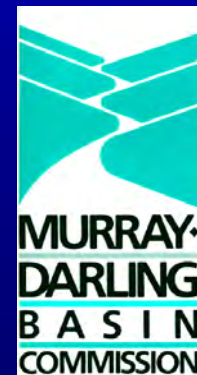


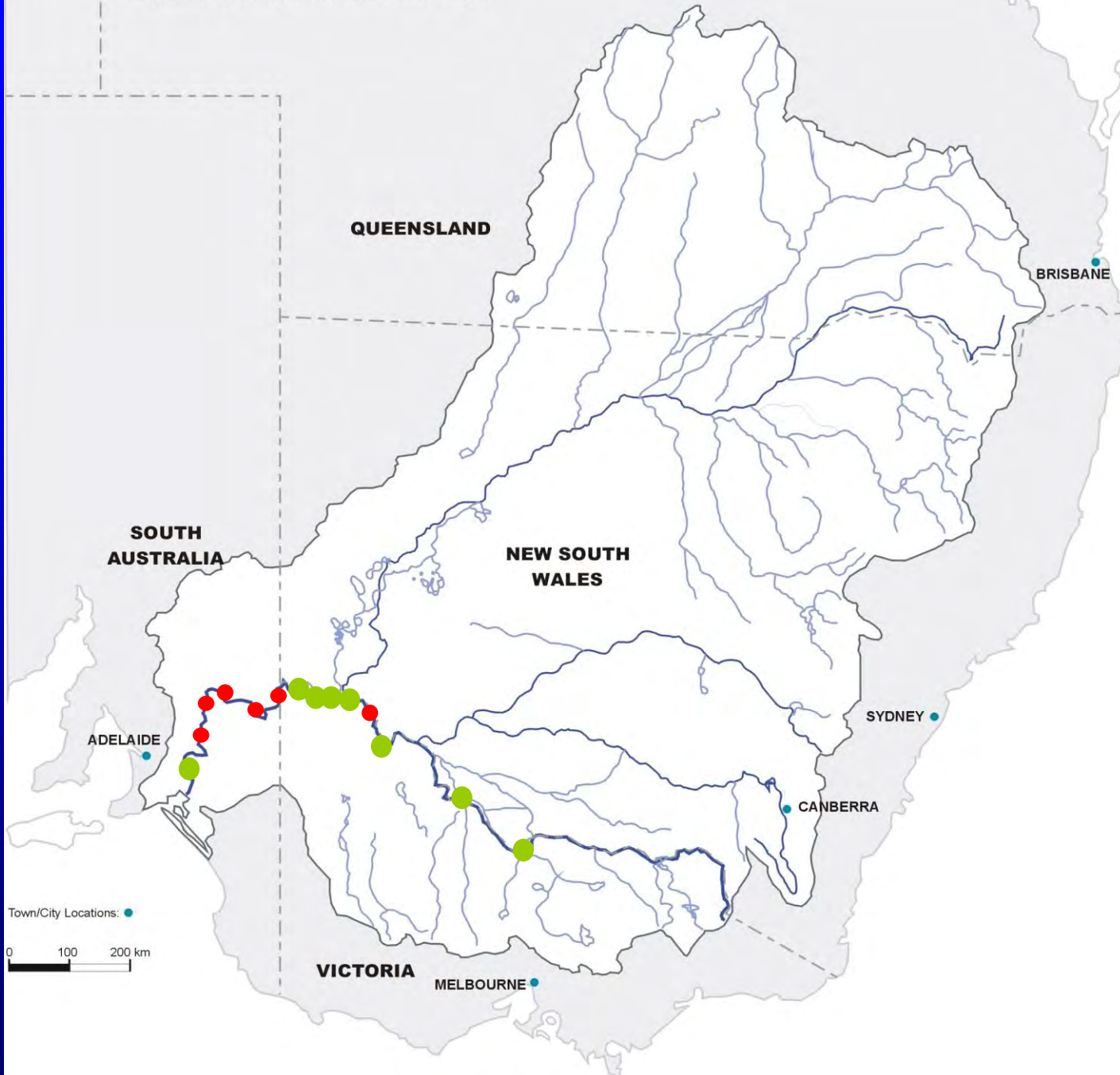
Murray River Fishway Assessment Project

Tri-State Fishways Team
(NSW DPI, DSE VIC, SARDI SA)



MURRAY-DARLING BASIN

Map drawn by Ochrepoint Freelance Web Designs



Key Questions

Key Questions:

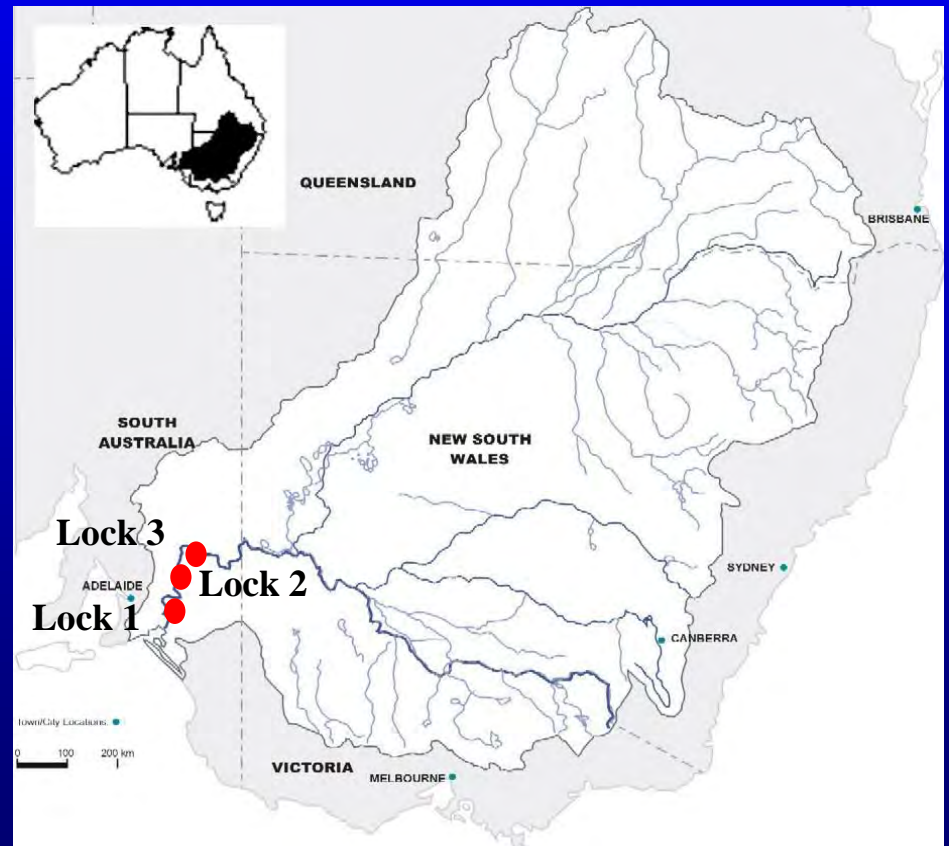
Are the fishways contributing to positive changes in the abundance and diversity of native fish in the river?

-Are the fishways reducing accumulations of fish downstream of the barrier?

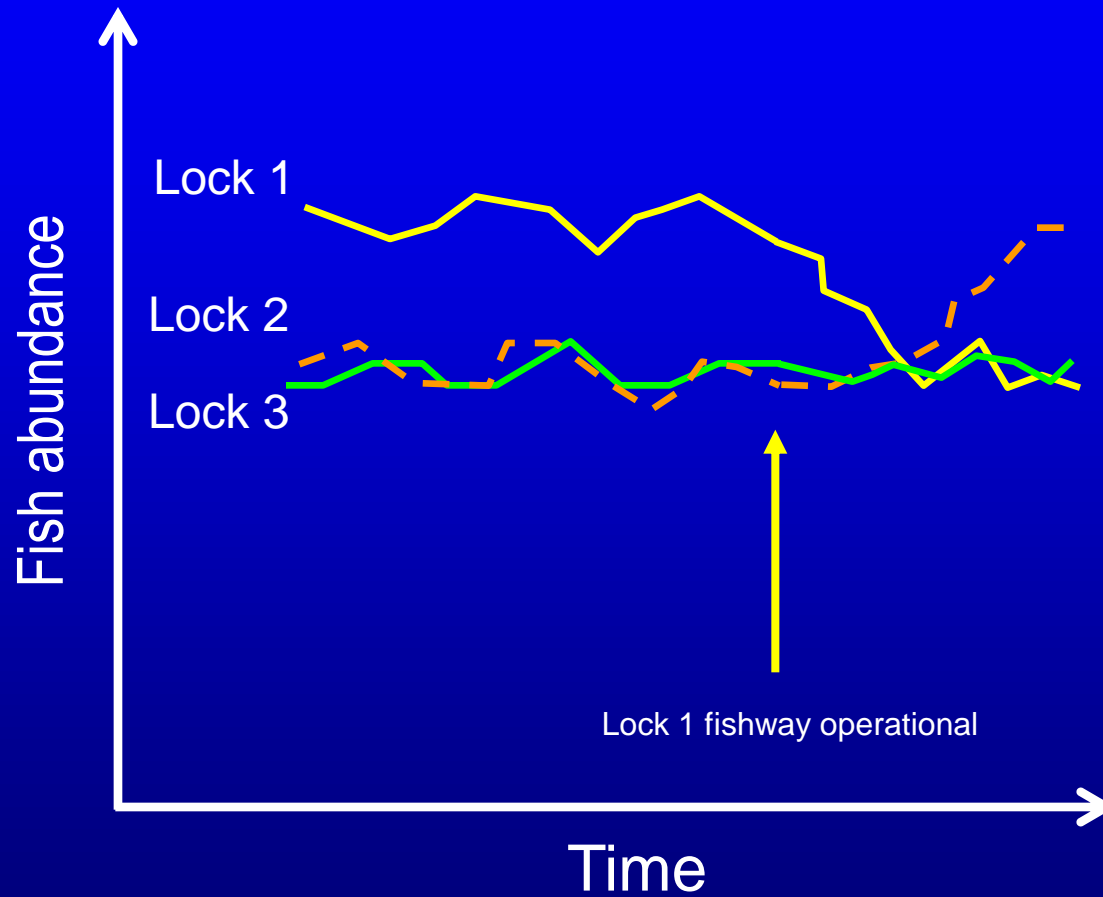
- Is the entrance, location and operation of each fishway optimised?

Assessing fish populations

Accumulation model at Locks 1, 2 and 3



Assessing fish populations



Assessing fish populations

Measuring success of the accumulation model

Electrofishing

PIT and dart tagging

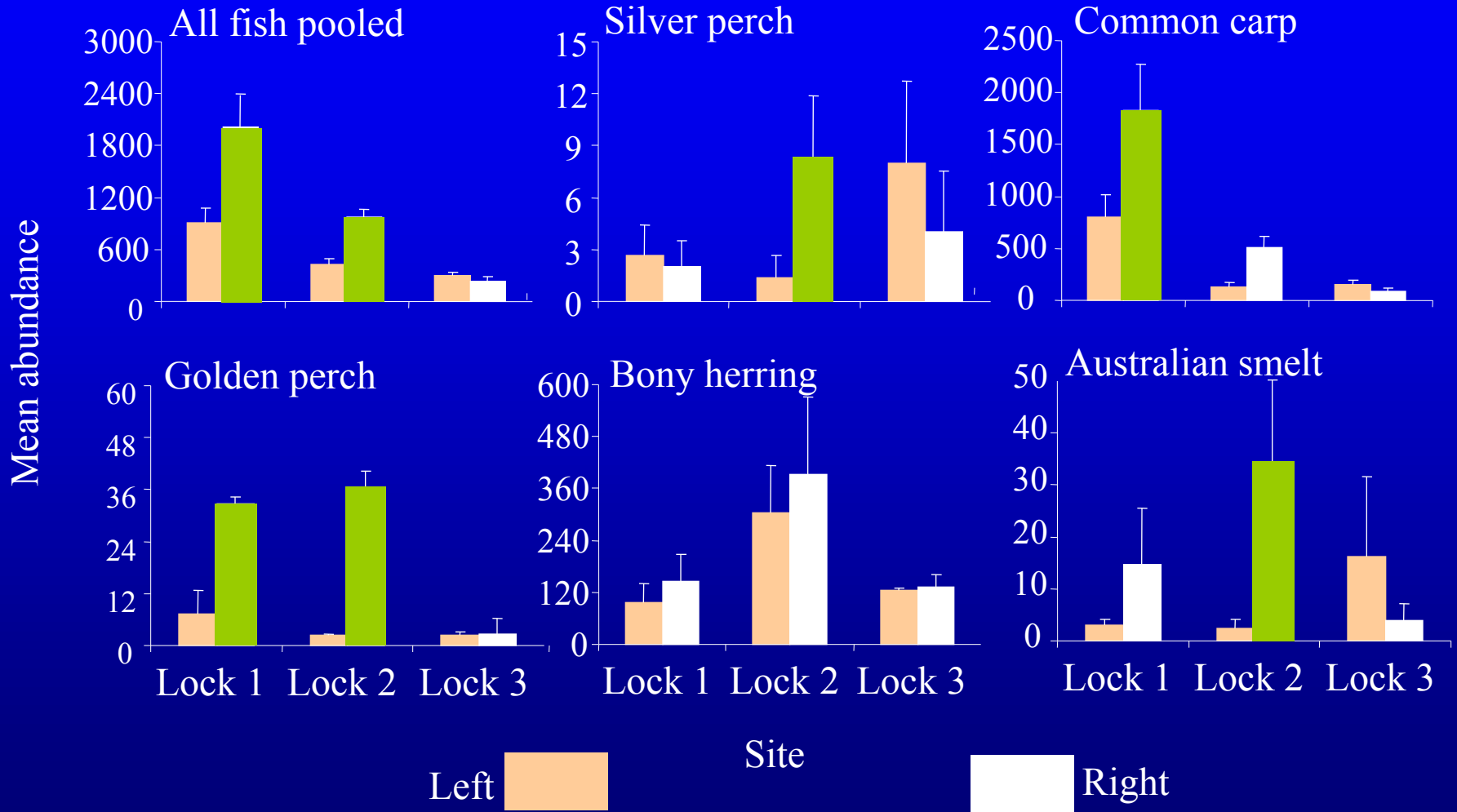
Fishway trapping



Lock 1-3 monitoring results

Has provided data on which side of the weir fish accumulate on – generally right hand side.

Lock 1-3 monitoring results

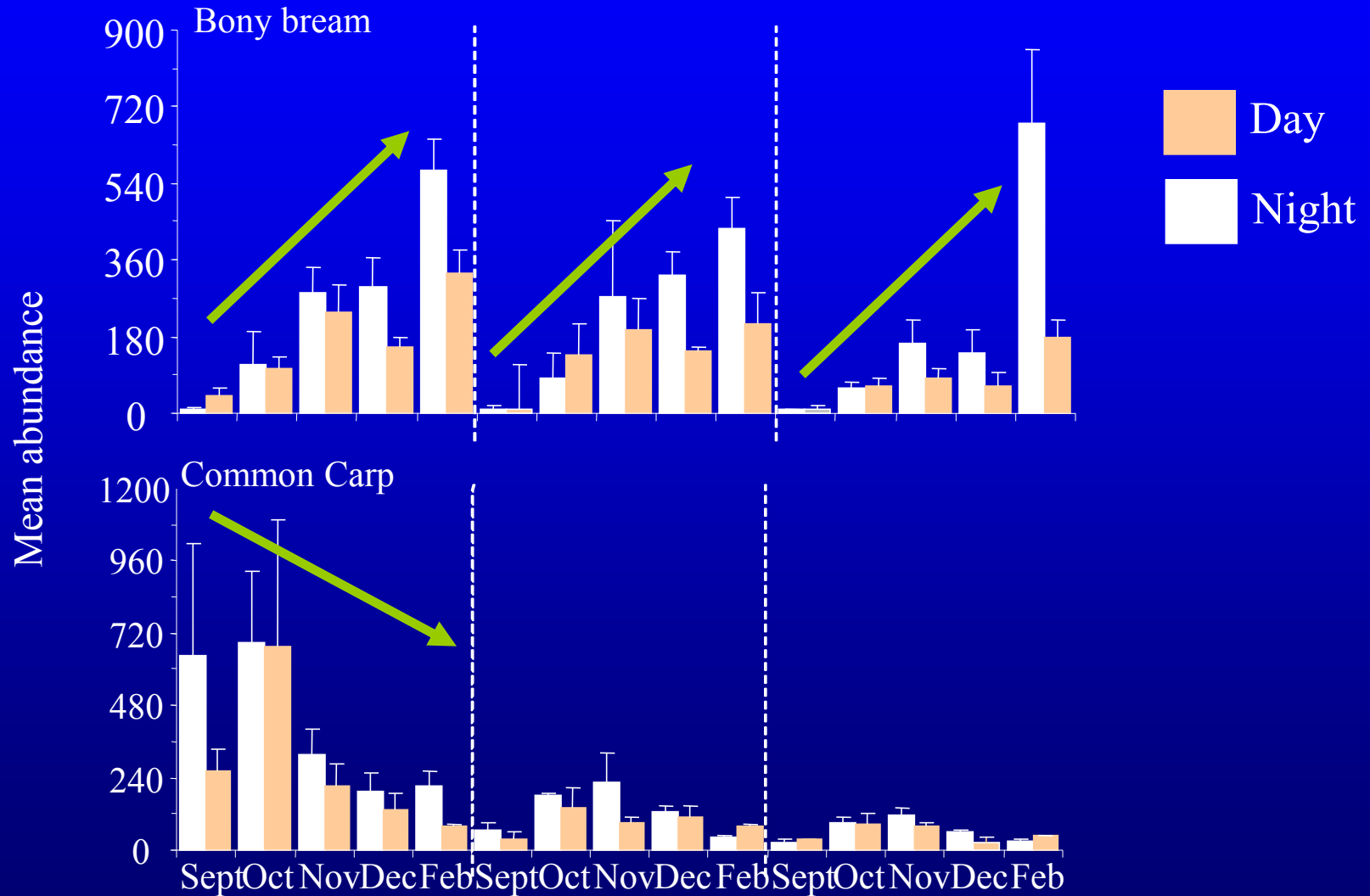


Lock 1-3 monitoring results

Has provided data on which side of the weir fish accumulate on – generally right hand side.

Fish communities at sites are similar (10 native and four exotic species) but change seasonally.

Lock 1-3 monitoring results



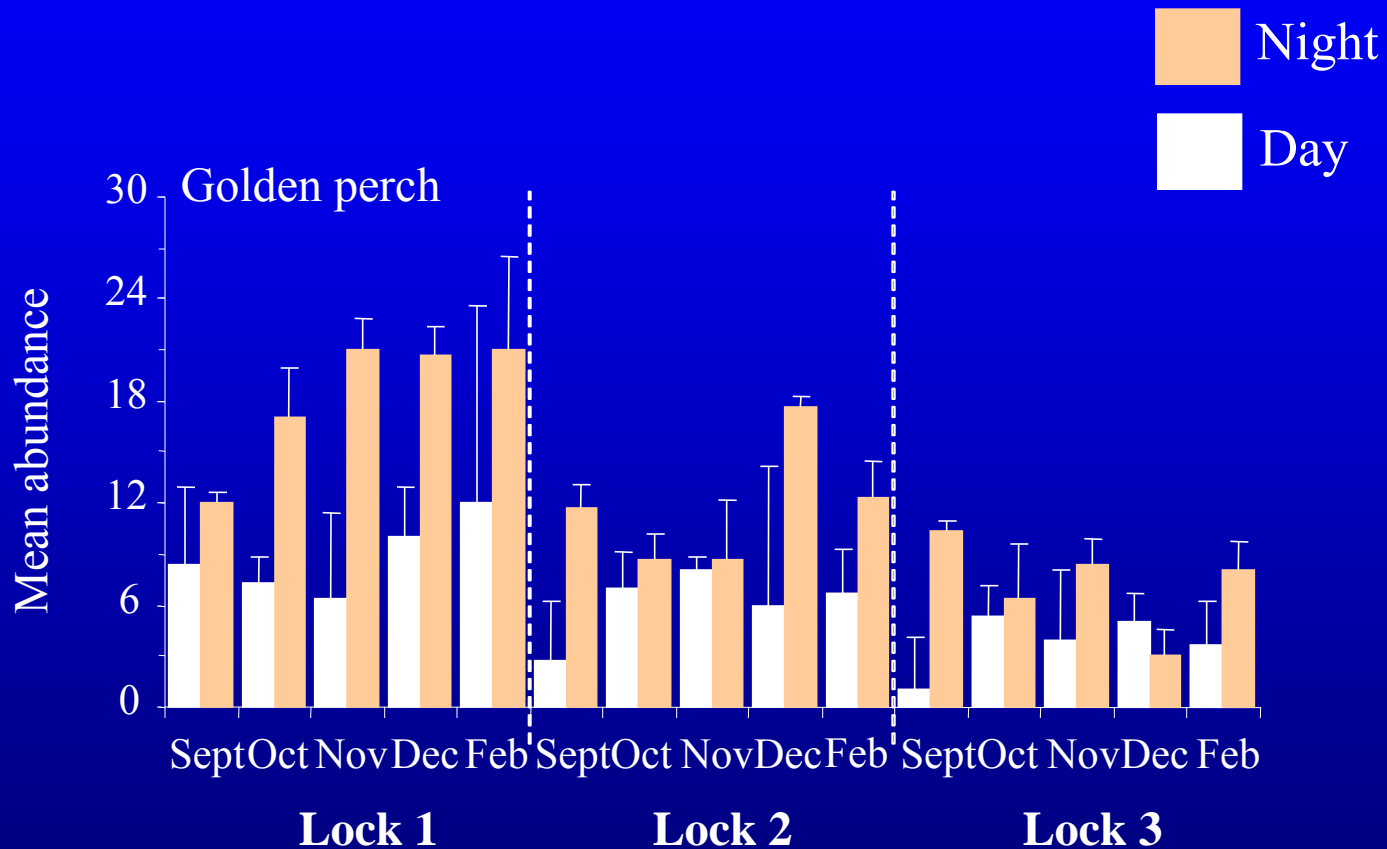
Lock 1-3 monitoring results

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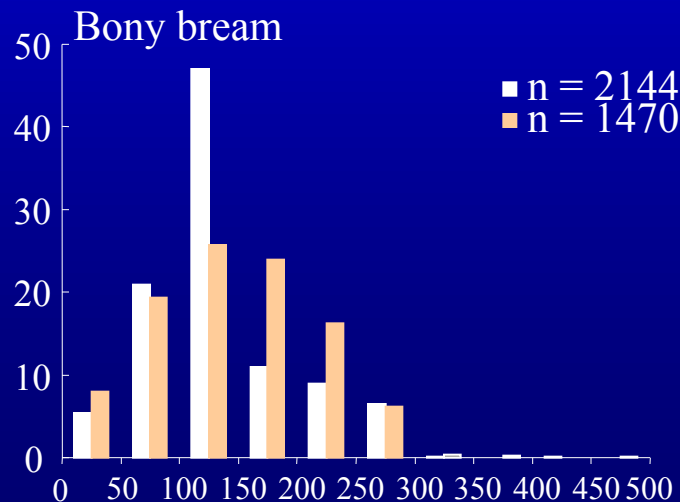
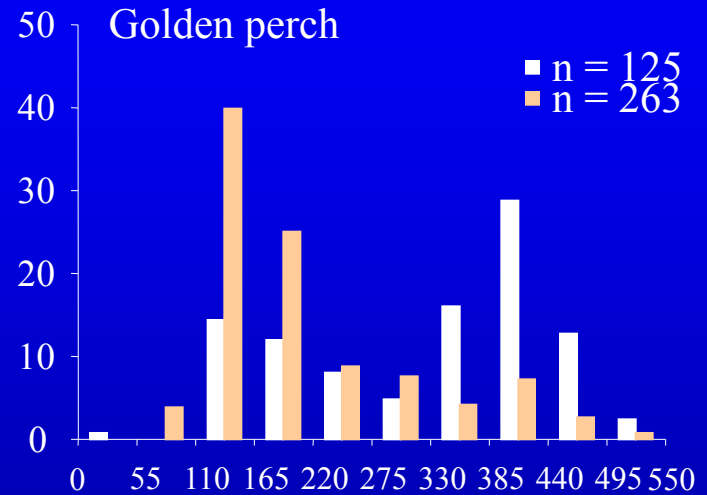
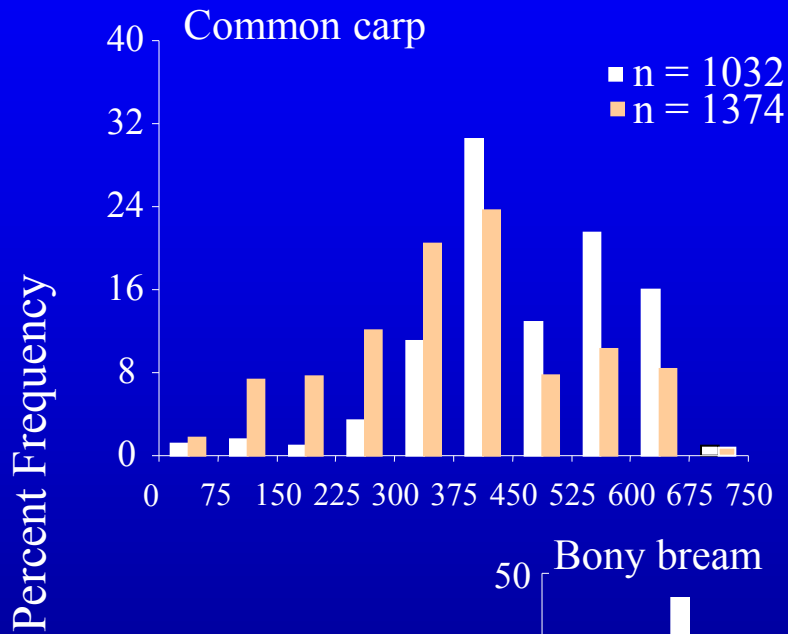
Fish communities at sites are similar (10 native and four exotic species) but change seasonally.

Differences in fish community during day and night – changes in abundance and size range of some species

Lock 1-3 monitoring results



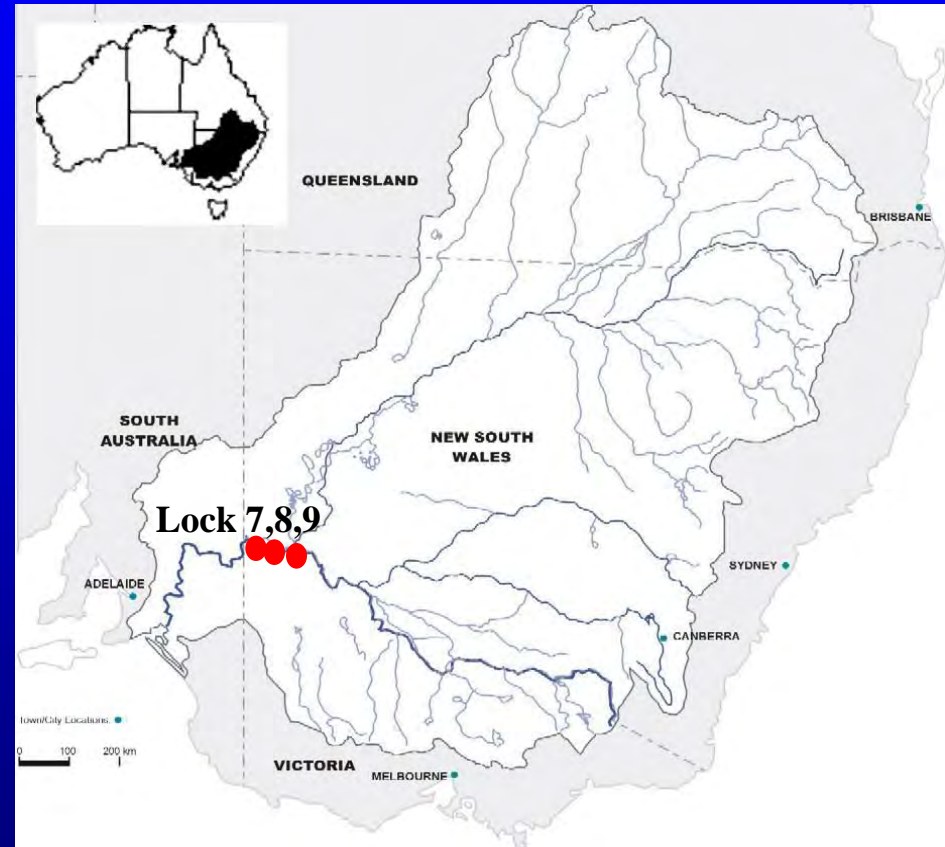
Lock 1-3 monitoring results



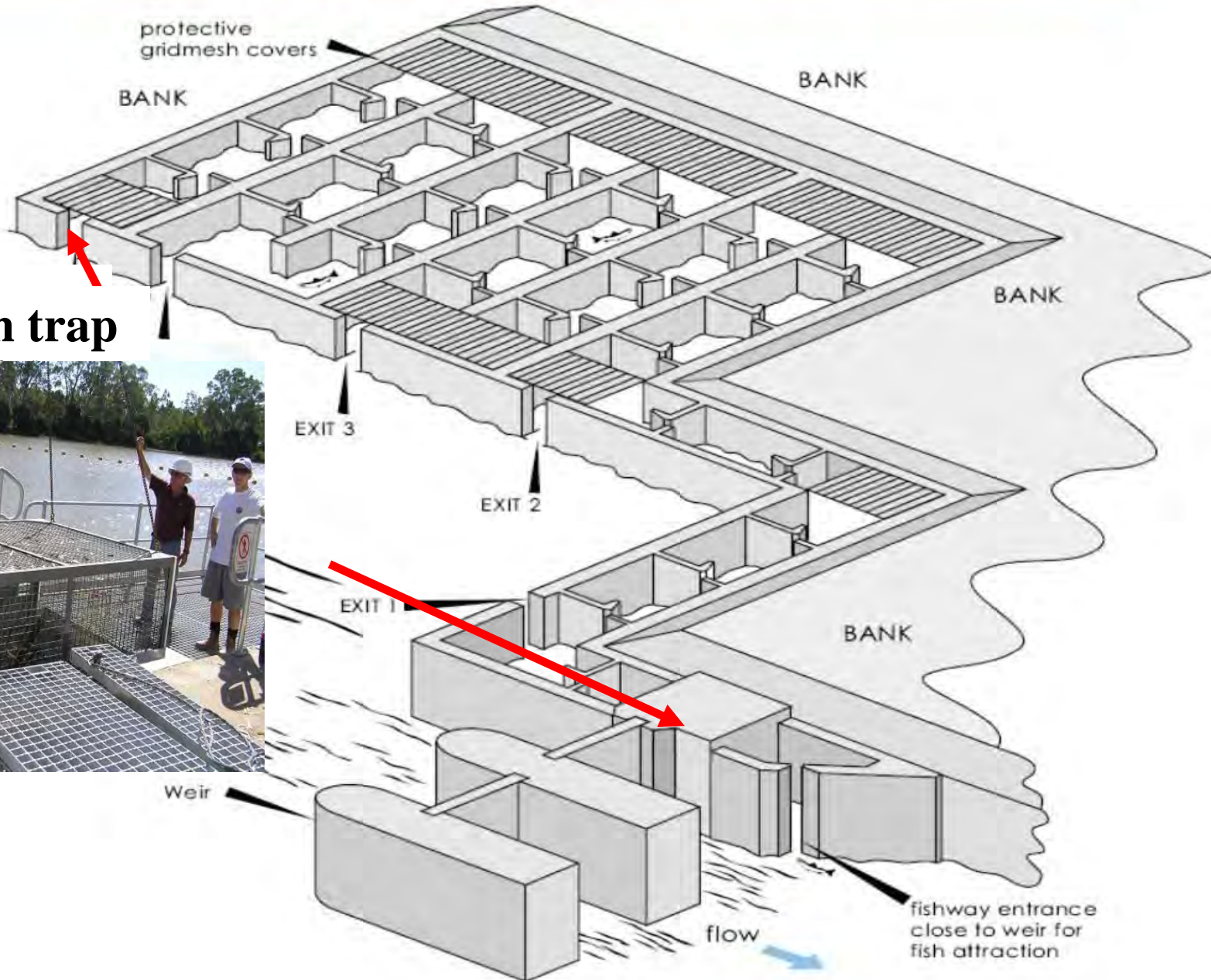
Fishway Monitoring

Performing targeted
sampling at each new
fishway installation

Qn: Are all target
species and size
classes are using the
fishway?



Conceptual layout of a vertical-slot fishway



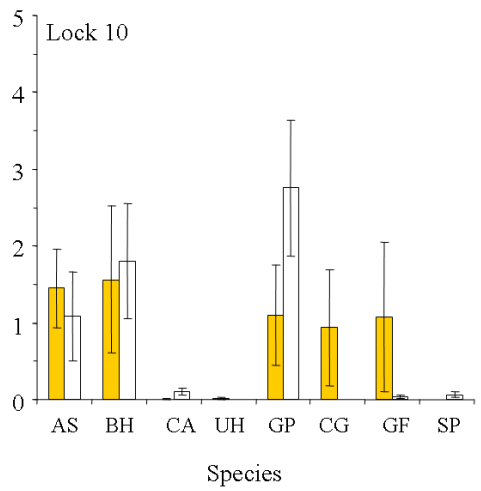
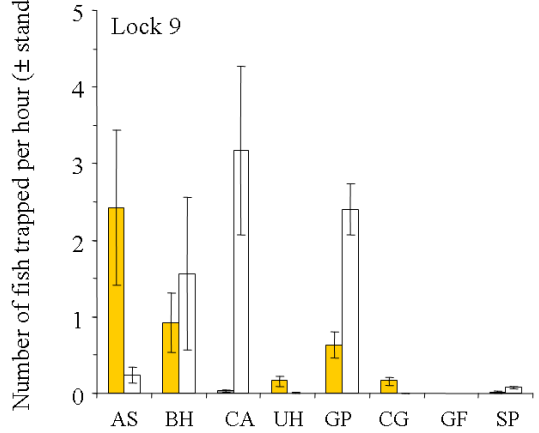
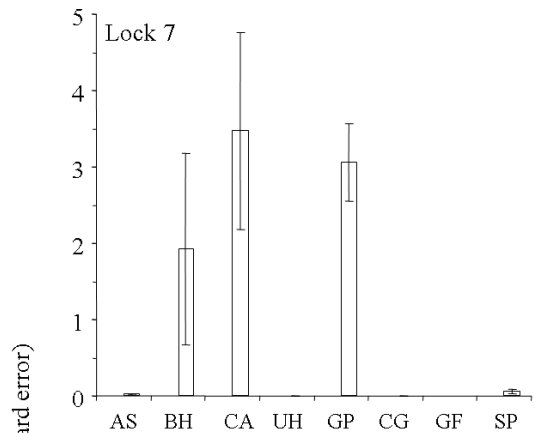
Bottom trap



Fishway Results (Lock 7,9,10)

Common name	Lock 7		Lock 9		Lock 10		Grand Total
	Ent*	Exit	Ent	Exit	Ent	Exit	
<i>Small-bodied fish (<100mm)</i>							
Australian smelt	-	16	821	193	279	220	1,529
Carp gudgeon	-	1	53	1	183	0	238
Gambusia	-	0	1	0	211	7	219
Murray rainbowfish	-	0	4	0	2	0	6
Flatheaded gudgeon	-	0	12	1	2	5	20
Un-specked hardyhead	-	0	52	2	3	1	58
<i>Medium-bodied fish (100-600mm)</i>							
Bony herring	-	1,420	306	530	294	345	2,895
Carp	-	2,620	11	1,104	1	120	3,856
Golden perch	-	2,271	215	1,315	212	691	4,704
Goldfish	-	1	0	1	0	1	3
Redfin perch	-	1	0	0	0	0	1
Silver perch	-	44	5	26	1	13	89
<i>Large-bodied fish (>600mm)</i>							
Murray cod	-	7	0	0	0	1	8
Grand Total	-	6,381	1,480	3,173	1,188	1,404	13,626

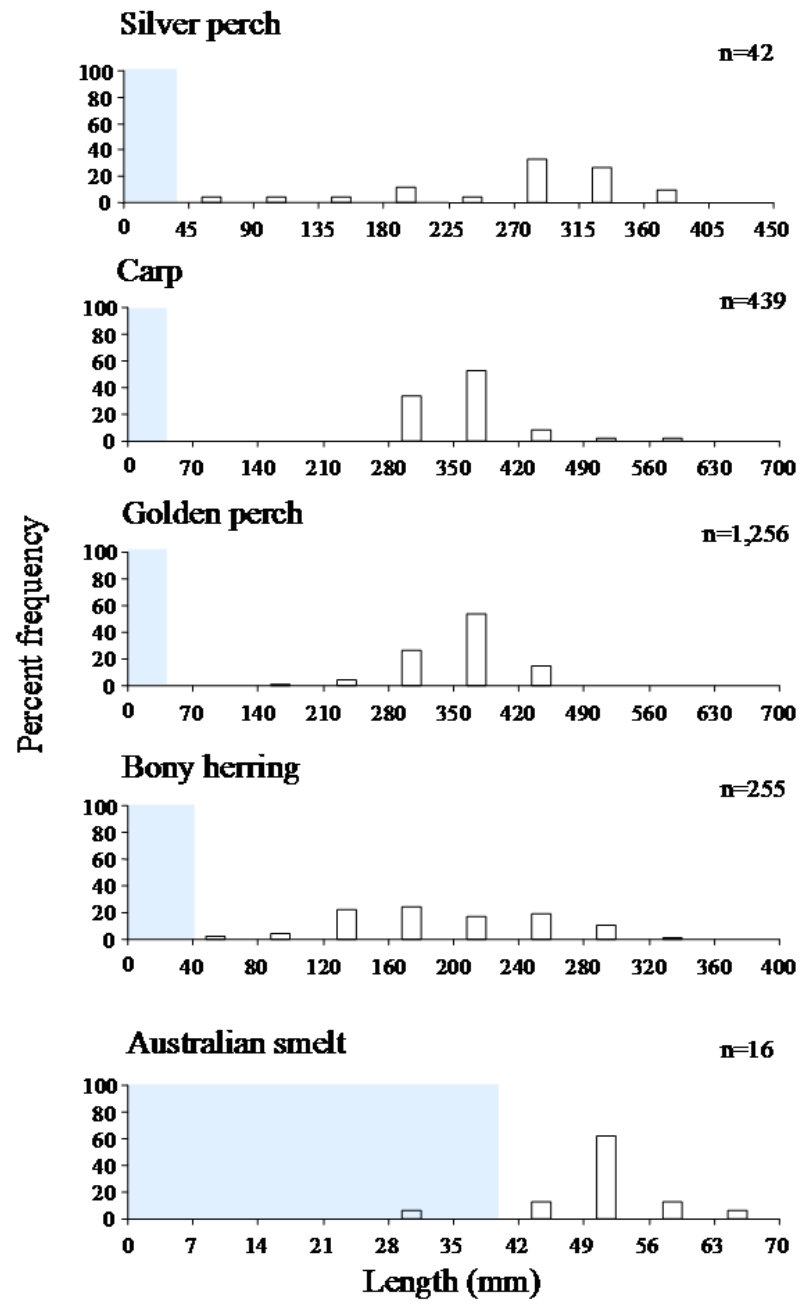
■ Entrance
□ Exit



Lock 7

Shaded area is outside the design range for fishways (40-1000 mm)

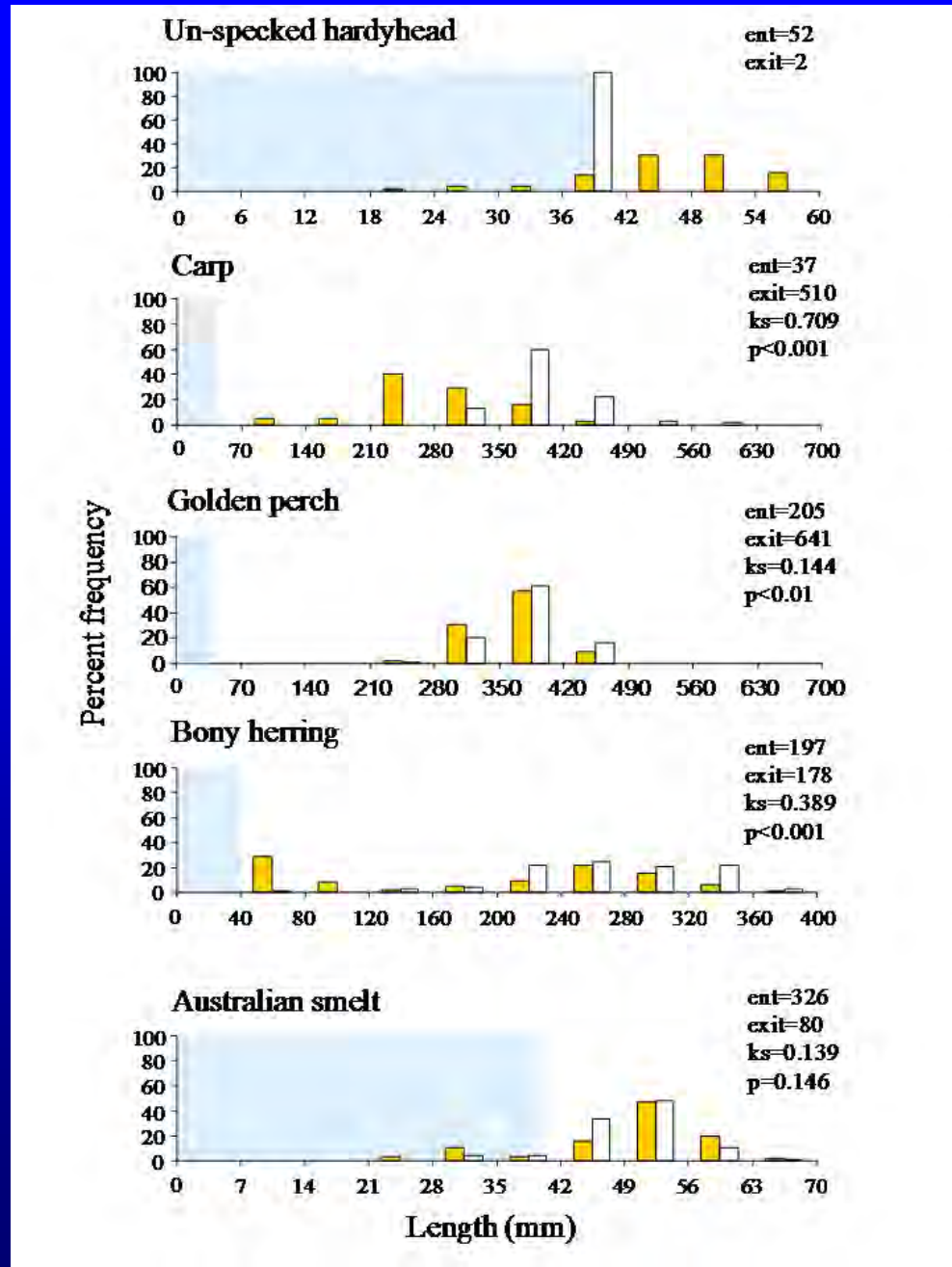
□ Exit



Lock 9

Shaded area is outside the design range for fishways (40-1000 mm)

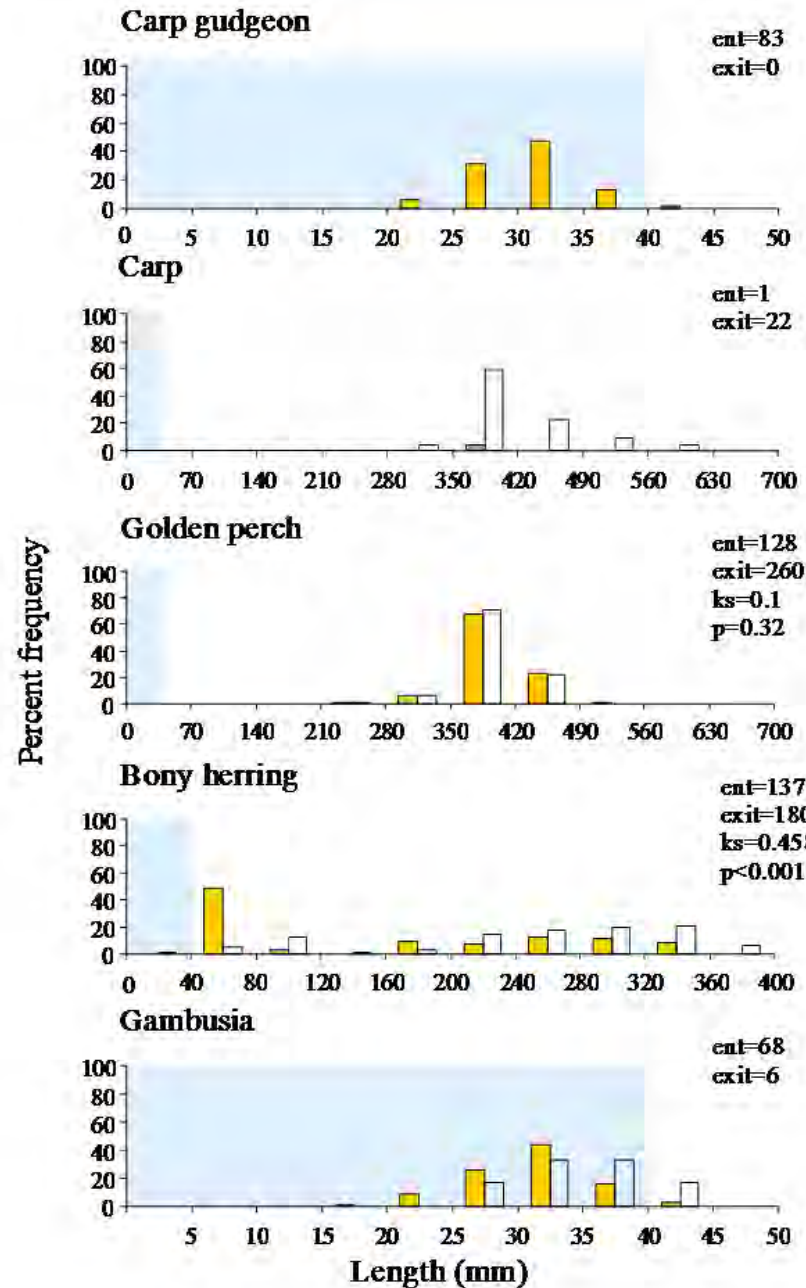
■ Entrance
□ Exit



Lock 10

Shaded area is outside the design range for fishways (40-1000 mm)

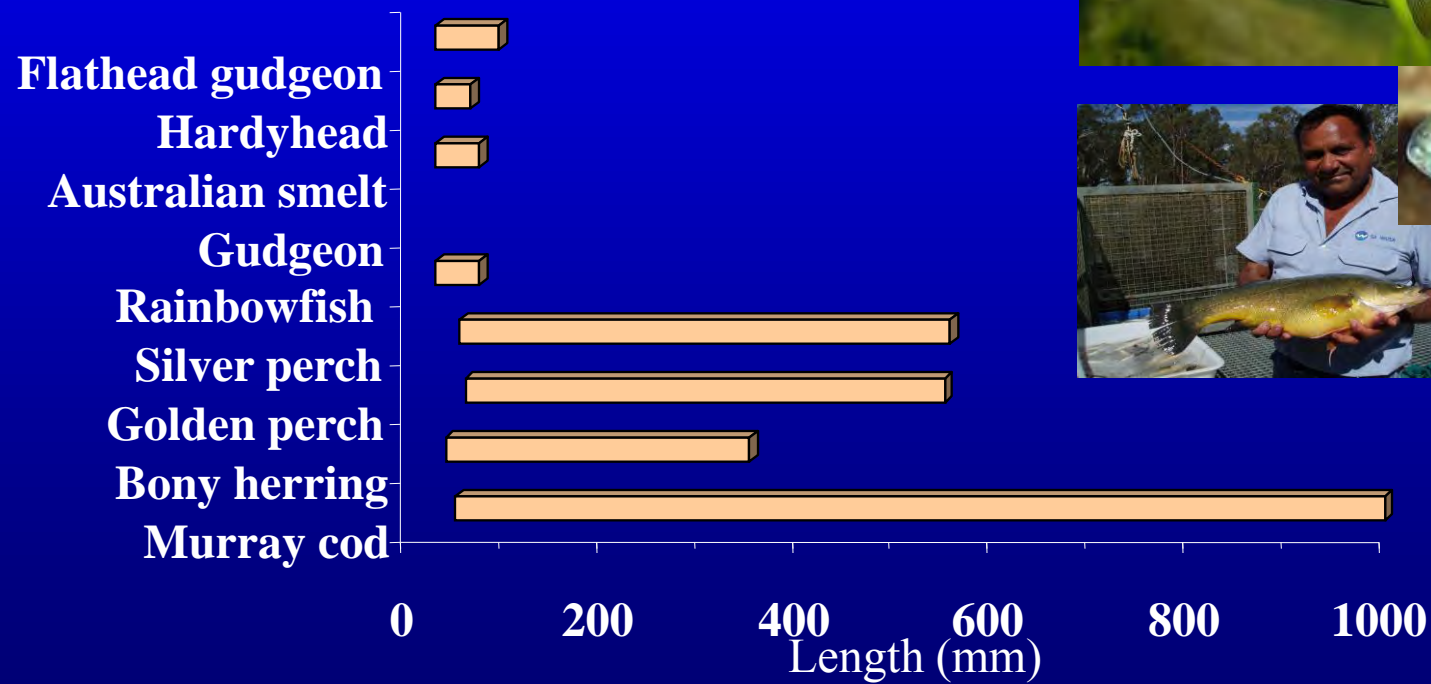
■ Entrance
□ Exit





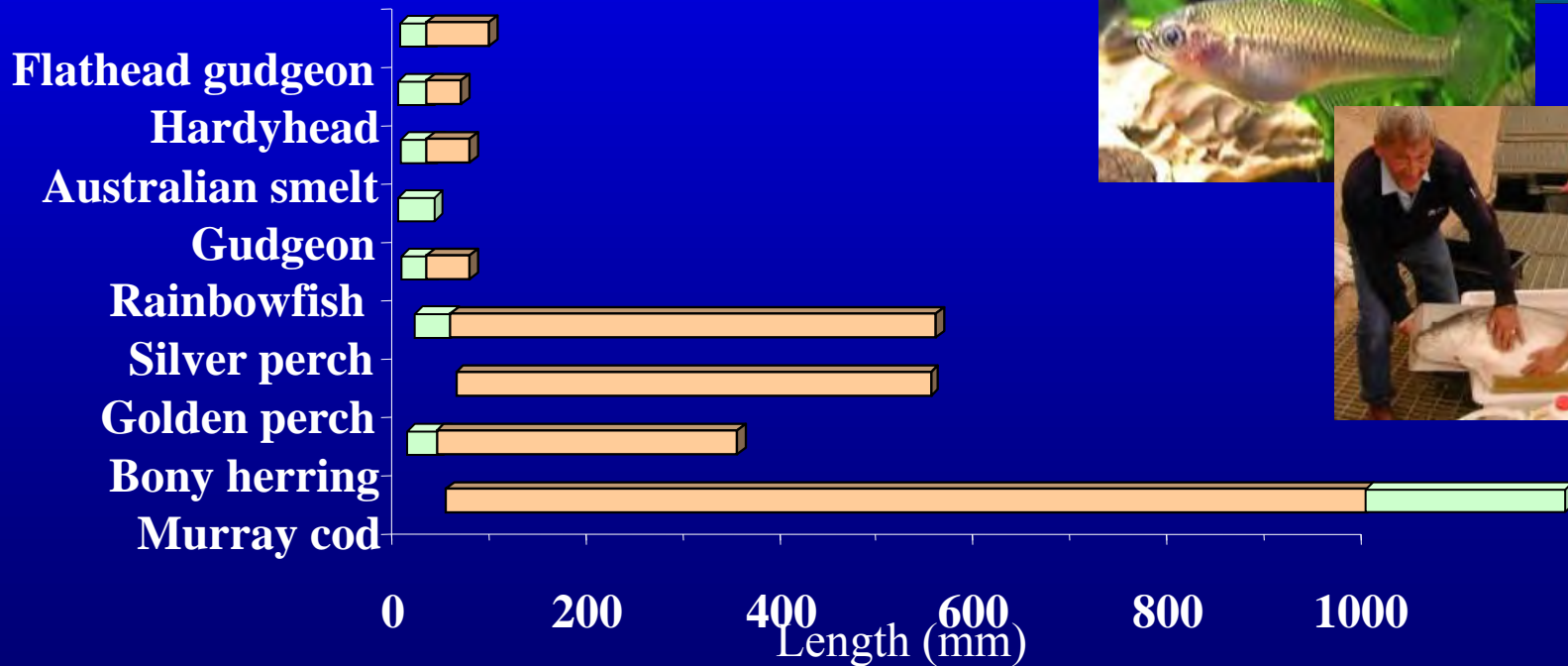
Fishway Results (Lock 7,9,10)

Target species and lengths



Fishway Results

Actual species and lengths



Conclusions

‘Before’ data is consistent with hypothesised accumulation model

Long term monitoring sites are providing valuable information on accumulating fish

Fishways are performing to initial specifications

Fishways are considered ‘world class’ in terms of passing potamodromous long-lived species

Adaptive management and research approach is providing continual feedback loop