

# Nepean Dam



Work on Nepean Dam started in 1925. It was interrupted for a few years by the Depression but resumed in 1933. Materials were hauled on a standard gauge railway line from the main southern line near Bargo.

The dam was finally completed in 1935 and cost about \$12.3 million.

After several years of extremely low rainfall in the catchment, heavy rainfall in October 1938 saw the dam finally reach capacity and overflow via its stand-alone crest level spillway.

A tunnel linking Avon and Nepean dams to enable transfer of water between the dams in either direction was completed in 1973.

Nepean Dam was strengthened in 1992 by post-tensioned anchors and a downstream rockfill embankment. It was further safeguarded by the addition of a concrete-lined side spillway on the right abutment in 1992.

Height:	82 metres
Length:	216 metres
Total capacity:	70,170 megalitres
Catchment:	320 square kilometres
Lake:	3.3 square kilometres

# Constructing the Upper Nepean dams

All the Upper Nepean dams were constructed by the Public Works Department for the Metropolitan Water Sewerage and Drainage Board. They are all mass gravity dams, remaining in position under their own weight. They were the first dams in Australia of cyclopean masonry construction, an early masonry style using massive stone blocks. The sandstone blocks used weighed between 2 and 4.5 tonnes, and were quarried on site.

Following the construction of Cataract Dam, improvements in design and engineering led to several new features including inspection galleries, piping to register groundwater pressure, and upper and lower level discharge outlets for the later Upper Nepean dams.



↑ MASSIVE SANDSTONE  
BLOCKS USED IN DAM  
WALL CONSTRUCTION  
← NEPEAN DAM

## SOCIAL LIFE THEN AND NOW AT THE DAMS

During the construction of the Upper Nepean dams temporary townships were established on each construction site. Married employees and their families rented the cottages while single men were accommodated in barracks.

With the completion of each dam, the township structures were moved on to the next work site or were sold for demolition or removal. The grounds were turned into garden parklands with picnic and recreational facilities.

Some families spent their whole lives at these dam sites, moving from project to project or staying on as dam employees.

PICTURE: CORDEAUX DAM OPENING LUNCH WITH ALDERMEN, 1927



# How the Upper Nepean water supply system works

The Upper Nepean System supplies raw bulk water to four water filtration plants administered by Sydney Water, via 64 kilometres of tunnels, canals and aqueducts collectively known as the Upper Canal.

Water released from Cataract Dam flows down the Cataract River to Broughtons Pass Weir. Water released from Nepean Dam and Cordeaux Dam flows downstream to Pheasants Nest Weir on the Nepean River, where it is diverted via a seven kilometre long tunnel to Broughtons Pass Weir.

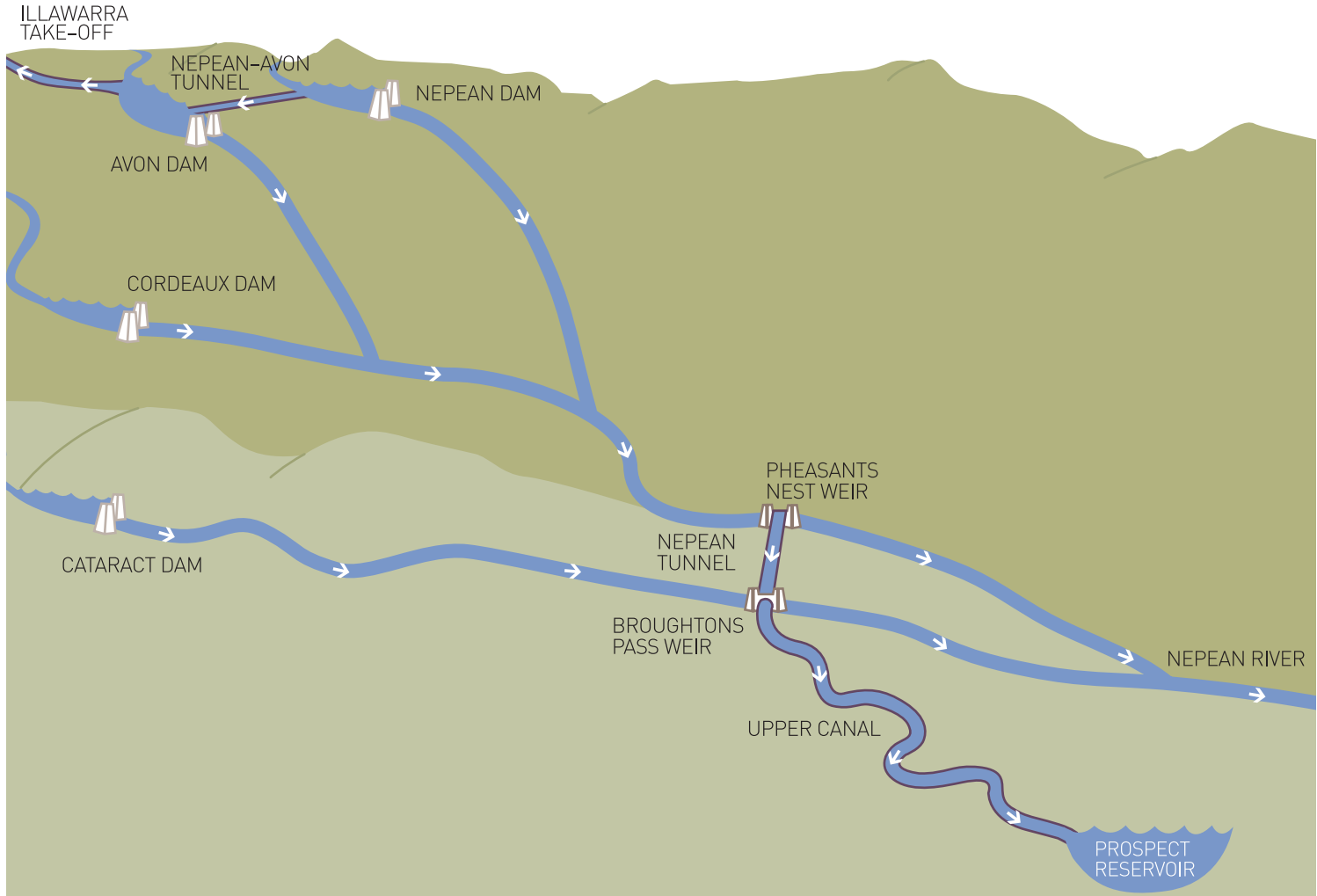
From Broughton's Pass Weir water is diverted into the Upper Canal where it flows 57 kilometres entirely by gravity to Prospect water filtration plant at Prospect Reservoir near Blacktown. Prospect water filtration plant receives raw water from both the Upper Nepean System and from Warragamba Dam and supplies filtered water to the metropolitan regions of Sydney.

Water is also pumped from Broughtons Pass Weir to the Macarthur water filtration plant near Appin, which serves Sydney's rapidly expanding south-west area around Campbelltown, Camden, Appin, Ingleburn and Wilton.

Water in Avon Dam is reserved for the Illawarra region and is gravity fed via pipeline to the Illawarra water filtration plant at Kembla Grange. Prior to filtering, the water is used to generate approximately 5.85 megawatts of hydro-electric power – which not only runs the plant but any excess is fed back into the power supply grid. Filtered water is supplied to the south coast area, from Scarborough to Gerringong.

Avon Dam can be supplied with additional water from Nepean Dam via a two kilometre long interconnecting tunnel. In times of drought Nepean Dam can receive water from the Shoalhaven Scheme via Wingecarribee Reservoir and the Glenquarry Cut.

Water from Nepean Dam is also pumped to Sydney Water's Nepean water filtration plant, which serves people living in the areas of Picton, Bargo, The Oaks and Oakdale.



# Ensuring dam safety

It is essential that all SCA dams meet the requirements of the NSW Dams Safety Committee (DSC) under the *NSW Dams Safety Act (1978)*. The DSC, the State's regulator for dam safety, develops and implements policies and procedures for effective dam safety management in order to protect life, property and the environment from dam failures.

To ensure compliance with its operating licence, the SCA has adopted a structured program of surveillance and monitoring that complies with the requirements of the DSC and national and international best practice.



→ DEEPENED NEPEAN  
DAM SPILLWAY



# Monitoring water quality

The SCA conducts extensive routine water quality and quantity monitoring in the catchments, storages and in-flows to water filtration plants. Monitoring provides information to enable the best quality water to be drawn-off into the supply system, and to identify areas requiring special catchment management attention. The SCA also conducts regular testing at several locations for the presence of the protozoan parasites *Giardia* and *Cryptosporidium* in the water. Information collected from the SCA's monitoring programs is used for public health reporting and assessment.



## MAINTAINING GOOD WATER QUALITY IN THE CATCHMENT

The SCA works with government, industry and the community to promote good water quality and healthy, sustainable catchments.

Extensive research is carried out by the SCA to help understand the catchment environment. The SCA also plays an important role in ensuring that proposed land use and development is compatible with preserving water quality.

Field staff undertake a range of on-ground activities in the catchments, such as pest control, fire control, erosion control and repair, regulating access, containing spills, chemical collections and weed control. In the Special Areas (land closest to the storages) these activities are jointly managed by the National Parks and Wildlife Service and the SCA.

Many successful projects are also undertaken jointly with landholders and community groups including riverbank stabilisation, willow removal, revegetation and riverbank fencing.

## ENVIRONMENTAL FLOWS

The SCA recognises that the dams and weirs in the Upper Nepean system can affect the natural flow of water downstream. Providing water to these stretches of river through environmental flows is one way the SCA can help restore ecological processes and biodiversity of water dependent ecosystems.

Water is released from the Upper Nepean dams and weirs for environmental purposes, including a minimum daily release of 4.4 million litres from Nepean Dam, 1.9 million litres from Cordeaux Dam, and 1.3 million litres from Cataract Dam. A minimum of 10.5 million litres is released daily from Pheasants Nest Weir and 1.7 million litres from Broughtons Pass Weir.



→ AVON DAM  
DISCHARGE CHUTE

# Did you know?



**TORPEDO NETS** were placed at Cataract and Cordeaux dams at the beginning of WWII to protect Sydney's water supply from being destroyed by enemy attack.



**AFTER CATARACT DAM WAS BUILT**, the engineers realised that a curved dam wall was stronger than a straight wall in holding back a large volume of water. That is why all future dams in the Upper Nepean system were built this way.



← CURVED WALL  
OF CORDEAUX DAM



In one of Sydney's **GREAT ENGINEERING FEATS** of the 19th century, a seven kilometre long tunnel was built to connect the waters of the Avon, Cordeaux and Nepean rivers to Cataract River. The tunnel starts at Pheasants Nest, runs underneath the town of Wilton and empties into Cataract River at Broughtons Pass.



The discovery of **KING TUTANKHAMEN'S TOMB** in 1923 led to worldwide fascination with all things Egyptian, and influenced the design of the gateways and valve houses of both Cordeaux and Avon dams. However, the Depression and the rise of Art Deco saw a more austere design for Nepean Dam.



← CORDEAUX DAM  
GATEWAY

# Recreation at the dams

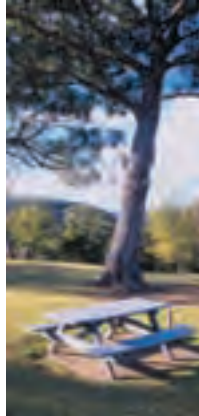
All the dams in the Upper Nepean system are within easy driving distance from Sydney and offer an ideal location for picnicking, barbecues, walking and sightseeing.

Facilities are set in natural bushland surroundings with picnic shelters, shade trees, barbecues, drinking water, gardens, viewing areas and children's playgrounds.

Visiting hours are 10am to 5pm daily (7pm on weekends and public holidays during Daylight Saving Time).

For educational excursions and project material, please contact our Education Office on (02) 4720 0344/3

**There are no entry fees to any of our dams. Picnic areas cannot be reserved.**



## → AVON & NEPEAN DAM FACILITIES

ELECTRIC BBQS



PLAYGROUND



TOILETS



DRINKING WATER



VIEWING AREA



PICNIC SHELTERS



 CATARACT & CORDEAUX DAM FACILITIES

ELECTRIC BBQS



PLAYGROUND



TOILETS



DRINKING WATER



VIEWING AREA



PICNIC SHELTERS



# How to get there



Cataract Dam is located about 84 kilometres drive south-west of Sydney, off the Appin-Bulli Road.

From Sydney, take the Hume Highway (F5) to the Campbelltown exit and follow the Appin Road south. At Appin, take the road towards Bulli-Wollongong, and then right to Cataract Dam where signposted.



Cordeaux Dam is located about 94 kilometres drive from Sydney.

From Sydney, take the Hume Highway (F5) towards Canberra. Past Campbelltown, take the Wollongong/Picton turnoff. The Cordeaux Dam entrance is about ten minutes on the right, and is signposted.



Avon and Nepean dams are situated approximately 100 kilometres drive from Sydney.

Follow the Hume Highway (F5) south from Sydney, and take the Bargo exit to Avon and Nepean dams.



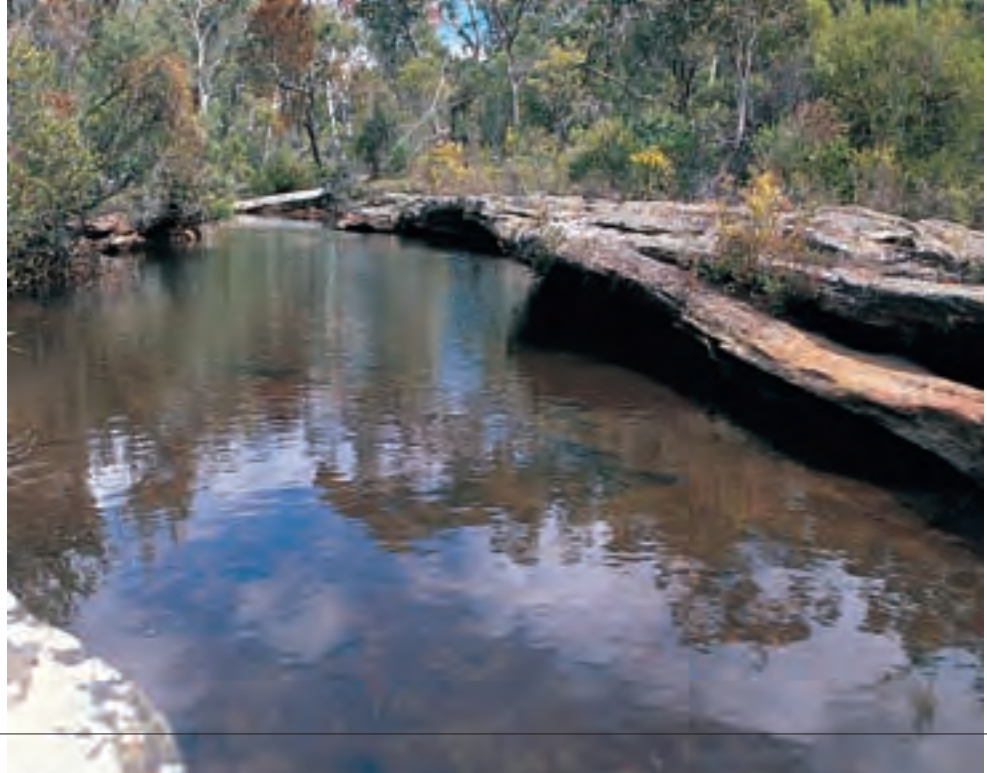
# Why Special Areas are protected

About 890 square kilometres of the Upper Nepean catchment is classified as Special Area. In total, Special Areas cover about 3,700 square kilometres of land surrounding SCA water storages.

The Special Areas protect our water supply because they act as a buffer zone, helping to stop nutrients and other substances that could affect the quality of water entering the storages.

The Sydney Catchment Authority and the National Parks and Wildlife Service (NPWS) jointly manage the Special Areas, in accordance with the Special Areas Strategic Plan of Management.

This long-term plan aims to provide high quality water in the storages, ensure ecosystem integrity, and improve the environmental quality of the catchment areas.



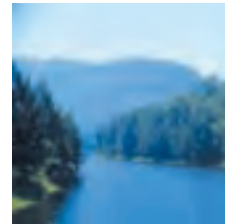
→ UPPER NEPEAN  
SPECIAL AREA



Public access to parts of the Special Areas is restricted to protect water quality. This benefits the community by:

- ensuring we have safe, clean water
- protecting large areas of bushland and plant and animal habitats
- protecting threatened plants and animal species
- preserving evidence of Aboriginal occupation dating back many thousands of years, and
- preserving evidence of European exploration, early settlement, and phases of development such as forestry, mining and dam building.

Restrictions and controls are placed on land use, development and access within Special Areas. Activities such as swimming, fishing, boating and camping are prohibited, unless otherwise specified.



# How you can help keep our catchments healthy



## SAVING WATER

Water is a precious resource. Each of us has a responsibility to reduce the amount of water we use – no matter where we live.

By reducing the amount of water we all use, we reduce the need to build expensive new water supply infrastructure such as dams, reservoirs and pipelines.

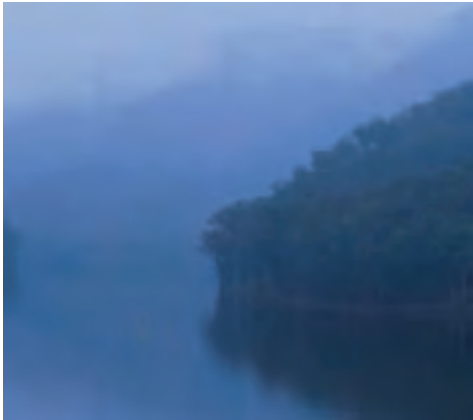
Reducing the amount of water we all use can also help make more water available for environmental flows, which protect the health of the rivers downstream of the dams.

The need to manage demand for water is reflected in the Operating Licences of both the SCA and Sydney Water. The SCA is working with Sydney Water to encourage water saving actions around the home, garden and office.

The SCA also recognises the need to adopt exemplary practices in managing our own business. Minimising leaks in pipelines and fitting water saving appliances and devices are just some of the ways the SCA is reducing the amount of water we use.

## WATER SAVING TIPS

For great water saving ideas, visit the Sydney Catchment Authority website [www.sca.nsw.gov.au](http://www.sca.nsw.gov.au). Follow the links to sites such as [www.sydneywater.com.au](http://www.sydneywater.com.au) for more information. If you don't have access to the internet, contact Sydney Water on 13 20 92.



↑ USING LESS WATER HELPS KEEP OUR CATCHMENTS HEALTHY

## IN THE CATCHMENTS

People living and working in the catchment areas play a special role in keeping our catchments healthy. Some of the ways people in the catchments help include:

- using chemicals efficiently and carefully
- controlling weeds and pests
- retaining and planting vegetation to prevent soil loss
- protecting stream bank vegetation to provide a buffer against pollution
- managing on-site sewage systems effectively
- encouraging and developing improved sewage and stormwater management systems
- preventing bushfires
- reporting spills, and
- getting involved in a Landcare, Streamwatch or other local community group.



↑ STUDENTS PARTICIPATING IN STREAMWATCH TESTING

## CONTACTING THE SYDNEY CATCHMENT AUTHORITY

### SCA Head Office, Penrith

Sydney Catchment Authority:  
Level 2, 311 High Street, Penrith 2750  
PO Box 323, Penrith, NSW 2751  
Phone: (02) 4725 2100  
Fax: (02) 4732 3666

Website: [www.sca.nsw.gov.au](http://www.sca.nsw.gov.au)  
Email: [info@sca.nsw.gov.au](mailto:info@sca.nsw.gov.au)

## VISITOR INFORMATION

### Warragamba Dam Visitors Centre

Phone: (02) 4720 0349  
Hours: 10am to 4pm daily,  
except Christmas Day and Good Friday

### Other SCA dams

Phone (02) 4640 1200  
Hours: 9am to 5pm Monday to Friday

## EMERGENCY REPORTING (24 HOURS)

Fires, chemical spills  
Freecall: 1800 061 069

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## FIELD OFFICE LOCATIONS

### Goulburn Office

Phone: (02) 4823 4200  
Fax: (02) 4822 9422  
Hours: 8.30am to 5.00pm  
Monday to Friday

### Depots

Cordeaux Dam  
Warragamba Dam  
Campbelltown  
Blue Mountains  
Burrawang

## IMPORTANT

Information contained in this brochure may change after the date of printing. The SCA accepts no responsibility or liability for any loss or inconvenience incurred as a result of reliance upon information printed in this brochure. For the most up-to-date information on SCA dams and recreational facilities, contact the SCA's head office on (02) 4725 2100 or visit our website at [www.sca.nsw.gov.au](http://www.sca.nsw.gov.au)

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