The Orange County groundwater basin lies at the base of the Santa Ana River watershed.
OCWD overlies the groundwater basin in the northern half of Orange County.

70% groundwater for 2.4 million people (19 water retailers)

< 5% groundwater for 0.6 million people
Recharge operations to capture and recharge Santa Ana River flows started in the early 1930s.
The basin is comprised of three major aquifer systems that are hydraulically interconnected.
Over the course of 77 years, the District has purchased 1,590 acres for recharge.

**Purchase Period (Total Acres)**
- 1935-1947 (719 acres)
- 1958 (64 acres)
- 1963-1968 (214 acres)
- 1970-1979 (276 acres)
- 1983-1985 (273 acres)
- 2003-2004 (10 acres)
- 2010 (13 acres)
- 2013 (17 acres)
The deep basins are able to recharge up to 100,000 acre-feet per year.
Prior to the early 1990s, a large sand dike had to be constructed to divert water from the SAR.
In 1992, the Imperial Rubber Dam was installed at a cost of $3M. Increased capture of storm water paid for the cost of the dam and control structure in the first year of operation.
Sand “T and L” levees are constructed in the Santa Ana River channel to spread the water in the channel.

The T and L levees also provide nesting and roosting habitat for numerous types of water fowl.
OCWD has a diverse water portfolio with all sources playing different roles at different times.

**Surface Water Recharge**
- GWRS Source
  - "Increase Supplies"
- Imported Source
  - "Fight Seawater"
- Base/Storm Flow Sources
  - "Maximize Capture"

**Graph Details**
- **Annual Recharge (aft)**
- **Time Periods**:
  - 1949 to 2017

**Graph Sources**
- GWRS
- Imported Water
- Storm Flow Recharge
- Recharged Base Flow
The USACE constructed Prado Dam in 1941 for flood control and water conservation.
OCWD and the USACOE cooperate to store and capture up to 20,000 af of storm water at a time.

The ACOE coordinates the release rate with OCWD to match the capacity of the recharge system.
The recharge of local water sources has more than doubled the yield of the basin.

Without OCWD

10-Yr Avg (2003-2013)

Future Estimate

- Sustainable Yield w/o OCWD
- Local Water
- Santa Ana River Base Flow
- Natural Recharge (Rain, subsurface inflow)
- Storm Flow
- Recycled Water
- Imported Water

Sustainable Yield w/o OCWD: 0
Local Water: 75,000 (22%)
Santa Ana River Base Flow: 55,600
Natural Recharge (Rain, subsurface inflow): 0
Storm Flow: 0
Recycled Water: 0
Imported Water: 0

The graph shows the contribution of different water sources to the total recharge, with local water accounting for 22% of the future estimate.
High imported water costs makes local resources development attractive.

Cost per Acre Foot

- **Replenishment Assessment**
- **MWD Treated Water**
- **Untreated MWD** $700
- **GWRS** $500
- **Santa Ana River/Storm Flow** $20
- **Natural Recharge** $0

Desalination? $1900
OCWD continues to increase local water supplies.

- Increased storm water storage at Prado Dam
- Increased storm water recharge
- Sediment removal at Prado Dam
- Forecast-informed reservoir operations (FIRO)
Thank You!
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