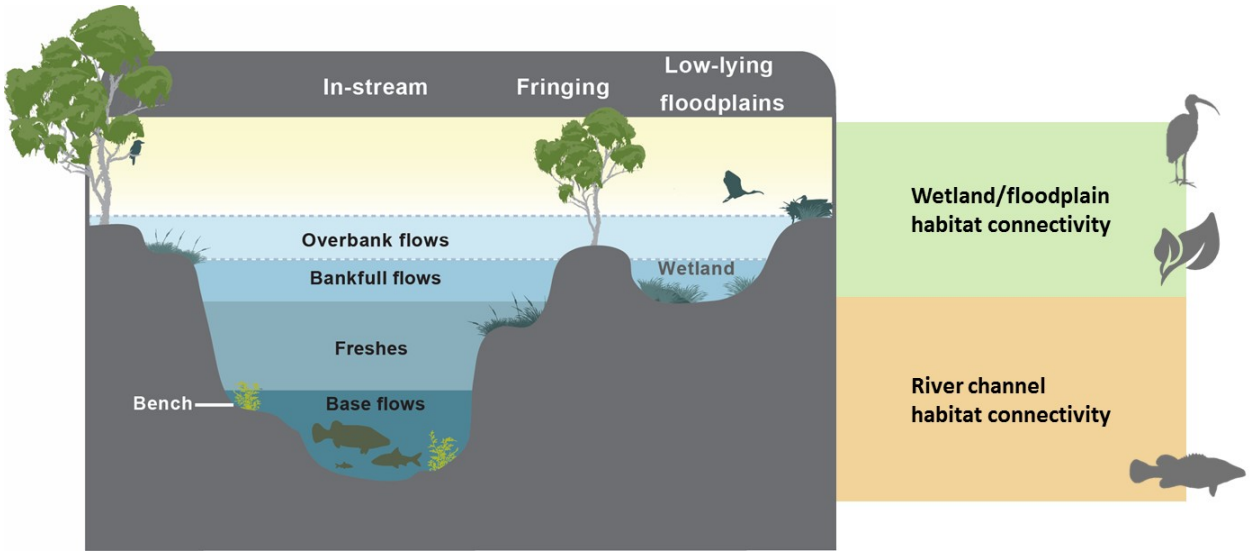
Condamine–Balonne

How much water recovery is being looked at?

- Baseline diversion limit (excluding interceptions), or how much water was available for consumptive use as at 2009, is 713.3 GL.
- Current Basin Plan legislation has a target of 100 GL of water recovery in the Condamine–Balonne. This is around a 14% reduction in the consumptive pool.
- Current Basin Plan legislation also has a shared water recovery target of 143 GL across catchments of the North to meet the needs of the Barwon–Darling system. This includes a contribution from the Condamine–Balonne.
- An estimate of 65 GL has been recovered as at December 2015, which was used in the modelling as a standard point-in-time estimate. This is not necessarily where water recovery is at now.
- **The Northern Basin Review is looking at a range of water recovery scenarios. These range from no further water recovery in the Condamine–Balonne, up to 85 GL of additional contribution to the local and shared recovery.**

What flow indicators are we using and why?



River channel indicators (lower Balonne):

- Two indicators for the replenishment of waterhole refuges along the Culgoa and Narran rivers. Periods of no-flow are normal but water resource development has resulted in these periods being much longer for some sections of the river system. If too many refuge waterholes dry out, local extinction of fish populations could occur or much slower re-colonisation upon the return of wetter conditions.

- Three fresh flows — to connect habitats along the river and stimulate fish to breed and move. Freshes help provide more habitat, and different types of habitat for fish and other aquatic animals. These flows support a greater diversity of species as well as more fish.

Wetland/Floodplain indicators (lower Balonne):

- Four overbank flow indicators — to provide flows to connect different parts of the floodplain and reach key flood dependent vegetation to maintain their character and condition. Overbank flows are important for nutrient exchange between the river and its floodplain and for supporting both aquatic and terrestrial food webs.

Why?	Where in the landscape?	Stream gauge	Size of flow	Duration (days)	Timing	How often? *Average years between events
Wetland/floodplain (Lower Balonne) • Connect different parts of the floodplain • Water wetlands and floodplain vegetation • Provide habitat waterbirds and other animals • Increase food resources – exchange nutrients between river channels and floodplain • Floodplain productivity (grasslands and benefits for grazing)	Overbank flows - Inundate fringing vegetation and wetlands	Brenda (Culgoa River)	9200 ML/d	12	Any time of year	2 to 3 years*
	Overbank flows - low-lying floodplain and wetlands	Brenda (Culgoa River)	15000 ML/d	10	Any time of year	3 to 4 years*
	Overbank flows – increasing area of floodplain and wetlands	Brenda (Culgoa River)	24500 ML/d	7	Any time of year	6 to 8 years*
	Overbank flows – large scale floodplain and wetlands	Brenda (Culgoa River)	38000 ML/d	6	Any time of year	10 to 20 years*
River channel (Lower Balonne) • Allow fish to move between habitats • Opportunities for fish to breed • Inundate benches and snags (habitat diversity) • Primary production supporting the food web • Connectivity through the river system • Maintenance of waterholes (drought refuges) • Breaks up extended dry spells	Maintain refuge waterholes	Weilmoringle (Culgoa River)	Any flow	1	Anytime of year	350 to 430 days between events
	Maintain refuge waterholes	Narran Park (Narran River)	Any flow	1	Anytime of year	350 to 470 days between events
	Small fresh – connect habitats	Brenda (Culgoa River)	1000 ML/d	7	Any time of year	80-90% of years with an event
	Large fresh – fish movement and breeding cue	Wilby Wilby (Narran River)	1700 ML/d	14	August-May	40-60% of years with an event
	Large fresh – fish movement and breeding cue	Brenda (Culgoa River)	3,500 ML/d	14	August-May	40-60% of years with an event

Wetland/Floodplain indicators (Narran Lakes):

- Four wetland and floodplain flow indicators - Provide a range of different flow volumes to reach key parts of the Narran Lakes ecosystem, including waterbird breeding and foraging sites. Provide flows to support large scale waterbird breeding (some ducks only live for 3-4 years while some of the bigger birds such as ibis can live up to 8 years). The four indicators are of different magnitudes to water different parts of the Narran Lakes system and ensure vegetation and wetlands are maintained in character and condition.

Why?	Where in the landscape?	Stream gauge	Size of flow	Duration (days)*	Timing	How often? (average years between events)
Wetland/floodplain (Narran Lakes) • Protect and restore Ramsar sites • Water wetlands and floodplain vegetation • Provide breeding and nursery sites for colonial waterbird breeding • Ensure the current extent of vegetation is maintained • Increase food resources – exchange nutrients between river channels and floodplain	Rookery habitat and in north lakes	Wilby Wilby (Narran river)	25 GL	60	Any time of year	1 to 1.3 years
	Rookery habitat in north lakes and floodplain	Wilby Wilby (Narran river)	50 GL	90	Any time of year	1.3 to 1.7 years
	Large scale waterbird breeding	Wilby Wilby (Narran river)	154 GL	90	Any time of year	Twice in 8 to 10 years
	Narran Lake and the surrounding floodplain	Wilby Wilby (Narran river)	250 GL	180	Any time of year	10 to 12 years

*the duration is the maximum period over which the flows can occur

What are the environmental results?

- Water recovery in the Condamine–Balonne is well underway.
- The water recovery scenarios achieve between 2-4 of the 9 lower Balonne flow indicators and 2-3 of the 4 Narran Lakes flow indicators. Under all scenarios, the watering needs of the Narran Lakes rookery habitat and the large in-channel fresh in the Culgoa River are achieved.
- Continuing water recovery will have benefits for connecting the floodplain more regularly, providing flows to link the network of waterholes and provide opportunities for fish and waterbirds to breed. There are still risks, especially for the more water-dependent riparian and inner floodplain in the Lower Balonne, and large-scale waterbird breeding in the Narran Lakes.
- There are also differences in the sequencing of the flow indicators (period between events). Increasing recovery can break some of the longer dry spells for small to medium floods and reduce high risk spells between bankfull events for fish movement.
- The results suggest that targeted water recovery is an efficient way of improving ecological outcomes. Narran outcomes are driven by the Narran River recovery – 20 GL looks like a threshold to achieve balanced outcomes (current recovery is at around 10 GL). Lower Balonne outcomes can be achieved from recovery in the Lower Balonne and from upstream of Beardmore Dam – 80 GL looks to be a threshold to achieve balanced outcomes (current recovery is at around 55 GL).
- The MDBA supports other actions that further improve environmental outcomes, especially to help restore the smaller flows in the Lower Balonne that are hard to achieve through water recovery alone. It is considered that improvements to this part of the flow regime can be improved through complementary management actions, such as varying flow rules, temporary trade and event based management. Any variation in access and/or operating rules would need to be part of a co-operative approach between stakeholders, jurisdictions and the Australian Government. The Commonwealth Environmental Water Holder is already investigating options for buying water on a temporary basis through an expression of interest process.