Western Port Environment Research Forum:
Australian grayling life history and links to flows

Wayne Koster

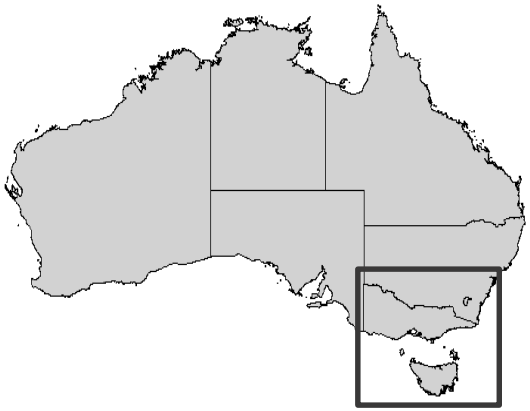
Melbourne Water
Enhancing Life and Liveability

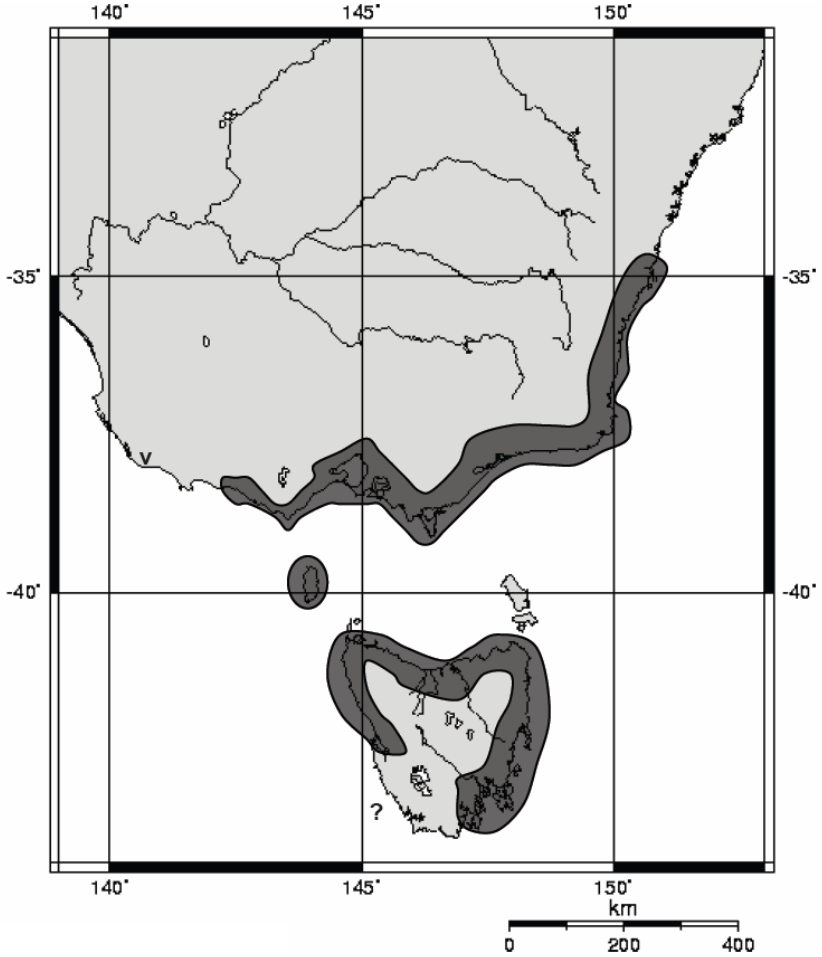
Arthur Rylah Institute
for environmental research

VICTORIA
State Government
Environment, Land, Water and Planning

BACKGROUND

- Nationally threatened diadromous fish





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- Altered flow regimes, barriers to movement, habitat degradation likely factors in decline
- Various strategies to restore or improve populations
- Gaps in knowledge of life history

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- Do Australian migrate to specific areas to spawn?

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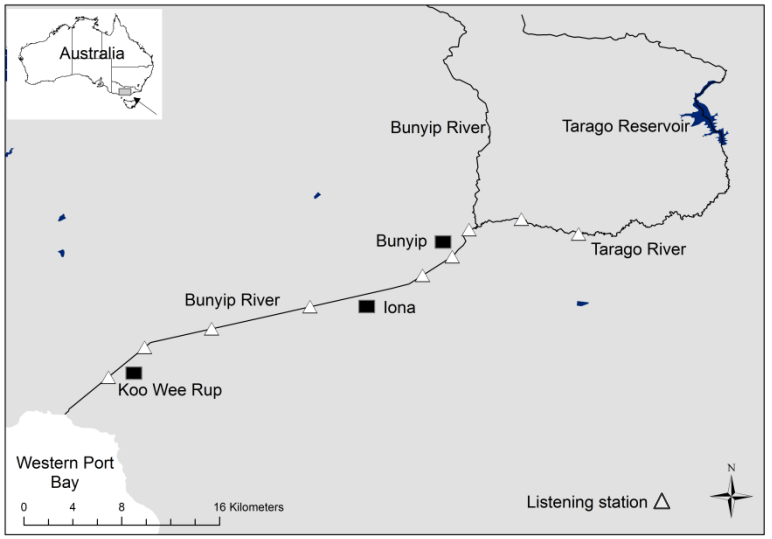
- Acoustic telemetry techniques



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- Long-distance downstream migration to lower river

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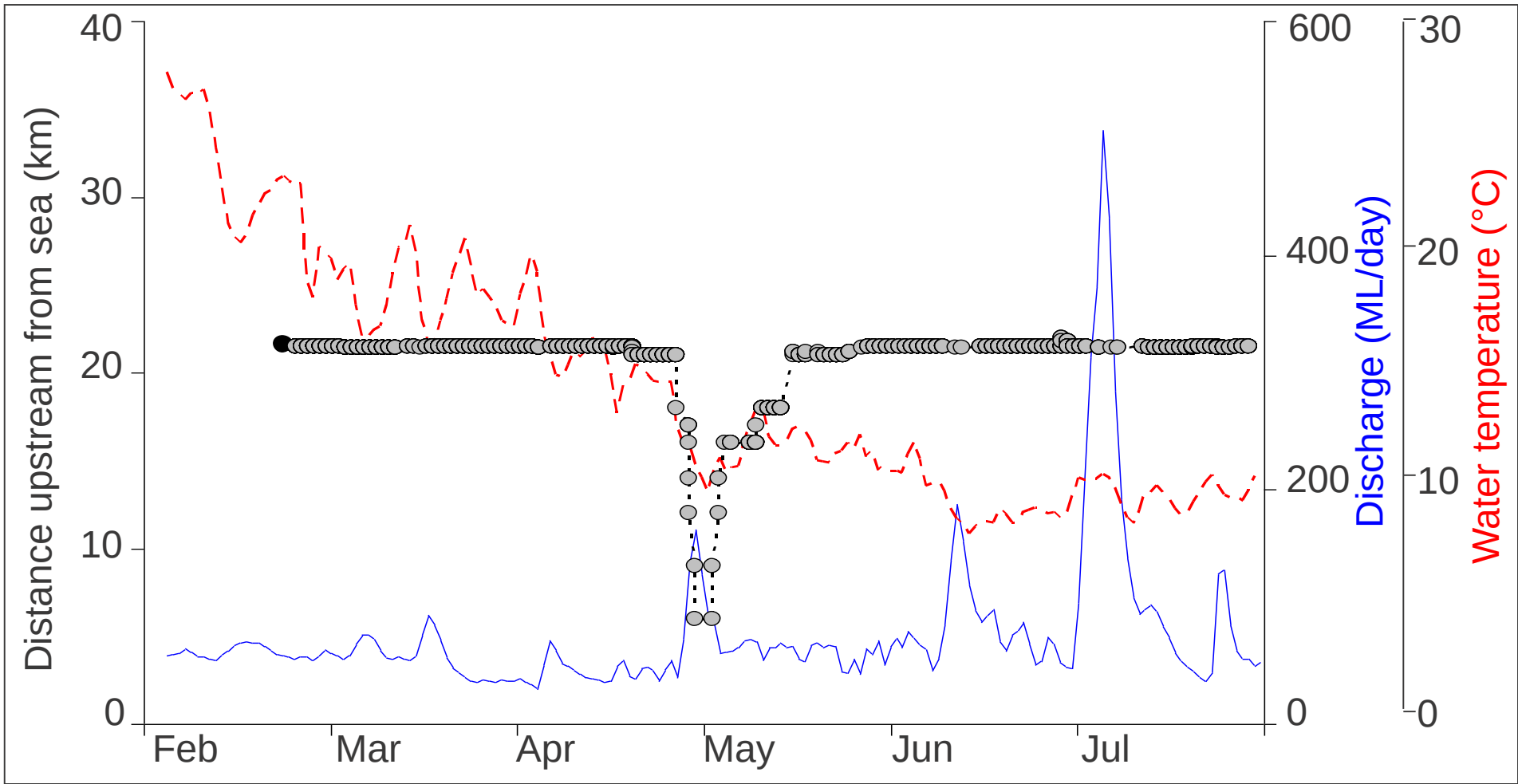

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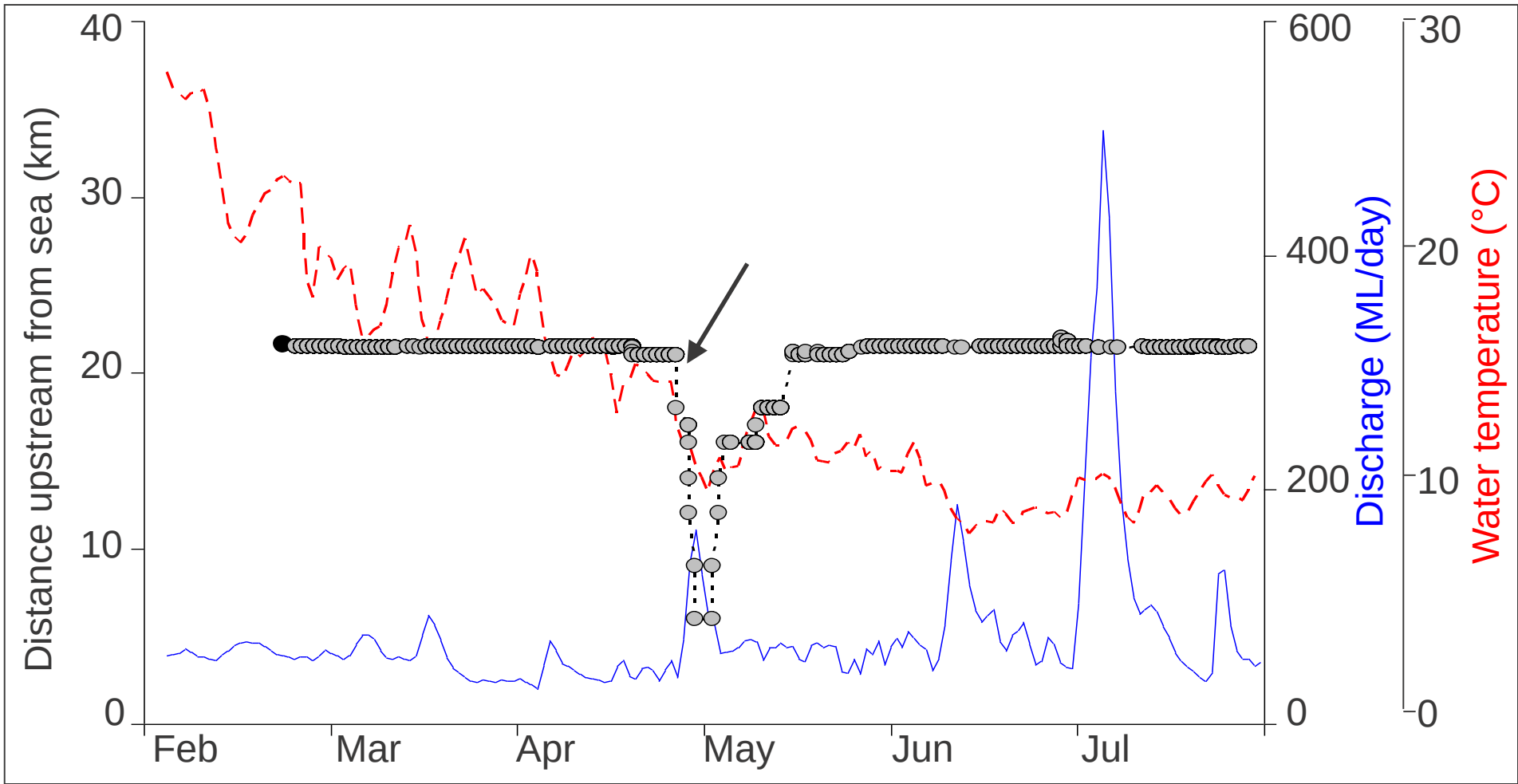

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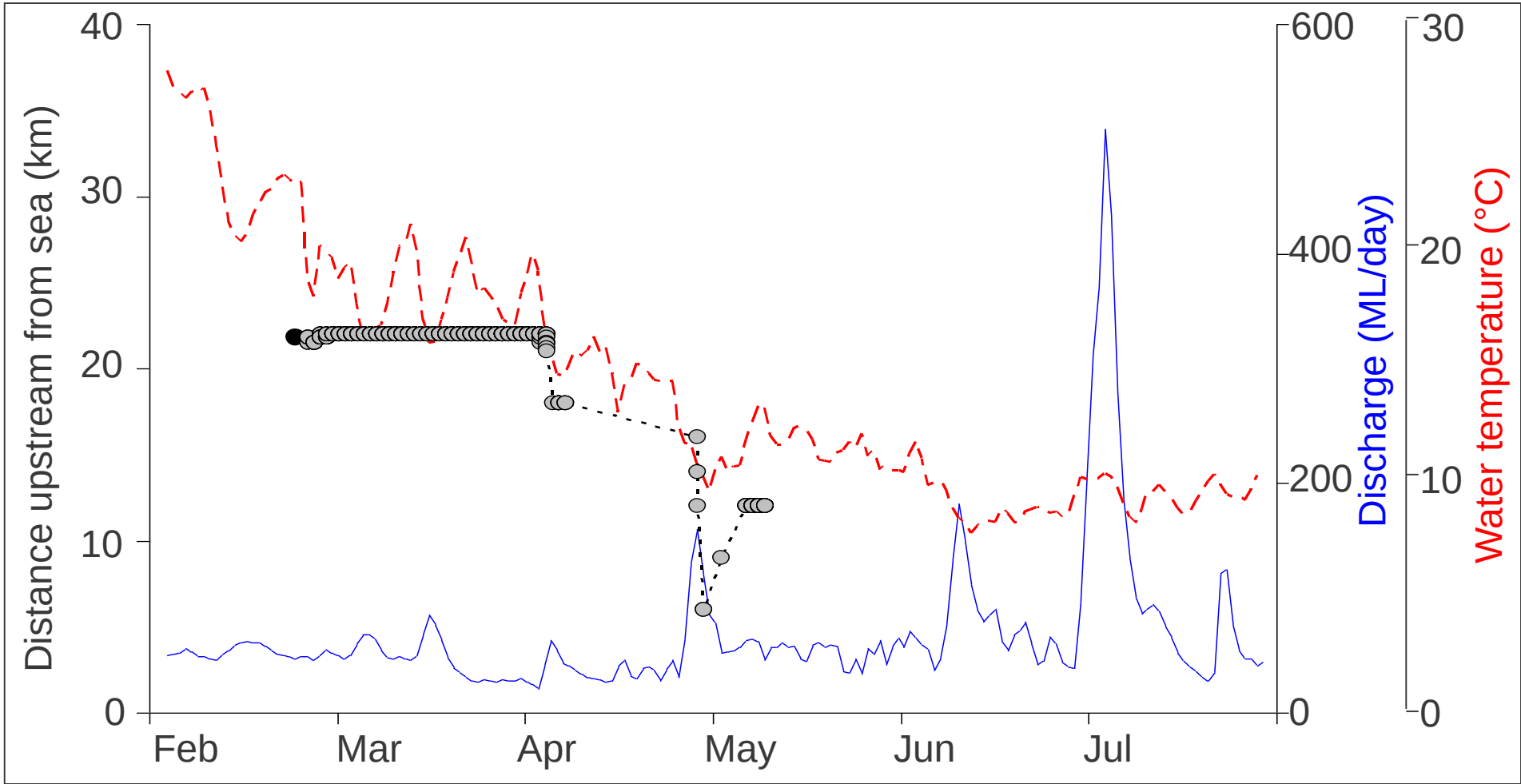

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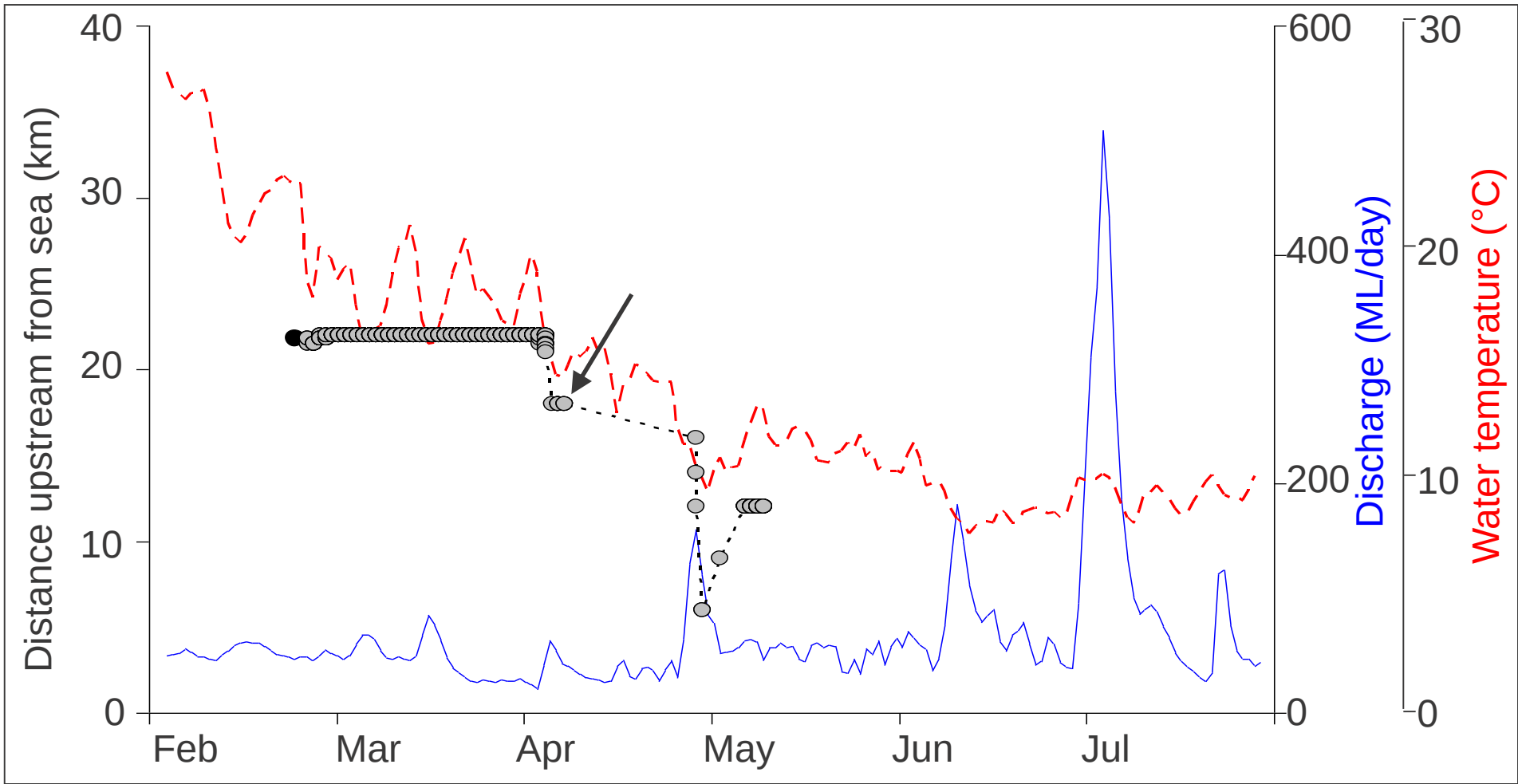

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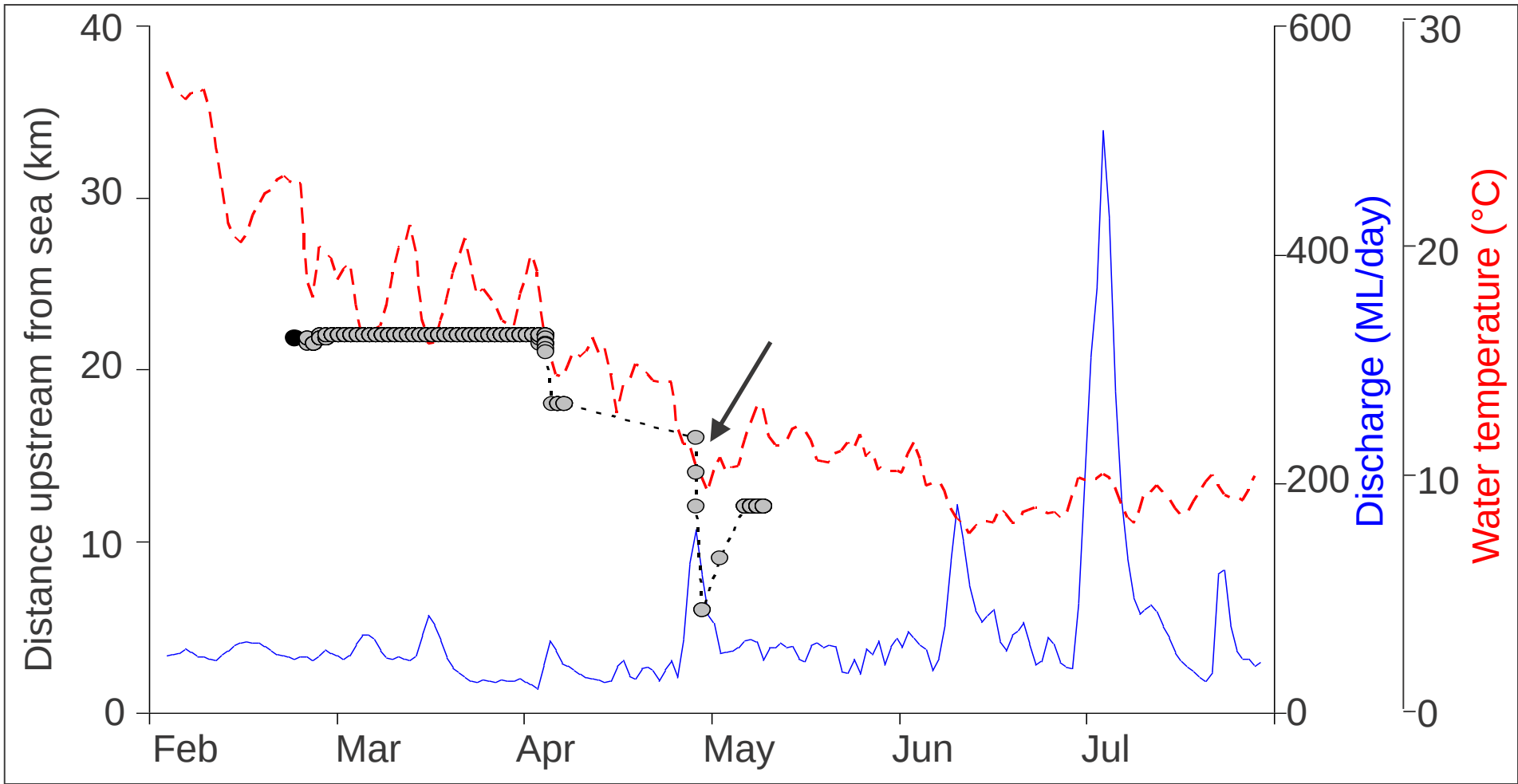

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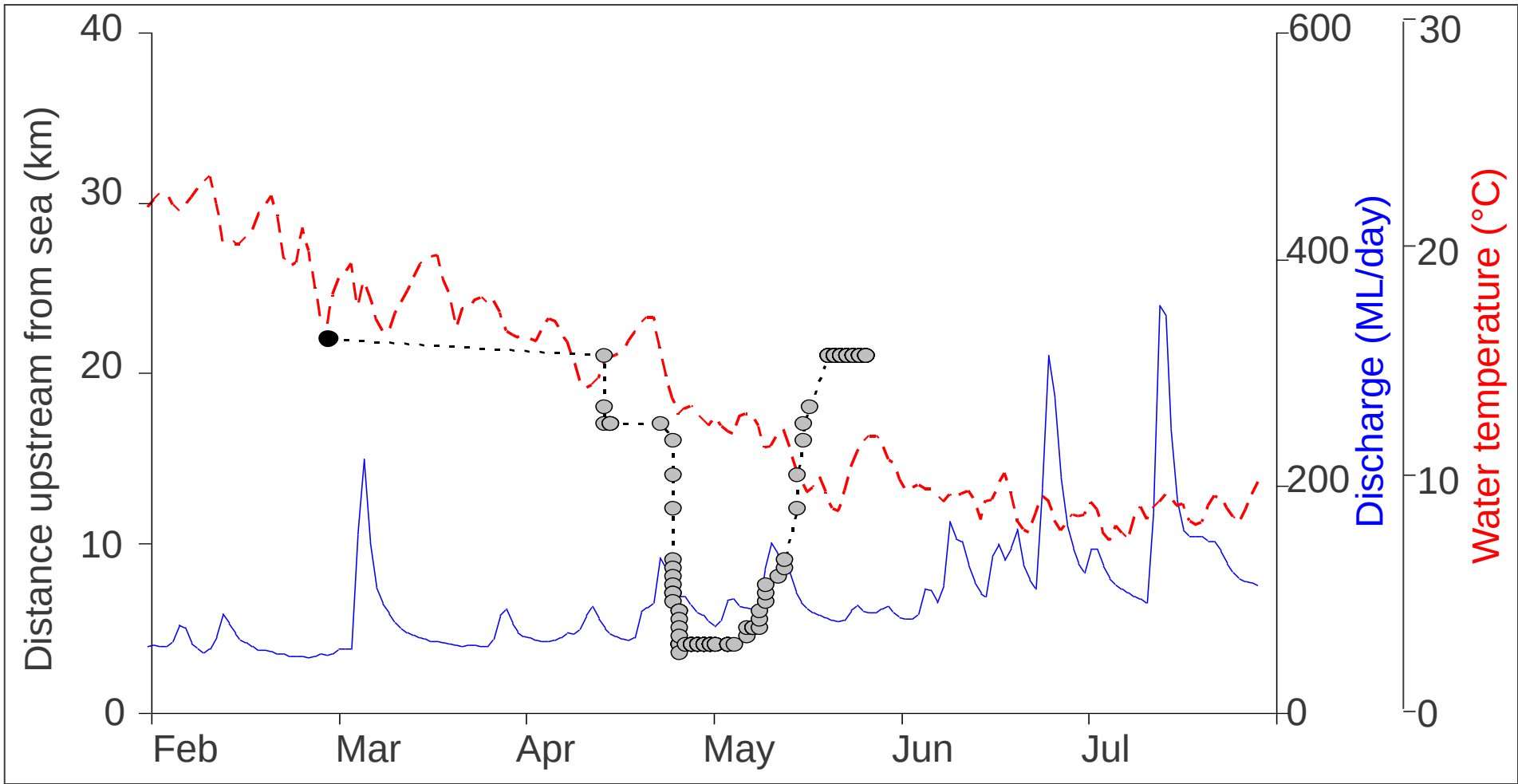

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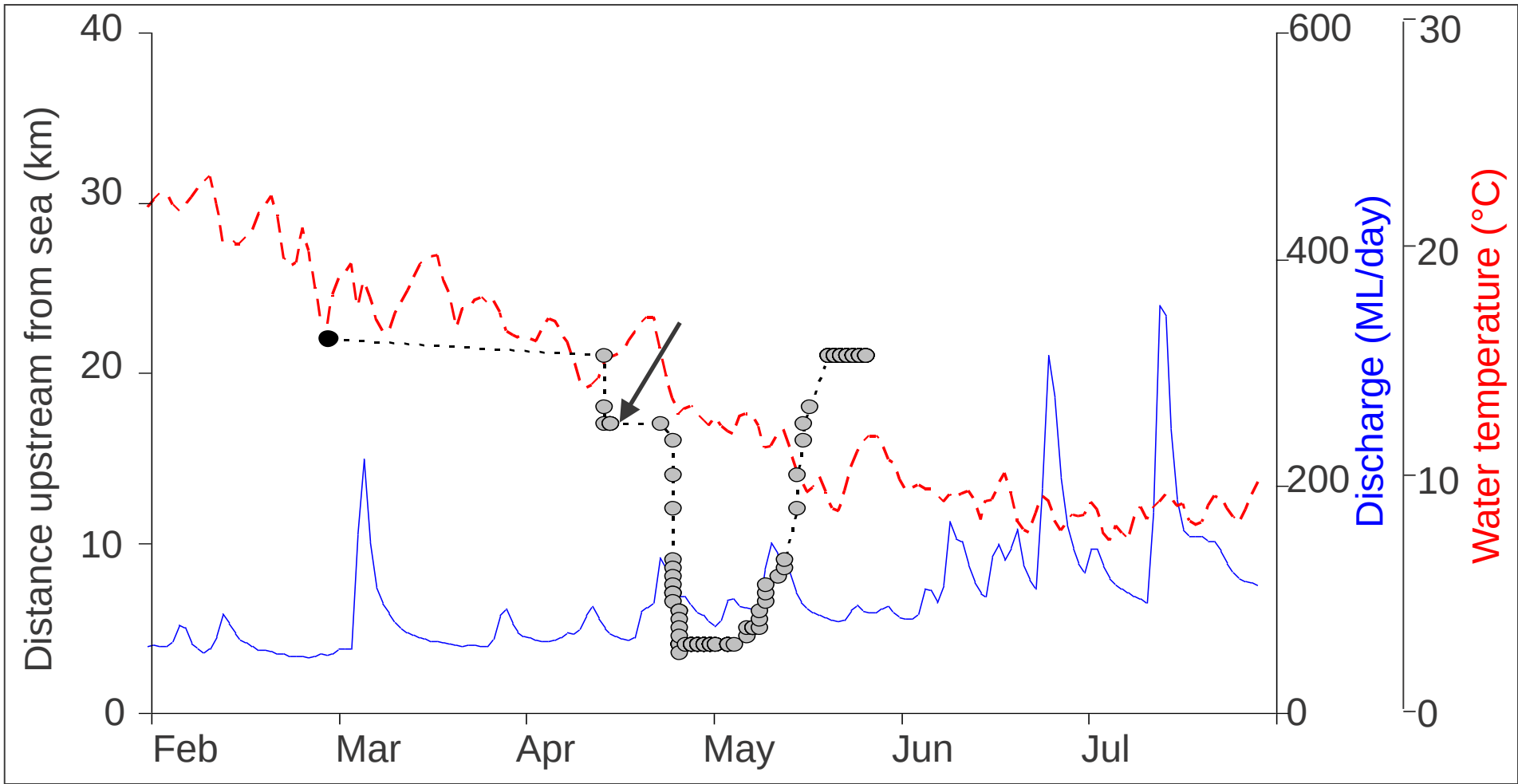

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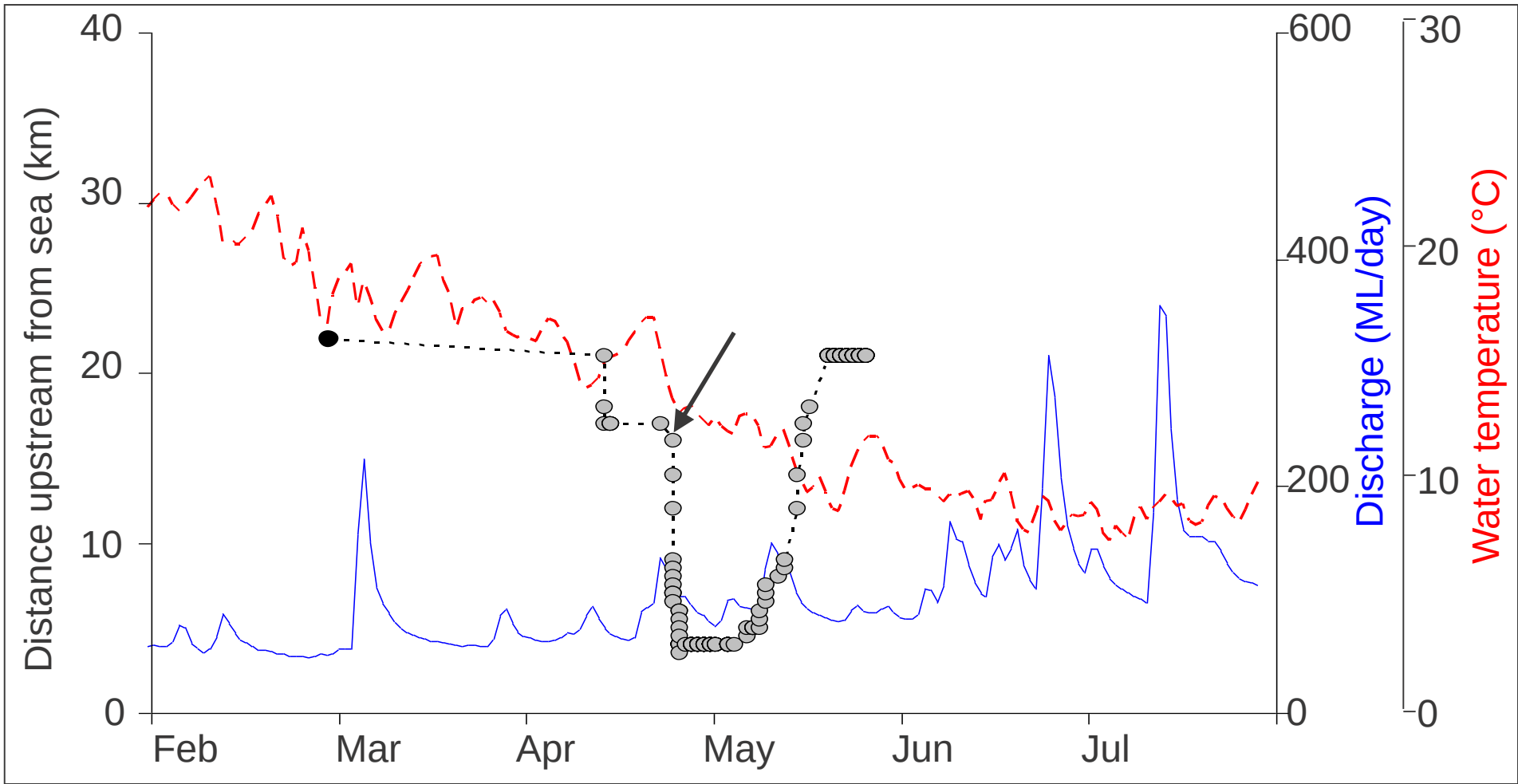
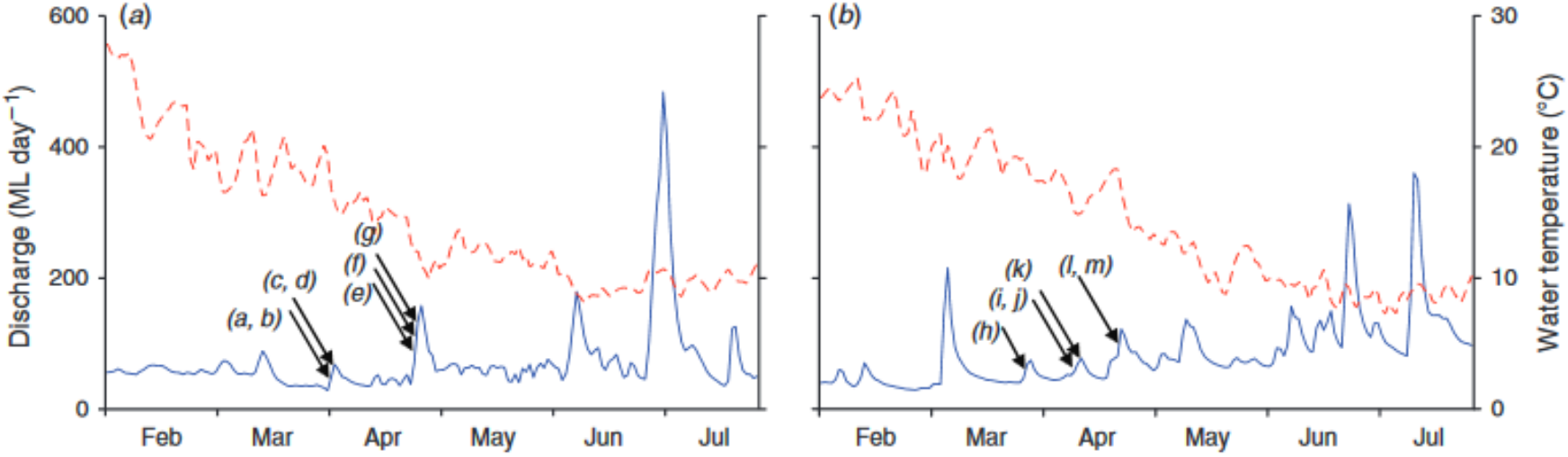


CASE STUDY 1. MIGRATION

- Downstream migration is cued by increased river discharge

- Migration ceases if flows recede too much



Koster et al. 2013 Mar. Freshw. Res. 61, 31-41

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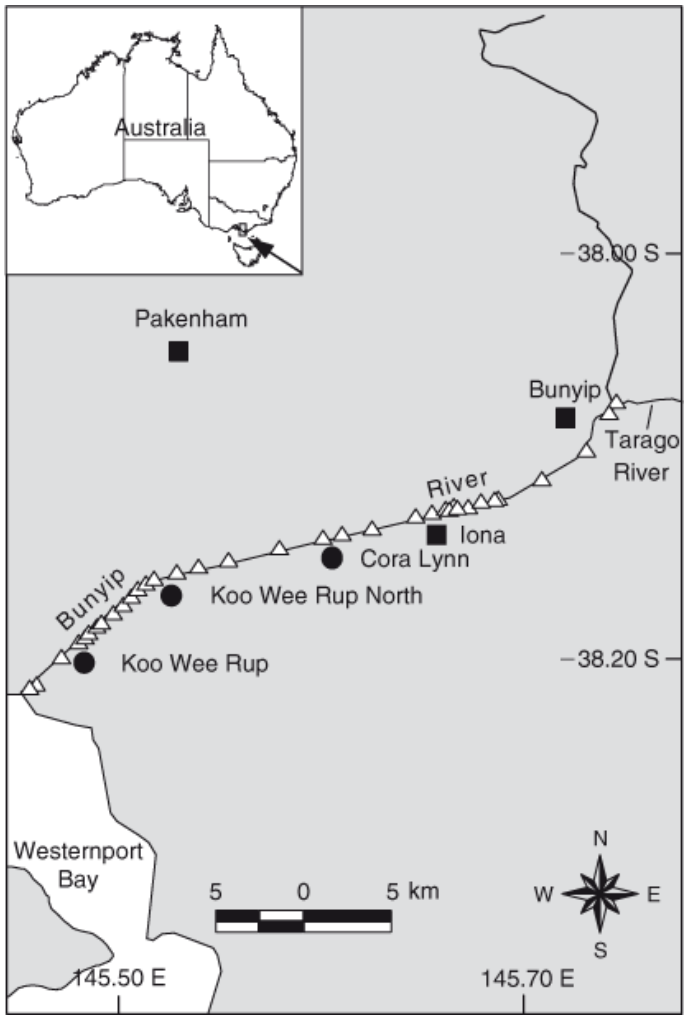

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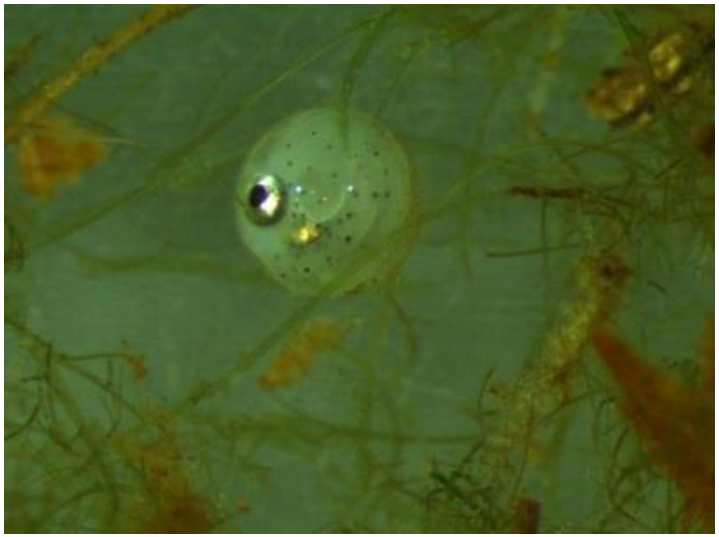
- Where do Australian Grayling spawn?
- Drift net sampling
- Fish spawned April-May in lower river



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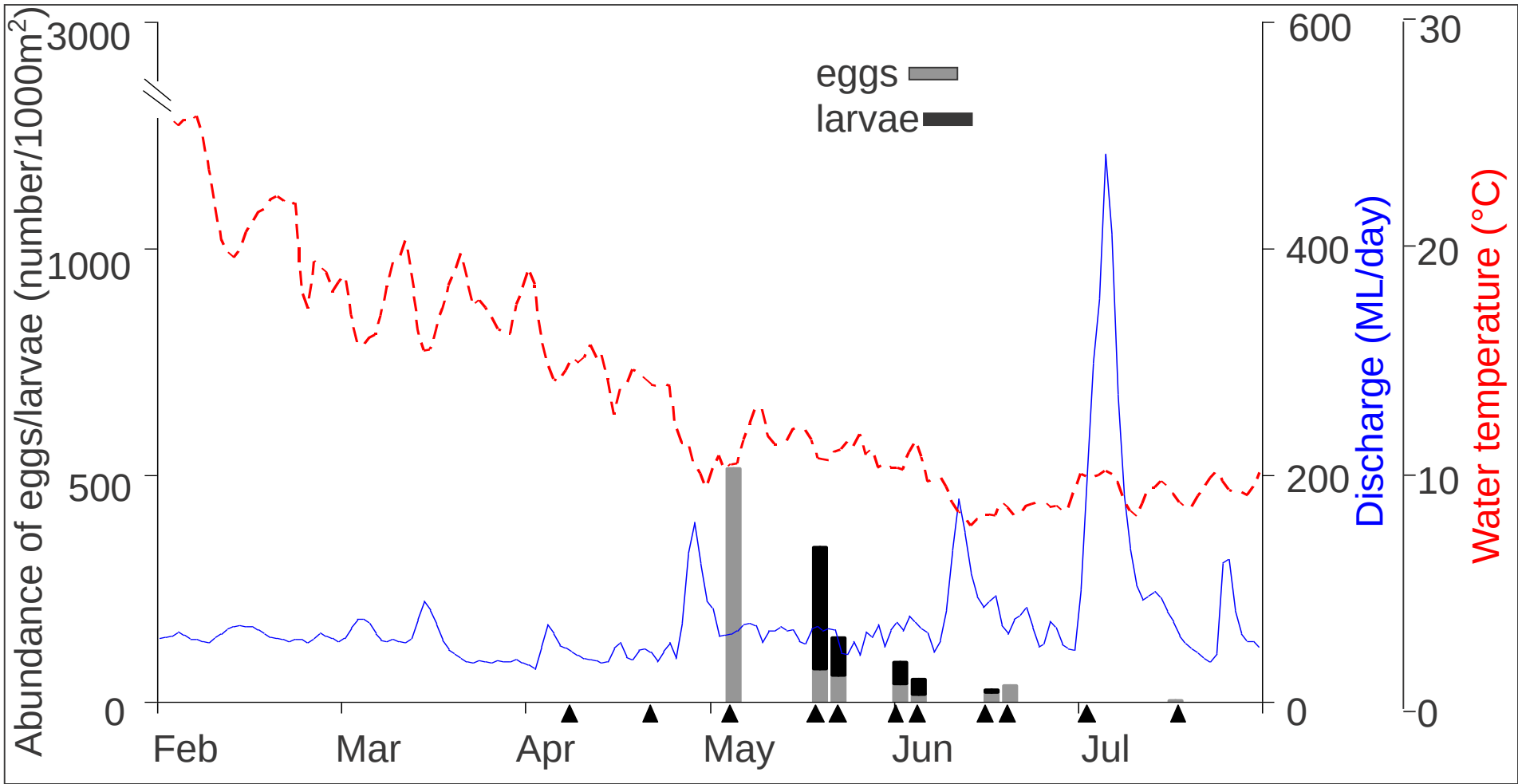

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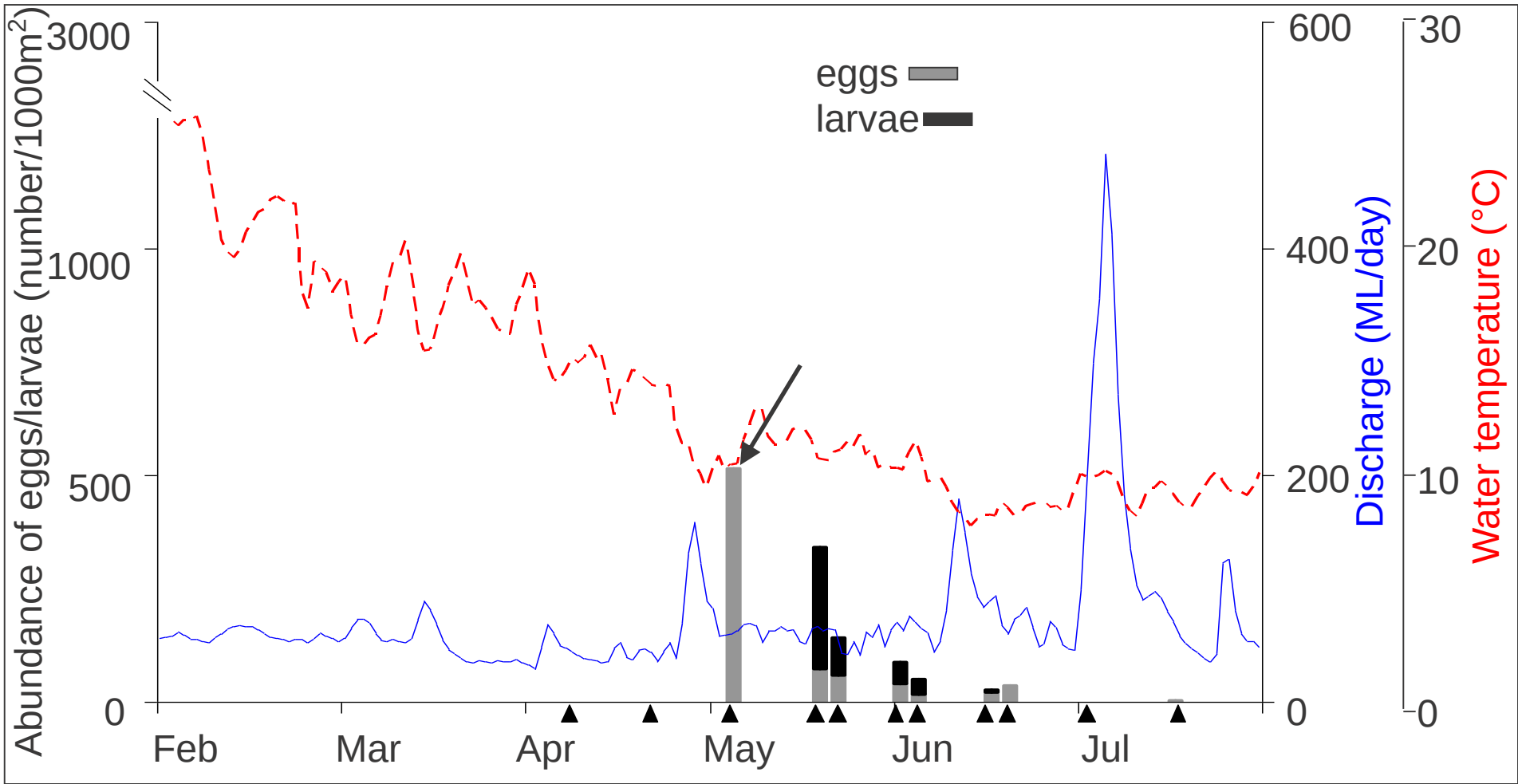
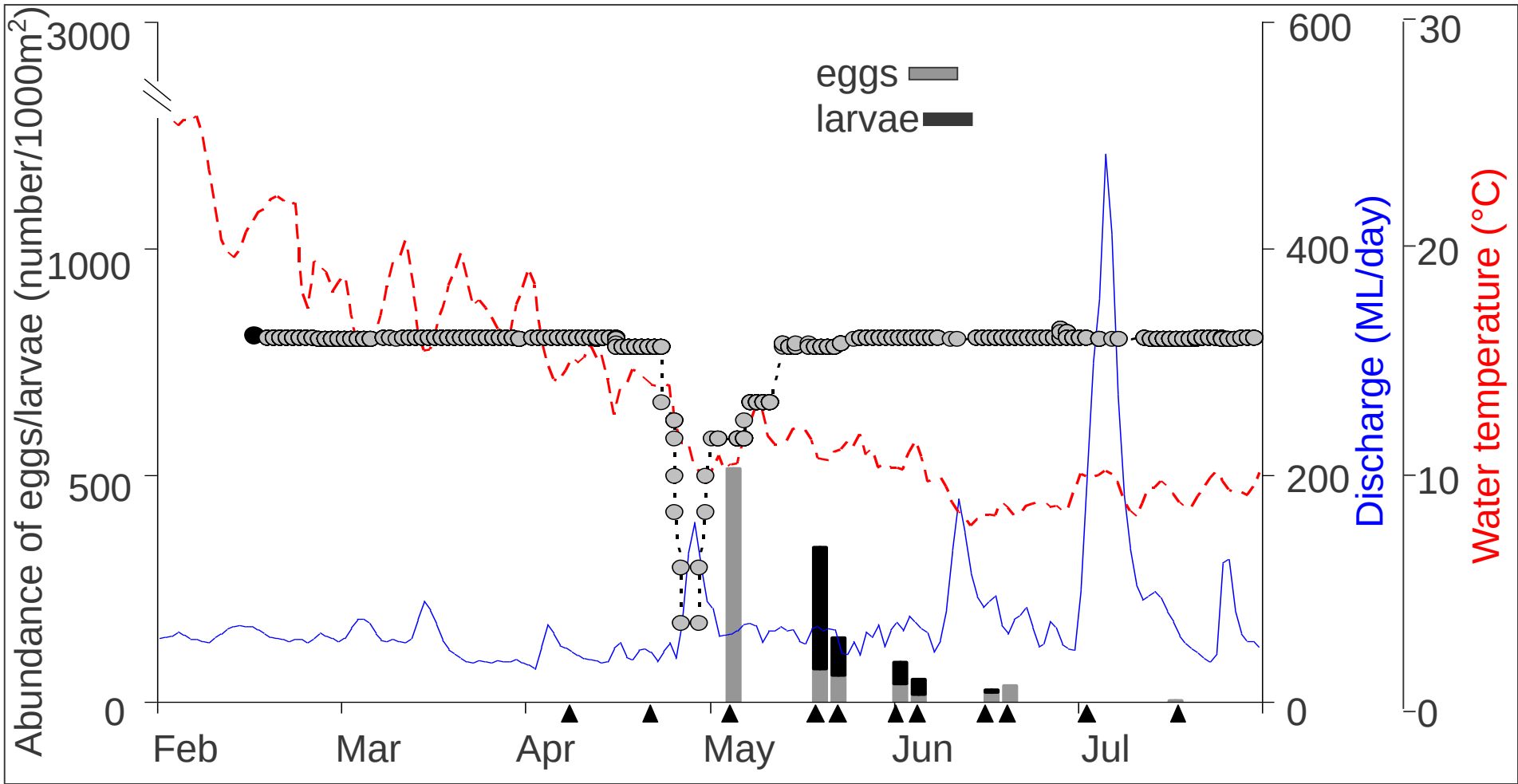


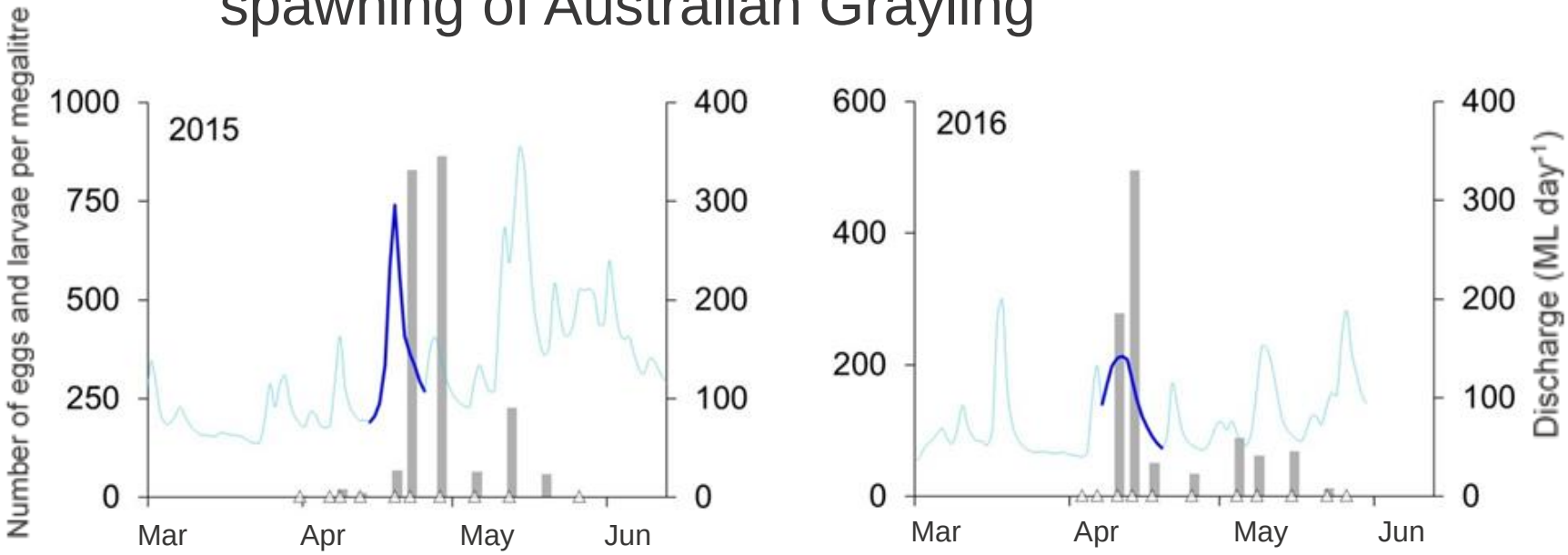
CASE STUDY 2. SPAWNING

- Spawning migration to lower river



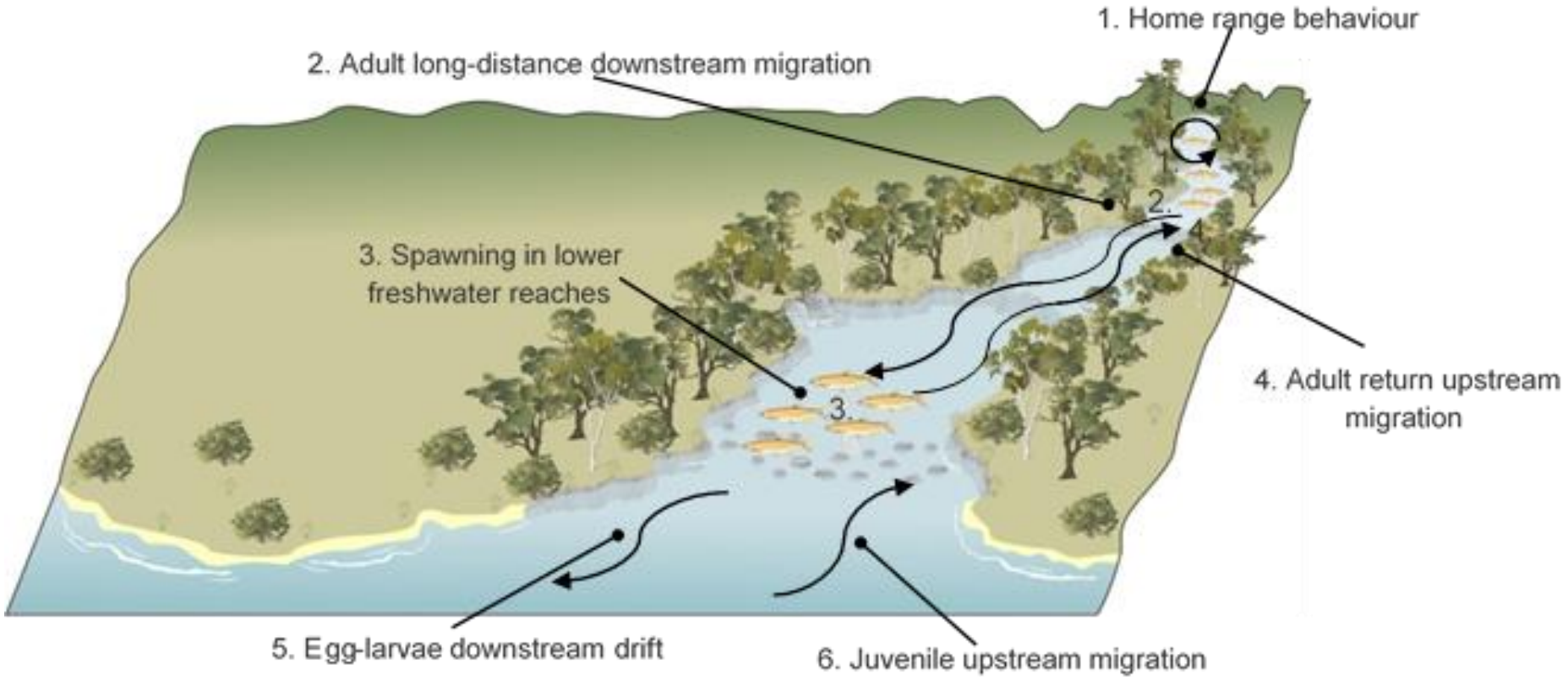
RESONSES TO ENVIRONMENTAL FLOWS

- Provision of environmental flows can promote spawning of Australian Grayling



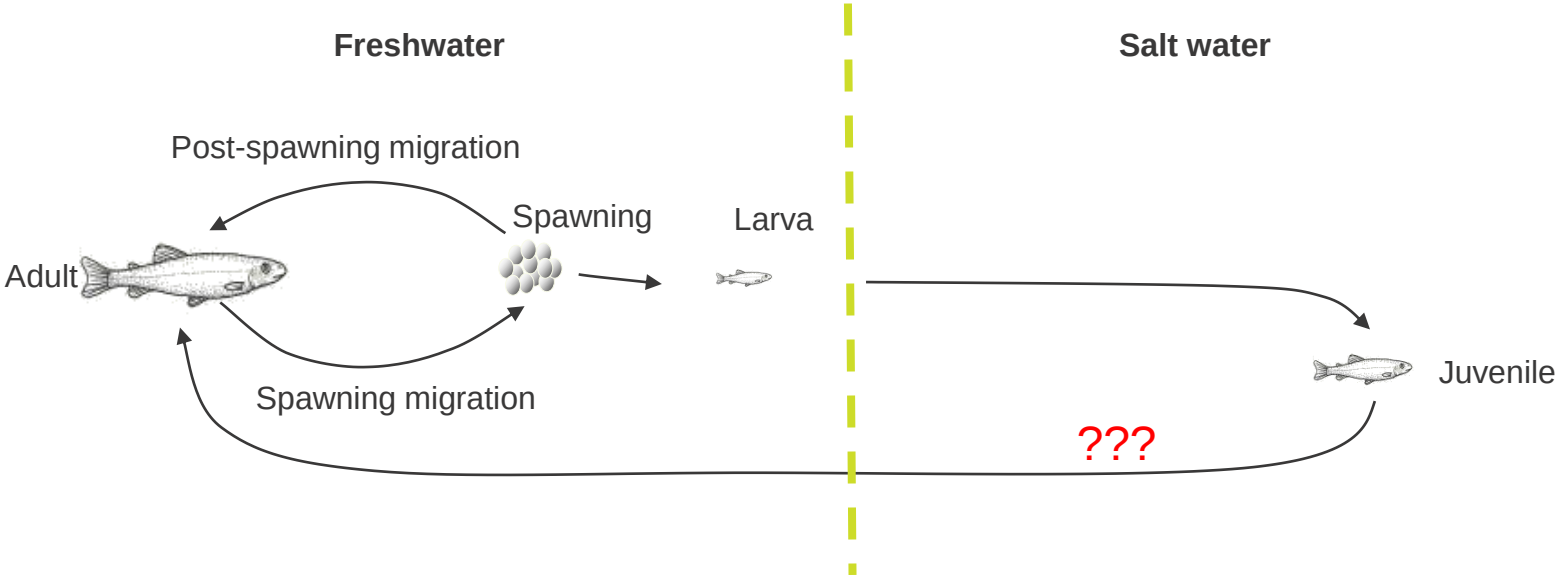
CONSERVATION MANAGEMENT

- New information has greatly influenced environmental flow and habitat management



CURRENT PROJECTS

- Immigration of juveniles and links to flow



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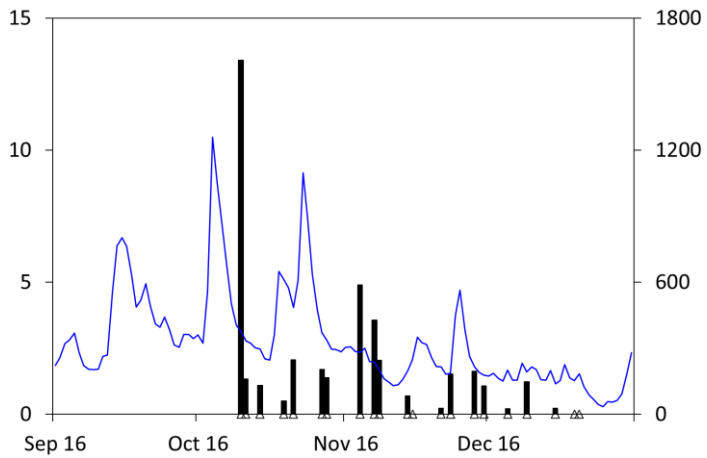
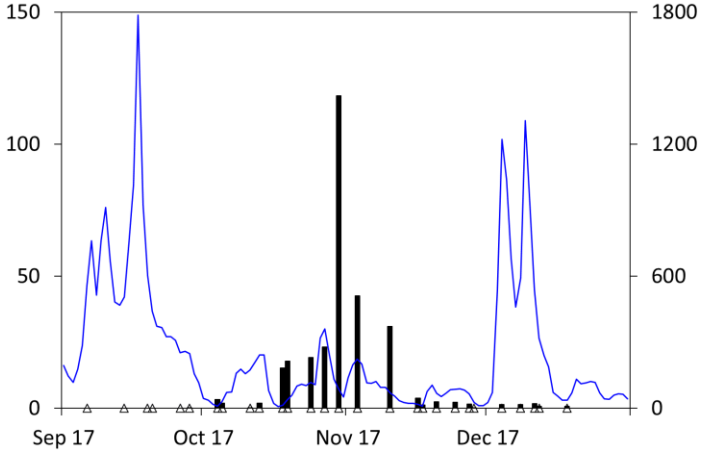
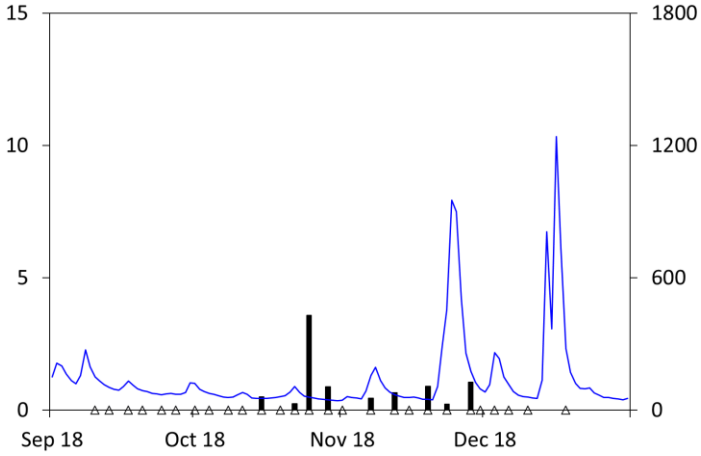






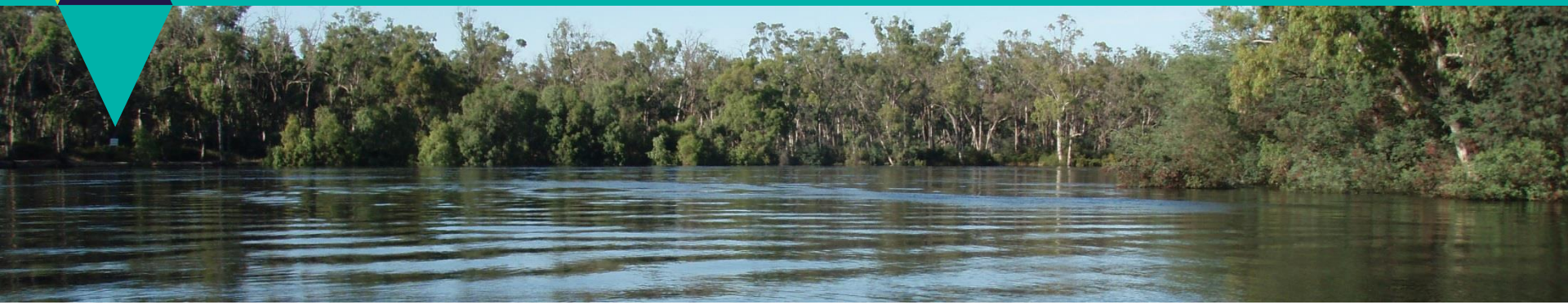
Catch per unit effort (fish per hour)

Discharge (ML day)

OTHER KNOWLEDGE GAPS

- Population status
- Spawning habitat requirements
- Genetic structure
- Important source populations

ACKNOWLEDGEMENTS



- Melbourne Water: Rhys Coleman and Sarah Gaskill
- Numerous ARI staff
- DELWP

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