Flood Mitigation and Water Conservation

Flood Control District
County of Los Angeles

By
Iraj Nasseri, P.E., Ph.D

Mission of Flood Control District

1. Control of Excess Water:

- *Storm Drains*
- *Flood Control Channels*
- *Detention Basins*
- *Debris Basins*
- *Dams and Reservoirs*
- *Pump Stations*

2. Water Conservation (Quantity and Quality):

- *Groundwater Recharge Basins*
- *Reservoirs – Rubber Dams*
- *Control of Seawater Intrusion*
- *Capture and Treatment of Storm Runoff Pollutants*
- *.Mitigate Hydromodification Impacts*

Major Facilities Control and Conservation of Flood Waters

Major Watersheds in LA County

Los Angeles County Pictures

Coastal Area

Los Angeles County Pictures

Coastal Wetland

Los Angeles County Pictures

Desert Area Near Lancaster

Los Angeles County Pictures

Antelope Valley

Los Angeles County Rivers and Channels

Malibu Creek

Los Angeles County Rivers and Channels

Bouquet Canyon

Los Angeles County Rivers and Channels

Upper Portion of San Gabriel River

Los Angeles County Rivers and Channels

Santa Clara River Downstream of Magic Mountain Parkway

Hydrologic Data Collection

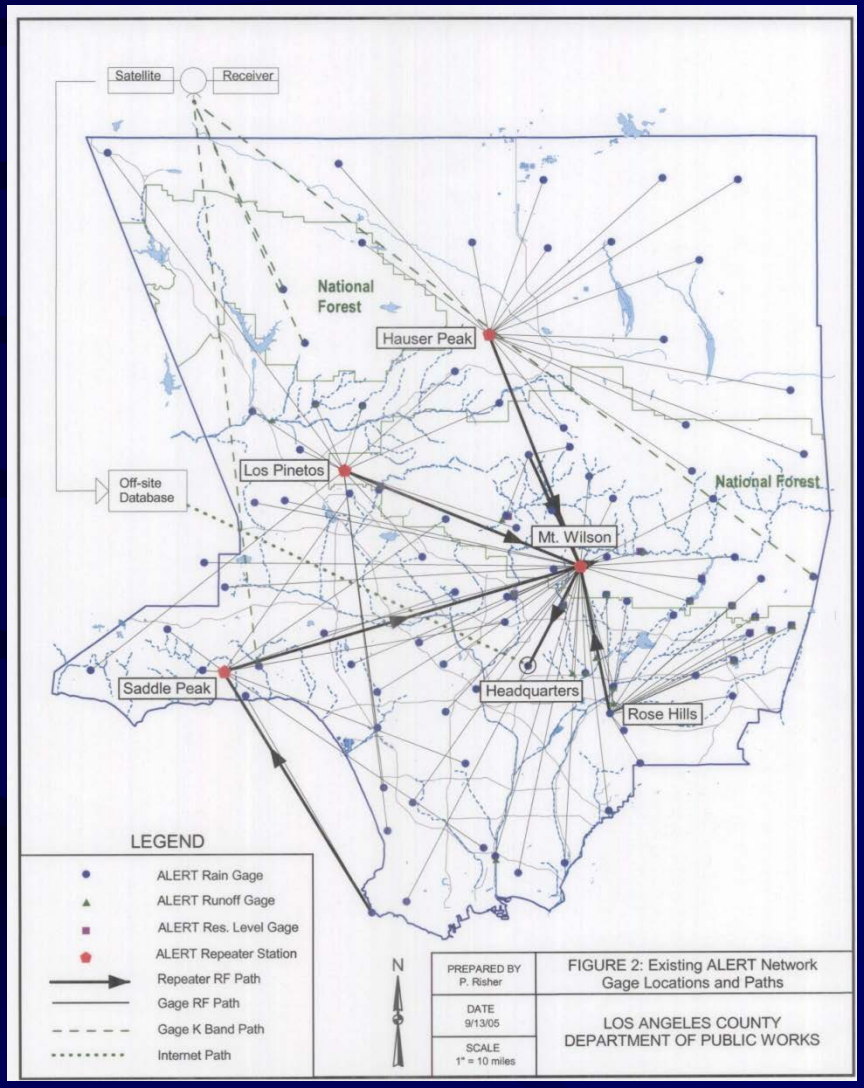
Hydrologic Data Collection

A rain gage is used to measure the amount of rainfall at a point of observation.

An outflow recorder is used to measure the amount of surface runoff at a point of observation.

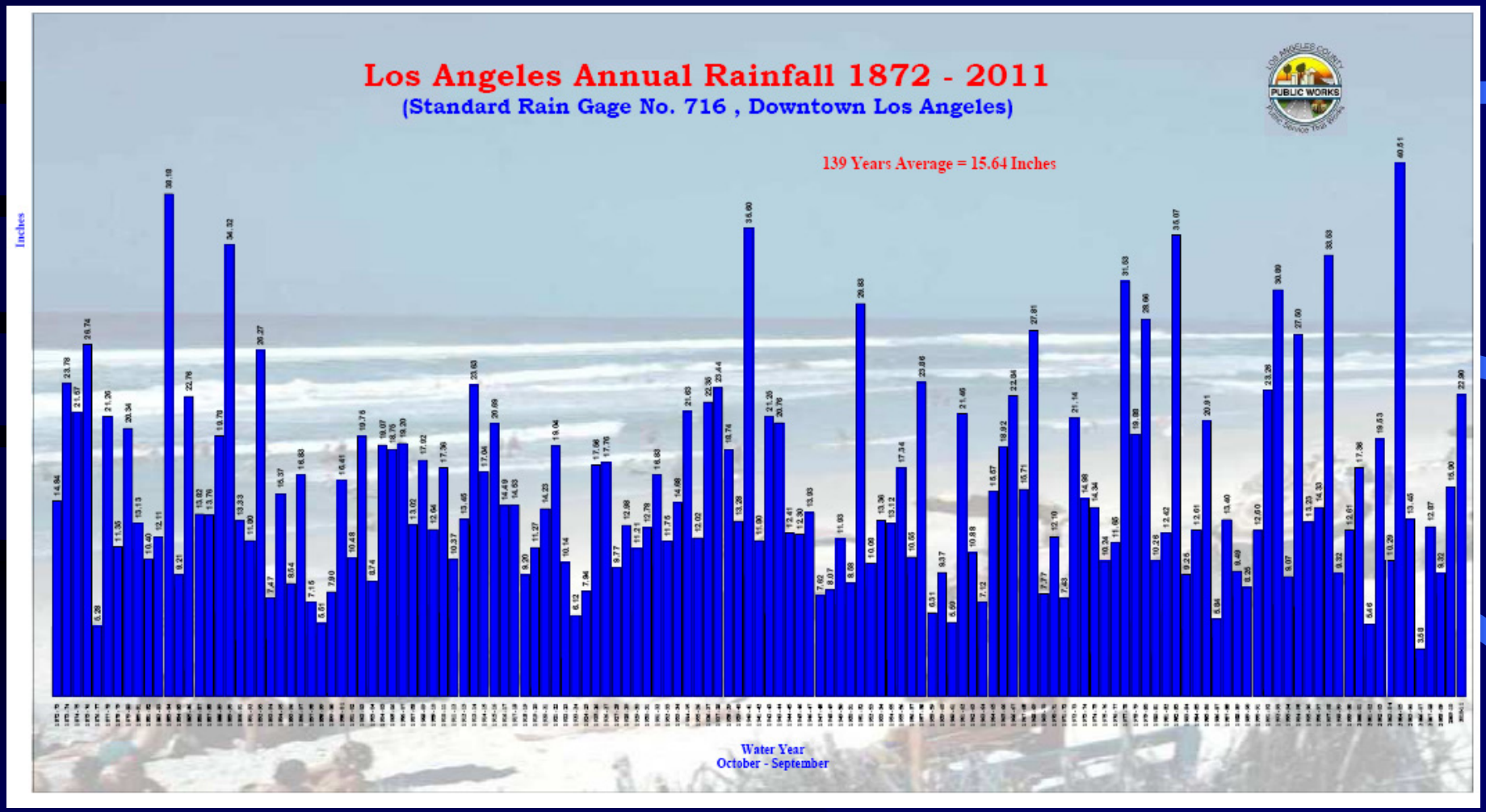
The accurate measurement of rainfall and runoff is the essential foundation for quantitative hydrologic analyses.

Hydrologic Data Collection



LA County ALERT Network: Gage Locations and Paths

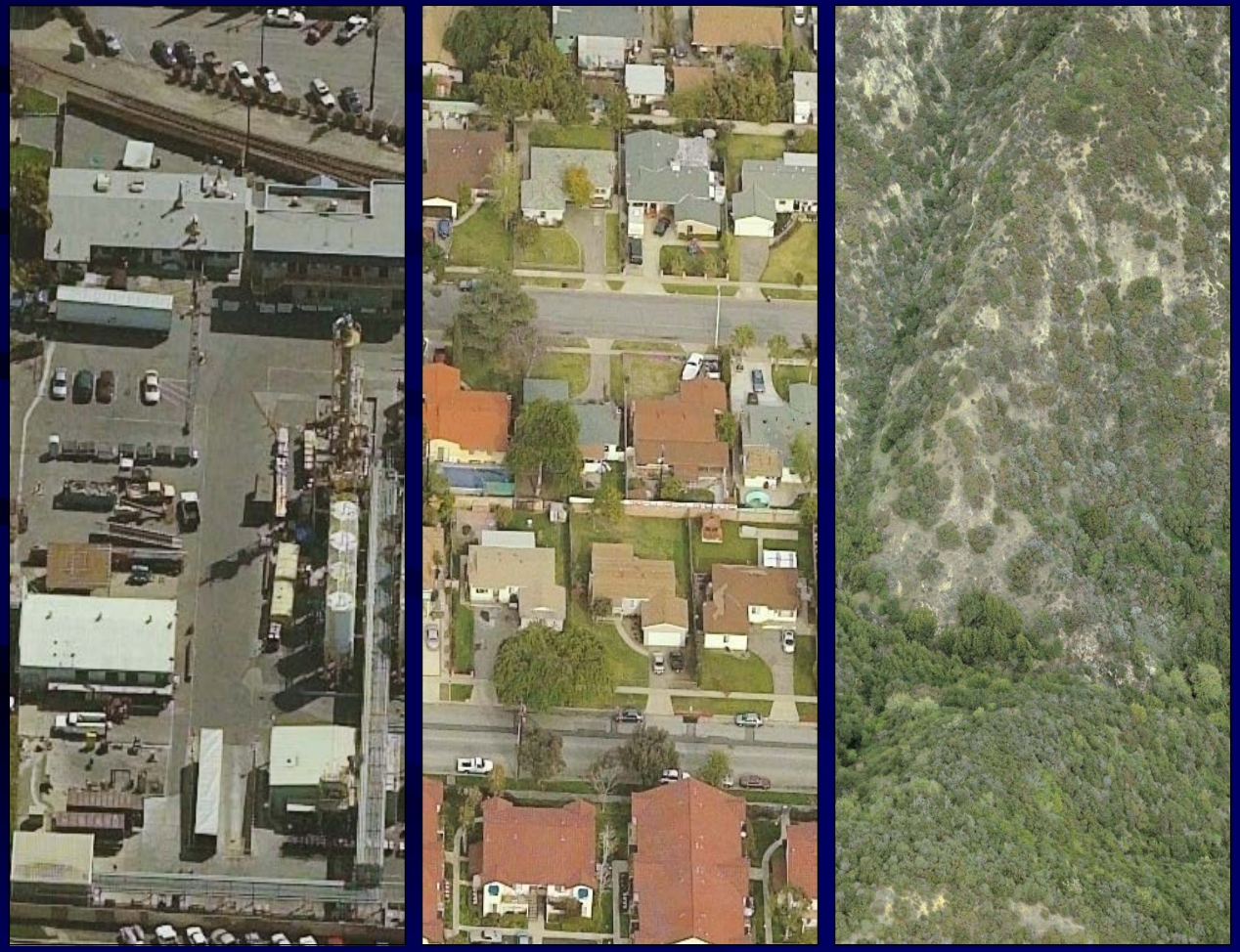
Hydrologic Data Collection



Los Angeles Annual Rainfall 1872-2011

Hydrologic Data Collection

Industrial/Commercial **Residental** **Rural**



Different Types of Land Use

Hydrologic Data Collection

Street Flow After 1938 Storm

Hydrologic Data Collection

Appian Way in Long Beach After 1938 Storm

Hydrologic Data Collection

Flooded Sump at Intersection of San Fernando Road and Tuxford Street
After January 2005 Storms

Control of Debris Flows

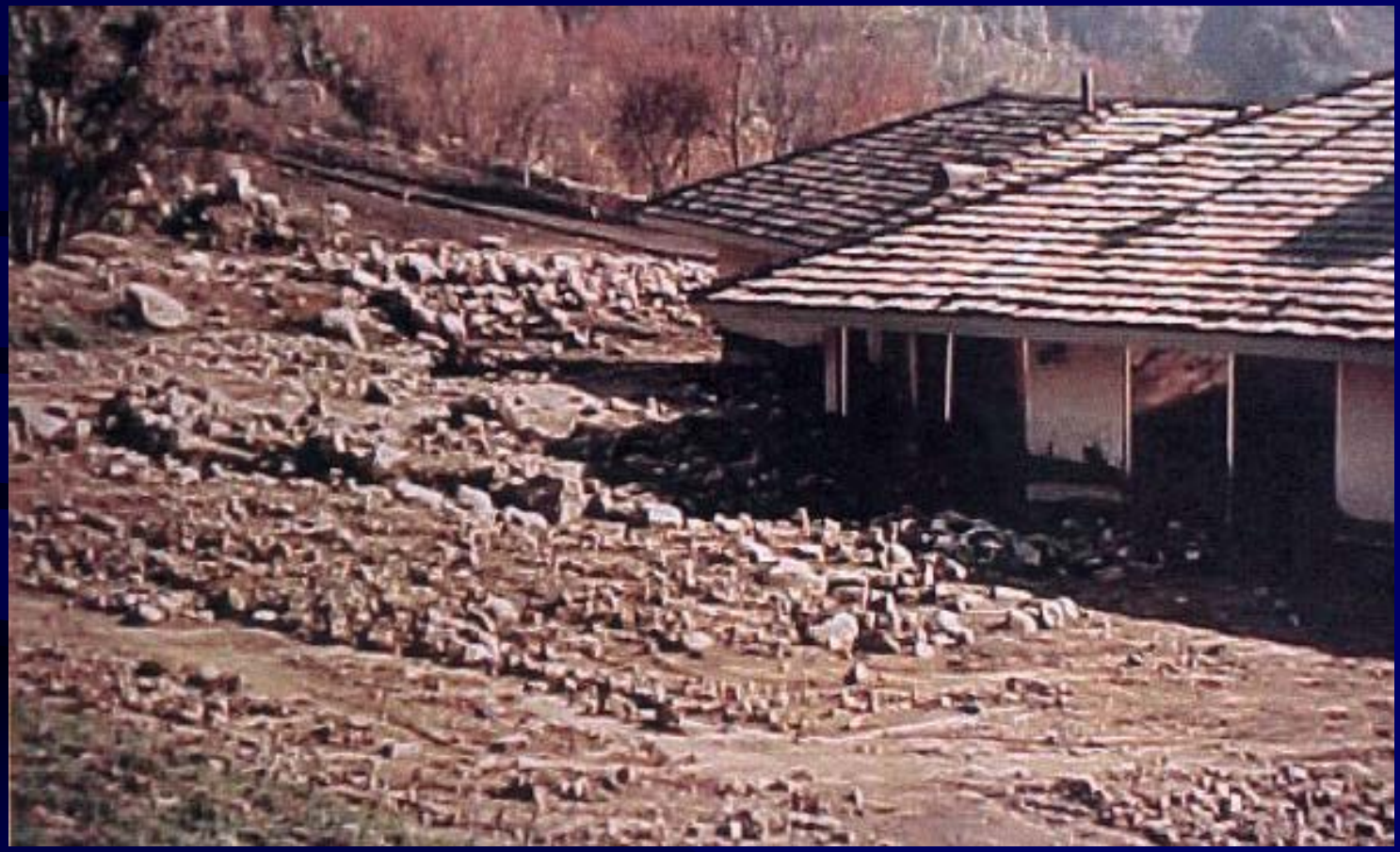
Control of Debris Flows

Williams Fire of 2002 in the San Gabriel Mountains, Viewed from Santa Fe Dam

Control of Debris Flows

Downstream of Hook Canyon in Glendora After 1969 Storms

Control of Debris Flows



Glencoe Heights After 1969 Storms

Control of Debris Flows

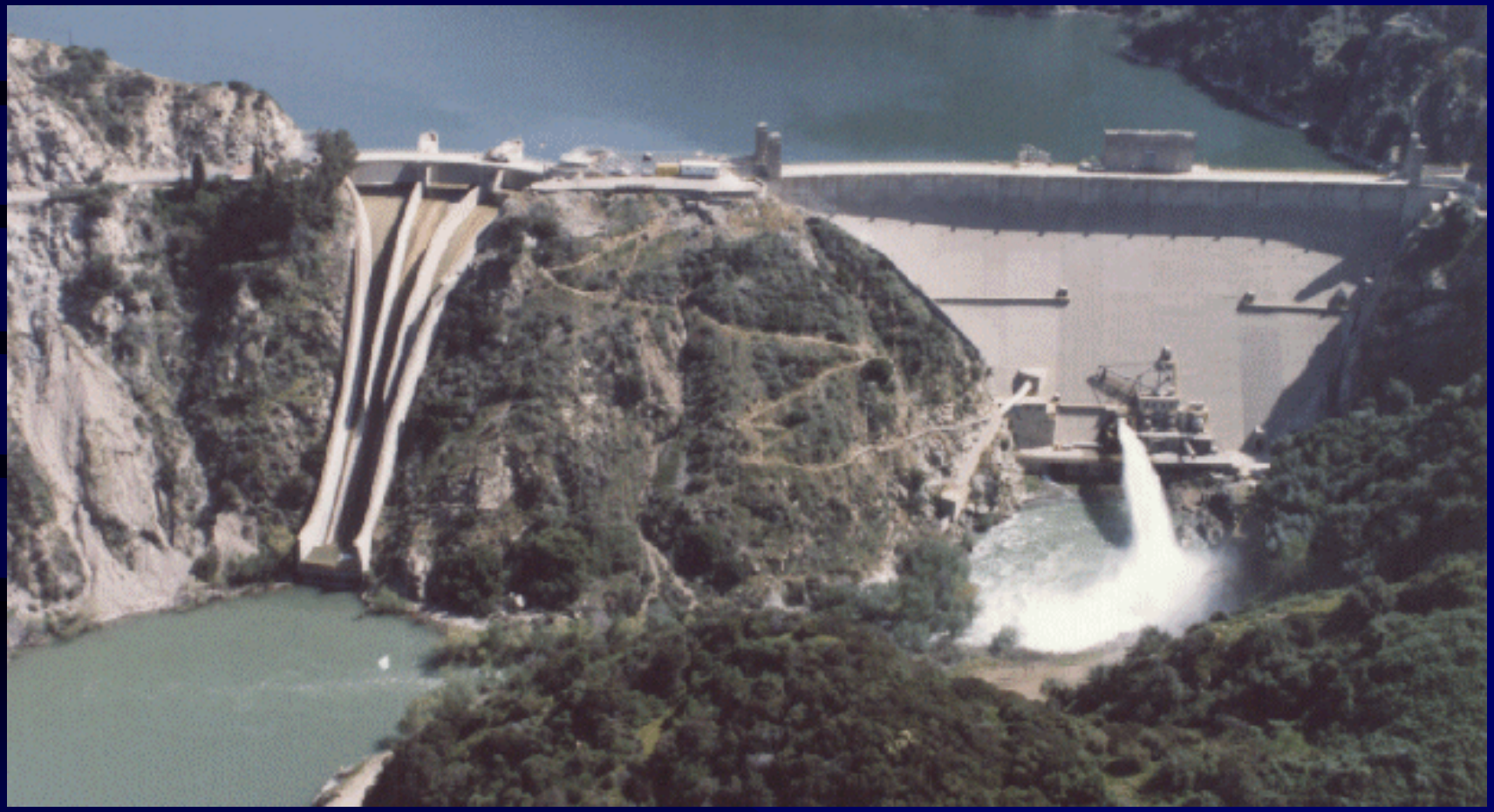
Buena Vista Debris Basin

Dams and Reservoirs

Dams and Reservoirs

Big Dalton Dam and Reservoir

Dams and Reservoirs



Morris Dam

Dams and Reservoirs

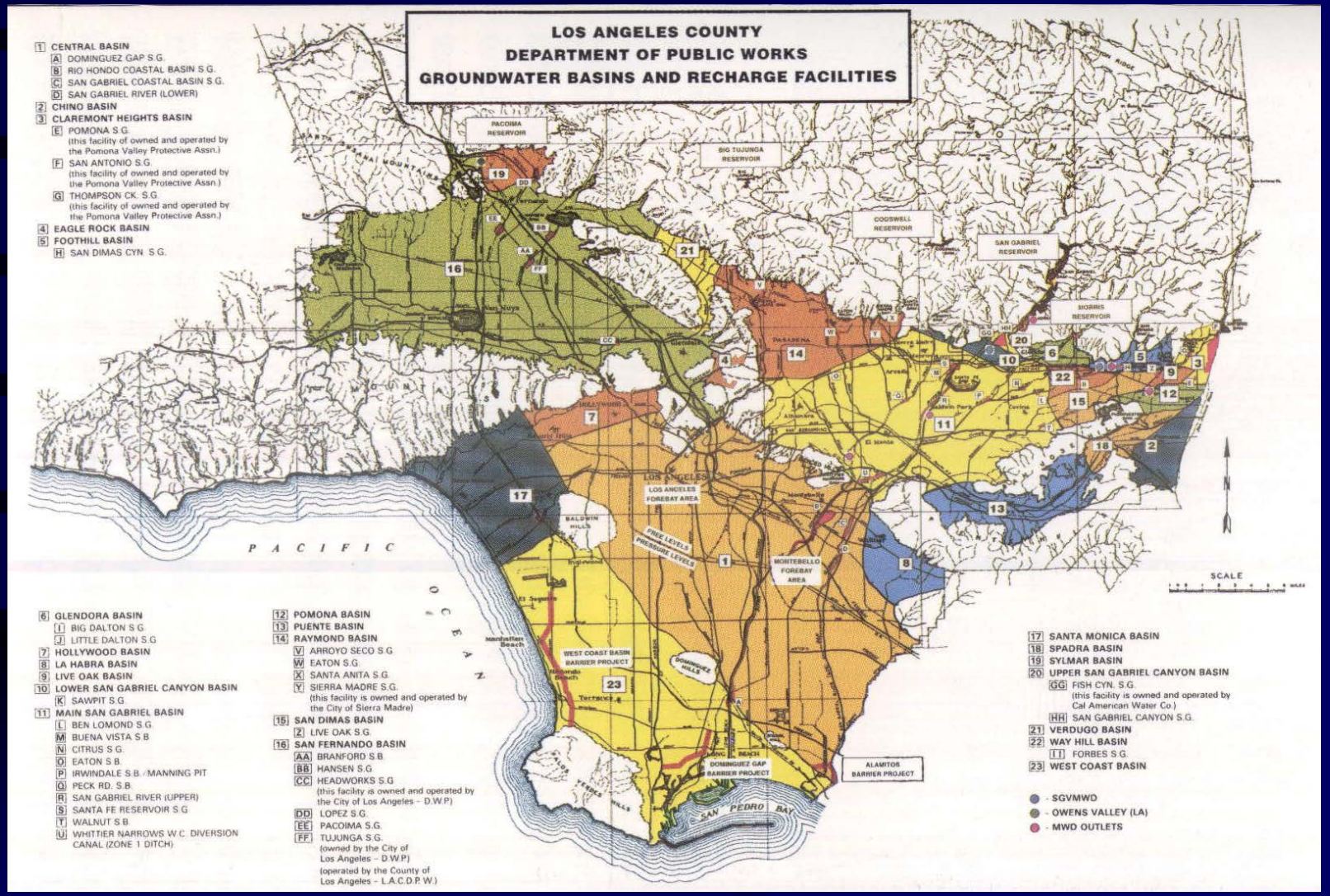
San Gabriel Reservoir

Dams and Reservoirs

Rubber Dam Located in the Lower Portion of the San Gabriel River

Water Conservation (Quantity and Quality)

Water Conservation (Quantity and Quality)



Map of Groundwater Basins and Recharge Facilities in LA County

Water Conservation (Quantity and Quality)

Major Aqueducts in California

Water Conservation (Quantity and Quality)

Arroyo Seco Spreading Grounds in Pasadena

Water Conservation (Quantity and Quality)

Seawater Barriers

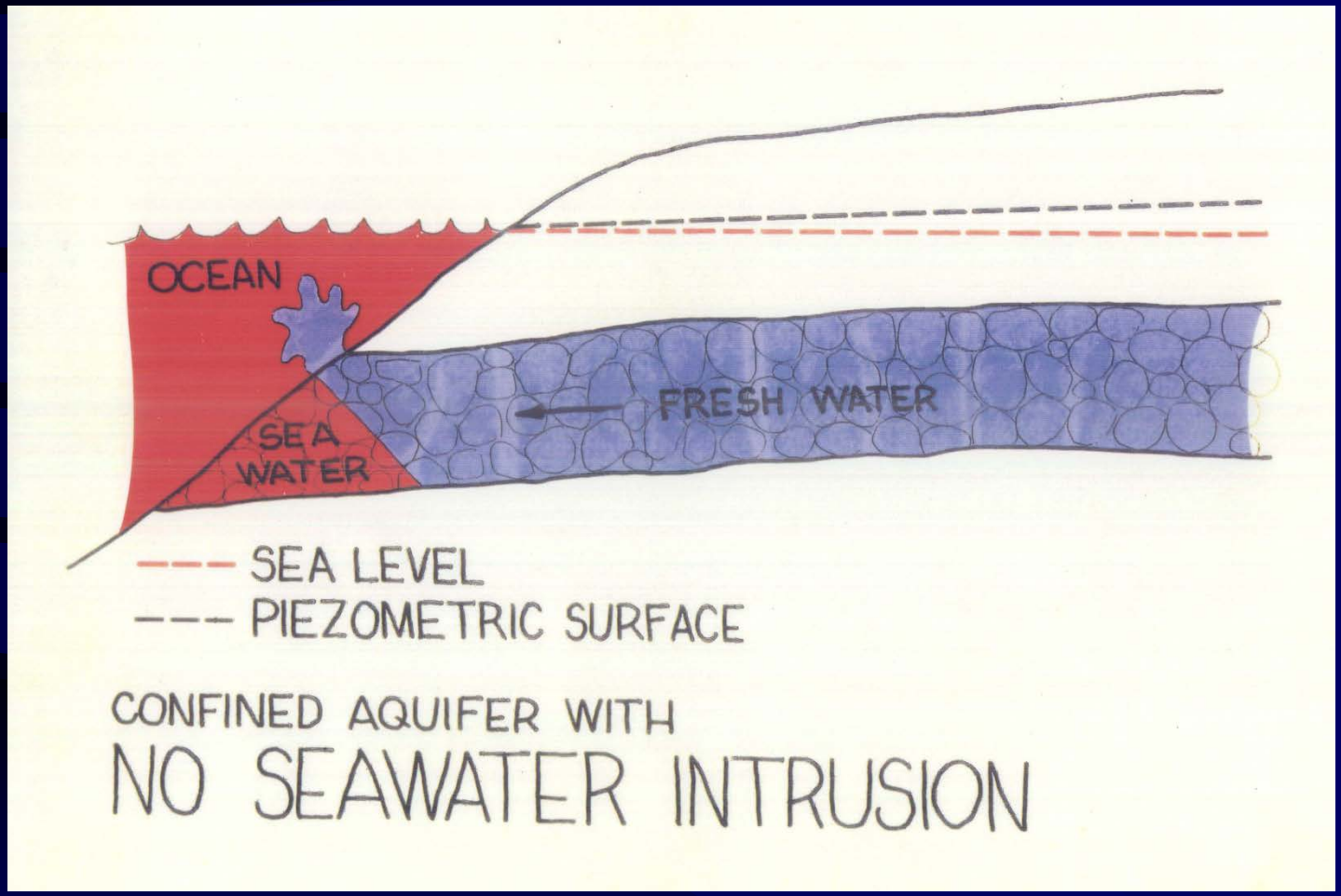
PURPOSE:

Seawater Barriers protect a significant portion of the area's drinking water supply by essentially forcing out ocean water which constantly attempts to migrate into existing aquifers. Treated reclaimed and imported water is injected deep into geologic formations.

LADPW – Water Resources Division operates and maintains 3 Seawater Barriers along the California coastline:

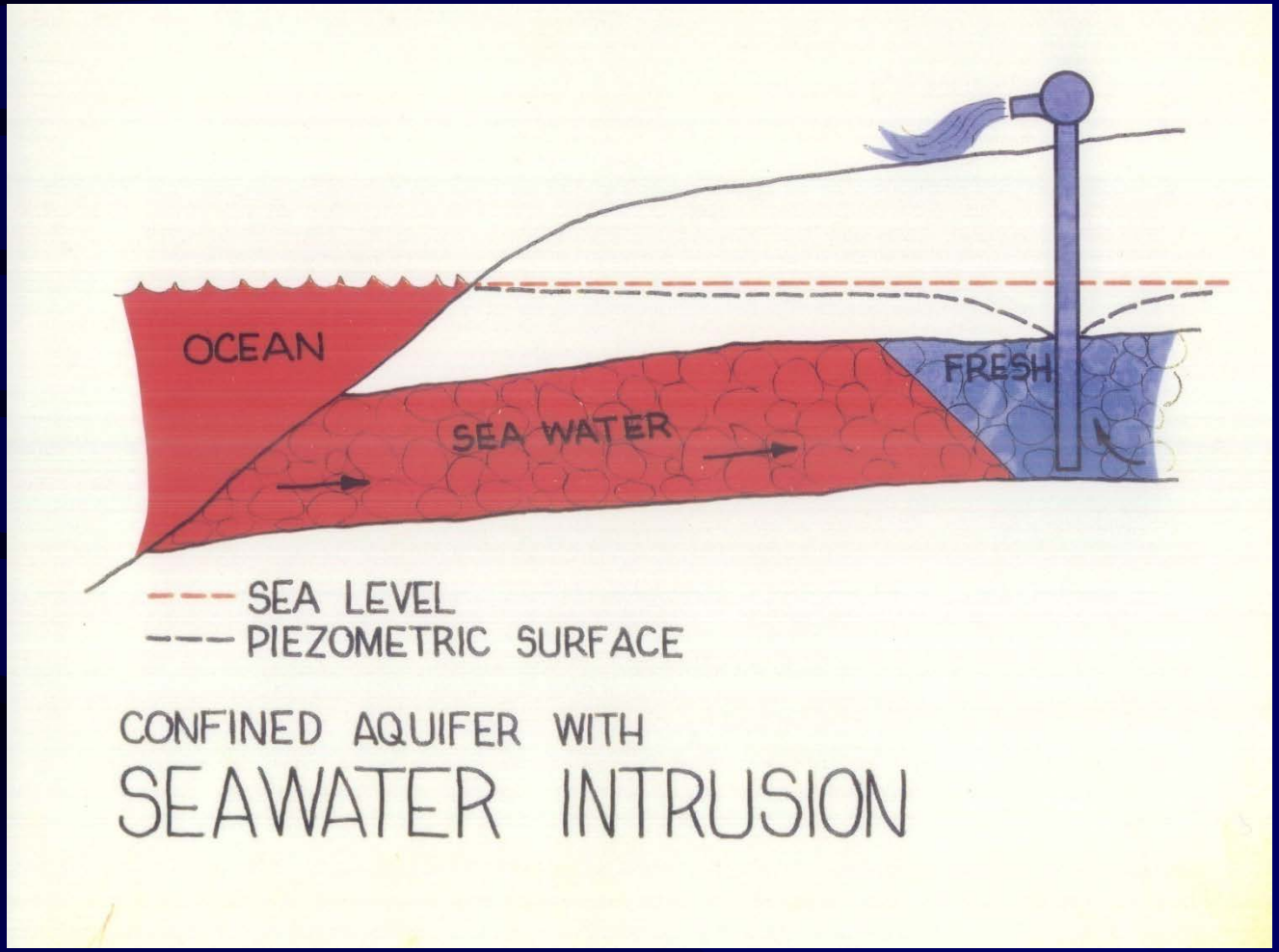
1) Alamitos Barrier
2) West Coast Basin Barrier
3) Dominguez Gap Barrier

Water Conservation (Quantity and Quality)



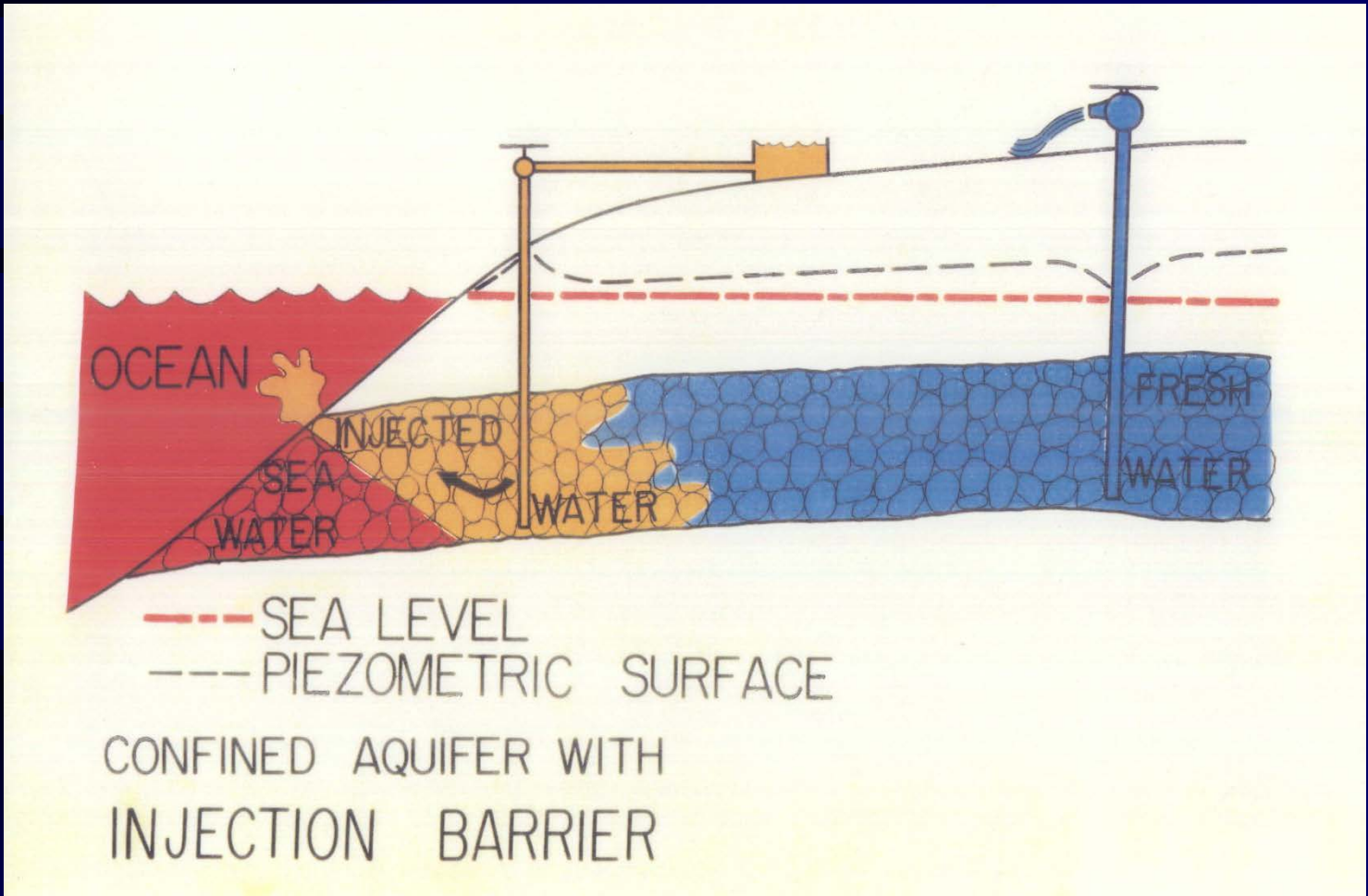
Confined Aquifer with no Seawater Intrusion

Water Conservation (Quantity and Quality)



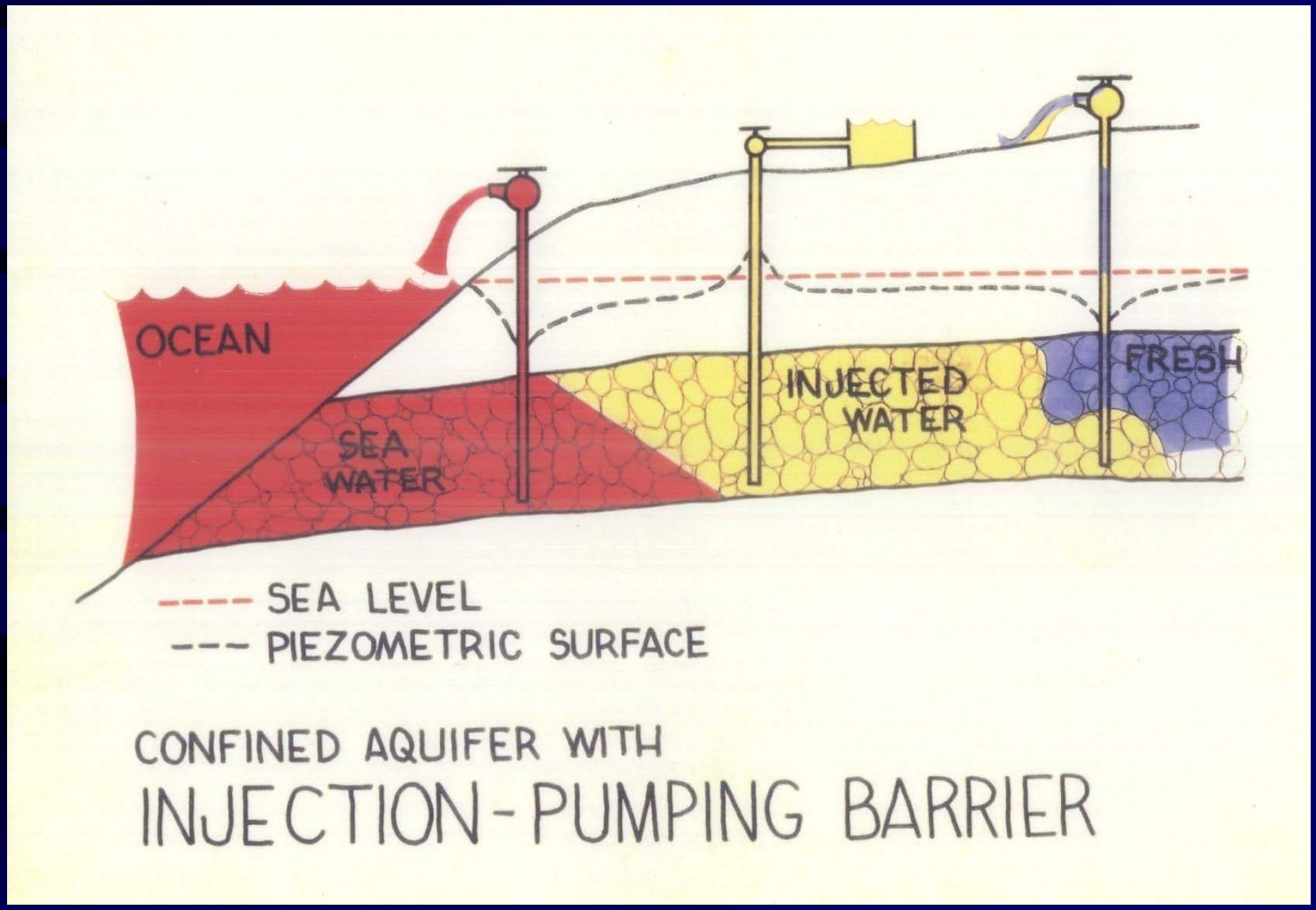
Confined Aquifer with Seawater Intrusion

Water Conservation (Quantity and Quality)

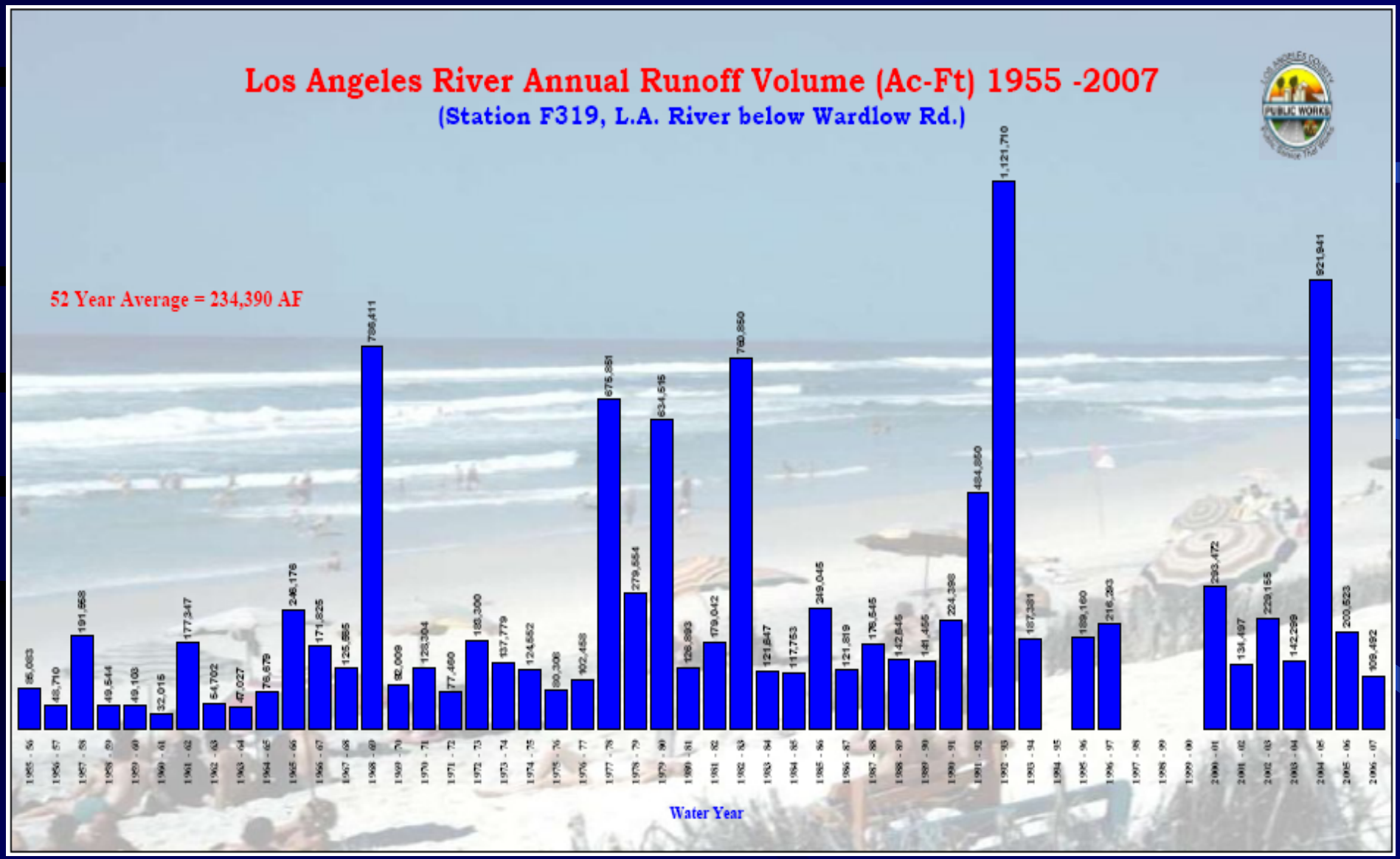


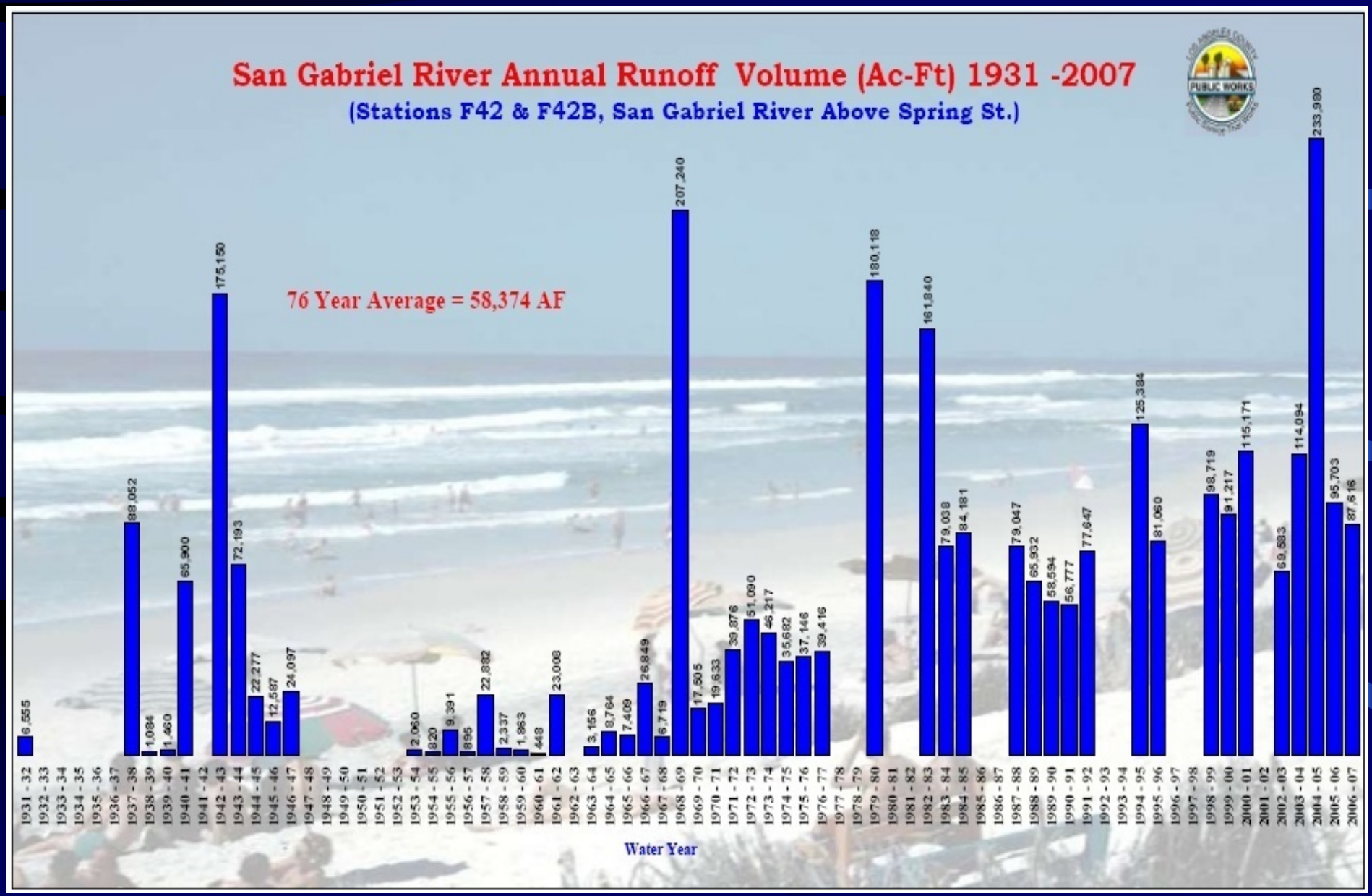
Confined Aquifer with Injection Barrier

Water Conservation (Quantity and Quality)



Confined Aquifer with Injection-Pumping Barrier


Los Angeles River Annual Runoff Volume (Ac-Ft) 1955 -2007
(Station F319, L.A. River below Wardlow Rd.)
52 Year Average = 234,390 AF
Water Year


San Gabriel River Annual Runoff Volume (Ac-Ft) 1931 -2007
(Stations F42 & F42B, San Gabriel River Above Spring St.)
76 Year Average = 58,374 AF
6,555
88,052
1,084
1,460
65,900
175,150
72,193
22,277
12,587
24,097
2,060
820
9,391
895
22,882
2,337
1,863
448
23,008
3,156
8,764
7,409
26,849
6,719
207,240
17,505
19,633
39,876
51,090
46,217
35,682
37,146
39,416
180,118
161,840
79,038
84,181
79,047
65,932
58,594
56,777
77,647
125,384
81,060
98,719
91,217
115,171
69,583
114,094
233,980
95,703
87,616
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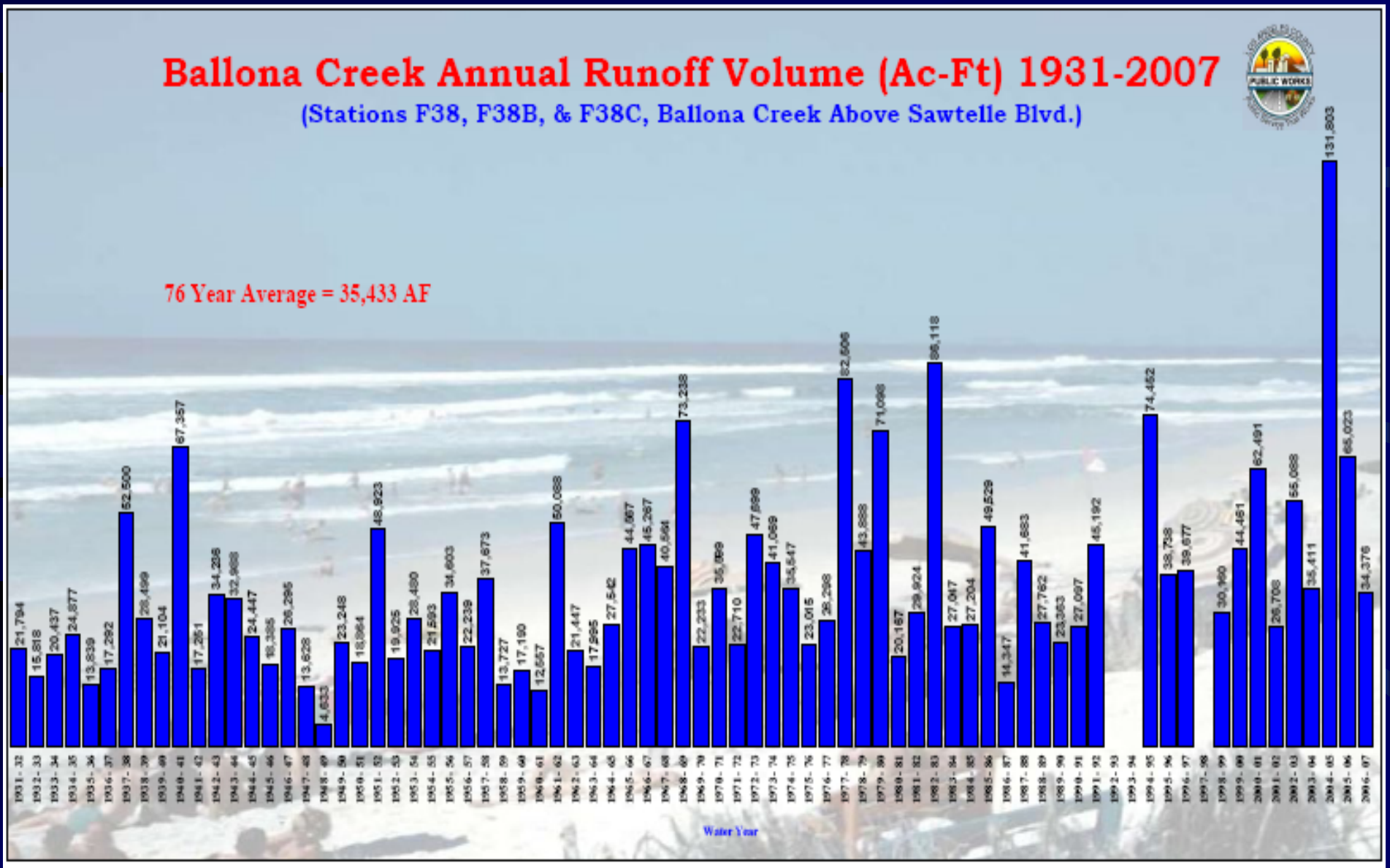
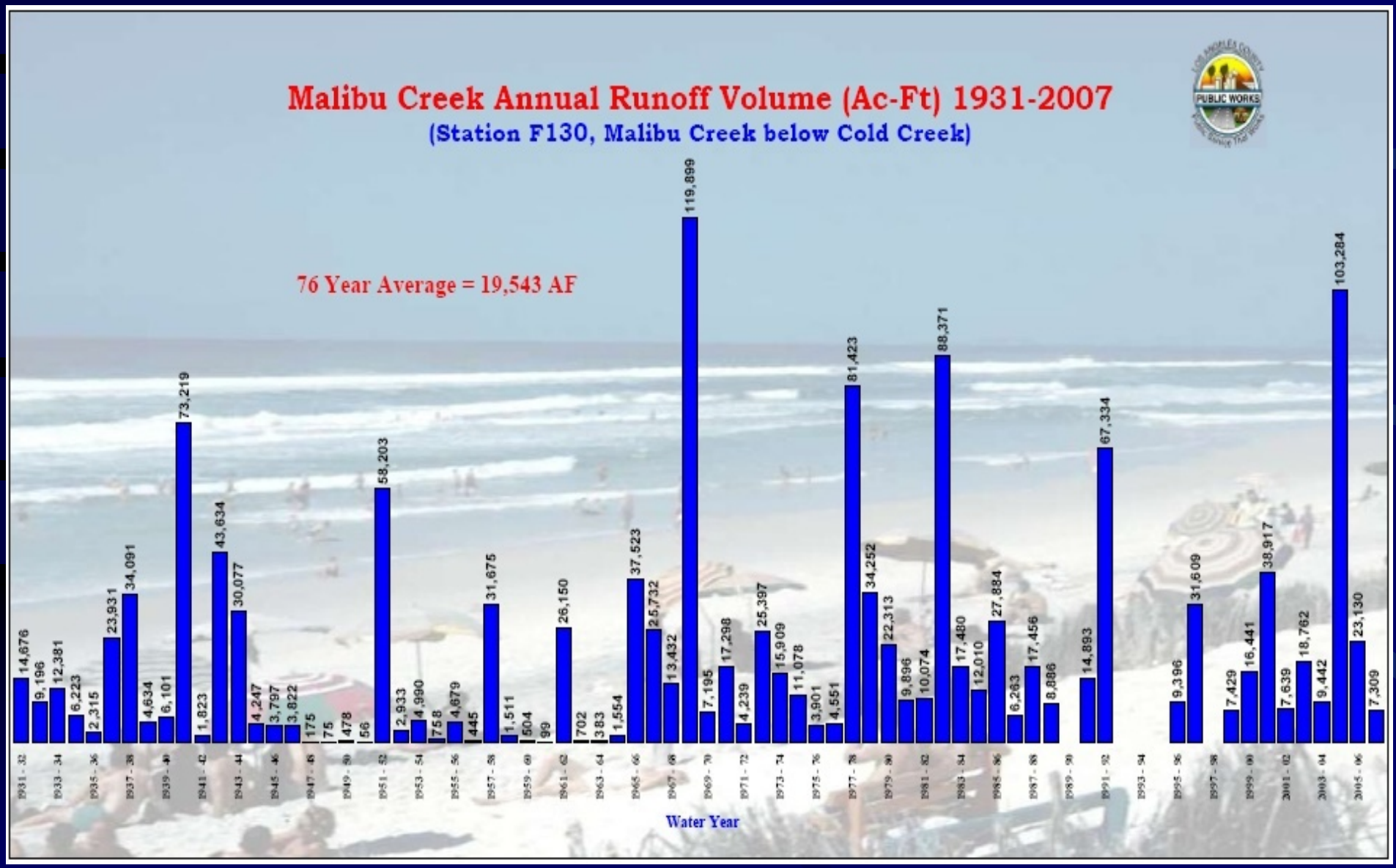
2003 - 04
2004 - 05
2005 - 06
2006 - 07
Water Year

Ballona Creek Annual Runoff Volume (Ac-Ft) 1931-2007

(Stations F38, F38B, & F38C, Ballona Creek Above Sawtelle Blvd.)

76 Year Average = 35,433 AF




Malibu Creek Annual Runoff Volume (Ac-Ft) 1931-2007
(Station F130, Malibu Creek below Cold Creek)
76 Year Average = 19,543 AF
14,676
9,196
12,381
6,223
2,315
23,931
34,091
4,634
6,101
73,219
1,823
43,634
30,077
4,247
3,797
3,822
175
75
478
56
58,203
2,933
4,990
758
4,679
445
31,675
1,511
604
99
26,150
702
383
1,554
37,523
25,732
13,432
119,899
7,195
17,298
4,239
25,397
15,909
11,078
3,901
4,551
81,423
34,252
22,313
9,896
10,074
88,371
17,480
12,010
27,884
6,263
17,456
8,886
14,893
67,334
9,396
31,609
7,429
16,441
38,917
7,639
18,762
9,442
103,284
23,130
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2003 - 04
2005 - 06
Water Year

LONG TERM STORAGE POTENTIAL OF SURFACE WATER IN LOS ANGELES COUNTY

LOS ANGELES RIVER	234,390 AC-FT/YR
SAN GABRIEL RIVER	58,374 AC-FT/YR
BALLONA CREEK	35,433 AC-FT/YR
MALIBU CREEK	19,543 AC-FT/YR
TOTAL	347,740 AC-FT/YR

LONG TERM STORAGE POTENTIAL FOR CONJUNCTIVE USE IN LOS ANGELES COUNTY

SAN FERNANDO VALLEY BASINS	150,000 AC-FT
RAYMOND BASIN	144,000 AC-FT
SAN GABRIEL BASIN	400,000 AC-FT
COASTAL BASIN	1,089,000 AC-FT
TOTAL	1,783,000 AC-FT

Hydrologic Cycle