

**Calculations of Potential Offsets from
Westside Regional Drainage Plan
(Sections B1, B2)**

MAA Draft Compliance and Evaluation Plan

August 4, 2009

9:00 am – 11:30 am

RECLAMATION

Management Agency Agreement

- Requirement of the Basin Plan (Salinity and Boron TMDL for the Lower San Joaquin River)
- Executed in December 2008 by Regional Water Board and Reclamation
- Cooperative implementation, initially a 2 year monitoring, assessment and reporting program
- Contains several reporting agreements
- Contains a goal of 25 percent reduction and/or offset of salts transported to basin by CVP
- Refers to Reclamation Action Plan

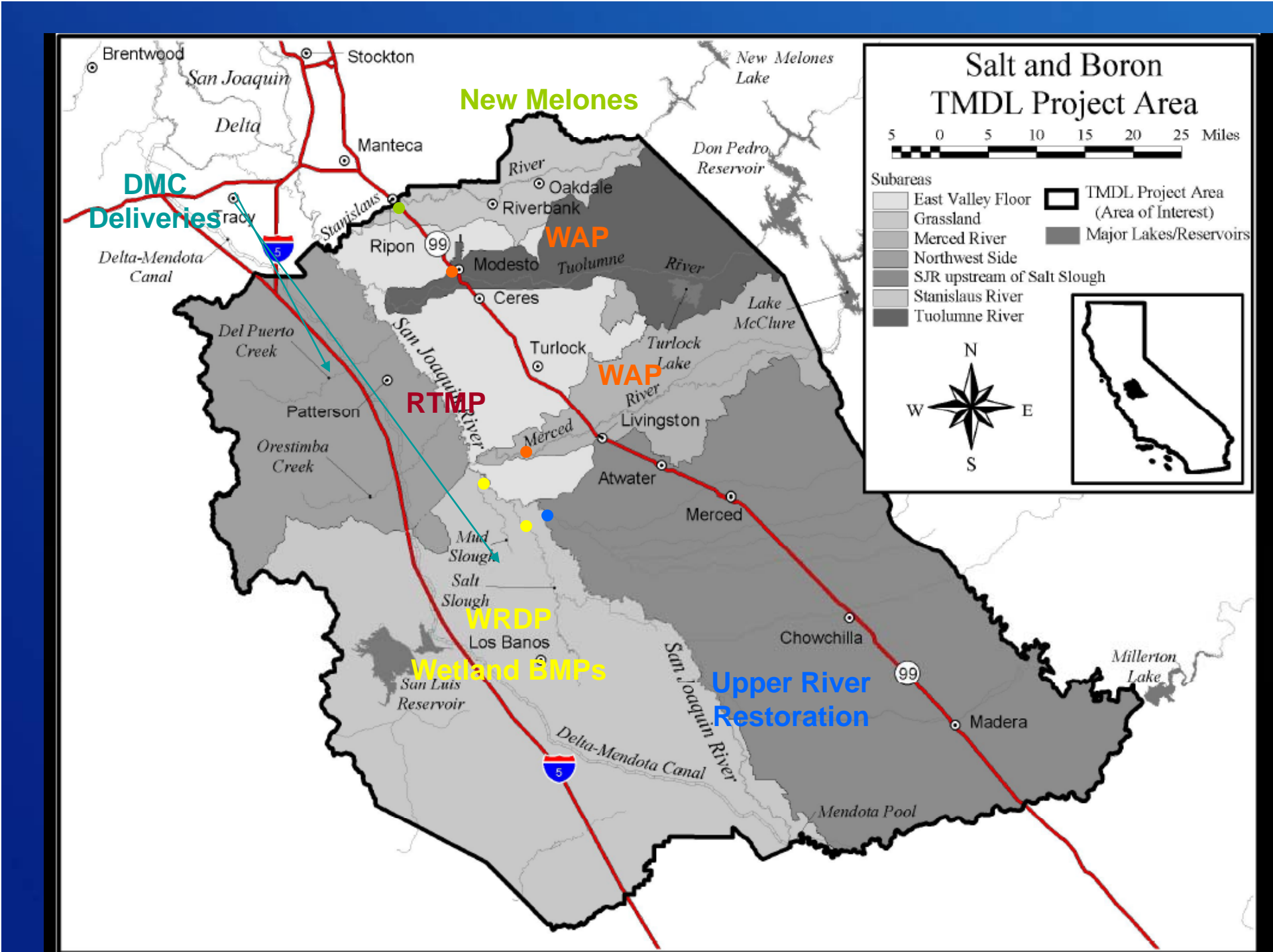
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Draft Compliance Evaluation and Monitoring Plan

Contents (2008 monthly data)

- Action Plan Elements
 - Status
 - Quantification of Potential Load Offsets
- DMC Supply Water Load
 - Methodology for Calculations
- Future Reclamation Actions
 - Status
 - Quantification of Potential Load Offsets
- Vernalis Water Quality
- Summary of Potential Offsets to DMC Loads
- Proposal for Continuing Public Participation

RECLAMATION



Draft Compliance Evaluation and Monitoring Plan

- First draft of Plan submitted on January 1, 2009
- Second draft submitted to Executive Director of Regional Board for approval on July 1, 2009
- Next draft will be submitted on January 1, 2010
- Final Compliance Evaluation and Monitoring Plan due to Regional Board by July 1, 2010

RECLAMATION

Potential Offsets from Westside Regional Drainage Plan -Agenda-

- Background
- Data Sources
- Approach
- Potential Offset Calculation Methodology
- Grassland Bypass Project Performance
- Monthly Loads, 2000 - now

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Potential Offsets from Westside Regional Drainage Plan -Background-

- Load allocations established for salts in Grassland Subarea (not currently in effect)
- Load allocation set to allow Consumptive Use increase in salts
- CVP water supply allowance granted to recipients of DMC water, 50% of water supply load (static numbers)
- In TMDL calculation, Grassland Subarea loads based on Mud and Salt Slough historic loads (pre-Grassland Bypass Project)

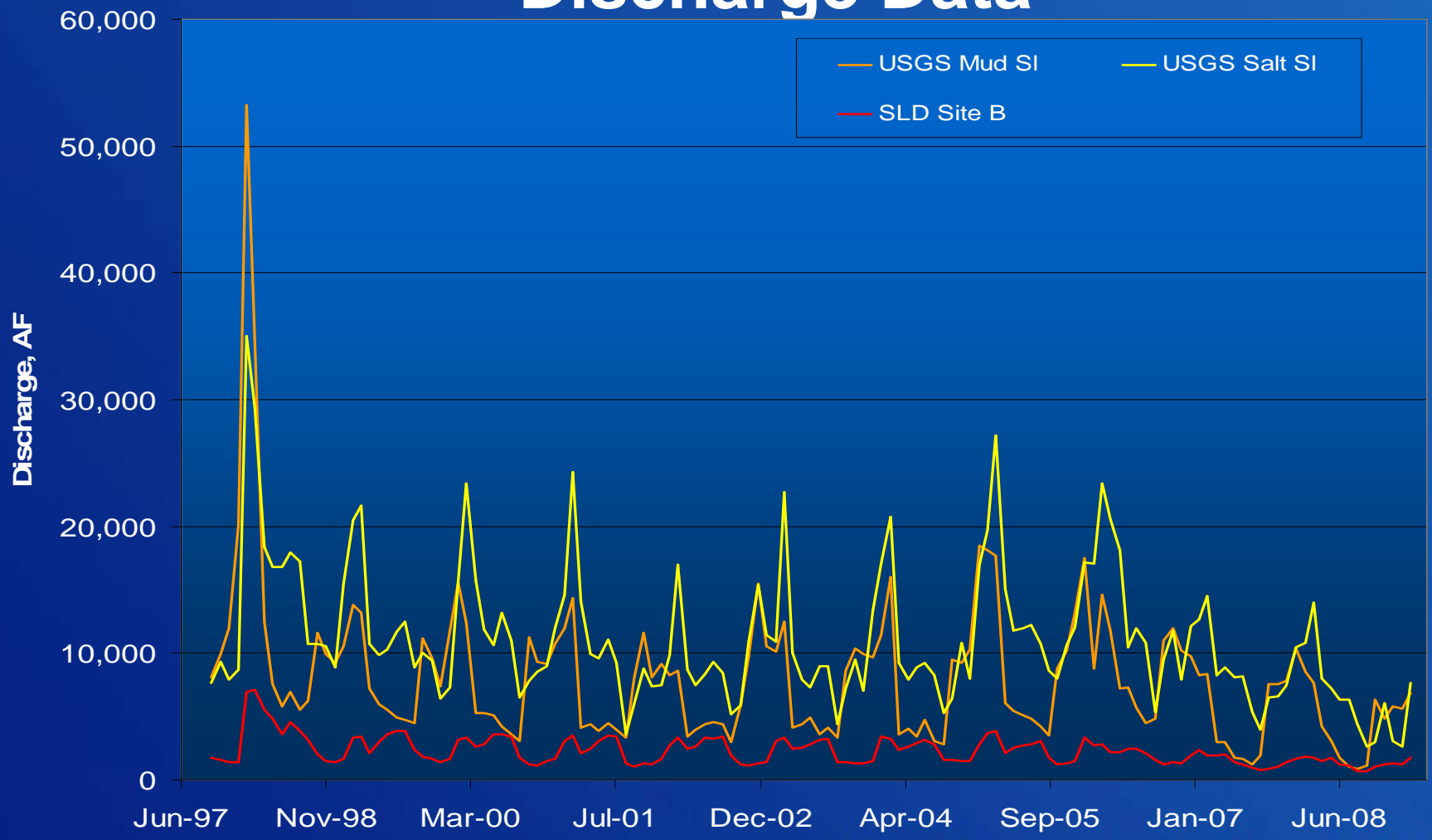
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Potential Offsets from Westside Regional Drainage Plan -Data Sources-

- Mud Slough near Gustine
 - USGS Station 11262900 (EC, discharge)
- Salt Slough at Hwy 165 near Stevinson
 - USGS Station 11261100 (EC, discharge)
- Grassland Bypass Project (for presentation only)
 - SFEI Data Reports (San Luis Drain Site B)

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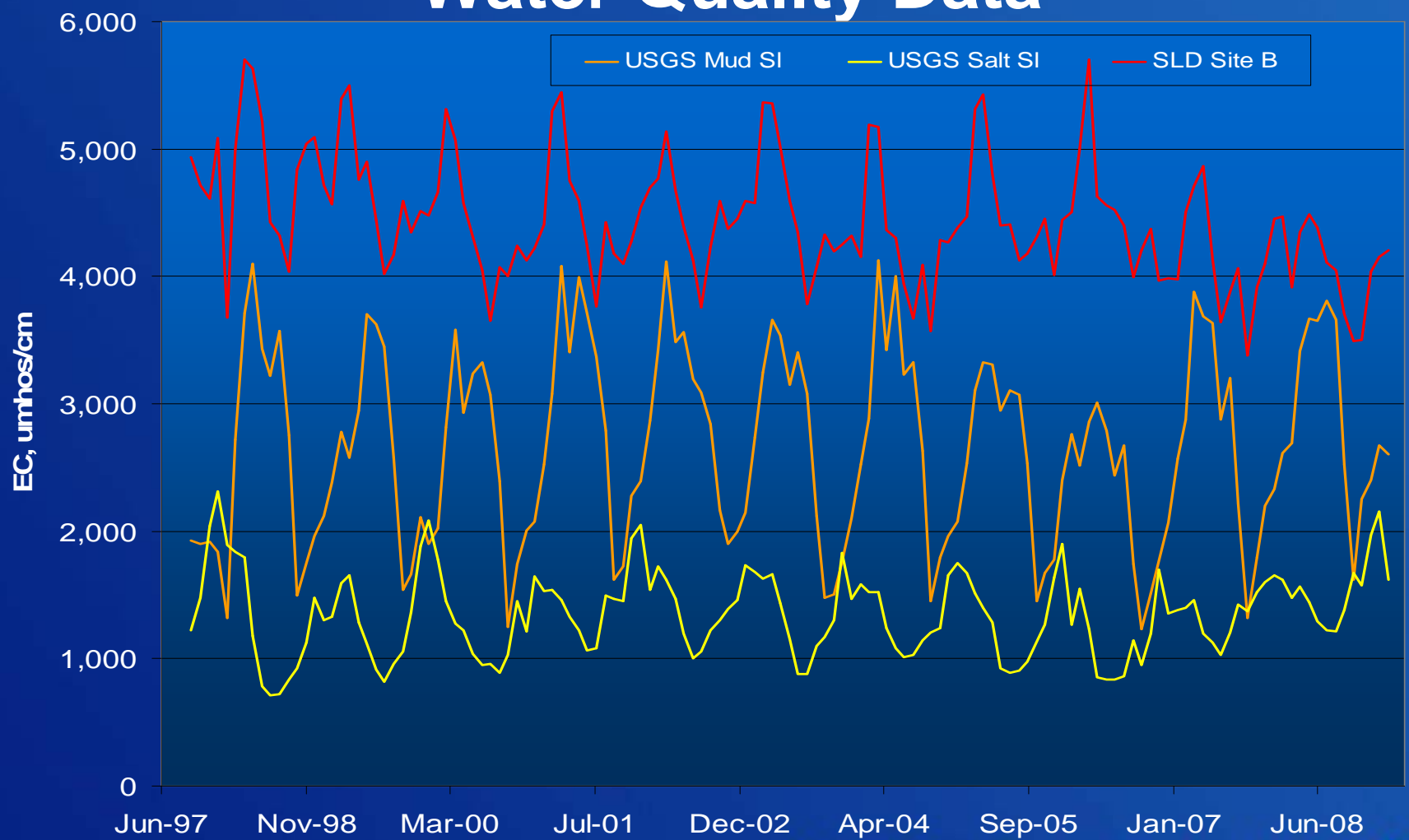
Potential Offsets from Westside Regional Drainage Plan -Discharge Data-



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Potential Offsets from Westside Regional Drainage Plan

-Water Quality Data-



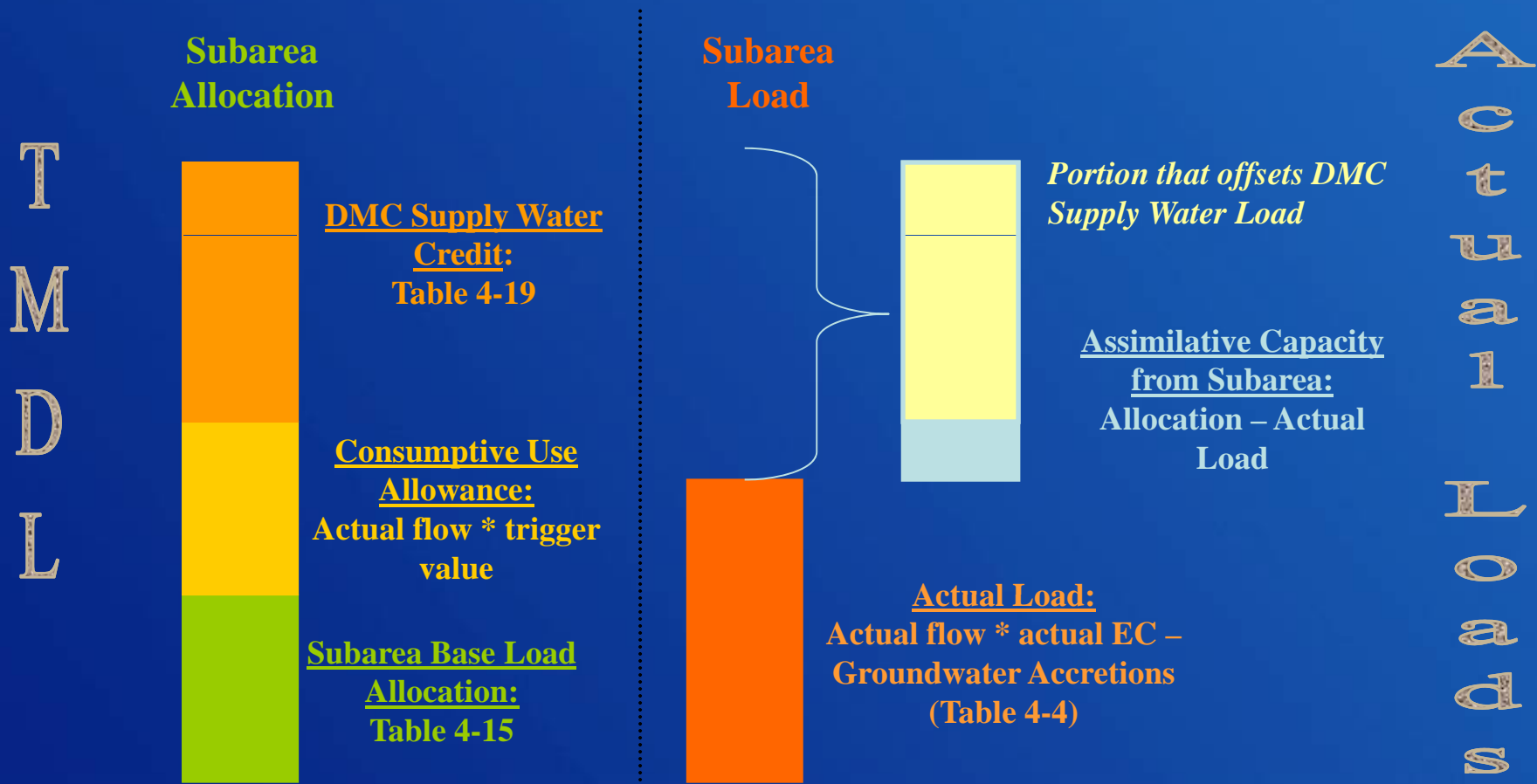
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Potential Offsets from Westside Regional Drainage Plan -Approach-

- Grassland Bypass Project measures loads entering San Luis Drain
- Offsets should capture *reduced tons*
- Offsets should *not impair* a subareas ability to comply with allocations
- Grassland subarea loads were examined to determine how they compare to allocations

Potential Offsets from Westside Regional Drainage Plan

-Approach-



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Potential Offsets from Westside Regional Drainage Plan -Calculation Methodology-

Loads from Grassland Bypass Project:

$$L_{\text{GBP}} = Q * C * 0.74 * 0.0013599$$

Where:

L_{GBP} = Daily load of salts from Grassland Bypass Project, tons

Q = Daily flow from Grassland Bypass Project through San Luis Drain, acre feet

C = Daily electrical conductivity in San Luis Drain at Station B, mS/cm

0.74 = Site-specific EC to TDS ratio (TMDL Vol. 1 pp 15)

0.0013599 = factor for converting units into tons

RECLAMATION

Potential Offsets from Westside Regional Drainage Plan -Calculation Methodology-

Calculation of Grassland Subarea Actual Load:

$$L = (0.68 * Q_{\text{SaltSl}} * C_{\text{SaltSl}} + 0.69 * Q_{\text{MudSl}} * C_{\text{MudSl}}) * 0.0013599$$

Where:

L = Salt load from Grassland Subarea, tons

Q = Monthly discharge from Salt Slough or Mud Slough, AF

C = Monthly average salinity of Salt Slough or Mud Slough, EC, umhos/cm

0.68, 0.69 = Site-specific EC to TDS ratio (TMDL Vol. 1 pp 15)

0.0013599 = factor for converting units into tons

RECLAMATION

Potential Offsets from Westside Regional Drainage Plan

-Calculation Methodology-

Calculation of Grassland Subarea Base Load Allocation:

Base Load (Table 4-15 in TMDL, by mo, WY)

+

CVP Import Supply Water Credit (Table 4-19 in TMDL,
by mo, WY)

+

Consumptive Use Allowance = $0.0013599 * 193 \text{ mg/L}$
TDS * Flow, AF

-

Subarea Groundwater Accretions, tons (Table 4-4 in
TMDL, scaled to subarea's miles of sloughs)

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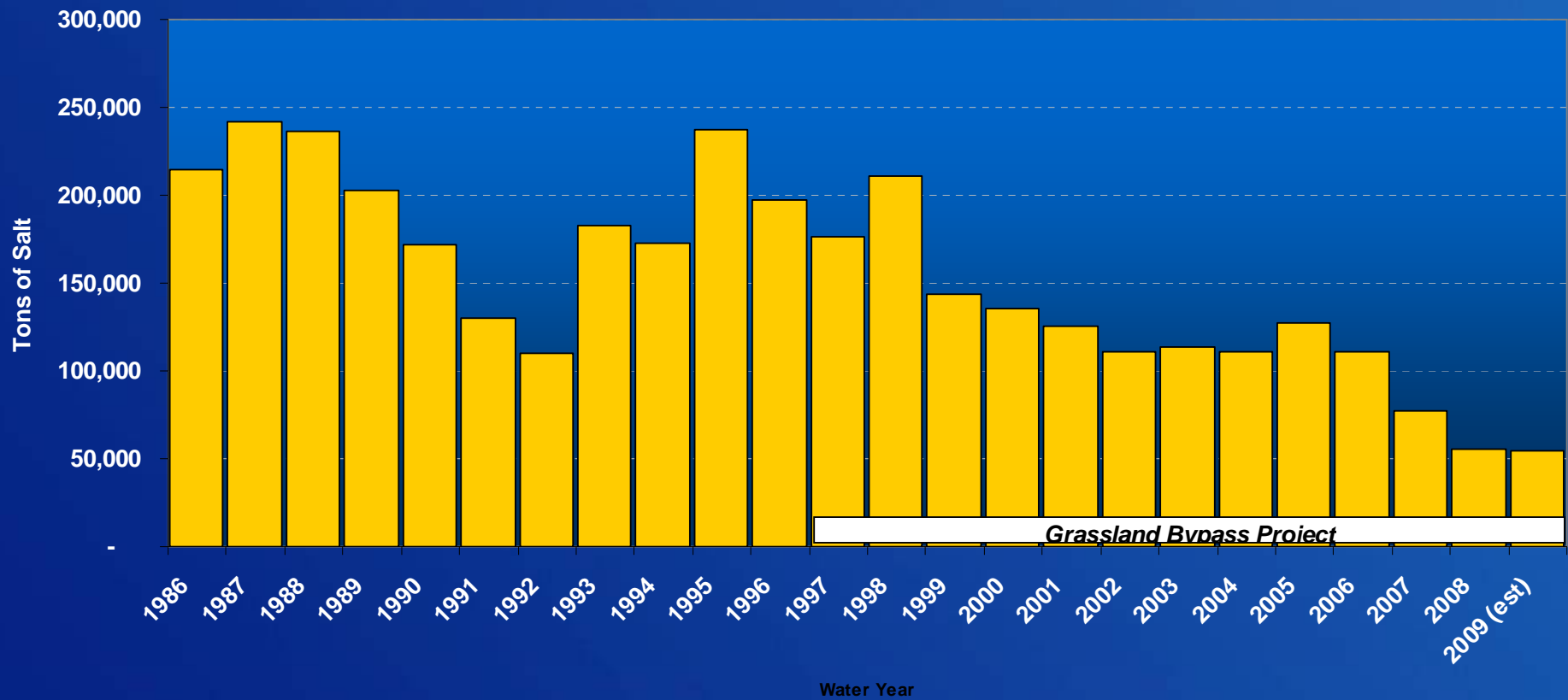
Potential Offsets from Westside Regional Drainage Plan -Calculation Methodology-

When a Real Time Management Program is implemented, the real time load allocation for Grassland subarea is:

0.37 * Real time Assimilative Capacity available at Vernalis

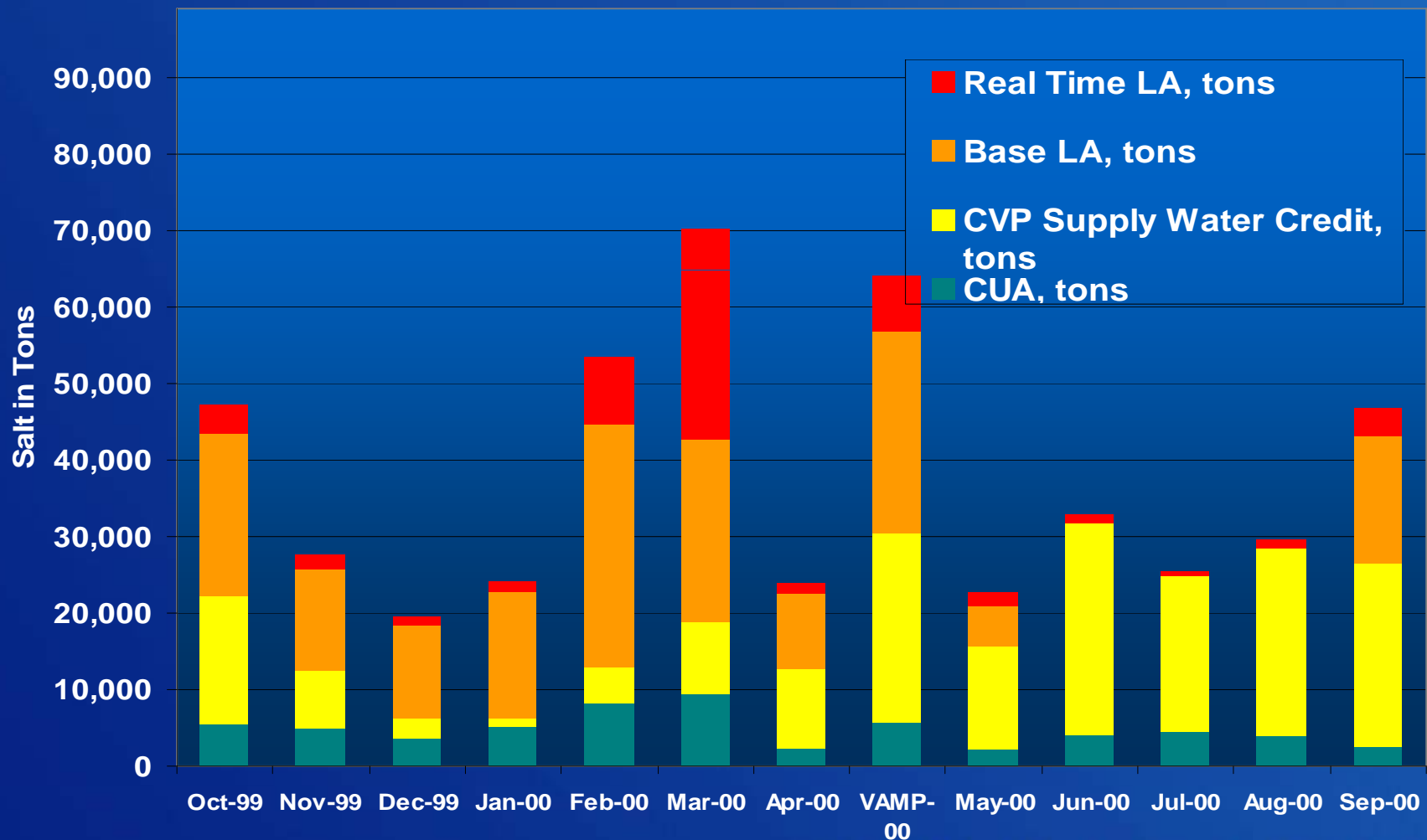
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Grassland Bypass Performance



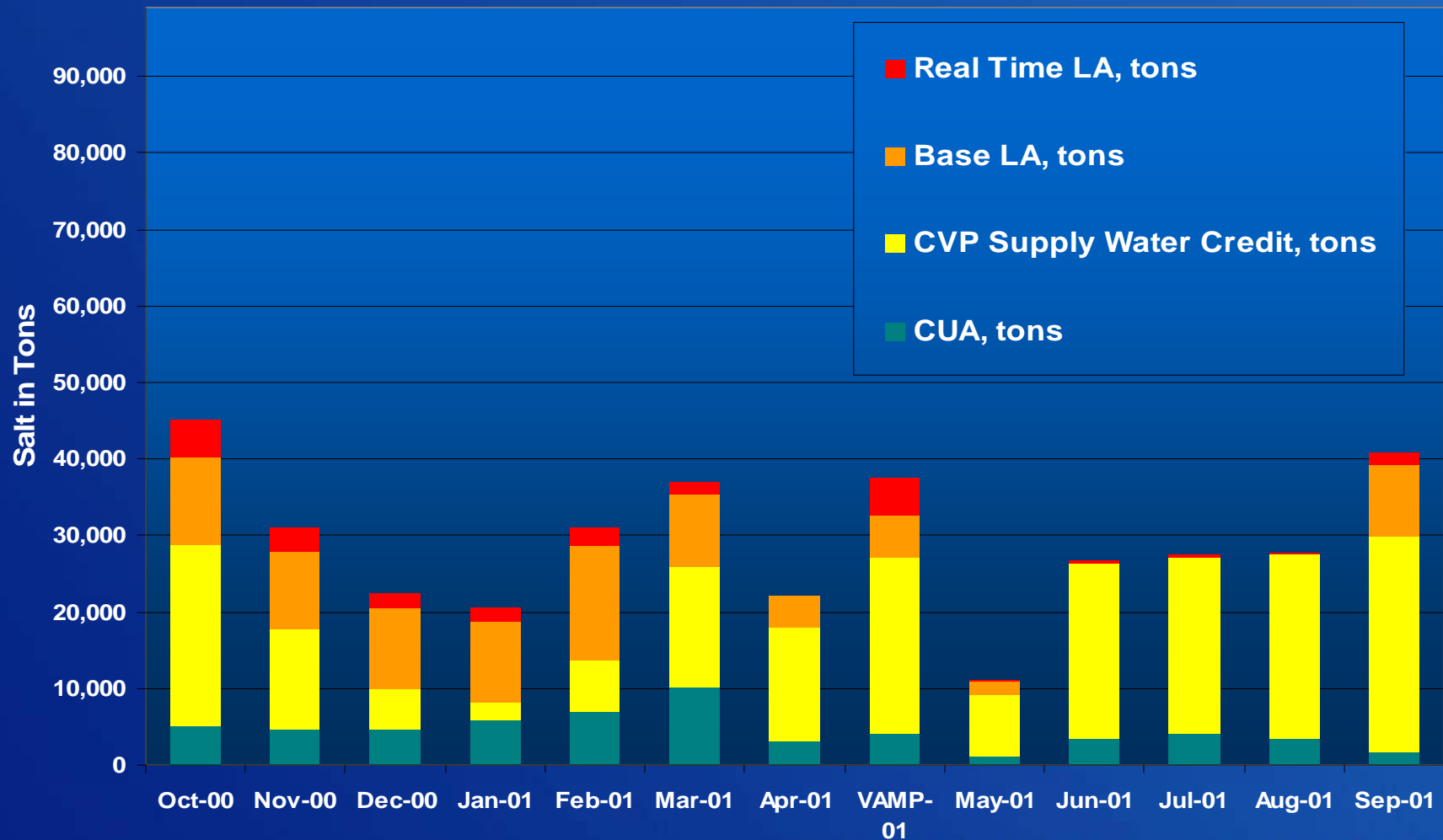
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Grassland Subarea Allocations 2000 (AN)



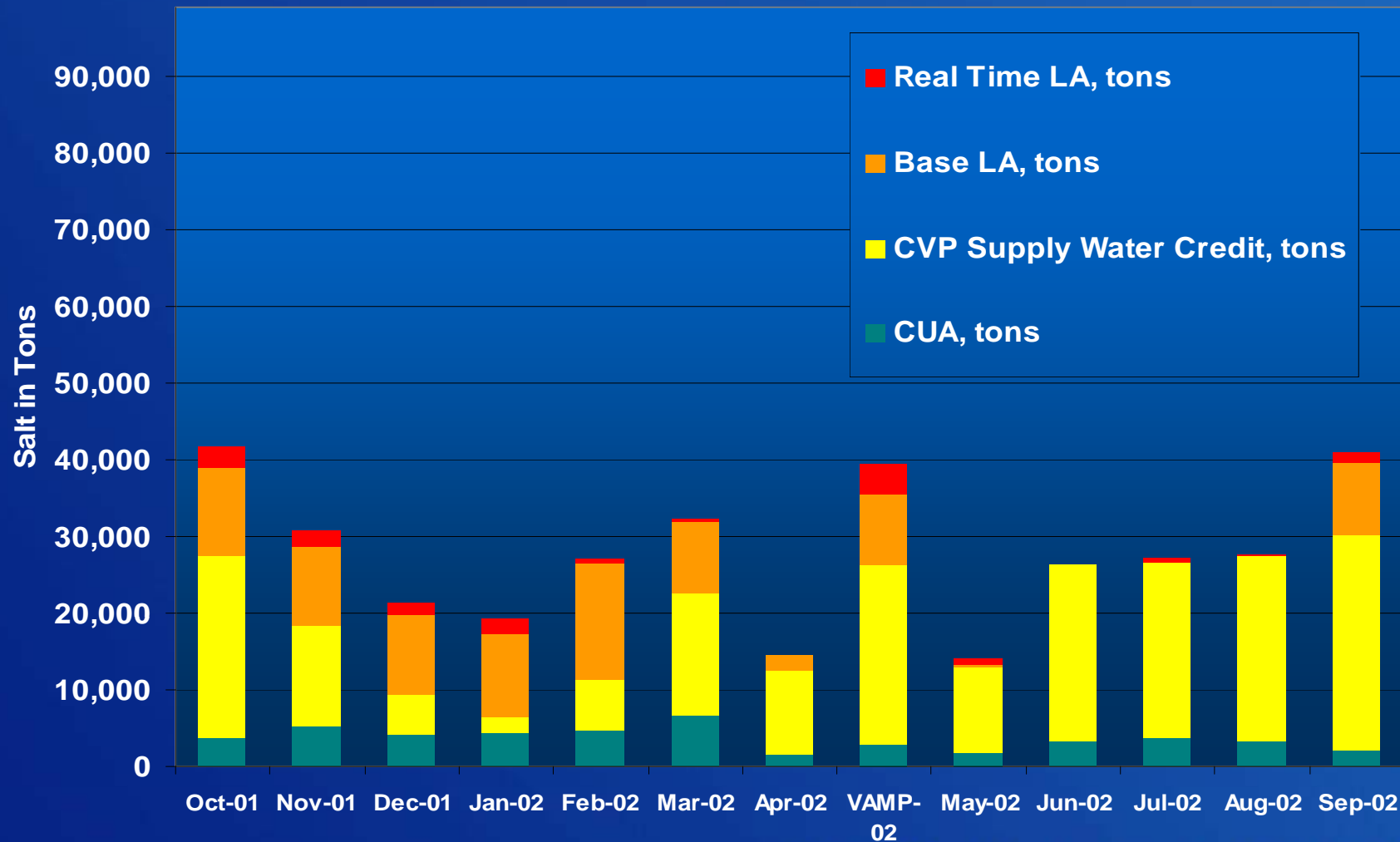
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Grassland Subarea Allocations 2001 (D)



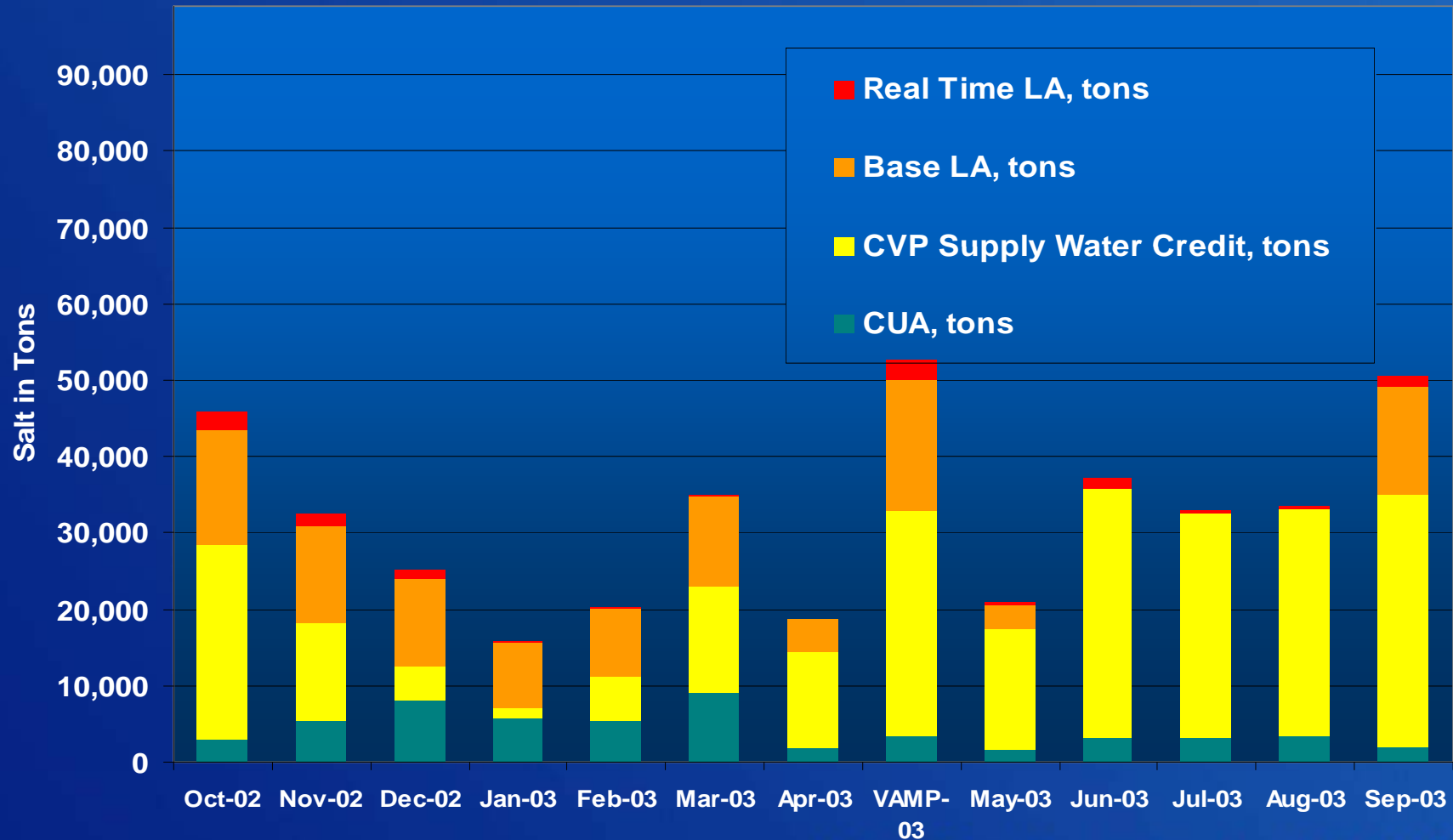
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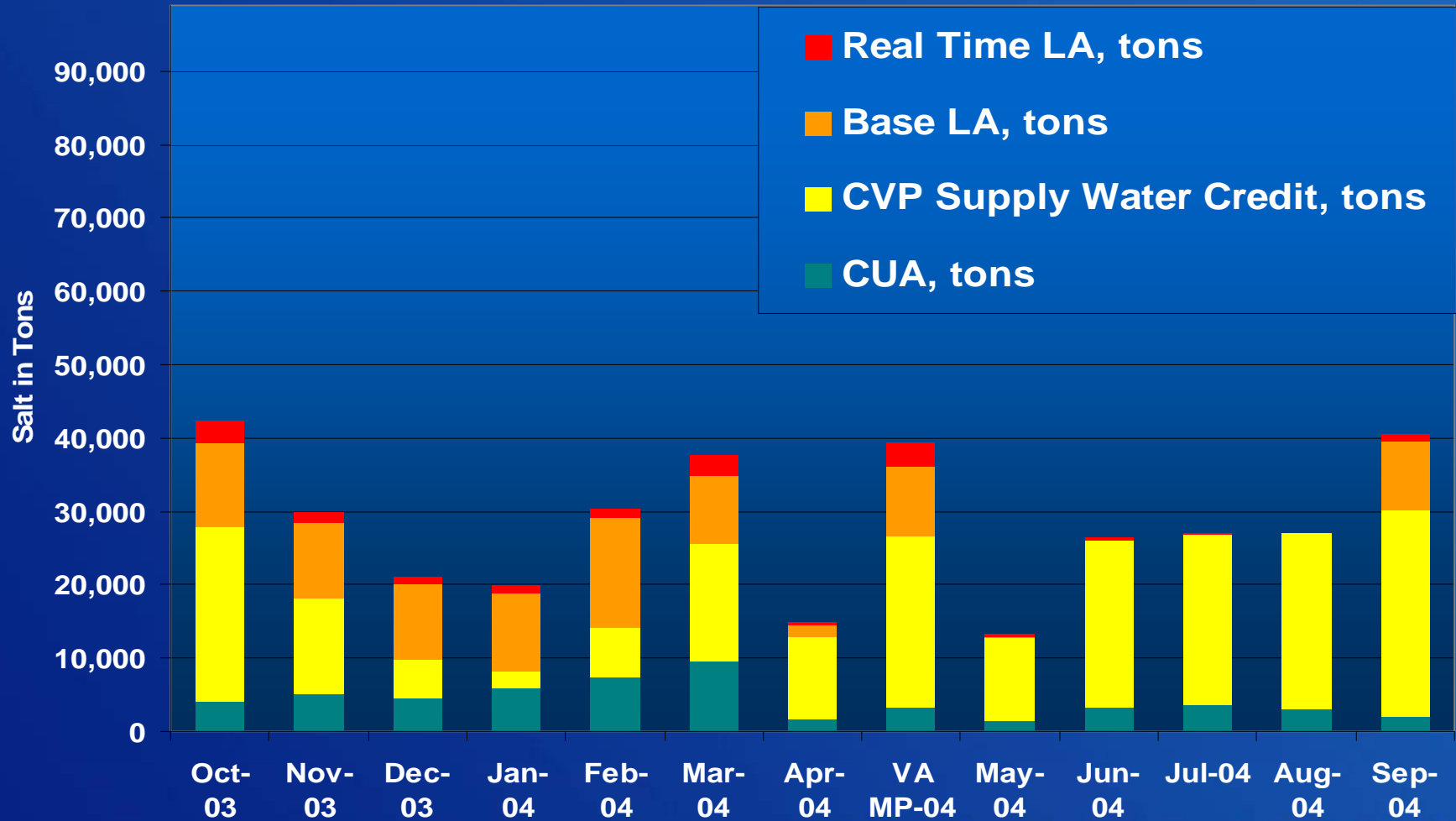
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Grassland Subarea Allocations 2003 (BN)



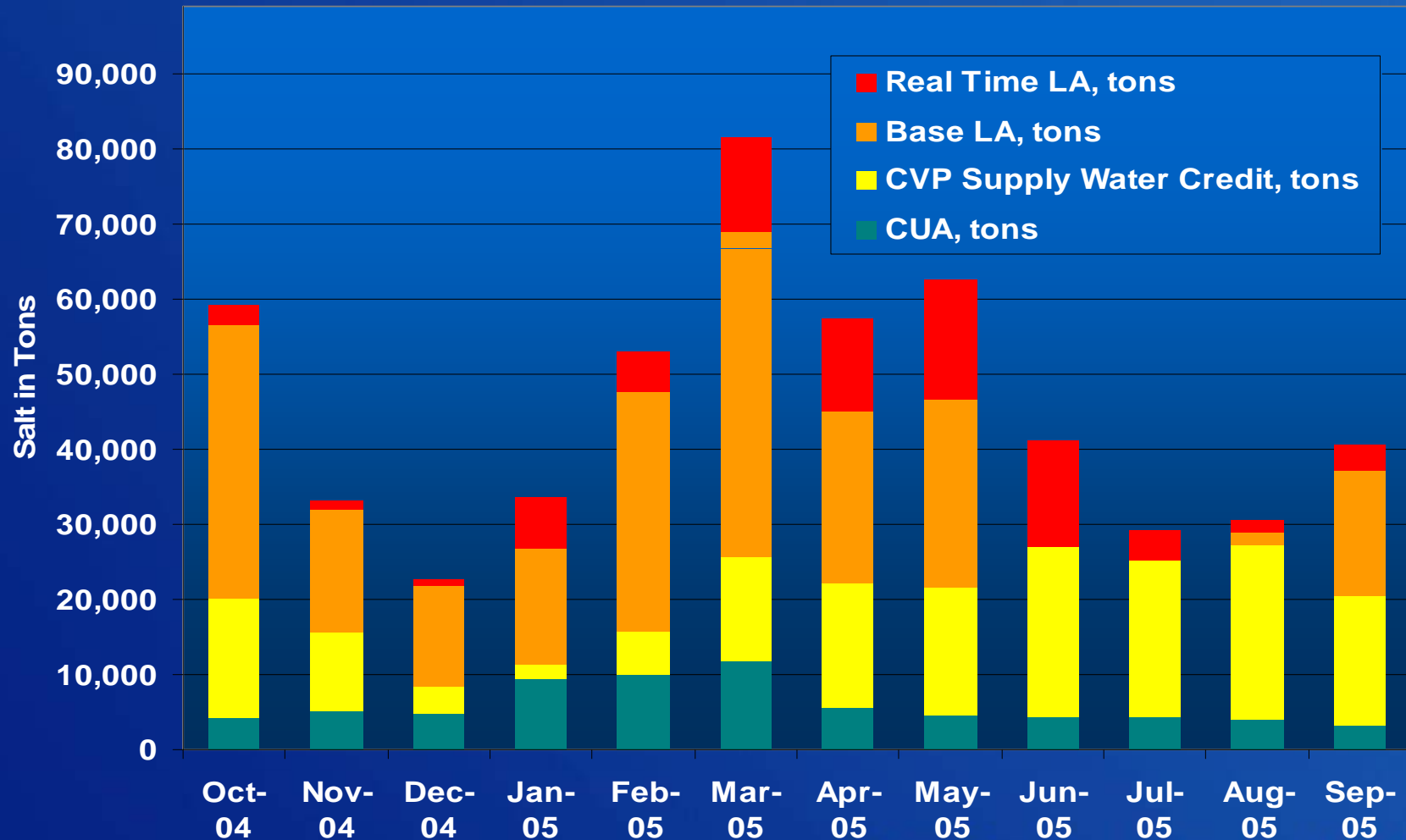
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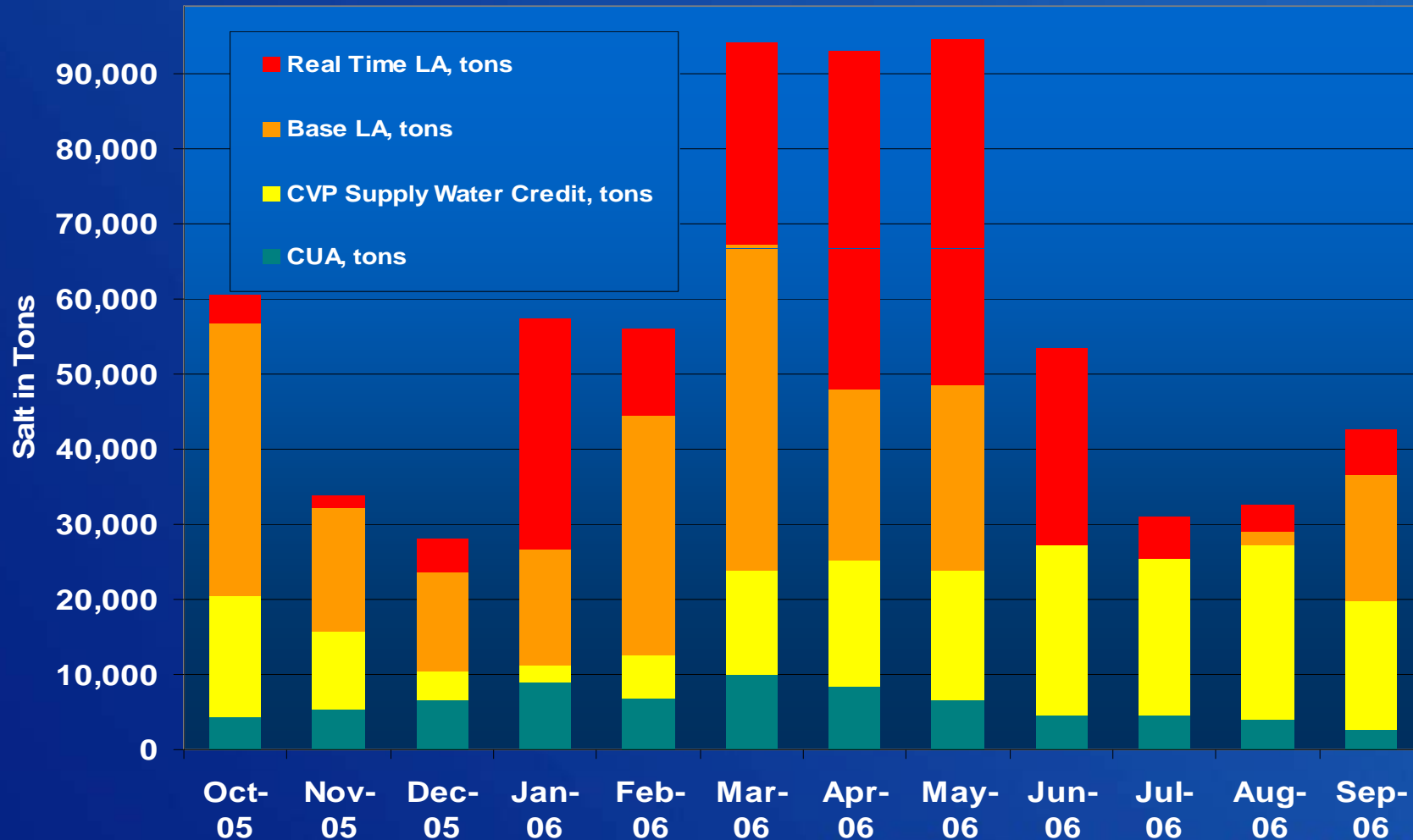
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Grassland Subarea Allocations 2005 (W)



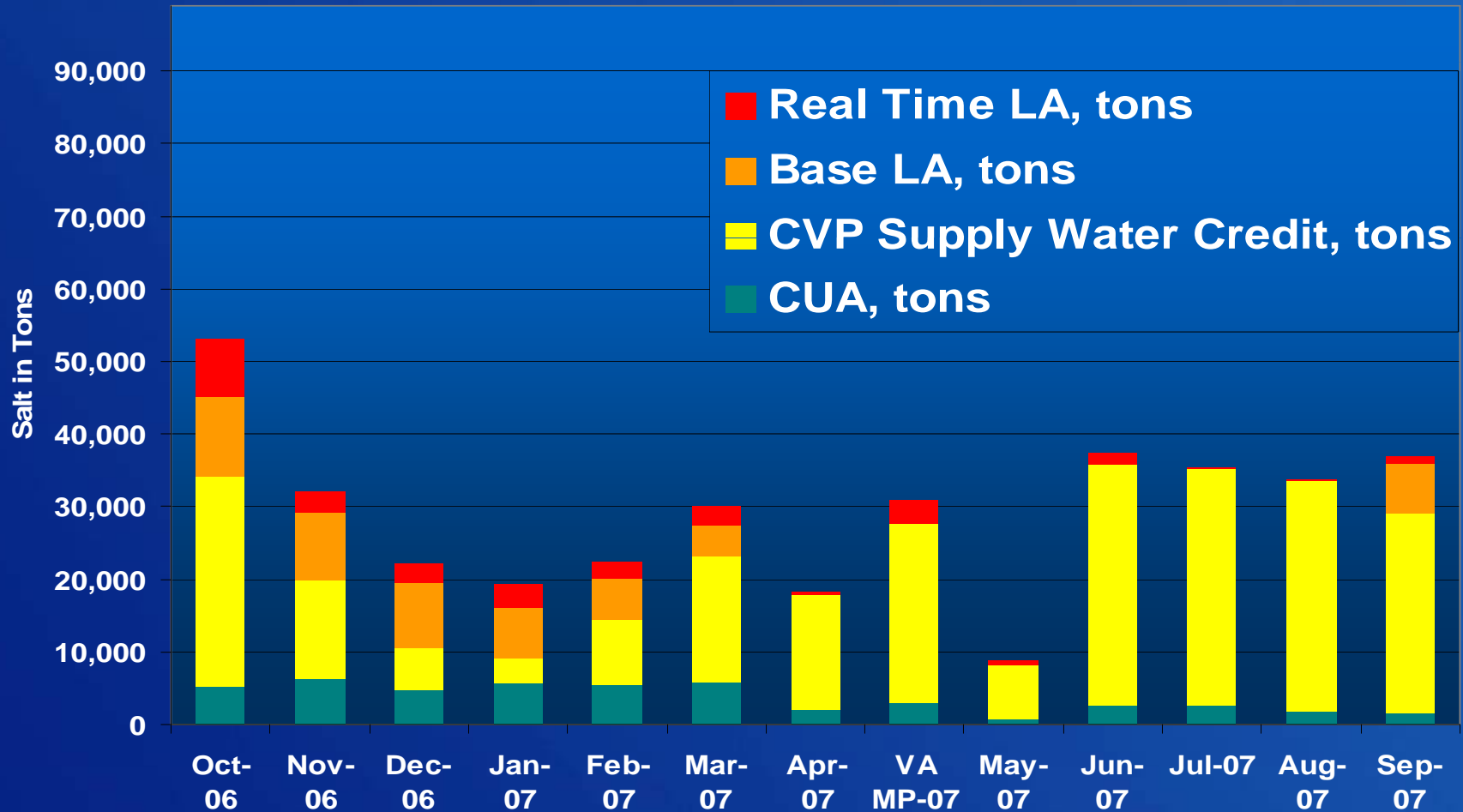
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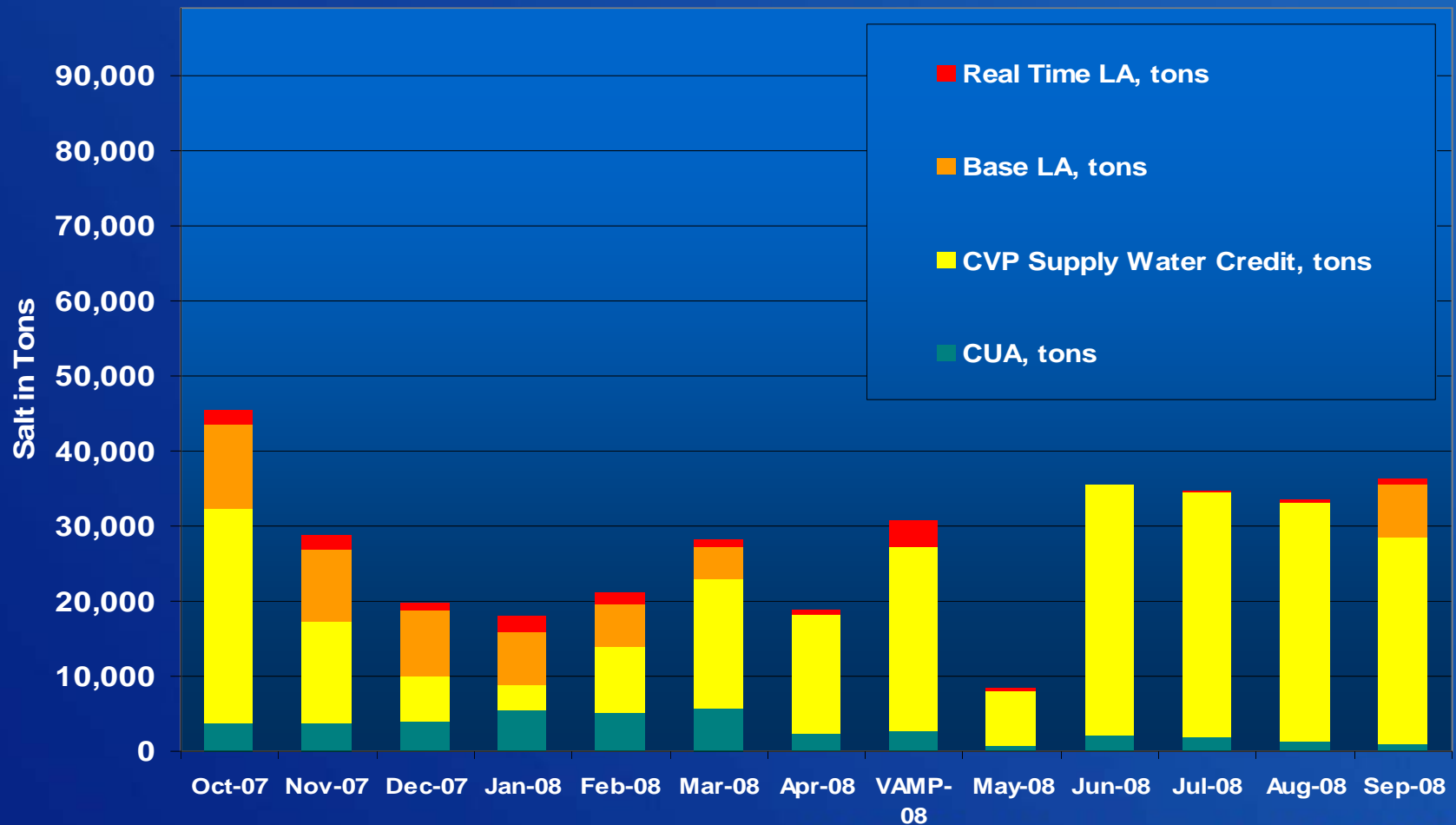
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Grassland Subarea Allocations 2007 (C)



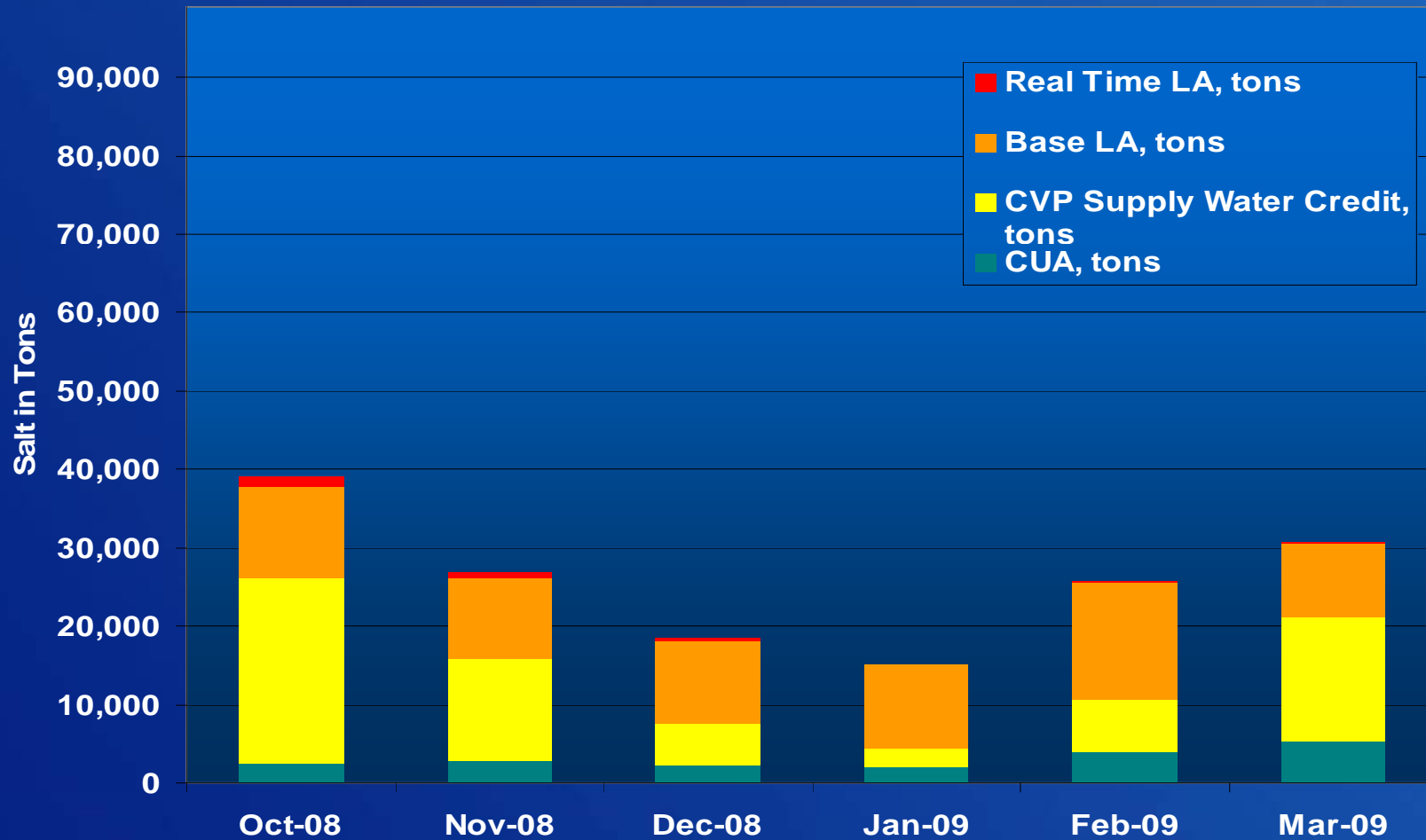
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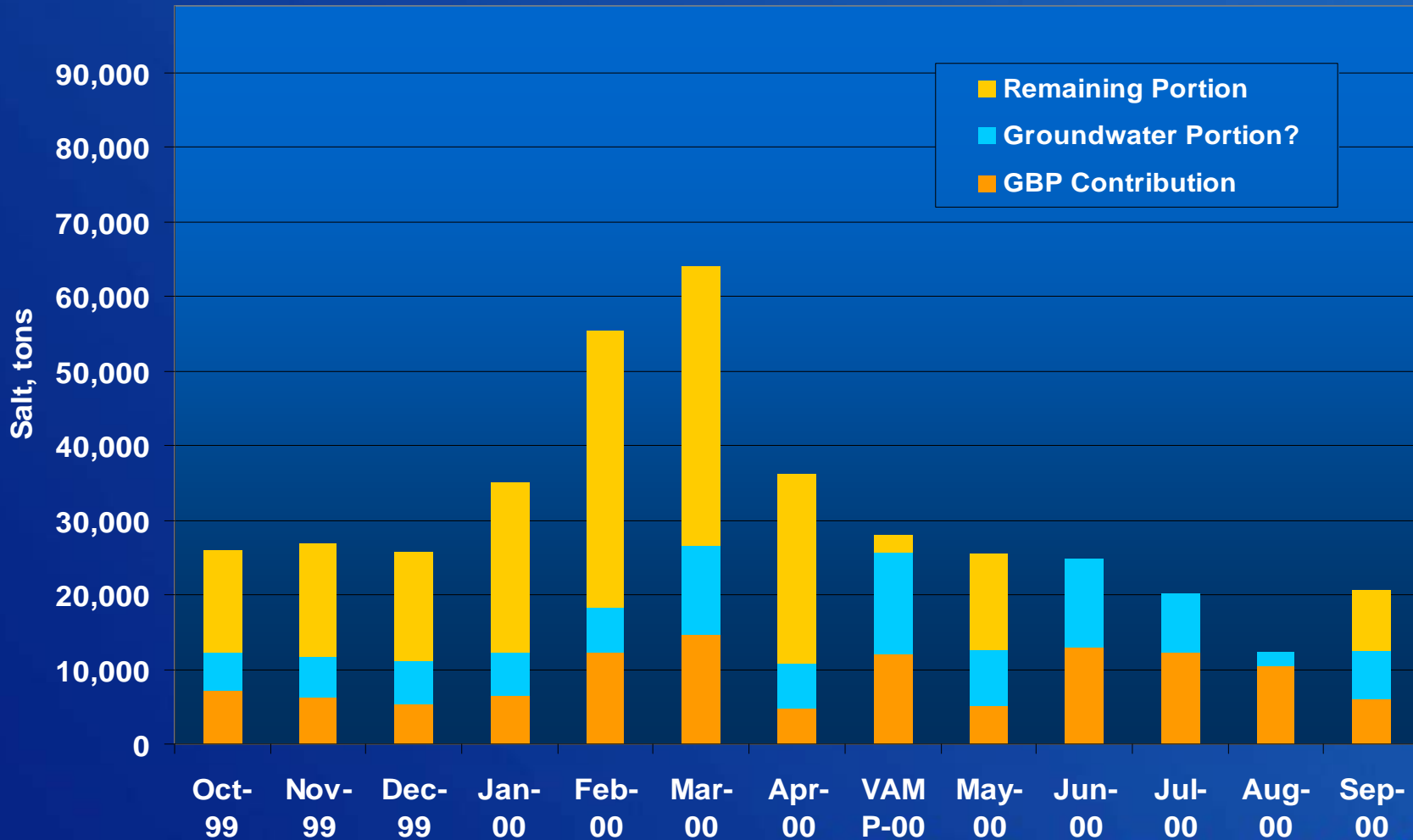
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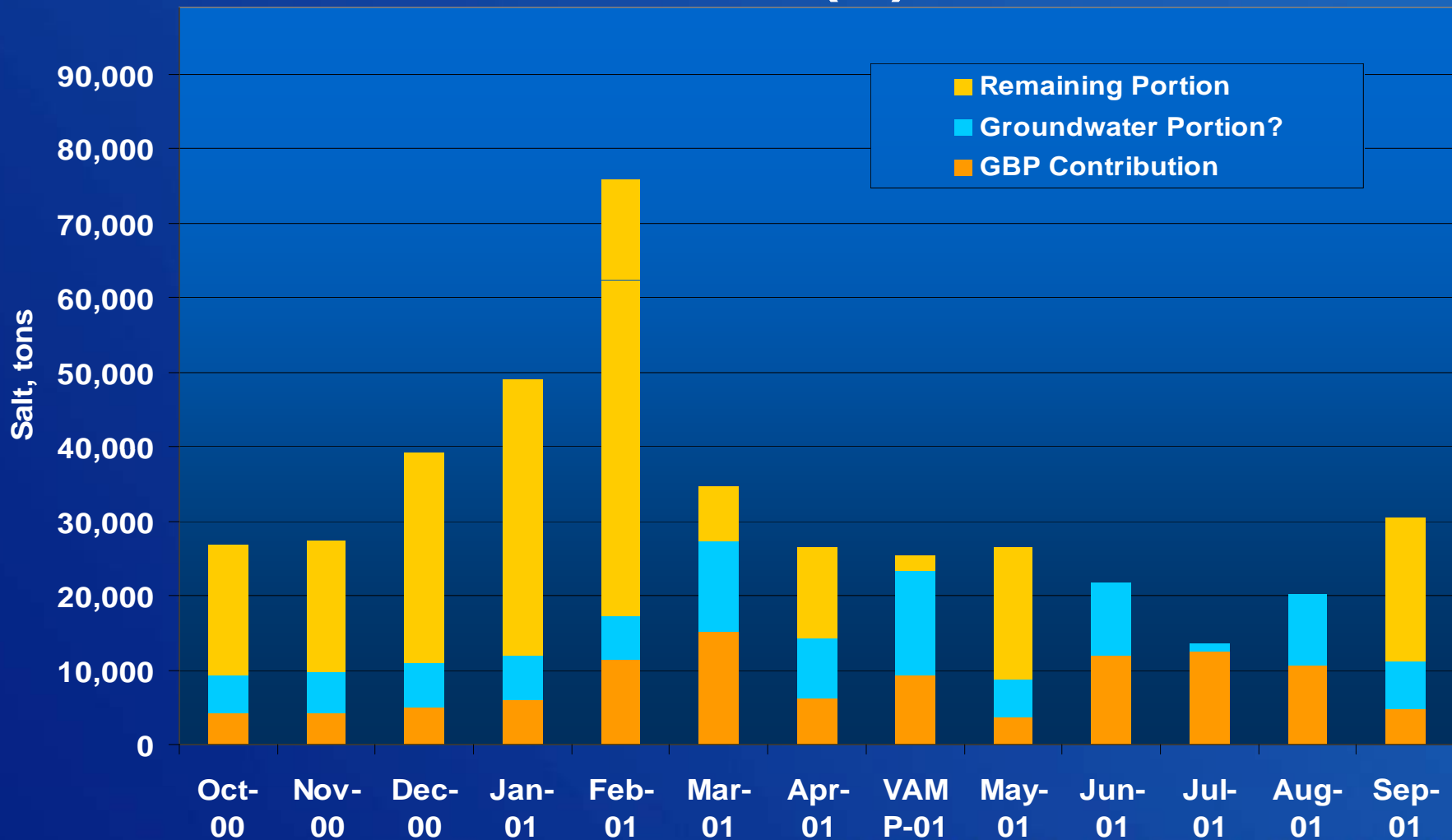
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Grassland Subarea Loading Profile 2000 (AN)



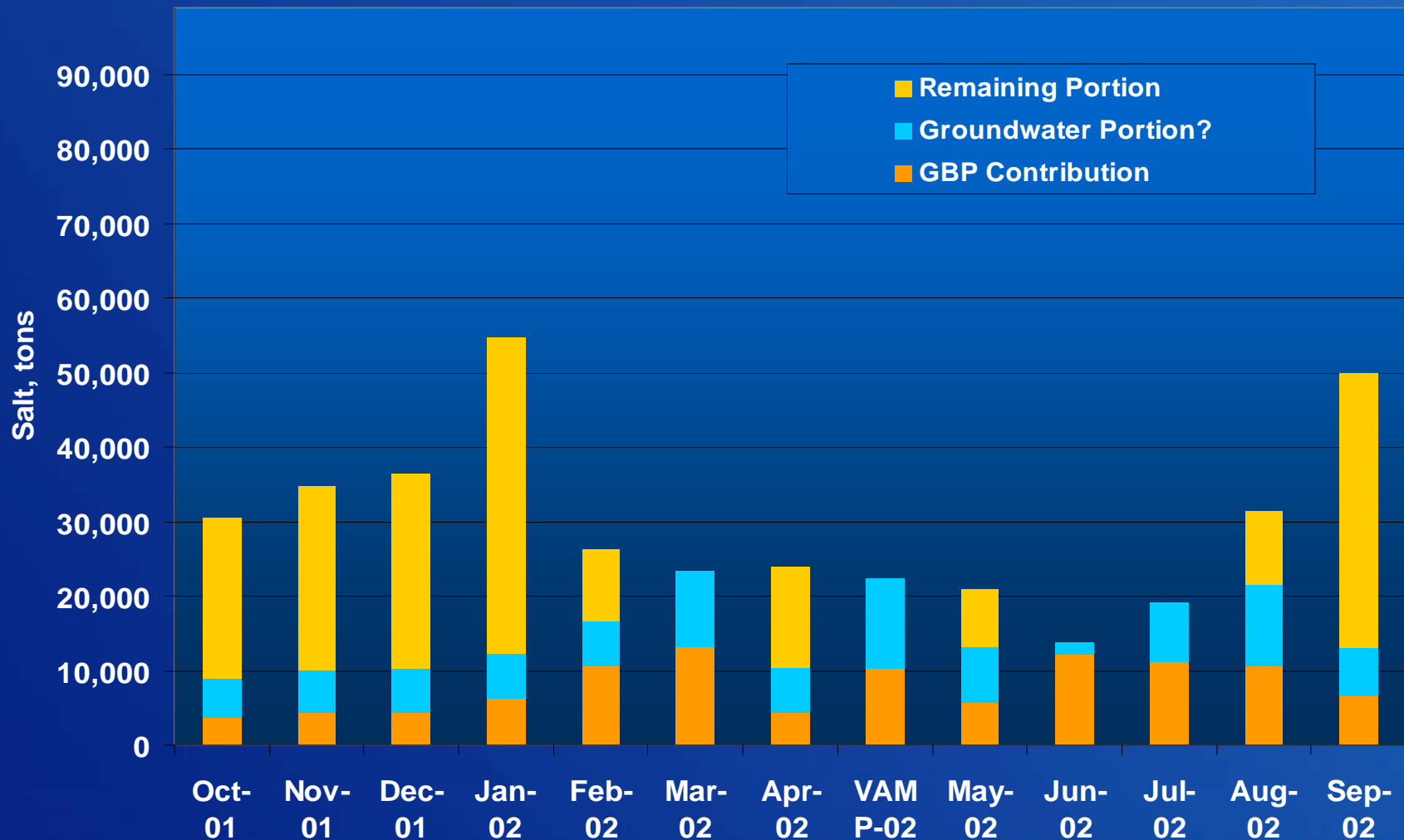
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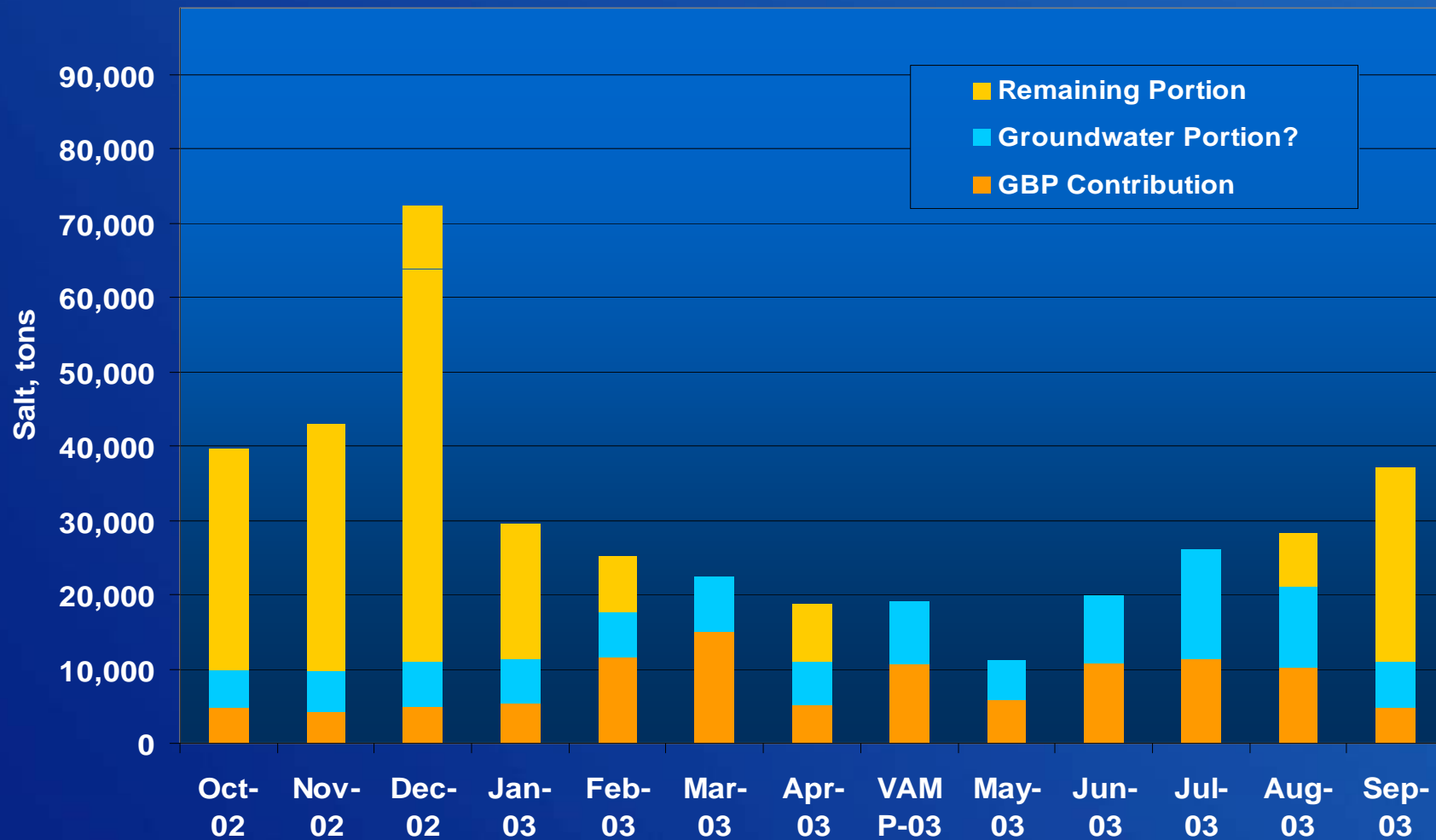
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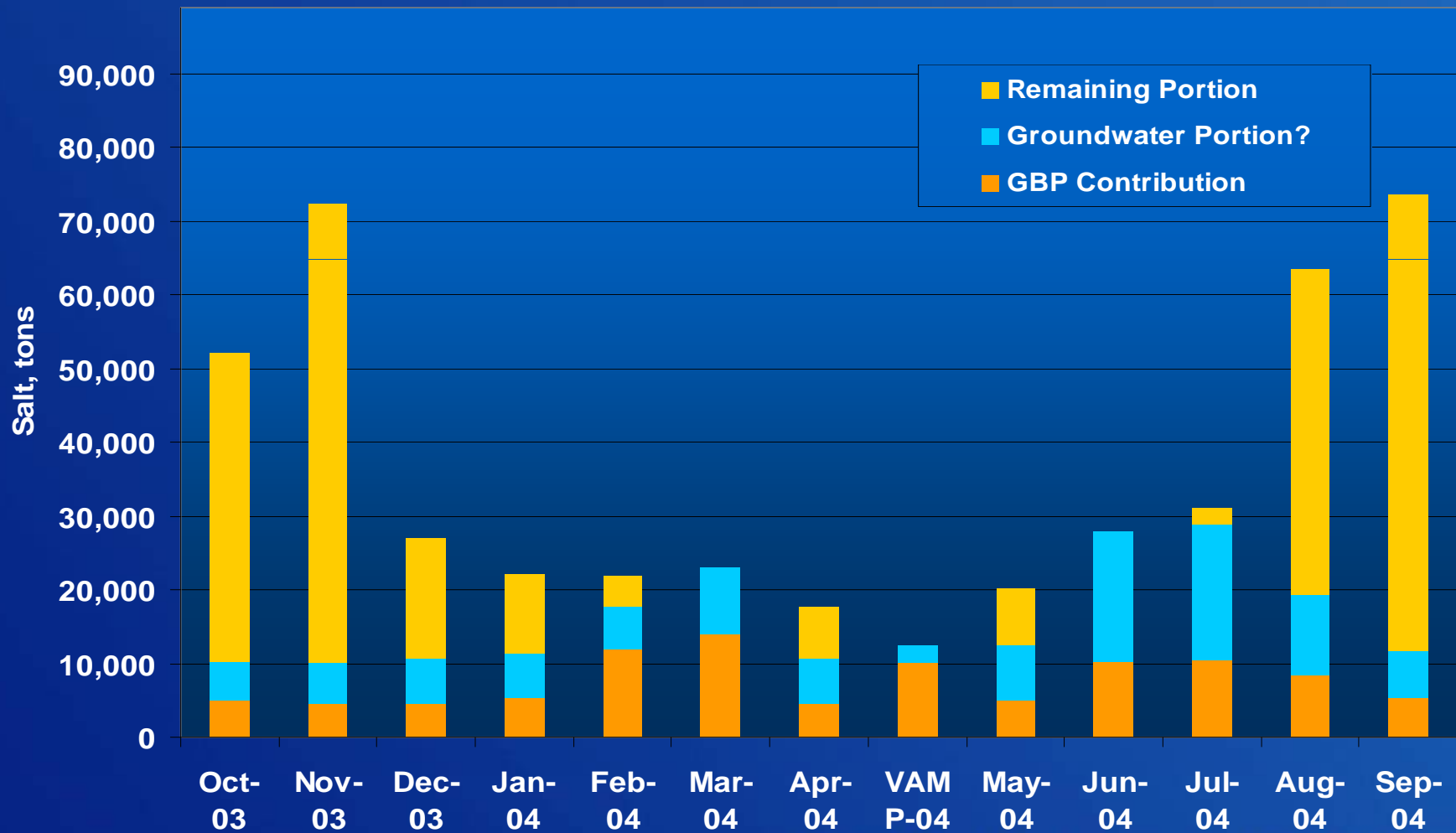
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Grassland Subarea Loading Profile 2003 (BN)



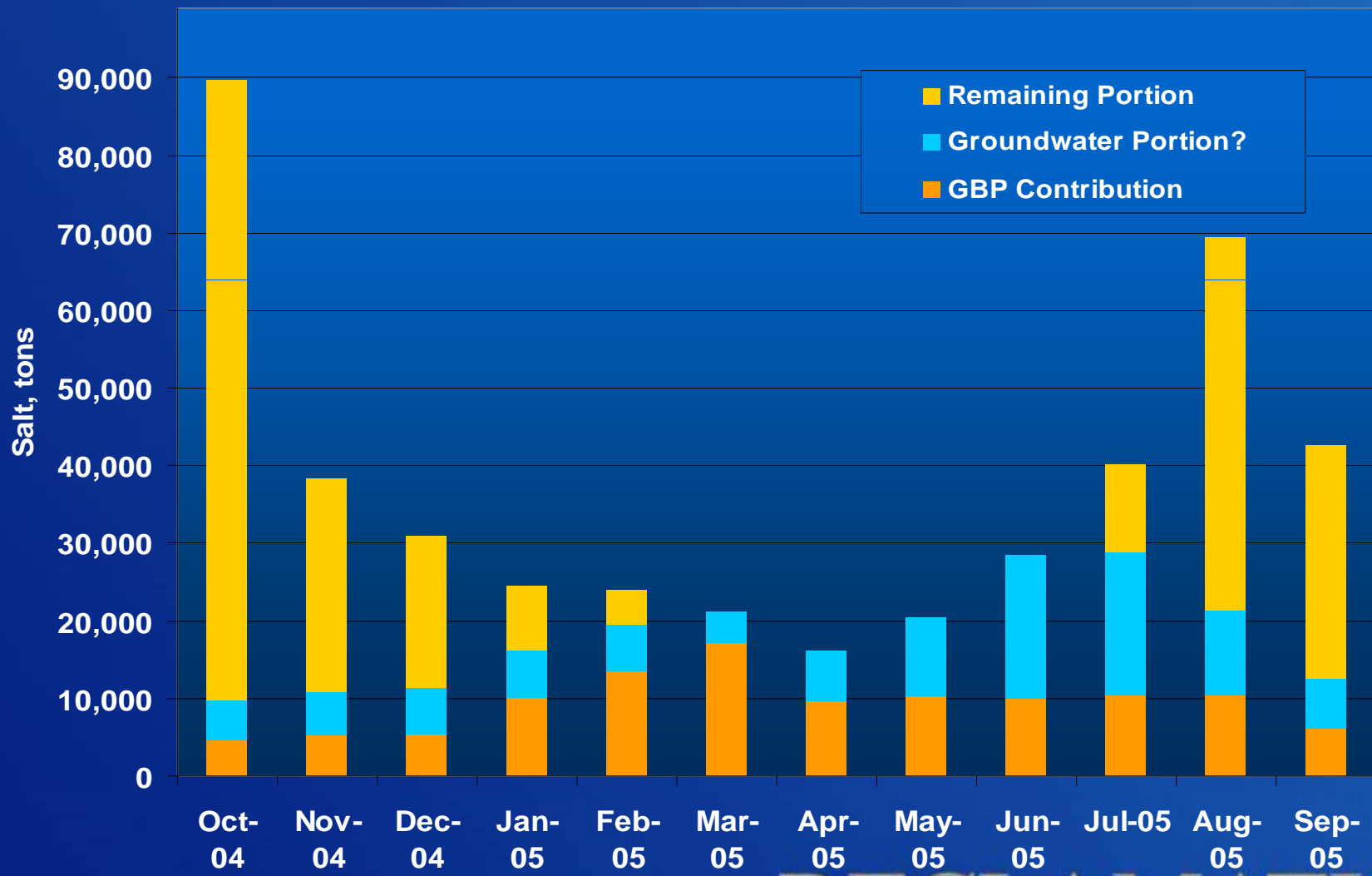
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Grassland Subarea Loading Profile 2004 (D)



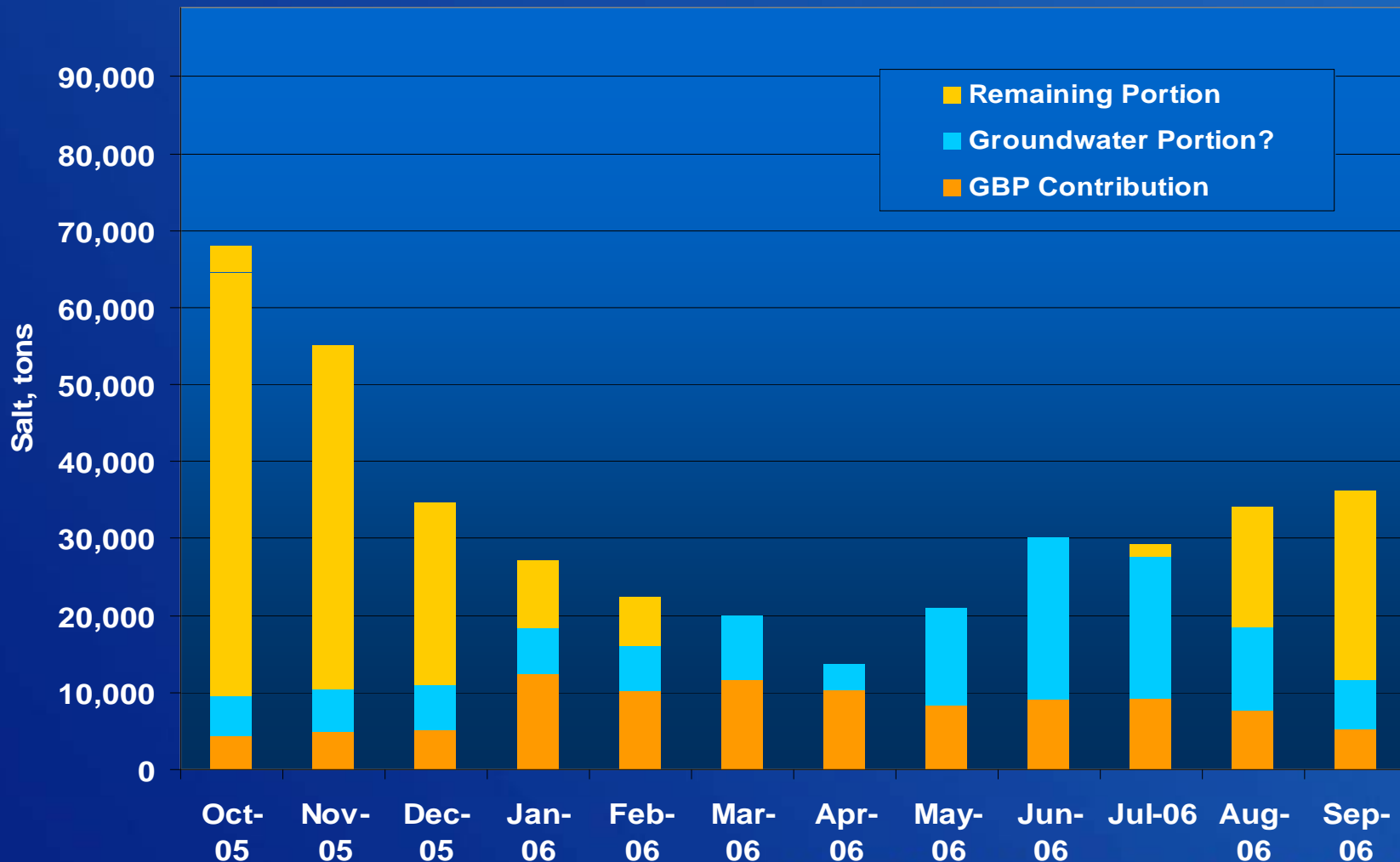
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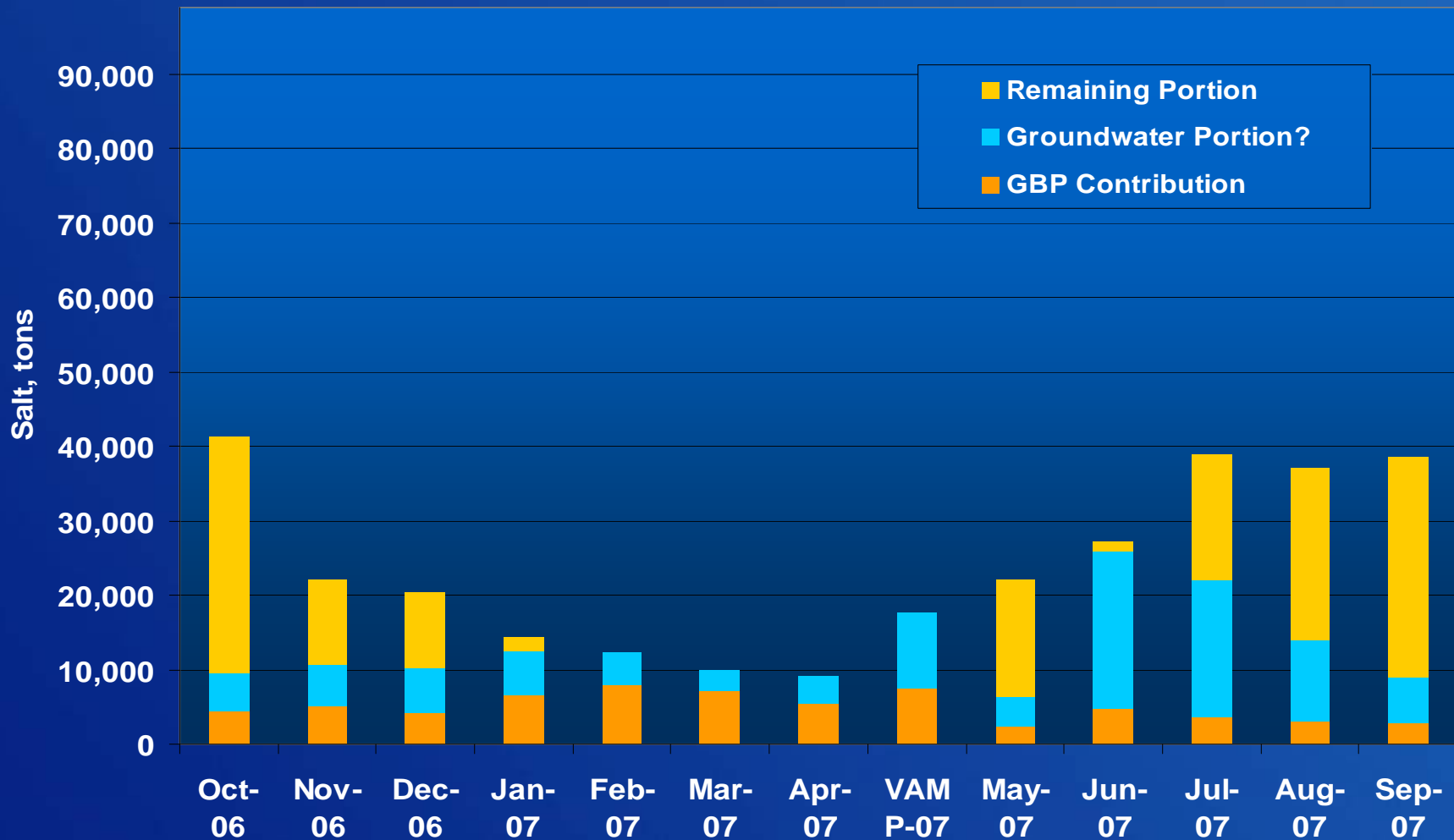
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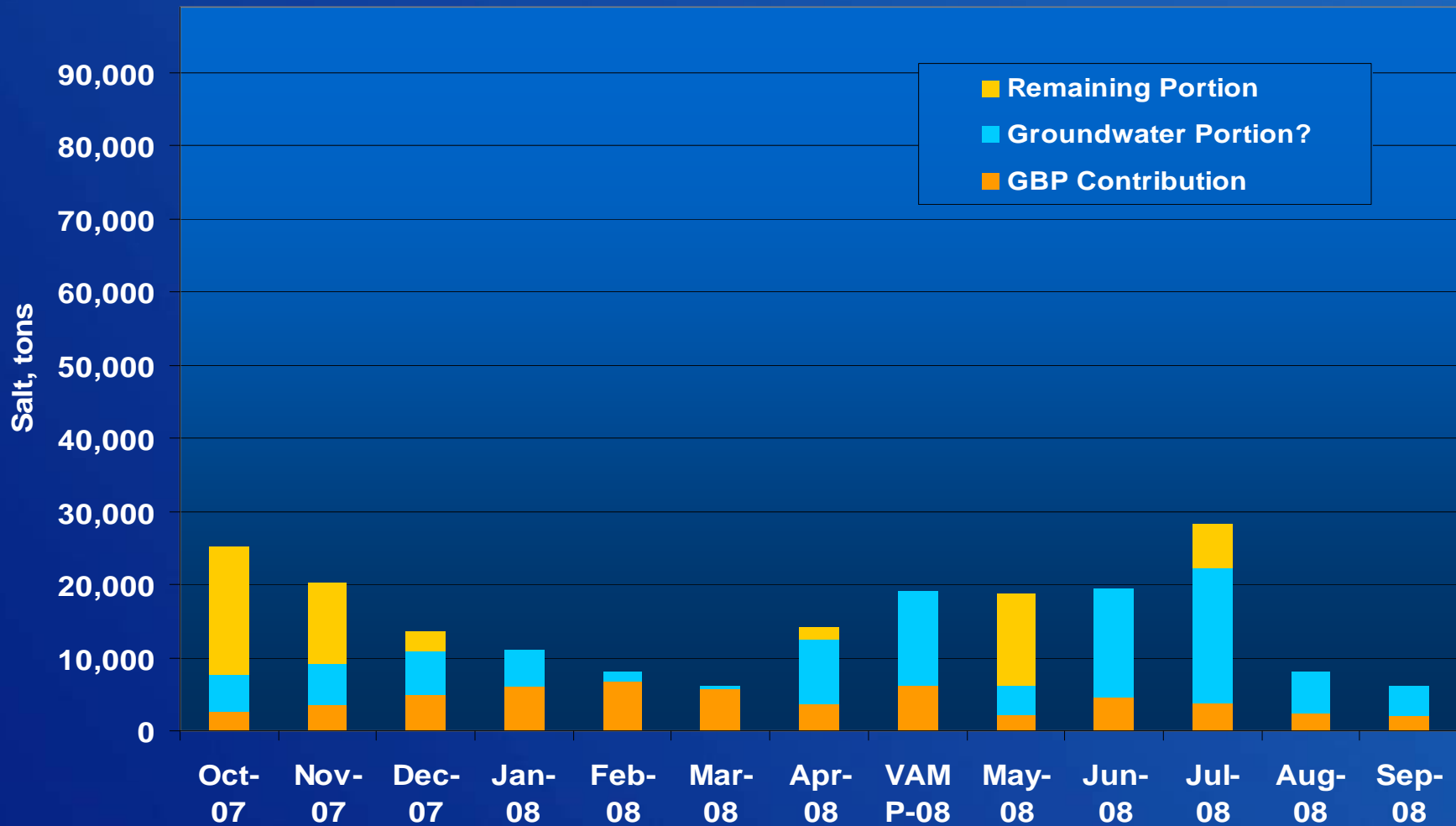
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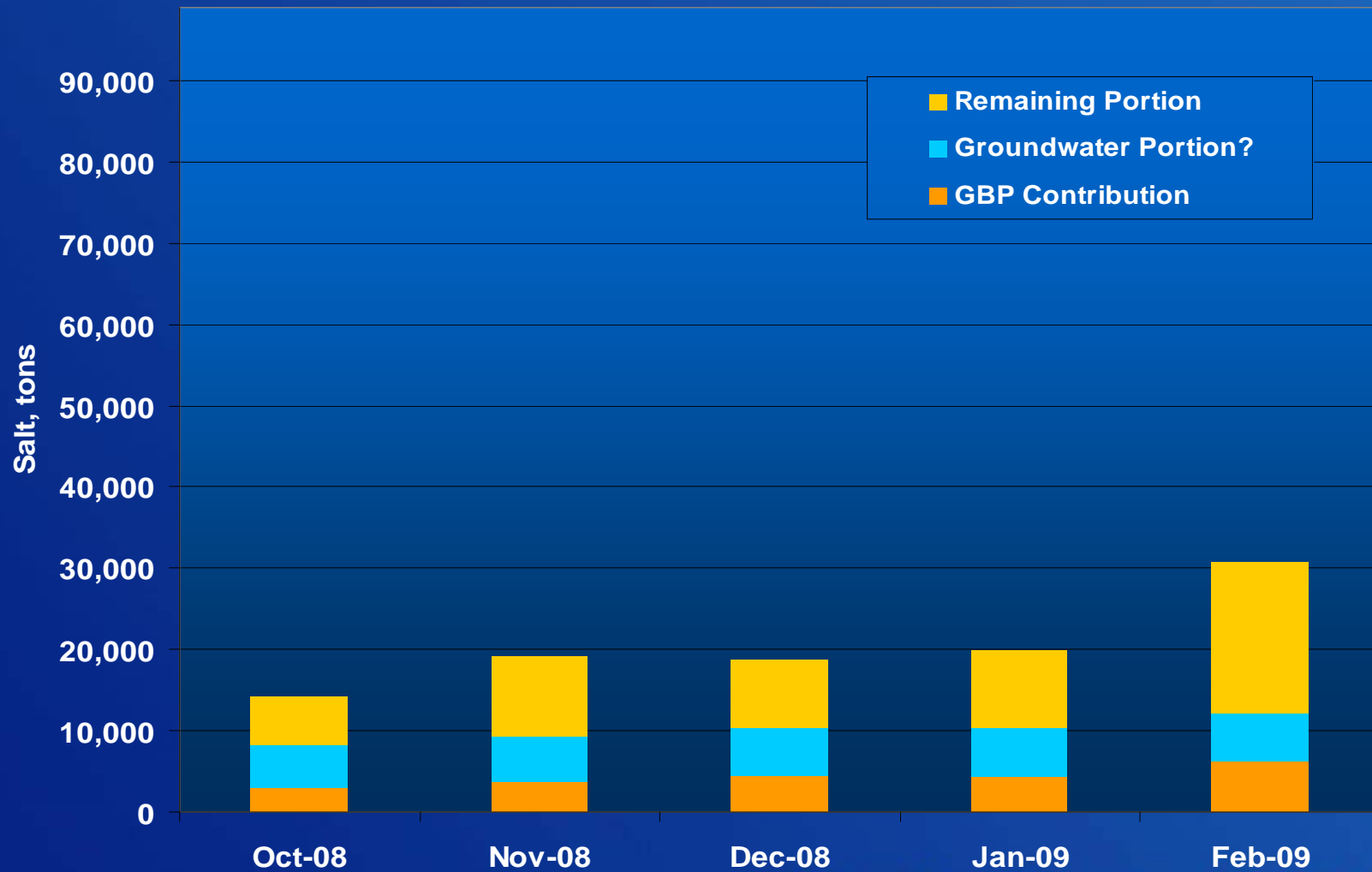
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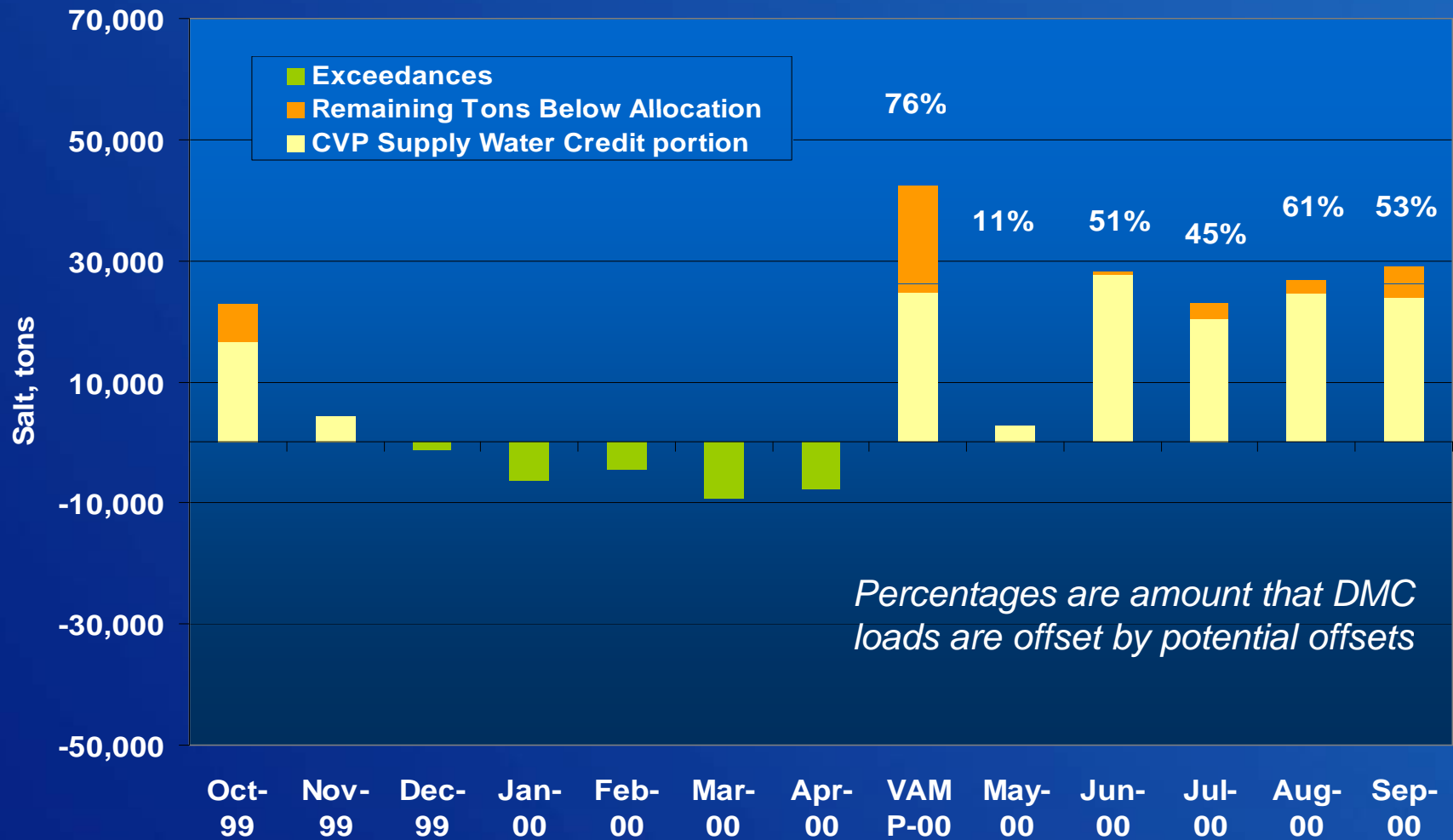
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Grassland Subarea Loading Profile 2009 (D)



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Grassland Subarea Potential Offsets 2000 (AN)



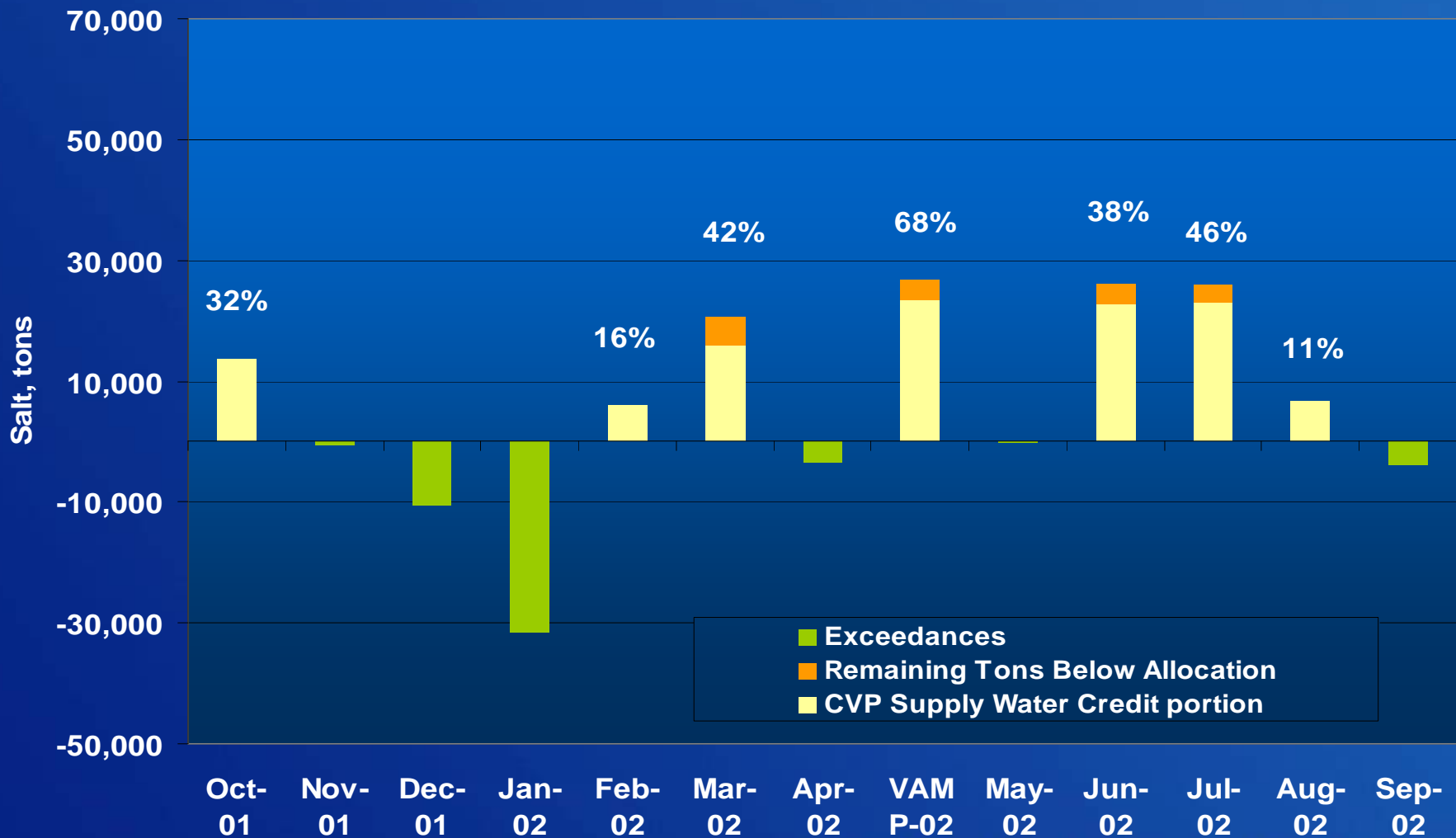
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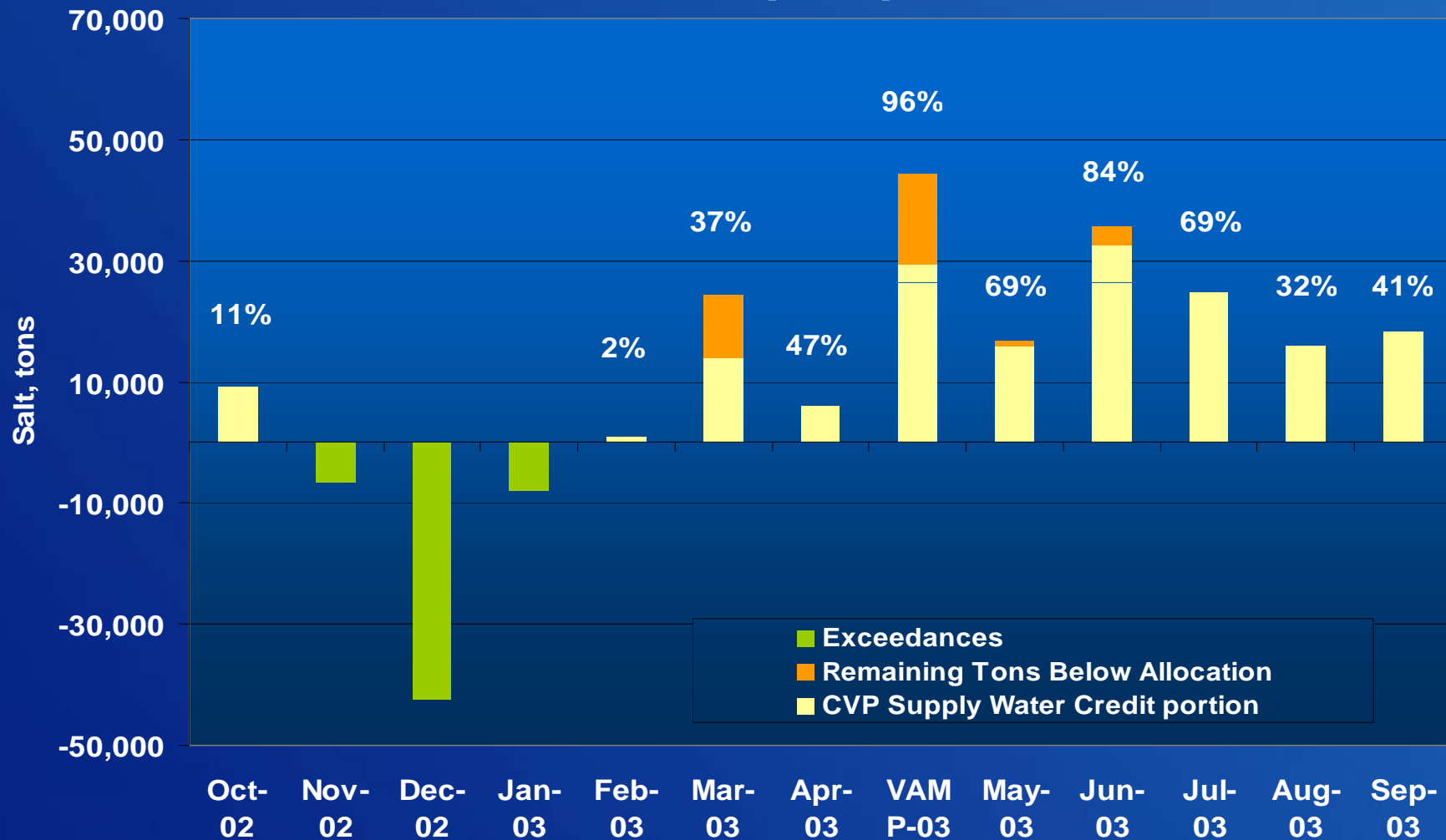
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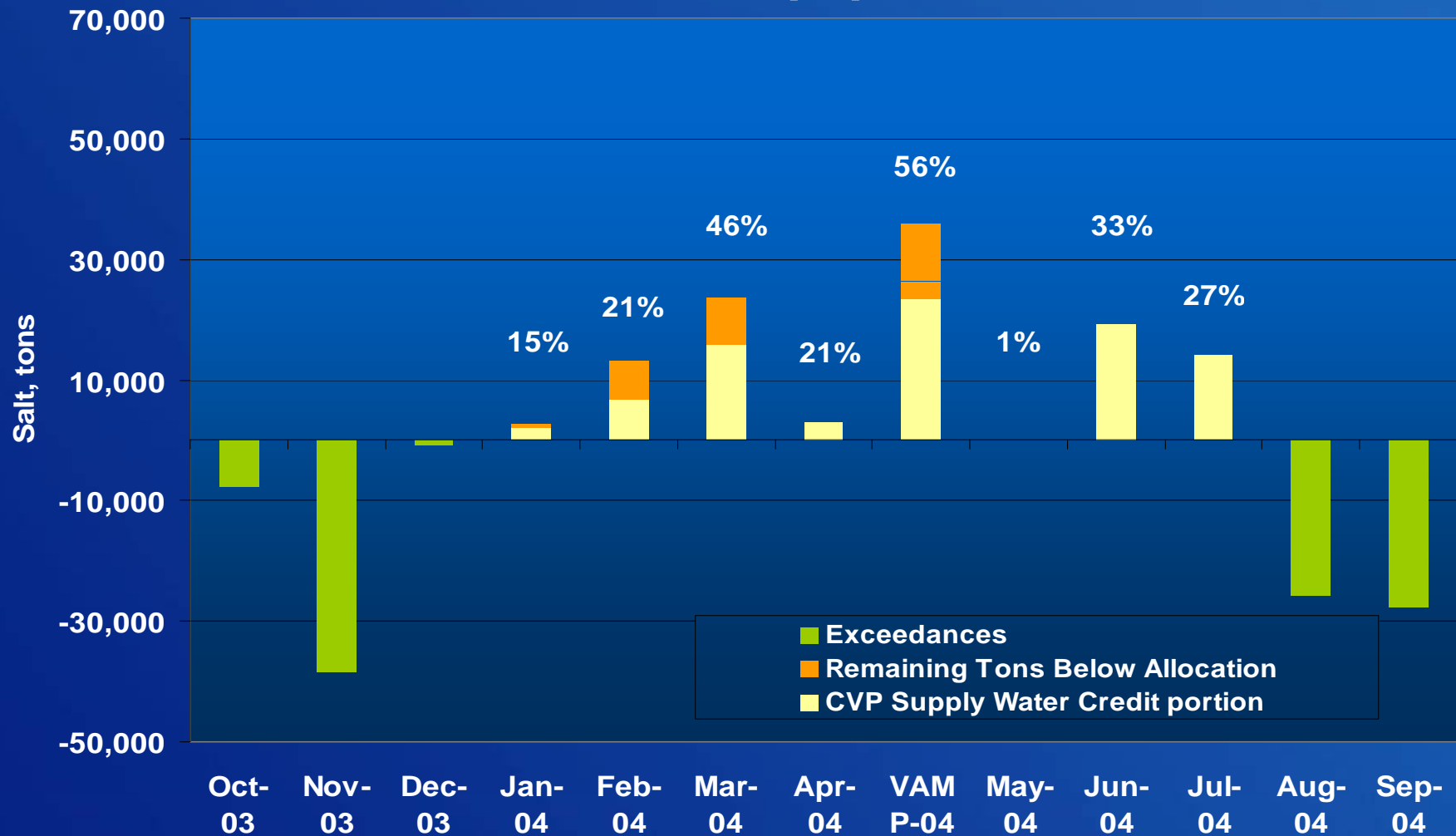
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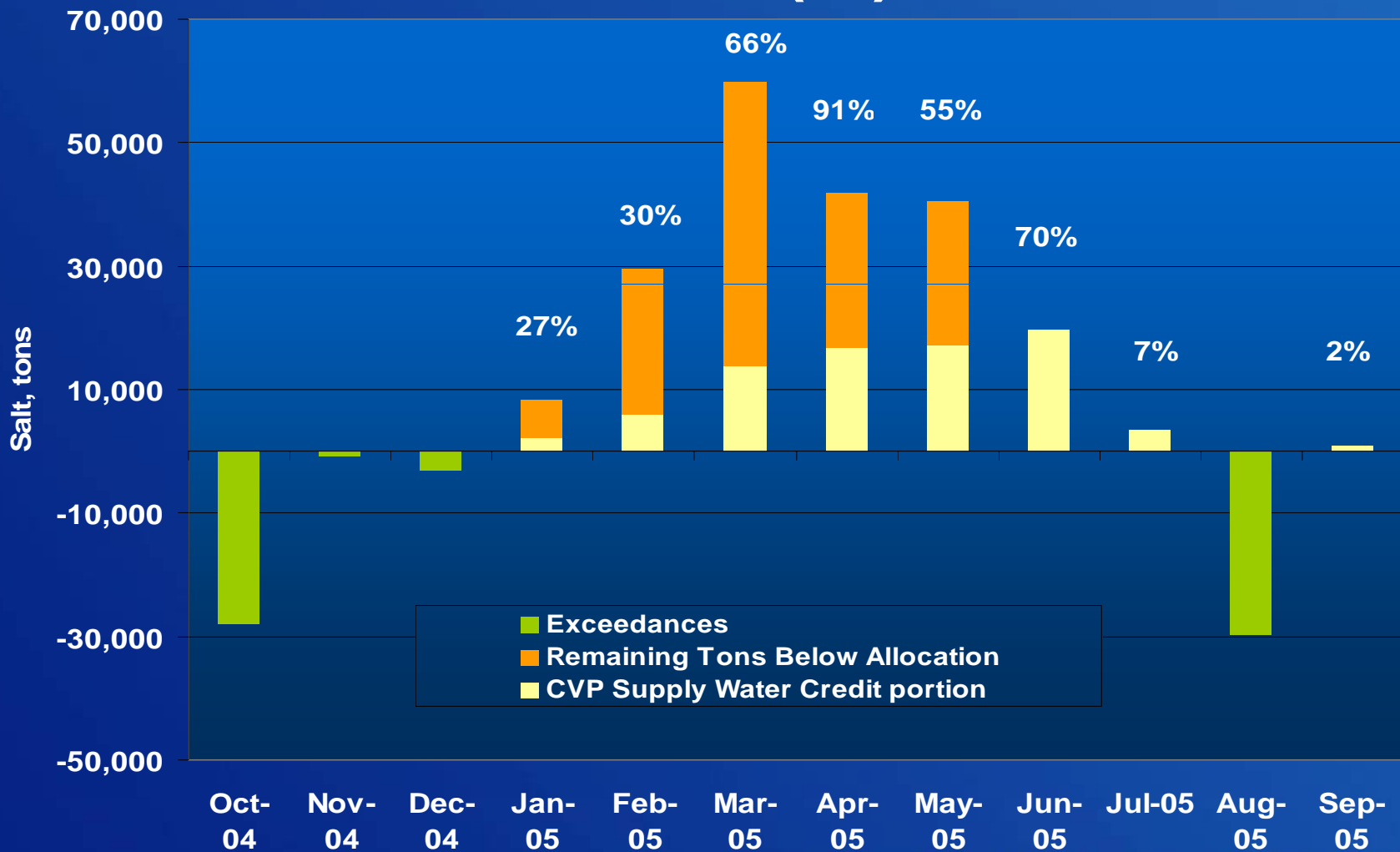
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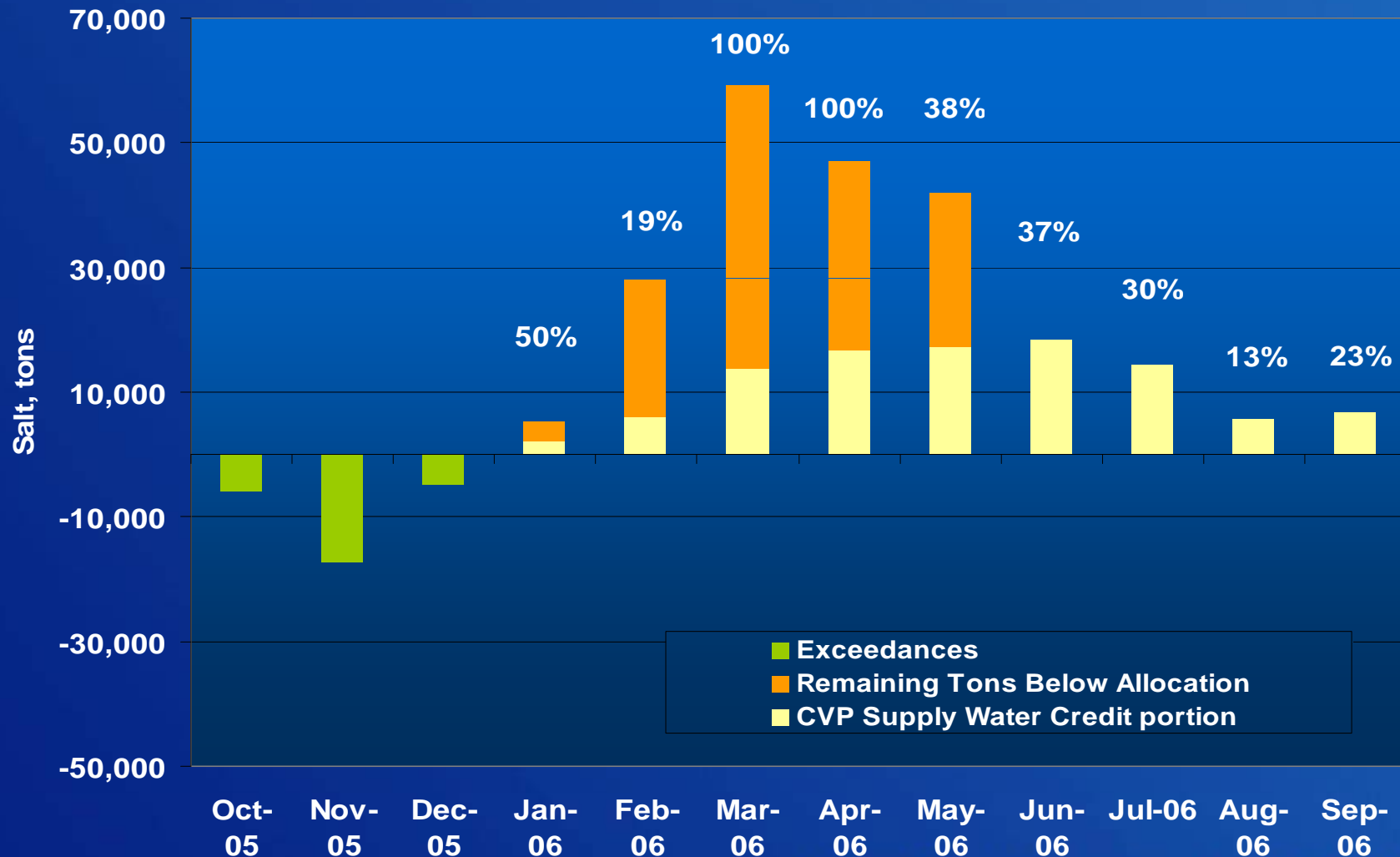
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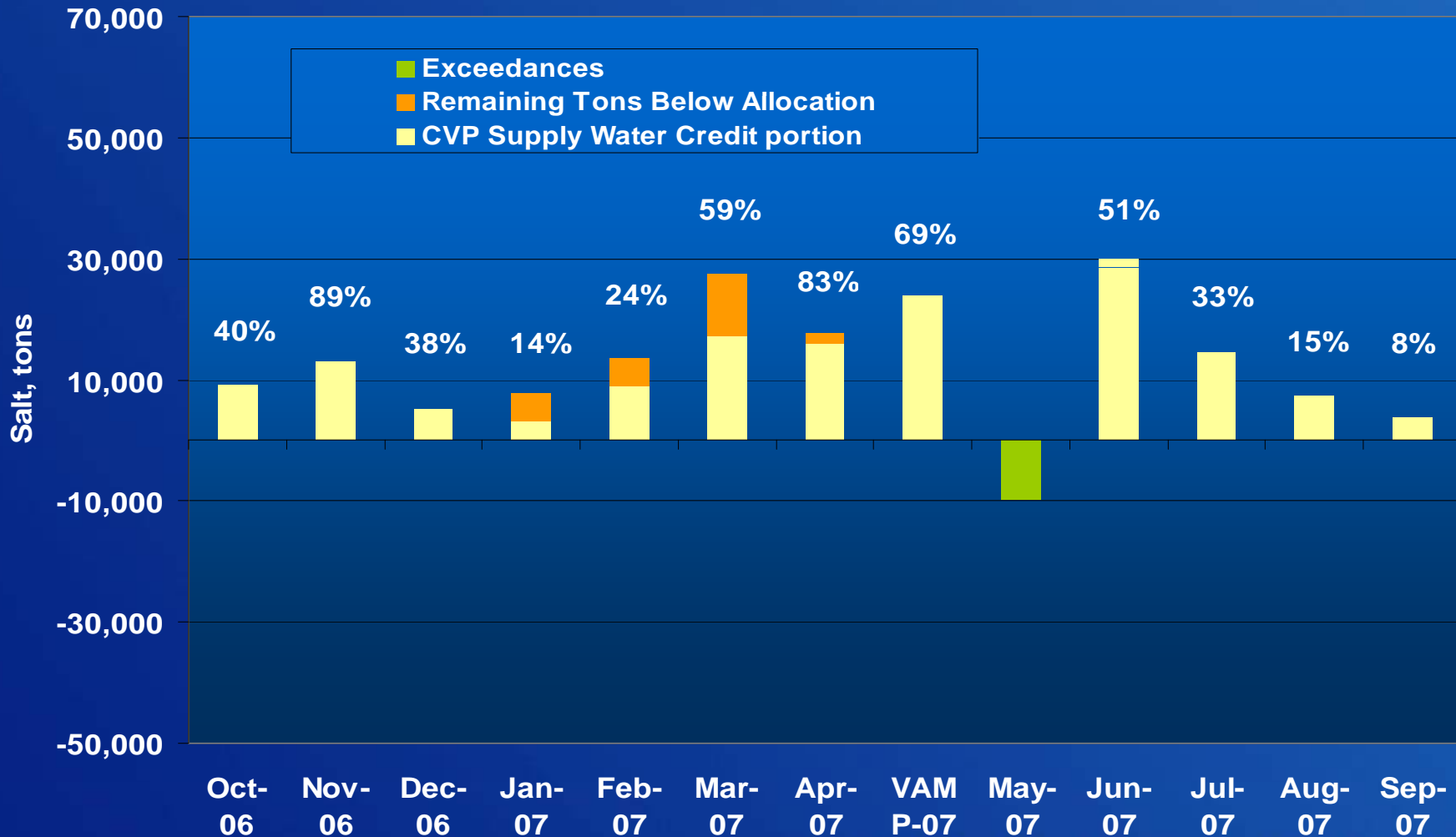
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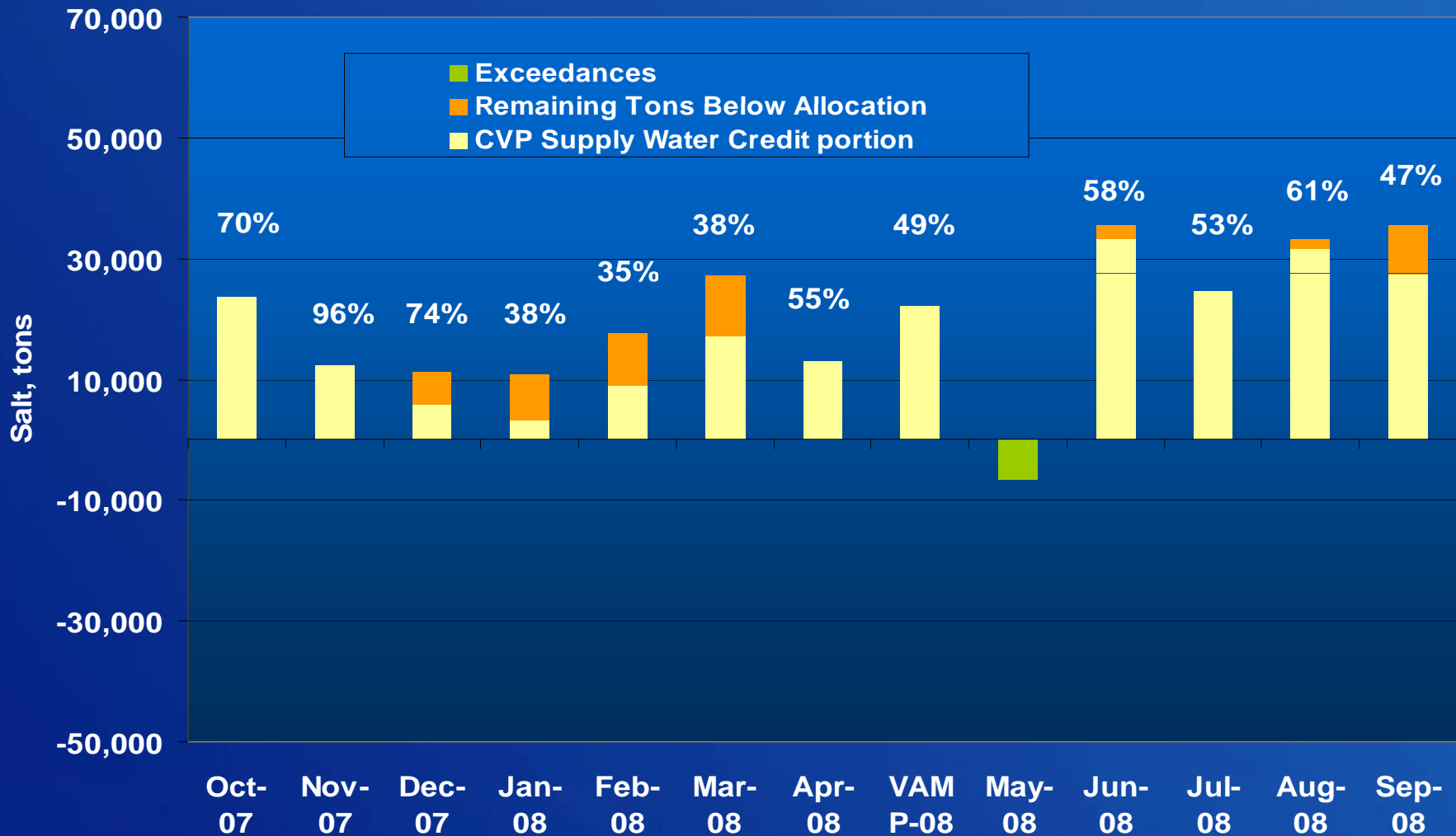
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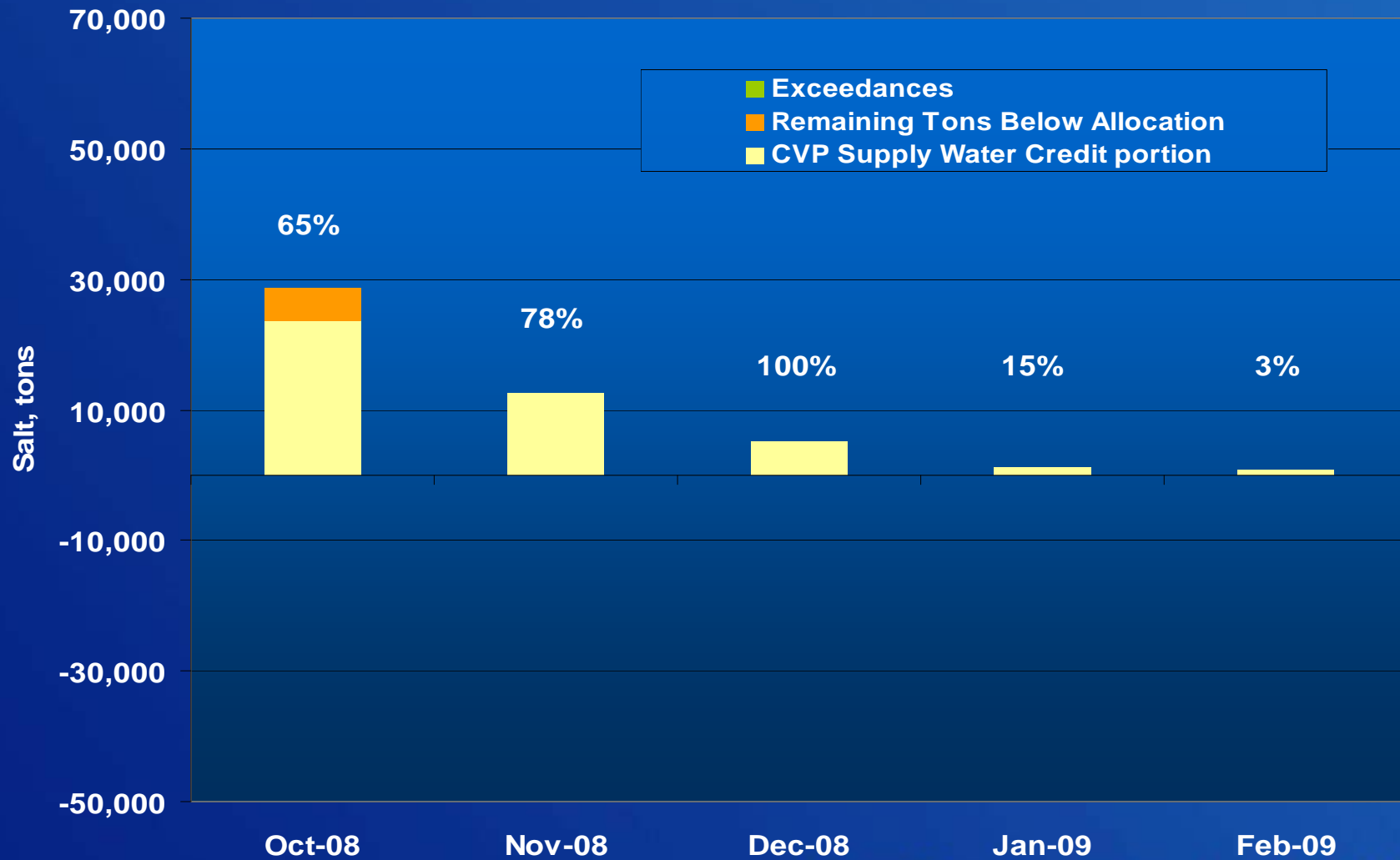
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Grassland Subarea Potential Offsets 2008 (C)



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Grassland Subarea Potential Offsets 2009 (D)



RECLAMATION

Meeting Schedule

July 28: CVP Delivered Load

Data Sources, Calculations

August 4: Westside Regional Drainage Plan

Subarea Load Calculations, Groundwater Load
CVP Water Supply Credit, Assimilative Capacity

August 17 : Unquantified Subareas

Data Availability, Subarea load quantification

August 24: Eastside Tributary Dilution Flows

Subarea Load Calculations, Assimilative Capacity

TBD: Real-Time Management Program

Status of Efforts, Assimilative Capacity, Potential Uses

TBD: Offsets, Credits, Trading

Application of Potential Offsets, Credits to CVP-Delivered Loads

RECLAMATION

Contacts

Draft Plan is posted at:

http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/vernalissalt_boron/

Reclamation Contact:

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Regional Water Board Contact:

[Gail Cismowski \(gcismowski@waterboards.ca.gov\)](mailto:gcismowski@waterboards.ca.gov)

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