Monitoring fish responses to environmental flows across Victoria: a shift towards understanding processes, population dynamics and long-term projections

Zeb Tonkin[1], Frank Amtstaetter[1], Wayne Koster[1], Matt Jones[1], Justin O'Connor[1], Ivor Stuart[1], Kasey Stamation[1], Jacqui Brooks[2], Laura Caffrey[2], Pam Clunie[1], Chris Jones[1], Jarod Lyon[1]

Arthur Rylah Institute, Applied Aquatic Ecology, Department of Environment, Land, Water and Planning, 123 Brown St Heidelberg, Vic 3084.

The Victorian Environmental Flows Monitoring and Assessment Program (VEFMAP) was established by the Victorian Government in 2005 to monitor and assess ecosystem responses to environmental watering in priority rivers across Victoria. Over the past 12 years, the information collected through VEFMAP has provided valuable data and informed significant changes to the program. VEFMAP is now in its sixth stage of delivery and includes a strong focus on monitoring key processes that govern fish populations and vegetation communities. This approach has improved the way Victorian waterway managers and policy agencies communicate ecological outcomes of environmental water management to the community and water industry stakeholders; identify ecosystem outcomes from environmental water; and fill knowledge gaps to improve planning, delivery and evaluation of environmental water management in rivers.

The core objective for fish monitoring in VEFMAP Stage 6 is to examine the role of environmental flows in promoting native fish population growth via the processes dispersal, colonisation, recruitment and survival. Importantly, enhancing these processes to achieve population outcomes are key objectives of environmental water across many Victorian Rivers. This talk gives an overview of the VEFMAP stage 6 fish monitoring program and presents some preliminary results from flow event-based monitoring of key processes and links with long term trends in population demography. We also discuss how this data will be used to generate longer term projections of key fish populations under a range of management and climatic scenarios.