



What does environmental watering aim to achieve?

Header image: Platypus, by Josh Griffiths

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Environmental watering aims to improve the health of rivers and wetlands and protect environmental values

Environmental watering is the delivery of water to mimic some of the flows in rivers and wetting and drying patterns in wetlands that would have occurred naturally, before the development of dams, weirs and channels. Figure 1 shows typical natural flows in a Victorian river.

Environmental watering aims to improve the health of modified rivers and wetlands and protect and enhance remaining environmental values.

Environmental watering does not try to return rivers and wetlands to their pre-European condition. Many rivers and wetlands are so modified that this is not feasible. However, environmental watering can help to minimise some of the impacts of these modifications on rivers and wetlands.

For more information about how rivers and wetlands have been modified and why environmental watering is important, see the *Why is environmental watering important?* fact sheet.

Shared benefits

Environmental watering provides a range of shared benefits including recreational, Indigenous cultural and economic benefits. Where there are opportunities to maximise these benefits through environmental watering, environmental water managers will endeavour to do so, provided environmental outcomes are not compromised.

How do we know what plants and animals require?

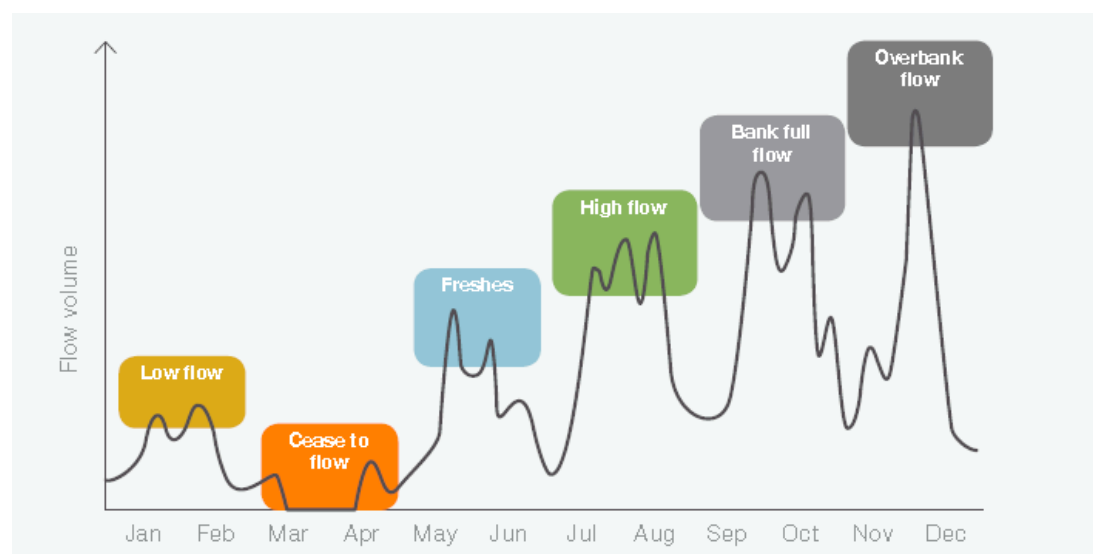
There is a large body of scientific and community knowledge about the water needs of plants and animals native to Victoria's rivers and wetlands.

From this knowledge, specific studies identify the flows needed for a particular river or the wetting and drying patterns needed in a particular wetland to support particular native plants and animals at those sites. These studies provide recommendations on the timing, watering duration and volume of water needed to support those native plants and animals in the short and long terms.

As well as drawing on scientific and community knowledge, these studies consider learning from monitoring programs and advice from experienced environmental water managers. Though there is still much to learn, these studies provide the best-available information about environmental watering needs.

For more information about the processes for setting environmental objectives, see the *What does environmental watering involve?* fact sheet.

FIGURE 1. A TYPICAL NATURAL FLOW PATTERN OF A VICTORIAN RIVER, BEFORE THE CONSTRUCTION OF DAMS, WEIRS AND CHANNELS



Modified from a graphic that originally featured in Why rivers need water, Department of Sustainability and Environment 2007

The benefits of different environmental flows in rivers

Figure 2 shows some of the benefits of different environmental flows in rivers.

Environmental water managers generally cannot deliver all of the flows that would have occurred naturally, at the right time of year, because there are limits to what is possible in modified river systems with many water users.

A river will not thrive without a combination of different environmental flows, because each type of flow achieves different purposes at different times. Flow variability is one of the keys to healthy rivers.

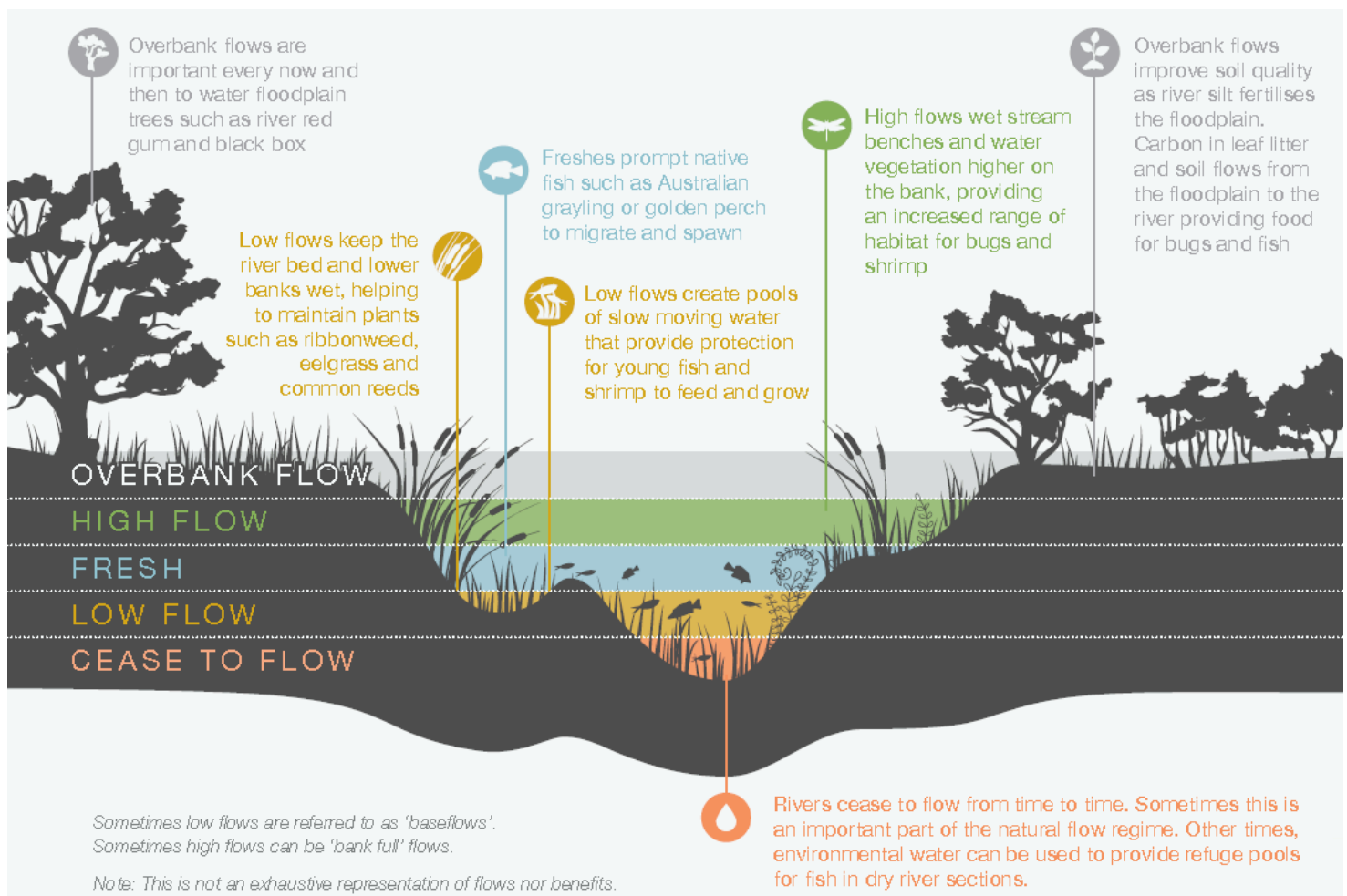
Limits to delivering environmental flows may include:

- there not being enough environmental water available
- structures (such as dams, weirs, levees and low-level bridges) physically limiting where water can travel
- water delivery posing a flooding risk to private property.

Environmental water will only deliver water on private land with permission from affected land owners.

Environmental water managers aim to achieve the best environmental outcomes possible within these limits.

FIGURE 2. BENEFITS OF DIFFERENT ENVIRONMENTAL FLOWS IN RIVERS



Example

In April 2014, autumn freshes in the Yarra River prompted the spawning of Australian grayling. As these small fish only live for a few years, it is important to provide autumn freshes in most years to spawn a new generation and ensure species survival.

The benefits of wetting and drying phases for wetlands

Every wetland is different. In a natural system, some wetlands were always wet, some were mostly wet with some dry phases, and some were mostly dry with wet phases. The frequency, extent and duration of the wet or dry phases varied from wetland to wetland, depending on their location on the floodplain.

The construction of dams, weirs, and channels has resulted in many wetlands either being disconnected from rivers or permanently connected to rivers or channels. This means that some wetlands do not get as much water as they used to, and others get too much.

Where possible, environmental water managers mimic the wetting and drying phases that wetlands would have naturally experienced. Just as for rivers, the aim of environmental watering is to protect the environmental values that remain and generally improve the health of modified wetland systems.

Figure 4 shows some examples of the benefits of wetland wetting and drying phases.

Many wetlands will not thrive without wetting and drying phases, because each phase achieves different purposes at different times. This variability is one of the keys to healthy wetlands. Wetlands are commonly referred to as billabongs, swamps or lagoons amongst other names. For example, Richardsons Lagoon, Kinnairds Swamp, Dowd Morass and Brickworks Billabong are all wetlands.

Example

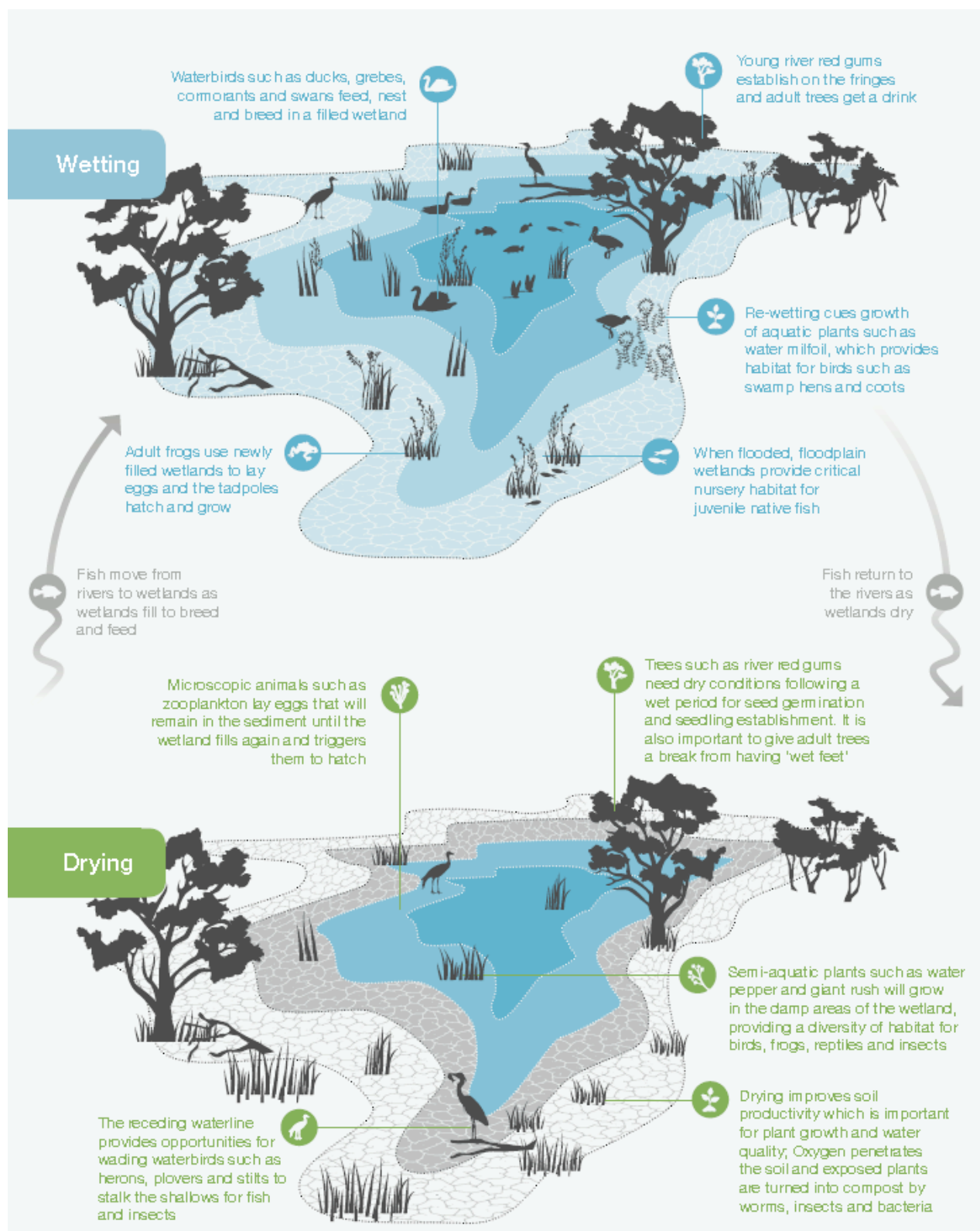
In April 2014, Black Swamp in northern Victoria received 50 megalitres (50,000,000 litres) of environmental water. Shortly after, native plants began to emerge such as swamp wallaby-grass, common nardoo, myriophyllum and potamogeton (as shown in Figure 3 below). The recommended watering pattern for Black Swamp is a wetting phase lasting approximately six months, followed by a drying phase for up to 9 months every two to three years.

FIGURE 3. TIMELAPSE CAMERA MONITORING OF ENVIRONMENTAL WATERING IN BLACK SWAMP, 2014



Source: Goulburn Broken Catchment Management Authority

FIGURE 4. BENEFITS OF WETTING AND DRYING PHASES IN WETLANDS



Note: This depicts a riparian wetland and is not an exhaustive representation of benefits of wetting and drying phases in different types of wetlands.