

Progressive Water Solutions

Innovative Market Solutions for Efficient Groundwater Management



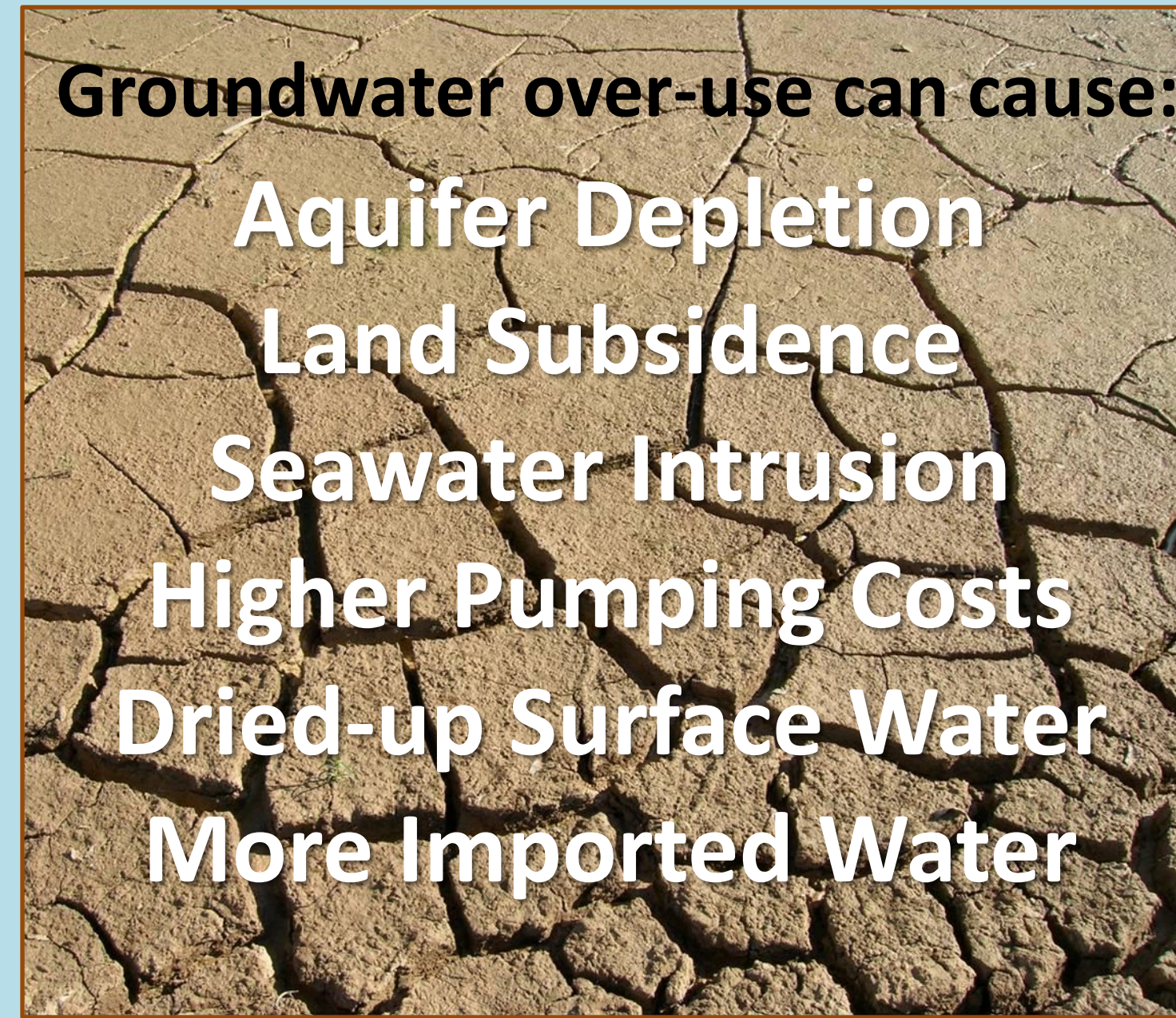
The Water Problem

Water reliability is a critical challenge in California, and population growth and climate change will exacerbate the problem. Groundwater provides 1/3 of California's water resources, but it is often under-valued and over-used.

California lacks a mandatory State groundwater management statute, so local agencies are responsible for groundwater management.

Groundwater use can be limited through the process of **adjudication**, in which a court determines the total amount of water that can be pumped from a basin and allocates pumping rights among individual groundwater users. But, the court allocation does not always match actual users' demand.

Informal markets have developed in some adjudicated basins for participants to transfer pumping rights, but are inefficient due to lack information and a central marketplace.



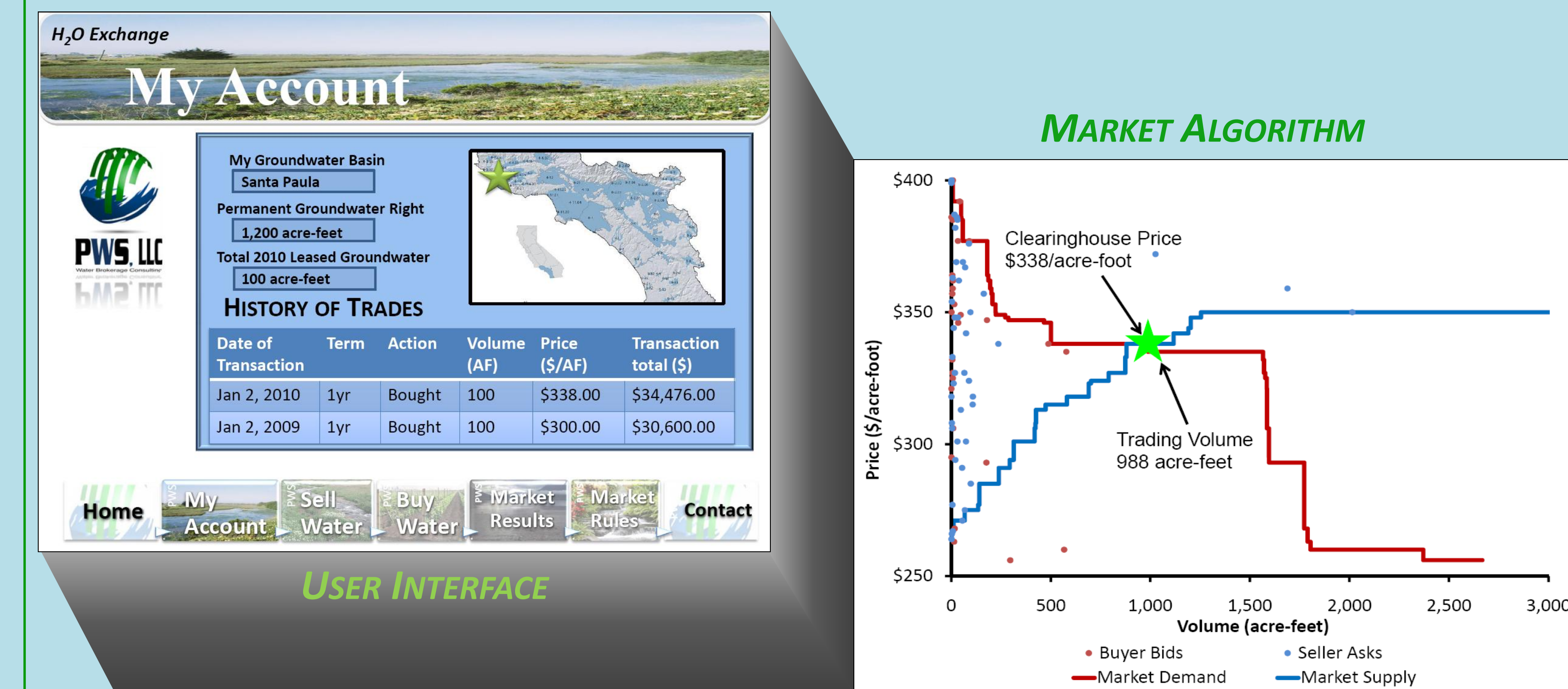
Progressive Water Solutions LLC will provide brokerage and consulting services to groundwater basins, yielding economic, social, and environmental benefits.



The H₂O Exchange

We designed an easy-to-use online marketplace, the **H₂O Exchange**.

The **H₂O Exchange** operates as a clearinghouse for groundwater rights transfers. Participants can trade short-term, long-term, and permanent rights to pump groundwater. The website will provide historical market information to inform participants' bids. This centralized market streamlines the process of transferring rights and reduces transaction costs associated with looking for a trading partner and negotiating over price.



Case Study Basins

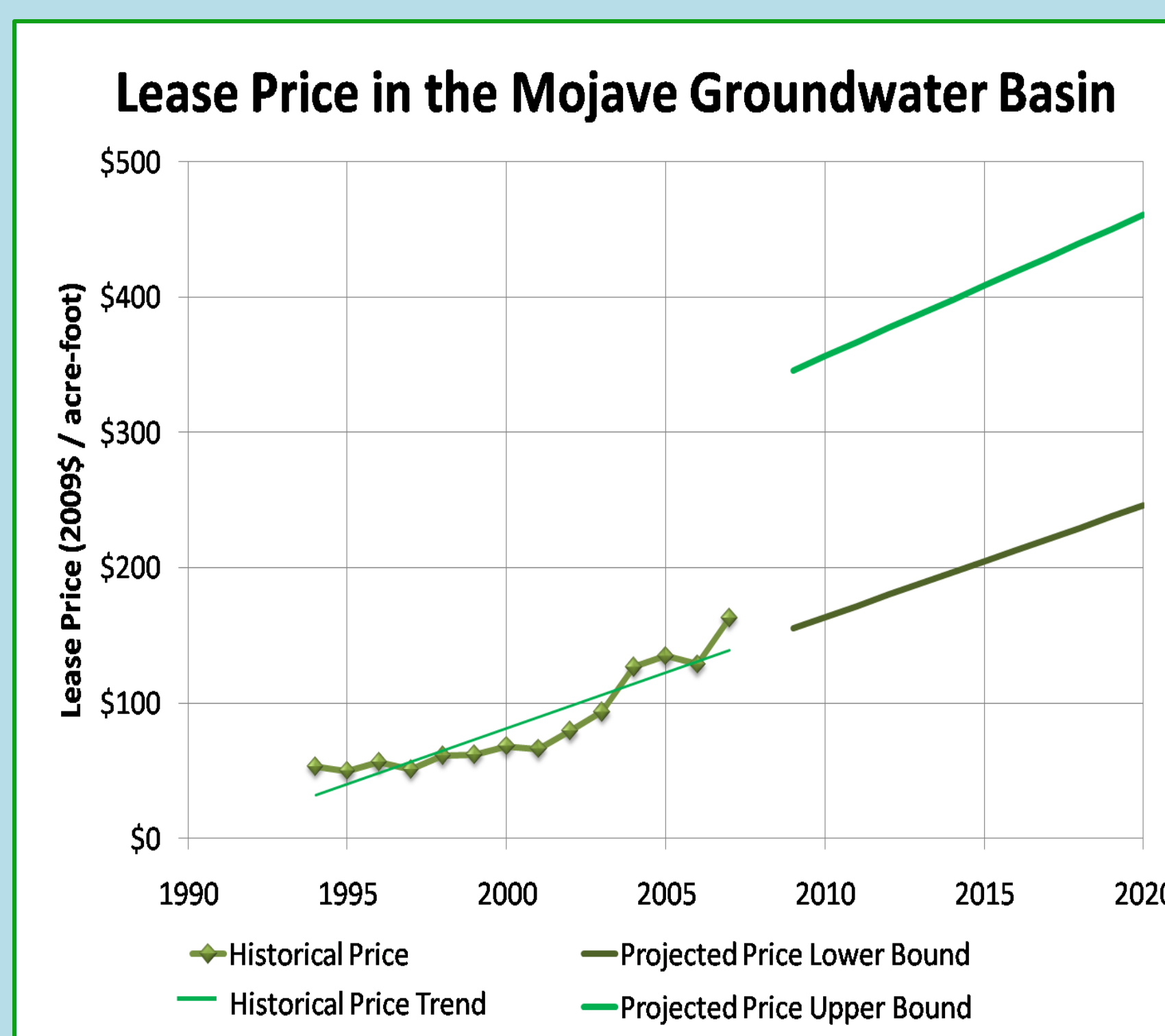
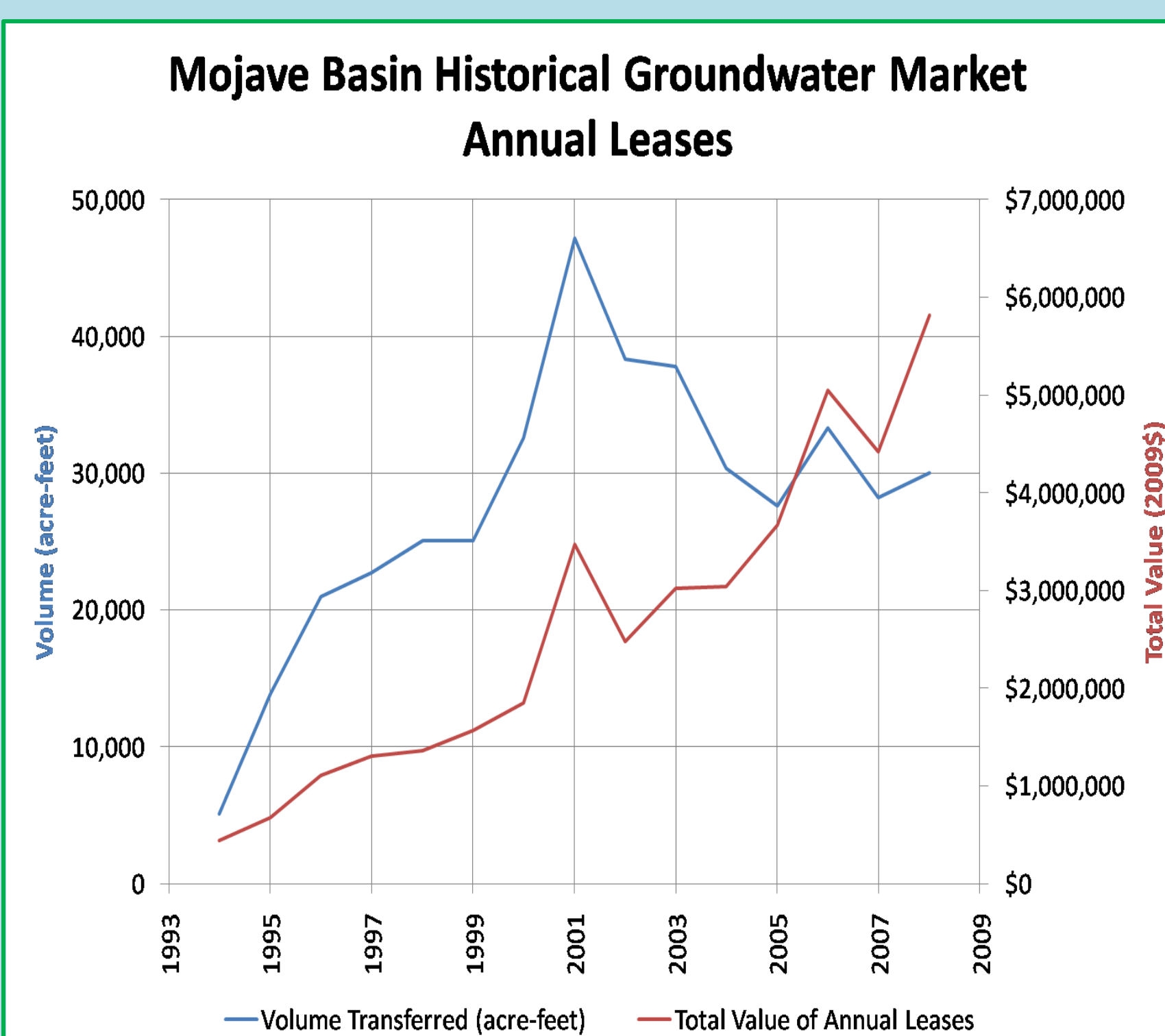
Chino Mojave Santa Paula West Coast

Market implementation requires that groundwater rights be defined, as in CA's 22 adjudicated basins. We chose 4 case study basins to assess the potential for PWS to implement its market solution. We analyzed the market potential of these 4 basins with the introduction of PWS' **H₂O Exchange**.

Market value was estimated using:

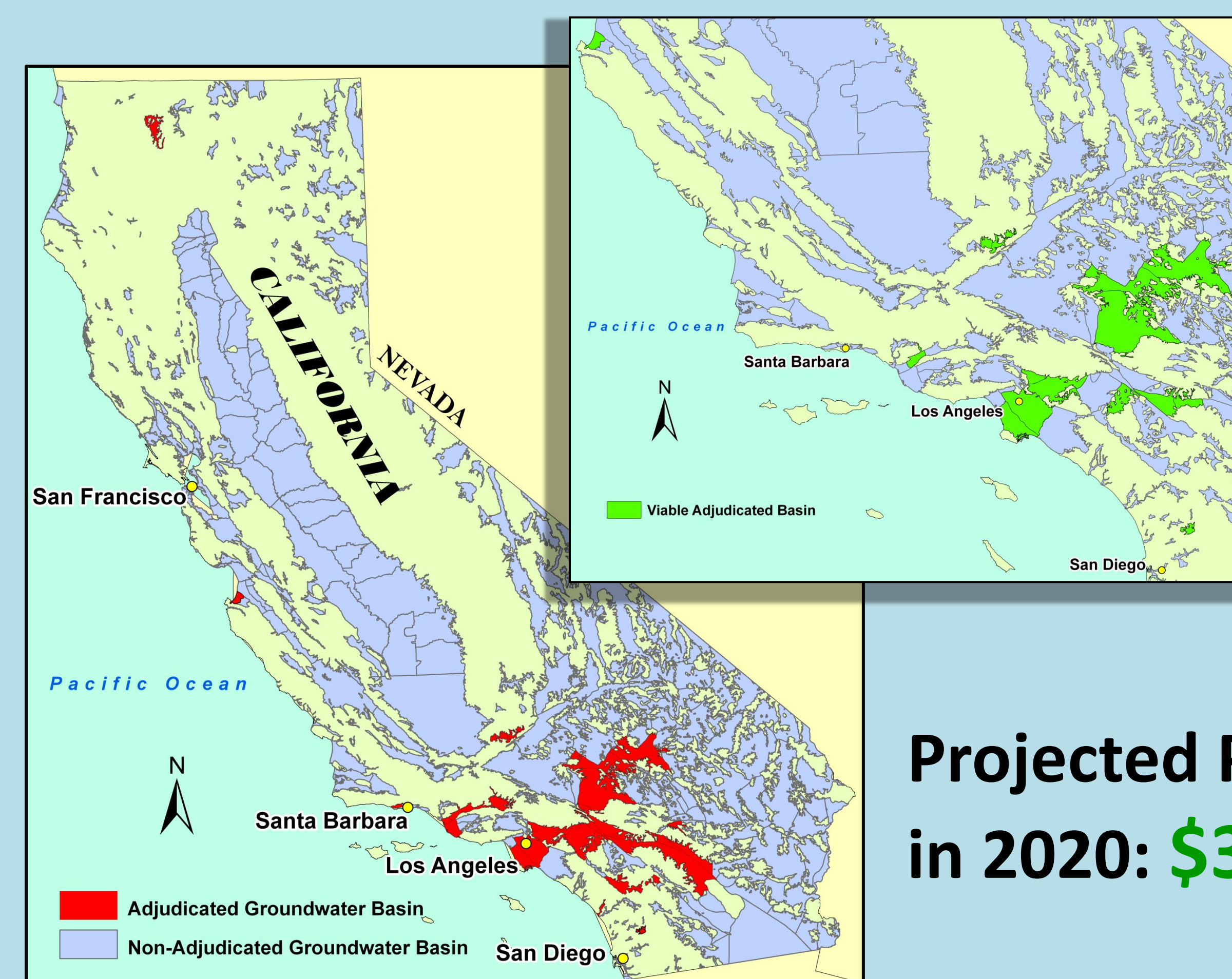
- Number of groundwater rights holders
- Volume of water available for trading
- Historical informal market activity
- Historical over-pumping and associated fees
- Trends in cost and availability of alternative water sources

We calculated PWS' expected revenue by taking a 2% fee of projected brokered transactions.



Market Potential

The adjudicated basins with the greatest market potential are those with a large number of rights holders and a large volume of groundwater available for trading.

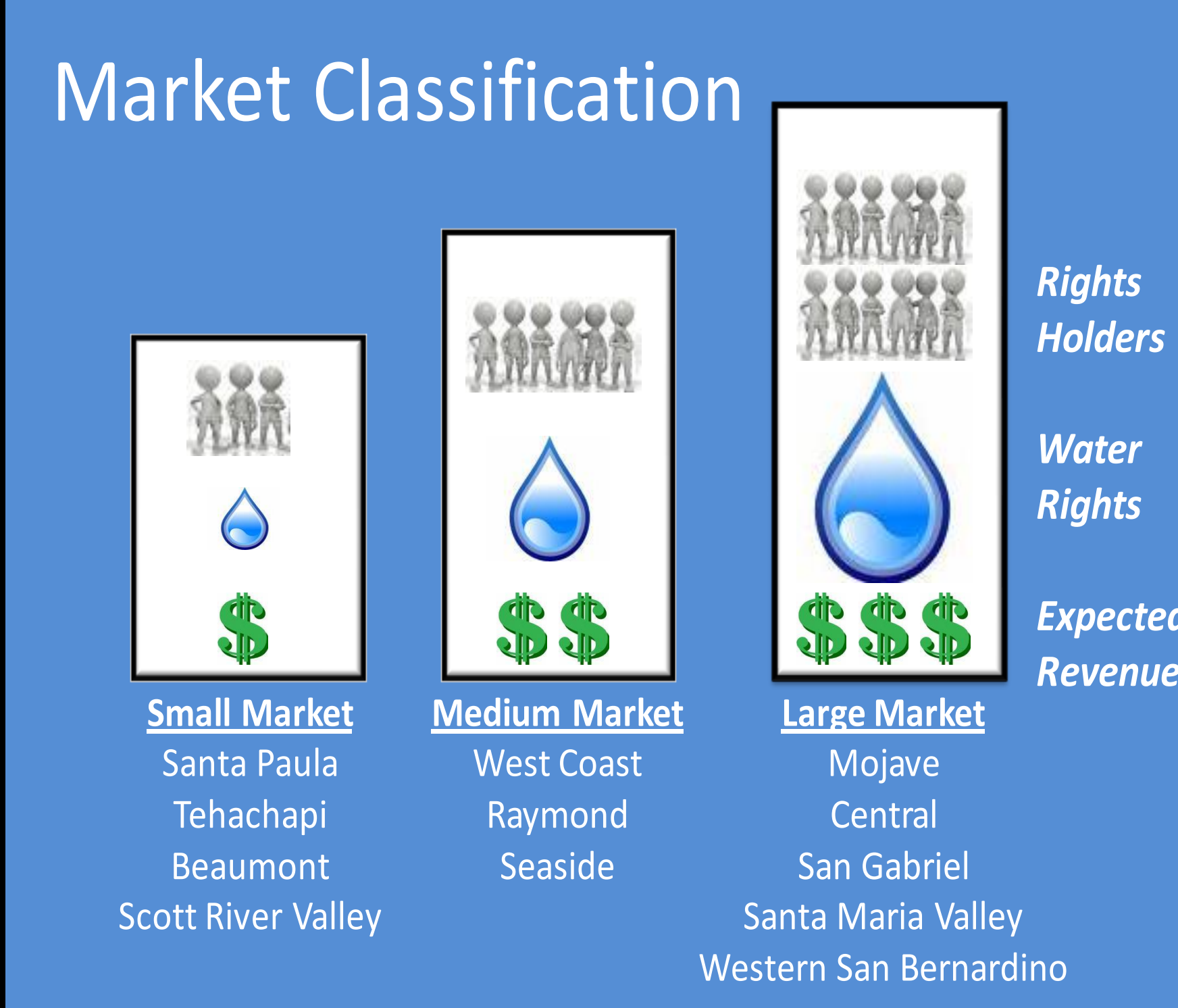


We project that our market will be viable in **12 CA basins**.

Projected PWS Income in 2020: **\$3.8 Million**

We classified CA's 22 adjudicated basins according to:

- Number of rights holders
- Volume of adjudicated water rights
- Expected revenue generated by brokering trades.



How the H₂O Exchange Works

- Participants post their desired trading volume and price.
- Our algorithm calculates market supply and demand and generates a clearinghouse price.
- Buyers and sellers who satisfy the clearinghouse price requirement will participate in trading.

After the market runs, PWS files the appropriate paperwork and charges a percentage brokerage fee on each transaction.

Triple Benefits

- Economic**
 - PWS LLC maximizes producer and consumer surplus, enabling transfers of water to the highest valued use and generates profits for our business.
- Social**
 - PWS LLC provides politically neutral information about groundwater value and use, enabling water managers and water users to improve long-term planning, increase water supply reliability, and manage risk.
- Environmental**
 - PWS LLC provides better access to local water supplies which are typically less energy-intensive and destructive to ecosystems than imported water. The H₂O Exchange also provides a mechanism for qualified conservation groups to purchase water rights for conservation projects.

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