

Name	Notes
Water and Sea Country Health	Indigenous peoples regard the inland waters, rivers, wetlands, sea, islands, reefs, sandbars and sea grass beds as an inseparable part of th
Drinking Water & Food Sources	Traditional Aboriginal water collection and storage practices have evolved for many centuries and continue into the present. Evidence of Aboriginal people using and protecting precious water sources can still be found in many places throughout Australia despite colonisation and alienation from traditional lands. The main water sources for Aboriginal people across the Australian continent were waterways and lakes. However, a range of ingenious water collection and storage methods were, and still are, used in Aboriginal communities. Small-volume water sources exploited by Aboriginal people include natural features such as rock holes.
Recreation & Ceremony	Indigenous peoples are connected to and responsible for our lands and waters and in turn, Indigenous peoples obtain and maintain spiriti
Indigenous Economy	With water becoming the most significant global commodity, the rights for Indigenous peoples to access and use ours lands, waters and r
Biodiversity	Biodiversity, as with climate change, is a well-researched area. Water plays a significant part in biodiversity, principally through natural wa
Water Regulation	Regulation of water is a key area both with regard to water quantity and quality. Regulation is undertaken both by government and by users (self-regulation) in both quantity and quality areas. Examples of self-regulation include agronomists metering water abstractions for irrigation and mining companies establishing water quality monitoring around mines. It is notable in Australia that current jurisdictional structure tends to divide quantity and quality aspects of regulation at the administrative level, with one department focussing on regulation of quantity (water abstraction and use) and another taking responsibility for monitoring and regulating with regard to water quality issues. Clearly the two aspects are invariably inseparable and regulatory administration would ideally reflect this. There are many links between this topic and other topics and they have not all been represented here.
Water for Emergencies	This area relates principally to the availability of water for bush fire fighting and is of growing concern in Australia. Clearly lack of water ar
Wastewater	Dealing with wastewater from human sewerage goes hand-in-hand with the supply of potable water as a primary public health and water security issue and wastewater systems have been in use for over a 1000 years. Wastewater systems are often combined with stormwater management in urban catchments and stormwater runoff can in these situations be considered 'wastewater. Schemes for better management of stormwater (e.g. for resource recharge) are developing. Clearly water quality is at stake, whether such stormwater is part of a wastewater system or some other form of managed collection.
Water Rights	Water rights pertain to the legal rights of property owners to access and use bodies of water adjacent to lands they hold. Different types
Potable Water	Drinking water is a key global water issue and is of concern throughout Australia. Availability is influenced by both water quantity and qua

Diffuse Source Pollution	Diffuse-source pollution occurs through natural surface water run-off processes driven by precipitation and hence intrinsically linked to the
Point Source Pollution	Point source pollution of water occurs when the contaminant load originates from a single location, such as an effluent outfall of a sewage
Coastal Eng. Impact	The impacts of coastal engineering projects continue to increase with developments in this area ranging from residential and recreational
Eutrophication	<p>Eutrophication is the process of the increase in aquatic plant mass (Trophic State) in water bodies. Whilst it can be a natural process whereby nutrients become concentrated in particular areas, it is frequently accelerated by human activities. Eutrophication is usually caused by an increase in nutrients in water bodies, e.g. resulting from artificial or animal waste fertiliser pollution resulting from runoff from agricultural land (rivers and lakes) or use in aquaculture (coastal waters) and internal loading from nutrient accumulation in sediments.</p> <p>Eutrophication can occur in any water body but is primarily of concern in rivers, lakes, lagoons (including ICOLLS) and estuaries, especially where water flow or exchange becomes limited. It often leads to increase in algal growth and a reduction in dissolved oxygen in stratified systems.</p> <p>Detrimental effects of eutrophication are highly dependent on physical conditions such as availability of sunlight (for plant photosynthesis), water movement (from flow, current or tide) and mixing. Despite a high trophic status, conditions for phytoplankton growth may not prevail due to other growth limiting factors such as temperature, high flow velocities or low sunlight. Several parameters that are measurable by EO such as chlorophyll and cyanobacterial concentration estimations are relevant as inputs to eutrophication assessment.</p> <p>The combination of eutrophication, sunlight and relatively still waters or low-flow condition provides ideal conditions under which various algae and bacteria can form in unusually high concentrations. Such increase in algal biomass, especially in cyanobacteria dominated systems, may be harmful to aquatic ecosystems and human health. Furthermore, such physical conditions can lead to persistent stratification even in shallow systems with associated hypoxic or anoxic conditions in bottom water, able to trigger massive fish kills,</p> <p>In marine waters these 'harmful algal blooms' (HABs) or 'red tides' are primarily phytoplankton and cyanobacteria and in fresh waters they are often dominated by cyanobacterial biomass (blue-green algae), although these are also present in marine waters.</p> <p>In marine waters, such algal blooms cause harm to aquatic ecosystems and human activities such as fishing, recreation and aquaculture. Food poisoning by PSP (paralytic shellfish poisoning) is a serious human health risk by consuming fish or mussels with accumulated toxins. Oceanic and coastal blooms can extend to very large areas and develop rapidly over short timeframes (hours to days).</p>
Runoff/Baseflow Recharge	<p>Surface water runoff occurs when precipitation, (less evaporation and evapotranspiration) exceeds the soil's capacity to absorb or transport water through a vertical pathway to groundwater. Baseflow recharge is the proportion of net precipitation transported to groundwater.</p> <p>Runoff process are highly dependent on vegetation and soil and vary from extreme, where almost all precipitation is transported via surface flow to stream channels, to negligible, where vegetation and soil in combination absorbs the majority of precipitation or allows it to pass to groundwater. Depending on the nature of the soil and bedrock, a proportion of precipitation will take a route to groundwater - approximately the inverse of runoff, generally termed Baseflow Index.</p>

Water Geo-Frameworks	<p>Whether surface water or groundwater, salt water or fresh, the boundaries and domains of water generally do not follow those of political administrations. Australia has a reasonably well-developed framework for surface waters, dividing the land into 13 major catchments, 12 of which have coasts and can also be used as a division of coastal waters (BOM Australian Hydrological Geofabric). Despite Australia's major aquifer system, the Great Artesian Basin) covering a large part of the continent, a similar national framework for groundwaters does not exist with each state and territory defining its own areas within the various aquifers and also defining aquifers in different ways.</p> <p>A key consideration for any water policy in Australia is that political boundaries do not come into play in the understanding of issues and formulation of relevant policies. As with climate and many other environmental issues, such boundaries only stand to complicate and detract. In addition, geographic frameworks for water developed by scientific research to date has not considered indigenous population issues, and knowledge.</p>
Floods	<p>As with droughts, floods is a well-documented phenomena in Australia and, similarly, there is evidence that flood-events are increasingly</p>
Stormwater	<p>Stormwater and its management, as distinct from flooding, is principally related to urban environments, often where surface water drainage is significantly altered from the natural state. Stormwater is often managed in conjunction with sewerage and effective management is needed for human health interests. Increasing ratios of impermeable/permeable cover types in urban catchments e.g. through higher housing density and reduced green areas has impacted urban drainage, providing increasing challenges for stormwater management.</p> <p>Stormwater can also be a resource, and through effective management and storage, directed to increase water quantities in areas of demand. However associated water quality issues may limit this.</p>
Water Efficiency	<p>Water use is generally related to user per capita of population. Australia has the third highest per-capita use in the OECD, some three times</p>
Agricultural Use	<p>Agricultural water is used for irrigation, pesticide and fertilizer applications, and for the health and well-being of livestock. As the largest consumer</p>
Public Health	<p>Public health is directly impacted by both water quality and quantity issues. Toxin producing cyanobacteria blooms, often related to low</p>
Industrial Use	<p>Industrial water is used for fabricating, processing, washing, diluting, cooling, or transporting a product. Water is also used by smelting factories</p>
Insurance	<p>Insurance interests in water are primarily connected to flood events and storm water events that can cause catastrophic losses and hence</p>
Water Security	<p>Water security is the balance between availability, quality and use of water over a sustained time period. Many countries, including Australia</p>
Water Trading/Accounting	<p>Water trading is the process of buying and selling water access entitlements, also often called water rights. Water accounting is the process</p>
Water Transfers	<p>Water transfer is the transfer of water from one natural water system to another. Transfer can take place by river diversion, pipeline or evaporation</p>
Aquaculture & Fisheries	<p>Aquaculture water use is water associated with raising organisms that live in water such as finfish and shellfish for food, restoration, conservation</p>

Hydro-electric power generation accounted for 1.2% of Australia's energy generation in 2019 (Australian Energy Stats, 2019 energy.gov.au), some 6% of all renewable energy sources. HEP is not considered currently to impact on either water quality or quantity since it is non-polluting and uses water in-situ, returning it to the locality where it is used.

HEP

However this perspective does not consider one of the major impacts of HEP schemes, that of disruption of natural water flows through construction of major dams. Such changes clearly have a local impact through loss of land due to flooding for dams but also to the alteration of downstream riverine habitats through low and no-flow scenarios, with associated detrimental effects on water quality and aquatic habitats as well as agriculture and social and cultural issues. Where HEP is combined with diversion of major water courses for irrigation purposes (e.g. the Snowy Mountains scheme), there is considerable additional change to natural drainage and even greater impacts.

So whilst the positive aspects of HEP are clear in terms of their being a renewable energy source, there have been, and are, significant issues and impacts with regard to both water quantity and quality in practice.

Water for Recreation

Water is a universal environment for a great range and number of recreational uses in Australia applicable to coastal and inland waters. T

Climate Change

As the primary driver of the hydrological cycle, climate, and climate change, is seen as a primary issue with regard to water in Australia u

Drought

The effects and patterns of drought in Australia have been well-documented and are a major consideration for water availability across th

Water Habitats

The wetlands of Australia are a significant and important part of the inland and coastal environment. There are 66 Ramsar sites in Austral