MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

A Presentation to
Public Water Now

# STATE OF THE

# CARMEL RIVER WATERSHED

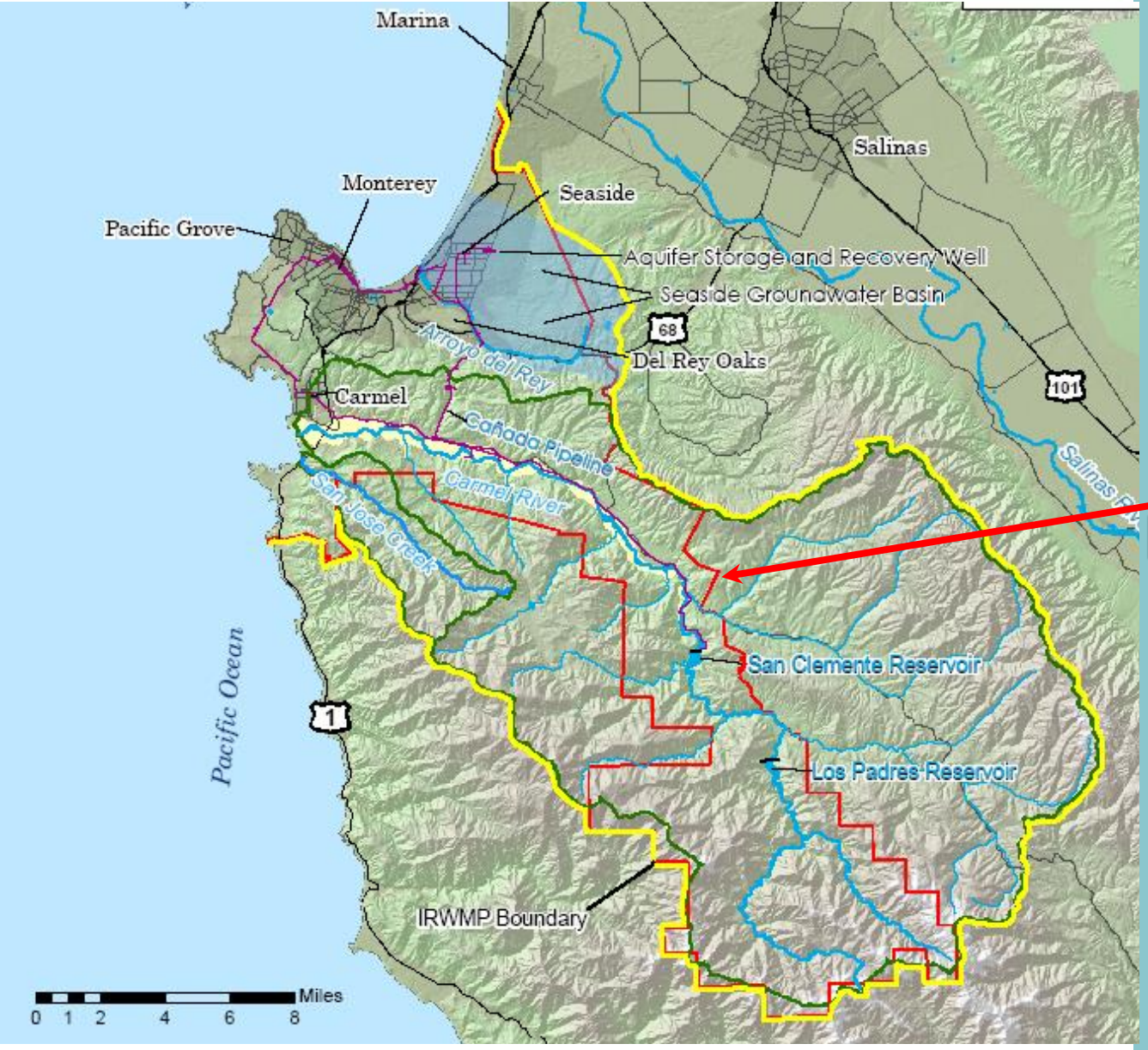
Meeting Date: February 13, 2017

Contacts: Dave Stoldt, General Manager
Larry Hampson, District Engineer

# Topics

*Overview*

- MPWMD role in the Carmel River watershed
- Recent Water Use and the SWRCB Cease and Desist Order extension
- 2016 Soberanes fire
- January 2017 high flows




# Monterey Peninsula Water Management District

## MISSION STATEMENT:

**TO MANAGE, AUGMENT, AND PROTECT WATER RESOURCES FOR THE BENEFIT OF THE COMMUNITY AND THE ENVIRONMENT**

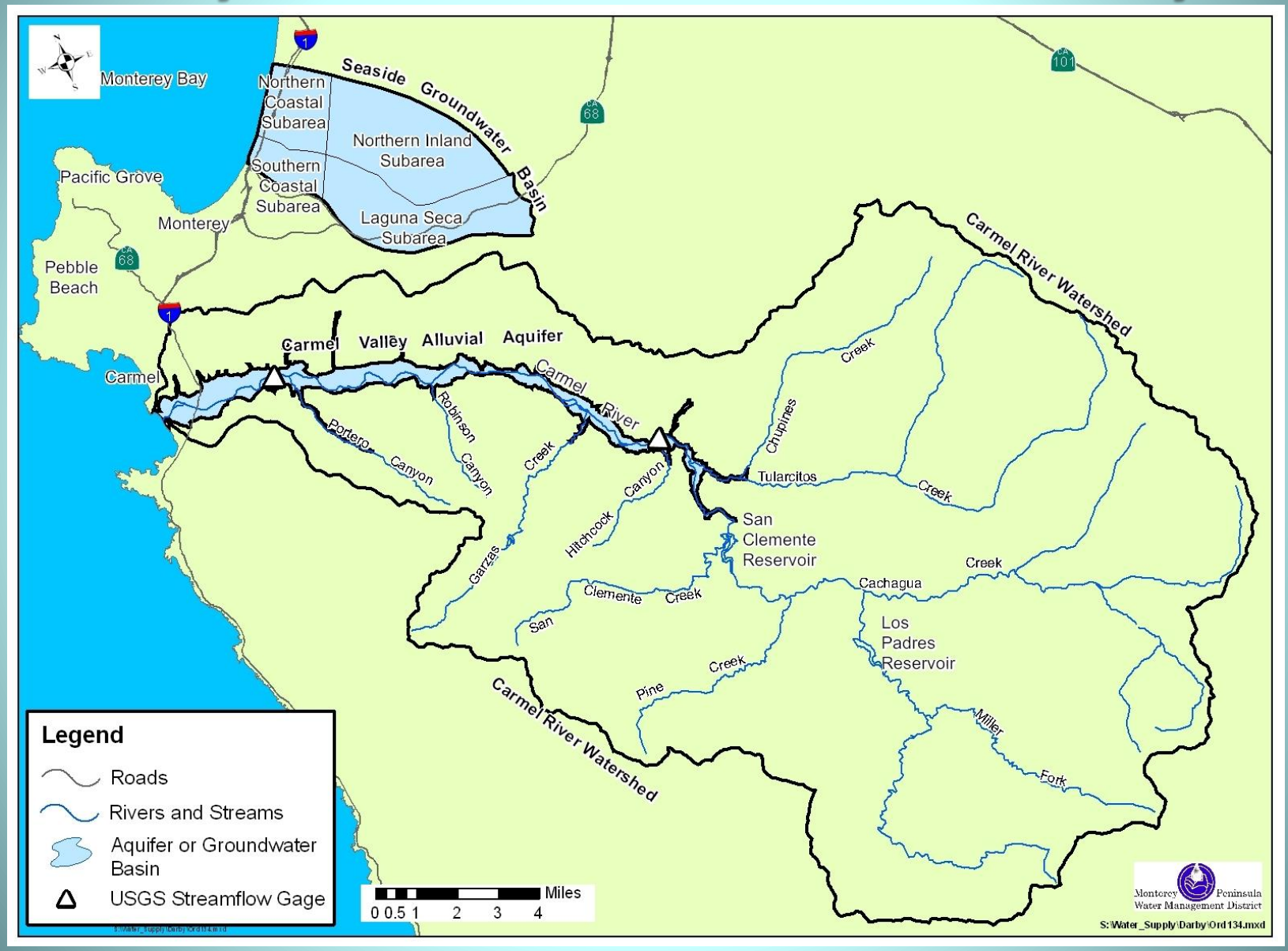
MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

- IRWMP Area
- MPWMD Boundary
- Rivers
- Cal-Am Pipelines
- Roads
- Watershed Boundaries
- Seaside Groundwater Basin
- Carmel Valley Alluvial Aquifer
- Areas of Special Biological Significance
- City Limits

# MPWMD role in the Carmel River watershed

- Streamflow data collection at 15 main stem sites and 16 tributary sites since 1978; beginning in 1991, 15 stations were converted to continuous monitoring sites
- Cooperate with Cal Am to maintain long-term daily rainfall measurements at the former San Clemente Dam site (1922 to present)
- Main stem streambank and channel restoration, regulation, and riparian corridor monitoring in the lower 16 miles of the river
- Steelhead resource management and enhancement projects in the main stem
- Regulation of Cal Am and non Cal-Am Carmel River diversions; maintain annual well-reporting program for 665 wells in Carmel River watershed
- Water supply development for the Monterey Peninsula
- Long-term planning – including at Los Padres Dam, use of stormwater resources, and analyzing the effect of climate change on future supplies
- Provide technical assistance and data to property owners, agencies, and other interested stakeholders

# Monterey Peninsula Water Resources System



# Seaside Groundwater Basin

- usable aquifer capacity (2015) = 7,512 AF
- current estimated maximum capacity = 53,500 AF
- safe yield = 3,000 AFY
- Cal Am limit = 1,474 AFY

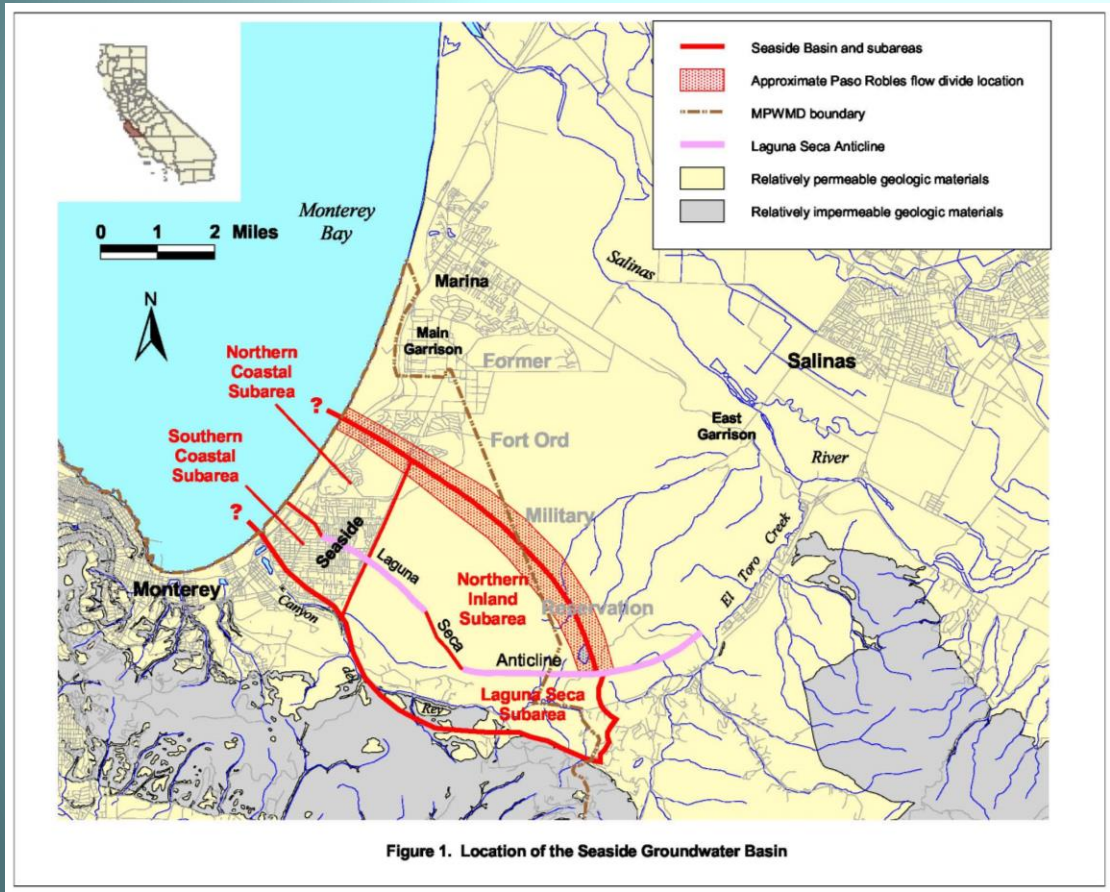
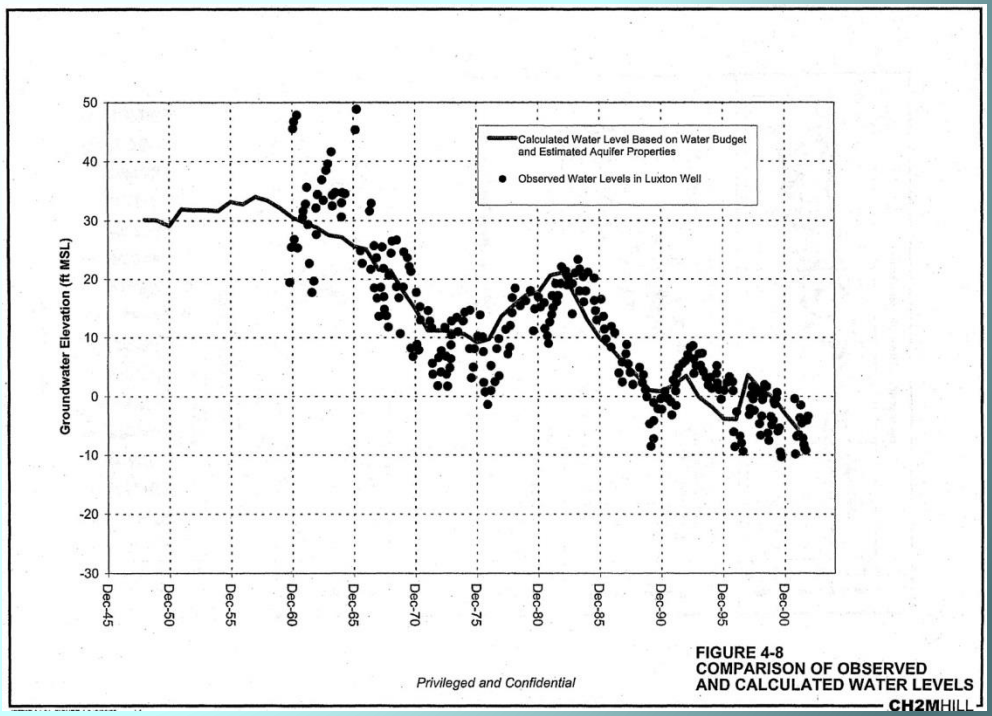
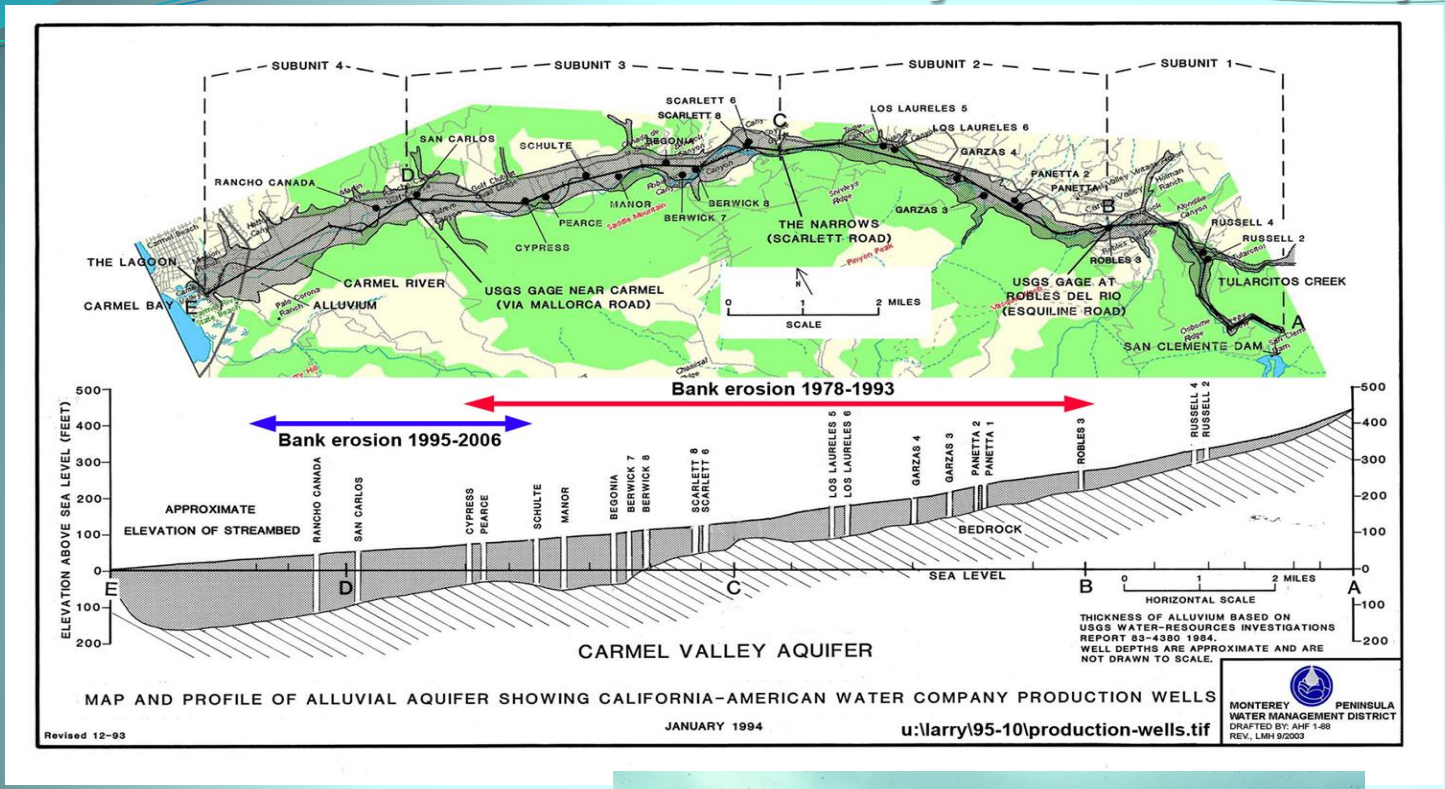



Figure 1. Location of the Seaside Groundwater Basin



# Carmel Valley Alluvial Aquifer

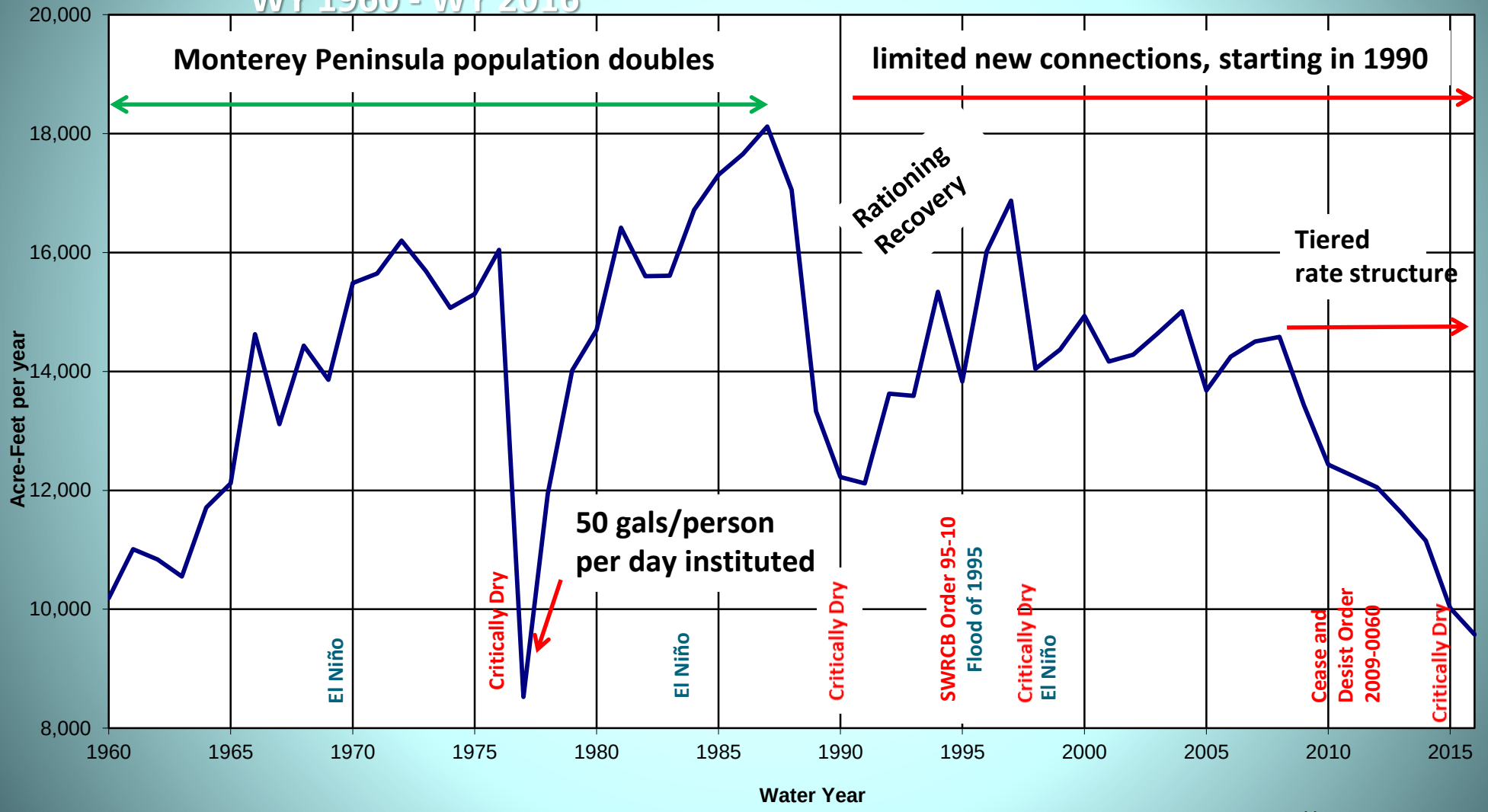



- 18 Cal Am wells
- 308 non Cal Am wells

- Cal-Am authorized rights = 3,376 AFY (unrestricted)
- Other rights (Cal-am and MPWMD) = 6,790 AFY (subject to Carmel River instream flow requirements)
- Total Nominal Water Rights = 10,166 AFY
- MPWMD remainder rights = 18,674 AFY (New Los Padres Project)

# Cal-Am Monterey Main System Production
## WY 1960 - WY 2016

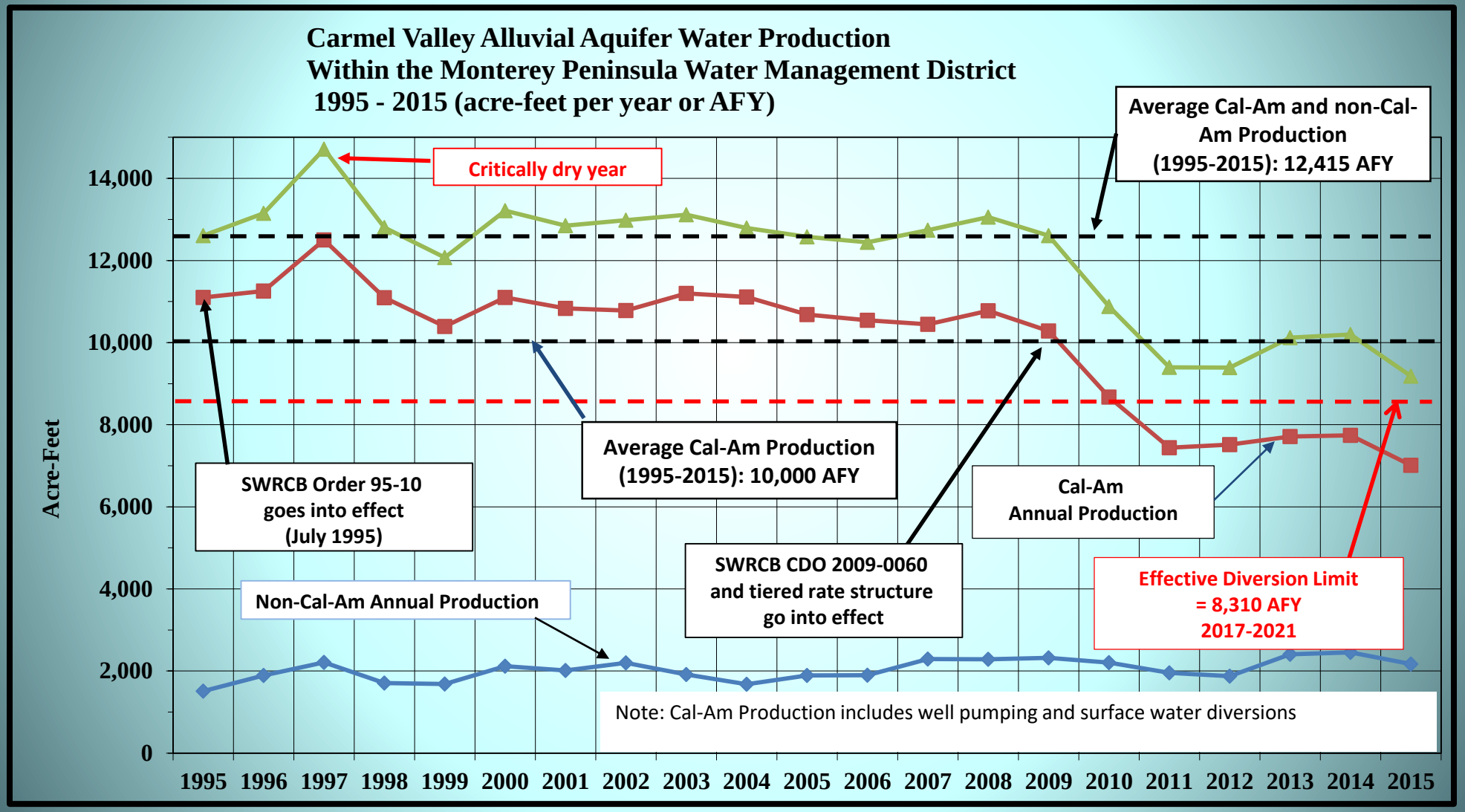
- 12/30/2016 MPWRS usable supply = 30,510 AF (81% of maximum capacity)



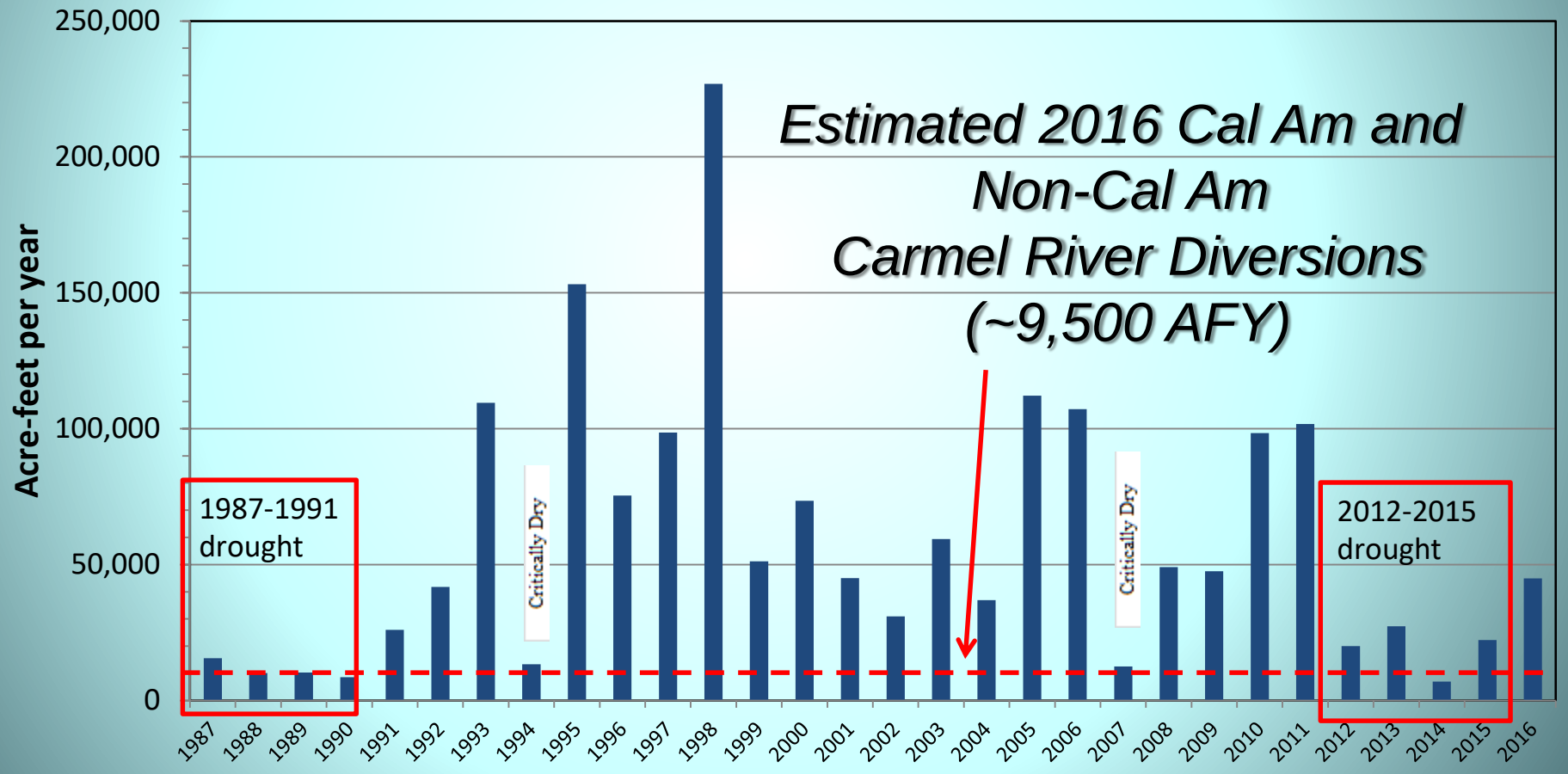

Data Source: CAW

Prepared by MPWMD

# Carmel River Diversions

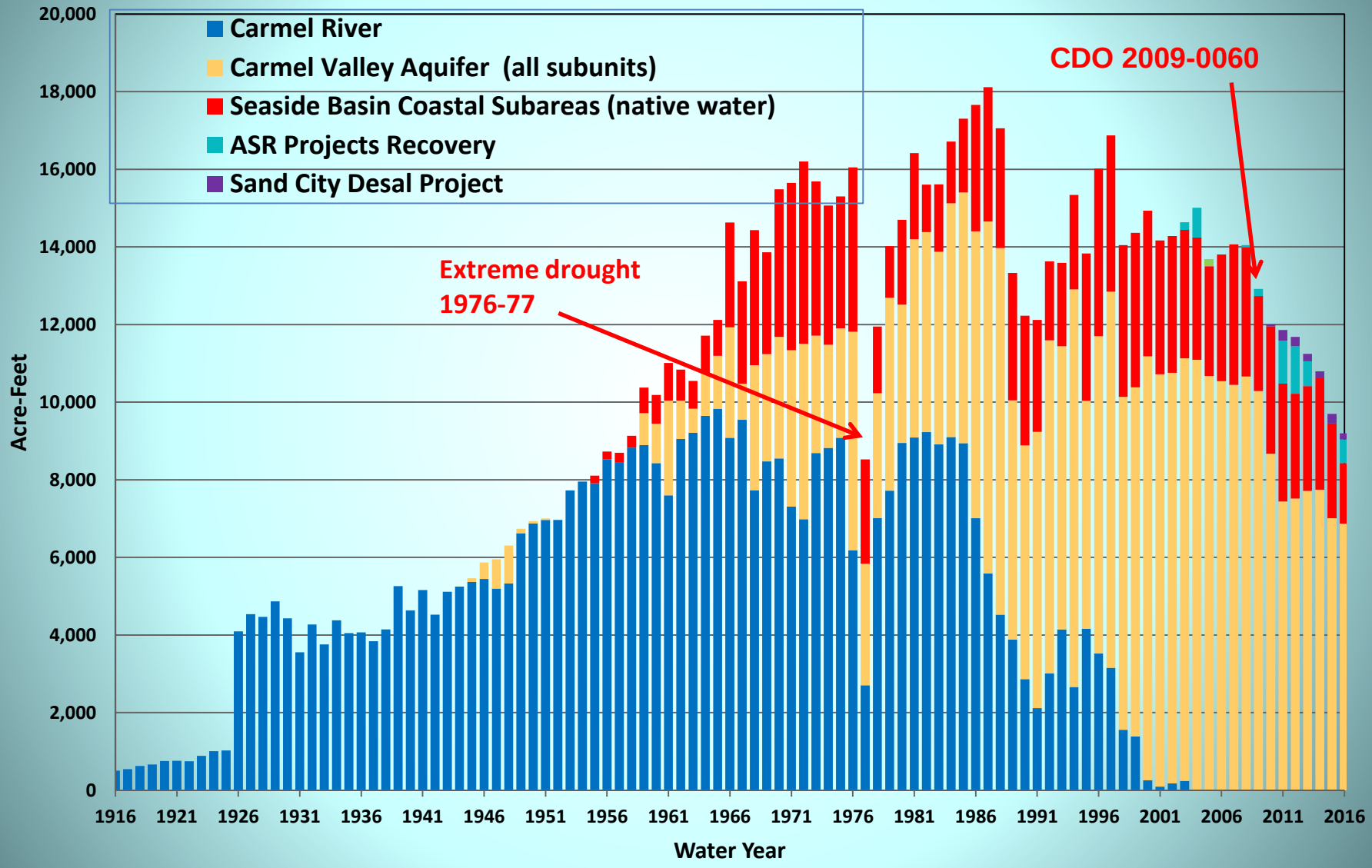


# Unimpaired Annual Flow at Former San Clemente Dam Site

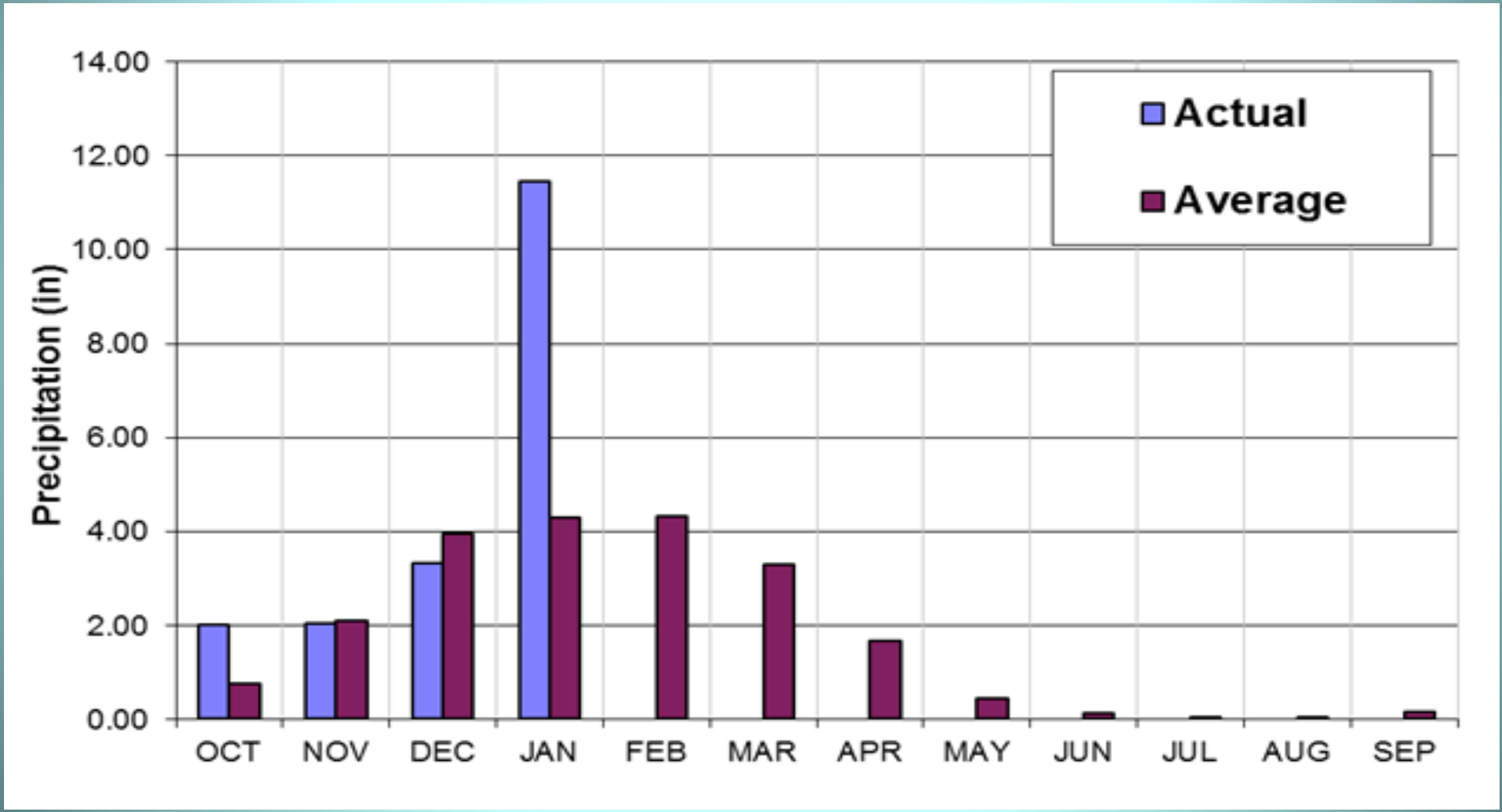



Through Feb. 13, 2017, flow at the Sleepy Hollow weir ~= 100,000 AF (provisional)

# Cal Am Production by Source



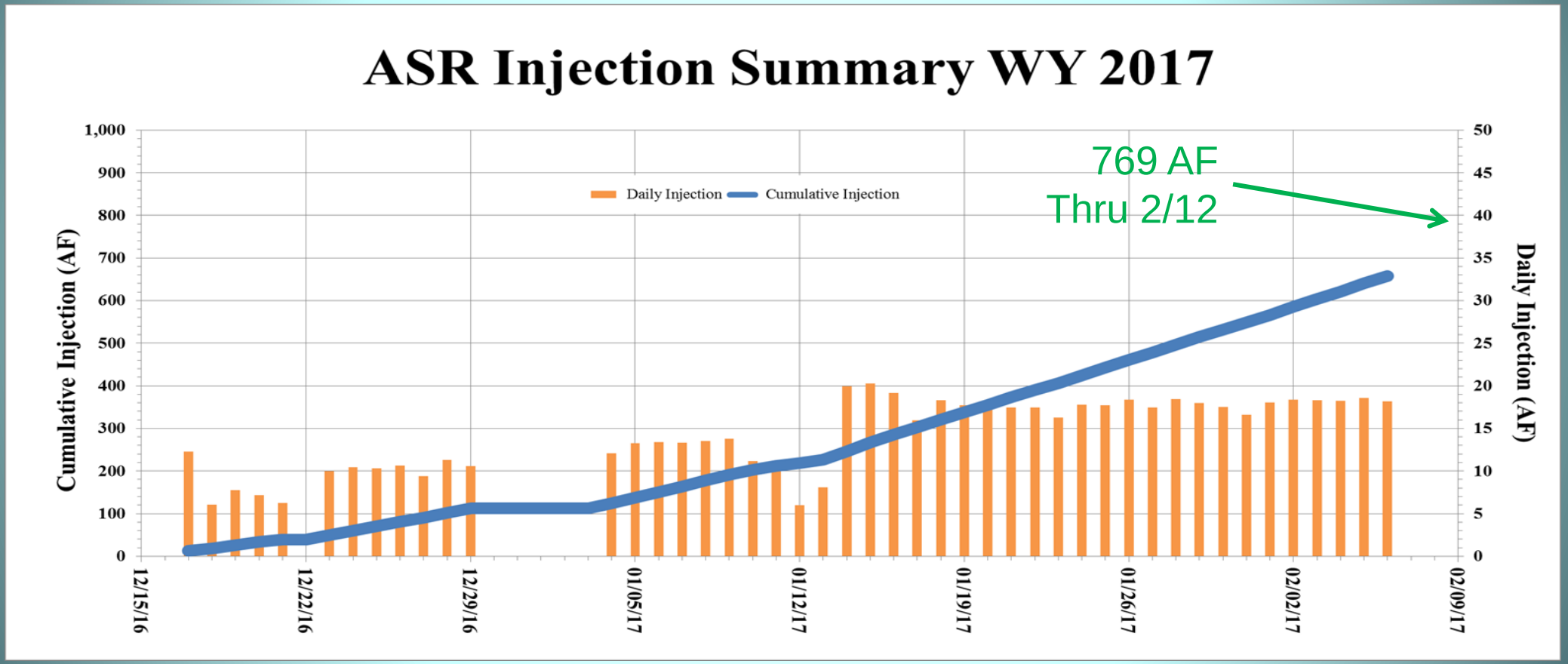
# Recorded Rainfall at San Clemente Dam: Water Year 2017



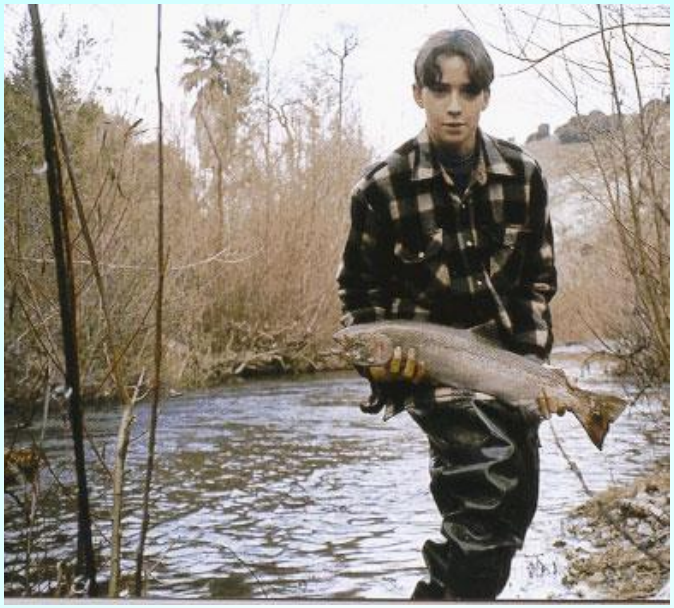
# Recorded Rainfall at San Clemente Dam: Water Year 2017

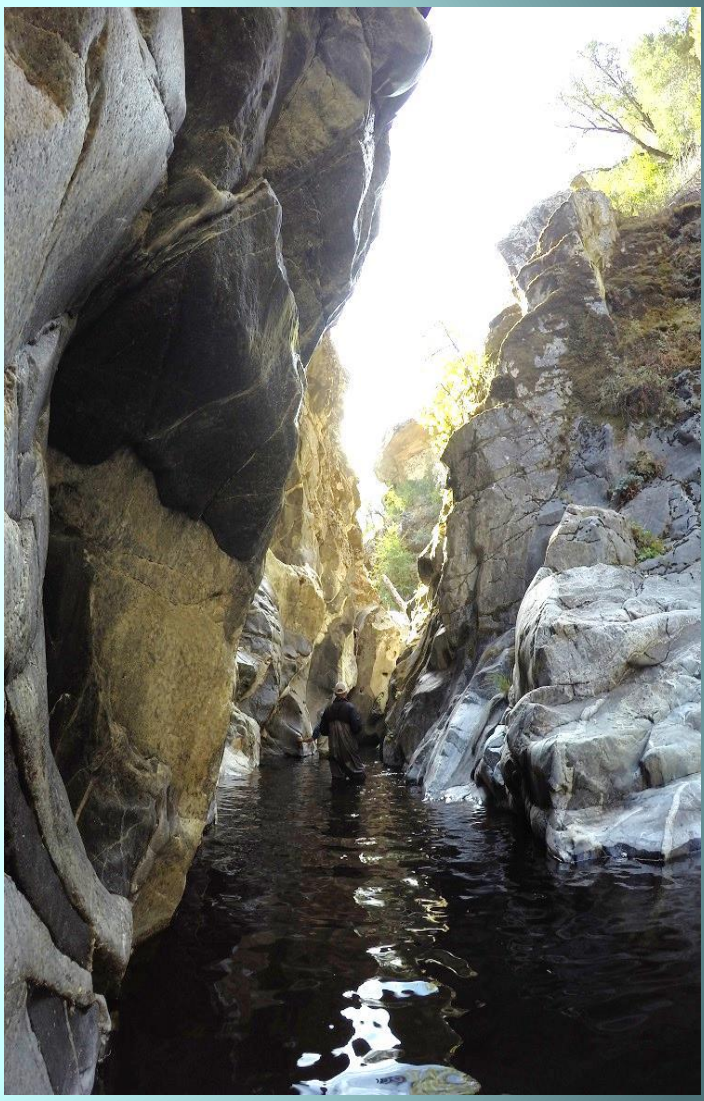
- January rainfall = 11.44”
- Average January rainfall = 4.3”
- 18.79” through January is 169% of normal
- Los Padres Dam filled and spilled December 16th
- Lagoon breached naturally December 19th and has cycled since

# Aquifer Storage and Recovery Year-to-Date



# The Carmel River watershed: a rich and complex environment





# Soberanes Fire

# Soberanes Fire

- **Burned area estimate, Carmel River watershed = 46,250 acres**
- **USGS area estimate of Carmel River watershed = 163,200 acres**
  - **28.3 % of watershed burned**
  - **42.8% of watershed above Los Padres Dam burned**
  - **50.6% of interdam watershed burned, including 91.6% of the Black Rock Creek sub-watershed (tributary to San Clemente Creek) and 100% of the Pine Creek watershed (tributary to the main stem)**

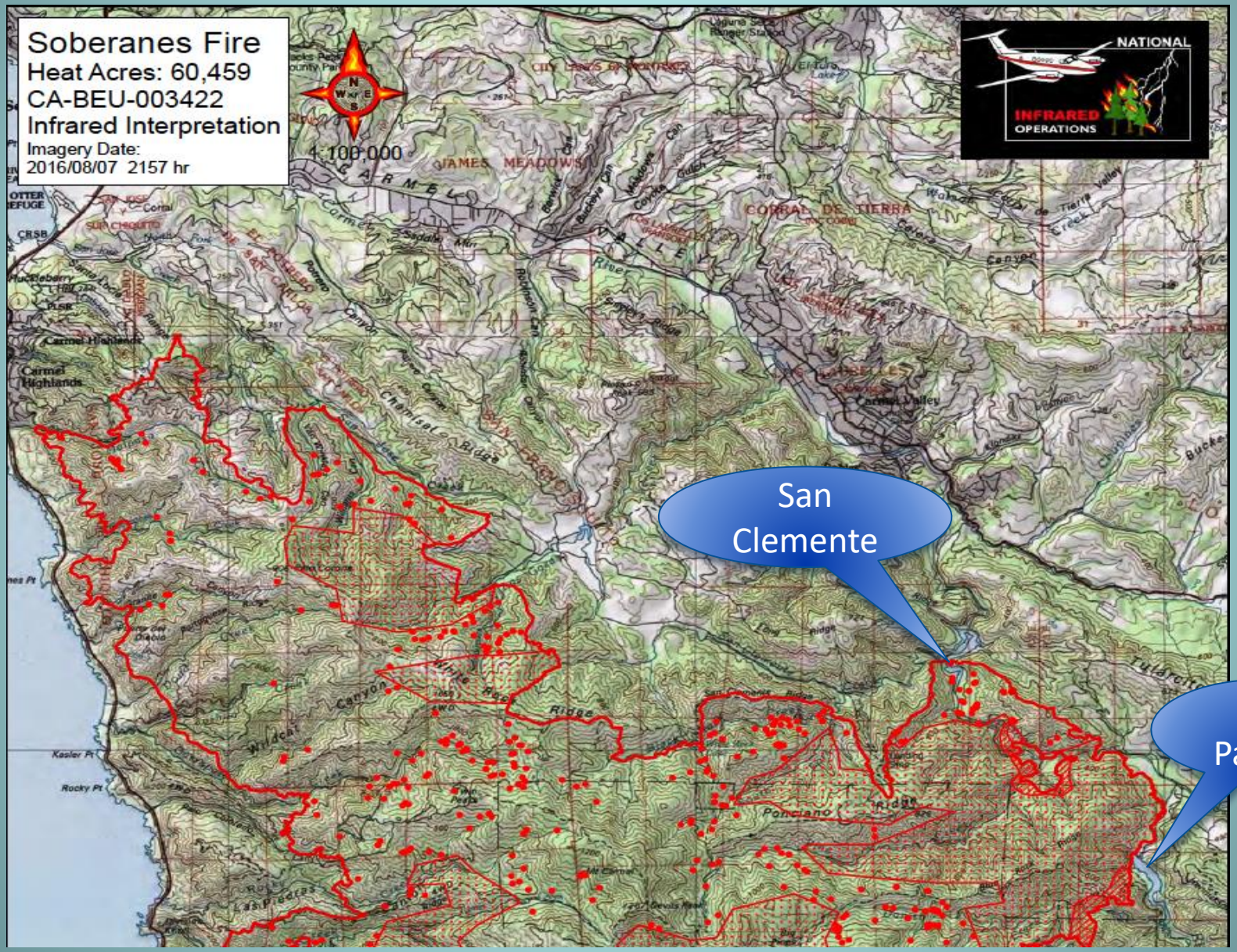
# Soberanes Fire

# Soberanes Fire

# Towards Sleepy Hollow

# Back Burns

# Carmel Valley and Burn Area – August 7



# Road Damage in Addition to Fire

# Above San Clemente

# What the Watershed Looks Like…
# San Clemente Ridge

# What the Watershed Looks Like…

# What the Watershed Looks Like…

# What the Watershed Looks Like…

# What Happens When it Rains?

**October 2016: for the area of the Carmel River watershed burned, it was projected to contribute:**

2.15 tons/acre on a 2 year storm

- 201,000 tons or ~115,000 cubic yards or ~71 af

4.24 tons/acre on a 5 year storm

- 397,000 tons or ~226,000 cubic yards or ~140 af

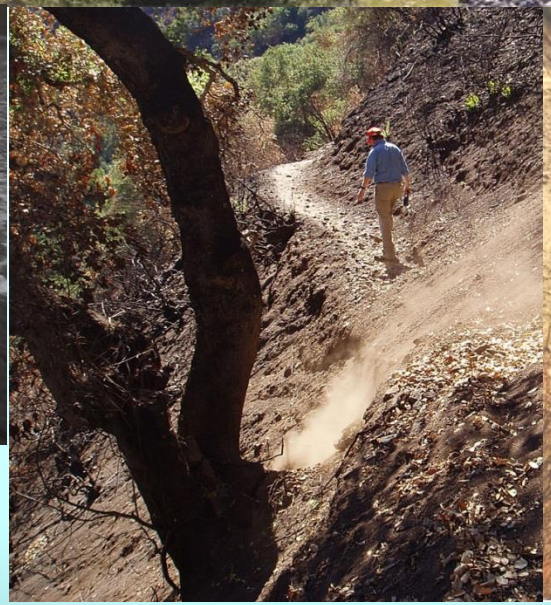
6.91 tons/acre on a 10 year storm

- 646,000 tons or ~368,000 cubic yards or ~ 228 af

- The 1977 Marble-Cone fire resulted in 555 af of sediment deposition in Los Padres Reservoir in WY1978

# Soberanes fire effects in Carmel Valley

# Los Padres Dam – built in 1948



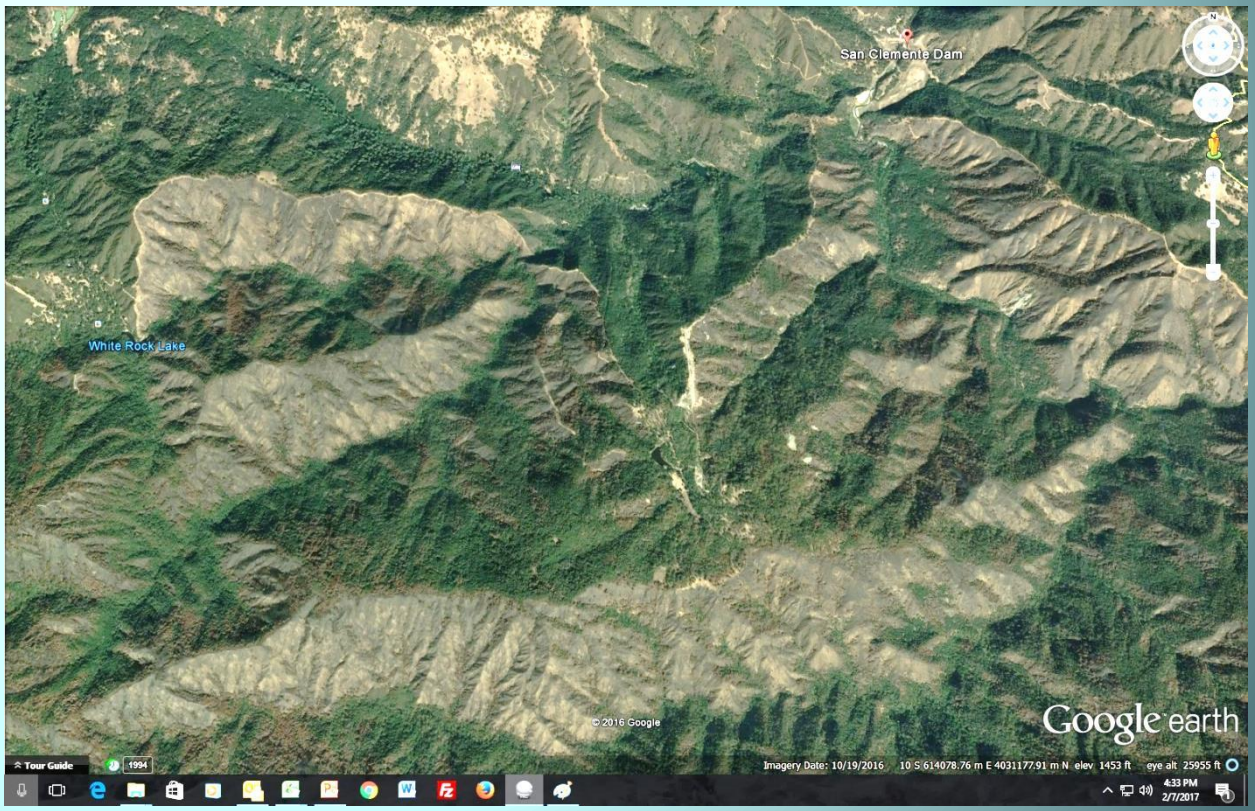
# Passage Improvements at Los Padres Dam

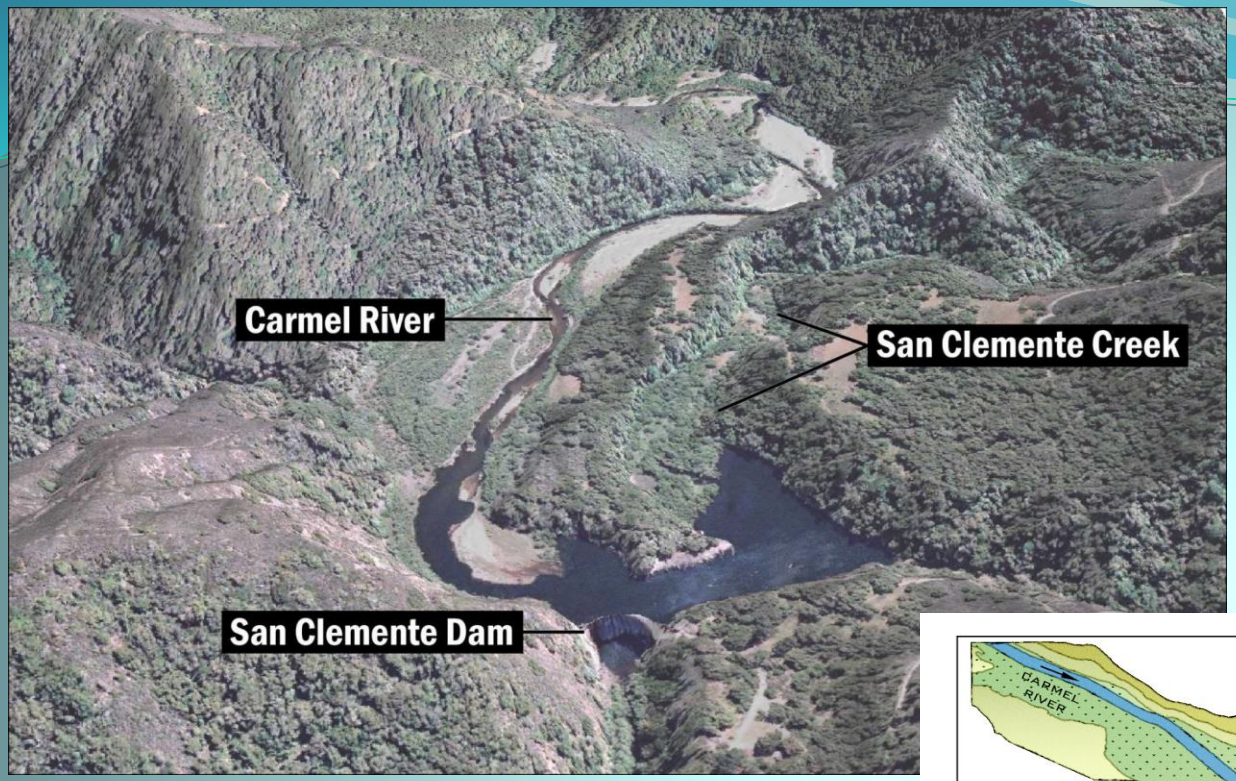
# Debris from Soberanes fire at Los Padres Dam

Above – 1/8/2017 at 5 p.m.

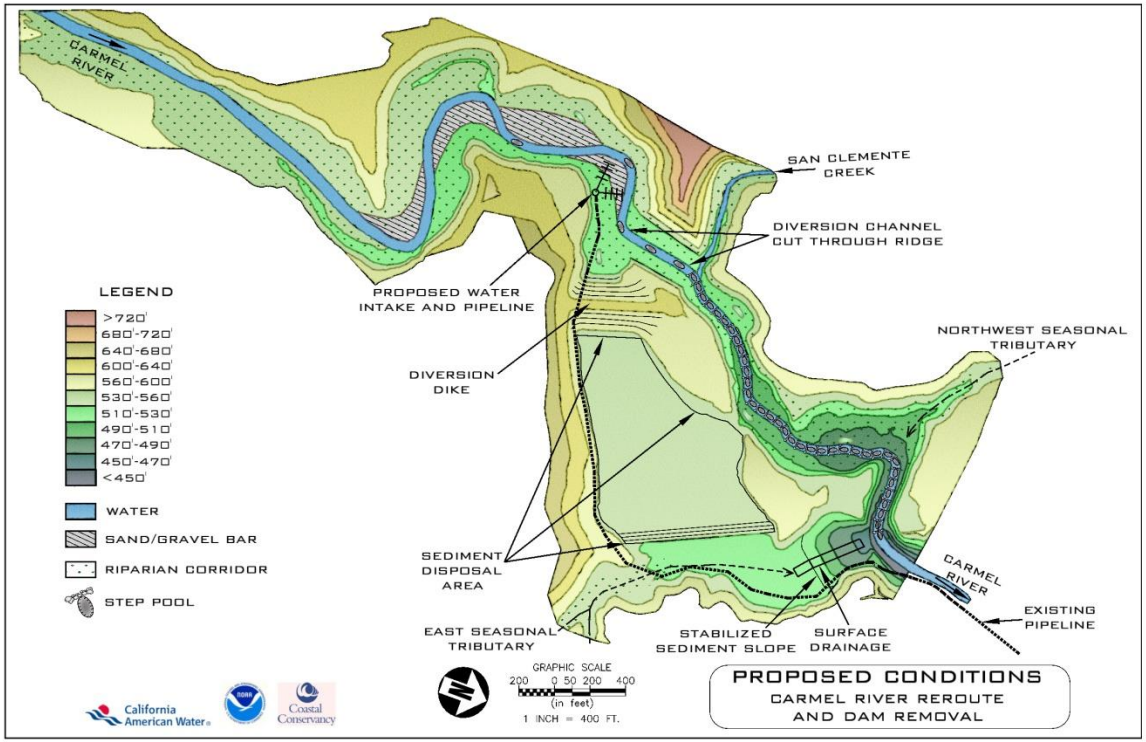
Below – 1/9/2017 at 8 a.m.

# Tributary Sediment

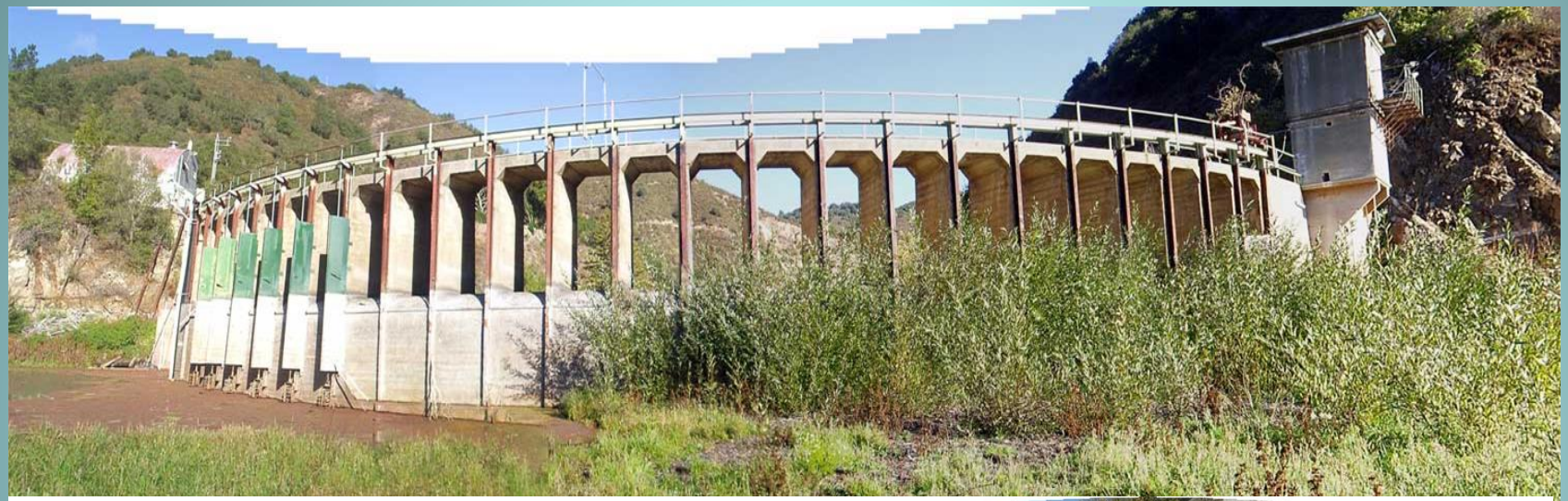





# Removal of San Clemente Dam and Carmel River Reroute



# San Clemente Dam Removal



# Carmel River Reroute

# Former San Clemente Dam Site

# Sleepy Hollow Facility – debris and deposition

# Sleepy Hollow Steelhead Rearing Facility

# Sleepy Hollow Steelhead Rearing Facility

Above – sand at SHSRF
Right – close-up of burned chaparral slope on Ponciano Ridge

# Downstream flooding due to debris and deposition

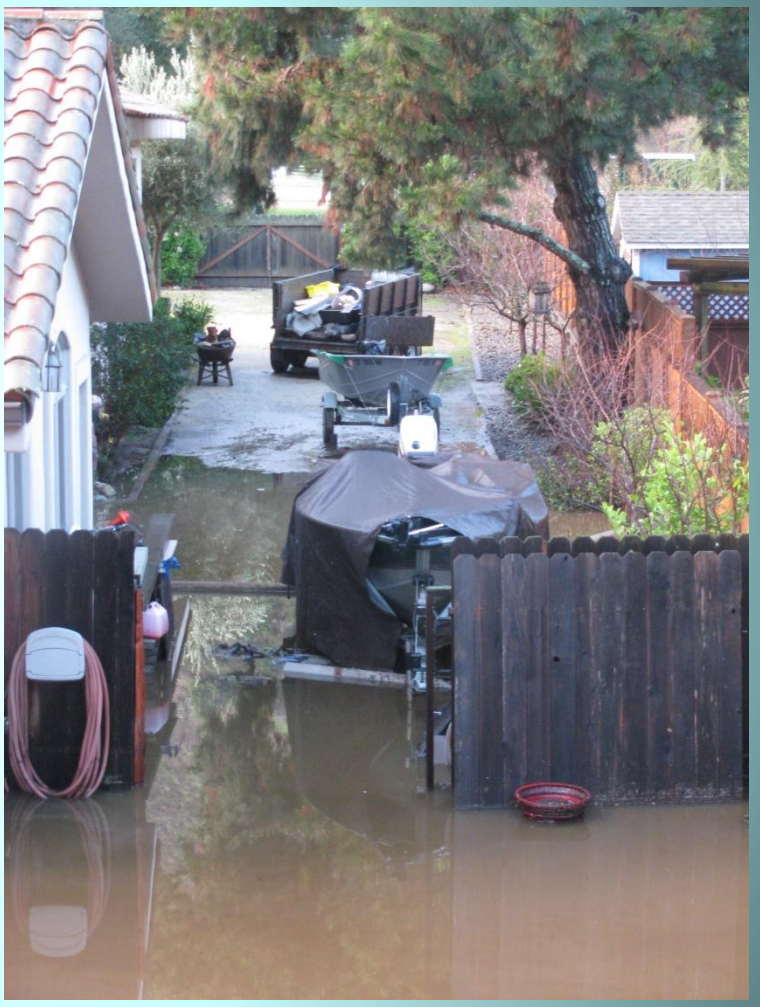
# deDampierre ballfields in Carmel Valley Village



Left – November 1996

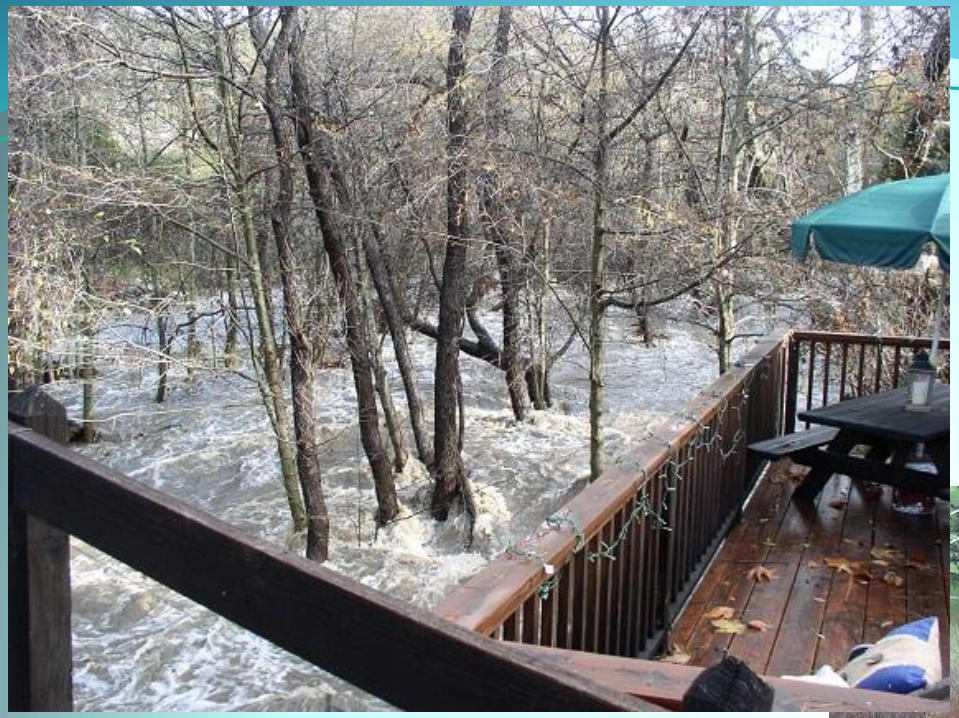
Above – April 2012
Left – January 2017

# deDampierre ballfields in Carmel Valley Village



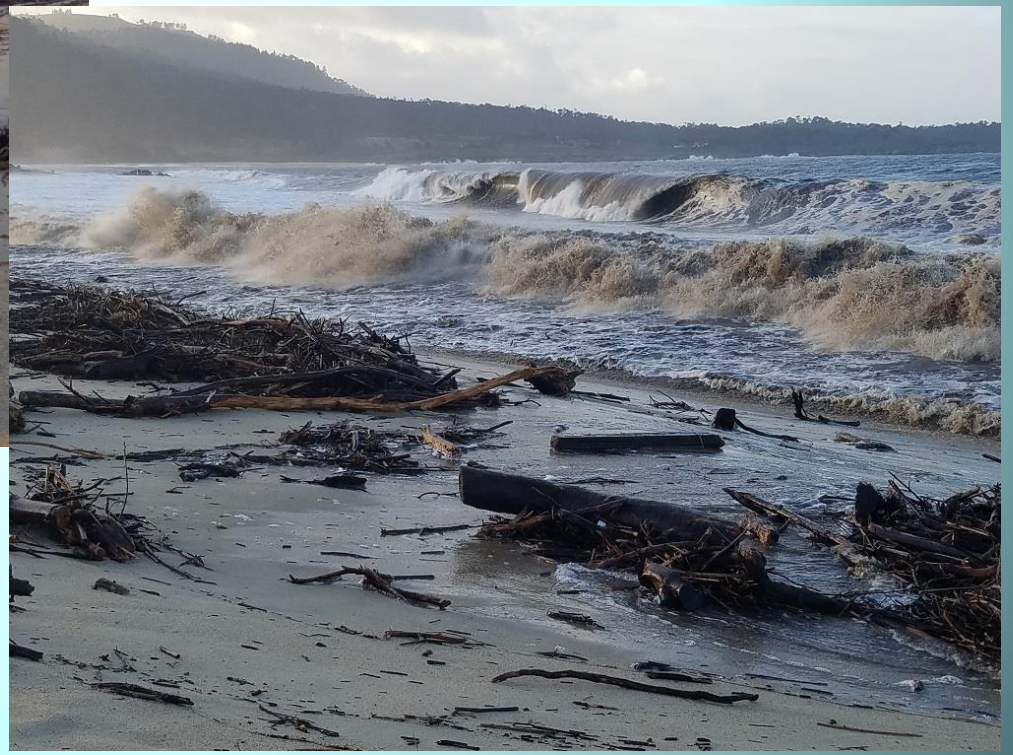
Paso Hondo Road – January 11, 2017

# Other locations



# Breached Lagoon – Jan. 11, 2017

# Debris Washed Down the River and Pushed Back on the Beach



# Carmel River State Beach


# For More Information

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