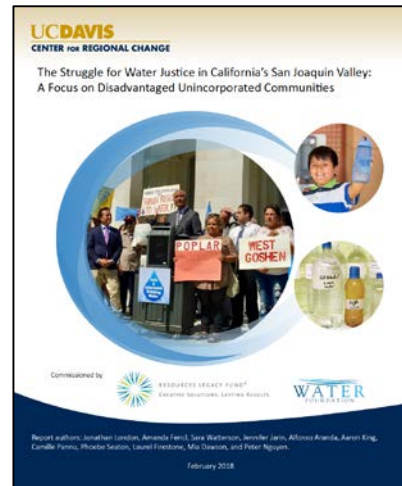


The Struggle for Water Justice: A Focus on Disadvantage Unincorporated Communities

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Identification and Characterization
of Disadvantaged Unincorporated
Communities in the Westside
Integrated Regional Water
Management Area



Jonathan K. London, Sara Watterson, Alfonso Aranda, Jennifer Jarin
UC DAVIS CENTER FOR REGIONAL CHANGE | SEPTEMBER 2018

Disadvantaged Unincorporated Communities (DUCs)

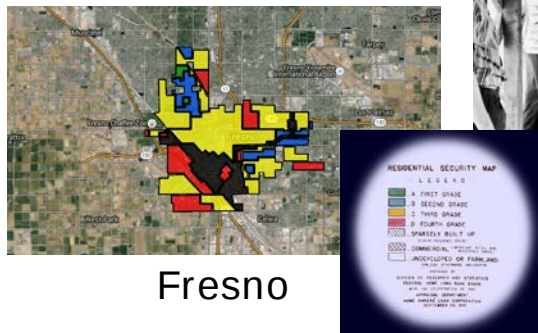
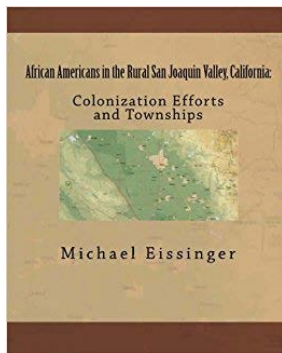


- **D:** Less than 80% of CA Median Household income
- **U:** Outside of city or incorporated boundaries (*no city government = limited representation*)
- **C:** Communities often lack basic infrastructure (drinking water, sewer, storm water, lighting, sidewalks) and resources (grocery stores, medical facilities)



Photo: Tara Lohan

How did we get here?





“Public commitments to communities with little or no authentic future should be carefully examined before final action is initiated. These **non-viable communities** would, **as a consequence of withholding major public facilities** such as sewer and water systems, enter a process of long term, natural decline as residents depart for improved opportunities in nearby communities.” - 1971 Tulare County General Plan

The Struggle for Water Justice in San Joaquin Valley Study's 3 Main Goals



- Identify, map, and document conditions in DUCs in the San Joaquin Valley
- Highlight problems of access to safe drinking water
- Inform policy and advocacy to improve drinking water access in the San Joaquin Valley with lessons learned for California as a whole

Data

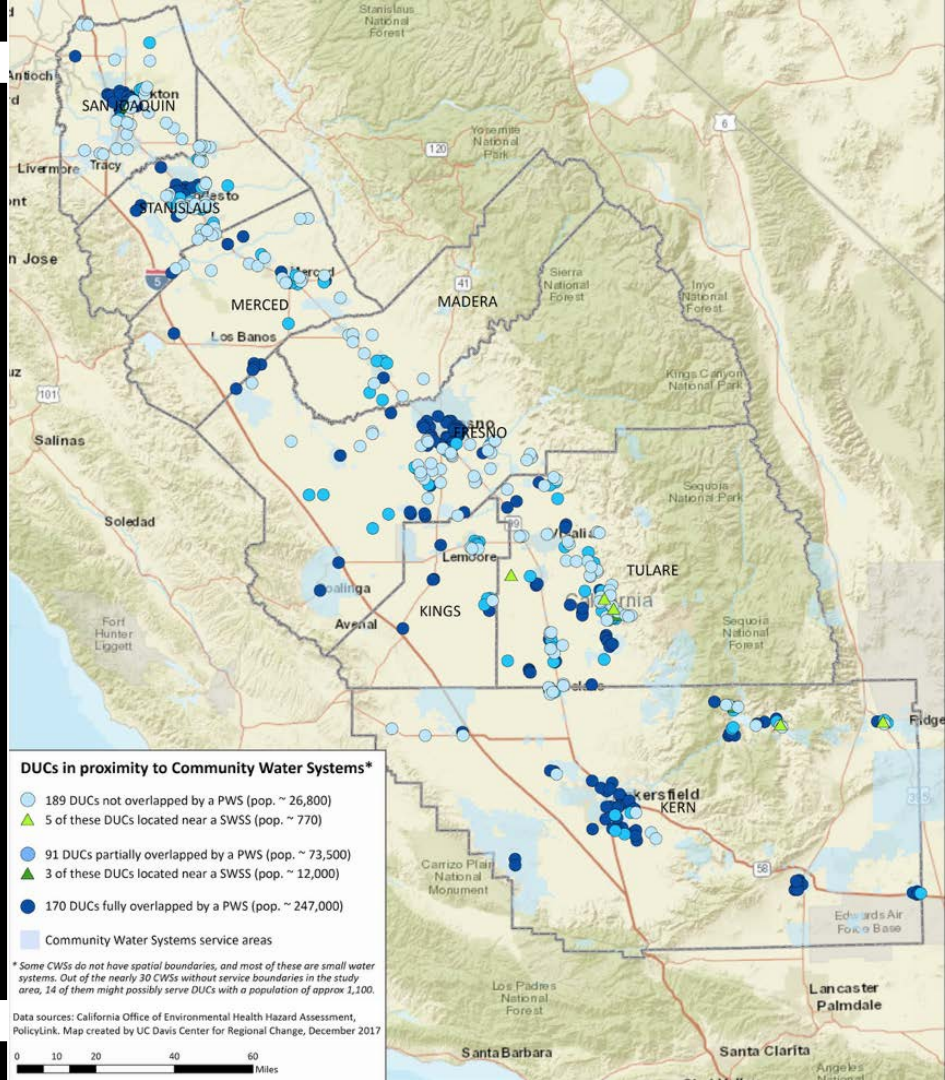
- 2010 US census block population, race, ethnicity data
- 2013 American Community Survey income data
- 2013 PolicyLink DUC spatial layer; DUC = 250 parcels/sq. mi density
- 2016 community water system boundaries (OEHHA's CalEnviroscreen 3.0)
- Human Right to Water (HRTW) Portal Compliance Status
- Collected inventory of state small systems from 8 SJV counties, mapped if possible
- Expert interviews; planning documents

Methods

- **spatial analysis**
overlapping boundaries as indication of
a) service provision and
b) provision of *safe* water
- **proximity analysis**
distance between center of DUC and center of CWS supplying *safe* water (based on HRTW Portal Compliance status)

1: Which DUCs do systems serve?

Map 1. DUCs and Access to Community Water Systems



Mapping **Unincorporated** Communities

Our 2018 study, updates prior Policy Link mapping effort (2013) with *2010* census data:

350,000 people

Live in **450** low-income unincorporated communities in the San Joaquin Valley



71% live w/i a service area

247,000 residents of DUCSs were **fully** overlapped by a CWS boundary or service area

21% *may* be served by CWS

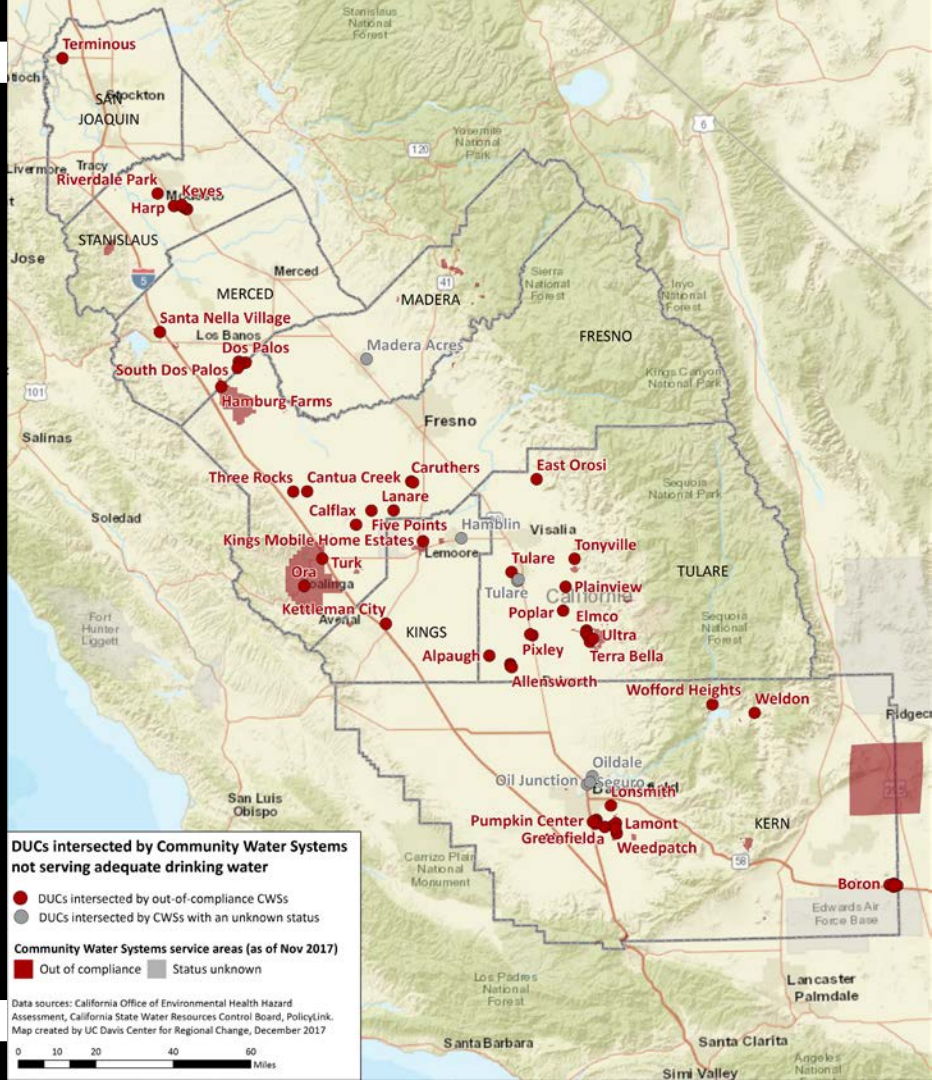
73,500 residents of DUCSs were **partially** overlapped by a CWS boundary or service area

8% outside of service area

26,800 residents of DUCSs were **not** overlapped by a CWS boundary or service area (domestic well reliant)

3: Who is not getting safe water?

Map 3. DUCs Within or Intersected by Out-Of-Compliance Community Water Systems



Access to Safe Drinking Water is Inadequate

CWS System Compliance Status	No. of Residents	No. of DUCs
IN or RETURNED to COMPLIANCE	257,324	197
<i>Full Overlap</i>	<i>197,898</i>	<i>129</i>
<i>Partial Overlap</i>	<i>59,426</i>	<i>68</i>
OUT-OF-COMPLIANCE	43,599	57
<i>Full Overlap</i>	<i>30,201</i>	<i>36</i>
<i>Partial Overlap</i>	<i>13,398</i>	<i>21</i>

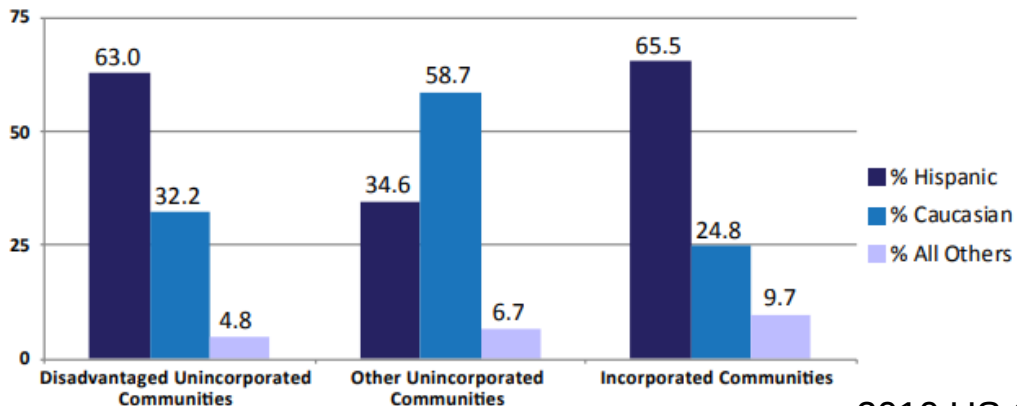
- 1 in 4 water systems serving DUCs are providing unsafe drinking water to ~ 44,000 residents
- 26,800 residents on private wells are also likely to receive unsafe drinking water

Source: [Map 2. Compliance Status of DUCs Within or Intersected by Community Water Systems](#)

Access to Safe Drinking Water is Inequitable

For example, Hispanic residents:

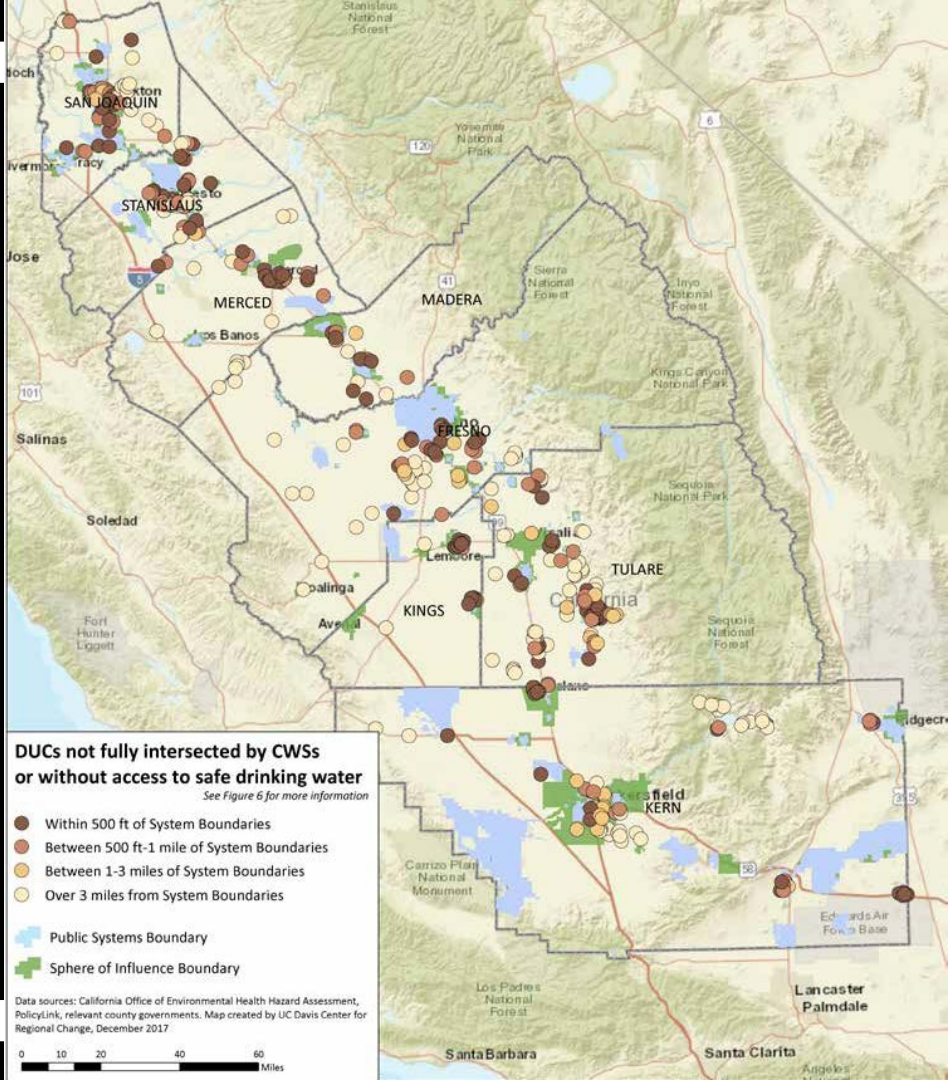
- 49% of SJV residents but 68% of DUC residents
- 63% of DUC residents and 66% of city residents with *unsafe* water
- 64% of DUC residents w/o water system service



2010 US Census

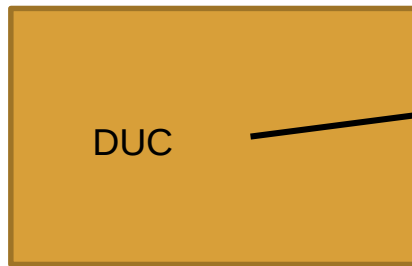
5: How close is safe water?

Map 5. Proximity of DUCs to In-Compliance Public Systems

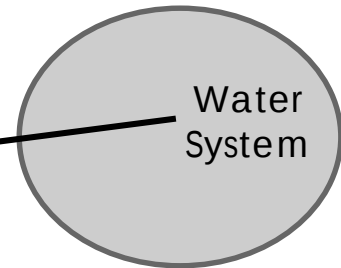


Proximity is an important metric.
Suggests feasibility of service extension or consolidation.

proximity analysis 1



Centroid to centroid

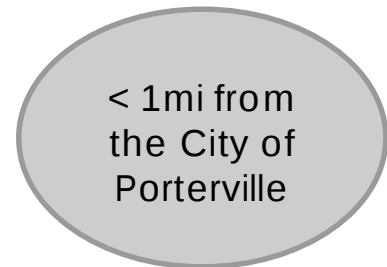
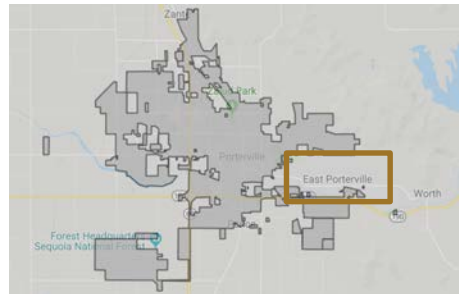


proximity analysis 2

East Porterville,

- DUC
- Outside CWS boundary
- 7,558 people

'least cost path' via
road networks



Mapping **Unincorporated** Communities

Proximity to in compliance publicly-owned water system by DUC residents without safe water or not fully overlapped by a boundary:

350,000 people

Live in **450** low-income unincorporated communities in the San Joaquin Valley



44% live within 500'

65,344 DUC residents not fully intersected by CWSs or without access to safe drinking water

22% live within 1 mile

32,768 DUC residents not fully intersected by CWSs or without access to safe drinking water

33% live beyond 3 miles

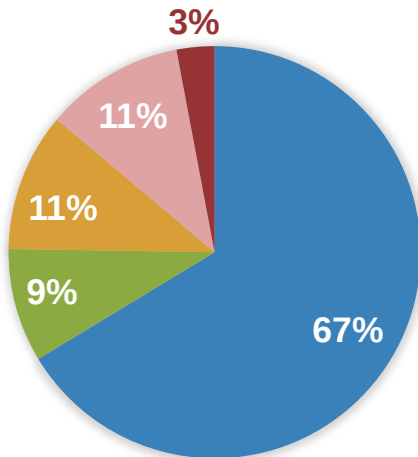
49,057 DUC residents not fully intersected by CWSs or without access to safe drinking water

Mapping Distance to Safe Water

A *least-cost path analysis* (road network based) between a **DUC** and the closest **IN-COMPLIANCE** system:



Percent of DUCs:

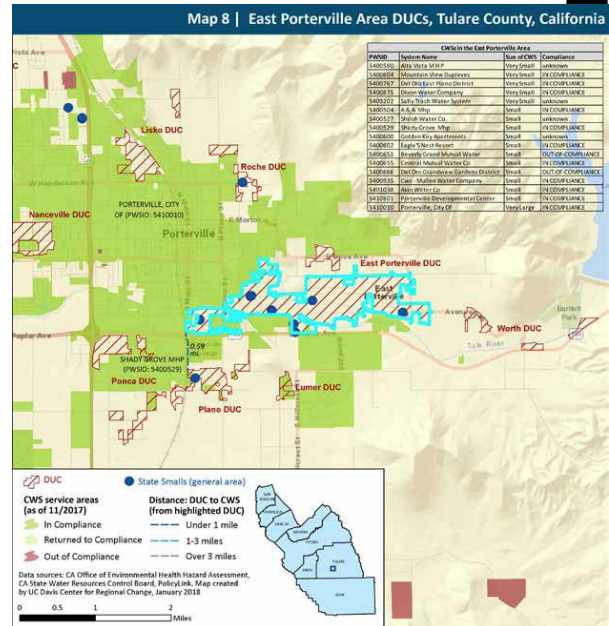


- < 500'
- 500' - 1 mi
- 1 - 3 mi
- > 3 mi
- No safe water w/ 10 mi. radius

Source: [Table 3B. Least Cost Path Analysis](#)

Drought Emergency and Municipal Service Extension in East Porterville:

- DUC on private (dry and contaminated wells
- Community Water Center + other local non-profits
- Emergency bottled and hauled water
- Extra-territorial Service Agreements



755 homes now connected



East Porterville Water Supply Project

Study Recommendations

1. Improve enforcement of existing laws on consolidation and annexation
2. Expand and sustain funding for existing water systems and new connections for DUCs
3. Enforce land use and annexation policies
4. Enhance and coordinate data systems
5. Expand study (statewide, waste water, cost, private wells, small systems)

2018 Westwide IRWM DUC Study

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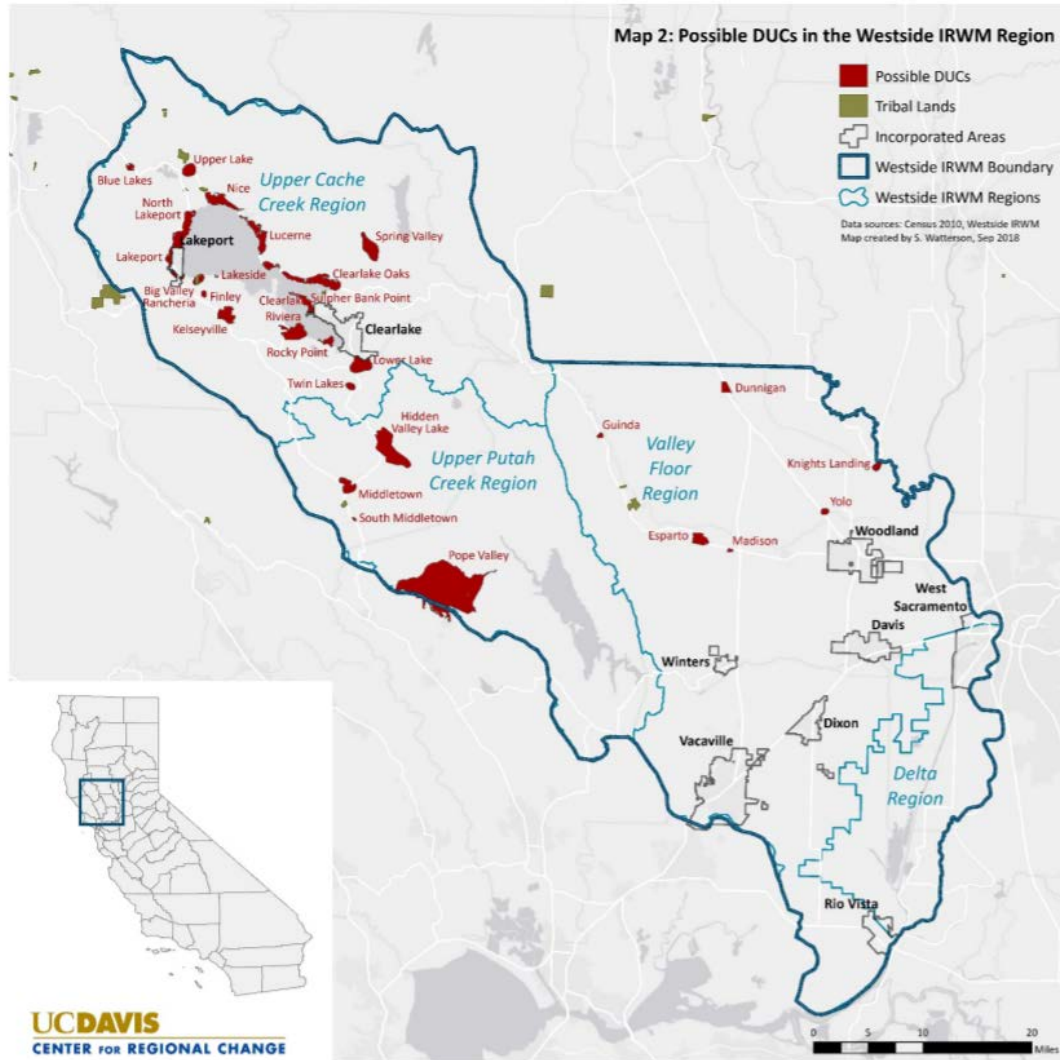
Data

- 2010 US census block population, race, ethnicity data
- 2018 EHIB Water Boundary Tool CWS Service Area Boundaries
- American Community Census Median Household Income data from 3 different 3-yr estimates to identify *possible* disadvantage
- Human Right to Water Portal Compliance Status

Methods

- **analysis to identify UCs**
kernel density of parcel data of parcels that were populated and unincorporated at density of 150 parcels/sq mi.
 - + combined ACS data to determine disadvantage (**D**)
- **proximity analysis**
distance between center of DUC and center of CWS supplying safe water (based on HRTW Portal)

Map 2: Possible DUCs in the Westside IRWM Region





no system can be
sustainable if there are
structural inequities that
deprive some
populations and places
from full consideration
and participation

Water Justice Principles

- Distributional

**who is and
isn't getting
equitable
access**

- Procedural

**who is and isn't
included
meaningfully in
decision-
making**

- Recognitiona

**|
whose
experiences
and knowledge
is and isn't
respected as
valid**

Thanks!

Any questions?

You can find me at

- alfencl@ucdavis.edu
- @alfencl

Any questions?

You can find study lead
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 - ☐ **(Westside IRWM Study)** Cramer Fish Sciences, Yolo County Resource Conservation District, the Westside IRWM Coordinating Committee