



• Status of In-Region Groundwater

Summary

Metropolitan's 2007 Groundwater Assessment Study Report concluded that in 2005 there was 3.3 million acre-feet (AF) of available groundwater storage space throughout the service area that could be used if constraints could be overcome.¹

From 2007 through 2010, the region experienced water supply shortages due to drought and operational restrictions in the Sacramento-San Joaquin Bay Delta. Beginning in May 2007, imported water conjunctive use storage and groundwater replenishment deliveries were curtailed, and Metropolitan initiated calls for use of water stored in its conjunctive use accounts. Metropolitan implemented the Water Supply Allocation Plan from July 2009 through April 2011 to help manage through the drought and regulatory restrictions in the Delta.

In 2011, precipitation statewide was once again above normal and some Bay Delta restrictions were eased. By October 2011, Metropolitan provided 225,000 AF of replenishment water and stored approximately 20,000 AF in its conjunctive use storage accounts.

In July, the Water Planning and Stewardship Committee directed staff to provide an update on changes in the condition of the region's groundwater basins. Input from the groundwater basin managers regarding basin storage and water levels indicates that by late 2010 the water in storage had declined by nearly 850,000 AF. Water levels in some basins were at record lows. As a result, available storage space increased from 3.3 million AF to 4.2 million AF. However, by October 2011, groundwater storage had rebounded by 550,000 AF with available storage space down to 3.6 million AF. Comparing October 2011 with 2005, water in storage declined by about 300,000 AF. Regional groundwater levels appear to have recovered about two thirds of the declines seen in the recent drought.

Detailed Report

Regional Overview

Metropolitan's 2007 Groundwater Assessment Study Report concluded that in 2005 there was 3.3 million AF of available groundwater storage space throughout the service area that could be used if constraints could be overcome. In 2005, the region's groundwater basins had received the benefit of record-breaking precipitation resulting in substantial groundwater recharge. Regional groundwater basin storage levels appeared healthy.

By mid-2007, Metropolitan had stored nearly 230,000 AF in its conjunctive use accounts and another 63,000 AF in cyclic storage accounts. Additionally, Metropolitan had routinely delivered an average of about 150,000 AF of replenishment annually over the ten year period from 1997-2006.

From mid-2007 through 2010, the region experienced reduced water supply conditions due to drought and operational restrictions in the Sacramento-San Joaquin Bay Delta. Beginning in May 2007, imported water conjunctive use storage and Replenishment Service Program deliveries were curtailed. Metropolitan subsequently initiated calls for use of water stored in its conjunctive use accounts. From July 2009 through April 2011, Metropolitan implemented Water Supply Allocations. By 2011, Metropolitan had withdrawn over 136,000 AF from its conjunctive use accounts, and sold 63,000 AF from cyclic storage accounts. During this period, drought had reduced stormwater recharge of the groundwater basins in the region. In total, regional groundwater levels dropped nearly 850,000 AF by late 2010 as compared to 2005.

In 2011, precipitation statewide was once again above normal and some Bay Delta restrictions were eased. By October 2011, Metropolitan had provided 225,000 AF of deliveries under the Replenishment Service Program and stored approximately 20,000 AF in its conjunctive use accounts. Regional groundwater storage had increased by nearly 550,000 AF from the late 2009-2010 low levels. Compared to 2005, water in storage has declined by about 300,000 AF. Recovery of regional groundwater storage was approximately two-thirds complete.

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Key Observations

Groundwater Basins Reached Historic Lows by 2010. Following four years of shortage, a number of key groundwater basins experienced historic low water levels/storage by 2010.

- The Main San Gabriel Basin measured a low water level at its key well that was the lowest since 1932.
- The Central Basin saw the water level at its Montebello Forebay monitoring well drop to a level that was the lowest since 1977.
- The accumulated overdraft in the Orange County Basin came within about 75,000 AF of the lower boundary of its adopted operating range. Orange County Basin storage had not been this low since the early 1990s.
- San Fernando Basin curtailed use of stored water credits and invested heavily in infrastructure to increase capture and infiltration of storm water to stabilize storage in the basin.
- Raymond Basin adopted a measure to reduce annual groundwater production by 30,000 AF in order to correct declining basin storage and water levels.
- Calleguas MWD cancelled its conjunctive use program with Metropolitan as part of the Fox Canyon Groundwater Management Agency's effort to revise the management paradigm in the Ventura County basins.

Groundwater Basins Have Capacity for Rapid Recovery. In 2011, the region's groundwater basins quickly rebounded from low water levels/storage. The water level at the Main San Gabriel Basin key well rose 45 feet bringing water levels back within the basin's adopted operating range. The water level at Central Basin's Montebello Forebay monitoring well returned to 2005 levels. Orange County Basin is about two-thirds of the way to bringing storage to its desired operating level.

Continuing Investments in Groundwater. Since 2005, there have been substantial investments in the groundwater basins, as groundwater supply managers have initiated efforts to expand local resources such as recycled and storm water.

The following examples illustrate the range of investment types occurring throughout Metropolitan's service area.

- The U.S. Geological Survey is conducting studies of groundwater resources in the Temecula and San Diego areas in conjunction with the local water supply agencies.
- The groundwater management plan for San Pasqual Basin has been completed and plans are in process for Arlington and Riverside basins.
- Scientific study has been on-going in the Ventura County basins, and is the basis for revised management in those basins by Fox Canyon Groundwater Management Agency.
- Pasadena has worked with National Aeronautical and Space Administration (NASA) to bring additional perchlorate treatment on-line in the Monkhill portion of the Raymond Basin.
- Orange County Water District has implemented the Groundwater Replenishment System (GWRS) to recharge 72,000 AF per year of highly treated recycled water.
- The Los Angeles Department of Water and Power has invested with Los Angeles County Department of Public Works to repair Tujunga Dam for increased stormwater capture and to upgrade downstream spreading facilities.

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Conclusions

Groundwater levels/storage in key groundwater basins declined dramatically during the past four years of drought and regulatory restrictions. While basin levels have recovered significantly, they are not yet at levels, last seen in 2005. A workgroup of member agencies and groundwater managers continues regular meetings with Metropolitan staff to review how Metropolitan's Replenishment Service program can be reformed to provide regional benefits. Local investments in groundwater continue as groundwater managers work to improve the sustainable yields from their respective basins. The investments bring promise of increased flexibility and increased ability to benefit from wet conditions.

¹The published Report identified 3.2 million AF of available groundwater storage space in 2005. A data input adjustment following publication resulted in a revision of the value to 3.3 million AF of space.