

Skilling for the future of the Australian Alps' rivers & catchments

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Climate change will present considerable management challenges for the rivers & catchments of the Australian Alps National Parks.

Climate change is predicted to affect water yield & quality & precipitation patterns, notably snowfall.

Its effects on vegetation, fire regimes, habitat condition & invasive species' distribution & abundance are already being detected.

Australian Alps' headwater rivers & catchments are valued for their conservation significance & are used for recreation, tourism & industry. Park management plan objectives identify the values to be protected, but accessing the expertise & skills necessary to analyse & form practical responses will present a significant challenge to Alps catchment & water managers.

'Major regions across Australia face considerable risks from climate change impacts, & in many cases these risks will span a range of sectors. Effective decision-making will need to be supported by integrated, multi-disciplinary assessments of vulnerability to climate change.'

National Climate Change Adaptation Framework
CoAG 2007

The Industry Context:

An existing & deepening Australian skills shortage in the sciences, engineering & specifically the water sector was identified in a report to the Council of Australian Governments (CoAG)^a, July 2008. Preliminary estimates are for an increasing shortfall of between 26,000 & 40,000 employees by 2018 in the water sector alone (See Figure).

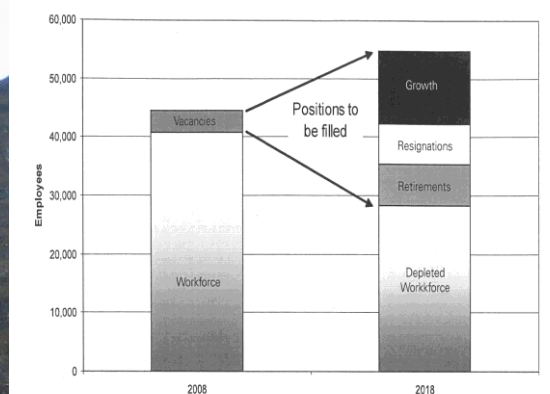
CoAG has responded to this issue with a national water industry skills strategy & taskforce. A business plan^b is currently under development by the Australian Water Association.

Industry-wide initiatives do not adequately identify the needs of Australian Alps park managers, as they are general in scope & focus on the lower end of river catchments. They do however provide context, the opportunity to participate in analyses, & potential resources to develop responses. There is interest in the further involvement of park managers in the development of these strategies.

^a National Water Skills Audit, International Centre of Excellence in Water Resources Management (ICEWaRM), 2008.

^b National Water Skill Strategy Draft Business Plan, Australian Water Association for the Water Industry Skills Taskforce, 2010.

Figure: Current & projected surveyed workforce requirements 2008 & 2018



ICEWaRM • National Skills Audit (Phase One) Report

Survey Results:

Thirty Alps park managers, technical specialists, scientists & external scientists were interviewed by email & telephone in Oct/Nov 2010. Respondents were asked to nominate their key issues of concern for water & catchments in a time of climate change & how well they were placed to access relevant expertise. Key findings are as follows:

- ☎ Park management agencies are mainly staffed by highly skilled generalists who rely on expert assistance to guide & solve wetland, river & catchment management issues.
- ☎ There are some well-known sources of expertise in these fields both within & external to agencies. However, this expertise is a small & fragmented resource, often inaccessible due to time, resources or communication constraints.
- ☎ The skills base in these fields is limited & diminishing within agencies, however, this could improve if sufficient priority is given to water & catchment management objectives along with continuity of funding.
- ☎ Developing solutions to difficult river & catchment management problems requires a multidisciplinary team approach between scientists, technicians & managers, but existing resources restrict this approach being taken.
- ☎ There is a need to increase access to data & information about catchment hydrology, water quality & river & wetland health so as to build park managers' understanding of these topics. This will assist them to relate this information to the effects of management practices, park developments & invasive species.
- ☎ Agencies face some delays & difficulty in recruiting, developing & retaining expertise for these fields. This is often due to short-term employment opportunities in a mobile & competitive workforce.
- ☎ Sourcing external advice is expensive & the retention of knowledge at the local management level is low. In addition, the input of local knowledge is often required for external advice to be translated into practical management outcomes.

The Priority Issues*:

- ▶ **Hydrology & management** – understanding surface & groundwater hydrology of Alps catchments in a management & conservation context.
- ▶ **Catchment function & condition** - the current & probable effects of climate change on catchment function & the condition of bogs, wetlands & rivers.
- ▶ **Fire management** – developing appropriate fire regimes & responses to wildfire for mountain catchments affected by climate change.
- ▶ **Invasive species** - documenting the effects of invasive species on the condition of mountain bogs, wetlands & rivers.
- ▶ **Managing for uniqueness** – providing conservation management consistent with the unique status & requirements of mountain bogs, wetlands, rivers & their fauna.
- ▶ **Investment** - maintaining parity with coastal regions for investment in climate change response.

*Identified by Alps park managers & scientists in this survey.

Some Solutions:

- ▶ Clearly stated operational park management objectives, priorities & resources for waters & catchments across the Alps.
- ▶ Water and catchment management that is based on performance against clearly stated outcomes & parameters, e.g. river health, water quality.
- ▶ A collective commitment to long-term, multi-disciplinary research that informs management & focuses on climate change impacts.
- ▶ Long term investment to develop local expertise & generate coordinated & accessible datasets.
- ▶ Practical field-based training suitable for a generalist workforce supplemented with specific skill development & tools, e.g. river condition assessment kits.
- ▶ Development of strong linkages with education & research providers at education & industry levels to attract people to work in the science of Alps water & catchments.
- ▶ A coordinated approach to recruitment, development & retention of expertise & skills relevant to Alps water & catchment management priorities.
- ▶ Involvement with government & industry water initiatives to boost capacity in Alps water & catchment management expertise & skills.

Photos: Spencers Creek – Lynda Weston, Fire at Dainers Gap – Dave Woods