Current state of fresh water in Te Awarua-o-Porirua Whaitua

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What are we reporting and why?

- *E. coli* indicates how safe it is to use the river for swimming and other activities where we might swallow water

- High levels of some contaminants can directly affect the growth, reproduction and survival of plants, insects and fish that live in the river

- Grades decreasing levels of protection from these effects

Grade	Narrative descriptor
A	Very good
B	Good
C	Fair
D	Poor
E	Very poor

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# What is the catchment modelling and how can you use it?

- We can't and don't monitor everywhere

- Use known patterns in water and contaminant generation, transport and removals

- Trained to local conditions with local data

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What is the catchment modelling and how can you use it?

- Look for the big patterns

- Results graded (A-E)

- Draw on your own and others' knowledge

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E. coli

- Results showed poor (D) and very poor (E) conditions everywhere

- Poor both when its dry and wet

- Major sources

  - Livestock on grazed pasture

  - Stormwater and faulty sewer connections

  - Wastewater overflows

- Limited dilution and die-off with low flows and short catchments

E. coli

- A - Very good
- B - Good
- C - Fair
- D - Poor
- E
- Streams

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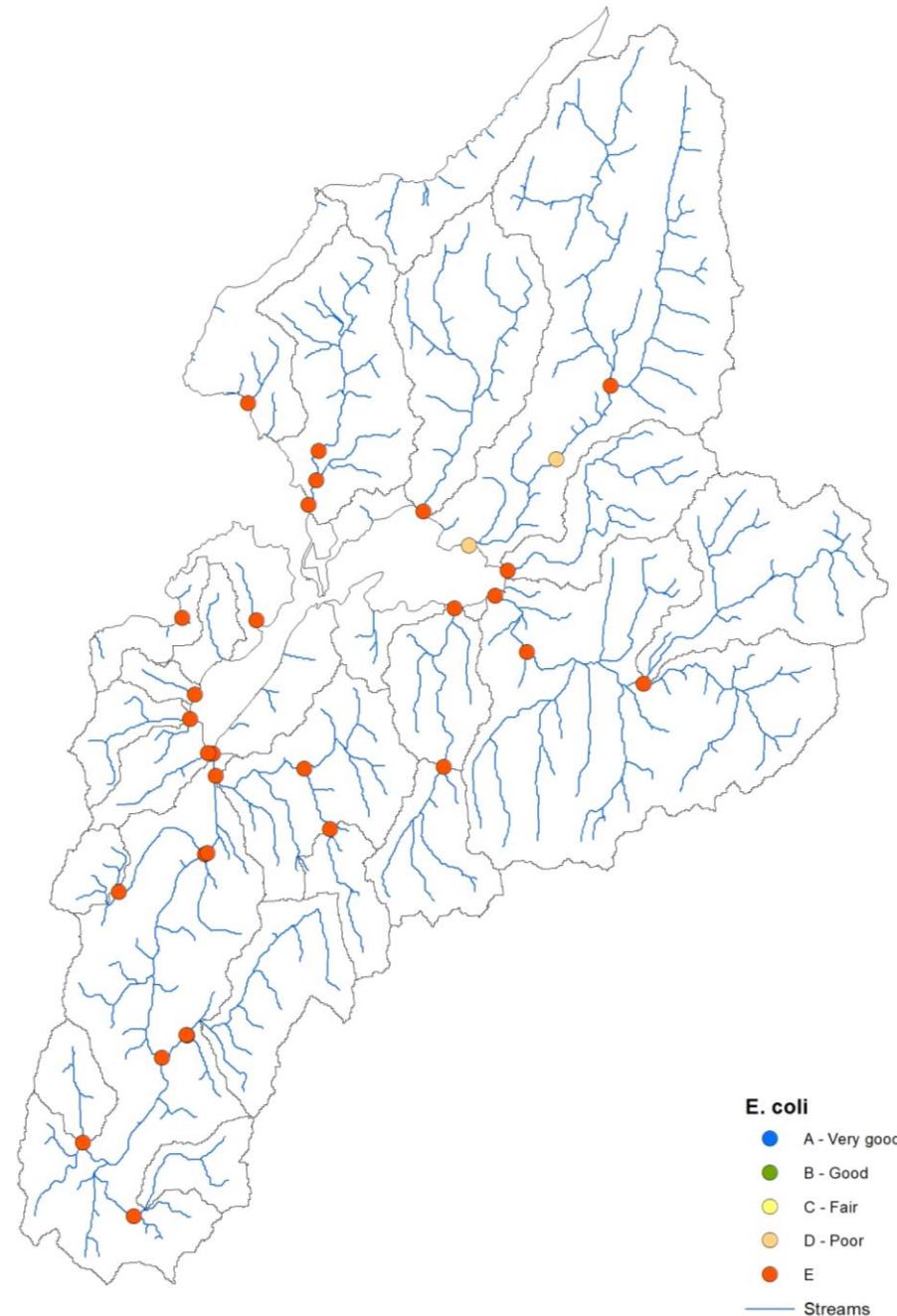
Nitrate toxicity

- Mainly very good (A) and good (B) results overall

- Dry conditions usually very good, good results during wetter periods

- Main sources

    - urban greenspace

    - grazed pastures

- Take care with results in small catchments

Nitrate
- A - Very good
- B - Good
- C - Fair
- D - Poor
- Streams

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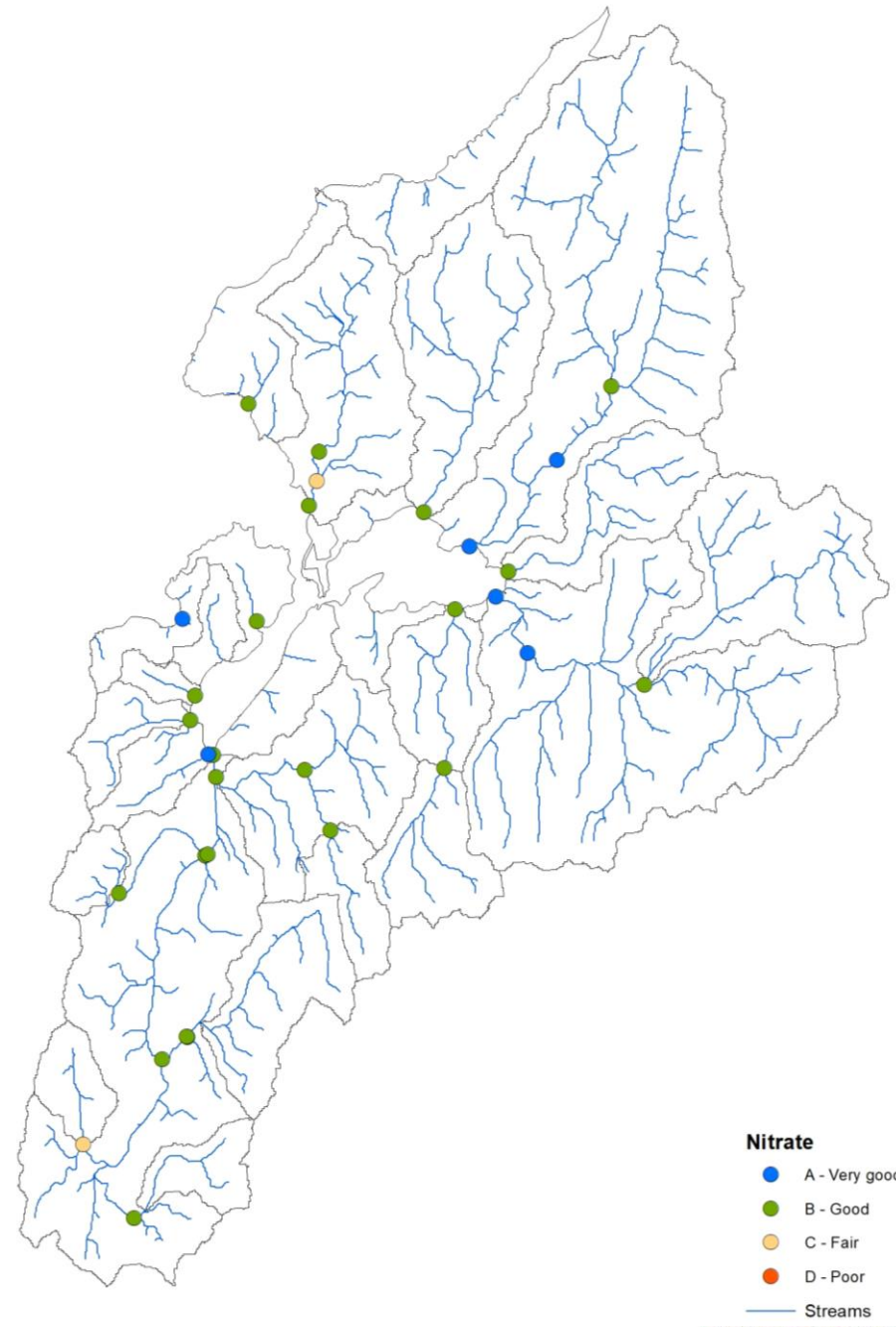
Ammonia toxicity

- The model tended to predict worse toxicity grades than the observed data

- Fair (C) results associated with wastewater overflows

- Dry and wet weather flows generally good (B) or very good (A) in urban and rural areas

- Good results likely to be better than reported in many places

Ammonia

- A - Very good
- B - Good
- C - Fair
- D - Poor
- Streams

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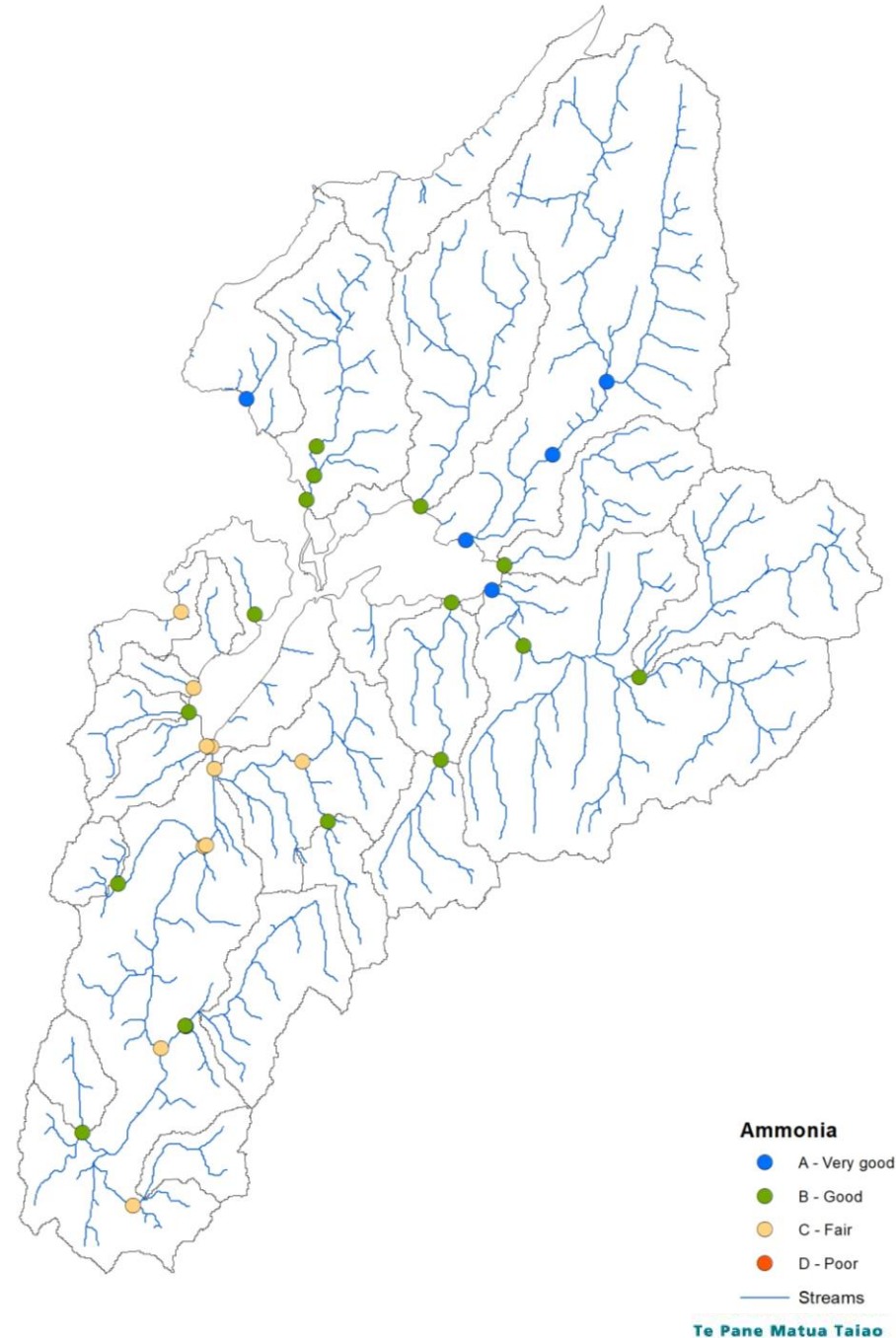
Zinc toxicity

- Generally very good (A) in rural areas

- Fair (C) or poor (D) in urban areas in both wet and dry conditions

- Major sources
  - commercial and industrial areas

- The four poor results are in small catchments, though these do have high levels of those major sources

Zinc

- A - Very good
- B - Good
- C - Fair
- D - Poor
- Streams

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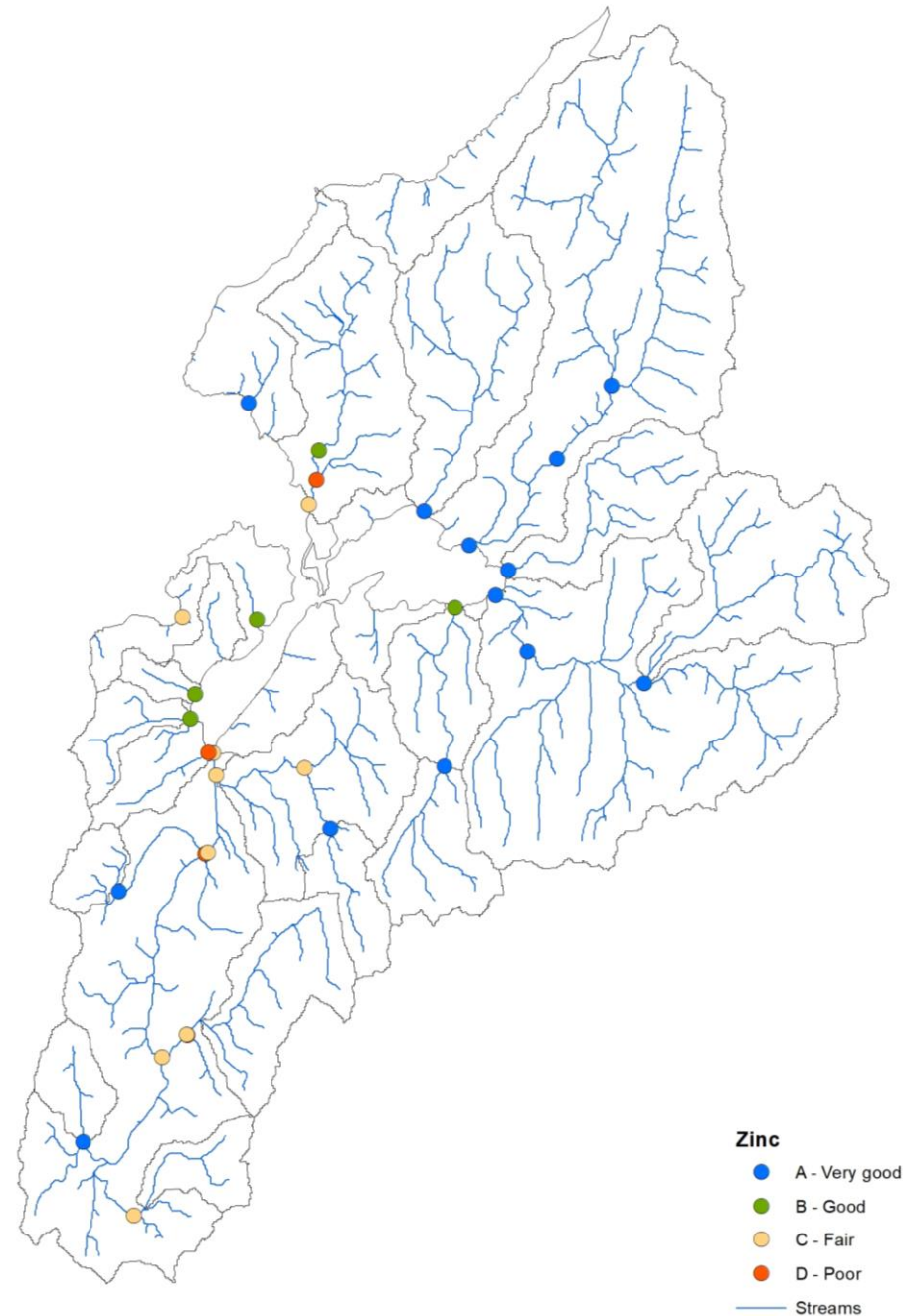
Copper toxicity

- Generally very good (A) in rural areas

- Fair (C) or poor (D) in urban areas particularly in wet conditions

- Major sources
  - Roads
  - Residential
  - Commercial and industrial areas

Copper

● A - Very good
● B - Good
● C - Fair
● D - Poor
— Streams

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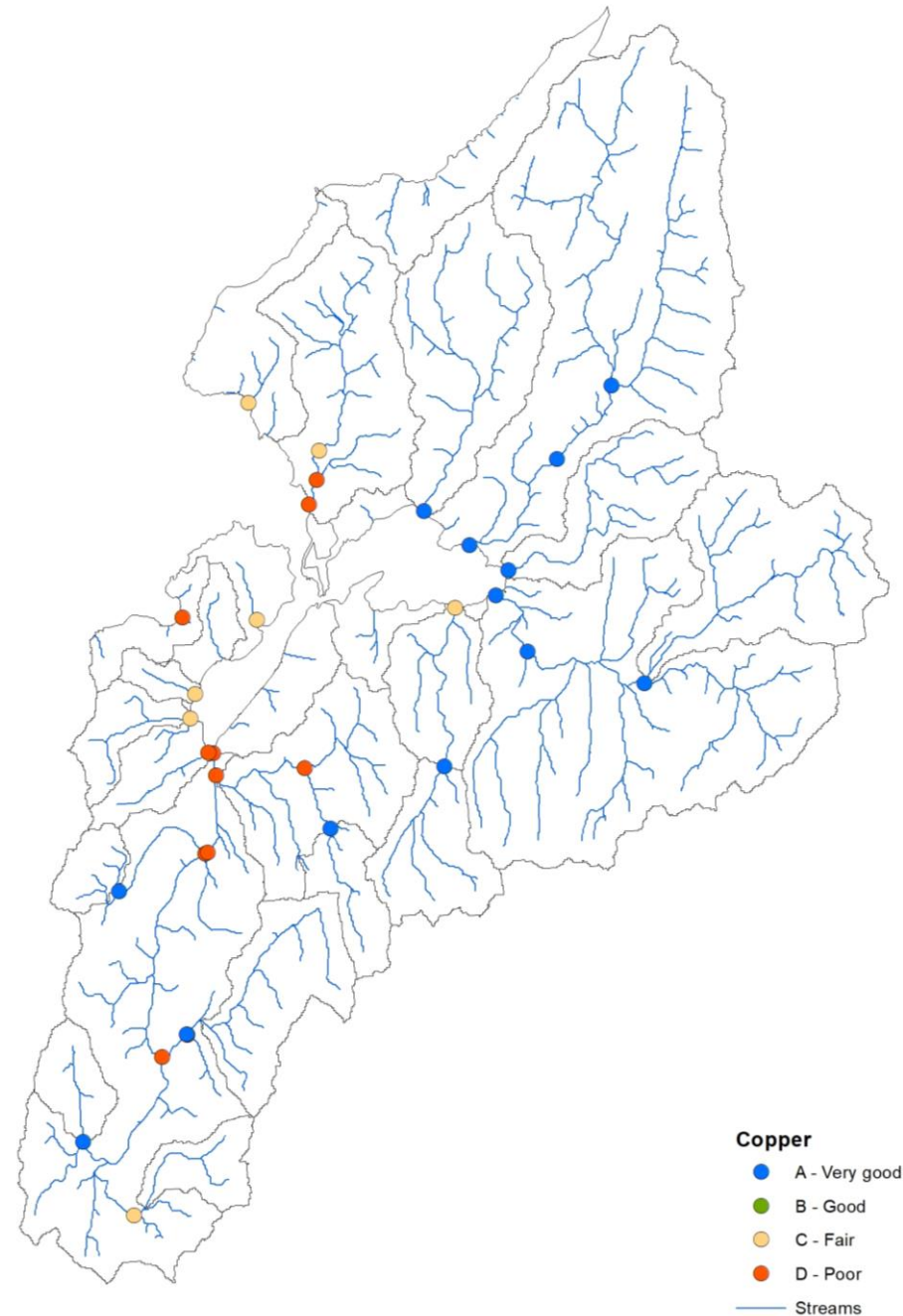
Modelled current state of fresh water in Te Awarua-o-Porirua Whaitua

- Questions

- Exercise to use these and other knowledge sources