Monterey County

1441 Schilling Place
Salinas, CA 93901

Meeting Agenda

Wednesday, November 3, 2021

8:30 AM

IMPORTANT COVID-19 NOTICE ON PAGE 2-4
AVISO IMPORTANTE SOBRE COVID-19 EN LA PAGINA 2-4

Water Resources Agency Basin Management Advisory Committee

John Baillie. Chair
Deidre Sullivan
Matthew Simis
David Bunn
Bill Lipe
Kevin Piearcy
Amy White
Marisela Cerda
Patrick Breen
Patrick Collins

IMPORTANT NOTICE REGARDING COVID 19 AND PARTICIPATION IN THE BASIN MANAGEMENT ADVISORY COMMITTEE MEETING

In order to minimize the spread of the COVID 19 virus, please do the following:

To participate in this Basin Management Advisory Committee meeting, the public is invited to observe and address the Committee telephonically or electronically. Instructions for public participation are below:
1. For ZOOM participation please join by computer audio at:
https://montereycty.zoom.us/j/99621772720

OR to participate by phone call any of these numbers below: +1 669 900 6833 US (San Jose)
+1 346 248 7799 US (Houston)
+1 312 626 6799 US (Chicago)
+1 929 205 6099 US (New York)
+1 253 215 8782 US +1 301 715 8592 US

Enter this Meeting ID number: 996 2177 2720 PASSWORD: 478310 when prompted. Please note there is no Participant Code, you will just hit # again after the recording prompts you. You will be placed in the meeting as an attendee; when you are ready to make a public comment, if joined by computer audio, please Raise your Hand; and by phone, please push *9 on your keypad.

2. If you wish to comment on a specific agenda item while the matter is being heard, you may participate by the following means:
When the Chair calls for public comment on an agenda item, the Zoom Meeting Host, or his or her designee, will first ascertain who wants to comment (among those who are in the meeting electronically or telephonically) and will then call on speakers and unmute their device one at a time. Public speakers may be broadcast in audio form only.

3. If you wish to comment on a particular agenda item, please submit your comments in writing via email to Monterey County Water Resources Agency at WRApubliccomment@co.monterey.ca.us by 5:00 p.m. on the Tuesday prior to the Committee meeting. To assist Agency staff in identifying the agenda item to which the comment relates please indicate the Basin Management Advisory Committee meeting date and agenda number in the subject line. Comments received by the 5:00 p.m. Tuesday deadline will be distributed to the Committee and will be placed in the record.

4. If you wish to make either a general public comment for items not on the day's agenda or to comment on a specific agenda item as it is being heard, please submit your comment, limited to 250 words or less, to the Monterey County Water Resources Agency at WRApubliccomment@co.monterey.ca.us. In an effort to assist Agency staff in identifying the agenda item relating to your public comment please indicate in the subject line, the meeting body (i.e. Basin Management Advisory Committee) and item number (i.e. Item No. 10). Every effort will

be made to read your comment into the record, but some comments may not be read due to time limitations. Comments received after an agenda item will be made part of the record if received prior to the end of the meeting.

5. If speakers or other members of the public have documents they wish to distribute to the Committee for an agenda item, they are encouraged to submit such documents by 5:00 p.m. on Tuesday before the meeting to: WRApubliccomment@co.monterey.ca.us. To assist Agency staff in identifying the agenda item to which the comment relates, the public is requested to indicate the Basin Management Advisory Committee date and agenda number in the subject line.

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8. The Chair and/or Secretary may set reasonable rules as needed to conduct the meeting in an orderly manner.

AVISO IMPORTANTE SOBRE COVID 19 Y PARTICIPACIÓN EN LA REUNIÓN DEL COMITE DE ASESOR DE GESTION DE LA CUENCA

Para minimizar la propagación del virus COVID 19, haga lo siguiente:

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1. El público puede observar la reunión ZOOM a través de computadora haciendo clic en el siguiente enlace: https://montereycty.zoom.us/j/99621772720

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Se le colocará en la reunión como asistente; cuando esté listo para hacer un comentario público si se une al audio de la computadora, levante la mano; y por teléfono presione * 9 en su teclado.

2. Los miembros del público que desean comentar en un artículo específico de la agenda, mientras que el artículo se este presentando durante la reunión, pueden participar por cualquiera de los siguientes medios:
Cuando el Presidente del Comité solicite comentarios públicos sobre un artículo de la agenda, el anfitrión de la reunión Zoom o su designado, primero determinará quién quiere testificar (entre los que están en la reunión por vía electrónica o telefónica) y luego llamará a los oradores (speakers) y activará la bocina para el orador, uno a la vez. Todo orador, será transmitido por audio en altavoz solamente.

3. Si un miembro del público desea comentar sobre un artículo de la agenda en particular, se le es sumamente recomendable que envie sus comentarios por escrito por correo electrónico a la Agencia de Administración de Recursos del Agua (Agencia) a WRApubliccomment@co.monterey.ca.us antes de las 5:00 P. M. el Martes antes de la reunión del Comité. Para ayudar al personal de la Agencia a identificar el número del artículo de la agenda con el cual se relaciona el comentario, se solicita al público que indique la fecha de la reunión del Comité y el número del artículo de la agenda en la línea de asunto. Comentarios recibidos en la fecha limite del Martes a las 5 P.M, serán distribuidos al Comité y serán colocados en el registro.

4. Los miembros del público que deseen hacer un comentario público general para temas que no están en la agenda del día o que deseen comentar en un artículo específico mientras se escucha la presentación, lo pueden hacer enviando un comentario por correo electrónico, preferiblemente limitado a 250 palabras o menos, a WRApubliccomment@co.monterey.ca.us. Para ayudar al personal de la Agencia a identificar el artículo de la agenda con el cual se relaciona el comentario, se solicita al público que indique el nombre del Comité (por ejemplo: Comité de Asesor de Gestion de la Cuenca) y el número del artículo de la agenda (por ejemplo: Artículo # 10). Se hará todo lo posible para leer el comentario en el registro, pero algunos comentarios pueden no leerse en voz alta debido a limitaciones de tiempo. Los comentarios recibidos después del cierre del período de comentarios públicos sobre un artículo de la agenda serán parte del registro si se reciben antes que termine la reunión del Comité.

5. Si los oradores u otros miembros del público tienen documentos que desean distribuir al Comité para un artículo de la agenda, se les recomienda enviar dichos documentos antes de las 5:00 P.M. el Martes antes de la reunión a: WRApubliccomment@co.monterey.ca.us. Para ayudar al personal de la Agencia a identificar el número del artículo de la agenda con el cual se relaciona el comentario, se

solicita al público que indique la fecha de la reunion del Comité y el número de agenda en la línea de asunto.

6. Si los miembros del público desean presentar documentos o presentaciones de PowerPoint mientras hablan, deben enviar el documento electrónicamente antes de las 5:00 P.M. del Martes antes de la reunión a WRApubliccomment@co.monterey.ca.us (Si se presenta después de ese plazo, el personal hará los mejores esfuerzos, pero no puede garantizar que esté disponible su PowerPoint para presentar durante la reunión del Comité).

7. Las personas con discapacidades que deseen solicitar una modificación o modificación razonable para observar o participar en la reunión pueden realizar dicha solicitud enviando un correo electrónico a WRApubliccomment@co.monterey.ca.us. La solicitud debe hacerse a más tardar el mediodía del Martes antes de a la reunión del Comité para dar tiempo a la Agencia para que atienda la solicitud .

8. El Presidente y / o Secretario pueden establecer reglas razonables según sea necesario para llevar a cabo la reunión de manera ordenada.

Call to Order

Roll Call

Scheduled Matters

1. Consider finding, pursuant to AB 361 and in order for the Monterey County Water Resources Agency Basin Management Advisory Committee to continue meeting remotely, that the COVID-19 pandemic state of emergency declared by Governor Newsom is still in effect; the Basin Management Advisory Committee has reconsidered the circumstances of the state of emergency; and the Monterey County Health Officer continues to recommend social distancing measures for meetings of the legislative bodies.

Attachments: Board Report
Committee Order

Public Comment

Committee Member Comments

Consent Calendar

2. Approve the Minutes of the Basin Management Advisory Committee meeting held on October 6, 2021.

Attachments: Draft Minutes October 6, 2021

Scheduled Matters

3. Consider receiving the final Deep Aquifers Addendum to the Salinas Valley Water Conditions Quarterly Conditions Report and provide guidance to Staff on recommended changes.

Attachments: Board Report
Salinas Valley Water Conditions Report
Deep Aquifer Addendum

4. Consider receiving the draft report *Salinas Valley Groundwater Usage: An Analysis of 25 Years of Groundwater Extraction Reporting*.

Attachments: Board Report
S.V. Water Usage 25 Year Analysis DRAFT Report
S.V. Water Usage 25 Year Analysis DRAFT Appendices

Staff Reports

5. Update on Groundwater Sustainability Agency Activities in the Salinas Valley Basin

6. Proposition 1 Implementation Grant Update: *Protection of Domestic Drinking Water Supplies for the Lower Salinas Valley*

Attachments: Well Status Chart

7. Update on Agency Modeling Activities

8. Update on Well Permit Application Activities

Attachments: Well Permit Application Activities Update

9. Update on Data Collection Activities

10. Update on the CSIP Supplemental Well Replacement Project

Calendar

11. Consider future agenda items and set next meeting date

Adjournment

Monterey County

Item No.1

Board of Supervisors
Chambers
168 W. Alisal St., 1st Floor
Salinas, CA 93901

Board Report

Legistar File Number: WRABMAC 21-076

November 03, 2021

Introduced: 10/26/2021 **Current Status:** Agenda Ready

Version: 1 **Matter Type:** WRA BMAC Item

Consider finding, pursuant to AB 361 and in order for the Monterey County Water Resources Agency Basin Management Advisory Committee to continue meeting remotely, that the COVID-19 pandemic state of emergency declared by Governor Newsom is still in effect; the Basin Management Advisory Committee has reconsidered the circumstances of the state of emergency; and the Monterey County Health Officer continues to recommend social distancing measures for meetings of the legislative bodies.

RECOMMENDATION:
It is recommended that the Monterey County Water Resources Agency Basin Management Advisory Committee:

Find, pursuant to AB 361 and in order for the Monterey County Water Resources Agency Basin Management Advisory Committee to continue meeting remotely, that the COVID-19 pandemic state of emergency declared by Governor Newsom is still in effect; the Basin Management Advisory Committee has reconsidered the circumstances of the state of emergency; and the Monterey County Health Officer continues to recommend social distancing measures for meetings of the legislative bodies.

SUMMARY/DISCUSSION:
On September 16, 2021, Governor Newsom signed AB 361. This legislation amends the Brown Act to allow meeting bodies subject to the Brown Act to meet via teleconference during a proclaimed state of emergency in accordance with teleconference procedures established by AB 361 rather than under the Brown Act's more narrow standard rules for participation in a meeting by teleconference. AB 361 provides that if a state or local health official recommends social distancing, a legislative body may meet remotely after September 30, 2021, provided that within 30 days of the first meeting after November 3, and every 30 days thereafter, the legislative body finds 1) the Governor's proclaimed state of emergency is still in effect; 2) the legislative body has reconsidered the circumstances of the state of emergency, and 3) either the Monterey County Health Officer continues to recommend social distancing measures for meetings of legislative bodies or the state of emergency continues to directly impact the ability of the members to meet in person.

The Monterey County Health Officer has recommended social distancing measures for meetings of legislative bodies, so the Basin Management Advisory Committee of the Water Resources Agency was able to meet remotely the first time after September 30, 2021. In order to continue meeting remotely, the Basin Management Advisory Committee must make the findings outlined above.

Accordingly, staff recommends making the appropriate findings. This action will be required every 30 days in order to keep meeting remotely; a special meeting may be necessary for that purpose.

OTHER AGENCY INVOLVEMENT:
The General Manager concurs in the recommendation.

FINANCING:
The only financial impact is the continuing cost of teleconferencing.

Prepared by: Jessell Fenley, Administrative Services Assistant
Approved by: Brent Buche, General Manager

Monterey County

Item No.

Board of Supervisors
Chambers
168 W. Alisal St., 1st Floor
Salinas, CA 93901

Board Report

Legistar File Number: WRABMAC 21-076

November 03, 2021

Introduced: 10/26/2021 **Current Status:** Agenda Ready

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Consider finding, pursuant to AB 361 and in order for the Monterey County Water Resources Agency Basin Management Advisory Committee to continue meeting remotely, that the COVID-19 pandemic state of emergency declared by Governor Newsom is still in effect; the Basin Management Advisory Committee has reconsidered the circumstances of the state of emergency; and the Monterey County Health Officer continues to recommend social distancing measures for meetings of the legislative bodies.

RECOMMENDATION:
It is recommended that the Monterey County Water Resources Agency Basin Management Advisory Committee:

Find, pursuant to AB 361 and in order for the Monterey County Water Resources Agency Basin Management Advisory Committee to continue meeting remotely, that the COVID-19 pandemic state of emergency declared by Governor Newsom is still in effect; the Basin Management Advisory Committee has reconsidered the circumstances of the state of emergency; and the Monterey County Health Officer continues to recommend social distancing measures for meetings of the legislative bodies.

SUMMARY/DISCUSSION:
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The Monterey County Health Officer has recommended social distancing measures for meetings of legislative bodies, so the Basin Management Advisory Committee of the Water Resources Agency was able to meet remotely the first time after September 30, 2021. In order to continue meeting remotely, the Basin Management Advisory Committee must make the findings outlined above.

Accordingly, staff recommends making the appropriate findings. This action will be required every 30 days in order to keep meeting remotely; a special meeting may be necessary for that purpose.

OTHER AGENCY INVOLVEMENT:
The General Manager concurs in the recommendation.

FINANCING:
The only financial impact is the continuing cost of teleconferencing.

Prepared by: Jessell Fenley, Administrative Services Assistant
Approved by: Brent Buche, General Manager

Before the Basin Management Advisory Committee of the Monterey County Water Resources Agency
County of Monterey, State of California

COMMITTEE ORDER No. ____

Consider finding, pursuant to AB 361 and in order for the	**)**
Basin Management Advisory Committee of the Monterey	**)**
County Water Resources Agency to continue meeting	**)**
remotely, that the COVID-19 pandemic state of emergency	**)**
declared by Governor Newsom is still in effect; the Basin	**)**
Management Advisory Committee has reconsidered the	**)**
circumstances of the state of emergency; and the Monterey	**)**
County Health Officer continues to recommend social	**)**
distancing measures for meetings of the legislative bodies.	**)**

Upon motion of _____, seconded by _____, and carried by those members present, the Basin Management Advisory Committee hereby:

Consider finding, pursuant to AB 361 and in order for the Basin Management Advisory Committee of the Monterey County Water Resources Agency to continue meeting remotely, that the COVID-19 pandemic state of emergency declared by Governor Newsom is still in effect; the Basin Management Advisory Committee has reconsidered the circumstances of the state of emergency; and the Monterey County Health Officer continues to recommend social distancing measures for meetings of the legislative bodies.

PASSED AND ADOPTED on this **3rd** day of **November 2021**, by the following vote, to-wit:

AYES:

NOES:

ABSENT:

_____	_____
BY: John Baillie, Chair Basin Management Advisory Committee	ATTEST: Brent Buche General Manager

Monterey County

Board Report

Legistar File Number: WRABMAC 21-075

Item No.2

Board of Supervisors
Chambers
168 W. Alisal St., 1st Floor
Salinas, CA 93901

November 03, 2021

Introduced: 10/26/2021

Current Status: Draft

Version: 1

Matter Type: WRA BMAC Item

Approve the Minutes of the Basin Management Advisory Committee meeting held on October 6, 2021.

Monterey County

1441 Schilling Place
Salinas, CA 93901

Meeting Minutes

Wednesday, October 6, 2021

8:30 AM

IMPORTANT COVID-19 NOTICE ON PAGE 2-4
AVISO IMPORTANTE SOBRE COVID-19 EN LA PAGINA 2-4

Water Resources Agency Basin Management Advisory Committee

.

John Baillie. Chair
Deidre Sullivan
Matthew Simis
David Bunn
Bill Lipe
Kevin Piearcy
Amy White
Marisela Cerda
Patrick Breen
Patrick Collins

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artículo de la agenda serán parte del registro si se reciben antes que termine la reunión del Comité.

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6. Si los miembros del público desean presentar documentos o presentaciones de PowerPoint mientras hablan, deben enviar el documento electrónicamente antes de las 5:00 P.M. del Martes antes de la reunión a WRApubliccomment@co.monterey.ca.us (Si se presenta después de ese plazo, el personal hará los mejores esfuerzos, pero no puede garantizar que esté disponible su PowerPoint para presentar durante la reunión del Comité).

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8. El Presidente y / o Secretario pueden establecer reglas razonables según sea necesario para llevar a cabo la reunión de manera ordenada.

Call to Order

The meeting was called to order at 8:30 a.m.

Roll Call

Present: John Baillie, Deidre Sullivan, Matthew Simis, David Bunn, Bill Lipe, Patrick Breen
Absent: Kevin Piearcy, Amy White, Marisela Cerda, Patrick Collins

Public Comment

None

Consent Calendar

1. Approve the Minutes of the Basin Management Advisory Committee meeting held on September 1, 2021.

Attachments: Draft BMAC Minutes September 1, 2021

Upon Motion by Matthew Simis and Second by Deidre Sullivan, the Committee approved the Minutes of the Basin Management Advisory Committee meeting held on September 1, 2021.

Ayes: Baillie, Sullivan, Simis, Bunn, Lipe, Breen
Noes: None
Absent: Piearcy, White, Cerda, Collins

Scheduled Matters

Staff Reports

2. Update on County Well Permit Processing

3. Update on Groundwater Sustainability Agency Activities in the Salinas Valley Basin

4. Proposition 1 Implementation Grant Update: *Protection of Domestic Drinking Water Supplies for the Lower Salinas Valley*

Attachments: Well Status Update

5. Update on Agency Modeling Activities

6. Update on Well Permit Application Activities

Attachments: Well Permit Application Update

7. Update on Data Collection Activities

8. Update on the CSIP Supplemental Well Replacement Project

Calendar

9. Consider future agenda items and set next meeting date

Adjournment

The meeting adjourned at 9:35 a.m.

Monterey County

Item No.3

Board of Supervisors
Chambers
168 W. Alisal St., 1st Floor
Salinas, CA 93901

Board Report

Legistar File Number: WRABMAC 21-084

November 03, 2021

Introduced: 10/26/2021 **Current Status:** Agenda Ready

Version: 1 **Matter Type:** WRA BMAC Item

Consider receiving the final Deep Aquifers Addendum to the Salinas Valley Water Conditions Quarterly Conditions Report and provide guidance to Staff on recommended changes.

RECOMMENDATION:
It is recommended that the Monterey County Water Resources Agency Basin Management Advisory Committee:

Consider receiving the final Deep Aquifers Addendum to the Salinas Valley Water Conditions Quarterly Conditions Report and provide guidance to Staff on recommended changes.

SUMMARY:
Staff has prepared a Deep Aquifers Addendum to the Salinas Valley Water Conditions Report (Quarterly Conditions Report) every quarter of Water Year 2020-2021. This addendum includes Staff's analysis and discussion of current Deep Aquifer conditions. This is being done in preparation of selecting a subset of wells to represent the Deep Aquifers in the Quarterly Conditions Report, beginning with Water Year 2021-2022.

DISCUSSION:
The Quarterly Conditions Report is produced every quarter of the water year and provides a brief overview and discussion of water conditions including precipitation, reservoir storage and groundwater level trends (Attachment 1). More than 130 wells are measured each month to monitor seasonal groundwater level fluctuations in the Salinas Valley. A subset of wells is used to generate average groundwater levels for each aquifer or subarea. Currently, the Quarterly Conditions Report does not include the Deep Aquifers.

Throughout Water Year 2020-2021, Staff has prepared a Deep Aquifers Addendum to the Quarterly Conditions Report (Attachment 2). This addendum includes Staff's analysis and discussion of current Deep Aquifer data, in preparation to add the Deep Aquifers to the Quarterly Conditions Report. Three groups of wells are proposed to represent the Deep Aquifers: wells in the Paso Robles Formation, wells in the Purisima Formation, and a combined set using both the Paso Robles and Purisima wells. Information on each set of wells and example hydrographs are included in Attachment 2. Given that the Paso Roble and Purisima set trends are still reflected in the combined set, Staff recommends adding the single combined set of Deep Aquifers wells into the Quarterly Conditions report.

OTHER AGENCY INVOLVEMENT:

None

FINANCING:
There is no financial impact for receiving this report.

Prepared by: Shaunna Murray, Senior Water Resources Engineer, (831) 755-4860
Tamara Voss, Associate Hydrologist, (831) 755-4860
Amy Woodrow, Hydrologist, (831) 755-4860
Nicole Koerth, Hydrologist, (831) 755-4860

Approved by: Brent Buche, General Manager

Attachments:
1. Salinas Valley Water Conditions for the Fourth Quarter of Water Year 2020-2021
2. Deep Aquifers Addendum to the Salinas Valley Water Conditions, Fourth Quarter of Water Year 2020-2021

Monterey County

Item No.

Board of Supervisors
Chambers
168 W. Alisal St., 1st Floor
Salinas, CA 93901

Board Report

Legistar File Number: WRABMAC 21-084

November 03, 2021

Introduced: 10/26/2021 **Current Status:** Agenda Ready

Version: 1 **Matter Type:** WRA BMAC Item

Consider receiving the final Deep Aquifers Addendum to the Salinas Valley Water Conditions Quarterly Conditions Report and provide guidance to Staff on recommended changes.

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SUMMARY:
Staff has prepared a Deep Aquifers Addendum to the Salinas Valley Water Conditions Report (Quarterly Conditions Report) every quarter of Water Year 2020-2021. This addendum includes Staff's analysis and discussion of current Deep Aquifer conditions. This is being done in preparation of selecting a subset of wells to represent the Deep Aquifers in the Quarterly Conditions Report, beginning with Water Year 2021-2022.

DISCUSSION:
The Quarterly Conditions Report is produced every quarter of the water year and provides a brief overview and discussion of water conditions including precipitation, reservoir storage and groundwater level trends (Attachment 1). More than 130 wells are measured each month to monitor seasonal groundwater level fluctuations in the Salinas Valley. A subset of wells is used to generate average groundwater levels for each aquifer or subarea. Currently, the Quarterly Conditions Report does not include the Deep Aquifers.

Throughout Water Year 2020-2021, Staff has prepared a Deep Aquifers Addendum to the Quarterly Conditions Report (Attachment 2). This addendum includes Staff's analysis and discussion of current Deep Aquifer data, in preparation to add the Deep Aquifers to the Quarterly Conditions Report. Three groups of wells are proposed to represent the Deep Aquifers: wells in the Paso Robles Formation, wells in the Purisima Formation, and a combined set using both the Paso Robles and Purisima wells. Information on each set of wells and example hydrographs are included in Attachment 2. Given that the Paso Roble and Purisima set trends are still reflected in the combined set, Staff recommends adding the single combined set of Deep Aquifers wells into the Quarterly Conditions report.

OTHER AGENCY INVOLVEMENT:

None

FINANCING:
There is no financial impact for receiving this report.

Prepared by: Shaunna Murray, Senior Water Resources Engineer, (831) 755-4860
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Amy Woodrow, Hydrologist, (831) 755-4860
Nicole Koerth, Hydrologist, (831) 755-4860

Approved by: Brent Buche, General Manager

Attachments:
1. Salinas Valley Water Conditions for the Fourth Quarter of Water Year 2020-2021
2. Deep Aquifers Addendum to the Salinas Valley Water Conditions, Fourth Quarter of Water Year 2020-2021

Receive Report on Salinas Valley Water Conditions for the Fourth Quarter of Water Year 2020-2021

SUMMARY/DISCUSSION:
Groundwater level data provides insight on how an aquifer or subarea responds to hydrologic conditions, such as precipitation and reservoir releases, over time. A one-year comparison can show the short-term effects of a single wet or dry year while a long-term comparison will help provide information on general trends in groundwater storage. Subareas or aquifers will respond differently to these hydrologic conditions. For example, groundwater levels in shallower aquifers may respond quicker to a wet season while aquifers that are deeper or more depleted may take longer for groundwater levels to respond and recover.
This report covers the fourth quarter of Water Year 2020-2021 (WY21), July through September 2021. It provides a brief overview and discussion of hydrologic conditions in the Salinas Valley including precipitation, reservoir storage and groundwater level trends.

Precipitation – Preliminary National Weather Service rainfall data indicates that the fourth quarter of WY21 brought below normal rainfall to Salinas and King City. Totals for the quarter were 0.04 inches (20% of normal rainfall of 0.2 inches for the quarter) at the Salinas Airport, and 0.01 inches (6% of normal rainfall of 0.17 inches for the quarter) in King City.

Attachment B contains graphs for both stations showing monthly and cumulative precipitation data for the current and a "normal" water year, based on long-term monthly precipitation averages. Attachment B also includes tables showing values for precipitation totals as well as percent of "normal" precipitation.

Reservoirs - The following table compares fourth quarter storage at Nacimiento and San Antonio reservoirs for the past two years. Storage in Nacimiento Reservoir is 55,688 acre-feet lower than in September 2020, and storage in San Antonio Reservoir is 32,880 acre-feet lower.

Reservoir	**September 30, 2021 (WY21) Storage in acre-feet**	**September 30, 2020 (WY20) Storage in acre-feet**	**Difference in acre-feet**
Nacimiento	43,550	99,238	-55,688
San Antonio	22,670	55,550	-32,880

Graphs showing daily reservoir storage for the last five water years along with 30-year average daily storage for comparison are included as Attachments C and D.

Groundwater Levels – More than 130 wells are measured monthly throughout the Salinas Valley to monitor seasonal groundwater level fluctuations. Data from approximately 50 of these wells are used in the preparation of this report. The measurements are categorized by hydrologic subarea, averaged, and graphed to compare current water levels (WY21) with selected past conditions. Graphs for individual subareas, showing the current year's water level conditions, last year's conditions (WY20) and dry conditions (WY15) are found in Attachments E through I. For

comparison to long term conditions, a curve showing monthly water levels averaged over the most recent 30 years (WY1991-WY2020) is included on each graph. Attachment J is a summary of water level changes for all subareas.

180-Foot Aquifer: Over the last quarter, groundwater levels fell two feet in the 180-Foot Aquifer. Groundwater levels are four feet lower than 2020 levels and down five feet from the 30-year average. Attachment E shows monthly groundwater trends for the 180-Foot Aquifer.

400-Foot Aquifer: Over the last quarter, groundwater elevations fell two feet in the 400- Foot Aquifer. Groundwater levels are down seven feet compared to September 2020 and down three feet from the 30-year average. Attachment F shows monthly groundwater trends for the 400-Foot Aquifer.

East Side Subarea: East Side groundwater levels fell seven feet over the last quarter. Groundwater levels are down twelve feet from September 2020 levels, down twenty-one feet from the 30-year average and are five and a half feet below the dry conditions seen in WY 2015. Attachment G shows monthly groundwater trends for the East Side Subarea.

Forebay Subarea: Over the last quarter, groundwater levels fell three feet in the Forebay. Groundwater levels are down five feet from September 2020 levels and are down three feet from the 30-year average. Attachment H shows monthly groundwater trends for the Forebay Subarea.

Upper Valley Subarea: Upper Valley groundwater levels have decreased two feet over the last quarter. Groundwater levels are two feet lower than September 2020 levels and less than one foot lower than the 30-year average. Attachment I shows monthly groundwater trends for the Upper Valley Subarea.

Deep Aquifers: Currently, the Quarterly Conditions Report does not include groundwater levels that represent the Deep Aquifers. Staff has prepared a Deep Aquifers Addendum, included as Attachment K, which includes Staff's current analysis and discussion of Deep Aquifer conditions. This information is being presented while Staff continues to analyze which data will be used to represent groundwater level trends in the Deep Aquifers for the Quarterly Conditions Report, beginning next water year 2021-2022.

OTHER AGENCY INVOLVEMENT:
None

FINANCING:
Funds 111, 116

Prepared by: Shaunna Murray, Senior Water Resources Engineer, (831) 755-4860
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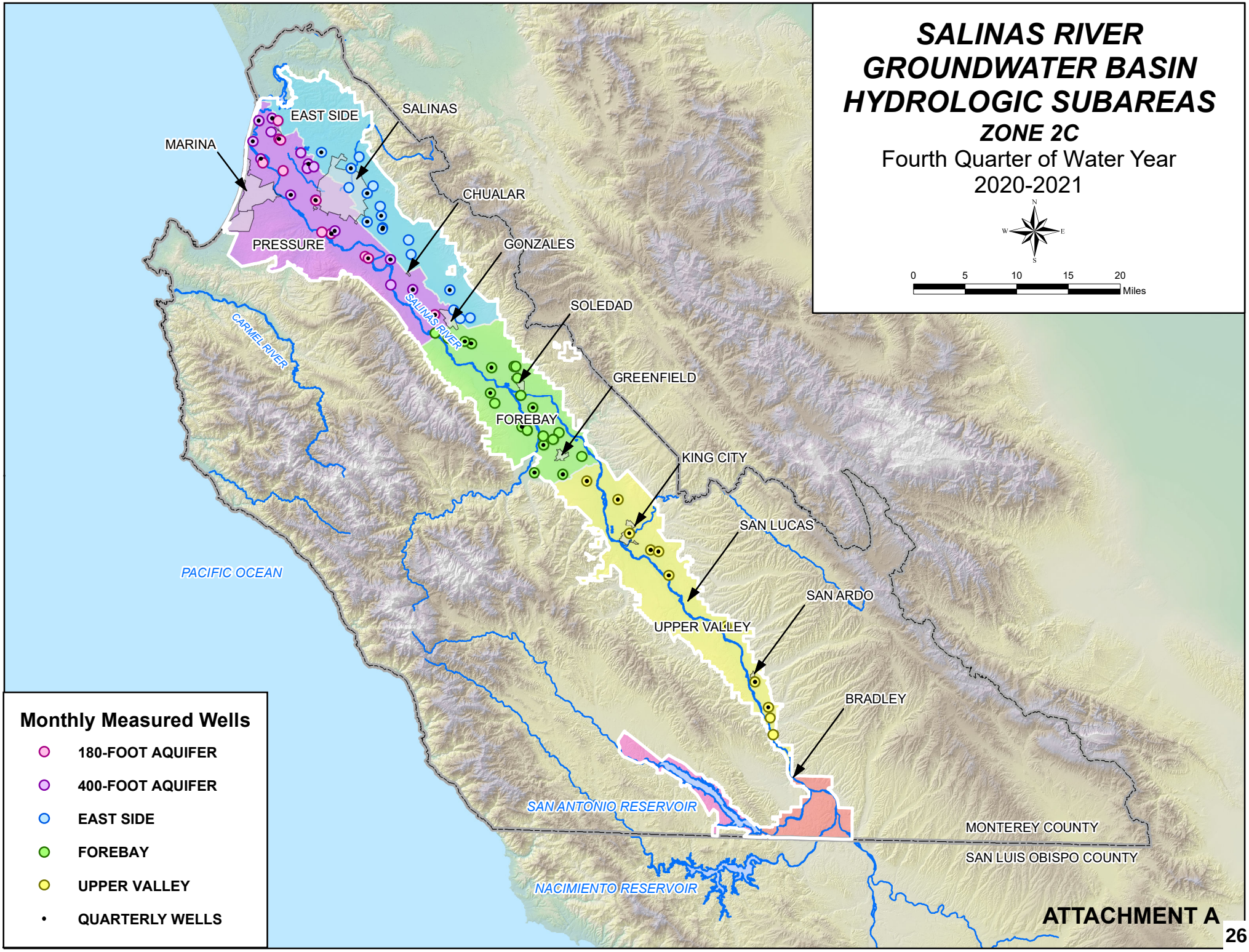
Nicole Koerth, Hydrologist (831) 755-4860
Guillermo Diaz Moreno, Water Resource Technician (831) 755-4860

Approved by: _____

Brent Buche, General Manager, (831) 755-4860

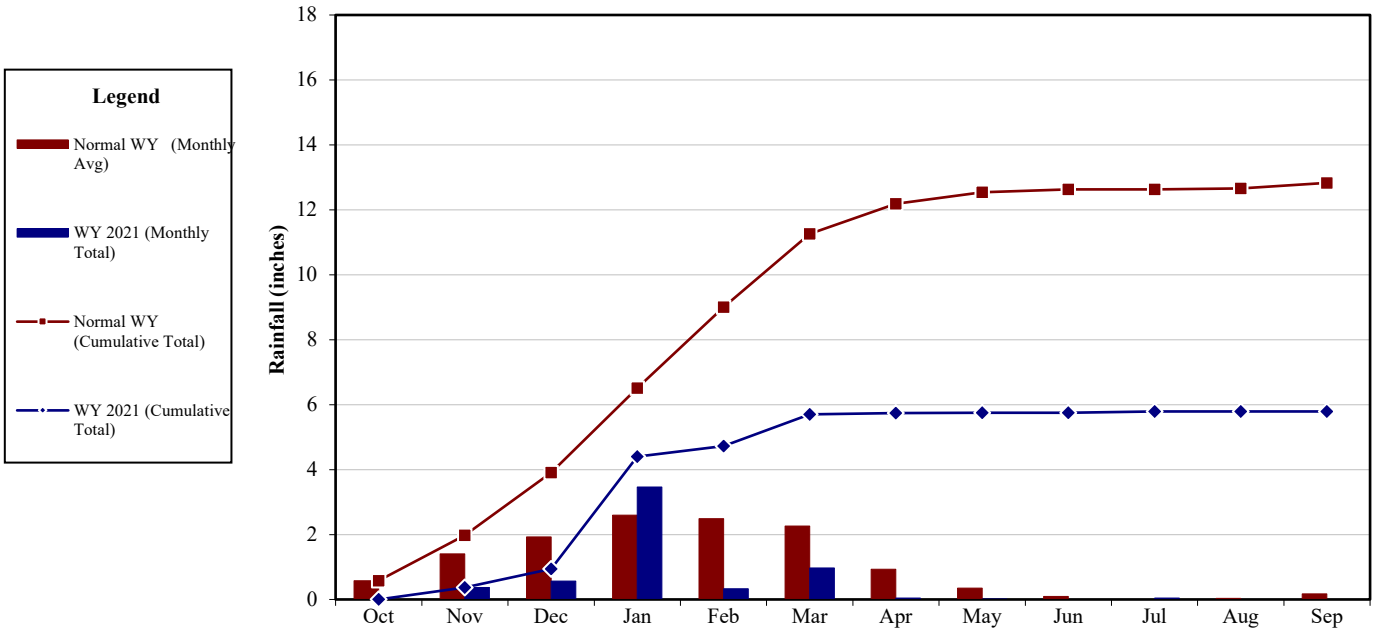
Attachments:

1. Attachment A, Salinas Valley Hydrologic Subareas Map
2. Attachment B, Salinas and King City Precipitation Graphs
3. Attachment C, Nacimiento Reservoir Graph
4. Attachment D, San Antonio Reservoir Graph
5. Attachment E, Groundwater Trends 180-Foot Aquifer
6. Attachment F, Groundwater Trends 400-Foot Aquifer
7. Attachment G, Groundwater Trends East Side Subarea
8. Attachment H, Groundwater Trends Forebay Subarea
9. Attachment I, Groundwater Trends Upper Valley Subarea
10. Attachment J, Groundwater Trends Summary
11. Attachment K, Deep Aquifers Addendum, Fourth Quarter, WY 2021



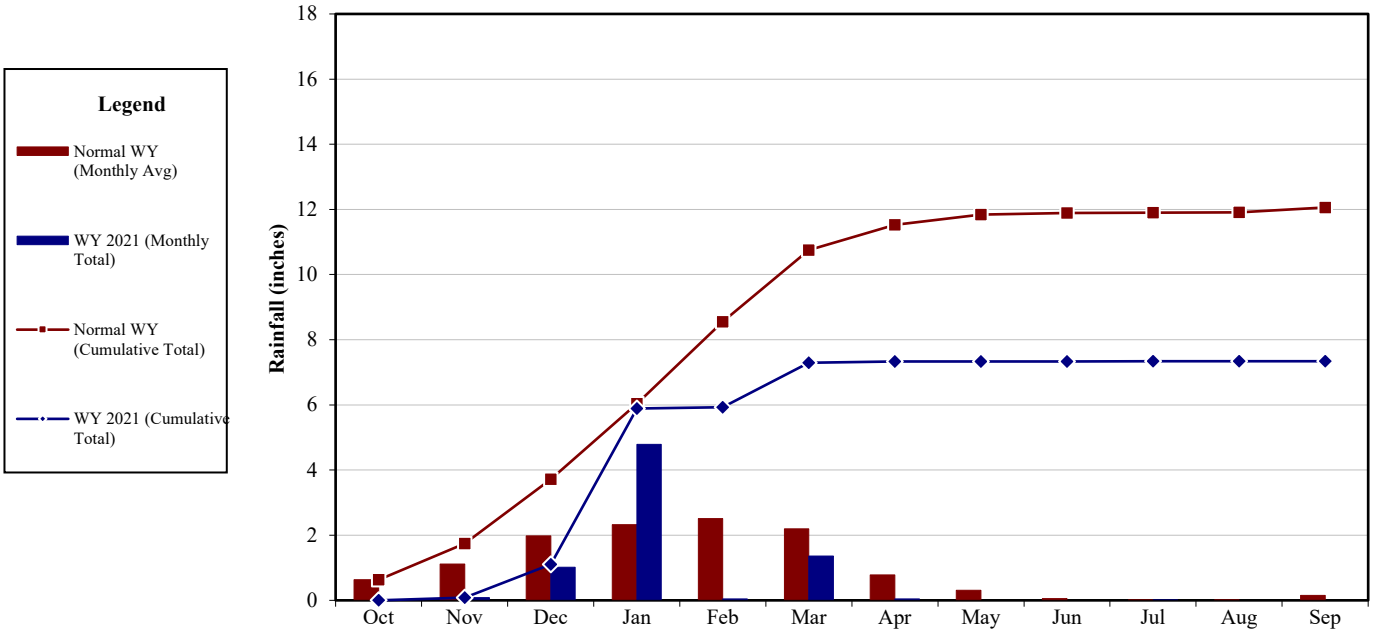
ATTACHMENT A

SALINAS AIRPORT RAINFALL
WATER YEAR 2021



Monthly Rainfall (WY 2021)	0.00	0.37	0.57	3.46	0.33	0.97	0.04	0.01	0.00	0.04	0.00	0.00
Monthly Rainfall (Normal WY*)	0.58	1.40	1.93	2.60	2.49	2.26	0.93	0.35	0.09	0.00	0.03	0.17
Percent of Normal for Month	0%	26%	30%	133%	13%	43%	4%	3%	0%	0%	0%	0%
Cumulative Rainfall (WY 2021)	0.00	0.37	0.94	4.40	4.73	5.70	5.74	5.75	5.75	5.79	5.79	5.79
Cumulative Rainfall (Normal WY*)	0.58	1.98	3.91	6.51	9.00	11.26	12.19	12.54	12.63	12.63	12.66	12.83
Percent of Cumulative Normal	0%	19%	24%	68%	53%	51%	47%	46%	46%	46%	46%	45%

KING CITY RAINFALL
WATER YEAR 2021

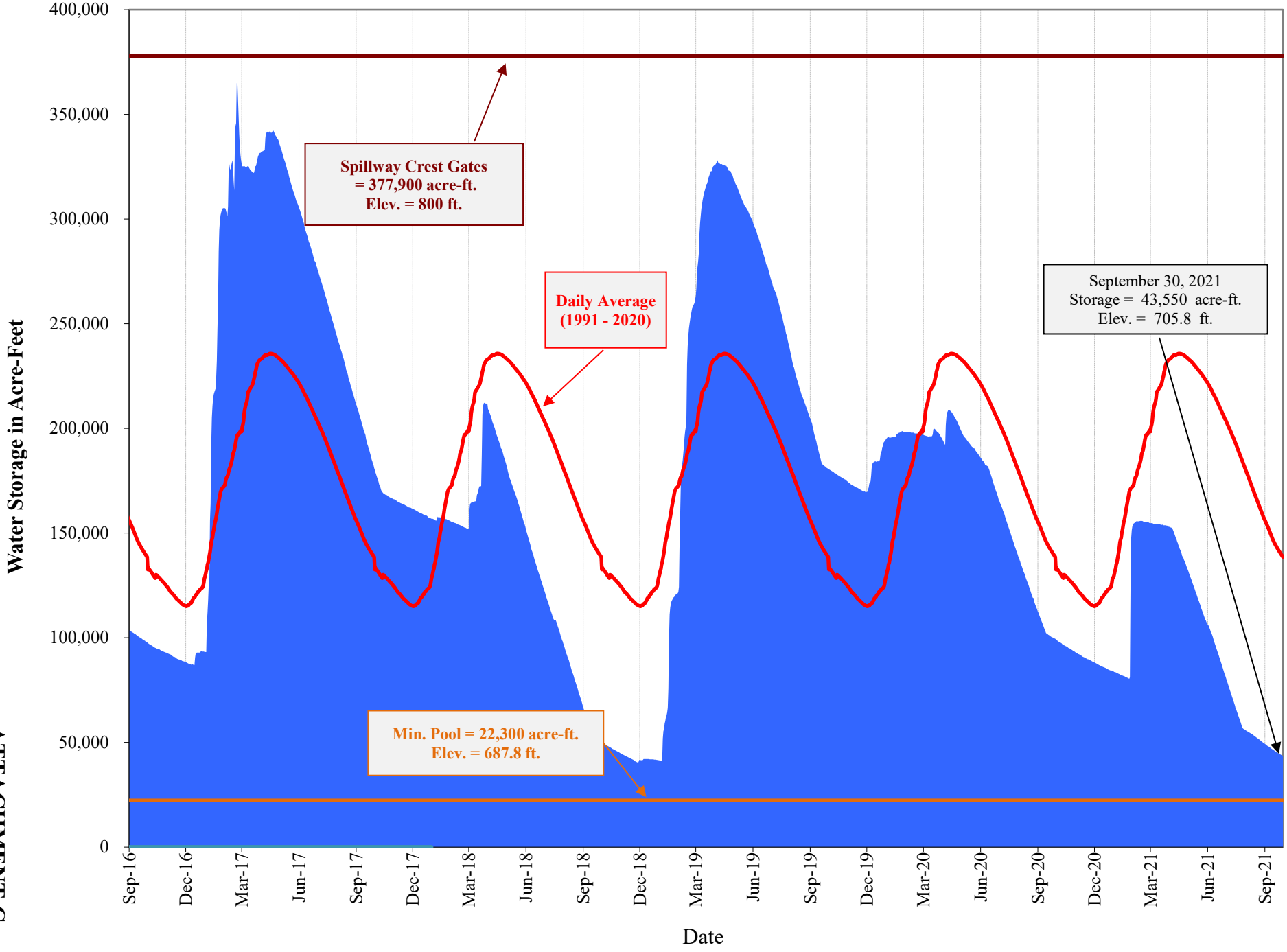


Monthly Rainfall (WY 2021)	0.00	0.08	1.02	4.79	0.04	1.36	0.04	0.00	0.00	0.01	0.00	0.00
Monthly Rainfall (Normal WY*)	0.63	1.11	1.98	2.32	2.51	2.20	0.78	0.31	0.05	0.01	0.01	0.15
Percent of Normal for Month	0%	7%	52%	206%	2%	62%	5%	0%	0%	100%	0%	0%
Cumulative Rainfall (WY 2021)	0.00	0.08	1.10	5.89	5.93	7.29	7.33	7.33	7.33	7.34	7.34	7.34
Cumulative Rainfall (Normal WY*)	0.63	1.74	3.72	6.04	8.55	10.75	11.53	11.84	11.89	11.90	11.91	12.06
Percent of Cumulative Normal	0%	5%	30%	98%	69%	68%	64%	62%	62%	62%	62%	61%

*Average precipitation over the most recent 30-year period ending in a decade (1981-2010)

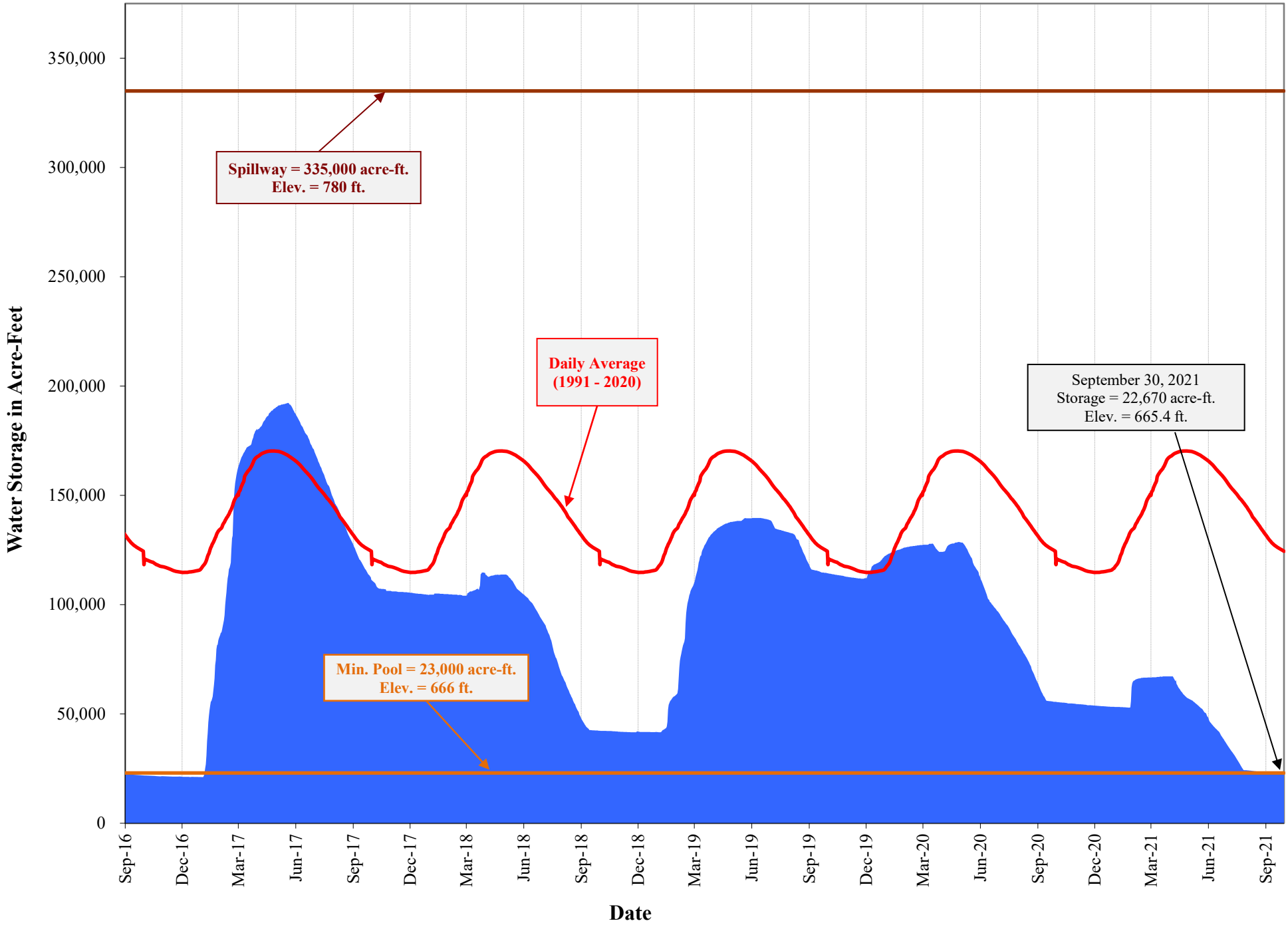
ATTACHMENT B

NACIMIENTO RESERVOIR
DAILY STORAGE



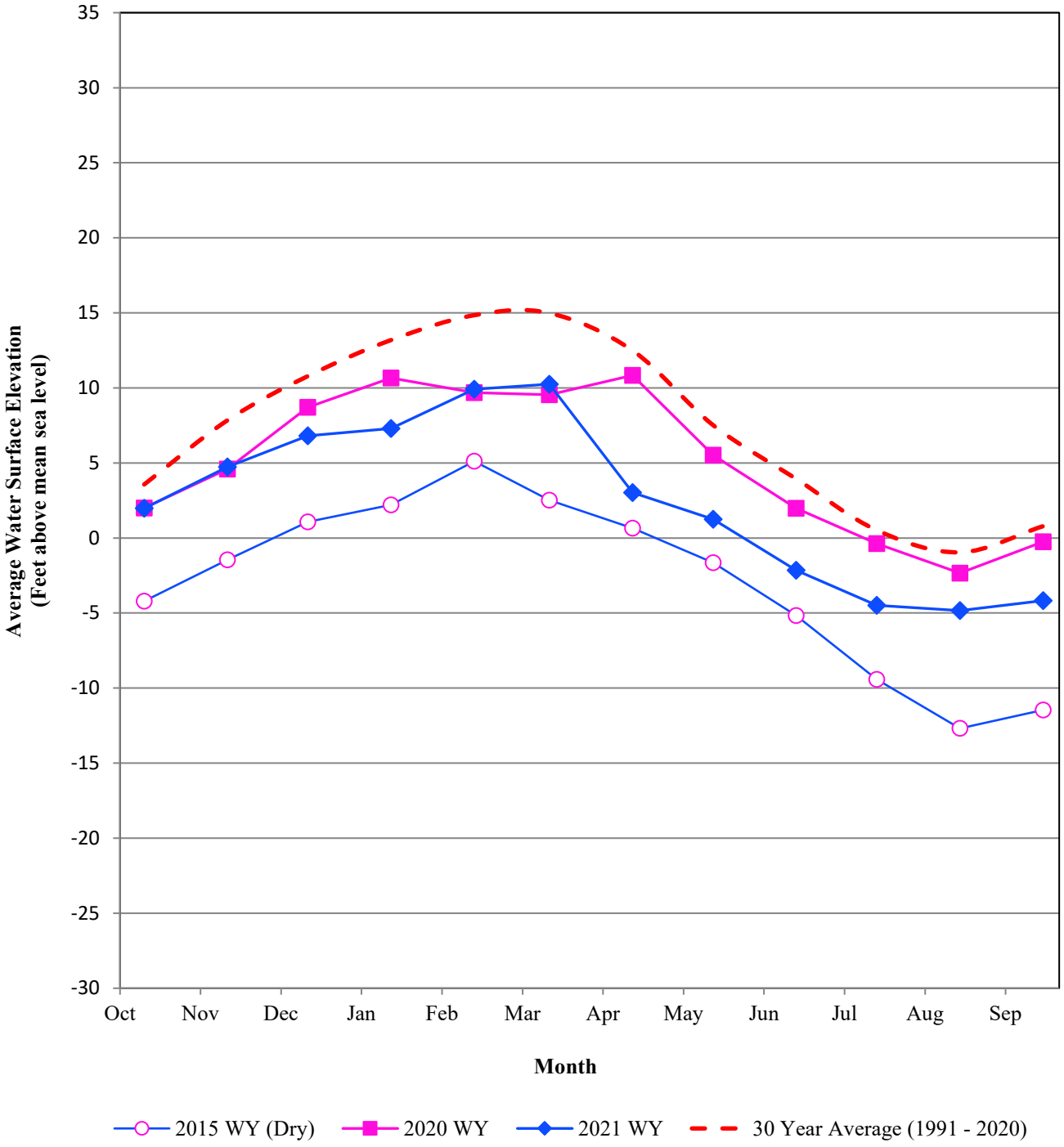
ATTACHMENT C

SAN ANTONIO RESERVOIR
DAILY STORAGE

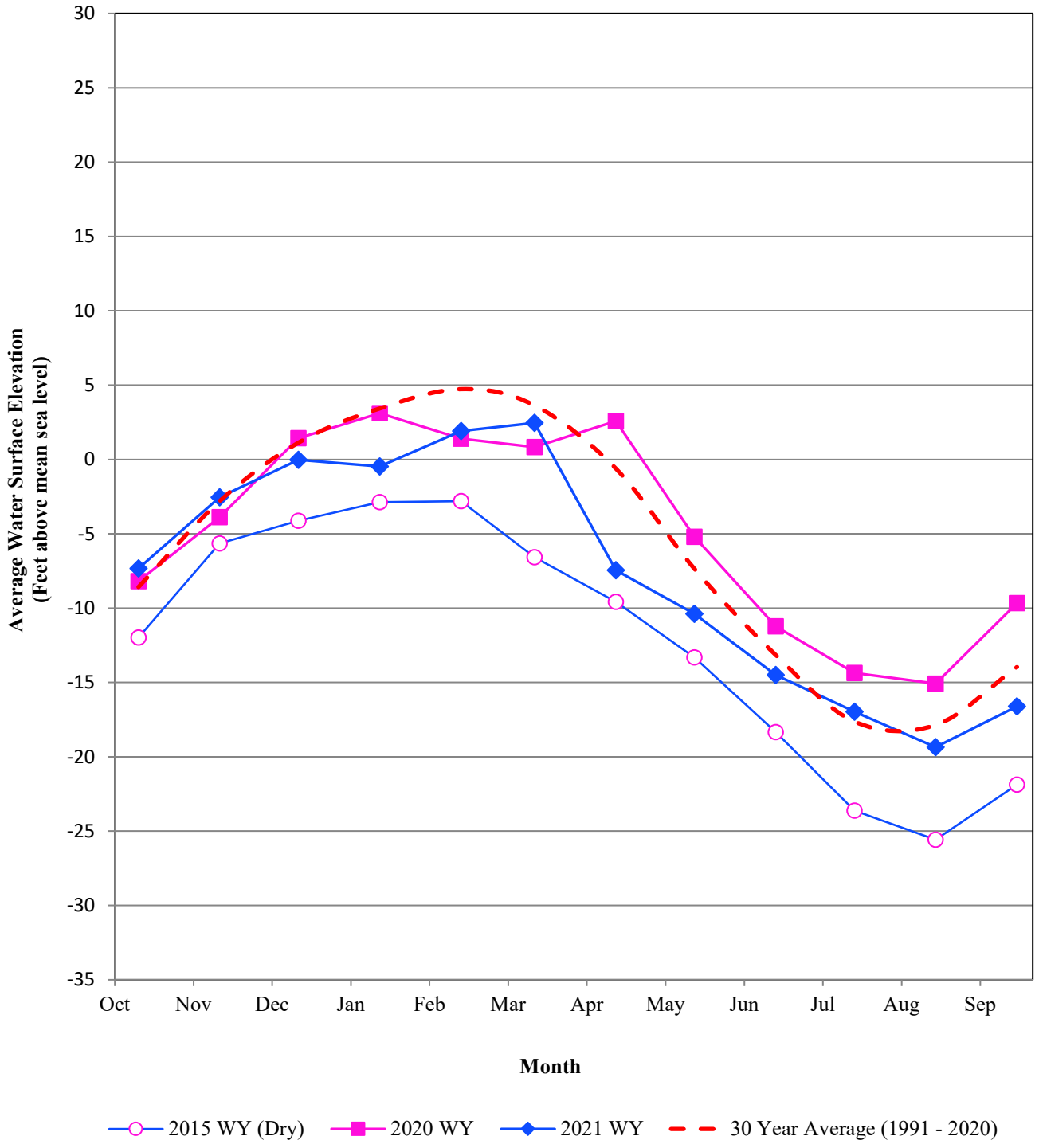


ATTACHMENT D

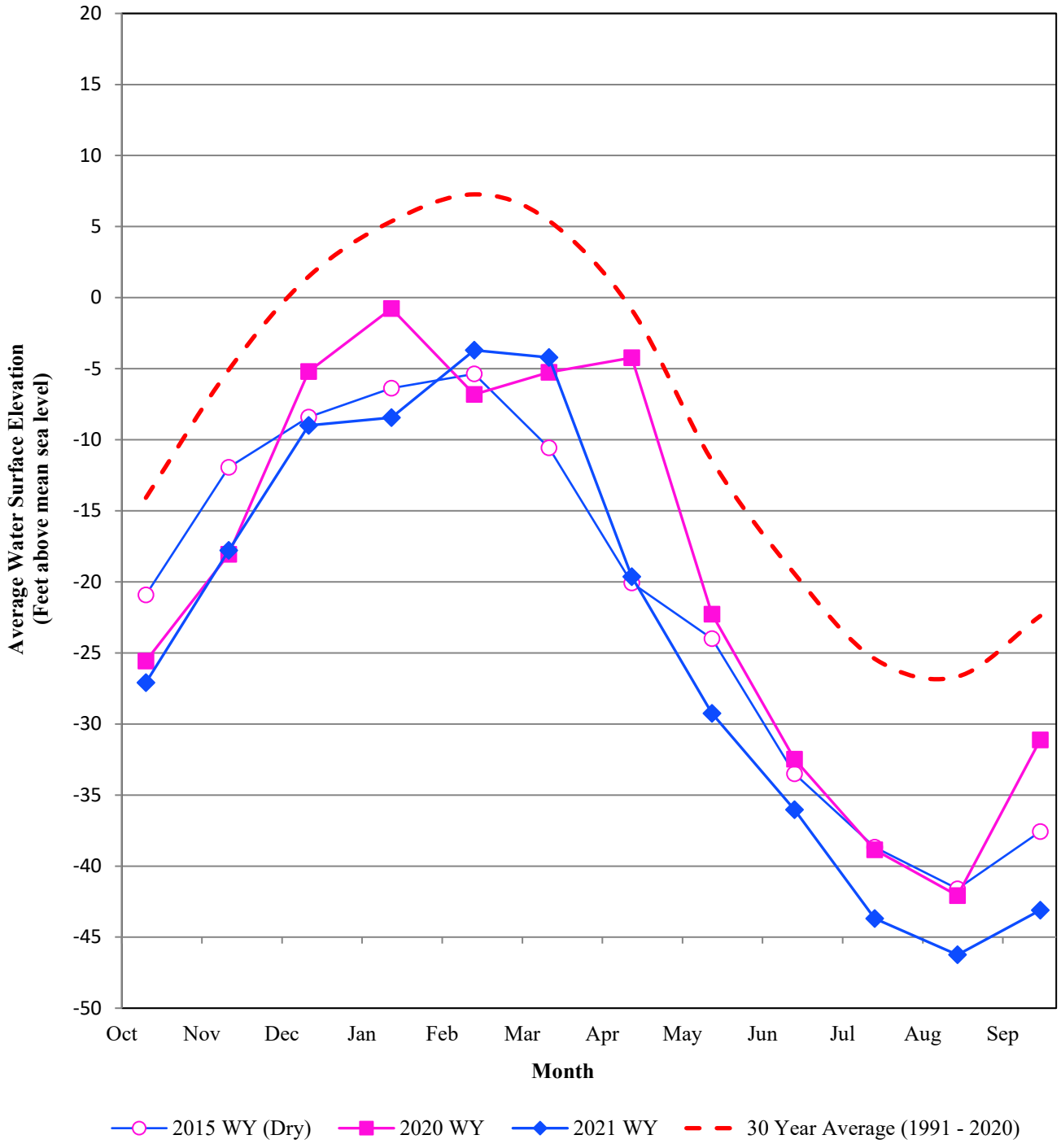
GROUNDWATER TRENDS
180-FOOT AQUIFER
8 Wells



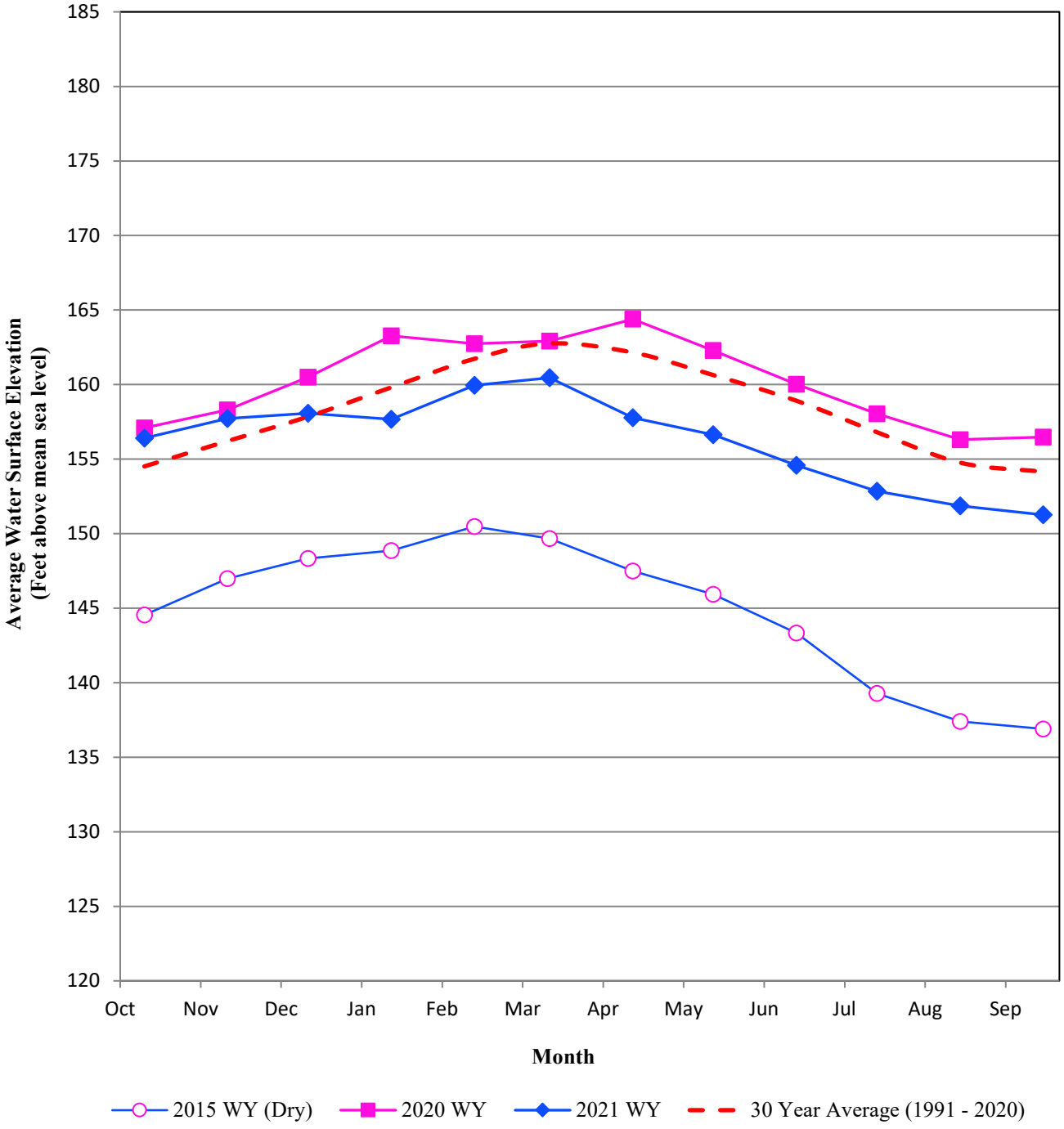
GROUNDWATER TRENDS
400-FOOT AQUIFER
12 Wells



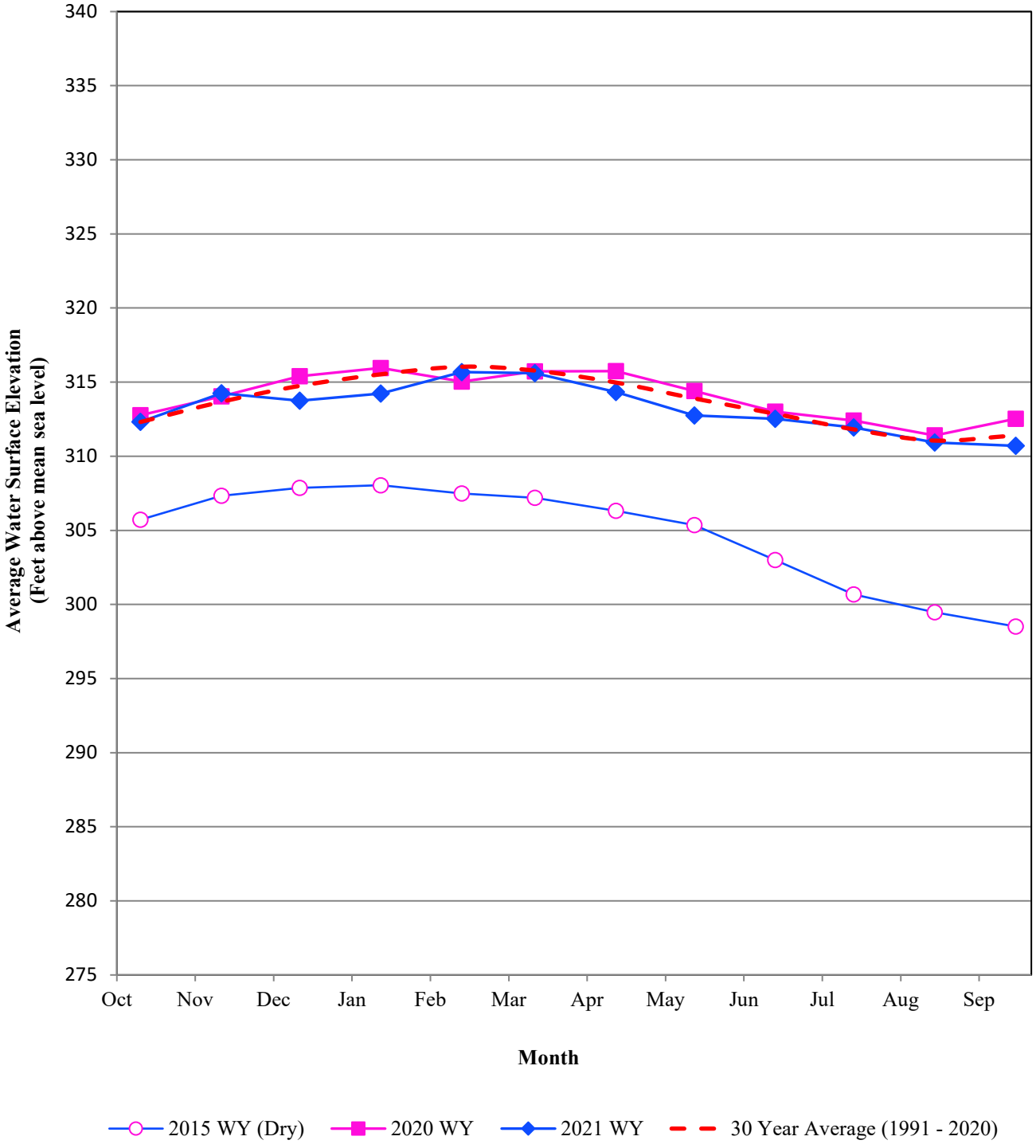
GROUNDWATER TRENDS
EAST SIDE SUBAREA
12 Wells



GROUNDWATER TRENDS
FOREBAY SUBAREA
13 Wells



GROUNDWATER TRENDS
UPPER VALLEY SUBAREA
9 Wells



Groundwater Trends Summary
September 2021

Area	September 2021 Groundwater Elevation (ft msl)	Change over Fourth Quarter	1 Year Change	Difference from 30 year Average Elevation
180-Foot Aquifer	-4 '	Down 2 '	Down 4 '	Down 5 '
400-Foot Aquifer	-17 '	Down 2 '	Down 7 '	Down 3 '
East Side Subarea	-43 '	Down 7 '	Down 12 '	Down 21 '
Forebay Subarea	151 '	Down 3 '	Down 5 '	Down 3 '
Upper Valley Subarea	311 '	Down 2 '	Down 2 '	Down < 1 '

Deep Aquifers Addendum to the Salinas Valley Water Conditions
Fourth Quarter of Water Year 2020-2021

Purpose of this Addendum

The Salinas Valley Water Conditions Report (Quarterly Conditions Report), produced every quarter of the water year, provides a brief overview and discussion of water conditions, including precipitation, reservoir storage, and groundwater level trends. Over 130 wells are measured each month to monitor seasonal groundwater level fluctuations in the Salinas Valley. A representative subset of wells is used to generate average groundwater levels for the major aquifers and subareas for the Quarterly Conditions Report.

Currently, the Quarterly Conditions Report does not include the Deep Aquifers. The purpose of this addendum was to show Staff's analysis of current Deep Aquifers conditions and trends to determine a representative group of Deep Aquifers wells that would represent the Deep Aquifers in the Quarterly Conditions Report. This final version summarizes the information and presents the group of wells Staff recommends adding to the Quarterly Conditions Report, starting in WY 2021-2022.

1. Background on the Deep Aquifers

The Deep Aquifers are formational aquifers, consisting of several aquifer units within the Paso Robles Formation, Purisima Formation, and Santa Margarita Sandstone. A lot about the Deep Aquifers is still unknown, including the extent of these formations that are productive water-bearing units in the Salinas Valley, the hydrogeologic properties of the aquifer units, what separates each aquifer unit from each other, and what separates the Deep Aquifers from the overlying 400-Ft Aquifer.

The Paso Robles Formation (Paso Robles) is a Pliocene- Pleistocene unit that consists of lenticular beds of sands, gravels, silts, and clays. Potential depositional environments of these layers include alluvial fan or braided streams[1], from the ancient Salinas River[2], or alluvial fan, lake and floodplain deposits[3]. The Paso Robles outcrops in 37,500 acres of Monterey County, including the El Toro area and west side of the Salinas Valley[4]. The Paso Robles is also exposed at the land surface in San Luis Obispo County. The lower portions of the 400-Ft Aquifer and upper portions of the Deep Aquifers are in the Paso Robles formation. The degree of hydrologic separation between these units is unknown.

The Purisima Formation (Purisima) is a Pleistocene aged, shallow marine unit composed of clays

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[1] Harding ESE. 2001. *Final Report Hydrogeologic Investigation of the Salinas Valley Basin in the Vicinity of Fort Ord and Marina Salinas Valley, California.*
[2] Thorup, Richard R. 1976. *Report on Castroville Irrigation Project Deep Test Hole and Freshwater Bearing Strata Below the Pressure 400-Foot Aquifer, Salinas Valley, CA.*
[3] Greene, H.G. 1970. *Geology of Southern Monterey Bay and its Relationship to the Ground Water Basin and Sea Water Intrusion.* U.S. Geological Survey, 50 p.
[4] Feeney, M.B., and L.I. Rosenberg. 2003. *Technical Memorandum- Deep Aquifer Investigation- Hydrogeologic Data Inventory, Review, Interpretation and Implications.* 40 p.

and shale[1], siltstone, sandstone, and conglomerates[5]. Micro-fossils from Purisima core samples indicate a marine shelf environment around 0-150 feet below sea level[6]. In geologic logs, a shift to more clays, particularly blue clays, and shales are seen, a good indicator of this shift to a marine deposited environment. The Purisima outcrops on the southwest side of the Monterey submarine canyon and on land in Santa Cruz County[4], but is not exposed on land in Monterey County.

The Santa Margarita Sandstone (Santa Margarita) is a late Miocene deposited, shallow marine friable arkosic sandstone unit[5]. Some studies describe this as a transgressive sandstone unit[4]. The Santa Margarita lies below the Purisima, or below the Paso Robles where the Purisima is absent.

2. Groundwater Levels

The first Deep Aquifers well in the Salinas Valley was drilled in 1974. The Agency began collecting groundwater level data from the Deep Aquifers in 1983. Over the last few years, the Agency has expanded its groundwater monitoring network to include as many Deep Aquifers wells as possible to learn more about the system. Agency staff currently monitors groundwater levels in thirty-two Deep Aquifers wells every month. Additionally, seven Deep Aquifers monitoring wells have pressure transducers that collect hourly groundwater level data.

Long Term Trends

Individual hydrographs for Deep Aquifers wells screened in the Paso Robles formation can be seen in Figure 1. Groundwater level data in some wells extends back to 1983. The variability in groundwater levels varies spatially. Prior to 1998, wells in the northern coastal region (e.g., 19Q03, 06L01, 32E05) saw high seasonal variability. During this time, most extractions from the Deep Aquifers occurred from wells in this area. In 1998, there was a decline in Deep Aquifer groundwater extractions when the CSIP project went online and started delivering another source of irrigation water. Shortly after, Deep Aquifer groundwater levels in the area recovered, with groundwater elevations rising above sea level and less seasonal variability seen. The decline in Deep Aquifer groundwater elevations began around 2008. This was more pronounced in wells further from the coast (e.g., 33E01, 28H04) than in wells closer to the coast. One explanation for this is that after 2008 there was an increase in Deep Aquifer extractions focused further inland instead of in the northern coastal section.

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[5] Greene, H.G. 1977. *Geology of Southern Monterey Bay Region.* U.S. Geological Survey, 347 p.
[6] Hanson, R.T., Rhett R. Everett, Mark W. Newhouse, Steven M. Crawford, M. Isabel Pimentel, and Gregory Smith. 2002. *Geohydrology of a Deep-Aquifer System Monitoring Well Site at Marina, Monterey County, California.* U.S. Geological Survey, 289 p.

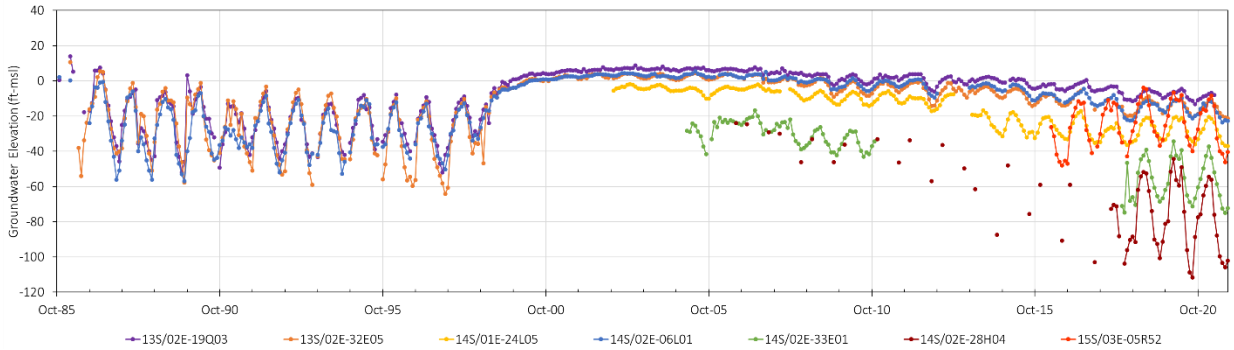

Figure 1. Individual hydrographs for selected Paso Robles wells, Entire Period of Record

Individual hydrographs for the selected Purisima wells can be seen in Figure 2. The Agency has no groundwater level data from wells screened exclusively in the Purisima formation prior to 2002. Groundwater levels remained relatively stable between 2002 and 2014. After 2014 however, groundwater levels started declining, and are presently all below sea level. More seasonal variability in groundwater levels has also been seen in recent years, although the range is much smaller than seen in the Paso Robles wells.

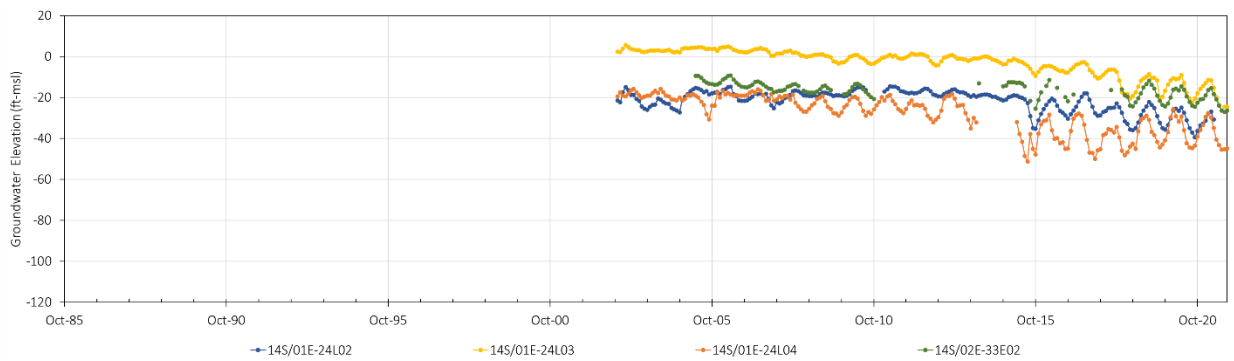

Figure 2. Individual hydrographs for selected Purisima wells, Entire Period of Record

The Agency also monitors groundwater levels in wells screened in both Deep Aquifers formations, however, those data are not graphed because of the shorter period of records, and because the initial approach for adding the Deep Aquifers to the Quarterly Conditions report was to look at the two main formations separately.

3. Potential Groups for Quarterly Report Wells

Three groups of wells are proposed to represent the Deep Aquifers in the Quarterly Conditions report; wells in the Deep Aquifers in the Paso Robles Formation, wells in the Deep Aquifers in the Purisima Formation, and a Deep Aquifers set using both the Paso Robles and Purisima wells. Information on each set of wells is below, as well as examples of the hydrographs that would be included in the Quarterly Conditions report.

Set 1: Paso Robles Groundwater Levels

Seven wells were identified to represent the Deep Aquifers in the Paso Robles Formation (Table 1). The screened formation of each well was identified in previous reports or was made by Staff

based on interpretation of geologic logs and geophysical logs. The depths of these wells range from 840 to 1605 feet below ground surface (ft-bgs), with screened intervals ranging from 600 to 1585 ft-bgs. Wells were selected because of the long period of consecutive monthly groundwater level measurements available. Wells with a shorter, but still consistent, period of record were included if the location helped expand spatial coverage of Paso Robles wells (Figure 4). In previous versions of this addendum, eight wells were identified to represent the Paso Robles group of wells. However, 13S/02E-31A02 was removed from the group to avoid an over-representation of wells in the northern coastal area.

Table 1. Paso Robles Deep Aquifer Wells (Set 1)

State Well ID	Facility Code	Year Drilled	GSE (ft-msl)	Depth (ft-bgs)	Screened Interval (ft-bgs)	Screened Formation	Monthly Groundwater Level Period of Record [4]
13S/02E-19Q03	75	1980	13	1562	1280-1550	Paso Robles [1]	October 1983- Current
13S/02E-32E05	10164	1984	8	1605	775-1585	Paso Robles [1]	June 1986- Current
14S/01E-24L05	22277	2000	67	970	930-950	Paso Robles [2]	November 2002- Current
14S/02E-06L01	1672	1976	13	1560	880-1540	Paso Robles [1]	October 1988- Current
14S/02E-33E01	26313	2005	140	1095	1045-1095	Paso Robles [3]	June 2018- Current
14S/02E-28H04	22929	2006	26	1180	940-1160	Paso Robles [3]	July 2018- Current
15S/03E-05R52	22905	2006	52	840	600-820	Paso Robles [3]	April 2016- Current

1. Feeney and Rosenberg, 2003; 2. Hanson et. al, 2002; 3. Based on interpretation of geologic log; 4. Period of record where relatively consistent monthly measurements were collected

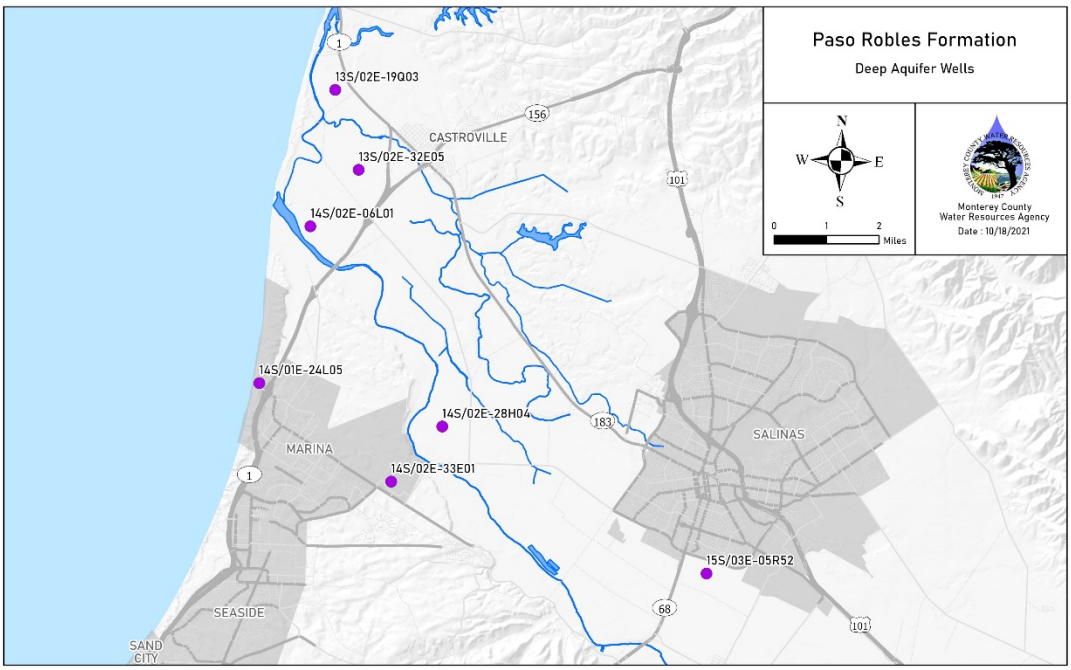

Figure 3. Deep Aquifer wells in the Paso Robles Formation used for groundwater level hydrographs, labeled by State Well ID

In the Quarterly Conditions report, groundwater elevations from a representative set of wells in each aquifer or subarea are averaged together to compare water levels across water years. Average groundwater elevations from the seven Deep Aquifers wells in the Paso Robles formation can be seen in Figure 5 for the last water year, WY 2020 (pink), and the current water year, WY 2021 (blue). Average elevations by the end of WY 2021 were 44 feet below sea level. Over the last quarter, groundwater elevations have fallen three feet and are down 4.5 feet compared to September 2020. Since not all the wells used in this average have groundwater levels from 2018 or earlier, a dry year and 30-year average line were not included.

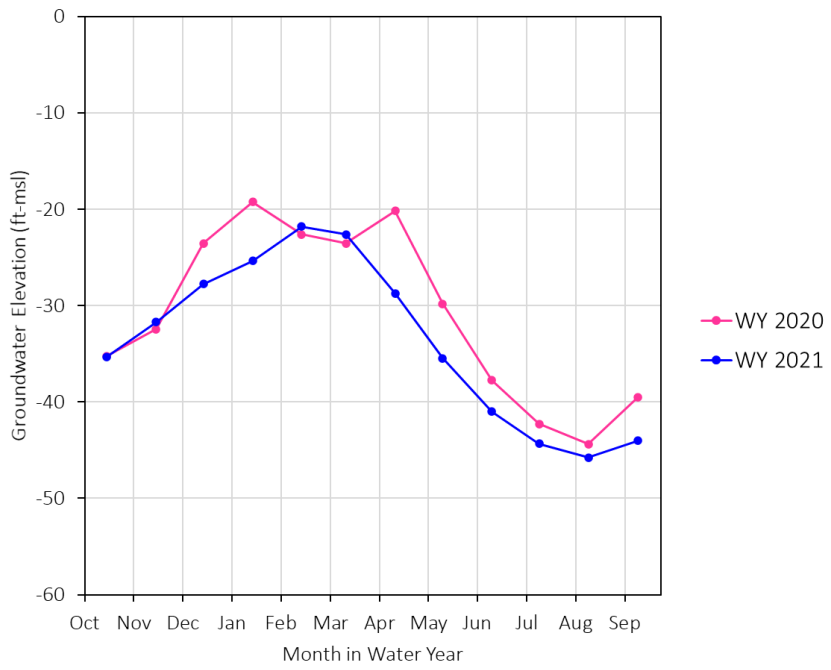

Figure 4. Average hydrographs for Paso Robles Deep Aquifer Wells (n=7)

Set 2: Purisima Groundwater Levels

Four wells have been identified to represent the Deep Aquifers in the Purisima Formation (Table 2). There are a limited number of wells screened exclusively in the Purisima Formation that also have a sufficient period of record or groundwater level data. The depths of these wells range from 1080 to 1880 ft-bgs, with screened intervals ranging from 1040 to 1860 ft-bgs. Wells with a shorter, but still consistent, period of record were included if the well's location helped expand spatial coverage of Purisima wells (Figure 6).

Table 2. Purisima Deep Aquifers Wells (Set 2)							
State Well ID	Facility Code	Year Drilled	GSE (ft-msl)	Depth (ft-bgs)	Screened Interval (ft-bgs)	Screened Formation	Monthly Groundwater Level Period of Record [3]
14S/01E-24L02	22274	2000	67	1880	1820-1860	Purisima[1]	November 2002- Current
14S/01E-24L03	22275	2000	67	1430	1410-1430	Purisima[1]	November 2002- Current
14S/01E-24L04	22276	2000	67	1080	1040-1060	Purisima[1]	November 2002- Current
14S/02E-33E02	26314	2005	140	1760	1680-1760	Purisima[2]	June 2018- Current

1. Hanson et al., 2002; 2. Based on interpretation of geologic logs; 3. Period of record where relatively consistent monthly measurements were collected

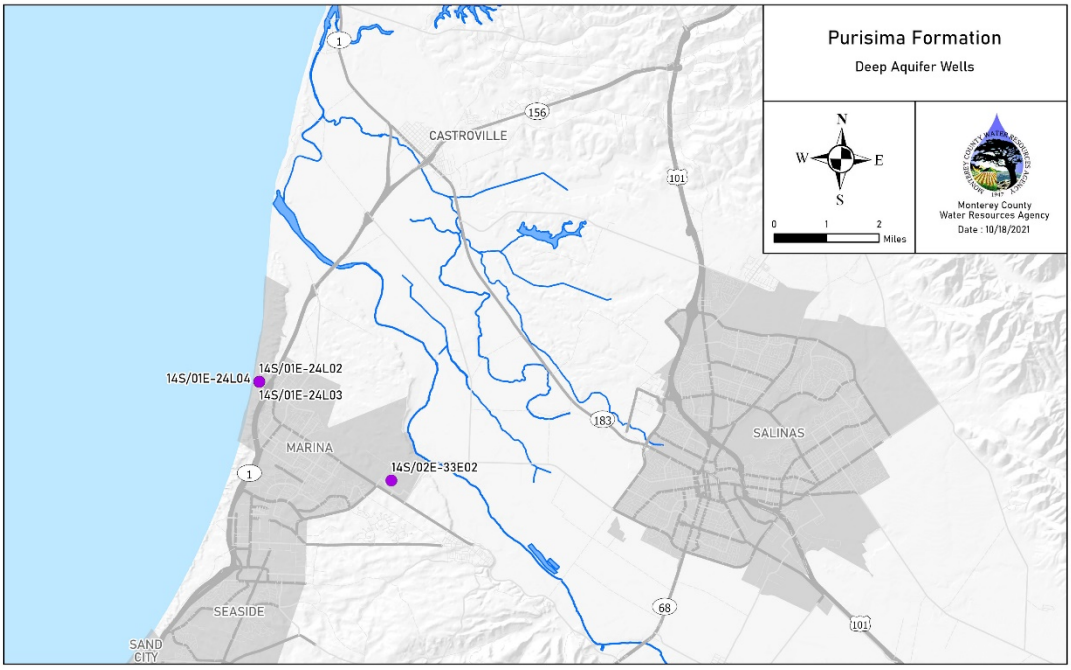

Figure 5. Deep Aquifer wells in the Purisima Formation used for groundwater level hydrographs, labeled by State Well ID

Average groundwater elevations of the four Deep Aquifers wells in the Purisima formation can be seen in Figure 7 for WY 2020 and WY 2021. Average elevations by the end of WY 2021 were 34.5 feet below sea level. Over the last quarter, groundwater elevations have fallen 1.2 feet and are down 2.5 feet compared to September 2020. Since not all the wells used in this average have groundwater levels from 2015 or earlier, a dry year and 30-year average line were not included.

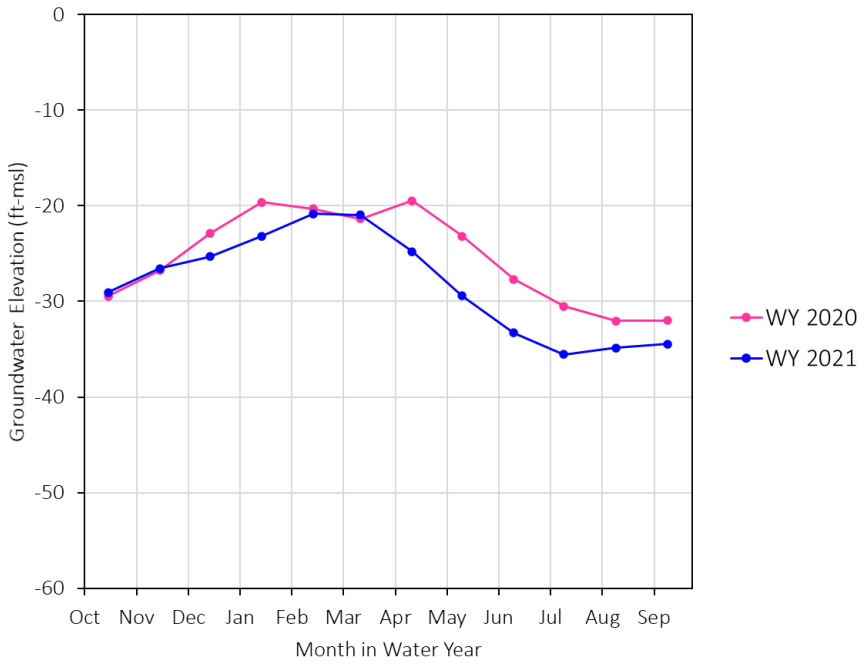

Figure 6. Average hydrographs for Purisima Deep Aquifer Wells (n=4)

Set 3: Paso Robles and Purisima Combined

A third option for representing the Deep Aquifers in the Quarterly Conditions Report is to average the aforementioned Paso Robles and Purisima wells together and generate a single set of hydrographs, instead of two. This approach would make adding new wells to this set easier, since most of the recently constructed Deep Aquifers wells are screened in both the Paso Robles and Purisima formations.

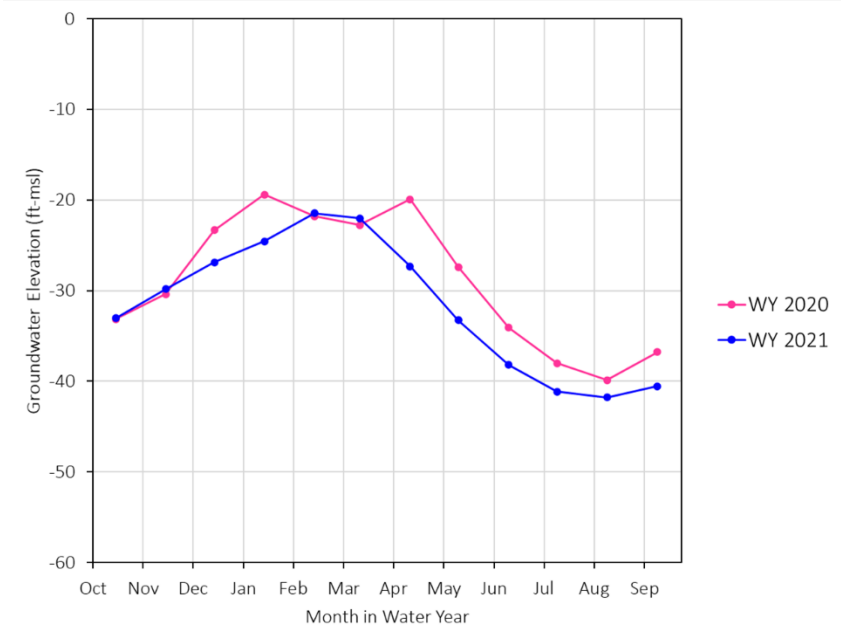

Figure 7. Average hydrographs for Deep Aquifer Wells, Paso Robles and Purisima combined (n=11)

Figure 8 shows the groundwater level hydrographs for WY 2020 and WY 2021 if the Paso Robles and Purisima wells were averaged together. The hydrographs show similar trends as the Paso Robles and Purisima set hydrographs. Average elevations by the end of WY 2021 were 40.6 feet below sea level. Over the last quarter, groundwater elevations have fallen 2.3 feet and are down 3.8 feet compared to September 2020.

4. Conclusion

The Paso Robles hydrographs display more seasonal variability in groundwater levels than the Purisima set and were 5 feet lower than groundwater elevations in the Purisima on average. That said, hydrographs for the Paso Robles and Purisima wells display similar trends across WY 2020 and 2021 (Figures 5 and 7). Given that the Paso Roble and Purisima set trends are still reflected in the combined set, the Staff recommends adding the single combined set of Deep Aquifers wells into the Quarterly Conditions report. A single set of wells would also allow for the addition of Deep Aquifers wells later on, as their period of record of data becomes sufficient.

Monterey County

Item No.4

Board of Supervisors
Chambers
168 W. Alisal St., 1st Floor
Salinas, CA 93901

Board Report

Legistar File Number: WRABMAC 21-085

November 03, 2021

Introduced: 10/26/2021 **Current Status:** Agenda Ready
Version: 1 **Matter Type:** WRA BMAC Item

Consider receiving the draft report *Salinas Valley Groundwater Usage: An Analysis of 25 Years of Groundwater Extraction Reporting*.

RECOMMENDATION:
It is recommended that the Monterey County Water Resources Agency Basin Management Advisory Committee:

Receive the draft report *Salinas Valley Groundwater Usage: An Analysis of 25 Years of Groundwater Extraction Reporting*.

SUMMARY:
MCWRA has collected groundwater extraction and water conservation information through the Groundwater Extraction Management System (GEMS) program since 1993. This Special Report analyzes the groundwater usage throughout the GEMS program area within the Salinas Valley over the last 25 years. While the annual summary reports summarize data submitted each reporting year, no long-term analysis of these data has been done. The focus of this report is to show trends in the amount of groundwater extracted and used over time, water and crop type use changes, and water conservation practices.

DISCUSSION:
Data collected and summarized from 25-years of GEMS reporting has shown that between 1995 and 2020 annual groundwater extractions have been 495,000 acre-foot a year (AFY) on average. Agricultural extractions have historically made us 91% of total groundwater extractions, with urban extractions accounting for the remaining 9%. Groundwater extractions exhibit some annual variability, which is weakly correlated with annual precipitation totals. Water deliveries to the CSIP project have averaged 20,040 AFY between 1999 and 2020. In years when the Salinas River Diversion Facility was online, groundwater extractions from the CSIP-Supplemental wells were 44% lower.

Information collection from the Water and Land Use forms shows that vegetables have accounted for 71% of the total reported acreage and 82% of the water usage, followed by grapes and then berries. While the net acreage of crops grown throughout the reporting area has increased, water efficiency has improved on average. Predominant irrigation methods have also changed over the period of record. The largest shift has been a 300% increase in the use of drip irrigation, and a decline in the sprinkler & furrow, furrow, and linear move methods.

Agricultural and Urban Water Conservation Plans have provided information on the implementation of

best management practices. For agricultural entities, top practices have included the use of time clocks or pressure switches, followed by water flowmeters on wells. For urban entities, top practices have included advising customers when a leak is possible on the customer's side of the water meter and implementing requirements that all new connections be metered and billed by volume of use.

Urban water usage data shows that industrial connections reported the highest AF/connection on average for large and small water systems. However, this doesn't include the agricultural irrigation connection class, which has reported higher AF/connection usage than the industrial connection class but wasn't introduced in the annual summary reports until 2016.

A draft of this full report is included as Attachment 1, with appendices included in Attachment 2.

OTHER AGENCY INVOLVEMENT:
None.

FINANCING:
There is no financial impact in receiving this report.
Funds 111, 116: Data Collection, Processing, Analysis and Reporting

Prepared by: Shaunna Murray, Senior Water Resources Engineer, (831) 755-4860
Tamara Voss, Associate Hydrologist, (831) 755-4860
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Approved by: Brent Buche, General Manager

Attachment 1: *Salinas Valley Groundwater Usage: An Analysis of 25 Years of Groundwater Extraction Reporting* - Draft Report
Attachment 2: *Salinas Valley Groundwater Usage: An Analysis of 25 Years of Groundwater Extraction Reporting* - Appendices

Monterey County

Item No.

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Chambers
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SALINAS VALLEY GROUNDWATER USAGE:

AN ANALYSIS OF 25 YEARS OF GROUNDWATER EXTRACTION REPORTING

Monterey County
Water Resources Agency

Special Report Series 21-01

November 2021

Salinas Valley Groundwater Usage: An Analysis of 25 Years of Groundwater Extraction Reporting

Special Report Series 21-01

November 2021

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DRAFT

Monterey County Water Resources Agency

Mission Statement
Manage water resources sustainably while minimizing impacts from flooding for present and future generations.

Vision Statement
Be recognized throughout the region as a leader in water resource management through demonstrated knowledge, integrity, and the quality of our actions.

Monterey County Water Resources Agency Board of Supervisors

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1. Introduction

1.1. Objective

The Monterey County Water Resources Agency (MCWRA or Agency) has collected groundwater extraction and water conservation information through the Groundwater Extraction Management System program since 1993. This Special Report analyzes the groundwater usage throughout the GEMS program area within the Salinas Valley over the last 25 years. The focus is to show trends in the amount of groundwater extracted and used over time, water and crop type use changes, and water conservation practices.

1.2. Background

1.2.1. GEMS Program

"Even though at times water may seem to be abundant, water that is usable to satisfy human need for residential, agricultural, commercial, industrial, and other purposes is diminishing in both quantity and quality. The natural replenishment and the artificial recharge taking place in Monterey County groundwater basins do not adequately restore the groundwater supply. The evaluation of actual water use figures will facilitate the determination of the management practices needed to curtail the threat to the public health, safety, and welfare created by an inadequate water supply" (MCWRA Ordinance No. 3660).

The Groundwater Extraction Management System (GEMS) is the Agency's groundwater extraction and water conservation data collection program. One purpose of the GEMS program is to provide the Agency with the most accurate water use information available to effectively manage groundwater resources in the basin. The Agency has been collecting groundwater extraction information since Report Year[1] 1993, Agricultural Water Conservation Plans since 1995, and Urban Water Conservation Plans since 1996. Data collected through the GEMS program are required by a series of MCWRA ordinances, which are outlined below. Copies of these ordinances are included in Appendices A-C.

<u>MCWRA Ordinance 3717 and 3718- Groundwater Extractions</u>
Adopted in October 1993, Ordinance 3717 requires groundwater extractors within Zones 2, 2A, and 2B (Figure 1) to report annual water use information from groundwater wells with a discharge pipe having an internal diameter greater than three inches to the Agency. In addition, Ordinance 3717 requires the installation of flowmeters on all wells and sets the due date for reports by February 15th of each year. Ordinance 3718, adopted in October 1993, amended Ordinance 3717 by adding standards for granting variances to the time limits requiring flowmeters on groundwater wells.

[1] The GEMS Reporting Year is November-October for agricultural wells, and January-December for urban wells

MCWRA Ordinance 3851- Agricultural Water Conservation Plans

Ordinance 3851 requires all agricultural growers farming property in Zones 2, 2A, and 2B to file plans showing water conservation measures implemented in the previous and upcoming years. Ordinance 3851 was adopted in December 1995 and requires reports to be submitted to the Agency by February 15th of each year.

MCWRA Ordinance 3886- Urban Water Conservation Plans

Created as an urban counterpart to Ordinance 3851, Ordinance 3886 requires all cities and urban water purveyors in Zones 2, 2A, and 2B to file plans showing water conservation measures implemented in the previous and upcoming years. Ordinance 3886 was adopted in September 1996 and requires reports to be submitted to the Agency by February 15th of each year.

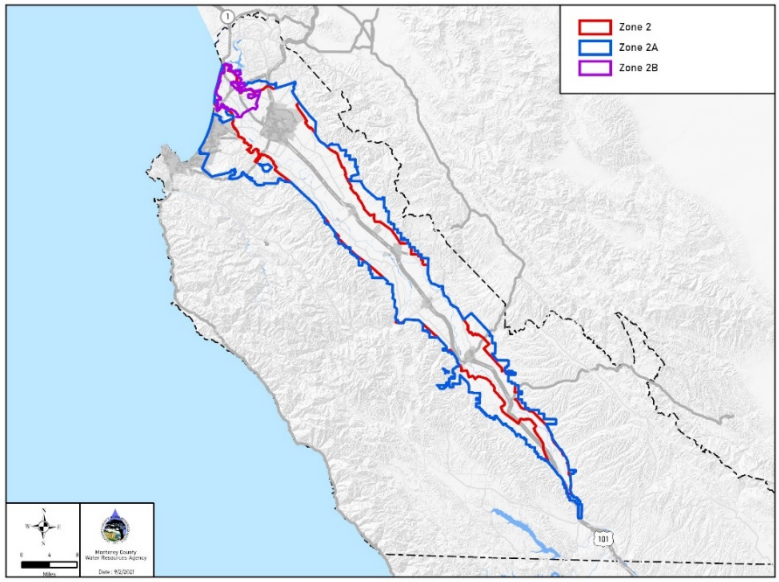
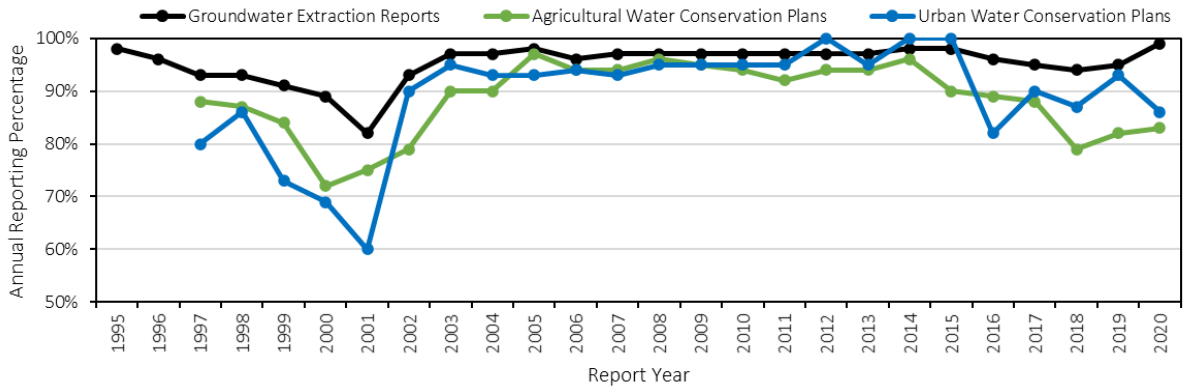


Figure 1. GEMS Reporting Boundary: MCWRA Zones 2, 2A and 2B

There are currently three methods for reporting groundwater extraction information: flowmeter method, electric meter method, and hour meter method. The monthly and annual volume of water extracted is calculated from monthly meter readings submitted to the Agency by the well owner/operator.

All data collected through the GEMS program is self-reported by agricultural and urban entities. Every year, Agency staff performs several outreach efforts to well owners and operators to maintain a high reporting compliance. Reporting compliance varies year to year, but on average, the Agency has received 95% of groundwater extraction reports, 88% of Agricultural Water Conservation Plans, and 89% of Urban Water Conservation Plans (Figure 2). The Agency maintains a strict quality assurance process in the entry, compilation, and standardization of data received. While the Agency makes every effort to ensure the accuracy of the data collected and presented in annual summary reports and in this review,

changes to historical data may have occurred due to submittals received after due dates or after the generation of summary reports.



Data collected through the GEMS program each reporting year is summarized and released in an Annual Summary Report. These reports summarize information from the water conservation plans and extractions within the four main subareas in the GEMS reporting boundary. Sections 1.2.4-1.2.7 include an overview of the four subareas, their geographic extent, and a brief hydrogeologic review. It is worth noting that the GEMS subareas are not the same as the Salinas Valley subbasin boundaries defined in CA Bulletin 118.

1.2.2. Zones 2 and 2A

The GEMS reporting boundary consists of MCWRA Zones 2, 2A and 2B (Figure 1). Zones 2 and 2A were assessment zones used to fund the operation and maintenance of Nacimiento and San Antonio Dams and Reservoirs. In 2003, Zone 2C was created to fund the Salinas Valley Water Project and reservoir operations and eliminated the existing Zone 2 and 2A standby and availability charges. However, the GEMS ordinances were adopted prior to 2003 and were never revised to extend the reporting boundary to Zone 2C.

1.2.3. Zone 2B and CSIP

MCWRA initiated the Monterey County Water Recycling Projects to provide a replacement water supply for the approximately 12,000 acres of farmland in the Castroville Seawater Intrusion Project (CSIP) service area to help address seawater intrusion in the coastal region. The assessment zone, Zone 2B, which is coincident with the CSIP service area, was created to fund the project (Figure 3).

CSIP initially received a mix of reclaimed water from the Salinas Valley Reclamation Project (SVRP), supplemented by groundwater extractions from MCWRA owned CSIP-Supplemental wells. A third water source to CSIP was introduced in 2010 when the Salinas River Diversion Facility (SRDF) went online. The SRDF was one component of the Salinas Valley Water

Project (SVWP), along with the modification of the Nacimiento spillway and reoperation of the reservoirs.

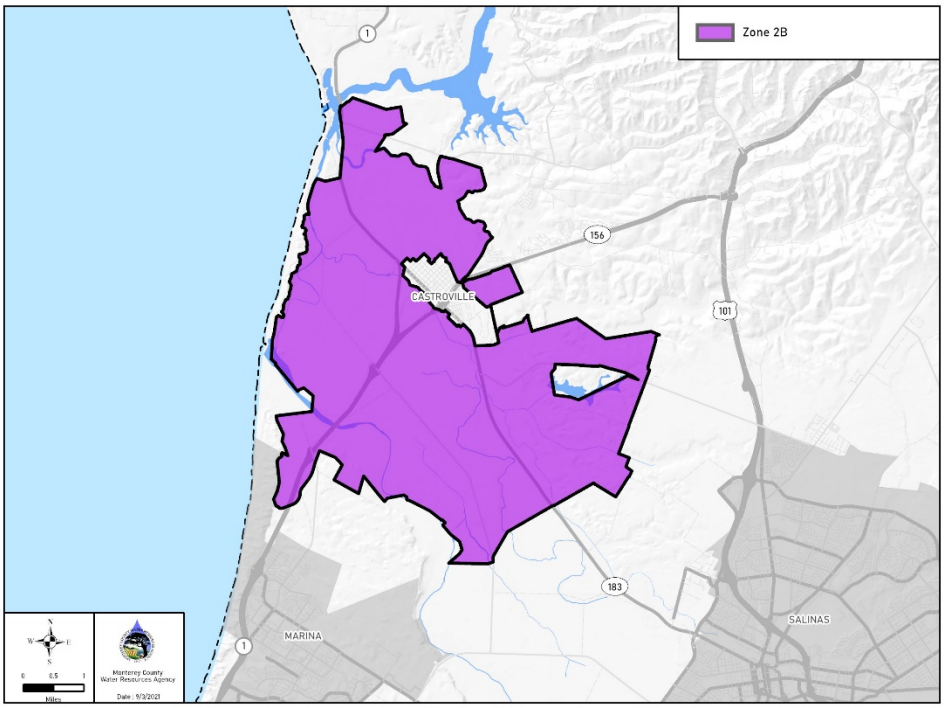


Figure 3. MCWRA Zone 2B

1.2.4. Pressure Subarea

Overall, the Pressure subarea covers 181 square miles (Figure 4). The subarea is bordered by the East Side Subarea to the northeast, roughly along Highway 101, and the Forebay Subarea to the south, beginning around Gonzales. Monterey Bay defines the northwest boundary. The Pressure Subarea roughly covers a similar extent as the 180/400-Foot Aquifer, Monterey, and Seaside subbasins, as defined by CA Bulletin 118.

The Pressure Subarea has three primary aquifer units: the 180-Foot Aquifer, the 400-Foot Aquifer, and the Deep Aquifers. Clay or clay and sand aquitards separate the aquifers. The series of aquifers and aquitards results from the sea level rising and falling over the past few million years, resulting in alternating periods of estuarine and fluvial deposits (Kennedy/Jenks, 2004). Additionally, there is a fourth aquifer unit, the Shallow Aquifer, which is located near the ground surface but is laterally discontinuous and is limited in both the quantity and quality of water available. Recharge to the 180-Foot and 400-Foot Aquifers predominately comes from underflow from recharge occurring in the Forebay Subarea (DWR, 2004; Harding ESE, 2001). However, isotope data from Deep Aquifers wells indicates that groundwater was recharged 25,000 to 30,000 years before present and may not be actively recharging (Hanson, R.T., et al., 2002).

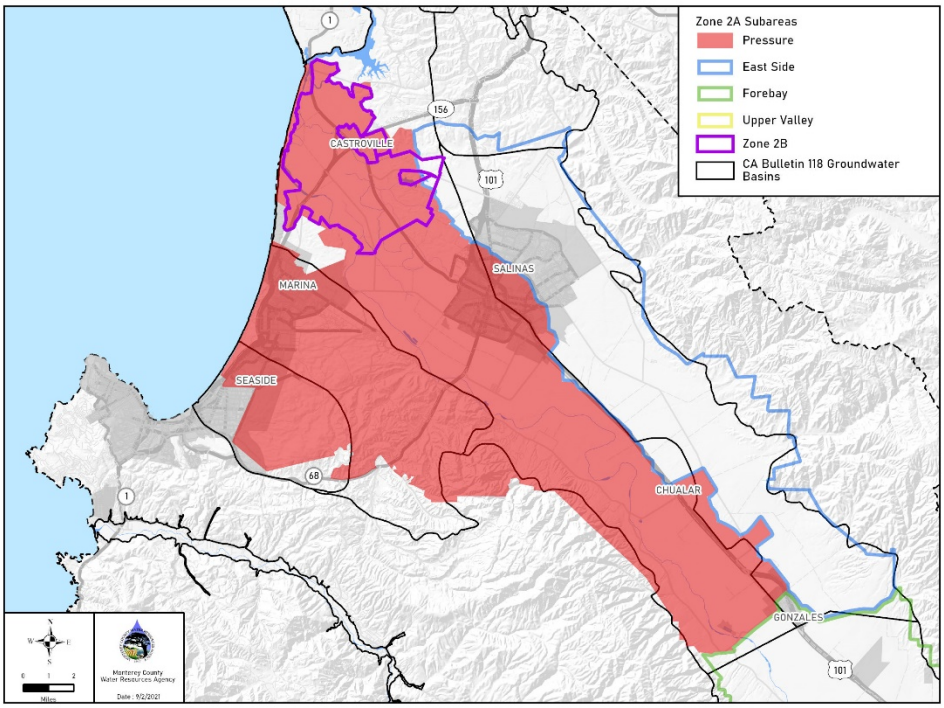


Figure 4. Zone 2A Pressure Subarea

The Pressure Subarea aquifers are in direct hydrologic connection with Monterey Bay. Groundwater elevations in these aquifers have historically been drawn below sea level from over pumping, creating a landward groundwater gradient which led to regional seawater intrusion in the 180-Foot and 400-Foot Aquifers. Additionally, a downward vertical gradient between the two aquifers, combined with gaps in the aquitard and damaged or improperly constructed wells, has led to inter-aquifer seawater intrusion from the overlying 180-Foot Aquifer into the 400-Foot Aquifer (MCWRA, 2017). In 2020, the extent of seawater intrusion in the 180-Foot Aquifer was 28,358 acres and 18,403 acres in the 400-Foot Aquifer (or 44.3 and 28.7 square miles, respectively).

1.2.5. East Side Subarea

The East Side Subarea, shown in Figure 5, covers 100 square miles. The Gabilan Range borders the subarea along the northeast edge, the Pressure Subarea along the southwest edge, and the Forebay Subarea to the south, beginning around Gonzales. The East Side Subarea covers a similar extent as the East Side Subbasin defined by CA Bulletin 118.

Several alluvial fans built up by streams draining the Gabilan Range resulted in thin, discontinuous, poorly bedded sequences of clays, sands, silts, and gravels in the East Side Subarea (MCFCWCD, 1960; Kennedy/Jenks, 2004). While the fluvially generated aquifers in the Pressure Subarea are not seen in the East Side Subarea, sediments in both subareas can

be correlated by stratigraphically equivalent zones (Kennedy/Jenks, 2004). The transition zone between the Pressure and East Side Subareas shifts from predominately fluvial to alluvial fan deposits (Kennedy/Jenks, 2004). The flow of groundwater, which preferentially moves along geologic pathways allowing for the easier movement of water, is restricted (but not absent) across this transition zone due to the discontinuous and layered nature of sediments through the boundary. As a result, groundwater recharge predominately occurs through percolation of streams draining the Gabilan Range (Kennedy/Jenks, 2004).

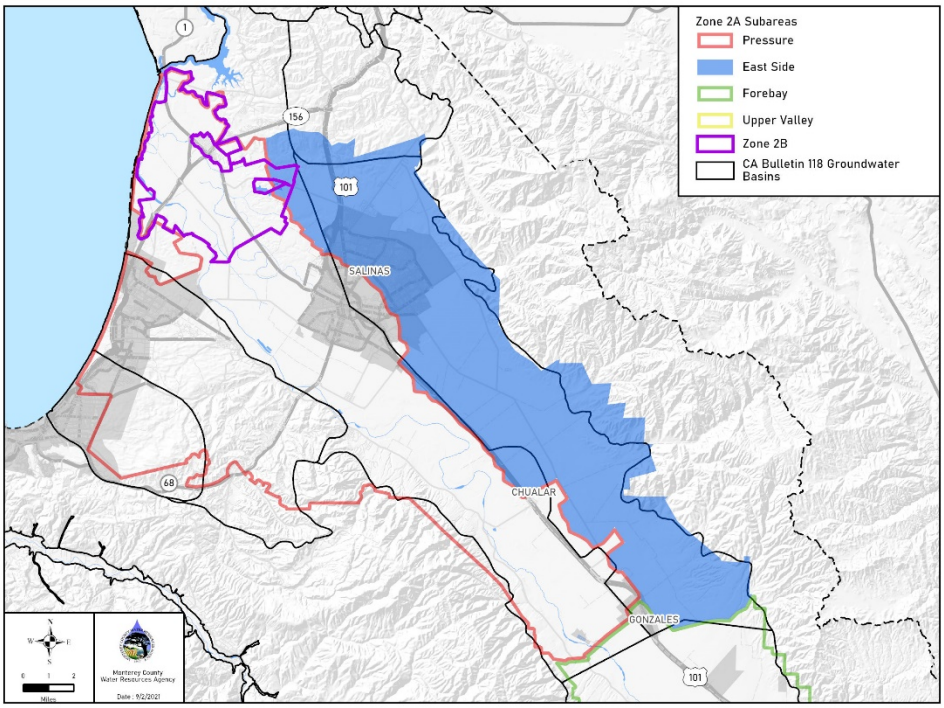


Figure 5. Zone 2A East Side Subarea

1.2.6. Forebay Subarea

The Forebay subarea covers 122 square miles overall (Figure 6). The subarea is bordered by the Pressure and East Side Subareas to the northwest, beginning around Gonzales, and the Upper Valley Subarea to the southeast, just south of Greenfield. The Gabilan Range borders the Forebay along the northeast edge and the Sierra de Salinas makes up the border to the southwest. The Arroyo Seco River, whose watershed is in the Sierra de Salinas, drains into the Salinas River in the Forebay.

The Forebay Subarea consists of fluvial and marine deposits of the Salinas Valley and alluvial fan deposits from the Arroyo Seco River. The fluvial and marine sediments in the Forebay are stratigraphically equivalent to those seen in the Pressure Subarea; however, the confining unit and Salinas Valley aquitard do not extend into the Forebay (MCWRA, 2006).

Groundwater in the Forebay Subarea is unconfined and predominately exists in sand and gravel lenses that are interbedded with finer material (DWR, 2004). The alluvial fan deposits from the Arroyo Seco River, referred to as the Arroyo Seco Cone, are coarser than the fluvial and marine deposits of the Salinas Valley. Groundwater recharge in the Forebay Subarea predominately comes from infiltration from the Salinas and Arroyo Seco Rivers.

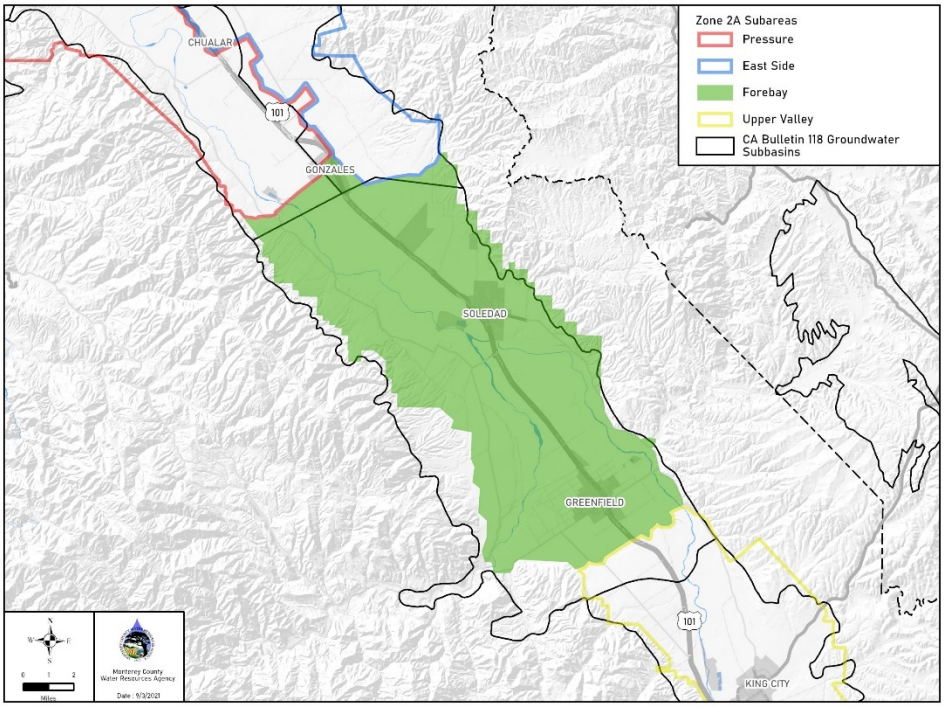


Figure 6. Zone 2A Forebay Subarea

1.2.7. Upper Valley Subarea

The Upper Valley Subarea, shown in Figure 7, covers 152 square miles. The Subarea is bordered by the Forebay Subarea to the north, beginning just south of Greenfield, and extends a few miles south of San Ardo. The Gabilan and Sierra de Salinas ranges border the Subarea along the northeast and southwest edges, respectively. The Upper Valley Subarea covers a much smaller area than the CA Bulletin 118 Upper Valley Subbasin. These were similar in extent in previous CA Bulletin 118 updates, but a jurisdictional boundary revision in 2018 extended the Upper Valley Subbasin to include Hames Valley and portions up to the Monterey and San Luis Obispo County line.

Aquifer units in the Upper Valley are unconfined and consist of unconsolidated gravels and sands from river and alluvial fan deposits (DWR, 2004; MCWRA, 2006). Recharge to the Upper Valley sediments occurs predominately from infiltration from the Salinas River.

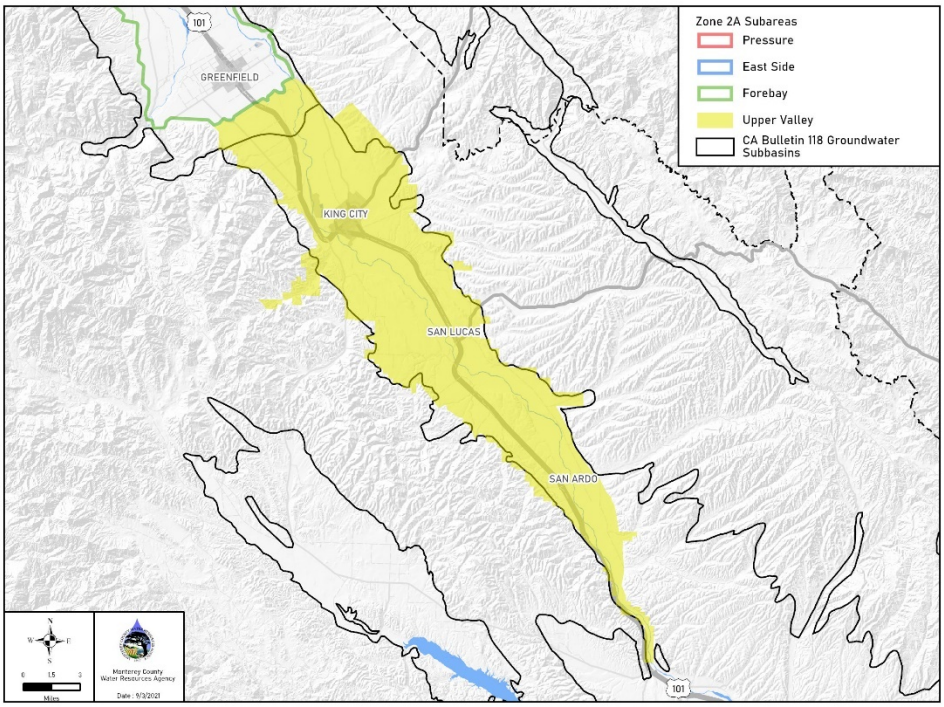


Figure 7. Zone 2A Upper Valley Subarea

1.2.8. Area of Impact

The Area of Impact was first defined in the 2017 report *Recommendations to Address the Expansion of Seawater Intrusion in the Salinas Valley Groundwater Basin* (2017 Recommendations Report). The 2017 Recommendations Report was published by the Agency in response to a request by the Board of Supervisors of the County of Monterey, Board of Supervisors to the Monterey County Water Resources Agency, and Water Resources Agency Board of Directors (Joint Boards) to present recommendations that, if implemented, would slow or halt the further advancement of seawater intrusion.

After the 2017 *Recommendations* Report was released, the Joint Boards directed staff to convene a 90-Day Working Group focused on developing an interim urgency ordinance to address the issues in the report. The 90-Day Working Group's recommendations were presented to the Joint Boards on April 24, 2018, at which point Staff was directed to return to the Monterey County Board of Supervisors with an ordinance for a temporary moratorium on drilling new wells in the 180-Foot and 400-Foot within a redefined Area of Impact, shown in Figure 8, and a temporary moratorium on drilling of new wells in the Deep Aquifers[2].

[2] The temporary ordinance included exceptions for replacement wells, domestic wells, and municipal supply wells.

Monterey County Ordinance 5302 was adopted May 22, 2018 and was extended by Ordinance 5303 on June 26, 2018. Ordinance 5303 expired on May 21, 2020.

The Area of Impact encompassed the portion of the 180/400-Foot Aquifer and Monterey Subbasins in which chloride concentrations in the 180-Foot or 400-Foot Aquifers were 250 mg/L or greater, based on data from 2015. The 250 mg/L metric was used to delineate portions of the groundwater basin considered vulnerable due to the presence of pathways and conduits in which seawater intrusion could advance.

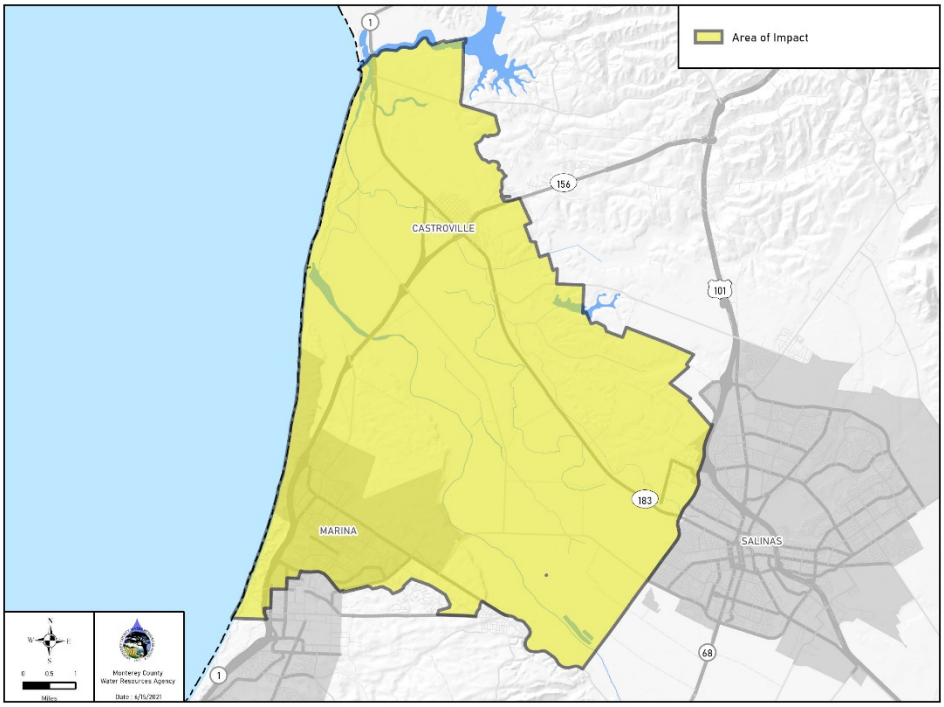


Figure 8. Area of Impact as defined by Ordinance 5302

1.2.9. Methods in this Report

Trends over time are discussed throughout this report. All trends were determined using a linear interpolation over the entire time series, with rates calculated from slope of the interpolation.

2. Groundwater Extractions (1995-2020)

From 1995 to 2020, annual extractions for all subareas averaged 495,000 acre-feet per year (AFY). Total annual extractions ranged from 441,050 AF (1998) to 598,100 AF (1997). On average, the Pressure Subarea reported 24% of total annual extractions, the East Side Subarea reported 20% of total annual extractions, the Forebay Subarea reported 29% of total annual extractions, and the Upper Valley Subarea reported 27% of total annual extractions (Figure 9).

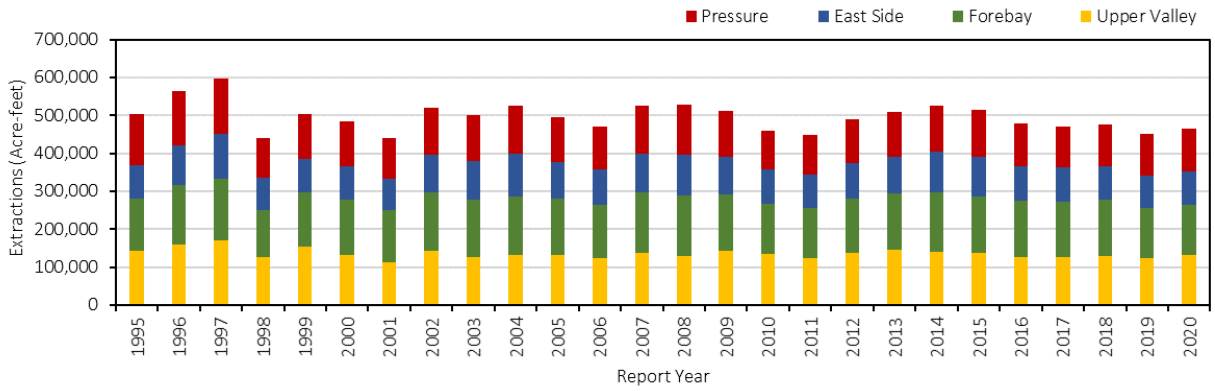


Figure 9. Annual Groundwater Extractions, by Subarea

On an average annual basis, agricultural extractions make up 91% of total extractions (450,850 AFY) and urban extractions account for 9% (43,920 AFY) (Figure 10). Even with varying annual extraction totals, this percentage has remained relatively constant over the period of record. The highest annual agricultural extraction total was 551,900 AF (1997) and the highest annual urban extraction total was 53,000 AF (2004).

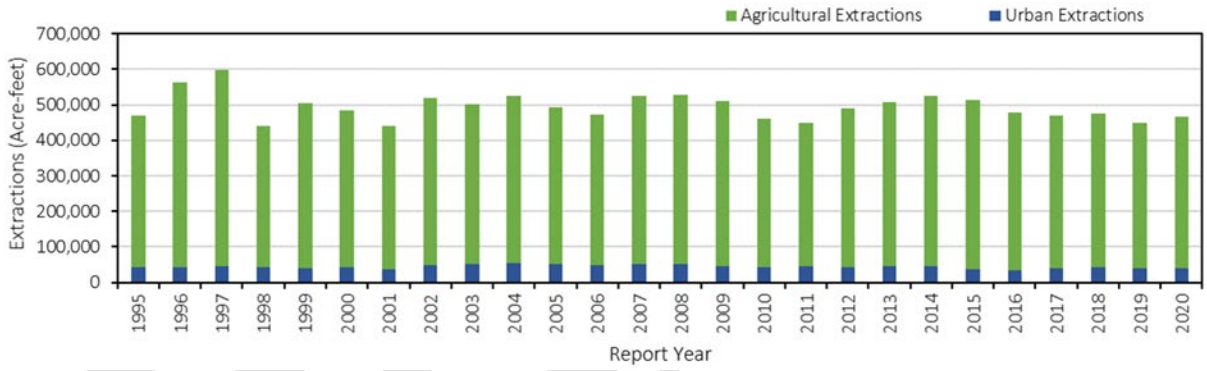


Figure 10. Annual Groundwater Extractions, by type

Variability in annual extractions is seen throughout the period of record. There is a slight negative correlation between the annual amount of groundwater extracted and annual precipitation at the Salinas Airport station (Figure 11). Wetter periods, such as 1998 or 2010-2012, roughly correlate with years with lower reported annual extractions. Drier periods, such as 2007-2009 or 2013-2015, roughly correlate with years with higher annual extractions reported. This correlation is apparent when comparing agricultural extractions to annual precipitation, but not with urban extractions.

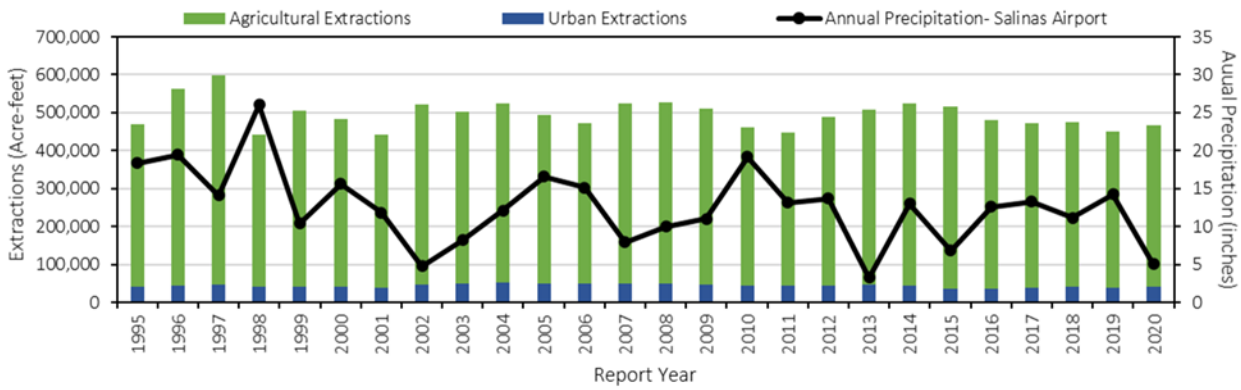


Figure 11. Annual Groundwater Extractions versus Annual Precipitation at the Salinas Airport Station

2.1. Urban Extractions

Urban extractions include those made for single or multi-family residential, commercial, industrial, or governmental usage. Urban extractions don't include most private domestic extractions since only wells with an internal discharge pipe diameter of three inches or greater must report to the GEMS program. Between 1995 and 2020, average annual urban extractions were 43,920 AFY (Figure 12). Though there is some variability over the period of record, there is no notable correlation between annual urban extractions and annual precipitation totals.

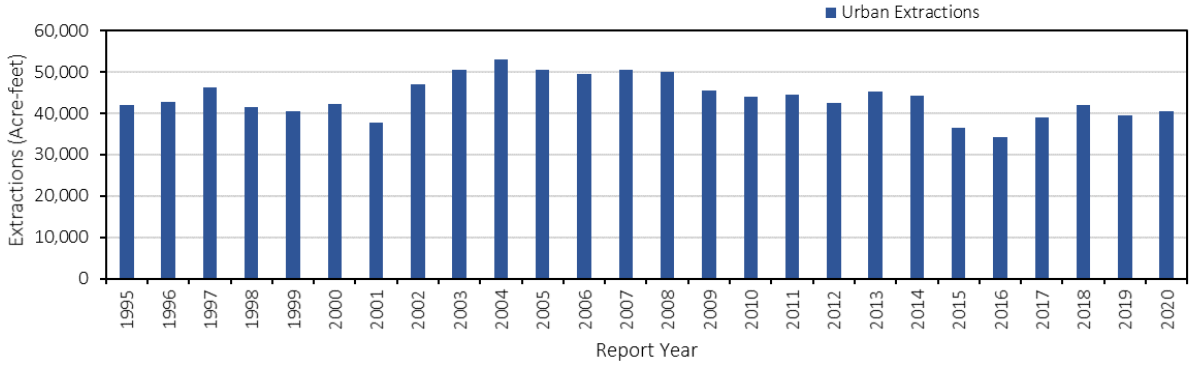


Figure 12. Urban Extractions between 1995 and 2020

Figure 13 shows the distribution of urban groundwater extractions by cities or other areas (OA) in the GEMS reporting area. Over the period of record, Salinas has accounted for 46% of overall urban extractions, followed by other users in the Pressure Subarea (9.6%), then Marina (9.2%). Most cities or areas have remained stable or seen a slight decrease in annual extractions over the period of record, except OA-East Side. Time series data for individual cities or other areas can be found in Appendix D.

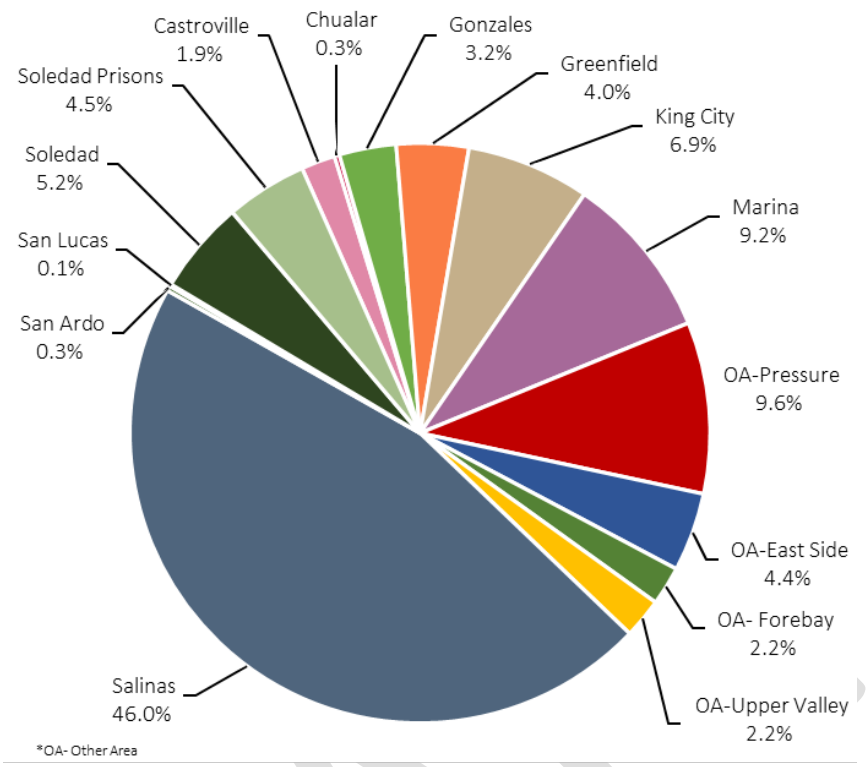


Figure 13. Average Distribution of Urban Extractions, by City or Other Areas

2.2. Pressure Subarea

Groundwater extractions from the Pressure Subarea are shown in Figure 14. Average annual extractions in the Pressure Subarea were 118,850 AFY. Agricultural extractions averaged 98,930 AFY (83% of total) and urban extractions averaged 19,920 AFY (17% of total). Over the period of record, both agricultural and urban extractions decreased an average of 370 AFY.

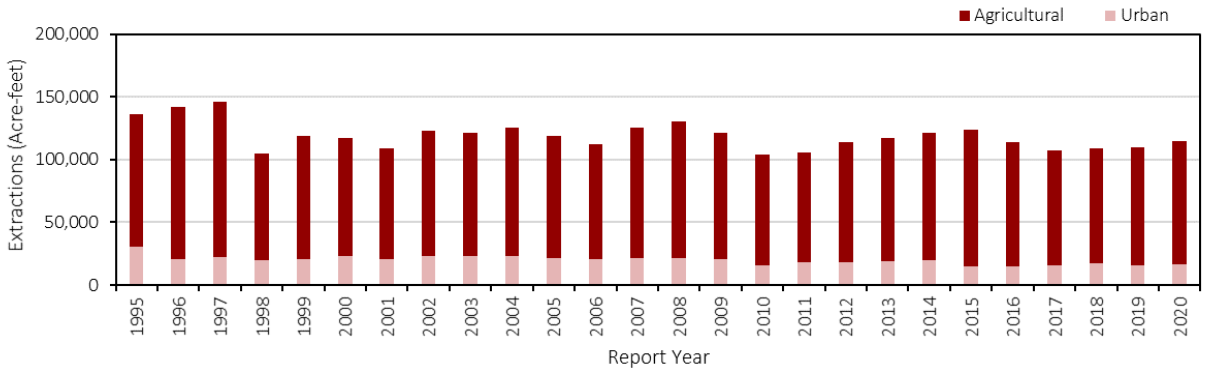


Figure 14. Groundwater Extractions from the Pressure Subarea, by type

For the period of record, an average of 48% of total Pressure Subarea extractions were from the 400-Foot Aquifer, 23% were from wells with unknown construction, 22% from wells in

the 180-Foot Aquifer, 4% from Deep Aquifers wells, and 4% from Dual-Screened wells (Figure 15). "Dual-Screened" consists of wells screened in both the 180-Foot and 400-Foot Aquifers. "Pressure Unknown" consists of wells with unknown construction information. Trends in extractions from each of these aquifers are discussed more in the following sections.

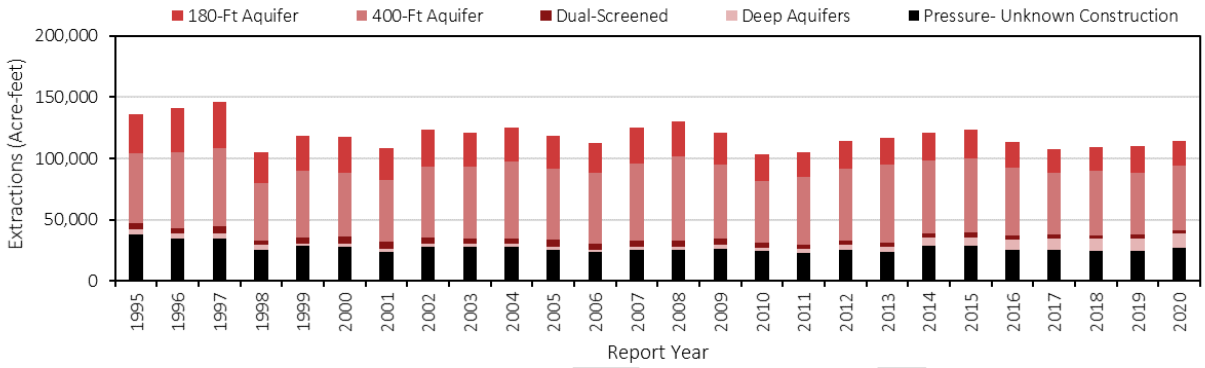


Figure 15. Groundwater Extractions from the Pressure Subarea, by Aquifer

2.2.1. 180-Foot Aquifer Extractions

Between 1995 and 2020, there has been a decreasing trend in the total extractions from the 180-Foot Aquifer, averaging 550 AFY (Figure 16). On average, agricultural usage accounted for ninety-seven percent of extractions from the 180-Foot Aquifer.

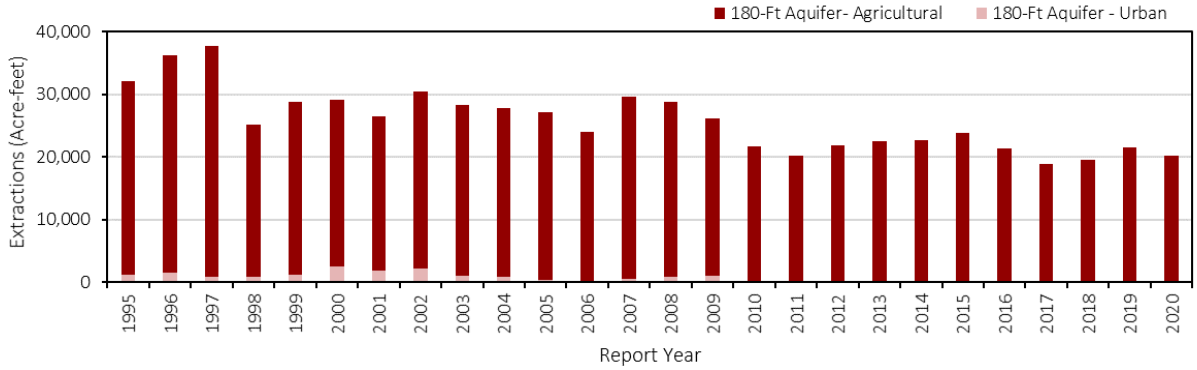


Figure 16. Groundwater Extractions from the 180-Ft Aquifer, by Type

2.2.2. 400-Foot Aquifer Extractions

Figure 17 breaks down groundwater extractions from the 400-Foot Aquifer into agricultural and urban use. On average, agricultural usage accounted for 79% of extractions, and urban usage 21%. Agricultural extractions from the 400-Foot Aquifer have slowly increased over the period of record by an average of 100 AFY. Urban extractions remained constant between 1995 and 2014, decreased in 2015, and remained stable from 2015-2020.

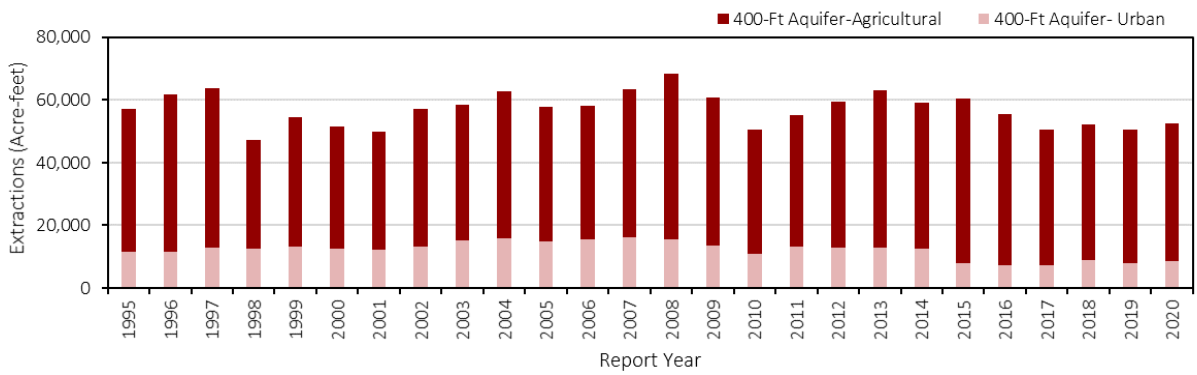


Figure 17. Groundwater Extractions from the 400-Ft Aquifer, by Type

2.2.3. Dual Screened Well Extractions

Agricultural extractions from wells dual-screened in the 180-Foot and 400-Foot Aquifers have remained constant over the period of record (Figure 18). However, urban extractions have decreased at 100 AFY, on average.

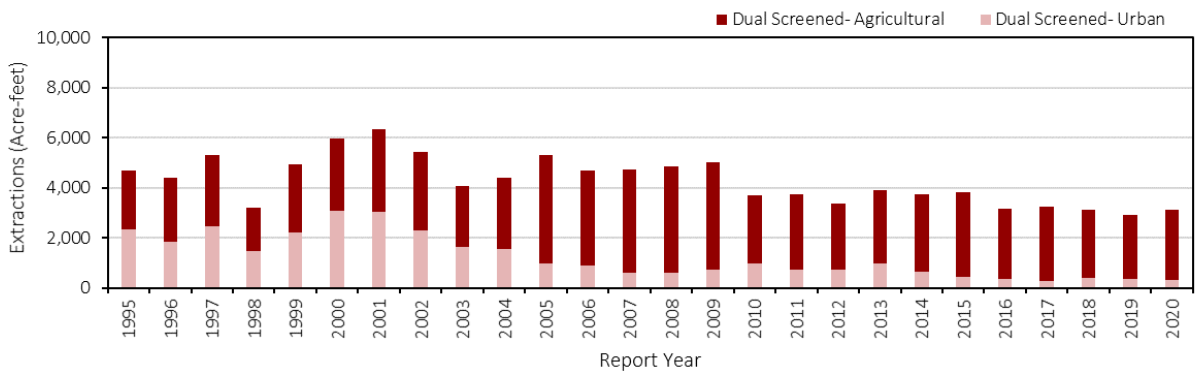


Figure 18. Groundwater Extractions from Dual-Screened wells, by Type

2.2.4. Deep Aquifers Extractions

Extractions from the Deep Aquifers of the Pressure Subarea can be seen in Figure 19. The only agricultural extractions reported from 1995-1998 were occurring within Zone 2B. These ceased after 1998 following the start-up of the CSIP project. Zero agricultural extractions were reported from the Deep Aquifers until 2007, when new wells drilled outside of Zone 2B began reporting extractions. Since 2007, agricultural extractions from the Deep Aquifers have been increasing by over 500 AFY on average. Urban extractions from the Deep Aquifers remained constant from 1995 to 2013, doubled in 2014, and remained steady since then.

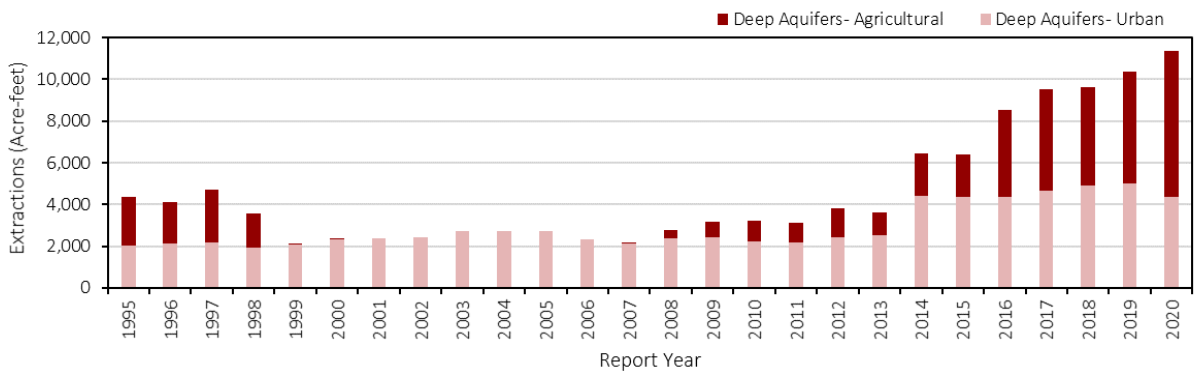


Figure 19. Groundwater Extraction from the Deep Aquifers, by Type

2.3. East Side Subarea

Between 1995 and 2020, total extractions from the East Side Subarea averaged 96,390 AFY (Figure 20). Agricultural extractions averaged 83,370 AFY (86% of total) and urban extractions averaged 13,020 AFY (14% of total). East Side extractions show a slightly decreasing trend over the period of record, a net result of agricultural extractions reducing by 380 AFY and urban extractions increasing by 165 AFY on average.

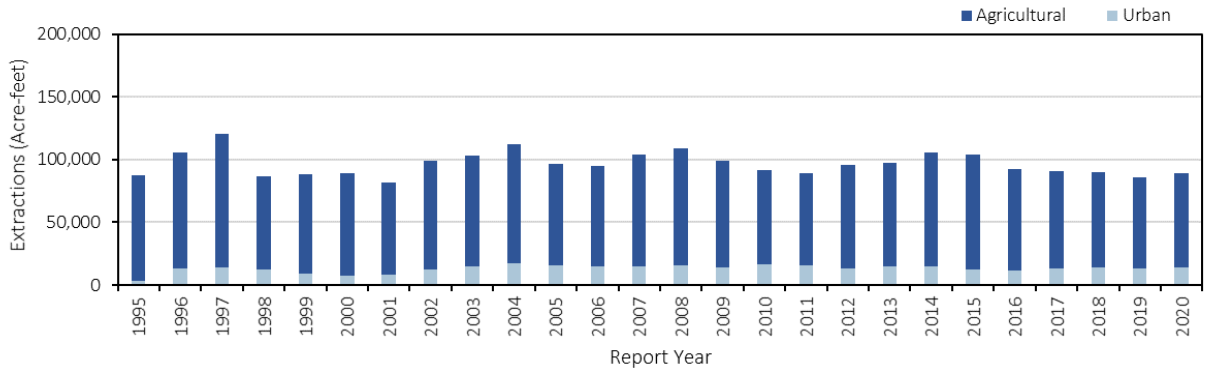


Figure 20. Groundwater Extractions from the East Side Subarea, by type

2.4. Forebay Subarea

The average annual groundwater extraction total from the Forebay Subarea from 1995-2020 was 145,490 AFY (Figure 21). Agricultural extractions were 138,480 AFY on average (95% of total), and urban extractions were 7,010 AFY on average (5% of total). Overall, there has been a slight decrease in annual extractions over the period of record, with urban extractions remaining constant and agricultural extractions decreasing at an average rate of 260 AFY.

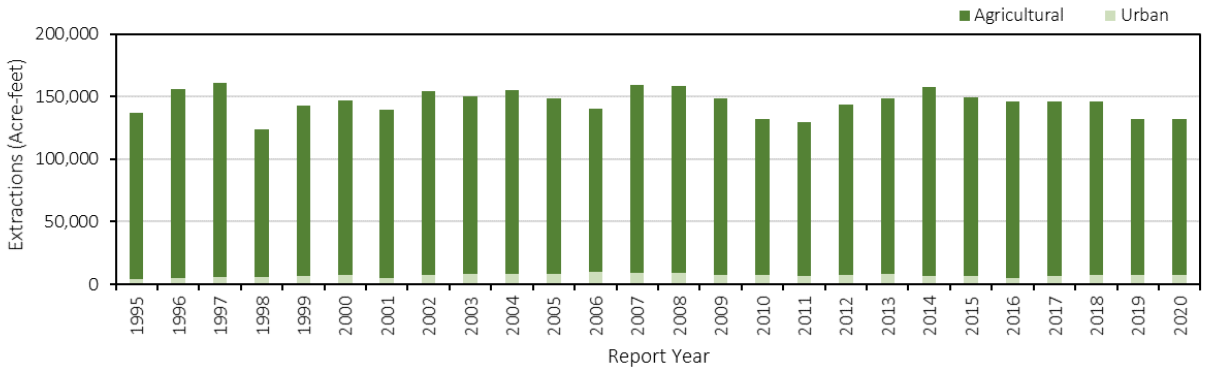


Figure 21. Groundwater Extractions from the Forebay Subarea, by type

2.5. Upper Valley Subarea

Total annual extractions from the Upper Valley between 1995 and 2020 averaged 135,410 AFY (Figure 22). Of this, 97% was agricultural reported extractions (131,440 AFY on average), and 3% was urban reported (3,970 AFY on average). Overall, Upper Valley extractions have decreased at a rate of 640 AFY over the period of record. This reduction was seen in both agricultural and urban extractions, decreasing at 600 and 40 AFY on average, respectively.

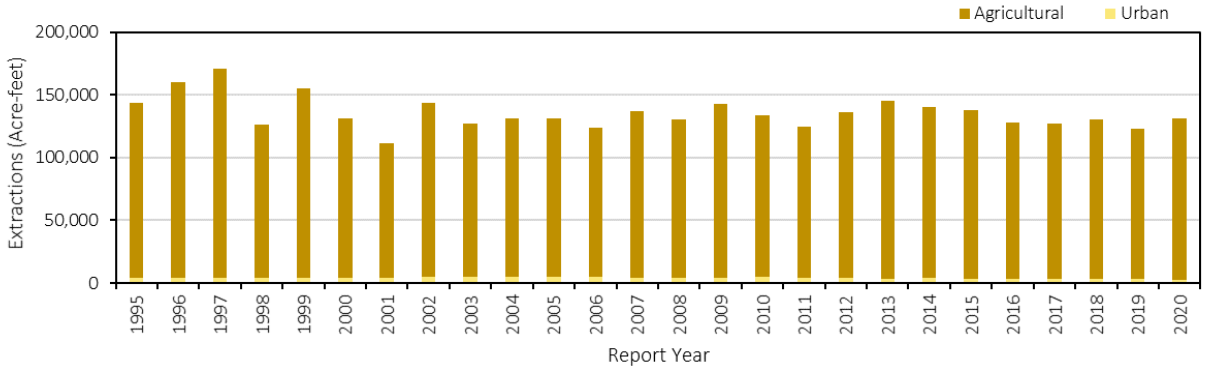


Figure 22. Groundwater Extraction from the Upper Valley Subarea, by type

3. CSIP Water Usage (Zone 2B)

3.1. Castroville Seawater Intrusion Project

The Castroville Seawater Intrusion Project (CSIP) has been delivering recycled water to growers near Castroville since 1998 to reduce groundwater pumping near the coast and slow the advancement of seawater intrusion in the coastal aquifers. On average, 20,040 AFY was delivered to the CSIP distribution system between 1999 and 2020, with different proportions of recycled, river and supplemental groundwater extractions (Figure 23). 1998 is not included in the average because it was the first year of the project and was not a full

year of operation. The amount of delivered water has been slowly increasing at a rate of 190 AFY on average. There is seasonal variability in the amount of water supplied to CSIP, with a moderate negative correlation in the amount of CSIP delivered water and annual precipitation at the Salinas Airport station, similar to the correlation between valley-wide groundwater extractions and precipitation.

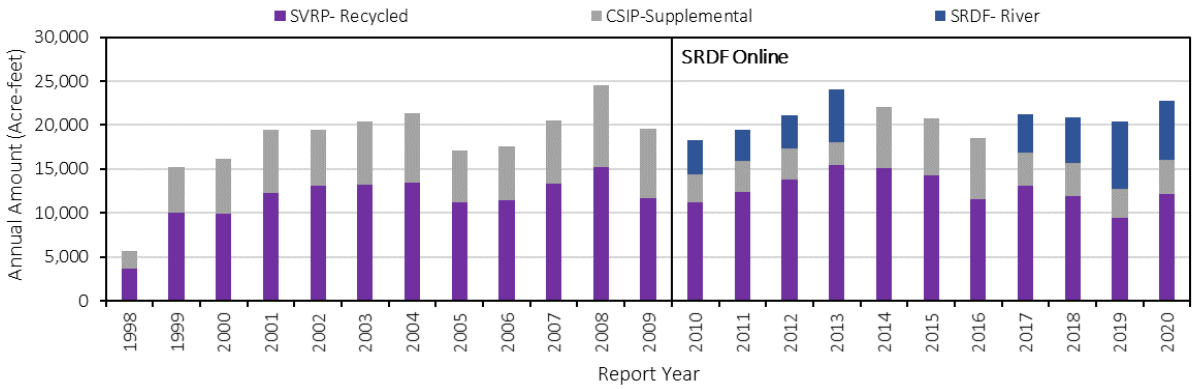


Figure 23. CSIP Delivered Water, by Source

3.2. SVRP Treated Water

Between 1998 and 2020, the SVRP provided an average of 12,140 AFY to the CSIP system (63% of the delivered project water). There is no noticeable trend in the amount of SVRP treated water delivered between 1998 and 2020. Still, seasonal variability is seen and can be correlated with annual precipitation totals at the Salinas Airport.

3.3. SRDF Diverted Water

The SRDF came online in 2010, delivering a third water source to growers in the CSIP area. Between 2014 and 2016, the SRDF was non-operational due to a lack of reservoir releases that resulted from the 2012-2016 drought. In years when the SRDF was operational, 5,100 AFY (24% of the delivered project water) was diverted from the river. This additional water source allowed for a 44% reduction of extractions from CSIP supplemental wells, which helps slow the advancement of seawater intrusion in the coastal aquifers.

3.4. CSIP-Supplemental Well Extractions

Extractions from CSIP supplemental wells makes up one of the three sources of water to CSIP. The amount of extraction from CSIP supplemental wells is highly dependent on SRDF operations, though pumping from the supplemental wells is sometimes conducted for CSIP operations purposes, such as to maintain pressure in the system. Groundwater extractions from CSIP supplemental wells averaged 6,600 AFY in years when the SRDF was not online, compared to 3,450 AFY in years when the SRDF was operational. This difference equated to a 44% reduction in groundwater extractions in years when the SRDF was available to deliver water.

3.5. Additional Groundwater Extractions in Zone 2B

MCWRA Ordinance No. 3790 *"…provides for the management of all groundwater wells within the Castroville Seawater Intrusion Project area, known as Zone 2B, following completion and start-up of the Castroville Seawater Intrusion Project. It prohibits and otherwise restricts pumping from groundwater wells in Zone 2B, and it provides for the classification of the various wells…"* among other actions. Classification of a well as a "standby well" allows for well owners to maintain their wells following the start-up of CSIP and operate these wells under certain circumstances *"…as an additional assurance that an adequate water supply will be available at all times."*

Groundwater extractions from private wells are still occurring within Zone 2B. Figure 24 shows the additional pumping in Zone 2B, compared to the other water sources within the CSIP distribution system. On average, private wells in Zone 2B extracted 1,600 AFY from 1998 to 2020. However, extractions have ranged from 3,510 AF (1998) to 700 AF (2020). Since 1998, as many as 46 individual wells reported extractions in Zone 2B; though this declined to only 11 individual wells that reported extractions in 2020.

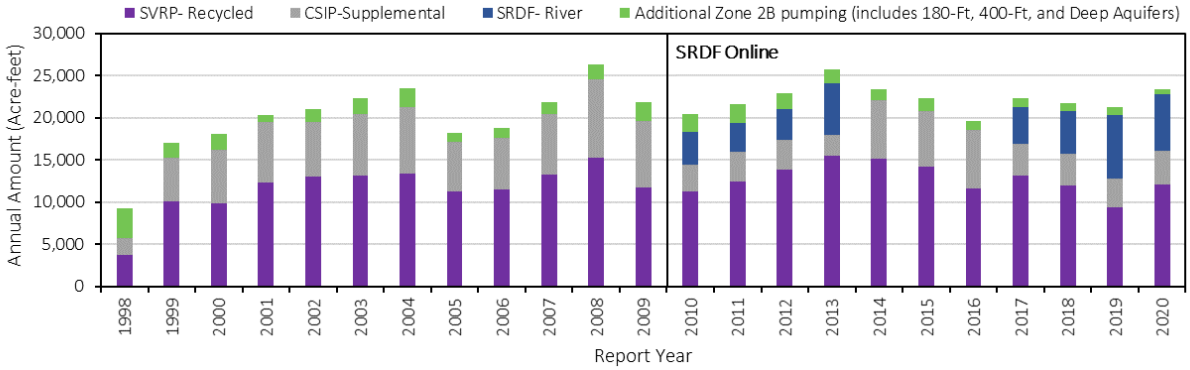


Figure 24. Zone 2B Water Usage, by Source

Extractions from individual (non-supplemental) wells in Zone 2B come primarily from the 400-Foot or East Side Deep Aquifers (83%), with 15% extracted from the Deep Aquifers of the Pressure Subarea, and 2% from 180-Foot Aquifer wells (Figure 25). One well has insufficient construction information to associate it with a specific aquifer unit, but for Figure 25 is grouped with extractions from the 400-Foot Aquifer. There are no dual-screened wells reporting extractions in Zone 2B. The large amount of private extractions over the first few years of the project is due to the phasing in of turnouts before all growers started using CSIP system water.

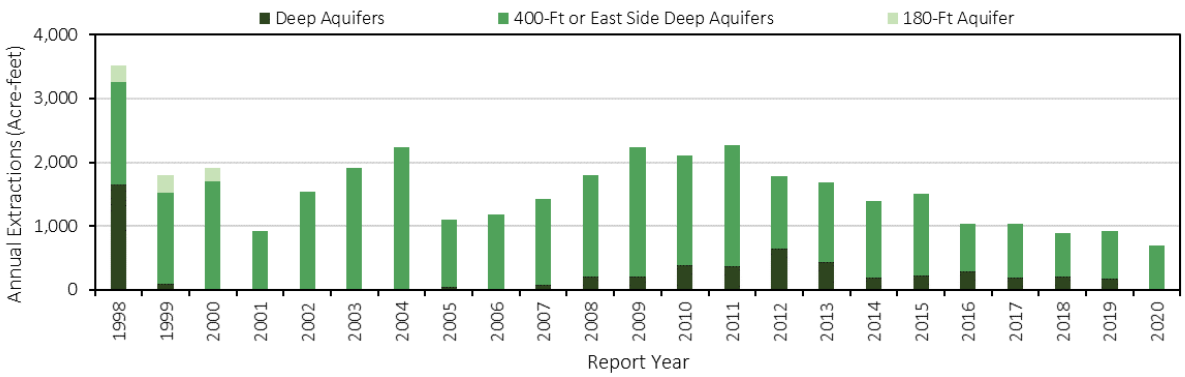


Figure 25. Additional Zone 2B Extraction, by Aquifer

As discussed in the *Recommendations to Address the Expansion of Seawater Intrusion in the Salinas Valley Groundwater Basin: 2020 Update* (2020 *Recommendations* Report), proposed CSIP project efficiencies, such as scheduling water delivery, could eliminate the need for groundwater extractions from private wells within the Zone 2B Boundary.

4. Extractions in the Area of Impact

As discussed in Section 1.2.8, the Area of Impact encompasses the area in which chloride concentrations in the 180-Foot or 400-Foot Aquifers were 250 mg/L or greater, based on data from 2015. This area is considered vulnerable due to pathways, conduits, and a vertical downward gradient that could allow seawater intrusion to migrate from the 180-Foot Aquifer into the 400-Foot Aquifer.

Groundwater extractions in the Area of Impact have averaged 32,680 AFY between 1995 and 2020. Figure 26 shows the breakdown of extractions by aquifer unit. On average, 53% of extractions were reported from the 400-Foot Aquifer, followed by 13% from wells with unknown construction and 11% from wells screened in the Deep Aquifers. Since 2015, there has been a decline in overall extractions from the Area of Impact at a rate of 1,610 AFY. Most of this decline was seen in 400-Foot Aquifer extractions; however, extractions from wells in the East Side, 180-Foot Aquifer, dual-screened wells, and wells with unknown construction also decreased. The one exception is extractions from the Deep Aquifers, which since 2015 have increased at a rate of 1,020 AFY on average. By 2020, Area of Impact extractions from the Deep Aquifers exceeded those from the 400-Foot Aquifer.

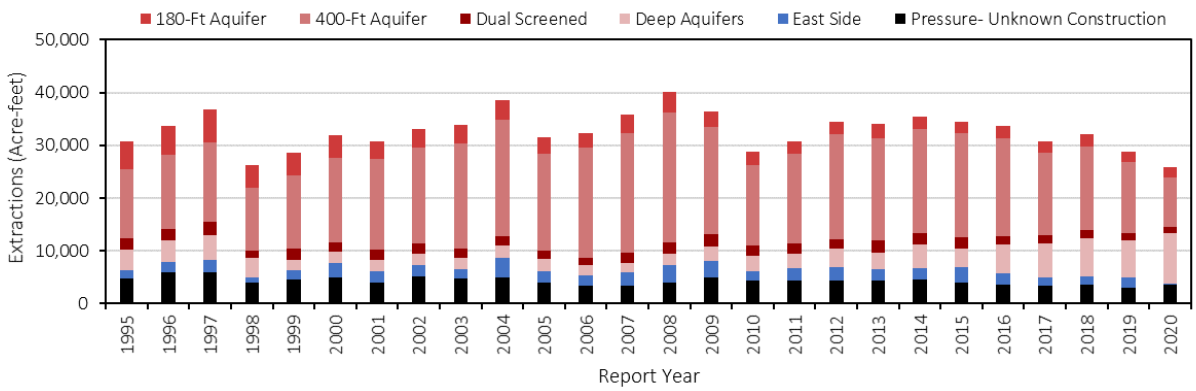


Figure 26. Groundwater Extractions in the Area of Impact, by Aquifer

5. Water and Land Use

Data collected in the Water and Land Use Forms (WLUF) pertain to the amount of water applied to the net acreage of individual crop types over the last year. These forms provide valuable information to compare water use, land use, and water usage per crop type for the major crop types and across the four subareas.

Crop type categories include vegetables, berries, grapes, trees, field crops (e.g., beans and grains), forage crops (e.g., alfalfa and pasture), nursery, and other (e.g., sod, flower bulbs, cactus, dust control, frost prevention, etc.). In 2019, cannabis was added as a crop type for the first time. Before 1999, some companies reported net acres in the water and land use form, and others crop acres. In 1999, Staff made efforts to standardize the information reported and have companies only report the net acres grown. As a result, the following section only discusses water and land use data from report year 1999 onward.

Valley-wide, an average of 157,200 net acres of crops have been grown over the period of record; this net acreage has increased at a rate of 2,150 acres/year on average. The increase in net acres has been seen in all subareas, with the most significant growth seen in the Upper Valley subarea (660 acres/year, on average), followed by the Forebay (650 acres/year), Pressure (550 acres/year), and East Side subarea (290 acres/year) (Figure 27).

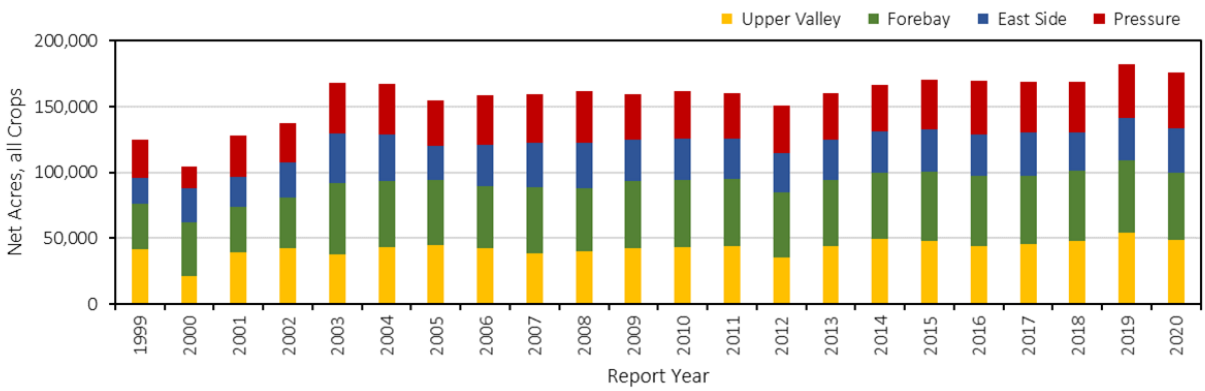


Figure 27. Net Acres of all Crops reported in the Water and Land Use Forms, by Subarea

Along with the increase in net acres grown, an increase in water use has also been observed. Reported water usage on the WLUF has averaged 411,300 AFY and ranged from 279,300 to 463,770 AFY. Not all agricultural extractions are required to complete a WLUF, which is why there is a difference between agricultural water extracted and the amount reported in this section.

The amount of water used per net acre grown can be considered water efficiency, reported as acre-feet/acre (AF/acre). Water efficiency can vary by crop type, subarea, and year; over the period of record, these values have ranged from 0.1 AF/acre to over 15 AF/acre.

Agricultural water efficiency across the entire GEMS reporting area has improved over the period of record (Figure 28). Specifically, the Forebay and Upper Valley subareas saw the most significant improvement, with total water usage decreasing at a rate of 0.025 AF/acre/year on average. Water efficiency in the Pressure and East Side subareas has remained relatively constant over the period of record. Some annual variability in water efficiency is seen year to year. Similar to annual extractions, there is a weak negative correlation between water efficiency and annual precipitation, with drier periods generally reporting a higher AF/acre used and wetter periods a lower AF/acre.

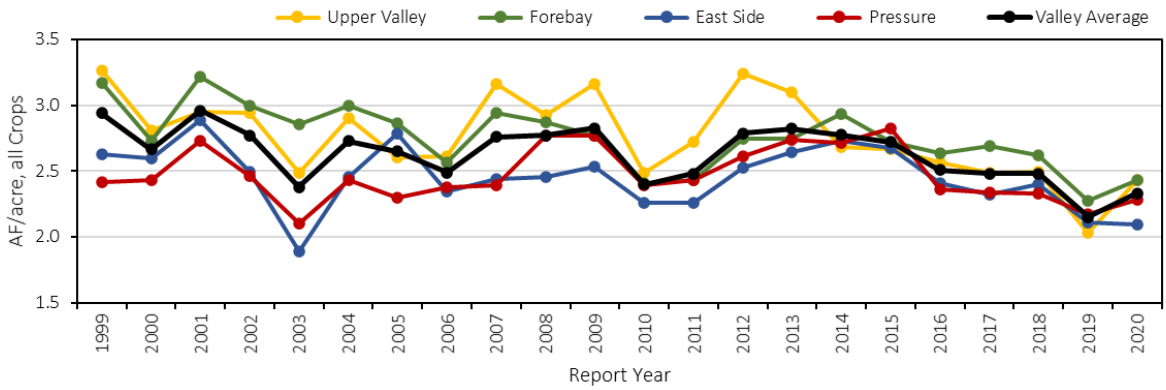


Figure 28. Water Efficiency (AF/acre) for all crop types, by Subarea

5.1. Water and Land Use in the Pressure Subarea

The average reported water and land use in the Pressure Subarea for all crop types was 87,500 AF and 35,480 acres over the period of record (Figure 29). The primary crop types grown in the Pressure Subarea have been vegetables (90% of total acres on average), followed by berries (5%) and grapes (4%). The crop types using the majority of water by volume have been vegetables (92%), followed by berries (5%), and grapes (1%). The largest increase in net acres is attributed to vegetables, at an average rate of 390 acres/year, followed by berries at 110 acres/year. The reported net acres of grapes have remained fairly constant over the period of record.

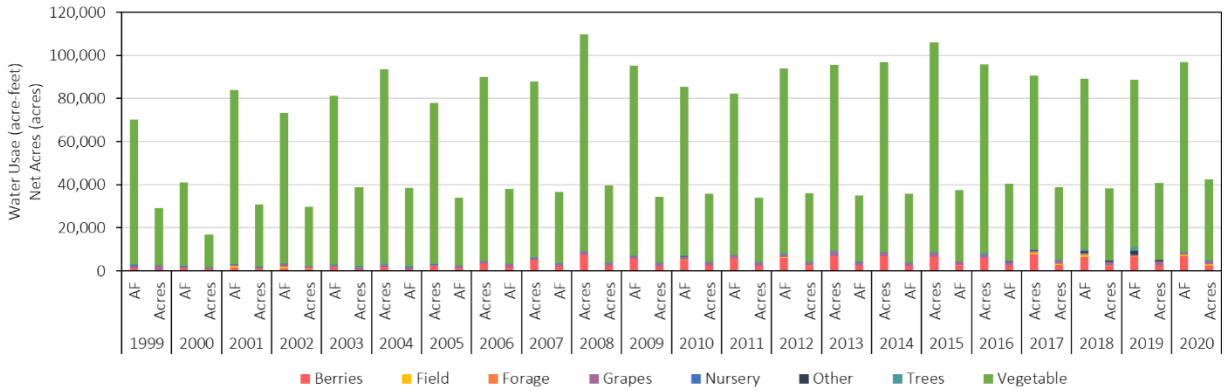


Figure 29. Water and Land Use in the Pressure Subarea, by Crop Type

Water efficiency for vegetables and grapes has remained constant over the period of record. However, water efficiency for berries has decreased, with an average increase of 0.035 AF/acre/year seen over the period of record (Figure 30).

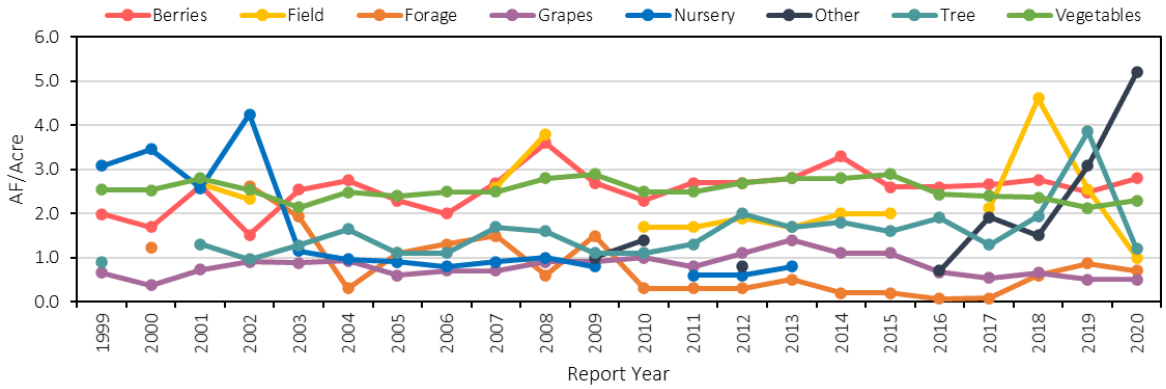


Figure 30. Water Efficiency (AF/acre) in the Pressure Subarea, by Crop Type

5.2. Water and Land Use in the East Side Subarea

The East Side Subarea reported an average land use of 25,810 acres and an average water use of 62,760 AF over the period of record. The primary crop types grown in the East Side have been vegetables (82% of total acres on average), followed by berries (11%) and grapes (3%). Vegetables have used the majority of the water by volume (79%), followed by berries (11%), and grapes (7%). The breakdown of water and land use in the East Side Subarea by crop type is shown in Figure 31. The net acreage of vegetables grown has stayed constant over the period of record. Berries saw an increase in net acreage produced between 1999 and 2013, but in recent years have seen a decrease in the acreage grown.

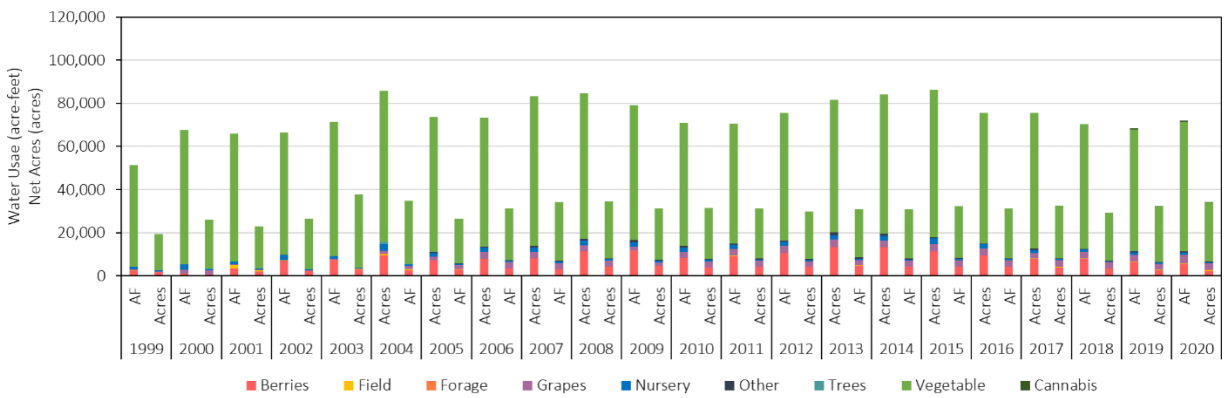


Figure 31. Water and Land Use in the East Side Subarea, by Crop Type

Water efficiency for vegetables and berries has remained relatively constant in the East Side over the period of record, averaging 2.5 and 2.4 AF/acre, respectively (Figure 32). Cannabis was added as a separate crop type in 2019; before that, cannabis data would have been included with Nursery crop types.

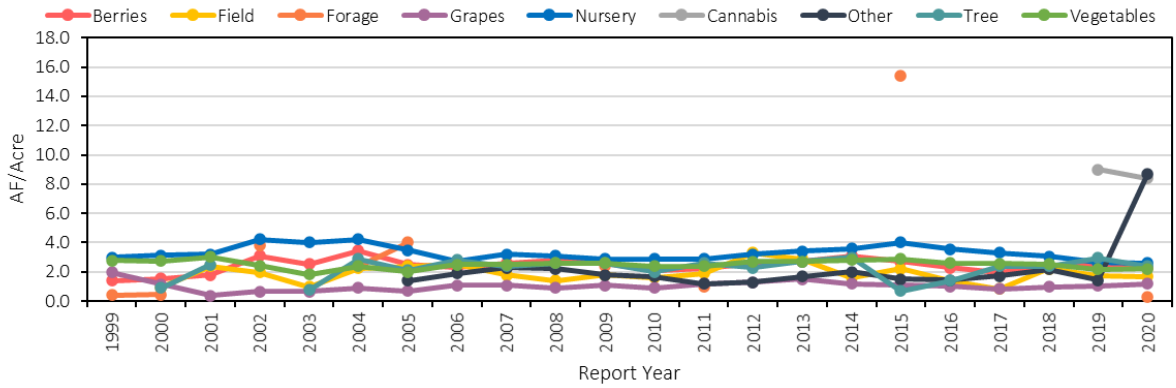


Figure 32. Water Efficiency (AF/acre) in the East Side Subarea, by Crop Type

5.3. Water and Land Use in the Forebay Subarea

The average reported water and land use in the Forebay Subarea for all crop types was 132,830 AF and 48,540 acres over the period of record. The primary crop types grown in the Forebay have been vegetables (65% of total acres on average), followed by grapes (31%) and tree crops (2%). The majority of the water has been used for vegetables (82%), followed by grapes (15%), and then tree crops (1%). The breakdown of water and land use in the Forebay Subarea by crop type can be seen in Figure 33. Both vegetables and grapes have seen an increase in net acres over the period of record, at an average rate of 265 and 390 acres/year, respectively.

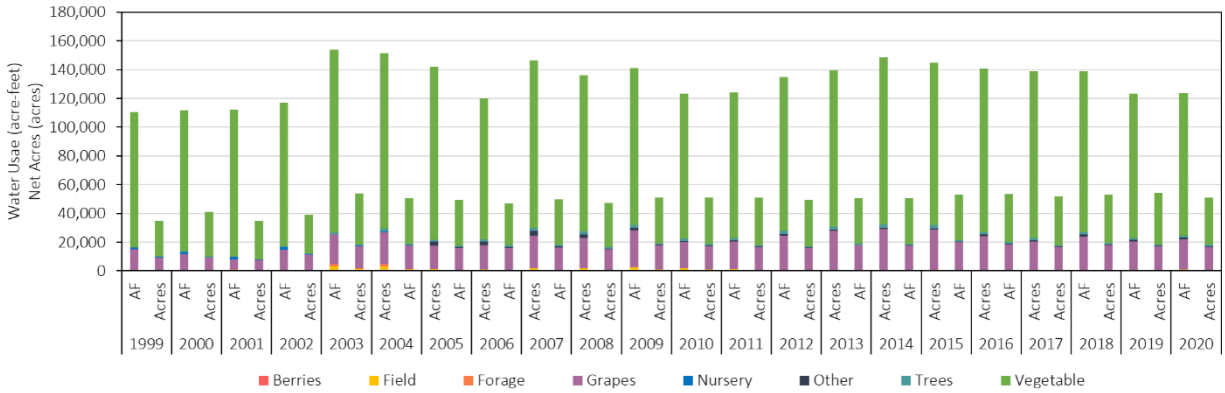


Figure 33. Water and Land Use in the Forebay Subarea, by Crop Type

Water efficiency for vegetables has improved over the period of record, with water usage decreasing at a rate of 0.025 AF/acre/year on average. However, water efficiency for grapes and all other crop types has remained similar over the period of record (Figure 34).

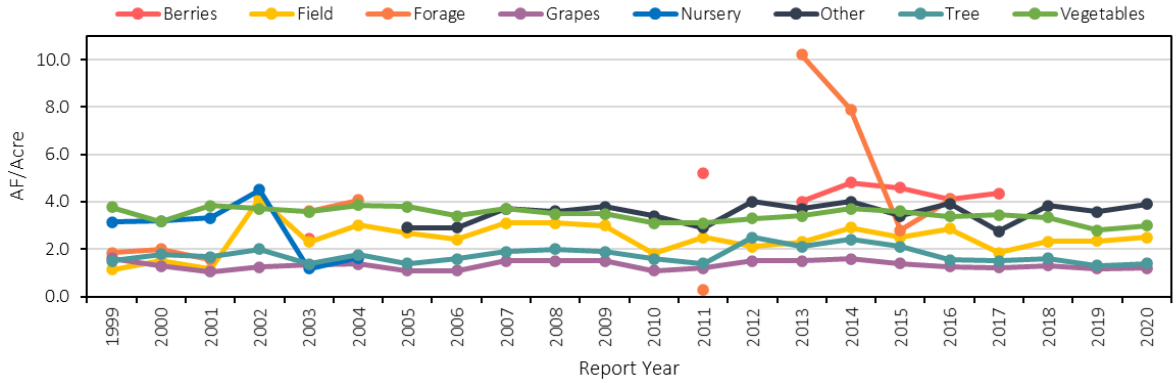


Figure 34. Water Efficiency (AF/acre) in the Forebay Subarea, by Crop Type

5.4. Water and Land Use in the Upper Valley Subarea

The Upper Valley reported an average land use of 42,670 acres and water use of 116,820 AFY over the period of record. The primary crop types grown have been vegetables (57% of total acres on average), followed by grapes (40%) and field crops (2%). Vegetables have accounted for the majority of water usage (76%), followed by grapes (22%), and field crops (2%). The breakdown of water and land use in the Upper Valley Subarea by crop type can be seen in Figure 35. The net acreage of vegetables grown has increased over the period of record, at an average rate of 480 acres/year. Grapes have also seen an increase in net acres grown, at a rate of 195 acres/year on average.

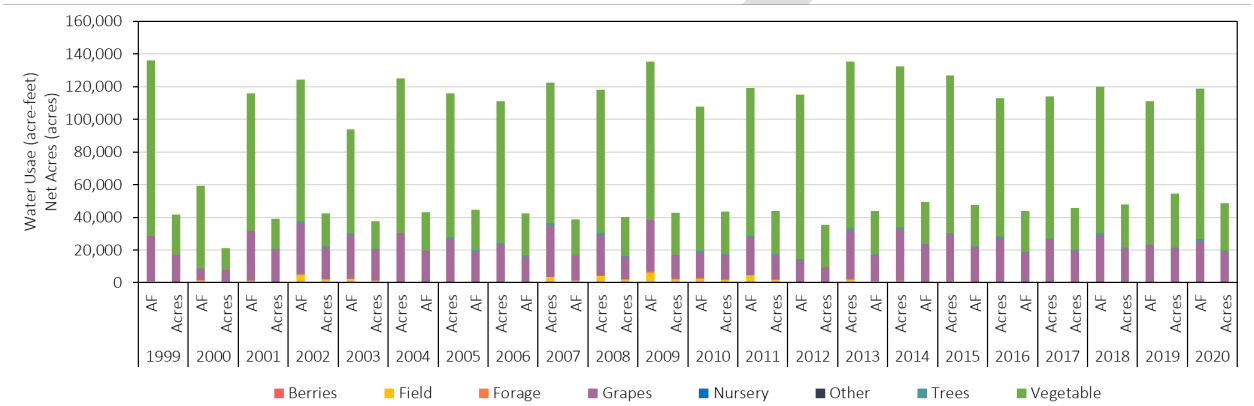


Figure 35. Water and Land Use in the Upper Valley Subarea, by Crop Type

Water efficiency for vegetables and forage has improved over the period of record, with water usage decreasing at an average rate of 0.05 AF/acre/year. Water efficiency for forage crops has also improved over the last decade, with water usage decreasing by 0.23 AF/acre/year. However, water efficiency for grapes and all other crop types has remained similar over the period of record (Figure 36).

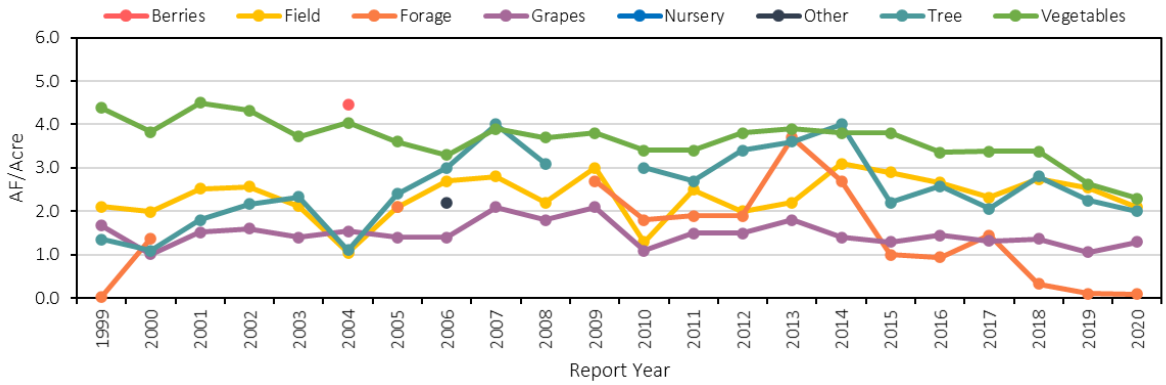


Figure 36. Water Efficiency (AF/acre) in the Upper Valley Subarea, by Crop Type

6. Water Conservation

6.1. Agricultural Water Conservation

"The conservation of agricultural water is an economically and environmentally feasible way to reduce water demand, help prevent overdraft, and to help curtail the presently existing threat to the groundwater basin" (MCWRA Ordinance No. 3851).

Agricultural water conservation plans (AWCP) describe how growers are reducing water usage by detailing the conservation measures implemented each year and irrigation methods utilized for various crop types. As discussed in Section 4, improvements in water efficiency have been seen throughout the duration of the GEMS program, which may be attributed to changes in irrigation methods or implementing best management practices.

AWCPs are not subarea specific, and this section will describe practices implemented by growers across the GEMS reporting area.

6.1.1. Irrigation Methods Over Time

The first portion of the AWCP asks growers about the types of irrigation methods implemented by acres of crop type in the upcoming year. Figure 37 shows the net acreage for each irrigation method, stacked on top of one another. On average, drip irrigation has been the predominant irrigation method (55% of total net acres), followed by the sprinkler & furrow method (23%) and hand-move sprinklers (14%).

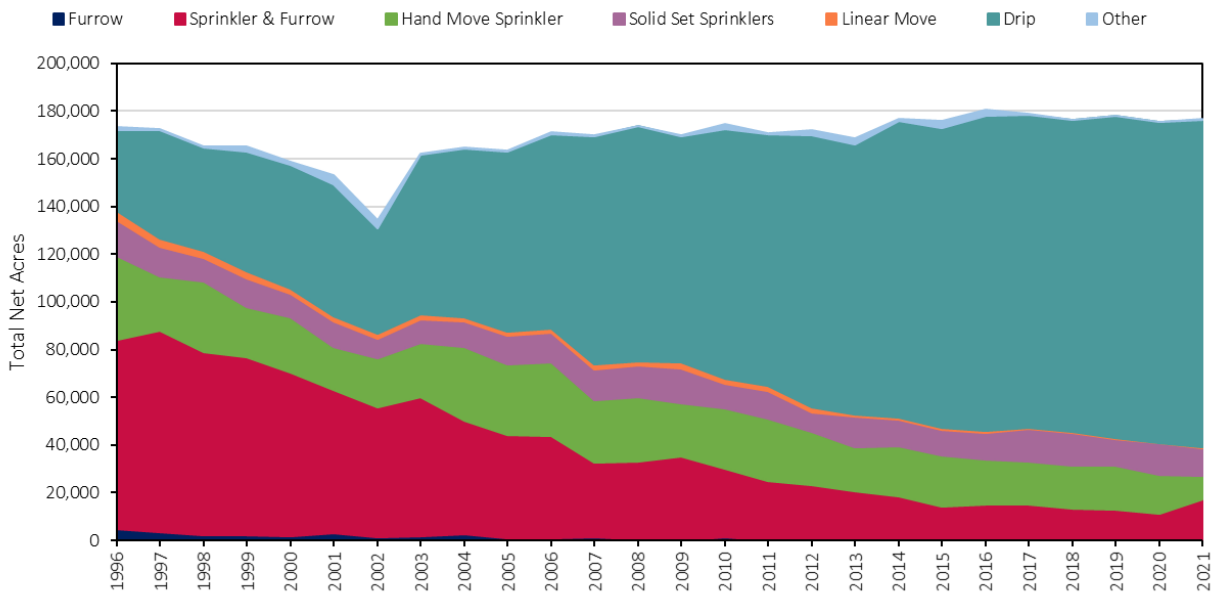


Figure 37. Irrigation Methods over Time, all Crop Types (1996-2021)

Shifts in the predominant irrigation methods have been seen over the period of record. Since 1996, there has been a 300% increase in the net acres irrigated using drip irrigation, increasing from 33,000 to 137,000 acres. This increase was seen across several crop types, with the largest increases in vegetables, followed by grapes and berries. The most significant decline has been in the sprinkler & furrow method, decreasing from 84,000 to 11,000 net acres. Vegetables are the main crop irrigated using the sprinkler & furrow method (98% of net acres on average), followed by field crops (2%). Additional figures showing irrigation methods for individual crop types over time are included in Appendix F.

6.1.2. Best Management Practices

The second portion of the AWCP asks growers what best management practices they plan to implement in the upcoming year and the total acreage to which each approach is being applied. Over the period of record, the use of automatic time clock on pumps and/or pressure switches on boosters has been the broadest applied practice (85% of reported irrigated acres), followed by the use of water flowmeters (82% of reported irrigated acres). The top ten best management practices, by average acreage over the period of record, are shown in Figure 38. Additional figures for all best management practices are included in Appendix F.

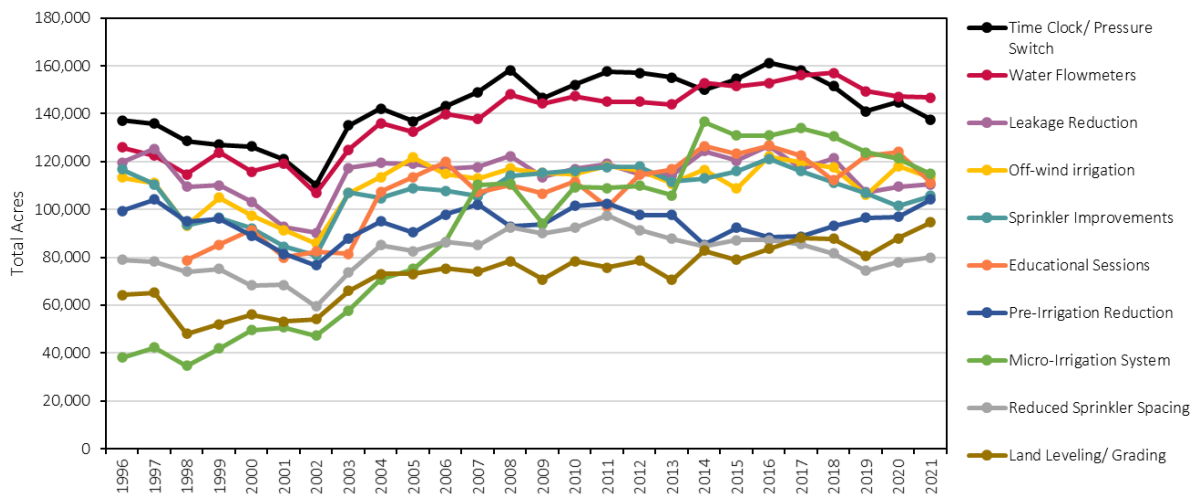


Figure 38. Top Ten Best Management Practice, by average acreage over the period of record

The use of micro-irrigation systems, which includes drip tape, or the addition of pressure compensating emitters or micro-sprayers, has seen more than a three-fold increase over the period of record. In 1996, only 38,000 acres (22% of reported irrigated acres) had micro-irrigations installed; by 2014, this rose to 136,600 acres (77% of reported irrigated acres). Other practices such as land leveling and grading, the use of transplants, and the development of conservation programs have also seen increases over the period of record. Conversely, some practices have seen a decline in use over the period of record, including surge flow irrigation, tailwater reuse, tailwater return systems, and summer fallowing of land.

6.2. Urban Water Conservation

As discussed in Section 1.2, urban water purveyors must submit an UWCP describing the best management practices applied in the previous year and those they plan to implement in the upcoming year. The following sections summarize information collected in the UWCPs for small water systems, which serve 15-199 customer connections, and large water systems, which serve 200 or more customer connections.

6.2.1. Water Usage per Connection Class

Urban water purveyors must submit the number of connections by class type and water delivered to each class type. Connection classes include single-family residential, multi-family residential, commercial/institutional (e.g., retail, offices, schools, hospitals, hotels), industrial, landscape irrigation (e.g., parks, cemeteries), and other uses (e.g., fire suppression, line flushing, construction or temporary meters, etc.).

Over the period of record, single-family residential connections had the lowest AF/connection on average (0.384 AF/connection), and industrial connections had the highest (11.478 AF/connection), not including agricultural irrigation. Industrial water usage per connection saw an increase of 0.78 AF/connection/year, on average. Single-family residential, multi-family residential, and landscape irrigation connection classes have seen a slight decrease in water usage per connection over the period of record, while commercial/institutional usage has stayed stable (Figure 39).

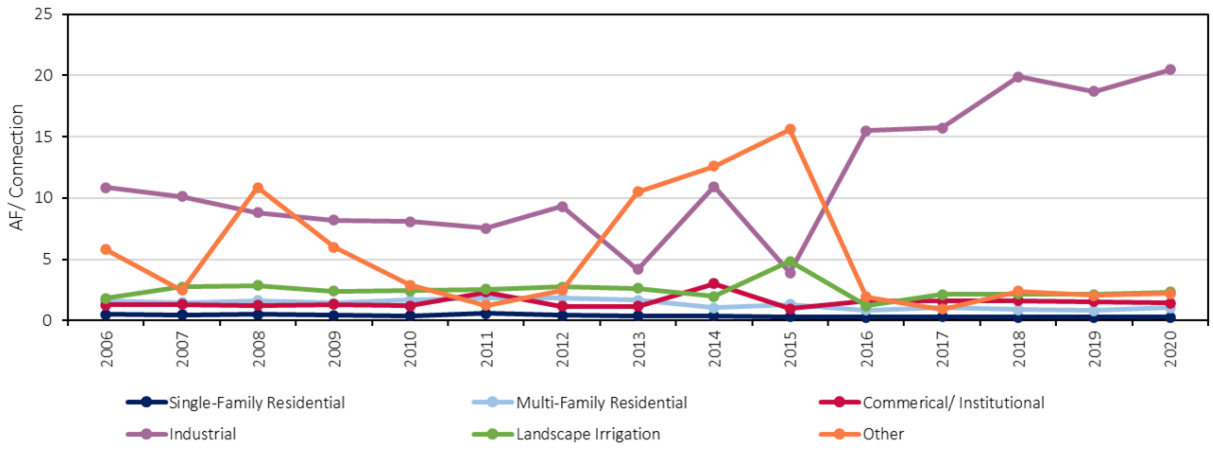


Figure 39. Large Water Systems AF/Connection, by Connection Class

Figure 40 shows the AF/connection for agricultural irrigation connections served by large water systems. The 2016 annual summary report first included this category as a separate connection class. Before that, information on the amount of water delivered to agricultural irrigation was collected, but not the number of connections. As such, AF/connection for

agricultural irrigation is only available from 2016 onwards. Between 2016 and 2020, water systems delivered 76.433 AF/connection to this connection class on average.

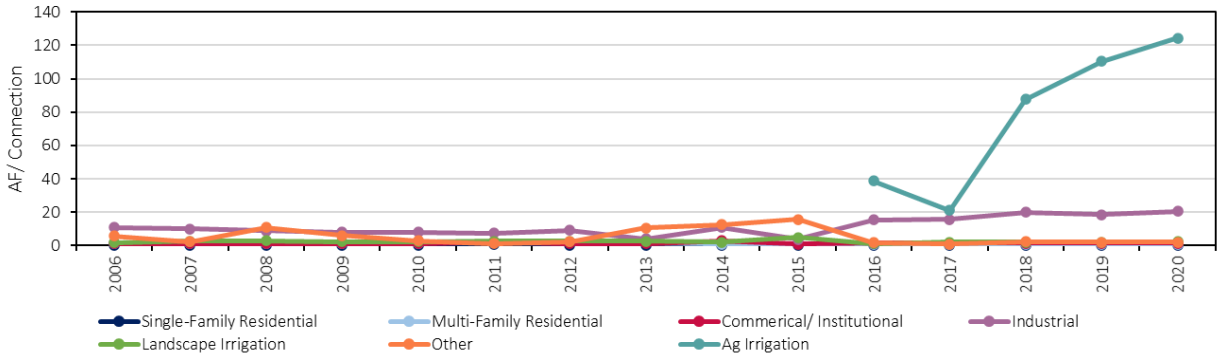


Figure 40. Large Water Systems AF/Connection for the Agricultural Irrigation Connection Class

Over the period of record, multi-family residential connections had the lowest AF/connection on average (0.552 AF/connection), followed closely by single-family residential (0.566 AF/connection) (Figure 41). Industrial connections had the highest AF/connection on average (19.050 AF/connection). The significant increase in 2016 in the industrial connection class was due to a change in the number of connections reported, but not in the overall water usage. Single-family residential, multi-family residential, and commercial/institutional classes have seen a slight decrease in water usage per connection over the period of record, while landscape irrigation and other connection types have seen an increase in recent years.

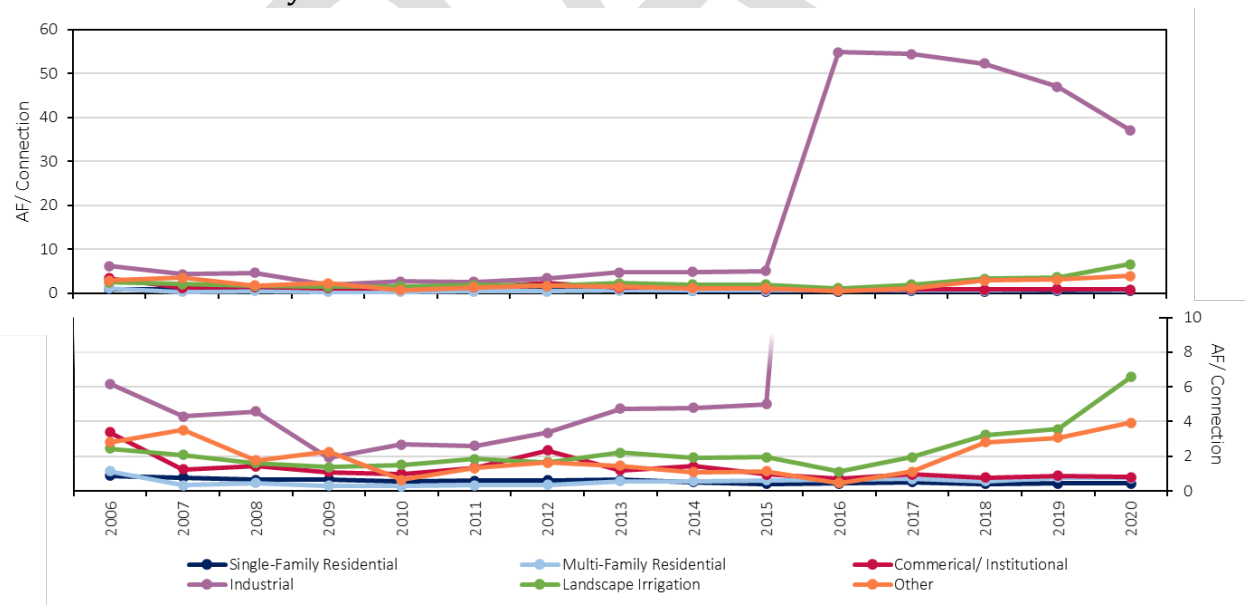


Figure 41. Small Water Systems AF/Connection, by Connection Class

6.2.2. Best Management Practices

Best management practices in the UWCP include, but aren't limited to, those related to public information programs, metering water usage, audits, incentive programs, and water conservation for various connection types. Between 1996 and 2020, the broadest applied practice for large and small water systems has been advising customers when a leak is apparent on the customer's side of the water meter (97% of large water systems, by service area acreage, and 87% of small water systems)—followed by requiring all new connections to be metered and billed by volume of use (96% of large water systems, 85% of small water systems).

The top ten best management practices, by average percentage applied over the period of record, are in Table 1 and Table 2 for large and small water systems, respectively. Additional tables for all best management practices and year-to-year percentages are included in Appendix G.

Table 1. Top Ten Best Management Practices, Large Water Systems

97%	Advise customers when it appears possible that leaks exist on customer's side of water meter
96%	Implement requirements that all new connections be metered and billed by volume of use
87%	Provide individual historical water use information on water bills
87%	Support of legislation prohibiting sale of toilets using more than 1.6 gpf
86%	Coordinate with other entities in regional efforts to promote water conservation practices
86%	Provide guidelines, information, and/or incentives for installation of more efficient landscapes and water saving practices
86%	Provide conservation information in bill inserts
85%	Perform distribution system leak detection and repair whenever the audit reveals that it would be cost-effective
82%	Enforcement and support of water conserving plumbing fixture standards, including gradual requirement for High Efficiency Toilets (HET) in all new construction
77%	Offer free interior and exterior water audits to identify water conservation opportunities

Table 2. Top Ten Best Management Practices, Small Water Systems

87%	Advise customers when it appears possible that leaks exist on customer's side of water meter
85%	Implement requirements that all new connections be metered and billed by volume of use
82%	Support of legislation prohibiting sale of toilets using more than 1.6 gallons per flush (gpf)
73%	Perform distribution system leak detection and repair whenever the audit reveals that it would be cost-effective
69%	Establish a program to retrofit any existing unmetered connections and bill by volume of use
68%	Provide individual historical water use information on water bills

68%	Provide guidelines, information, and/or incentives for installation of more efficient landscapes and water saving practices
Table 2 continued…	
62%	Enact and enforce measure prohibiting water waste as specified in Monterey County Water Resources Agency Ordinance No. 3932 or as subsequently amended, and encourage the efficient use of water
59%	Coordinate with other entities in regional efforts to promote water conservation practices
56%	Provide conservation information in bill inserts

7. Summary

Data collected and summarized from the 25-years of GEMS reporting has shown the following:

1. Between 1995 and 2020, annual groundwater extractions have been 495,000 AFY on average. Agricultural extractions have historically made up 91% of total groundwater extractions, while urban extractions account for the remaining 9%.

2. Over the period of record, groundwater extractions have exhibited annual variability. There is a weak correlation between annual groundwater extractions and annual precipitation seen each year, with wetter periods correlated to years with lower groundwater extractions and drier periods associated with higher groundwater extractions reported. Notably, agricultural extractions exhibited this correlation, but urban extractions did not.

3. Water deliveries to CSIP have averaged 20,040 AFY between 1999 and 2020. In years when the SRDF was online, CSIP supplemental wells pumped 44% less groundwater. Additional groundwater extractions from private wells within Zone 2B are still occurring; however, extractions from these wells decreased by 80% over the project's history.

4. Information collected from the Water and Land Use forms shows that vegetables have accounted for 71% of total acreage reported and 82% of water usage, followed by grapes (23% of total acreage, 12% of water usage) and berries (3% of total acreage, 3% of water usage). However, the distribution of predominant crop types and water efficiency for each varies by subarea.

5. The net acreage of crops grown throughout the valley has increased over the period of record, resulting in increased water usage. However, water efficiency, or the amount of water applied per acre of a crop, has on average improved. The Forebay

and Upper Valley subareas saw the most significant improvements, mainly in water applied to vegetable crops.

6. The predominant irrigation methods utilized have changed over the period of record, including a 300% increase in acreage irrigated by drip irrigation and a decline in the sprinkler & furrow, furrow, and linear move methods.

7. Agricultural and Urban Water Conservation Plans have provided information on the implementation of best management practices. For agricultural entities, top practices have included the use of time clocks or pressure switches, followed by water flowmeters on wells. For urban entities, top practices have included advising customers when a leak is possible on the customer's side of the water meter and implementing requirements that all new connections be metered and billed by volume of use.

8. Urban water usage data shows that industrial connections reported the highest AF/connection on average for large and small water systems. This doesn't include the agricultural irrigation connection class, which has reported higher AF/connection usage than the industrial connection class, but wasn't introduced in the annual summary reports until 2016.

8. References

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DRAFT

Appendix A
Monterey County Water Resources Agency
Ordinance No. 3717 and 3718

DRAFT

ORDINANCE NO. 3717

AN ORDINANCE OF THE MONTEREY COUNTY WATER RESOURCES AGENCY
ADOPTING REQUIREMENTS FOR
WATER SUPPLIERS WITHIN ZONES 2, 2A AND 2B
TO REPORT WATER USE INFORMATION FOR
GROUNDWATER EXTRACTION FACILITIES AND SERVICE CONNECTIONS, AND
TO INSTALL FLOWMETERS ON GROUNDWATER EXTRACTION FACILITIES
AND SERVICE CONNECTIONS
AND REPEALING ORDINANCE NOS. 3663 AND 3696

PASSED: OCTOBER 5, 1993

(AMENDED BY ORDINANCE #3718)

FILED

OCT 1 1 1993

ERNEST A. MAGGINI
MONTEREY COUNTY CLERK
DEPUTY

Monterey County Water Resources Agency
NOTICE OF EXEMPTION
(Pub. Res. Code Sec. 21152; 14 CCR Secs. 15062)

To:
[X] County Clerk
Monterey County
240 Church St., Rm 318
Salinas, CA 93901

[ ] Other county clerk:

On October 5, 1993, the Monterey County Water Resources Agency approved the project described below. This project is exempt from the requirements of CEQA, as hereinafter described.

PROJECT: Ordinance Nos. 3717 and 3718

PROJECT PROPONENT: Monterey County Water Resources Agency (MCWRA)

LEAD AGENCY: Monterey County Water Resources Agency (MCWRA)

Contact Person: **Name:** Deborah Shifflett
Address: P.O. Box 930, Salinas, CA 93902
Phone: (408) 755-4860

Decision-making body:
[X] MCWRA Board of Supervisors
[ ] MCWRA Board of Directors
[ ] MCWRA General Manager

PROJECT DESCRIPTION: The MCWRA already requires the installation of flowmeters on groundwater extraction facilities in the Zones 2, 2A, and 2B. Ordinance No. 3717 advances the deadline for installation of such meters from February 15, 1995, to February 15, 1994, in the areas of Zones 2, 2A, and 2B that are outside the P-1, P-2, and E-1 sub-areas. Ordinance No. 3718 provides for the granting of a variance to that deadline, allowing for an extension of time of up to four months in certain situations.

PROJECT LOCATION: Zones 2, 2A, and 2B are located in the Salinas Valley, running from approximately San Ardo in the south to the Pacific Coast in the north, all in Monterey County, California

EXEMPT STATUS:
[X] Not a project within the meaning of 14 CCR Sec. 15378 (14 CCR Sec. 15061(b)(1))
[ ] Ministerial exemption (PRC Sec. 21080(b)(1); 14 CCR Sec. 15268);
[ ] Statutory exemption under PRC Sec. _____ , 14 CCR Sec. 15260 et seq., Sec. _____
[X] Categorical exemption under 14 CCR Sec. 15307 and 15308.
[X] With certainty, the project has no significant adverse effects on the environment (14 CCR Sec. 15061(b)(3)).

(EXEMPT1.NOT - 10/6/93)

REASONS WHY PROJECT IS EXEMPT: Changing the date for the installation of flowmeters on groundwaters will have no adverse effect on the environment.

The well metering speedup ordinance advances the date by which meters must be installed on groundwater wells in portions of the Salinas Valley Groundwater Basin, and the second ordinance provides for variances from the advanced deadline. This action will have no effect on the environment. It will facilitate the gathering of information about pumping in the Salinas Valley.

The ordinances are exempt from CEQA under the following sections of the CEQA Guidelines, as follows:

1. Sec. 15061(b)(3): it can be seen with certainty that there is no possibility that the ordinance may have a significant adverse effect on the environment.

2. Sec. 15307: the ordinance is categorically exempt as an action taken by a regulatory agency as authorized by state law or local ordinance to assure the maintenance, restoration, or enhancement of a natural resource, where the regulatory process involves procedures for protection of the environment. In the present case, the procedure for protection of the environment was to prepare an initial study under CEQA to analyze the potential environmental effects of the proposed ordinance.

3. Sec. 15308: the ordinance is categorically exempt as an action taken by a regulatory agency as authorized by state law or local ordinance to assure the maintenance, restoration, or enhancement of the environment, where the regulatory process involves procedures for protection of the environment. In the present case, the procedure for protection of the environment was to prepare an initial study under CEQA to analyze the potential environmental effects of the proposed ordinance.

DATED: October 6, 1993

MONTEREY COUNTY WATER RESOURCES AGENCY, William F. Hurst, General Manager

By William F. Hurst

(EXEMPT1.NOT - 10/6/93)

10/5/93

Monterey County
Water Resources Agency

Ordinance No. 3717

AN ORDINANCE OF THE MONTEREY COUNTY WATER RESOURCES AGENCY ADOPTING REQUIREMENTS FOR WATER SUPPLIERS WITHIN ZONES 2, 2A AND 2B TO REPORT WATER USE INFORMATION FOR GROUNDWATER EXTRACTION FACILITIES AND SERVICE CONNECTIONS, AND TO INSTALL FLOWMETERS ON GROUNDWATER EXTRACTION FACILITIES AND SERVICE CONNECTIONS AND REPEALING ORDINANCE NOS. 3663 AND 3696

County Counsel Summary

This ordinance applies to all groundwater extraction facilities located within Zones 2, 2A and 2B with a discharge pipe having an inside diameter of at least 3 inches. The ordinance requires that the owner or operator of such facilities make annual reports to the Monterey County Water Resources Agency concerning quantities of water pumped from the facilities, as well as additional information concerning the distribution and use of the water. The ordinance requires that flowmeters be installed on all groundwater extraction facilities on or before November 1, 1993, in subareas P-1, P-2, and E-1, and on or before February 15, 1994, in the remaining areas of Zones 2, 2A and 2B, and limits the purposes for which monetary exactions may be imposed based upon water use measured by the meters. The ordinance provides a variance procedure and also establishes penalties for violations of the ordinance. This ordinance repeals Ordinance No. 3663 and Ordinance No. 3696, which enacted similar but not identical provisions.

WHEREAS on February 2, 1993, the Board of Supervisors adopted Ordinance No. 3663, adopting requirements for water suppliers within Zones 2, 2A and 2B to report water use information for groundwater extraction facilities and service connections, and to install flowmeters on groundwater extraction facilities and service connections, and said ordinance required metering of all water wells covered by the ordinance in Zones 2, 2A and 2B not later than February 15, 1995; and

WHEREAS on July 27, 1993, the Board of Supervisors adopted Ordinance No. 3696, amending Ordinance No. 3663 to advance the time for metering of wells in subareas P-1, P-2, and E-1 of Zones 2 and 2A from February 15, 1995, to November 1, 1993; and

WHEREAS the Board of Supervisors now determines that an earlier metering date will be required for the remaining wells in Zones 2, 2A, and 2B, due to requirements of the State Water Resources Control Board and the need to deal more expeditiously with the problems of seawater intrusion and basin-wide overdraft in the Salinas Valley Groundwater Basin;

NOW, THEREFORE, the Board of Supervisors of the Monterey County Water Resources Agency ordains as follows:

SECTION 1. The following provisions are hereby enacted:

PART I -- INTRODUCTION

1.01.00 AUTHORITY

Under the Monterey County Water Resources Agency Act (Stats. 1990, Chap. 1159), the Agency has jurisdiction over matters pertaining to water within the entire area of the County of Monterey, including both incorporated and unincorporated areas. Under the Act, the Agency is authorized to conserve water in any manner, to prevent the waste or diminution of the water supply within the territory of the Agency, to conserve water for the present and future use within the territory of the Agency, and to prevent groundwater extractions which are determined to be harmful to the groundwater basin. The Agency may further adopt, by ordinance, reasonable procedures, rules, and regulations to implement the Act, and may specify in any ordinance that a violation of the ordinance is an infraction. The Board further has power to perform all other acts necessary or proper to accomplish the purposes of the Act.

1.01.01 FINDINGS

A. Groundwater supplies in the Salinas Valley basin are being diminished in both quantity and quality. This inability to maintain a constant, usable water supply is due to historical overdraft, increases in demand, lack of new water supplies, and contamination of the existing supply.

B. Increases in demand have come from all sectors of the Salinas Valley -- agricultural, residential, industrial, commercial, and others. These increases in demand, coupled with the recent six year drought, have exacerbated water quality impacts and significantly accelerated overdraft.

C. Even without drought, overdraft of the groundwater basin is a constant problem; it depletes the existing water supply and contributes to the intrusion of seawater into the basin along the coast.

D. New water supplies need to be developed; however, efficient use of the existing groundwater supply must be documented in order to obtain approval for new supply projects. Reliable documentation of extractions can be provided by water flowmeters, a requirement of this Agency.

E. Overpumping reduces water quantity; pollution reduces water quality. The overapplication of irrigation water contributes to the deep percolation of fertilizers and aggravates the nitrate pollution problem in many areas of the Salinas Valley. An effective method of reducing nitrate contamination is to increase on-farm irrigation efficiency, thereby reducing the deep percolation of nitrate-contaminated water. Irrigation efficiency can only be proven by the documentation of extraction data obtained through flowmeters.

F. The location of the seawater intrusion front poses an imminent threat to the municipal water supply for the City of Salinas. A reduction in groundwater pumping and its resultant overdraft will aid in decreasing the rate of seawater intrusion. The immediate implementation of such a demand reduction strategy requires that the timeline for the installation of flowmeters be changed from February 15, 1995, to November 1, 1993, for the aquifers in the northern Salinas Valley (subareas P-1, P-2, and P-3), and to February 15, 1994, for the remainder of Zones 2, 2A, and 2B.

1.01.02 PURPOSE

It is the purpose of this ordinance to:

A. Determine actual amounts of water produced by each groundwater extraction facility.

B. Provide information that can be used to develop demand management programs needed to curtail the threat to public health, safety, and welfare created by an inadequate water supply. Water demand management may include such programs as conservation, groundwater allocation and economic strategies.

C. Facilitate and encourage water conservation in the territory subject to this ordinance by monitoring water use patterns and practices.

D. Facilitate the development of new water supplies to serve the increasing demands for water in the territory. The collection of water use data will document water use and water conservation efforts within the Salinas Valley, so as to support any determination that new water projects are necessary.

E. Allow the Agency to allocate the costs of water management activities in the Salinas Valley Groundwater Basin and any new water projects for the basin, based upon actual water use. Fees or assessments based on water use will only be used for the production and delivery of water and for water management activities, including, but not limited to, the development and implementation of water allocation plans, water conservation plans, and water supply projects.

1.01.03 DEFINITIONS

A. AGENCY shall mean the Monterey County Water Resources Agency.

B. GROUNDWATER EXTRACTION FACILITY ("Facility") shall mean a groundwater well or facility for the extraction of groundwater which employs a motor-driven pump for the extraction of groundwater and which has a discharge pipe with an inside diameter equal to or greater than 3 inches.

C. PERSON shall mean an individual; a sole proprietorship, corporation, partnership, association, trust, or any other form of business or non-profit entity; or a city, county, state, the United States, or any other federal, state, local or foreign government entity.

D. SERVICE CONNECTION shall mean a connection between a water distribution system and a water user's pipes or facilities. When a water distribution system provides water to a multi-unit condominium or apartment complex (including two units or more) or to a multi-unit commercial or residential building or property (including two units or more), where the building or property is under common ownership, management, or supervision, "service connection" shall mean the connection between the distribution system and the complex, building or property and not the individual units, unless the customers or manager of the distribution system elect to have the connections to the individual units treated as service connections.

E. USE CATEGORY shall refer to the designations residential, commercial, industrial, governmental, and agricultural.

F. WATER DISTRIBUTION SYSTEM shall mean a groundwater extraction facility and the pipelines or other distribution facilities that deliver the water to the water user, where the system meets either of the following conditions:

1. The water system supplies water to 15 or more service connections; or

2. The water system supplies water to one or more industrial, commercial, or governmental water users.

G. WATER SUPPLIER shall mean a person who owns or operates a groundwater extraction facility.

H. WATER USER shall mean a person who receives water from a groundwater extraction facility for consumptive use.

I. WATER REPORTING YEAR shall be from November 1 to October 31 of the following year.

J. TERRITORY shall mean Zones 2, 2A, and 2B of the Water Resources Agency, outside the jurisdiction of the Monterey Peninsula Water Management District.

K. SALINAS VALLEY BASIN SUBAREAS P1, P2 AND E1 shall mean the area in the northern portion of the Salinas Valley between the coast and Harris and Williams Roads, which is more particularly described in Attachment A.

L. WATER MEASURING DEVICE shall mean a water flowmeter or any other device used in calculating or estimating the amount of water produced from a groundwater extraction facility or transmitted through a service connection.

1.01.04 TERRITORIAL APPLICATION OF ORDINANCE

This ordinance applies to groundwater extraction facilities that are located in the territory defined in section 1.01.03.J. This ordinance applies to water distribution systems, service connections, water suppliers, or water users, only when a groundwater extraction facility subject to this ordinance is a source of water for such system, connection, supplier, or user; and then the ordinance applies thereto even though the system, connection, supplier, or user may be located in whole or in part outside Zones 2, 2A and 2B or within the territorial jurisdiction of the MPWMD.

PART II -- RECORD-KEEPING AND REPORTING

1.01.10 RECORD-KEEPING AND REPORTING REQUIREMENTS

A. Each water supplier shall keep records showing the total monthly and annual water use, in conformity with this section. The records shall be maintained for each groundwater extraction facility, for each service connection receiving water from such facility, and for the water distribution system associated with such facility. The records shall show the following information for each

month of operation and cumulatively for the water reporting year, in such format as may be prescribed by the Agency:

1. the quantity of water produced by each extraction facility,

2. the quantity of water delivered by the system for use in each use category,

3. the use categories served through each service connection, and

4. for all service connections that are required to be metered under this or any other ordinance or as a condition of receiving water service, the quantity of water delivered through each service connection.

B. All information concerning quantities of water produced or delivered shall be obtained through flowmeters meeting specifications prescribed by the Agency, except that before November 1, 1993, in Salinas Valley Subareas P1, P2 and E1, and before February 15, 1994, in all other areas, such data may be obtained through any of the following methods:

1. Water flowmeters.

a. Flowmeters installed on or after the effective date of the ordinance must comply with all the specifications established by the Agency on the date of installation.

b. Flowmeters installed before the effective date of this ordinance shall comply with the accuracy specifications established by the Agency.

c. All water flowmeters will be tested annually by an Agency-recognized tester, and will be calibrated to comply with the applicable Agency specifications.

d. Upon completion of the annual test, the tester will submit to the Agency a report of testing which will include the water flowmeter reading on the date of testing.

2. Electrical records.

a. The reporting party will report quantities of water used, based on calculations using accurate electrical bills, data from pump efficiency tests, and such formulas as may be approved by the Agency.

b. Electrical bills shall be based on electrical meters on the facility. The facility's use of electricity shall be the only electrical use measured by the electrical meter.

c. The reporting party must submit information showing the kilowatt hours used each month by each facility.

d. The reporting party shall obtain a groundwater extraction facility test (pump efficiency test) and shall include all data concerning such test, as prescribed by the Agency. The test shall be performed by an Agency-recognized testing company. The test shall be a three-point efficiency test which evaluates three discharge pressures and shall be obtained during the period March through June. Upon completion of the annual test, the tester will submit to the Agency a report of testing which will include the electrical meter reading on the date of testing.

e. The reporting party must submit all computations necessary to show the quantity of water used, including the raw data, the computation itself, and the result, as prescribed by the Agency.

3. Hour meters.

a. The reporting party will report quantities of water used, based on calculations using readings from hour meters, discharge rates derived from pump efficiency tests, and such formulas as may be approved by the Agency.

b. Hour meters shall be accurate to within +/- 2% of correct time.

c. The reporting party must submit information showing the total number of hours each facility was operated each month.

d. The reporting party shall obtain a groundwater extraction facility test (pump efficiency test) and shall include all data concerning such test, as prescribed by the Agency. The test shall be performed by an Agency-recognized testing company. The test shall be a three-point efficiency test which evaluates three discharge pressures and shall be obtained during the period March through June. Upon completion of the annual test, the tester will submit to the Agency a report of testing which will include the hour meter reading on the date of testing and the discharge rates determined pursuant to the test.

e. The reporting party must submit all computations necessary to show the quantity of water used, including the raw

data, the computation itself, and the result, as prescribed by the Agency.

C. Not later than February 15 following the close of each water reporting year during which a water supplier maintained an operational groundwater extraction facility, each such water supplier shall submit to the Agency its annual report. The annual report shall include all of the information required to be kept under paragraph A, together with any additional supporting information required in paragraph B, above. In addition, the report shall include any current information necessary to update the information that would be required for registration of the extraction facility.

D. If during any period of time any water-measuring device is known to be inaccurate or malfunctioning, the reporting party shall nevertheless provide water quantity information for the duration of such period of time, using any of the other water-measuring methods described in paragraph B, above, or, in the absence of necessary equipment, such other method of estimating water use as may be approved by the Agency General Manager in writing. The reporting party shall exercise due diligence to repair all equipment promptly upon discovery of its need for repair, and shall immediately notify the Agency General Manager in writing of the equipment failure if the failure has lasted longer than 2 weeks and none of the alternate methods of measuring water authorized by this ordinance is available for the facility in question.

1.01.11 REQUEST FOR ADDITIONAL DATA

Within 60 days after receipt of a written request by the Agency for any additional information reasonably required by the Agency pertaining to a groundwater extraction facility, water distribution system, or service connection, each water supplier receiving the request shall to the best of their ability provide the information requested.

1.01.12 FORMS PRESCRIBED BY AGENCY

The Agency may prescribe standard forms and methods for any of the records or reports required by this ordinance. Persons required to keep records shall put into effect the prescribed record-keeping forms and methods within 60 days after receipt of the prescribed forms from the Agency.

1.01.13 PRIVACY OF DATA

All water use data obtained by the Agency from a Water Supplier by reason of this ordinance shall be used only for purposes consistent and compatible with the purposes for which the Agency

exists. The Agency shall restrict access to and distribution of personally identifiable information consistent with privacy protections and requirements and trade secret protections.

PART III -- FLOWMETER REQUIREMENTS

1.01.14 GROUNDWATER EXTRACTION FACILITY METERS REQUIRED

A. After November 1, 1993, no person may operate any groundwater extraction facility which draws water from Salinas Valley basin subarea P1, P2, or E1 and is subject to this ordinance unless the facility is equipped with an operational water flowmeter that meets specifications approved by the Agency.

B. After February 15, 1994, no person may operate any groundwater extraction facility that is subject to this ordinance unless the facility is equipped with an operational water flowmeter that meets specifications approved by the Agency.

C. Each groundwater extraction facility constructed after the effective date of this ordinance shall be equipped with such a meter before construction of the facility is completed.

1.01.15 SERVICE CONNECTION METERS REQUIRED

A. After February 15, 1994, no person may operate any water distribution system that is subject to this ordinance unless each service connection to the system is equipped with an operational water flowmeter that meets specifications approved by the Agency. Each service connection installed after the effective date of this ordinance shall be equipped with such a meter at the time the service connection is installed.

B. This section does not apply to service connections providing water solely for agricultural irrigation and uses incidental thereto. Incidental uses include, but are not limited to, residences on or immediately adjacent to the agricultural premises, when such residences are used by persons owning, operating, or working on the agricultural premises.

1.01.16 BYPASSING METERS PROHIBITED

No person shall take water from the discharge end of a groundwater extraction facility required to be metered under this ordinance, unless all such water first passes through the meter. No person shall take water from a water service connection required to be metered under this ordinance, unless all such water first passes through the meter.

1.01.17 FLOWMETER SPECIFICATIONS

A. The Agency Board of Directors shall adopt flowmeter specifications for use pursuant to this ordinance, and may amend such specifications from time to time. Such specifications may establish standards for the kinds of meters that will be acceptable, performance standards that must be met by the meters, testing capabilities, tamper-proof capabilities, and other pertinent standards. Flowmeters shall come from the manufacture with a provable accuracy of +/- 2%. Flowmeters shall read within +/- 5% at all times after installation.

B. No person who has installed a flowmeter in conformity with specifications in effect at the time of installation shall be required to alter or replace such flowmeter because of later changes in specifications. Each such flowmeter shall be maintained so that it complies, at a minimum, with the specifications in effect on the date of installation of the meter.

1.01.18 MAINTENANCE AND PERIODIC TESTING OF METERS

A. Each owner of a water flowmeter shall maintain the meter in an operational condition and in conformity with the requirements of this ordinance and all applicable meter specifications adopted by the Agency.

B. The Agency may test meters throughout its jurisdiction, in order to insure that meters remain operational and in conformity with applicable specifications. The Agency may develop procedures, which may include random sampling and other procedures, in order to exercise this authority and to encourage maintenance of meters by the meter owners.

C. The owner of each water flowmeter shall have each such meter tested and calibrated annually by an Agency-recognized tester to ensure compliance with the applicable Agency specifications. Upon completion of the annual test, the tester will submit to the Agency a report of testing which will include the water flowmeter reading on the date of testing.

1.01.19 AUTHORIZED USE OF METERS

A. No governmental entity shall use flowmeters installed on privately owned groundwater extraction facilities or service connections, or the data obtained from such meters, in order to levy or collect any general fund taxes or for any other purpose except the following:

1. To facilitate the collection of water supply and water use data;

2. To facilitate the development and implementation of water management plans, including, but not limited to, water allocation plans, water conservation plans and water supply projects;

3. To impose fees, charges, water tolls, or assessments solely to pay for the planning, development, acquisition, construction, operation, and maintenance of water supply projects, and for other water management activities, including, but not limited to, the development and implementation of water allocation or conservation plans.

B. The fees, charges, water tolls, or assessments described in paragraph A may be imposed only to pay for projects and activities that benefit the land on which the water extraction facility is located or the land on which the water is used.

C. The fees, charges, water tolls, or assessments described in paragraph A that are imposed to pay for water supply projects may only be imposed to pay for projects that commence operation after January 1, 1994.

PART IV -- VARIANCES AND ENFORCEMENT

1.01.20 VARIANCES

A. Any person may, at any time, apply in writing for a variance from the strict application of this ordinance. The application for the variance shall be filed with the Agency. The General Manager may dispense with the requirement of a written application upon finding that an emergency condition requires immediate action on the variance request.

B. The applicant shall submit an action plan within 30 days after the variance request is filed, describing how and when the applicant will comply with this ordinance without the need for a variance. Compliance with this plan, as presented by the applicant or as modified by the General Manager, shall be a condition of granting the variance.

C. The General Manager may grant a variance to the terms of this ordinance upon making both of the following findings:

1. The strict application of the ordinance would create an undue hardship, or an emergency condition requires that the variance be granted; and

2. Granting the variance will not cause a significant adverse effect on the water supply or on service to other water

consumers and will not cause a significant loss in the accuracy or completeness of water use data provided to the Agency.

D. In granting a variance, the General Manager may impose any conditions in order to ensure that the variance is consistent with the overall goals of this ordinance. Variances may be granted for a limited period of time. The variance and all time limits and other conditions attached to the variance shall be set forth in writing, and a copy of the written variance shall be provided to the applicant.

E. The decision of the General Manager on an application for a variance may be appealed as provided in the section of Ordinance No. 3539, as now in effect or as subsequently amended or superseded, pertaining to appeals.

F. No person shall operate or maintain a groundwater extraction facility, water distribution system or service connection for which a variance has been granted hereunder, or use water therefrom, in violation of any of the terms or conditions of the variance.

1.01.21 PENALTIES

A. Any person who violates any provision of this ordinance is guilty of an infraction.

B. Any violation of this ordinance is hereby declared to be a public nuisance.

C. Any violation which occurs or continues to occur from one day to the next shall be deemed a separate violation for each day during which such violation occurs or continues to occur.

D. Any person who violates this ordinance shall be assessed a fine of $100 for each violation.

E. Any person who violates this ordinance shall be liable for the cost of enforcement, which shall include but need not be limited to:

1. Cost of Investigation
2. Court Costs
3. Attorney Fees
4. Cost of Monitoring Compliance

PART V -- CONCLUDING PROVISIONS

1.01.22 SEVERABILITY

If any section, subsection, paragraph, sentence, clause, or phrase of this ordinance is for any reason held to be invalid or unconstitutional by a decision of a court of competent jurisdiction, it shall not affect the validity of the remaining portions of this ordinance, including any other section, subsection, sentence, clause, or phrase therein.

SECTION 2. REPEAL OF PRIOR ORDINANCES. Ordinance No. 3663 and Ordinance No. 3696 are hereby repealed.

SECTION 3. EFFECTIVE DATE. This ordinance shall take effect 30 days after its final adoption by the Board of Supervisors.

PASSED AND ADOPTED this 5th day of October, 1993, by the following vote:

AYES: Supervisors Salinas, Shipnuck, Perkins, Johnsen & Karas.
NOES: None.
ABSENT: None.

BARBARA SHIPNUCK, Chairwoman
Board of Supervisors

ATTEST:

ERNEST K. MORISHITA
Clerk of the Board

By Nancy Lukenbill
Deputy

APPROVED AS TO FORM:

County Counsel

Monterey County
Water Resources Agency

Ordinance No. 3718

AN URGENCY ORDINANCE OF
THE MONTEREY COUNTY WATER RESOURCES AGENCY
AMENDING ORDINANCE NOS. 3663 AND 3717
TO PROVIDE CERTAIN STANDARDS FOR THE GRANTING OF VARIANCES
TO THE TIME REQUIREMENTS FOR THE INSTALLATION OF
WATER FLOWMETERS WITHIN ZONES 2, 2A AND 2B,
AND DECLARING THE URGENCY THEREOF

County Counsel Summary

This ordinance amends Ordinance Nos. 3663 and 3717, which require the installation of water flowmeters on groundwater extraction facilities in the Salinas Valley, so as to add standards for the granting of certain variances to time limits for the installation of flowmeters. Under these standards, a variance would be granted to the requirement for installation of meters by November 1, 1993, or February 15, 1994, to allow installation within four months after the applicable deadline when, on or before the applicable deadline, an order has been placed for the meter installation and the installation will occur within four months after the applicable deadline. The variance would also apply to other requirements that depend on the installation of flowmeters.

WHEREAS on February 2, 1993, the Board of Supervisors adopted Ordinance No. 3663, adopting requirements for water suppliers within Zones 2, 2A and 2B to report water use information for groundwater extraction facilities and service connections, and to install flowmeters on groundwater extraction facilities and service connections, and said ordinance required metering of all water wells covered by the ordinance in Zones 2, 2A and 2B not later than February 15, 1995; and

WHEREAS on July 27, 1993, the Board of Supervisors adopted Ordinance No. 3696, amending Ordinance No. 3663 to advance the time for metering of wells in subareas P-1, P-2, and E-1 of Zones 2 and 2A from February 15, 1995, to November 1, 1993; and

WHEREAS on October 5, 1993, Board of Supervisors adopted Ordinance No. 3717, requiring that all remaining wells subject to the ordinance be metered on or before February 15, 1994, due to

requirements of the State Water Resources Control Board and the need to deal more expeditiously with the problems of seawater intrusion and basin-wide overdraft in the Salinas Valley Groundwater Basin; and

WHEREAS the Board of Supervisors finds that the installation of meters on all wells subject to the November 1, 1993, and February 15, 1994, deadlines may not be possible, and that the granting of variances subject to conditions would be an appropriate way to extend the time in cases of hardship;

NOW, THEREFORE, the Board of Supervisors of the Monterey County Water Resources Agency ordains as follows:

SECTION 1. Ordinance Nos. 3663 and 3717 are hereby amended by adding sub-section G. to Section 1.10.20, "Variances," of each ordinance, with sub-section G. to read as follows:

"G. If any person required to install water flowmeters under this ordinance is unable to complete such installation by the applicable deadline and such person has, on or before the applicable deadline, placed an order with a bona fide meter installation company that assures installation on or before June 15, 1994, then, upon application for a variance and proof that these conditions have been met, such person shall be granted a variance, subject to the condition that the meter be installed not later than four months after the applicable deadline. The granting of such a variance shall constitute a variance from the requirements of this or any other ordinance that depend upon the installation of a water flowmeter. In granting such a variance, the General Manager shall designate the timing and means for compliance with such other requirements, as shall be appropriate under the circumstances."

SECTION 2. SEVERABILITY. If any portion of this ordinance is declared invalid or unenforceable by a court of law, such declaration shall not affect any other portion of this ordinance and shall not affect the validity or enforceability of Ordinance No. 3717, and the same shall remain in full force and effect, as though the invalid portions of this ordinance had never been enacted.

SECTION 3. DECLARATION OF URGENCY. This ordinance is necessary to protect the economic needs of the persons subject to the well-metering requirements established in Ordinance No. 3717, which advances the deadline for installing certain meters from the deadlines established in Ordinance No. 3663. It is necessary as an urgency ordinance, in that the State Water Resources Control Board has placed an October 15, 1993, deadline on the Monterey County Water Resources Agency, within which to show proof of substantial progress in implementing short-term measures designed to aid in bringing the Salinas Valley Groundwater Basin into balance so as to

help reduce seawater intrusion in the northern part of the basin and nitrate contamination in all parts of the basin. This ordinance is necessary to provide appropriate assurances that the implementation of Ordinance No. 3717 will not work an undue hardship on any person.

SECTION 4. EFFECTIVE DATE. This ordinance shall take effect immediately, as to Ordinance No. 3663, and upon the effective date of Ordinance No. 3717, as to that ordinance.

PASSED AND ADOPTED this 5th day of October, 1993, by the following vote:

AYES: Supervisors Salinas, Shipnuck, Perkins, Johnsen & Karas.
NOES: None.
ABSENT: None.

BARBARA SHIPNUCK, Chairwoman
Board of Supervisors

ATTEST:

ERNEST K. MORISHITA
Clerk of the Board

By _____ Deputy

APPROVED AS TO FORM:

_____
County Counsel

REASONS WHY PROJECT IS EXEMPT: Changing the date for the installation of flowmeters on groundwaters will have no adverse effect on the environment.

The well metering speedup ordinance advances the date by which meters must be installed on groundwater wells in portions of the Salinas Valley Groundwater Basin, and the second ordinance provides for variances from the advanced deadline. This action will have no effect on the environment. It will facilitate the gathering of information about pumping in the Salinas Valley.

The ordinances are exempt from CEQA under the following sections of the CEQA Guidelines, as follows:

1. Sec. 15061(b)(3): it can be seen with certainty that there is no possibility that the ordinance may have a significant adverse effect on the environment.

2. Sec. 15307: the ordinance is categorically exempt as an action taken by a regulatory agency as authorized by state law or local ordinance to assure the maintenance, restoration, or enhancement of a natural resource, where the regulatory process involves procedures for protection of the environment. In the present case, the procedure for protection of the environment was to prepare an initial study under CEQA to analyze the potential environmental effects of the proposed ordinance.

3. Sec. 15308: the ordinance is categorically exempt as an action taken by a regulatory agency as authorized by state law or local ordinance to assure the maintenance, restoration, or enhancement of the environment, where the regulatory process involves procedures for protection of the environment. In the present case, the procedure for protection of the environment was to prepare an initial study under CEQA to analyze the potential environmental effects of the proposed ordinance.

DATED: October 6, 1993

MONTEREY COUNTY WATER RESOURCES AGENCY, William F. Hurst, General Manager

By William F. Hurst

(EXEMPT1.NOT - 10/6/93)

Appendix B
Monterey County Water Resources Agency
Ordinance No. 3851

DRAFT

Monterey County
Water Resources Agency

Ordinance No. 03851

AN ORDINANCE
REQUIRING THE FILING OF
AGRICULTURAL WATER CONSERVATION PLANS

County Counsel Summary

This ordinance requires that all growers farming property in Zones 2, 2A, or 2B file plans with the Monterey County Water Resources Agency not later than February 15 of each year, showing the water conservation measures that the growers will implement for their agricultural operations during that calendar year and the water conservation measures implemented during the previous year. The ordinance describes the required contents of the plans, and prescribes penalties for failure to file plans on time. By its terms, the ordinance is to be reviewed by the Board of Supervisors within three years following its adoption.

The Board of Supervisors of the Monterey County Water Resources Agency ordains as follows:

Section 1. Authority.

Under the Monterey County Water Resources Agency Act (Stats. 1990, Chap. 1159, as amended), the Agency has jurisdiction over matters pertaining to water within the entire area of the County of Monterey, including both incorporated and unincorporated areas. Under the Act, the Agency is authorized to conserve water in any manner, to prevent the waste or diminution of the water supply within the territory of the Agency, to conserve water for the present and future use within the territory of the Agency, and to prevent groundwater extractions which are determined to be harmful to the groundwater basin. The Agency may further adopt, by ordinance, reasonable procedures, rules, and regulations to implement the Act, and may specify in any ordinance that a violation of the ordinance is an infraction. The Board further has power to perform all other acts necessary or proper to accomplish the purposes of the Act.

Section 2. Findings.

A. Many groundwater areas of Monterey County are experiencing overdraft. This inability to maintain a constant water supply is based in part on demand for water resources which, for many years, has annually exceeded the natural and augmented recharge capabilities in Monterey County. The recent drought significantly increased overdraft and exacerbated water quality impacts. However, even without the drought, overdraft of the groundwater basin remains a constant problem. Overdrafting of the groundwater basin contributes to the serious problem of intrusion of seawater into the basin along the coast and nitrate contamination throughout the valley.

B. The conservation of agricultural water is an economically and environmentally feasible way to reduce water demand, to help prevent further overdraft, and to help curtail the presently existing threat to the groundwater basin.

C. Enactment of this ordinance is a matter of necessity in that the severity of groundwater overdraft, seawater intrusion, and nitrate contamination is an imminent threat to the municipal water supply for thousands of County residents and a multi-billion dollar agricultural business.

Section 3. Purpose.

The purpose of this ordinance is to require all growers in Zones 2, 2A, and 2B of the Salinas Valley to develop a water conservation plan for the upcoming year and to report the measures implemented in the previous year. The plan is to be filed with the Water Resources Agency.

Section 4. Definitions.

A. Grower.
"Grower" means any individual, person, firm, partnership, corporation, or other business entity engaged in the business of raising crops for commercial purposes. In the case of a business entity (firm, partnership, corporation, or other entity), "grower" refers to the business entity and to the responsible managing officials or employees of the entity; in the case of the agricultural business and to the responsible managing employees of the business.

B. Zones 2, 2A, and 2B.
Zones 2, 2A, and 2B mean the zones established by the Monterey County Water Resources Agency in connection with the construction of the San Antonio and Nacimiento Dams and Reservoirs and the Castroville Irrigation and Waste Water Reclamation Projects.

C. Farming Unit.
"Farming unit" means a block of land (a ranch or adjacent ranches) and the well or wells that serve it.

D. Gross Acreage.
"Gross acreage" means all acreage including farm roads, buildings, etc.

E. Net Acreage.
"Net acreage" means physical field acres, not "crop acres".

Section 5. Agricultural Water Conservation Plan Required.

A. All growers farming property, any portion of which is located in Zones 2, 2A, or 2B, shall prepare a Water Conservation Plan for the entire property, and shall submit the plan, in writing, to

the Monterey County Water Resources Agency not later than February 15 of each year. The plan shall describe how growers will maximize their share of the overall responsibility for reducing agricultural water use, and to this end, shall include the following information:

I. Indicate gross acreage, net acreage, and number of wells associated with the farming unit.

ii. Indicate conservation alternatives implemented in the previous year, including acres affected.

iii. Indicate conservation alternatives to be implemented in the upcoming year, including acres affected.

iv. Indicate irrigation method used per crop type.

B. The Water Resources Agency will provide guidelines and forms for reporting this information.

C. The Agency, after reviewing the water conservation plans, may make recommendations to the growers for further water conservation measures.

Section 6. Penalties.

A. Any failure to file a water conservation plan with contents that substantially comply with the requirements set forth herein, within the time limits set by this ordinance, is a violation of the ordinance; each such violation shall be an infraction.

B. Any violation that occurs or continues from one day to the next shall be deemed a separate violation, for each day during which such violation occurs or continues to occur.

C. The fine for a violation of this ordinance shall be $50.00 for each day during which the violation occurs or continues to occur. The proceeds from all fines shall go to the Water Resources Agency, Fund 206 Account 5450.

Section 7. Enforcement.

The General Manager and all officers and employees of the Agency, including all ex officio officers and employees, shall have authority to enforce all the provisions of this ordinance.

Section 8. Severability.

If any section, subsection, clause, or phrase of this ordinance is for any reason held to be

unconstitutional or invalid, such decision shall not affect the validity of the remaining portions of this ordinance. The Board of Supervisors hereby declares that it would have passed this ordinance and each section, subsection, clause, or phrase thereof irrespective of the fact that any other part thereof be unconstitutional or invalid.

Section 9. Review by Board of Supervisors.

Not later than three (3) years from the effective date of this ordinance, the Board of Supervisors shall review this ordinance and determine whether the ordinance should remain in effect without change, be amended, or be repealed.

PASSED AND ADOPTED this 12/5/95, by the following vote, to-wit:
AYES: Supervisors Salinas, Pennycook, Perkins, Johnsen and Karas.
NOES: None.
ABSENT: None.

Tom Perkins
Chairperson
Board of Supervisors

ATTEST:

ERNEST K. MORISHITA
Clerk of the Board
By Nancy Lukenbill

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Appendix C
Monterey County Water Resources Agency
Ordinance No. 3886

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ORDINANCE NO. 3886

AN ORDINANCE
OF THE MONTEREY COUNTY WATER RESOURCES AGENCY
AMENDING ORDINANCE NOS. 3744 AND 3751
REQUIRING THE FILING OF
URBAN WATER CONSERVATION PLANS

PASSED: SEPTEMBER 17, 1996

Monterey County
Water Resources Agency

Ordinance No. 03886

AN ORDINANCE OF THE MONTEREY COUNTY WATER RESOURCES AGENCY AMENDING ORDINANCE NOS. 3744 AND 3751 REQUIRING THE FILING OF URBAN WATER CONSERVATION PLANS

County Counsel Summary

This ordinance requires that all cities and urban water purveyors within Zones 2, 2A, or 2B file plans with the Monterey County Water Resources Agency not later than February 15 of each year, showing the water conservation measures that the entities will implement during that calendar year and the water conservation measures implemented during the previous calendar year. The ordinance describes the required contents of the plans, and prescribes penalties for failure to file plans on time.

The Board of Supervisors of the Monterey County Water Resources Agency ordains as follows:

SECTION I. Monterey County Water Resources Agency Ordinance No. 3744, as amended by Ordinance No. 3751, is amended to read, in its entirety, as follows:

Section 1. Authority.

Under the Monterey County Water Resources Agency Act (Water Code Appendix, Chapter 52), the Agency has jurisdiction over matters pertaining to water within the entire area of the County of Monterey, including both incorporated and unincorporated areas. Under the Act, the Agency is authorized to conserve water in any manner, to prevent the waste or diminution of the water supply within the territory of the Agency, to conserve water for the present and future use within the territory of the Agency, and to prevent groundwater extractions which are determined to be harmful to the groundwater basin. The Agency may further adopt, by ordinance, reasonable procedures, rules, and regulations to implement the Act, and may specify in any ordinance that a violation of the ordinance is an infraction. The Board of Supervisors further has power to perform all other acts necessary or proper to accomplish the purposes of the Act.

Section 2. Findings.

A. Many groundwater areas of Monterey County are experiencing overdraft. This inability to maintain a constant water supply is based in part on demand for water resources which, for many years, has annually exceeded the natural and augmented recharge capabilities in Monterey County. Drought conditions significantly increase overdraft and exacerbate water quality impacts. However,

even without drought conditions, overdraft of the groundwater basin remains a constant problem. Overdrafting of the groundwater basin contributes to the serious problem of intrusion of seawater into the basin along the coast.

B. The conservation of water is an economically and environmentally feasible way to reduce water demand, to help prevent further overdraft, and to help curtail the presently existing threat of nitrate contamination to the groundwater basin.

C. Enactment of this ordinance is a matter of necessity in that the severity of groundwater overdraft, seawater intrusion, and nitrate contamination is an imminent threat to the municipal water supply for thousands of County residents and a multi-billion dollar agricultural business.

Section 3. Purpose and Intent.

A. The purpose of this ordinance is to require all cities and urban water purveyors within Zones 2, 2A, and 2B of the Salinas Valley to develop a water conservation plan for the upcoming year and to report the measures implemented in the previous year. The plan is to be filed with the Water Resources Agency.

B. The intent of this ordinance is to provide the separate jurisdictions within Zones 2, 2A and 2B of the Salinas Valley with the flexibility to establish a conservation goal for their jurisdiction and design their own water conservation program, while encouraging the use of Best Management Practices to their fullest reasonable extent.

Section 4. Definitions.

A. **Agency**.
"Agency" means the Monterey County Water Resources Agency.

B. **Conservation.**
"Conservation" means reduction in applied water due to more efficient water use such as through implementation of Best Management Practices.

C. **Ground Water Extraction Facility**.
"Ground water extraction facility" or "facility" means a well or facility for the extraction of ground water which employs a motor-driven pump for the extraction of ground water.

D. **Service Connection.**
"Service connection" means a connection between a water distribution system or ground water extraction facility and a water user's pipes or facilities.

E. **Small Water System.**
"Small Water System" means a water system which serves 15 to 200 service connections.

F. **Urban Water Purveyor.**

"Urban Water Purveyor" means the operator of a water system which serves 15 or more service connections providing water to residential, industrial, commercial, municipal, institutional, governmental or other urban uses, and shall also mean the operator of a ground water extraction facility which has a discharge pipe with an inside diameter equal to or greater than 3 inches, or system supplied by such extraction facility, that provides water to one or more industrial, commercial, or institutional water users. Without limitation, this term applies to all cities, water districts, county service areas, and private and public water systems which meet the above criteria.

G. **Zones 2, 2A, and 2B.**

"Zones 2, 2A, and 2B" mean the zones established by the Agency in connection with the construction of the San Antonio and Nacimiento Dams and Reservoirs and the Castroville Irrigation and Wastewater Reclamation Projects, including any subsequent annexations thereto.

Section 5. Urban Water Conservation Plan Required.

A. Each urban water purveyor providing water to service connections located in Zones 2, 2A, or 2B, shall prepare a Water Conservation Plan, and shall submit the plan, in writing, to the Agency, and also to the city having land use planning authority over the territory served by the purveyor, not later than February 15 of each year. Urban water purveyors shall prepare separate plans for each stand-alone system. The plan shall describe how urban water purveyors will maximize their share of the overall responsibility for reducing water use, and to this end, shall include the following information:

I. The number of service connections served by the purveyor;

ii. The total quantity of water produced by the purveyor;

iii. The quantity of water produced by the purveyor as an average per service category per service connection; and

iv. The number of acres of land currently within the purveyor's service area.

B. Each incorporated city within Zones 2, 2A, or 2B shall submit a Water Conservation Plan, by April 15 of each year, whether they are an urban water purveyor or not, which includes the water conservation goals of the jurisdiction, and a description of the policies adopted to support those goals. Cities can refer to and incorporate Water Conservation Plans submitted by other urban water purveyors whose service area is within their incorporated boundaries.

C. The Agency will provide guidelines and forms for reporting this information.

D. The Agency, after reviewing the water conservation plans, may make recommendations for further water conservation measures.

Section 6. Variances.

A. **Application for Variance.** Any jurisdiction or urban water purveyor may, at any time, apply in writing for a variance from the requirement to comply with the provisions established pursuant to this ordinance. The jurisdiction may apply for the variance before the event occurs for which the variance is requested, during such event, or afterwards, or at the time of filing the reports required by Ordinance No. 3717 or any successor ordinance, after the end of the water reporting year. The application for the variance shall be filed with the Agency. The General Manager may dispense with the requirement of a written application upon finding that an emergency condition requires immediate action on the variance request.

B. **Plan for Compliance.** The applicant shall submit a plan at the time the variance request is filed, describing how and when the applicant will comply with this ordinance without the need for a variance. Compliance with this plan, as presented by the applicant or as modified by the General Manager, shall be a condition of granting the variance.

C. **Action on Variance Application.** The General Manager shall act on the variance request by either granting or denying the request within 10 working days after the request is filed; if the variance request is filed after the end of the water reporting year for which the variance is sought, action shall be taken within 60 days after the request is filed. The General Manager may grant a variance to the terms of this ordinance upon making both of the following findings:

1. The strict application of the ordinance would create an undue hardship, or an emergency condition requires that the variance be granted; and

2. Granting the variance will not cause a significant adverse effect on the water supply or on service to other water consumers and will not cause a significant loss in the accuracy or completeness of water use data provided to the Agency.

D. **Grant of Variance Subject to Conditions.** In granting a variance, the General Manager may impose any conditions in order to ensure that the variance is consistent with the overall goals of this ordinance. Variances may be granted for a limited period of time. The variance and all time limits and other conditions attached to the variance shall be set forth in writing, and a copy of the written variance shall be provided to the applicant.

E. **Compliance with Terms of Variance.** No person shall operate or maintain a groundwater extraction facility, water distribution system or service connection for which a variance has been granted hereunder, or use water therefrom, in violation of any of the terms or conditions of the variance.

F. **Appeal of Decision on Variance.** Any interested person may appeal any decision by the Agency General Manager to approve or deny a variance in the manner provided in this ordinance. Any person who is aggrieved by an appealable action or decision may initiate the appeal by filing a written appeal with the Agency within ten days after the date of the action or decision.

G. **Hearing and Decision by Directors.** The appeal shall be heard by the Board of Directors at a duly noticed public hearing not later than 30 days after the date the appeal is filed with the Agency. Decisions by the Board of Directors shall be final and shall not be subject to further administrative appeals.

Section 7. Enforcement and Penalties.

A. The General Manager and all officers and employees of the Agency, including all ex officio officers and employees, shall have authority to enforce all the provisions of this ordinance.

B. Any failure to file a water conservation plan with contents that substantially comply with the requirements set forth herein, within the time limits set by this ordinance, is a violation of the ordinance; each such violation shall be an infraction.

C. Any violation that occurs or continues from one day to the next shall be deemed a separate violation, for each day during which such violation occurs or continues to occur.

D. The fine for a violation of this ordinance shall be $50.00 for each day during which the violation occurs or continues to occur. The proceeds from all fines shall go toward the Agency water conservation data collection efforts (Fund 206, Program 9458).

Section 8. Severability.

If any portion of this ordinance is for any reason held to be unconstitutional or invalid, such decision shall not affect the validity of the remaining portions of this ordinance. The Board of Supervisors hereby declares that it would have passed this ordinance and each section, subsection, clause, or phrase thereof irrespective of the fact that any other part thereof be unconstitutional or invalid.

Section 9. Amendment of Ordinance Nos. 3744 and 3751.

This ordinance amends Monterey County Water Resources Agency Ordinance No. 3744, prescribing requirements for urban water conservation and allocation plans, and Monterey County Water Resources Agency Ordinance No. 3751, amending Ordinance No. 3744, in their entirety.

<u>SECTION II.</u> Effective Date.

This ordinance shall take effect on the thirty-first day after its adoption.

PASSED AND ADOPTED this 9/17/96, by the following vote:

AYES: Supervisors Salinas, Pennycook, Perkins, Johnsen, Karas
NOES: None
ABSENT: None

Edith Johnsen, Chair
Board of Supervisors of the Monterey County Water Resources Agency

ATTEST:

ERNEST K. MORISHITA
Clerk of the Board
By Pamela Olivas

APPROVED AS TO FORM
DEPUTY COUNTY COUNSEL
COUNTY OF MONTEREY

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Appendix D

Additional Groundwater Extraction Figures

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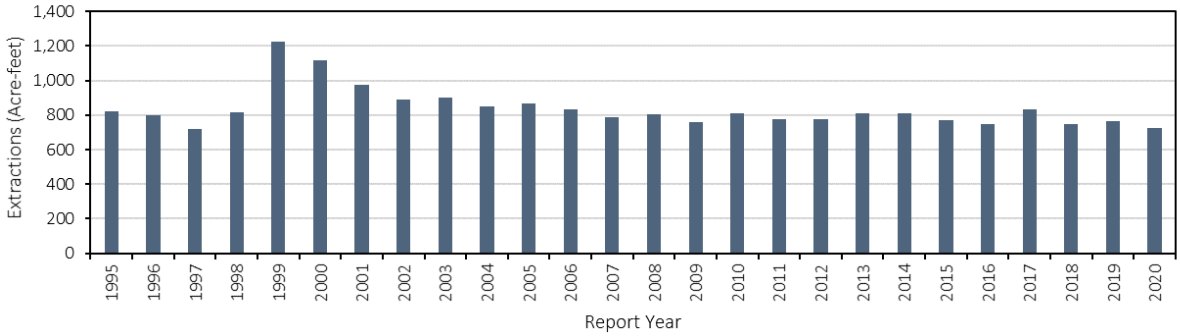
Urban Extraction by City or Other Area Time Series

Castroville



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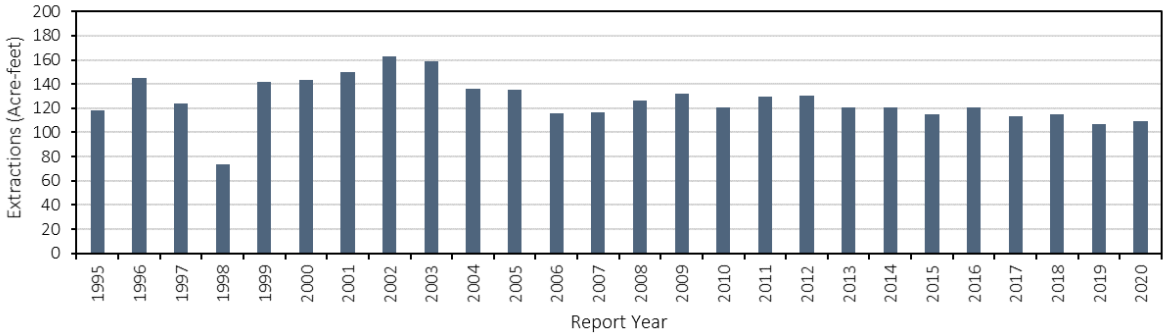
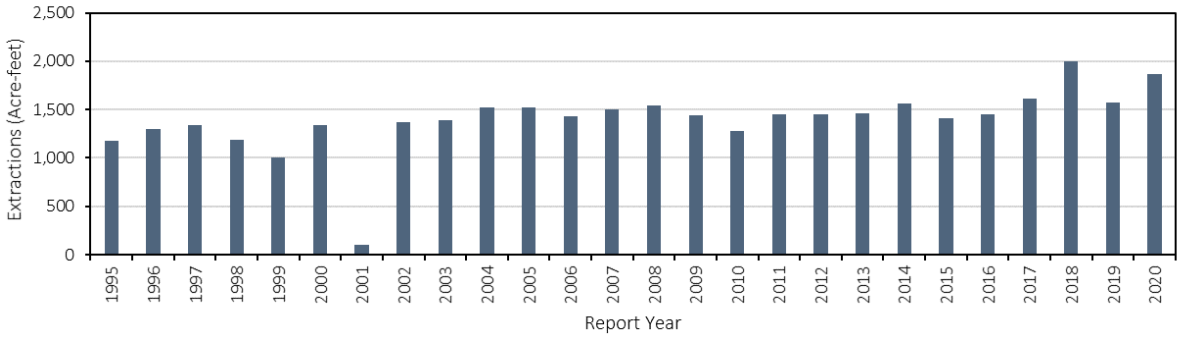
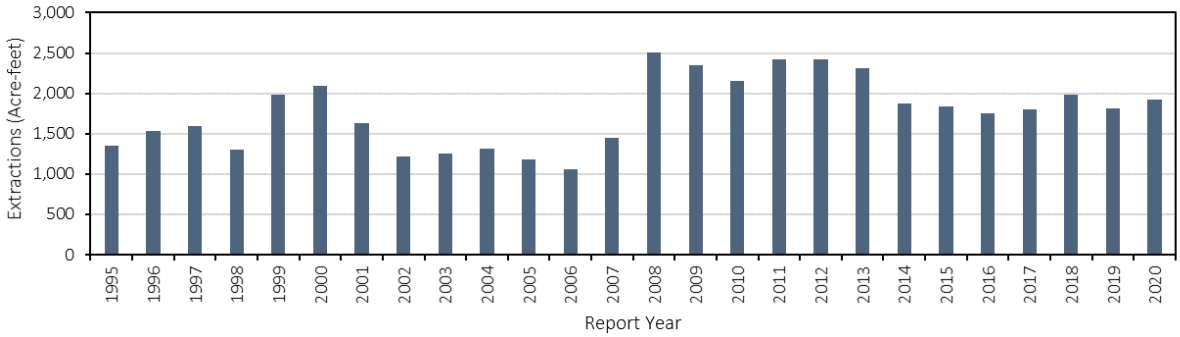


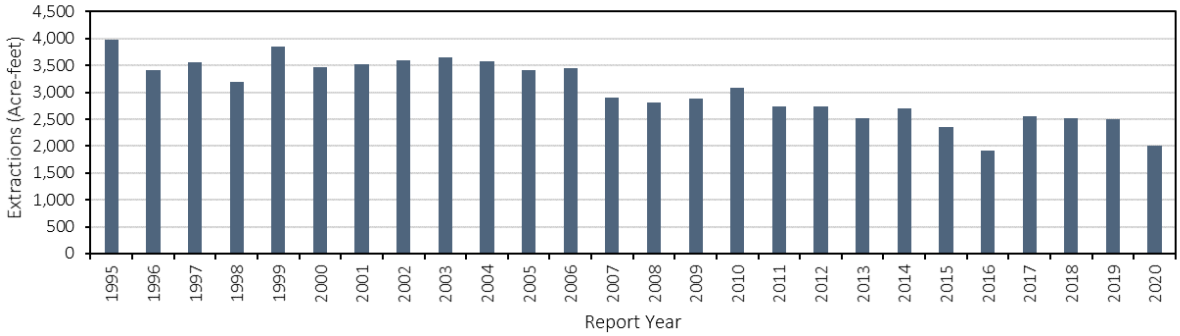
Gonzales



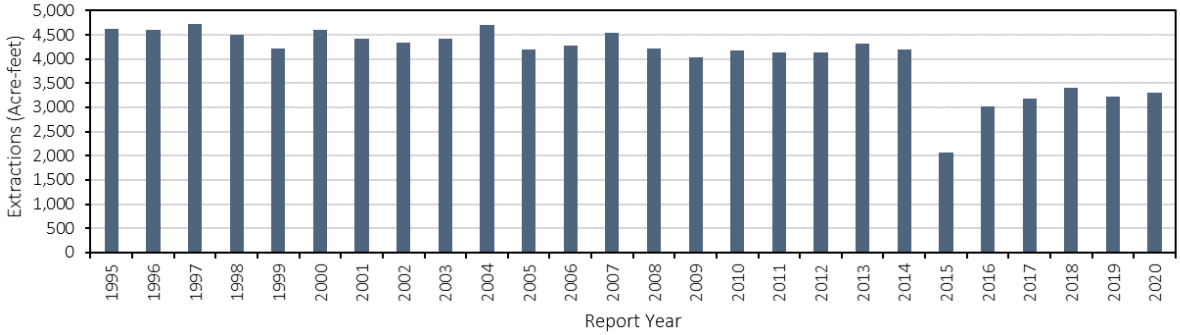
Greenfield



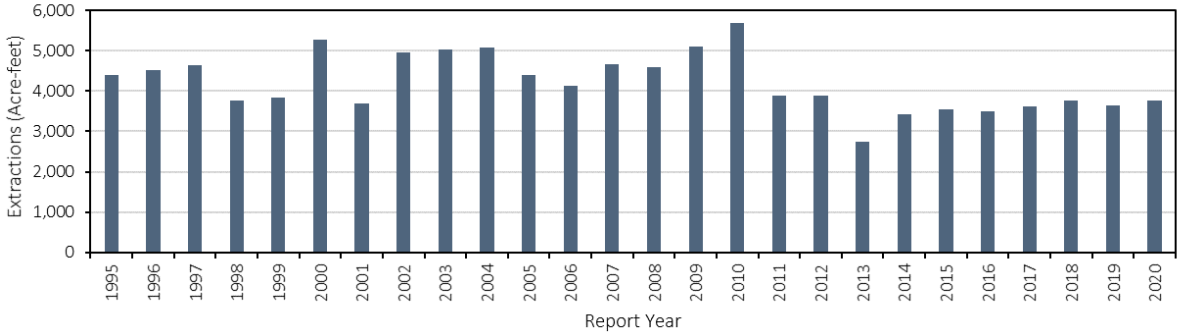
King City



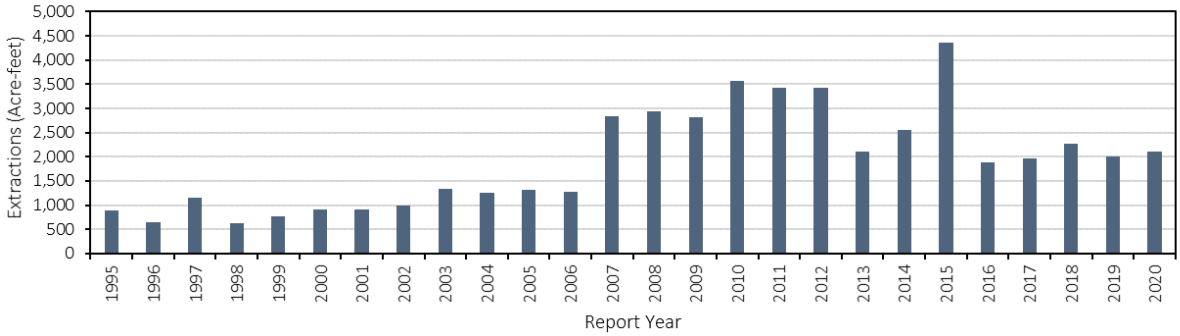
Marina



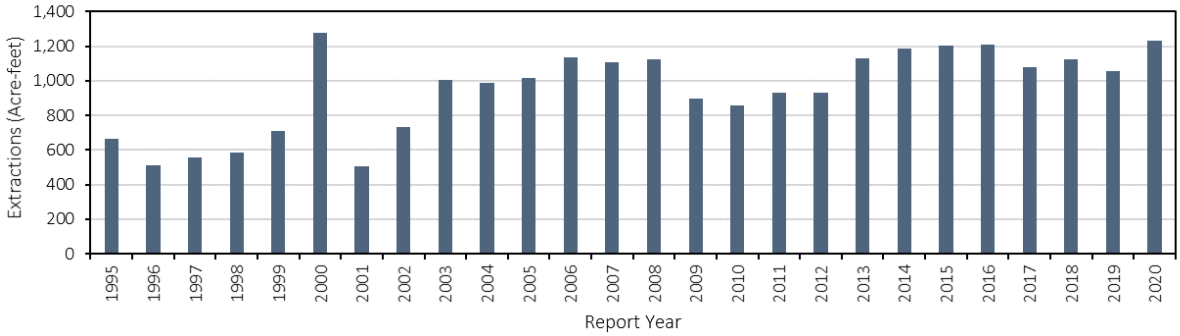
Other Areas-Pressure Subarea



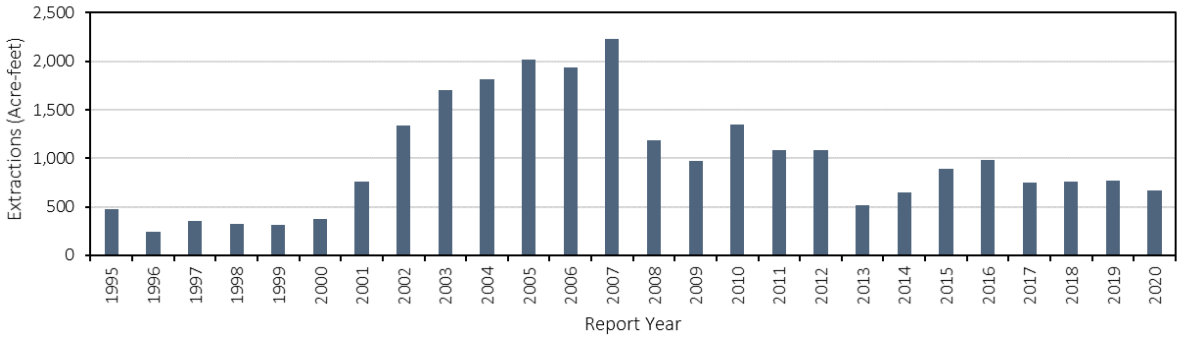
Other Areas- East Side Subarea



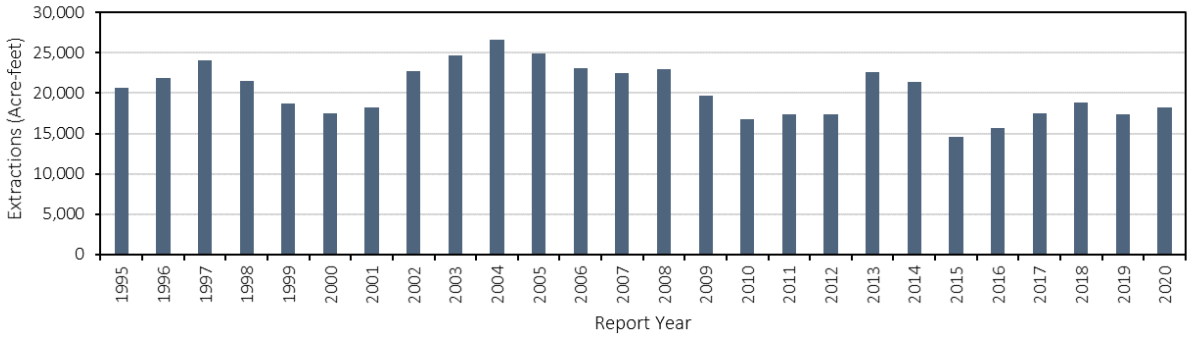
Other Areas- Forebay Subarea



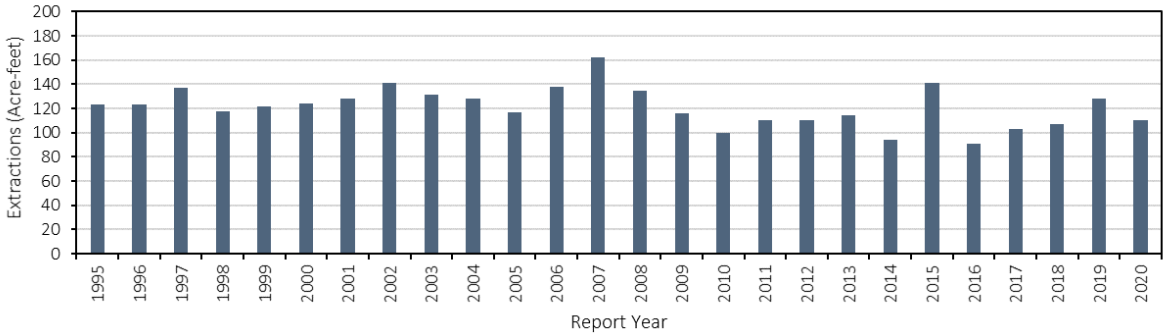
Other Areas- Upper Valley Subarea



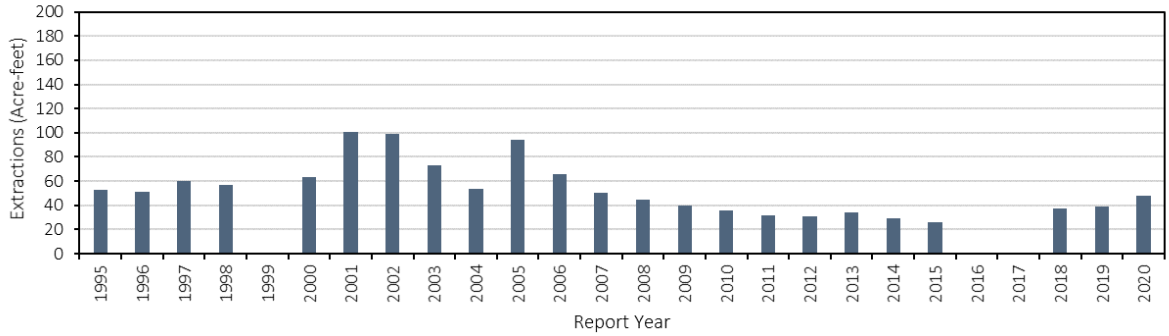
Salinas



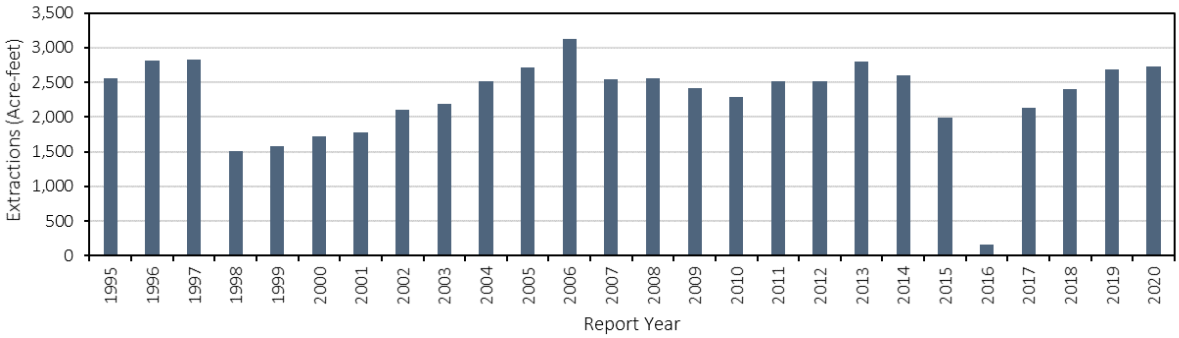
San Ardo



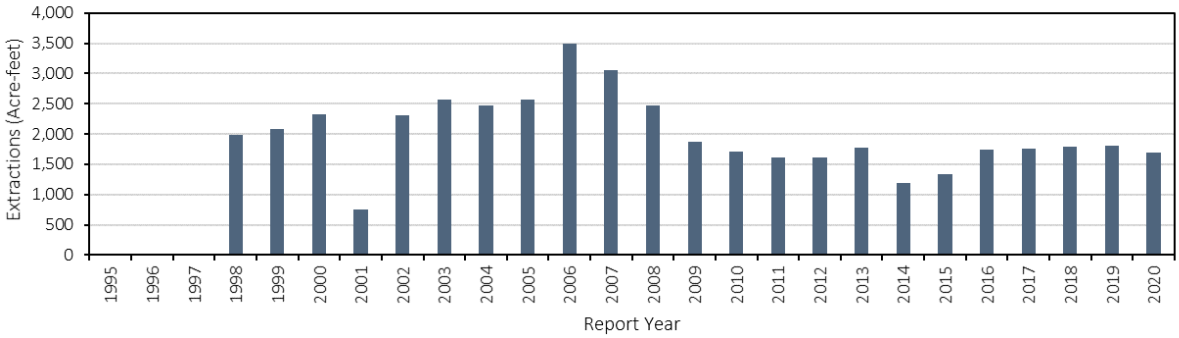
San Lucas



Soledad



Soledad Prisons



Appendix E

Additional Water and Land Use Figures

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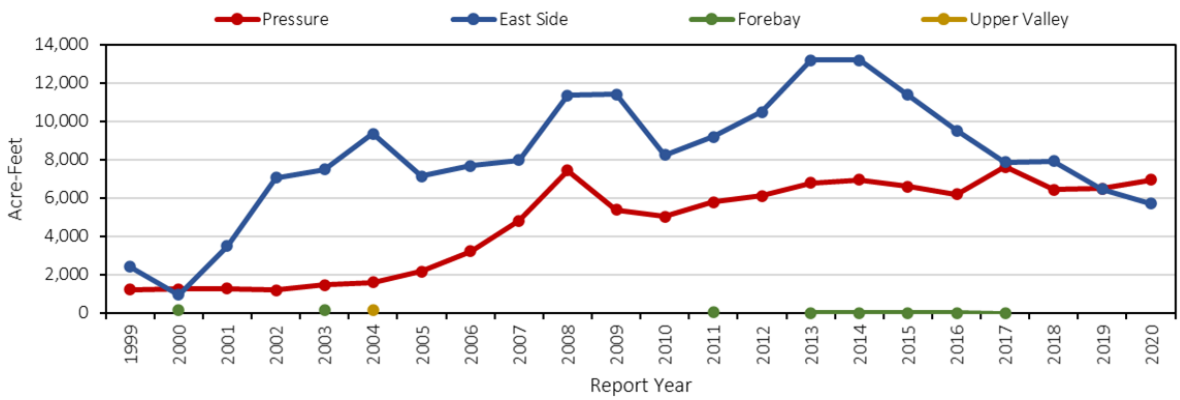
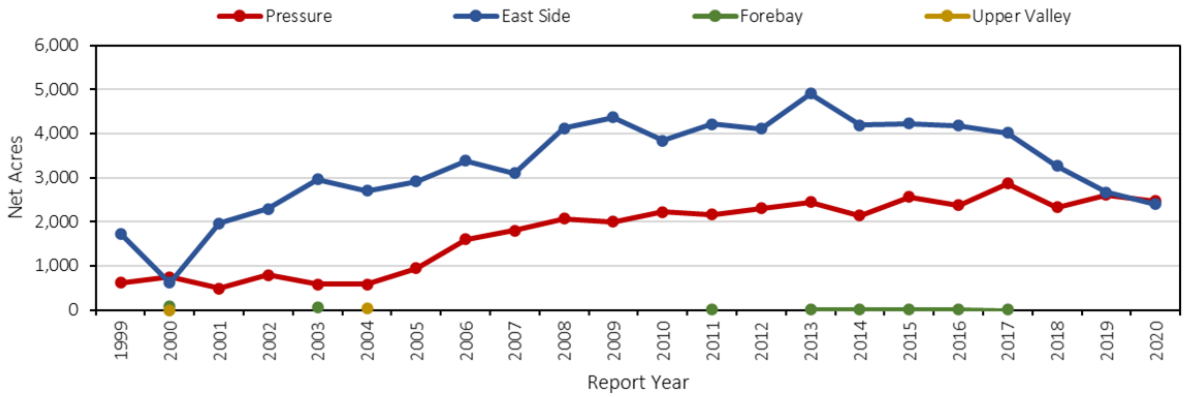
The following figures are grouped by crop type, with data from each subarea included in each. For each crop type three figures are presented: net acreage grown, acre-feet of water used, and the AF/acre each year.

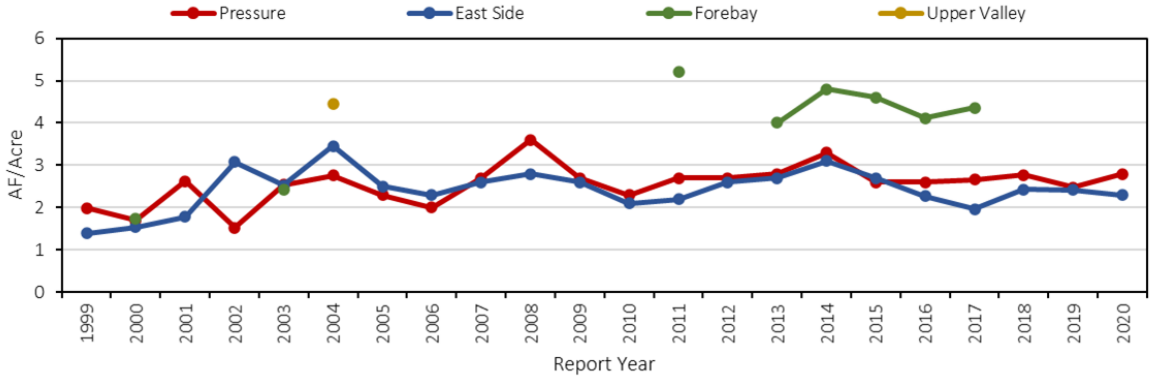
Berries



Water Usage (acre-feet) for Berries, by Subarea

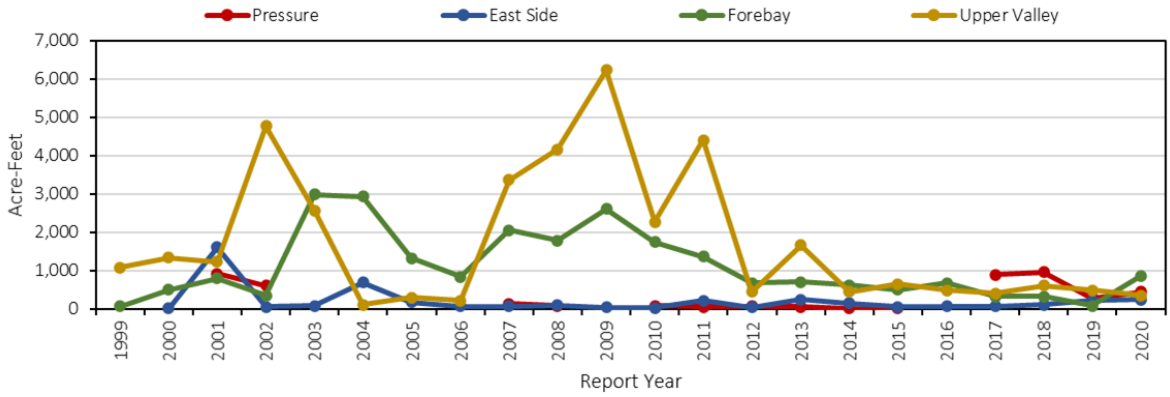


Land Usage (net acres) for Berries, by Subarea

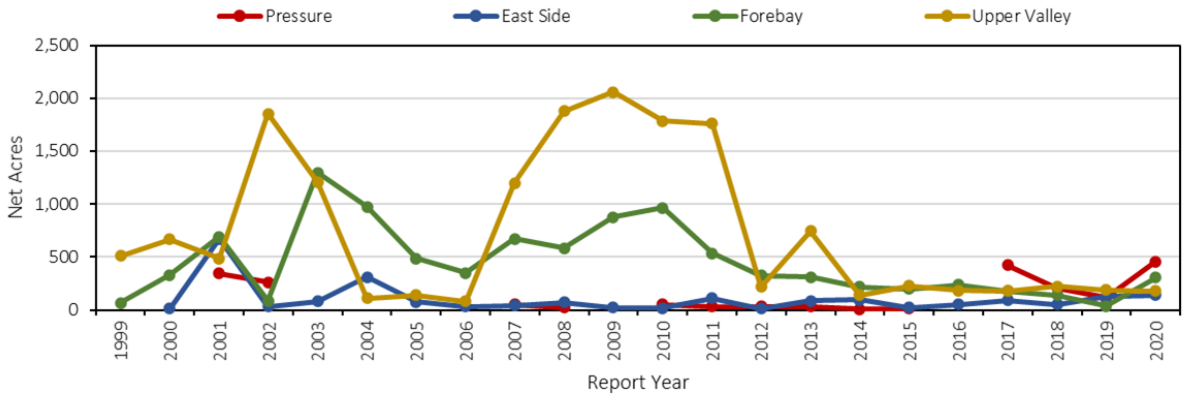


Water Efficiency (AF/acre) for Berries, by Subarea

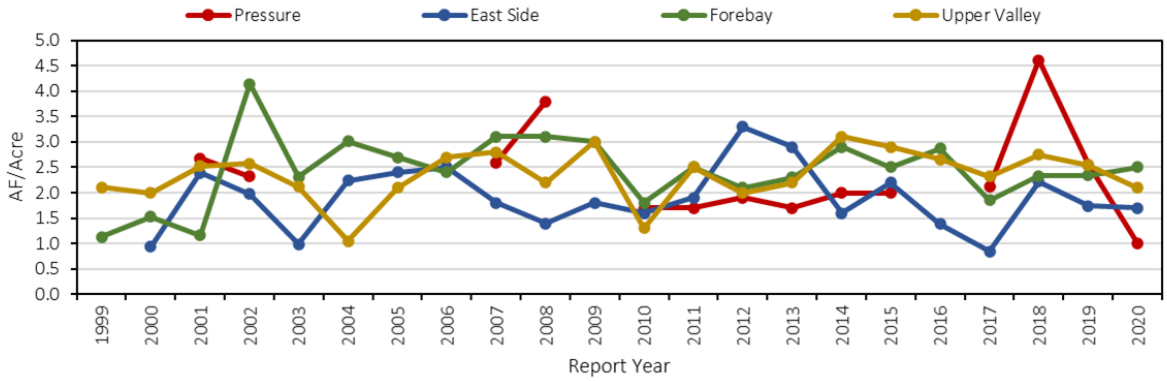
Field Crops



Water Usage (acre-feet) for Field Crops, by Subarea

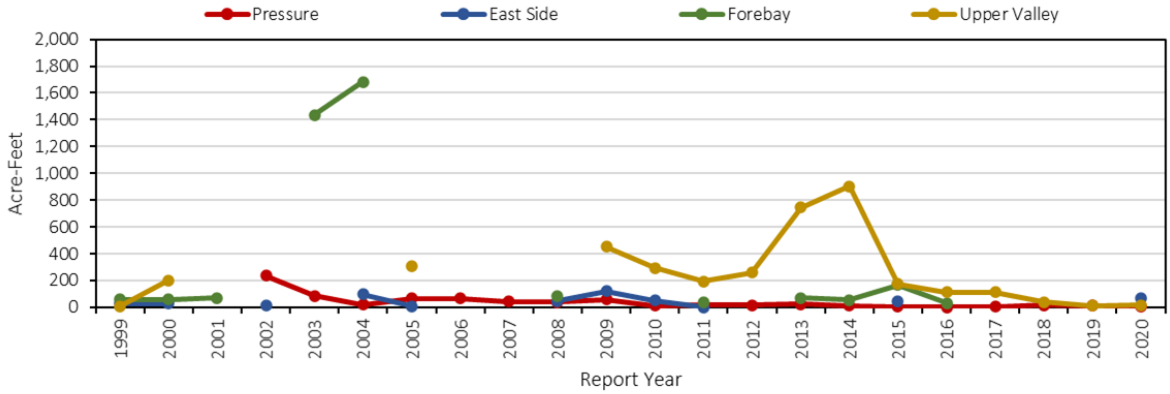


Land Usage (net acres) for Field Crops, by Subarea

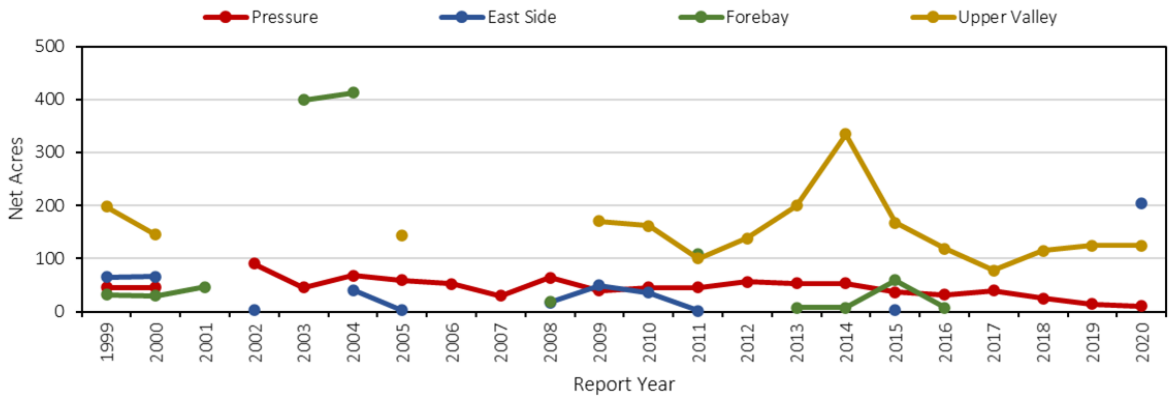


Water Efficiency (AF/acre) for Field Crops, by Subarea

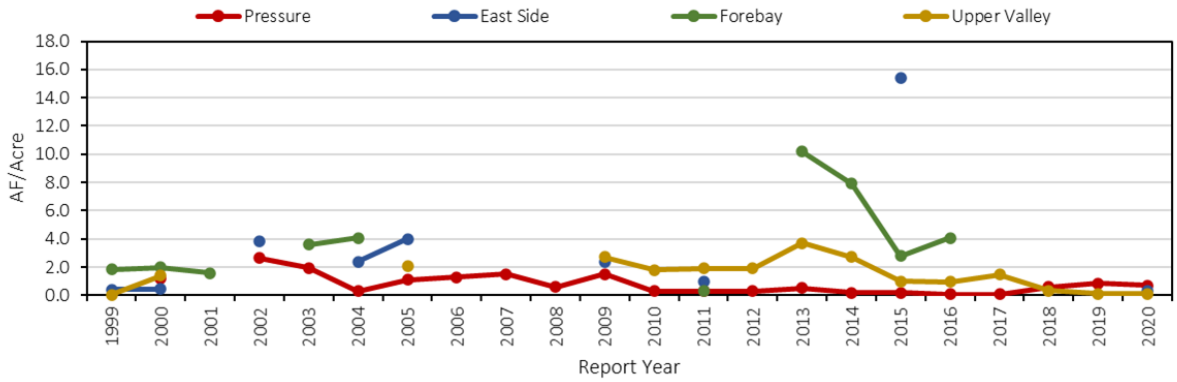
Forage Crops



Water Usage (acre-feet) for Forage Crops, by Subarea

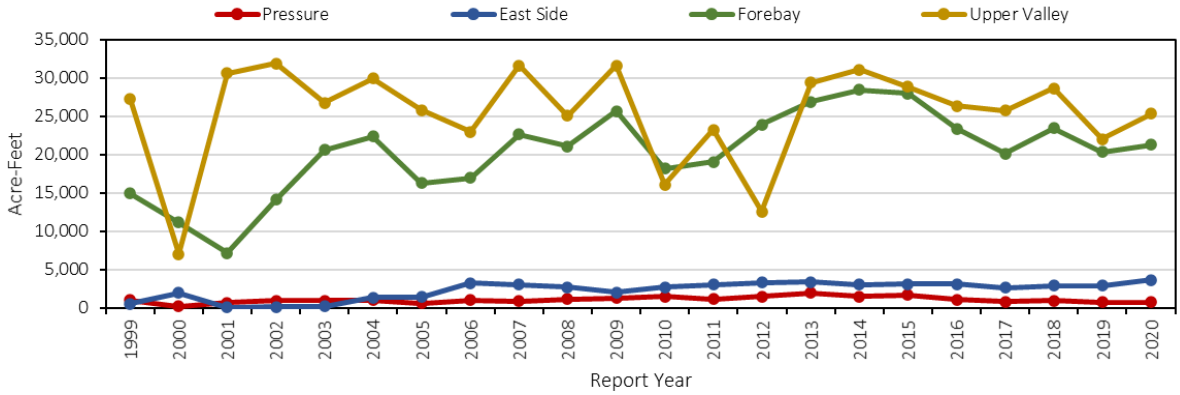


Land Usage (net acres) for Forage Crops, by Subarea

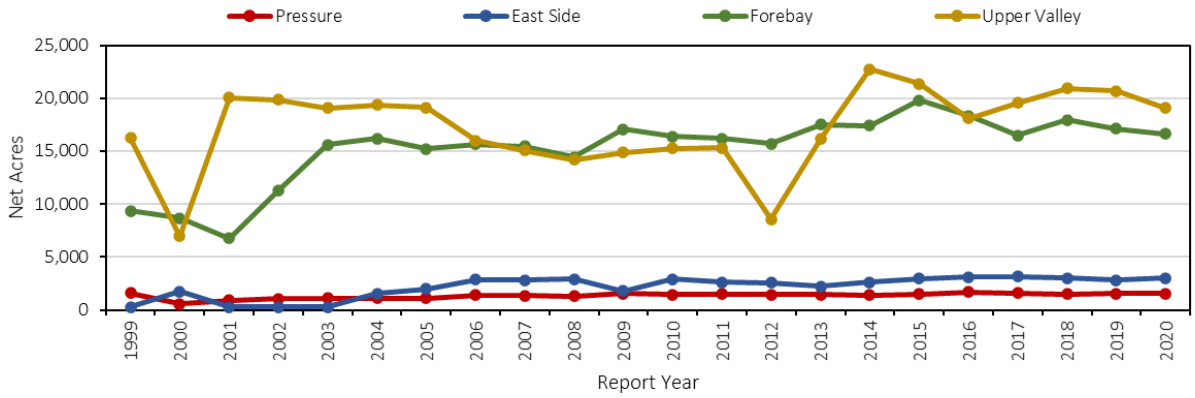


Water Efficiency (AF/acre) for Forage Crops, by Subarea

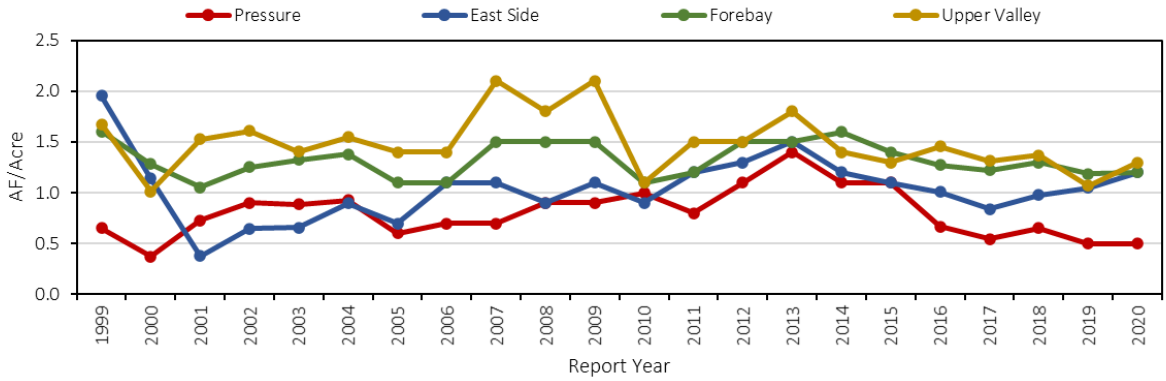
Grapes



Water Usage (acre-feet) for Grapes, by Subarea

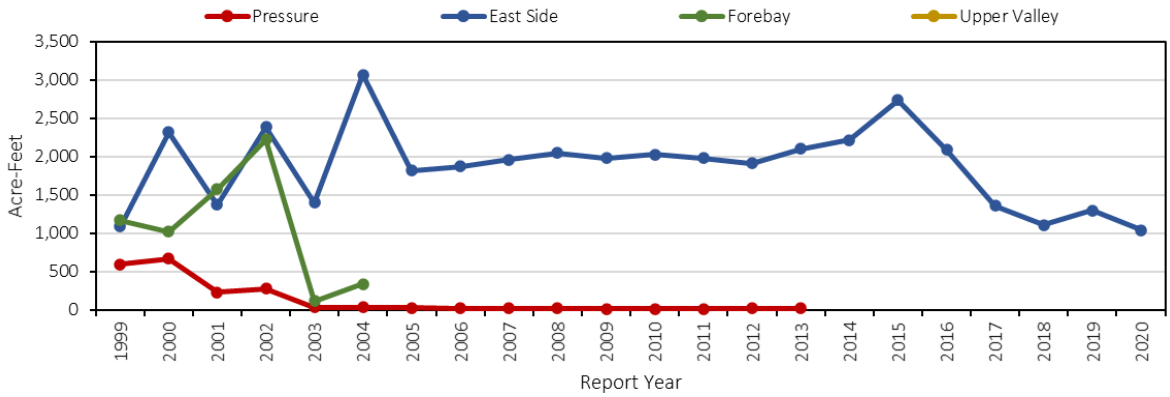


Land Usage (net acres) for Grapes, by Subarea

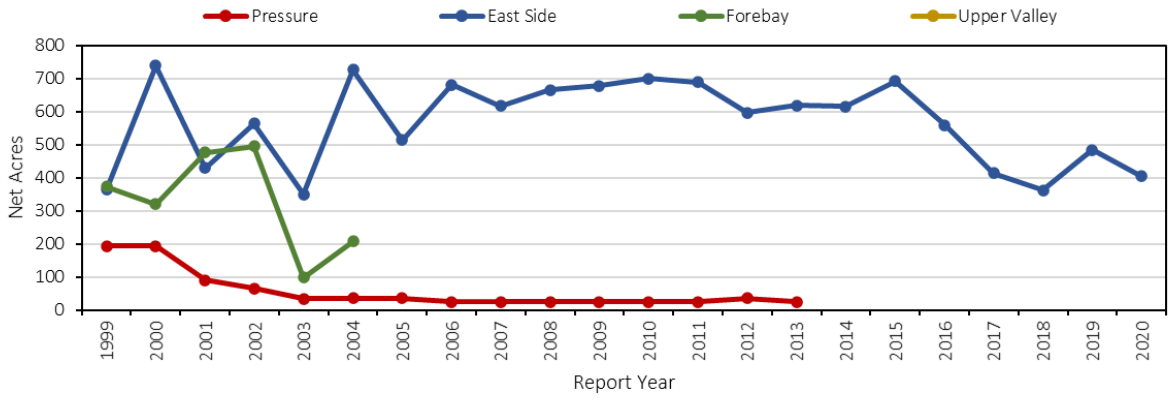


Water Efficiency (AF/acre) for Grapes, by Subarea

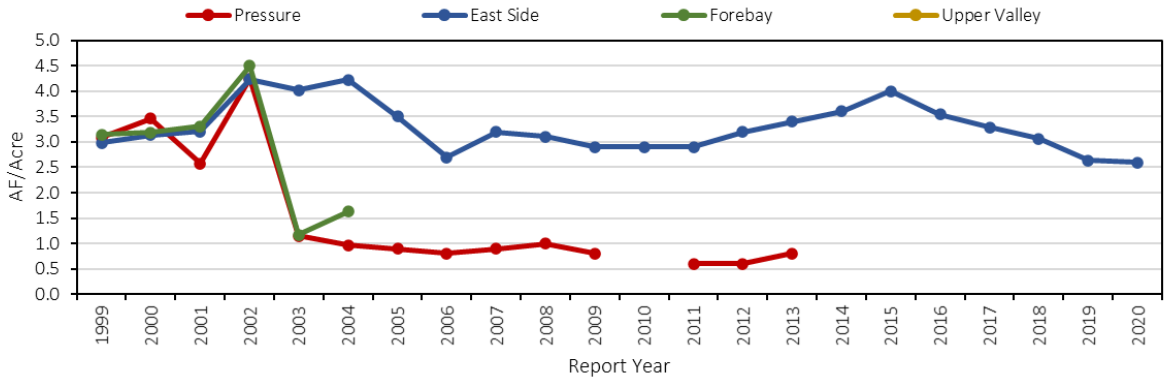
Nursery



Water Usage (acre-feet) for Nurseries, by Subarea

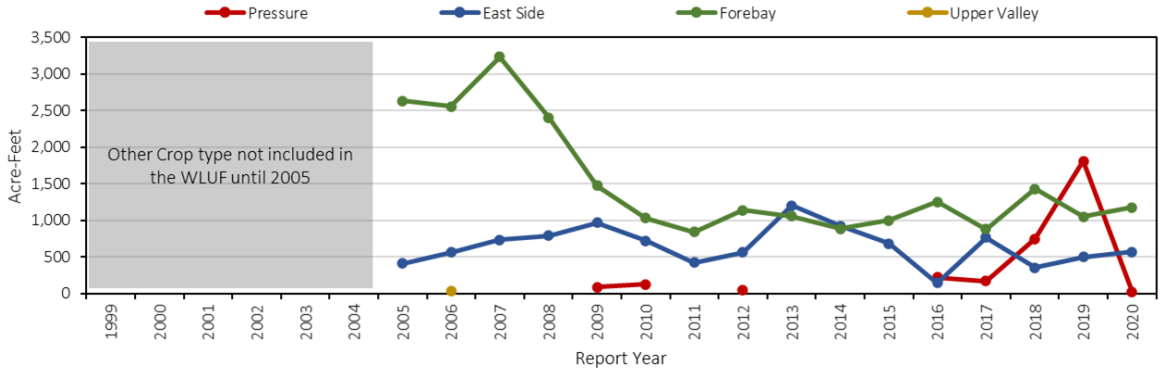


Land Usage (net acres) for Nurseries, by Subarea

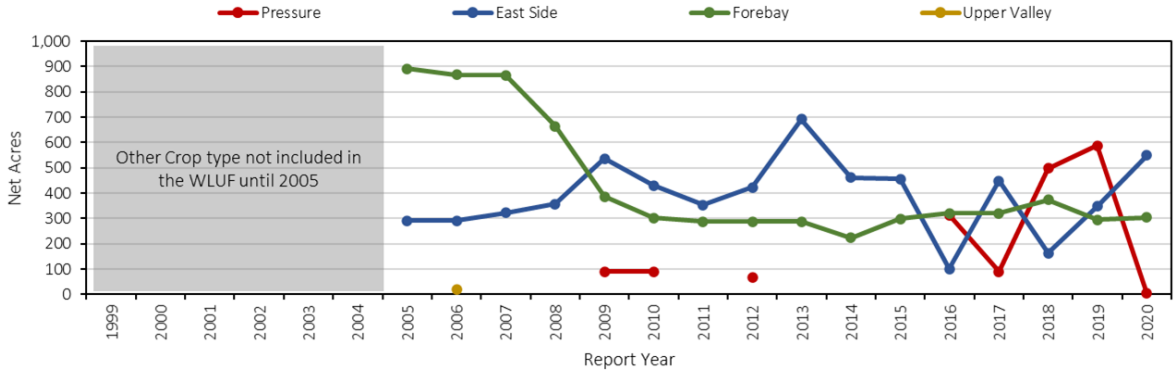


Water Efficiency (AF/acre) for Nurseries, by Subarea

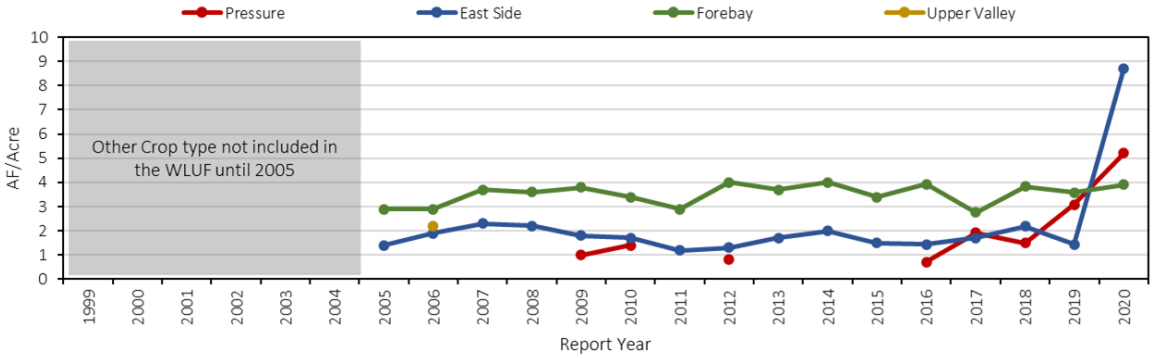
Other Crop Types



Water Usage (acre-feet) for Other Crops, by Subarea

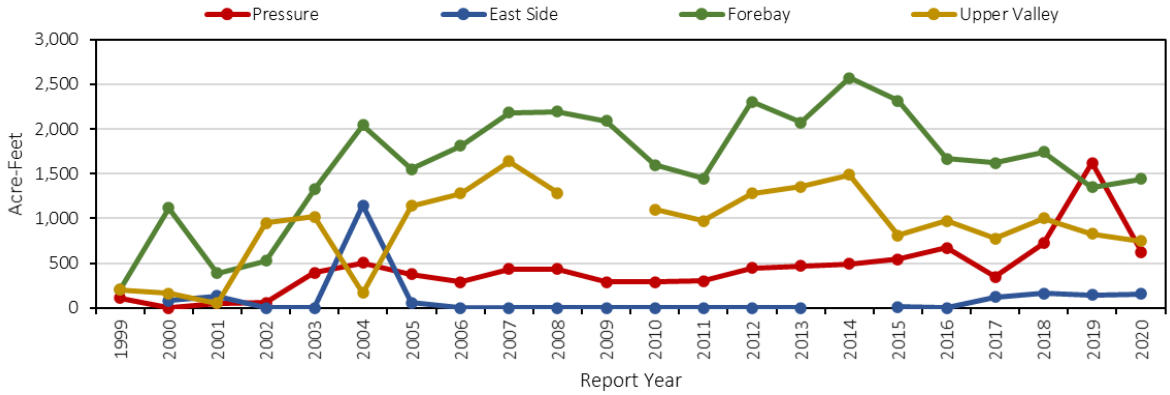


Land Usage (net acres) for Other Crops, by Subarea

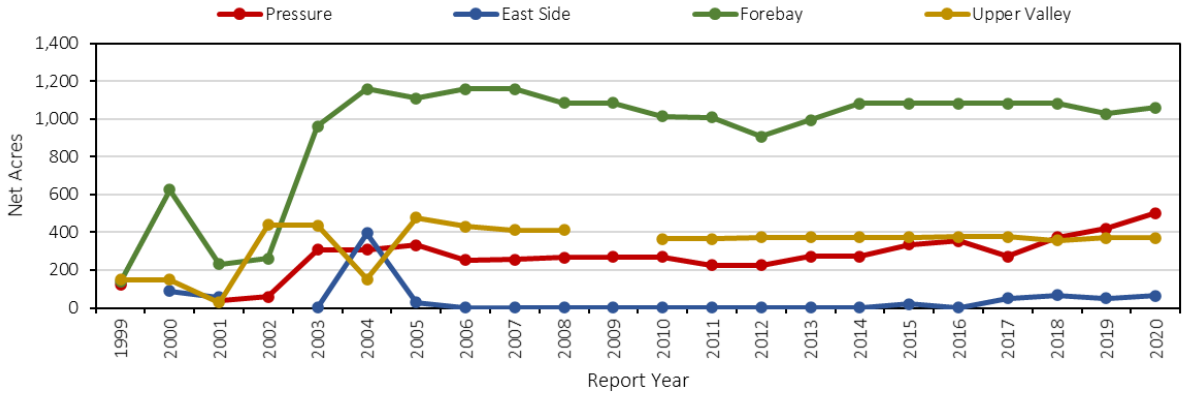


Water Efficiency (AF/acre) for Other Crops, by Subarea

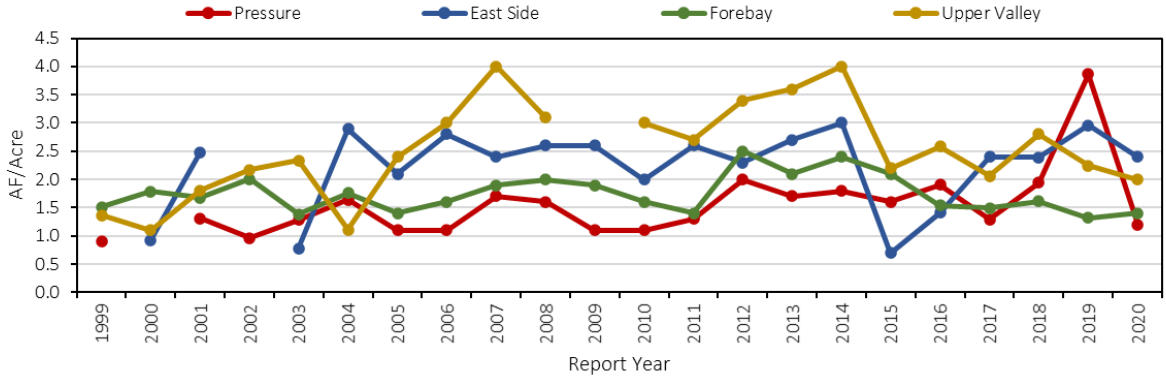
Tree Crops



Water Usage (acre-feet) for Tree Crops, by Subarea

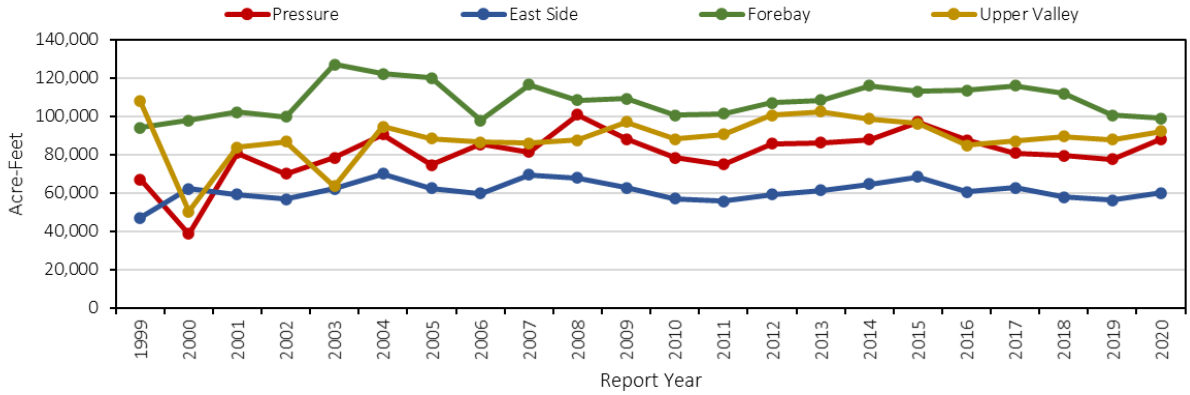


Land Usage (net acres) for Tree Crops, by Subarea

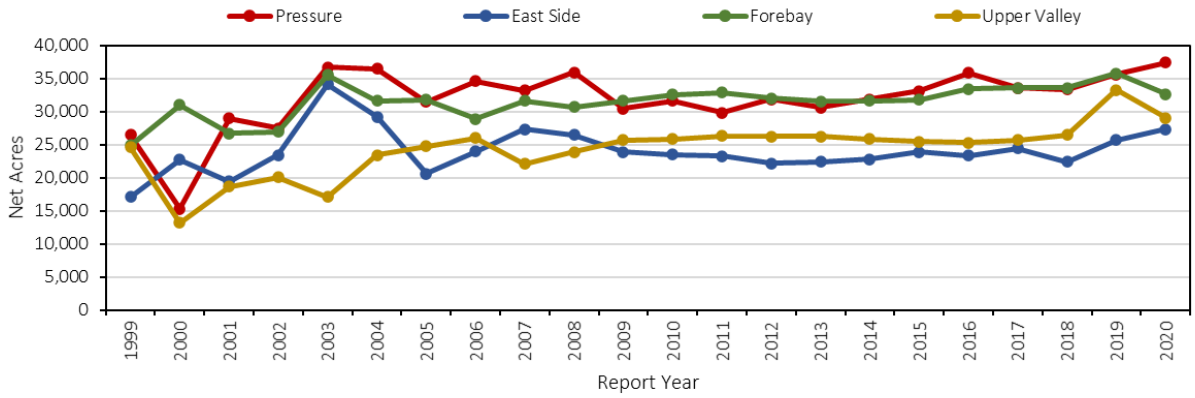


Water Efficiency (AF/acre) for Tree Crops, by Subarea

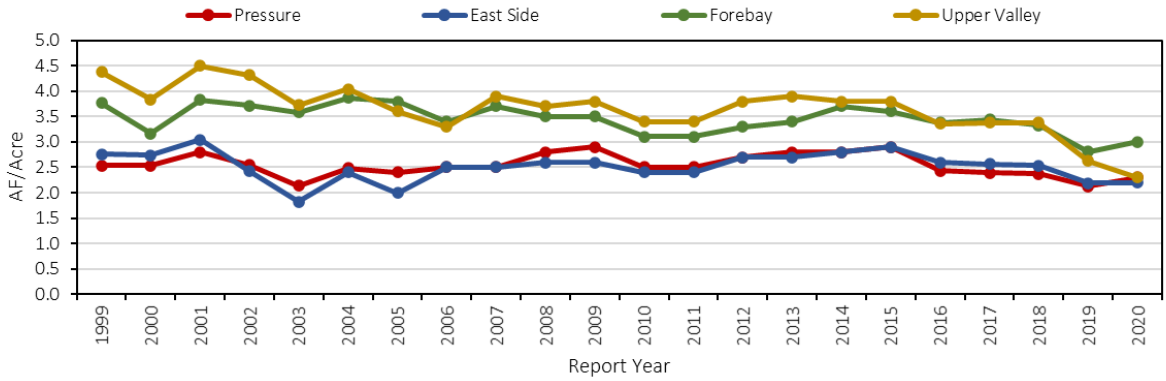
Vegetables



Water Usage (acre-feet) for Vegetables, by Subarea



Land Usage (net acres) for Vegetables, by Subarea



Water Efficiency (AF/acre) for Vegetables, by Subarea

Appendix F

Additional Agricultural Water Conservation Plan Figures

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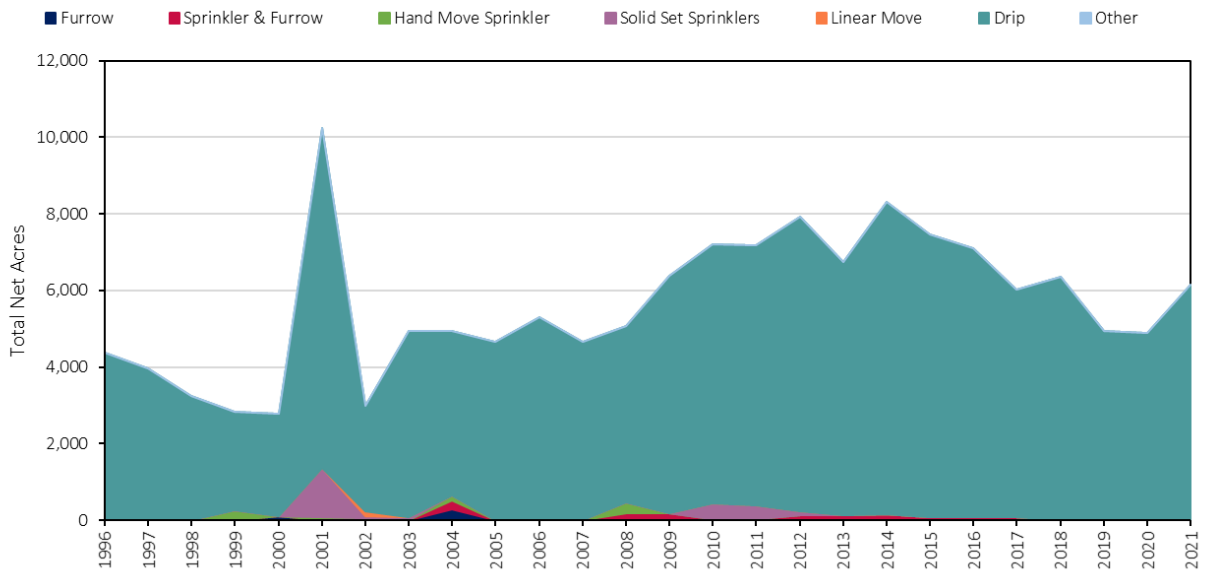
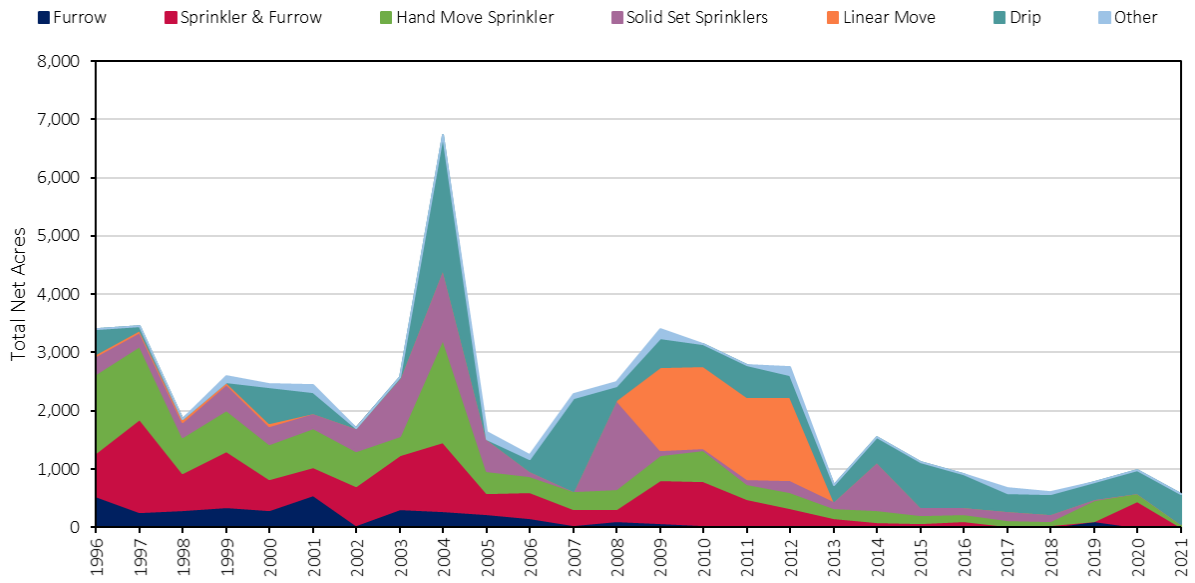
Stacked Area Irrigation Trends by Method, by Crop Type

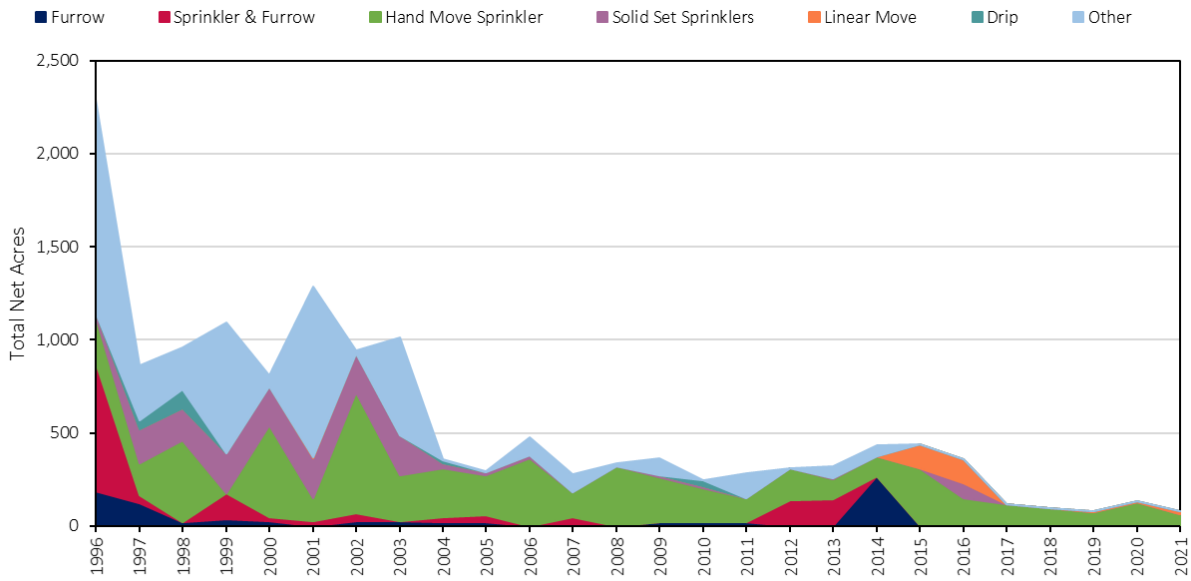
Berries



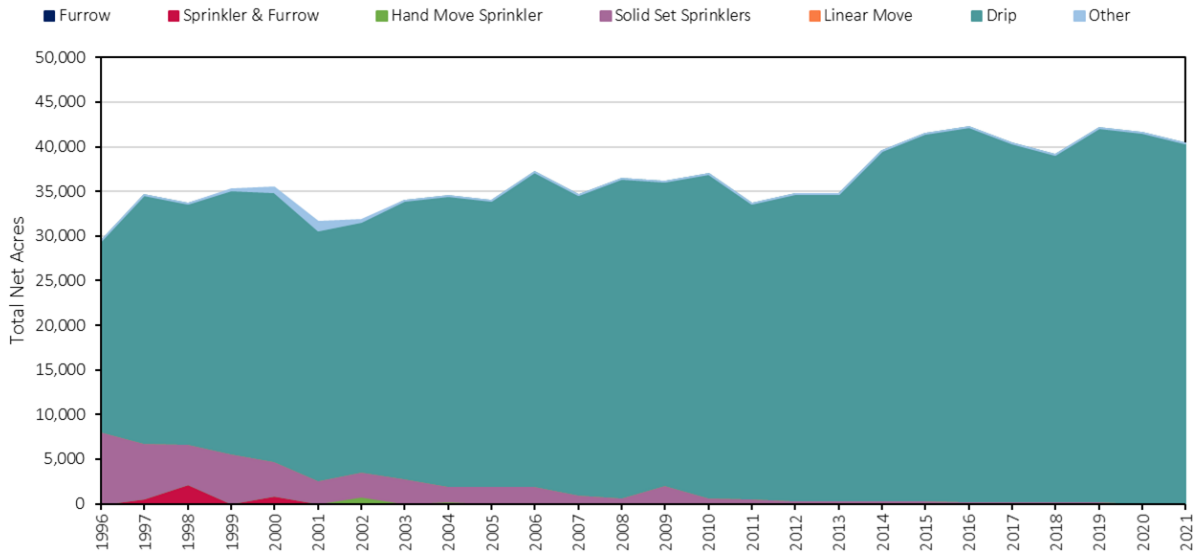
Field Crops



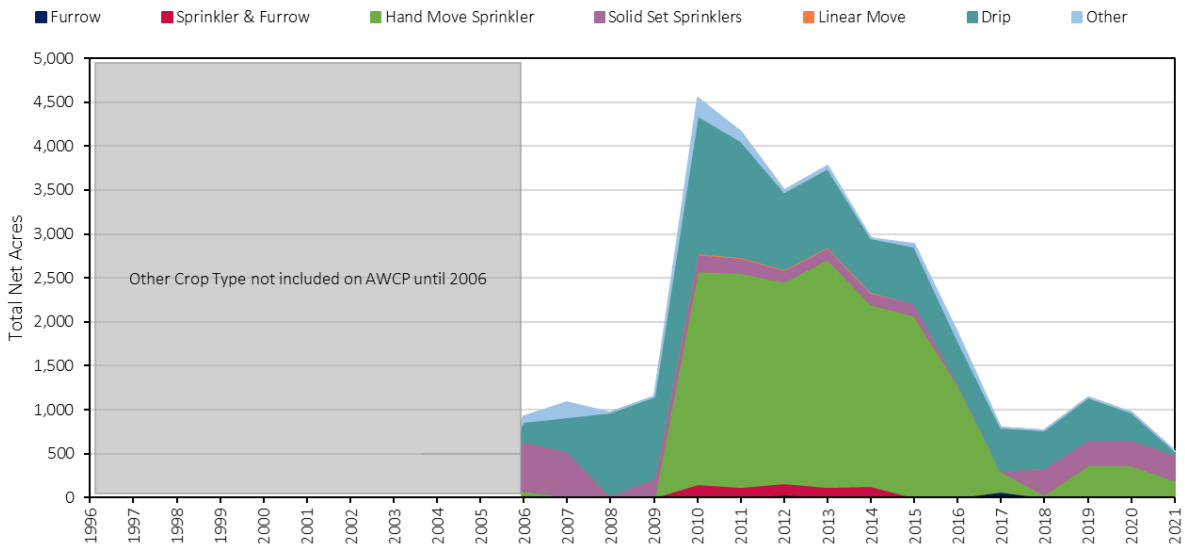
Forage Crops



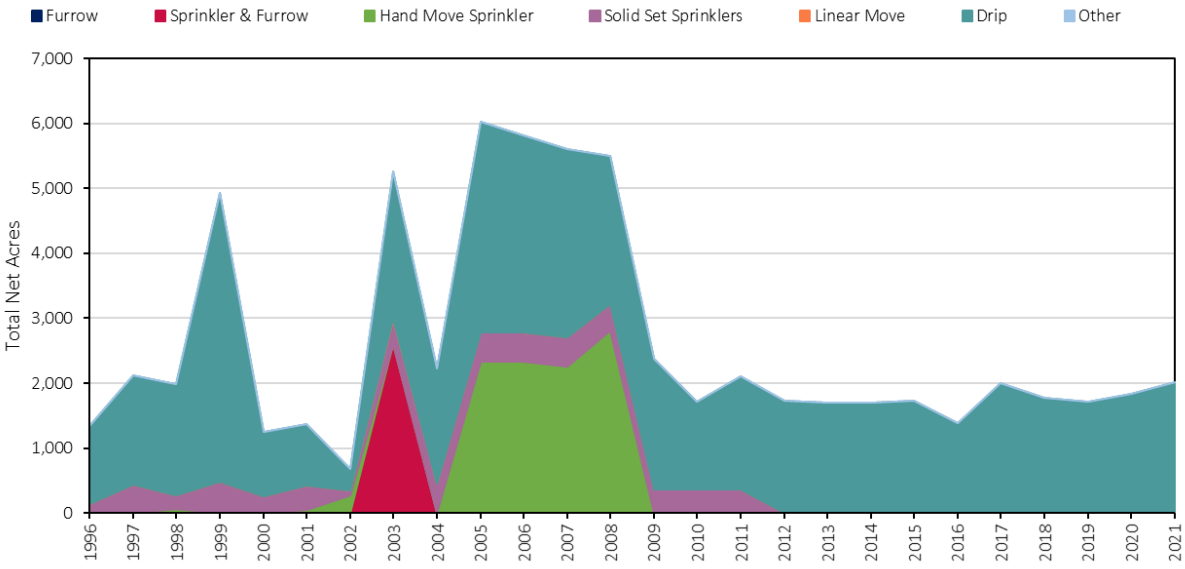
Grapes



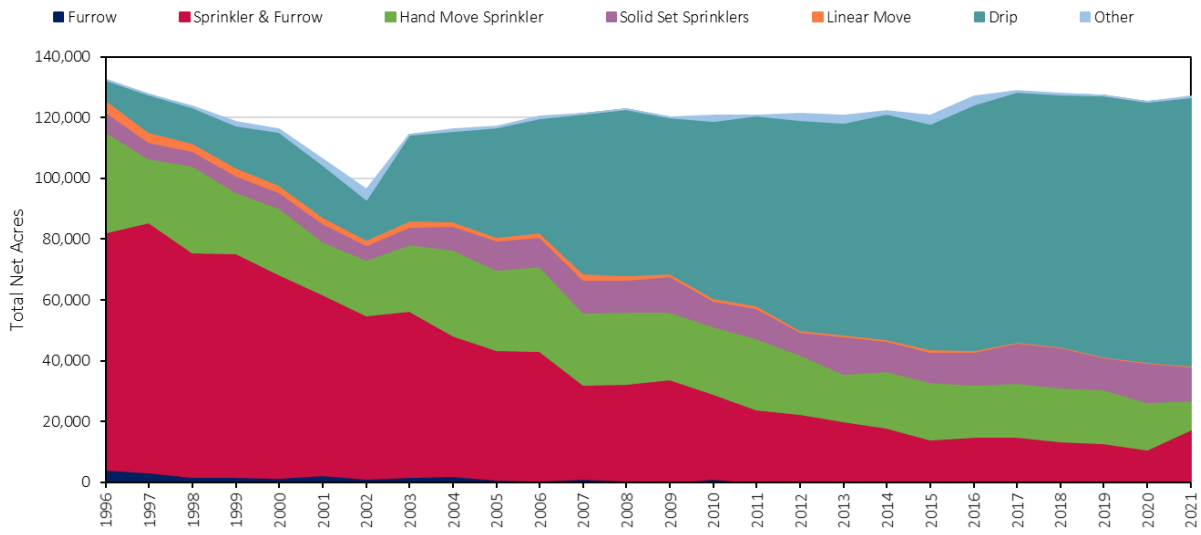
Other Crop Types



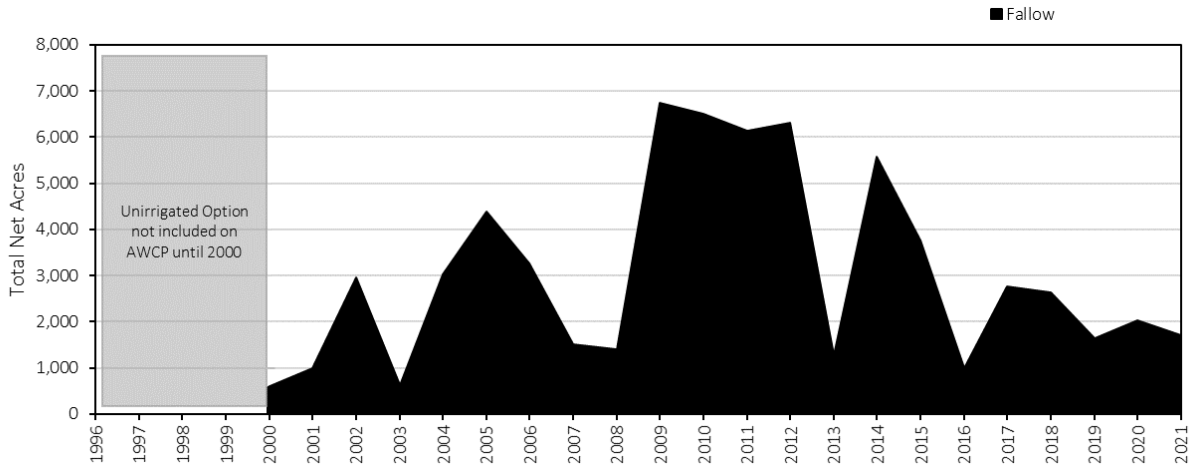
Tree Crops



Vegetables



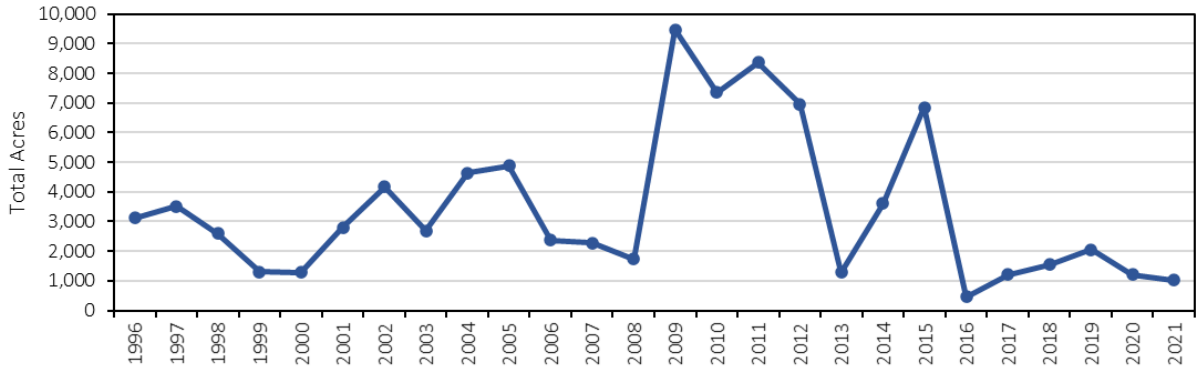
Unirrigated (Fallow)



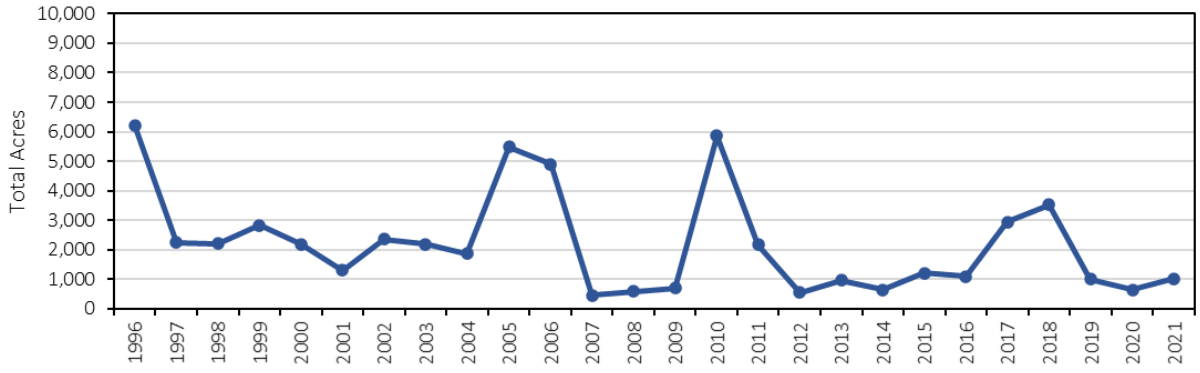
Best Management Practices

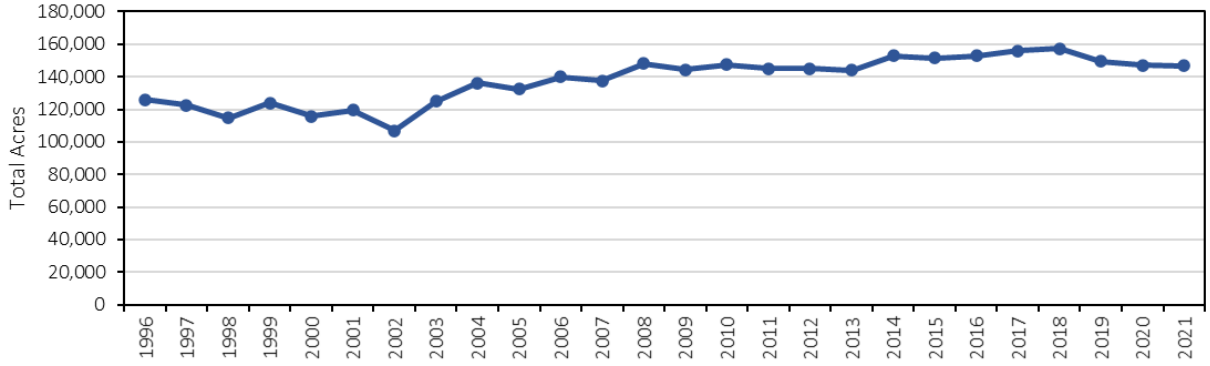
Irrigation Management Options

12-Month Set Aside

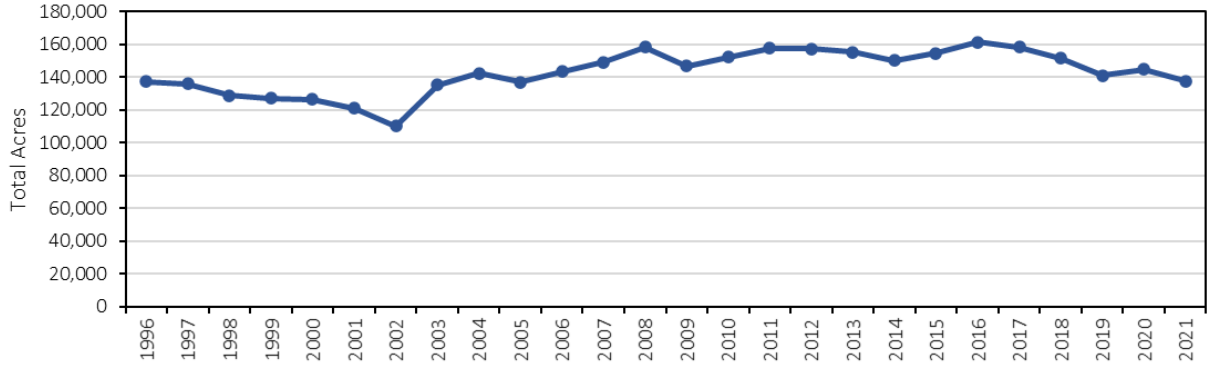


Summer or Other Fallow (Summer Fallow: 90 days between April 1 and September 30; Other Fallow: 210 consecutive days)

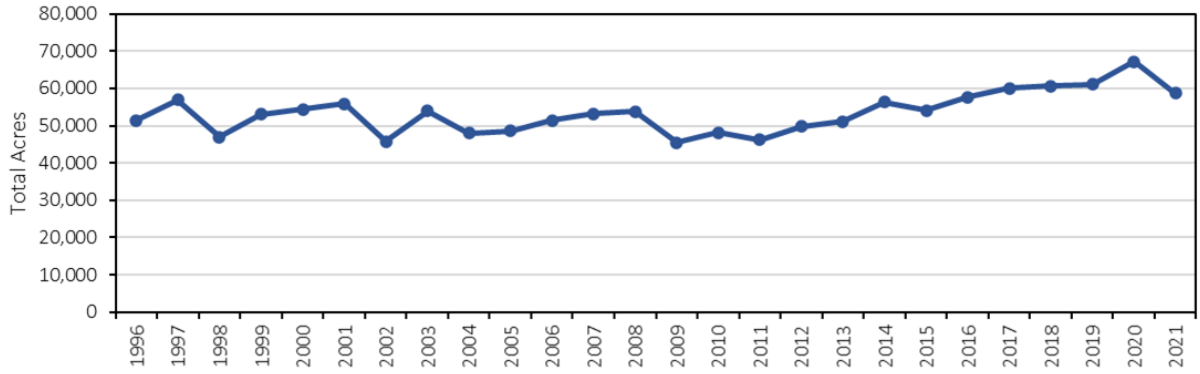




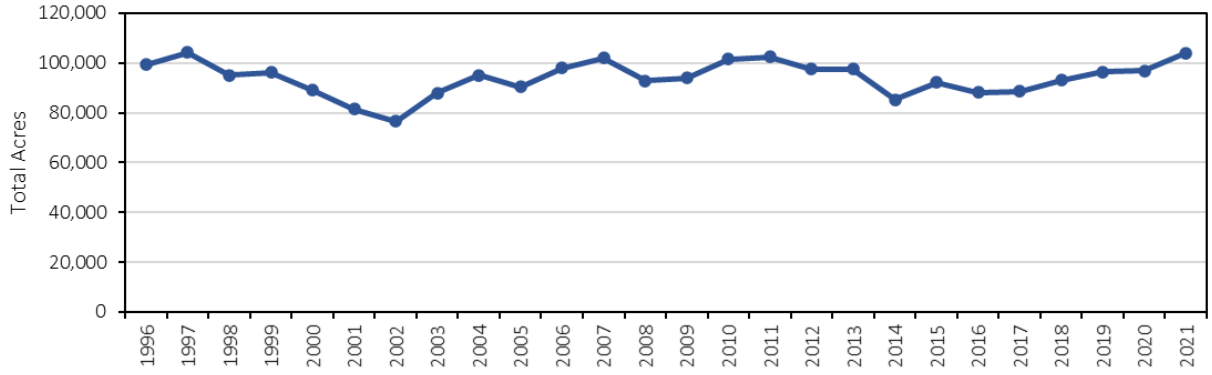
Time-Clock on Pump and/or Pressure Switch on Booster



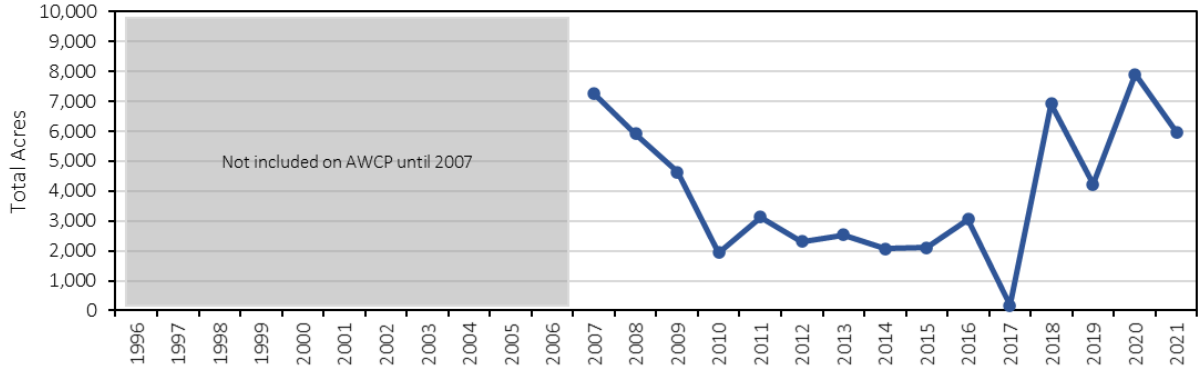
Soil Moisture Sensors and/or Evapotranspiration Data



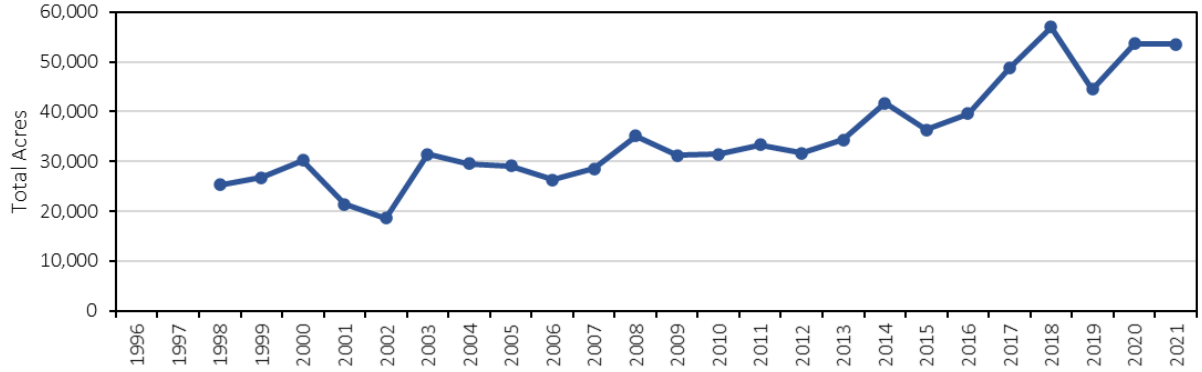
Pre-Irrigation Reduction



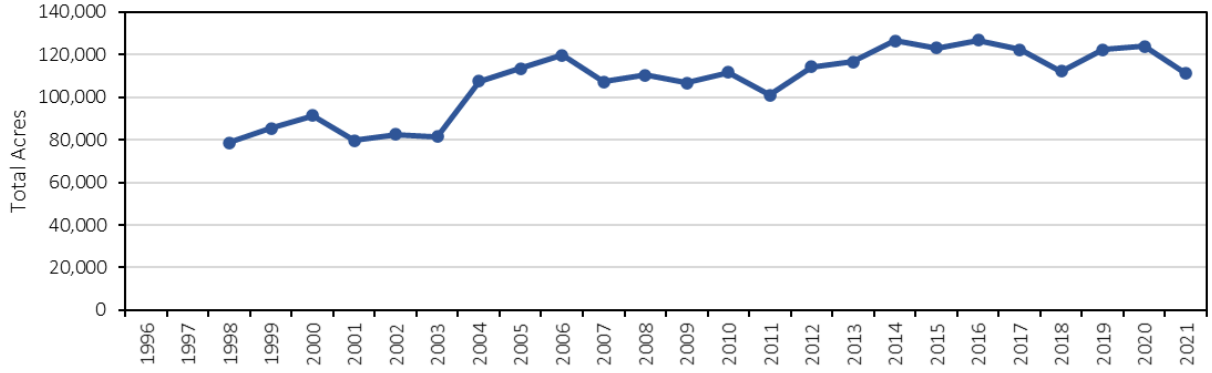
Agricultural Mobile Irrigation Lab



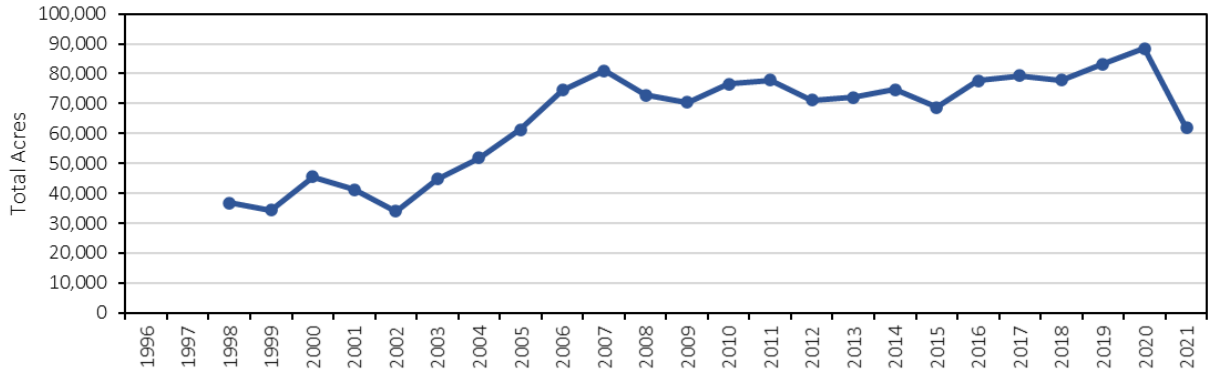
Transplants



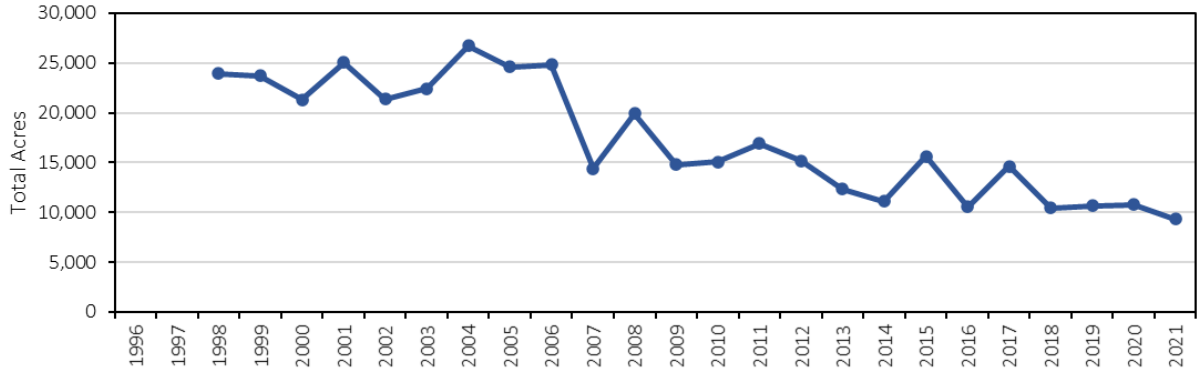
Educational Sessions



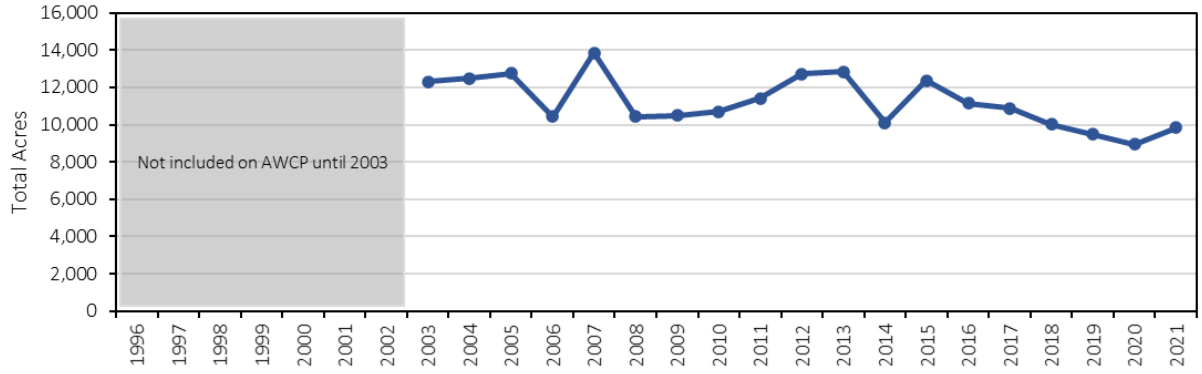
Conservation Program



Reuse of Tailwater or Run-off

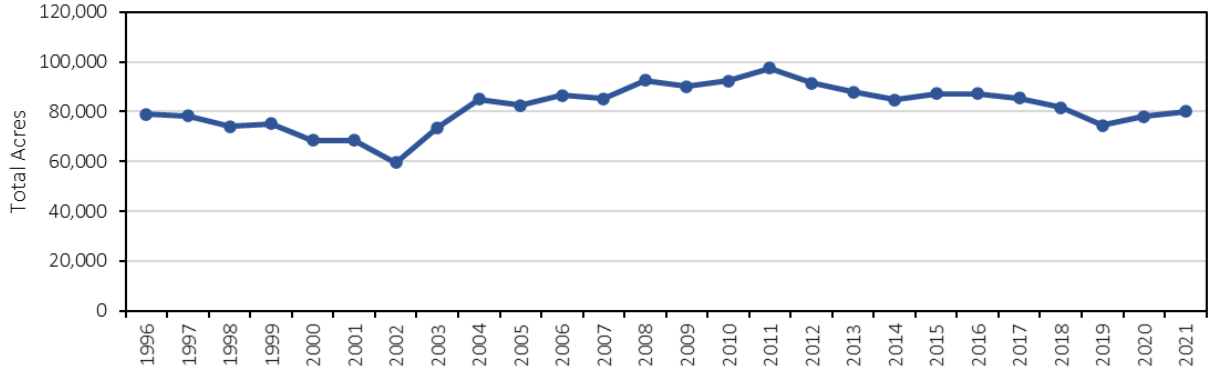


Recycled Water

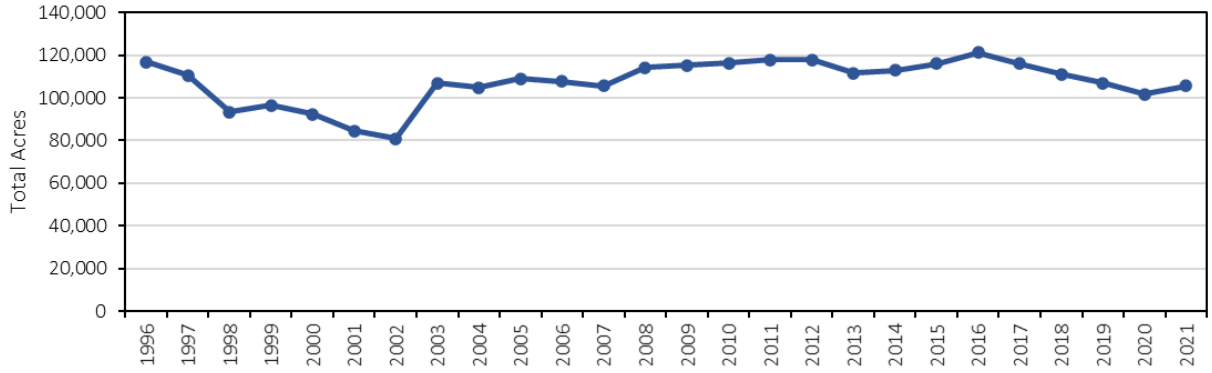


Sprinkler Irrigation System Improvements

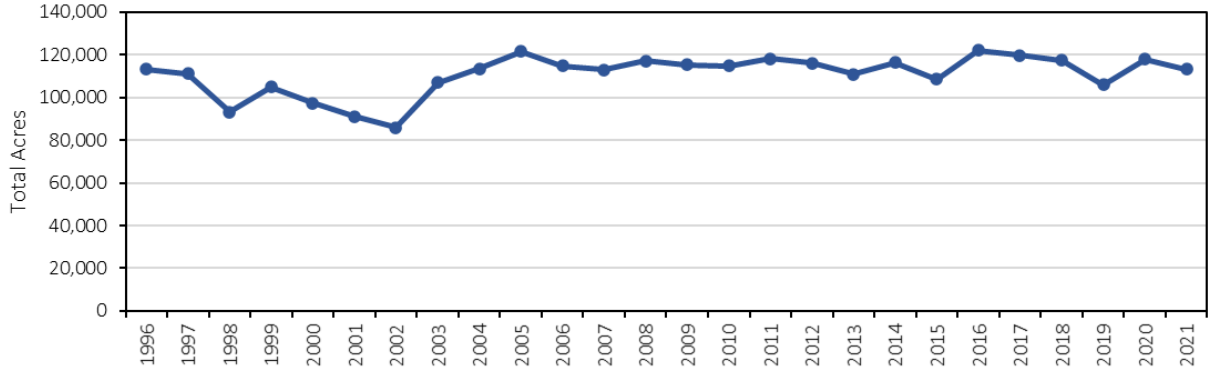
Reduced Sprinkler Spacing



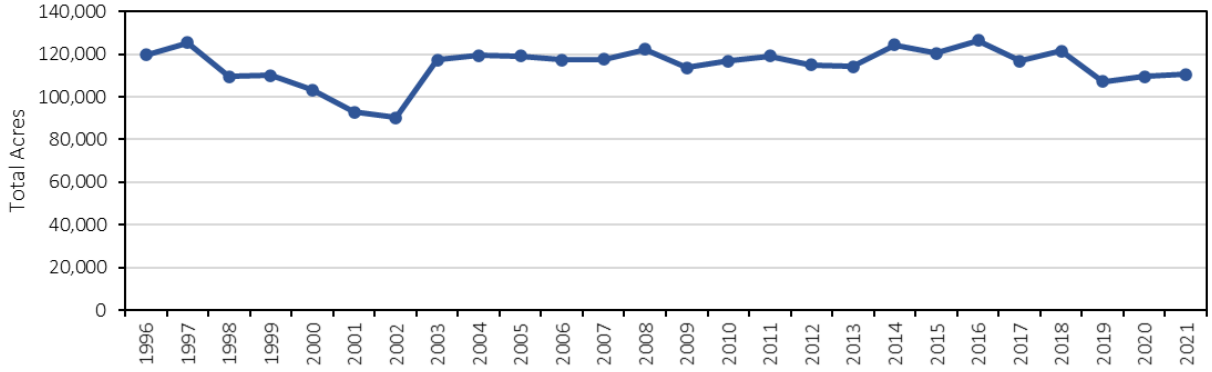
Sprinkler Improvements



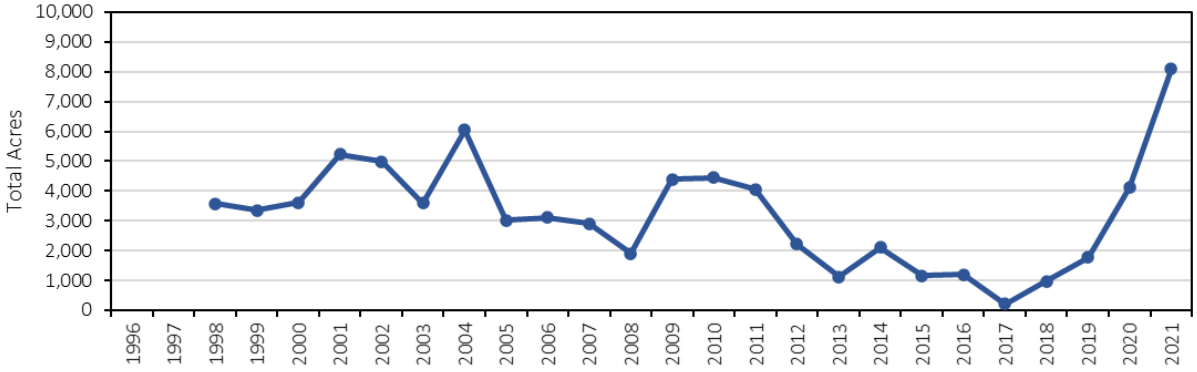
Off-Wind Irrigation



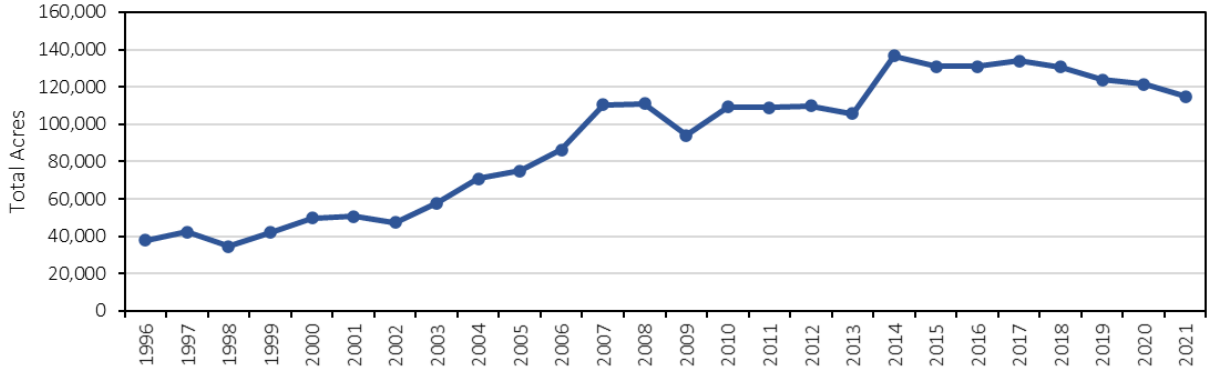
Leakage Reduction



Linear-Move

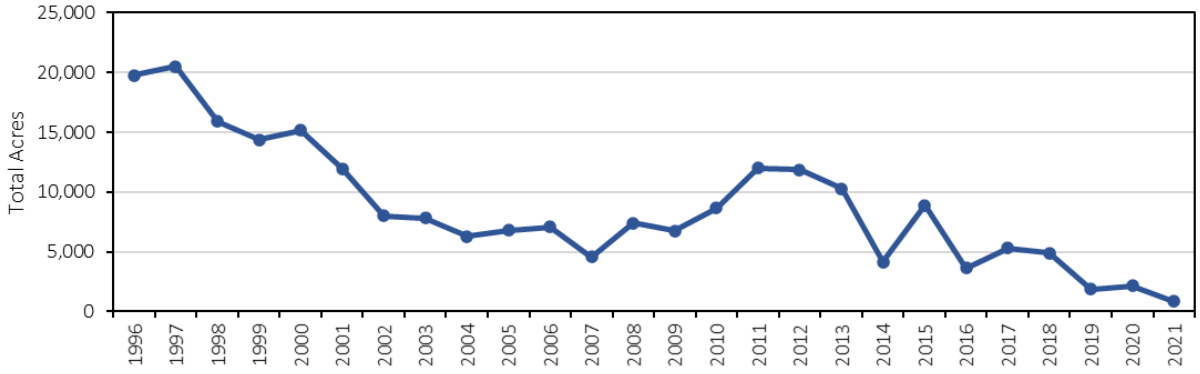


Micro-Irrigation Systems

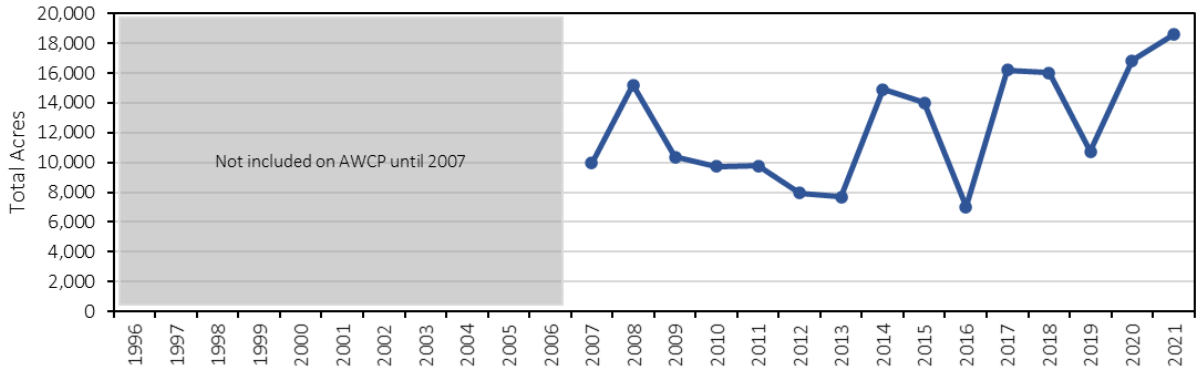


Surface Irrigation System Improvements

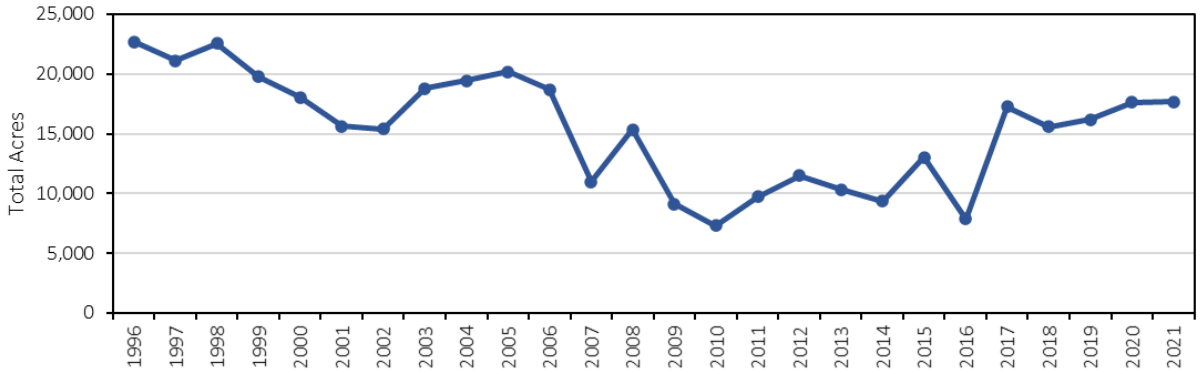
Surge Flow Irrigation



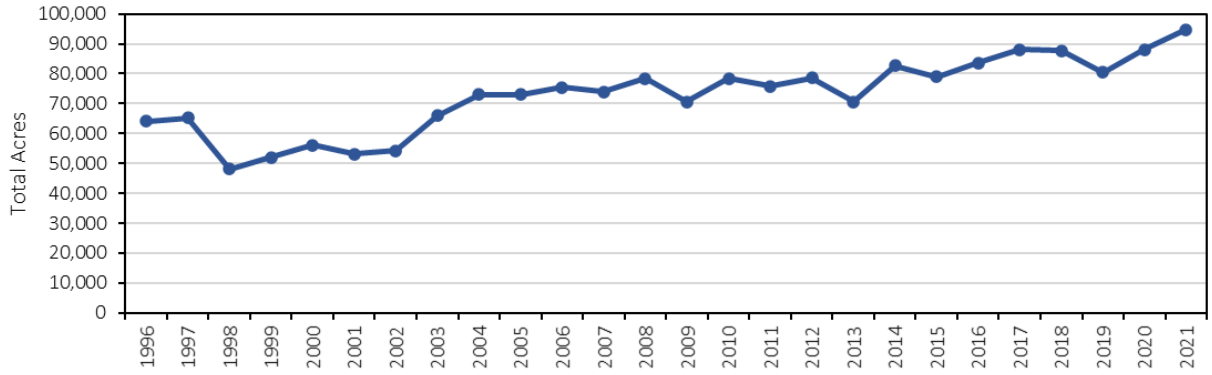
Shorten Field Run



Tailwater Return System



Laser Leveling/ Major Land Grading



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Appendix G

Additional Urban Water Conservation Plan Tables

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Best Management Practices- Large Water Systems

All numbers are expressed as percentages

Large Water Systems Report Year / Practice	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996
Public Information Programs																									
Provide speakers to community groups and media	92	89	89	99	100	99	85	86	86	81	85	86	85	67	70	70	42	71	77	94	65	43	56	52	21
Use paid and public service advertising	40	89	88	93	93	99	96	88	89	96	74	89	85	67	70	70	45	74	74	90	63	43	55	51	42
Provide conservation information in bill inserts	92	92	92	99	100	99	100	97	97	97	96	97	97	91	92	93	68	52	75	94	65	43	66	90	56
Provide individual historical water use information on water bills	91	88	90	98	100	98	100	98	98	93	93	96	96	90	91	91	71	57	96	95	81	45	62	85	82
Coordinate with other entities in regional efforts to promote water conservation practices	92	92	90	93	93	93	94	97	98	98	97	93	97	92	98	99	65	91	92	95	81	45	64	82	30
Work with school districts to provide educational materials and instructional assistance	87	89	92	93	89	90	91	90	91	92	61	87	87	69	72	72	46	33	54	94	72	43	44	52	51
Metered Water Use																									
Implement requirements that all new connections be metered and billed by volume of use	92	100	98	99	100	100	98	100	100	100	100	100	100	94	100	100	76	100	98	100	100	100	92	91	66
Establish a program to retrofit any existing unmetered connections and bill by volume of use	94	74	71	69	69	76	79	38	37	79	79	99	99	54	62	58	38	94	74	58	94	57	80	62	38
Interior/Exterior Water Audits and Incentive Programs																									
Offer free interior and exterior water audits to identify water conservation opportunities	91	90	90	73	100	99	100	99	99	100	98	78	79	54	95	92	96	58	75	55	81	8	40	35	35

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Large Water Systems Report Year Practice	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996
Provide incentives to achieve water conservation by way of free conservation fixtures (showerheads, hose end timers) and/or conservation adjustments to water bills	85	88	89	90	91	92	89	89	89	90	94	94	85	67	69	68	70	35	73	89	65	39	51	50	50
Plumbing, New and Retrofitted																									
Enforcement and support of water conserving plumbing fixture standards, including gradual requirement for High Efficiency Toilets (HET) in all new construction	92	99	97	99	99	100	99	93	94	98	78	99	100	55	95	94	94	95	95	95	70	13	38	35	35
Support of legislation prohibiting sale of toilets using more than 1.6 gpf	92	92	97	97	97	92	99	98	99	99	98	75	78	55	95	94	100	100	95	90	53	60	72	76	74
Program to retrofit existing toilets to reduce flush volume (with displacement devices)	64	63	65	22	41	40	37	51	52	37	72	99	90	33	74	74	70	30	56	39	53	44	91	82	52
Program to encourage replacement of existing toilets with ultra-low flush toilet (through rebates, incentives, etc.)	85	87	87	88	91	88	94	88	89	95	89	95	80	67	70	71	33	71	71	87	65	39	46	20	20
Landscape Water Conservation Requirements																									
Provide guidelines, information, and/or incentives for installation of more efficient landscapes and water saving practices	83	84	70	50	98	97	97	98	98	93	97	98	98	92	93	93	93	94	94	62	53	45	94	94	86
Encourage local nurseries to promote use of low water use plants	41	73	65	32	79	86	81	83	84	84	84	63	63	72	73	71	69	7	52	95	35	42	64	56	52
Develop and implement landscape water conservation ordinances pursuant to the Water Conservation in Landscaping Act (California Government Code Section 65590 et seq.)	8	8	12	58	57	64	68	62	63	63	63	68	63	33	36	35	36	51	56	65	44	41	21	3	3

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Large Water Systems Report Year Practice	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996
Commercial and Industrial Water Conservation																									
Identify and contact top industrial, commercial, and/or institutional customers directly; offer and encourage water audits to identify conservation opportunities	87	86	91	92	92	90	91	90	90	87	89	67	57	65	67	68	67	4	53	56	30	6	3	3	3
Review proposed water uses for new commercial and industrial water service, and make recommendations for improving efficiency before completion of building permit process	91	89	93	93	93	83	85	84	84	84	64	64	64	72	73	73	73	10	80	69	45	45	47	27	4
Distribution System Water Audits, Leak Detection and Repair																									
Complete an audit of water distribution system at least every three years as prescribed by American Water Works Association	95	100	100	97	97	97	95	96	96	93	75	73	63	26	73	74	73	75	24	60	91	47	76	55	22
Perform distribution system leak detection and repair whenever the audit reveals that it would be cost-effective	92	97	100	100	100	99	100	100	100	98	79	98	89	31	77	77	76	78	25	100	100	49	93	93	66
Advise customers when it appears possible that leaks exist on customer's side of water meter	96	100	100	100	100	100	100	99	99	100	100	100	100	94	100	100	100	100	100	100	100	100	93	68	68
Large Landscape Water Audits and Incentives																									
Identify irrigators of large landscapes (3 acres or more) and offer landscape audits to determine conservation opportunities	85	84	96	96	93	96	97	91	91	89	90	73	57	65	29	30	29	4	52	60	47	32	36	33	11
Provide conservation training, information, and incentives necessary to encourage use of conservation practices	92	89	92	93	92	100	92	97	97	92	91	97	81	67	69	32	34	8	55	56	83	32	36	51	51
Conservation Pricing																									

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Large Water Systems Report Year Practice	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996
Encourage and promote the elimination of non-conserving pricing and adoption of conservation pricing policies	65	89	89	89	91	92	99	93	94	94	99	97	91	72	36	35	33	46	58	95	65	49	52	24	24
Implementation of conservation pricing policy	70	89	88	89	92	92	99	93	94	94	99	96	91	72	36	34	36	48	57	59	58	48	52	25	24
Water Waste Prohibition																									
Enact and enforce measure prohibiting water waste as specified in Monterey County Water Resources Agency Ordinance No. 3932 or as subsequently amended, and encourage the efficient use of water	92	71	73	73	69	73	78	78	78	73	64	56	79	78	42	41	43	71	74	93	100	49	91	78	53
Water Reuse																									
Implement and/or support programs for the treatment or reuse of Industrial Wastewater	64	68	65	66	66	65	70	70	70	70	56	54	58	28	32	31	31	44	53	94	63	47			
Implement and/or support programs for the treatment or reuse of Storm Water	64	63	66	69	69	68	71	68	69	71	55	52	68	25	53	52	56	62	18	43	28	6			
Implement and/or support programs for the treatment or reuse of Wastewater	69	73	60	67	66	73	71	70	71	71	57	57	68	50	53	54	56	66	73	95	94	99			

DRAFT

Best Management Practices- Small Water Systems

All numbers are expressed as percentages

Small Water Systems Report Year / Practice	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996
Public Information Programs																									
Provide conservation information in bill inserts	2	81	58	87	84	71	46	71	71	72	72	44	83	23	19	14	11	75	3	59	91	61	66	90	56
Provide individual historical water use information on water bills	27	62	58	86	78	92	90	84	84	84	83	18	30	65	59	45	75	91	65	60	68	61	62	85	82
Coordinate with other entities in regional efforts to promote water conservation practices	3	33	30	43	78	67	37	60	61	61	61	38	60	85	73	65	78	91	67	61	92	65	64	82	30
Metered Water Use																									
Implement requirements that all new connections be metered and billed by volume of use	74	93	94	96	91	98	97	85	85	85	85	90	81	96	78	66	76	92	67	71	92	74	92	91	66
Establish a program to retrofit any existing unmetered connections and bill by volume of use	73	91	92	93	85	92	85	65	66	66	65	81	70	75	61	51	64	17	56	50	92	60	80	62	38
Management Practices																									
Support of legislation prohibiting sale of toilets using more than 1.6 gpf	69	69	96	99	99	99	92	75	76	76	76	83	72	94	87	74	84	93	74	74	94	75	72	76	74
Program to retrofit existing toilets to reduce flush volume (with displacement devices)	1	7	29	41	10	2	44	7	7	7	3	6	9	2	22	18	14	75	4	58	66	56	91	82	52
Landscape Water Conservation Requirements for New and Existing Residential, Governmental and Commercial/Industrial Property																									

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Small Water Systems Report Year Practice	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996
Provide guidelines, information, and/or incentives for installation of more efficient landscapes and water saving practices	52	49	57	84	79	88	76	61	61	61	61	77	6	63	58	49	70	92	69	67	68	67	94	94	86
Encourage local nurseries to promote use of low water use plants	25	71	56	44	76	67	38	8	8	8	8	3	3	16	15	14	11	0	1	54	89	55	64	56	52
Distribution System Water Audits, Leak Detection and Repair																									
Complete an audit of water distribution system at least every three years as prescribed by American Water Works Association	45	96	65	48	85	72	46	77	76	77	71	49	31	10	27	28	22	76	9	53	67	62	76	55	22
Perform distribution system leak detection and repair whenever the audit reveals that it would be cost-effective	76	99	98	93	98	96	91	85	85	85	82	98	45	15	36	48	20	76	10	70	93	73	93	93	66
Advise customers when it appears possible that leaks exist on customer's side of water meter	77	94	99	99	99	99	98	86	86	89	88	99	96	98	91	73	81	92	71	71	93	75	93	68	68
Conservation Pricing																									
Encourage and promote the elimination of non-conserving pricing and adoption of conservation pricing policies	43	43	94	84	78	88	75	7	7	8	7	44	15	21	9	9	2	1	2	68	27	72	52	24	24
Implementation of conservation pricing policy	73	43	94	84	79	88	75	60	60	61	61	76	66	21	9	9	1	1	2	67	27	69	52	25	24
Water Waste Prohibition																									
Enact and enforce measure prohibiting water waste as specified in Monterey County Water Resources Agency Ordinance No. 3932 or as subsequently amended, and encourage the efficient use of water	29	50	32	47	82	69	40	53	54	54	65	39	63	89	83	64	73	92	64	71	93	19	91	78	53

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Monterey County

Board Report

Legistar File Number: WRABMAC 21-077

Item No.5

Board of Supervisors
Chambers
168 W. Alisal St., 1st Floor
Salinas, CA 93901

November 03, 2021

Introduced: 10/26/2021

Current Status: Draft

Version: 1

Matter Type: WRA BMAC Item

Update on Groundwater Sustainability Agency Activities in the Salinas Valley Basin

Monterey County

Board Report

Legistar File Number: WRABMAC 21-078

Item No.6

Board of Supervisors
Chambers
168 W. Alisal St., 1st Floor
Salinas, CA 93901

November 03, 2021

Introduced: 10/26/2021

Current Status: Draft

Version: 1

Matter Type: WRA BMAC Item

Proposition 1 Implementation Grant Update: *Protection of Domestic Drinking Water Supplies for the Lower Salinas Valley*

Attachment to Staff Report – Update on Prop 1 Grant

Chart date 10/21/2021

Monterey County

Board Report

Legistar File Number: WRABMAC 21-079

Item No.7

Board of Supervisors
Chambers
168 W. Alisal St., 1st Floor
Salinas, CA 93901

November 03, 2021

Introduced: 10/26/2021

Version: 1

Current Status: Draft

Matter Type: WRA BMAC Item

Update on Agency Modeling Activities

Monterey County

Board Report

Legistar File Number: WRABMAC 21-080

Item No.8

Board of Supervisors
Chambers
168 W. Alisal St., 1st Floor
Salinas, CA 93901

November 03, 2021

Introduced: 10/26/2021

Version: 1

Current Status: Draft

Matter Type: WRA BMAC Item

Update on Well Permit Application Activities

Well Permit Application Activities Update

SUMMARY/DISCUSSION:

In support of Monterey County's Well Permit Application Program the Agency acts as technical advisor to the program's lead agency, the Environmental Health Bureau (EHB). In accordance with a 1991 interdepartmental Memorandum of Agreement between the Agency and EHB, the Agency performs a comprehensive review process on well permit applications for new wells pumping five acre-feet of water or more per year, as well as for proposed well destructions and repairs.

The Agency provides review and/or advisement to EHB within five (5) business days of receiving new well permit applications. The Agency also reviews final well designs and annular seal depth proposals on an on-going basis and is committed to providing a response to EHB within twenty-four (24) hours of receiving design proposals.

The Agency receives funds that cover staff time for well application review, well completion report processing, and database maintenance from fees collected by EHB. The Agency's fees are defined in Article XI of the Monterey County Fee Resolution.

Table 1 (attached) provides a summation of well permit applications received in the last month for evaluation by Agency staff, categorized by permit type, Agency management area, and aquifer unit. Also included is a tabulation of new well applications reviewed for the fiscal year. This table is provided to the Board of Directors and Basin Management Advisory Committee on a monthly basis.

Publication of the Agency's Report, "Recommendations To Address the Expansion of Seawater Intrusion in the Salinas Valley Groundwater Basin (October, 2017) and subsequent adoption of Interim Urgency Ordinance 5302 and Ordinance 5303 by the Monterey County Board of Supervisors (May 22, 2018 and June 26, 2018, respectively) have led to increased interest in data related to wells in and extractions from the Deep Aquifers (Figure 1).

Figure 2 depicts the history of well installation in the Deep Aquifers by water use category. As illustrated in the chart, a total of fifty-seven (57) wells have been installed in the Deep Aquifers since 1974, with twenty-five (25) of those wells being constructed in the last ten years, including fourteen (14) within the last three years. Figure 2 includes a tabular historical summary of reported annual Deep Aquifer well extractions by water use category.

Three (3) additional permit applications have been submitted for new Deep Aquifers wells but construction has not been completed as of the date of this report. The proposed wells were applied for as replacement wells after the expiration of Ordinance No. 5302, which expired on May 21, 2020.

OTHER AGENCY INVOLVEMENT:

None

FINANCING:
None

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Attachments:
Table 1 - Summary of Well Permits Received
Figure 1- Map showing Deep Aquifer Wells
Figure 2 - Timeline of Well Installation in the Deep Aquifers with Summary of Deep Aquifer Groundwater Extractions

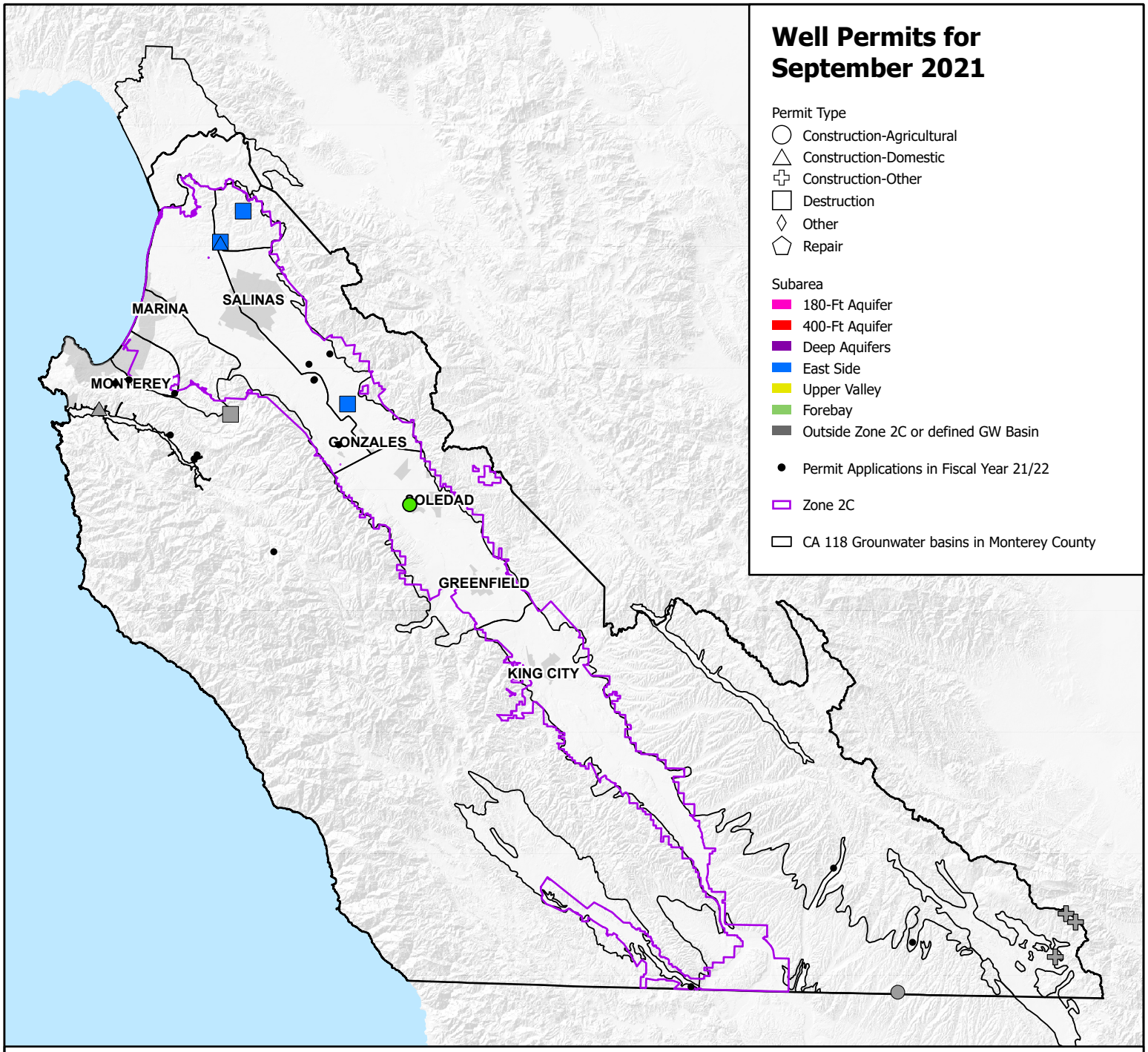


Table 1. Well Permit Applications Received by Category - September, 2021

Subarea/ Aquifer	Construction	Destruction	Repair	Other	Total	FY (21/22) Total
180-Ft Aquifer						1
400-Ft Aquifer						1
Deep Aquifers						0
East Side	1	3			4	8
Forebay	1				1	2
Upper Valley						0
Outside Zone 2C, Undefined GW Basin	5	1			6	18
Total	**7**	**4**			**11**	**30**

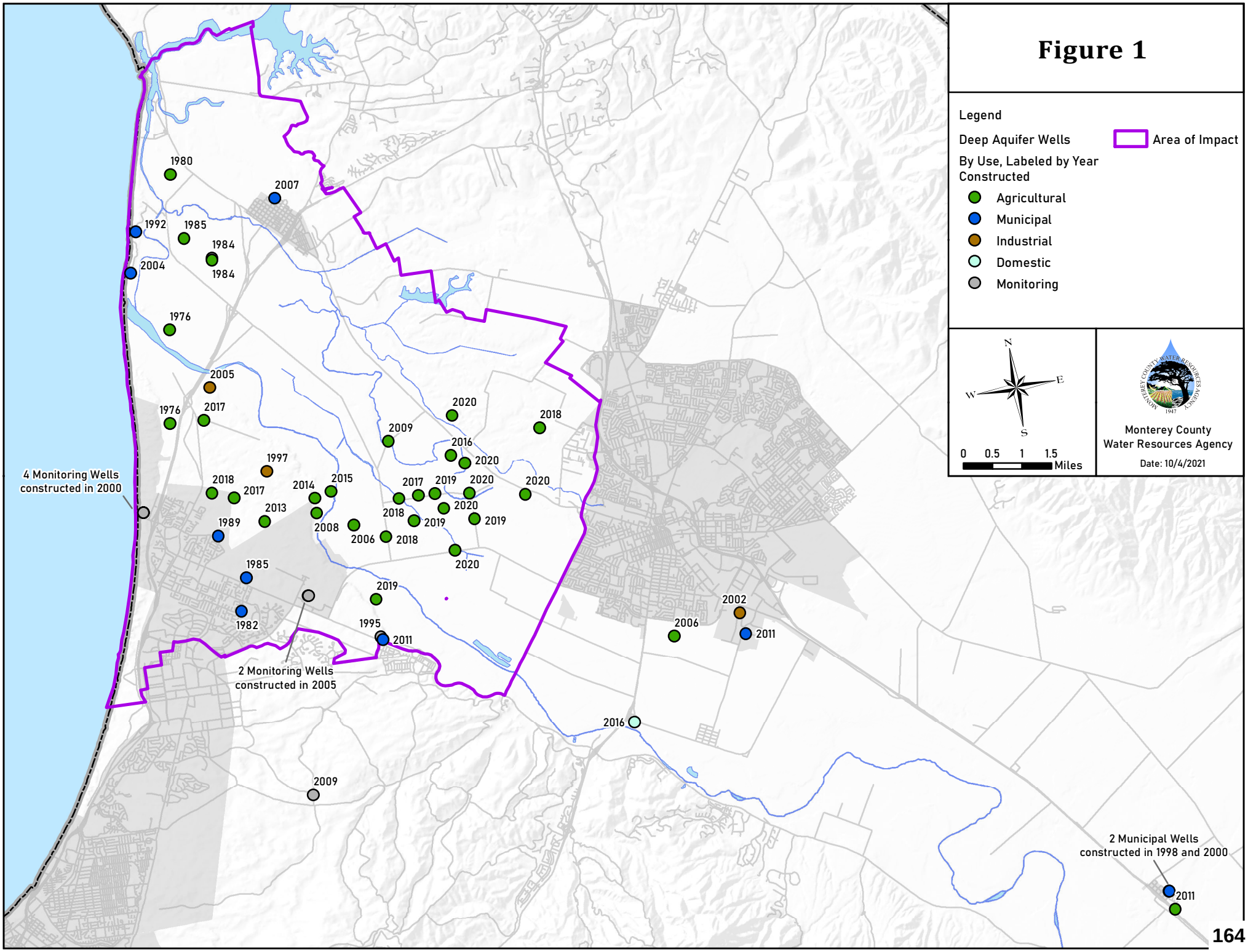
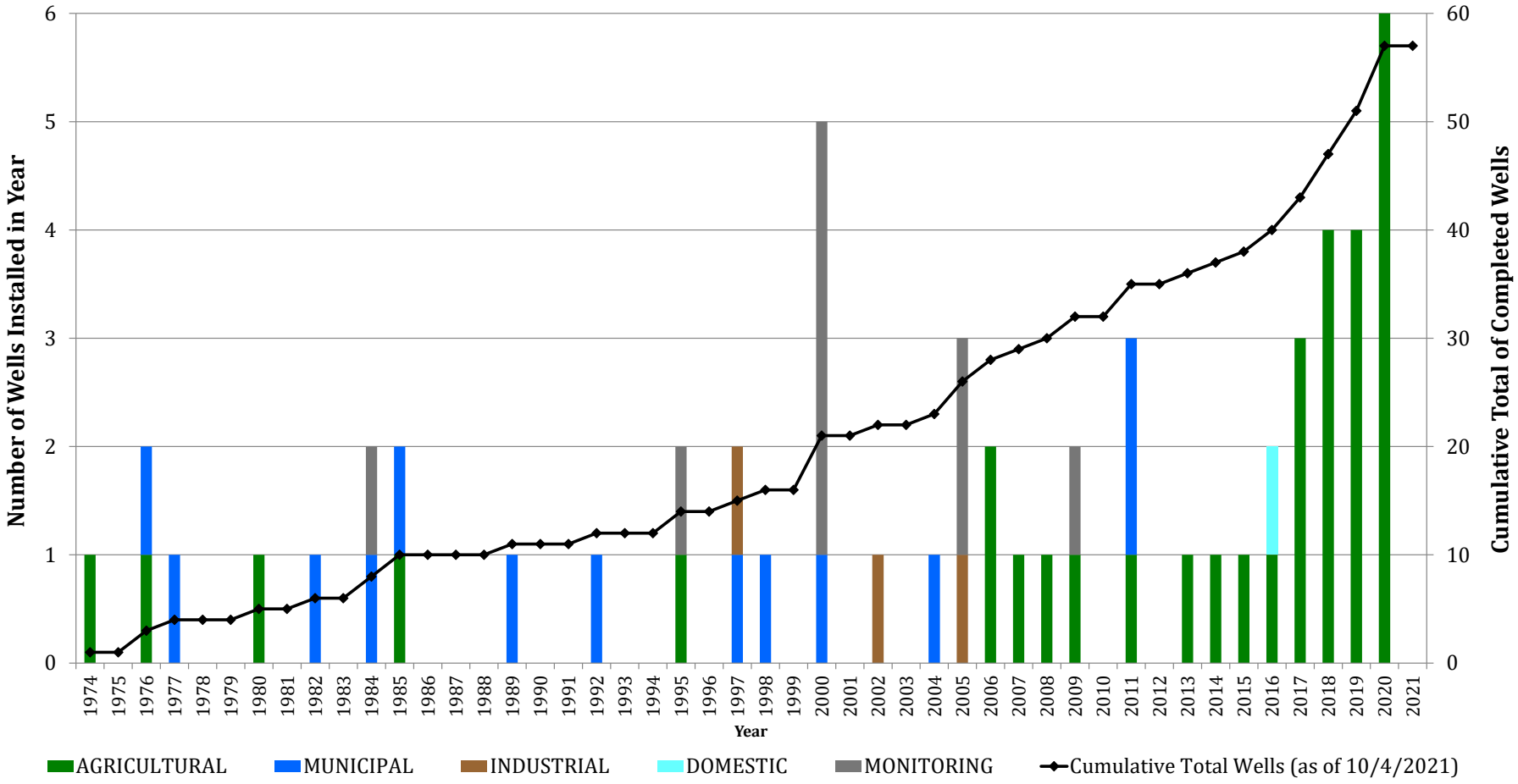


Figure 1
Legend
Deep Aquifer Wells
By Use, Labeled by Year Constructed
Agricultural
Municipal
Industrial
Domestic
Monitoring
Area of Impact
N
E
S
W
0 0.5 1 1.5 Miles
Monterey County Water Resources Agency
Date: 10/4/2021
4 Monitoring Wells constructed in 2000
2 Monitoring Wells constructed in 2005
2 Municipal Wells constructed in 1998 and 2000
1980
2007
1992
1985
1984
1984
2004
1976
2005
1976
2017
2020
2018
2009
2016
2020
1997
2018
2017
2014
2015
2017
2019
2020
2020
2013
2018
2020
1989
2008
2019
2019
2006
2018
2020
1985
2019
1982
1995
2011
2002
2006
2011
2016
2009
2011

Figure 2

Timeline of Well Installation in Deep Aquifers of the 180/400 Foot Aquifer Subbasin

Source: MCWRA
Date: 10/4/2021



Deep Aquifers Groundwater Extraction History Since 1993*

1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
2,054	1,992	2,036	2,137	2,170	1,906	2,056	2,302	2,355	2,399	2,366	2,442	2,358	2,005	1,738	2,004	2,102	1,903	1,803	2,044	1,989	3,784	3,746	3,788	4,116	4,605	4,820	4,263
1,507	2,620	2,302	1,990	2,556	1,648	96	1	0	0	0	0	0	0	58	384	696	982	927	1,397	1,097	2,031	2,010	4,194	4,834	4,749	5,331	6,996
0	0	0	0	0	0	0	3	13	17	379	305	343	336	393	371	348	333	370	380	523	620	617	569	567	291	196	84
3,561	**4,612**	**4,338**	**4,127**	**4,725**	**3,554**	**2,151**	**2,307**	**2,368**	**2,416**	**2,745**	**2,747**	**2,701**	**2,341**	**2,189**	**2,759**	**3,146**	**3,218**	**3,100**	**3,821**	**3,608**	**6,436**	**6,373**	**8,551**	**9,516**	**9,645**	**10,347**	**11,344**

* Notes: Table includes all reported extraction data for the thirty-four (34) Deep Aquifer production wells that have reported extractions since inception of the Agency's GEMS program in 1993. Data are reported in acre-feet. Colors denote water use category (Municipal, Agricultural, Industrial). An additional nine (9) recently constructed Deep Aquifers Agricultural production wells have yet to report extractions as of Reporting Year 2020.

Monterey County

Board Report

Legistar File Number: WRABMAC 21-081

Item No.9

Board of Supervisors
Chambers
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Salinas, CA 93901

November 03, 2021

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Update on Data Collection Activities

Monterey County

Board Report

Legistar File Number: WRABMAC 21-082

Item No.10

Board of Supervisors
Chambers
168 W. Alisal St., 1st Floor
Salinas, CA 93901

November 03, 2021

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Current Status: Draft

Matter Type: WRA BMAC Item

Update on the CSIP Supplemental Well Replacement Project

Monterey County

Board Report

Legistar File Number: WRABMAC 21-083

Item No.11

Board of Supervisors
Chambers
168 W. Alisal St., 1st Floor
Salinas, CA 93901

November 03, 2021

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Consider future agenda items and set next meeting date