Groundwater Monitoring Plan Insights

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Groundwater-Pumping Concerns

- Groundwater use in desert environs increasing
- Water-manager concerns:
  - Water-level drawdowns
  - Land subsidence
  - Decreased baseflow
  - Ecological impacts
  - Impacts on springs

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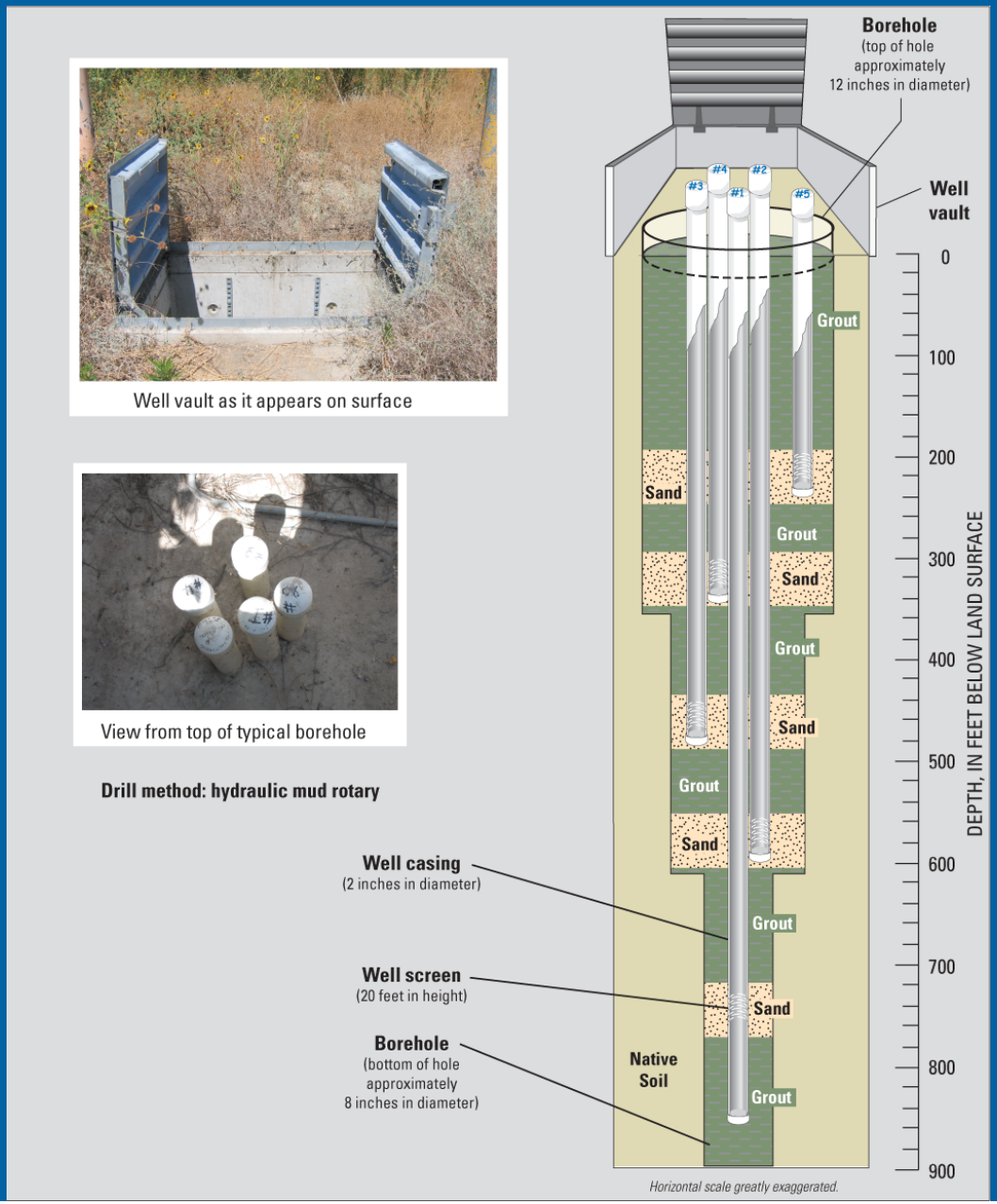
Monitoring and Mitigation Plans

- Install monitoring wells or other instrumentation
- If threshold met, then stop or modify



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Hydrologic Concerns

- If monitoring wells are far from pumping:
  - Time lag between maximum impact and stoppage of pumping
  - Maximum impact will be greater than observed when pumping stopped
- Time for full recovery long

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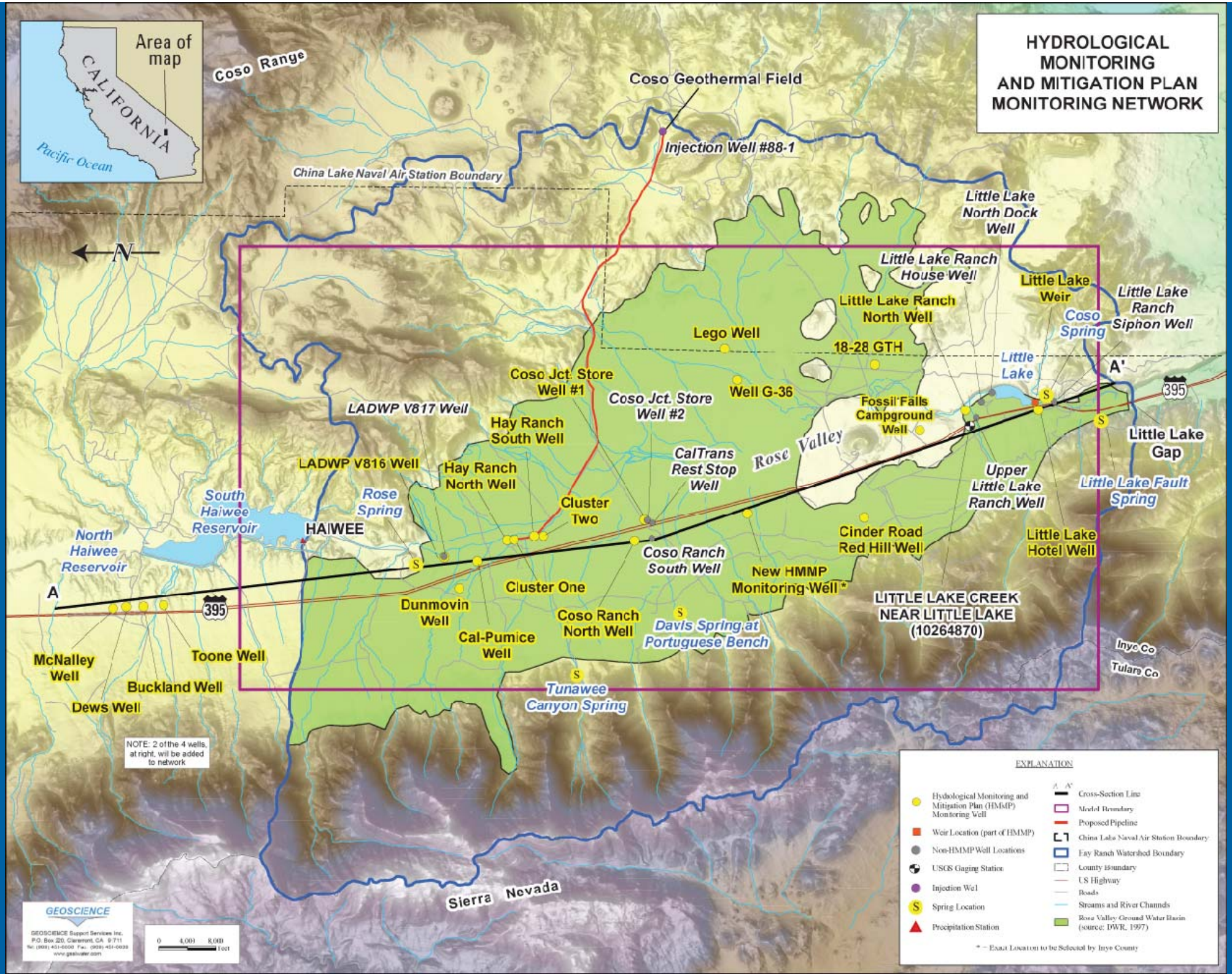
HYDROLOGICAL MONITORING AND MITIGATION PLAN MONITORING NETWORK
Area of map
CALIFORNIA
Pacific Ocean
Coso Range
Coso Geothermal Field
Injection Well #88-1
China Lake Naval Air Station Boundary
N
Little Lake North Dock Well
Little Lake Ranch House Well
Little Lake Weir
Little Lake Ranch Siphon Well
Little Lake Ranch North Well
Coso Spring
Lego Well
18-28 GTH
Little Lake
A'
395
Coso Jct. Store Well #1
Coso Jct. Store Well #2
Well G-36
Fossil Falls Campground Well
LADWP V817 Well
Hay Ranch South Well
Rose Valley
Little Lake Gap
LADWP V816 Well
Hay Ranch North Well
CalTrans Rest Stop Well
Upper Little Lake Ranch Well
Little Lake Fault Spring
South Haiwee Reservoir
Rose Spring
Cluster Two
HAIWEE
North Haiwee Reservoir
Cinder Road Red Hill Well
Little Lake Hotel Well
Coso Ranch South Well
New HMMP Monitoring Well *
A
Cluster One
Dunmovin Well
Coso Ranch North Well
Davis Spring at Portuguese Bench
LITTLE LAKE CREEK NEAR LITTLE LAKE (10264870)
Cal-Pumice Well
McNalley Well
Toone Well
Buckland Well
Dews Well
Tunawee Canyon Spring
Inyo Co
Tulare Co
Sierra Nevada
NOTE: 2 of the 4 wells, at right, will be added to network
EXPLANATION
Hydrological Monitoring and Mitigation Plan (HMMP) Monitoring Well
Weir Location (part of HMMP)
Non-HMMP Well Locations
USGS Gaging Station
Injection Wel
Spring Location
Precipitation Station
Cross-Section Line
Model Boundary
Proposed Pipeline
China Lake Naval Air Station Boundary
Fay Ranch Watershed Boundary
County Boundary
US Highway
Roads
Streams and River Channels
Rose Valley Ground Water Basin (source: DWR, 1997)
* – Exact Location to be Selected by Inyo County
GEOSCIENCE
GEOSCIENCE Support Services Inc.
P.O. Box 220, Claremont, CA 91711
www.gssiwater.com
0 4,000 8,000 feet

Trigger Points and Levels

- Groundwater model used to establish trigger levels at trigger points
- Original groundwater model
  - Overestimated storage and transmissivity
  - Overestimated natural recharge (5,000 AFY)– Insensitive trigger levels
- USGS modified model
  - Updated from MODFLOW-88 to 2000
  - Natural recharge = 2,500 AFY
  - Reparameterized

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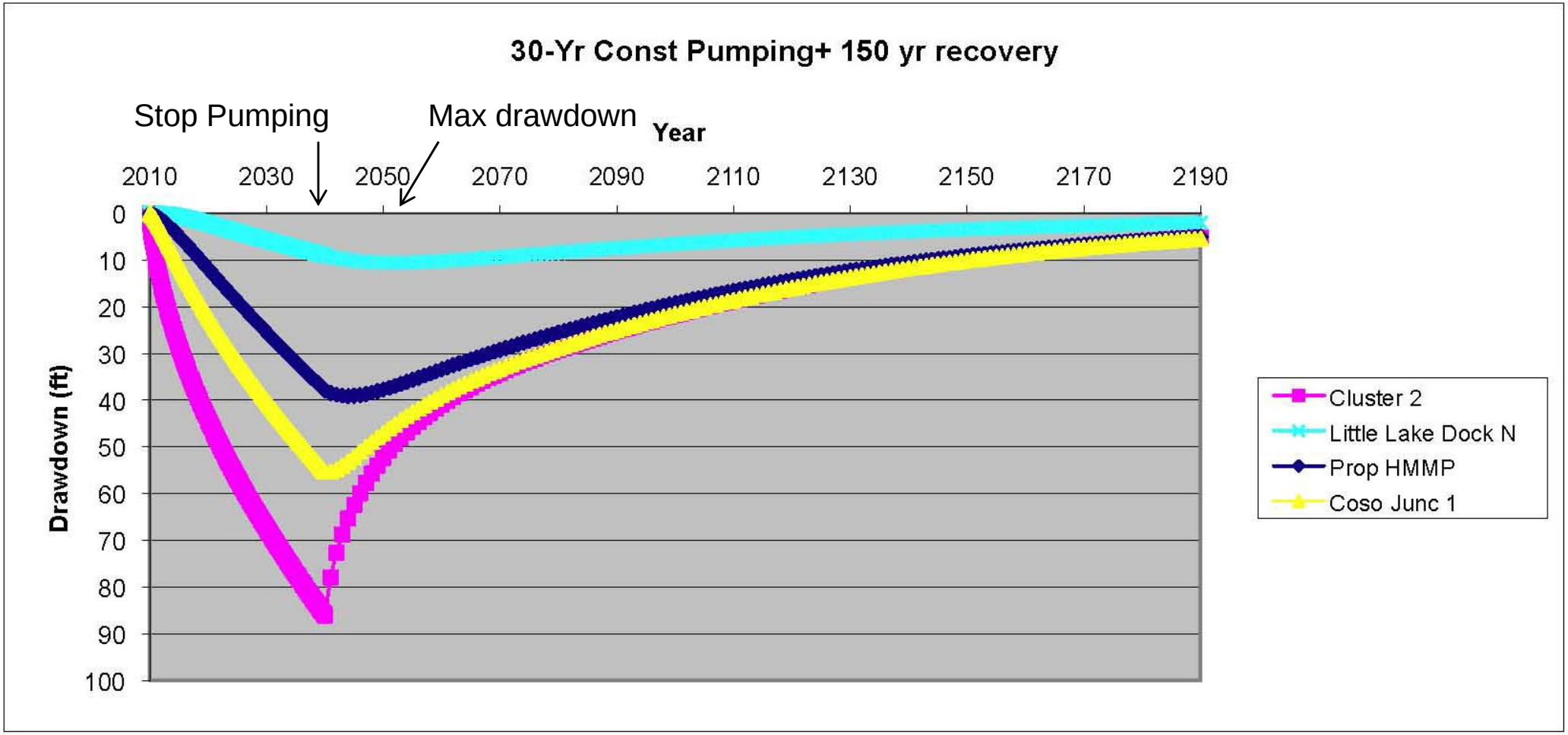
30 Years Pumping + 150 Years Recovery



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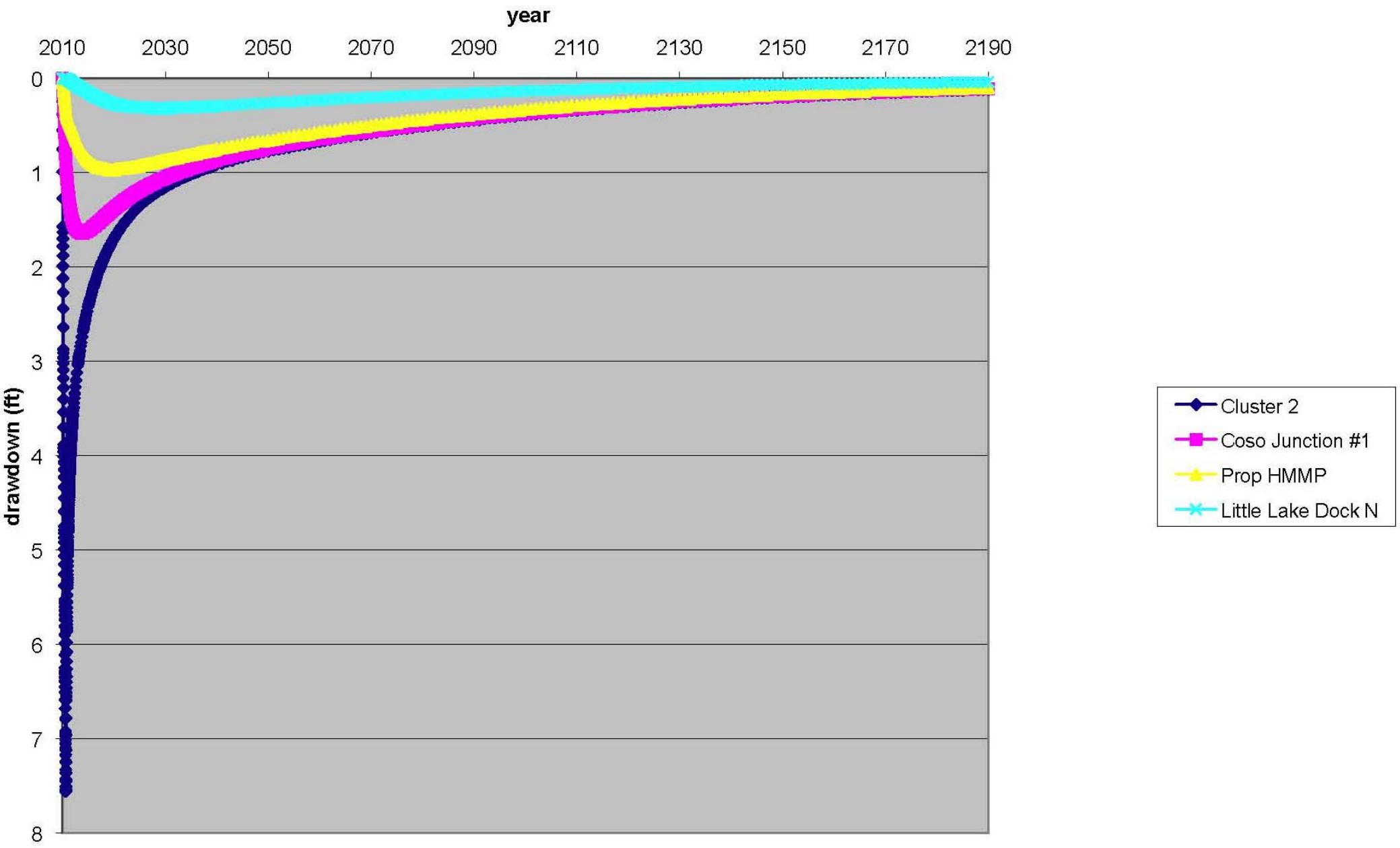
8 Month Pumping + Recovery



Conclusions

- Need trigger points close to project site(s)
- Need a groundwater-flow model to evaluate trigger points and levels
- Constantly refine trigger points and levels as new data are collected and model refined

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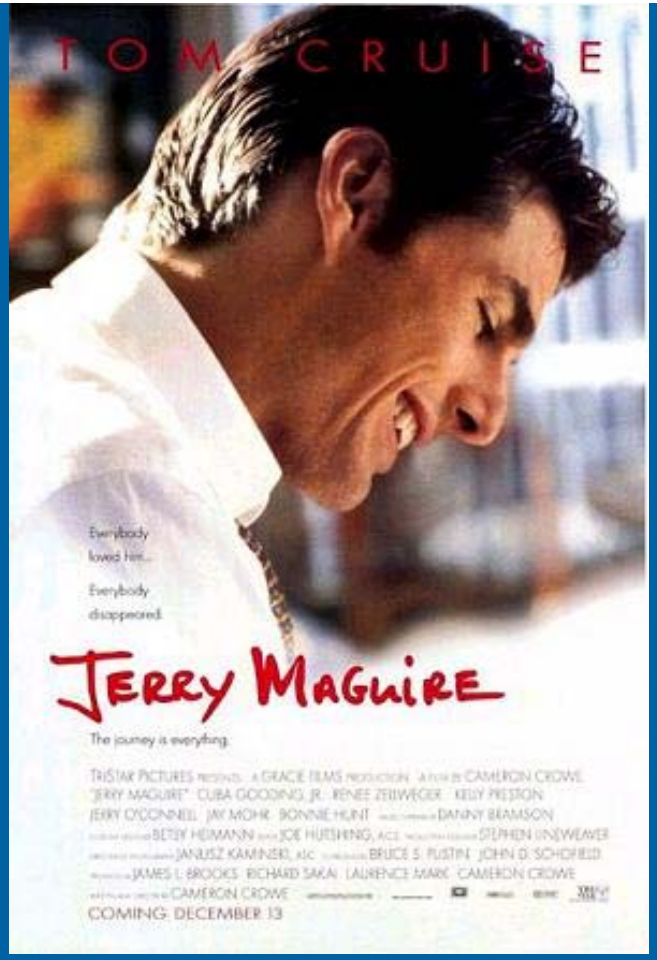
“Help Us Help You”

- Analysis of projects prior to EIR/EIS preferred
- Basic data (streamflow, groundwater levels, well logs, etc.)
- Regional evaluations of water availability
- Existing detailed studies and quantitative groundwater models for many basins
- Prepare site-specific groundwater assessments and models where needed
- Monitor long-term impact of completed projects
- Develop management and monitoring plans to ensure no negative impact



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