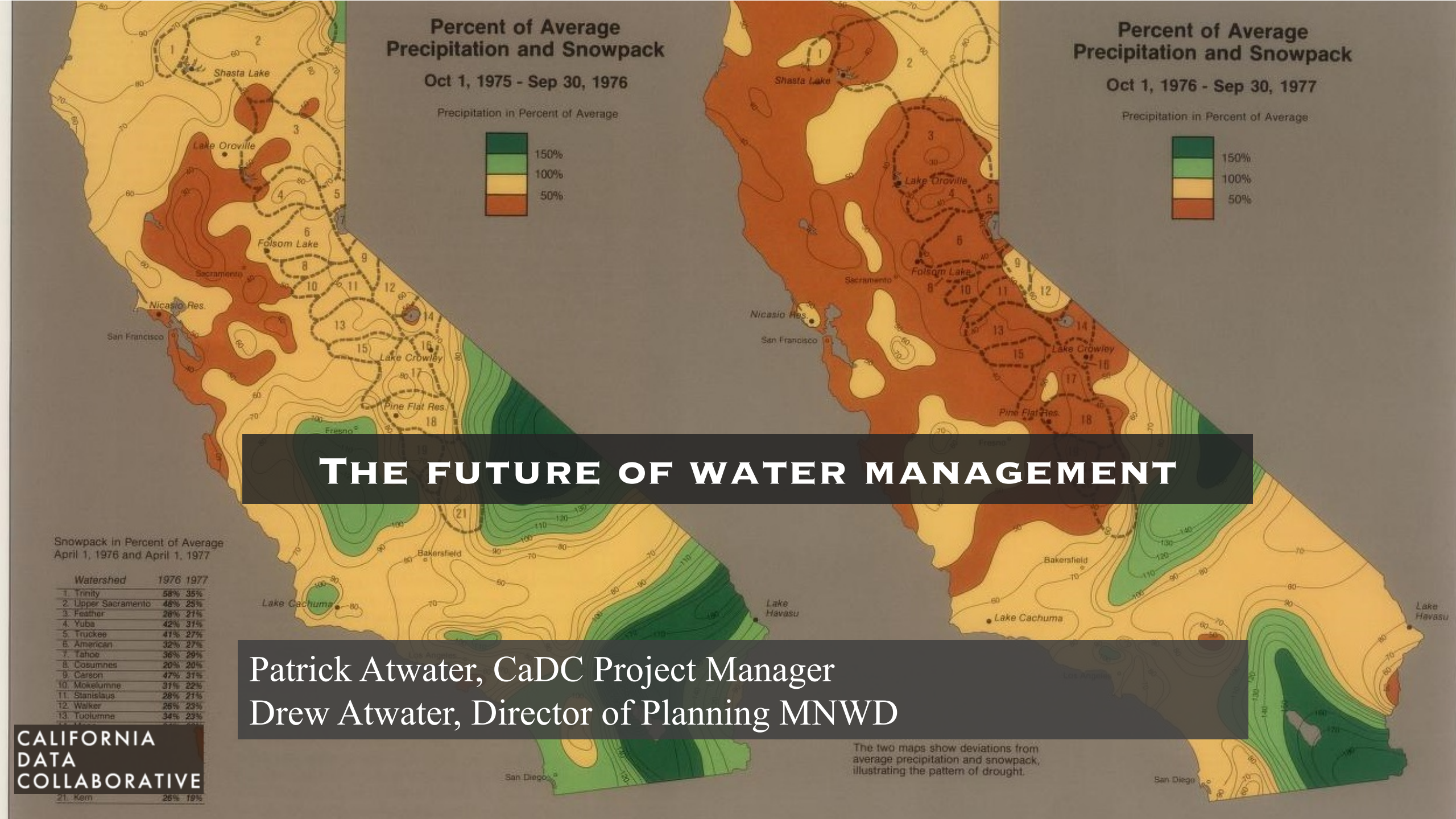


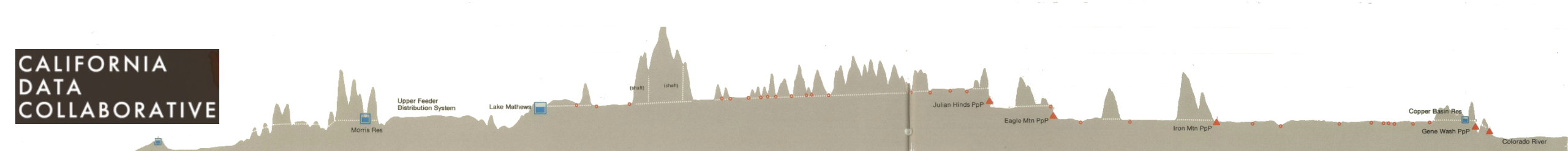
The future of water management

Patrick Atwater, CaDC Project Manager
Drew Atwater, Director of Planning MNWD

CALIFORNIA DATA COLLABORATIVE

Mission: *provide tools and analytics to support water managers in meeting their reliability objectives*

CALIFORNIA DATA COLLABORATIVE



The California Data Collaborative

Water managers working together to pioneer new data infrastructure

Current members

moulton niguel water dist

El Toro Water District

Western Municipal Water District

City of Sacramento Department of Utilities

The Metropolitan Water District of Southern California

EBMUD

Monte Vista Water District

Las Virgenes Municipal Water District

Irvine Ranch Water District

emwd Eastern Municipal Water District

Inland Empire Utilities Agency, A Municipal Water District

Santa Margarita Water District

Prospective members

City of Santa Rosa California

City of Newport Beach California

Pasadena

The City of San Diego

Partnerships

UC Davis Center for Water-Energy Efficiency

DataKind

enigma

Microsoft

Netflix

OmniEarth

seed

UCLA

ACWA

Claremont Graduate University

SCWC

California Institute of Technology

UC Riverside

California Urban Water Conservation Council

UCI WEX Center

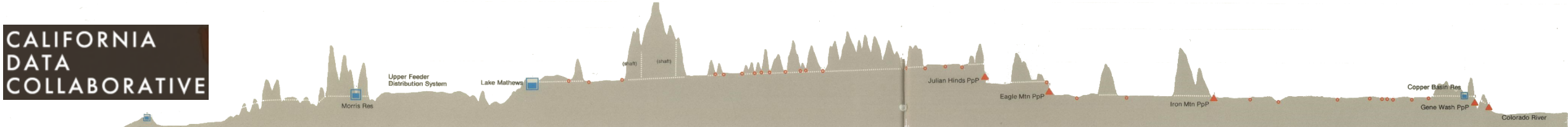
UC Davis University of California

U.S. Department of the Interior Bureau of Reclamation

Rose Institute of State and Local Government, Claremont McKenna College

Stanford Business

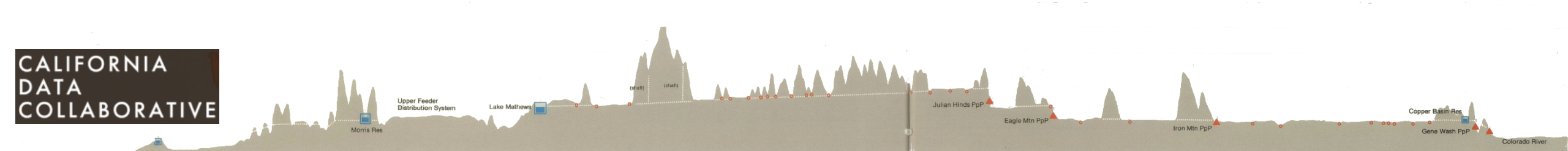
CALIFORNIA DATA COLLABORATIVE



Participation logistics

1. Participating agencies provide metered water use and contextual data
2. Data shared through an NDA to protect customer privacy
3. Regular quarterly in person technical working group meetings and webinars

CALIFORNIA DATA COLLABORATIVE



CaDC Staff

Patrick Atwater
Project Manager

Christopher Tull
Civic Data Scientist

Graham Henke
Data Systems Engineer

David Marulli
Front End Data Scientist

Varun Adibhatla
Head of Rapid Prototyping

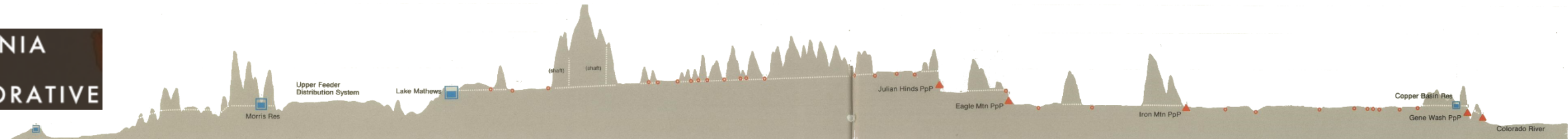
Eric Schmitt
Consulting Statistician

Wendy Greene
Public Affairs Intern

Brianna Pagan
Urban Water Efficiency
Research Fellow

Tony Castalletto
System Architecture
Research Fellow

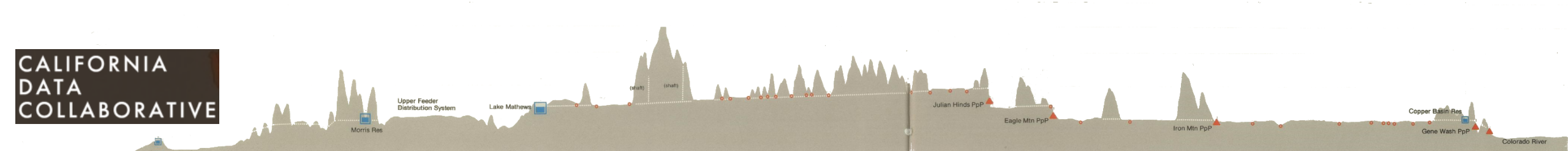
CALIFORNIA
DATA
COLLABORATIVE



CaDC Governance

1. Inter-agency MOU with MNWD as administrator & In-Kind Partnerships
2. Work prioritized by agencies
3. Nonprofit status through FCNY

CALIFORNIA DATA COLLABORATIVE



2017 Objectives

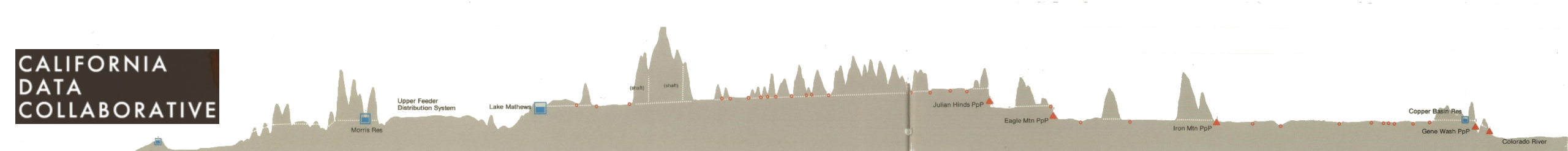
Top CaDC priorities

1. Deploy CaDC efficiency explorer tool (funded by RLF).

2. Complete study of turf removal program effectiveness

3. Operationalize CaDC rate comparison tool

CALIFORNIA DATA COLLABORATIVE

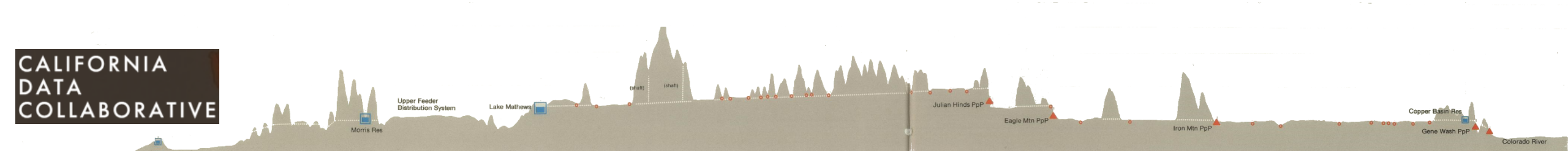


2017 Objectives (Continued)

Pilots and early stage collaborations

1. Water Demand Forecasting tool deployment
2. Support AB 1755 Implementation
3. Storm-Water inter-institutional collaboration
4. Water rate data specification deployment
5. Improving public administrative boundary and land use data

CALIFORNIA DATA COLLABORATIVE

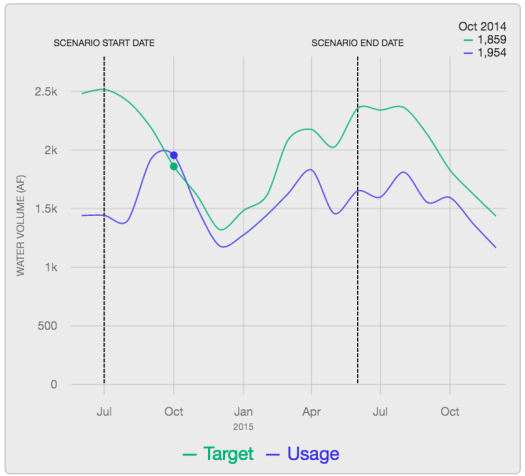


Informing statewide policy

CALIFORNIA DATA COLLABORATIVE | Instructions | Agency-Wide Efficiency Explorer | Neighborhood-Level Efficiency Explorer | Additional Tools

Scenario Builder

Agency: Moulton Niguel Water District
Residential Usage Target: 23653 acre-feet
Efficiency: 4971 acre-feet *under* target in this scenario



Date Range

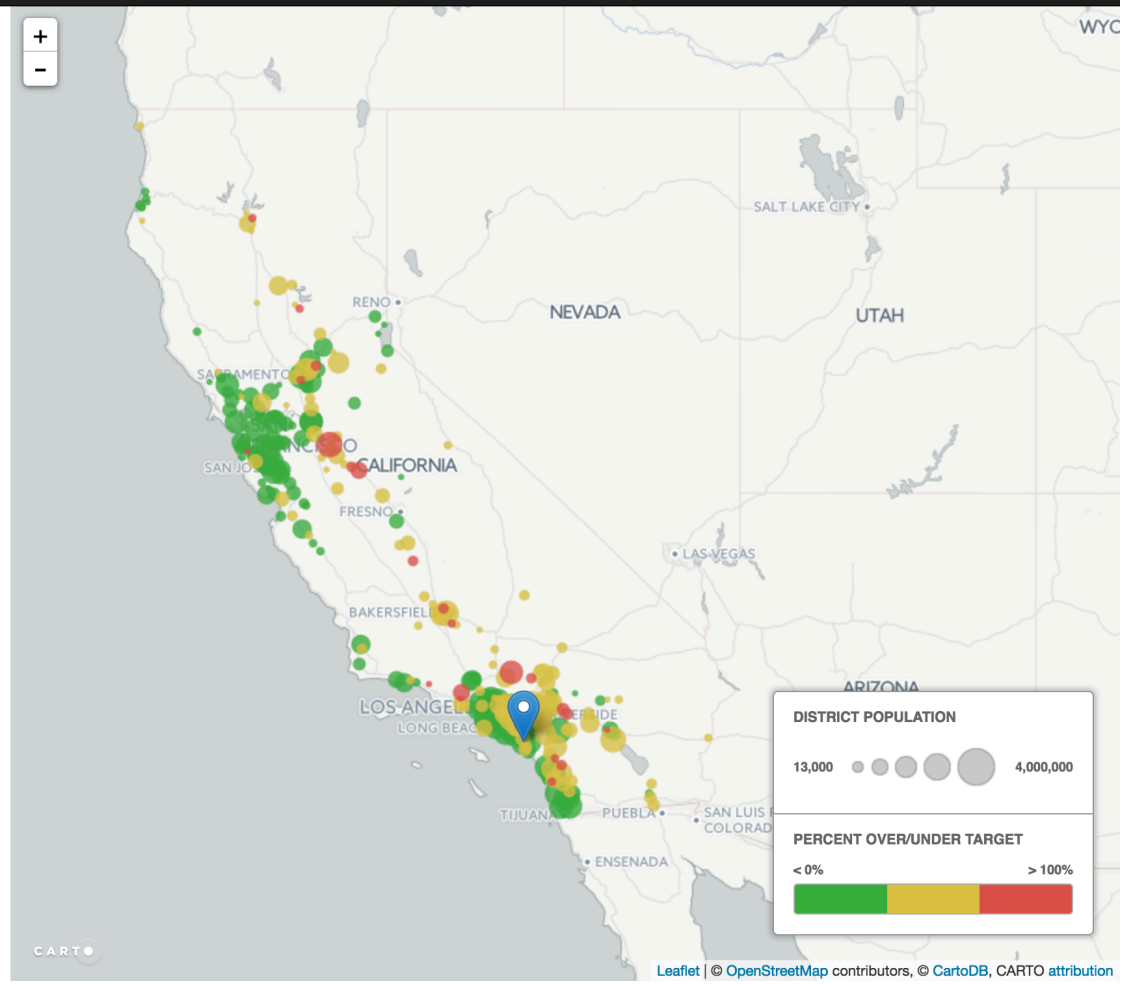
Jul 2014 - Jun 2015

GPCD

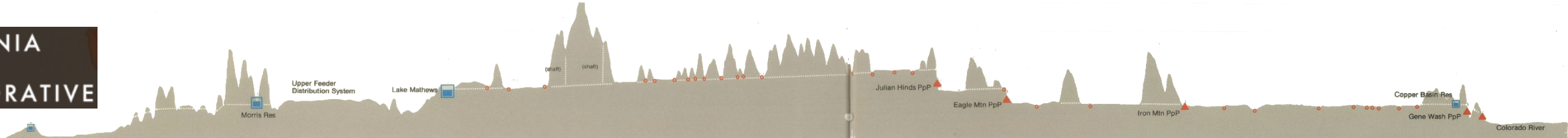
55

Plant Factor

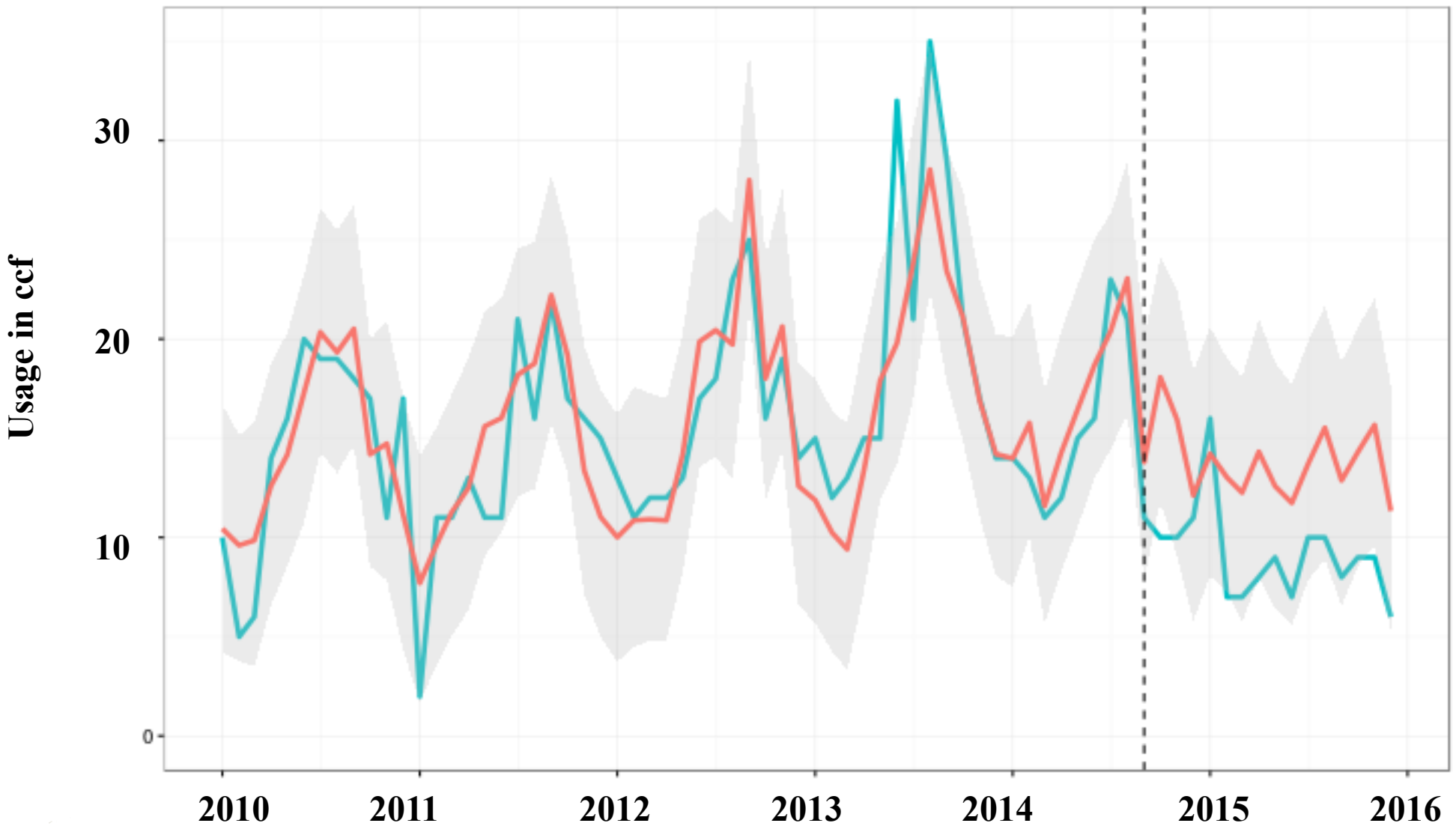
0.8



CALIFORNIA DATA COLLABORATIVE



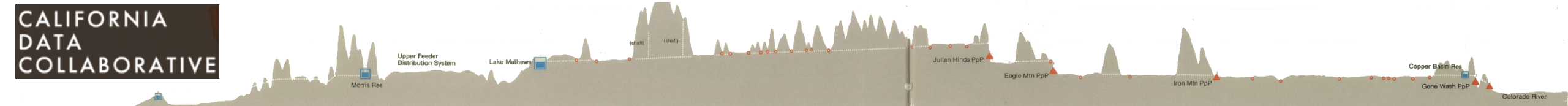
Data driven demand management



Blue – actual water usage

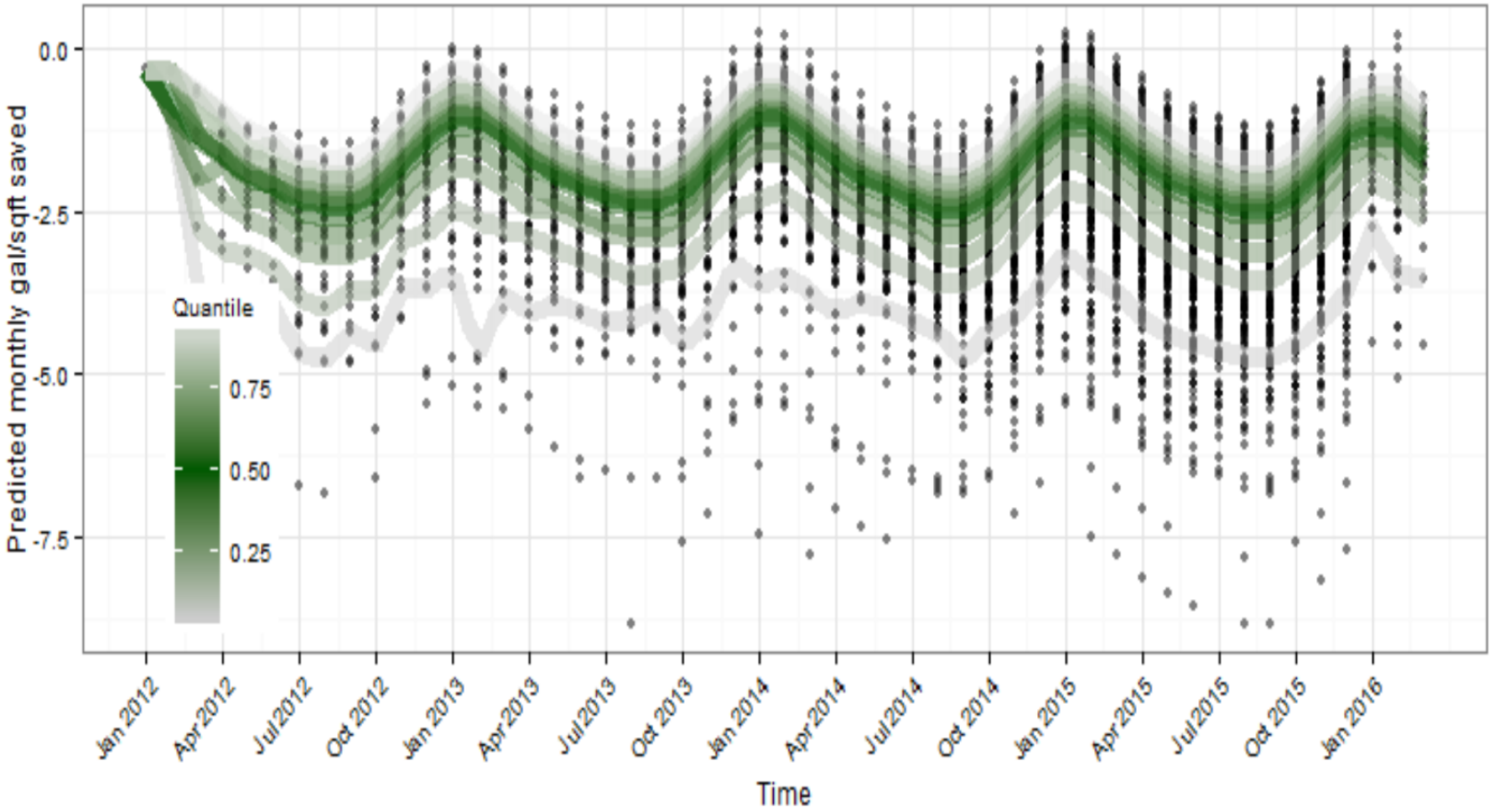
Red – expected water usage

CALIFORNIA DATA COLLABORATIVE

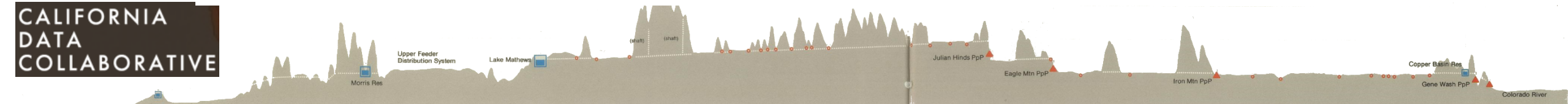


How much water did turf removal save?

Monthly predicted savings estimates shown below



CALIFORNIA DATA COLLABORATIVE



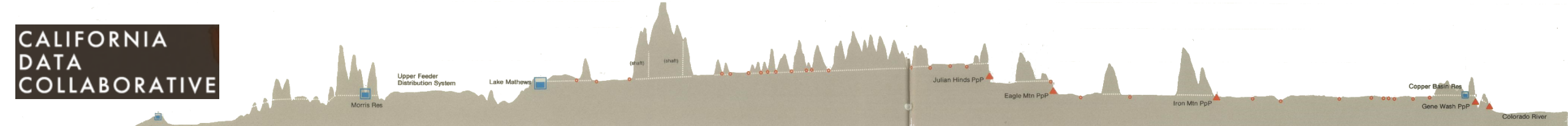
Evaluating the cost effectiveness of the turf rebate program

Ultimate cost effectiveness of the turf rebate program depends on how turf market transformation develops in the future

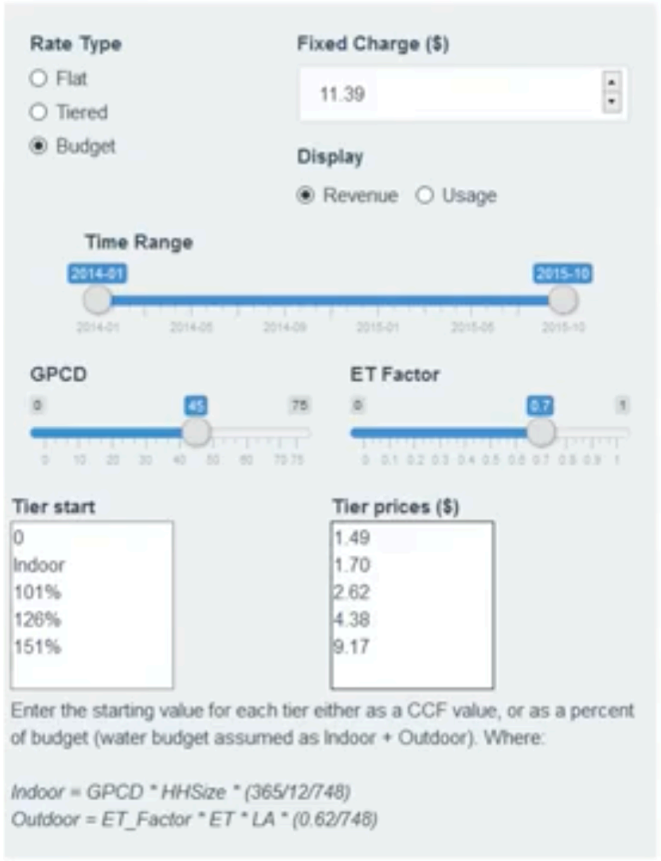
	Peer Effect							
Lifespan	0%	100%	200%	300%	400%	500%	600%	700%
10	$ 3,200	$ 1,600	$ 1,067	$ 800	$ 640	$ 533	$ 457	$ 400
20	$ 1,877	$ 938	$ 626	$ 469	$ 375	$ 313	$ 268	$ 235
30	$ 1,422	$ 711	$ 474	$ 356	$ 284	$ 237	$ 203	$ 178
40	$ 1,187	$ 594	$ 396	$ 297	$ 237	$ 198	$ 170	$ 148
50	$ 1,042	$ 521	$ 347	$ 261	$ 208	$ 174	$ 149	$ 130
60	$ 943	$ 471	$ 314	$ 236	$ 189	$ 157	$ 135	$ 118
70	$ 869	$ 435	$ 290	$ 217	$ 174	$ 145	$ 124	$ 109

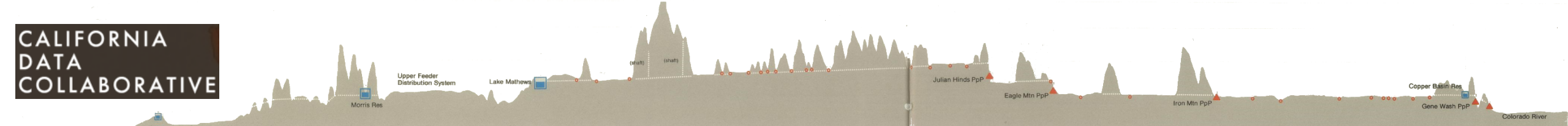
*Uses conservative 5% hyperbolic discounting to value future water saved

CALIFORNIA DATA COLLABORATIVE



Ensuring revenue stability in times of water scarcity



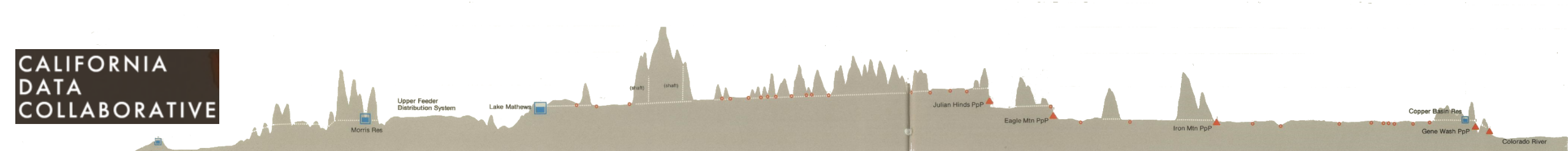


CALIFORNIA DATA COLLABORATIVE

Key Benefits of CaDC participation

1. Water Budget rates provide a wealth of data
2. Targeted marketing heat map of efficiency
3. Operationalize WUE masterplans instead of waiting for them
4. Evaluate revenue between rate studies to check-in
5. Evaluate different landscape definition impacts from EO
6. Operationalize Academic studies and lower cost to participate

CALIFORNIA DATA COLLABORATIVE

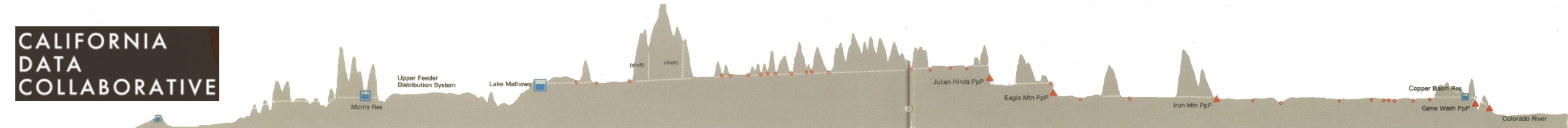


Current dues structure

Run on a non-profit, cost of service basis

# Connections	Phase 1B Dues
<15k meter	$12,500
15k-150k meters	$25,000
>150k meters	$50,000

CALIFORNIA DATA COLLABORATIVE



The path ahead

Jan 16

Jan 17

Launch

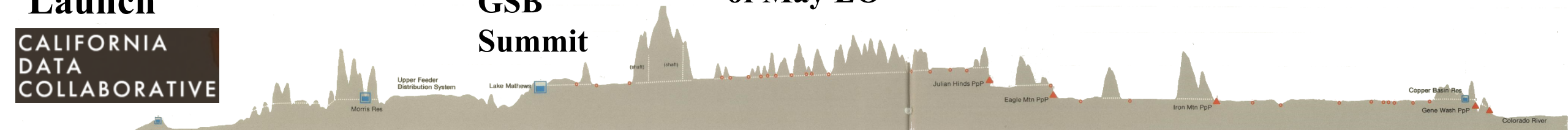
Stanford GSB Summit

Pragmatic, phased implementation of May EO

Integrated suite of analytics supporting <u>any</u> of CA's water managers

Trusted data platform integrating <u>the entire</u> lifecycle of CA water use data and beyond

CALIFORNIA DATA COLLABORATIVE



"The people of California have not lost their pioneering spirit or their capacity to meet life's challenges."

– Jerry Brown

Contact:
Patrick@argolabs.org