

The Perth Seawater Desalination Plant

Environmental Management in Cockburn Sound



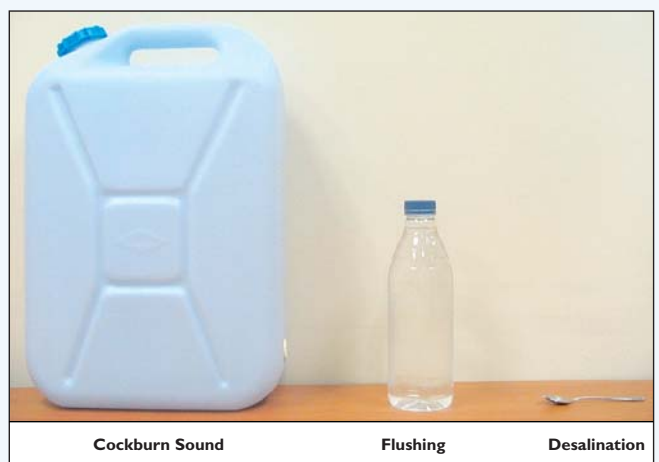
- ❖ Less than 0.02 per cent of the water in Cockburn Sound will be removed per day by the desalination plant.
- ❖ The amount of water that will be taken out by the desalination plant is 1/400th (0.25 per cent) of the water that moves in and out of Cockburn Sound each day with the tides.
- ❖ Expert studies by the University of New South Wales demonstrate that the salinity in Cockburn Sound will increase by less than one per cent because of natural flushing in the Sound, and that there will be no adverse ecological effect.
- ❖ A number of independent expert reports and ongoing monitoring demonstrate that the desalination plant will not lead to lower dissolved oxygen levels in the deep basin of Cockburn Sound.

Introduction

The Perth Seawater Desalination Plant (PSDP), which was completed in late 2006, provides an extra 45 gigalitres of climate independent water each year to the Integrated Water Supply Scheme. That's about 17 per cent of the current consumption in the metropolitan area and represents 80 litres of water per person per day.

The PSDP operates by taking seawater (less than 0.02 per cent per day of the water in Cockburn Sound) and processing about half the volume of water into high quality scheme water. The salt remains in the other half of the water, which will be diluted about 45-fold as it returns to the ocean (this happens because the seawater concentrate is jetted out under high pressure through a diffuser and mixes rapidly with the surrounding waters).

To put the above into perspective, it is useful to look at the tides that move in and out of Cockburn Sound every day. The volume of seawater which floods in and out of Cockburn Sound every day is more than 400 times the amount that is taken out by the desalination plant. Another way of looking at this is if Cockburn Sound were a jerry can, then the daily tidal movement volume in and out of the Sound is equivalent to a bottle of water, while the amount of water taken out of the Sound by the PSDP is half a teaspoon.



Environmental studies and approvals

The PSDP has satisfied all environmental approval requirements so far.

The Department of Environment has advised the Water Corporation that the environmental aspects of the operation of a desalination plant at Kwinana can be appropriately managed. The Department's advice is based on a number of independent, expert reports that were required for review, relating to the predicted environmental effects.

Additionally, the Water Corporation has an ongoing monitoring program to monitor the health of Cockburn Sound.

More specifically, the expert reports focused on increased stratification (salinity layering) and any subsequent dissolved oxygen effects in the deeper area of Cockburn Sound that hypothetically could result from the operation of the PSDP.

Are environmental criteria being met?

An expert study carried out by the University of New South Wales (UNSW) coupled with an ecological assessment undertaken by Dr Des Lord (Adjunct Professor, University of Western Australia) showed that the operation of the PSDP is unlikely to affect dissolved oxygen levels. The most recent work, undertaken by the Centre for Water Research (CWR) at the University of Western Australia, under the direction of Professor Jorg Imberger, builds upon the UNSW study and makes use of sophisticated three-dimensional modelling and two intensive field experiments.

It is now established to the highest possible level of scientific certainty by world class experts that the operation of the PSDP does not and will not cause dissolved oxygen levels to decrease to any measurable degree in the deep basin of Cockburn Sound.

The UNSW study shows that the operation of the PSDP will increase the salinity in Cockburn Sound by up to one per cent. In practical terms, there will not be salt 'build-up' in Cockburn Sound as has been confirmed by ongoing monitoring

Where can I find the expert reports?

The most recent expert reports can be obtained on request from the Water Corporation website at www.watercorporation.com.au

