Water for Santa Cruz County
presents
Perspectives on Regional Water Supply Solutions
A Public Forum

Lochquifer:

How Loch Lomond Reservoir Could Recharge Aquifers Cheaply and Defeat Drought Fast

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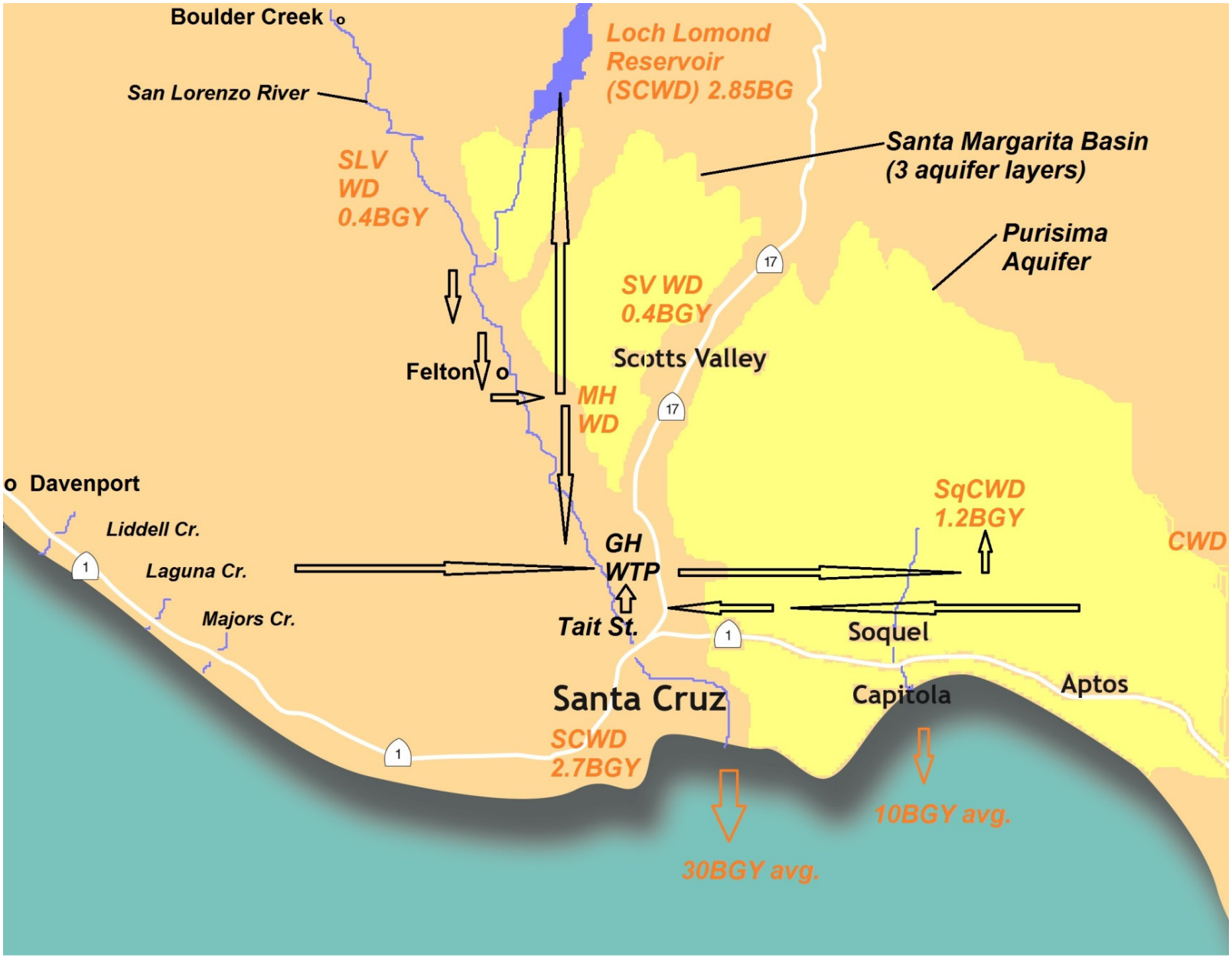
Aptos Branch Library

Santa Cruz mid-county region



Some Important Desirable Criteria

Quantity of water

Reliability

Low **energy** use, carbon footprint

Boosts **fish** well-being and population

(end the 30-years war)

Low **Capital** Cost

Low **Operating** & Maintenance Cost

Low **Finance** Cost (for agencies and customers)

Quality

2 Problems...

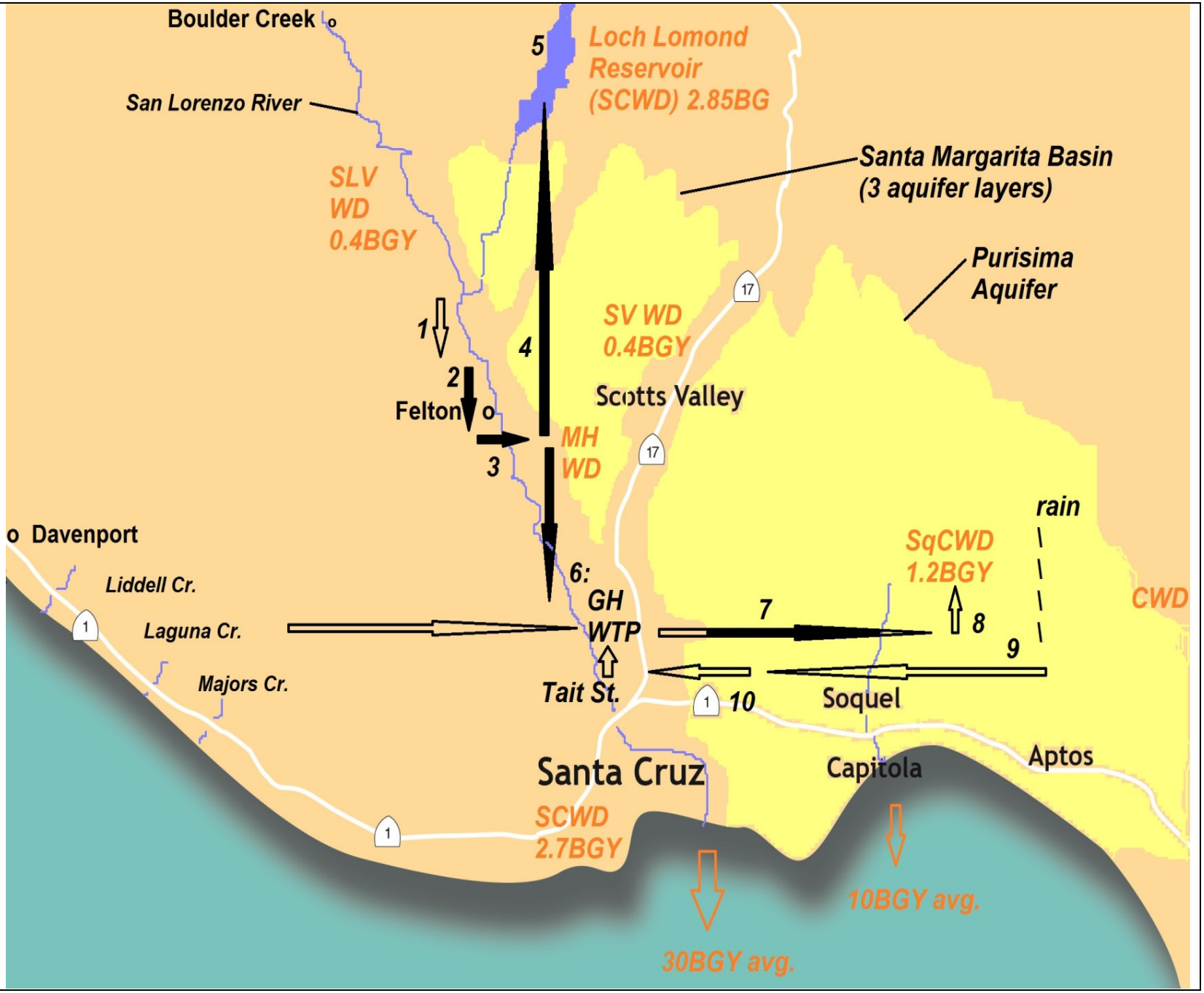
1. **Conflict between the two ways to use Loch Lomond:**
   a. **to collect winter water and dispense it at the drier times of year; -versus-**
   b. **keeping the Loch full, in case a multi-year drought comes along.**
2. **Aquifer overdraft, causing coastal wells to be poisoned by sea water. This is a triple-whammy because then a new water source must be found and water transported.**

…and a solution:

<u>Store surface water in aquifers.</u> The Loch then focuses on the seasonal job and the aquifers focus on drought protection and get recharged, to boot. Storing 3 BG drought-proofs us for 8 yrs.

10 Fire Hoses

1. Source
2. Rights
3. Diversion
4. Pipeline
5. Storage
6. Treatment
7. Pipeline
8. Demand
9. Storage
10. Return



The New "Fire Hoses"
rights, a well and two pipes

2. New Water Rights. Apply for water rights jointly with all relevant agencies, so there will be few detractors. Meet and agree in advance regarding the terms of the application. Ten years of rights may suffice to fill the aquifers satisfactorily, so a temporary type of right might be considered.

3. Ranney collector. To divert water from the river in a fish-friendly way, use a well, set slightly away from the stream. The water will be filtered by the stream bed as it descends into the well.

4. Expand the Loch pipeline to handle about 30 mgd, to fill the Loch in only 70 days when needed, starting from only 25% full.

6. Expand the potable intertie between SCWD and SqCWD to 6 mgd in both directions.

Lochquifer North
to fill the Santa Margarita Basin (SMB)
using

Dry-times surface spreading

needs no pump
needs little energy
needs no treatment plant (the ground cleans the water in 60 days)
fish benefit from seepage
See UCSC Dr. Andy Fisher's map.

In a drought, use mostly existing wells to ship potable water downhill to SCWD's high-elevation customers.
No need for pumping potable water upward.

Compare

Criteria	Lochquifer South	PureWater Soquel
Quantity	2.4 BGY most years	0.5 BGY
Reliability	high	high
Energy	usual	about 8x more used
Fish	more water, serves 0-600 ft. elevation	does not really address fish. water source is at sea level
Capital Cost	$28 M	$70M
O & M Cost, 30 years	$10M per same volume	~$30M
Finance Cost	pay-go	$25M?
Total cost	$38M	$125M
Quality	safe	safe