

February 19, 1999

To: Board of Directors (Water Planning and Resources Committee--Information)

From: General Manager _____

Submitted by: Debra C. Man, Chief _____
Planning and Resources

Subject: Report on Salinity Summit

RECOMMENDATION

For Information only.

EXECUTIVE SUMMARY

Participants at the January 27, 1999 Salinity Summit broadly endorsed the need for a salinity management strategy for Southern California's water resources. The Summit focused on practical implementation aspects of the draft action plan which was developed by Metropolitan and its member agencies over the last two and one-half years in collaboration with numerous concerned entities. Participants were anxious to initiate a Southern California Salinity Coalition that would assess and coordinate regional progress on salinity management and be an advocate for needed State and federal actions.

Based on breakout session reports and group discussion, several refinements to the action plan are proposed including: set a year-round salinity objective of 500 milligrams per liter (mg/L) rather than the current range of 500 to 550 mg/L; as an interim strategy through 2004, take primary action to achieve the 500 mg/L objective during April through September and, when feasible, take secondary action to achieve it during October through March; pursue salinity reductions of State Project water through Sierra Exchanges; expand the ongoing Desalination Research and Innovation Partnership to address water softener issues; and promote public education and outreach regarding the region's salinity problem. Attached are copies of the **revised policy statement** and **action plan**.

DETAILED REPORT

About 100 individuals representing 60 separate entities attended the Salinity Summit held on January 27, 1999 at Cal Poly's Kellogg West Conference Center (**attendance list attached**). The Summit (**agenda attached**) was hosted by Metropolitan, the Association of Groundwater Agencies (AGWA) and the Southern California Alliance of Publicly Owned Treatment Works (SCAP). Highlights of the Summit are summarized below.

The meeting focused on implementation of a proposed regional salinity management action plan developed by Metropolitan and its member agencies. That plan was based on two and one-half

years of collaborative investigation with concerned agencies. Specific refinements to the recommended action plan emerged during the day's discussions. In breakout sessions, participants discussed activities agencies may take to place the plan into action.

There was broad consensus that the region's salt imbalance needs to be corrected; water quantity and quality need to be integrated with a seamless outcome to sustain our resources. Many participants left believing that high salinity levels will be one of California's biggest water quality problems in the twenty-first century. It became evident that a comprehensive regional approach is needed and that Metropolitan alone cannot solve the problem. Coordinated public education and outreach are needed by all water and wastewater agencies in our region to issue a united message to our constituents and to the residents of our source water areas that salinity is a serious problem for Southern California.

Most of the participants endorsed:

- Immediate formation of a Southern California Salinity Coalition that would provide: (1) objective annual assessments of the region's progress in correcting its salt imbalance, (2) a forum to coordinate strategies, and (3) advocacy for needed State and federal action and funding assistance. Strong interest was generated that the Coalition address needed federal appropriations to control Colorado River salinity. Several agencies, including AGWA, SCAP, some member agencies and Metropolitan offered to initiate the Coalition.
- Strong source control and other watershed management practices to minimize salt loading to the Colorado River, State Water Project and local streams.
- A statewide investigation by the State Water Resources Control Board of the local impacts of discharges from residential self-regenerating water softeners and other local sources of salinity. The WaterReuse Association is working with Assemblyman Mike Machado, who has introduced Assembly Bill No. 237 authorizing funding of this study.
- Development of new brine disposal systems in Southern California with possible State and federal assistance in capital financing; approximately \$200 million in needed capital construction was identified in Metropolitan's study.
- Financial support of local water resource desalination and associated brine disposal through Metropolitan's Local Resources Program.
- The Desalination Research and Innovation Partnership (DRIP) initiated by Metropolitan to reduce desalination costs through improved technology and to serve as a technological and informational clearinghouse for member agencies.

Based on discussion at the Summit, staff proposes the following refinements to the recommended salinity management action plan:

Action Item No. 3 - Blending: Change Metropolitan's delivered water salinity objective from a range of 500-550 mg/L to 500 mg/L consistent with State and federal secondary drinking water standards. Retain the principle that actual concentrations will vary by time and location in response to operational practices and constraints. On an interim basis, through 2004 when the Inland Feeder comes on line, pursue achievement of 500 mg/L in a two-stage process that emphasizes irrigation benefits during the summer months:

- ❑ Retain the April through September period as the primary time window to achieve 500 mg/L when resources are limited.
- ❑ Add October through March as the secondary time window to achieve 500 mg/L when water supply conditions are favorable. Metropolitan's annual operating plan would address the opportunities and constraints to blend down salinity during this period. Expected conveyance of increased amounts of State Project water for storage and exchange over the next several years will help make this effort feasible. The increased water would be delivered for storage in the Eastside Reservoir and Hayfield Basin and for exchange with the Desert Water Agency and Coachella Valley Water District. Additionally, low-salinity levels now occurring in the Colorado River should take several years to return to normal. Despite these favorable conditions, additional costs for blending will need to be included in the upcoming Fiscal Year 1999-2000 operations and maintenance budget.

Action Item No. 4 - Exchange, Storage and Conveyance: Add Sierra exchanges and transfers that could lower State Project water salinity. Also include conveyance of low-salinity groundwater in Metropolitan's distribution system.

Action Item No. 7 - Desalination Research and Development: Add water softener research and analysis to the ongoing DRIP studies. It is important that the region develop a sound technical understanding of the impacts to our local resources by self-regenerating water softeners and explore the benefits of improved technologies to reduce those impacts.

Action Item No. 8 - Southern California Salinity Coalition: Organize immediately and promote public education and awareness directed toward correcting the region's salinity problem. Specifically seek to improve Northern California's understanding of our region's need for lower-salinity Delta Exports.

Action Item No. 10 - Groundwater: Expand emphasis from groundwater replenishment strategies to basin salinity management by local agencies.

Attached are the **revised draft policy statement** and **revised action plan**. They reflect the above cited primary comments received at the Summit. Staff intends to submit these revised documents for the Board's approval at its April meeting.

AS:jpa

Attachment 10-10A

Attachment 10-10A

**SALINITY SUMMIT
January 27, 1999**

List of Attendees

Name	Title	Agency
Mr. Russell Fuller	Representative	Antelope Valley East Kern Water Agency
Mr. William R. Mills Jr., P.E.	Chairman	Association of Ground Water Agencies
Ms. Richard Sase	Main San Gabriel Basin Watermaster	Association of Ground Water Agencies
Mr. Richard Atwater	Consultant	Bookman-Edmonston
Mr. Steve Ritchie	Executive Director	CALFED / Bay-Delta Program
Mr. James Kuykenall	Senior Staff Member	California RWQCB - Los Angeles Region
Mr. Robert Morris	Senior Staff Member	California RWQCB - San Diego Region
Mr. John Robertus	Executive Officer	California RWQCB - San Diego Region
Mr. Byron Buck	Executive Director	CUWA
Ms. Mary Ann Dickinson	Exec. Director CUWCC	Ca. Urban Water Conservation Council
Mr. Erik Burgh	Manager of Resources	Calleguas MWD
Mr. Ken Reich	Water Quality Manager	Central/West Basin MWD
Ms. Traci Stewart	Executive Officer	Chino Basin Watermaster
Mr. Ronald A. Van Blarcom	General Manager/District Engineer	Coastal MWD
Mr. Jack A. Barnett	Executive Director	Colorado River Basin Salinity Control Forum
Mr. Glenn E. Prentice	Director of Water Utilities	City of Corona
Mr. Jose Saez	Project Engineer	County Sanitation District of L.A. County
Mr. James Stahl	General Manager	County Sanitation Districts of L.A. County
Mr. Lawrence Gage	Chief, Operation Control Office	Department of Water Resources
Mr. Michael Maisner	Southern District	Department of Water Resources
Mr. Dan Peterson	Chief, Division of O&M	Department of Water Resources
Mr. Phil Wendt	Chief of Water Quality Assessment	Department of Water Resources
Mr. Toby Roy	Senior Staff Member	DHS
Mr. Mike Gardner	Senior Staff Member	Eastern MWD
Mr. David Czmanske	Sierra Club	Environmental Dialog Group
Ms. Dorothy Green	LA/SG Rivers Watershed Council	Environmental Dialog Group
Ms. Frances Spivy-Weber	Mono Lake Committee	Environmental Dialog Group
Mr. George Lohnes	Utilities Manager	City of Escondido
Mr. Ronald C. Palmer	General Manager	Foothill MWD
Mr. Neil Clifton	Principal Engineer	Inland Empire Utility Agency
Mr. Norris Brandt	Principal Engineer	Irvine Ranch Water District
Mr. Ken Thompson	Principal Engineer	Irvine Ranch Water District
Mr. Diem Vuong	Asst. General Manager	City of Long Beach, Water Department
Mr. Tom Erb	Senior Staff Member	L.A. DWP
Mr. David Pettijohn	Senior Staff Member	L.A. DWP
Mr. Craig David	Senior Staff Member	LACDPW
Mr. Allen Gribnaux	Water Management Planning	LACDPW
Mr. Anmin Liu	Senior Staff Member	L.A. Sanitation Bureau
Mr. Al Beingessner	City of San Diego	Metropolitan Wastewater Department
Mr. F. Dave Schlesinger	Director	Metropolitan Wastewater Department
Mr. Lee Jacobi	Senior Staff Member	MWDOC
Mr. Matt Stone	Principal Engineer	MWDOC
Mr. John T. Morris	Director - City of San Marino	MWDSC
Mr. Thom Coughran	Director - City of Santa Ana	MWDSC
Mr. Frank F. Forbes	Director - USGVMWD	MWDSC
Mr. Ed Little	Director - West Basin MWD	MWDSC
Mr. John Bernardski	Principal Engineer	MWDSC
Mr. Mark Beuhler	Director of Water Quality	MWDSC
Mr. Paul Brown	Facilitator	MWDSC

Name	Title	Agency
Mr. Jim Daber	Facilitator	MWDSC
Mr. Kevin Donhoff	Engineer	MWDSC
Mr. Steve Duncan	Facilitator	MWDSC
Mr. Bill Eubank	Recorder	MWDSC
Mr. Ken Kules	Recorder	MWDSC
Mr. Jay Malinowski	Chief of Operations	MWDSC
Ms. Debra C. Man	Chief of Planning and Resources	MWDSC
Mr. Dirk Marks	Principal Engineer	MWDSC
Mr. Ed Means		
Mr. Ken Mirvis	Main Facilitator	MWDSC
Mr. Joe Pomento	Sr. Public Affairs Representative	MWDSC
Mr. Timothy Quinn	Deputy General Manager	MWDSC
Mr. Eddie Rigdon	Operations Branch Manager	MWDSC
Mr. Andy Sienkiewich	Principal Engineer	MWDSC
Ms. Terry Solis	Facilitator	MWDSC
Mr. Brian G. Thomas	Facilitator	MWDSC
Mr. Jose Vergara	Summit Coordinator	MWDSC
Mr. Charles Peltzer	Director	Orange County Farm Bureau
Mr. Blake Anderson	Assistant General Manger	Orange County Sanitation District
Mr. Don McIntyre	General Manager	Orange County Sanitation District
Mr. Keith Lewinger	General Manager	Otay Water District
Mr. John Hennigar	General Manager	Rancho California Water District
Ms. Gail McPherson	Wastewater System Manager	City of Riverside
Mr. G. Louis G. Fletcher	General Manager/Chief Engineer	San Bernardino Valley MWD
Mr. John Chaffin	Water Quality Superintendent	City of San Diego
Mr. Kent Floro	Asst. Deputy Director of Water Ops.	City of San Diego
Mr. Mark Stone	Deputy Director of Water Operations	City of San Diego
Mr. Walter Stone	Senior Staff Member	City of San Diego
Mr. Eric Larson	Executive Director	San Diego County Farm Bureau
Ms. Amy Chen	Government Representative	SDCWA
Ms. Dana Frieuhauf	Senior Engineer	SDCWA
Ms. Julia Maclay	Senior Resource Specialist	SDCWA
Mr. Ken Weinberg	Manager of Water Resources	SDCWA
Mr. Joseph C. Reichenberger	President of the Board of Directors	San Gabriel Valley MWD
Mr. Joseph Grindstaff	General Manager	Santa Ana Watershed Project Authority
Mr. Michael P. Dunbar	General Manager	South Coast Water District
Mr. Ed LaBahn	Director	South Coast Water District
Mr. Donald Rebeck	Assistant Executive Director	SCAP
Mr. Tom Rosales	Senior Staff Member	SCAP
Mr. Marvin Young	Senior Staff Member	SCAP
Mr. Steve Macaulay	General Manager	SWP Contractors
Mr. Walt Petit	Executive Officer	State Water Resources Control Board
Mr. Ken Klewicki	General Manager Representative	Three Valleys MWD
Mr. Tim Worley	Director of Public Affairs	Three Valleys MWD
Mr. Richard Martin	Area Manager	U.S. Bureau of Reclamation
Mr. John Redlinger	D0 eputy Director	U.S. Bureau of Reclamation
Mr. David P. Trueman	Project Manager - Upper Colorado	U.S. Bureau of Reclamation
Mr. Bruce MacLear	Drinking Water Division	U.S. EPA Region IX
Mr. Richard Nagel	Watermaster/Alternate	Upper Los Angeles River Area
Mr. Peter MacLaggan	Executive Director	WateReuse
Mr. Mark Carpenter	Assistant General Manager	Westlands Water District
Mr. Donald L. Harriger	General Manager	Western MWD

SALINITY SUMMIT

January 27, 1999

Kellogg West Center at Cal Poly Pomona

AGENDA

- 7:30 - 8:00 Registration / Coffee and Rolls
- 8:00 - 8:20 Introductions
Timothy Quinn, Metropolitan Water District of Southern California
William R. Mills Jr., P.E., Association of Ground Water Agencies
Donald Rebeck, Southern California Association of POTWs
- 8:20 - 8:40 Colorado River Basin Salinity Control Program
Jack Barnett
- 8:40 - 9:00 Metropolitan's Salinity Management
Andy Sienkiewich, Metropolitan Water District of Southern California
Rich Atwater, Bookman Edmonston Engineering
- 9:00 - 9:30 Break
- 9:30 - 10:45 Breakout Session No. 1: Proposed Salinity Policy and Action Plan
Group #1: Imported Water Source Control
Group #2: MWD Distribution System
Group #3: Collaborative Action with Agencies, D.R.I.P.
Group #4: Local Actions by Agencies
- 10:45- 11:45 Breakouts Sessions Reports and Discussions
- 11:45 - 12:30 Buffet Lunch
- 12:30 - 1:00 Lunch speakers: Statewide Perspectives on Salinity Management Concerns
Walt Petit, State Water Resources Control Board
Steve Ritchie, CALFED/Bay-Delta Program
- 1:00 - 1:15 Break
- 1:15 - 2:30 Breakout Session No. 2: "What can my organization do?"
Group #1: Imported Water Source Control
Group #2: MWD Distribution System
Group #3: Collaborative Action with Agencies, D.R.I.P.
Group #4: Local Actions by Agencies
- 2:30 - 3:30 Breakouts Sessions Reports and Discussions
- 3:30 - 4:00 Closing Remarks
Timothy Quinn, Metropolitan Water District of Southern California
William R. Mills Jr., P.E., Association of Ground Water Agencies
Donald Rebeck, Southern California Association of POTWs

PROPOSED POLICY
SECTION 4
02/25/99 Update

MANAGEMENT OF SALINITY BY
THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Metropolitan, in cooperation with other water and wastewater agencies throughout Southern California, is committed to the following long-term policy to control salinity:

- Protect Metropolitan's imported source supplies from the additional salinity, and where feasible seek reductions.
- Achieve, to the extent reasonable and practical, a total dissolved solids concentration objective of 500 milligrams per liter (mg/L) in Metropolitan's distribution system.
- Recognize that natural events beyond Metropolitan's control will at times increase the salinity of imported water supplies, hindering Metropolitan's ability to continuously meet its 500 mg/L objective.
- Optimize the long-term use of Colorado River water in conjunction with State Water Project supplies in pursuing salinity management objectives and Metropolitan's Integrated Resource Plan.
- Integrate water quality and quantity objectives in planning facility and resource developments.
- Support regional regulatory and management actions to minimize salinity contributions to groundwater and recycled water resources.
- Make the Salinity Management Action Plan (See Section 5) the primary strategy to carry out this policy. Regularly assess the implementation and results of the Action Plan, and make revisions based upon experience gained and changing conditions.

**PROPOSED ACTION PLAN
SECTION 5**

02/25/99 Update

This section outlines a comprehensive Action Plan to carry out the proposed policy statement in Section 4. The Action Plan focuses on reducing salinity concentrations in Southern California water supplies through collaborative actions with pertinent agencies, recognizing that an effective solution requires a regional commitment. Actions specifically under Metropolitan's control will be predicated on Board-approved funding. Four fundamental categories of action are included:

- Imported Water Source Control and Salinity Reduction Actions;
- Distribution System Salinity Management Actions;
- Collaborative Actions with Other Agencies; and
- Local Salinity Management including Actions to Protect Groundwater and Recycled Water Supplies.

IMPORTED WATER SOURCE CONTROL AND SALINITY REDUCTION ACTIONS

**Action Item No. 1
Colorado River**

Metropolitan will diligently support funding for the Colorado River Salinity Control Program. Added emphasis will be given to accelerating implementation of program measures. This will entail coordination with the Colorado River Board of California, the Colorado River Basin Salinity Control Forum, participating federal agencies, the proposed Southern California Salinity Coalition and other interested parties

Metropolitan will provide the U.S. Bureau of Reclamation (Reclamation) with its updated salinity impacts model for Reclamation's use to help develop economic justification for new salinity control measures and funding.

IMPORTED WATER SOURCE CONTROL AND SALINITY REDUCTION ACTIONS

**Action Item No. 2
State Water Project**

Metropolitan will work with other State Water Project (SWP) Contractors, and the California Urban Water Agencies to encourage the Department of Water Resources (DWR) to engage in operational and management practices which support Metropolitan's salinity management objectives including:

- DWR to provide timely water quality information to aid Metropolitan's operational decisions.

- DWR to develop a TDS assessment methodology to provide routine salinity forecasts and to assess actions that may affect source or delivered water quality.
- DWR and Metropolitan to seek mitigation offsets for proposed projects that have potential to significantly degrade source or delivered water quality.
- Metropolitan and DWR to assess the tradeoffs of projects affecting SWP salinity including economic impacts.
- Metropolitan to promote inclusion of salinity control and reduction as a major objective for Delta exports to as part of CALFED's long-term Bay-Delta solution.
- DWR to conduct water cycling and flow-through operations in its reservoirs to lower salinity levels without impairing water supply reliability.
- CALFED to adopt watershed management activities and water quality programs that reduce salinity to municipal water supplies.

DISTRIBUTION SYSTEM SALINITY MANAGEMENT ACTIONS

Action Item No. 3 Blending

Metropolitan will operate its system with the objective to maintain an average salinity concentration equal to the secondary State and federal drinking water standard of 500 mg/L in its blended water at its Weymouth, Diemer, and Skinner filtration plants, the untreated San Diego pipelines and the Eastside Reservoir subject to the following:

- Compliance with all water quality standards and aesthetic parameters,
- Availability of sufficient State Project water to accomplish the blend without using drought supplies from special transfer or storage accounts,
- Adequate distribution system delivery capacity, and
- An annually budgeted amount to cover operational cost,

Actual system concentrations will vary by time and location in response to routine operational constraints and practices. The blending objective is estimated to be achievable in 7 out of 10 years on average, primarily being hindered by periodic episodes of high salinity in Metropolitan's imported water sources caused by drought conditions. Staff will inform Metropolitan's Board whenever constraints will prevent achievement of the objective. Staff will also provide reports to the Board of the cost incurred and the amount of salinity reduction achieved following the conclusion of each year.

Duration of blending operations:

- Interim: Through 2004, Metropolitan will plan its operations to meet a 500 mg/L objective in a two stage process:

1. April-September will be the primary time window when water resources are limited, and
 2. October - March will be secondary time window when water resource conditions are favorable.
- Long-term: In 2004, Metropolitan will assess changes in resource conditions and revise the blending duration to the extent that supply improvements permit to achieve the 500 mg/L objective on a year-round basis. Success in a CALFED solution; development of new storage and exchange arrangements along the Colorado River Aqueduct; and exchanges of lower salinity Sierra Nevada water into the State Water Project will be important factors in expanding the blending duration.

DISTRIBUTION SYSTEM SALINITY MANAGEMENT ACTIONS

**Action Item No. 4
Exchange, Storage and Conveyance**

Metropolitan will pursue: (1) storage and exchange arrangements along the Colorado River Aqueduct to minimize the loss of Colorado River water periodically curtailed and replaced by State Project water when blending to meet salinity targets; (2) exchanges and transfers of Sierra water that could lower State Project water salinity; and (3) conveyance of low salinity groundwater in its distribution system.

DISTRIBUTION SYSTEM SALINITY MANAGEMENT ACTIONS

**Action Item No. 5
Integration of Water Quality and Quantity**

Metropolitan will integrate water quality and quantity objectives in conducting its system overview planning studies, updating its Integrated Water Resource Plan and in negotiating resource developments. Metropolitan, in coordination with its member agencies and other concerned entities, will periodically review its distribution system and assess the merit of facility improvements needed for regional salinity management for all classes of water service.

COLLABORATIVE ACTIONS WITH OTHER AGENCIES

**Action Item No. 6
Local Resources Program Support**

Metropolitan will continue its financial support of local recycled water and groundwater desalination projects, including associated brine disposal through its Local Resources Program and will encourage protection and enhancement of the quality of those water resources.

COLLABORATIVE ACTIONS WITH OTHER AGENCIES

**Action Item No. 7
Desalination Research and Development**

Metropolitan will continue to pursue research and development partnerships to reduce the costs associated with removing TDS from the Colorado River Aqueduct and other water supplies, including brackish groundwater, recycled water, and agricultural drainage. The Desalination Research and Innovation Partnership (DRIP) is a collaborative effort that will focus on developing new and innovative technologies to reduce the cost of desalting water supplies. Practical technologies that may reduce the salinity content of the water supplied to member agencies will be evaluated. The partnership will also investigate water softener technology and its salinity impacts to the region's recycled water and groundwater resources.

COLLABORATIVE ACTIONS WITH OTHER AGENCIES

Action Item No. 8 Southern California Salinity Coalition

Metropolitan will collaborate with Association of Groundwater Agencies, Southern California Alliance of Publicly Owned Treatment Works, member agencies and other concerned agencies in Southern California to form a coalition that will assess progress in correcting the regional salt imbalance and coordinate needed actions with key agencies that influence regional salinity, including DWR, the Bureau of Reclamation, the State Water Resources Control Board, the Regional Water Quality Control Boards, and CALFED.

Public Education: The Coalition will pursue public education and awareness regarding the need to correct the region's salinity problems.

Annual Salinity Report Card: The Coalition will prepare an annual report on salt balance to track key indicators of the region's success in managing salinity and assess overall implementation of this Action Plan. Metropolitan will consider revisions based the assessment, the experience it gains and changing conditions.

Statewide Water Softener Study: The Coalition will pursue passage of legislation that would fund a statewide investigation by the State Water Resources Control Board of the impacts of water softeners and other sources of salt in local wastewater affecting recycled water and groundwater resources.

Advocate Federal Funding: The Coalition will support needed funding for the Colorado River Salinity Control Program.

LOCAL SALINITY MANAGEMENT ACTIONS

Action Item No. 9 Local Wastewater Discharge Management

Discharge Permits: Local leadership is needed to reduce the amount of salts entering groundwater and recycled water resources from sewer and agricultural discharges. Opportunities for improvement include more stringent industrial permitting, controlling infiltration of brackish groundwater and seawater, as well as developing dedicated brine or interceptor lines.

Local permitting and design practices need to consider the unavoidable salinity increases that will occur in imported water in response to periodic droughts and progressive changes in the

Colorado River watershed. Normal fluctuations in imported water salinity need to be fully recognized in the design of water recycling facilities, when developing groundwater management plans, and in establishing waste discharge permit standards.

Expand Regional Brine Disposal: Local leadership is needed to develop new dedicated brine disposal facilities to protect groundwater and recycled water resources. Metropolitan is currently working with a group of local agencies, member agencies, DWR and the Bureau of Reclamation in a regional water recycling planning study for Southern California. Part of that effort includes the planning of new brine disposal lines that would support water recycling and groundwater desalination developments.

Management of Water Softener Brines: Local leadership is needed to rectify existing statutes that hinder local agencies from managing salt discharges from residential water softeners. Metropolitan can help organize concerned local agencies to assess the regional scale of this issue and facilitate an effective outcome among the WaterReuse Association, the Water Quality Association, and State regulators.

LOCAL SALINITY MANAGEMENT ACTIONS

Action Item No. 10 Groundwater Management

Local leadership is needed to pursue groundwater management practices that minimize groundwater basin salt loading. Where none exist, institutional arrangements for groundwater quality management should be pursued. Some agencies have the opportunity to selectively schedule spreading injection, or in-lieu replenishment in response to imported water salinity conditions to minimize basin salt loading. Basin managers should address salt loading from local sources with regulatory agencies and pertinent dischargers.