Cleath-Harris Geologists, Inc.
71 Zaca Lane, Suite 140
San Luis Obispo, CA 93401
(805) 543-1413

October 6, 2014

Mark Hutchinson, Public Works Department
Kami Griffin, Planning and Building Department
County of San Luis Obispo
County Government Center
San Luis Obispo, CA 93408

SUBJECT: Draft Ordinance Regulating the Exportation of Groundwater

Dear Mr. Hutchinson and Ms. Griffin:

I have concerns that this proposed draft ordinance will result in many consequences that would not benefit the County of San Luis Obispo. The Santa Maria and Cuyama Groundwater Basins underlie both San Luis Obispo County and Santa Barbara County. The Paso Robles Groundwater Basin underlies both San Luis Obispo County and Monterey County. Groundwater management should not be regulated based on County limits. There are currently conditions that exist where groundwater/surface water is moved across county lines both into and out of San Luis Obispo County in these basins for improved management or beneficial use. Permitting such activities and regulating the water rights (including groundwater and water use) is either under the State Water Resources Control Board or through Court mandated management organizations. County of San Luis Obispo ordinances and regulations must not invade the responsibilities given to these agencies.

Some people have raised the possibility that groundwater could be sold to water users outside of the County or outside of groundwater basins. While anything is possible, not all things are probable. The potential for sale of water from the Paso Robles Groundwater Basin (or any other basin in the County) to users outside of the County has not been proven and may not require regulating. While regulations can be an important aspect of managing resources, they also can delay and inhibit needed management activities.

Because of these concerns, the County should not adopt this ordinance.

Very truly yours,
CLEATH-HARRIS GEOLOGISTS

Timothy S. Cleath
President

Fw: BOS "no export ordinance" draft
Mark Hutchinson to: Mark Hutchinson 10/21/2014 09:50 AM

Mark Hutchinson, Deputy Director
San Luis Obispo County Department of Public Works
805.781.5252

PUBLIC WORKS
SAN LUIS OBISPO COUNTY

----- Forwarded by Mark Hutchinson/PubWorks/COSLO on 10/21/2014 09:49 AM -----

From: Carol Rowland <crowland@wildblue.net>
To: mhutchinson@co.slo.ca.us
Cc: Debbie Arnold <darnold@co.slo.ca.us>
Date: 10/08/2014 10:14 AM
Subject: BOS "no export ordinance" draft

Dear Mark,
I live in Creston, and have just read the BOS No Export Ordinance draft.

I have some comments and questions. Hopefully these can be addressed at the upcoming CAB meeting on October 15th.

It looks like this No Export Ordinance is set up for requests to export groundwater from the PR Basin to go through the Dept. of Public Works.

This is the most disturbing thing I found:

8.92.40 Exemptions.

This chapter shall NOT apply to the export of groundwater in the following circumstances:

F. Exportation by the county or the San Luis Obispo County Flood Control and Water Conservation District or their contractors;

It looks like the County, including their persona as the SLO County Flood Control and Water Conservation District or their contractors, are exempt from this ordinance.

I wonder why, if the BOS (and/or the Flood Control and Water Conservation District or their contractors) do NOT have the intent to export the water, are they writing this Ordinance specifically exempting themselves?

Procedures for processing a request

I also find this disturbing re the Procedures for processing a request to export water. It looks like all the power is in the hands of the "director" - (the county Director of Pub Works) and is

designed to be conducted in a way NOT "with formal rules of evidence", but instead "under rules as set by the director" - and that the final decision on the permit will be made by this director and it will be pretty much, well, final (subject to appeal to BOS, I think - so it's a closed loop circle??).

8.92.20 Definitions. E. "Director" means the county Director of Public Works and Transportation or his or her designee.

8.92.60 Procedures for processing.

C. Upon completion of the environmental review and export permit application review process, a public hearing before the director ("Director" i.e. the county Director of Public Works and Transportation or his or her designee as defined in 9.92.20 E above - my note) on the export permit application shall be noticed and conducted as follows:

2. Public hearing. A public hearing on an export permit shall occur only when a hearing is requested by the applicant or other interested person(s). This request shall be made in writing to the director no later than seven days after the date of the public notice provided in compliance with subsection C.1 of this Section 8.92.60. In the event that a public hearing is required, the export permit application shall be scheduled for a hearing on the date and time as defined in the public notice. Any person may provide written comments relevant to the impact of the extraction and transfer of groundwater on the groundwater resources within the county. The hearing shall not be conducted with formal rules of evidence, but rather shall be conducted under such rules as set by the director for the expeditious presentation of the matter and relevant information by the applicant and by other interested parties.

3. Final decisions on export permit applications. Immediately after the conclusion of public testimony in the case of a public hearing, or after the time period within which a hearing may be requested under subsection C.2 of this Section 8.92.60 if no hearing is requested, the director shall:

(a) Announce his or her decision on the export permit application;

(b) Announce that his or her decision is final unless appealed pursuant to subsection D of this Section 8.92.60 (the BOS, it think - my note).

And finally, re conditions of export permit approval,

4. **8.92.80 Conditions of export permit approval.**

If the export permit is to be approved, the director shall impose appropriate conditions of permit issuance so as to prohibit and prevent any significant detrimental impacts to groundwater …

Such a monitoring and/or reporting program may include, but shall not be limited to, amounts of groundwater pumped, monitoring of wells, monitoring of groundwater levels and monitoring of vegetation and wildlife.

May include? How about MUST include? "May" has no teeth and no guarantees.

As far as the rest of the Draft goes, I would like to know
Where the exports would be going.
And under what circumstances?

And who would have first dibs on any water that had been banked in the basin?

Thank you for you consideration of my concerns,
Carol Rowland
Creston, CA

comments on Exportation of Groundwater Ordinance amendment to Chapter 8.92
Dana Merrill
to:
mhutchinson@co.slo.ca.us
10/10/2014 03:56 PM
Cc:
"kgriffin@co.slo.ca.us"
Hide Details
From: Dana Merrill <DMerrill@mesavineyard.com>

To: "mhutchinson@co.slo.ca.us" <mhutchinson@co.slo.ca.us>

Cc: "kgriffin@co.slo.ca.us" <kgriffin@co.slo.ca.us>

History: This message has been forwarded.

My comments are as follows:

1. Paragraph 8.92.40 Exemptions: D: "Contiguous parcels with historical practice" are exempted. I think that is too limiting. Many ranching operations and vineyards have multiple legal parcels or APNs. Often wells are sited on one or only a few of the total parcels owned. And at times, additional acreage may be acquired and added. It is not reasonable in these cases to have to seek specific authorization to move water to a parcel that had not "historically" been served. I would strike "historical practice" from the section.

2. Paragraph F exempts the County from having to comply with its own ordinance. Why is this? 3 south county supervisors could vote to transfer water from the north to the south and nothing could be done about it. That could be changed to require the vote of the two north county supervisors perhaps or removed altogether

I oppose exportation of water outside the County and the even the Paso Robles Basin unless it is part of a reciprocal agreement that results in neutrality. Water historically has been moved south with none moving north which has decreased our groundwater supplies

Thanks for the chance to comment

DM

Dana M. Merrill
1220 Beaver Creek Lane
Paso Robles, CA 93446

SAN LUIS OBISPO COUNTY

DEPARTMENT OF PLANNING AND BUILDING

THIS IS A NEW PROJECT REFERRAL FOR AN ORDINANCE AMENDMENT

RECEIVED
OCT 0 2 2014
BY: BSG

DATE: 9/30/2014

TO: Los Osos CSD
PO Box 6064
Los Osos, Ca 93412

FROM: Mark Hutchinson, mhutchinson@co.slo.ca.us / Kami Griffin, kgriffin@co.slo.ca.us

PROJECT DESCRIPTION: LRP2014-00008 County of San Luis Obispo - Referral of Proposed Amendment to Title 8 of the County Code to add Chapter 8.92 regarding regulation of the exportation of groundwater.

The proposed amendments will add a new chapter to Title 8 (Health and Sanitation) of the County Code. The purpose of the chapter will be to create a permit for the export of groundwater outside of the county and for the export of groundwater outside of the basin from which it is extracted.

According to the California Department of Water Resources (DWR) Bulletin No. 118 (Bulletin 118), there are twenty two (22) groundwater basins that underlie, either in whole or in part, the County. Bulletin 118 contains descriptions of each delineated groundwater basin in California. The proposed amendments would prohibit the exportation of more than ½ acre foot per year to a location outside of the groundwater basin from which it was extracted or outside of the county without first obtaining an export permit. There are specific exemptions defined in the proposed amendments, as well as a process for obtaining the export permit.

The Board of Supervisors is requesting your input on the attached public review draft amendments. Please provide your comments by October 17, 2014 either by using this form or via separate document. You may also choose to comment by participating in the public hearing on these amendments. This hearing is tentatively scheduled for November 2014.

RESPONSE:

THE LOS OSOS C.S.D WOULD LIKE TO SEE ADJUDICATED GROUNDWATER BASINS AND/OR BASINS WITH A RESOURCE MANAGEMENT SYSTEM SEVERITY LEVEL III BE EXEMPT FROM THIS TITLE 8 AMENDMENT.

10/15/14 — Date
MARGARET FALKNER — Name
(805)528-9376 — Phone

Heritage Ranch Community Services District
4870 Heritage Road, Paso Robles, California 93446
(805) 227-6230 • Fax (805) 227-6231
www.heritageranchcsd.com

October 17, 2014

Mark Hutchinson, Public Works Department
Kami Griffin, Planning and Building Department
County of San Luis Obispo
County Government Center
San Luis Obispo, California 93408

Re: Draft Ordinance Regulating the Exportation of Groundwater

Dear Mr. Hutchinson and Ms. Griffin:

The Heritage Ranch Community Services District (HRCSD) has concerns the proposed ordinance will eliminate the option of HRCSD to access any groundwater in our County. As you may know, HRCSD is entirely reliant on surface water from the Nacimiento Reservoir as our water source. Any loss or major disruption to this water source will equate to damage to an essential public service and negatively impact the lives and well-being of 3,500 residents, a public school, and commercial businesses. Nacimiento has been a very reliable water source but during multi-year drought periods the reservoir can lower to an elevation where water will no longer be available to lakeside users. There is no groundwater basin within the District's boundaries. The remote option of accessing groundwater from any area of our County must be maintained to preserve the health and safety of our community.

The HRCSD's emergency water plans include importing water needed for fire protection and the health and safety of the community via truck transport. The proposed ordinance will create a new permit process the HRCSD would have to process in the event groundwater was needed from one of our neighboring groundwater basins. Pursuant to the draft ordinance this permit provides for environmental review, public hearings/notices and discretionary actions. If any community in our County is without water, we should all be focused on providing water not processing self-imposed permits and regulations.

HRCSD believes the proposed groundwater exportation ordinance as is currently written will negatively impact local water agencies that may need emergency access to groundwater. Suggested language changes include exemptions for county based water agencies in need of any groundwater source, exportation restriction limited only to outside of County boundaries, or simply no groundwater exportation ordinance.

Sincerely,

John D'Ornellas
General Manager
Heritage Ranch Community Services District

Fw: Paso Basin Advisory Committee Follow up : Ordinance Regulating the Exportation of Groundwater

Mark Hutchinson to: Mark Hutchinson 10/24/2014 08:17 AM

Mark Hutchinson, Deputy Director
San Luis Obispo County Department of Public Works
805.781.5252

PUBLIC WORKS
SAN LUIS OBISPO COUNTY

----- Forwarded by Mark Hutchinson/PubWorks/COSLO on 10/24/2014 08:16 AM -----

From: "Sue Luft" <asluft@wildblue.net>
To: "Mark Hutchinson" <mhutchinson@co.slo.ca.us>, "Kami Griffin" <kgriffin@co.slo.ca.us>
Date: 10/22/2014 10:23 PM
Subject: Fw: Paso Basin Advisory Committee Follow up: Ordinance Regulating the Exportation of Groundwater

Mark/Kami,

Since the exportation of water from the Paso basin would be limited by a permit system, this system should be as stringent as possible. One concern is that the public be informed that they have an opportunity to comment.

The application for an export permit should not only be sent to the potentially impacted local agencies, it should also be sent to all landowners within a mile radius. The application should be sent to a larger radius if less than 10 landowners live within that radius. Also, the Paso Basin Advisory Committee and other advisory committee should be notified. These notifications should be in addition to the hearing notice that these property owners will receive.

Thanks,

Sue Luft
4561 Almond Drive
Templeton, CA 93465

From: choward@co.slo.ca.us
Sent: Friday, October 17, 2014 12:47 PM
Subject: Paso Basin Advisory Committee Follow up: Ordinance Regulating the Exportation of Groundwater

Fw: Ordinance Regulating the Exportation of Groundwater
Mark Hutchinson to: Mark Hutchinson 10/21/2014 08:39 AM

Mark Hutchinson, Deputy Director
San Luis Obispo County Department of Public Works
805.781.5252

PUBLIC WORKS
SAN LUIS OBISPO COUNTY

----- Forwarded by Mark Hutchinson/PubWorks/COSLO on 10/21/2014 08:39 AM -----

From: Donna <ellisd93461@yahoo.com>
To: "mhutchinson@co.slo.ca.us" <mhutchinson@co.slo.ca.us>
Date: 10/20/2014 04:22 PM
Subject: Ordinance Regulating the Exportation of Groundwater

Mark,
I oppose 8.92.40 F of the Draft Ordinance Regulating the Exportation of Groundwater where SLO County and their contractors are exempt from the proposed permitting process.

I also oppose any exportation of water whatsoever from the groundwater basins within the county to outside of the county, 8.92.10 K

Thank,
Donna Ellis
278 Mesa Grande Dr
Shandon, Ca. 93461-9714

Mark Hutchinson & Kami Griffin Oct 20, 214

SLO Planning Dept.

Re: LRP2014-00008 Title 8 Chapter 8.92

The Templeton Area Advisory Group discussed the Project and voted to have our Water Issues Subcommittee send this letter of suggested changes. This was presented to us at our Oct 16 meeting, and we were told that evening to send our comments prior to this Friday. I will follow the format of the draft Ordinance to save time retyping the draft.

TAAG comments: As presented as a regulatory tool to prevent water exportation from critical resources, this Ordinance is entirely too permissive, without critical standards of resources protection.

Section 1 8:92:10 findings

F. TAAG does not believe the Templeton and Atascadero sub-basin area are contiguous and part of the Paso Robles sub-basin, in the Salinas Valley groundwater basin. The County's inclusion and exclusion is inconsistent in various documents and references. The sub-basins are distinct and the fact that the County has declared the Paso Robles sub-basin to be in LOS 3, but both the Templeton and Atascadero sub-basins are in LOS 1, defines a hydrological separation. By using CA Bulletin 118, the Paso Robles sub-basin is defined by an area east of the San Marcos-Rinconada Fault. The Templeton/Atascadero sub-basins exist west of this fault. TAAG requests a specific designation and separation from the Paso Robles sub-basin.

I & K conflict

Section 8:92:40

F. TAAG feels the County is self-dealing and has a huge conflict of interest by exempting itself and "its" contractors. The export of water from any basin would be de facto eminent domain without due process.

G. A half-acre export by hundreds of Over-lying rights holders in a given area, with exemption,

is a recipe for disaster.

Section 9:92:60

A. Noticing should be to all water rights owners in the effect sub-basin.

B. Remove the first sequence: "As determined in the judgment of the director". Start the sentence

"The director **must** review…"

C. 1. (c) The exterior boundaries of the noticing area should be the water sub-basin from which

the water export permit would be drawing from.

2. Public Hearings should be mandatory, period. The whole effort by the County to control water resources is undermined by a permissive and discretionary permit process.

3. Director should have a week to decide the permit status after the mandatory hearing. Other language should be removed.

F. Add a Agricultural Resource committee review on any water exports from Ag lands. The committee should be appointed from a structured group of Ag experts and Ag land owners of various crop production, land size, and resource expertise. The committee should not have County officials or employees allowed, save for a recording only clerk.

Section 8:92:70

A. An export permit shall not be considered if the County has declared a LOS 2 or LOS 3 for the given water sub-basin the permit would draw from. Furthermore, if permits are active in a given sub-basin, they shall be immediately revoked upon the County declaring an elevated LOS 2 or LOS 3 in the source sub-basin.

Section 8:92:80

IF a water export permit is approved, it should be immediately voided by a decrease in water resources, including a County LOS 2 or LOS 3 declaration.

Thank you for including TAAG's comments and concerns in your review.

David C. La Rue

Chairman

TAAG

Creston Advisory Body

Chairperson: Sheila Lyons Ph. (805) 239-0917, P. O. Box 174 Creston, CA 93432 salyons@airspeedwireless.net

October 22, 2014

Mark Hutchinson, Deputy Director Public Works Department - mhutchinson@co.slo.ca.us
Kami Griffin, Assistant Director Planning and Building Department – kgriffin@co.slo.ca.us
San Luis Obispo County
San Luis Obispo, California 93408

Re: LRP2014-0008 County of San Luis Obispo – Referral of Proposed Amendment to Title 8 of the county code to add Chapter 8.92 regarding regulation of the exportation of groundwater.

Dear Mark and Kami,

The Creston Advisory Body (CAB) met on October 15, 2014 at the Creston Community Church for a regularly scheduled meeting. One topic of discussion was the proposed amendment referenced above. Mark Hutchinson from the County Public Works Department was present for these discussions. Also present was broad representation from the Creston community including rural residents at large, a PRAAGS board member, a PWE board member, members of North County Watch, members of Creston Citizens for Ag Land Preservation and a diverse group of local ranchers and agriculturists.

All members of the CAB, as well as members of the public, who expressed their concerns were unanimous in stating that the language used in the proposed amendment needs to be strengthened to restrict the ability to export water from the Paso Robles Groundwater Basin (Basin).

The following comments were delivered by CAB members and members of the public.

1. Initial reactions to the amendment were strong opposition to allowing for the County to be exempt from requiring a permit for itself or its contractors. However, the final comments on this topic were that language must be included requiring that the County meet the same standards as any other applicant before allowing exportation under its authority, even though the County does not require a permit. These conditions should apply to any individual or entity contracted by the County who are pumping from the basin.

2. This ordinance should apply to all individuals and entities over the Basin including, but not limited to, overliers, cities, CSDs and purveyors of any kind. Those entities with powers of authority separate from the County but not subject to County regulations should be required to enter into Joint Powers agreement with the County and all others with the potential to export water from the Basin.

3. Too much authority is being given to the Director of Public works in allowing that individual to be the final decider on whether an applicant is granted a permit. At the very least, any application for a permit to export water should be referred to the local Citizen's Advisory Council like any other project request. Additionally, we would like to see the approval of any permit placed on the Board of Supervisor's consent calendar.

4. We do not believe that water from the Paso Robles Groundwater Basin (Basin) should be exported from the County to any other County, nor to we believe that water from the Basin should be exported/delivered to any other part of San Luis Obispo County. No water should be allowed to leave the Basin as long as the Basin remains in a Severity Level III or in Critical Overdraft (as defined by the State Department of Water Resources).

5. Section 8.92.70 “Findings required for export permit approval” list criteria that are very non-specific using the word “significantly” without any measurable standards making it difficult, if not impossible, to perform an unbiased objective evaluation of potential harm. Language needs to be more explicit and quantifiable.
    a. Applicants should be required to provide hydrological engineering information showing that the withdrawal of water from any well will not cause a cone of depression in the water table beyond the boundaries of the parcel upon which the well is located. The drawing down of neighboring wells that cannot be recharged within a pre-determined reasonable amount of time (specify the amount of time) is prohibited.
    b. As an additional assurance that unreasonable draw down can not occur, water cannot be exported from a well that is within 1000 feet, or some reasonable specified distance, of any neighboring well.

6. Notification must be mailed to all properties within one mile of the project and a public hearing shall occur if requested within 15 days of the public notice (7 days is too short).

7. 8.92.80 “Conditions of export permit approval” – must include conditions stating that once the exportation begins, if there are complaints from properties in the vicinity indicating that their wells are being negatively impacted, an immediate investigation will occur and the potential exists that the permit may be revoked. If they continue to pump, with or without a permit, the applicant should be responsible for the costs incurred by the adjacent property owners for rectifying their negative impacts/losses (such as fees to lower their well pump or to drill a new well, and for water and the hauling water in the interim if necessary).

8. 8.92.80 “Conditions of export permit approval” – must include a statement that the data collected from the monitoring and/or reporting program must be available to the public. This will allow neighboring properties owners who believe they are being negatively impacted through no fault of their own access to this information. This section should make it clear to applicants that they can be held accountable and their permits revoked if their actions harm other landowners in the area.

9. Nowhere in the document does it distinguish between “foreign” or “native” water. If there are any projects, now or in the future, which bank or inject water from sources other than the Paso Robles Groundwater Basin we are asking that that water (foreign water) be required to remain within the Basin, with no exportation allowed. Once “foreign” water is comingled with “native” water it is indistinguishable. Additionally leakage from any source can not be measured and ownership can not be determined, therefore to prevent depletion of the aquifer, all water that goes in the Basin should stay in the Basin for replenishment purposes, this being beneficial to all Basin overliers.

10. The amount of water (0.5 AF) specified as the upper limit before a permit is required is too high. Half an Acre Foot is generally considered to be enough water to supply one

household for one full year. Half an Acre Foot is 15 to 30 semi-tanker truckloads and in the neighborhood of 54 truckloads for a typical water truck. An example has recently been brought to the attention of some members of our community here in Creston where a local landowner is filling a water truck (close to 10 loads so far) to deliver water to a winery west of Highway 101 for the purposes of filling a moat around the winery (castle). Supposedly this water will be used for frost protection this winter??? The winery west of Hwy 101 is not over the Paso Robles Basin and should not be taking, or purchasing water, from the Basin for any purpose. This ordinance must have language to prevent such occurrences. Again, it is our opinion that no water, of any quantity, should be allowed to leave the Basin, as long as the Basin is at a Severity Level III or in Critical Overdraft.

11. It is our understanding that groundwater that is pumped into ponds becomes surface water after 30 days. Language needs to be placed in this ordinance that prevents water from ponds filled with water pumped from the Basin, Ag or otherwise, from being exported from the Basin.

12. Section 8.92.50 “Application for an export permit” – This section mentions “the deposit of fees” in the last sentence, however, there are no actual numbers mentioned regarding the amount of the fees.

13. Section 8.92.120 “Export permit term.” - The length of each permit is set at 1 year. Before a permit can be renewed an assessment of the impacts of withdrawing water must be performed. The neighbors within a mile of the exporting well, and other interested parties, should be notified by mail and asked to respond as to whether there has been any negative impact as a result of the issuance of the original permit. They must be given 15 days to respond. Additionally, if the full amount of water allowed with a permit is not exported in a given year the “unused” water shall not be allowed to be carried over into future years. Water not exported under the 1 year permit must remain in the Basin.

14. Section 8.92.160 “Termination Date” – states that this ordinance “shall expire _____ (5 years from the effective date), etc.” We believe the Public Works Department should report annually on the success or failure of this ordinance to determine if the ordinance is achieving its desired end or if it needs to be reworked to become more effective. With the annual reporting it will be easier to determine whether the ordinance should be extended at the end of 5 years.

15. This ordinance has no clear provisions for enforcement. The current “no exportation of water” ordinance as written would be much like the Urgency Ordinance once the liberal vested rights provisions went into place, allowing for massive loopholes and making it impossible for local property owners to know if violations are occurring. The only way to ensure enforcement of this ordinance is to require anyone hauling water to obtain a permit (fees waived) for the limited amount of water they are allowed to haul and with a method of checking that they are staying within their allowed limits. An official record sheet could be provided on-line to be printed out and used for the following tracking purposes. For example, recording of the pick up location, date, time, quantity of water being transported, destination and any other essential information must be required before the truck enters the roadway. Delivery date, time and quantity of water delivered must be recorded at the destination at the time of the delivery. All trips from the same well to the same destination must be recorded on the same sheet

and sent to the Public Works Department once the transportation is completed. Haulers would be subject to fines if they are stopped by any law enforcement officer and do not have their paperwork filled in appropriately at the time of the stop. Additionally, haulers must be required to produce this paperwork for any citizen who asks to review the hauling records.

16. Hauling of water within the boundaries of the Basin from one property owner to another property owner (both being Basin overliers) for emergency purposes must be allowed. However, the receiving property owner must have either a dry well or a compromised well for this to occur. Haulers in this circumstance should also be required to enter the information indicated in Item #15 above on a tracking sheet during transportation and send the tracking sheet to the Public Works Department afterwards. This would be beneficial to the County and their ability to track distressed wells over the Basin.

17. The definitions section of the document need to be expanded and the definitions need to be further clarified. The following items were mentioned in particular: surplus water, surface water, site, native water, foreign water, contractor (Are CSD's contractors?). However, more review of this list of definitions should occur to make it more inclusive and clearer.

The CAB voted unanimously, with the full support of the public in attendance, to provide the above comments to the Public Works and Planning & Building Departments. It was stated multiple times in the course of the discussion that the language in the "No Water Exportation" ordinance be rigorous, tightened, and overall strengthened to eliminate any opportunities for an exporter to harm the neighbors of the property exporting water, or the Basin.

Sincerely,

Sheila Lyons
CAB Chairperson

cc: Debbie Arnold, Supervisor 5th District San Luis Obispo County

draft on export ordinance
Karl and Laurie Gage
to:
mhutchinson, kgriffin
10/22/2014 06:53 AM
Hide Details
From: "Karl and Laurie Gage" <fullsail@onemain.com>

To: <mhutchinson@co.slo.ca.us>, <kgriffin@co.slo.ca.us>

History: This message has been forwarded.

Thank you for your hard work on the export ordinance, and for the various public presentations. I would like to submit the following comments:

1. I would strongly urge that the County and/or the Flood Control District be included in the ordinance.
2. Lacking the ability to fulfill #1, I would strongly urge that the County and/or the Flood Control District be required to meet the requirements of an export permit even though they would not be required to actually obtain a permit.
3. I would request that you include written mailed notification to landowners within a specific radius (suggest 1 mile) of a potential export site for comments and input to be added to the findings for the permit. Please do not rely on people submitting "I am interested" notifications in advance, though you could include those, too. A written mailed notice is most appropriate.

Thank you for the opportunity to submit comments.

Laurie Gage
Full Sail Farm
5715 Linne Road
Paso Robles, CA 93446
fullsail@onemain.com
805-238-2802/805-610-6073
FAX 805-238-2899

Export Ordinance
Steve Sinton
to:
mhutchinson, kgriffin
10/22/2014 02:13 PM
Hide Details
From: "Steve Sinton" <sjsinton@earthlink.net>

To: <mhutchinson@co.slo.ca.us>, <kgriffin@co.slo.ca.us>

History: This message has been forwarded.

I wish to make the following comments on the proposed export ordinance on groundwater.

The Groundwater definition [8.92.20] should mean "native" water "that originates" beneath the surface of the earth … but does not include "subsurface" water that flows in known and definite channels.

8.92.40 Exemptions: Inclusion of "contractors" in section F is so unlimited that it could include people who do road work or sell supplies to the County on a contract basis.

I believe this entire section should be removed as it sends the wrong message about how serious the County is in having such an ordinance. Besides, the County wrote the ordinance, so it can change it in the future if it really needs to.

Steve Sinton

North County Watch

Looking Out Today For Tomorrow

County of San Luis Obispo
Department of Public Works
Department of Planning and Building
San Luis Obispo, CA 93406
Via Email mhutchinson@co.slo.ca.us
kgriffin@co.slo.ca.us

October 23, 2014

RE: Comments on Draft Exportation Ordinance

Dear Mr. Hutchinson and Ms. Griffin,

Thank you for the opportunity to comment on the Draft Exportation Ordinance. The language in the Draft Ordinance is appropriate for the most part and we wholly support an Exportation Ordinance. We believe the following suggestions will improve the ordinance and make the process much more transparent.

8.92.40(F) Exemptions – Exempting the County or the Flood Control and Water Conservation District and its contractors defeats the purpose of the ordinance because the exemption is much too broad, is at odds with and defeats the purpose of Findings and Declarations 8.92.10. Specifically exemption 8.92.40(F) is contrary to Findings 8.92.10(C), (D), (G), (H), and (I). The county and its subcontractors hold no special position that supports exempting the county from the regulation. Although the argument is made that the county and its subcontractors would be subject to CEQA review if they were to initiate a project that involved exportation of water, requiring the county to apply for an exportation permit would not pose much additional effort by the county and complies with the Findings cited in 8.92.10. The county should not be exempted from complying with the ordinance.

8.92.40(G) Exemptions – Exemption G should be reduced to one-quarter acre foot per year.

8.92.60 Procedures for processing - We request that in addition to the notification procedures outlined that a notice of application be placed at the end of the Board of Supervisors Agenda just as notice of environmental documents are listed on the Agenda. Also, Planning and Public Works policy should require that the environmental document for a permit be listed in the BoS Agendas WEEKLY REPORT OF ENVIRONMENTAL DOCUMENTS AVAILABLE FOR REVIEW. Upon determination by the Public Work's Director to issue or deny a permit, we request that the final step to approval require that the approval or denial of a permit be placed on the Board of

North County Watch P.O. Box 455 Templeton, CA 93465
501(c)(3) nonprofit corporation (77-0576955)

Supervisors' Consent Agenda. Action by the Board on the permit on the Consent Agenda would trigger a 30-day period for Request for Reconsideration before the permit became effective.

8.92.60(C)2 Public Hearing - The period for written request of a public hearing should be at least 15-30 days. The draft language sets the cutoff for written request of a hearing at seven days.

The Public Works Director should have the discretion to hold a public hearing for a permit even if no request has been made by the public or applicant.

If a public hearing occurs, the proceedings should be recorded and the made available to the public.

8.92.100 Appeal of director action – The appeal period should be 30 days.

Thank you for your consideration of our comments.

Sincerely,

Susan Harvey, President
(805)239-0542

CC: Boardofsupes@co.slo.ca.us

RE: Ordinance Regulating the Exportation of Groundwater

I commend the County of San Luis Obispo for attempting to maintain the aquifers of San Luis Obispo County and attempting to find a way to protect overlying water users from potential mining activities of their neighbors. However, I do believe there is one aspect of the proposed ordinance that needs to be clarified.

Section 1: 8.92.40 Exemptions Item F

County powers need to be defined and restricted in order to safeguard private landowners. As currently written it appears that the County can export water for unspecified purposes without the permitting restraints that are imposed on others.

Regards,

Ann Myhre (Property owner in Shandon Paso Robles, Cuyama, areas)

PO Box 459, San Ardo CA 93450

October 24, 2014

Proposed County GW Exportation Ordinance
Michael LeBrun
to:
mhutchinson@co.slo.ca.us, kgriffin@co.slo.ca.us
10/24/2014 02:30 PM
Hide Details
From: Michael LeBrun <mlebrun@ncsd.ca.gov>

To: "mhutchinson@co.slo.ca.us" <mhutchinson@co.slo.ca.us>, "kgriffin@co.slo.ca.us" <kgriffin@co.slo.ca.us>

History: This message has been forwarded.

2 Attachments

image001.png image002.png

Mr. Hutchinson and Ms. Griffin (Mark and Kami),

The Nipomo CSD Board of Directors considered the County's draft ordinance that would require a permit for exportation of groundwater outside the County and outside the basin from which it was extracted.

The Board directed the following comments:

Consider striking the 'County boundary' language and thereby limiting the ordinance to regulation of outside of basin transfers. Since a number of the County's groundwater basin cross county lines, as written, the ordinance could result in unintended consequences such as hindering basin management efforts that are currently being pursued.

The Santa Maria groundwater basin is a good example in that the basin is overlain by both Santa Barbara and San Luis Obispo County and one of the basin management approaches being pursued by the District will result in groundwater being pumped in Santa Barbara County and imported into San Luis Obispo County.

In a time when our State government is promoting local control and regional solutions, the District's Board is concerned that the proposed regulation may send the wrong message to our neighboring counties.

Lastly, the Board is not certain a real threat of groundwater export exists. Nipomo knows, as does the County, firsthand the expense of planning and constructing pipelines to move large quantities of water. The existing environmental review process would likely provide ample opportunity to consider and mitigate any large scale exportation that might be proposed.

My Board appreciates the County Board of Supervisors for allowing this opportunity to comment on the proposed regulation.

Nipomo Community Services District looks forward to working with the County of San Luis Obispo to further our shared goal of sustainable water resources management.

Sincerely,

Michael S. LeBrun, P.E.
General Manager

Nipomo Community Services District
148 South Wilson Street
Nipomo, CA 93444-0326
(805) 929-1133
(805) 929-1932 fax
mlebrun@ncsd.ca.gov

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Fw: Draft ordinance regulating the export of groundwater
Mark Hutchinson to: Mark Hutchinson 10/27/2014 04:49 PM

Mark Hutchinson, Deputy Director
San Luis Obispo County Department of Public Works
805.781.5252

PUBLIC WORKS
SAN LUIS OBISPO COUNTY

----- Forwarded by Mark Hutchinson/PubWorks/COSLO on 10/27/2014 04:48 PM -----

From: GWTracy@aol.com
To: mhutchinson@co.slo.ca.us
Cc: choward@co.slo.ca.us
Date: 10/27/2014 04:46 PM
Subject: Draft ordinance regulating the export of groundwater

Mark,
I want to give the following comments concerning the draft. First, there should be no exemptions from the ordinance. Neither the county, or any other governmental agency including the CSD and water purveyors should be exempt from this ordinance. Even those purveyors who have a historical basis to export water from their district to those outside of the district boundary should have to be subject to the ordinance if it is to be effective.
Second, contaminated water as listed in number E of 8.92.40 needs to be defined. If the contaminated water is decontaminated is it then "beneficial"? Is treated waste water from a waste water plant beneficial or contaminated?
Third are products that contain groundwater as part of the product that are exported from the county part of this ordinance? I would think not .
Fourth should there be a minimum amount of exportation that will trigger a hearing automatically? should all property owners within a mile or some other reasonable distance of any proposed export plan be informed? It is difficult to determine the effected zone of a high volume well. Some feel that the wells in and around Paso Robles have had a severe impact several miles away even as far as San Miguel and Independence Ranch.
Thank you for your attention.

George W Tracy
2370 Bald Eagle
San Miguel, CA 93451

Proposed ordinance for water transfer between GWB's
John Wallace
to:
Mark Hutchinson (mhutchinson@co.slo.ca.us), Kami Griffin (kgriffin@co.slo.ca.us)
10/27/2014 03:12 PM
Cc:
"Frank Meacham (fmecham@co.slo.ca.us)", "darnold@co.slo.ca.us", "Bruce Gibson (bgibson@co.slo.ca.us)", "ahill@co.slo.ca.us", "cray@co.slo.ca.us"
Hide Details
From: John Wallace <JohnW@wallacegroup.us> Sort List...

To: "Mark Hutchinson (mhutchinson@co.slo.ca.us)" <mhutchinson@co.slo.ca.us>, "Kami Griffin (kgriffin@co.slo.ca.us)" <kgriffin@co.slo.ca.us>

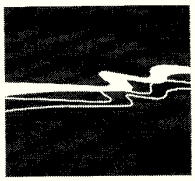
Cc: "Frank Meacham (fmecham@co.slo.ca.us)" <fmecham@co.slo.ca.us>, "darnold@co.slo.ca.us" <darnold@co.slo.ca.us>, "Bruce Gibson (bgibson@co.slo.ca.us)" <bgibson@co.slo.ca.us>, "ahill@co.slo.ca.us" <ahill@co.slo.ca.us>, "cray@co.slo.ca.us" <cray@co.slo.ca.us>

History: This message has been forwarded.

2 Attachments

image001.jpg 10272014124056461.pdf

Hi Mark and Kami
Thanks for the opportunity to review the draft of the proposed ordinance. Perhaps there have been other letters of comment and adjustments made to the draft, but I would recommend we table this proposed ordinance until we have had time to implement the other restrictions and adjust to the new legislation and ordinances. I also received the letters of comment from HRCSD and Cleath-Harris & Assoc. and I concur with their comments.
Attached is my letter, if you would like to discuss, I would be happy to meet at your convenience.
Thanks
John



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WATER RESOURCES

October 27, 2014

Mr. Mark Hutchinson, Public Works Dept.
Ms. Kami Griffin, Planning and Building Dept
County of San Luis Obispo
County Government Center
San Luis Obispo,CA 93408

Subject: Draft Ordinance Regulating the Exportation of Groundwater

Dear Mr. Hutchinson and Ms. Griffin:

Recently, the County released a draft of a proposed ordinance to restrict the exportation of groundwater between groundwater basins (GWB's). While well meaning in the context of the severe drought that the County and the Central Coast is experiencing, I believe that the proposed ordinance may result in more permitting expense and delays while doing little to alleviate the overall sustainable use of our groundwater resources at this time.

It also appears that the permitting process, if coupled with a minor use permit and appurtenant environmental review could be time consuming and expensive, especially for minor uses of water (anything over ½ of an acre foot). The schedule laid out in the draft ordinance appears to take over six months with a MUP/Environmental review cost of over $10,000. Perhaps the process could be streamlined after experience is gained in administering the ordinance, but I further understand a permit would only be good for one year. I can imagine that after the extensive process to receive a permit, a permittee would be hard pressed to face renewal within a year's time.

In the meantime, the County and other public agencies will be subject to the new legislation requiring the establishment of sustainable groundwater management areas. This legistation along with the Achadjian legislation will provide the Paso Robles GWB the necessary oversight to manage the largest GWB in the County. Action in South County has already been taken with the stipulated judgment for the management of the Santa Maria Groundwater Basin and its subbasins including the Nipomo Mesa Management Area as well as the Northern Cities Management Area.

Also, with the enforcement of the State-mandated water conservation requirments, local agencies are responding well to decrease their overall water consumption.

Exportation of groundwater from one basin to another can take several forms. For example, a farmer with wells in one basin may be irrigating from those wells in another basin. Although there is an exemption proposed for continuous parcels under the same ownership, some ranches and farms are family parcels under different ownership. The exemption goes on to require "a historical practice" of export to qualify. During a drought, there may be the need for additional wells and reservoirs that were not used in the "historical practice".

I also believe the exemption for only ½ AF of exportation is inadequate. For example, a ranch with operations and housing on different watersheds may use up to ½ AF per residence and much more for irrigation. I recommend that this exemption be

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increased to 10 AF to allow flexibility internal to a ranch or development that spans several watersheds. And in terms of political boundaries, there are several large GWBs that span the adjoining counties. Therefore that restriction should be eliminated.

With respect to further requirements of the proposed ordinance, are exemptions only to be allowed for public agencies and not for mutual water companies? Also, with notice required to be given to properties within one mile of the applicant, I can believe this would be a tremendous effort for the notification process, potentially involving hundreds of parcels for each permit with renewal on a yearly basis.

My general feeling is that although we have experienced a very severe drought, that the State and County along with all the water purveyors have responded well, and that the new legislation (Pavley and Dickinson...and others) will need to be fully implemented before a new layer of permitting and enforcement is added to the mix. At this time, when many ranchers, farmers and rural residents are trying to cope with their limited water supplies, we should not impose additional restrictions...i.e. they need all the flexibility they can retain in light of the other pending restrictions.

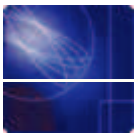
In conclusion, I hope that this ordinance can be tabled until we can see what effect the new legislation and water conservation efforts will produce.

Thank you for the opportunity to review the proposed ordinance. I would be happy to meet with you to discuss these comments.

Sincerely,

John Wallace, PE, President
WALLACE GROUP

Cc: Board of Supervisors



Fw: AN ORDINANCE REGULATING THE EXPORTATION OF GROUNDWATER

Mark Hutchinson to: Kami Griffin, Erica Stuckey 10/29/2014 01:30 PM

More comments

Mark Hutchinson , Deputy Director
San Luis Obispo County Department of Public Works
805.781.5252

PUBLIC WORKS
SAN LUIS OBISPO COUNTY

----- Forwarded by Mark Hutchinson/PubWorks/COSLO on 10/29/2014 01:29 PM -----

From: "Rick Hawley" <rick@greenspacecambria.org>
To: <mhutchinson@co.slo.ca.us>
Cc: "Daniel@Coastal Robinson" <Daniel.Robinson@coastal.ca.gov>
Date: 10/29/2014 10:28 AM
Subject: AN ORDINANCE REGULATING THE EXPORTATION OF GROUNDWATER

Hello Mark:

Please include the following comments regarding the Draft Export Ordinance for Groundwater in San Luis Obispo County:

We are concerned of the potential exportation of ground water that may adversely affect ocean and riparian dependent species. The underflow to the ocean from coastal arroyos is as critical to species as in the surface flow. The ordinance does not specifically address sea level rise and the introduction of seawater if ground water levels in coastal valley's are lowered by exportation of water generated by any means.

The ordinance shall be consistent with the California Coastal Act, the California State and the Federal Government Endangered Species Act, any regulations that might affect the Monterey Bay National Marine Sanctuary, the newly established Marine Parks and protected areas at mouths of many coastal streams, and the in and out migration requirements of steelhead trout.

Thank you,

Richard Hawley
Executive Director

Greenspace-the Cambria Land Trust
Post Office Box 1505
Cambria, CA 93428-1505
805-927-2866
www.greenspacecambria.org

TREASURY
WINE ESTATES

October 30, 2014

Ms. Kammy Griffin
Department of Public Works and Transportation, County of San Luis Obispo
County Government Center
Room 207
San Luis Obispo, CA 93408

RE: Ordinance Regulating the Exportation of Groundwater

Dear Ms. Griffin:

Thank you for taking the time to speak with me this week regarding my concerns on the draft Ordinance Regulating the Exportation of Groundwater. TWE has been farming grapes in San Luis Obispo County since 1986 and all of our vineyards are enrolled in certified sustainability programs which means we have implemented industry best practices across our operations. While TWE is completely supportive of the ordinances' intent, as drafted it has unintended consequences that would detrimentally affect our vineyard operations. I request that you consider the following revisions:

- Section 9.92.40 D please add the verbiage in bold italics to "Movement of groundwater between contiguous parcels under common ownership ***or control*** . ." to address parcels that may be leased by the same entity yet owned by different entities.
- Section 9.92.40 please add an exemption that would allow the continued practice of water use between contiguous parcels that are under the common ownership or control yet expand beyond the County of San Luis Obispo.

If you have any specific questions regarding our vineyard operations please contact me via email at debra.dommen@tweglobal.com or via phone at 707-259-4673. Thank you for your consideration.

Sincerely,

Debra Dommen
Vice President, Government and Industry Affairs

TREASURY WINE ESTATES LIMITED
610 AIRPARK ROAD
NAPA, CA 94558
WWW.TWEGLOBAL.COM

Re: Comments on the Anti Export Ordinance

Joseph Sulse to: mhutchinson 10/30/2014 10:21 PM

1 attachment

Regulate Export of water.pages

Hello Mark,

Here are my comments which I will also attach as a file.

Hello Mark,

Thank you for taking the time giving a talk regarding the draft for Regulating the Exportation of Groundwater. Please read over my comments and ideas and consider incorporating them into Regulating Exportation of Groundwater ordinance.

Section I
8.92.20 Definitions
Groundwater
Groundwater definition should be expanded to include any and all water. If it is "wet" its exportation from the basin needs to be regulated by this ordinance.
Recharge
"other sources of water" seems to imply water banking. The vast majority in our community are apposed to water banking. This ordinance should not allow for water banking in Paso Robles basin.

8.92.40 Exemptions
E.
"groundwater is contaminated" and "standards for beneficial use". These concepts need to be strictly defined.

8.92.50 Application for an Export Permit
The "Director" implies one person. I believe a panel of at least 3 people needs to fulfill this role. Too much power given to one person.
The "environmental review" mentioned should be a full EIR.

8.92.60 Procedures for Processing
C.
1.
(c)
"one mile radius". Larger radius such as 2 to 5 miles seems more appropriate.

8.92.70 Finding required for export permit approval

"replenishment" and "restoration". No water banking.

8.92.80 Conditions of export approval
"shall impose appropriate conditions of permit issuance". Director given too much power to create water management policy. Any said "conditions" must not favor the export or banking of water.

8.92.100
“the board may impose conditions for approval as it finds necessary to protect the interests of the county and its citizens.” Must not favor the export or banking of water.

8.92.150
“fine of up to five thousand dollars for each separate violation.” The fine should be on a per day basis. As important as water is becoming those who violate need to be punished severely.

Carollo Report.
Paso basin supplemental water options.

2.1 Complimentary studies under construction
“Salinas River Basin to stabilize groundwater levels”. Pollution of Salinas river water needs to be assessed and deemed safe for intended purpose.

“A separate in-basin solutions study would evaluate the options for putting supplemental water to use - recharge basin.” Water banking should not be allowed and so called “paper water” should not be considered supplemental. Real water in to recharge and not to be later taken out for use outside of basin.

State water (SW) Project:
“Treated water deliveries to Creston - SP for recharge; LP for direct delivery.”
We do not want nor need State Water. State Water is over allocated 5-7 times in rainy years. All this would do is open Creston up to water banking and exploitation of our basin here in Creston.

“Raw water extentsion to Creston subarea for recharge.”
Again, not interested in State Water as it is not a viable solution to anything. Creston does not need water.

Thank you,
Joseph Sulse
805-226-2980

On Tue, Oct 28, 2014 at 4:44 PM, <mhutchinson@co.slo.ca.us> wrote:
>
> Mr. Sulse,
>
> For some unknown reason your comments on the anti-export ordinance were cut
> off by our computer system (see attached). If possible, can you resend so
> that we can be sure and have your comments in full?
>
> (See attached file: 2014.10.20 Sulse Re_ Ordinance Regulating Export.pdf)
>
>
> Mark Hutchinson, Deputy Director
> San Luis Obispo County Department of Public Works
> 805.781.5252
>
> (Embedded image moved to file: pic32764.gif)
>
>
>
>

Water Export - LRP2014-0008

Maria Lorca to: mhutchinson 10/31/2014 07:14 AM

Cc: kgriffin

October 31, 2014

Mark Hutchinson, Deputy Director Public Works Department -
mhutchinson@co.slo.ca.us
Kami Griffin, Assistant Director Planning and Building Department –
kgriffin@co.slo.ca.us
San Luis Obispo County
San Luis Obispo, California 93408

Re: LRP2014-0008 County of San Luis Obispo
Proposed Amendment to Title 8 of the county code to add Chapter 8.92 regarding regulation of the exportation of groundwater.

This is to add my personal support to the comments submitted by the Creston Advisory Body (CAB), but to urge that you strengthen and simplify enforcement.

The goal is to prohibit export of water (from any source - native or foreign) from county basins designated LOS III .

Our experience with the Urgency Ordinance shows that any exemptions or loopholes will be fully exploited and that easy to apply enforcement is key.

Starting with a clear bright line will allow evenhanded, understandable enforcement.

Every export in every case should require a permit with only one exception - that being within a parcel or between contiguous parcels with common ownership.

For example, there is an emerging trend of trucking water from Creston to other areas with no way to know how much water is being exported or where it is going. Neighbors see the trucks leaving and could report the export if the truckers were required to have a permit. As it is with an exception for half an acre foot (which is the generally accepted amount used by one household for one year) any trucker can simply say they are delivering an exempt amount.

Please close all the loopholes.

Thank you for this opportunity to comment.

Maria Lorca

Member Basin Advisory Supply Options Subcommittee
Alternate Member Basin Advisory Committee

Date: November 12, 2014

San Luis Obispo County Board of Supervisors
Bruce Gibson, Board Chair
Frank Mecham, Vice Chair
Adam Hill, 3rd District Supervisor
Caren Ray, 4th District Supervisor
Debbie Arnold, 5th District Supervisor

Subject: Recommendations on Groundwater Exportation Ordinance

Dear Board Members,

On behalf of the Oceano Community Services District (OCSD), we offer the following comments for your consideration on the draft groundwater exportation ordinance. The draft has several elements including administrative permitting processes, exemptions, and other various provisions in addition to addressing the core policy issue of whether the County should regulate the exportation of groundwater, and if so, to what the extent. OCSD comments are primarily focused on the exportation policy issue with a preamble on regional implications.

OCSD is a member of the Regional Water Management Group (RWMG), which implements the San Luis Obispo County Integrated Regional Water Management Plan (IRWMP). Although the County Flood Control District is the lead agency for the RWMG, it is not the sole agency, and we encourage further development of the groundwater exportation ordinance in consultation with the members of the RWMG.

Regulating the Exportation of Groundwater

OCSD recognizes that groundwater management in California will significantly change because the 2014 legislative session resulted in the passage of several bills including SB 1168 (Pavley),

SB 1319 (Pavley), and AB 1739 (Dickinson). The "2014 Groundwater Legislation" will have vast impacts on groundwater management. Implementing changes in San Luis Obispo County will necessitate pro-active actions by County Government and your Board.

From a policy perspective, however, OCSD is not convinced that a broad-sweeping regulatory approach in the draft exportation ordinance is appropriate at this time. Our concern is the unintended consequences, in general, and potential damage to collaborative Integrated Regional Water Management efforts, specifically, which should be promoted instead of a more stringent regulatory permitting approach.

We do believe, nevertheless, that an Ordinance at this time to provide safeguards against exportation from the County *and* outside of those basins that cross County boundaries is appropriate. We therefore recommend the following change in the definition of "Export" from an "or" provision to an "and" provision:

> *"Export" means the extraction of groundwater underlying the county for use outside the boundaries of the groundwater basin from which the groundwater is derived, ~~or~~ and for use outside of the county.*

OCSD believes that our suggested change will help promote regional water resource collaboration and reduce the undue regulatory aspects of the draft ordinance.

Policy Considerations

It is well known that the policy driver leading to the draft exportation ordinance resulted from some in north County who fear that water from the Paso Robles Groundwater Basin will be pumped and sold to "far-away" places. Although the need is understandable to establish safeguards against exportation of water resources that originate in San Luis Obispo County to "distant" lands for benefit of others and to the detriment of County stakeholders, we fail to see a problem within San Luis Obispo County that creates a need to also impose the regulatory requirements internal to the County.

In addition, the County's Resource Management System is already established and suited to address issues that may be "basin-specific." By establishing a more reasonable exportation ordinance at this time, basin-specific issues can continue to be addressed through RMS, and amendments in the exportation ordinance can be made *if and when needed* to address specific basins.

Lastly, the 2014 Groundwater Legislation is extensive and AB 2453 (Achadjian) was passed to promote groundwater management for the Paso Groundwater Basin. There are numerous technical and policy details that need to be addressed in a collaborative manner instead of establishing unnecessary permitting regulations on local agencies within the County.

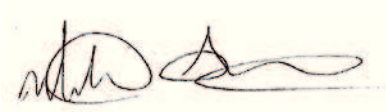
Conclusion

OCSD supports modifying the Ordinance's definition of "Export" so that permits will be required if water is exported outside a basin *and* outside the County.

- The details of basin-specific concerns are better addressed through existing processes including the County's Resource Management System, through existing adjudicated stipulations, and in the case of the Paso Basin, as efforts under AB 2453 proceed.

- The OCSD Board of Directors hopes our suggestions will help strike a balance between the need to promote better groundwater management overall and regional collaboration while avoiding the unintended consequences of overly broad regulations that are not necessary at this time.

Sincerely,



Matthew Guerrero, President
Oceano Community Services District

To: Annette Ramirez/ClerkRec/COSLO@Wings,
Cc: Kristi Gutierrez/Admin/COSLO@Wings,
Bcc:
Subject: Fw: City Comments re BOS 9/9 Item: Export of Groundwater Restriction
From: Dan Buckshi/Admin/COSLO - Thursday 09/04/2014 04:14 PM

From: Jim App <JApp@prcity.com>
To: "'dbuckshi@co.slo.ca.us' (dbuckshi@co.slo.ca.us)" <dbuckshi@co.slo.ca.us>
Cc: "jbergman@co.slo.ca.us" <jbergman@co.slo.ca.us>, Ed Gallagher <EGallagher@prcity.com>
Date: 09/04/2014 01:52 PM
Subject: City Comments re BOS 9/9 Item: Export of Groundwater Restriction

Dan –

Attached are the City's comments regarding the proposed restriction from exporting groundwater from the Paso Robles Groundwater Basin.

We would appreciate its distribution to the Board of Supervisors.

Thank You!

Jim 1117_001.pdf

Agenda Item No: 33 ▪ Meeting Date: Septemeber 9, 2014
Presented By: Jim App
Rec'd prior to the meeting & posted on: September 4, 2014

CITY OF EL PASO DE ROBLES

"The Pass of the Oaks"

September 4, 2014

County of San Luis Obispo
Board of Supervisors
County Government Center
San Luis Obispo, CA 93408

SUBJECT: Consideration of an Ordinance Regulating the Exportation of Groundwater

On September 9, 2014, your Board is scheduled to consider options for an ordinance regulating the export of groundwater (Agenda Item #33).

The City and County work together on a wide range of regional water issues, in particular the Nacimiento Water Project, Integrated Regional Water Management Plan, Paso Robles Groundwater Basin modeling update, proposed Water District formation in the North County, and the state's Sustainable Groundwater Management Act. Together, we adopted the 2011 Paso Robles Groundwater Basin Management Plan and participate in various water advisory committees.

The City agrees that available water supplies should be used to meet our communities' needs first and sees that while consideration of an export ban was not included in the County's 2015 Integrated Regional Water Management Program, 2012 Master Water Plan nor the 2010 Conservation and Open Space Element, it was included in the Blue Ribbon Committee's "Top Ranked Solutions" dated 2013. Preventing export of groundwater from the basin was listed in our jointly adopted Groundwater Basin Management Plan, which noted "At this time, additional information is necessary to quantify the occurrence of groundwater pumping for export from the Basin [to date this has not been quantified]".

Which leads to a question about the timing of this ordinance: Has the County developed additional information on existing exports of groundwater? The City is not aware that groundwater exportation of any appreciable extent is now occurring nor is any contemplated.

Considering that:

1. Previous studies give priority to water management actions other than regulating exports; and;

2. To the City's knowledge exports have not been observed or quantified so as to warrant immediate regulation;

...the City asks the Board to wait on adopting the export ordinance. For the Basin to be sustainably managed it is essential to concentrate efforts on use of available surface water, recycled water projects, and enhancements to groundwater recharge. Such sustainable actions are consistent with the already adopted Groundwater Basin Management Plan and more importantly, respond to the immediate need in the Basin for reliable water supplies.

These basinwide management efforts may well lead us to the conclusion that an export prohibition is an appropriate part of a comprehensive management approach. However an export prohibition should be part of comprehensive groundwater management and considered in light of all the sustainable actions that can be taken within the basin to meet public water demand.

Please feel free to contact me should you have questions regarding the City's input.

Sincerely,

James L. App
City Manager

Copy: City Council
Ed Gallagher, Community Development Director
Dan Buckshi, County Administrative Officer
James Bergman, Planning Director

TREDER LAND LAW
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Dear Mr. Hutchinson and Ms. Griffin,

Please consider the following comments on the Draft Groundwater Exportation Ordinance sent on behalf of the Paso Robles Water Integrity Network:

Section 8.92.20.D & E—Definitions of Director and Department. As a threshold matter, it is unclear why the authority for granting and reviewing these permits is being vested in the Department of Public Works and the Director of Public Works instead of the Department of Planning and Building and the Planning Director. Water supply is inexorably intertwined with long range land use planning. That is one of the theories on which the County's Resource Management System (RMS) is promoted. Under the Water Code (Section 10910 *et seq.*, aka SB 610) and CEQA, large discretionary projects cannot proceed to approval unless they have shown a reliable water supply—which is evaluated by the County Planning Department. As a practical matter, various overlying land uses throughout the County may not be able to continue absent sufficient access to groundwater—which land uses are zoned and permitted via the Planning Department. Most of the findings detailed in Section 8.92.10 in support of the Ordinance relate to land use and environmental concerns—and the Planning Department processes the environmental reviews for all land uses in the County.

While the Department of Public Works might be the correct entity to oversee the construction and logistics (even environmental logistics) of a public *surface* water project, in order to ensure the cohesive and consistent application of the County's land use and environmental policies, the correct department to administer a *groundwater* protection program is the Planning and Building Department, under the supervision of the Planning Director.

Section 8.92.020.F – Definition of Export. This definition is fine, except for the end: "or for use outside of the county." This additional, unnecessary restriction could be struck down by a court as protectionist. (*See* Gregory S. Weber, *Forging a More Coherent Groundwater Policy in California: State and Federal Constitutional Law Challenges to Local Groundwater Export Restrictions* (1994) 34 Santa Clara Law Review 373, 421-422 ("the toughest ordinance to justify would be a self-avowedly local protectionist ordinance that burdened only out-of-county exporters").)[1]

The Tehama County Ordinance has been in place since 1992, and does not distinguish between out-of-county or even out-of basin uses. Rather, it requires a permit for the export of water off the native overlying parcel, unless the water will be used on contiguous parcels under the same ownership. (Tehama County Code § 9.40.030.) By all accounts, this ordinance has been successful precisely because it does not attempt to draw protectionist or arbitrary boundaries (such as "the basin," which boundaries are always subject to better definition), but instead seeks to protect the overlying right against appropriators, regardless of whether the appropriators are inside or outside of the County lines or basin boundaries. This is a constitutionally sound approach.

Section 8.92.020.G—Definition of Groundwater. In a groundwater export ordinance, the definition of what constitutes "groundwater" is critical. As many groundwater basin adjudications have held, not all the water that is found beneath the ground is native, and can be protected from export. If a private individual, a local agency, or even a water district pays to bring surplus surface water into a region, and that purchased water finds its way into the groundwater basin (whether by injection or percolation) and augments the basin supply dynamics, then that water is not "native" groundwater, or part of the overlying right. Rather, it is the property of the individual/entity that bought it and brought it in, and may subject to "recapture" by that person or entity. The fact that this ordinance does not define groundwater as either "native" groundwater or "percolating" groundwater is troubling, since that means that later it could be very difficult to prove whose water is whose, when trying to prevent a detrimental export.

Section 8.92.40.E – Exemption for the Export of Contaminated Groundwater. This exemption is troublesome. There is almost no use to which truly contaminated groundwater can be put, and treating it is almost always cost-prohibitive, compared to other options. This provision also opens up some concerns of liability for the County regardless of the reference to a "release" in this section. Presumably, the construction of any such wells would be

[1] Note that this article, while otherwise legally sound, was written prior to the Court of Appeal's validation of the Tehama County Ordinance in *Baldwin v. County of Tehama* (Dec. 28, 1994) 31 Cal.App.4th 166.

permitted and monitored by the County under Chapter 8.40 of the County Code (Health and Sanitation: Construction, Repair, Modification and Destruction of Wells). If the well is producing contaminated groundwater for export, then there is always the risk of cross contamination of any upper aquifers. If the County permitted the well, *and* the export of the contaminated water, then it could be liable for any resulting damage, regardless of what the release contemplated in this section says.

There is also the concern that entities desiring to export groundwater will *claim* that their water is contaminated, in order to fit under this exemption. Absent any reference to objective standards definition contamination, this provision could be a huge loophole.

Section 8.92.040.F— Exemption for Export by SLO County FCWCD or its Contractors. This is a huge and virtually unlimited exemption which provides no assurances to the public that their local officials won't just decide to sell their groundwater out from under them. What's good for the gander should be good for the goose. If the County needs an exemption for an "export" that is already occurring and which needs to continue, then a narrowly-tailored, project specific exemption could be crafted. But as currently written, this is the kind of loophole you could run an export pipeline through. And this loophole will only continue to get bigger if the County enters into contracts with water districts or JPAs. This exemption alone could undo the whole purpose of the export ordinance.

Section 8.92.60.A – Procedures for Processing. This section requires the director to send a copy of an application to export groundwater to "all local agencies which own or include land overlying or immediately adjacent to the location of the proposed export," as well as any "interested party" who has a request for such notices on file in the last 12 months, but there is no provision for notifying the immediately adjacent or nearby landowners. Although nearby landowners will receive notice of any hearing pursuant to Government Code § 65091, it is not clear why adjacent local agencies should receive notice of the application, but adjacent landowners would not. The section should be revised to add "and landowners" after the term "local agencies."

Section 8.92.60.B – Procedures for Processing. This section says that the director shall review the application with any potentially affected party, but only subject to "the judgment of the director." This is a concerning section, particularly since it allows the director to refuse to meet with "potentially affected" individuals, who may not have any other resource for understanding the application and its effect on them. The director need not meet with *every* concerned landowner in the Basin, but he/she should meet with those who have real potential to feel the effects of the proposal and who ask to meet. This sentence should be revised to read: "The director shall review the application with potentially affected county

departments and potentially affected parties, at the request of such a department or party." The state and federal agencies will receive notification through the CEQA process, so there is no need to expressly provide them with a right to consult with the director, since they already have that right.

Section 8.92.60.C.2—Public Hearing. This section states that the public hearing "shall be conducted under such rules as set by the director for the expeditious presentation of the matter. . . ." While the need for an efficient process is acknowledged, it is always concerning to see a reference to expeditiousness without also a reference to fairness or due process.

Section 8.92.70—Findings Required for Export Permit Approval. The order of these findings should be revised to reflect the values of the public, as well as the established water rights priorities under the law. The order of the findings is important, because it gives some insight into the intent of the ordinance, and also means that if one of the findings cannot be made, there is no reason to proceed to the next one. We would like to see the priorities reordered 2, 5, 6, 3, 1, 4, 7. The words "or rights" should be added after the term "welfare" in item 7.

Section 8.92.100.B—Appeal of Director Action. This section provides the Board of Supervisors may conduct any appeal hearing "under such rules as set by the board for the expeditious presentation of the matter . . . ." Again, an express reference to expeditiousness without an express reference to fairness or thoroughness implies that expeditiousness is the primary concern. While it is a valid concern, it should not be given too much weight, particularly where this heavily-science based applications are being considered.

Preservation of Existing Water Rights. A final section should be added to specify that nothing in the Ordinance is intended to abridge the existing rights of overlying landowners, and that an exportation permit (which is basically an appropriation permit) is not a guarantee of a right to appropriate water in violation of other existing law. In other words, appropriative rights to groundwater are still junior rights, and may be enjoined by overlying landowners through proper legal action, notwithstanding any permits granted under this Ordinance.

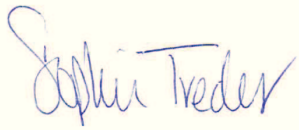
Final Thoughts. Ordinances attempting to stop the export of groundwater outside of a given area are nothing new.[2] A groundwater export ordinance can be a good thing—a very, very

[2] See Gregory S. Weber, *Twenty Years of Local Groundwater Export Legislation in California: Lessons from a Patchwork Quilt*, 34 Natural Resources Journal 657 (1994). A copy of this article is being submitted as part of this letter, and we request that it become part of our comments and thus part of the public record to be considered by the Board of Supervisors in connection with this ordinance. Please note, however, that this

good thing, if it is properly and effectively drafted. The worst possible thing, however, would for the public to believe that they were protected by an export ordinance, when in reality that ordinance has holes you could run a pipeline through. Please heed these comments and amend the draft Ordinance before it is considered by the Board so that it will truly protect the public.

Thank you for your careful consideration of our comments.

Sincerely,



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article was written prior to the Court of Appeal's validation of the Tehama County Ordinance in *Baldwin v. County of Tehama* (Dec. 28, 1994) 31 Cal.App.4th 166.

GREGORY S. WEBER*

Twenty Years of Local Groundwater Export Legislation in California: Lessons from a Patchwork Quilt

ABSTRACT

Over the last 20 years, in response to actual or threatened water development projects, eight California counties have enacted ordinances that attempt to restrict the export of groundwater from those counties. State legislation enacted in 1992 may encourage a new wave of such local groundwater restrictions. In an effort to evaluate the appropriateness of using the eight extent ordinances as models for further local legislation, the article describes and critiques the current ordinances against the backdrop both of fundamental hydrogeological concepts and the California decisional and statutory law on the acquisition and transfer of groundwater rights. In particular, the article exhaustively analyzes the texts of each of the ordinances, both individually and in comparison to the texts of the other ordinances. The analysis points out numerous instances of vague, ambiguous, or hydrologically inappropriate drafting. To the extent that these eight ordinances may become models for a new wave of state approved locally initiated groundwater management legislation, the article summarizes drafting lessons learned from the current ordinances and suggests problems to avoid. Finally, drawing from the lessons learned from the eight ordinances, the article broadly criticizes the wisdom of allowing this kind of local management of a state resource. It concludes that the state's ad hoc approach to groundwater issues has resulted in an incoherent policy that can ultimately only be remedied by greater state direction and control over local management efforts.

I. INTRODUCTION

Groundwater has been an important water source for California's farms and cities throughout this century.[1] Groundwater basins underlie

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1. California Dep't Of Water Resources, Bulletin 118, California's Ground Water 20-24 (1975) [hereinafter Bulletin 118-75]. Groundwater basins have several advantages over surface storage: "(1) A groundwater aquifer can act as a distribution system; (2) evaporation from groundwater basins is insignificant compared with that from surface reservoirs; (3) groundwater basins provide natural treatment and purification for both naturally

about 40 percent of California lands.[2] On average, groundwater provides 40-45 percent of the state's annual *applied* water needs, and about 25 percent of the state's annual *net* water demands.[3]

The two droughts that have struck California in the last 16 years have focused the attention of many California water providers on the state's extensive groundwater supplies.[4] In a drought, groundwater is like money in a bank.[5] Over millennia, nature made the original deposits into the account.[6] During wet years, natural and artificial groundwater

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percolating and artificially recharged water; (4) surface systems, including distribution, may be destroyed during catastrophes such as earthquakes or acts of war; (5) groundwater often provides emergency drought relief." D. Jaquette & N. Moore, Efficient Water Use In California: Groundwater Use And Management 3-4 (1978). Other than shortages and the costs of extraction, the principal problems associated with groundwater development have involved quality degradation. *Id.* at 4.

2. Jaquette & Moore, *supra* note 1, at 5.

3. *See* California Dep't Of Water Resources, Bulletin 160-87, The California Water Plan: Outlook In 1987 55 (1987) [hereinafter Bulletin 160-87] (distinguishing applied and net water demand).

In the early 1970s, groundwater represented about 24 percent of the *net* water demand. *See* California Dep't Of Water Resources, Bulletin 160-74, The California Water Plan: Outlook In 1974 55 (1974). About half of the groundwater pumped in an average water year represented "reuse of water percolated from applications of excess surface water." *Id.* The 1985 contribution of groundwater to net water use is nearly identical to the earlier figures. *See* Bulletin 160-87, *supra*, Statistical App. at 30 (sum of "groundwater" and "overdraft," divided into total net water use.) Estimates of groundwater's relative contribution to the total state applied water use varies. For example, the Department of Water Resources concludes that groundwater provides 40 percent of the applied water demands, while surface water supplies provide the remaining 60 percent. *See, e.g.*, Bulletin 118-75, *supra* note 1, at 3; California Dep't of Water Resources, California's Continuing Drought 1987-1991 16 (1991) (40 percent of applied water) [hereinafter, Continuing Drought II]. Professor Zachary Smith ascribes to groundwater 45 percent of applied water supplies. Z. Smith, Groundwater in the West 53 (1989) (45 percent) [hereinafter Groundwater In The West]. The differences in estimate between these and other studies stem from the lack of documentation of much of the actual pumping occurring in the largely unregulated groundwater basins. *See* Jaquette & Moore, *supra* note 1, at 8. n.11.

4. Water years begin on October 1 of the preceding calendar year. For example, water year 1991 began on October 1, 1990. *See, e.g.*, California Dep't of Water Resources, California's Continuing Drought vii (1991). Since water year 1976, runoff in the important Sacramento River system has been considered critically dry in seven of the sixteen completed water years. *See, e.g.*, California Dep't of Water Resources, The Hydrology of the 1987-1992 California Drought, Technical Information Paper (1992) (see charts 9 & 11). The first two of these critically dry years formed the 1976-77 drought. The remaining five have occurred during the 1987-1992 drought.

5. *See, e.g.*, R. Howitt & C. Nuckton, *Is Overdrafting Groundwater Always Bad?*, Cal. Agric. 10 (1982) ("Like money in the bank, groundwater can be spent now or saved for the future.").

6. The Department of Water Resources estimates that the usable storage capacity of the underground basins is 143 million acre-feet. Bulletin 118-75, *supra* note 1, at 7. Many of these basins are still full. *Id.* The usable storage space represents more than three times the total

recharge can add net deposits to the account.[7] During dry years, Californians withdraw this groundwater for municipal, industrial and agricultural uses.[8] If carefully managed, the water levels in the basin will remain stable at optimal levels, and the resource can be used perpetually.[9]

In many parts of the state, however, the groundwater account is way overdrawn.[10] State wide, average annual groundwater extractions

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storage capacity of the state's surface reservoirs. Governor's Commission To Review California Water Rights Law, Final Report 138 (1978) [hereinafter Final Report].

7. Each year, rainfall, snowmelt and stream seepage percolate an average of 5.8 million acre-feet of natural recharge. Bulletin 160-87, *supra* note 3, at 31. In addition to natural recharge, more than 65 artificial groundwater recharge projects have added to the "deposits" in several areas of the state. *Id.* at 35-36. Annually, these projects add approximately 1.4 million acre-feet of water. *Id.* at 36. The averages do not demonstrate the relatively greater contributions of wet years to the quantities of water available in the state's groundwater basins. *See, e.g., id.* at 37; *see also* California Dep't Of Water Resources, Groundwater Trends In The San Joaquin Valley 9-15 (1990) [hereinafter San Joaquin Groundwater].

The preceding pamphlet's title raises a nomenclature question. Consistent with Department of Water Resources practice, the pamphlet spells "groundwater" as two words: ground water. Many other authors, however, spell "groundwater" as one word. *See, e.g.*, Howitt & Nuckton, *supra* note 5. Some hyphenate the word: "ground-water." *See, e.g.*, J. Holzschuh, *Ground-Water Mining: An Often Misused Term*, 25 Ground Water 346 (1987). The legislative bodies considered in this article show no consistency. For example, the Imperial County ordinance spells "groundwater" as two words. *See, e.g.*, Imperial County, Cal., Codified Ordinances at § 56201 (a) (1972) (amended 1978). Other ordinances in other counties spell "groundwater" as one word. *See, e.g.*, Nevada County, Cal., Land Use And Development Code § L-X 6.2 (F) (1988). Occasionally, ordinances spell "groundwater" both as two words and as one word *in the same sentence! See, e.g.*, Tehama County, Cal., Code § 9.40.010. 10 (1992). The different spellings seem only different conventions, without any legal or hydrological significance. For convenience and uniformity, this article spells "groundwater" as one unhyphenated word regardless of the particular spelling in the original source quoted.

8. During both the 1976-77 and the 1987-1992 drought, groundwater extractions increased substantially. For example, during the 1976-77 drought, Californians drilled, deepened or repaired an estimated 28,000 wells. Final Report, *supra* note 6, at 138. In the San Joaquin basin, reliance on groundwater as a proportion of applied water demands went from 41 percent in 1975 to 66 percent in 1977. *Id.* at 139. In the Tulare Basin it went from 54 percent to 84 percent during the same period. *Id.* Similarly, the 1987-92 drought also saw a doubling of well drilling and considerable drops in groundwater levels in the San Joaquin Valley. *See* Continuing Drought II, *supra* note 3, at 16.

The integrated, active management of groundwater and surface water is called "conjunctive operation" or "conjunctive use." *See, e.g.*, Bulletin 118-75, *supra* note 1, at 4; *see generally* D. Jaquette, Efficient Water Use in California: Conjunctive Management of Ground and Surface Reservoirs (1978); J. Anderson, *Some Thoughts on Conjunctive Use of Groundwater in California*, 16 W. ST. U. L. REV. 559 (1989).

9. This assumes no water quality degradation. *See, e.g.*, Bulletin 118-75, *supra* note 1, at 118, 121-23. On "optimal" water table levels and basin "safe yield," see *infra* notes 86-109 and accompanying text.

10. Groundwater is a "common pool" resource. *See, e.g.*, Jaquette & Moore, *supra* note 1,

have exceeded average annual replenishment by 2 to 2.5 million acre-feet per year.[11] The state has identified eleven "critically overdrafted" groundwater basins.[12] In addition to these eleven basins, the state has identified at least 42 basins where overdraft has occurred but has not yet reached critical levels.[13] Prolonged overdraft can lead to long term economic and environmental effects. Economic effects include increased pumping expenses as water tables decline.[14] Environmental effects may include land subsidence, surface vegetation reduction, and, along the coast, saltwater intrusion into aquifers.[15]

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at 12-13. As a "common pool" resource, groundwater lacks "clearly defined property rights to its use when two or more pumpers extract water from the same aquifer or basin. Also, each pumper's extraction costs depend, at least indirectly on all other pumpers' rates of extraction . . . . Without a well-designed management program, individual extractors who pursue their own self interests will cause an inefficient use of their common pool resource." Jaquette & Moore, *supra* note 1, at 12.

11. Smith, *supra* note 3, at 54. Smith's figures come from a 1980 estimate. *Id.* This represented an approximate 50 percent reduction from a 1955 estimate of 4 million acre-feet per year of overdraft. *Id.*

The Department of Water Resources estimates average overdraft is 2 million acre-feet. Bulletin 160-87, *supra* note 3, at 31. About two thirds of this overdraft occurs in the San Joaquin Valley. *See id.* at 33.

12. California Dep't Of Water Resources, Bulletin 118-80, Groundwater Basins In California 4 (1980) [hereinafter Bulletin 118-80]. A "critically overdrafted" groundwater basin is one where "continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts." *Id.* at 11.

13. Bulletin 118-80, *supra* note 12, at 5. Bulletin 118-80 identified 42 groundwater basins "in which 1) studies have indicated overdraft, or 2) there is evidence of adverse impacts of overdraft." *Id.* at 13.

14. Wells have to be deepened, pumps lowered, or more powerful pumps need to be installed. *See, e.g.*, Final Report, *supra* note 6, at 140. Pumping costs increase as water has to be lifted higher from a declining water table. *See, e.g., id.*; San Joaquin Groundwater, *supra* note 7, at 1. Eventually, overdrafting can deplete a groundwater basin entirely, drying up the local economy that had grown upon overdrafting the groundwater basin. Bulletin 118-75, *supra* note 1, at 115, 119, & 129-31.

Once depletion of historical storage occurs, then all future extractions will never be able to exceed the rate of replenishment. Z. Smith, *Rewriting California Groundwater Law: Past Attempts and Prerequisites to Reform*, 20 Calif. W. L. R. 223, 255 (1984) [hereinafter *Rewriting California Groundwater Law*]. Since such a steady state eventually must occur, policy makers need to determine whether that steady state arrives at relatively high or low aquifer levels. *Id.* at 255-56. On the one hand, a steady state reached at relatively high aquifer levels can reduce future pumping costs and provide a margin of safety for economic or environmental problems. *Id.* It can also help avoid the boom/bust cycle that can accompany development and exhaustion of "mined" groundwater basins. *See* Final Report, *supra* note 6, at 145. On the other hand, a steady state arrived at a relatively lower aquifer level allows for greater short term economic development. Such short term resource development may trigger infrastructural investments that can attract long term economic investment for the overlying community.

15. *See, e.g.*, Bulletin 118-75, *supra* note 1, at 115-19; *Rewriting California Groundwater Law*, *supra* note 14, at 223-24 (depletion, subsidence, saltwater intrusion); A. Gregory, *Groundwater and Its Future: Competing Interests and Burgeoning Markets*, 11 Stan. Envtl. L.J. 229, 232-33

Despite the importance of groundwater to the state's economy, and the widespread evidence of overdraft, state regulation of groundwater extraction has been minimal, especially when compared with the extensive state legislation controlling surface water diversions.[16] Calls for enactment of state groundwater control laws last reached a peak during and shortly after the 1976-77 drought.[17] The legislature was unable to enact legislation recommended by a special governor's commission, and a statewide groundwater management initiative was soundly defeated.[18] The sentiment remains strong that groundwater should be managed locally, if at all.[19]

In response to the statewide regulatory vacuum, and concerned over the local effects of groundwater extraction, local governments have enacted local groundwater extraction regulations over the past 20 years.[20] Many of their efforts have resulted in homegrown county ordinances.[21] In a few instances, counties have approached the legislature for permission to create special local agencies to manage local groundwater supplies.[22]

A central feature of both the county groundwater ordinances and many of the special district acts has been provisions governing control of

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(1992) (loss of surface vegetation and increased contaminant concentration).

16. *See infra* notes 176-214 and accompanying text.

17. *See, e.g., Rewriting California Groundwater Law, supra* note 14, at 240-42. The reform calls following the 1976-77 drought were but one brief moment in the long history of calls for state groundwater management. *See* R. Kletzing, *Imported Groundwater Banking: The Kern Water Bank—A Case Study*, 19 PAC. L.J. 1225, 1254-57 (1988) (outlining history of unsuccessful efforts to develop state groundwater control legislation).

18. *See* A. Rossmann & M. Steel, *Forging the New Water Law: Public Recognition of "Proprietary" Groundwater Rights*, 33 Hastings L.J. 903, 926-929 (1982) (reviewing failed legislation). The failed referendum was 1982's Proposition 13. *See Rewriting California Groundwater Law, supra* note 14, at 224.

19. *See, e.g.*, S. Trager, *California's Groundwater: Who's in Charge?*, 2 Cal. Water L. & Pol'y Rptr. (Jan. 1992) 81, 81-85. Drawing upon a University of California at Davis report, Professor Smith cited five reasons for local opposition to groundwater management. Groundwater in The West, *supra* note 3, at 65. These reasons include: 1) farmers in non-overdrafted areas find groundwater regulation unnecessary; 2) true costs of overdrafting may be hidden or mitigated by other trends; 3) farmers fear that groundwater management rules will shift control to urban bureaucrats less sympathetic to agricultural needs; 4) farmers fear reduction in irrigated acreage; and 5) new surface water supplies will offset the overdraft before overdrafting becomes uneconomical. *Id.* Given these political realities, Smith advocated that state control should be kept at a minimum. *Rewriting California Groundwater Law, supra* note 14, at 252. For example, he urged that local managers should retain authority over when and how to pump or conserve. *Id.*; *cf.* Final Report, *supra* note 6, at 146, 166-69, & 215.

20. *See* Kletzing, *supra* note 17, at 1261.

21. *See infra* notes 215-430 and accompanying text.

22. *See infra* notes 431-470 and accompanying text.

groundwater exports from groundwater rich areas to areas of water demand.[23] As drought continues, state population builds, and surface water supplies remain inadequate to meet all demands, interest in exporting groundwater has grown.[24]

These groundwater exports can take many forms. For example, for over twenty years, the City of Los Angeles has exported groundwater from Inyo County to Los Angeles.[25] During the 1976-77 drought, a Yolo County farm proposed to pump groundwater into the Sacramento River for transportation, via the state water project, for use in Kern County orchards.[26] In the mid-1980s, Nevada County worried that groundwater might be exported from eastern Nevada County down the Truckee River.[27] In 1989, landowners in Mono County proposed exporting groundwater to Southern California.[28] In 1991, the California Drought Water Bank purchased the equivalent of over 250,000 acre-feet of groundwater for transfer from Northern California to thirsty cities and farmers along the coast and in the San Joaquin valley.[29] Also in 1991,

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23. *See, e.g.*, Butte County, Cal., Code § 33-4 (Supp. 1978) (permit required to export groundwater "outside the area in which said pumping affects the natural available water supply"); Cal. Water Code-App. § 119-706 (West Supp. 1993) (permit needed to export water beyond the boundaries of the Sierra Valley Groundwater Management District).

24. *See, e.g.*, Gregory, *supra* note 15.

25. *See, e.g.*, Rossmann & Steel, *supra* note 18, at 915-16 & nn. 82-85. For example, in 1970, Los Angeles was pumping 90 cubic feet per second of water from the Owens Valley. Rossmann & Steele, *supra* note 18, 916 n.85. But concerns over the effects of the City's doubling and even quadrupling export pumping ultimately led Inyo County to enact a groundwater management ordinance. Rossmann & Steele, *supra* note 18, at 914-33. *See infra* notes 353-379.

26. *See* Anderson Farms Co., No. D-1474 (Cal. St. Water Resources Control Bd. Sept. 22, 1977). The County of Yolo and others complained to the State Board over the proposed transfer. As the Board acknowledged, ordinarily it has only "limited jurisdiction" over groundwater. *Id.* at 2. Nevertheless, the Board concluded that it had jurisdiction to review the transfer under a drought emergency delta export regulation, see 77 Cal. Regulatory Notice Reg. 54.2 (1977) (codified at Cal. Code Reg. tit. 23, § 764.20(c)(3)) (banning exports unless essential for emergency municipal, domestic or other "essential" uses), and under its authority under California Constitution, art. X, § 7, to prevent an unreasonable method of water diversion. *See* Andersen Farms Co., *supra*, at 9, 13. Ultimately, the Board concluded that there was insufficient evidence: 1) to exempt the proposed export from the emergency delta export restrictions as an "essential use;" to find the proposed export was within the public interest; and 3) to find that the proposed extraction was a reasonable method of diversion. See Andersen Farms, Co., *supra*, at 14-15.

27. *See* Letter from Melanie K. Wellner, Deputy County Counsel, Nevada County, to Gregory S. Weber (Oct. 29, 1992). This led to enactment of the Nevada County ordinance. *See infra* note 380-402 and accompanying text.

28. *See* Letter from James S. Reed, Mono County Counsel, to Gregory S. Weber (Oct. 27, 1992). Ultimately, this proposal led to the enactment of the Mono County Tri-Valley Groundwater Management District Act. *See infra* note 462.

29. California Dep't Of Water Resources, The 1991 Drought Water Bank 2 (1992). Almost

Colusa County farmers drilled a well on land they owned in Tehama County, hoping to export the water to their Colusa County fields.[30]

Over the last 21 years, eight California counties have enacted ordinances restricting groundwater exports.[31] At least half of these ordinances have been enacted in response to either the 1976-77 drought, or the 1987-1992 drought.[32] In addition to these county ordinances, over the past twelve years, the legislature has created four special districts with groundwater export control authority.[33] The pace of both state and

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all of this "groundwater" came from parties who sold the Bank their surface water rights and then pumped groundwater instead. *Id.* at 8. Less than 10,000 acre-feet represented groundwater actually pumped for transfer to the Bank. *Id.* For the 1992 Drought Water Bank, the Department of Water Resources purchased 150,000 acre-feet of this "groundwater." California Dep't Of Water Resources, State Drought Water Bank (1993) at 7 (Draft Program Envir. Impact Report) [hereinafter Draft EIR]. Many of the environmental effects of this increased pumping in lieu of surface water use are the same as if the groundwater had been sold directly. For example, the Department of Water Resources evaluates all such exchanges for four "water level related impacts": "1) overdraft, 2) land subsidence, 3) effects on other pumpers, and 4) effects on flows in the surface water system." *Id.* at 110.

In 1992, in recognition of the potential impact of these water bank transactions that induce increased groundwater extraction in order to free surface water deliveries for transfer, the legislature passed A.B. 2897. *See* Cal. Water Code § 1745.10 (West. Supp. 1993). As codified, that bill states:

> A water user that transfers surface water pursuant to this article may not replace that water with groundwater unless the groundwater use is either of the following:
> (a) Consistent with a groundwater management plan adopted pursuant to state law for the affected area.
> (b) Approved by the water supplier from whose service area the water is to be transferred and that water supplier, if a groundwater management plan has not been adopted, determines that the transfer will not create, or contribute to, conditions of long-term overdraft in the affected groundwater basin.

Cal. Water Code § 1745.10 (West. Supp. 1993).

30. *See* Petition for Writ of Mandate at 2-4, Myers v. County of Tehama, No. 18498 (Cal. Super. Ct., Tehama County, Mar. 3, 1992). This led to enactment of the Tehama County ordinance. *See infra* notes 403-429 and accompanying text.

Another group of irrigators also have exported groundwater from Tehama County. Baldwin Pacific Farms, a Glenn County almond rancher, and Magnesium Alloy Products Farms (Mapco), a Colusa County almond rancher, both sought to export groundwater from a Tehama County ranch owned by Haleakala Orchards, a general partnership of which Baldwin Pacific is a partner. *See* Petition for Writ of Mandate, at 2-3, Baldwin v. County of Tehama, Tehama No. 34446 (Cal. Super. Ct. May 27, 1992). Indeed, Haleakala began pumping for Mapco in 1990 and continued in 1991. *Id.*

31. These include, in chronological order: 1) Imperial (1972), 2) Butte (1977), 3) Glenn (1977), 4) Modoc (1978), 5) Sacramento (1980), 6) Inyo (1980), 7) Nevada (1986) and 8) Tehama (1992). *See infra* notes 216-220 and accompanying text.

32. The Butte, Glenn, and Modoc ordinances were enacted during or soon after the 1976-77 drought. The Tehama ordinance was enacted during the 1987-92 drought.

33. These include, in chronological order: 1) Sierra Valley Groundwater Management

county sponsored groundwater export legislative efforts has been increasing. Indeed, since 1989, ten counties either have had groundwater export legislation enacted (or amended) or have seriously reviewed possible legislation or formal water export policies.[34]

To varying extents of intent and degrees of success, the local export controls seemingly attempt to accomplish one or more of three goals. First, where applicable, the local permit systems set up for groundwater exports functions as a local equivalent to the state administered appropriative rights permits for surface watercourses. As described more fully below, no centrally administered permit system governs state groundwater extraction rights.[35] Pumpers wishing to verify

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District (1980); 2) Mono County Tri-Valley Groundwater Management District (1989), 3) Honey Lake Valley Groundwater Management District (1989), and 4) Ojai Basin Groundwater Management District (1991). *See infra* notes 431-470 and accompanying text. In addition, in October 1992, the governor vetoed two bills that would have established the Glenn County Groundwater Management District. *See infra* notes 201 & 469.

34. Tehama County enacted an export control ordinance for the first time in early 1992. *See infra* notes 403-429 and accompanying text. Glenn County amended its ordinance in 1990. *See infra* notes 324-335 and accompanying text. In addition, in 1992, Glenn County sought express state legislative authority to create a groundwater management district with export control authority. *See infra* note 201.

In 1989, Mono County got the Legislature to enact the Mono County Tri-Valley Groundwater Management District Act in 1989. *See infra* note 461 and accompanying text. In 1991, Ventura County residents in the Ojai Basin convinced the legislature to create a special groundwater management district that had export authority. *See infra* note 464 and accompanying text.

Since 1991, Butte County, which has had an export control ordinance since 1978, has participated in the formation of the "Butte Basin Water Users Association." *See infra* note 487. This organization addresses "the need to manage the Butte Basin's surface and groundwater resources to ensure that water transfers in or outside the Basin do not adversely impact Butte Basin water users." *Id.*

In addition to these complete actions, several counties have reviewed or are contemplating new ordinances or legislation. In 1992, Sutter County circulated a proposed groundwater export ordinance. *See infra* note 430. Since 1991, Imperial County, the first county ever to enact a groundwater export ordinance, has been reviewing legislation to create a special district similar to the Mono County district. Letter from Joanne L. Yeager, *Assistant Count Counsel, Imperial County*, to Gregory S. Weber (1992) (on file with author). Yuba County has indicated interest in enacting water transfer ordinances. Response from Yuba County Counsel to survey by Gregory S. Weber (Nov. 1992) (on file with author). In 1992, San Joaquin County announced a general policy opposing any transfers of water from San Joaquin County where the water had not been offered first to other San Joaquin county users, or where affected water agencies had not yet consented. San Joaquin County, Cal., Resolution 4-92-236 (Apr. 7, 1992). Yolo County has moved to create a new county wide water agency charged with developing a water export policy. *See County to Form Water Agency*, Davis Enterprise, (Oct. 14, 1992), A-1 & A-5. Finally, Napa County has indicated that it is working on a formal water export policy statement. Response from Napa County Flood Control and Water Conservation District to survey by Gregory S. Weber (Nov. 12, 1992).

35. *See infra* notes 113-179.

(or quantify) pumping rights thus must sue for a judicial determination of rights.[36] The local groundwater export control ordinances provide an administrative process, albeit locally supervised, that determines the availability of groundwater for export and considers some of the impacts on the environment from a prospective groundwater appropriation.[37]

Second, the ordinances provide a handle to allow local review of transfers of groundwater use. Increasingly, state statutory law addresses surface water transfers in great detail.[38] For the most part, these statutes do not address groundwater. Moreover, the common law on temporary changes in place of groundwater use remains largely undeveloped.[39] Since the ordinances address all exports without distinguishing source of pumping right or duration of proposed export, they arguably apply even to short term transfers by a pumper traditionally exercising overlying rights.[40]

Third, in varying degrees of explicitness, the local groundwater export provisions exemplify local "area of origin" restrictions.[41] Such

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36. *See* Final Report, *supra* note 6, at 143.

37. *See, e.g.*, Tehama County, Cal., Code §§ 9.40.060, .40.060 (1992). The local efforts mimic simplistically some of the broader range of factors that the State Water Resources Control Board considers when reviewing a permit to appropriate water from a watercourse. For example, the Board, too, must determine generally the availability of water in light of other diversions and public interest considerations. *See, e.g*, Cal. Water Code §§ 1201 to 1203, 1253 to 1259 (West 1971 & Supp. 1993) (sections respectively addressing water available for appropriation and public interest considerations).

38. *See, e.g.*, Cal. Water Code §§ 109, 475 (West Supp. 1993) (policy support for transfers). *See generally* B. Gray, *A Primer on California Water Transfer Law*, 31 Ariz. L. Rev. 745 (1989).

39. *See infra* notes 154-175 and accompanying text.

40. *See infra* notes 154-175 and accompanying text.

41. Tehama County's ordinance exemplifies the more explicit (if not necessarily coherent) approach to reservation of water for future, in county uses. *See* Tehama County, Cal., Code § 9.40.010(10) (1992) (mining definition). This ordinance is discussed in detail *infra*, notes 413-421 and accompanying text.

"Area of origin" protections attempt to reserve water for use by an area at or near the water's source. Such statutes, unique to water among the natural resources, are likely a function of the lack of market pricing for most water rights. *See, e.g.*, National Water Comm'n, Water Policies For The Future 323-24 (1973). *See generally* L. MacDonnell & C. Howe, *Area-of-Origin Protection in Transbasin Water Diversions: An Evaluation of Alternative Approaches*, 57 U. Colo. L. Rev. 527, 539 (1986) (surveying the laws and concluding, to be economically desirable, transbasin diversion must be "least-cost source of reliable water supply to the prospective user" and "its benefits must exceed all related costs)."

California has several "area of origin" provisions. Initially, riparian rights, with their limitation of water extraction to the parcel of land adjoining the watercourse, themselves accomplish some "area of origin" protections. National Water Comm'n, *supra*, at 323; MacDonnell & Howe, *supra*, at 530. Beyond riparian rights, the legislature has enacted four main area of origin statutes. First, the "County of Origin" law prohibits the assignment of appropriative rights applications filed by the state if required for the future needs of a county in which the water originates. Cal. Water Code § 10505 (West 1971).

provisions attempt to reserve water for future needs in the areas where precipitation falls or groundwater is extracted. When enacted and administered locally, without any state authorization, such provisions serve parochial interests at the possible expense of the interests of the state as a whole.

As a result of these local legislative efforts, a patchwork quilt of groundwater export regulations has sprung up across the state. This patchwork raises two principal sets of legal issues.[42] First, the ordinances raise important questions of statutory interpretation. Many of the ordinances suffer from vagueness, ambiguity and incoherence.[43] They frequently define hydrological terms imprecisely. By themselves, many of the ordinances demonstrate a need for substantial revision. Moreover, while most of the local legislative efforts share common features, the various schemes differ in many critical ways. The differences potentially force a prospective groundwater exporter, such as the state's Department of Water Resources, to deal with four current and four

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Second, the "Watershed Protection" law grants preferences to water users in the "watershed of origin" and areas "immediately adjacent thereto." *Id.* § 11460. The Watershed Protection law applies to "any agency of the state or federal government." *Id.* § 11128. Third, the Delta Protection Act prohibits diversion of water from the delta of the Sacramento and San Joaquin rivers to which delta users have legal entitlements. *Id.* §§ 12200 to 12204. For a discussion of these three statutes, see R. Robie & R. Kletzing, *Area of Origin Statutes--The California Experience*, 15 Idaho L. Rev. 419 (1979). The most recent California area of origin statute involves seven specified river systems in Northern California. Cal. Water Code §§ 1215 to 1222 (West Supp. 1993). These latter provisions are discussed in more detail *infra*, notes 182-194 and accompanying text.

42. A third issue involves the power of California counties to pass their ordinances. In three unpublished trial court decisions, county actions restricting groundwater exports have been successfully challenged as preempted under the state constitution. *See* Judgment on the Pleading, City of Los Angeles v. County of Inyo, No. 12908 (Cal. Super. Ct. Inyo County July 13, 1983); Order Granting Plaintiff's Motion for Summary Judgment and Denying Defendant's Motion for Partial Summary Judgment, Truckee-Donner Pub. Util. Dist. v. County of Nevada, No. 35920 (Cal. Super. Ct. Sutter County Dec. 8, 1988); Ruling on Motion for Summary Judgment, Myers v. County of Tehama, Nos. 34147 & 34446 (Cal. Super. Ct. Tehama County Aug. 11, 1993) (consolidated with Petition for Writ of Mandate, Baldwin v. County of Tehama, No. 34446 (Cal. Super. Ct. May 27, 1992)), *appeal filed*, No. 3 Civil C017301 (Cal. Ct. App. Dec. 3, 1993); *see generally* G. Weber, *Forging a More Coherent Groundwater Policy in California: State and Federal Constitutional Law Challenges to Local Groundwater Export Restrictions*, 34 Santa Clara L. Rev. 373, 386-90 (1994). In addition, a partially successful challenge was raised against the Imperial ordinance under the federal constitution's commerce clause. *See* Munoz v. County of Imperial, 604 F.2d 1174, 1175 (9th Cir. 1979), *vacated*, 449 U.S. 54 (1980), *on remand*, 636 F.2d 1189 (9th Cir. 1981), *on remand*, 510 F. Supp. 879 (S.D. Cal. 1981), *aff'd*, 667 F.2d 811 (9th Cir. 1982), *cert. denied*, 459 U.S. 825 (1982); *see generally* Weber, *supra*, at 448-51 & nn. 330-33. The complexity of the preemption and dormant commerce clause analysis requires separate treatment and is beyond the scope of this article.

43. *See, e.g.*, Tehama County, Cal., Code § 9.40.010(10) (1992) (defining "mining"); *infra* note 413-421 and accompanying text.

possible county groundwater export ordinances in the Sacramento Valley alone. Thus, second, the patchwork raises important policy questions about the role of state legislation in coordinating groundwater export controls to balance local economic and environmental interests with statewide needs.

The pace of local legislative efforts to address groundwater exports is likely to accelerate even more markedly. At the end of the 1991-92 legislative session, the legislature enacted, and the governor signed, A.B. 3030.[44] That legislation authorizes hundreds of local public agencies to enact groundwater management programs.[45]

In an attempt to bring some coherence to the emerging patchwork, this article surveys and criticizes the local groundwater export legislative efforts to date. Part II of this article introduces several critical hydrological concepts.[46] Part III summarizes state laws on groundwater appropriation and export.[47] Part IV surveys the county ordinances that address groundwater export.[48] Part V surveys the major legislative alternative to county ordinances: state legislation to create special groundwater management districts with export control authority.[49] Part VI summarizes the conclusions and considers the need for some central, state wide control over groundwater transfers.[50]

II. GROUNDWATER HYDROLOGY

The legal efforts to manage groundwater draw heavily upon concepts addressed by groundwater hydrology.[51] Too often, the legal

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44. *See infra* notes 197-210 and accompanying text.

45. For the A.B. 3030 definition of "local public agency," see *infra* note 199. As of 1977, there were about 900 special districts in California that had some water utility functions. Groundwater In The West, *supra* note 3, at 59. An admittedly incomplete March 1992 Department of Water Resources listing tallies 994 active, and 73 inactive, water agencies statewide. California Dep't Of Water Resources, Interim Statewide Alpha Listing Of Water Service Agencies (1992). Many of these agencies may have some authority to act under A.B. 3030.

46. *See infra* notes 51-109 and accompanying text.

47. *See infra* notes 110-214 and accompanying text.

48. *See infra* notes 215-430 and accompanying text.

49. *See infra* notes 431-470 and accompanying text.

50. *See infra* notes 471-497 and accompanying text.

51. Broadly defined, "hydrology" is "the discipline dealing with the properties, occurrence, distribution, and movement of water on and beneath the surface of the land." R. Kazmann, Modern Hydrology 1 (1965). "Groundwater hydrology" is "concerned primarily with the movement of potable subsurface water caused by a difference in potential or head." *Id.* at 129. "Hydrogeology" explores the "control and influence" of the "physical properties of rock formations . . . [upon] . . . the movement of water within them." *Id.*

system adopts such concepts imprecisely,[52] or, worse, adopts terms that lack a firm hydrological foundation.[53] The following discussion explores the hydrological basis for four sets of terms that permeate groundwater legislation: 1) groundwater and water table; 2) groundwater basin and aquifer; 3) cone of depression and well interference; and 4) overdraft, safe yield, and mining.

1. *"Groundwater" & "Water Table"*

In common parlance, all underground water is "groundwater."[54] Most hydrologists, however, use "groundwater" to refer to one class of subsurface water: water in the "zone of saturation."[55]

Hydrologists broadly divide subsurface water into two classes: 1) water in the unsaturated zone, formerly called "vadose" water, or water in the zone of "aeration," and 2) "groundwater," or water in the zone of saturation.[56] Water in the unsaturated zone does not flow freely into wells, although knowledge of its complicated hydraulics is becoming increasingly necessary in cleaning up toxic contamination.[57] In contrast, water in the zone of saturation will flow freely to supply wells and

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52. For example, several of the ordinances discussed below fail to define the boundaries of a "groundwater basin," even though hydrogeologists have offered numerous different ways to indicate a basin's boundaries. *See, e.g.*, Glenn County, Cal., Code §§ 20.04.030-20.04.280 (1991) (no definition of "groundwater basin" even though the term is used in several of the listed definitions). For a discussion of the possible boundaries of "groundwater basins," see *infra* notes 66-80 and accompanying text.

53. For example, groundwater ordinances are often enamored with addressing a groundwater basin's "safe yield" and preventing groundwater "mining." *See, e.g.*, Butte County, Cal., Code §§ 33-2.12,-2.19 (Supp. 1978) (section respectively addressing "mining" and "safe yield"). Groundwater hydrologists, however, question the value of either concept. *See infra* notes 86-109 and accompanying text.

54. *See, e.g.*, Kazmann, *supra* note 51, at 129 (groundwater "includes all of the waters found beneath the surface of the ground").

55. *See, e.g.*, R. Heath, Basic Groundwater Hydrology 4 (1982). "Water in the saturated zone is the only underground water that is available to supply wells and springs and is the only water to which the name *ground water* is correctly applied." *Id.* (emphasis added).

56. 1 California Dep't Of Water Resources, 1967 Groundwater Course, *Groundwater Geology*, 49-50 (1967) (Asilomar Conference Grounds, Pacific Grove, Cal. 1967) [hereinafter 1967 Conference]. Hydrologists appear to use synonymously "zone of aeration," "soil zone," and "unsaturated zone" to refer to all vadose water. *See* E. Murphy & C. O'Neill, *Geology and Hydrology, in* 3 Waters And Water Rights § 18.02, at 10-11 (R. Beck ed., 1991) [hereinafter Waters and Water Rights]. The United States Geological Survey (USGS) no longer uses "vadose water" or zone of "aeration." U.S. Geolological Survey, Definitions Of Selected Groundwater Terms--Revisions And Conceptual Refinements 14-15 (1972) [hereinafter Groundwater Terms] (Water Supply Paper No. 1988) .

57. *See* M. Anderson, *Hydrogeologic Framework for Groundwater Protection, in* Planning For Groundwater Protection 1, 3, 6-12 (G. Page ed., 1987) [hereinafter, *Hydrogeologic Framework*].

springs.[58] Echoing the distinctions most hydrologists make, this article will consider as "groundwater" only water in the zone of saturation.

Groundwater will reach different levels in wells drilled in confined and unconfined aquifers.[59] In a well drilled into an unconfined aquifer, water will reach the top of the zone of saturation, known as the "water table."[60] In a tightly cased well drilled into a confined aquifer, water will reach the "potentiometric surface."[61]

The regulatory schemes considered below have also created different classes of subsurface water. As discussed more fully below, California courts have erected a common law of subsurface water classification upon the foundation of the nineteenth century's poor understanding of hydrology.[62] For their part, the state and local legislative schemes reviewed below generally follow hydrology's classification of "groundwater" as "water in the zone of saturation."[63] Similarly, while lawyers commonly may not distinguish between "water table" and "potentiometric surface,"[64] the regulatory schemes considered below generally follow the hydrological distinctions between the two concepts.[65]

2. *"Groundwater Basin" & "Aquifer"*

In simplest terms, both "groundwater basin" and "aquifer" connote a subsurface geological formation that can yield water to a well.[66] Indeed, hydrologists uniformly define an "aquifer" simply as "a

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58. *Hydrogeologic Framework*, *supra* note 57, at 3; Heath, *supra* note 55, at 4.

59. *See* A. Schneider, *Groundwater Rights in California*, Governor's Comm'n To Review Cal. Water Rights Law 100 (1977) (Staff Paper No. 2, *adapted from* R. Richter, *California Groundwater Geology*, in University of Cal., Davis Extension, Concepts Of Groundwater Management 2-41 (1974)). *See also* Heath, *supra* note 55, at 6 (distinguishing "confined" and "unconfined" aquifers).

60. *See Hydrogeologic Framework*, *supra* note 57, at 3 (describing role of pressure on water table).

61. *See* Heath, *supra* note 55, at 6 (discussing artesian wells).

62. *See infra* note 112.

63. *See, e.g.*, Cal. Water Code § 10752(a) (West Supp. 1993); Butte County, Cal., Code § 33-2.6 (Supp. 1978).

64. Waters and Water Rights, *supra* note 56, at 11.

65. *See, e.g.*, Glenn County, Cal., Code §§ 20.04.180, 20.04.270 (1991) (defining respectively, "piezometric surface" and "water table").

66. Two non-technical studies demonstrate the simplicity of the commonplace meanings of "aquifer" and "groundwater basin." Describing an "aquifer," one author stated: "[a] typical aquifer . . . in some ways is similar to a bucket of sand half-filled with water. Drilling a well is like digging a hole in this sand and allowing it to fill with water which can then be removed." G. Widman, *Groundwater--Hydrology and the Problem of Competing Well Owners*, 14 Rocky Mtn. Min. L. Inst. 523, 525 (1968). Similarly, another author described "groundwater basins" as "elaborate [subterranean] lattice works of rock, [that] like giant sponges, store

rock unit that will yield water in usable quantity to a well or spring."[67] The reference to "usable quantity" imports some subjectivity into the definition; usability may depend upon the extractor's purpose.[68] The legal systems considered below generally adopt definitions of "aquifers" virtually identical to the hydrological definition.[69]

Unlike "aquifer," "groundwater basin" does not command as universal a following among hydrologists or as precise a definition. As a leading survey of California groundwater law notes, "there is no single, widely-accepted definition [of groundwater basin]."[70] Some hydrologists speak only, or primarily, of "aquifers."[71] Others define "groundwater basin" as: "an area underlain by one or more permeable formations capable of furnishing a substantial water supply."[72] This definition substantially overlaps the concepts of "aquifer" and "groundwater basin."[73] It adds, however, two important notions. First, it focuses attention on the surface area. Second, it notes that multiple aquifers may underlie any given surface area.[74] Despite the impreciseness of the

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water in their passageways." Office Of Planning And Research, Offices Of The Governor Of California, California Groundwater Management 7 (1982).

67. Heath, *supra* note 55, at 6. Heath notes that "[i]n geologic usage, 'rock' includes unconsolidated sediments." *Id.* Thus, Anderson defines "aquifer" as "a unit of *porous material* that yields economically significant quantities of water to wells." *Hydrogeologic Framework, supra* note 57, at 15. *See also* Kazmann, *supra* note 51, at 137; Bulletin 118-75, *supra* note 1, at 4. The USGS defines "aquifer" as: "a formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs." Groundwater Terms, *supra* note 56, at 2.

68. *See Hydrogeologic Framework, supra* note 57, at 15.

69. *See, e.g.*, Glenn County, Cal., Code § 20.04.030 (1991) ("aquifer" meaning a geologic formation that stores, transmits and yields significant quantities of water to wells and springs).

70. Schneider, *supra* note 59, at 98.

71. For example, Heath does not appear to use "groundwater basin" at all in his "Basic Groundwater Hydrology." Rather, he appears to prefer "groundwater system" to include both the "aquifers and confining beds that underlie any area." Heath, *supra*, note 55, at 14. Kazmann speaks primarily of "aquifers." *See, e.g.*, Kazmann, *supra* note 51, at 137-207 *passim*. Still, he occasionally uses "basin," apparently synonymously with "aquifer." *See, e.g., id.* at 160-61, 181.

72. 1967 Conference, *supra* note 56, at 19; *see also id.* at 21 (identifying six types of "groundwater basins" in California).

73. Indeed, the Governor's Commission's proposed legislation defined "groundwater basin" as: "a geologically and hydrologically defined area which contains one or more aquifers which store and transmit water and will yield significant quantities of water to wells." Final Report, *supra* note 6, at 174.

74. The surface of groundwater basins, however, may be underlain by numerous separate aquifers. For example, in two plates accompanying the Department of Water Resources' study, "Evaluation of Groundwater Resources: Sacramento Valley," maps show elevations of sections of the Sacramento Valley groundwater basin. California Dep't Of Water Resources, Bulletin 118-6, Evaluation of Groundwater Resources: Sacramento Valley (1978)

term—or perhaps because of it—drafters of water management schemes frequently prefer to base their programs on "basin" rather than on "aquifer."[75]

Whether based on "aquifer," "groundwater basin," or some combination of the two, a regulatory scheme needs to delineate where one aquifer or basin ends, and another begins. The same groundwater survey that noted the disagreement over definition of "basin" also noted that "[m]any different lateral and vertical boundaries can be used to define a groundwater basin."[76] Again, borrowing from one compilation, the survey broke the potential lateral boundaries into three classes: physical, hydraulic, and political.[77] Within each of these three broad groups of boundary choices lie five to twelve specific choices.[78] Similarly, multiple options exist for determining a basin's vertical boundaries.[79] A complete discussion of the geological bases is beyond the scope of this article. The variety of geological features that might lead to distinctions between "basins" and "sub-basins," and the use of "political boundaries" as basin boundaries, demonstrates the fluidity of "basin" as a regulatory concept. With this fluidity comes the opportunity for gross imprecision. When coupled with the even more fluid concept of a basin's "safe yield," regulatory schemes based on imprecisely defined "groundwater basins" may become incoherent.[80]

[hereinafter Bulletin 118-6] (see plates 3 & 4). A portion of "Diagram D," covering a section in Colusa and Sutter counties, shows as many as a dozen different layers of predominantly coarse grained materials, separated by layers of fine grained materials. *Id.* All of the separate layers may yield small to large quantities of water to wells. *Id.*

75. *See, e.g.*, Cal. Water Code § 10752(b) (West Supp. 1993) ("groundwater basin" defined); Bulletin 118-80, *supra* note 12 (entitled "Groundwater Basins in California"). The Department prepared Bulletin 118-80 in response to specific legislation asking it to identify the state's groundwater basins. Cal. Water Code § 12924 (West 1992). The legislature instructed the Department to identify basins by reference not only to geological and hydrological conditions, but also, where feasible, to political boundary lines. *Id.*; *see* Bulletin 118-80, *supra* note 12, at iii.

76. Schneider, *supra* note 59, at 101 (citing Richter, *California Ground Water Geology*, *in* Concepts Of Ground Water Management 2-48 (1974) (Univ. of Cal. Davis Extension)).

77. Schneider, *supra* note 59, at 101. *See also* 1967 Conference, *supra* note 56, at 19 (three groundwater basin categories based on basin underflow characteristics).

78. Schneider, *supra* note 59, at 101; *see also* 1967 Conference, *supra* note 56, at 19 (subdividing tripartite basin underflow characterizations).

79. Schneider identifies eight options for determining a basin's "vertical" boundaries. Schneider, *supra* note 59, at 101.

80. For a discussion of "safe yield" see *infra*, notes 89-109 and accompanying text. For a discussion of the glaring analytical consequences of the failure to define the appropriate "basin" central to a local regulatory scheme, see *infra* notes 275-281 and accompanying text (discussing Butte County, Cal., Code § 33-3 (Supp. 1978)).

3. *Cone of Depression & Well Interference*

"Cone of depression" and "well interference" are two concepts that describe relatively immediate effects of groundwater pumping.[81] These concepts, uniformly embraced by hydrologists, have found their way occasionally into regulatory schemes without substantial lawyerly interpretation.[82] Heath states: "[p]umping a well causes a drawdown in the groundwater level in the surrounding area. The drawdown in water level forms a conical-shaped depression in the water table or potentiometric surface, which is referred to as a cone of depression."[83] He continues:

> "Where pumping wells are spaced relatively close together, pumping of one will cause a drawdown in the others. Drawdowns are additive, so that the total drawdown in a pumping well is equal to its own drawdown plus the drawdowns caused at its location by other pumping wells. The drawdowns in pumping wells caused by withdrawals from other pumping wells are referred to as well interference."[84]

Well interference from a large well may cause nearby smaller wells to run dry if they are located within the large well's cone of depression.[85]

4. *Overdraft, Safe Yield & Mining*

Three enticingly simple, interrelated concepts—"overdraft," "safe yield" and "mining"—have generated years of controversy among hydrologists. In their popular sense, all three terms *connote* a management choice between treating an aquifer as a renewable or a nonrenewable resource.[86] Ultimately, however, hydrologists have been unable to agree on what, if anything, the terms actually denote. Despite the substantial misgivings of hydrologists over the terms' value as technical concepts, all of the regulatory programs discussed below have placed "overdraft" and

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81. *See* Final Report, *supra* note 6, at 150 ("[w]ell interference, however, sometimes develops very quickly . . . ."); Heath, *supra* note 55, at 44.

82. *See, e.g.*, Tehama County, Cal., Code § 9.40.010(16) (1992) ("radius of influence" defined in reference to a well's "cone of depression"). *See infra* notes 410, 426-429 and accompanying text.

83. Heath, *supra* note 55, at 44 (emphasis deleted).

84. Heath, *supra* note 55, at 44 (emphasis deleted).

85. Final Report, *supra* note 6, at 150.

86. *See, e.g.*, W. Balleau, *Water Appropriation and Transfer in a General Hydrogeological System*, 28 Nat. Res. J. 269, 278 (1988) ("groundwater mining is generally described as the opposite of safe-yield management and as appropriate for unrechargeable or nontributary groundwater basins").

"safe yield" at the heart of their legal schemes. Some understanding of the hydrological significance of the terms will illustrate the conceptual limits of the legal schemes themselves.

The definitions offered by the California Department of Water Resources (DWR) exemplify the definitions that have found their way into the regulatory schemes discussed below. In particular, the definitions of "overdraft" and "mining" focus on the relationship between groundwater extractions and groundwater replenishment. In its principal groundwater publication, commonly referred to as "Bulletin 118-75," DWR defines "overdraft" as "the temporary condition of a groundwater basin where the amount of water withdrawn by pumping exceeds the amount of water replenishing the basin over a period of time."[87] DWR then defines "mining" as "pumping from groundwater bodies greatly in excess of replenishment."[88] Finally, it defines "safe yield" as "the maximum quantity of water that can be continuously withdrawn from a groundwater basin without adverse effect."[89]

These three definitions appear in substantially similar form in various hydrological discussions.[90] More significantly for purposes of this article, they have been adopted virtually verbatim by several of the

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87. Bulletin 118-75, *supra* note 1, at 4; *see also* Bulletin 160-87, *supra* note 3, at 31 (elaborating on "overdraft").

In Los Angeles v. San Fernando, 537 P.2d 1250, 1309 (Cal. 1975), the California Supreme Court defined "overdraft" as the point at which "extractions from the basin exceed its safe yield plus any . . . temporary surplus." "Temporary surpluses" occur during wet years; in such years, extraction greater than long term safe yield is permissible in order to create aquifer storage space for percolation of above normal precipitation or active spreading of increased surface water. *See, e.g.*, Final Report, *supra* note 6, at 140 ("Temporary surplus is the amount of water that can be extracted from a basin to provide storage space for wet year runoff that would otherwise be lost").

88. Bulletin 118-75, *supra* note 1, at 4. *See also id.* at 124, 129 (noting "mining" apparently synonymous with "continued overdrafting" and "mining" involves "withdrawing substantial quantities of water from storage in an underlying basin").

89. Bulletin 118-75, *supra* note 1, at 5. DWR noted that, prior to the California Supreme Court's opinion in Los Angeles v. San Fernando, 537 P.2d 1250 (Cal. 1975), California groundwater law defined "safe yield" in terms of "average annual natural recharge of the basin." Bulletin 118-75, *supra* note 1, at 125 (fig. 26). In Los Angeles v. San Fernando, the court agreed that a broader definition of "safe yield" would encourage the conjunctive use of groundwater basins. *Los Angeles*, 537 P.2d at 1307-09. Accordingly, as the court approved the "safe yield" definition now used by DWR, it glossed: "[t]he phrase 'undesirable result' is understood to refer to a gradual lowering of the groundwater levels resulting eventually in depletion of the supply." *Id.* at 1308. For a discussion of other portions of Los Angeles v. San Fernando, see *infra* notes 141-150 and accompanying text.

90. *See, e.g.*, R. Freeze & J. Cherry, Groundwater 364 (1979) (noting definitions of "safe yield" and "overdraft"); Waters & Water Rights, *supra* note 56, § 18.04, at 16 (mining occurs when an aquifer "is not capable of recharge or can recharge only in extraordinarily long time periods").

local ordinances.[91] Nevertheless, none of the definitions have garnered uniform support from hydrologists. For example, some hydrogeologists would object that the "mining" definition is overly narrow or un-focused.-[92] The use of "safe yield" as a regulatory concept, however, has borne the brunt of hydrologists' criticism.[93]

Hydrologists have criticized the "safe-yield" definition for two principal reasons. First, the definition is inherently subjective. If "safe yield" is the amount of water that can be withdrawn from a groundwater basin without causing an undesirable effect, hydrologists Mary P. Anderson and C. Alan Berkebile ask: "what constitutes an undesired result[?] The answer, of course, will vary with the respondent."[94] Second, hydrologists question the traditional and still frequent linkage of "safe yield" with pumping based on recharge to an aquifer.

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91. *See, e.g.*, Butte County, Cal., Code §§ 33-2.12, -2.13, -2.19 (Supp. 1978) (defining respectively "mining", "overdraft", and "safe yield"); Glenn County, Cal., Code §§ 20.04.140, .150, .210 (1991) (defining respectively, "mining", "overdraft", and "safe yield"); Tehama County, Cal., Code §§ 9.40.010(11), .010(18) (1992) (defining "overdraft" and "safe yield").

92. *Compare* Holzschuh, *supra* note 7, at 346 (concluding "because ["mining"] is fraught with psychological implications, we as groundwater professionals must take care to use it correctly, and further, to educate those in related disciplines who misuse it") *with* Balleau, *supra* note 86, at 280 ("[a]ll groundwater developments initially mine water, and finally do not"). For Balleau, "mining" is simply the removal of water from storage in an aquifer. "Every groundwater development ... begins with 100 percent of withdrawals being derived from storage. The timing of the change from *storage depletion (mining)* to induced recharge from surface water bodies is key to the water policy question." Balleau, *supra* note 86, at 278 (emphasis added). In recognition that removal from storage marks the initiation of all groundwater extractions, Balleau prefers to speak of the "mining phase" of groundwater development. *Id.* at 278-80. He defines this "phase" as the period in which 98 percent or more of the extracted water comes solely from storage. *Id.* at 278-79. Where the "mining phase" will last for a "reasonable planning horizon," Balleau believes that "mining" is a "reasonable" management option for unrechargeable or nontributary water. *Id.* at 278-81; *accord*, J. Bredehoeft et al., *Groundwater: The Water-Budget Myth, in* Scientific Basis Of Water Resource Mgmt. 51, 52 (1988) ("Some water must be taken from storage in the system to create gradients toward a well . . . [Thus] some water must always be mined to create a development . . . . ") [hereinafter, *The Water-Budget Myth*].

93. *See, e.g.*, M. Anderson & C. Berkebile, *Hydrogeology of the South Fork of Long Island, New York: Discussion and Reply*, 88 Geolological Soc'y Am. Bull. 895, 895 (1977). Materials distributed by DWR in its "1967 Conference" summarized ten definitions proffered by hydrologists over forty years. *See* 1967 Conference, *supra* note 56.

94. Anderson & Berkebile, *supra* note 93, at 895. *See also Hydrogeologic Framework, supra* note 57, at 16-17. As support for their conclusions, Anderson and Berkebile quote from the landmark 1951 work by Harold E. Thomas. Anderson & Berkebile, *supra* note 93, at 895. Thomas discussed extensively hydrologists' concerns with the legal system's adoption of "safe yield." H. Thomas, The Conservation Of Groundwater 261-64 (1951) ("'Safe Yield' is an Alice-in-Wonderland term which means whatever its user chooses"); *cf.* C.W. Fetter, Jr., *Reply*, 88 Geolological. Soc'y Of Amer. Bull. 896 (1977) (using "safe yield" but acknowledging that the term is "a subjective phenomena based upon human values").

> According to Anderson, safe yield has been approximated to be equal to some fraction of the net annual precipitation using the flawed rationale that safe yield is equal to groundwater recharge. While such an approach may be justified on a regional scale to get a rough estimate of this type of parameter for comparison purposes . . . the weaknesses inherent in the approach should be fully recognized. Specifically, groundwater recharge is very difficult to estimate accurately . . . equating recharge to some fraction of precipitation is at best only a rough approximation of the actual groundwater recharge. Furthermore, it is physically impossible to capture 100 percent of the natural groundwater recharge by pumping. Finally, the true basin yield depends on interaction of the unsaturated and surface water zones with the groundwater zone.[95]

Similarly, hydrologist W.P. Balleau summarizes the fallacy of equating natural recharge and safe yield: "[n]atural recharge is a spurious part of the wellfield water budget and is irrelevant to the magnitude of an artificial groundwater development."[96] In short, critics brand "safe yield" as a "myth"[97] or a "shibboleth."[98] Indeed, for nearly 40 years, hydrologists have attempted to eliminate the term from their literature.[99]

In place of the regulatory preoccupations with "safe yield," and its cousins "mining" and "overdraft," several hydrologists have proffered new, hopefully more quantifiable terms. For example, R. Allan Freeze and John A. Cherry offer two new terms: "maximum stable basin yield" and "optimal yield."[100] Both concepts allow greater integration into management schemes of the relationship between groundwater pumping and surface water flows.[101] "Maximum stable basin yield" describes the point at which pumping from a basin lowers the water table to "a depth

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95. *Hydrogeologic Framework, supra* note 57, at 22-23 (citations omitted).

96. Balleau, *supra* note 86, at 280 (natural recharge is "generally already appropriated at downstream discharge point as the reliable baseflow of springs, wetlands and rivers"). *See* Freeze & Cherry, *supra* note 90, at 364; *The Water Budget Myth, supra* note 92, at 51-57. *See also* J. Emel, *Effectiveness and Equity of Groundwater Management Methods in the Western United States* 16-18 Ariz. St. U., Center For Envir. Studies (1984) [hereinafter *Effectiveness & Equity*] (Working Paper No. 3; basin wide estimates of discharge fail to account for temporal and spatial effects of pumping from a location far from a basin's natural discharge site).

97. *Hydrogeologic Framework, supra* note 57, at 22.

98. Kletzing, *supra* note 17, at 1242-44. While not a hydrogeologist, attorney Kletzing has a strong background in water regulation. *See id.* at 1225 (see the note at asterisk).

99. *See, e.g.*, Anderson & Berkebile, *supra* note 93, at 895 (citing R. Kazmann, *"Safe Yield", in Groundwater Development, Reality or Illusion*, 82 Am. Soc'y Civil Engineers Proc. J. Irrigation & Drainage Divisions p. 1103-1). Indeed, the United State Geological Survey no longer includes "safe yield" within its lexicon. *See* Groundwater Terms, *supra* note 56, at 11.

100. Freeze & Cherry, *supra* note 90, at 364, 367.

101. *See, e.g.*, Freeze & Cherry, *supra* note 90, at 367.

below which *no* stable recharge rate can be maintained."[102] According to Freeze and Cherry, basin planners should set planned extraction rates at some point below the maximum limit of stability, in order to allow a for "a factor of safety."[103] Determination of the precise point, however, depends upon non-hydrological factors. "Optimal yield" recognizes that:

> "groundwater has value only by virtue of its use, and the *optimal yield* must be determined by the selection of the optimal groundwater management scheme from a set of possible alternative schemes. The optimal scheme is the one that best meets a set of economic and/or social objectives associated with the uses to which the water is to be put."[104]

The combination of "maximum stable basin yield" and "optimal yield," as conceived by Freeze and Cherry, improves upon the DWR "safe yield" definition. Construed broadly, the DWR definition does allow consideration of economic and social factors. The "undesirable effects" might include the economic, social, and environmental costs of over—*or* underdevelopment of a particular basin.[105] Nevertheless, "maximum stable basin yield" offers a potentially quantifiable extraction limit that suffers not from "safe yield's" patent vagueness and its historical reliance on the irrelevant notions of "natural recharge."[106] Moreover, "optimal yield" replaces the psychologically charged, pseudo-technical "safe yield" concept with one that expressly embraces human or ecosystem use values.[107] While the quantification of such values may ultimately suffer

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102. Freeze & Cherry, *supra* note 90, at 366.

103. Freeze & Cherry, *supra* note 90, at 367. They note that "[o]ne dry year might cause an irrecoverable water-table drop." *Id.* Moreover, development of a basin to this maximum level might cause surface flows to drop, as extractions induced basin recharge from surface watercourses. *Id.* Thus, Freeze and Cherry note that optimal watershed development requires integration, or conjunctive use, of surface and subsurface waters. *Id.*

104. Freeze & Cherry, *supra* note 90, at 364-65. They continue:

> In some cases and at some points in time, consideration of the present and future costs and benefits may lead to optimal yields that involve mining groundwater, perhaps even to depletion. In other situations, optimal yields may reflect the need for complete conservation. Most often, the optimal groundwater development lies somewhere between these extremes.

Id. at 365. *See also Hydrogeologic Framework, supra* note 57, at 23.

105. Indeed, as the DWR itself has noted, the reformulation of "safe yield" from its original meaning of "average annual natural recharge" recognizes that "the dangers of permanent damage from overproduction have been oversold to the courts." Bulletin 118-75, *supra* note 1, at 124.

106. *Cf.* Anderson & Berkebile, *supra* note 93, at 895 (noting that "[p]erhaps the concept of maximum stable basin yield . . . is a step toward formulating a more rational approach [than 'safe yield']."

107. *Cf.* Balleau, *supra* note 86, at 280-81 (policymakers still find natural recharge based "safe yield" an attractive regulatory concept).

from imprecision, the imprecisions can be recognized properly as those inherent in the environmental and social sciences.

Balleau cautions that "[t]here is no valid generic rule, such as pumping the natural recharge, that will lead to a desirable economic or stable (non-depleting) level of groundwater development."[108] Still, policymakers continue to look for such a fix. Anderson notes that "safe yield" appears "to be immortal despite repeated death blows."[109] Only if "safe yield" denotes a broad optimization approach will the term allow responsible groundwater resource management.

III. GROUNDWATER RIGHTS & REGULATION UNDER STATE LAW

A. Private Rights to Groundwater Extraction and Use in California

1. Acquisition & Loss of Rights

California law divides subsurface water into two classes: 1) water flowing in defined subterranean channels;[110] and 2) percolating waters.[111] These largely arbitrary, nonscientific distinctions are relics of the nineteenth century legal and scientific communities' poor understanding of hydrology.[112] Under the California Water Code, private rights to use

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108. Balleau, *supra* note 86, at 280. Once optimization determines the extent to which a basin should be managed as a renewable resource, a variety of management options occur. For example, Emel suggests as a paradigm for managing a basin as a renewable resource "a steady-state equilibrium wherein withdrawals capture rejected recharge and natural discharge." Emel, *supra* note 96, at 16; *see Groundwater Terms*, *supra* note 56, at 3 (defining "capture"). According to Emel, if "capture" equals "withdrawal" for a small enough unit area, then "over" and "under"development may be avoided. Emel, *supra* note 96, at 16-18. Nevertheless, Emel does not offer this equation as a rigid formula appropriate to all basins. Rather, he recognizes that "[m]anaging withdrawals to achieve or approximate capture ignores the fostering of equity in property right protection. Rates of water level decline are not necessarily uniform (and optimal safe-yield management may dictate their nonuniformity) and the economics of pumping are ignored." *Id.* at 20. Managing a basin to limit withdrawals to an approximation of capture "gives value to property rights and leads to the development of a water market." *Id.* at 21; *cf. id.* at 33-36 (summarizing effectiveness and equity of various management alternatives.)

109. *Hydrogeologic Framework*, *supra* note 57, at 17.

110. "[A]ll hydrologists agree that almost none of California's groundwater resources flows in subterranean streams." Bulletin 118-75, *supra* note 1, at 124 n.1.

111. W. Hutchins, The California Law Of Water Rights 419 (1956). *See generally* Widman, *supra* note 66, at 530-31 (noting similar dichotomy in other states). In addition, the law of surface watercourses determines the rights to a surface stream's underflow. Hutchins, *supra*, at 422. In general, California law recognizes two types of rights to surface watercourses: riparian and appropriative. *See infra* note and accompanying text.

112. Rossmann & Steel, *supra* note 8, at 113, 905-06. To little avail, lawyers and hydrologists have urged greater integration of the laws of surface and subsurface water. *See,*

the first class of *subsurface* waters are created under the same appropriative system otherwise applicable to nonriparian *surface* waters.[113] Only the second class of subsurface waters are governed by the largely judge made body of "groundwater" rights law.[114]

California law recognizes three types of private rights to extract and use groundwater: 1) overlying rights, 2) appropriative rights and 3) prescriptive rights.[115] Extensive dicta in the 1903 case of *Katz v. Walkin-*

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e.g., Waters & Water Rights, *supra* note, § 18.01, at 6; E. Murphy & C. O'Neil, *Economics and Groundwater Interconnections*, *in* 3 Waters and Water Rights § 19.03, at 30-31 (R. Beck ed., 1991).

113. Calif. Water Code § 1200 (West 1971). California recognizes two main classes of private rights to divert and use surface waters: riparian and appropriative rights. Hutchins, *supra* note 111, at 40-55. For an overview of these two systems, see W. Attwater & J. Markle, *Overview of California Water Rights and Water Quality Law*, 19 PAC. L.J. 957, 959-75 (1988) [hereinafter *Overview*]. In addition to these two main classes of private rights, California recognizes prescriptive and pueblo rights. *Overview*, *supra*, at 969. Property law notions of adverse possession underlie prescriptive rights. *Id.*; *see generally Rewriting California Groundwater Law*, *supra* note 14, at 227 (discussing doctrine). Pueblo rights trace their origin to Spanish and Mexican law. *Id.* at 252. Paramount to all other rights, they allow a municipality formed under Mexican or Spanish law to "use the waters of sources that ran through the pueblo, both surface and underground, from their source to the sea." *Overview*, *supra*, at 969. *See generally Rewriting California Groundwater Law*, *supra* note 14, at 232-33 (discussing doctrine).)

The California law of appropriative rights generally follows the broad contours of the prior appropriation doctrine prevalent throughout the western United States. *See generally* R. Beck, *Prevalence and Definition*, *in* 2 Waters And Water Rights, §§ 12.01-12.04 (R. Beck ed. 1991). Prior to 1872, appropriative rights in California were almost entirely governed by judicial decision. *Overview*, *supra*, at 966. Between 1872 and 1914, the California Legislature enacted a number of provisions that created a statutory mechanism for obtaining appropriative rights. *Id.* Since 1914, appropriative rights have been obtained under a permit and license system now administered by the State Water Resources Control Board. *Id.* at 983; *see* Calif. Water Code §§ 1003.5, 1200-1851 (West 1971 & Supp. 1993).

114. *See* Schneider, *supra* note 59, at 2-3. All references to "groundwater" in this article include only those subsurface waters that do not flow in known and definite underground channels. "Percolating waters" simply means any water that does "not constitute part of a definite underground stream." Hutchins, *supra* note 111, at 426.

115. *See, e.g.*, Hutchins, *supra* note 111, at 431-61. "Overlying rights" are the rights of an overlying owner to extract groundwater from its property and use it on, or in connection with, the land overlying the basin. *See* Schneider, *supra* note 59, at 6-7. "Appropriative rights" involve extractions for use on non-overlying land. Hutchins, *supra* note 111, at 454-58; *see also* Rossmann & Steele, *supra* note 18, at 906-09. "Prescriptive rights" refer to rights against either overlying or appropriative rights holders that ripen under adverse possession. *See* Hutchins, *supra* note 111, at 503-06; *see also infra* note 133 (prescriptive rights described).

The precise contours of "overlying" land and "overlying use" remain unclear. Schneider, *supra* note 59, at 7-8. For example, one court has implied that an overlying right allows an owner of land overlying a groundwater basin to extract water from a parcel and use it on *other* land that owner owns that also overlies the groundwater basin, *even if* the owner could not extract groundwater from the second parcel itself. *Id.* at 7 (citing City of Pasadena v. City of Alhambra, 207 P. 2d 17, 28 (Cal 1949)). In addition, the meaning of

shaw established the foundations of the modern law governing the acquisition of overlying and appropriative rights in California groundwater.[116] *Katz* rejected the English rule that "percolating groundwater was governed by the rule of land law that the landowner owns everything that lies beneath the surface of his land."[117] In its place, *Katz* adopted "the doctrine of reasonable use of percolating waters."[118] As a corollary, the court also announced a "rule of correlative rights."[119] Under this corollary, "[d]isputes between overlying landowners, concerning water for use on the land, to which they have an equal right, in cases where the supply is insufficient for all, are to be settled by giving to each a fair and just proportion."[120]

As developed in later opinions,

> each owner of land overlying a groundwater supply enjoys the privilege of making reasonable and beneficial use of that supply of water, in connection with that land. This 'correlative' privilege is shared equally by all other owners of land overlying the same groundwater supply. Thus, in periods of shortage, the privilege of withdrawing water is apportioned pro rata among the various overlying privilege holders.[121]

"groundwater basin" for purposes of defining "overlying use" also remains unclear. Schneider, *supra* note 59, at 7-8. A recent lawsuit considered whether land within the same watershed as a groundwater basin was "overlying" land, even if no portion of the land in question actually overlay the basin. San Benito County Water Dist. v. Del Piero, No. 18123, (Cal. Super. Ct. June 1991); *see New Lawsuit Would Define Overlying Groundwater Rights*, 2 CAL. L. & POL'Y REP. 65 (1992).

In general, extraction for use by a public water system is an appropriative use, even if the municipality overlies the groundwater basin. Schneider, *supra* note 59, at 8; *see also* Hutchins, *supra* note 111, at 458-60.

116. 74 P. 766 (Cal. 1903), aff'g on reh'g, 70 P. 663 (1902); *see* Schneider, *supra* note 59, at 3-6.

117. Schneider, *supra* note 59, at 3-4 (noting Acton v. Blundell, 152 Eng. Rep. 1223 (Ex. 1843)).

118. *Katz*, 74 P. at 766-67; *see* Hutchins, *supra* note 111, at 434 (in effect, *Katz* adopts reasonable use rule).

119. *Katz*, 74 P. at 772.

120. *Id.*

121. Rossmann & Steele, *supra* note 18, at 908 (footnotes omitted). *See also* Burr v. Maclay Rancho Water Co., 98 P. 260, 263 (Cal. 1908); Kletzing, *supra* note 17, at 1233-35. As such, the correlative rights of overlying owners are analogous to the rights of riparian landowners to surface waters. *See, e.g.*, Hutchins, *supra* note 111, at 446-54.

Katz has been criticized as "unintentionally establish[ing] principles that were prone to produce overdrafted groundwater basins." Kletzing, *supra* note 17, at 1234 (citing F. Trelease, *Legal Solutions to Groundwater Problems, A General Overview*, 11 Pac. L.J. 863, 873 (1980)). The only enforcement mechanism for these rights is costly and slow judicial action. Kletzing, *supra* note 17, at 1234. Kletzing notes that the *Katz* court, however, even if it had been "prescient" about the effect of its rule, nevertheless lacked the power to create the kind

Thus, "[a]n overlying user does not obtain any priority over adjacent overlying users solely by pumping first from the common supply."[122]

In addition to addressing the relative rights of overlying users, *Katz* discussed the relative rights of appropriators. The court distinguished two classes of overlying rights holders: 1) "those who have used the water on their land before the attempt to appropriate"[123] and 2) "those who have not previously used it, but who claim the right afterwards to do so."[124] As between the first class of owners and appropriators, *Katz* gave the overlying owners priority to "the quantity of water that is necessary for use on [the owner's] land, and the appropriator may take the surplus."[125] *Katz* did not determine the relative rights between appropriators and the second class of overlying users.[126] Later cases, however, suggest that the initiation of overlying rights will normally take priority over prior appropriations.[127] As between appropriators, however, "priority in time applies; the appropriator 'first in time' is entitled to all reasonably and beneficially used surplus water, to the exclusion of subsequent appropriators."[128]

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of administrative system Trelease prefers. Kletzing, *supra* note 17, at 1234.

122. Schneider, *supra* note 59, at 9. The protection extends even to *unexercised* overlying rights. *Id.* (citing Burr v. Maclay Rancho Water Co., 116 P. 715, 721.

123. Katz v. Walkinshaw, 74 P. 766, 772 (Cal. 1903).

124. *Id.*

125. *Id.* As against an overlying owner, an importer of water that is added to (spread across) a basin for storage, however, has priority to extract that added water. *See* Los Angeles v. San Fernando, 537 P.2d 1250 (Cal. 1975). In addition, under the doctrine of "intervention of public use,":

> a water user who is junior in right to other water users, but who puts the water to a public use, acquires a permanent right to the water. Damages may be available to the injured senior parties, but the potential danger to the health and welfare of the public justifies a grant of continued use.

Final Report, *supra* note 6, at 162 (citing, inter alia, Peabody v. City of Vallejo, 40 P.2d 486 (Cal. 1935)).

126. *Katz*, 74 P. at 772.

127. At least two qualifications exist. First, the "intervening public use" doctrine may allow a junior appropriator for a public water supply to continue pumping if it compensates the overlying owner. *See supra* note 125. Second, an enjoinable extraction may ripen into prescriptive rights. Absent these qualifying circumstances, overlying rights will take priority over appropriative rights. *See* Los Angeles v. San Fernando, 537 P.2d 1250, 1318 n.100 (Cal. 1975); *see also* Wright v. Goleta Water District, 219 Cal. Rptr. 740, 746-51 (Cal. App. 1985). An overlying owner may get a judicial declaration to prevent an appropriative extraction from ripening into a prescriptive right, even against an unexercised, prospective overlying use. *See* Schneider, *supra* note 59, at 15 (citing Burr v. Maclay Rancho Water Co., 98 P. 260, 263 (Cal. 1908)); *see also* Hutchins, *supra* note 111, at 457 n. 35 and accompanying text.

128. Rossmann & Steel, *supra* note 18, at 909; *see Katz*, 74 P. at 772. A prior appropriator, however, has to endure reasonable inconveniences resulting from a junior appropriator's reduction of the groundwater level. City of Lodi v. East Bay Mun. Util. Dist., 60 P.2d 439, 450-51 (Cal. 1936); *see* C. Schulz & G. Weber, *Changing Judicial Attitudes Towards Property Rights in California Water: From Vested Rights to Utilitarian Reallocations*, 19 PAC. L.J. 1031, 1077-82 (1988).

A groundwater appropriator's rights thus depend upon the determination of the water "surplus" to prior rights.[129] In its most recent decision, the California Supreme Court stated that "surplus" occurred "when the amount of water being extracted from it is less than the maximum that could be withdrawn without adverse effects on the basin's long term supply."[130] As noted above, to the extent that "overlying use" and "groundwater basin" remains unclear, "surplus" will remain correspondingly unclear.[131] In an action brought to challenge the validity of an appropriation, the burden of proof that appropriated water is "surplus" lies with the appropriator.[132] If there is no "surplus" water beyond the needs of overlying users, then an appropriator can only establish a prescriptive right.[133]

In two major decisions, the California Supreme Court has addressed the acquisition and scope of prescriptive rights in overdrafted groundwater basins.[134] In *City of Pasadena v. City of Alhambra*, the court faced two problems in a long overdrafted basin: 1) what overall pumping limit to set; and 2) how to apportion the reductions among the various overlying, appropriative, and prescriptive rights holders.[135] The court announced that, as against both overlying owners and prior appropriators, prescriptive rights could attach to appropriations initiated after a basin became overdrafted.[136] Addressing its first problem, the court

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The "reasonable burden" rule, apparently mandated now by the 1928 amendment to the Constitution, likely prevents overlying users from complaining about a minor drop in pumping lift. *See* Burr v. Maclay Rancho Water Co., 116 P. at 721; *see also* Rancho Santa Marguarita v. Vail, 81 P.2d 533, 561-63 (Cal. 1938); Hillside Water Co. v. City of Los Angeles, 76 P.2d 681, 686-87 (Cal. 1938).

129. "Prior rights" holders thus include both all overlying users and any prior groundwater appropriator. *See* Hutchins, *supra* note 111, at 455 (text accompanying note 22).

130. City of Los Angeles v. City of San Fernando, 537 P.2d 1250, 1307 (Cal. 1975); *see supra* notes 89-109 and accompanying text (hydrologists' discussion of "safe yield," "mining," and "overdraft").

131. *See supra* note 115.

132. Hutchins, *supra* note 111, at 455 & n.23. The holder of a prior right must first establish the extent of that prior right. *Id.*

133. *See* City of Pasadena v. City of Alhambra, 207 P.2d 17, 28-29 (Cal. 1949). "[A]n appropriative taking of water which is not surplus is wrongful and may ripen into a prescriptive right where the use is open and notorious, hostile and adverse to the original owner, continuous and uninterrupted for the statutory period of five years, and under claim of right." *Id.* at 29.

134. In *Los Angeles v. San Fernando*, the court defined "overdraft" as: "extractions from the basin [that] exceed its safe yield plus any . . . temporary surplus." 537 P.2d at 1309. "Temporary surplus" is "the amount of water that can be pumped from a basin to provide storage space for surface water that would be wasted during wet years if it could not be stored in the basin." Schneider, *supra* note 59, at 32; *see supra* notes 89-109 and accompanying text ("overdraft," "safe yield," and "mining" discussed).

135. 207 P.2d 17; *see* Kletzing, *supra* note 17, at 1236-37; *Rewriting California Groundwater Law*, *supra* note 14, at 228-29.

136. *Pasadena*, 207 P.2d at 29.

upheld a judgment that limited overall pumping to "safe yield."[137] The court apparently used a "safe yield" definition that approximated "safe yield" with annual average recharge.[138] In addressing its second problem, rather than applying a strict rule of temporal priority in determining the relative rights among the various pumpers in the long overdrafted basin, the court refused to eliminate entirely any prior rights holder's pumping. Rather, the court limited each pumper's extractions in proportion to the amount of water each party had withdrawn during the five year prescriptive period.[139] Although the *Pasadena v. Alhambra* court does not adopt the term, its holding has been characterized as the "mutual prescription" doctrine.[140]

In *City of Los Angeles v. City of San Fernando*, the court modified the scope of the prescriptive rights doctrine's applicability to groundwater extractions from overdrafted basins.[141] The court refused to allow prescription against municipalities.[142] It rejected mechanical application of the *Pasadena v. Alhambra* notion of "mutual prescription."[143] That doctrine had been criticized as encouraging a "race to the pumphouse."[144] Instead, the court opted for apportionment based on broader, equitable factors.[145] Under *Los Angeles v. San Fernando*, temporal priority among appropriative and prescriptive rights holders can play a substantial part in determining which pumpers have their rights curtailed.[146] The court also concluded that, to trigger the running of the limitations period, the prior rights holder must have *actual* notice of overdraft.[147] The court excluded years of surplus from the five year period.[148] It reformulated the standard for determining the scope of a

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137. *Pasadena*, 207 P.2d at 27-28.

138. *See Pasadena*, 207 P.2d at 30.

139. *Id.* at 31-33; *see* Hutchins, *supra* note 111, at 504.

140. *See* Hutchins, *supra* note 111, at 504. *See also Los Angeles v. San Fernando*, 537 P.2d at 1298-99 (noting so-called mutual prescription doctrine).

141. 537 P.2d 1250 (Cal. 1975); *see generally Rewriting California Groundwater Law*, *supra* note 14, at 229-35.

142. *Los Angeles v. San Fernando*, 537 P.2d at 1298. The court, however, did allow municipalities to establish prescriptive rights *against* private persons. *Id.* at 1319 n.101.

143. *Id.* at 1298-99.

144. *Id.* at 1299. *See Groundwater in the West*, *supra* note 3, at 231. At the same time, the doctrine provided a formula parties could use to negotiate settlements of pumping limitations. *See* Schneider, *supra* note 59, at 23-24.

145. *Los Angeles v. San Fernando*, 537 P.2d at 1298 n.61 and accompanying text. The court cited the "equitable apportionment" factors used by the United States Supreme Court to apportion water between states. *Id.* (quoting Nebraska v. Wyoming, 325 U.S. 589, 618 (1945)).

146. *Los Angeles v. San Fernando*, 537 P.2d at 1298 n.61 and accompanying text.

147. *Id.* at 1310-11. Overdraft alone does not trigger the running of the prescriptive rights period. Rather, prior rights holders need notice of "adversity *in fact* caused by the actual commencement of overdraft." *Id.* at 1311.

148. *Id.* at 1311-12.

prescriptive right.[149] Finally, the court redefined "overdraft" to mean "extractions from [a] basin that exceed its safe yield plus any . . . temporary surplus."[150]

In summary, the law governing the acquisition of groundwater pumping rights is fraught with uncertainty.[151] Since the law is judge made, and judges have not had the opportunity to iron out all the doctrinal wrinkles, basic uncertainty remains in such critical concepts as "overlying user," "groundwater basin," "surplus," and "safe yield."[152] Even where the concept is clear, lack of data in many groundwater basins makes application uncertain. Beyond these limitations, uncertainty stems in large part from the correlative rights doctrine itself. Like riparian rights to surface water, overlying rights are not quantified. Moreover, because correlative rights depend upon other overlying owners' actions, the amounts that can be pumped may change dramatically over time. Finally, no administrative system exists to coherently, consistently, and inexpensively determine the scope of an overlying right, or the availability of a "surplus."

The great uncertainty has not prevented the development of the groundwater resource. It may well have made development sub-optimal. The expense, delay and difficulty of basin adjudication may well have encouraged pumpers to deepen or enlarge their wells, or to increase their extractions, rather than to attempt to quantify and thus limit all pumpers' extractions.[153] Still other pumpers may have decided not to invest in expensive pumping equipment if water levels were going to continue to decline over time. Finally, uncertainty in the nature of the right has likely inhibited the creation of markets for transferring such rights.

2. *Transfer & Change in Place of Use*

Compounding the market-inhibiting inherent uncertainty in the scope of the groundwater extraction right itself, state law provides neither much substantive law, nor a centralized administrative body, for evaluating a proposed sale or transfer of groundwater for a new, use.[154]

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149. *Id.* at 1313.

150. *Id.* at 1309. The trial court had found "safe yield" as "equivalent to an adjusted figure for net groundwater recharge." *Id.* at 1308. In wet years, however, extractions that exceeded the basin's safe yield could make room for storage of additional recharge. *Id.* at 1308-09. This ability to extract groundwater in wet years in order to use above normal precipitation for basin recharge formed the "temporary surplus." *See supra* note 87.

151. *See, e.g.*, Final Report, *supra* note 6, at 143 (only holders of rights in adjudicated basins have any certainty).

152. *See supra* notes 133-40 and accompanying text.

153. *See, e.g.*, Schneider, *supra* note 59, at 18.

154. Final Report, *supra* note 6, at 163-65. In one case, upon the DWR's request, the State Water Resources Control Board reviewed the proposed transfer of groundwater from a Yolo County farm to a Kern County water district via the state water project. The state board assumed jurisdiction both under a temporary regulation barring nonessential exports of

Three scenarios relevant to this article may occur.[155] First, an overlying user may wish to use groundwater on an overlying parcel that was extracted from a different, noncontiguous overlying parcel. Second, an overlying user may wish to sell water for ultimate nonoverlying use. Third, an existing appropriator (or holder of a prescriptive right) may wish to sell or use the extracted groundwater for a different, nonoverlying use.

The situation of the overlying users who wish to use groundwater on one overlying parcel that was extracted from a different, noncontiguous overlying parcel raises questions inherent in the uncertain overlying right itself. Two situations might set up this uncertainty. First, an overlying user might wish to use water pumped from one parcel it owns on another parcel owned by the same pumper.[156] Second, an overlying owner might simply wish to purchase groundwater extracted by another overlying owner.[157]

Both of these situations require determination of the ability of an overlying user to use water on a noncontiguous overlying parcel.[158] In *Pasadena v. Alhambra*, the court stated: "an overlying right . . . is the right of the owner of the land to take water from the ground underneath for use *on his land within the basin or watershed*."[159] This definition would appear to sanction the first situation.[160] The qualification of "on his

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water from the delta, and under the California constitution. *See supra*, note 26.

155. A fourth scenario involves the transfer of adjudicated rights to groundwater. *See* C. Lee, Governor's Comm'n To Review California Water Rights Law, The Transfer of Water Rights in California 28-29, (1977) (Staff Paper No. 5). Lee suggests that, after *Los Angeles v. San Fernando*, "even after a basin adjudication, overlying users may be required to meet the place of use restrictions that are characteristic of unadjudicated overlying rights." Lee, *supra*, at 30. Full treatment of local regulation of the transfer of adjudicated rights is beyond the scope of this article.

156. This is the circumstance presented by the Colusa County farmers who pumped water from the Sacramento Valley groundwater basin from parcels they owned in Tehama County for use on parcels they owned that overlie the same basin in Colusa County. *See supra* note 30.

Several localized differences in basin conditions might trigger such pumping and use patterns. Water quality might be better in one part of the basin than in another. *See, e.g.*, Bulletin 118-6, *supra* note 74, at 75-79 (describing localized groundwater quality in Sacramento Valley groundwater basin). Pumping lifts may be lower in one part of the basin than in another. For example, one part of the basin may overlie a shallower aquifer than another. *See id.* (Plates 3 & 4). Or, localized pumping patterns might create different cones of depression in different parts of the same aquifer.

157. If an irrigator did not already have sufficient pumps installed, it might be cheaper to purchase water from an irrigator who had excess capacity, or who found it otherwise more profitable to fallow some land and sell water.

158. As noted above, case law has not yet answered this question definitively. *See supra* note 115.

159. *Pasadena v. Alhambra*, 207 P.2d 17, 28 (Cal. 1949) (emphasis added).

160. Even if the definition encompasses this first situation, further uncertainties exist over

the ability of other water rights holders to challenge the extraction. In general, water rights holders might challenge either a change in place of use of groundwater, a change in place of diversion, or a change in means of diversion. As an example of the first, assume that an irrigator has been pumping 10,000 acre-feet of groundwater on Parcel *A*, which drains into Stream *A*, and wants to pipe it for use on Parcel *B*, which drains into Stream *B*. Assume further that 10 percent of the 10,000 acre-feet drains off the field of Parcel *A* into stream *A*, and another 10 percent percolates back into the basin under Parcel *A*. If both parcels overlie the same aquifer, can the irrigator move the entire 10,000 acre-feet to the other overlying parcel, or only the 80 percent portion "consumptively" used (either incorporated into a plant or lost to the atmosphere through evapotranspiration)? Surface water diverters downstream of Parcel *A* might complain that the change in place of use was interfering with their rights to use the 1,000 acre-feet of tailwater. Other overlying users near Parcel *A* might complain about the localized effects loss of the 1,000 acre-feet of recharge.

As for the potential complaints of overlying owners to the drop in well water level, California case law has not addressed in any detail the rights of one overlying owner to complain about the drop in well water levels caused by another overlying owner's pumping of a correlative share. *See* Hutchins, *supra* note 111, at 484 (concluding "it is difficult to see why there should be priority in the means of diversion, which is essentially a means of effectuating use of the water"). Ultimately, the reasonable "method of use" provisions of Article X of the California Constitution probably provide a standard for determining the correlative rights of overlying owners to maintenance of a static well water level. *See id.* at 485. Other states have addressed well water levels in great detail statutorily. *See generally* D. Grant, *Reasonable Groundwater Pumping Levels Under the Appropriation Doctrine: The Law and Underlying Economic Goals*, 21 Nat. Res. J. 1 (1981); *Effectiveness & Equity*, *supra* note 96, at 5-10, 24-30.

As for the potential challenge of the downstream appropriator to the 1,000 acre-feet of tail water, again, the California cases do not address the relative legal rights. Between appropriators to surface water, a junior appropriator has at least a limited right to insist that a senior maintain the conditions extant at the time the junior began appropriating. *See* Hutchins, *supra* note 111, at 157. For two reasons, however, this rule should not apply to an appropriator's right to take tail water added to a surface stream by an overlying owner. First, such a rule would force a pumper to keep pumping perpetually. In contrast, in the case of junior and senior appropriators to a surface watercourse, if the senior wishes to stop diverting, it makes more water available to the junior. Second, the water added to the stream system--at least at the point where the tail water discharges into the stream--is functionally equivalent to "foreign water." As noted below, *infra* note 169, an importer of water into a watershed has absolute right to recapture that water and change its use or place of use. Unless the 1,000 acre-feet of tail water would have discharged naturally from the aquifer into the surface stream above the junior appropriator's point of diversion, that water is in effect water that would otherwise never have been available for appropriation.

Commentators have also noted that even were the "consumptive use" limit to apply, that standard "does not internalize all third-party effects. Effects not internalized include those resulting from changes in timing of use, in water quality, and in patterns of use." G. Gould, *Transfer of Water Rights*, 29 NAT. RES. J. 457, 467 (1989)[hereinafter *Transfer of Water Rights*]; *see also* J. Emel, *Groundwater Rights: Definition and Transfer*, 27 Nat. Res. J. 653, 666-67 (1987) [hereinafter *Definition & Transfer*].

Similar challenges might occur to changes in place of extraction. If localized differences make it more economical for our hypothetical irrigator to stop pumping on Parcel *A* and pump instead from Parcel *B*, this change may lower water levels in wells adjoining Parcel *B*.

land," however, would appear to prohibit transfers *under overlying rights* in the second situation.[161]

The second category of changes relevant to this article involves an overlying user who wishes to sell all or part of its previous extractions for a nonoverlying use. As noted above, an overlying owner's rights are analogous in many instances to riparian rights of surface water users.[162] Riparian owners are limited to using their water on judicially defined riparian lands; generally they have no ability to transfer water to nonriparian lands.[163] Thus, a riparian owner who wished use water on nonriparian lands would have to initiate a new appropriation. By analogy, an overlying user who wished to sell water for use on nonoverlying lands would need to initiate a groundwater appropriation. As such, the legal parameters of that right would appear to be governed by groundwater appropriation law.[164]

The third category of cases involves an appropriator who wishes to change the place of use from one nonoverlying site to another nonoverlying site. Groundwater law places uncertain limits, if any, on that change. An appropriative *surface* water rights holder may not change the place of use if such a change would harm other legal users.[165] Older

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Finally, additional uncertainty attends the ability of persons other than water rights holders to challenge the effects. Although unlikely, in a basin as big as the Sacramento Valley, a change in place of use or extraction might impact local agricultural economies or the local environment. *See infra* notes 170-75 and accompanying text.

A complete analysis of all of these matters is beyond the scope of this article.

161. If "surplus" groundwater existed, such a transfer could probably qualify as a new appropriation. Such an appropriation would have the most junior priority date in the event the basin became overdrafted.

If the actual pumper were extracting no more than enough water to meet the combined correlative rights of both overlying owners, little justification exists for restricting either overlying owner's rights to find the most economical way to extract the water. The only possible concerns might be the localized effects of the actual pumper increasing its extractions from that necessary to satisfy its own correlative rights to that necessary to satisfy both overlying owners' rights. For example, since the pumper would have to run its pumps longer, or install more powerful pumps, water levels in wells on nearby parcels might drop or stay lower longer. These potential concerns, however, would evaporate entirely if the overlying pumper were simply selling the water it had used. Such a sale, however, would raise the issues involved in a change of place of use. *See supra* note 160.

162. *See supra* note 121.

163. Lee, *supra* note 155, at 23-26. A riparian can sell to an appropriator a promise not to divert. Lee, *supra* note 155, at 23-26.

164. Such a result, while compelled by groundwater law, does nothing to further the state's expressed policy of encouraging voluntary water transfers. *See, e.g.*, Cal. Water Code §§ 109, 1244 (West Supp. 1993).

165. *See, e.g.*, Cal. Water Code §§ 1702, 1706 (West 1971) (addressing respectively, post 1914 appropriations and pre-1914 appropriations). These provisions codified prior case law. *See, e.g.*, Hutchins, *supra* note 111, at 175-78. Appropriative rights permitees or licensees must get permission of the State Water Resources Control Board prior to changing the point

cases involving changes in the point of *extraction* analogized to the law governing changes in points of surface water *diversion*.[166] By analogy, then, changes in place of groundwater use would be permissible provided no other legal water rights holders are injured.[167]

If the groundwater appropriator had always taken the pumped water completely out of the watershed from which it was pumped, then no water rights holders would have standing to complain about any new place of use.[168] California law gives the importer of water to a basin the absolute right to recover and use that water as the importer sees fit.[169] As such, the only possible claims might be by third parties economically or environmentally impacted by the appropriator's change in place of use.

The ability of persons other than water rights holders to raise economic or environmental concerns in any proposed change in place of groundwater use or extraction is almost completely unaddressed by California law.[170] The ability of third parties to raise such concerns over proposed *surface* water transfers has received a lot of attention in recent years.[171] Indeed, recent legislation has broadened the factors the State Water Resources Control Board considers when reviewing such surface water transfer proposals.[172] These statutes, however, have not been

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of diversion, place of use, or purpose of use. Cal. Water Code § 1702 (West 1972). The Water Code details separate provisions for temporary and long term transfers of rights under state appropriative permits or licenses. *Id.* §§ 1725 to 1737.

166. See, e.g., City of San Bernardino v. City of Riverside, 198 P. 784, 793 (Cal. 1921); see generally, Hutchins, supra note 111, at 475-76.

167. *Cf. San Bernardino v. Riverside*, 198 P. at 793. In dicta the court notes, "neither *the particular place of use*, the character of the use, nor the place of taking is a necessary factor" in acquiring an appropriative right. *Id.* (emphasis added).

168. Arguably, the same result should apply with an appropriator who returned tail water to the watershed from which it was extracted, but at a place above where the tail water would have discharged naturally. *See supra* note 160. Thus, a change in place of use of an appropriative groundwater right that still returned water above its place of natural discharge should be allowed over the objections of a surface water appropriator. Where a groundwater appropriator sought to change the place of use and thus remove water entirely out of a watershed, or below its point of natural discharge, then downstream appropriators would have standing to challenge the change. Resolution of such a challenge, of course, might place great practical difficulties on the party with the burden of proof.

169. *See, e.g.*, Hutchins, *supra* note 111, at 69-70 (discussing "foreign waters).

170. *See* B. Gray, *A Primer on California Water Transfer Law*, 31 Ariz. L. Rev. 745 (1989).

171. *See, e.g.*, G. Gould, *Water Rights Transfers and Third Party Effects*, 23 Land & Water L. Rev. 1, 27-35 (1988); *Transfer of Water Rights, supra* note 170, at 473-75; D. Grant, *Public Interest Review of Water Right Allocation and Transfer in the West: Recognition of Public Values*, 19 ARIZ. ST. L. J. 681 (1988); Gray, *supra* note 170, at 749-54.

172. In recent years, the Legislature has added provisions that protect the public's interest, particularly in beneficial instream uses for fish and wildlife, from the effects of a water transfer. *See, e.g.*, Cal. Water Code §§ 1435(b), 1727(a), 1736 (West Supp. 1993)

applied to evaluate proposed groundwater transfers. Moreover, with rare exception, the State Water Resources Control Board has not asserted jurisdiction over proposed groundwater transfers.[173]

Protection of third parties from the effects of proposed groundwater transfers has begun to receive attention from commentators.[174] In addition, the Department of Water Resources has begun to look at the environmental and economic consequences of proposed conjunctive use transfers of surface water that irrigators replace with groundwater.[175] Nevertheless, there remains little law governing groundwater transfers, and little assurance that third party effects, both to water rights holders, and to the environment or local economies, will be reviewed efficiently and coherently by the State Board.

B. Legislative Regulation of Private Rights to Groundwater Extraction and Use

Unlike the extensive statutory provisions governing private rights to surface water, no comprehensive state legislation addresses private rights to groundwater in California.[176] The state Constitution's prohibitions against unreasonable or wasteful water use apply to groundwater.[177] Similarly, the Water Code's general policy statement about the state's "paramount interest in the use of all the water of the State" also expressly extends to "underground" waters.[178] Only a handful of statutes, however, address groundwater extraction.[179] In none of these

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(addressing respectively, temporary urgent changes, temporary changes, and long term transfers).

173. The rare exception to date has been the proposed transfer in 1977 from Yolo County farmers to Kern County farmers via the State Water Project facilities. *See supra* note 26; *cf.* Lee, *supra* note 155, at 67-70 (concluding that the decision increases the uncertainty attendant to interbasin groundwater exports).

174. *See, e.g.*, Gregory, *supra* note 15, at 237-39; *see also Definition & Transfer*, *supra* note 160 (focusing on clarification of property rights in groundwater pumping levels).

175. *See* Draft EIR, *supra* note 29, at 35-39, 68-69, 110-16, 136-37, 143-44, 172-75.

176. Final Report, *supra* note 6, at 145. Groundwater pumpers who extract more than 25 acre-feet annually from aquifers in four Southern California counties must file an annual "notice of extraction and diversion of water" with the State Water Resources Control Board. Cal. Water Code §§ 4999-5008 (West 1971 & Supp. 1993).

177. This provision applies to groundwater extractions. *See* Peabody v. City of Vallejo, 40 P.2d 486 (Cal. 1935) (construing Cal. Const. art. X, § 2, repealed and replaced by Cal. Const. art. 10, § 2).

178. Cal. Water Code § 104 (West 1972).

179. While the legislature has not adopted uniform groundwater appropriation, use, or transfer legislation, it has addressed statewide concerns with groundwater quality, basin conditions, and recharge projects in four types of statutes. Three sets of water quality statutes address groundwater. These include: a) the Porter-Cologne Water Quality Control Act, addressing water quality planning, *see, e.g.*, Cal. Water Code §§ 13050(e), (j), 13142(a)

has the legislature created a uniform scheme for establishing and transferring rights to extract and use groundwater. Instead of regulating groundwater rights comprehensively at the state level, the legislature's few efforts to regulate private rights to groundwater uses have generally taken one of three paths. First, some statutes have created specific classes of agencies, subject to local formation, with power to manage groundwater.[180] Second, the legislature has created special groundwater management districts.[181] Finally, three statutes enacted over the last nine years generically allow some local groundwater regulation by existing local entities.

In 1984, the legislature enacted sweeping "area of origin" protections for over a dozen identified Northern California stream systems.[182] The legislation bars groundwater pumping for export "from within the combined Sacramento and Delta-Central Sierra Basins . . . unless the pumping is in compliance with a groundwater management plan that is adopted by [county] ordinance . . . ."[183] It expressly announces: "[n]oth-

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(West. 1971 & Supp. 1993); b) the statewide water well drilling standards legislation, *id.* §§ 13700-13806; and c) the State Water Resources Control Board's authority to initiate a groundwater basin adjudication to preserve water quality; *see id.* §§ 2100-2102. The Porter-Dolwig Groundwater Basin Protection Law announces the State's concern with overdraft. *See id.* §§ 12920-12924. The Porter-Dolwig law allows the Department of Water Resources to review local groundwater management "projects," but funding provisions have been eliminated. *Id.* § 12923; *see also* 1961 Cal. Stat. 3315 (repealed by 1967 Cal. Stat. 969, 970). The Porter-Dolwig act's principal contribution was the preparation of a report issued in 1980 addressing groundwater problems. Bulletin 118-80, *supra* note 12; *see* Calif. Water Code § 12924 (mandating report). Other state legislation has included studies of groundwater conditions and use. *See, e.g.*, Cal. Water Code §§ 10825-26 (West 1992) (a survey of groundwater resources and uses is required as part of mandatory agricultural water management plans). And, the legislature has authorized funding for certain groundwater recharge projects. *See, e.g., id.* §§ 12925 to 12928.6.

180. Three examples of general legislation establishing classes of agencies with groundwater management include: 1) Groundwater replenishment districts. Cal. Water Code §§ 60000-60449 (West 1966 & Supp. 1993). Such districts have express authority to commence "actions and proceedings" to, inter alia, "prevent unlawful exportation of water from the district." *Id.* § 60230(g) (West Supp. 1993). The statutes do not address the circumstances constituting "unlawful exportation." 2) Water conservation districts. *Id.* §§ 74000 to 76501. These statutes authorize groundwater replenishment funded by groundwater management charges, *id.* at §§ 75500-75523, but the enabling statutes do not expressly mention groundwater export restrictions. 3) Metropolitan water districts. *Id.* §§ 71000 to 73001. These districts also have power to replenish groundwater and assess charges for groundwater pumping, *id.* §§ 71682 to 71689.6, but the enabling legislation does not directly address groundwater exportation.

181. For a discussion of one of these acts, the Sierra Valley Groundwater District Act, and its progeny, see *infra* notes 431-70 and accompanying text.

182. Cal. Water Code §§ 1215 to 1222 (West Supp. 1993).

183. Cal. Water Code § 1220 (a) (West Supp. 1993). The section defines "Sacramento and Delta-Central Sierra Basins" by reference to California Dep't of Water Resources, The

withstanding any other provision of law, a county board of supervisors whose county contains part of the combined Sacramento and Delta-Central Sierra Basins may adopt groundwater management plans to implement the purposes of this section."[184] The statute says nothing, however, about the elements of such a plan.[185]

California Water Plan Outlook, Bulletin 160-74 (1974) [hereinafter Bulletin 160-74]. Bulletin 160-74, however, does not "define" these two basins; rather, it indicates on a map the general location of two "hydrologic study areas" bearing the same names. Bulletin 160-74, *supra*, at 3-4, 6. Thus, as the Department of Water Resources noted prior to the statute's enactment, "the bill technically applies to nothing." N. Waters, California Dep't Of Water Res., *Enrolled Bill Report A.B. 178* 1 (1978) [hereinafter *Enrolled Bill Report*]; *see also* N. Waters, California Dep't Of Water Resources, *Bill Analysis A.B. 178* 3 (1974) [hereinafter *Enrolled Bill Analysis*].

These technical flaws, and the host of unanswered questions raised below about the statute's scope, demonstrate that the counties have no monopoly on poor statutory drafting. They also temper hopes that the state legislature is more likely to produce a coherent groundwater plan than the sum total of efforts by individual counties. At the very least, even a poorly drafted state scheme would allow for greater consistency throughout the state, at least after judicial interpretation.

184. Cal. Water Code § 1220(b) (West Supp. 1993). It precludes the exercise of such powers, however, "within the boundaries of another local agency supplying water to that area without the prior agreement of the governing body of that other local agency." *Id.* § 1220(c).

Section 1220 imposes two additional requirements that greatly confuse the groundwater management planning process. Subsection (a) requires the appropriate county board of supervisors to consult with "affected water districts" before adopting a groundwater management plan. *Id.* § 1220(a). The same subsection also requires approval of such a plan by "a vote in the counties or portions of counties that overlie the groundwater basin." *Id.* These two provisions raise a host of unanswered questions, and might combine to make enactment of any groundwater management plan impossible.

The "consultation" requirement neither defines "district" nor indicates the statute's geographic reach. As to the definition of "district," does it apply only to local public agencies that supply water? As noted above, subsection (c) allows other local agencies who supply water to veto the enforcement of any such plan within the water supplier's service area. This veto power would seem to adequately protect these public agency water suppliers. Arguably, the consultation requirement should extend to any agency concerned with water management activities, such as flood control. Even if such other agencies lack a veto power under subsection (c), they may still be "affected" by the plan, and deserve consultation. As to the statute's geographic scope, does a county who wishes to manage groundwater under section 1220(b) have to consult only with those "affected districts" within the county itself? Arguably, a district in a different county that nevertheless overlies a different portion of the same aquifer might also be "affected" by a proposed groundwater management plan. Indeed, the consultation requirement's reach might extend even further, to any water district within the state that proposed to import groundwater, or surface water replaced by groundwater. To date, no court has addressed any of these requirements.

The "voting" requirement further confuses the statutory scheme. Assume that County *A* wishes to use its powers under section 1220(b). Further assume that Counties *B* through *X* also overlie a portion of the combined basins identified by section 1220(a). Who votes to approve the ordinance adopting the groundwater management plan? The statute seems to imply a public referendum. Do all registered voters in County *A* vote, or only landowners in County *A*? or only those voters (or landowners) who live in the portion of

Several circumstances may limit the otherwise broad reach of this statute. First, it does not apply to exports by either the federal Bureau of Reclamation or the state Department of Water Resources.[186] Second, the

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the county that overlies the designated basins? Section 1220(a) refers to a vote "in the counties *or portions of counties* that overlie the groundwater basin." *Id.* § 1220(a) (emphasis added). Does that mean that citizens of the other 23 counties (*i.e.*, Counties *B* through *X*) also get to vote on County *A*'s ordinance? To approve the plan, must a majority of eligible voters in *each* eligible county vote to approve it? If so, that would give any one county veto power over all the other counties' plans. Alternatively, will the ordinance pass if a majority of all voters (from all counties combined) vote to approve it? That would give the more populated counties the power to control the outcome.

During the legislative process, the Department of Water Resources noted some ambiguity in the voting requirement. Its report to the governor states: "[Section 1220] also requires the plan to be approved by one county board of supervisors, but there is no way of determining which one. This establishes a condition that cannot be met. These problems were called to the attention of the author's staff during the session." *See Enrolled Bill Report, supra* note 183, at 1.

These latter two points demonstrate the practical absurdity of allowing a vote on County *A*'s groundwater management plan outside of County *A*. Indeed, in a letter urging the governor to sign the bill, the statute's principal author suggested that "*the* county" that proposed the ordinance would be the county that voted on it. Letter from Norman S. Waters, California Assemblyman, to George Deukmejian, Governor, California 1 (Sept. 5, 1984). "A local groundwater management plan adopted by ordinance by *the* county board of supervisors . . . and subsequently approved by a vote in *the* county." *Id.* (emphasis added). If this view were to prevail, the "portions of counties that overlie the groundwater basin" might simply mean that if a county overlies only part of the basin, it, too, may manage groundwater in that portion of the county that overlies the basin. *See* Cal. Water Code § 1220(c) (West Supp. 1993). If such a county only overlay a portion of the basin, under this narrower interpretation of the voting requirement, only those citizens who lived in the portion overlying the designated basins would be able to vote.

A glance at Bulletin 160-74 demonstrates that only ten counties entirely overlie the "combined Sacramento and Delta-Central Sierra Basins:" Shasta, Tehama, Butte, Plumas, Colusa, Sutter, Yuba, Yolo, Sacramento and Amador. Seventeen counties overlie a portion of the combined basins, but also overlie other "basins" (*i.e.*, "hydrologic study areas"): Modoc, Siskiyou, Glenn, Lassen, Sierra, Nevada, Alpine, Placer, El Dorado, Calaveras, San Joaquin, Stanislaus, Lake, Napa, Solano, Contra Costa, and Alameda.

185. *See* Cal. Water Code § 10753.7 (West Supp. 1993) (A.B. 3030 groundwater management plan legislation may include any of twelve specified elements).

186. Section 1215 exempts appropriations that are "subject to [Water Code] Section 11460." *Id.* § 1215. Section 11460 is part of the "Watershed Protection Act." *Id.* §§ 11460-11465 (West 1992). Section 11128 makes section 11460 apply to "any agency of the State or Federal Government which shall undertake the construction or operation of the [Central Valley Project]." Id. at § 11128. While the "Central Valley Project" often refers to only that portion of the massive dam and aqueduct empire constructed and operated by the Bureau of Reclamation, sections 11200-11295 demonstrate that "Central Valley Project" includes all the elements associated with both the Bureau's "CVP" facilities and the Department of Water Resources' "State Water Project" (SWP) facilities. *See id.* §§ 11200 to 11295.

Two possible interpretations of the interplay of this exemption and the other area of origin exemptions exist. First, in enacting sections 1215-1222, the legislature may have concluded that the state and federal projects were burdened enough by section 11460 to

legislation applies only "to a *water supplier* exporting or intending to export water *for use outside a protected area* pursuant to . . . groundwater *appropriations* initiated after January 1, 1985."[187] On its face, then, the statute apparently does not limit, or authorize limitation of, the transfers of groundwater out of the county of extraction for use in another county on land that is also within the same protected area.[188] Similarly, on its face, the legislation does not apply to "groundwater appropriations" that had been initiated before 1985. The undefined reference to "appropriations" creates confusion. If, on the one hand, the legislature used it

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make undesirable additional restrictions. Alternatively, the legislature may have concluded that the restrictions of sections 1215-1222 duplicated the restrictions of section 11460, and thus *made unnecessary* the additional restrictions. Under this latter interpretation, section 11460 already prohibits groundwater export by the Bureau and Department. Under the former interpretation, no export bar exists directly, so long as the two projects do not deprive the watersheds of origin of the water they otherwise need.

An additional question arises from DWR's operation of the Drought Water Bank. To the extent the Water Bank transactions do not involve the use of SWP or CVP facilities to store or wheel water, then, arguably, sections 1215-1222 might apply and restrict the export of groundwater. For example, purchases from the Yuba County Water Agency could be sold to the City of San Francisco without use of SWP or CVP facilities. *See* Draft EIR, *supra* note 29, at xxv-xxvi. Two quick answers to this problem appear. First, so far, little actual groundwater has been pumped for the Drought Water Bank. *See supra* note 29. Second, all the Water Bank purchases collectively could be considered to create a unified pool of water inevitably stored or transported in part in some SWP or CVP facility.

187. Cal. Water Code § 1215 (West Supp. 1993) (emphasis added). The "protected areas" are those stream systems specifically identified in section 1215.5. *See id.* § 1215.5.

188. Thus, the statute would not bar the proposed transfer of water by the Colusa County farmers, *supra* note 30, from their Tehama County property to their Colusa County property as both parcels are within the same protected area.

Arguably, the statute also might not prohibit a transfer from within one protected area for use on land in *another* protected area. Section 1215 limits the legislation to export for use "outside *a* protected area." Cal. Water Code § 1215 (West Supp. 1993) (emphasis added). In this context, "'a' protected area" is ambiguous. On the one hand, removal of groundwater from any one listed protected area involves use outside of *that* protected area. As such, the prohibitions would apply. On the other hand, however, groundwater transported from one protected area for use in *another* protected area is not being used outside of "*a*" protected area. Rather, the groundwater is simply being used outside of the original protected area. Under this interpretation, the export restrictions might not apply.

References to "a" protected area pepper the statutes. *See, e.g., id.* §§ 1215.6, 1216, 1218, 1219 and 1219.5. In section 1217(a), however, the legislature gives water users in "a protected area" the right to purchase from a water supplier who is intending to export water from "*the*" protected area. *Id.* § 1217(a) (emphasis added). Similarly, subsection (b) allows water users from "a" protected area to require a potential water exporter from "*the*" protected area to meet and negotiate a potential water supply contract. *Id.* § 1217(b) (emphasis added). Arguably, the legislature's use of "the" demonstrates that it knew how to specify a protected area when it so intended. Section 1217(d), however, blunts this conclusion. In that section, the legislature allows the proposed exporter from "a" protected area and the water users of "a" protected area to set up their negotiations as they choose. *Id.* § 1217(d). Thus, the legislature itself is inconsistent in its use of "a" and "the."

generically to refer to any groundwater *extractions*, the statute would exempt *all* pre-1985 extractions from the export restrictions.[189] On the other hand, the legislature might have used "appropriations" in a traditional legal sense to distinguish overlying from nonoverlying uses. Under such an interpretation, a pre-1985 nonoverlying use would appear exempt from the export restrictions. Post-January 1, 1985, conversions to non-overlying use of pre-existing extractions made under overlying rights would appear to be within the export restrictions.[190] Finally, the statute does not define "water supplier." On the one hand, this might apply to any one who diverts or extracts groundwater. On the other hand, it might apply only to an organization or entity proposing to *sell* water.[191]

An additional aspect of the legislation's scope also requires clarification. As noted above, section 1220 requires the relevant groundwater export pumping to be "in compliance with [an adopted] groundwater management plan."[192] The legislation does not directly address the effect on potential exports of a county's failure to adopt a groundwater management plan. On the one hand, if no such management plan exists, exports are not *not in compliance.* If there is no such plan, then there is nothing with which to comply. Such an interpretation would appear to allow exports until such time as a county enacts an applicable management plan.[193] On the other hand, the statute arguably bans all export

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189. Of course, common law may otherwise limit an overlying owner's ability to sell groundwater for use off basin. *See supra* notes 155-64 and accompanying text.

190. The legislative history sheds no light on the meaning of "appropriations."

191. Under this narrower interpretation, the statute would not bar export from land owned by one owner for use outside the protected area on land also owned by that same overlying owner. Support for this narrower reading comes from the subsequent definition of "water user or users." Section 1215.6 states: "For the purposes of this article, 'water user or users' within a protected area means an appropriator or appropriators, a riparian user or users, or a groundwater user or users of water on land owned or controlled by them within a protected area." Cal. Water Code § 1215.6 (West Supp. 1993). By separately defining "water user" without reference to "water suppliers," arguably the legislature intended the two terms to have different meanings.

In its "Bill Analysis," DWR concluded that "[t]he only likely agencies that would be brought under the law are the East Bay Municipal Utility District, City of San Francisco and Los Angeles Department of Water and Power when they seek new permits." *Enrolled Bill Analysis, supra* note 183, at 2.

192. Cal. Water Code § 1220(a) (West Supp. 1993).

193. More precisely, such an interpretation would mean that section 1220 does not itself independently restrict groundwater exports. Several counties have argued that their inherent police powers support groundwater export restrictions. *See, e.g.*, Rossmann & Steel, *supra* note 18, at 933-50 (arguing that the Inyo County groundwater management ordinance, restricting exports without permits, is within the county's police power). To date, while no California appellate court has addressed the matter, the three state trial courts that have considered the matter have not upheld these claims. *See supra* note 42 (noting decisions on exporting in Inyo, Nevada, and Tehama counties).

pumping *until* authorized by an appropriate management plan. Only after such a plan's enactment would export pumping "comply."[194]

In 1991 and 1992, the legislature expanded its generic authorization of groundwater management plans beyond the local agencies permitted to act by section 1220. In 1991, it enacted A.B. 255.[195] That statute allowed specified "local agencies" in the 11 basins identified as "critically overdrafted" to adopt "programs for the management of groundwater resources" within their service areas.[196]

In 1992, with A.B. 3030, the legislature repealed A.B. 255.[197] In its place, the legislature extended the authorization to enact "groundwater management programs"[198] to specified local agencies in *all* major groundwater basins within the state.[199] The statute applies to those

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194. A review of the statute's legislative history supports this latter interpretation. For example, a bill analysis prepared by the staff of the Assembly Water, Parks, and Wildlife Committee stated: 'This bill would prohibit the extraction and export of Sacramento Valley groundwater unless there is a groundwater management plan adopted by the Board of Supervisors." Assembly Water, Parks & Wildlife Committee, *Staff Report: A.B. 178* 1 (1984); *see also id.* at 2 (uncertain whether measure will encourage local planning). *Cf. Enrolled Bill Analysis*, *supra* note 183, at 1-2; Letter from Jim Nielsen, State Senator, to Norm Waters 1-2 (Mar. 26, 1984) 1-2 (inability to obtain agreement among overlying counties will preclude all groundwater export).

195. Cal. Water Code §§ 10750-10767 (repealed 1992).

196. Cal. Water Code §§ 10750-10752 (repealed 1992). The statute provided absolutely no legislative guidance about the features of such "programs."

197. Law of Sep. 26, 1992, ch. 947, § 1 [hereinafter A.B. 3030]. Portions of A.B. 3030 allow continuation of plans initiated under A.B. 255. A.B. 3030, *supra* (adding § 10750.9 to the California Water Code).

198. A.B. 3030 defines a "groundwater management program" as: "a coordinated and ongoing activity undertaken for the benefit of a groundwater basin, or a portion of a groundwater basin, pursuant to a groundwater management plan adopted pursuant to this part." Cal. Water Code § 10752(e) (West Supp. 1993). It defines a "groundwater management plan as "a document that describes the activities intended to be included in a groundwater management program." Cal. Water Code § 10752(d) (West Supp. 1993).

199. A.B. 3030, *supra* note 197 (adding Cal. Water Code § 10753). The legislation excludes two types of basins and one type of well. First, it excludes any portion of any basin "that is subject to groundwater management by a local agency or a watermaster pursuant to other provisions of law . . . unless the local agency or watermaster agrees...[to be subject to a new plan]." Cal. Water Code § 10750.2(b) (West Supp. 1993). Second, it exempts any basin "in which the average well yield is less than 100 gallons per minute." *Id.* Finally, except in critically overdrafted basins, it excludes groundwater extraction facilities that are "used to provide water for domestic purposes to a single-unit residence (and any additional authorized attached dwellings)." Cal. Water Code § 10755.4 (West Supp. 1992).

The statute specifies two classes of "local agencies" authorized to undertake "groundwater management programs." First, it expressly defines "local agencies" as: "any local public agency that provides water service to all or a portion of its service area." *Id.* § 10752(g). Second, it also allows other "local public agencies" that do not meet the criteria of section 10752 (g) also to undertake such programs if: a) "water service is not provided by a local agency", and b) "[t]he local public agency provides flood control, groundwater

"groundwater basins" as defined by the Department of Water Resources in Bulletin 118-75.[200] Like A.B. 255 "programs," A.B. 3030 programs have no mandatory requirements.[201] Rather, the statute specifies twelve provisions that such a program *may* contain.[202]

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quality management, or groundwater replenishment." *Id.* § 10753(b)1-2.

These definitions would thus not authorize a *county* to manage groundwater unless that county either provided water service itself, or, in some circumstances, provided flood control, groundwater quality management, or groundwater replenishment. The statute only authorizes county management in the latter instances if no other local public agency supplies water service within the groundwater basin.

The statute addresses some of the problems of overlapping jurisdictions. In critically overdrafted groundwater basins, "a local agency may not manage groundwater [under A.B. 3030] within the service area of another local agency without the agreement of that other entity." *Id.* § 10750.8. In basins that are not critically overdrafted, a local agency that seeks to regulate groundwater must get the approval not only of any other local agency, but also of any "water corporation regulated by the Public Utilities Commission, or a mutual water company." *Id.* § 10750.7.

In addition, it promotes "coordinated" basin planning where multiple empowered agencies have jurisdiction over a portion of the basin. *See id.* §§ 10750, 10752(e), 10755.2(a), 10755.3 (noting respectively, interagency cooperation encouraged, "program" defined as a "coordinated . . . activity", a coordinated plan intended, and empowered agencies with jurisdiction meet annually).

200. By limiting the management powers to *DWR identified* groundwater basins, the statute does not authorize regulation of groundwater resources not formally identified as "basins." For example, some fractured rock groundwater in mountain regions would escape regulation.

201. For a time during the 1992 session, the legislature was considering a bill that would have created the "California Groundwater Management Act." *See* S.B. 867 (1992) (as amended Jul. 29, 1992). This bill would have established general duties and responsibilities of groundwater management districts. *See* Assembly Committee on Local Government, Digest-S.B. 867, 1 (1992). These powers would have included, *inter alia*: 1) imposition of well spacing requirements and well operation regulations; 2) export restrictions, including a permit; 3) well registration requirements; 4) and extraction fees. *Id.* at 1-3. Ultimately, the legislature removed the sweeping, state wide provisions, and passed the bill as special legislation creating the Glenn County Groundwater Management District. S.B. 867 (1992) (version enacted). Governor Wilson, however, vetoed both that bill and S.B. 207, a substantially identical, subsequently enacted bill that removed a provision that had earlier offended the Governor. *See* Governor Pete Wilson to the California Senate Members, letter of Oct. 26, 1992, vetoing S.B. 207; *see also infra* note 469; *see also* A.B. 3030, *supra* note 197 (as amended in Assembly April 20, 1992, requiring four components of all groundwater management plans).

202. Cal. Water Code § 10753.7 (West Supp. 1993). The express list includes: 1) saltwater intrusion control; 2) wellhead protection and recharge area management; 3) contaminated groundwater migration control; 4) well abandonment and destruction management; 5) overdraft mitigation; 6) groundwater replenishment; 7) groundwater levels and storage monitoring; 8) conjunctive use facilitation; 9) well construction policy identification; 10) authorization of projects for groundwater contamination cleanup, recharge, storage, conservation, water recycling and extraction; 11) development of relationships with state and federal agencies; and 12) land use planning coordination. *Id.*

On its face, A.B. 3030 does not directly authorize groundwater export controls. Arguably, such provisions are a component of a groundwater management programs.[203] Section 10753.7 (k) authorizes the appropriate local agencies to "mitigate conditions of overdraft."[204] "Mitigation" can mean "to lessen in severity or burden."[205] Reduction of export pumping could be one component of an effort "to lessen [the] severity or burden" of overdraft.[206] Moreover, section 10753.8 implicitly allows an authorized agency to "limit or suspend extractions" when that agency "has determined through study and investigation that groundwater replenishment programs or other alternative sources of water supply have proved insufficient or unfeasible to lessen the demand for groundwater."[207] Finally, section 10754 extends the powers of water replenish-

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203. Some authority, however, implicitly supports a conclusion that A.B. 3030 districts have no export restriction authority. In the few special district acts that have expressly created local regulatory bodies with authority over groundwater export, the legislature has placed groundwater export provisions and groundwater management provisions in separate sections. *See infra* notes 434-60 and accompanying text (discussing Sierra Valley Groundwater Basin Act); Cal. Water Code-App. §§ 119-706 to 119-709.7, 119-702 (West Supp. 1993) (addressing export management and general management powers). The close proximity of these sections only weakly supports a distinction between export and management authorities. Equally plausible is an interpretation that has export restrictions merely one instance, albeit one described in detail, of management powers. Supporting this conclusion is the district's name: the Sierra Valley Groundwater Management District. The export restrictions are thus simply one of this groundwater *management* district's *management* powers.

204. Cal. Water Code § 10753.7(e) (West Supp. 1993).

205. Ballentine's Law Dictionary 808 (1969). *Cf.* Cal. Code Regs. tit. 14 § 15370 (1990) (CEQA guidelines definition of "mitigation").

206. If groundwater export controls are proper components of overdraft mitigation exports, an additional question arises. Can the appropriate local public agencies enact a groundwater management program that *only* contained an export ban? Section 10753.7 does not mandate any particular component or set of components that such a plan must contain. Similarly, even if such an export ban were a "plan," A.B. 3030 does not appear to validate retroactively groundwater export ordinances that counties passed prior to the statute's enactment. *See* Cal. Water Code §§ 10750.9, 10753.2 to 10753.6 (West Supp. 1993).

207. Cal. Water Code § 10753.8(c) (West Supp. 1993). The authorization is only implicit since the section begins: "[n]othing in this part shall be construed as authorizing the local agency to limit or suspend extractions *unless* [the agency makes the two required determinations]." *Id.* (emphasis added).

Section 10753.8 (b) states that A.B. 3030 does *not* authorize a local agency "to make a binding determination of the water rights of any person or entity." *Id.* § 10753.8 (b) (emphasis added). Superficially, an appropriator whose export use was curtailed under a groundwater management scheme might seek some solace under this provision. Most likely, however, it provides little comfort. A.B. 3030 authorizes local regulation of rights otherwise created under state law. Section 10753.8 (b) merely negates any suggestion that A.B. 3030 bestows *adjudicative* powers over the scope and acquisition of state created rights. The entire scheme, however, expressly grants *legislative* powers to the identified local agencies. It is in the exercise of such legislative powers that the local agencies can restrict the state created

ment districts to public agencies who adopt groundwater management plans under A.B. 3030.[208] "For the purposes of replenishing the groundwater supplies within the district, a [water replenishment] district . . . [may] conserve water within or outside of the district."[209] Arguably, such "conservation" powers authorize an export ban. Moreover, as noted above, water replenishment districts also may "commence, maintain, intervene in, defend and compromise . . . any and all actions and proceedings . . . to prevent the unlawful exportation of water from the district."[210]

The 1992 legislative session saw one additional law addressing groundwater export and local groundwater management plans. In A.B. 2897, the legislature addressed water users who replaced transferred surface waters with groundwater.[211] In adding section 1745.10 to the

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rights. A consideration of the constitutionality of such a grant of power, or the compensability under the takings clause of any appropriative rights curtailed as a result of the exercise of such power, is beyond the scope of this article.

208. Cal. Water Code § 10754 (West Supp. 1993).

209. *Id.* § 60230(f).

210. *Id.* § 60230(g). As previously noted, nothing in the water replenishment district act defines "unlawful exportation of water." *See supra* note 180.

211. *See* Cal. Water Code §§ 1745 to 1745.11 (West Supp. 1993). As noted above, many of the environmental effects of such replacement pumping are identical to the effects of outright pumping for export. *See supra* note 29. Since groundwater is pumped from the basin, overdraft related problems may well be exacerbated. Some differences in the scope and type of harms from such replacement pumping may reduce somewhat the magnitude of problems when compared with the potential from literal pumping for export. First, some return flows will percolate back to the aquifer from the replacement pumping, whereas no such return flows will percolate back from an outright export. By itself, this distinction goes only to the question of the quantification of the right to transfer groundwater out of a basin.

A second difference has also been raised by some, such as the noted Sacramento attorney George Basye. Mr. Basye argues that replacement water users are limited in the amount of water they will pump from the basin by the overlying uses to which they will apply the water. Remarks of George Basye, CLE International, California Water Law Conference, San Francisco, California (March 18, 1993). For example, a farmer who transfers entitlements to 1,000 acre-feet of surface water that would normally irrigate a 250 acre parcel is only going to pump 1,000 acre-feet from the basin to irrigate that same parcel. In contrast, he argues, no such practical limitations restrict the pumper for export. Only the capacity of the literal export pumper's wells would limit its ability to remove groundwater out of the basin.

This second distinction seems only a matter of degree, and not of true difference. If the replacement water use is long enough and widespread enough, it seems perfectly able to have the same long-term environmental consequences as true export pumping. The main difference between pure export pumping and replacement pumping seems to lie not in the ability of the two schemes to overdraft a basin, but in the local economic consequences of such depletion. Replacement pumping does keep local agro-economies operating. Pure export pumping does not necessarily guarantee the economies at the water source that locally circulating dollars will replace the waters overdrafted from the basin. The concerns about local third party effects of water transfers demand attention. The attention, however,

Water Code, the legislature prohibited such replacements "unless the groundwater use is either . . . . (a) Consistent with a groundwater management plan adopted pursuant to state law for the affected area. (b) [or, if no such plan exists, the replacement is] [a]pproved by the water supplier from whose area the water is to be transferred."[212] In the latter instance, the water supplier must determine that the "transfer will not create, or contribute to, conditions of long-term overdraft in the affected groundwater basin."[213] By its own terms, A.B. 2897 does not authorize groundwater management authority; rather, it refers only to plans adopted pursuant to other, unspecified "state laws."[214]

IV. COUNTY ORDINANCES: A SURVEY

Given the lack of state attention to groundwater regulation, much of the development of the law in this area has occurred as a result of local legislative efforts. A survey of the these efforts serves at least two purposes.[215] First, as noted above, the legislature has recently and increasingly granted express authority for counties and other local bodies to regulate groundwater. The extent crop of ordinances, even if pre-empted completely or partially, nevertheless will likely serve as the models for the new ordinances likely to be budding under A.B. 3030 and its progeny. Several important lessons in legislative drafting can be learned from the current ordinances. Second, the survey leads to some

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should be as part of a coherent state plan to use resources wisely, and not to balkanize or erect underground Berlin walls against the possibility of *any* groundwater export.

212. Cal. Water Code § 1745.10 (West Supp. 1993).

213. *Id.*

214. It is unclear whether A.B. 2897, like Water Code § 1220, is a disincentive to enacting a groundwater management plan in an area that is opposed to groundwater exports. As noted above, Water Code § 1220 purports to ban groundwater exports until a water plan exist. *See supra* note 183 and accompanying text. Thus, if an area of origin is opposed to any exports, section 1220 gives such an area an incentive not to enact a plan. Similarly, the first subsection of section 1745.10 gives an area of origin a similar disincentive to enact a plan that would authorize such replacement pumping. The second subsection, however, tempers this disincentive by allowing the surface water supplier to authorize replacement pumping even without going to the trouble (and potential controversy) of enacting a groundwater management plan.

The interaction of A.B. 2897 and A.B. 3030 is not addressed directly by either statute. Presumably, in most instances, the "water supplier" addressed in A.B. 2897 will also be a "local public agency" within the meaning of A.B. 3030.

215. To obtain the materials discussed in this section, the author surveyed the county counsels for all 58 California Counties. The survey asked whether a given county has had, now had, or is considering a groundwater export ordinance or policy statement. Of the 58 counties, 43 responded. The author appreciates the survey respondents' efforts in bringing several useful matters to his attention.

conclusions about the overall coherence and wisdom of the state's slow motion progress towards groundwater management.

The counties surveyed represent three distinct regions: five predominantly lie in the groundwater rich Sacramento Valley;[216] two lie in the Eastern Sierra;[217] and the last lies in the southern desert.[218] Of these eight counties, six still have ordinances on the books: Butte, Glenn, Imperial, Modoc, Sacramento and Tehama.[219] The two remaining counties, Nevada and Inyo, have ordinances that are no longer enforced as a result of settlements of litigation.[220] For convenience, the article discusses the ordinances in the approximate order of their enactment.

A. Imperial County: The Original Groundwater Export Ordinance

As part of a long and tortuous effort to restrict groundwater exports from Imperial County to Mexico,[221] in 1972, Imperial County enacted the first county ordinance restricting groundwater export.[222] Over twenty years later, the ordinance remains on the books, although its

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216. These five counties include Butte, Glenn, Modoc, Sacramento, and Tehama. *See* Bulletin 160-74, *supra* note 183, at 6 (dividing state into 11 Hydrologic Study Areas).

217. These two include Nevada and Inyo Counties. *See* Bulletin 160-74, *supra* note 183, at 6.

218. The desert county is Imperial County. *See* Bulletin 160-74, *supra* note 183, at 6.

219. Butte County, Cal., Code ch. 33 (Supp. 1978); Glenn County, Cal., Code ch. 20.04 (1991); Imperial County, Cal., Code §§ 56300-56315 (1978); Modoc County, Cal., Code ch. 13.08 (1978); Sacramento County, Cal., Code § 15.08.095 (1980); Tehama County, Cal., Code title 9, ch. 9.40 (1992). The Tehama County ordinance was recently invalidated in Myers v. County of Tehama, No. 18498 (Tehama County Super. Ct. Aug. 8, 1993). *See also infra* note 223 (Imperial County seeking special district legislation).

220. Inyo County, Cal., Code ch. 7.01 (1980) (added by Referendum Measure A); Nevada County, Cal. Land Use And Development Code, ch. X, art. 6 (1988). After the trial court struck down the Nevada County ordinance, the Nevada County Board of Supervisors, sitting in their capacity as head of the Nevada County Water Agency, enacted a virtually identical ordinance. *See infra* note 380.

221. *See* County of Imperial v. McDougal, 564 P.2d 14, 16, *application denied*, 434 U.S. 899, *appeal dismissed*, 434 U.S. 944 (1977) (for want of substantial federal question); Munoz v. County of Imperial, 604 F.2d 1174, 1175 (9th Cir. 1979), *cert. granted*, 445 U.S. 903, *judgment vacated*, 449 U.S. 54 (1980), *on remand*, 636 F.2d 1189 (9th Cir.), *on remand*, 510 F. Supp. 879 (S.D. Cal. 1981), *aff'd*, 667 F.2d 811 (9th Cir.), *cert. denied*, 459 U.S. 825 (1982).

222. Imperial County, Cal., Ordinance No. 432 (Nov. 21, 1972). Section 2 of Ordinance No. 432 added Chapter 2 ("Ground Water Appropriations") to Division 6, Title 5 of the Codified Ordinances of Imperial County. *Id.* § 2. In 1978, Imperial County renumbered the chapter to Chapter 3. Imperial County, Cal., Ordinance No. 669, § 2 (Nov. 21, 1978).

Ordinance No. 432 replaced a similarly titled chapter that had been added by Ordinance No. 420 only four months before Ordinance No. 432's enactment. Imperial County, Cal., Ordinance No. 420 (July 18, 1972). Because the scheme set up under Ordinance No. 420 was so short lived, and largely incorporated into the scheme set up under Ordinance No. 432, the article focuses solely on Ordinance No. 432.

immediate future looks dim.[223] Like the later ordinances from other counties that also address groundwater export, the Imperial ordinance makes findings,[224] defines terms,[225] and establishes a permit process affecting some water exporters.[226]

1. *Findings and Definitions*

The ordinance's initial section first notes the importance of groundwater to portions of arid Imperial County.[227] It then announces its principal concern: protection of the local water supply from "overdrafts."[228] It concludes strongly: "[t]he Board intends that the right to appropriate water should be denied or limited where there is substantial evidence of overdraft."[229]

After announcing its concern with overdraft, the Imperial ordinance then defines ten terms.[230] Five of these terms are crucial to understanding the ordinance's substantive provisions. First, it defines the ordinance's central concern, "overdraft," as "any draft of water from the groundwater basin in excess of the safe yield of the basin."[231] It then defines two components of "overdraft:" "groundwater basin" and "safe yield."

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223. Imperial County is currently reviewing possible state legislation that would create an Imperial County Groundwater Management District. Letter from Joanne L. Yeager, Assistant County Counsel, County of Imperial, to Brad Epstein, Legal Research Assistant (Oct. 8, 1992). The district's boundaries would be coextensive with the county's boundaries. *Id.*; *see* Imperial County Groundwater Management Act § 102 (Feb. 20, 1992) (draft). The possible legislation draws extensively from the Sierra Valley Groundwater Management District Act, Cal. Water Code-App. §§ 119-101 to -1301 (West Supp. 1992), and the Mono County Tri-Valley Groundwater Management District Act, Cal. Water Code-App. §§ 128-1 to -901 (West Supp. 1992). *See infra* notes 434-60 and accompanying text.

224. Imperial County, Cal., Codified Ordinances § 56200 (1972) (amended 1978). *See infra* notes 227-29 and accompanying text.

225. Imperial County, Cal., Codified Ordinances § 56201 (1972) (amended 1978). *See infra* notes 230-53 and accompanying text.

226. Imperial County, Cal., Codified Ordinances §§ 56202-56212 (1972) (amended 1978). *See infra* notes 254-59 and accompanying text.

227. *Id.* § 56200.

228. *Id.* Section 56200 also announces an intent to "gather and analyze data so as to understand the effects of water appropriations on particular water basins and surrounding areas." *Id.*

229. *Id.*

230. *Id.* § 56201.

231. *Id.* § 56201(f). The ordinance does not separately define "draft."

The ordinance defines "groundwater basin" as: "a water aquifer or series of interrelated aquifers located in the County of Imperial."[232] It defines "safe yield" in detail:

> the amount of groundwater which can be withdrawn from a basin or series of interconnected basins annually without producing harmful effects on the supply in the basin. Specifically, safe yield is the amount of water which can be withdrawn without either:
>
> (1) Exceeding in any calendar year the long-term mean annual water supply of the basin (considering all sources of recharge and withdrawal);
> (2) Lowering water levels so as to make further drilling of water wells for local beneficial purposes uneconomical;
> (3) Causing water pumped from the basin to deteriorate below drinking water standards;
> (4) Violating water rights or restrictions in pumpage in the groundwater basin as established by court adjudication or applicable state or federal law.[233]

In several ways, the Imperial definition of "overdraft," as clarified by "groundwater basin" and "safe yield," leaves much less confusion than later versions adopted in other counties.[234] As noted above, "safe yield" is a hydrologically mushy and legally vague term that invites subjective interpretations.[235] The Imperial definition restricts the range of subjectivity in several ways. Most importantly, it specifies four categories of "adverse effects" that indicate that "safe yield" has been exceeded. In addition, the first of the four alternative "safe yield" criteria both provides an explicit time period in which to compare extractions and recharge, and quantifies the standard to be applied during the comparison.[236] In addition, the second "safe yield" criterion qualitatively equates "overdraft" with an inability to drill wells *economically* for "local beneficial uses."[237]

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232. *Id.* § 56201(a). Unlike most of the subsequent ordinances, the Imperial ordinance does not separately define "aquifer" or "interrelated aquifers." In Bulletin 118-75, the California Department of Water Resources identifies 16 "groundwater basins" located entirely or partially in Imperial County. Bulletin 118-75, *supra* note 1, at 95. Of these, ten cross county boundaries. *See* Bulletin 118-75, *supra* note 1, at 85.

233. Imperial County, Cal., Codified Ordinances § 56201(E) (1972) (amended 1978).

234. *See, e.g., infra* notes 271 & 407, and accompanying text.

235. *See supra* notes 89-109 and accompanying text.

236. The "time period" for "extractions" is a "calendar year;" the time period for "recharge" is also "annual," but as quantified by the "long-term mean annual water supply." Imperial County, Cal., Codified Ordinances § 56201(e) (1972) (amended 1978).

237. *Id.* In contrast, the Butte, Glenn, and Tehama ordinances' vaguer "safe yield" criteria speak only of long term declines in water levels leading to depletion. *See infra* notes 271, 325, 407, and accompanying text.

Of course, these definition are not entirely precise. For example, the ordinance does not further indicate the length of the "long-term" used for computing the "long-term mean annual water supply."[238] Similarly, the ordinance does not further define "uneconomical." Perhaps most importantly, the "groundwater basin" definition does not precisely address the problem of multiple county groundwater basins. The ordinance applies to "a water aquifer . . . located in the County of Imperial."[239] Ten aquifers, however, underlie both Imperial and some other county.[240] For these ten aquifers, the ordinance does not determine whether the "overdraft" definition looks only to the Imperial County portion of the extraction and replenishment figures, or includes *all* sources of extraction and replenishment in the aquifer, both within and without Imperial County.

The biggest uncertainty created by the "safe yield" definition comes from the second alternative's reference to "local beneficial purposes." By itself, this term raises uncertainty about the scope of "local."[241] More significantly, however, is its apparent allusion to the separately defined "beneficial local use."[242] That definition, in turn, opens the door to the largest area of confusion created by the Imperial scheme.

The ordinance defines "beneficial local use" as: "the use of water pumped or flowing from any water well *within a defined 'area of influence.'*"[243] Fortunately, the ordinance separately defines "area of influence" as: "that area within Imperial County in which either the production, diversion, or use of water *affects or is affected by, the natural available supply* of said area."[244] Unfortunately, the ordinance gives little hint about what the italicized portion of the definition means.[245] Even

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238. Ultimately, the length of the period for which water supply records existed would likely provide the broadest measure of "long-term mean annual water supply." If suspected inaccuracies, data gaps, or other record anomalies existed, a shorter period might properly be used.

239. Imperial County, Cal., Codified Ordinances § 56201(a) (1972) (amended 1978).

240. *See supra* note 232.

241. It appears also to incorporate the "beneficial use" limitation of water appropriation law. To perfect and maintain an appropriation, water must be put to "a beneficial use." *See, e.g.*, Hutchins, *supra* note 111, at 135. While not entirely free from imprecision itself, the "beneficial use" limitation is well established in case law. *Id.* It is generally applied very broadly, to refer to a non-wasteful use of water. The requirement is also restated in the 1928 amendment to the state Constitution. Cal. Const., art. X, § 2.

242. Imperial County, Cal., Codified Ordinances § 56201(i) (1972) (amended 1978). Literally, "safe yield" refers only to "local beneficial purposes," *not* to "beneficial local uses." As no meaningful distinction between these two phrases readily appears, they seem synonymous.

243. *Id.* § 56201(i) (emphasis added).

244. *Id.* § 56201(b) (emphasis added).

245. The county apparently borrowed the term from the "Stipulation for Judgment" filed August 11, 1970. See Stipulation for Judgment, Mojave Water Agency v. Abbey, Civil Nos. 130759 & 152413 (Cal. Super. Ct. San Bernardino County June 7, 1976) [hereinafter, *Stipulated*

more unfortunately, understanding the "area of influence" definition is critical to understanding the definition of "appropriation."[246] The ordinance defines "appropriation" as: "causing or permitting of [sic] water pumped or flowing from a water well to be used or sold for uses *outside of a defined 'area of influence.'*"[247] Since only an "appropriation" triggers the need for a permit, the entire permit scheme turns on the meaning of "area of influence."[248]

The elusive definition identifies six different circumstances that might define "area of influence." The definition first distinguishes "affects . . . the natural available water supply" from "is affected by the natural available supply." Either of these two circumstances, in turn, may be caused by three factors: "production, diversion or use of water." In combination, six permutations result.

Assuming that groundwater pumping is water "production," how might such pumping "affect" the water supply in a given area? At the very least, by removing water from the aquifer, the water removed is no longer available in that aquifer as a supply to others.[249] Thus considered broadly, the "area of influence" would be the entire aquifer. Under such a definition, someone who wished to use the water outside of the land overlying the aquifer would be an appropriator who required a permit.

If this were the only plausible interpretation, the "appropriation" definition would merely codify the common law distinction between overlying and nonoverlying users. If that were what were intended, it would have been much cleaner to simply use those terms.[250] The failure

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Judgment]. *See* A. Schneider, *supra* note 59, at 26-27. Exhibit 1 to that Stipulated Judgment defines "area of influence" as: "that area within the Mojave Water Agency which is contiguous to the Mojave River *and in which either the production, diversion or use of water affects or is affected by the natural available supply of the Mojave River system.*" *Stipulated Judgment, supra*, at 4, (quoted in A. Schneider, *supra* note 59, at 27 n.110). Unlike the Imperial ordinance, however, the *Stipulated Judgment* grounded its definition with two additional exhibits, one map and one 50 page legal description of the precise area constituting the "area of influence" of the Mojave River. *Stipulated Judgment, supra*, at 6. Thus, the complete definition of "area of influence" in the Stipulated Judgment begins "the area shown on Exhibit A and described in Exhibit B." *Stipulated Judgment, supra*, at 6. Unfortunately, the Imperial County ordinance does not also contain a map or legal descriptions of the "area of influence" addressed therein.

246. Imperial County, Cal., Codified Ordinances § 56201(g) (1972) (amended 1978).

247. *Id.* § 56201(g) (emphasis added).

248. Section 56202 prohibits appropriation from a water well without a permit. *Id.* § 56202.

249. To be more precise, the portion of the pumped water that is consumed or evaporated, and does not recirculate to the aquifer, is removed from the supply.

250. Other counties have also struggled with imprecise geographic distinctions between classes of groundwater extractors. *See* Nevada County, Cal., Land Use And Development Code § L-X 6.2(D) (1988) ("export of groundwater."); *see also* Cal. Water Code Append. § 119-709.7 (West Supp. 1993) (distinguishing between overlying users, nonoverlying but in district users, and exporters in Sierra Valley Groundwater Management District).

to use "overlying" and "nonoverlying" within the ordinance suggests alternative definitions. For example, an "area of influence" narrower than the entire aquifer might be only that portion of the aquifer where pumping produces immediately perceptible effects. The land surface above a well's "cone of depression"[251] might circumscribe the "area of influence" immediately impacted by water extraction. Under such a narrow definition of "area of influence," any one who pumped water for use beyond the cone of depression would need a permit. Alternatively, a definition broader than "land overlying an aquifer" could be supported by the reference in the findings to the county's desire "to understand the effects of water appropriations on particular water basins *and surrounding areas*."[252]

Full analysis of the range of interpretations between "cone of depression" and "land overlying the aquifer," or beyond, is beyond the scope of this article. "Area of influence," as defined so vaguely by the Imperial Ordinance, exemplifies an extremely imprecise standard that has no basis in law or hydrology.[253]

2. *Substantive Provisions*

As noted already, the Imperial ordinance requires "appropriators," as defined in the ordinance, to get a permit.[254] The applicant must provide, at its own cost, specified extraction data.[255] In reaching its permit decision, the county Public Works Director must consider three matters: 1) the basin's geology and hydrology; 2) the effects of past and current appropriations; and 3) zoning and land use regulations.[256] The ordinance allows for inspection.[257] It also allows residents or property owners within the "area of influence" to appear and object to the permit application.[258] Finally, the ordinance exempts "political subdivisions,

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251. For a discussion of "cone of depression," see *supra* notes 82-85 and accompanying text.

252. Imperial County, Cal., Codified Ordinances § 56200 (1972) (amended 1978) (emphasis added).

253. Portions of the ordinance imply that the County Board of Supervisors might determine "area of influence" by resolution. *Cf. id.* §§ 56201(g), (i) (noting "*defined* area of influence") (emphasis added). *See id.* § 56214 (Board resolutions to determine chapter's applicability). This suggestion begs the question: what criteria will the Board use in making that determination?

254. The ordinance exempts then existing and otherwise lawful appropriators. *Id.* § 56202.

255. Section 56203 requires the applicant to furnish, inter alia, proposed well location, extraction amounts, extraction purposes, places of use, and required hydrological data. *Id.* § 56203.

256. Imperial County, Cal., Codified Ordinances § 56204 (1972) (amended 1978).

257. *Id.* § 56205. Inspection includes the right to make water level tests and chemical analyses. *Id.*

258. *Id.* § 56210.

public entities [and] agencies formed pursuant to the provisions of the State Water Code."[259]

B. Butte, Glenn & Modoc Counties: Three Sacramento Basin Counties Respond to the 1976-77 Drought

The next three counties to pass groundwater export ordinances were all primarily located in the groundwater rich, largely rural, Sacramento Valley. In the summer of 1977, and within just two weeks of each other, both Butte and Glenn Counties responded to the 1976-77 drought with substantially similar groundwater export ordinances.[260] Just six months later, in early 1978, Modoc County enacted its ordinance.[261] All three ordinances remain on the books, although Modoc and Glenn have recently amended their ordinances.[262] In addition, Glenn County recently sought express state legislation to create its own groundwater management district.[263] The Butte, Glenn and Modoc ordinances have influenced both the recent Tehama County ordinance and a draft ordinance Sutter County circulated in 1992.[264] Both the Butte and the Glenn ordinances, however, have substantial flaws that make them ill equipped as models for future legislation. In contrast, the less ambitious Modoc ordinance avoids some of the problems plaguing Butte and Glenn.

1. Butte County

The structure of the Butte County ordinance typifies the Sacramento Basin counties' ordinances.[265] Like most of its counterparts, the Butte County ordinance contains: 1) legislative findings; 2) definitions; 3) prohibitions on groundwater mining; and 4) a permit requirement.

As its legislative findings, the ordinance notes that groundwater raises both general "health, welfare and safety" concerns and specific

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259. *Id.* § 56212.

260. Butte County, Cal, Ordinance No. 1859 (Aug. 23, 1977) (codified at Butte County, Cal., Code, §§ 13.08010-0.70 (1991)); Glenn County, Cal., Ordinance No. 672 (Sept. 6, 1977) (codified at Glen County, Cal., Code §§ 20.04010-.0460 (1991)).

261. Modoc County, Cal., Ordinance No. 255 (Mar. 6, 1978).

262. Modoc County, Cal., Ordinance No. 255-A, § 1 (1987); Glenn County, Cal., Ordinance No. 971 (1990).

263. Cal. S.B. 207 (1992) (vetoed October 26, 1992). *See infra* note 469.

264. *See infra* notes 403-29 and accompanying text (Tehama County); *see also infra* note 430 (draft Sutter County ordinance).

265. Only the short Sacramento County ordinance adopts a different structure. *See infra* notes 346-52 and accompanying text.

economic concerns.[266] The ordinance then lists a series of 26 definitions ranging alphabetically from "aquifer" to "zone of saturation."[267] Within that series, the ordinance defines "mining" as: "[p]umping from groundwater bodies greatly in excess of replenishment."[268] It then prohibits mining "when the water is transported from the basin."[269] Finally, the ordinance establishes a permit system to license groundwater pumping where the pumper intends "to use it or sell it outside the area in which said pumping affects the natural available water supply."[270] The county board of supervisors can only grant a permit if it concludes that "the permit will not bring about an overdraft, will not bring about saltwater intrusion, will not adversely affect transmissivity within the aquifer, and will not adversely affect the water table."[271] The ordinance requires the

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266. Butte County, Cal., Code § 33-1 (Supp. 1978) (groundwater "of critical importance to the economy of this county").

267. *Id.* §§ 33-2.1 to 33-2.26.

268. *Id.* § 33-2.12. *See also supra* notes 88-109 and accompanying text ("mining" as hydrological term).

269. *Id.* § 33-3. More fully, section 33-3 states:

> It shall be unlawful to conduct any mining for water within this county, or for the owner of real property to allow groundwater of any nature, or connate water, to be mined *where the water pumped is transported from the basin.*

Id. § 33-3 (emphasis added). The ordinance does not expressly define "basin." Section 33-2.1 defines "aquifer" as: "A geologic formation that stores, transmits and yields significant quantities of water to wells and springs." *Id.* § 33-2.1.

270. Section 33-4 states:

> It shall be unlawful to pump groundwater of any nature or description, or for a property owner to allow such pumping on his land, in order to *use it or sell it outside the area in which said pumping affects the natural available water supply* without first obtaining a permit as provided in this chapter.

Id. § 33-4 (emphasis added). Under section 33-5, the Butte County Health Department receives permit applications. The county environmental director begins an environmental review. The Health Department consults with county departments and state agencies. Ultimately, the Health Department reports to the county board of supervisors (Board). *Id.* § 33-5.

Under section 33-6, the Board holds a hearing. In that hearing, the Board considers evidence of "all effects the proposed permit would have, on the affected groundwater, and the affected aquifer or aquifers, including, but not limited to, the hydraulic gradient, hydrology, percolation, permeability, piezometric surface, porosity, recharge, safe yield, saltwater intrusion, specific capacity, spreading water, transmissivity, usable storage capacity, water table and zone of saturation." *Id.* § 33-6; *see generally id.* at §§ 33-2.9 to 33-2.26 (defining these terms). *See also infra* notes 320-21 (respectively addressing permits issuance, annual review, amendments, and appeals).

271. Butte County, Cal., Code 33-7 (Supp. 1978). Section 33-2.13 defines "overdraft" as: "[t]he condition of a groundwater basin where the amount of water withdrawn by pumping exceeds the amount of water replenishing the basin over a period of time. Also as the point at which extractions from the basin exceed its safe yield plus any temporary surplus." *Id.* § 33-2.13. Section 33-2.19, in turn, defines "safe yield" as: "[t]he maximum quantity of water

board of supervisors to "impose such conditions upon the permit so as to prohibit overdraft . . . ."[272]

The mining prohibition and permit requirements thus provide two separate limitations on a groundwater pumper's potential ability to export groundwater beyond the county boundaries. The poorly drafted provisions make difficult any attempt to determine their theoretical impacts on groundwater exports.[273] Nevertheless, the two provisions appear to set up a two level regulatory scheme. First, the ordinance purports to ban entirely any pumping at rates "greatly in excess of replenishment," at least where "the water pumped is transported from the basin." The ordinance makes no provision for waivers of the basin export ban, or mitigation in lieu of a ban. Second, where basin export pumping may not reach the levels necessary to trigger the absolute mining ban, the permit process allows only those exports that will not cause overdraft or harm the aquifer's capacity to store groundwater of suitable quality.

a. Mining Prohibited

The mining ban provision raises five principal questions about its impact on groundwater exports. First, does it apply even to those exports from the county where the water will be used on land overlying the same groundwater basin, but in another county? Second, over what time frame must extractions from a basin greatly exceed replenishment? Third, what is the "groundwater body" relevant to the comparison of extraction and replenishment rates? Fourth, who is a "miner" under the act? Finally, does

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which can be withdrawn annually from a groundwater supply under a given set of conditions *without causing an undesirable result*. The phrase 'undesirable result' is understood to refer to a gradual lowering of the groundwater levels resulting eventually in depletion of the supply." *Id.* at § 33-2.19. *See also id.* at §§ 33-2.20, 33-2.23, 33-2.25 (discussing, respectively, "saltwater intrusion", "transmissivity", and "water table").

272. *Id.* 33-7.

273. Vance Severin, Program Manager, Division of Environmental Health, Department of Public Health, Butte County, informed the author that, at least since 1979, when he began working at the office, he was "not aware that any permit applications have been received, or permit issued under the provisions of Chapter 33." Letter of Vance Severin, Butte County Dep't of Public Health, to Gregory Weber (Oct. 26, 1992). Four possibilities exist to explain the lack of interest in obtaining export permits. First, there simply may have been no demand for such exports. Second, potential exporters may have concluded that their exports were either outright banned by the ordinance or that a permit would not issue. Third, potential exporters may have concluded that the transaction costs added by the permit process made a potential export uneconomical. Finally, potential exporters may have concluded that the ordinance created such uncertainty as to make even the calculation of transaction costs too difficult to estimate, thereby leaving the costs of a potential export too difficult to estimate.

it does it ban all mining, or only mining where the water is transported from the basin?[274]

First, on its face, the mining ordinance applies only to exports where the water is transported "out of the basin." As previously noted, the ordinance does not expressly define "basin."[275] The unfortunate use of "groundwater basin" unduly muddies the ordinance's meaning. As noted above, an enormous range of choices exists for the definition of a "groundwater basin."[276] This range highlights the uncertainty inherent in the ordinance's mining ban. A full treatment of the legal impacts on water exports of the adoption of any one of these choices is beyond this article's scope. Instead, the article will consider the impact on exports of two lateral boundaries with increasingly narrow geographic range.

The broadest possible definition of "groundwater basin" applicable to Butte County would be the adoption of the state Department of Water Resources' (DWR) survey results. According to the DWR, only two "groundwater basins" underlie Butte County: the Sacramento Valley groundwater basin and the Sacramento Valley Eastside Tuscan Formation Highlands.[277] Both of these basins underlie multiple counties in the Sacramento Valley.[278] If the DWR definitions were used to identify the groundwater basins relevant to the mining ban, the ban would not prevent exports from Butte County if the water would be used on lands

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274. The Butte County Code publishers have resolved this ambiguity in favor of the latter interpretation. They captioned this code provision: "[Mining prohibited where water transported.]" Butte County, Cal. Code § 33-3 (Supp. 1978). These headnotes are added by an editor "for stylistic reasons," i.e., "to keep the code's sections consistent with one another." *See* Memo from Brad Epstein to Gregory Weber (Oct. 29, 1992), reporting on telephone conversation with code editor Lori Story (Oct. 26, 1992).

The weight to be attached to this publisher added heading is uncertain. Where a portion of a code expressly states that chapter headings and titles have no interpretive force, courts will ignore them. *See, e.g.*, People v. Moore, 40 Cal. Rptr. 121, 124-25 (Cal.App. 1964). Absent such a disclaimer, courts state: "[a] code's title and chapter headings will properly be resorted to in doubtful cases for determination of the legislative intent." People v. Weltsch, 149 Cal. Rptr. 112, 115 (Cal. App. 1978). It seems inappropriate to ascribe legislative intent to the interpretations of a publisher, at least not where the headings are added after enactment, and the legislature has not affirmatively ratified such headings by later amendments to such code sections or chapters.

275. *See supra* note 269. *But cf.* Imperial County, Cal., Code § 56301 (1972) (amended 1978) (defining groundwater "basin").

276. *See supra* notes 66-80 and accompanying text.

277. Bulletin 118-75, *supra* note 1, at 95. Despite an extensive glossary of groundwater terms, Bulletin 118-75 does not itself attempt to define "groundwater basin." *Id.* at 4-5. In Bulletin 118-80, issued in response to Water Code section 12924, DWR redefined several basins after "consideration of political boundary lines." Bulletin 118-80, *supra* note 12, at 8.

278. *See* Bulletin 118-75, *supra* note 1, at 57.

in other Sacramento Valley counties that underlie the same aquifer from which the water was pumped in Butte County.[279]

Adoption of the Butte County borders to define the relevant portion of the DWR identified groundwater basins would greatly narrow the ordinance's definition of "groundwater basin."[280] Such a narrower definition of "groundwater basin" would correspondingly broaden greatly the mining ban's sweep. Under such a definition, any transportation of water across the Butte County borders would be subject to the mining ban.[281]

Second, regardless of the definition of "groundwater basin," the mining ban only applies if "[p]umping from groundwater bodies [is] greatly in excess of replenishment."[282] This definition does not specify the time frame over which to compare extraction and replenishment. In addition, it does not establish relative criteria for the comparison: how great a discrepancy is "greatly in excess"? If a court were to engraft some sort of "reasonable" time frame for comparing extraction with replenishment, the mining ban would not necessarily restrict all out of basin exports.[283]

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279. *Compare* Tehama County, Cal., Code § 9.40.020 (1992) (mining banned where water transported from the county); *see infra*, notes 413-21 & accompanying text; *see also* Inyo County, Cal., Code § 7.01.020(g) (1980) (defining groundwater basin partially, along county lines).

280. *See* Schneider, *supra* note 59, at 101 ("county" line a possible basin limit).

281. Under either definition, the mining ban seems to apply to those *intra* county water transports that might pump water from the county portions of the two DWR identified basins up the foothills above the valley floor.

282. Butte County, Cal., Code § 33-2.12 (Supp. 1978).

283. This particular incidence of vagueness implicates two different principles of statutory interpretation. On the one hand, where statutes fail to specify a time frame for notice or compliance with a statutory requirement, courts may imply a "reasonable" time. *See, e.g.*, Dougery v. Bettencourt, 6 P.2d 499, 503 (Cal. 1931) (reasonable time to record a certificate of sale). On the other hand, a statute may be so vague as to be void. *See, e.g.*, Cranston v. City of Richmond, 710 P.2d 845, 849-859 (Cal. 1985).

As noted elsewhere, the Butte ordinance gives alternative definitions of "overdraft." Butte County, Cal., Code § 33-2.13; *see also supra* note 271; *infra* notes 312-20 and accompanying text. Initially, it defines it as a condition where "the amount of water withdrawn by pumping exceeds the amount of water replenishing the basin *over a period of time*." Butte County, Cal., Code § 33-2.13 (1978). By itself, this portion of the overdraft definition merely begs the time period question. It does, however, suggest that "mining" and "overdraft" present questions of degree. Under this portion of the definition, "overdraft" could occur whenever pumping exceeds replenishment (within the appropriate time period) *however slightly*. In contrast, mining requires pumping to exceed replenishment *greatly*.

The alternative "overdraft" definition compresses the open ended "period of time." It defines "overdraft" as: "the point at which extractions from the basin exceed its safe yield plus any temporary surplus." *Id.* Section 33-2.19 then defines "safe yield" as:

> [t]he maximum amount of water which can be withdrawn *annually* from a groundwater supply under a given set of conditions without causing an

Third, the definition of "mining" fails to identify the "groundwater bodies" relevant to the comparison of extraction and replenishment rates. The ordinance does not itself define "groundwater bodies." It does separately define several types of groundwater bodies, such as aquifer,[284] connate water,[285] and groundwater.[286]

If the relevant "groundwater body" under the "mining" definition is the entire groundwater "basin" from which water is pumped, then "mining" only occurs if the "[basin wide] pumping is greatly in excess of [basin-wide] replenishment." Such an interpretation would both greatly complicate proof of "mining" and greatly restrict the circumstances under which "mining" could be found. Alternatively, an interpretation of the relevant "groundwater body" under the "mining" definition as a specific sub-portion of a groundwater basin would ease proof of "mining." For example, under such a narrower "groundwater body" definition, "mining" might occur whenever pumping from a particular source of confined groundwater were "greatly in excess of replenishment" of that particular source. Indeed, the best textual support for this narrower interpretation comes from the definition of "confined groundwater" itself. Section 33-2.7 defines "confined groundwater" as "[a] *body of groundwater*."[287] Because "confined" groundwater implicitly contrasts with the separately defined "free" or "unconfined" groundwater, an identifiable source or stratum of free groundwater likely is also a "groundwater body" under the "mining" definition.

Fourth, the mining ban does not link "mining" with the acts of any specific pumpers. Assume that pumping from a groundwater body by pumpers who use water within the basin already greatly exceeds replenishment. Does that make any out of basin exporter automatically a "miner," even if that individual has prescriptive rights and that individual's pumping rate is not "greatly in excess of replenishment"?[288]

> undesirable result. The phrase, "undesirable result" is understood to refer to a gradual lowering of the groundwater levels resulting eventually in depletion of the supply.

Id. §§ 33-2.19. Ultimately, "mining" and "overdraft" may produce the same result: depletion of the groundwater supply. In context, mining appears to be rapid overdraft.

284. Butte County, Cal., Code § 33-2.1 (Supp. 1978). That section defines "aquifer" as: "[a] geologic formation that stores, transmits and yields significant quantities of water to wells and springs." *Id.* This is a standard definition. *See supra* notes 66-80 and accompanying text.

285. Butte County, Cal., Code § 33-2.4 (Supp. 1978).

286. *Id.* § 33-2.6. That section defines "groundwater" as: "[w]ater in the zone of saturation. Groundwater is presumed to be percolating, although it does occur in known and definite channels." *Id.* The ordinance separately defines "free" and "confined" groundwater. *See id.* §§ 33-2.8, -2.7 (respectively addressing free and confined groundwater types).

287. *Id.* § 33-2.7 (emphasis added).

288. As noted above, traditional groundwater rights law allocates pumping rights in overdrafted basins to pumpers who use the water on land overlying the basin; since, in an

The ordinance does not directly answer this matter. To the extent the ordinance merely purports to prevent appropriators who have not established a prescriptive right to take from an overdrafted basin, it duplicates state decisional law. If, however, the ordinance attempts to also bar prescriptive users from exports, it completely eliminates a class of rights recognized by state decisional law.

The last major question about the impact of Section 33-3 on exports arises from ambiguous punctuation. The section states: "[i]t shall be unlawful to conduct any mining for water within this county, *or* for the owner of real property to allow groundwater of any nature, or connate water, to be mined *where the water pumped is transported from the basin.*"[289] The ambiguity involves the application of the "where . . . basin" clause. Does it qualify *both* "any mining . . . this county" *and* "or for the owner . . . to be mined," *or* only the latter clause? If it qualifies both clauses, then an in-basin pumper can "mine" with impunity, while an out-of-basin exporter may not mine at all. If, however, it qualifies only the latter clause, then no pumper can mine. For convenience, the latter interpretation shall be called the "broad," or complete ban; the former interpretation, the "narrow," or geographically limited ban.

Support for the broad interpretation of section 33-3 comes from a literal reading of its text, a comparison of its punctuation with the punctuation of section 33-4, and from the legislative findings in section 33-1. First, arguably, the lack of a comma between "to be mined" and "where . . . basin" creates two separate restrictions within section 33-3: the clause before the section's first "or" makes an actual pumper liable, while the clause after the first "or" also makes liable an owner who permits a pumper to mine. Under this interpretation, the first clause bans *all* mining within the County; the second clause, however, only penalizes those non-pumping owners who allow mining for transport beyond the basin.

Second, additional, indirect support for this broad interpretation also comes from a comparison with the permit requirement's wording.[290] Section 33-4 states:

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overdrafted basin, there is no "surplus" for appropriation, offbasin users can only obtain appropriative rights. *See supra* notes 114-50 and accompanying text. The Butte ordinance would appear to prevent off-basin exports by prescriptive rights holders.

For an outline of prescriptive rights, see *supra* notes 115, 133.

289. Butte County, Cal., Code § 33-3 (Supp. 1978) (emphasis added).

290. Courts interpret statutes by reference to the entire legislative scheme of which each individual statute is a component. *See, e.g.*, People v. American Bankers Ins. Co. of Florida, 284 Cal. Rptr. 617, 621-22 (Cal. App. 1991).

> "It shall be unlawful to pump groundwater of any nature or description, or for a property owner to allow such pumping on his land, in order to use it or sell it outside the area in which said pumping affects the natural available water supply without first obtaining a permit as provided in this chapter."[291]

Like the mining ban, the permit requirement addresses both actual pumpers and non-pumping owners who allow pumping to occur. Unlike the mining ban provision, however, the permit ban inserts a comma between the non-pumping owner provision and the qualifying phrase "*in order to* use or sell it outside the area."[292] The punctuation of section 33-4 thus does not purport to make *all* pumpers or owners get a permit; rather, it limits the permit requirement to only those pumpers or property owners who meet the geographical "sale or use" condition. To be consistent grammatically with the permit provision, the mining provision should have had a comma between the phrase "to be mined" and "where the water pumped is transported from the basin."[293]

Third, the legislative findings in section 33-1 provide the final support for this broad reading. That section declares that "the protection of groundwater *within the county* is of major concern to [county residents]."[294] Groundwater mining should fit within this concern whether or not the water is "transported from the basin."

Despite this declaration and the inconsistencies with section 33-4, an interpretation of the mining provision that penalized *all* actual miners, but only penalized those non-pumping owners who allowed miners to transport groundwater from the basin, makes little sense for four reasons. First, little justification appears for banning all mining, but then penalizing only those non-pumping owners who allow the actual miners to transport the water out of the basin. Second, the ordinance should be interpreted in light of the circumstances that lead to its passage. The county apparently enacted the ordinance in response to fears that exporters would take county groundwater during the 1976-77 drought. Since the problem the county sought to address was the impact of large scale water exports, the mining ban appears to be an effort to conserve supplies for local residents, without in itself forcing local pumpers to change their own behavior.[295] Third, as noted above, unless the "transported from the basin" restriction applied to all mining, the ordinance

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291. Butte County, Cal., Code § 33-4 (Supp. 1978).

292. *Id.* (emphasis added).

293. *See supra* note 268 ("mining" defined). Faced with inconsistent punctuation, courts have not found themselves always bound to give different meanings to differently punctuated statutes. *See* People ex. rel. Busch v. Projection Room Theater, 550 P.2d 600, 650 n.2, (Cal.) (Tobriner, J., dissenting), *cert. denied*, 429 U.S. 922 (1976) .

294. Butte County, Cal., Code § 33-1 (Supp. 1978) (emphasis added).

295. The ordinance's findings, however, do not limit themselves to concerns about exports. *See id.* § 33-1.

would present substantial enforcement problems determining "who" is the "miner."[296] Finally, as discussed below, the permit requirement provision's unambiguous geographical "sale or use" limitation demonstrates that the county did not intend all pumpers, or non-pumping owners, to have to comply with a potentially onerous and politically unpopular permit procedure.[297] In this light, enforcement of a complete ban on "mining" could have potentially given the county the power to reduce pumping by all pumpers. Without a clearer evidence of intent to allow the county to limit all pumping, the likely enormous political opposition to such a sweeping ordinance makes it very difficult to believe that the county intended to regulate all pumpers indirectly when it failed to impose permit requirements directly on all pumpers.

b. Permit Requirement

The permit requirement adds additional uncertainty over the legality of potential exports. As noted above, section 33-4 only requires a permit if the water pumped will be used or sold "outside the area in which said pumping affects the natural available water supply."[298] This phrase echoes the Imperial ordinance's "area of influence" provision.[299] Like the Imperial ordinance, however, the Butte ordinance does not define the italicized phrase.[300] In particular, it addresses neither the geographical nor the temporal scope of the "affected area."

Pumping might "affect the natural available water supply" in an "area" in several ways.[301] In the broadest sense, pumping reduces the supply in the groundwater basin.[302] Thus construed broadly, only pumping for sale or use outside of the groundwater basin would require a permit. Such a broad interpretation of "affected area" would parallel the mining prohibition. As noted above, most likely the ordinance only bans mining where the water is "transported from the basin."[303] Similarly, a broad interpretation of "affected area" would only require a permit if the water were used or sold outside the groundwater basin.

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296. *See supra* text accompanying note 288.

297. *See supra* note 19 (agricultural interests oppose groundwater management).

298. Butte County, Cal., Code § 33-4 (Supp. 1978) (emphasis added).

299. *See supra* notes 241-45 and accompanying text.

300. Imperial County, Cal., Code § 56301(b) (1978).

301. Pumping might "affect" both the quantity and quality of the water constituting the "natural available water supply." For example, in a coastal county, pumping might accelerate salt water intrusion. *See, e.g.*, Schneider, *supra* note 59, at 104. Inland, pumping across otherwise water impermeable geologic strata may lead to mingling of water of different qualities. *See, e.g.*, Bulletin 118-75, *supra* note 1, at 121-23. The following discussion focuses solely on the local impacts on water *levels* in the area affected by a particular pump.

302. This reduction occurs at least until replenishment.

303. *See supra* notes 274-97 and accompanying text.

In most instances, however, an individual pumper will have almost no *perceptible* effect on a large groundwater basin. For example, DWR estimates that the Sacramento Valley groundwater basin (which partially underlies Butte County) has 113,650,000 acre-feet of storage capacity in its 5,000 square mile area.[304] Maximum well production rates are 4,000 gallons per minute.[305] Given the slow rate at which water will rearrange itself within a large basin after pumping, it may take years for even a large pumper in Butte County, near the north end of the basin, to have an impact on the groundwater level in the south end of the basin.[306] Meanwhile, a large pumper will almost certainly have very pronounced *local* impacts on the aquifer.[307] These local impacts likely provide alternatives to a basin wide definition of "affected area."

The most pronounced local aquifer impact from pumping is the "cone of depression."[308] As discussed above, this cone represents a temporary depletion in the groundwater surround the well as pumping occurs. The land surface from the center of the well to the edge of the cone of depression describes the local area most demonstrably "affected" by pumping.[309] For convenience, this discussion adopts a Tehama County convention and describes this local area as a well's "radius of influence."

Adoption of such a "radius of influence" to define "affected area" for purposes of the permit requirement would force virtually all exporters to apply for a permit.[310] Before the county board of supervisors (board) will issue a permit, however, the applicant must establish that the permit: 1) will not bring about overdraft; 2) will not bring about saltwater

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304. Bulletin 118-75, *supra* note 1, at 60. The aquifer's usable storage capacity is 22 million acre-feet. *Id.*

305. *Id.* At 325,851 gallons per acre-foot, four thousand gallons per minute equals about 6,500 acre-feet per year.

306. *See, e.g.*, Bulletin 118-75, *supra* note 1, at 17.

307. *See supra* notes 82-85 and accompanying text (discussing the "cone of depression").

308. *Id.*

309. Tehama County defines the surface area overlying the "cone of depression" as the "radius of influence" of a well. Tehama County, Cal., Code § 9.40.010.16 (1992).

310. The only exception would be a pumper who owned or used contiguous pieces of property on both sides of the Butte County line. If the radius of influence of the well on the Butte County parcel extended beyond the Butte County parcel to the contiguous parcel in the adjoining county, such an exporter would not require a permit.

Adoption of the "radius of influence" as the "affected area" for the permit provision would have potentially broad application to purely *intra*-county pumping. Indeed, taken literally, any pumper who used water on portions of the well-site parcel that extended beyond the radius of influence would require a permit. By the same token, use of the water beyond the radius of influence on a contiguous parcel would also require a permit. The ordinance does not, however, make any exception for such uses. Tehama County, Cal., Code §§ 9.40.030, .040 (1992); *see infra* notes 426-29 and accompanying text.

intrusion; 3) will not adversely affect transmissivity within the aquifer; and 4) will not adversely affect the water table.[311] Of these requirements, the overdraft prohibition presents the principal to a potential groundwater exporter.

The definition of "overdraft" poses an interpretive problem identical to one posed by the mining ban.[312] As it did with the mining ban, the ordinance defines "overdraft" in terms of a "groundwater basin."[313] As noted above, however, the ordinance does not define "groundwater basin."[314] Were "groundwater basin" interpreted to mean a DWR identified "groundwater basin," then overdraft would need to be measured across that entire basin. This poses practical proof difficulties when dealing with a 7,000 square mile aquifer, such as the Sacramento Valley groundwater basin. If, however, "groundwater basin" referred to a smaller segment of a multiple county, DWR identified basin, then "overdraft" would be established by the pumping and replenishment patterns in just that smaller segment. Such a smaller segment might include only the portion of a multiple county DWR identified basin that underlies Butte County. A narrower definition of "groundwater basin" magnifies the relative impact of any one well on a basin's water storage. It also increases the likelihood that an exporter would have to get a permit.

Slight and indirect support for an interpretation of "groundwater basin" narrower than a DWR identified basin comes from the alternative definition of "overdraft."[315] Drawing from the California Supreme Court's opinion in *Los Angeles v. San Fernando*,[316] the ordinance defines "overdraft" in part as: "the point at which extractions from the basin exceed its safe yield plus any temporary surplus."[317] This definition, too, refers to the otherwise undefined "basin." Nevertheless, its inclusion of the vague "safe yield" reference allows incorporation of a concern with localized pumping effects.[318]

Under the ordinance, a "groundwater supply's" "safe yield" is exceeded when pumping exceeds the maximum annual rate that can be withdrawn without causing a "gradual lowering of the groundwater levels resulting eventually in depletion of the supply."[319] Large pumps

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311. Butte County, Cal., Code § 33-7 (Supp. 1978); *see also infra* note 320.
312. *See supra* notes 274-97 and accompanying text.
313. Butte County, Cal., Code § 33-2.13 (Supp. 1978); *see supra* note 271.
314. *See supra* notes 275-81 and accompanying text.
315. *See supra* note 271 ("overdraft" contains alternative definitions).
316. 537 P.2d 1250, 1309 (1975); *see supra* notes 141-50 and accompanying text.
317. Butte County, Cal., Code § 33-2.13 (Supp. 1978).
318. *See supra* note 271.
319. Butte County, Cal., Code § 33-2.19 (Supp. 1978).

within Butte County could reduce the groundwater levels locally without pushing the entire 7,000 square mile Sacramento Valley groundwater basin into overdraft. Nevertheless, the gradual local reduction of the groundwater levels effectively depletes the *locally usable* portion of the overall basin supply.[320] Such local depletion would arguably be an "undesirable effect" within the meaning of the "safe yield" definition. Narrowing the definition of "groundwater basin" to include the portion of a basin locally affected by large scale pumping correspondingly broadens the potential sweep of the permit requirement.

No easy interpretive solution appears to resolving the question of the scope of the permit requirement. The failure to identify the groundwater bodies involved, and the use of the vague categories of "safe yield," and "overdraft" make difficult any reconciliation of the competing interpretive possibilities.

The permit requirement places a final restriction on potential exports. The county retains the right to review the permit annually.[321] The county health department has the right to reduce pumping under the permit if overdraft later occurs.[322] Thus, a permit holder retains no automatic priority if, for example, pumpers not required to obtain a permit later increase their extractions and cause overdraft.[323]

In summary, a pumper who wished to export groundwater from Butte County faces substantial uncertainty when attempting to determine the scope of the county export restrictions. The ordinance's failure to define "groundwater basin" or "affected area" makes it nearly impossible to determine when an exporter might need, or be able to obtain, a permit. Under even the broadest sense of those terms, however, a pumper who sought to transport water entirely out of the Sacramento Valley groundwater basin (or the Sacramento Valley Eastside Tuscan Formation Highlands groundwater basin) as defined by the DWR, will undoubtedly need a permit. The weaknesses in the "mining" prohibition make it

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320. Section 33-7 raises an additional interpretive problem. Under that section, the board must determine that a permit "will not *bring about* an overdraft." Butte County, Cal., Code § 33-7 (Supp. 1978) (emphasis added). Arguably, if a basin is already overdrafted at the time of the permit application, then a new permit applicant's pumping will not "bring about" a condition that already exists. The final sentence of section 33-7, however, states: "[t]he board shall impose such conditions upon the permit *so as to prohibit overdraft*." *Id.* This provision should apply equally to applicants who either "bring about" *or* "exacerbate" overdraft.

321. Butte County, Cal., Code § 33-8 (Supp. 1978).

322. *Id.*

323. If the only pumpers who need a permit are "appropriators" within the meaning of the common law, then the renewal process merely restricts the possibility that prescriptive rights will accrue should overdraft occur. If, however, the permit process extends to overlying users or prescriptive rights holders, then the scheme restricts rights otherwise established by judicial decision.

impossible to determine the limits of the county board of supervisor's discretion to approve a permit.

2. *Glenn County*

a. Findings and Definitions

As originally enacted in 1977, the Glenn County groundwater ordinance was virtually identical to the Butte County ordinance. Except for one minor difference in phrasing, the legislative findings are identical.[324] Its definitions of "mining," "overdraft," and "safe yield" are identical.[325] Except for one minor variance, the Glenn County permit requirement mirrored the Butte County requirement.[326] The permit application process and necessary findings were also identical.[327]

b. Substantive Provisions

The original Glenn County ordinance's only major difference from its Butte County counterpart involved the last phrase of the mining ban.[328] As noted above, Butte County limits at least some of its mining ban's geographic impact with the phrase, "transported from the basin."[329] Glenn County, however, originally concluded its mining ban provision with the phrase, "transported from the immediate area of its natural groundwater basin."[330]

The precise meaning of the italicized portion of this provision remains unclear. It raises problems similar to those created by the

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324. *Compare* Glenn County, Cal., Code § 20.04.010 (1991) *with* Butte County, Cal., Code § 33-1 (Supp. 1978) (both noting virtually identical findings).

325. *See* Glenn County, Cal., Code §§ 20.04.140, .150, .210 (1977) (discussing respectively, mining, overdraft, and safe yield).

326. Glen County's code states "[i]t *is* unlawful to pump . . ." and Butte County's code states "[i]t *shall be* unlawful to pump . . . ." *Compare* Glenn County, Cal., Code § 20.04.410 (1977) (emphasis added) *with* Butte County, Cal., Code § 33-4 (Supp. 1978) (emphasis added).

327. *Compare* Glenn County, Cal., Code §§ 20.04.420 to 20.04.450 (1977) *with* Butte County, Cal., Code §§ 33-5 to 33-8 (Supp. 1978).

328. With the exception of the last phrase, and Glenn County's elimination of commas offsetting "or connate water," the two counties' mining ban provisions are otherwise virtually identical. The Glenn County punctuation does not solve the problem noted above caused by the lack of a comma between "mined" and "where." *See supra* notes 268, 289-97 and accompanying text.

329. Butte County, Cal., Code § 33-3 (Supp. 1978); *see supra* notes 275-81 and accompanying text.

330. Glenn County, Cal., § 20.04.400 (1977) (emphasis added).

Imperial ordinance's "area of influence."[331] The ordinance defines neither "immediate area" nor "natural." Whatever its precise meaning, compared to the Butte County provision, this last phrase of the Glenn County provision connotes a much narrower geographic area in which "mining" might be permissible.

The 1990 amendments to section 20.04.400 ended the confusion created by the final phrase.[332] Section 20.04.400 now ends: "where the water pumped is transported *outside of the county except as provided in this chapter.*"[333] The substitution of "outside of the county" for the "immediate area" eliminates the predecessor's geographical confusion. Some additional confusion, however, creeps back in with the new phrase's final tag, "except as provided in this chapter." On its face, nothing within the chapter directly purports to allow mining under any circumstances.

The 1990 amendments also eliminated much of the confusion created by the original permit requirement's "area in which said pumping affects the natural available water supply."[334] The current ordinance simply substitutes "county" for the vague predecessor. Under the 1990 amendments, any exporter will have to obtain a permit.

Compared both to the original Glenn County ordinance, and its Butte County counterpart, the current Glenn County ordinance raises several fewer questions about its scope. Still, while any potential exporter knows that it will have to apply for a permit, the above noted problems with the definition of "overdraft" and "groundwater basin" leave ample uncertainty over any potential permit approval.[335] Similarly, the failure to define "groundwater basin," and the other problems with the definition of "mining," leaves uncertain the ultimate scope of the mining ban as a limitation on the board of supervisor's power to grant a permit.

3. *Modoc County*

a. Findings and Definitions

The Modoc County ordinance sets forth purposes identical to those announced by the Butte and Glenn provisions.[336] The ordinance,

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331. *See supra* notes 241-45 and accompanying text.

332. Glenn County, Cal., Ordinance No. 971, § 1 (1990).

333. *Id.* (codified at Glenn County, Cal., Code § 20.04.400 (1991)).

334. Glenn County, Cal., Code § 20.04.410 (1977) (amended at § 20.04.410 (1990)).

335. As with the Butte County ordinance, no one has yet applied for a permit to export water from Glenn County. Letter from John Benoit, Planning Director, Planning Department, Glenn County, to Brad Epstein, Research Assistant (Oct. 22, 1992).

336. Modoc County, Cal., Code § 13.08.010 (1991).

however, is much more compact than its cousins. For example, its definitions section eliminates sixteen provisions found in the Butte and Glenn versions, including a definition of "mining."[337] Similarly, and again unlike the Butte and Glenn versions, the Modoc permit requirement does not direct the issuing authority to consider any of those sixteen provisions.[338]

With one exception, the definitions contained in the Modoc ordinance are identical to those contained in its Butte and Glenn cousins.[339] The sole major exception is the definition for "groundwater basin area."[340] Modoc defines it as: "an area overlying a geologic formation or interconnected series of geologic formations which store, transmit and yield significant quantities of water to wells and springs."[341] By itself, this initial portion of the definition provides little guidance for determining where one basin begins and another ends. The ordinance, however, partially clarifies the definition by specifying: "the groundwater basin areas in the county shall be deemed to be coextensive with [five specific basins and watersheds]."[342]

b. Permit Requirements

The Modoc County permit provisions solves the punctuation problems plaguing the Butte ordinance.[343] It also avoids unnecessary uncertainty.[344] The requirement applies only for an extraction that will be conveyed "outside the groundwater basin area in which it is

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337. Unlike Butte and Glenn counties, Modoc County does not define "artesian well," "conjunctive use," "connate water," "culture (land use)," "groundwater," "groundwater, confined," "groundwater, free (unconfined)," "hydraulic gradient," "hydrology," "imported water," "mining," "percolation," "permeability," "piezometric surface," "porosity," or "salt water intrusion." *See id.*

338. Modoc County, Cal., Code § 13.08.050 (1991).

339. The identical definitions include the following terms: aquifer, overdraft, recharge, safe yield, specific capacity, spreading water, transmissivity, usable storage capacity, water table, and zone of saturation. *See* Modoc County, Cal., Code §§ 13.08.020(A), (C)-(K) (1991).

340. Modoc County, Cal., Code § 13.08.020(b) (1991) (emphasis added).

341. *Id.*

342. *Id.* These five areas are: 1) "the Surprise Valley watershed;" 2) "the Goose Lake watershed;" 3) "the Tulelake Basin;" 4) "the upper Pit River watershed to the Canby Bridge;" and 5) "the lower Pit River watershed to the southern end of Big Valley." *Id.*

343. The ordinance states: "In Modoc County, it is unlawful to pump groundwater of any nature or description, or for a property owner to allow such pumping on his land, in order to convey it *outside the groundwater basin area in which it is pumped* without first obtaining a permit." Modoc County, Cal., Code § 13.08.030 (1991) (emphasis added).

344. Of course, it is fraught with the uncertainties inherent in the use of "overdraft" and "safe yield."

pumped."[345] Since the ordinance generally defines "groundwater basin area" in terms of watershed, any one who intends to pump water out of the watershed needs a permit.

C. 1980 Sees Two Very Different Approaches: Sacramento and Inyo Counties

1. Sacramento: Is Concise Nice?

In February 1980, Sacramento County enacted its water export ordinance.[346] Unlike any of the other counties, it also applies to surface water.[347] The ordinance simply states: "Ground or surface water shall not be transported in any manner from Sacramento County to any point outside the county, except pursuant to a permit . . . ."[348] The ordinance eschews any attempt at hydrological precision. Rather, it leaves the entire decision in the discretion of the county engineer. That discretion is limited in three broad ways. First, the export must be "in conformance with county water planning policies."[349] Second, the export may not "impose liability on the county or the [Sacramento County] water agency."[350] Third, the export may not "cause adverse impacts on the source, the area of use, or the environment."[351]

The Sacramento County ordinance avoids all of the drafting pitfalls that plague the rest of the ordinances. It represents the opposite extreme from the attempts to ground ordinances in hydrology. Rather than attempting to define "overdraft," "safe yield," or "mining," words fraught with pseudoscience, it simply uses "adverse impacts." Such an

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345. Modoc County, Cal., Code § 13.08.030 (1991).

346. Sacramento County, Cal., Ordinance No. 410, § 2 (Feb. 26, 1980) (adding § 15.08.095 to the Sacramento County, Cal., Code).

347. *Id.*

348. *Id.* The last clause of the ordinance exempts water purveyors who provide water service in two or more counties within a defined surface area. *Id.*

349. Sacramento County, Cal., Code § 15.08.095(2) (1989). The policies include those of the County Board of Supervisors per se, and the County Water Agency, a separate agency empowered with water management authority. *See* Cal. Water Code-App. §§ 66-1 to 66-55 (West 1968 & Supp. 1993).

350. Sacramento County, Cal., Code § 15.08.095(2) (1989); *see supra* note 349 (water agency empowered).

351. Sacramento County, Cal., Code § 15.08.095(2) (1989). Subsection (2) does not itself expressly prohibit the engineer from approving a permit that raised planning conflicts, created liability, or adversely impacted any area or the environment. Subsection (3), however, specifically prohibits the engineer from issuing a permit that "is inconsistent with the general plan of the county of Sacramento, the water plan of the Sacramento County water agency, or a specific plan of the county or water agency which may be affected." *Id.* § 15.08.095(3).

approach would certainly be superficially more intelligible to an attorney or judge called to enforce its terms. At the same time, the undefined appeal to "adverse impacts" loses any sense of predictability.[352] Does it include a de minimis threshold? Or does any lowering of the water table mean that an existing in-county pumper, or even a future in-county pumper, can complain of the greater and more expensive pumping lift? To what extent does it authorize the engineer to consider third party impacts, such as on potentially displaced agricultural workers? Is depriving the County of water that it might need some day "an adverse effect"? Nowhere is the line drawn.

2. *Inyo County: True Basin Management?*

Later in 1980, Inyo County became the next county to address groundwater exports.[353] Unlike all of the other ordinances, the Inyo ordinance does more than merely restrict exports. Rather, the ordinance authorized a groundwater management scheme that, at least incidentally, imposed some requirements on all pumpers within the identified basin. The impetus for the ordinance, and the principal focus of its restrictions, were the extractions by the City of Los Angeles from the Owens Valley groundwater basin.

Los Angeles' extractions from the Owens Valley for export to the City are legendary in California water lore.[354] After Los Angeles sought to increase groundwater exports from Owens Valley in the early 1970s, Inyo County began a series of lawsuits against the City claiming that its increased pumping required compliance with the then-newly enacted California Environmental Quality Act (CEQA).[355] The County realized that eventually the City would be able to meet CEQA's procedural requirements.[356] Faced with the legislature's inability to pass state wide

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352. Like Butte and Glenn Counties, Sacramento County reports: "[it has] not been able to discover any circumstance . . . where either an export permit application has been submitted, or where the County has sought to enforce this ordinance." Letter from Steven P. Rudolph, Deputy County Counsel, Sacramento County to Gregory S. Weber (Nov. 13, 1992). Mr. Rudolph continued: "It is also relevant to note that the County has no knowledge of groundwater having been or being exported from the County." *Id.*

353. Inyo County, Cal., Owens Valley Groundwater Management Referendum Measure A (Nov. 4, 1980) (enacted).

354. *See, e.g.*, Marc Reisner, Cadillac Desert 54-107 (1986).

355. CEQA requires review of a project's environmental impacts, along with a discussion of alternatives and attempts to mitigate the identified impacts. *See* Cal. Pub. Res. Code §§ 21000-21177 (West 1986 & Supp. 1992). The lawsuits led to a series of published decisions generally upholding Inyo County's position. *See generally* Rossmann & Steel, *supra* note 18, at 916-25 (discussing decisions).

356. Rossmann & Steel, *supra* note 18, at 924.

groundwater management legislation,[357] on November 4, 1980, Inyo County voters enacted Referendum Measure A: the "Owens Valley Groundwater Management" ordinance.[358]

a. Findings and Definitions

Unlike the short findings provisions of the Imperial, Butte, Glenn and Modoc ordinances, and the nonexistent findings from the Sacramento ordinance, the Inyo ordinance contains seven paragraphs of findings and declarations.[359] Compared to most of the other ordinances, however, the portion of its definitions section addressing export is much terser.[360] After a standard "groundwater" definition,[361] the ordinance clarifies that it applies only to the portion of the Owens Valley groundwater basin within Inyo County.[362] It does not separately define "overdraft," "export," "safe yield" or "mining."[363] Its only other definition of note is "groundwater extraction;" this it defines as: "removal of groundwater by artificial means from the groundwater basin, *or reduction by artificial means of natural recharge from surface water into the groundwater basin.*"[364]

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357. During the 1976-77 drought, Governor Edmund Brown, Jr., created the Commission to Review California Water Rights Law. Cal. Executive Order No. B-26-77 (May 11, 1977); *see* Rossmann & Steel, *supra* note 18, at 926. The Commission ultimately recommended enactment of sweeping, state legislation to regulate groundwater. *See* Final Report, *supra* note 6, at 135-254. To date, those reforms have not been enacted.

358. Rossmann & Steel, *supra* note 18, at 929-30. Rossmann and Steel set out the full text of the initiative ordinance as Appendix A to their article. Rossmann & Steel, *supra* note 18, at 951-57.

359. Inyo County, Cal., Code § 7.01.010 (1980). These include: 1) the historical importance of the Owens Valley groundwater basin to the county; 2) the importance of the basin to the state; 3) the need to mitigate and remove adverse environmental effects caused by groundwater extraction; 4) the environmental and economic effects of lack of basin management; 5) the county's "paramount right and duty to govern the management and extraction of resources within its jurisdiction;" 6) the need to adopt a comprehensive regulation that "consider[s] environmental and economic factors in the area of origin and the are of use," conjunctive use of surface and groundwater supplies, and water conservation measures; and 7) the need to create a management plan to implement the other findings. *Id.*

360. The exception is Sacramento's ordinance, which lacks any definition section.

361. Inyo County, Cal., Code § 7.01.020(g) (1980) (stating "all water contained within the zone of saturation").

362. Inyo County, Cal., Code § 7.01.020(g) (1980). Bulletin 118-75 identifies this basin as underlying both Inyo and Mono Counties. Bulletin 118-75, *supra* note 1, at 73. The ordinance thus limits some of the confusion resulting from multiple basin counties, since it focuses the permit requirements on the intracounty basin conditions.

363. The ordinance's permit provisions do not use any of these terms. Inyo County, Cal., Code §§ 7.01.030-7.01.041 (1980); *see infra* notes 365-79 and accompanying text.

364. Inyo County, Cal., Code § 7.01.020(h) (1980) (emphasis added). The list's terseness might be explained partially by the ordinance's contemplation that the county undertake a

b. *Water Management Plan*

The groundwater management plan forms the heart of the Inyo ordinance. The initiative ordinance directed the county to prepare a plan that incorporated 12 specific points.[365] The required elements focus on local environmental and economic concerns.[366] The plan must include "surface and groundwater . . . to the extent that they are interchangeable in terms of their use."[367] It requires identification and quantification of the groundwater basin's water resources.[368] Finally, the water management programs developed should be "consistent . . . to the extent feasible, with the County's land use plans and the needs of the parties holding water rights."[369]

c. *Permit Program*

At first glance, the Inyo ordinance appears to establish comprehensive groundwater extraction controls applicable to all pumpers within the Owens Valley groundwater basin. Section 7.01.040 states: "[n]o person, farm, corporation, or governmental agency . . . shall within the Owens Valley Groundwater Basin extract water from that basin by any

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"Water Management Plan." *Id.* § 7.01.030. The plan's drafters might have defined additional terms relevant to the plan's details.

365. *Id.* § 7.01.030.

366. Nine of the twelve factors address local conditions. The initial factor summarizes them all: "[t]he paramount protection of Inyo County's citizens, environment and economy." *Id.* § 7.01.030(a). The other seven detail this general concern: "[c]orrection or mitigation of observed significant environmental damage"; "[m]aintenance of the groundwater table at a depth that will support natural vegetation and wildlife, minimize air pollution and enable natural springs to flow"; "[m]aintenance of the groundwater table at a depth that will not cause excessive drilling or pumping costs for other groundwater uses"; "[p]reservation of groundwater quality;" "[i]mposition, whenever feasible, of measures to avoid or mitigate anticipated adverse environmental effects"; "[s]atisfaction to the extent feasible of the needs of the agricultural sector of the Owens Valley through the distribution of water for local irrigation and to increase the acreage devoted to agriculture other than open range"; "[r]eduction in the extent to which ground levels sink as a consequence of groundwater extraction"; and "[r]esults and adequacy of the extractor's environmental monitoring program." *Id.* § 7.01.030.

The remaining three factors include: "[s]atisfaction of the needs of the extractor, taking into consideration the extractor's alternative sources of supply and its conservation policies and practices"; "consideration of the needs and practices of all water users in the state, and the status of the state's entire water resources"; and "[c]onsideration of guidance received from governmental agencies other than the applicant." *Id.*

367. Inyo County, Cal., Code § 7.01.030 (1980).

368. *Id.*

369. *Id.*

artificial means without first obtaining a written permit."[370] Unlike the other ordinances considered so far, this one establishes seven detailed permit application requirements.[371] It greatly broadens the list of other governmental bodies whose comments the Inyo County Water Director will solicit.[372] The permit may only be issued if "consistent with the groundwater management plan."[373] Unlike the other ordinances examined so far, the Inyo ordinance does not detail extensive hydrological factors for the decision makers. Rather, it simply directs the director to base the permit decision "upon a review of hydrologic, environmental, and economic consequences of the proposed groundwater pumping."[374] In addition, it requires detailed monthly extraction reports[375] and imposes fees to pay for the program's administration.[376]

Despite the apparently broad sweep of the permit program, the exemptions may have shielded the numerical majority of pumpers from the permit requirement.[377] The ordinance exempts all small, local

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370. *Id.* § 7.01.040. The section exempts "an agency of the United States government to the extent federal law preempts this ordinance." *Id.*

371. *Id.* § 7.01.041. The ordinance requires seven categories of information: 1) detailed technical well information, including monthly extraction rates; 2) estimated time periods for pumping; 3) description of adverse environmental effects; 4) possible changes in surface water uses, including those that might mitigate identified environmental harms; 5) beneficial uses of the ground and surface water available to the applicant; 6) identification of ultimate end uses of the water; and 7) alternatives to the export. *Id.*

372. It requires consultation with thirteen different local, state, and federal agencies. *Id.* § 7.01043.

373. *Id.* § 7.01.043(d).

374. *Id.* § 7.01.043(d). The above mentioned requirement that the permit be consistent with the water management plan incorporates the detailed "hydrologic, environmental, and economic" factors germane to that plan. *See supra* note 366. Thus, while on the surface, the Inyo ordinance permit requirements seems to be only slightly more detailed that the Sacramento ordinance, *supra* note 348, in combination, sections 7.01.030 and 7.01.043(d) make Inyo's the most detailed of all the ordinances in the range of factors considered. At the same time, the Inyo ordinance avoids the pseudo hydrological "overdraft," "safe yield," and "mining" central to most of the other schemes. In its place, section 7.010.30 details many of the types of concerns with water levels that other ordinances seek to include within their "overdraft," "safe yield," and "mining" definitions. While the Inyo versions require some interpretation, *see, e.g.*, Inyo County, Cal. Code § 7.01.030(d) (1980) ("excessive drilling or pumping costs" not further defined), they generally avoid the interpretive baggage that accompanies "overdraft," "safe yield," and "mining."

375. Inyo County, Cal., Code §§ 7.01.045, 7.01.046 (1980).

376. *Id.* § 7.01.060. The fees are imposed according to the "number of acre feet of pumped groundwater applied for." *Id.*

377. This was what the City of Los Angeles alleged in its litigation successfully challenging the ordinance. *See* Judgment On The Pleadings, City of Los Angeles v. County of Inyo, No. 12908 (Cal. Super. Ct. Inyo County July 13, 1983) (allegations listed in papers supporting motion decided by this judgment). The exemptions apply only to the permit requirement. All pumpers, however, must comply with the well registration and reporting requirements. *See* Rossmann & Steele, *supra* note 18, at 944.

pumpers who do not sell or exchange water.[378] The exemptions shift the program's focus to control of the exports by the basin's biggest pumper: the City of Los Angeles.[379]

D. Nevada County: Inyo Model Directly Applied to Exports

Enacted in 1986, the Nevada County ordinance follows the same general format of findings, definitions, prohibitions, and permit procedures. In key areas, it borrows most heavily from Inyo. Both in some of its definitions and in the extensive development of the permit procedures, however, the Nevada County ordinance substantially departed from the then current models available from Butte, Glenn, Imperial, Inyo and Sacramento Counties. Although no longer enforced as a *county* ordinance, it has been repealed and reenacted as an ordinance of the state created Nevada County Water Agency.[380] It continues to serve as a model.[381]

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378. The ordinance creates two classes of such pumpers. The first class includes pumpers who extract less than 5 acre feet per year for overlying uses. Inyo County, Cal., Code § 7.01.070 (a) (1980). The second class includes those irrigators who extract 100 acre feet or less water per year on less than 20 total acres of overlying land. *Id.* § 7.01.070(b). The ordinance authorized the Water Department Director to recommend removal of an exemption for cumulative negative environmental effects. *Id.* § 7.07.071.

379. Shortly after the ordinance's enactment, the City filed two lawsuits to block its enforcement. In City of Los Angeles v. County of Inyo, Civ. No. 12908 (Cal. Super. Ct. Inyo County July 13, 1983) (case decided on motion for summary judgment), the trial court upheld the City's claim that the ordinance was preempted under state law. *Id.* The County appealed, and ultimately, the parties settled the dispute. Stipulation and Order for Judgment, City of Los Angeles v. County of Inyo, Civ. No. 12908 (Oct. 18, 1991). In the 60 page settlement, the County agreed not to enforce the ordinance against the City. *Id.* at 58-59. In turn, the City agreed to a participate in a joint long term groundwater management plan. *Id.* at 5-58.

The plan addresses "groundwater mining:" "The goal is to avoid long term groundwater mining from aquifers of Inyo County." *Id.* It then implicitly defines "mining" by limiting "annual groundwater pumping so that the total pumping from any well field area over a 20 year period (the then current year plus the 19 previous years) does not exceed the total recharge to the same well field area over the same 20 year period." *Id.* In limited circumstances, such as after the initiation of a groundwater recharge program, or if appropriate "for other relevant reasons that are consistent with [the management plan's] goals and principles," pumping may exceed this rate. *Id.*

380. In Truckee-Donner Pub. Util. Dist. v. County of Nevada, No. 35920 (Cal. Super. Ct. Nevada County Dec. 8, 1988) (decided on motion for summary judgment), the trial court ruled that the ordinance was preempted under Cal. Const. art. XI, § 7. Order Granting Plaintiff's Motion For Summary Judgment And Denying Defendant's Miotion For Partial Summary Judgment at 3, Truckee Donner Pub. Util. Dist. v. County of Nevada, No. 35920 (Cal. Super. Ct. Dec. 8, 1988). Following the trial court's ruling, the county repealed the ordinance. *See* Minute Order Ruling On Motion To Dismiss at 1, Truckee-Donner Pub. Util. Dist. v. County of Nevada, No. 35920 (Cal. Super. Ct. Apr. 18, 1988). In addition, the county decided not to appeal. *See* letter of Melanie K. Wellner, Deputy Counsel, Nevada County,

Indeed, it has directly inspired several portions of the proposed Sutter County ordinance. Despite its improvements over the then available models, however, it suffers from some of the same definition problems.

1. *Findings and Definitions*

The Nevada County findings apparently borrowed their first two provisions from the Butte and Glenn models.[382] A third provision, preventing the ordinance's application to overlying users, had no direct predecessor.[383] An additional provision reinforces the ordinance's limitation to water pumped from "state-identified groundwater aquifers."[384] The only Nevada County aquifer identified by the California Department of Water Resources in Bulletin 118-75 is the Martis Valley (Truckee Valley) aquifer.[385]

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to Gregory S. Weber (Oct. 29, 1992). Instead, sitting as board of supervisors of the Nevada County Water Agency, the county board of supervisors reenacted the county's groundwater export ordinance as the water agency's ordinance. *Id.* The Nevada County Water Agency "has some broad powers to manage groundwater." *Id.* These powers included the power to commence an "action or proceeding . . . to declare rights in the natural flow of any . . . subterranean supply of waters . . . or to prevent unlawful exportation of water from . . . [the] . . . agency." Cal. Water Code-App. § 90-13 (West 1968); *see generally* Cal. Water Code § 60230(g) (West 1966 & Supp. 1993) (water replenishment districts have same, uncertain powers); *supra* note 180. The Nevada County Water Agency ordinance also exempted the Truckee Donner Public Utility District from the export control ordinance. Letter from Wellner, *supra*.

381. Many of the Nevada provisions found their way into the draft Sutter County groundwater export ordinance circulated for comment in the summer of 1992. *See, e.g.*, Proposed Sutter County, Cal., Code § 1540-020(b) (1992) (discussion draft circulated Aug. 1992) (defining "export of groundwater" identically as in Nevada County, Cal., Land Use And Development Code § L-X 6.2(D) (1986)); Proposed Sutter County, Cal., Code § 1540-020(i) (1992) (discussion draft circulated Aug. 1992) (defining "overdraft" identically as in Nevada County, Cal., Land Use And Development Code § L-X 6.2(N) (1986)).

382. The first two sentences of the findings mirror the Butte and Glenn models. Nevada County, Cal., Land Use And Development Code § L-X 6.1 (1986).

383. The third sentence of the findings states: "It is not the intent of this ordinance to affect the withdrawal of use of groundwater by an overlying landowner or occupier which withdrawal is for domestic use or irrigation on the overlying parcel." Nevada County, Cal., Land Use And Development Code § L-X 6.1 (1986).

384. Nevada County, Cal., Land Use And Development Code § L-X 6.1 (1986) concludes: "It is also not the intent of this ordinance to regulate groundwater except that groundwater contained in state-identified aquifers." Originally, the ordinance addressed only "identified" aquifers. *See* Nevada County, Cal., Land Use And Development Code §§ L-X 6.1, L-X 6.2(K) (1986) (adding the term "identified aquifers"). Just two months after its enactment, the Nevada County Board of Supervisors amended the ordinance to clarify that the only "identified" aquifers were those identified by the state in Bulletin 118-75. Nevada County, Cal., Land Use And Development Code § L-X 6.1, L-X 6.2(K)(2) (1986) (amended by Nevada County, Cal., Ordinance No. 1370 (March 24, 1986).

385. Bulletin 118-75, *supra* note 1, at 97. The Nevada County ordinance does not itself

The explicit limitation of the ordinance to specified "state-identified" aquifers eliminates much of the definitional confusion plaguing the Butte and Glenn provisions.[386] In addition, the Nevada ordinance makes three major definition changes. First, it eliminates any definition or discussion of "mining." Second, it simplifies the definition of "overdraft."[387] Third, it adds a new definition for "export of groundwater."[388] While the elimination of the "mining" provision greatly eliminates much of the confusion plaguing the Butte and Glenn ordinances, the "overdraft" and "export" changes add their own interpretive wrinkles.

The ordinance's simple "overdraft" definition eliminates the second, alternative definition contained in the Butte and Glenn models. It simply defines "overdraft" as: "[t]he condition of a groundwater basin where the amount of water withdrawn by pumping exceeds the amount of replenishment."[389] In so simplifying the definition, Nevada County loses the explicit definitional link between "overdraft" and "safe yield."[390] Since "safe yield," as defined identically in the Butte and Glenn provisions, presents its own interpretive problems, the loss of the explicit linkage with "overdraft" may avoid some definitional confusion.[391] Nevertheless, the simplification makes even more glaring the definition's lack of a time frame for comparing extractions and replenishment.[392]

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mention Bulletin 118-75. To avoid any confusion about what the ordinance means by a "state-identified" aquifer, the ordinance expressly states that "Martis Valley (Truckee Valley)" is the only state identified aquifer. Nevada County, Cal., Land Use And Development Code § L-X 6.2(K) (1986).

386. *See, e.g., supra* notes 275-81 and accompanying text.

387. Nevada County, Cal., Land Use And Development Code § L-X 6.2(N) (1986); *see infra* text accompanying note 389.

388. Nevada County, Cal., Land Use And Development Code § L-X 6.2(D) (1988).

389. Nevada County, Cal., Land Use And Development Code § L-X 6.2(N) (1988). As such, the "overdraft" definition follows the Bulletin 118-75 formulation. *See* Bulletin 118-75, *supra* note 1, at 4. The provision eliminated came from the Supreme Court's gloss on "overdraft" in *Los Angeles v. San Fernando. See supra* notes 141-50 and accompanying text.

390. Nevada County's "safe yield" definition is identical to the Butte and Glenn models. *Compare* Nevada County, Cal., Land Use And Development Code § L-X 6.2(V) (1988) *with* Butte County, Cal., Code § 33-2.19 (Supp. 1978) *and* Glenn County, Cal., Code § 20.04.210 (1977). Although the Nevada County ordinance does not explicitly link "safe yield" and "overdraft," the ordinance directs the Planning Director both to consider a proposed export use's impact on "safe yield" and to "specify the safe yield per year for export water for each permit holder." Nevada County, Cal., Land Use And Development Code §§ L-X 6.6, 6.7 (1986).

391. *See supra* notes 312-20 and accompanying text.

392. The loss of express linkage between "overdraft" and "safe yield" reduces the potential for clarification of "overdraft" that might occur after any resolution of the "safe yield" conundrums. While those conundrums are substantial, as noted above, the "safe yield" definition does provide some factors relevant to the determination of an appropriate time

The major definitional uncertainty added by the Nevada County ordinance comes from its "export of groundwater" definition. The ordinance defines that term in pertinent part as: "[r]emoval of water from a state-identified groundwater aquifer by any means to anyplace *outside the immediate groundwater basin.*"[393] The ordinance, however, neither defines nor otherwise explains "*immediate* groundwater basin."

The ordinance's "groundwater basin" definition provides the only clue to the meaning of "immediate." It defines "groundwater basin" as: "[t]he geographic area underlain by a state-identified groundwater aquifer, *including recharge and discharge areas.*"[394] An "immediate" groundwater basin could thus simply be the state identified groundwater aquifer without the recharge and discharge areas.

Any other interpretation necessarily involves finding some nonarbitrary line with which to separate "immediate" and "non-immediate" areas of a groundwater basin. The findings' provision addressed to overlying owners offers a vague suggestion. As noted above, the findings announce that the ordinance has no effect on "the withdrawal or use of groundwater by an overlying landowner or occupier which withdrawal is for the domestic use or irrigation on *the* overlying parcel."[395] The italicized "the" is ambiguous when applied to a pumper who withdraws water from the aquifer from a well on one parcel for use on a different parcel that also overlies the aquifer. Arguably, such a use might be beyond the "immediate" area from which the water was extracted.[396]

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frame for comparing extractions and replenishment. *See supra* notes 312-20 and accompanying text.

In addition to leaving the time frame matters unaddressed, the "overdraft" simplification does nothing to address the problem of determining who is causing overdraft. *See supra* note 288 and accompanying text.

393. Nevada County, Cal., Land Use And Development Code § L-X 6.2(D) (1986) (emphasis added). The definition adds: "[e]xportation includes pumping of groundwater for (1) direct discharge into a surface water system which conveys water out of the groundwater basin or (2) resale to a customer or user who will convey the water out of the groundwater basin." *Id.*

394. Nevada County, Cal., Land Use And Development Code § L-X 6.2(G) (1988) (emphasis added).

395. Nevada County, Cal., Land Use And Development Code § L-X 6.1 (1988) (emphasis added).

396. As noted above, the law has not entirely determined whether such a use is within the overlying right. *See supra* note 115. On the one hand, if such a use were *not* an "overlying" use, then the Nevada ordinance "immediate" area limitation might be unnecessary. On the other hand, even if state decisional law does not recognize such an overlying right, the Nevada "immediate area" limitation might be attempting to regulate extractions that are otherwise within the "overlying rights" recognized by decisional law.

The ordinance's "permit conditions" provision indirectly and ambiguously addresses the distinction between immediate and non-immediate use in the groundwater basin. Section L-X 6.7 states: "The Planning Commission shall place no conditions upon or

2. *Substantive Provisions*

Unlike Butte and Glenn counties, Nevada County does not expressly address groundwater "mining." Rather, its regulatory scheme focuses exclusively on groundwater "export." Nevada County requires a permit to export groundwater, as defined above, or to "install any groundwater transport facility to convey water from a state-identified groundwater aquifer."[397]

The Nevada County ordinance departs from its Sacramento Valley counterparts in several ways. It draws its principal inspiration from the Inyo ordinance.[398] The Nevada ordinance does vary from the Inyo model in several ways. First, it expressly makes the California Environmental Quality Act applicable.[399] Second, it partially clarifies

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set allocations for water withdrawn from the groundwater basin *which will be actually used or consumed within the groundwater basin*." Nevada County, Cal., Land Use And Development Code § L-X 6.7 (1988) (emphasis added).

By itself, this provision does not resolve the applicability of the export definition to overlying, but non-immediate users. If such an overlying but non-immediate user is not an "exporter," then section L-X 6.7 serves one of two functions. First, it simply reiterates the general inapplicability of the ordinance to any overlying users. Second, to the extent that a single extractor is pumping for both an overlying and a non-overlying use, the section clarifies that the Planning Director can only condition the portion of the extraction used for export.

Alternatively, if an overlying but non-immediate user *is* an "exporter," then such an exporter has to follow the permit process, even if ultimately the Planning Commission has no authority to condition the non-immediate but overlying uses. On the one hand, such an application appears to be an empty and expensive requirement. In such a light, it would counsel rejection of the export definition to an overlying but not immediate user. On the other hand, if such an extraction had environmental or economic consequences different from "pure" overlying uses, then the application process would at least force the pumper to identify and confront these consequences. The required reports might give the County helpful information, even if ultimately the Planning Commission could not impose conditions upon the pumping.

Another possible interpretation of "immediate groundwater basin" might involve the cone of depression. This possible limitation echoes the discussion above of the Imperial and Butte ordinances. *See supra* notes 241-45, 275-81 and accompanying text. Use of "cone of depression" or the equivalent to distinguish between "immediate" and "non-immediate" groundwater basin would undoubtedly trigger permit requirements of some otherwise overlying users. As noted immediately above, the Nevada County ordinance somewhat ambiguously tries to avoid its application to overlying users.

397. Nevada County, Cal., Land Use And Development Code § L-X 6.3 (1988).

398. *Compare, e.g.*, Nevada County, Cal., Land Use And Development Code § L-X 6.4 (1988) *with* Inyo County, Cal., Code § 7.01.041 (1988) (former having eight information categories required from permit applicant and the latter having seven of eight identical to Nevada County requirements); *compare also* Inyo County, Cal., Code § 7.01.030(b)-(i) (1988) and *supra* note 366 *with* Nevada County, Cal., Land Use And Development Code § L-X 6.7(B)-(I) (identical findings required).

399. Nevada County, Cal., Land Use And Development Code § L-X 6.5 (1988).

the overdraft analysis by requiring a determination that "*the quantity of water sought to be exported* will not result in overdraft"[400] and specifying the "safe yield per year *for export water*" that will protect the groundwater supply.[401] Finally, since the Nevada ordinance was directed solely at exporters, it had no need for the Inyo exemptions for small, in basin users. Rather, the Nevada ordinance exempted exporters who were continuously exporting water during any six month period of the year preceding the ordinance's enactment.[402]

E. Tehama County: The 1986-92 Drought Prompts Another Export Control Ordinance

1. Findings and Definitions

The Tehama County "aquifer protection" ordinance substantially resembles in both structure and content the Butte and Glenn ordinances.[403] Like its two older cousins, the Tehama County ordinance contains findings, definitions, mining prohibitions, and permit requirements. Nevertheless, Tehama County's ordinance substantially restricts pumping for export by changing the mining definition, adding a "radius of influence" restriction, and greatly expanding the permit requirement.

A major difference in tone between the Tehama County ordinance and its cousins readily appears in the ordinance's initial findings. As noted above, both Butte and Glenn counties began their ordinances with a section containing a single short paragraph extolling the importance of groundwater to the health, welfare, safety, and economy of their respective counties.[404] In contrast, Tehama County prefaced its "aquifer protection" provisions with 15 paragraphs of findings and declarations.[405] Like their Butte and Glenn counterparts, these provisions attempt to link aquifer management with concerns over the county's economy and environment. Unlike Butte and Glenn counties, however, Tehama elaborates the linkages in great detail.[406]

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400. Nevada County, Cal., Land Use And Development Code § L-X 6.7 (1988) (emphasis added). With the exception of Sacramento County, the Sacramento Valley counties' ordinances all inelegantly caution their boards to prevent the "permit" from "result[ing] in overdraft." *See, e.g., supra* note 320.

401. Nevada County, Cal., Land Use And Development Code § L-X 6.7 (1988) (emphasis added).

402. Nevada County, Cal., Land Use And Development Code § L-X 6.10 (1988).

403. Tehama County, Cal., Code Ch. 9.40 (1992) ("Aquifer Protection").

404. *See supra* note 323 and accompanying text.

405. Tehama County, Cal., Ordinance No. 1552 (1992). These findings, however, will not be within the codified version of the ordinance.

406. *See id.* paras. 3, 9. The Tehama ordinance foresees fuller development of the county's

Most of the definitions set forth in the Tehama County ordinance are identical to the comparable Butte and Glenn provisions.[407] In three critical ways, however, the definition lists differ. First, the Tehama County ordinance adds a definition of "domestic water well."[408] This provision sets up several exceptions to the ordinance's pumping limitations.[409] Second, the Tehama County code adds a definition of "radius of influence."[410] This provision sets up a major new pumping limitation.[411] Finally, the Tehama County ordinance's "mining" definition differs substantially from its Butte and Glenn cousins.[412]

Tehama County defines "mining" as:

> Extraction of groundwater by any means, including pumping and the use of artesian wells, from any aquifer within the county of Tehama which in contemplation of pre-existing extractions of ground water [sic] used beneficially upon lands overlying the aquifer within the County and the reasonably foreseeable beneficial uses to which the groundwater from the aquifer could be made to lands overlying the aquifer within the County which [sic] exceeds the reasonably foreseeable replenishment potential of the watersheds' native water together with such imported water as may be available to be applied to the recharge the [sic] aquifer.[413]

By defining the relevant "groundwater bodies" as "any aquifer within the county of Tehama," this definition solves the initial problem created by

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agricultural economy "for a host of reasons, including the presence of an aquifer or aquifers that have not yet been damaged by imprudent water production practices." *Id.* para. 3. The ordinance also identifys numerous harms that mining or overdrafting from new wells might cause, even when the water will be used "upon overlying and immediately adjacent lands within the County." *Id.* para. 9.

407. *Compare* Tehama County, Cal., Code §§ 9.40.010(11), (18) (1992) *with* Butte County, Cal., Code §§ 33-2.13, -2.19 (Supp. 1978) *and* Glenn County, Cal., Code §§ 20.04.150, .210 (1977) (identical overdraft and safe yield provisions in all three codes).

408. Tehama County, Cal., Code § 9.40.010(3) (1992) (well used for residential and yard uses "within the curtilage of a dwelling" on the well site parcel or a contiguous parcel).

409. Tehama County, Cal., Code §§ 9.40.030, .040 (1992); *see infra* note 427.

410. "The radial distance from the center of a well bore to the point where there is no lowering of the water table or potentiometric surface (the edge of the well's cone of depression)." Tehama County, Cal., Code § 9.40.010(16) (1992).

411. Tehama County, Cal., Code § 9.40.040 (1992) (radius of influence restrictions); *see infra* notes 426-29 and accompanying text.

412. *Compare* Tehama County, Cal., Code § 9.40.010 (10) (1992) *with* Butte County, Cal., Code § 33-2.12 (Supp. 1978) *and* Glenn County, Cal., Code § 20.04.140 (1991) (differing mining definitions); *see also supra* notes 268, 274-97, 325 and accompanying text.

413. Tehama County, Cal., Code § 9.40.010(10) (1992).

Butte and Glenn counties' undefined reference to "groundwater bodies."[414] Nevertheless, while solving this problem, the Tehama County provision proceeds to pose several interpretive challenges of its own.

The first problem requires reconstruction of the 93 word sentence to clarify the relationship between the multiple clauses and phrases. Much of the confusion comes from the lack of punctuation and the inclusion of an apparently superfluous "which" preceding "exceeds" in the definition's latter portion.[415] If the second "which" is ignored, and clarifying changes added, the definition appears to read:

> Extraction of groundwater . . . from any aquifer within the county of Tehama which[,] in contemplation of [both:]
>
> [1] pre-existing extractions of [groundwater] used beneficially upon lands overlying the aquifer within the county[,] and
> [2] the reasonably foreseeable beneficial uses to which groundwater from the aquifer could be made to lands overlying the aquifer within the County[,]
> . . . exceeds the reasonably foreseeable replenishment potential of the watersheds' native water together with such imported water as may be available to be applied to the recharge [of] the aquifer.

This reconstruction, however, raises its own problems.

As noted above, both the Butte and the Tehama County ordinances define "mining" by setting up a simple equation: *"mining"="pumping" > "replenishment."*[416] Similarly, the initial and final portions of the Tehama County ordinance appear to set up a similar equation: *"mining"="extraction" > ((native water replenishment) + (water imported for recharge).)* This equation, however, leaves out the definition's two phrases that qualify "extraction": "pre-existing extractions for overlying use within the county" and "reasonably foreseeable future in county overlying uses." The question remains: how does "contemplation" of "present" and "future" in-county uses affect the definition of "mining" itself?

None of the other definitions addresses either the meaning of these two phrases, or their role in the "mining" equation. Several possible interpretations exist. First, the phrases might carve out from the "mining"

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414. *See, e.g., supra* notes 282-87 and accompanying text.

415. The problem stems from the "which" that precedes "in contemplation of" in the ordinance's initial portion. The second "which" simply makes no sense.

416. *See supra* notes 268, 325. Both these ordinances require pumping to be "greatly in excess of replenishment." *Id.*

The preceding discussion noted a problem with these simple "mining" definitions that applies to the Tehama County ordinance, too. All three definitions fail to identify a time frame for comparing the rates of extraction and replenishment. *See supra* notes 282-83 and accompanying text.

definition an exemption for in-county uses. Under this interpretation, pumping that exceeded replenishment would not be "mining" if the water were "used beneficially" in-county on lands overlying the aquifer. Such an interpretation, however, does not follow easily from the vague text of the mining definition. Moreover, it adds little to the overall groundwater control ordinance. It simply follows the mining restriction itself. The Tehama county ordinance only bans "mining" if the extracted water "is transported . . . from the [county.]"[417] Under this interpretation, an in-county pumper faces no potential liability for "mining." The "mining" equation would read: *"mining"="extraction (for out-of-county uses)">((native water replenishment)+(water imported for recharge).)*

Second, the "present" and "future" in-county use phrases might simply purport to reserve water for any future in-county uses. Under such a reading, "mining" occurs when a proposed export project will take water away from future in county uses, *even if* the combined rates of then-present pumping for in-county uses and export pumping is otherwise less than the combined rate of natural and artificial replenishment. Under this reading, the "mining" equation would read: *"mining"=((present pumping for in-county uses) + (export pumping))>((native water replenishment) + (water imported for recharge).)*

Finally, at the opposite extreme from the first interpretation, the "present" and "future" in-county use phrases might simply reinforce the basic equation that *"mining"="extraction (for any purpose)">((native water replenishment) + (water imported for recharge).)* Little textual support exists within the definition itself for this interpretation.[418] Nevertheless, the ordinance's broad legislative findings demonstrate the board's concern over the effects of increased pumping even for in-county, overlying uses.[419]

Although the board thus expressed its concern over potential mining for overlying uses, it ultimately limited the mining ban to out-of-county extractions.[420] Thus, even if the mining definition itself arguably might have limited *in-county* extractions for in county uses, such a definition would have little impact on a potential exporter's ability to pump for uses outside of the county.[421]

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417. Tehama County, Cal., Code § 9.40.020 (1992).

418. Indeed, such a reading would reduce the overall equation to *"mining" = "pumping" > "replenishment."* This would make the lengthy Tehama County provision into a virtual twin of its far shorter Butte and Glenn county cousins.

419. *See* Tehama County, Cal., Ordinance No. 1552, paras. 9, 12 (1992). Specific concerns noted are drought induced increased well drilling for intracounty uses which alarms county supervisors and a fear of intracounty exports. *Id.*

420. *See* Tehama County, Cal., Code § 9.40.040 (1992).

421. The only impact on an exporter readily imaginable from such a broad definition would be the county wide level at which mining occurred. If "mining" can occur when *((present + future) in-county pumping) > ((native water replenishment) + (water imported for recharge))*, then there will be no water available for export pumping.

2. *Substantive Provisions*

In addition to these definition changes, the Tehama County ordinance makes three major substantive changes from its Butte and Glenn county counterparts. First, like the current Glenn County ordinance, the Tehama County ordinance's punctuation leaves no doubt that the mining ban applies only to water that is "transported . . . from the County of Tehama."[422]

Second, the Tehama County ordinance greatly broadens the permit requirement. Unlike the vague Butte County provision,[423] and the generally narrower Glenn County provision,[424] the Tehama County provision requires a permit from any one who pumps for use (or sale for use) "on other than the parcel of land upon which the extraction occurs, or contiguous parcels of land under the same ownership as the parcel from which the extraction occurs."[425] This provision requires a permit from any exporter who wished to take water out of the county for use on any parcel other than one immediately across the Tehama County line from the Tehama County parcel upon which the pumping occurred.

Third, the Tehama County ordinance adds an entirely new pumping restriction. Section 9.40.040 makes it unlawful to operate (or allow another to operate) a well "in such a manner that the radius of influence of such well extends beyond the boundaries of the parcel of land upon which the well is located, or alternatively, beyond the boundaries of contiguous parcels of land under the same ownership as that parcel upon which the well is located."[426] As originally enacted, this provision applied with almost equal force to both in-county users and exporters.[427] Almost immediately, the county amended the ordinance by exempting wells "actually in operation in calendar year 1991 or any prior year."[428]

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422. Tehama County, Cal., Code § 9.40.020 (1992); *see also supra* notes 274-97, 333 and accompanying text.

423. *See supra* note 270.

424. *See supra* note 326. In one instance, Glenn County's permit requirement is broader than the Tehama County provision. Glenn County requires all out of county pumpers to obtain a permit. Glenn County, Cal. Code § 20.04.410 (1991). In contrast, if a Tehama County pumper owned a contiguous parcel of land across the Tehama County line, pumping from the Tehama County parcel for use on the adjoining, non-Tehama County parcel, would not appear to require a permit. Tehama County, Cal., Code § 9.40.030 (1992).

425. Tehama County, Cal., Code § 9.40.030 (1992) (also exempting defined drinking water purveryors serving Tehama County residents).

426. *Id.* § 9.40.040. For the definition of "radius of influence," see *supra* note 410.

427. The provision exempts both defined "domestic wells" and the same suppliers of Tehama County public water system exempted from the permit requirement. Tehama County, Cal., Code § 9.40.040 (1992); *see generally supra* note 408.

428. Tehama County, Cal., Ordinance No. 1553 (Feb. 18, 1992).

This pumping restriction places an additional substantive limitation upon some potential exporters. For those exporters who draw or purchase water from a well grandfathered in under the amendment, the radius of influence restriction will have little impact.[429] If the grandfather clause does not apply to water from a particular well, then the radius of influence restriction may greatly reduce the availability of sites for potential export pumping--even if there is no demonstrated "mining," "overdraft," or other long term negative impacts associated with a particular well. Export pumpers will have to buy larger parcels, or parcels more remote from neighboring wells.[430]

V. EXPORT REGULATION BY STATE CREATED GROUNDWATER AUTHORITIES

The major legislative alternative to locally enacted groundwater export controls is state creation of a groundwater management agency. In 1953, the legislature added sweeping groundwater management powers to the Orange County Water District (OCWD).[431] The 1953 amendments to its charter authorized the OCWD to limit overall district groundwater pumping and equalize the relative costs of surface and groundwater supplies through a "basin equity assessment."[432] The OCWD Act, does not, however, directly address groundwater export issues in its statutory scheme.[433]

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429. Arguably, enlargement or deepening of a well under some circumstances might trigger the radius of influence restrictions. *See* Tehama County, Cal., Code § 9.40.040 (1992).

430. In addition to Tehama County's 1992 enactment of a groundwater export ordinance, 1992 also saw Sutter County draft a groundwater export ordinance. Sutter County, Cal., Proposed Ordinance, An Ordinance of the County of Sutter Amending the Sutter County Ordinance Code by Adding Chapter 1540 Relating to the Mining of Water (1992). *See* Letter from James Scanlon, Deputy County Counsel, Sutter County, to Sutter County Water Districts (Aug. 27, 1992) (containing draft of "Proposed Sutter County Ordinance Regarding Groundwater Management"). At the time of this writing, the County has not proceeded on this proposal.

431. 1953 Calif. Stats. 2035, 2060-67; *see generally* Schneider, *supra* note 59, at 43-49.

432. *See* Calif. Water Code-App. § 40-31.5 (West Supp. 1993); *see generally* Schneider, *supra* note 59, at 47-49.

433. Although the current version of the OCWD Act does not detail export restrictions, it does, however, expressly authorize the district to initiate "actions and proceedings . . . to prevent *unlawful* exportation of water from the district." Cal. Water Code-App. § 40-2(9) (West Supp. 1993) (emphasis added). It does not, however, otherwise directly address the legality of exports. The Water Code Appendix is peppered with similar language in special district legislation. *See, e.g., supra* note 380 (Nevada County Water Agency has such undefined powers). The reference to "actions and proceedings" in these acts appears to limit the special districts' powers to that of being able to sue, or to appear as a party before an agency, to establish an unlawful export. Without more, it does not appear to authorize the special district to legislate on these matters. *Cf.* Cal. Water Code § 275 (West 1971) (granting

A. *Sierra Valley Groundwater Basin Act*

The first special district legislation to address groundwater export directly was the Sierra Valley Groundwater Basin Act (Sierra Valley Act, or Act).[434] Added in 1980, the legislation authorized Plumas and Sierra counties to create a joint powers agency[435] known as the "Sierra Valley Groundwater Management District."[436] The Department of Water Resources had identified "special problems" with that basin.[437] The reduction of artesian head resulting from increased well drilling threatened winter valley cattle watering.[438]

1. *Findings and Definitions*

Unlike many of the more recent special acts, the Sierra Valley Act contains no express legislative findings. It does extensively define relevant terms.[439] Six definitions help avoid much of the confusion inherent in many of the ordinances considered above.

First, the Act defines "groundwater basin" as: "the groundwater basin within the boundaries of the district and any sub-basins located therein."[440] As a special act directed towards solving a particular basin's problems, the legislation by nature eliminates much of the confusion plaguing the county ordinances considered above. The "groundwater basin" definition removes any residual confusion by including "sub-basins" within the overall basin definition.

State Water Resources Control Board the power to take "all appropriate proceedings or actions before executive, legislative, or judicial agencies to prevent . . . [waste] of water").

The following section of the article focuses on those special districts expressly empowered to limit groundwater exportation pursuant to groundwater management authority.

434. Cal. Water Code-App. § 119-101 (West Supp. 1993).

435. A "joint powers agency" is an agreement by two or more public agencies to exercise jointly any of the powers they could each exercise separately. *See* Cal. Gov't Code §§ 6500-6599 (West 1980 & Supp. 1993).

436. Cal. Water Code-App. § 119-102 (West Supp. 1993). An additional section of the 1980 legislation also authorized Lassen and Sierra Counties to enter into a management agreement with Nevada, or Washoe County, Nevada, governing the bi-county, interstate Long Valley groundwater basin. Cal. Water Code-App. § 119-1301 (West Supp. 1993). It also allows the two California counties to manage jointly the California portion of the Long Valley basin with the same powers otherwise granted to the Sierra Valley Groundwater Management District. *Id.*

437. Bulletin 118-80, *supra* note 12, at 35, 38.

438. *Id.* at 38.

439. Cal. Water Code-App. §§ 119-301 to 119-322 (West Supp. 1993).

440. *Id.* § 119-311.

Second and third, the Act distinguishes two classes of extractors who have appropriative rights. It defines "export" as those extractions that will be used outside of the district boundaries.[441] Thus, nonoverlying users who appropriate groundwater for use outside of district are "exporters." In contrast, the Act creates a new class of appropriators: "district off-basin users."[442] These appropriators extract "groundwater for use on land within the district which does not overlie the groundwater basin."[443] The distinction becomes critical to the substantive rights created by the Act.[444]

Fourth, the Act provides a basic definition of "overdraft." It defines "overdraft" as: "the condition of the groundwater basin where the average annual amount of water extracted exceeds the average annual supply of water to the basin, plus any temporary surplus."[445] While not as specific as the Imperial ordinance, it does specify "average annual amount" as the relevant measures of time and quantity for comparing extractions and replenishment.

Fifth, the Act adds a definition not found in any of the ordinances. It defines "available supply" in part as:

> the quantity of groundwater which can be withdrawn annually from the groundwater basin without resulting in or aggravating conditions of overdraft, subsidence, or groundwater quality degradation. Available supply of the groundwater basin includes the average annual natural water supply, imported water or other water which has been spread to the basin or otherwise added to the basin, and return flows to the basin attributable to these sources reaching the groundwater basin in the course of use.[446]

Finally, the Act defines "well interference" as: "a substantial water level decline in a short time period in a localized area caused by pumping from extraction facilities."[447] Of course, this provision is no

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441. *Id.* § 119-307.

442. *Id.* § 119-306.

443. *Id.*

444. Cal. Water Code-App. § 119-709.7 (West Supp. 1993); *see infra* notes 453-56 and accompanying text.

445. *Id.* § 119-314. Unlike the ordinances considered above, the Act expressly defines "temporary surplus" as: "the amount of water that can be extracted from the groundwater basin, without adversely affecting the available supply of the groundwater basin, to provide storage space for natural recharge that would be lost during wet years if it could not be stored in the groundwater basin." *Id.* § 119-319. This definition follows directly from *Los Angeles v. San Fernando. Supra* note 130; *see also supra* note 87.

446. Cal. Water Code-App. § 119-302 (West Supp. 1993).

447. *Id.* § 119-321.

model of precision. For example, it does not limit "localized area" as specifically as the Tehama ordinance's definition of "radius of influence."[448] Nevertheless, it does at least provide three relative concepts: 1) "substantial" versus "insubstantial" water level decline; 2) "short" versus "long" time period; and 3) "localized" versus "regional" or "widespread" area.

2. *Substantive Provisions*

The Sierra Valley Act authorizes, but does not require, extensive groundwater management provisions. For example, it allows the District to require well registration and extraction statements.[449] In addition, it may regulate well spacing or operation to minimize well interference.[450] This power includes the right to adjudicate whether well interference from an extraction infringes another extractor's legal rights.[451] In general, if the District "determines that groundwater management activities may be necessary," the District may exercise any of several identified powers.[452]

The Act extensively details the district's export regulation authority. Central to the export regulation scheme is a legislative prioritization of appropriative groundwater rights. Section 119-709.7 grants a priority to both overlying groundwater users and to "district off-basin groundwater users" over exporters.[453] In some circumstances, this provision can reprioritize existing uses; the in-district use priority applies "irrespective of the time such export uses are commenced."[454] In addition, the Act authorizes the district to grant some off-basin district users a priority over overlying users, based on a need for "equitable distribution of the groundwater resource."[455]

The Sierra Valley Act thus provides a rare and limited state legislated scheme for acquiring private rights to groundwater. In place of

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448. *See supra* notes 410, 426-29, and accompanying text.

449. Cal. Water Code-App. §§ 119-601 to 119-607 (West Supp. 1993).

450. *Id.* §§ 119-703 to 119-704.

451. *Id.* § 119-705. This contrasts with the powers of local public agencies under A.B. 3030. As noted above, that bill expressly precludes a local public agency from determining extractor's legal rights. *See supra* note 207.

452. Cal. Water Code-App. § 119-702 (West Supp. 1993) (authorizing, *inter alia*, water purchase, storage, conservation, and exchange); *see also id.* §§ 119-801 to 119-1206 (groundwater extraction and management charges, water development projects, judicial enforcement). These powers are fairly typical of powers granted to those state created local water agencies authorized to manage groundwater. *See, e.g., supra* note 180 (water replenishment districts).

453. Cal. Water Code-App. § 119-709.7(a) (West Supp. 1993).

454. *Id.*

455. *Id.* § 119-709.7(b).

the traditional, two tier scheme of water rights rules governing groundwater extraction, the legislature has created a three tier scheme. Even more significantly, the legislature granted the district the power to adjust the automatic priority otherwise granted to overlying users by common law, in favor of local (i.e., in-district) appropriative uses.[456]

These legislative changes to water rights law strongly support the district's export management authority. The Act requires an exporter to obtain a permit specifying the amount of water it can export.[457] Permit applicants must demonstrate "an available supply . . . in excess of the amount currently required for reasonable and beneficial uses within the district."[458] The applicant must also demonstrate that the export, "if permitted, would not adversely affect the rights of groundwater users within the district."[459] If the district later determines that overdraft exists, it can suspend previously authorized exports.[460]

B. Other Districts Follow the Sierra Valley Model

In 1989, the legislature extended export control powers to two other specially created local public agencies in Eastern California.[461] The legislation that created the Mono County Tri-Valley Groundwater Management District contains critical definitions, groundwater management provisions, and export restrictions virtually identical to the

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456. The constitutionality, under the state and federal "takings" clauses, of such a reprioritization of an existing right is beyond the scope of this article.

In the event that any pumper petitions a court to adjudicate a groundwater basin, the legislature has directed the court how to apportion the groundwater. In general, the court must allocate groundwater similarly to the district's allocation of basin waters in times of overdraft. *Compare* Cal. Water Code-App. § 119-712 (West Supp. 1993) *with id.* § 119-709.5; *see also infra* note 460.

457. Cal. Water Code-App. § 119-706(a) (West Supp. 1993).

458. *Id.* § 119-706(b).

459. *Id.*

460. *Id.* § 119-707. If export restrictions alone will not "eliminate existing or threatened conditions of overdraft, the district may limit or suspend extractions by district users." *Id.* § 119-709. Under such circumstances, the district primarily allocates water "on the basis of the number of acres overlying the basin or subbasin that a user owns or leases in proportion to the total number of acres overlying the basin or subbasin." *Id.* § 119-709.5. The district can, however, adjust "any figure . . . up or down for any of the following factors: (1) [t]he number of acres actually irrigated compared to the number of acres owned or leased; (2) [c]rop type; (3) [w]asteful of inefficient use; (4) [r]easonable use; (5) [a]ny other factors that the district reasonably feels it should consider in order to reach an equitable distribution within the entire district." *Id.*

461. Cal. Water Code-App. §§ 128-1 to 128-906 (West Supp. 1993) (Mono County Tri-Valley Groundwater Management District Act); *id.* §§ 129-1 to 129-1301 (Honey Lake Valley Groundwater Management District).

Sierra Valley Act.[462] The legislation that created the Honey Lake Valley Groundwater Management District, in Lassen County, mirrors the Sierra Valley Act for the most part.[463] The Honey Lake Valley Act, however, does not contain the Sierra Valley Act's legislative distinctions between in-district and out-of-district appropriators.

In 1991, the Legislature again modeled special district legislation upon the Sierra Valley Act. The Ojai Basin Groundwater Management Agency Act creates an agency in Ventura County with power to regulate groundwater and restrict its export.[464] Like the Honey Lake Valley Act, however, the Ojai Basin Act does not expressly prioritize water among different types of appropriators.[465]

The Sierra Valley Act and its progeny continue to serve as models for special district legislation.[466] Indeed, in 1992, two counties that had enacted groundwater export ordinances moved forward with proposals for state legislation to created special county-wide groundwater management districts with groundwater management and export control authority. In 1992, Glenn County unsuccessfully sought legislation that

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462. *Compare* Cal. Water Code-App. §§ 119-302 to 119-322 (West Supp. 1993) *with id.* §§ 128-302.5 to 128-322.

463. *Compare* Cal. Water Code-App. §§ 119-302 to 119-322 (West Supp. 1993) *with id.* §§ 129-302 to 129-322.

464. Cal. Water Code-App. §§ 131-101 to 131-1201 (West Supp. 1993). Again, many of the Ojai Basin Act's principal definitions and substantive provisions are substantially similar to the Sierra Valley Act's provisions. *Compare id.* §§ 131-302 to 131-327 *with id.* §§ 119-302 to 119-322.

The Sierra Valley Act, the Mono County Act, and the Honey Lake Valley Act all prohibit exports unless the applicant demonstrates that "there is an *available supply* . . . in excess of the amount currently required for reasonable and beneficial uses within the district." Cal. Water Code-App. § 119-706 (West Supp. 1993) (Sierra Valley Act); *id.* § 128-706 (Mono County Act); *id.* § 129-706 (West Supp. 1993) (Honey Lake Valley Act) (emphasis added). The Ojai Basin Act, however, prohibits exports "unless the applicant has established that the *temporary surplus* is in excess of the amount currently required for reasonable and beneficial uses within the agency." Cal. Water Code-App. § 131-708(b) (West Supp. 1993) (emphasis added). The Sierra Valley Act, the Mono County Act, and the Honey Lake Valley Act define "temporary surplus" as: "the amount of water that can be extracted from the groundwater basin, without adversely affecting the available supply of the groundwater basin, *to provide storage space for natural recharge that would be lost during wet years if it could not be stored in the groundwater basin.*" Cal. Water Code-App. § 119-319 (West Supp. 1993) (Sierra Valley Act); *id.* § 128-319 (Mono County Act); *id.* § 129-319 (Honey Lake Valley Act) (emphasis added). In contrast, the Ojai Basin Act expands the definition: "the amount of water that can be extracted from the basin without permanently adversely affecting the available supply *or* the ability of the basin to provide storage space for natural or artificial recharge that would be lost during wet years if it could not be stored in the basin." Cal. Water Code-App. § 131-325 (West Supp. 1993) (emphasis added).

465. Cal. Water Code-App. § 131-403 (West Supp. 1993).

466. *Cf.* Calif. Water Code-App. §§ 121-102 to 121-1105 (West Supp. 1993) (Fox Canyon Groundwater Management Act).

would have created a Glenn County Groundwater Management District.[467] Twice passed by the legislature, it was twice vetoed by Governor Wilson.[468] While the proposed Glenn County Act varied substantially from the Sierra Valley Act, nevertheless, the Sierra Valley Act's influence remains apparent.[469] Similarly, in 1992 and 1993, Imperial County was continuing to draft special district legislation modeled after the Sierra Valley Act and its progeny.[470]

VII. CONCLUSIONS

The extended tour through the maze of ordinances and special district legislation[471] leads to two sets of conclusions about local control of groundwater transfers. First, authorized counties or other local public agencies who undertake groundwater transfer control need to pay much greater attention to the details of their local legislative schemes. Second, the balkanization of groundwater basin management, particularly in multi-county basins such as the Sacramento Valley groundwater basin, argues strongly for greater state legislative guidance over important water allocation decisions with statewide import. At the very least, state legislation could add some greater uniformity to provisions adopted by those localities who are both authorized and who choose to regulate groundwater extractions. More importantly, state law could ensure that groundwater export controls that do not involve true basin management do not benefit local economies at the expense of the state economy as a whole.

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467. *See supra* note 201.

468. *See supra* note 201.

469. For example, the proposed Glenn County Act contains many of the same definitions and substantive provisions as the Sierra Valley Act. *Compare* S.B. 207 §§ 202, 209, 212, 501, 502 (1992) (unenacted) *with* Cal. Water Code-App. §§ 119-302, -311, -314, -701, -702 (West Supp. 1993) (same definitions of terms and substantive provisions). The vetoed Glenn County Act, however, departed from the Sierra Valley Act in quite a few ways. Some of the differences relevant to export regulation include both different definitions and different permit requirements. *Compare* S.B. 207 §§ 205(a), 507(b) (1992) (unenacted) *with* Cal. Water Code-App. §§ 119-307, -706 (West Supp. 1993) (note differences in definition of "export" and permit restrictions on water exports).

470. Letter of Joanne Yeager, Deputy County Counsel, Imperial County, to Gregory Weber (Feb. 20, 1992). The County received a "final draft" bill from its special counsel on February 26, 1993.

471. *Supra* notes 215-470 and accompanying text.

A. Greater Care Needed in Drafting Locally Initiated Groundwater Transfer Regulations

Regardless of the ultimate outcome of the debate over the degree of state control over groundwater transfer matters, the crafters of groundwater transfer regulations need to pay much greater attention to the details of their legislative schemes. Over the past 20 years, a "common law" of local legislative efforts to control groundwater exports has arisen. The law is "common" not in the legal sense of a judicially created body of law; rather, it is common in the sense that the various counties have borrowed substantial portions of previous local legislative efforts in developing their own particular solutions to the transfer problems. At the same time, they have departed from their models at times. This ability to borrow from the best current solutions and innovate where the best is not appropriate is one of the strong points in favor of local control over groundwater issues. Unfortunately, the borrowing patterns have not always reflected a coherent and precise tailoring of legislative expression to local circumstances.

The reasons for the pattern of borrowing and innovation are likely as much a result of accident as conscious design. Lacking a central depository for the local ordinances, it is difficult to assemble a complete set of these ordinances. Sudden concerns over groundwater transfers, particularly in times of drought, may lead to hasty, imprecise drafting. In addition, complicated or poorly understood local hydrology does not lend itself easily to simple legislative solutions.[472]

While progress in eliminating unnecessary legislative confusion has not been uniform, there have been major steps forward over the past decade. For those counties that have been able to convince the legislature to enact special district legislation, the Sierra Valley Act has become a true model.[473] That Act and its progeny generally define precisely the affected area, the meaning of export, and the requirement for an export permit. Moreover, the export control schemes are accompanied by general

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472. Of course, as noted earlier, see *supra* notes 182-91 and accompanying text, local public agencies have no monopoly on poor drafting. As also noted, however, at least with a poorly drafted state statute, the provisions will be uniform, once the courts figure out what they mean. In contrast, with 58 counties, and over 900 other local public agencies that may have some authority to regulate groundwater under A.B. 3030, the need for drafting precision is even greater, since the chances for incoherency in resource planning are multiplied a thousand fold. An optimist would conclude that, with maybe 1,000 entities potentially at work on their groundwater management ordinances, some of them will "get it right" and come up with a well crafted scheme. A pessimist, however, might conclude that 995 of the entities may well "get it wrong," and the resulting resource management scheme would be an incoherent shambles.

473. *Supra* notes 434-60 and accompanying text.

basin management powers. Finally, in both the Sierra Valley and Mono County Acts, the legislature has expressly sanctioned the apparent goal of many export control provisions: an express priority to those appropriators who will use the water on lands within the local public agency, at the expense of those who will export the water beyond the basin boundaries. Such an express, *state* approved groundwater appropriative rights scheme reduces the opportunity for pure parochialism in water allocation decisions.

Still, even the Sierra Valley Act progeny have room for some improvement. The definitions of "overdraft" lack precise time units for comparing extraction and replenishment rates. Most recently, the Ojai Basin Act has eliminated the helpful "available supply" term as the linchpin of the export permit scheme.[474] In its place, it substituted a new definition of "temporary surplus" that unhelpfully extends that concept beyond the accepted meaning derived from *Los Angeles v. San Fernando*.[475] The vetoed Glenn County Act went even further, and eliminated express requirements for proof of either "available" or "temporary" surplus.[476] In all the special district acts, the export permit requirements apply even though the districts undertake no other management activities that would spread more evenly the burden of increased groundwater use efficiency and reduced local environmental harms. Finally, only the Mono County Act has followed the Sierra Valley Act's state prioritization of appropriative groundwater rights.[477] The legislature's failure to prioritize classes of appropriative groundwater rights in the other special acts raises the possibility that local districts will attempt to achieve such a de facto prioritization in the name of purely parochial economic concerns.

In contrast to the state created legislative districts, less coherence emerges from a consideration of the county ordinances. Three broad groups of ordinances appear: 1) the Imperial ordinance; 2) the current Sacramento Valley ordinances; and 3) the Inyo and Nevada ordinances.[478]

The Imperial ordinance appears largely to have been ignored as later counties approached groundwater export issues. This ignorance has had mixed blessings. On the one hand, Imperial's vague and confusing

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474. *See supra* note 464 and accompanying text.

475. See *supra* notes 130, 141-150 and accompanying text.

476. *See supra* note 469.

477. *See supra* note 462.

478. Arguably, the proposed but not adopted Sutter County ordinance, which drew from both the Nevada and the Sacramento Valley models, represented a fourth, hybrid group. *See supra* note 430.

"area of influence" provision[479] has not been directly copied by any subsequent counties, although equally obtuse terms have surfaced in its place in some of the Sacramento Valley counties.[480] On the other hand, in terms of units of time and quantity for comparing extraction and replenishment rates, the Imperial ordinance still offers the most precise definition of "overdraft" of all the ordinances and special statutes surveyed.

The Sacramento Valley ordinances present the greatest range of drafting caused problems. The Sacramento ordinance is unparalleled in its simplicity.[481] Through this simplicity, it avoids creating any of the interpretive problems plaguing the more technically articulated ordinances. At the same time, it invites interpretive guidance in the most fundamental sense: what is an "adverse effect"? Of the four other Sacramento Valley ordinances, the Modoc ordinance is the least ambitious and creates the least confusion.[482] The Butte ordinance would benefit greatly from a complete overhaul.[483] Its failure adequately to define "groundwater basin," "mining," and "overdraft," and its unclear "mining" ban create unnecessary confusion over the ordinance's scope. The Glenn ordinance shares much of the same drafting caused problems as its Butte cousin.[484] The Tehama ordinance avoids a couple of the Butte and Glenn problems and adds workable "radius of influence" concepts, but its "mining" provisions are hopelessly confusing.[485]

Still, even in Butte and Glenn counties there has been some progress in eliminating unnecessary confusion. In the last two years, Glenn County has amended its ordinance to eliminate the permit requirements vague reference to "immediate area of its natural groundwater basin." In addition, it has proposed to scrap the entire ordinance in favor of detailed special legislation.[486] While the Butte County ordinance remains unchanged since its 1978 introduction, the county has made some progress in overall groundwater management efforts with its recent memorandum of understanding with the Butte Basin Water Users Association.[487]

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479. *See supra* notes 241-45 and accompanying text.
480. *See, e.g.*, notes 269, 275-81 and accompanying text.
481. *See supra* notes 346-352 and accompanying text.
482. *See supra* notes 336-345 and accompanying text.
483. *See supra* notes 265-323 and accompanying text.
484. *See supra* notes 324-335 and accompanying text.
485. *See supra* notes 403-429 and accompanying text.
486. *See supra* note 469.
487. *See* "Memorandum of Understanding Providing for the Formation and Operation of the Butte Basin Water Users Association" (1992) (on file with the Butte Basin Water Users Ass'n in Chico, Cal.). Among other things, this group aims to "ensure that water transfers in or outside the Basin do not adversely impact Butte Basin water users and otherwise

The Inyo and Nevada ordinances represent the best crafted ordinances.[488] They solve several of the definition problems plaguing the other ordinances. Most particularly, the ordinances specify exactly the regulated groundwater bodies and eliminate entirely the unnecessary confusion created by the "mining" provisions from Butte, Glenn and Tehama. The permit conditions give a potential exporter broad and specific notice of the factors relevant to the permit decision. The reporting and monitoring requirements help build important data bases. Of all the ordinances, only the Inyo ordinance approximates true groundwater basin management.

Still, even these ordinances could stand some improvement. In particular, the Nevada "export" definition adds unnecessary confusion, and the "overdraft" definition is unduly simple. Beyond the two definition changes, the Nevada and Inyo ordinances suffer from parochialism in the groundwater basin management responsibilities. Although on its face applicable to all groundwater extractors in the Inyo County portion of the Owens Valley groundwater basin, the Inyo ordinance has a broad "de minimis" exemption that, as a practical matter, exempts substantial numbers of local users from the permit requirements. Absent the permit requirements, local users, even of small quantities, have much less incentive to manage their own water uses appropriately. The Inyo exemptions can be overridden if exempt pumpers cause, individually or collectively, a "significant negative effect on the environment."[489] But the burden of establishing such effect apparently lies with the county. For its part, the Nevada ordinance expressly applies only to exporters. Thus, neither the Inyo nor the Nevada ordinance substantially encourages local users to extract and use groundwater efficiently and wisely. They both put the practical burden of environmental regulation solely on the most politically weak constituency: appropriators for export beyond their political boundaries.

With the passage of A.B. 3030,[490] the legislature has created the potential for an unprecedented expansion of the patchwork quilt of locally initiated groundwater transfer legislation. Most likely, as the hundreds of local public agencies consider their groundwater management options, they will seek guidance from the existing ordinances and special district legislation. In choosing from the available models, such agencies should take care to avoid the drafting pitfalls identified in this article.

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comply with county of origin rules set forth in Water Code Sections 11128, 11460 and 10505." *Id.* at 1.

488. *See supra* notes 353-79, 380-402 and accompanying text.

489. Inyo County, Cal., Code § 7.01.071 (1980).

490. *See supra* note 197.

In particular, local public agencies should address five matters that can create absolutely unnecessary interpretive problems. First, define precisely the groundwater basins, or portions thereof, subject to regulation. This is most important when there are basins that extend beyond the political boundaries of the local public agency drafting the groundwater management ordinance. Additional clarification may be needed to the extent that multiple aquifers may exist in different layers underlying the same surface parcel.

Second, avoid entirely provisions defining or banning "mining." The term has no precise hydrological meaning. None of the efforts so far has created a workable legal definition. In particular, the relationship between "mining" and "overdrafting" has yet to be clarified adequately. Ultimately, prevention of "overdraft" should adequately prevent "mining" without unnecessarily complicating the analysis.

Third, when defining "overdraft," provide time and quantity units for comparing extraction and replenishment rates. For greatest accuracy, include the "temporary surplus" definition from *Los Angeles v. San Fernando*. But add time and quantity units to more precisely define the vague "safe yield" definition commonly used as a gloss on the *Los Angeles v. San Fernando* "overdraft" definition. Moreover, ultimately, the ordinance will have to recognize the hydrological interconnectedness of surface and groundwater supplies, as ultimately, basin pumping involves either withdrawals from storage or interception of surface flows.

Fourth, when regulating overdraft in a basin whose hydrological boundaries extend beyond the local public agency's legal boundaries, clarify the components of the extraction and replenishment equation. In particular, define whether the equation includes pumping and replenishment that occurs in the portions of the hydrologically defined basin that extend beyond the local public agency's legal boundaries.

Fifth, when regulating exports, include the Sierra Valley Act "available supply"[491] definition as the exporter's principal burden. Distinguish the legal consequences, if any, that attach to off-basin but in-district appropriations, from those that attach to off-basin, out-of-district appropriations.

B. Continued Need for State Legislative Guidance on Groundwater Transfers

Prior to the enactment of AB 3030, those well intentioned county efforts to regulate groundwater aimed to fill a major regulatory gap in the state water resources scheme. The state's failure to prevent massive,

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491. *See supra* note 446.

overpumping induced lowering of groundwater tables to sub-optimal levels and triggered substantial concern in some communities.

In AB 3030, the legislature has taken a step forward toward filling this gap. That act bases its scheme on local groundwater control. Local control of groundwater management offers the opportunity to tailor regulation to local conditions as determined by knowledgeable local officials.[492] At the same time, the substantial variations that have resulted among the local ordinances present unnecessary confusion that often bears no reasonable relationship to any legitimate local need. A crazy quilt of local regulations now covers California groundwater resources. The legal wrinkles of this quilt inhibit appropriate state wide development of a critical resource. Such inhibition, of course, is no accident. Rather, the local controls on groundwater export aim precisely at preserving local use of what is perceived to be a local resource.[493] In so doing, they beg the question: to what extent *are* these groundwater resources "local"?

Nowhere is the potential state wide impact of the crazy quilt local regulatory scheme more pronounced than in the northern Sacramento Valley groundwater basin. This basin is relatively groundwater rich. Moreover, extractions can be moved relatively easily through existing water conveyance facilities. As noted above, the 1991 Drought Water Bank purchased over a quarter million acre-feet of "groundwater" from this area.[494] The groundwater was purchased to meet critical water uses in other parts of the state. In negotiating the water transfers, the Drought Water Bank was confronted potentially with addressing the various export control ordinances.[495] At the time, Modoc, Butte and Glenn counties had their ordinances on the books. Since then, Tehama has added its provision, while other counties may not be far behind. If the drought were to continue, or other water shortages develop, the Drought

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492. *See supra* note 19.

493. Even when purportedly aimed at ameliorating local environmental problems, the local ordinances' almost uniform failure to regulate local pumping for local uses demonstrates a preoccupation with preservation of local uses at the expense of uses in other parts of the state.

494. As noted above, almost all of the water purchased came from surface water rights held by those farmers or water agencies that also had access to groundwater. *See supra* note 29.

495. Of course, as noted earlier, Water Code section 1220(b), the only express legislative authorization for Sacramento Valley groundwater export restrictions, does not apply to the DWR. *See supra* note. Moreover, pre-AB 3030 purported local restrictions of DWR activities face preemption challenges under the state constitution. To the extent, however, that AB 3030 now allows local export controls, such controls may now tie the Water Bank's hands. In any event, whether pre-AB 3030 or post-AB 3030, and whether ultimately valid or not, the local restrictions add an additional layer of uncertainty to the state's ability to respond quickly in a state wide water emergency.

Water Bank (or an equivalent public agency) may well have to negotiate its way through a complex maze of ordinances, each with potentially different definitions and substantive provisions. Each separate ordinance is potentially as unintelligible as some of the existing versions. The passage of A.B. 3030 has only increased the likelihood that such a crazy quilt will arise to inhibit unnecessarily groundwater transfers.

At the very least, the legislature should bring some coherency to these local legislative efforts by providing some uniform provisions applicable to any local efforts to legislate groundwater transfer provisions. Local groundwater regulation authority does not excuse incoherence. Yet, absent some legislatively sanctioned set of core definitions and substantive provisions, incoherence and inconsistency will likely result. The best evidence for that is the current set of ordinances. Many of the provisions are so vague as to be incomprehensible. Many of the variations between the ordinances seem accidental, and not the result of careful tailoring of law to local conditions or knowledge. If the legislature wishes to continue to let local agencies manage this resource, let the local agencies choose to tailor the details of the regulatory scheme, as appropriate, to local conditions. The core concepts, definitions, and procedures, and substantive restrictions should be uniform throughout the state.

By enacting such a series of standard definitions and substantive provisions, the legislature could still defer to local wisdom in deciding *if* to regulate at all. If local authorities decide that regulation is needed, they would still have great flexibility in choosing from among the set of standard provisions the particular regulatory mix that will meet the local needs. Such state created model legislation could avoid the incoherent crazy quilt without sacrificing the supposed virtues of local expertise and flexibility.

Ultimately, the current patchwork quilt of local groundwater transfer regulation raises questions more profound than those caused by the mere incoherence of definitions and substantive provisions. Rather, the current crop of export control ordinances demonstrates a marked bias in favor of groundwater uses in the areas of extraction. It is probably no accident that the locally crafted groundwater management efforts have generally not gone beyond export controls.[496] State common law has allowed appropriations whenever there was groundwater surplus to the needs of overlying users. The export controls, often inelegantly, have attempted to create two classes of appropriators: those exporting beyond the regulating county's borders, and those using the water off-basin but

496. The recent Tehama "radius of influence" well-interference restriction is a notable exception to the general pattern that local pumpers bear no burden of wise groundwater use. *See supra* notes 410, 426-29 and accompanying text.

in-county. The environmental consequences appear substantially identical with both types of appropriations. By focusing on out-of-county exporters, the counties can serve their parochial economic interests without any political downside, as the restricted exporters may well not be resident voters.[497] Even if the exporters are residents, the ultimate end users will not be.

In various circumstances, local conditions might justify some local priority for in-district groundwater appropriations. For example, the terms of sale of proposed water transfers may not adequately compensate for third party economic effects. But the history of local groundwater transfer regulation demonstrates no such fine tuning of market based resource allocation decisions. Rather, the pattern demonstrated in the local ordinances so far has been unilateral local retention of a resource critical to the state's economy. Moreover, local regulation has largely exempted all local users. Other than local economic and political parochialism, nothing justifies requiring wise resource management only of out of county appropriators.

Given the political differences between in-district and out-of-district appropriators, it is likely that the current patterns favoring local uses will continue in the crop of groundwater management ordinances that can be expected under A.B. 3030. Given the widespread opposition to centralized, state groundwater appropriation legislation, the legally sanctioned balkanization of the state's groundwater resources likely will continue at a greater pace under A.B. 3030. Ultimately, it will likely take prolonged statewide water shortages, aggravated by drought, increasing population, and restricted water markets, to change the political dynamic. But, eventually, the people will have to determine the extent to which groundwater surplus to the present needs of overlying users is a resource available to *all* "the people of the state."[498]

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497. The best example of this is the Tehama ordinance's restrictions on the Myers' Seed Company's attempts to pump water out of the county for use on the company's Colusa County farm. *See supra* note 30 and accompanying text. Indeed, this is economic parochialism taken one step further, since the Myers transfer will ultimately use the groundwater on lands that overlie the same groundwater basin, albeit in a different county. Nevertheless, it, and the Haleakala Farms transfer, demonstrate the arbitrariness of using "county" lines to create artificial barriers to water use.

498. *See* Cal. Water Code § 104 (West 1971) (state's people have paramount interest in all the state's water).