

Status Report on the Potential for Surface Water Transfers in Northern Santa Cruz County

Outline

- Background: Integrated Regional Water Management
- Prop 50 Conjunctive Use Studies
- Methodology for Assessment
- Assumptions
- Potential Benefits
- Challenges
- Next Steps

Integrated Regional Water Management

- An approach long-pursued in Santa Cruz County
- Now supported by State Water Plan and grant funding
- Integrate Water Supply, Water Quality, Habitat Improvement, and Stormwater/Flood Mgt.
- Nine partner agencies in Santa Cruz IRWM Region and growing, plus stakeholders

Santa Cruz IRWM – Prop 50

2. Abandoned wells
3. **Conjunctive Use, South San Lorenzo Valley**
4. Aptos Drainage Master Plan
5. Stormwater Mgt
6. Groundwater recharge projects and policies
7. Relocate New Brighton Sewer Line
8. Desal Intake Study
9. Polo Grounds Well
10. Polo Grounds Monitoring Well
11. Water Treatment – Davenport
12. Watsonville Slough Watershed Restoration
13. Integrated Watershed Restoration Program
14. Scotts Valley Recycled Water
15. Coordinated Monitoring
16. **Expansion of IRWM: Climate Change, Water Transfers**

Prop 84 IRWM Planning Grant

- To improve and Update the Integrated Regional Water Mgmt Plan
- Funds four technical studies
 - Santa Margarita Groundwater Model Update
 - **Conjunctive Use & Water Transfers (Phase II)**
 - Aromas & Purisima Groundwater Basin Management
 - Watsonville Sloughs Hydrologic Studies
- Stakeholder outreach, project solicitation
- Effectiveness Assessment
- Climate Change
- Updated Plan

Prop 50 Conjunctive Use Study

- Objective to restore Scotts Valley groundwater levels
- Kennedy/Jenks, Balance Hydrologics, Don Alley
- Assessed San Lorenzo River, Scotts Valley, and Santa Cruz
- Looked at water availability, water quality, water rights, fishery needs, infrastructure
- Evaluated over 100 potential projects
- Top 3 were:
 - Stormwater Infiltration
 - In-lieu recharge with treated water from Santa Cruz
 - Direct recharge in old quarry areas
- County staff further evaluating last two, bringing in Soquel

Proposed Initial Operation

- Deliver treated surface water to the groundwater agencies for direct winter use in lieu of groundwater use (in-lieu recharge).
- Divert excess winter streamflow from the San Lorenzo River at the City of Santa Cruz Tait Street Diversion
- Utilize existing water rights of 12.2 cfs.
- Use existing conveyance facilities, with treatment at the City's Graham Hill Water Treatment Plant.
- Construct a pipeline connection to Scotts Valley and south San Lorenzo Valley Water Dist.
- Construct enlarged pipeline connection from Santa Cruz to Soquel

Methodology for Assessment

- Analyze historical daily flows,
- Deduct fish bypass and city need
- Don't take high flows due to too much turbidity
- Run various scenarios with different water rights and infrastructure capacities
- Summarize surplus for winter season and compare to winter demand of groundwater agencies.
- Scotts Valley area would have a first priority.

Specific Assumptions

- Assess daily mean flows from 1975-2010, San Lorenzo River at Big Trees (Felton)
- Diversion Season of December-March
- Maintain Fish Bypass of 25 cfs.
- Do not take flows over 300 cfs: turbidity
- Maintain City use of 5.5 cfs out of 12.2 cfs
- Scotts Valley and SLVWD winter demand of 480 af.
- Soquel Winter Demand of 1,200 af.
- Look at other scenarios

Date	Mean Daily SLR Flow at Big Trees (CFS)	Available Flow Greater than 30.5, less than 300 cfs. (5.5 cfs SCWD use)	Available Flow Greater than 31.4, less than 300 cfs (6.4 cfs SCWD use)	Max divertable flow in cfs based on current infrastructure rights and SCWD use, up to 6.7 cfs div	Max divertable flow in cfs based on current infrastructure , rights, and increased SCWD use, up to 5.8 cfs div	Available Flow that Can Be Diverted w/ piping upgrade & new water rights (assumed 13.5 cfs available)	Available Volume with Current Infrastructure in AFD, up to 6.7 cfs surplus diversion	Available Volume with Current Infrastructure in AFD, up to 5.8cfs surplus diversion	Available Volume 30.5-300 cfs criteria in AFD, up to 13.5 cfs surplus diversion
1/1/1975	77	46.5	45.6	6.7	5.8	13.5	13	12	27
1/2/1975	70	39.5	38.6	6.7	5.8	13.5	13	12	27
1/3/1975	66	35.5	34.6	6.7	5.8	13.5	13	12	27
1/4/1975	66	35.5	34.6	6.7	5.8	13.5	13	12	27
1/5/1975	66	35.5	34.6	6.7	5.8	13.5	13	12	27
1/6/1975	77	46.5	45.6	6.7	5.8	13.5	13	12	27
1/7/1975	89	58.5	57.6	6.7	5.8	13.5	13	12	27
1/8/1975	94	63.5	62.6	6.7	5.8	13.5	13	12	27
1/9/1975	88	57.5	56.6	6.7	5.8	13.5	13	12	27
1/10/1975	80	49.5	48.6	6.7	5.8	13.5	13	12	27
1/11/1975	76	45.5	44.6	6.7	5.8	13.5	13	12	27
1/12/1975	72	41.5	40.6	6.7	5.8	13.5	13	12	27
1/13/1975	71	40.5	39.6	6.7	5.8	13.5	13	12	27
1/14/1975	69	38.5	37.6	6.7	5.8	13.5	13	12	27
1/15/1975	67	36.5	35.6	6.7	5.8	13.5	13	12	27
1/16/1975	66	35.5	34.6	6.7	5.8	13.5	13	12	27
1/17/1975	64	33.5	32.6	6.7	5.8	13.5	13	12	27
1/18/1975	64	33.5	32.6	6.7	5.8	13.5	13	12	27
1/19/1975	64	33.5	32.6	6.7	5.8	13.5	13	12	27
1/20/1975	63	32.5	31.6	6.7	5.8	13.5	13	12	27
1/21/1975	63	32.5	31.6	6.7	5.8	13.5	13	12	27

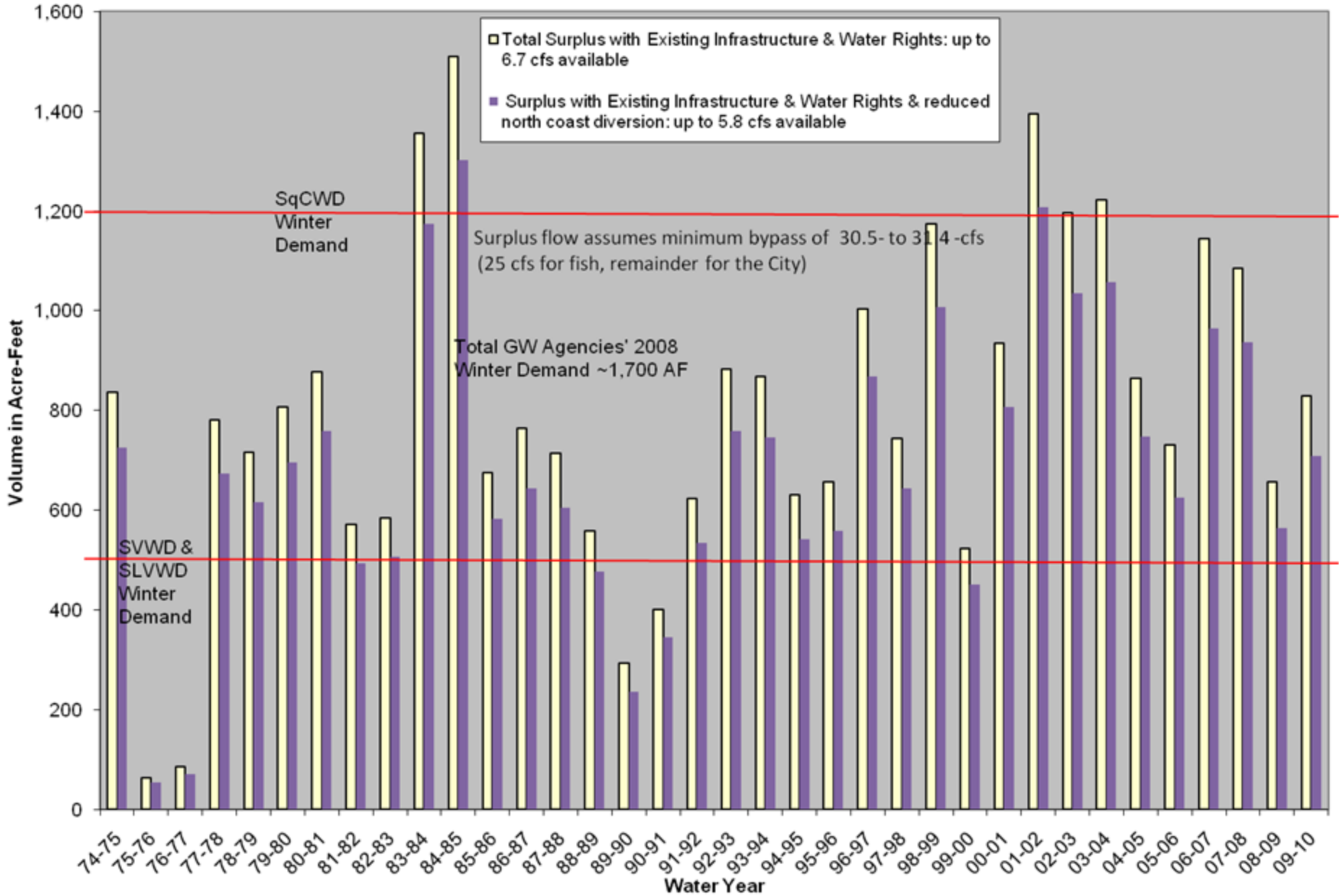
Potential Surplus Water: from "SLR Flow Data" Acre-feet per year

Water Year	Total Surplus with Existing Infrastructure & Water Rights: up to 6.7 cfs available	Total Surplus which could be used by SVWD and SLVWD in winter, up to 6.7 cfs available	Surplus to Soquel after Scotts Valley Delivery, at up to 6.7 cfs available	Surplus with Existing Infrastructure & Water Rights & reduced north coast diversion: up to 5.8 cfs available	Surplus with upgraded piping & new water rights: up to 13.5 cfs available	Surplus to Soquel after Scotts Valley Delivery, at up to 13.5 cfs available	Surplus after delivery to Scotts Valley and Soquel, at up to 13.5 cfs available
74-75	837	486	351	725	1,687	1,200	19
75-76	63	63	0	53	107	0	0
76-77	86	86	0	71	158	0	0
77-78	780	486	294	673	1,474	988	0
78-79	717	486	231	615	1,255	769	0
79-80	807	486	321	697	1,607	1,121	0
80-81	877	486	391	759	1,612	1,126	0
81-82	571	486	85	494	882	396	0
82-83	585	486	99	506	1,178	692	0
83-84	1,356	486	870	1,173	2,731	1,200	1,063
84-85	1,510	486	1,024	1,303	2,488	1,200	820
85-86	675	486	189	582	1,082	596	0
86-87	764	486	278	643	1,055	569	0
87-88	713	486	227	605	1,026	540	0
88-89	559	486	73	477	935	449	0
89-90	293	293	0	235	360	0	0
90-91	401	401	0	344	673	187	0

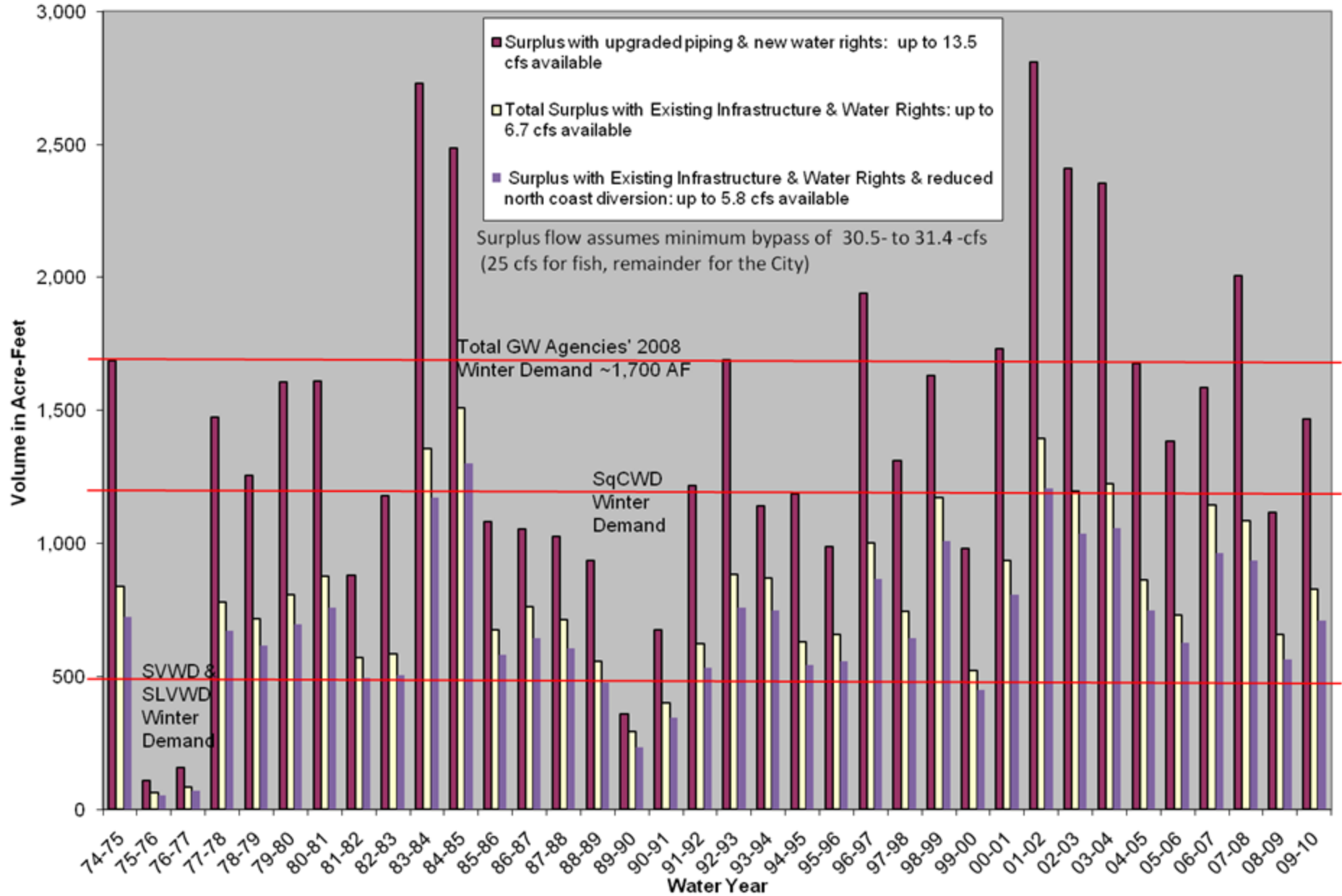
Potential Benefits

- Would produce an average of 800 af/yr
- Meet Scotts Valley demand of 480 af, 31 out of 35 years
- Average of 340 af/yr to Soquel, at least 200 af 22 out of 35 years
- Would increase summer baseflow in Bean Creek by 0.25 cfs after 10 years
- Possible future larger yields with increase in water rights, infrastructure

Annual Winter Surplus Water Availability, San Lorenzo River at Tait Street, Various Scenarios



Annual Winter Surplus Water Availability, San Lorenzo River at Tait Street, Various Scenarios



Possible Challenges

- Is 25 cfs for fish too much or too little?
- Can the diversion season be extended?
- Will the HCP require the City to use SLR more and reduce availability for transfer?
- What are the operational details and will that change the projected yield?
- What is the cost and timing of intertie pipeline construction?
- Water Rights ??????????

Figure 1

WATER TRANSFER DECISION TREE

STATE WATER RESOURCES CONTROL BOARD
Division of Water Rights

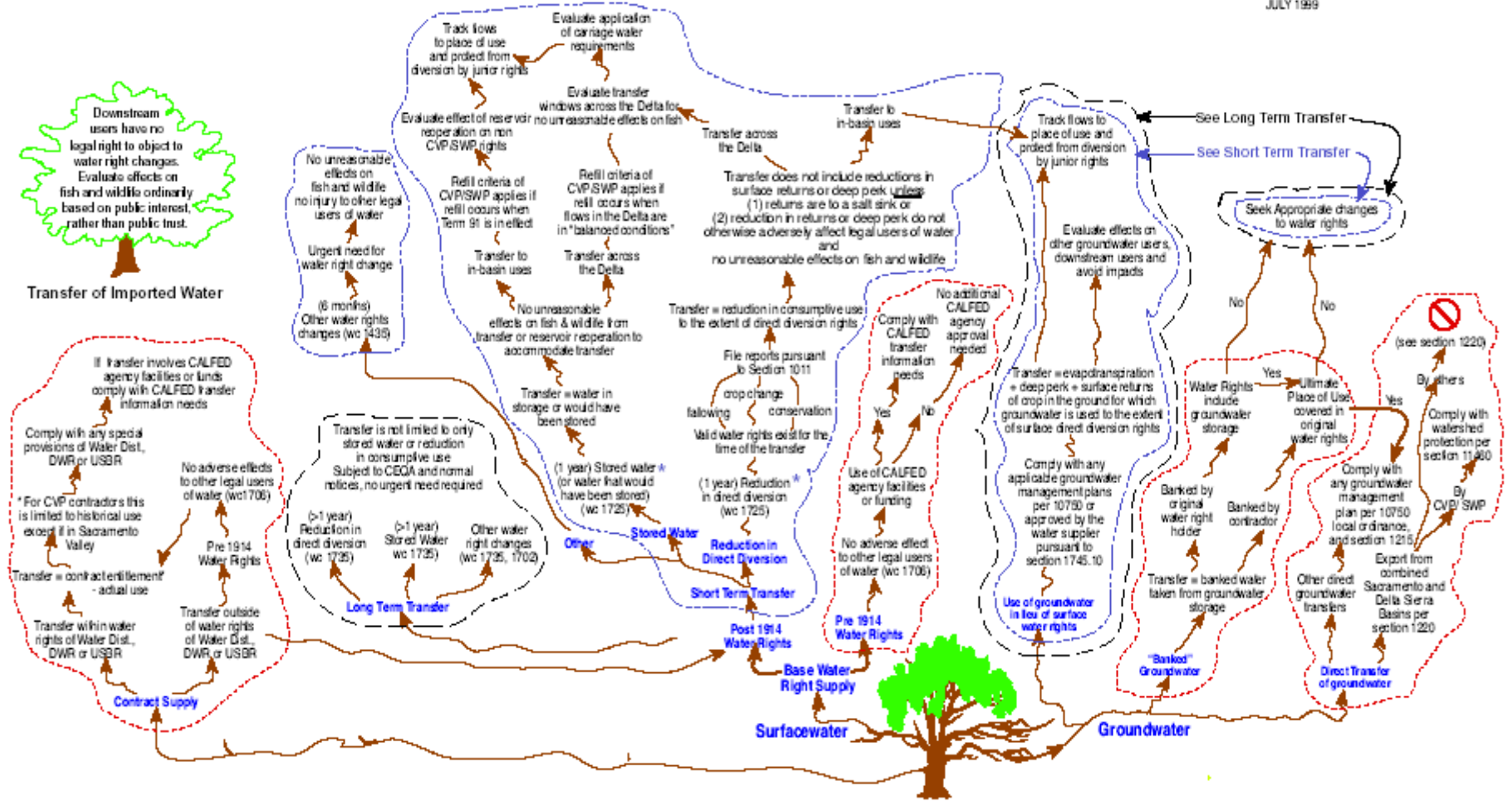
JULY 1999

LEGEND

- No SWRCB approval needed
- Expedited processing procedures via the water code
- ★ Exempt from CEQA
- No special expedited procedures

Downstream users have no legal right to object to water right changes. Evaluate effects on fish and wildlife ordinarily based on public interest, rather than public trust.

Transfer of Imported Water



Not an alternative to Desal

- Does not provide water to Santa Cruz in a drought. Santa Cruz needs 1,600 af/yr
- Does not provide enough water to Soquel, which needs 1,880 af/yr
- Basin recovery in Scotts Valley and Soquel will take a long time
- Long term groundwater sustainable yields will be affected by climate change

Next Steps

- Circulate proposed approach for discussion
- Further fine-tune operations on a daily basis with all participating water systems
- Consult with resource agencies and develop additional fishery data if needed
- Develop and pursue water rights strategy for short term transfers and long term transfers
- Develop designs and cost estimates for pipes and infrastructure
- Develop cooperative agreements and environmental documents
- Construct necessary infrastructure
- Start moving water