

# Senate Billx7 7

## Agricultural Stakeholders Committee

### September 22, 2010



Baryohay Davidoff  
Department of Water Resources  
Water Use & Efficiency Branch



# **Purpose of Measurement Presentation is to Facilitate Discussion**

- Summarize the draft discussion paper
- Present key questions for comment and discussion
- Identify changes and additions for next draft
- Presentation and discussion paper should not be viewed as DWR's official position.



# Overview of Measurement Presentation

- SBx7 7 provisions related to Water Measurement
- Timelines:
  - Ag water supplier compliance
  - OAL Rulemaking process
- Applicability of water measurement regulations
- Requirements and criteria
- Water measurement options
- ASC discussion

# SBx7 7 Provisions



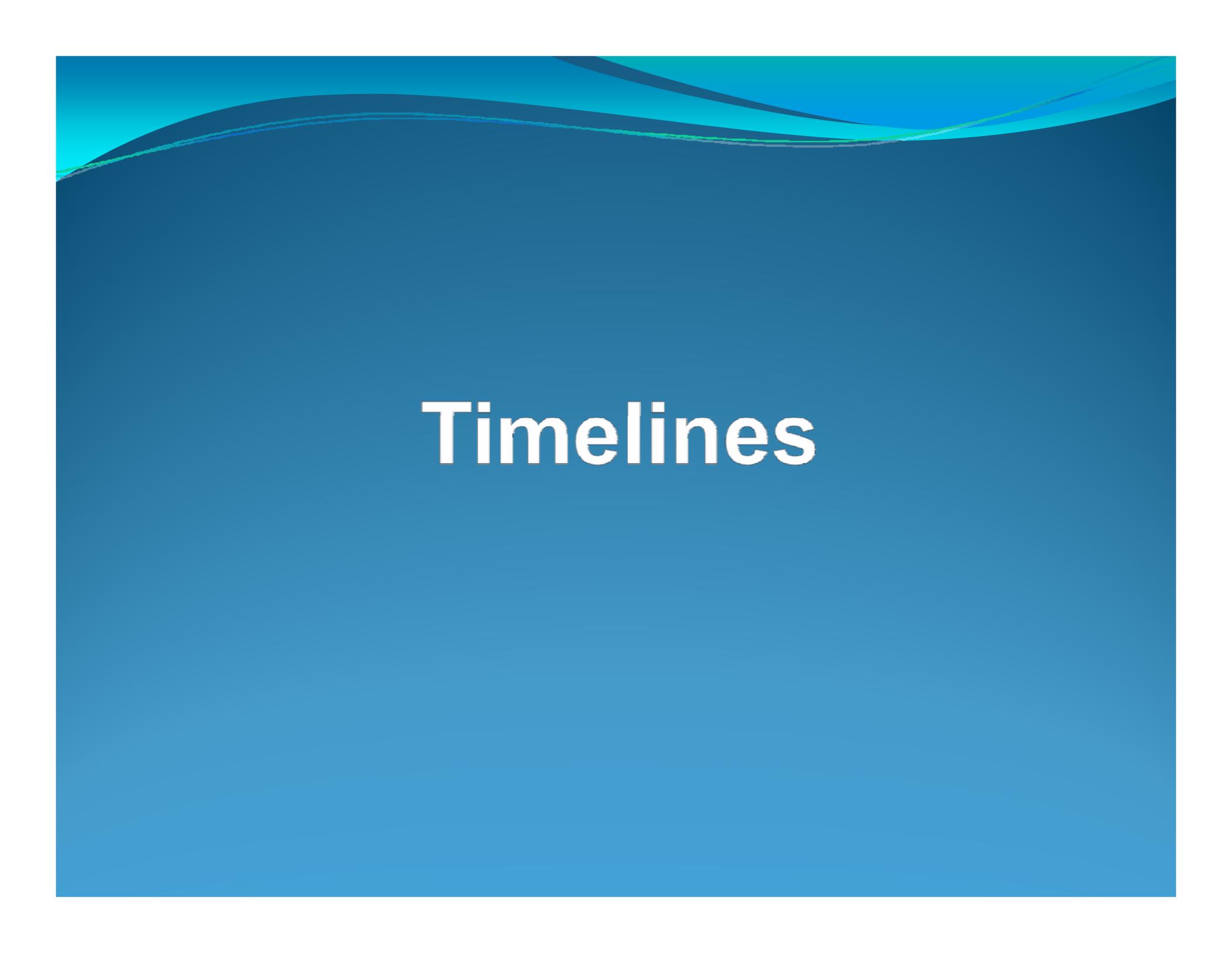
# SBx7 7 Provisions on Agricultural Water Measurement

- Paragraph 10608.48(i)(1) directs DWR to:
  - *“Adopt regulations that provide for a range of options”*
- Paragraph 10608.48(b) summarizes the purposes of the regulation:
  - *Measure water delivered to customers, and report per existing Water Code (Section 531.10)*
  - *Support EWMP requiring adoption of a pricing structure based at least in part on quantity delivered*

# SBx7 7 Provisions (cont.)

Relevant information:

- Existing Water Code (531.10) requires water suppliers:
  - *Submit annual report on aggregated farm-gate delivery data*
  - *Use best professional practices.*
- Section 10813 defines customer as “*a purchaser of water from a water supplier who uses water for agricultural purposes.*”
- Defines size thresholds of suppliers that must meet requirements



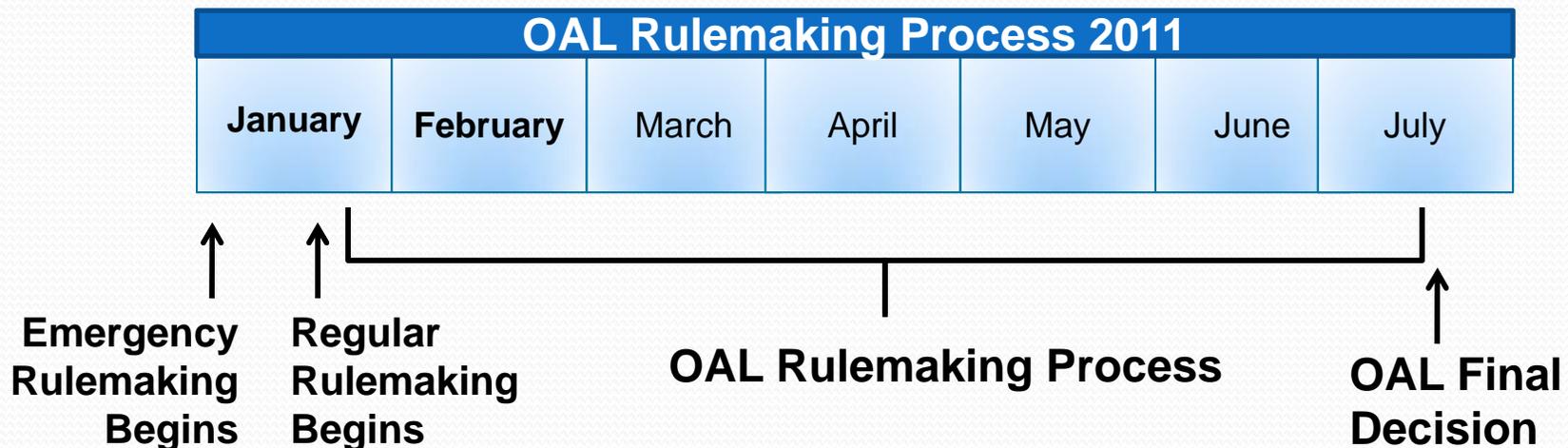
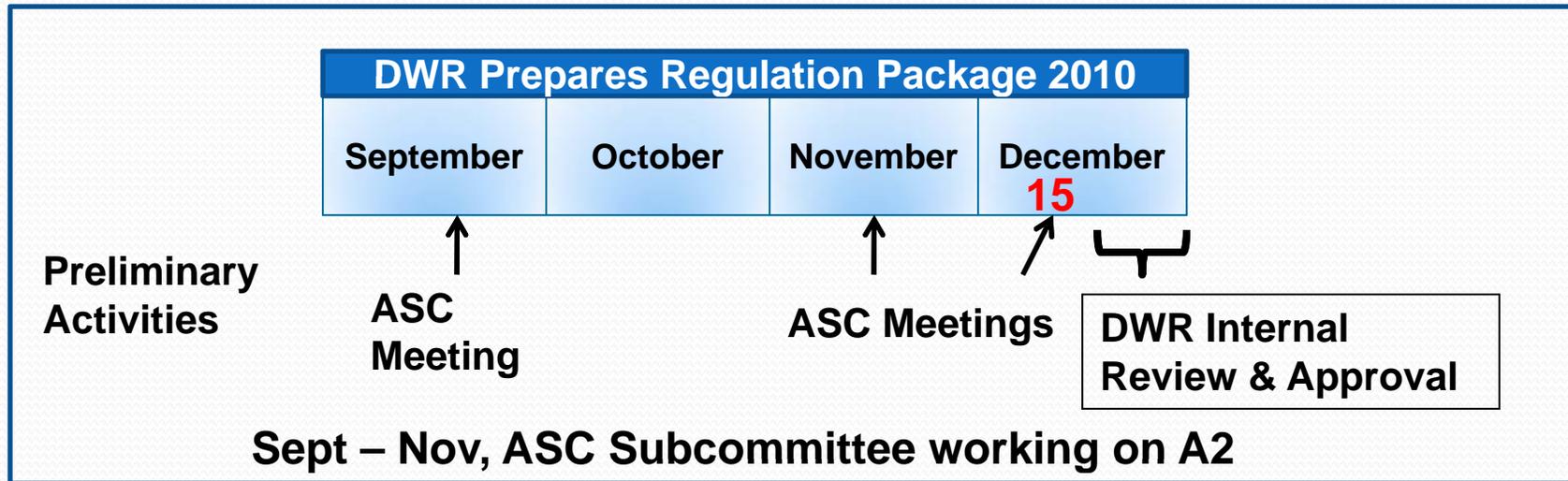
# Timelines



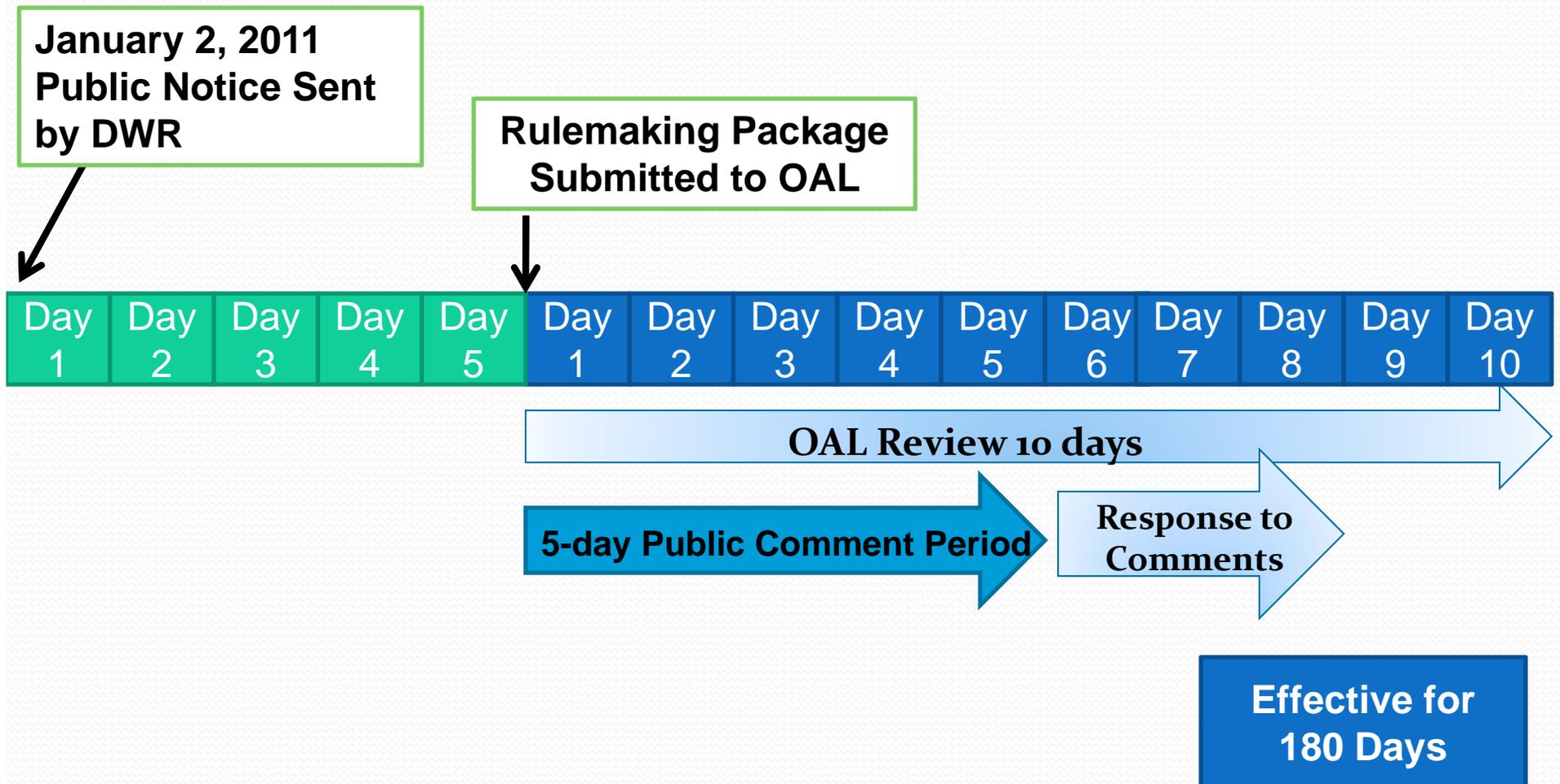
# Timelines

- July 31, 2012 – date by which agricultural water suppliers shall implement EWMPs, including measurement
- July 31, 2011 – DWR’s target date for permanent regulations
  - *Provides a year for water supplier implementation*
  - *Requires “emergency regulations” by mid-January*
  - *Regulation’s text submitted to OAL by January 1, 2011*

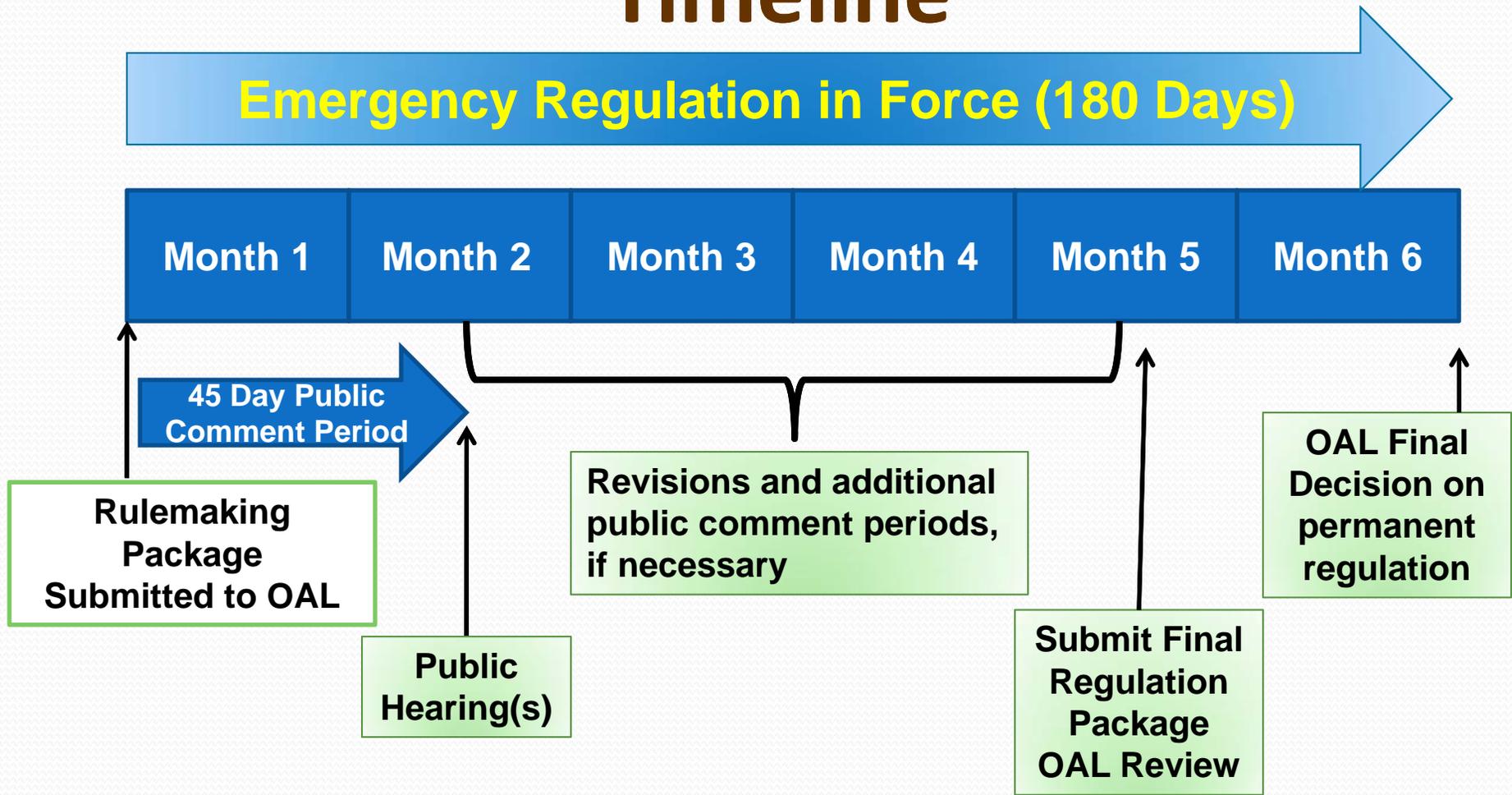
# Regulation Process Timeline



# Emergency Regulations Timeline



# Permanent Regulations Timeline



# Applicability of SBx7 7 Provisions



# Applicability

- Reporting requirements of existing Water Code (Section 531.10)
  - All suppliers over 2,000 acres (or 2,000 acre-feet of delivery) must **report** the “*aggregated farm gate deliveries*”
  - Use “best professional practices”
  - Does not require implementation of “*water measurement programs and practices that are not locally cost effective.*”



## Applicability (cont.)

- SBx7 7 requires that **measurement programs and practices** must meet DWR's requirements. Irrigated acreage thresholds are:
  - Less than 10,000: Not applicable
  - Greater than 10,000, but less than 25,000: only if "*sufficient funding*" is provided (10853)
  - Equal or greater than 25,000: fully applies



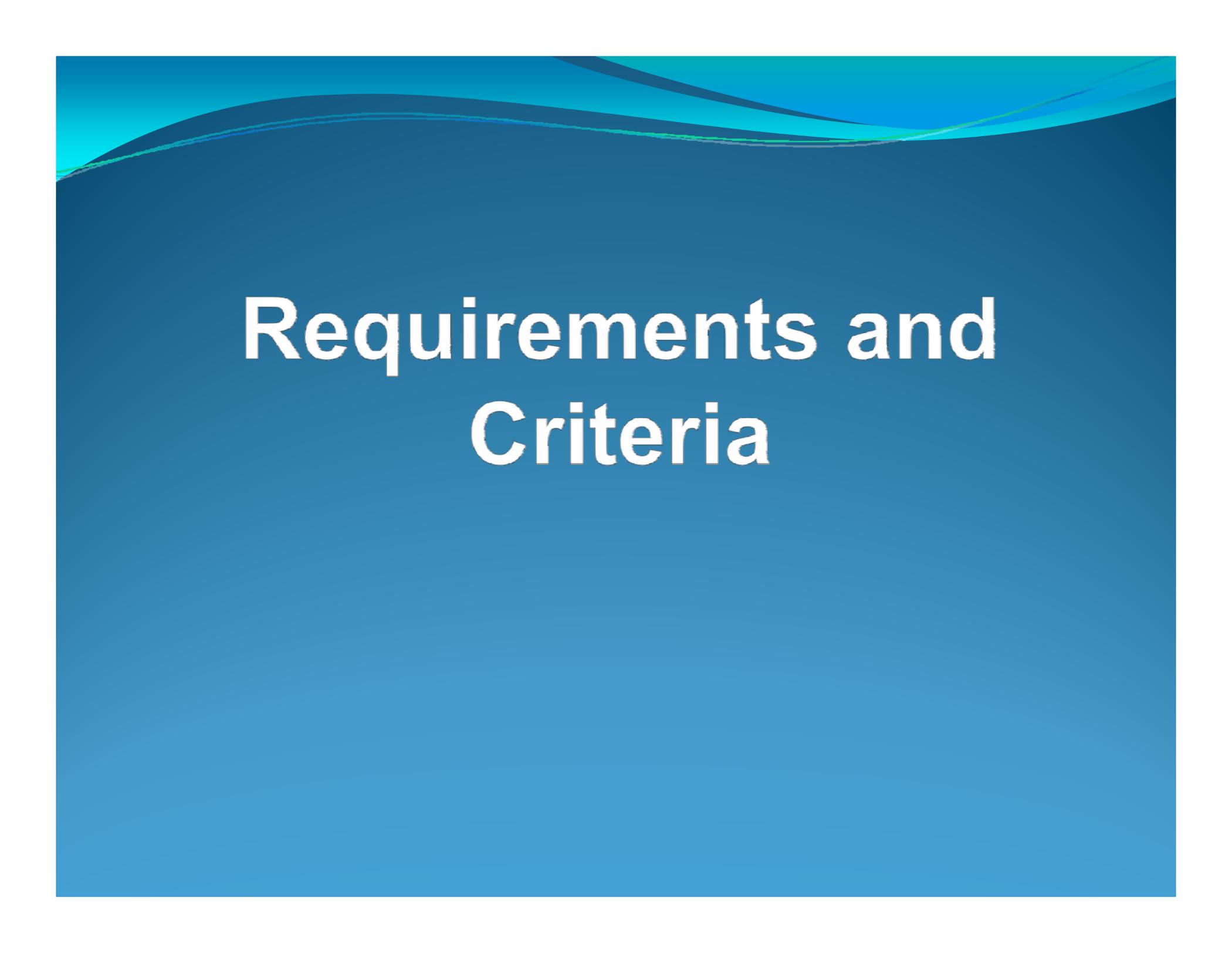
## Applicability (cont.)

- Agricultural water suppliers include:
  - Retail suppliers meeting acreage thresholds
  - Wholesale and other suppliers whose customers, in aggregate, meet acreage thresholds
    - Not required to measure retailers' customers
    - Includes “authorities” and other entities conveying and delivering water for agricultural purposes
- Excludes DWR, U.S. Bureau of Reclamation



# Applicability Questions

- Over what period of time should a water supplier's irrigated acreage be calculated?
- What lands should and should not be included in irrigated acreage?



# Requirements and Criteria



# Requirements and Criteria

- Ag Water Suppliers that meet acreage thresholds:
  - Must measure water delivered to customers
  - Customer is defined as a “*purchaser of water from a water supplier who uses water for agricultural purposes.*”
  - Measurement must be sufficiently accurate to allow the water supplier to charge its customers at least in part based on volume of water delivered.



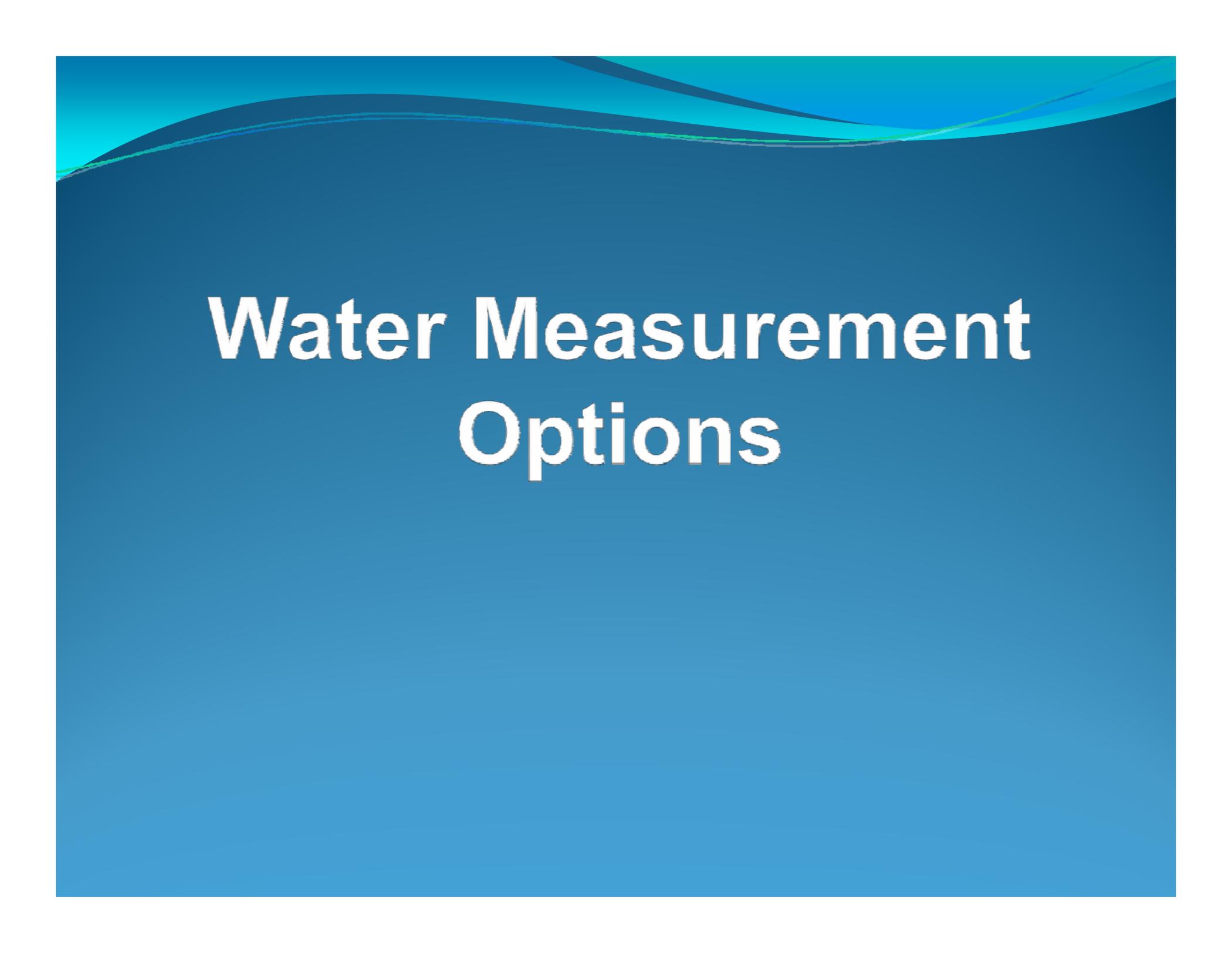
# Requirements and Criteria

- DWR staff's initial interpretation is that required measurement:
  - Only refers to water delivered by supplier to customers. It does not include groundwater pumped from private wells.
  - Does not include return flows unless recaptured and redelivered by supplier to a customer.
  - Only refers to water delivered under the control of the water supplier



# Requirements and Criteria Questions

- Should customers include only those who pay the supplier for water?
- How should “agricultural purposes” be defined?
- Should the measurement be at the point of control transfer from supplier to customer? or are other locations of measurement acceptable?



# Water Measurement Options



# Water Measurement Approaches

- Two primary approaches for compliance with measurement requirements:
  - Create a list of **acceptable measurement devices** maintained in defined manners to achieve desired accuracy, or
  - Specify measurement **accuracy standards** that could be met by a range of devices, with establish practices for calibration and quality control



# Accuracy Standard

- Initial draft proposes establishing an accuracy standard for measurement of delivery to customers
  - Provides flexibility for variety of supplier delivery systems
  - 10608.48(b)(1) states “sufficient accuracy” and does not suggest specific devices
  - Similar to approach used by USBR for CVP contractors and similar to several other western states



## Accuracy Standard (cont.)

- Example text for regulation:

*“Agricultural water suppliers, as defined by 10608.12(a), must measure flows during the irrigation season with devices that are operated and maintained to a reasonable degree of accuracy, under most conditions, to +/- \_\_\_\_\_ percent by volume.”*



## Accuracy Standard (cont.)

- Accuracy is defined as the range of measured delivered volume relative to the actual delivered volume, expressed as a percent calculated as:

$$100 \times (\text{measured volume} - \text{actual volume}) / \text{actual volume}$$



# Accuracy Standard Questions

- Are there other approaches to include in the range of options that meet the requirements of the law?
- What specific exceptions might DWR need to consider in the regulation?



# Accuracy Standard Questions

- Does the definition of “accuracy standard” provide enough detail?
- Is the formula for calculating accuracy the best one to use?
- Should open channel delivery systems have a different accuracy standard than pressurized systems?
- Should DWR define a measurement requirement different than what CVP requires of its water service contractors?
- How should the “irrigation season” be defined for an agricultural water supplier?



# Device Accuracy Ratings

- Initial rating
  - For purchased devices, use manufacturer's rating (for established operating conditions)
  - For field-built devices, need field calibration
- Recalibration
  - Must occur every 5 years
- Compliance reporting included as part of Agricultural Water Management Plans (10826(a))



# Device Accuracy Ratings Questions

- Is 5 years an appropriate interval of time to rely on the manufacturer's rating? Appropriate for recalibration?
- How should manufacturer's accuracy rating methods be judged for purposes of meeting the requirements?
- How should methods be established to assure use of best practices by those performing the recalibration?



# Device Accuracy Ratings Questions

- Should an example list of devices that could meet the accuracy standard be developed by DWR?
- How should DWR require reporting of measurement accuracy?

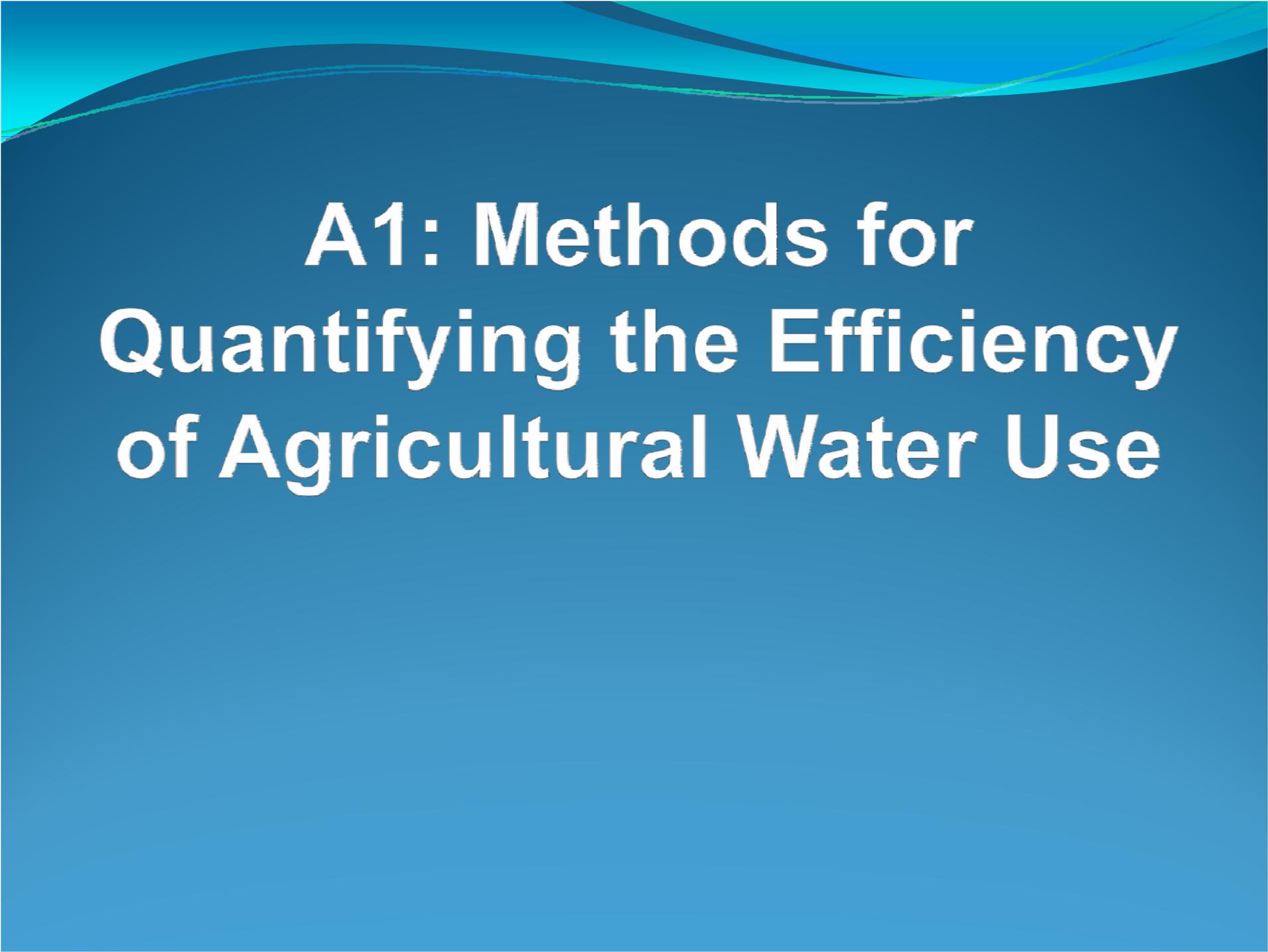
**Water Measurement**

**Comments?**

**Discussion**

Please e-mail additional suggestions to:

**[AgWUE@water.ca.gov](mailto:AgWUE@water.ca.gov)**



# **A1: Methods for Quantifying the Efficiency of Agricultural Water Use**



# **Purpose of Quantification**

## **Presentation is to Initiate Discussion**

- Quick overview of the draft discussion paper
- Highlight questions for future discussion
- Presentation and discussion paper should not be viewed as DWR's official position

# Quantification Requirements

**To develop a methodology for quantifying the efficiency of agricultural water use**

- Alternatives to consider crop type, irrigation system distribution uniformity
- Report to the Legislature by December 31, 2011
- Implementation plan to include
  - estimated implementation costs
  - types of data needed to support the methodology
- No implementation authorized



# Purposes of Quantifying the Efficiency of Agricultural Water Use

- SBx7-7 does not specify purposes of quantification
- Stated broadly, quantifying the efficiency of agricultural water use can:
  - Provide valuable information at multiple spatial scales: field, ag water supplier, and region.
  - Help maintain or improve the management of water for a variety of defined purposes
  - Guide current and future operations, projects, programs, and policies at local, regional, and state levels



# Options for Quantification

- Option 1 – define data and collection procedures only
- Option 2 – collect defined data and apply to **single** indicator using procedures
- Option 3 – collect defined data and apply to **multiple** indicators using procedures
- Each spatial scale may use a different option



# Field Scale

- No single indicator can fully inform the user and supplier at this spatial scale

## Proposal

- Collect data for three **Primary Indicators**
  - Irrigation System Distribution Uniformity
  - Consumptive Use Fraction
  - Fraction that incorporates other agronomic uses, such as leaching, frost protection (example: irrigation sagacity)
- Are there other primary indicators to add or replace?



# Ag Water Supplier Scale

- Objective of supplier is to manage and distribute water to field-level operations
  - Often involves reuse among fields
  - May include inter-seasonal storage (surface and/or ground)
  - May not control all water applied (e.g. private pumping)

## **Proposal**

- Collect data for two Primary Indicators
  - Fraction of total into boundary vs. out of boundary as running 3- or 5-year average
  - Modification of above to account for change in storage for single year or irrigation season



# Regional Scale

## Proposal

- One primary indicator to reflect the net movement of water into and out of a boundary
  - Consistent with DWR's basin water budget approach in CA Water Plan Update
- Running 3- or 5-year average

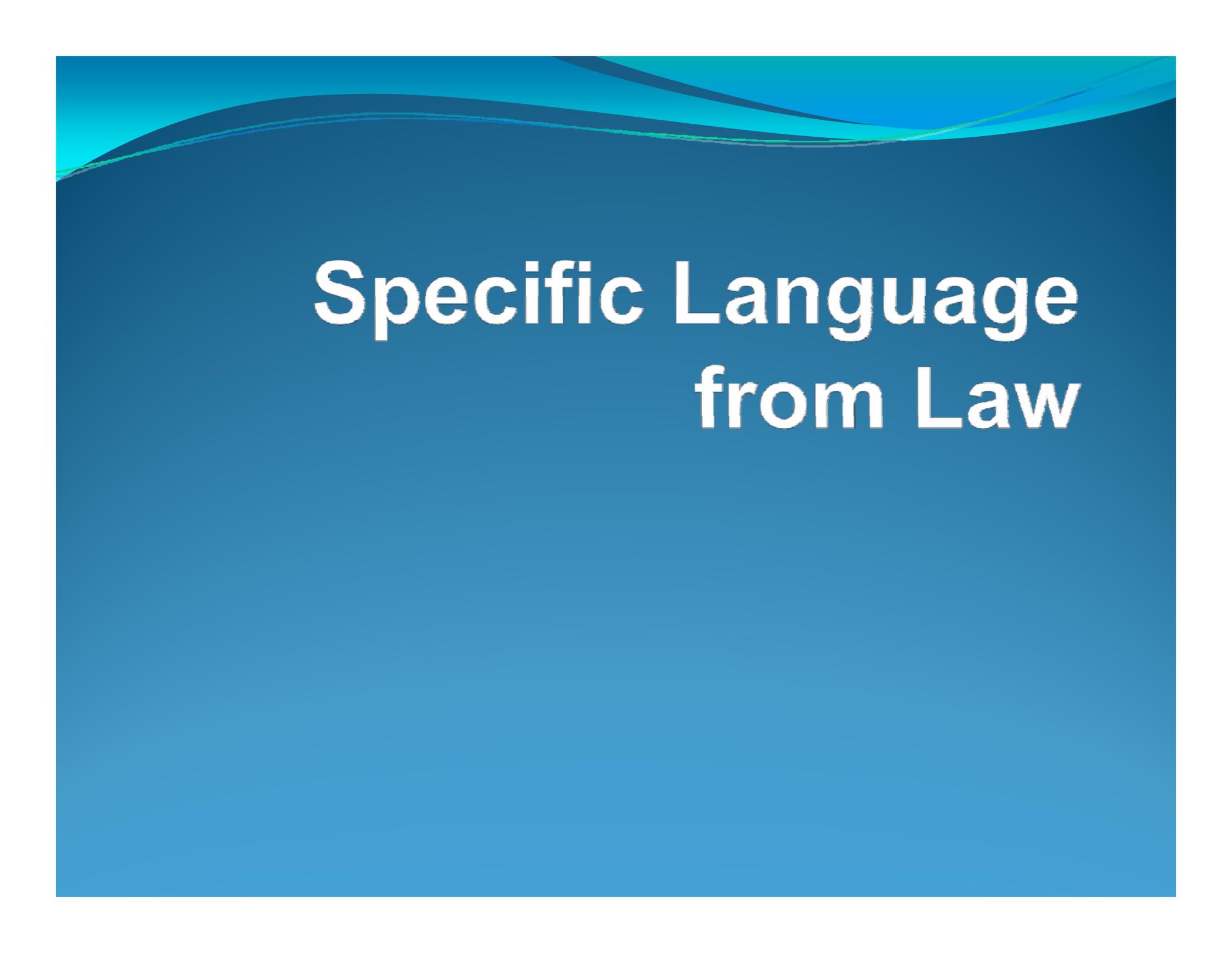
# WUE Quantification

## Comments?

## Discussion

Please e-mail additional suggestions to:

[AgWUE@water.ca.gov](mailto:AgWUE@water.ca.gov)



# Specific Language from Law



## **Paragraph 10608.48(i)(1) of SBx7-7**

*“The department shall adopt regulations that provide for a range of options that agricultural water suppliers may use or implement to comply with the measurement requirement in paragraph (1) of subdivision (b).”*

## **Paragraph 10608.48(b) of SBx7-7**

*“Agricultural water suppliers shall implement all of the following critical efficient management practices:*

*(1) Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section 531.10 and to implement paragraph (2).*

*(2) Adopt a pricing structure for water customers based at least in part on quantity delivered”*

## **Section 531.10 of the Water Code**

*“(a) An agricultural water supplier shall submit an annual report to the department that summarizes aggregated farm-gate delivery data, on a monthly or bi-monthly basis, using best professional practices.*

*(b) Nothing in this article shall be construed to require the implementation of water measurement programs or practices that are not locally cost effective.”*



## Other Definitions

Section 10813 of SBx7-7 defines **customer** as “*a purchaser of water from a water supplier who uses water for agricultural purposes.*”

**Best professional practices** defined in Section 531 as “*practices attaining and maintaining accuracy of measurement and reporting devices and methods.*”

## Other Definitions

- Paragraph 10608.12 (a) of SBx7-7 defines:  
*“Agricultural water supplier” means a water supplier, either publicly or privately owned, providing water to 10,000 or more irrigated acres, excluding recycled water. “Agricultural water supplier” includes a supplier or contractor for water, regardless of the basis of right, that distributes or sells water for ultimate resale to customers. “Agricultural water supplier” does not include the department.*