

# Glossary

**Acid sulfate soils:** the common name given to soils and sediments containing iron sulfides, the most common being pyrite. When exposed to air due to drainage or disturbance, these soils produce sulfuric acid, often releasing toxic quantities of iron, aluminium and heavy metals.

**Adaptive management:** a management approach, often used in NRM, where there is limited information, a lot of complexity, or both, and there is a need to implement some management changes sooner rather than later. It is an approach that involves learning from management actions, and using that learning to improve the next stage of management.

**Agricultural zone:** generally, areas south of Goyder's line with annual rainfall greater than 250 mm.

**Allotment:** has the same meaning as in the *Real Property Act 1886* and also includes two or more contiguous allotments owned or occupied by the same person and operated as a single unit.

**Alternative water resources:** include stormwater, wastewater, lower quality water (e.g. brackish groundwater) and seawater. Their productive use offers significant scope to provide social and economic benefits while helping to solve some environmental problems.

**Annual exceedance probability (AEP):** the probability that a given flow or rainfall event will be exceeded in any one year.

**Aquatic ecosystems:** an ecosystem located in a water body. The two main types are marine and freshwater ecosystems.

**Aquifer:** a layer of permeable rock, sand, or gravel through which groundwater flows and containing enough water to supply wells and springs.

**Asset-based approach:** an approach that provides a basis for the protection, rehabilitation and management of natural resources that the community believes to be important, such as biodiversity, water resources and

agricultural land. Under this approach, NRM planning focuses on protecting the identified asset by addressing multiple threats to it at a regional level. It differs from ecosystem or geographic approaches to natural resources management which consider multiple threats to multiple assets but only on a localised scale.

**Assets**—see Natural resources.

**Attractant flows:** flows over the barrages that attract fish to the base of the barrage and which in turn lead fish to utilise the fishways.

**Australian Height Datum (AHD):** a measure of height above or below the mean sea level, as determined at thirty tide gauges around the continent.

**Authorised officer:** a person appointed to be a state authorised officer or a regional authorised officer under the NRM Act.

**Average recurrence interval (ARI):** the average value of the periods between exceedances of a given flow or rainfall event.

**Baseline information:** the known data, measured trends and the assessed status of a natural resource (e.g. water quality in a river) or of a social condition relevant to natural resources management (e.g. community knowledge of a threatened species and the required actions for its protection). Baseline information provides a 'baseline' by which the success or failure of our management actions can be assessed.

**Biodiversity:** the variety of life forms represented by plants, animals and other organisms and micro-organisms, the genes that they contain, and the ecosystems and ecosystem processes of which they form a part.

**Bioregion:** a territory defined by a combination of biological, social and geographic criteria rather than by geopolitical considerations. Generally refers to a system of related, interconnected ecosystems.

**Biosequestration**—see Carbon sequestration.

**Biota:** all living organisms in a given area, including fungi, bacteria and algae.

**Black water:** wastewater from toilets, containing faeces and urine.

**Broad-hectare agricultural production:** generally, commercial-scale cereal or grazing enterprises that are mostly reliant on rainfall (rather than irrigation) for plant production.

**Carbon sequestration:** the absorption of carbon dioxide from the atmosphere by living trees and vegetation.

**Climate change sector agreement:** an agreement between the Minister and a particular person, entity, industry or business group on a voluntary basis for the purpose of recognising, promoting or facilitating strategies to meet any target set under the *Climate Change and Greenhouse Emissions Reduction Act 2007*.

**Coastal ecosystems:** an ecosystem that is located in a coastal environment, bounded by the coastal land margin and the continental shelf. A coastal ecosystem may include dunes, sandy beaches, limestone cliffs, rocky shores, estuaries and lakes. Off shore it may include reefs, seagrass beds and upwellings.

**Connectivity:** the extent to which patches of similar or complementary ecosystems are connected for the purpose of animal movement, for plant and animal reproduction, and for supporting ecosystem resilience. Connectivity can be improved by establishing corridors and by providing protection from pests and predators.

**Conservation action planning:** localised planning focusing on habitat and ecosystem type at the landscape scale and incorporating monitoring, evaluation and science.

**Conservation status:** the listing of a taxon on state, Australian or international conservation lists according to the threat to its viability.

**Constituent council:** a council whose area, or part of whose area, comprises or is included in the region of a regional NRM board or an NRM group, as the case may be.

**Contaminants (and indicators of contaminants):** include, but are not limited to, nutrients, metals, biological organisms (for example, *E. coli*), temperature, dissolved oxygen, colour, turbidity, suspended sediments, leachate, hydrocarbons, and litter.

**Control:** in relation to a particular class of animals means: destroy the animals and their warrens, burrows, nests or harbours (whether occupied or not); reduce the extent to which land is inhabited or subject to infestation by the animals; or undertake any other prescribed action, as far as is reasonably achievable. In relation to a particular class of plants it means: destroy the plants; reduce and inhibit the propagation of the plants; prevent the spread of the plants; or undertake any other prescribed action, as far as is reasonably achievable. (Taken from the NRM Act).

**Declared pest (animal or plant):** a class of pest animals or plants declared for control purposes under Section 174 of the NRM Act. See Volume 3: Regulatory and Policy Framework, Section 3 for more information.

**Desalination/reverse osmosis:** a process that converts seawater or brackish water to fresh water or an otherwise more usable condition through removal of dissolved solids.

**Desilting:** the removal of unconsolidated material deposited in a dam since construction, or material deposited since the dam was previously desilted.

**Detention basin:** a pond or basin constructed for the temporary detention of water to provide time for suspended sediments and other heavy pollutants to settle before discharge into a watercourse, lake, or other water storage.

**Domestic purpose (in relation to the taking of water):** does not include taking water for the purpose of watering or irrigating more than 0.4 of a hectare of land; or taking water to be used in carrying on a business (except for the personal use of persons employed in the business). (Taken from the NRM Act).

**Domestic wastewater:** water used in the disposal of human waste; water used for personal washing; water used for washing clothes or dishes; and water used in a swimming pool.

**Drainage caissons:** man-made drainage sumps that collect shallow groundwater.

**Drainage path:** the path that surface water naturally flows along over land.

**Drawdown:** a drop in the level of a watertable as a result of the formation of a cone-shaped depression, caused by multiple wells pumping water from an aquifer at a withdrawal rate that exceeds the natural recharge rate.

**Dryland agriculture:** rain-fed agriculture, practised in areas where crop or pasture production is limited to that part of the year when rain falls.

**Dryland salinity:** the process whereby salts stored below the surface of the ground are brought close to the surface by the rising watertable. The accumulation of salt degrades the upper soil profile, with impacts on agriculture, infrastructure and the environment.

**Ecological area:** the five regional ecological areas differentiated by topography, geology and climate with distinctive vegetative cover and biodiversity conservation management issues in the SAMDB NRM Region.

**Ecological communities:** unique and naturally occurring groups of plants and animals.

**Ecologically sustainable development (ESD):** the use, conservation, development and enhancement of natural resources in a way, and at a rate, that will enable people and communities to provide for their economic, social and physical well-being, while still sustaining the potential of natural resources to meet the reasonably foreseeable needs of future generations; safeguarding the life-supporting capacities of natural resources; and avoiding, remedying or mitigating any adverse effects of activities on natural resources.

**Ecosystem:** a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.

**Ecosystem services:** the full suite of benefits that human populations gain from a particular type of ecosystem such as maintenance of climates; provision of clean water and air; pollination of crops and native vegetation; fulfilment of people's cultural, recreational, spiritual and intellectual needs; and provision of options for the future (for example, by maintaining biodiversity).

**Effluent:** domestic or industrial wastewater.

**Electrical conductivity (EC):** the measure of a solution's ability to conduct electricity. EC units are used as a measure of salinity levels in soil and water.

**Endemic:** a species that is native to, and restricted to, a particular geographical region. Highly endemic species are those with very restricted natural ranges; they are especially vulnerable to extinction if their natural habitat is eliminated or significantly disturbed.

**Environmental flow:** the share of water provided and managed for the environment to protect river health.

**Environmental values:** aspirations of the community in regard to the Region's natural resources.

**Environmental water requirements:** the water regime needed to sustain the ecological values of water-dependent ecosystems, including their processes and biological diversity, at a low level of risk.

**Ephemeral flows:** stream flows that only endure for a short time following a heavy rainfall event. The stream channels are often not well defined.

**Ephemeral streams**—see Wetlands.

**Estuary:** a partially enclosed coastal body of water that is permanently, periodically, intermittently or occasionally open to the sea within which there is a measurable variation in salinity due to the mixture of seawater with water derived from or under the land.

**Floodplain:** any area of land adjacent to a watercourse, lake or estuary that is periodically inundated with water and includes any other area designated as a floodplain by an NRM plan; or by a Development Plan under the *Development Act 1993*. (Taken from the NRM Act.)

**Fluvial:** the processes associated with rivers and streams, as well as the deposits and landforms created by them.

**Geomorphic characteristics:** features of a landform or landscape including, but not limited to, bed and banks of a watercourse, floodplain of a watercourse or lake, cliffs, soils, rocks and other mineral forms.

**Global surface temperature:** the area-weighted global average of (i) the sea surface temperature over the oceans (i.e. the sub-surface bulk temperature in the first few metres of the ocean), and (ii) the surface air temperature over land at 1.5m above the ground.

**Goyder's Line:** a boundary line across South Australia set in 1866 that follows a distinct change in the natural vegetation. To the south, it is composed mainly of mallee scrub whilst to the north, salt-bush. In general, the line represents the demarcation of a long-term average rainfall of 10 inches (254 mm) and indicates the reliable limit of land for agriculture (e.g. cropping).

**Greenhouse signal:** a greenhouse-induced climate change response significantly different from natural variations shown in long-term climate data (e.g. sea level, rainfall or temperature).

**Grey water:** all non-toilet household wastewater (i.e. from showers, baths, hand basins, washing machines, laundry troughs, dishwashers and kitchen sinks). Its quality varies according to its previous use and from household to household.

**Groundwater:** water occurring naturally below ground level; or water pumped, diverted or released into a well for storage underground.

**Groundwater access trench:** shallow trenches excavated to allow direct access to underground water.

**Groundwater base flow:** usually, the amount of streamflow that is due to groundwater discharge. Unless groundwater base flows are intercepted by wells or other means, they are usually constant, reflecting long-term hydrogeological regimes. In periods of low or zero rainfall, streamflow may be comprised solely of base flows.

**Groundwater mounding:** the local rise of a watertable above its natural level, typically under irrigation.

**Groundwater recharge:** the process whereby water below the land surface is replenished by either direct infiltration of rainfall or by leakage from surface water bodies like streams or lakes.

**Headworks:** any assembly on top of a well and located between the well casing and the water delivery system.

**Horticulture:** the art, industry and science of plant cultivation.

**Hydrogeology:** the study of groundwater, which includes its occurrence, recharge and discharge processes, and the properties of aquifers; see also Hydrology.

**Hydrological flow regime:** the flow regime applicable to a particular watercourse or aquatic ecosystem as it varies by seasonal and more episodic climatic events (e.g. periodic severe flooding or drought). It may be a natural regime or man-managed (e.g. by weir pool manipulation). It also includes the water quality dimensions associated with particular flow periods (e.g. high salinity during periods of low flows and high turbidity due to erosion during high flows).

**Hydrology:** the science that describes and analyses the occurrence of water in nature, and its circulation near the surface of the earth.

**Hyper saline:** water that is more saline than seawater.

**Industrial wastewater:** water (not being domestic wastewater) that has been used in the course of carrying on a business (including water used in the watering or irrigation of plants) that has been allowed to run to waste or has been disposed of or has been collected for disposal.

**Intensive farming:** a method of keeping animals in the course of carrying on the business of primary production in which the animals are usually confined to a small space or area and usually fed by hand or by a mechanical means.

**Interstate Water Entitlements Transfer Scheme:** a scheme for the transfer of water entitlements between States under the Agreement approved under the *Murray-Darling Basin Act 1993*.

**Keystone aquatic plants:** those species whose loss from a system leads to the loss of other species. Keystone aquatic plants form the architecture for the wetland habitats; without them the ecosystem cannot function as it should.

**Lake:** a natural lake, pond, lagoon, wetland or spring (whether modified or not) and includes part of a lake, or a body of water designated as a lake by an NRM plan; or by a Development Plan under the *Development Act 1993*. (Taken from the NRM Act.)

**Land division:** a land division that requires approval under the *Development Act 1993* and includes circumstances where contiguous allotments cease to be owned or occupied by the same person, and/or cease to be operated as a single unit.

**Landscape-scale management:** strategic approaches to manage natural resource management values and threats at a landscape scale, being of a sufficient size to sample all landforms of the landscape (i.e. from the top of the hill to the bottom of the valley).

**Low-flow bypass:** a device that ensures that any water flow at or below the threshold flow rate will not be diverted from a watercourse or drainage path by a dam, wall or other structure, or ensures that these flows are returned to the same watercourse or drainage path immediately downstream of the dam, wall or structure.

**Market-based instruments:** schemes that use market-like approaches to encourage 'good behaviour', changing management actions to improve natural resource management outcomes. They have the potential to provide incentives to improve the condition of the land and waterways at a lower cost than many traditional policies and laws.

**Native animal:** a protected animal within the meaning of the *National Parks and Wildlife Act 1972* and any species included in Schedule 10 of that Act, not including a dingo or any other animal of a class excluded from the ambit of this definition by the regulations. (Taken from the NRM Act.)

**Native underground water:** water naturally occurring below ground level that exists in the relevant aquifer absent of any such water drained or discharged to that aquifer by artificial means.

**Natural disaster:** a serious disruption to a community or region, caused by the impact of a naturally occurring rapid onset event that threatens or causes death, injury or damage to property or the environment and which requires significant and coordinated multi-agency and community response. Natural disasters can be caused by one or a combination of natural hazards, including bushfire, earthquake, flood, storm, cyclone, storm surge, landslide, tsunami, meteorite strike, and tornado.

**Natural resource assets:** people, land, water, biodiversity and atmosphere.

**Natural resources:** soil, water resources, geological features and landscapes, native vegetation, native animals and other native organisms, and ecosystems. (Taken from the NRM Act.)

**Natural resources management:** an approach to managing our environment that strives to achieve a balance between our collective need for resources and the needs of our environment. Natural resources include air, water, land, soil, plants, animals and micro-organisms, and the ecosystems they form.

**Off-stream dams:** a dam that is not constructed across a watercourse and is primarily designed to hold water from a source other than the catchment area of the dam. Other water sources may include, but are not limited to, underground water and water diverted or pumped from a watercourse or drainage path that is not in the catchment area of the dam. Off-stream dams may capture a limited volume of surface water from the catchment area of the dam (up to 5% of its total capacity).

**On-stream dam:** a dam, wall or other structure placed on or constructed across a watercourse or drainage path for the purpose of holding back and storing the natural flow of that watercourse or the surface water flowing along that drainage path.

**Pastoral zone:** generally, areas north of Goyder's line with annual rainfall less than 250 mm per annum. The pastoral zone is commonly called the rangelands.

**Rare species:** a category for threatened fauna and flora under the *National Parks and Wildlife Act 1972* (South Australia).

**Recharge area:** the area of land from which water from the surface (rainfall, streamflow, irrigation, etc.) infiltrates into an aquifer.

**Recovery planning:** identification of the research and management actions required to stop the decline of, or support the recovery of, listed threatened species or threatened ecological communities.

**Riffle:** the flow of 'broken' water over gravel, pebble, cobble or boulder.

**Riparian zones/areas:** that part of the landscape adjacent to a water body that influences and is influenced by watercourse processes.

**Runoff:** water flowing over land or in a natural or man-made drain, after having fallen as rain or hail or having precipitated in any other manner.

**Saline discharge:** the process whereby excess groundwater containing dissolved salts rises close to the land surface, resulting in dryland salinity problems. Saline discharge occurs into waterways when saline groundwaters enter the river channel.

**Salinisation:** the process whereby land or water resources become adversely affected by high levels of salt (usually sodium chloride) that inhibit normal ecosystem functioning (including crop production). Salinisation often results from salts that are naturally present in the landscape being mobilised as the result of human activity. Key causes of salinisation are the flushing of saline groundwaters into streams due to poor irrigation practices, mobilisation of salts stored in the landscape due to the clearance of native vegetation, and the infusion of saline waters into once fresh groundwaters due to excessive extraction.

**Salt interception:** the practice of intercepting saline groundwater (either naturally occurring or irrigation induced) before it can discharge into rivers, discharge onto floodplains or otherwise impact on natural resource assets. Along the River Murray in the Riverland area of South Australia, a series of closely spaced bores extract saline groundwater before it can enter the river and then pump it to remote disposal basins.

**Statistical Division (SD):** geographic boundaries, as described in the 2006 edition of the Australian Standard Geographic Classification (ASGC 2006).

**Stock / domestic dam:** a dam for the purpose of the storage of water for domestic purposes or use by livestock, with a capacity of up to 5 megalitres or wall height of up to 3 metres from the natural ground level.

**Structural plant groups:** similar vegetation associations based on growth forms, height and cover.

**Structure (in relation to a body of water or watercourse):** something built or constructed, including, but not limited to, a ford, causeway, culvert, fence, jetty, boat mooring, weir or retaining wall.

**Sub-catchment:** the area of land determined by topographical features within which rainfall will contribute to runoff at a particular point.

**Surface water:** water flowing over land (except in a watercourse), after falling as rain or hail or having precipitated in any another manner, or rising to the surface naturally from underground. Also, water of either kind that has been collected in a dam or reservoir or contained in any stormwater infrastructure. (Taken from the NRM Act.)

**Surface water sub-catchment zone:** a zone defining the area within which the total allowable dam volume is limited. The zone boundary is based upon the sub-catchment boundary, with adjustments to align the sub-catchment boundary to the nearest practicable allotment boundaries.

**Sustainability:** forms of progress that meet the needs of the present without compromising the ability of future generations to meet their needs. (Taken from World Commission on Environment and Development.)

**Tenth percentile flow rate:** that flow rate (litres/second) obtained from a time-weighted annual flow duration curve (with the time step being 1 day – mean flow), which is greater than or equal to ten percent of all flows during that period.

**Threatened species:** plants or animals that are listed as rare, vulnerable, endangered or critically endangered or extinct in the wild as per the *National Parks and Wildlife Act 1972 (SA)* or *Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)*.

**Threshold flow rate:** the flow rate of a watercourse or drainage path (litres/second) determined by multiplying the unit threshold flow rate (litres/second/square kilometre), by the area of catchment (square kilometres) that contributes to the watercourse or drainage path, that is above the point where the water is diverted from the watercourse or drainage path; or 1 litre/second; whichever is the greater value.

**Total dissolved solids (TDS):** measure of the dissolved salts in water and an alternative salinity measurement to EC unit.

**Total Kjeldahl Nitrogen:** a method for quantitative determination of nitrogen in chemical substances.

**Turbidity:** measure of the cloudiness or muddiness of water.

**Underground water**—see Groundwater.

**Unit threshold flow rate:** the flow rate (litres/second/square kilometre) of a sub-catchment determined by dividing the 10th percentile flow rate (litres/second) for a surface water sub-catchment zone by the area of the surface water sub-catchment zone (square kilometres).

**Vascular plant species:** a plant with woody tissue and seeds and veins for transporting water and food.

**Volunteer species:** any plant that germinates, though not sown in that season. This includes all weeds or seeds from previous seasons' crops.

**Vulnerable species:** a category for threatened fauna and flora under the *National Parks and Wildlife Act 1972* (SA) or *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth).

**Water affecting activities (WAAs):** activities that can have adverse impacts on the health and condition of water resources, on other water users and on the ecosystems that depend on water resources. These water resources include watercourses, lakes or dams, floodplains, groundwater, springs, wetlands, waterholes and catchment landscapes, among others.

**Water allocation plan (WAP):** a statutory document under the NRM Act that establishes appropriate water extraction and management regimes by defining the 'sustainable limit' of a prescribed water resource.

**Watercourse:** a river, creek or other natural watercourse (whether modified or not) in which water is contained or flows, whether permanently or from time to time, and includes a dam or reservoir that collects water flowing in a watercourse; a lake through which water flows; a channel (but not a channel declared by regulation to be excluded from the ambit of this definition) into which the water of a watercourse has been diverted; part of a watercourse; an estuary through which water flows; or any other natural resource, or class of natural resource, designated as a watercourse for the purposes of the NRM Act by an NRM plan. (Taken from the NRM Act.)

**Water holding allocation:** the quantity of water that a water licence holder is entitled to request be converted to a water taking allocation. (Taken from the NRM Act.)

**Water licence:** a licence granted under the NRM Act authorising the holder (subject to the requirements of the Act) to take (or to hold) water from a watercourse, lake or well or to take (or to hold) surface water from a surface water prescribed area and includes a licence granted endorsed with a water (holding) allocation. (Taken from the NRM Act.)

**Water resource:** a watercourse or lake, surface water, underground water, stormwater and effluent.

**Watertable mounding**—see Groundwater mounding.

**Water taking allocation:** the quantity of water that a water licence holder is entitled to take and use pursuant to the licence. (Taken from the NRM Act.)

**Water Use Efficiency (WUE):** a simple measure of crop production per unit of water applied. The focus is usually on increasing WUE to make better use of scarce rainfall or irrigation waters.

**Wetland (or ephemeral streams):** an area that comprises land that is permanently or periodically inundated with water (whether through a natural or artificial process), where the water may be static or flowing, may range from fresh water to saline water, and where the inundation with water influences the biota or ecological processes (whether permanently or from time to time). This also includes any other area designated as a wetland by an NRM plan or a Development Plan under the *Development Act 1993*. It does not include a dam or reservoir that has been constructed by a person wholly or predominantly for the provision of water for primary production or human consumption, or an area within an estuary or within any part of the sea, or an area excluded from the ambit of this definition by the regulations.