Glossary

Airborne geophysics	Remote sensing from the air of geophysical properties using electromagnetic induction, magnetics or radiometrics.
Agronomy	Biophysical science supporting agricultural production.
Agroforestry	A land management system enabling the production of trees and agriculture products from the same land unit.
Alley (farming)	A farming system in which belts of perennial vegetation (e.g. trees, saltbush) are interspersed with alleys of land, for productive use of annual species (crops, understorey).
Alluvium	Unconsolidated sediments (clay, gravel, sand) deposited by rivers in low-lying areas and flood plains.
Annuals	Plants that live for one growing season only.
Aquaculture	Farming of aquatic organisms including fish, molluscs, crustaceans and aquatic plants.
Aquifer	A layer of rock or unconsolidated sediments which holds and allows water to move through.
Aquifer, confined	An aquifer overlain by a confining bed (e.g. clay).
Aquifer, perched	An aquifer above and separated from a major aquifer by an impermeable layer of rock or sediment (clay).
Aquifer, unconfined	An aquifer in which there is no confining bed between the groundwater and the soil surface. The water table is the upper boundary of the groundwater.
Aquifer transmissivity	The ability of an aquifer to transmit groundwater.
Bedrock	Unweathered hard rock at the base of a soil profile.
Biodiversity	The variety of life forms — the different plants, animals and microorganisms, the genes they contain and ecosystems they may form.
Biophysical	Relating to biological and physical processes.
Break of slope	The line across a landscape at which the surface slope is reduced and where the hydraulic conductivity of the underlying material or the hydraulic gradient decrease.
Capillary rise	The drawing up of groundwater through soil pores caused by evaporation and the upward pull of surface tension forces overcoming the downward pull of gravity.
Catchment	The area of land drained by a river and its tributaries.
Colluvial (deposits)	Deposits of loose material that have been carried by gravity and are usually found at the foot of slopes or cliff lines.
Crop rotation	The growing of different crops and pastures on the same paddock in annual succession. e.g. pasture-grain-legume or pulse-legume-grain; etc.
Deep drainage	Water that drains from below the root-zone into underlying aquifer systems. Also called leakage. In some States the term 'deep drain' is used to describe an engineered drain that intercept lateral flow, through-flow or base-flow.
Desalination	Removal of salt from water.
Direct seeding	Sowing seeds directly into the ground for revegetation.
Discharge	Seepage of groundwater into streams and/or to the land surface, actively from springs or passively by evaporation.
Discharge area	Area affected by groundwater discharge.
Drainage paths	Naturally defined pathways through which run-off flows. Generally used to describe drainage depressions, gullies, drainage lines, creeks and rivers.
Drawdown	Lowering of the water table due to drainage or groundwater pumping.
Dryland salinity	Expression of salt at the soil surface or within capillary range, concentrated by the evaporation of saline groundwater discharging as a result of land use or land management.
Ecological zonation	Distribution of plant species across ecological zones because of variations in the environment (e.g. soil salinity, waterlogging and inundation).
Ecosystem	A community of organisms, interacting with each other, and including the environment in which they live.
Electrical conductivity (EC)	Ability of a substance to conduct electricity, used as a measure of water salinity. See conversion table at end of Glossary.

Electromagnetic induction	Process whereby a changing magnetic field causes an electric current to flow in conductive material (e.g. saline soil or groundwater).
End-of-valley target	A 'big picture' goal indicating how much salt will be discharged at the end of major catchments when management strategies are implemented.
Episodic recharge	Recharge as a result of unusually intense or prolonged rainfall events.
Evaporation basin	A shallow pond into which saline water is discharged to evaporate, leaving a residue of salt.
Evapotranspiration	Loss of water resulting from both transpiration by plants and evaporation.
Extension	The process of advising and providing information to land and water managers.
Geomorphology	Science of describing and interpreting landform patterns and processes of landscape formation.
GIS	Geographic Information System.
Ground truthing	A system where remotely sensed data is tested against direct measurements conducted on the ground.
Groundwater	Water beneath the surface held in or moving through saturated layers of soil, sediment or rock.
Groundwater base-flow	Stream flow that results from groundwater seepage.
Groundwater flow system (GFS)	A conceptual model to describe the response of groundwater to recharge.
Groundwater through-flow	Lateral movement of perched groundwater, often in a non-permanently saturated zone.
Halophytes	Salt-tolerant plants.
Hard water	Water containing high concentrations of calcium and magnesium salts. Hard water makes soap difficult to lather and may cause scaling or corrosion in water pipes, boilers, water heaters and other appliances, and industrial equipment.
Hydraulic conductivity	The physical property of the aquifer which determines the rate of movement of water.
Hydraulic gradient	The slope of the water table (change in hydraulic pressure over distance in the direction of flow) which helps determine the rate of movement of groundwater.
Hydraulic pressure	The pressure exerted by groundwater in an elevated part of the aquifer. This usually causes groundwater movement, possibly resulting in lateral or upward discharge.
Hydrogeology	The study of groundwater movement through soil, sediment or rock under natural or induced conditions.
Hydrology	The study of water movement.
Hypersaline	More saline than seawater.
Infiltration	The process by which surface water from rainfall, streams and irrigation channels enters the soil and is added to the groundwater.
Integrated catchment management	A process through which people develop a vision, agree on shared values and behaviours, make informed decisions and act together to manage the natural resources of their catchment.
Inundation	A condition in which free standing water occurs above the soil surface (sometimes called flooding). Waterlogging usually coincides with inundation, but many waterlogged soils are not inundated.
Land managers/holders	Those who manage land, including farmers, graziers, irrigators, cultural and environmental land holders, councils and government agencies.
Landscape	An area of land and its physical features.
Lateral flow	Groundwater flowing parallel to the natural surface. Normally confined to near-surface movement above the main aquifer.
Leaf area index (LAI)	The ratio of leaf area in a plant canopy to the area of the land beneath that canopy.
Leakage	The movement of water (rainfall or irrigation) below the root zone. In eastern Australia, deep drainage has been used interchangeably with leakage
Local groundwater system	Aquifer with a flow length of only a few kilometres.
Magnetics	Magnetic data can reveal buried drainage patterns, dykes, faults, fractures and deeper structural geology that assist our understanding of the hydrogeology of catchments.
Model	Conceptual models allow us to simplify complex systems (such as groundwater) and predict qualitatively their behaviour under various conditions. Computer models assign numerical values to many of the features of the model, input water as recharge then calculate the output (in time and space) as discharge.

Opportunity cropping	Sowing a crop only when climatic conditions present a suitable opportunity.
Percolation	The downward movement of water through soil.
Perennial	Plant that lives for several years (annuals live for only one growing season).
Permeability	The capacity of a substance (for example, soil or rock) to allow water to pass through it. Sand, for example, is said to have high permeability.
Phase-farming	Alternating farming land uses over time between annual and perennial vegetation (e.g. annual crops-lucerne-annual crops).
Piezometer	A tube (usually PVC, slotted and screened at the bottom) inserted into a confined aquifer to measure the relative groundwater pressure.
Porosity	Permeability by water, air or similar through small holes, or pores.
Radiometrics	Radiometrics detect radiation from the upper 30cm of the soil which may provide information about different types of clays or drainage patterns linked to areas where salt outbreaks occur.
Recharge	The process that replenishes groundwater, usually by rainfall infiltrating from the ground surface (river or lake bed) to the water table.
Recharge area	The area in which surface water (from rainfall, irrigation or streams) infiltrates into the soil and is added to the groundwater (c.f. discharge area).
Regional groundwater system	Aquifer with a flow length from recharge area to discharge area of hundreds of kilometres.
Regolith	Weathered or sedimentary material between the ground surface and bedrock.
Remote sensing	Collecting data using instruments remote from the data source, such as satellites or aircraft, but also ground-based instruments that collect sub-surface data.
Remnant vegetation	Native vegetation remaining after an area has been cleared.
Residual salt	Salt that is left in the landscape after the water has evaporated or receded.
Revegetation	Replacing the plants in an area which have previously been cleared.
Riparian	Belonging to the bank or shore of a river, stream or lake.
Root zone	Near-surface part of a soil profile where roots are active.
Salinisation	The accumulation of salts via the actions of water in the soil to a level that causes degradation of the soil.
Salinity hazard	Salt which, if mobilised has the potential to cause harm by discharging on the land surface and/or in streams. (See page 8 of '*Catchment Management*')
Salinity management	Intervention needed to mitigate or control salinity. Can be biophysical (plants) or engineering (e.g. drains).
Salinity mitigation	Any activity that reduces the salinity problem. For example, revegetation, improved cropping practices, reducing fallow and cultivation, planting salt tolerant species, and so on.
Salinity province	That part of the landscape in which a particular GFS (or several GFSs of the same type) operates.
Salinity risk	The probability of salt (salinity hazard) being mobilised and affecting natural, cultural or man-made assets. (See page 8 of '*Catchment Management*')
Salt, salts	'Salt' is a general term for many soluble chemical compounds, of which sodium chloride is generally the most abundant. Some salts cause hardness in water while others, in the right concentration, can be beneficial.
Salt accumulation	Salt deposited on the land from groundwater discharge or evaporated surface water.
Salt concentration	Level of salts on the land surface or in soil, rocks or water.
Salt interception scheme	Pumping or drainage that lower the water table by discharging groundwater into evaporation basins or elsewhere, thereby intercepting salt before it enters a river or reaches the soil surface.
Salt load	The amount of salt carried in water flow in rivers, groundwater or off the soil surface, in a given time period.
Salt scald	An area of land where the ground surface has been left bare after salt has destroyed the vegetation.
Seepage	The process by which water percolates downwards and/or laterally through the soil, often emerging at ground or stream level lower down the slope.
Sodicity	A measure of the amount of 'exchangeable' sodium ions in the soil. As sodicity increases so does the likelihood of soil structure decline, waterlogging and erosion.
Soil profile	A vertical section of earth from the soil surface to parent rock material, that shows the different soil horizons.

Soil water	Moisture stored in soil pores.
Sub-surface flow	Water moving laterally beneath the surface of the soil.
Sustainability	Managing our natural resources in a way that maintains their environmental, economic and cultural values, so that they continue to be available in the long-term.
Topography	The detailed description and analysis of the surface features of the landscape.
Transmission zones	Areas where water moves from recharge areas to discharge areas.
Total dissolved solids (TDS)	A measure of the salinity of water, sometimes referred to as total dissolved salts usually expressed in milligrams per litre (mg/L). An alternative measure is total soluble salts (TSS) (See Electrical conductivity (EC).
Transpiration	The process by which water is extracted from the soil, transmitted through plants, evaporated from the leaves and enters the atmosphere.
Tributaries	Watercourses (rivers, creeks, streams) which flow into another watercourse.
Water balance	A state of equilibrium when rainfall or irrigation water in a landscape is accounted for by the sum of run-off, plant water use, evaporation, recharge and changes in soil moisture content.
Waterlogging	Waterlogging will occur when the water table is at or close to the surface. Soil pores are then filled with water, plant roots become starved of oxygen, and plant growth is inhibited or even ceases.
Water table	The water table is the upper surface of groundwater. The soil profile is fully saturated below the water table and unsaturated above it.
Weathering	Chemical, physical and biological decomposition of rocks that can result in formation of a soil profile.
Wetlands	An area that is permanently, periodically or occasionally covered by fresh, brackish or saline water to a shallow depth. They support a unique range of plants and animals.
Woodlot	A small area devoted to growing trees, usually on a farm for firewood and posts.

Salinity unit conversion table

↓Start here	mS/m EC	dS/m EC	uS/cm** EC	mS/cm EC	mg/L (ppm)* TDS	gpg* TDS
1 mS/m =	1	0.01	10	0.01	5.5	0.38
1 dS/m =	100	1	1000	1	550	38
1 uS/cm** =	0.1	0.001	1	0.001	0.55	0.038
1 mS/cm =	100	1	1000	1	550	38
1 mg/L (ppm)* =	0.18	0.00018	1.8	0.0018	1	0.06
1 gpg* =	2.63	0.0263	26.3	26,300	14.3	1

* Conversion from Electrical Conductivity (EC) to Total Dissolved Salts (TDS) varies depending on the salts present and concentration. These figures are a guide only.

** Eastern States of Australia often refer to 1 uS/cm as an EC Unit

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Link to Q.4 - What can we do?

Link to Q.5 - Integrate with other NRM issues

Link to a checklist of actions

Link to - Where to get help

National DRYLAND SALINITY Program

Know-how to tackle salinity