



University of  
Massachusetts  
Amherst

## **Control of globally invasive common carp: a 10 year commercial trial of the Williams' carp separation cage in a Murray River fishway**

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Local Land  
Services  
Murray



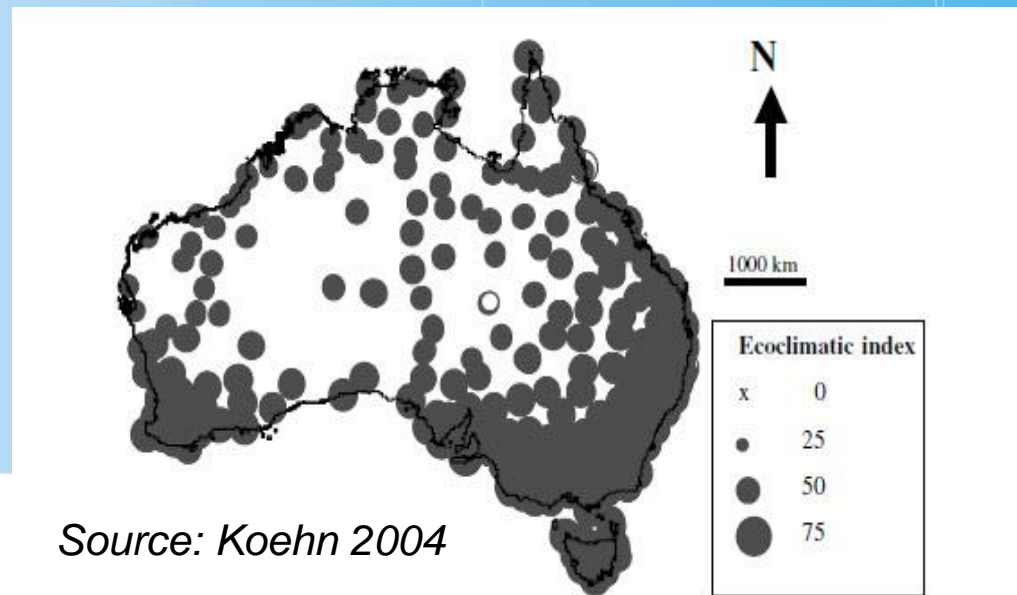
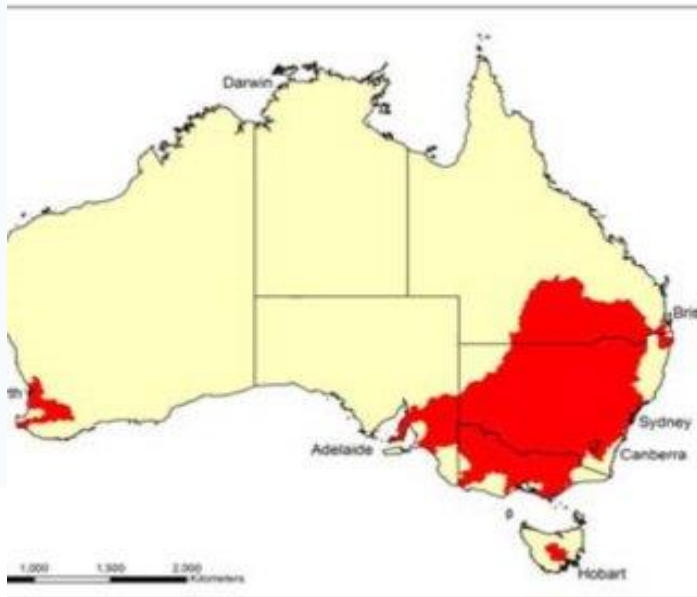
# Native Fishways Not... Feral Ways!!!

**11 years of Williams Cage success at Lock 1**

**Anthony (Rex) Conallin - Murray Local Land Services  
NSW Office of Environment and Heritage**

**Ivor G. Stuart – Arthur Rylah Institute**

# Common Carp (*Cyprinus carpio*)

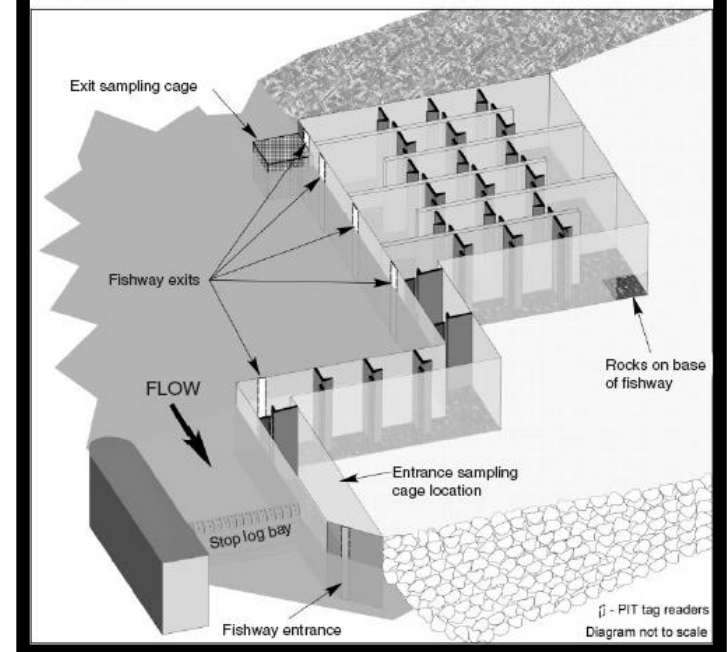
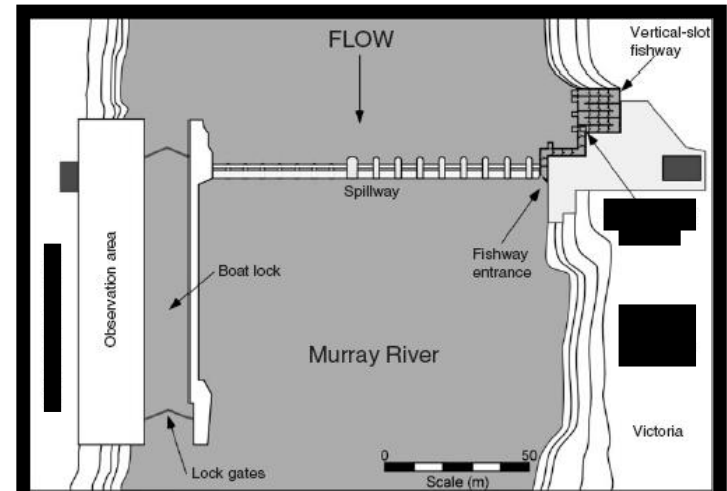
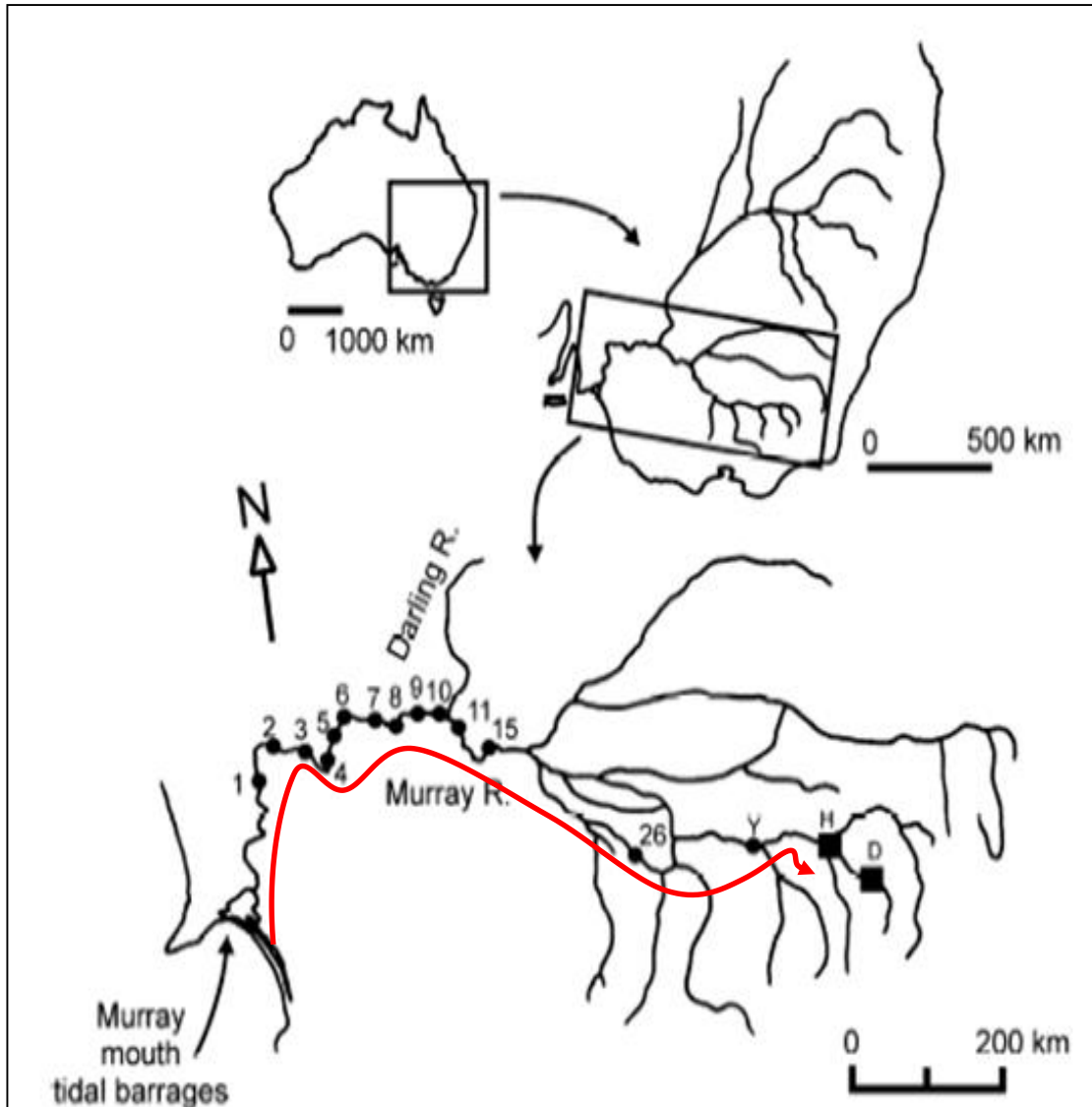


# Highly Migratory





# Sea to Hume Dam Fishway Program



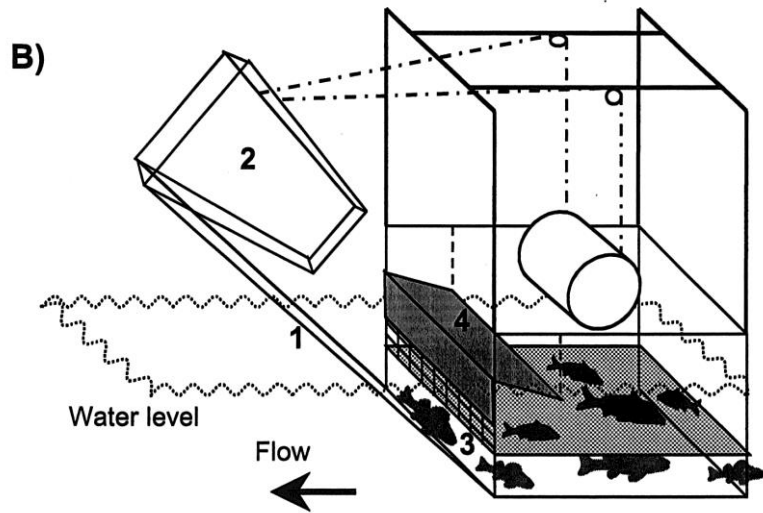
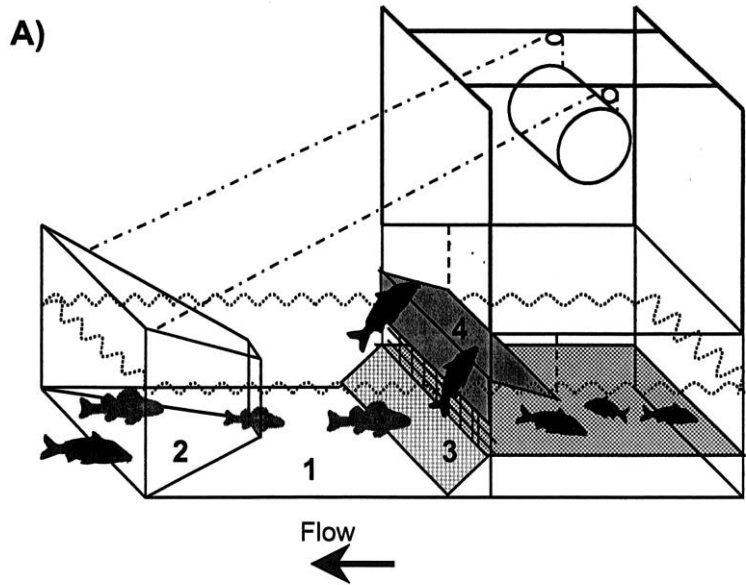
# Houston, we have a problem!

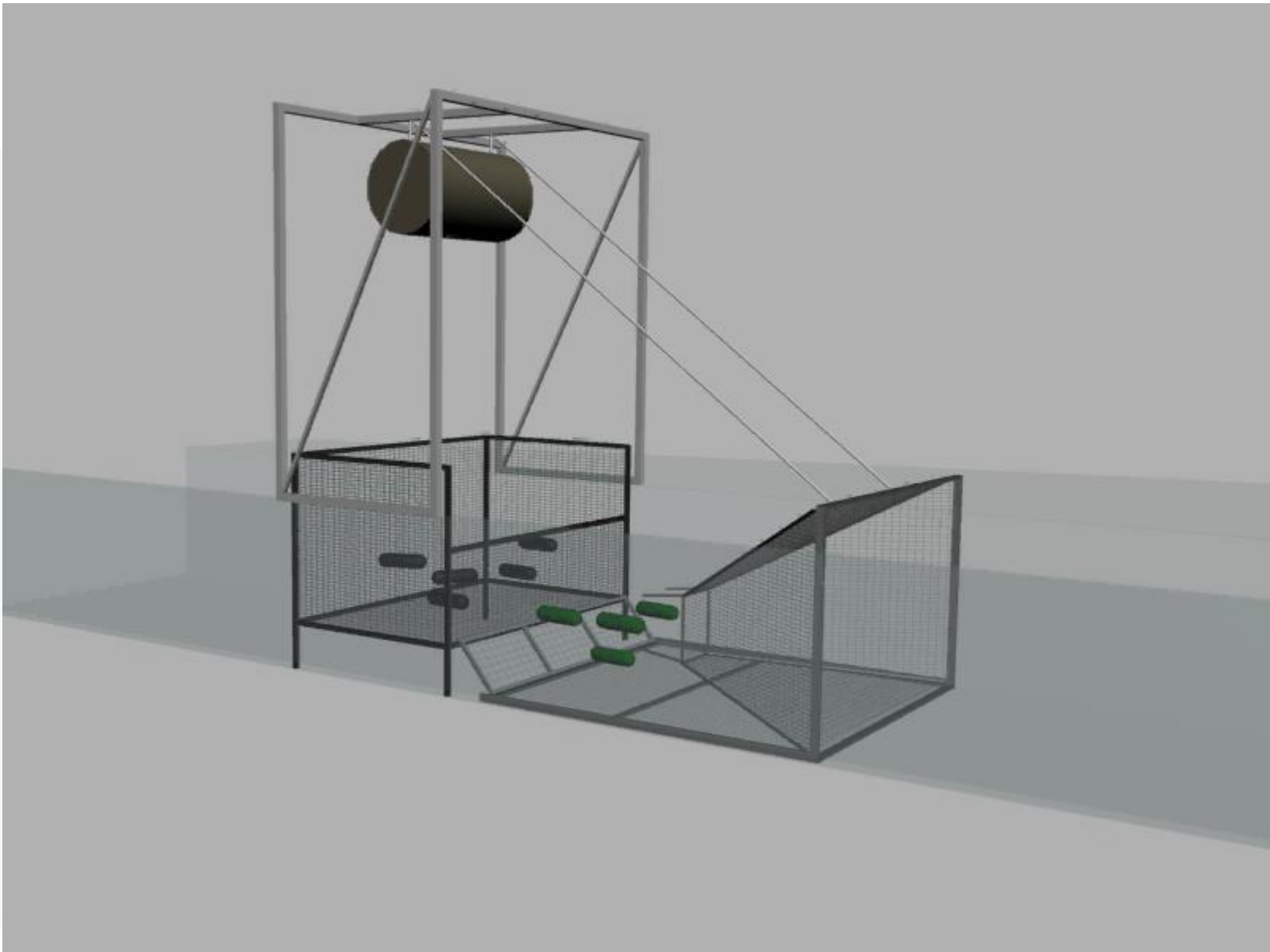


# The Williams Carp Separation Cage



# Williams' Cage Operation

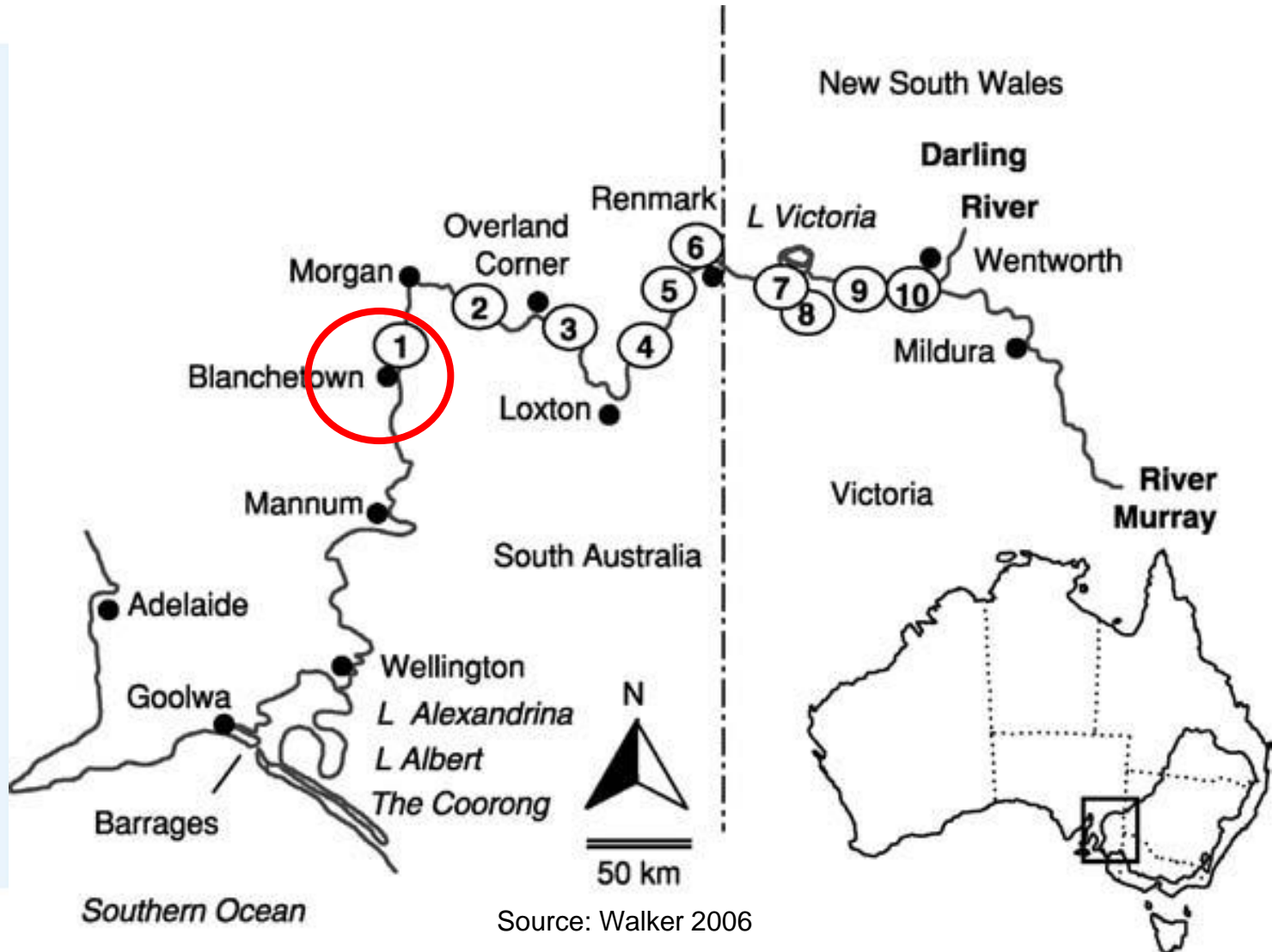




# Lock 1 Objectives

- To evaluate the effectiveness of the Williams' cage under conditions of high carp biomass.
- Examine the biophysical conditions related to fish migration and separation at Lock 1.
- Use findings to improve cage management to maximise carp harvest and minimise impact on native fishes.
- Hand over operation to Weir Keepers and Pro Fisherman
- Apply knowledge gained from Lock 1 to new fishways

# Study Site



Source: Walker 2006

# Weir and Lock 1 Blanchetown SA

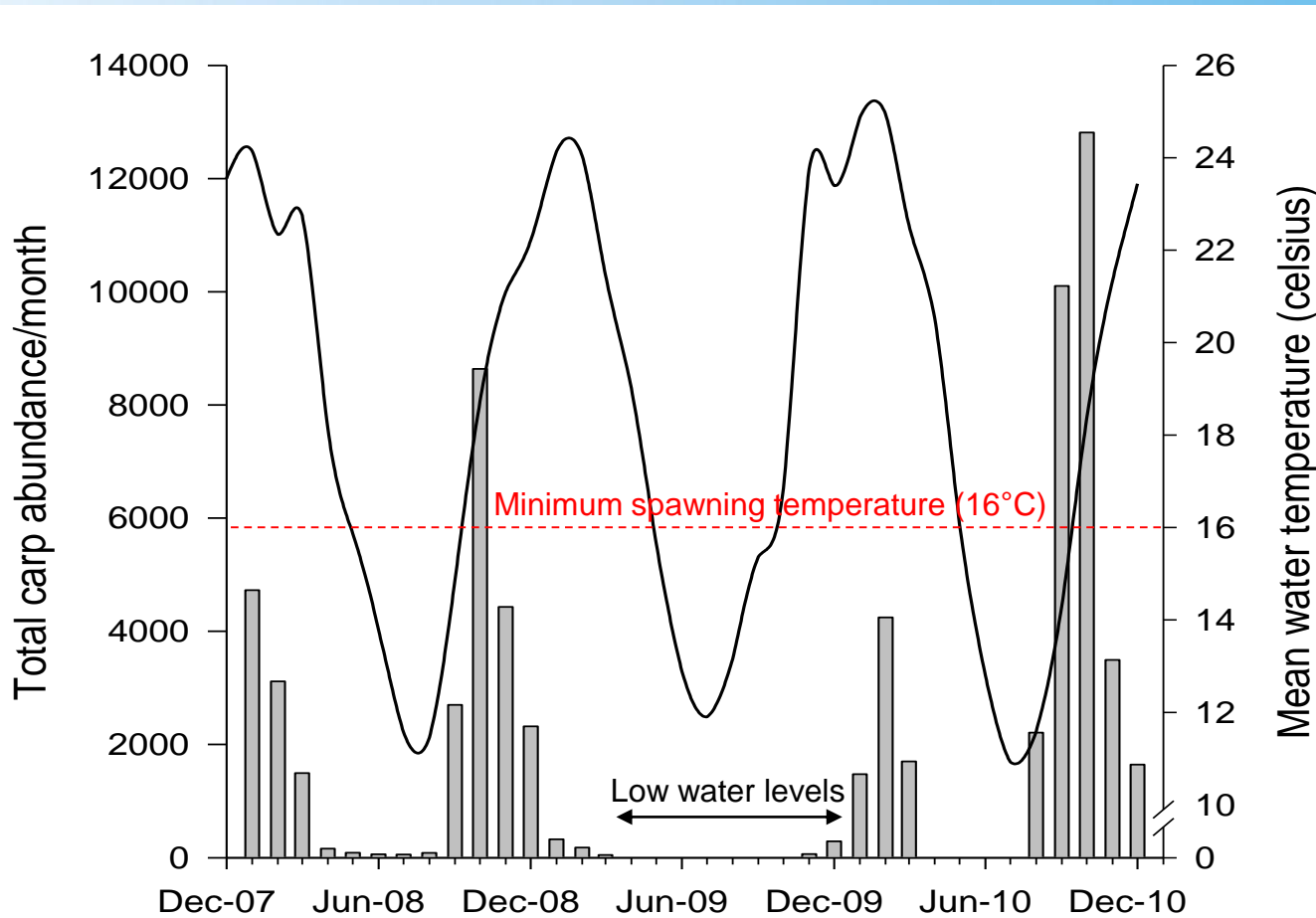




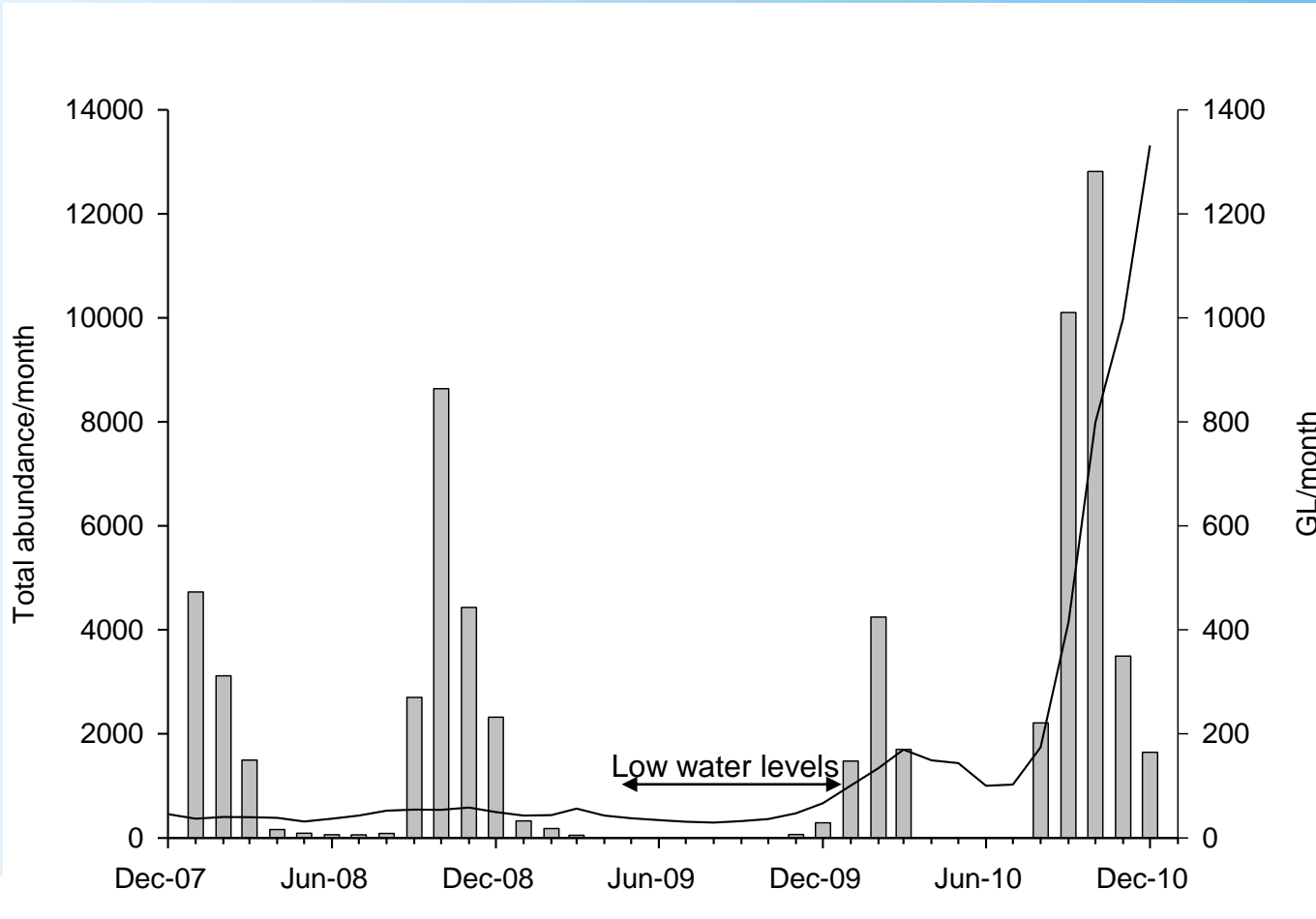
# Results

- 3 years of intensive study 2007-2010
- 8 years of operation by Lock Keepers and Professional Fisher 2010-2018

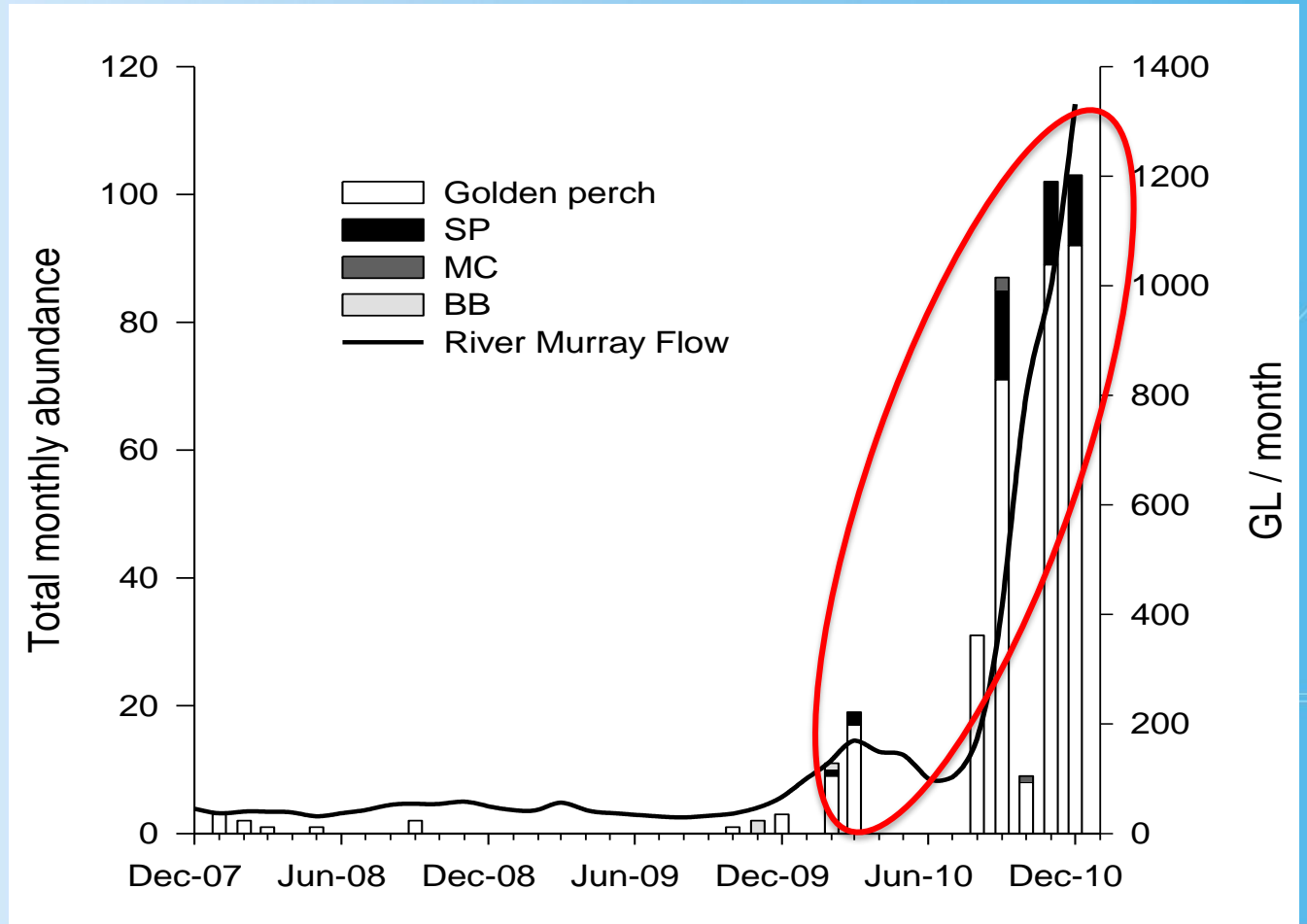
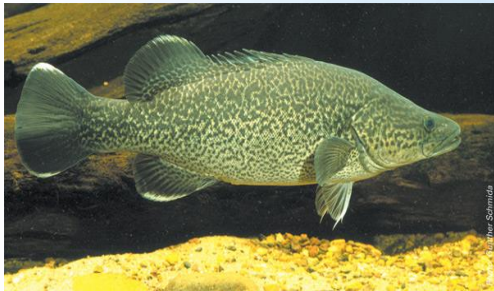
# Water Temperature



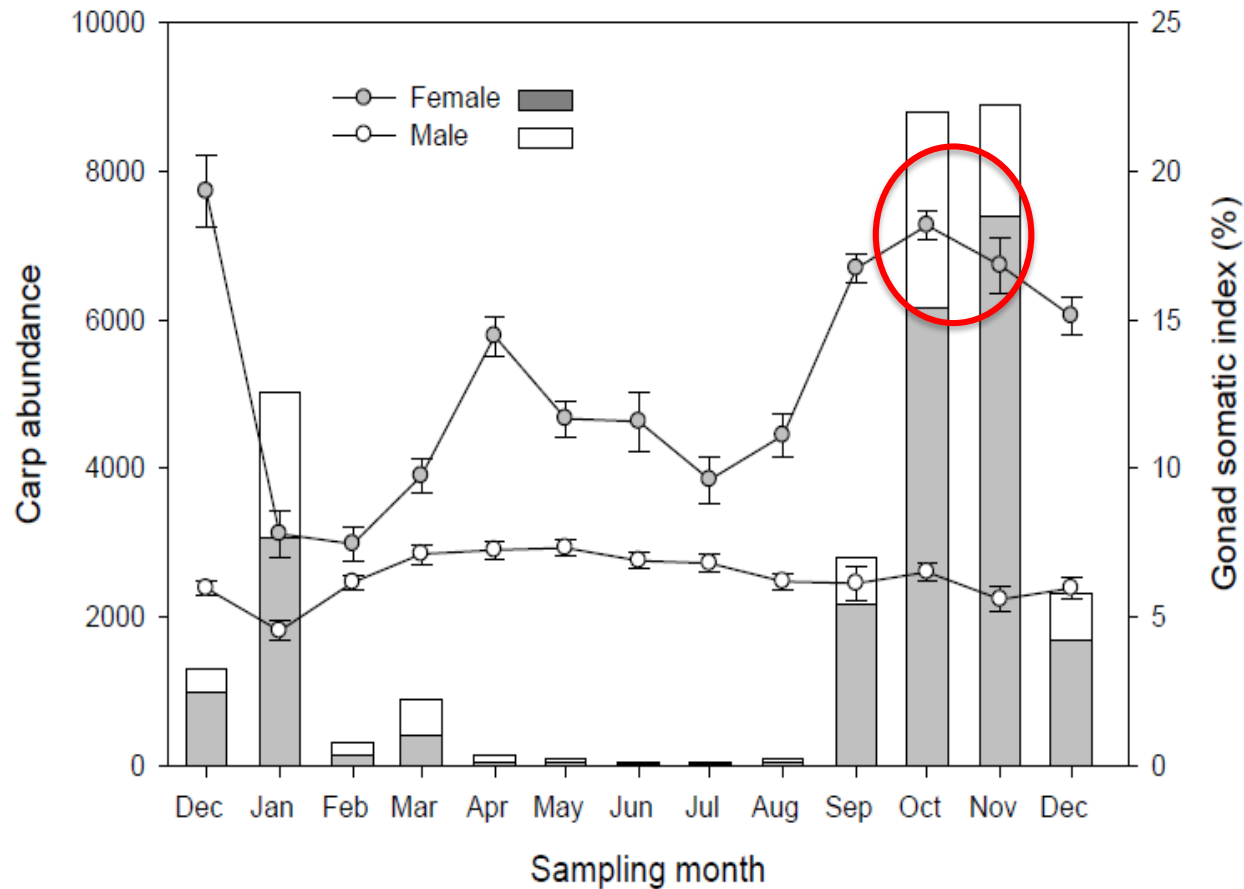
# Murray River Discharge



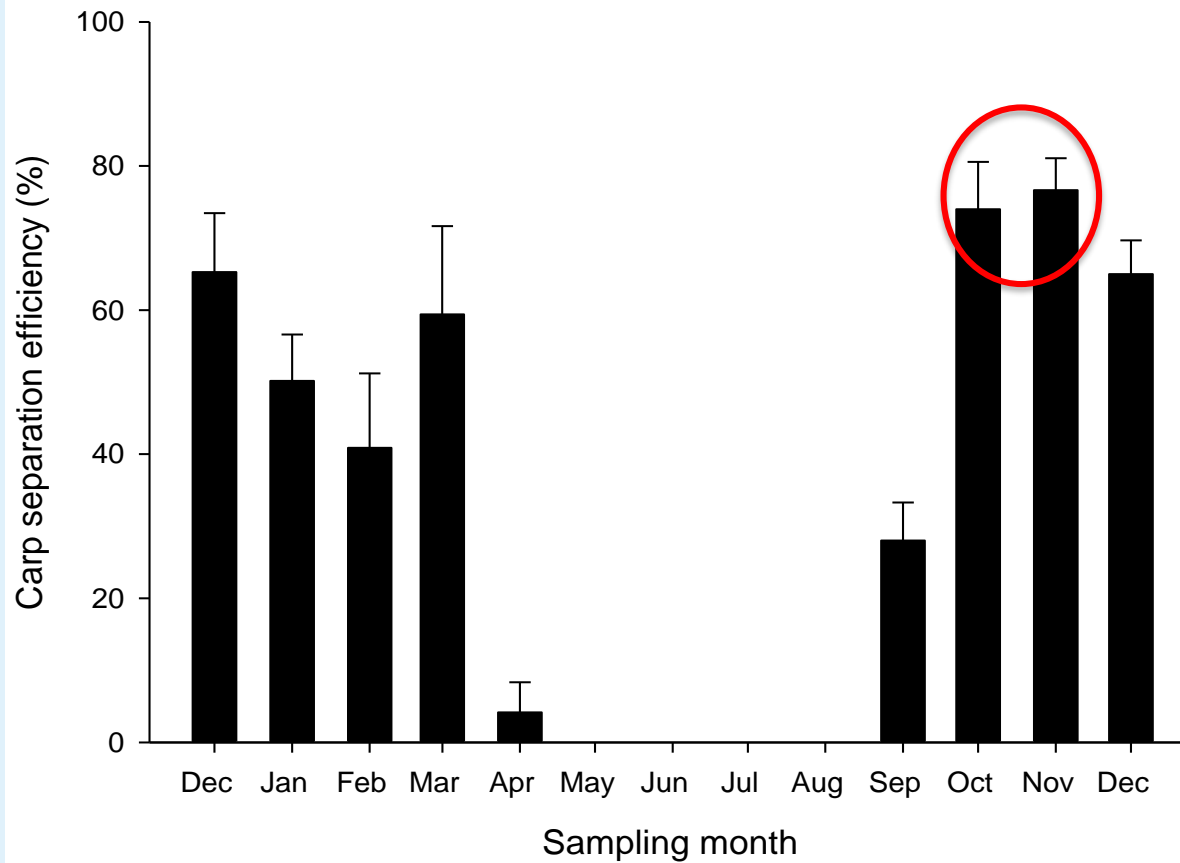
# What about native fishes?



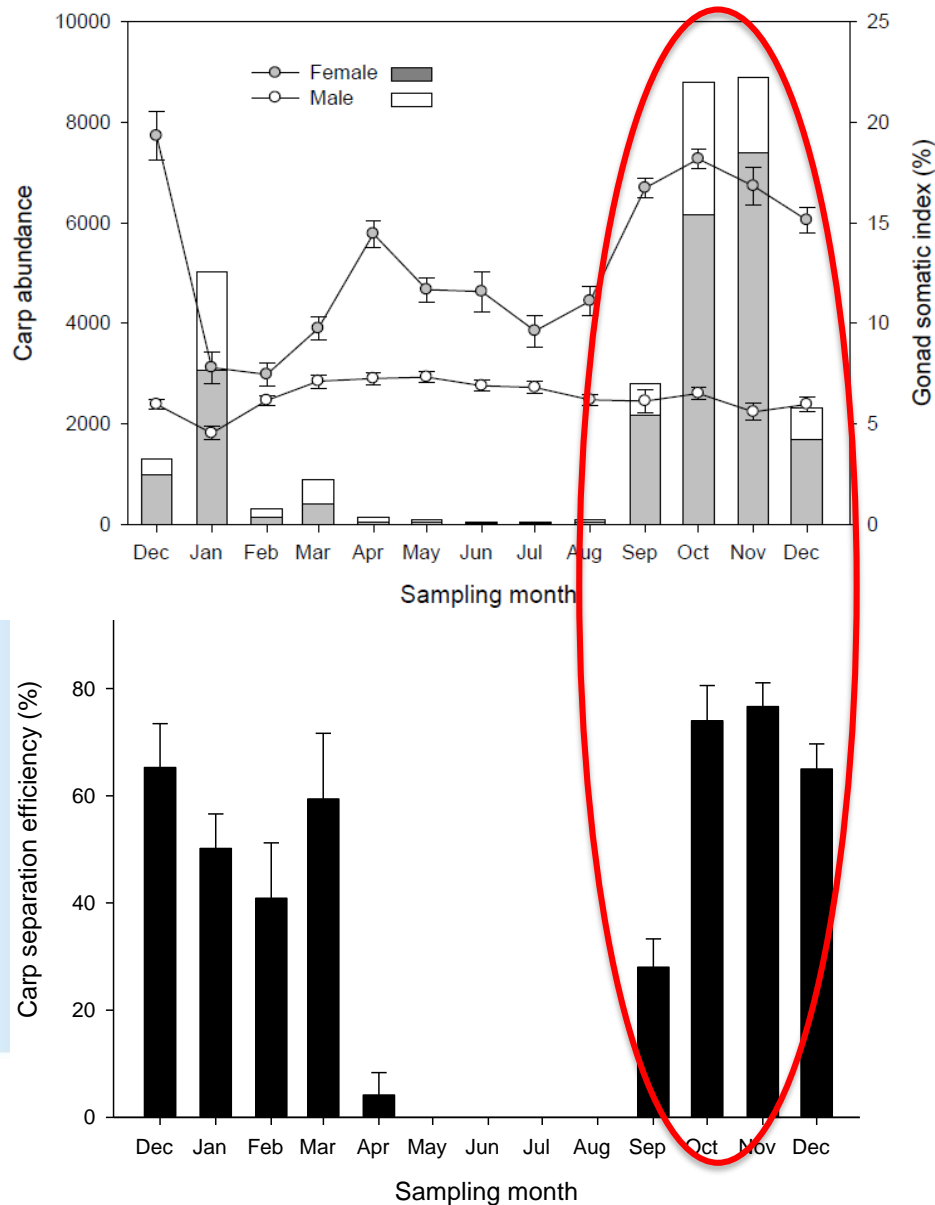
# Carp Biology 2007-08



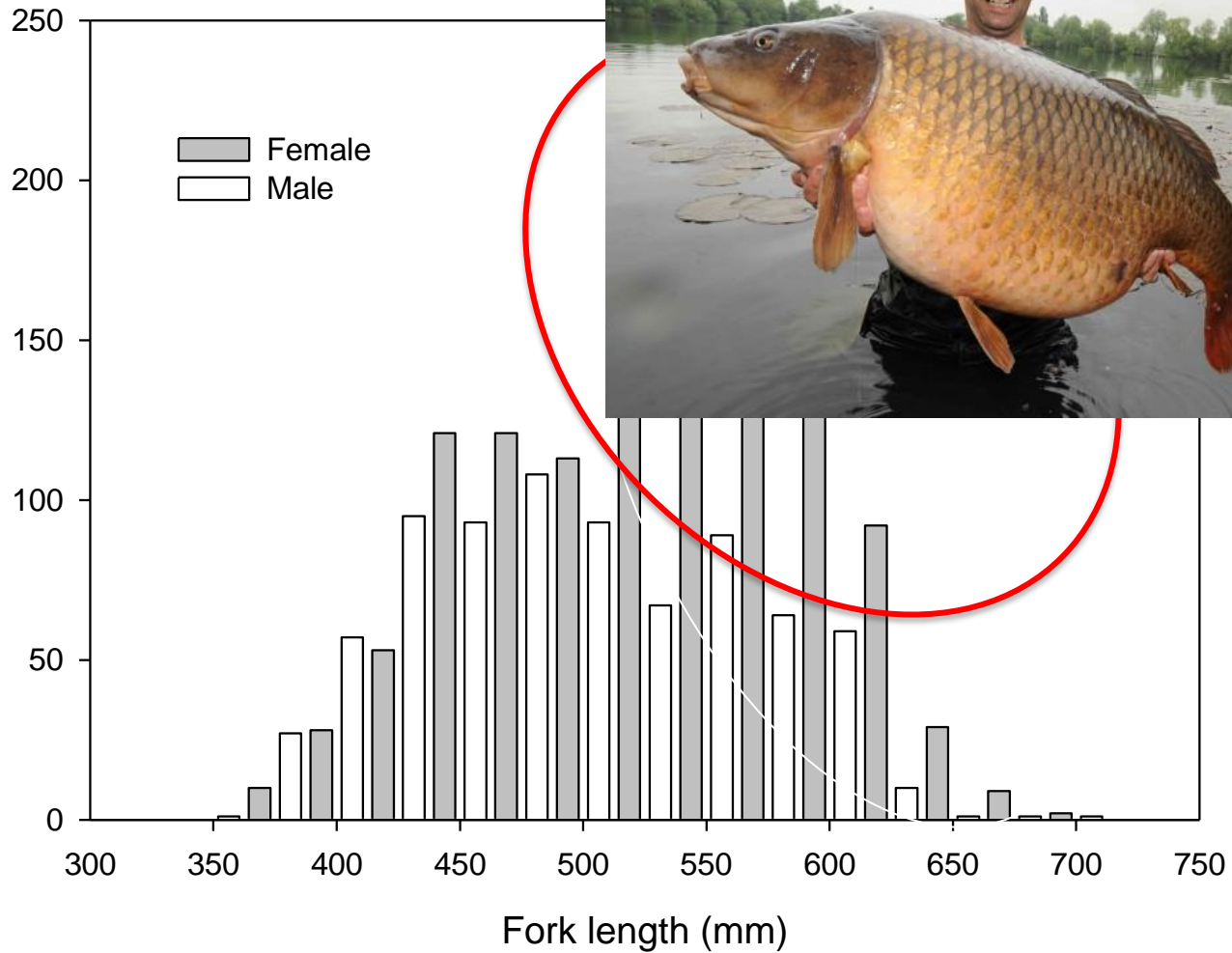
# Separation Efficiency



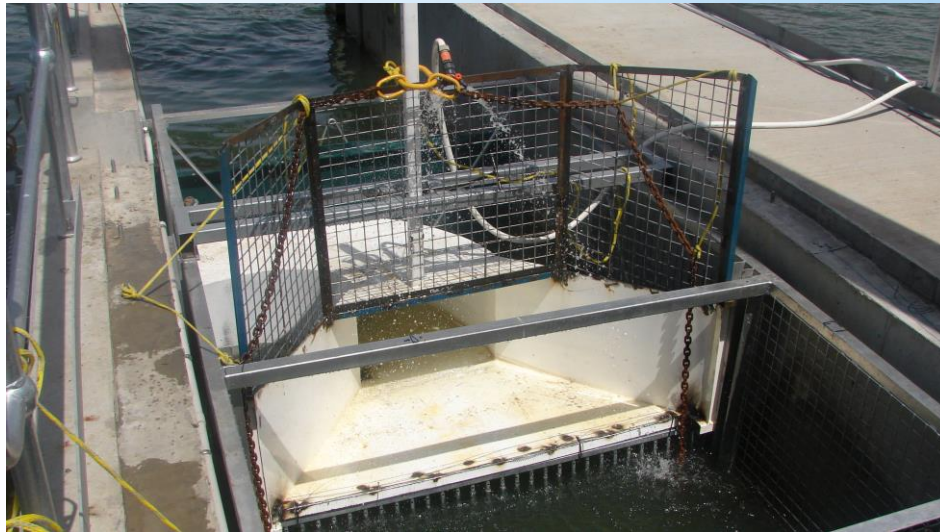
# Carp Biology / Separation Efficiency



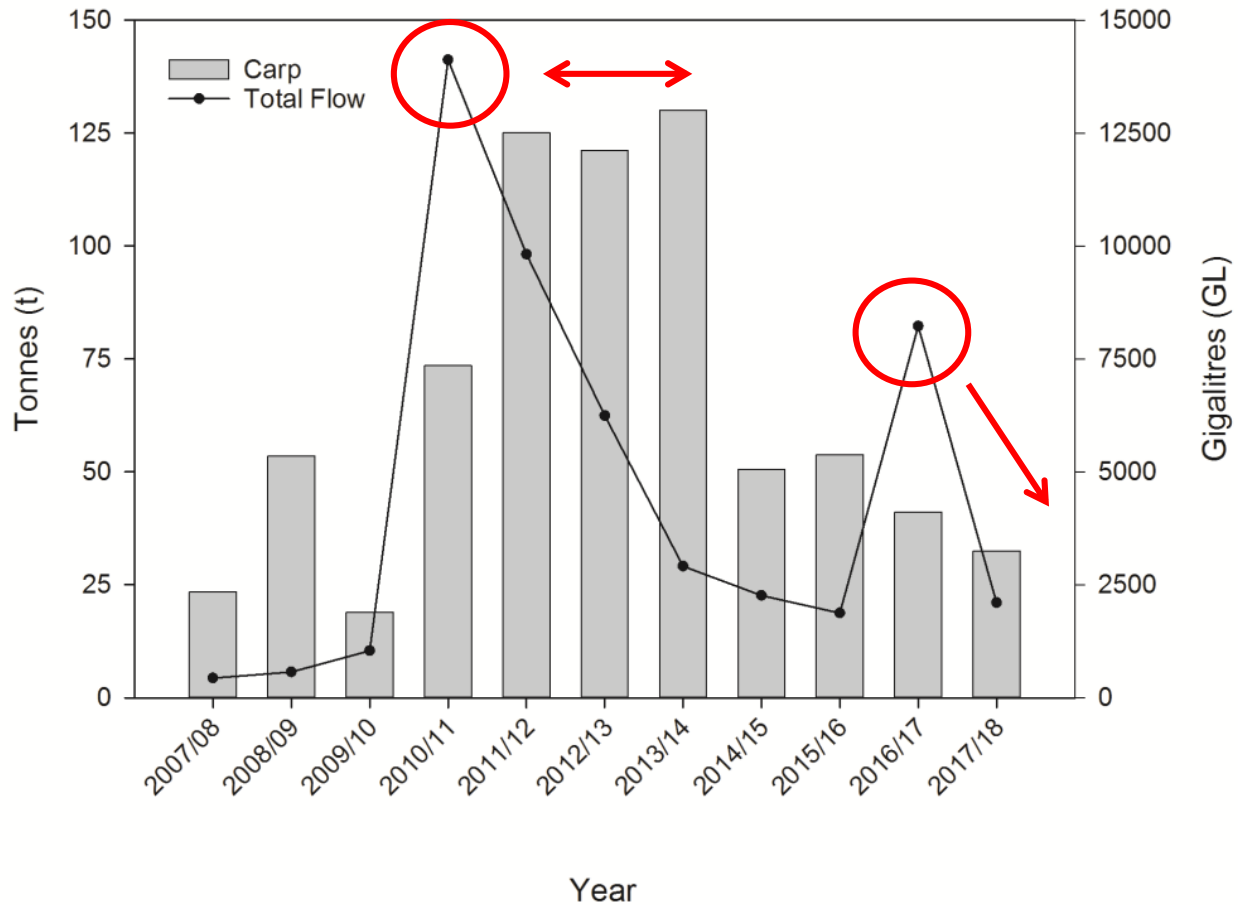
# Carp Size Range 2007-08



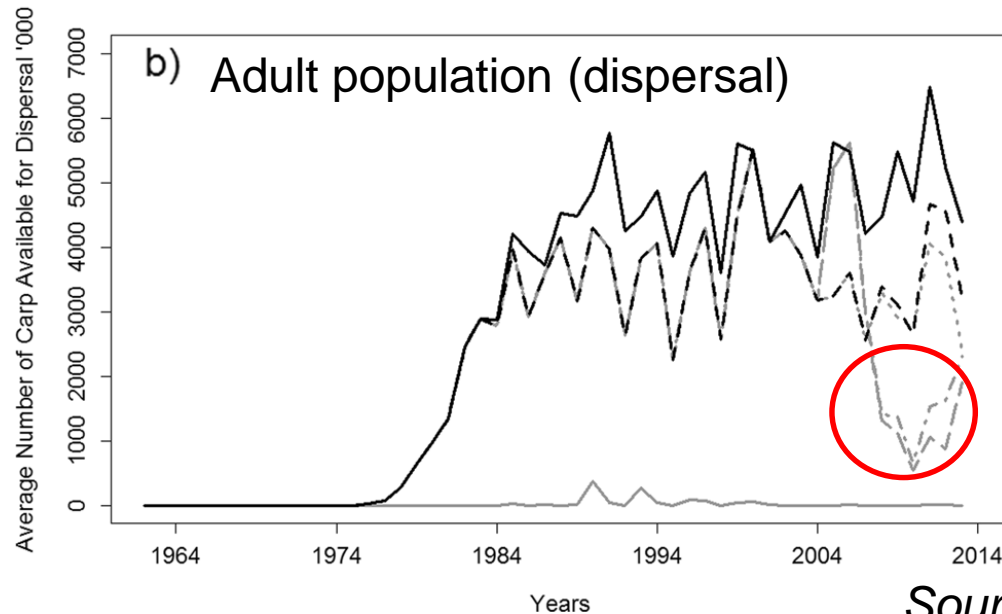
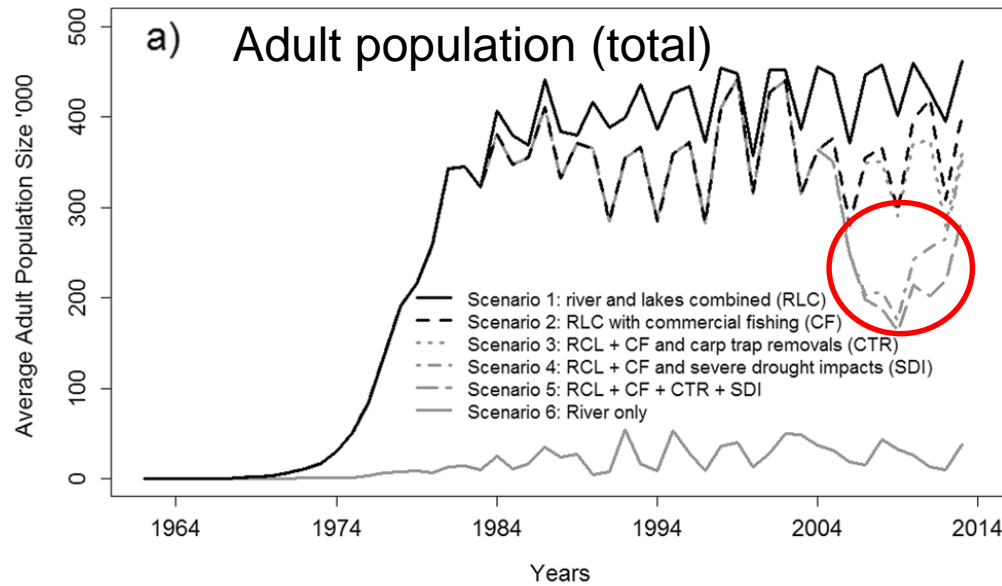
# Modifications



# The last 11 years (2007-2018)



# Are we making a difference?



# Take Home Messages!

- Cage has been successful!
- Having an impact (modelling + obs)
- Carp movements and motivation predictable
- Collaborative partnerships
- Cost neutral (Fish value \$1million Aus)
- Potential at other sites
- Part of an integrated solution
- Effects on native fish passage???

# Acknowledgements

- Barry Cabot, Ron Simpfendorfer & Graeme Tregenza (SA Water, Lock 1)
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- Gary Warwick & Damian Wilks (Professional fisherman)
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- Alan Williams (Goulburn Murray Water, Lock 26)
- University of Adelaide
- SARDI Aquatic Sciences
- Playford Trust SA

# Any Questions?

