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

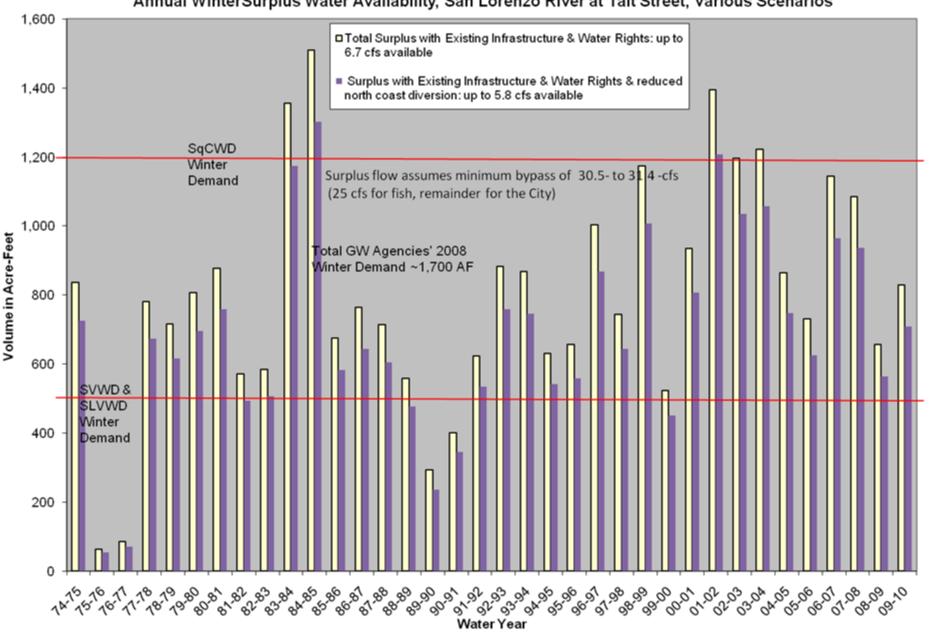
Date	Mean Daily SLR Flow at Big Trees (CFS)	Available Flow Greater than 30.5, less than 300 cfs. (5.5 cfs SCWD use)	Available Flow Greater than 31.4, less than 300 cfs (6.4 cfs SCWD use)	Max divertable flow in cfs based on current infrastructure rights and SCWD use, up to 6.7 cfs div	Max divertable flow 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				

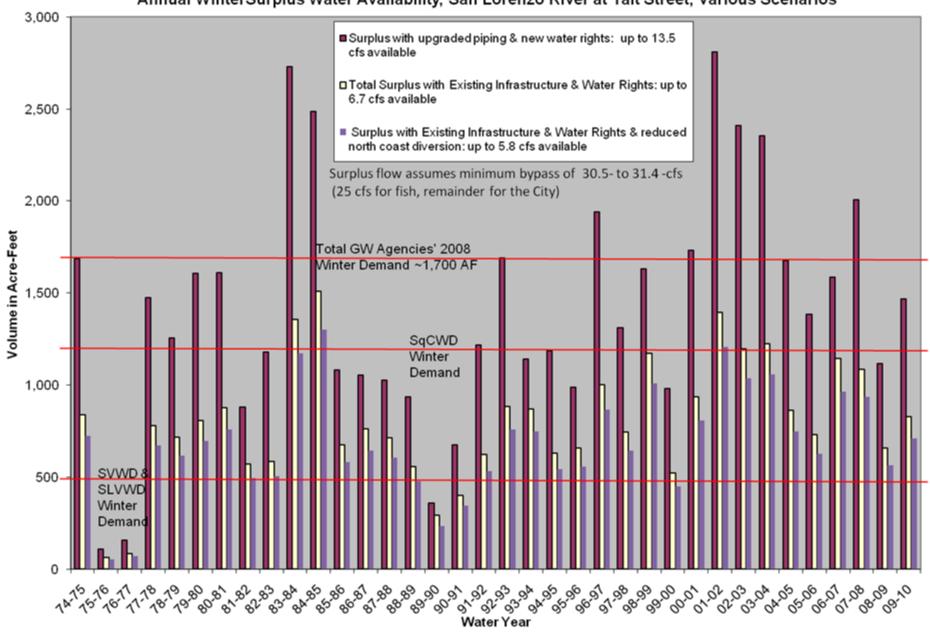
Potential Benefits

- 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 WinterSurplus Water Availability, San Lorenzo River at Tait Street, Various Scenarios



Annual WinterSurplus 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

LEGEND WATER TRANSFER DECISION TREE ---- No SWRCB approval needed ---- Expedited processing procedures via the water code Exempt from CEQA STATE WATER RESOURCES CONTROL BOARD Division of Water Rights No special expedited procedures JULY 1999 Evaluate application Track flows of carriage water to place of use and protect from diversion by junior rights Evaluate transfer windows across the Delta for Transfer to Downstream Evaluate effect of reservoir no unreasonable effects on fish Track flows to See Long Term Transfer 🛶 in-basin uses users have no reoperation on non Transfer across place of use and legal right to object to CVP/SWP rights the Delta protect from diversion See Short Term Transfer No unreasonable water right changes. by junior rights effects on Refill criteria of Evaluate effects on Transfer does not include reductions in Refill criteria of fish and wild fie CVP/SWP applies if surface returns or deep perk unless fish and wildlife ordinarily CVP/SWP applies if no injury to other legal refil coours when (1) returns are to a salt sink or based on public interest, < Seek Appropriate changes refill occurs when users of water flows in the Delta are (2) reduction in returns or deep perk do not. rather than public trust. Term 91 is in effect to water rights in "balanced conditions" Evaluate effects on otherwise adversely affect legal users of water, other groundwater users, Urgent need for Transfer to Transfer across no unreasonable effects on fish and wildlife downstream users and water right change avoid impacts in-basin uses the Delta Transfer of Imported Water No additional (6 months) No unreasonable CALFED Transfer = reduction in consumptive use Other water rights effects on fish & wildlife from agency to the extent of direct diversion rights. changes (wc 1435) CALFED approval transfer or reservoir reoperation to (see section 1220) transfer needed accommodate transfer File reports pursuant If It ansfer involves CALFED information b Section 1011 Transfer = evapotranspration agency facilities or funds peeds By others + deep perk + surface returns | Water Rights Ultimate | comply with CALFED transfer Transfer = water in grop change Place of Use of ground for which indude information needs storage or would have conservation covered in groundwater is used to the extent! groundwater Comply with been stored original Transfer is not limited to only of surface direct diversion rights storage watershed Comply with any special Valid water rights exist for the water rights protection per provisions of Water Dist. stored water or reduction time of the transfer sector 11,460 in consumptive use DWR or USBR Comply with any No adverse effects (1 year) Stored water * Subject to CEQA and normal Use of CALFED Comply with applicable groundwater (or water hat would to other legal users (1 year) Reduction * notices, no urgent need required agency facilities any groundwater Banked by management plans of water (wc1706) have been stored) in aired aiversion management * For CVP contractors this or funding per 10750 or original CVE SWP (wc 1725) Banked by (wc 1725) plan per 10750 is limited to historical use (>1 year) water right approved by the contractor local ordinance. Reduction in (>1 year) Other water except if in Sacramento hdder water supplier and section 1215 Stored Water Valley Pre 1914 direct diversion right changes (wc 1735, 1702) Reduction in No adverse effect pursuant to wc 1735) (wc 1735) to other legal users Export from Water Fights irect Diversion section 1745.10 of water (wc 1706) combined Transfer = contract entitlement Transfer = banked water Other direct Sacramento and actual use groundwater Short Term taken from groundwater, Delta Sierra transfers Transfer outside in feu of surface Basins per Pre 1914 of water rights Transfer within water Post 1914 section 1220 rights of Water Dist., of Water Dist., DWR or USBR DWR or USBR Direct Transfer Right Supply

Groundwater

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