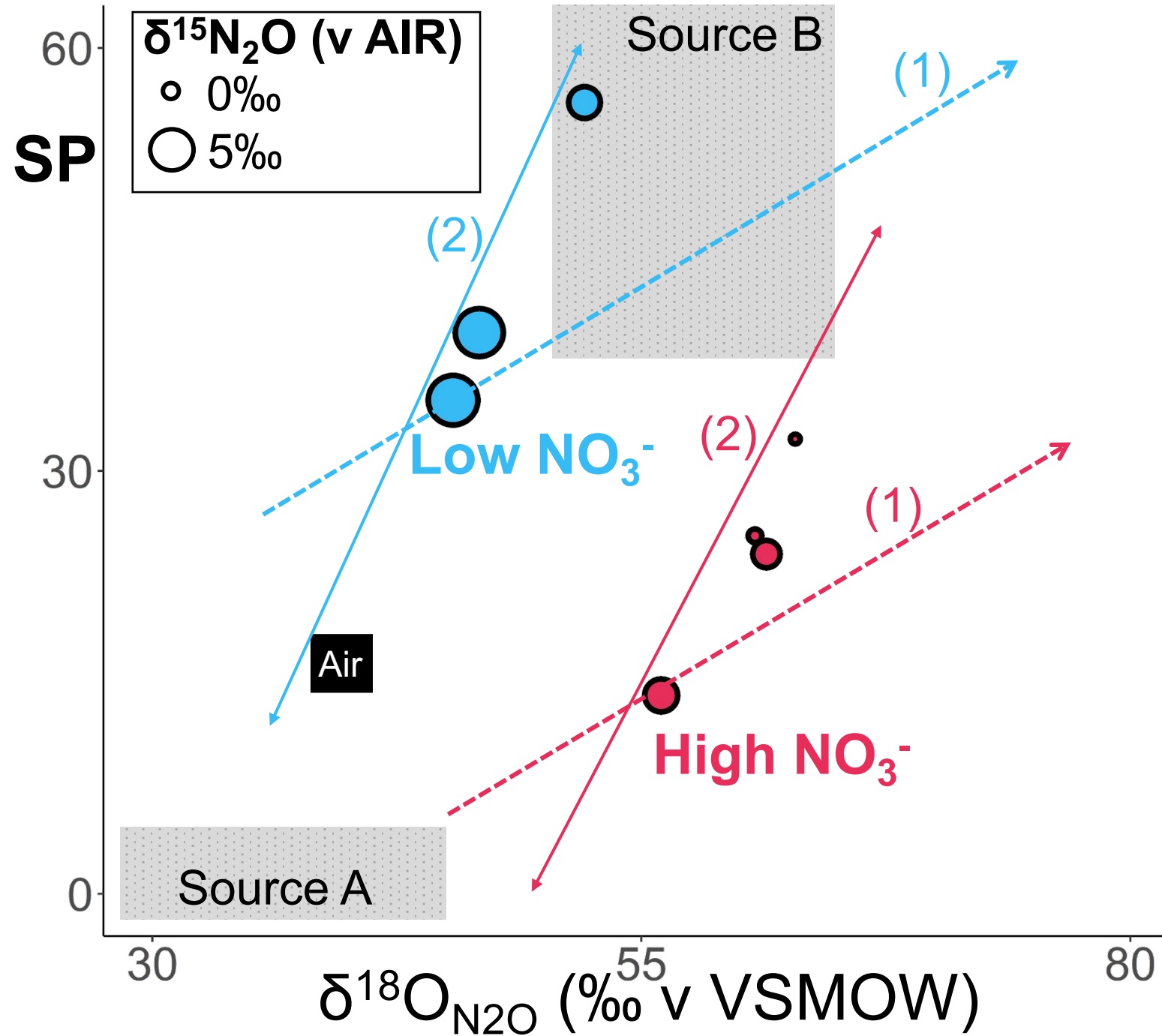
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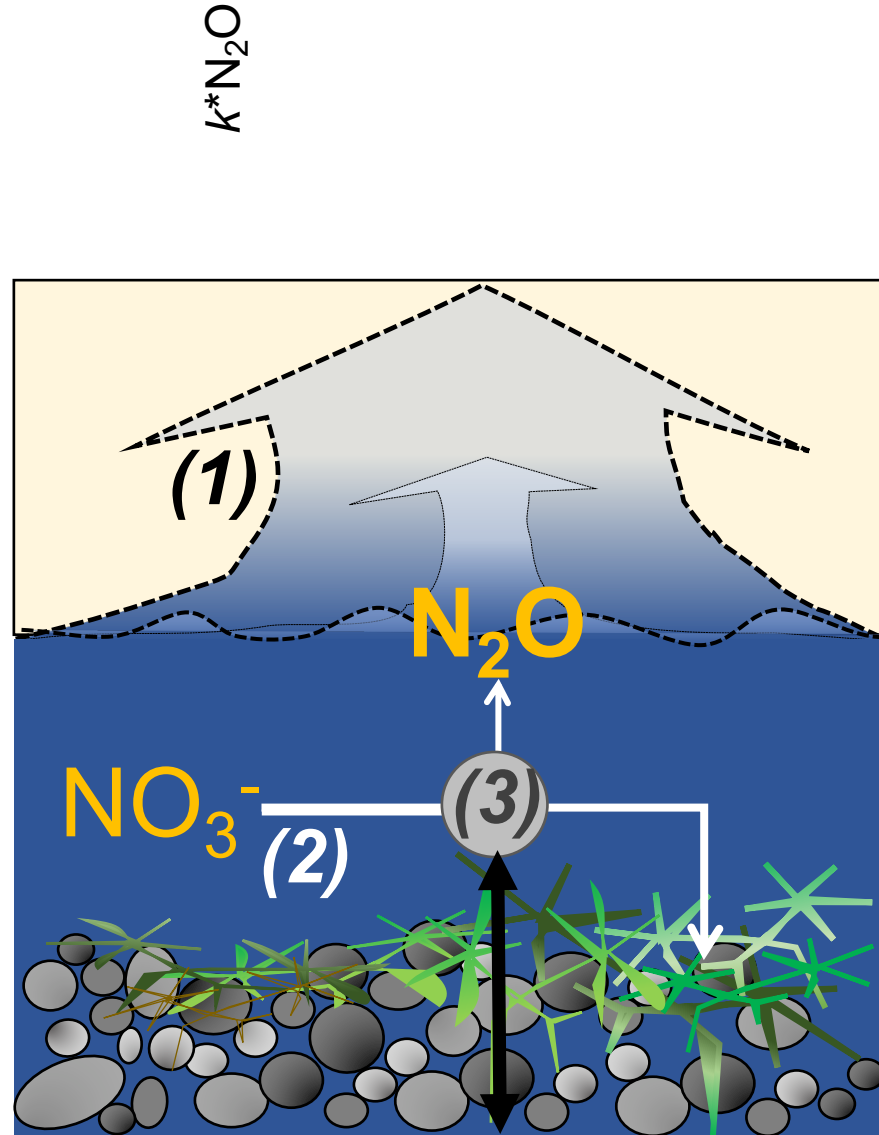


Some colour coding etc to show biological v hydrological mechanisms

Needs something that better shows 'hydrology'?

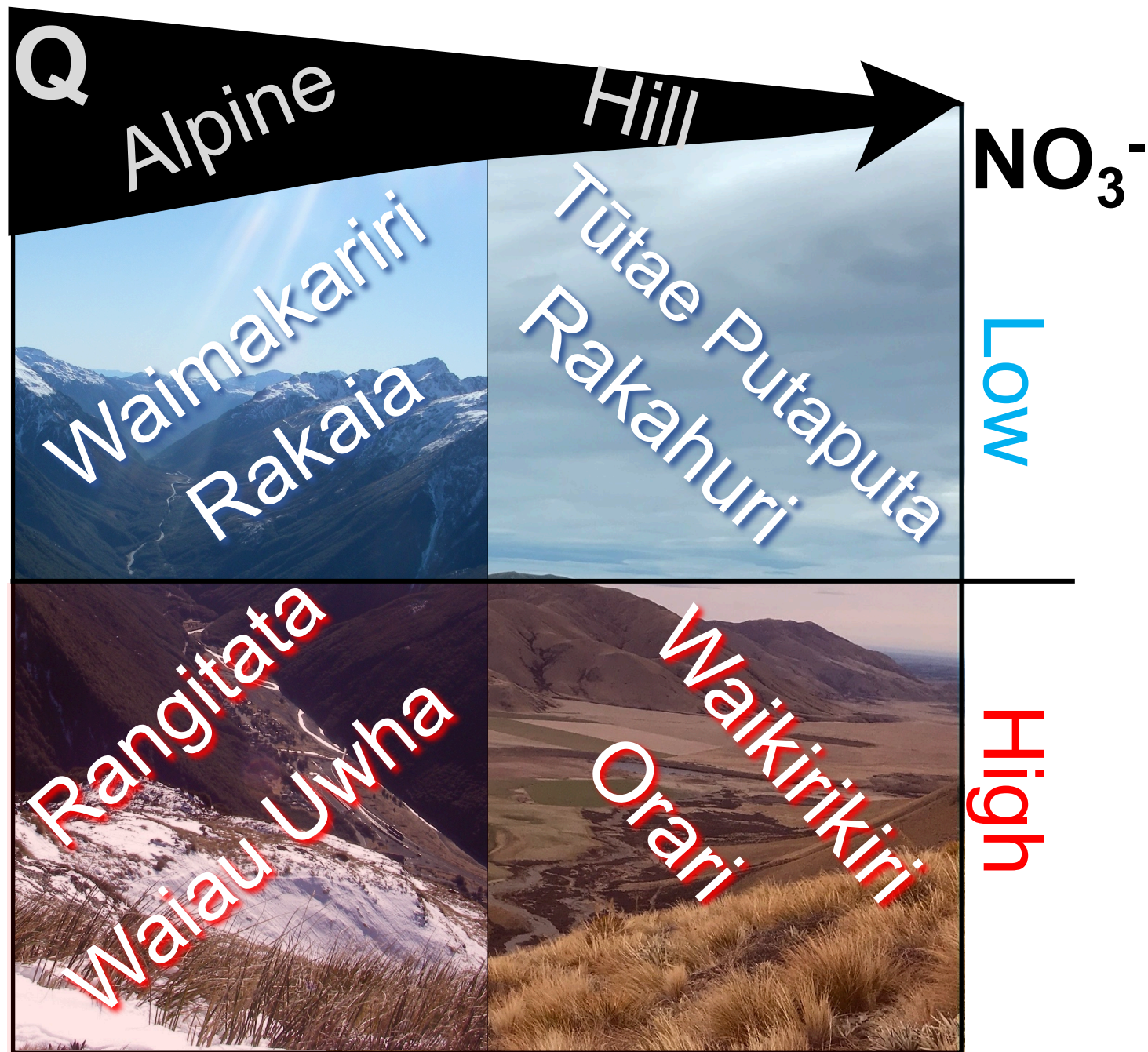
Maybe reverse colour scheme on outflow arrows to emphasise braided river v 'normal' lowland stream expectations?

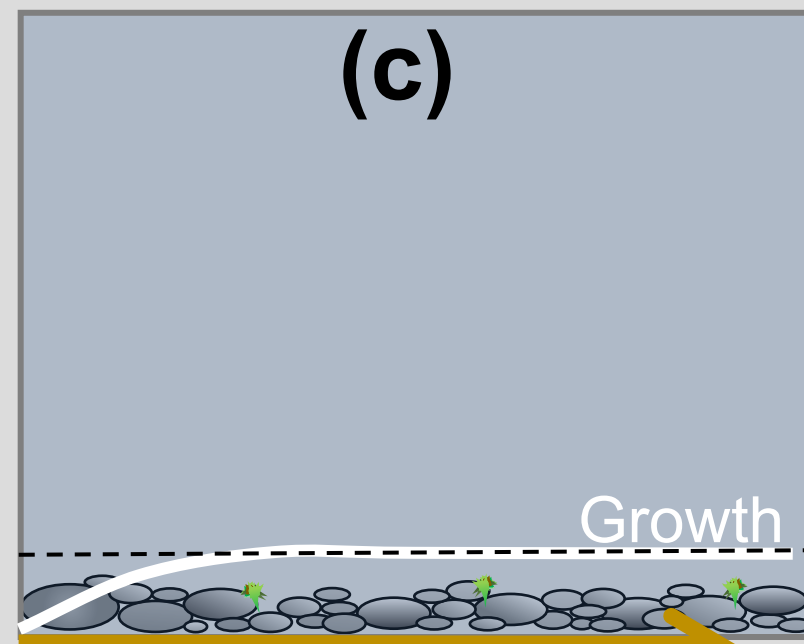
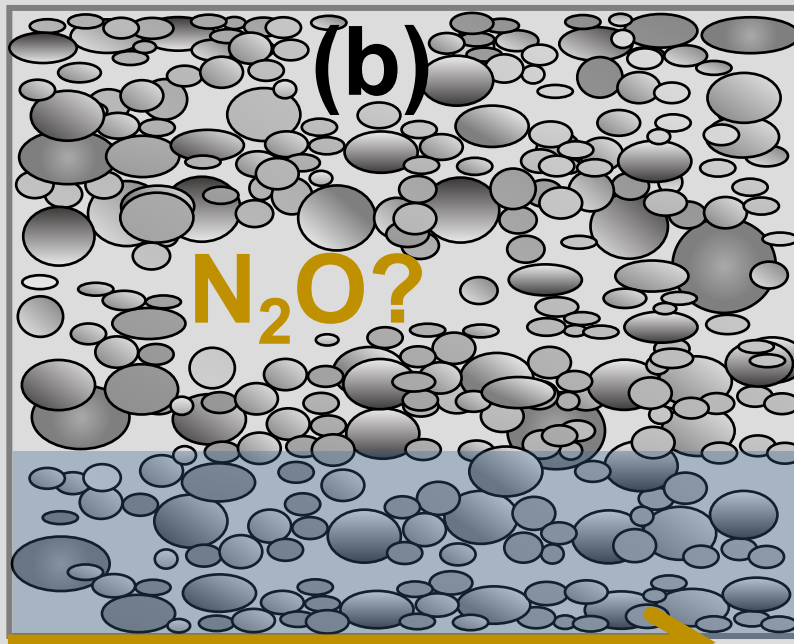
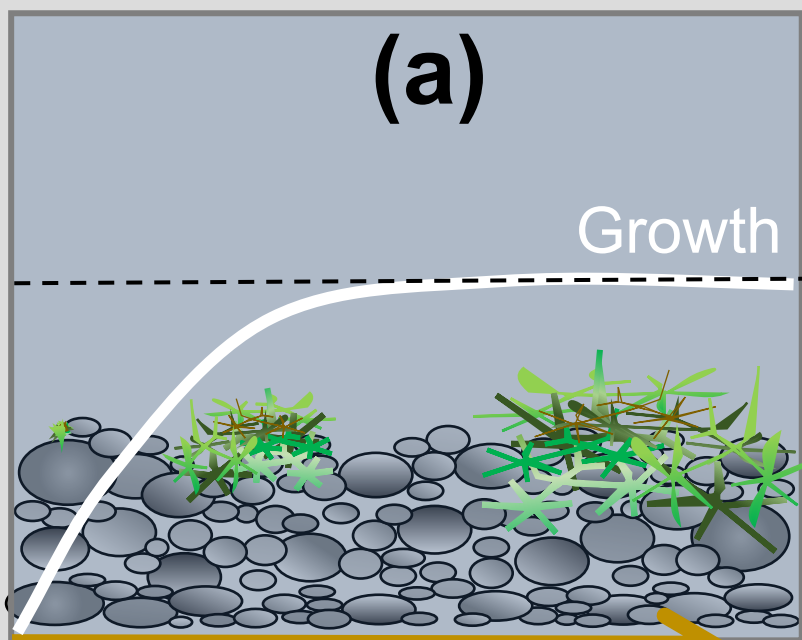
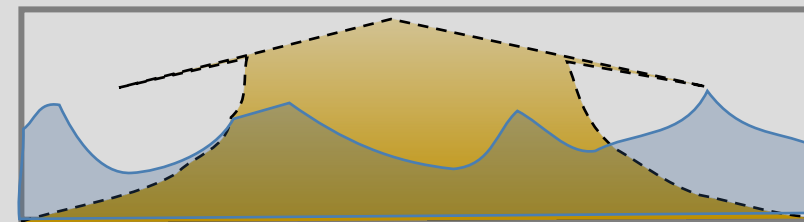
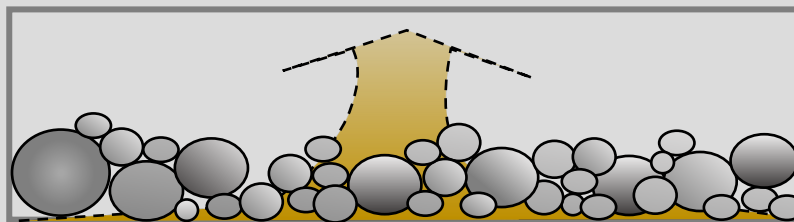
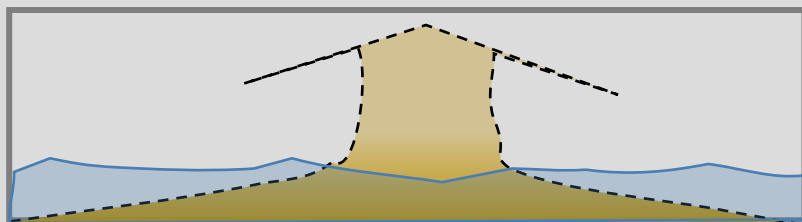
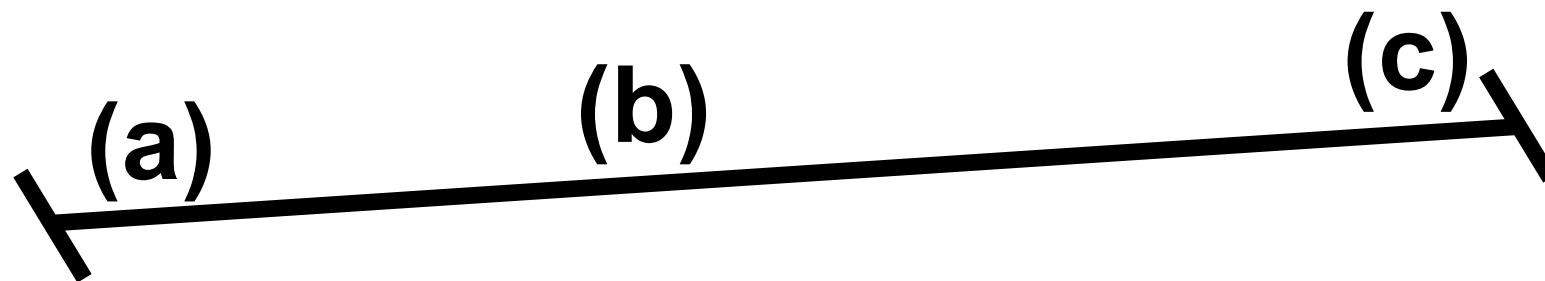
Remove GW or change somehow to emphasise hyporheic rather than GW?



Braided rivers significant N_2O sources

Hydrology v biology balance is key to predicting HOW significant these sources are





NO_3^-