

Outcomes of stocking in rivers of the southern Murray-Darling Basin

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Introduction

- ~3 million native fish stocked each year in MDB
- 65% golden perch, 14% Murray cod, 19% silver perch, 2% trout cod
- Outcomes of stocking identified as key research need in MDBC NFS
 - Project MD741: Methods for discriminating hatchery fish and outcomes of stocking in the Murray-Darling Basin



Golden perch



Murray cod

Monitored stocking program

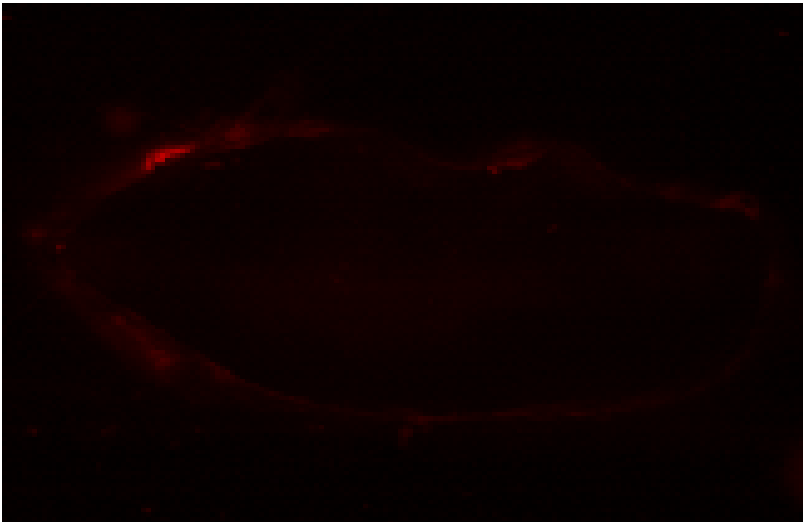
- Golden perch stockings
 - Murrumbidgee R: 50,000 at four locations, 2002, 2004
 - Edward R: 50,000 at four locations, 2004, 2005
 - Billabong Creek: 60,000 and 48,000 at six locations, 2006, 2007
 - Murray River not stocked (by us)



Golden perch fingerling 40 mm TL

Monitored stocking program

- Edward and Murrumbidgee fish marked with alizarin complexone
- Billabong Creek fish not marked (otolith chemistry for ID)

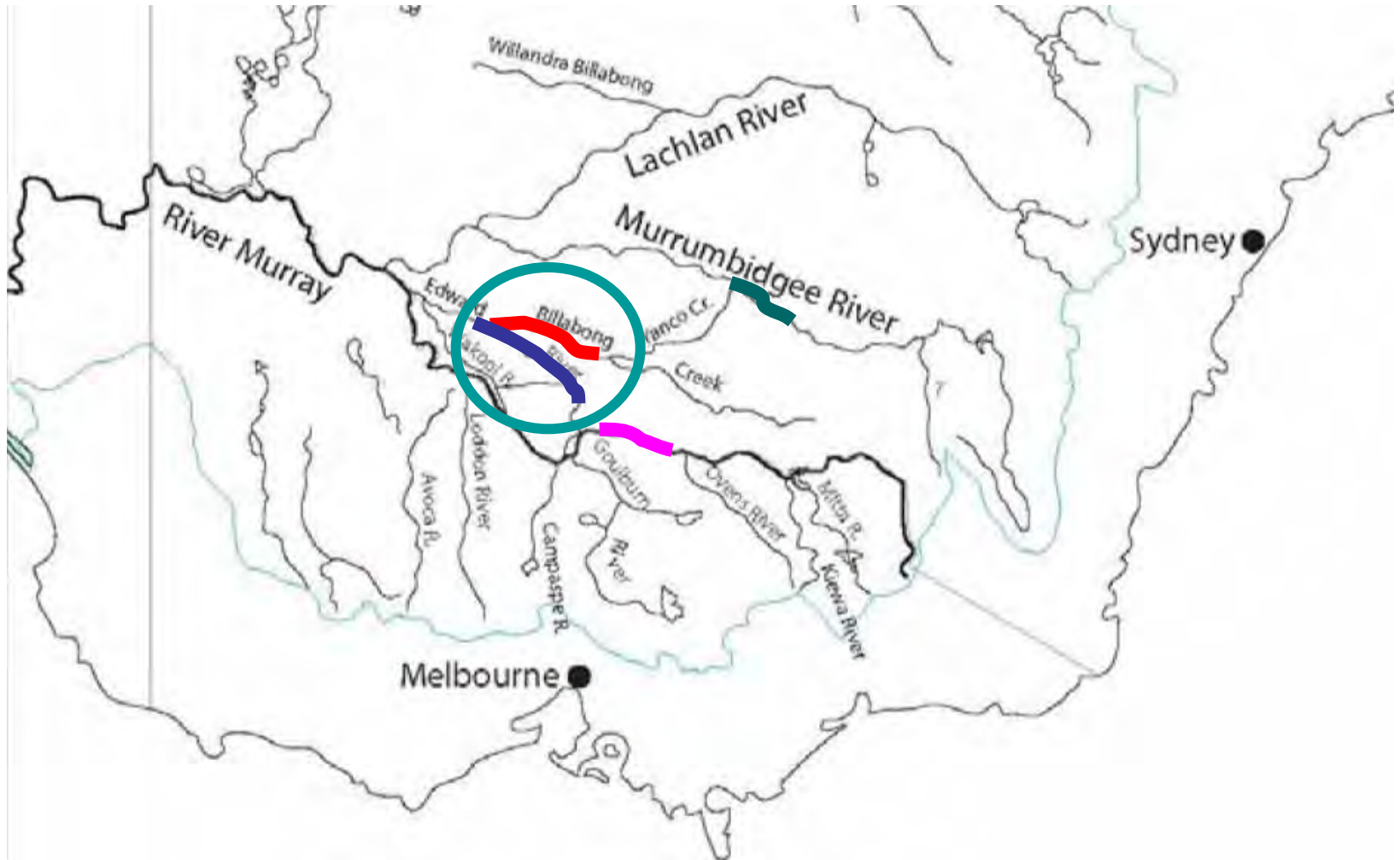


Unmarked fish otolith



Alizarin marked otolith

Stocking and survey locations



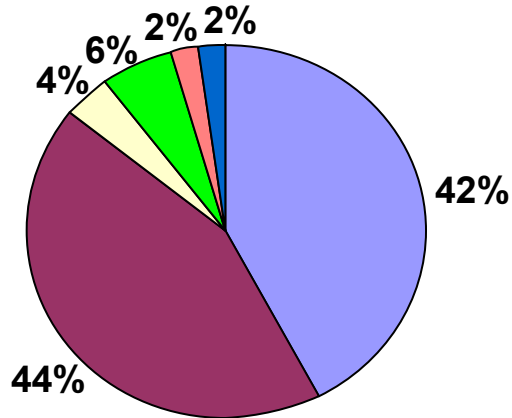
Survey methods

- Boat mounted electrofishing
- Four sites per river
- Twelve 10 min shots per site
- Once per year in 2005, increased to 3 times per year until 2009

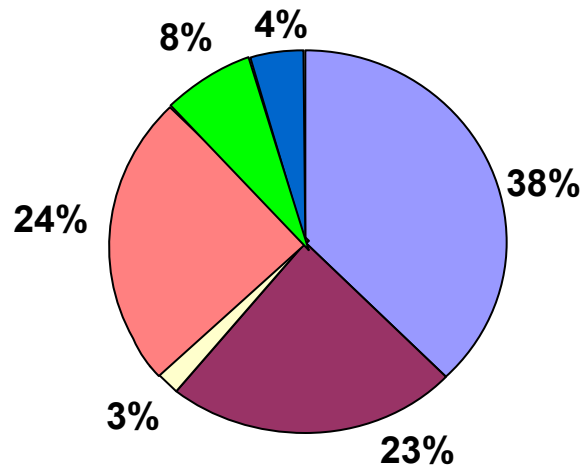


Edward River – species composition

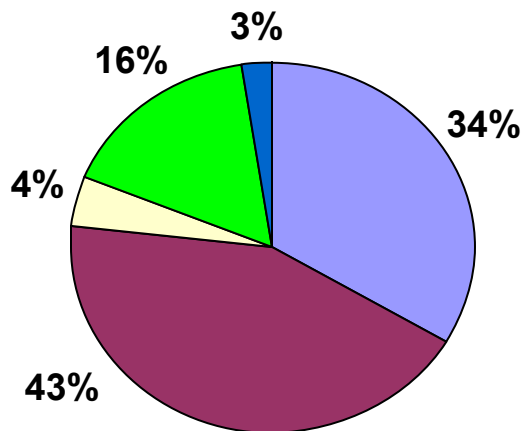
May 2005 n = 185



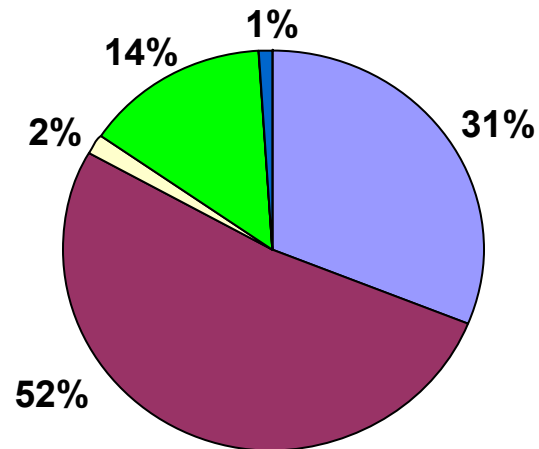
March 2006 n = 224



Nov 2006 n = 116

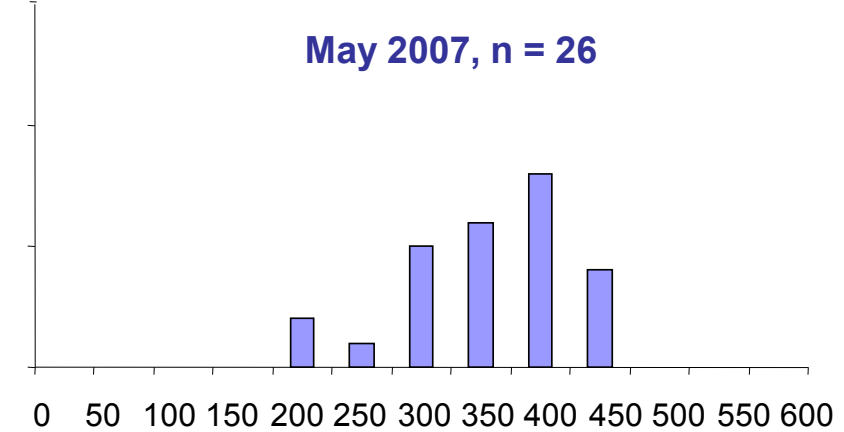
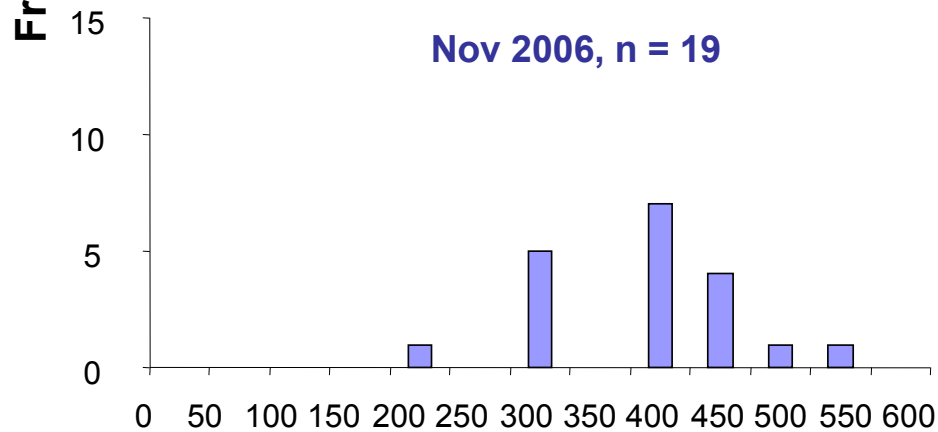
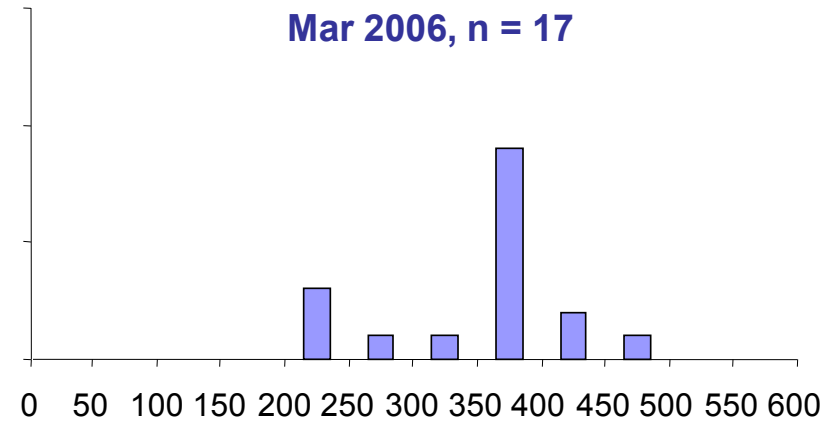
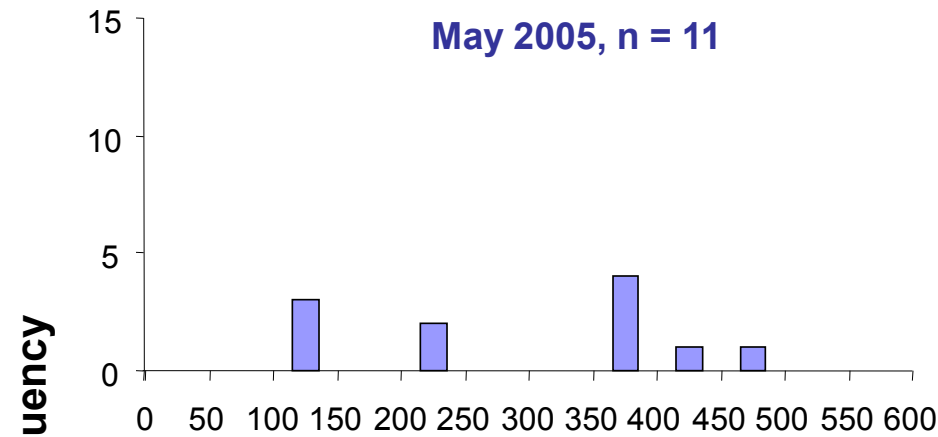


May 2007 n = 271



Stocked 2004
and 2005

Edward River - golden perch population structure

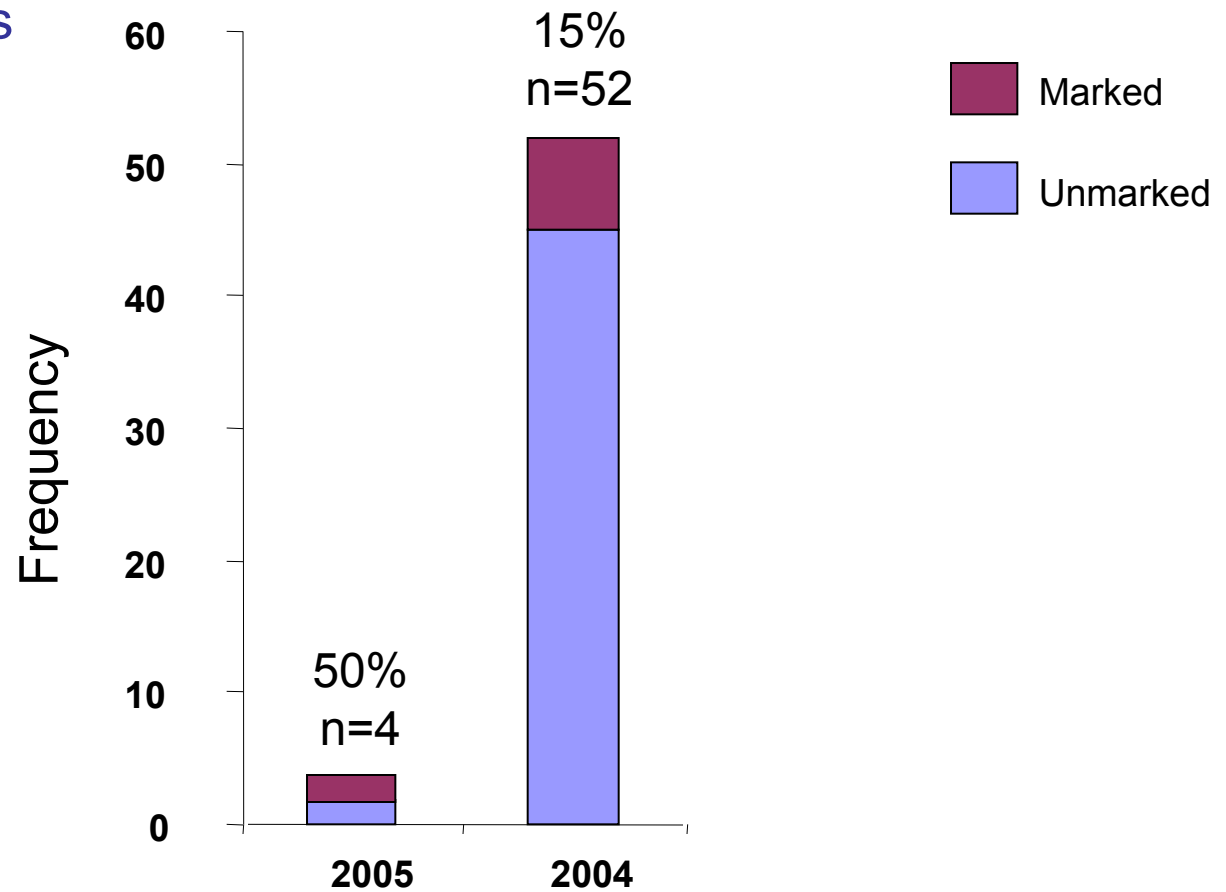


Length (mm)

Stocked 2004 and 2005

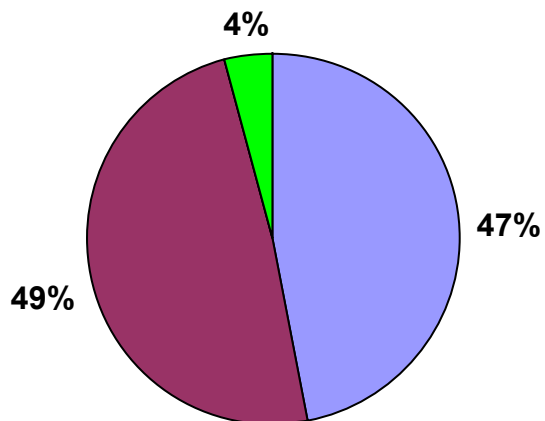
Edward River - contribution of stocked fish

Otolith analysis
2005 – 2006 surveys

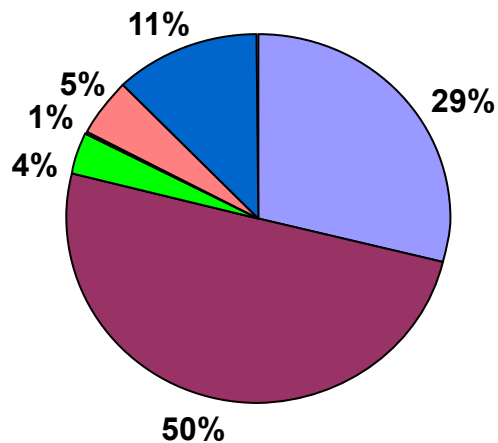


Billabong Creek – species composition

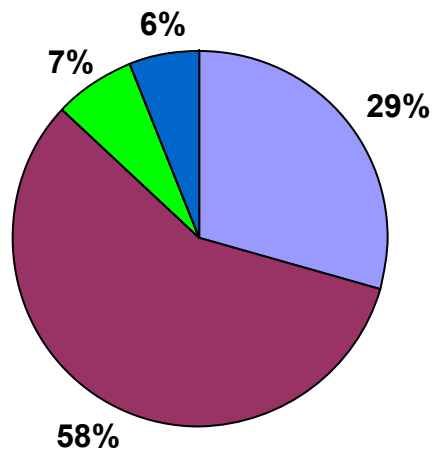
May 2005, n = 98



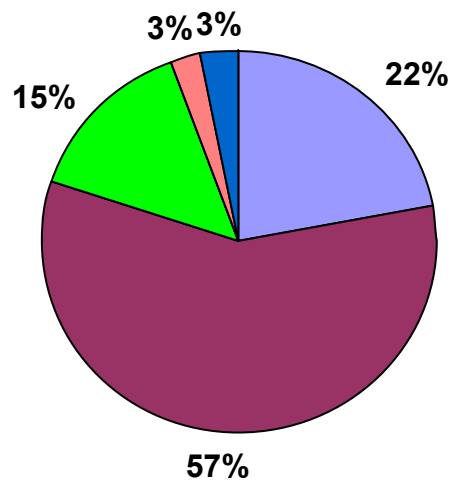
Mar 2006, n = 228



Nov 2006, n = 167

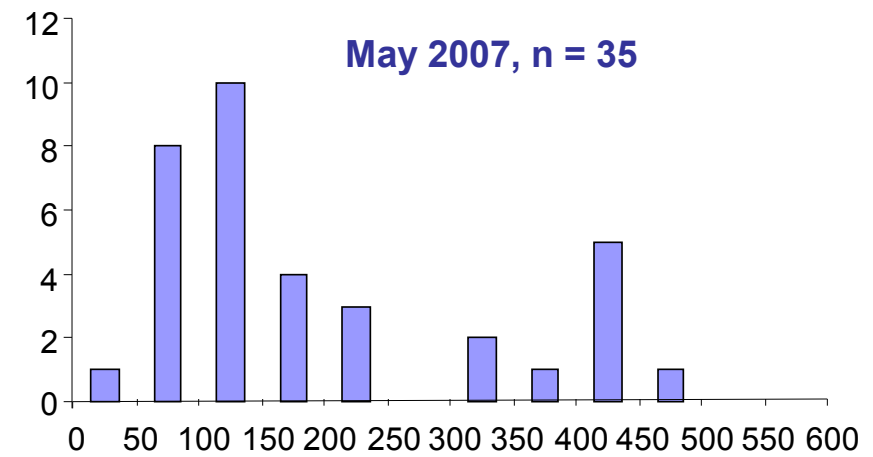
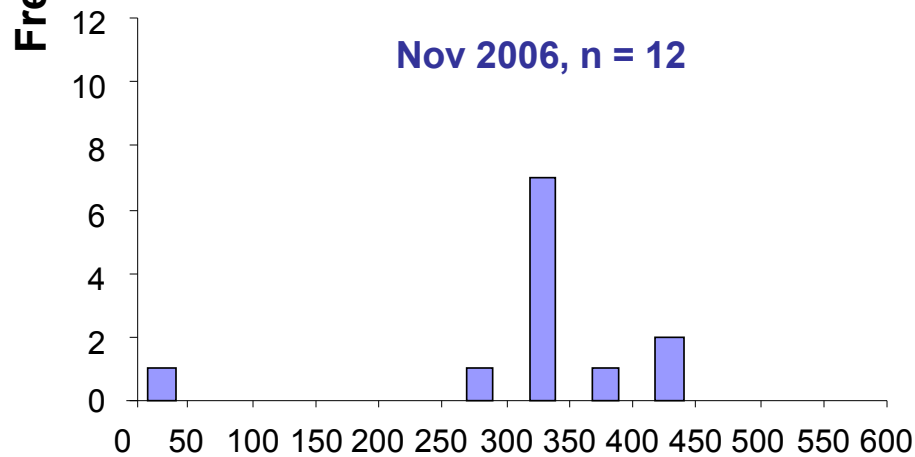
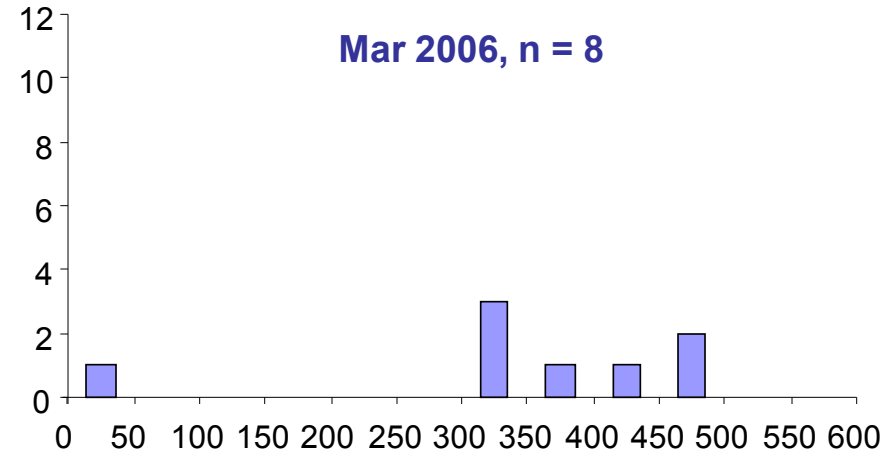
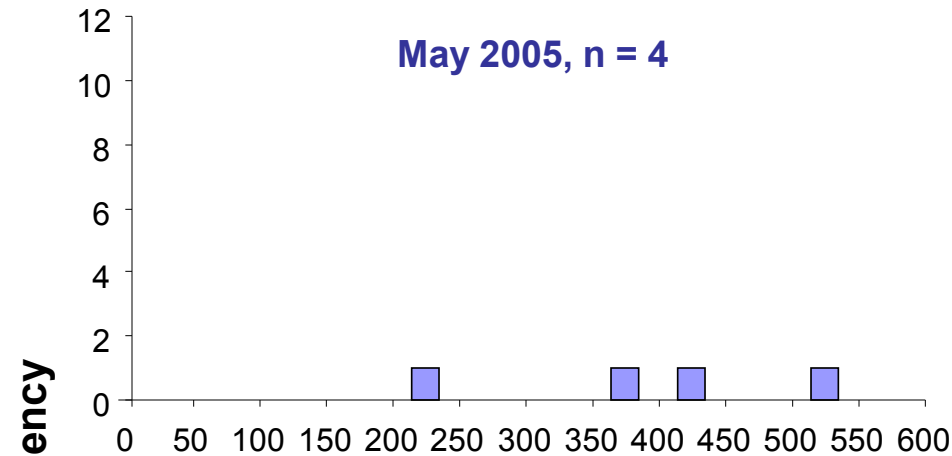


May 2007, n = 239



Stocked 2006
and 2007

Billabong Creek – population structure



Length (mm)

Stocked 2006 and 2007

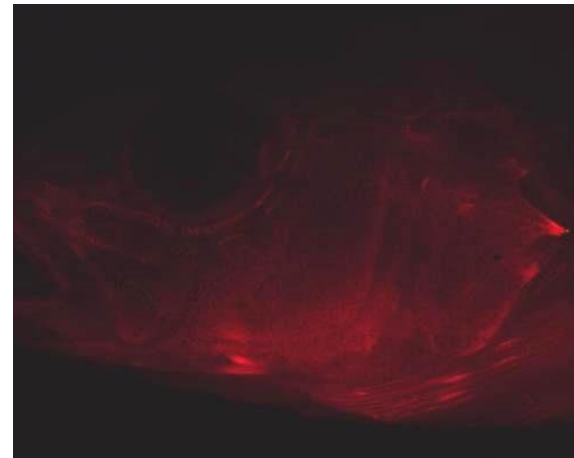
Conclusions so far...

- Stocked fish appear to comprise a significant, but variable, proportion of the populations
- Stocking has the potential to drastically alter species composition
- Good news!! Native fish consistently dominated the catch



Future directions...

- Surveys of stocked rivers to continue until 2009
- Marked fish to be stocked using recently developed non-lethal methods
- Murray cod to be stocked
- Estimates of survival rates of stocked fish



Alizarin marked Murray cod

Acknowledgments

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