Next steps

This volume is one of a suite of documents that comprise:

- Volume 1: *Guide to the proposed Basin Plan: overview*
- Volume 2: *Guide to the proposed Basin Plan: technical background*
- Volumes 3–21: regional guides to outline how the provisions of the proposed Basin Plan will affect the 19 regions of the Basin.

With the release of these guides, interested parties will have the opportunity to provide the Murray–Darling Basin Authority (MDBA) with feedback ahead of the release of the proposed Basin Plan.

In the coming months, MDBA will continue preparing the proposed Basin Plan (i.e. the legislative instrument) for release. Once it is released, together with a plain English summary of the instrument, the formal 16-week consultation period required under the *Water Act 2007* (Cwlth) will commence. Submissions on the proposed plan will be sought from all sectors of the community.

Submissions received during the formal 16-week consultation period will be published on the MDBA website. When the public comment period has finished, a summary of the submissions received will be produced, together with information on any resulting amendments to the plan.

When MDBA has taken comments into account and finalised the Basin Plan, the Murray–Darling Basin Ministerial Council will consider it, together with MDBA's assessment of the socioeconomic implications of each SDL scenario. MDBA will then present the Basin Plan to the Commonwealth Water Minister for adoption and it will become law when the minister tables it in the Australian Parliament, which is expected to happen in 2011.

Where to find more detail

For more information, contact MDBA:

- on the web: www.mdba.gov.au
- by phone: 1800 230 067
- by email: engagement@mdba.gov.au
- by mail: GPO Box 3001, Canberra, ACT 2601.

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Glossary

ABARE

The Australian Bureau of Agricultural and Resource Economics (ABARE) is an Australian Government economic research agency. On 1 July 2010, the Department of Agriculture, Fisheries and Forestry merged two bureaus within its portfolio — the Australian Bureau of Agriculture and Resource Economics and the Bureau of Rural Sciences — to form the Australian Bureau of Agricultural and Resource Economics – Bureau of Rural Sciences (ABARE–BRS).

Aboriginal nations (Indigenous nations)

Term used by Aboriginal communities in the Murray–Darling Basin to describe traditional owner groups. Aboriginal nations, Indigenous nations or traditional owner groups are Aboriginal people whose territories are determined through interpretation of customs and traditions, and who have rights and responsibilities for lands and waters under those customs and traditions.

Aboriginal water values

The traditional and contemporary cultural importance of water regarding identity, customs and beliefs of Aboriginal peoples.

Aboriginal water values can relate to resources, places, features and oral traditions, and include (but not be limited to) spiritual, ecological, educational, social, ceremonial, economical, cultural and natural entities. Aboriginal water values are interconnected and holistic.

ABS

The Australian Bureau of Statistics (ABS) is the Australian statistical agency that assists and encourages informed decision-making, research and discussion within government and the community.

Abstraction

The removal of water from its natural source.

ACCC

The Australian Competition and Consumer Commission (ACCC) promotes competition and fair trade in the marketplace to benefit consumers, businesses and the community. It also regulates national infrastructure services. Its primary responsibility is to ensure that individuals and businesses comply with the Commonwealth competition, fair trading and consumer protection laws. It has a role in enforcing the Water Market Rules 2009 and the Water Charge (Termination Fees) Rules 2009. In this, the ACCC intends to use a cooperative approach, including working with irrigation infrastructure operators to achieve compliance. However, when necessary, it is prepared to use remedies available to it under the *Water Act 2007* (Cwlth).

Acid sulfate soils

Soils formed naturally when sulfate-rich water (e.g. saline groundwater or seawater) mixes with sediments containing iron oxides and organic matter. Under waterlogged, anaerobic (oxygen-free) conditions, bacteria convert sulfates to sulfides, which can form sulfidic sediments. When these sediments are exposed to oxygen, such as under drought conditions, chemical reactions may lead to the generation of sulfuric acid.

Acidification

The process of change or conversion into an acid.

Actual take

The total quantity of water actually extracted from the water resources of a water resource plan area during a water accounting period (see also 'permitted take').

Adaptive management

A structured, iterative process to improve decision-making when knowledge is uncertain. Adaptive management aims to reduce uncertainty over time by incorporating new knowledge and learning into decision-making, such as from system monitoring.

Afforestation

Conversion of bare or cultivated land into forest.

AHD

Australian Height Datum, which approximates mean sea level and was determined by monitoring tide gauges around the Australian coastline.

Algal bloom

A sudden increase in the number of algae in a water body, to levels that cause visible discolouration of the water.

Algal Management Strategy

Developed by the Murray–Darling Basin Commission and agreed by the Murray–Darling Basin Ministerial Council in 1994, to provide coordinated action to reduce the frequency and intensity of algal blooms.

Alkalinity

The chemical property of water that enables it to resist a reduction in pH. The 'p' stands for potential, the 'H' for hydrogen. The pH of distilled water is 7, which is neutral. Any solution with a pH below 7 is an acid; any solution with a pH above 7 is an alkali.

Allocation

The water to which the holder of an access licence is entitled from time to time under licence, as recorded in the water allocation account for the licence. In New South Wales, under the *Water Management Act 2000* (NSW), water allocations are called 'available water determinations'.

Alluvial groundwater system

Groundwater in sand, gravel, silt and clay particles, usually deposited by rivers.

Anabranch

A branch of a river that leaves the main stream and rejoins it downstream.

ANAO

The Australian National Audit Office (ANAO) is a specialist public sector practice, providing a full range of audit services to the Parliament and Commonwealth public sector agencies and statutory bodies.

ANCOLD Inc

The Australian National Committee on Large Dams Incorporated (ANCOLD Inc) is an incorporated voluntary association of organisations and individual professionals with an interest in dams in Australia. ANCOLD Inc technical working groups produce, for example, guidelines on design, management and risk assessment of dams.

Anthropogenic

Caused by human beings.

Approval authority

An entity authorised to approve or register water trades, usually held by a state or territory government department, or delegated to an infrastructure operator.

AquaBAMM

The aquatic biodiversity assessment and mapping (AquaBAMM) method is a tool used to assess conservation values for wetlands.

Aquatic ecosystem

An ecosystem that is in or depends on water.

Aquifer

An underground water-bearing geological formation from which groundwater can be extracted.

Aquitard

A geological formation that may contain groundwater, but is not capable of transmitting significant quantities under normal hydrologic gradients. An aquitard may function as a confining bed.

Artesian

Water that comes to the surface under natural pressure when tapped by a bore.

AusRegion model

ABARE's general equilibrium economic model used to estimate implications for economic activity in response to shocks to the Murray–Darling Basin economy. As a general equilibrium model, AusRegion incorporates direct and indirect impacts of shocks to the economy, including feedback from regions. This is in contrast to partial equilibrium models that restrict analysis of impacts to a particular industry or region.

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Australian Drinking Water Guidelines

Guidelines prepared by the National Health and Medical Research Council (NHMRC) to provide the Australian community and the water supply industry with direction on quality drinking water.

AWRIS

The Australian Water Resources Information System (AWRIS) is a publicly accessible online information tool, <www.water.gov.au/default.aspx>, and is the official repository for water data and reporting in Australia. AWRIS integrates and adds value to extensive measurements of river flows, groundwater levels, reservoir storage volumes, water quality, use, entitlements and trades. AWRIS is being developed by the Bureau of Meteorology, in line with the requirements of the *Water Act 2007* (Cwlth).

Bank slumping

A mass failure of riverbank material resulting in partial or complete collapse.

Bankfull

The maximum amount of discharge that a stream channel can carry without overflowing. Bankfull flows are an important trigger for fish breeding in the Murray–Darling Basin.

Barmah Choke

A narrow section of the River Murray that constrains the volume of water that can pass during major floods. During floods, large volumes of water are temporarily banked up behind the Barmah Choke, which floods the Barmah–Millewa Forest wetland system.

Barrages

Five low, wide weirs built at the Murray Mouth in South Australia to reduce the amount of seawater flowing in and out of the mouth due to tidal movement. The barrages also help to control the water level in the Lower Lakes and River Murray below Lock 1.

Baseline

Conditions regarded as a reference point for the purpose of comparison. In the Basin Plan, baseline is defined by elements including the time under consideration; climate characteristics; each jurisdiction's policies, water management rules, entitlement systems and operating rules; the configuration and specification of water resource models; and the mix and location of various water uses and water sources.

Basic rights

Basic rights cover three types of water rights that do not require a licence: stock and domestic rights, native title rights and harvestable rights.

Basin Community Committee

The Basin Community Committee advises the Murray–Darling Basin Authority (MDBA) about the performance of its functions, including engaging the community in the preparation of each draft Basin Plan, community matters relating to the Basin water resources, and matters referred to the committee by MDBA.

Basin Officials Committee

A committee set up to facilitate cooperation and coordination between the Commonwealth, the Murray–Darling Basin Authority and the Basin states in funding works and managing the Basin's water and other natural resources.

Basin Plan

A plan for the integrated management of the water resources of the Murray–Darling Basin, to be adopted by the minister under s. 44 of the *Water Act 2007* (Cwlth).

Basin Salinity Management Strategy

A 15-year plan for communities and governments in cooperating to control salinity in the Murray–Darling Basin. The strategy establishes targets for the river salinity in each major tributary valley and across the Murray–Darling system. The strategy was agreed by the Murray–Darling Basin Ministerial Council on 17 September 2001.

Basin state agencies

Under the *Water Act 2007* (Cwlth), a person or entity appointed or established by or on behalf of a Basin state.

Basin states

For the purposes of the Basin Plan, the Basin states are as defined in the *Water Act 2007* (Cwlth) as New South Wales, Victoria, Queensland, South Australia and the Australian Capital Territory.

Basin water resources

According to s. 4 of the *Water Act 2007* (Cwlth), Basin water resources are within or beneath the Murray–Darling Basin, but do not include water resources within or beneath the Murray–Darling Basin that are prescribed by the regulations or groundwater that forms part of the Great Artesian Basin.

Bayesian network

A method for understanding and managing the complex linkages between risk factors in a system, and of transparently considering both qualitative and quantitative information from a variety of sources.

Bifurcate

To divide into two branches — a split in the flow of water.

Biodiversity

The variety of species of plants, animals and microorganisms, their genes and the ecosystems they comprise, often considered in relation to a particular area.

Bioregion

An identifiable regional habitat in terms of living organisms.

Bioremediation

The use of living organisms and their by-products as a means of returning the chemistry of a contaminated environment to an uncontaminated state.

Biosphere

In a broad sense, the entire planetary ecosystem, including all living organisms and those parts of the earth and its atmosphere in which living organisms exist or are capable of supporting life.

Biota

The plant and animal life of a region or ecosystem, as in a stream or other body of water.

Bird-breeding flooding

Flooding that attracts large numbers of flocking birds to breed and feed.

Blackwater

Water with a dark colour due to a high level of organic compounds.

Block bank

A bank that is used to block, move, intercept, hold or harvest water, and for the protection of agricultural development.

Blue-green algae (cyanobacteria)

A group of photosynthetic bacteria more correctly referred to as *cyanobacteria*.

BOM

Under the *Water Act 2007* (Cwlth) the Bureau of Meteorology (BOM) has a water information role — compiling and delivering Australia's water information — to accurately monitor, assess and forecast water availability, condition and use.

Bonn Convention

Also known as the Convention on the Conservation of Migratory Species of Wild Animals (or CMS), the Bonn Convention was signed in 1979 and entered into force in 1983.

Borefield

A deep hole of small diameter bored to the aquifer of an artesian basin, through which water rises under hydrostatic pressure.

BRS

The Bureau of Rural Sciences (BRS) provides scientific advice to government, rural industries and communities on agriculture, fisheries and forestry. On 1 July 2010, the Department of Agriculture, Fisheries and Forestry merged two bureaus within its portfolio — the Australian Bureau of Agriculture and Resource Economics and the Bureau of Rural Sciences — to form the Australian Bureau of Agricultural and Resource Economics – Bureau of Rural Sciences (ABARE–BRS).

Bureau of Meteorology

Under the *Water Act 2007* (Cwlth), the Bureau of Meteorology (BOM) has a water information role — compiling and delivering Australia's water information — to accurately monitor, assess and forecast water availability, condition and use.

Bureau of Rural Sciences

The Bureau of Rural Sciences (BRS) provides scientific advice to government, rural industries and communities on agriculture, fisheries and forestry. On 1 July 2010, the Department of Agriculture, Fisheries and Forestry merged two bureaus within its portfolio — the Australian Bureau of Agriculture and Resource Economics and the Bureau of Rural Sciences — to form the Australian Bureau of Agricultural and Resource Economics – Bureau of Rural Sciences (ABARE–BRS).

CAC Act

Commonwealth Authorities and Companies Act 1997 (Cwlth).

Calibration process

The process of optimising the input parameters of a numerical model by matching the model to measured data.

Canopy

Overhanging cover formed by vegetation, or the cover of branches and foliage formed by the crowns of trees and shrubs.

Cap (the Murray–Darling Basin Cap on diversions)

A limit, implemented in 1997, on the volume of surface water that can be diverted from rivers for consumptive use. Under the Basin Plan, the Cap will be replaced by long-term average sustainable diversion limits (SDLs).

Caring for our Country

An Australian Government funding program for projects that improve biodiversity and sustainable farm practices. The funding can support regional natural resource management groups, local, state and territory governments, Aboriginal groups, industry bodies, land managers, farmers, Landcare groups and communities.

Carryover

A way to manage water resources and allocations that allows irrigators to take a portion of unused water from one season into the new irrigation season.

Catchment

The area of land drained by a river and its tributaries.

Cease-to-flow

A period of no discernible flow in a river, which can lead to total or partial drying of the river channel, depending on the specifics of the system.

Channel

Of a watercourse, a natural or artificial streamflow with definite bed and banks to confine and conduct water.

Of a landform, the bed of a watercourse that commonly is barren of vegetation and is formed of modern alluvium (deposited during relatively recent geologic time).

Channel capacity

The volume of water that can pass along a channel at a certain point without spilling over the bank.

Channel flow

The flow of water that is conveyed through natural or artificial open water conveyance carriers (as opposed to piped conveyance), expressed in megalitres per day (ML/d) or in another appropriate unit.

Channelled floods

Floods that flow in channels, or between levees or block banks.

Chenopods

Salt-tolerant shrubs resistant to drought.

Climate change

A significant and long-term change in usual climatic conditions beyond natural climate variability, especially where such changes are thought to be caused by global warming (see also 'global warming').

Climate Change Adjustment Program

An Australian Government program to provide assistance, farm business and management advice to primary producers to manage the impacts of climate change.

Climate change buffer

A water planning contingency or policy position to address the direct effects of climate change on rainfall over the next 10–20 years. The buffer is based on scientific forecasts of the rate and magnitude of changes in long-term average runoff across the Basin.

Climate scenario

A description of the weather characteristics predicted to occur over a century or more if known causes of change are stable. Usually expressed in terms of statistics or variability in annual rainfall or runoff for a climate with a fixed level of greenhouse gases.

Coefficient of variation

A measure of the deviation of individual values compared to the mean value of a series of data.

Cold water pollution

Release of cold water from the bottom of a water storage that has a layer of warm surface water and a layer of cooler, deeper water below it. The water temperature at depth can be many degrees cooler and can have serious environmental impacts when it is released.

Colonial nesting waterbirds

Species of seabirds and wading birds that rely on water bodies for food (fish and aquatic invertebrates) and tend to gather in large colonies during the nesting season.

Commonwealth buyback

An Australian Government program to purchase water in the Murray–Darling Basin to return it to the environment. Each year, water purchasing tenders are conducted across the Basin by the Department of the Environment, Water, Heritage and the Arts.

Commonwealth Environmental Water Holder

The *Water Act 2007* (Cwlth) establishes the Commonwealth Environmental Water Holder to manage water entitlements that the Commonwealth acquires. Under the Act, this official has the responsibility for using these entitlements to protect and restore the environmental assets of the Murray–Darling Basin, or assets outside of the Basin where water is held by the Australian Government for that area.

Commonwealth Scientific and Industrial Research Organisation

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) is Australia's national science agency. Water for a Healthy Country is one of CSIRO's national research flagships and its Land and Water Division takes part in a wide range of research relevant to the Murray–Darling Basin.

Community Advisory Committee

The role of the committee is to advise the Murray–Darling Basin Ministerial Council from a community viewpoint on critical natural resource management issues within the Basin.

Confined aquifer

An aquifer that has a confining layer (aquitard) between it and the land surface. Groundwater contained in confined aquifers is usually under natural pressure and the confining layer is at least partially saturated.

Connectivity

Connections between natural habitats, such as a river channel and adjacent wetland areas. Connectivity is a measure or indicator of whether a water body (e.g. river, wetland, floodplain) has water connections or flow connections to another body (see also 'environmental connectivity', 'groundwater connectivity', 'hydrologic connectivity').

Conservative characteristic (referring to salt)

Once salt is added to water, it remains in solution. This means that the level of salt will only change by dilution or as a result of additional input (it is not subject to any biological or chemical transformation).

Consumptive use

Use of water for irrigation, industry, urban and stock and domestic use, or other private consumptive purpose.

Convention on the Conservation of Migratory Species of Wild Animals

See 'Bonn Convention'.

Convention on Wetlands of International Importance

See 'Ramsar Convention'.

Conveyance reserve

The reserve required under s. 86D(1)(c) of the *Water Act 2007* (Cwlth); water required to be reserved to meet the shortfall in conveyance water.

Conveyance water

The water required to ensure sufficient flow in a river to physically deliver water for critical human water needs without evaporation or seepage into the riverbed. The *Water Act 2007* (Cwlth) terms conveyance water as water in the River Murray system required to deliver water to meet critical human water needs as far downstream as Wellington in South Australia.

Cooperative research centres

Cooperative research centres (CRCs) are key bodies for Australian scientific research across a range of sectors to enhance Australia's industrial, commercial and economic growth.

Critical human water needs

Under s. 86A(2) of the *Water Act 2007* (Cwlth), the core water requirements of communities dependent on Basin water resources. The definition also includes non-human requirements that if not met would cause prohibitively high social, economic or national security costs.

CSIRO

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) is Australia's national science agency. Water for a Healthy Country is one of CSIRO's national research flagships and its Land and Water Division takes part in a wide range of research relevant to the Murray–Darling Basin.

CSIRO Murray–Darling Sustainable Yields Project

On 7 November 2006, the Prime Minister of Australia, the premiers of New South Wales, Victoria and South Australia and the Acting Premier of Queensland commissioned a progressive report by the end of 2007 on sustainable yields of surface-water and groundwater systems within the Murray–Darling Basin. The Murray–Darling Basin Sustainable Yields Project was undertaken by CSIRO as a major research project on current and future water availability in the Murray–Darling Basin. It included an overall Basin report as well as 18 regional analyses.

Council of Australian Governments

The peak intergovernmental forum in Australia, which initiates, develops and monitors the implementation of policy reforms that are of national significance and that require cooperative action by all levels of Australian government.

Cultural flows (or cultural water flows)

Both the Murray Lower Darling Rivers Indigenous Nations (a confederation of 10 Aboriginal nations in the southern part of the Basin) and the Northern Murray–Darling Basin Aboriginal Nations (a confederation of 21 Aboriginal nations in the northern part of the Basin) have developed their own definition of cultural flows: 'Water entitlements that are legally and beneficially owned by the Aboriginal nations and are of a sufficient and adequate quantity and quality to improve the spiritual, cultural, environmental, social and economic conditions of those Aboriginal nations. This is our inherent right.'

Current-arrangements flow conditions

Modelled flow that reflects the effects of water management infrastructure and consumptive water use (see also 'without-development flow conditions').

Current diversion limit

Long-term average diversions allowable under existing state and territory water resource management plans, or the Cap on diversions where no plan exists, or the current level of development where neither a plan nor the Cap exists.

Cut-off loop

Another term for abandoned meander bends which are bends in the river channel that have been short-circuited by the main river flow. Cut-off loops commonly form billabongs and ox-bow lakes adjacent to the main river channel.

Cyanobacteria (blue-green algae)

A group of photosynthetic bacteria.

Debits and credits regime

A system for water accounting, whereby excess take (more than the permitted take) is recorded as a 'debit' and take that is below the permitted take is recorded as a 'credit'. Debits may be accrued up to a limit and can be offset against credits, subject to certain restrictions.

Defined variable climate

An observed climatic sequence over the benchmark period (1 May 1975 to 30 April 2000) that is used consistently as a basis for simulating catchment responses (such as groundwater movements and river behaviour) at other dates.

Delivery water

Water of a specified quantity and quality, with defined timing and user, but undefined purpose.

Demographics

Attributes or characteristics of a population or section of a population. Demographics are described using indicators or statistics intended to characterise the population under study. Demographic descriptors include the size, growth, density, distribution, mortality and birth rates, sex and age profile of a group of people.

Deoxygenation

The removal of oxygen.

Depauperate

Stunted (growth); having limited biodiversity.

Desalination

The removal of salt and other dissolved minerals from saline waters, including seawater, to produce low salinity water suitable for human consumption.

Dewatering

Lowering of the groundwater level at a particular location as the result of groundwater extraction.

DEWHA

The Australian Government Department of the Environment, Water, Heritage and the Arts (DEWHA).

Diffuse dryland recharge

Groundwater recharge that is sourced from rainfall, as opposed to streamflow recharge or recharge from irrigation leakage.

Dilution flow

The flow required to meet certain water quality standards by mixing a contaminated flow with a better quality flow.

Direct economic impact

The first-round impact of a shock or a policy change that is directly related to a shock. For example, changes in water availability have a direct effect on economic activity in irrigated agriculture (see also 'indirect economic impact').

Discharge

Flow of groundwater from a saturated zone to the earth's surface; flow of surface water out of a defined catchment.

Dissolved oxygen level

The amount of oxygen dissolved in water.

Distributary stream

A diverging stream that does not return to the main stream, but discharges into another stream or into the ocean; it also refers to conduits that take water from a main canal for delivery to a farm.

Diurnal

Any pattern that recurs daily, such as a cycle of daily temperature change or oxygen levels in water.

Diversion

A structure in a river or canal that diverts water to another watercourse; a turning aside or alteration of the natural course of a flow of water; the transfer of water from a water source by a canal, pipe, well, or other conduit to a watercourse or to the land (as in an irrigation system).

Diversion channel

An artificial channel constructed around a point of high potential flood damage (e.g. a town) to divert floodwater; a channel carrying water from a diversion dam.

Diversion limit compliance framework

A broad implementation framework for the Murray–Darling Basin Authority's diversion limit compliance method. The framework is not required by the *Water Act 2007* (Cwlth) to be included in the Basin Plan, but it has been included in the *Guide to the proposed Basin Plan* for clarity and transparency.

Diversion limit compliance method

The method to determine compliance with a long-term annual diversion limit, required by the *Water Act 2007* (Cwlth) (s. 22(1), item 8), as mandatory content of the Basin Plan.

Drawdown

The lowering of the water level in a weir pool.

Dredging

The mechanical removal of mud and other material to deepen a waterway.

Drought refuge

An area that a species can retreat to during times of drought; for example, a permanent pool that remains when a river dries out during drought.

Dry extreme 2030 climate

When high or low estimates on how much greenhouse gas will be in the atmosphere by 2030 are put into models, they generate different outcomes as to how wet or dry it will be in the Basin. The dry extreme 2030 climate is the future climate scenario predicted using the driest model run from the model that predicts drier conditions for the Basin (see also 'wet extreme 2030 climate' and 'median 2030 climate').

Drying off

A strategy used by some perennial horticultural enterprises, generally during periods of water scarcity, of withholding water from less profitable plantings (depending on commodity price and water price) so that water can be directed to more profitable uses within a farm business.

Dryland farming

Non-irrigated crop farming; crop production in semi-arid regions, usually using moisture-conserving farming techniques; also referred to as 'dry farming'.

Dryland river

In the Murray–Darling Basin, generally refers to rivers in the dry north and west of the region, such as the mid and lower Darling.

Dynamic equilibrium

In groundwater systems, when the groundwater levels cease to be drawn down and instead reach a steady state.

Easement

The legal right granted by a property owner to another party to enter on the land, usually to maintain a pipeline or cable, or to cross the land to gain access to another property.

Ecologically sustainable development

Using, conserving and enhancing the community's resources so that ecological processes on which life depend are maintained and the total quality of life, now and in future, can be increased.

Ecology

The study of the interrelationships of living things to one another and to the environment.

Ecoregion

A continuous geographic area over which the macroclimate is sufficiently uniform to permit the development of similar ecosystems on sites with similar geophysical properties. Ecoregions contain a variety of landscapes with different spatial patterns of ecosystems.

Ecosystem

A dynamic complex of plant, animal and microorganism communities, and the non-living environment, all interacting as a functional unit.

Ecosystem response outcomes

The way in which ecosystems — living plants and animals, and the environment in which they live — respond to changing circumstances.

Effluent

An outflowing substance, especially a stream flowing out of a body of water.

In terms of water quality, discharged wastewater, such as treated wastes from municipal sewage plants.

Effluent seepage

Diffuse discharge of groundwater to the ground surface.

Electrical conductivity

A unit commonly used to indicate water salinity. One unit of electrical conductivity equals 1 microsiemen per centimetre, measured at 25 °C.

Endemic biota

Animal and plant life native to a country or locality, either collectively or interdependently.

Endocrine-disrupting compounds

Compounds that interfere with the endocrine systems of organisms, especially compounds such as steroidal hormones, surfactants (wetting agents that lower the surface tension of a liquid); plasticisers (additives that increase the plasticity or fluidity of the material to which they are added); pesticides; and organometals (chemical compounds containing bonds between carbon and a metal).

End-of-valley targets

Under the Basin Salinity Management Strategy, a water quality target set for a point in the lower reach of each catchment.

Entitlement (or water entitlement)

The volume of water authorised to be taken and used by an irrigator or water authority, including bulk entitlements, environmental entitlements, water rights, sales water and surface-water and groundwater licences.

Entitlement holder

An irrigator or water authority.

Environmental asset

A key environmental asset for the purposes of the Basin Plan is a water-dependent ecosystem that meets one or more of the criteria under the *Water Act 2007* (Cwlth). Environmental assets include water-dependent ecosystems, ecosystem services and sites of ecological significance.

Environmental connectivity

Environmental connectivity consists of links between water-dependent ecosystems that allow migration, colonisation and reproduction of species. These connections also enable nutrients and carbon to be transported throughout the system to support the healthy functioning and biodiversity of rivers, floodplains and wetlands. Hydrologic and ecological links are between upstream and downstream sections of river (longitudinal connectivity) and between rivers and their floodplains (lateral connectivity).

Environmental flow

Any river-flow pattern that is provided with the intention of maintaining or improving river health.

Environmental outcome

An outcome (usually of a project) that benefits the ecological health of the river system.

Environmental water

Water used to achieve environmental outcomes, including benefits to ecosystem functions, biodiversity, water quality and water resource health.

Environmental water requirements

The amount of water needed to meet an ecological or environmental objective.

Environmental Water Scientific Advisory Committee

A committee comprising prominent scientists and experts in fields such as hydrology, limnology, river operations management, river and floodplain ecology, and the management of aquatic ecosystems, appointed to advise the Commonwealth Environmental Water Holder on the use of environmental water.

Environmental Watering Plan

A plan to restore and sustain the wetlands and other environmental assets of the Basin and to protect biodiversity dependent on the Basin water resources.

Environmental Works and Measures Program

A scheme to deliver works and measures to improve the health of the River Murray system by making the best use of available water, optimising the benefits of any water recovered in the future, and considering other policy interventions.

Environmentally sustainable level of take

The level of water extraction from a particular system which, if exceeded, would compromise key environmental assets or ecosystem functions and the productive base of the resource.

Ephemeral river system

An ephemeral river system that does not flow constantly and may be dry for months or years at a time.

Ephemeral stream

A stream that flows only in direct response to precipitation, usually for a short time, and stops flowing during dry seasons. Most dry washes in more arid regions may be classified as ephemeral streams.

Estuarine

The area of a river near its mouth that is tidal — where the river flow meets the sea tides. One of the classification systems under the wetlands and deepwater habitats classification system (see also 'wetlands').

Estuarine waters

Deepwater tidal habitats and tidal wetlands that are usually enclosed by land, but that connect with the ocean and are at least occasionally diluted by freshwater runoff from the land (e.g. bays, mouths of rivers, salt marshes, lagoons).

Estuarine zone

The area near the coastline that consists of estuaries and coastal saltwater wetlands.

Estuary

An area where fresh-water meets salt-water (e.g. bays, mouths of rivers, salt marshes, lagoons). The area of a river flow influenced by the tide of the body of water into which it flows (e.g. a bay or mouth of a river), where the tide meets the river flow; an area where fresh and marine waters mix.

Eutrophication

In water bodies, such as lakes or slow-moving streams, excess nutrients that stimulate plant overgrowth (e.g. algal blooms).

Evaporation

Water converting into a gaseous state or vapour from open water surfaces. This includes water evaporating from wet vegetation and water evaporating from the soil surface. Potential evaporation is an estimate of the evaporation as a function of predicted or measured weather parameters, such as temperature, humidity and wind.

Evapotranspiration

The transfer of water as vapour from near the earth's surface to the air; includes evaporation from water surfaces, transpiration from plants and transfer of water vapour directly from the soil surface.

Excess take

The amount of water extracted from the water resources of a water resource plan area during a water accounting period that exceeds permitted take.

Exotic species

A species that is not native to an area; plants or animals either intentionally or inadvertently introduced from another state or country.

Extracted water

Water extracted for consumptive use (see also 'nonextracted water').

Extreme and unprecedented circumstances

In terms of water availability or water quality, conditions for worst-case planning purposes — see s. 86E of the *Water Act 2007* (Cwlth). Conditions, either actual or predicted, where the critical human water needs of communities dependent on the River Murray system cannot be met over the planning period. This is a situation that cannot be managed without invoking Tier 3 water-sharing arrangements and/or an emergency response.

Farm dam

Small dams (usually less than 5 ML storage capacity) designed to capture runoff from rainfall events. While most farm dams are located on farms, the term includes dams on other types of properties, such as public or urban land.

Fish kill

A localised die-off of aquatic life due to a variety of causes, including industrial pollution.

Fish passage

The capacity for fish to travel up and downstream; for example, weirs and dams obstruct the passage of fish within streams, and structures such as fishways are built to restore fish passage by enabling fish to pass.

Fishway

A structure that provides fish with passage past an obstruction in a stream.

Flash

In waterways, to fill suddenly with water.

Flashiness

The frequency and rapidity of short-term changes in streamflow, especially during runoff events. Flashiness is an important component of a stream's hydrologic regime. A variety of land use and land management changes may lead to increased or decreased flashiness, often to the detriment of aquatic life.

Flood-dependent ecosystem

An ecosystem that depends on flooding from rivers.

Floodplain

Any normally dryland area that is susceptible to inundation by water from any natural source.

Floodplain harvesting

The collection, extraction or impoundment of water flowing across floodplains.

Flood runner watercourse

A stream that carries water in high flows or floods, generally running from (and sometimes back to) the main channel.

Flow data

Information about the quantity and rate of water carried through channels, rivers, pipelines and any other means of water conveyance.

Flow event

A single event of flow in a river; sometimes required to achieve one or more environmental targets. A series of flow events comprises a flow history.

Flow hydrograph

A graphic representation or plot of changes in the flow of water or in the elevation of water level, plotted against time.

Flow indicator

Characterisation of a part of the flow regime that is biologically relevant and important in shaping ecological processes in streams.

Flow regime

The characteristic pattern of a river's flow quantity, timing and variability.

Flow variability

When applied to the Murray–Darling Basin, refers to the combined variability of the magnitude (size in height and volume), the duration (the time the flow lasts) and the frequency (how often a flow occurs).

Flux estimates

Measurement of the approximate rate of flow of water through a groundwater system.

Food chain

The transfer of energy from primary producers (green plants) through a series of organisms that eat and are eaten. At each stage, much energy is lost as heat, a fact that usually limits the number of steps (trophic levels) in the chain to four or five.

Food web

A complex of interrelated food chains in an ecological community.

Forestry plantation

Used throughout this guide to mean the planting of woody perennial plants for commercial purposes. Although most plantations are established to grow timber products, the term also includes plantations established for other commercial purposes (e.g. carbon sequestration or for biofuel).

Fossil groundwater

A non-renewable supply of water trapped underground in aquifers. A body of groundwater that was recharged under previous hydrogeological conditions, but is not recharged under current hydrogeological conditions.

Fractured rock aquifer

Groundwater that exists in the fractures, joints, bedding planes and cavities of a rock mass.

Freshes

Small or short-duration peak flow events. Freshes exceed the base flow for at least several days, contributing to the variability of flow regimes and providing short pulses in flow.

Fringing vegetation

Vegetation on the edge of a water body, generally in relation to wetlands and floodplains.

Future climate scenario

Daily rainfall and potential evapotranspiration projections of a future where the global average surface air temperature is higher (e.g. in 2030 relative to 1990). Data is available on historical climate, and modelling of future climate scenarios is based on this data with scaling up or down for extreme dry, median and extreme wet scenarios.

Geomorphology

A branch of physiography and geology that deals with the form of the earth, the general configuration of its surface, and the changes that take place in the evolution of landforms; the geological aspect of the visible landscape.

Geoscience Australia

Geoscience Australia is an Australian Government agency that provides geoscientific information to facilitate informed decisions on the exploitation of resources, environmental management and safety of critical infrastructure.

Gigalitre (GL)

One billion (1,000,000,000) litres; or 1 km^2 of water 1 metre deep.

Global warming

The increase in the average temperature of earth's air and oceans, particularly over the past century and projected into the future, believed to be initiated largely by increases in the atmospheric concentration of heat-retaining gases (such as carbon dioxide, nitrous oxide, and methane and, as a secondary effect, water vapour).

Goldfields Superpipe

A 133 km pipeline in north-central Victoria, built to improve water security for Bendigo, Ballarat and surrounding towns. It carries Goulburn River water from the Waranga Western Channel to Lake Eppalock (stage 1) and then to White Swan Reservoir (stage 2).

Great Artesian Basin

A series of aquifers that extends from under the northern part of New South Wales and South Australia, the south-eastern part of the Northern Territory through Queensland to the Gulf of Carpentaria. It underlies part of the Murray–Darling Basin in northern New South Wales and southern Queensland. It is a multilayered aquifer system consisting mainly of sandstones alternating with impermeable siltstones and mudstones. Murray–Darling Basin Plan water resources do not include Great Artesian Basin groundwater.

Groundwater

Water occurring naturally below ground level (in an aquifer or otherwise).

Groundwater connectivity

Surface-water and groundwater systems are not separate resources but components of one system. Their connectivity is a dynamic relationship that fluctuates both seasonally and over the long term in response to climatic variations and the delayed impact of groundwater extractions. Where the connection is strong, groundwater extraction may directly affect surface-water streamflow by inducing leakage to groundwater, or intercepting stream base flow over short and long time frames. Similarly, surface-water extraction and management regimes may affect the availability of groundwater.

Groundwater-dependent environmental asset

An environmental asset that depends on groundwater for part or all of its survival. Also referred to as a groundwater-dependent ecosystem.

Groundwater discharge

Water released from a groundwater system to wetlands, lakes, streams and springs.

Guidelines for managing risk in recreational water

Guidelines prepared by the National Health and Medical Research Council (NHMRC) to ensure that recreational water environments are managed as safely as possible.

Gwydir Raft

An accumulation of timber, debris and sediment into a logjam, deposited over many decades, which extends for about 35 km along the Gwydir River downstream of Moree.

Ha

Hectare or hectares

Habitat

The natural environment or place where living things exist and grow.

Harvestable right

The right under New South Wales law that allows landholders to collect up to 10% of the average regional rainwater runoff on their property and use this water in a farm dam. Dams for this purpose can only be constructed on minor streams that are not permanently flowing, or on hillsides and gullies.

Held environmental water

Water available under an access, delivery or irrigation right that is held to achieve environmental outcomes.

High flow

A persistent increase in seasonal base flow that remains within the channel; high flows do not fill the channel to 'bankfull'.

Historical climate scenario

A scenario for climate projections that is based on 114 years of measured annual runoff statistics for the Basin, from when record keeping began.

Human capital

Refers to the stock of attributes of a person or group that is relevant to economic activity, including the innate and acquired personal abilities and aptitudes, skills, health and knowledge of individuals who contribute to their productivity. An individual's human capital can be increased through personal investment in education, training and health care, and can increase the stock of capital in a region or country.

Hydric

Characterised by, relating to, or requiring an abundance of moisture; a habitat of wet or moist conditions.

Hydrodynamic force

The force exerted by moving water.

Hydrodynamics

Science that deals with the dynamics of fluids, especially incompressible fluids in motion.

Hydrograph

A graphic representation of changes in the flow of water or in the elevation of water level, plotted against time; the trace of stage (height) or discharge of a stream over time, sometimes restricted to the short period during storm flow.

Hydrographic area

In a general sense, refers to a defined geographic area, subregion, sub-basin, basin, region or watershed encompassing the drainage area or catchment area of a stream, its tributaries, or a portion thereof. A hydrographic area is typically defined as a study area for analysis or planning purposes in which the land or undersea contours result in surface-water flows or measures of elevation draining to a single point.

Hydrologic connectivity

Hydrologic connectivity is the physical ability for water at one location to be available at another, and includes the effect of the losses and constraints on flow along the way.

Hydrologic indicator site

A key site used to determine the environmentally sustainable level of take in the Murray–Darling Basin.

Hydrologic loading

The level of impact of water on the environment. This can be the result of irrigation, rainfall or pumping, and is an indication of the stress the environment may be under. It may be used to indicate overextraction in certain catchments, irrigation systems or river sections.

Hydrologic model

Generally a computer model, but can be any model, simulating the hydrologic cycle of rainfall, infiltration and evapotranspiration to predict runoff, water use, and a range of other qualitative and quantitative indicators of environmental health.

Hydrologic monitoring site

Areas of hydrologic features (e.g. rivers and streams) where measures of flow, such as volume, variability, extreme flow events and seasonality are measured (e.g. using a gauge).

Hydrologic regime

A flow regime that organises, drives and defines physical and ecological processes in a river. Flows can be described broadly at three scales: flow pulses (single events, their influence generally lasts for less than a year), flow history (a sequence of flow pulses with an influence that lasts between one and 100 years) and flow regime (a long-term statistical generalisation of flows with an influence that lasts for hundreds of years).

Hydrology

The study of the distribution and movement of water.

Hydrophytic (vegetation)

Plants that grow in water or in saturated soils that are periodically deficient in oxygen as a result of high water content (e.g. cattails, sedge, rushes).

Hypersaline

Waters with salinity greater than 40 parts per thousand, due to land-derived salts.

Icon sites

Six locations chosen for The Living Murray program due to their regional, national and international ecological value, and the concurrence that they are at risk and require improved water-flow regimes. The sites are Barmah–Millewa Forest; Gunbower–Koondrook–Perricoota Forest; Hattah Lakes; Chowilla Floodplain and Lindsay–Wallpolla Islands; Murray Mouth, Coorong and Lower Lakes; and the River Murray Channel.

Impact assessment framework

The conceptual framework that was used to structure the analysis of the potential social and economic impacts of the Basin Plan.

In-channel

Within the banks of a watercourse; usually refers to flows or impediments, such as weirs and block banks.

Independent Sustainable Rivers Audit Group

The group of ecological scientists that oversees and reports on the Sustainable Rivers Audit.

Indicator vegetation communities

Communities of plants used by scientists to reveal something about a characteristic of interest. For example, river red gum forests and woodlands (and other plants found in semipermanent wetlands) can be used as indicator communities for water stress.

Indirect economic impact

The second and subsequent round impacts of shocks or policy changes that follow on from the first round impacts of a shock. For example, changes in water availability are estimated to directly affect economic activity in irrigated agriculture (as a first round impact) — a second round impact would be on agricultural supply industries that would be expected to experience a reduction in the purchases of seed, fertiliser and other inputs when primary production declines (see also 'direct economic impact').

Infiltration

Flow of fluid into a substance through pores or small openings; commonly used to denote the flow of water into soil.

Inflow

The source of the water that flows into a specific body of water; for a lake, inflow could be a stream or river, and inflow for a stream or river could be rain.

Inland floodplain wetland

A wetland on a floodplain of an inland river. All the rivers of the Murray–Darling Basin are inland rivers. Therefore, all wetlands on the floodplains of these rivers are inland floodplain wetlands.

Instream connections

Water connections between a river, its floodplains and wetlands through which transfer of energy, nutrients and wildlife takes place. Often migration paths in the life cycles of many plants and animals.

Instream flow

Typically, non-consumptive uses of water that do not require water to be diverted from its natural watercourse (e.g. for fish and other aquatic life, recreation, navigation, aesthetics, scenic enjoyment).

Instream structures

Structures located in a watercourse, such as weirs, locks, dams and block banks.

Interception activity

The interception of surface water or groundwater — that is, a Basin water resource under s. 4 of the *Water Act 2007* (Cwlth) — that would otherwise flow, directly or indirectly into a watercourse, lake, wetland, aquifer, dam or reservoir.

Intergovernmental Agreement on Murray–Darling Basin Reform

Signed in July 2008 by the Council of Australian Governments, this agreement provides for the establishment of cooperative, efficient, and effective planning and management arrangements for the Basin's water and other natural resources, and enables the social, environmental and economic values of the Murray–Darling Basin to be protected into the future.

Interim water resource plan

Under the *Water Act 2007* (Cwlth), a plan for the management of the water resources of the Murray–Darling Basin made under state water management law of a Basin state on or after 25 January 2007, and before the Basin Plan first has effect. An interim water resource plan ceases to have effect on 31 December 2014 or five years after the plan is made, whichever is later.

Irrigation accession

The process of obtaining water artificially from natural and artificial water sources.

Jurisdictional expert panel

A panel for each Basin state, made up of groundwater experts from that jurisdiction and from the Murray–Darling Basin Authority.

Key environmental asset

An environmental feature deemed 'key' for the purposes of the Basin Plan because it meets at least one of five criteria set by the Murray–Darling Basin Authority.

Keystone species

A species that plays a critical role in maintaining the structure of an ecological community and whose impact on the community is greater than would be expected, based on its relative abundance or total biomass.

Lacustrine

Of or relating to a lake.

Leaching

The removal of soluble salts from soil by the action of downward percolation of water.

Lignum shrublands

Highly productive habitats of lignum (a perennial shrub) that support bird foraging and breeding after flood events.

Limnology

The study of freshwater (nonmarine) systems, including rivers, lakes and wetlands.

Listed species

Species specifically identified in legislation related to migratory birds or threatened species.

Living Murray Initiative, The

A partnership of the Basin state governments aimed at achieving a healthy, working River Murray system.

Lock

A rectangular chamber with gates at either end, allowing vessels to move from one water level to another.

Longitudinal profile

A graphic presentation of elevation versus distance. In channel hydrologics, a plot of water surface elevation against upstream-to-downstream distance.

Long-term annual diversion limit

For a particular water resource, the sum of the long-term average sustainable diversion limit and the temporary diversion provision — *Water Act 2007* (Cwlth) s. 22(1), item 7.

Long-term average sustainable diversion limit (SDL)

For particular water resources, the maximum long-term annual average quantity of water that can be taken on a sustainable basis; reflects the environmentally sustainable level of take —*Water Act 2007* (Cwlth) s. 22(1), item 6 and s. 23.

Long-term Cap equivalent

An average that takes into account the different characteristics of water entitlements and allocations in New South Wales, Victoria and South Australia, and their reliability. This creates a common unit of measure, allowing equitable comparison of a broad range of water recovery measures.

Loss

Water lost from a river system that is not available to other users; for example, due to evaporation and seepage.

Low flow

A continuous flow through a water channel that either maintains the flow above a cease-to-flow condition or provides habitat as a change from high flow.

Lowland catchment

A catchment in the lower part of a river basin.

Lowland flooding

Inundation of the very lowest portions of floodplain areas (near a river, stream or lake) that are normally subject to frequent flooding.

Lunette

A broad, low-lying, typically crescent-shaped mound of sandy or loamy matter formed by the wind, especially along the windward side of a lake basin.

Macroinvertebrate

An animal without a backbone that is large enough to be seen without magnification.

Macrophyte

A macroscopic plant in an aquatic environment. The most common macrophytes are rooted vascular plants usually arranged in zones in aquatic ecosystems.

Maireana

A genus of perennial shrubs and herbs endemic to Australia.

Managed aquifer recharge

The process of adding water to aquifers under controlled conditions for withdrawal at a later date. Can also be used to manage the flow of saltwater or other contaminants within an aquifer.

Marsh

An area of soft, wet, low-lying land characterised by grassy vegetation that does not accumulate appreciable peat deposits, often forming a transition zone between water and land; a tract of wet or periodically inundated treeless land.

MDBA

In December 2008, the Murray–Darling Basin Authority (MDBA) assumed responsibility for all functions of the former Murray–Darling Basin Commission to manage the Basin's water resources in the national interest. The MDBA is made up of six members supported by an office of around 300 staff. Main roles and responsibilities include preparing the Basin Plan for adoption by the Australian Water Minister; implementing and enforcing the Basin Plan; advising the minister on the accreditation of state water resource plans; developing a water rights information service that facilitates water trading across the Murray–Darling Basin; measuring and monitoring water resources in the Basin; gathering information and undertaking research; and educating and engaging the community in the management of the Basin's resources.

MDBC

The Murray–Darling Basin Commission (MDBC) was the executive arm of the Murray–Darling Basin Ministerial Council, set up under the Murray–Darling Basin Agreement in 1992. The functions of the MDBC were subsumed by the Murray–Darling Basin Authority in 2008.

MDBMC

The Murray–Darling Basin Ministerial Council (MDBMC) has an advisory role in the preparation of the Basin Plan, and policy and decision-making roles for matters such as state water shares, critical human water needs, and the funding and delivery of natural resource management programs. The MDBMC is chaired by the Commonwealth Water Minister and comprises one minister from each of the Basin states.

MDFRC

Murray–Darling Freshwater Research Centre

Mean annual flood

The average of all annual flood stages or discharges of record; may be estimated by regionalisation, correlation or any other process that can furnish an estimate of the long-term average from observed data.

Mean annual flow

The annual flows in a river, added together and divided by the number of years.

Median

The single middle value in a range of values ordered from lowest to highest. If there is an even number of values (and therefore two middle values), the median is the average of the two middle values.

Median 2030 climate

When high or low estimates on how much greenhouse gas will be in the atmosphere by 2030 are put into models, they generate different outcomes as to how wet or dry it will be in the Basin. The median 2030 climate is the annual rainfall patterns predicted using the model runs that predict both the driest and the wettest conditions for the Basin (see also 'dry extreme 2030 climate' and 'wet extreme 2030 climate').

Microcystin cylindrospermopsin

Chemicals produced by some *cyanobacteria* that can be very toxic to plants and animals, including humans.

Mitigation strategy

Actions by governments and other external parties to mitigate (i.e. alleviate) the potential impacts of the Basin Plan.

ML

Megalitre; 1 million (1,000,000) litres

ML/d

Megalitres per day

MLDRIN

Murray Lower Darling Rivers Indigenous Nations (MLDRIN) is a confederation of 10 Aboriginal nations in the southern part of the Basin, comprising representatives of the Wiradjuri, Yorta Yorta, Taungurung, Wamba Wamba, Wadi Wadi, Mutti Mutti, Latji Latji, Ngarrindjeri, Barapa Barapa and Wergaia peoples.

Model integration framework

A computer framework set up to link, in this case, all individual computer models of Murray–Darling Basin Authority regions so that they can exchange information up and down the river system.

Modelling

The application of a mathematical process or simulation framework (e.g. a mathematical or econometric model) to describe various phenomena and analyse the effects of changes to some characteristics on others. For example, a rainfall runoff model can be used to estimate flow in river based on rainfall and other climate data. Such a model embodies a mathematical representation of catchment processes, such as seepage of water into ground, evaporation and use by plants, and excess water flowing over the land surface into channels and ultimately into a river system.

MODFLOW

Computer software that resolves an equation for modelling to simulate the flow of groundwater through aquifers.

Monitoring and evaluation cycle

A cycle of monitoring and evaluation of the outcomes of the Basin Plan, undertaken at least every five and 10 years, to inform review and adaptive management.

Monitoring and Evaluation Program

A program to monitor and evaluate the effectiveness of the Basin Plan as required by the *Water Act 2007* (Cwlth). This program must set out the principles to be applied and the framework to be used for monitoring and evaluation, including the requirements for reporting.

Morphology

The science of the structure of organisms; also the external structure form and arrangement of rocks in relation to the development of landforms. River morphology deals with the science of analysing the structural make-up of rivers and streams. Geomorphology deals with the shape of the earth's surface.

Multiple wellpoint borefield

More than one groundwater extraction bore linked together to extract water.

Murray Lower Darling Rivers Indigenous Nations

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Murray–Darling Basin

The entire tract of land drained by the Murray and Darling rivers, covering parts of Queensland, New South Wales, Victoria and South Australia, and the whole of the Australian Capital Territory.

Murray–Darling Basin Authority

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National Action Plan for Salinity and Water Quality

The Australian, state and territory governments adopted this plan in 2000, to tackle salinity and water quality problems in key catchments and regions. The plan ceased on 30 June 2008.

National Land and Water Resources Audit

A national audit to develop information to support the assessment of change in natural resources as a result of government programs. In the first phase (1997–2002), the audit made a series of recommendations about the improved management of Australia's natural resources. The second phase of the audit (2002–2008) was a collaborative program between all states and territories and the Australian Government, to provide data, information, and nationwide assessments of Australia's natural resources.

National Water Commission

The National Water Commission (NWC) is responsible for driving progress towards the sustainable management and use of Australia's water resources under the National Water Initiative.

National Water Initiative

The National Water Initiative (NWI) is an intergovernmental agreement between the Australian, state and territory governments to improve the management of the nation's water resources and provide greater certainty for future investment. The NWI was signed by the Australian Government and all state and territory governments in 2004 (other than Tasmania, which signed the agreement in 2005, and Western Australia, which signed in April 2006). The NWI builds on the previous Council of Australian Governments framework for water reform that was signed by all governments in 1994.

Native Fish Strategy

Aims to ensure that the Murray–Darling Basin sustains viable fish populations and communities throughout its rivers, by rehabilitating native fish communities to 60% of their estimated pre–European settlement levels within 50 years of implementation.

Native title right

Aboriginal native title holders in New South Wales can take water in the exercise of native title rights for a range of personal, domestic and non-commercial communal purposes. Native title holders are as determined under the *Native Title Act 1993* (Cwlth).

Natural flow

Water movement past a specified point on a natural stream from a drainage area for which there have been no effects caused by stream diversion, storage, import, export, return flow or change in consumptive use caused by human-controlled modification to land use.

Natural resource management

The management of natural resources such as land, water, soil, plants and animals, with a particular focus on how management affects the quality of life for both present and future generations.

Natural Resource Management Ministerial Council

Consists of Australian, state, territory and New Zealand government ministers responsible for primary industries, natural resources, environment and water. The peak government forum for consultation, coordination and, where appropriate, integration of action by governments on natural resource management issues.

No deterioration principle

From the National Water Quality Management Strategy, wherever possible, ambient water quality should not be allowed to degrade to the levels prescribed by water quality objectives or targets.

Nonextracted water

Water remaining in the catchment after extractions have occurred (see also 'extracted water').

Northern Basin Aboriginal Nations

A shortened term sometimes used for Northern Murray–Darling Basin Aboriginal Nations (NBAN), a confederation of Aboriginal nations in the northern part of the Basin. NBAN recognises 21 nations eligible to be members. These include Barkindji (Paakantyi), Barunggam, Bidjara, Bigambul, Budjiti, Euahlayi, Gamilaroi, Githabul, Gunggari, Jarowair, Gwamu, Kunja, Kwiambul, Malangapa, Mandandanji, Mardigan, Murrawarri, Ngemba, Ngiyampaa, Wailwan and Wakka Wakka peoples.

Northern Region Sustainable Water Strategy

Released in 2009, the strategy discusses threats to water quantity and quality over a 50-year planning horizon and sets out actions to manage the impacts of future prolonged droughts and the uncertainty of climate change. The strategy area covers the Ovens, Goulburn–Broken, Campaspe and Loddon catchments and the Victorian River Murray.

Northern Victoria Irrigation Renewal Project

A two-stage project to modernise and rationalise irrigation infrastructure in the Goulburn-Murray Irrigation District of northern Victoria, to deliver improved water efficiency, better service delivery and increased on-farm productivity. The project's resulting water savings are to be shared between irrigators, the environment and supply to Melbourne.

Numerical groundwater model (or groundwater flow model)

A mathematical model used to simulate groundwater flow systems and test sustainable diversion limit scenarios (see also 'MODFLOW').

Nutrient

An element or compound that is essential to life and sustains individual organisms and ecosystems; the portion of any element or compound in the soil that can be readily absorbed and assimilated to nourish growing plants.

Nutrient pollution

Contamination of water resources by excessive inputs of nutrients. In surface waters, this can result in excess algal production. Although natural sources of nutrients exist, major sources are typically anthropogenic (human-made), including municipal sewage-treatment plants, industrial outflows, commercial fertilisers, animal waste and combustion emissions.

NWC

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NWI

The National Water Initiative (NWI) is an intergovernmental agreement between the Australian, state and territory governments to improve the management of the nation's water resources and provide greater certainty for future investment. The NWI was signed by the Australian Government and all state and territory governments in 2004 (other than Tasmania, which signed the agreement in 2005, and Western Australia, which signed in April 2006). The NWI builds upon the previous Council of Australian Governments framework for water reform that was signed by all governments in 1994.

Offtake

A location where water is diverted from an open water supply system for consumptive use.

Outer floodplain vegetation

Vegetation on the edges of floodplains.

Overallocation

Occurs when the total volume of water that can be extracted by the holders of access rights at a given time exceeds the environmentally sustainable level of take for those water resources.

Overbank flows

Flows greater than bankfull, resulting in inundation of the adjacent floodplain habitats. Overbank flows are critical for a range of ecological factors, including floodplain productivity.

Overextraction

The take of water from a water resource above what is sustainable.

Overland flow

Surface runoff; the flow of rainwater or melted snow over the land surface toward stream channels; the discharge of wastewater in such a way that it flows over a defined land area prior to entering a receiving stream. The movement over vegetated land fosters the removal of plant nutrients from the wastewater and constitutes a form of tertiary wastewater treatment.

Overuse

When the total volume of water taken for consumptive use from the water resources of the area at a given time exceeds the environmentally sustainable level of take for those water resources. An overuse may arise for a water resource plan area if the area is overallocated or if the planned allocation for the area is exceeded due to inadequate monitoring or accounting.

Permitted take

The total quantity of water permitted to be taken during a water accounting period in a water resource plan area, varying from year to year according to the interaction of climate, inflows and water resource plan rules (e.g. allocation rules, access rules). The long-term average of the permitted take for each water accounting period (over a model run of many years) must be shown at the time of water resource plan accreditation to be equal to or less than the long-term average sustainable diversion limit (but with the addition of temporary diversion provisions, where these apply in the transition period).

Pesticides

Chemicals, generally artificial, used for invertebrate, disease and pest plant control; substances or mixture of substances used to kill unwanted species of plants or animals.

Planned environmental water

Water committed by legislation to achieve environmental outcomes or other environmental purposes specified in the legislation. Planned environmental water can be delivered when flows are released from storages for environmental purposes or can be managed through water-take restrictions.

Porous rock aquifer

Groundwater in the interconnected pore spaces of the rock mass.

Potable water

Water suitable for drinking or culinary purposes, on the basis of both health and aesthetic considerations.

Precautionary principle

Principle that can be applied to prevent degradation of the environment where there are threats of serious or irreversible environmental damage, even if there is a lack of full scientific certainty.

Productive base

Of a water resource, the capacity to supply water suitable for various uses by virtue of its intrinsic characteristics, such as salinity within a range suitable for irrigation; algal counts suitable for primary recreation contact without treatment; or groundwater standing water levels that facilitate economic pumping. The productive base includes the services provided by ecosystems and is distinct from the actual use of water for any particular activity, including for consumption.

Program logic

A diagram or other method to set out the steps in a program (or project, organisation, policy or sector) starting from inputs (e.g. activities and policy implementation) and illustrating their consequences as immediate outcomes, intermediate outcomes and longer term (or higher order) outcomes. These steps also illustrate support of policy objectives.

Rain rejection

When water ordered from a dam by an irrigator is not taken from the river or is returned to the river because it has rained in the meantime.

Ramsar Convention

The Convention on Wetlands of International Importance is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.

Ramsar listing

The inclusion of a wetland area on the Ramsar List of Wetlands of International Importance, an inventory prescribed by the Convention on Wetlands of International Importance (generally known as the Ramsar Convention). Australia has designated 65 sites for this list.

Recession event

Receding floodwaters; opposite of an inundation.

Recharge

The process of replenishing an aquifer, usually from rainfall or losses from surface-water bodies, such as rivers and lakes.

Reedbeds

Large monocultures of a wetland plant known as phragmites (the common reed).

Reference condition

The condition of a river, as assessed by an audit, relative to how it would have been had it not been changed.

Reference group

A committee with a range of expertise to advise on and review projects and findings.

Refuge

In the context of the Murray–Darling Basin, a refuge is either a regulated flow, flow regulation or a controlled flow rate, resulting from the influence of a regulating structure, such as a dam or weir.

Refugia site

A place where animals and plants can survive when times are hard. One of the values of semipermanent or core wetlands is that they provide refuge for plants and animals when they cannot survive in other parts of the landscape.

Regimen of a stream

A stream's habits with respect to velocity and volume, form and changes in channel, capacity to transport sediment, and amount of material supplied for transportation. The term is also applied to a stream that has reached an equilibrium between corrosion and deposition — a graded stream.

Regulated

A water system in which water is stored or flow levels are controlled through the use of structures such as dams and weirs.

Regulated flow

A controlled flow rate resulting from the influence of a regulating structure, such as a dam or weir.

Regulation

The artificial manipulation of the flow of a body of water.

Reserves policy

Policy defined in s. 86D(1)(c) of the *Water Act 2007* (Cwlth) to meet the shortfall in conveyance water, varying between years and taking into account the potential inputs.

Resnagging

A program to reinstate snags or instream woody habitats used by native fish, such as the Murray cod. These habitats are used as shelter from currents and predators, feeding and spawning sites, and nurseries for juvenile fish.

Resource condition limit

The threshold water quality value below which the highest possible environmental values will be achieved.

Riffle

A shallow area where rocks break up the flow of water.

Riparian

Of, inhabiting, or situated on the bank or floodplain of a river.

Risk allocation

When there are reductions to the volume or change to the reliability of an entitlement holder's water allocation from the Basin Plan, the risks are shared between individual entitlement holders and governments, according to a formula in the *Water Act 2007* (Cwlth) that recognises climate change and other natural events, new knowledge and changes in government policy.

River health

Status of a river system based on water quality, ecology and biodiversity.

River Murray Waters Agreement

The River Murray Waters Agreement (later changed to the Murray–Darling Basin Agreement) was ratified in 1915 by the Commonwealth and state governments and proclaimed on 31 January 1917 by the Australian Government. The agreement specified construction works, including storages on the upper Murray and at Lake Victoria, and set up the River Murray Commission — later to become the Murray–Darling Basin Commission — which was replaced by the Murray–Darling Basin Authority under the *Water Act 2007* (Cwlth).

RiverBank program

An environmental fund set up by the New South Wales Government to buy water for the state's most stressed and valued inland rivers and wetlands for five years until 2011.

Riverine

Relating to, formed by, or resembling a river including tributaries, streams, brooks and the like; pertaining to or formed by a river; situated or living along the banks of a river.

Riverine systems

Open-water habitats, typically including all open-water areas within a defined channel of a stream, as well as along perennial and intermittent stretches of streams and some major dry washes. The riverine system is often referred to as riparian habitat.

River Murray increased flows

Water recovered under investment in the Snowy Joint Government Enterprise and managed under The Living Murray program.

River red gum

The most widely distributed eucalyptus species in Australia, growing along watercourses throughout the country — it lines the River Murray for most of its length.

Runoff

Flow of surface water from a given area resulting from the effects of rainwater.

Rural water corporation

Victorian organisations that provide a combination of irrigation services, domestic and stock services, and some bulk water-supply services, namely Goulburn–Murray Water, Grampians Wimmera Mallee Water, Lower Murray Water and Southern Rural Water.

Saline

Water that contains a significant concentration of dissolved salts, predominantly sodium chloride.

Salinisation

The build-up of salts in soils as the result of capillary flow of saline groundwater towards the land surface.

Salinity

The concentration of dissolved salts in groundwater or river water, usually expressed in electrical conductivity units or milligrams of dissolved solids per litre.

Salinity register

A salinity-based accounting system underpinning the Basin Salinity Management Strategy, providing an accounting record of state and territory actions that affect river salinity.

Salt interception schemes

Large-scale groundwater pumping and drainage projects that intercept saline groundwater flowing into rivers, and dispose of the saline waters by evaporation and aquifer storage at more distant locations.

Salt load

Amount of salt carried in rivers, streams, groundwater or surface run-off in a given time.

Salt-load target

The load of dissolved salt carried in water, expressed as a numerical value, which can be carried from the Basin to the ocean through the mouth of the River Murray.

Salt management basin

Basins that receive and hold the salt extracted by salt interception schemes.

Salt mobilisation

Processes by which salts held in one part of the landscape become mobile and can adversely impact other parts of a landscape.

Schedule for Water Sharing

Water-sharing arrangements that replace the 'normal' arrangements of the agreement to deliver water to meet critical human water needs when water availability is so low that the normal arrangements cease to be appropriate. The schedule sets out how state and territory water entitlements are determined, delivered and accounted for during tiers 2 and 3 — see s. 135(6)(a) of the Murray–Darling Basin Agreement — and during the transition periods moving to and from tiers 2 and 3.

Scroll swale

Refers to the landform pattern that results from a river channel migrating laterally across its floodplain over long time periods. This landform consists of higher ridges (scroll bars, or scrolls) separated by topographic lows called swales.

Sediment

Soil particles that have been transported by wind or water action; particles of sand, soil and minerals that are washed from the land and settle on the bottom of wetlands and other aquatic habitats. This material is in suspension in water or recently deposited from suspension.

Sedimentation

Deposition or accumulation of matter at the bottom of a water body.

Sediment load

The amount of sediment carried by a water body.

Semipermanent or 'core' wetlands

The wetlands at the heart of a system, usually referring to the parts that dry out last and become wet first.

SILO

A source of meteorological and agricultural data provided by the Bureau of Meteorology (<www.bom.gov.au/silo>) and is of particular interest to anyone involved in the agricultural arena.

Sinclair Knight Merz

Sinclair Knight Merz (SKM) is an engineering, sciences and project delivery firm consulting in civil, mechanical, electrical and environmental engineering.

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Slack water

Still, slow, sluggish water.

Slough

Soft muddy ground as in a march or swamp

Snowy Water Licence

The licence issued under the *Snowy Hydro Corporatisation Act 1997* (NSW) to operate the Snowy Scheme. The licence is currently issued to Snowy Hydro Limited.

Sodicity

A measure of the amount of sodium in a soil.

Southern connected Basin

The upper River Murray, the River Murray in South Australia, and regulated reaches of the Goulburn, Campaspe, Loddon and Murrumbidgee river systems.

Spatial

Usually refers to area or distance.

Spatial data

Any data that can be mapped.

Spatial data source

Original data or spatial database, which is a structured collection of spatial data and its related attribute data, organised for efficient storage and retrieval.

Species diversity

The number of species within an area.

Spray drift

Aerial movement of a pesticide from its site of application (e.g. as a result of prevailing winds).

Stock and domestic right

Allows rural landholders to extract water for domestic household and stock watering purposes, without an access licence.

Storage-to-recharge ratio

The volume of water stored in a groundwater system relative to the volume of recharge. Provides an indication of the intrinsic nature of the aquifer, particularly in terms of its sensitivity to short-term overextraction.

Stratification (of the water column)

Where a layer of warm surface water remains unmixed with the cooler, deeper water below it. Due to the density gradient between cooler, deeper water and warmer, upper layers, which can develop during spring and summer months, stratification is common in deep, still water bodies.

Streamflow management plan

Plans developed under Victorian law for stressed or highly used unregulated surface waterways that are declared as water-supply protection areas. The plans set out detailed water-sharing arrangements to balance the rights of diverters and the needs of the environment, as well as other matters such as monitoring and metering programs.

Stressor

A physical, chemical or biological characteristic that can cause an adverse effect in an aquatic ecosystem.

Subaqueous

Soils that form in sediment found in shallow permanently flooded environments.

Subartesian water

Groundwater that does not come to the surface under natural pressure when tapped by bores.

Substrate

The physical surface upon which an organism lives; the natural or artificial surface upon which an organism grows or to which it is attached; the layer of material beneath the surface soil.

Succession planning

Succession is the right, act or process by which one person succeeds to the office, rank, estate or the like of another person. In this case, the successor is usually a family member who will take on the ownership and day-to-day management of a farming business. Succession planning is the strategy employed to ensure that the process occurs smoothly, and typically involves planning around the timing, personnel and financial aspects of the arrangement.

Supplementary access

A type of licence issued in New South Wales that allows water to be taken when uncontrolled flows exceed any immediate water needs and any specific environmental requirements as set out in environmental flow rules.

Surface water

Includes water in a watercourse, lake or wetland, and any water flowing over or lying on the land after having precipitated naturally or after having risen to the surface naturally from underground.

Surface-water delivery efficiency

The ratio of water used beneficially at the final point of use over the amount of water originally diverted from the water source. Various definitions may be used, depending on the scale of the assessment (e.g. on-farm, river reach, irrigation system, river system, whole-of-catchment).

Surface-water diversion

Changing the natural flow of surface water to another location by artificial means, such as dams or pipelines.

Suspended matter

Matter that is not dissolved.

Sustainable diversion limit (SDL)

Long-term average sustainable diversion limits, or SDLs, set the maximum long-term annual average quantities of water that can be taken on a sustainable basis from the Basin water resources as a whole, and from the water resources or particular parts of the water resources of each water resource plan area.

Sustainable Rivers Audit

A program designed to determine the ecological condition and health of river valleys in the Murray–Darling Basin, to give a better insight into the variability of river health indicators over time, and to trigger changes to natural resource management.

Swale

A slight depression, sometimes swampy, in the midst of generally level land; shallow depression in an undulating ground moraine due to uneven glacial deposition; long, narrow, generally shallow, troughlike depression between tow beach ridges, and aligned roughly parallel to the coastline; a piece of meadow, often a slight depression or valley, as in a plain or moor, marshy and rank with vegetation. Swales usually carry flows only during or immediately after rainfall or snowmelt events. Swales vary in size from small conveyances providing drainage along roadways and behind or between buildings to larger waterways.

Swamp

Wet, spongy land; low saturated ground and ground covered intermittently with standing water, sometimes inundated and characteristically dominated by trees or shrubs, but without appreciable peat deposits. Swamps may be freshwater or saltwater, tidal or non-tidal. A swamp differs from a bog in not having an acid substratum.

Take

The removal of water from a water resource; the reduction in flow of water in or into a water resource.

Target value

Numerical values that relate to a water quality characteristic, which, if exceeded, indicate an unacceptable risk of harmful environmental effects.

Taxonomic diversity

Species richness.

Technical reference panel

A forum set up by the Murray–Darling Basin Authority comprising one representative from each Basin state and Murray–Darling Basin Authority representatives to discuss technical groundwater issues throughout the Murray–Darling Basin.

Temporary diversion provision

If the Basin Plan sets a long-term average sustainable diversion limit that is lower than the long-term average volume of water that has been taken (before the Basin Plan), a temporary diversion provision provides for a transitional period of up to five years to mitigate any significant social and economic impacts on entitlement holders and communities.

Terminal lake

A lake with no outlet.

Threat abatement plan

A plan that provides for the research, management, and any other actions necessary to reduce the impact of a listed key threatening process (e.g. predation by a feral animal species) on native species and ecological communities.

Threatened species (also listed-threatened)

Species or ecological communities considered threatened with extinction as defined by the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) or relevant jurisdictional legislation.

Tiered water-sharing arrangements (tiers 1, 2 and 3)

These arrangements set out the sharing of water in the River Murray system — see s. 86 of the *Water Act 2007* (Cwlth) — and are to be included in the Basin Plan and the Schedule for Water Sharing, to manage the risks to critical human water needs due to water availability and/or water quality. The arrangements include a reserves policy to set aside water to meet conveyance water requirements.

Time-lag effect

The time taken for groundwater extraction to influence hydraulically connected streamflow or to influence pressure levels within an aquifer remote from the point of extraction.

Total dissolved solids

A measure of the total amount of material dissolved in water.

Trading zones

Zones established to simplify administration of water trade by setting out the known supply source or management arrangements, and the physical realities of relevant supply systems within a zone so that trade can occur within and between zones without first having to investigate and establish the details and rules of the system in each zone.

Transitional water resource plan

Transitional and interim water resource plans are existing water-sharing arrangements recognised under the *Water Act 2007* (Cwlth).

Transmission loss

Water losses incurred in natural waterways (both regulated and unregulated) and engineered water-supply systems during delivery of water from water-supply sources to end users.

Transpiration

The amount of water evaporated (used) by vegetation through leaves for growth. As with evaporation, this is estimated, based on weather data, plant variety and other indicators. When evaporation is combined with transpiration, it is referred to as evapotranspiration.

Turbidity

A measure of water clarity and an indicator of the presence of suspended material, such as silt and clay, in water sources.

Unassigned water (groundwater)

A volume of groundwater that may be taken sustainably from an unincorporated area for which groundwater resources are relatively undeveloped.

Underdeveloped

Where current groundwater use is less than the long-term average sustainable diversion limit in a groundwater system, resulting in unassigned water.

Understorey vegetation

An underlying layer of vegetation, especially the plants that grow beneath a forest's canopy.

Unincorporated area

Of groundwater, an area not covered by an existing groundwater plan or a groundwater management area.

Unprecedented hydrologic event

Any extreme climatologic, hydrologic or water quality event that has not occurred in the past 114 years of water management history and record keeping in the Basin.

Unregulated

A water system that is not a regulated system.

Unregulated use

Use of water from an unregulated system.

Vegetation response

The way in which plants respond to conditions. For example, wetland, riverbank or floodplain plants (vegetation) often respond to floods or flows of water by germinating, growing new leaves, flowering and setting seeds.

Volumetric annual permitted take

The maximum quantity of water permitted to be taken in a water accounting period in a water resource plan area, varying from year to year according to the interaction of climate, inflows and water resource plan rules (e.g. allocation rules, access rules).

Water access entitlement

A perpetual or ongoing entitlement, by or under a law of a state or territory, to exclusive access to a share of the water resources of a water resource plan area.

Water access entitlement tagging

An accounting approach allowing a water access entitlement traded from one jurisdiction or trading zone to another to retain its original characteristics, rather than being converted into a form issued in the new jurisdiction or trading zone.

Water accounting

A systematic process of identifying, recognising, quantifying, reporting and assuring information about water, the rights or other claims to water, and the obligations against water. Water accounting applies Australian water accounting standards.

Water accounting period

The period for which a water accounting report is prepared.

Water allocation

The specific volume allocated to the holders of water entitlements in a given season, often quoted as a percentage of the volume of each entitlement. For example, a 20% allocation in a particular season allows a water user with a 100 ML entitlement to take 20 ML of water.

Water balance

An account of all the water in a specific system (e.g. groundwater) with all inflows, outflows and change in water held in storage accounted for.

Water column

A concept that imagines a column of water taken from the surface to the bottom sediments. This concept is used for evaluating the stratification or mixing (e.g. by wind-induced currents) of the thermal or chemically stratified layers in a lake or stream.

Water-dependent ecological communities

Ecological communities that depend on periodic or sustained inundation, waterlogging or significant inputs of surface water or groundwater for their ecological integrity.

Water-dependent species

Species dependent on habitat with periodic or sustained inundation, waterlogging or significant inputs of surface water or groundwater for their ecological integrity.

Water entitlement

Water users in the Basin hold legal entitlement, or licence, to a share of the available water. The entitlement usually specifies size (or volume) of the share, the source of the water (e.g. the river, catchment or aquifer) and the category (which can be a combination of priority and purpose).

Water forfeiture

The proportion of announced allocation that is not used at the end of the water accounting period and, subject to the rules of the water resource plan, cannot be carried forward for use in the following water accounting period.

Water for Rivers program

A program established by the Australian Government and the governments of New South Wales and Victorian to recover 282 GL of water for the Snowy River and River Murray. This volume of water savings is aimed at being achieved through investment in water-efficiency infrastructure projects, innovation and technology, and — where appropriate — by acquisition of water entitlements.

Water for the Future program

An initiative to prepare Australia for a future with less water. It has four key priorities: taking action on climate change, using water wisely, securing water supplies, and supporting healthy rivers and wetlands.

Water licence

A licence issued under Basin state laws that authorises holders to take, use or hold water, subject to conditions.

Water market

A framework for the buying, selling and transfer of tradeable water rights.

Water market rules

Rules that apply to irrigation infrastructure operators who hold a group water entitlement on behalf of its members, designed to ensure that members can separate their portion of the group-held entitlement into a separate entitlement held by the individual. Water market rules are required under the *Water Act 2007* (Cwlth), but are not within the Basin Plan. These rules are made by the Commonwealth Water Minister.

Water plan

A statutory plan for surface-water or groundwater systems, consistent with regional natural resource management plans, developed in consultation with all relevant stakeholders on the basis of best scientific and socioeconomic assessment, to provide secure ecological outcomes and resource security for users.

Water quality

The condition of water and its suitability for different purposes. Water quality refers to a combination of physical, chemical and biological characteristics of water in the context of the value or use for which the water body is being recognised.

Water Quality and Salinity Management Plan

To be included in the Basin Plan, a plan to protect and enhance water quality in the Basin for environmental, social, economic and cultural uses.

Water quality zone

A geographic region within the Basin where a number of water quality targets are identical.

Water recovery

Implementation of measures that result in water being made available under The Living Murray environmental watering plan.

Water recovery registers

Water recovery measures are approved and monitored using a system of staged registers: the developmental register, the eligible measures register and the environmental water register.

Water-regulating structure

An object such as a bar or gate, fitted to regulate water flow or depth.

Water resource

Of groundwater, water that occurs naturally beneath the ground level (whether in an aquifer or otherwise, or water that has been pumped, diverted or released to an aquifer for the purpose of being stored there). Basin groundwater resources exclude groundwater in the Great Artesian Basin.

Of surface water, includes water in a watercourse, lake or wetland, and any water flowing over or lying on land after having precipitated naturally, or after having risen to the surface naturally.

Water resource allocation

Process used by the Murray–Darling Basin Authority to distribute the water identified by the water resource assessment method.

Water resource plans

Statutory management plans — recognised under provisions of the *Water Act 2007* (Cwlth) — developed for particular surface-water and groundwater systems, currently known by different names throughout the Murray–Darling Basin (e.g. 'water sharing plans' in New South Wales and 'water allocation plans' in South Australia).

Water share

In Victoria, a water entitlement held by a water authority or individual. Legislation enables all water rights and licences to be converted into water shares.

Water sharing plan (and water-sharing arrangement)

In New South Wales, a legal document prepared under the *Water Management Act 2000* (NSW) that establishes rules for sharing water between the environmental needs of the river or aquifer, water users and the different types of water users, such as town supply, rural domestic supply, stock watering, industry and irrigation.

Water stress

A potentially fatal condition of wetland, riverbank and floodplain plants that are starved of water.

Watertable

The level below the ground surface, under which all void spaces are fully saturated.

Water trade model

The Australian Bureau of Agricultural and Resource Economics' economic model of land and water use in the agricultural sectors of the Murray–Darling Basin. The model incorporates irrigated agricultural activities and models water trade.

Water trade program

An MDBA program that has developed the proposed Basin Plan water trading rules, and coordinates implementation and administration of interstate water trade within the southern connected Basin.

Water trading rules

A set of overarching consistent rules enabling market participants to buy, sell and transfer tradeable water rights.

Water year (or hydrologic year)

A continuous 12-month period starting from July (or any other month as prescribed under the water regulation or a resource operations plan, usually selected to begin and end during a relatively dry season). The water year is used as a basis for processing streamflow and other hydrologic data.

Water yield

Amount of water leaving a watershed, as measured at a weir. Expressed in units of height per area.

WAVES

A soil-vegetation-atmosphere model that uses Basin-wide datasets and a historical climate dataset based on SILO to produce groundwater recharge estimates (see also 'SILO').

Weir

A dam in a river to stop and raise the water (e.g. to form a fishpond or similar).

Weir pool

A body of water stored behind a weir.

Wet extreme 2030 climate

When high or low estimates on how much greenhouse gas will be in the atmosphere by 2030 are put into models, they generate different outcomes as to how wet or dry it will be in the Basin. The wet extreme 2030 climate is the model run that generates the highest long-term average rainfall for the Basin (see also 'dry extreme 2030 climate' and 'median 2030 climate').

Wetlands

Areas of marsh, fen, peatland or water — whether natural or artificial, permanent or temporary — with water that is static or flowing, fresh, brackish or salt, including areas of marine water, the depth of which does not exceed six metres at low tide. An area that is periodically inundated or saturated by surface water or groundwater on an annual or seasonal basis, displays hydric soils, and typically supports or is capable of supporting hydrophytic vegetation.

Without-development flow conditions

Modelled flow that reflects conditions without the effects of water management infrastructure and consumptive water use; an approximation of natural flow in rivers (see also 'current-arrangements flow conditions').

Woodland

Any land used primarily for growing trees and shrubs, including — in addition to what is ordinarily termed 'forest' or 'forest plantations' — shelterbelts, windbreaks, wide hedgerows containing woodland species for wildlife food or cover, stream and other banks with woodland cover, and so on. Also includes farmland and other lands on which woody vegetation is to be established and maintained. An area or biotic community dominated by widely spaced trees of short stature growing on warm, dry sites.

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