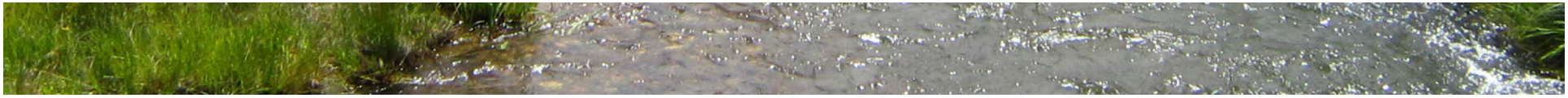


2016 Llano Estacado Regional Water Plan

Planning Group Meeting

January 27, 2015

Lubbock, Texas

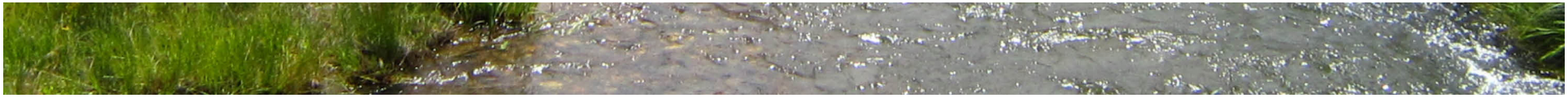
DBS&A engineering geoscience hydrology

DBS&A
Daniel B. Stephens & Associates, Inc.

HPWD
High Plains Underground Water Conservation District

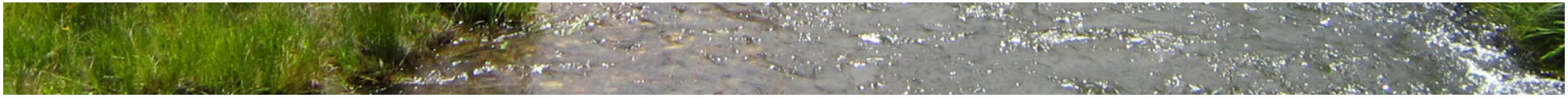
RPS Espey

PSC PARKHILLSMITH&COOPER



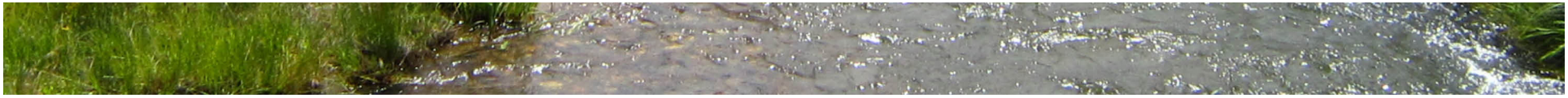
Agenda Item 12

- Update on draft Chapter 3 - Water Availability and Existing Water Supplies
  - DB17 data entry for water sources and WUG supplies is complete
    - All source, supply, and sales amounts are entered
    - All source data and entity data appeals are processed
    - All transaction data appeals are submitted
  - TWDB spreadsheet (handout)
  - Summary of changes
  - Updating Chapter 3



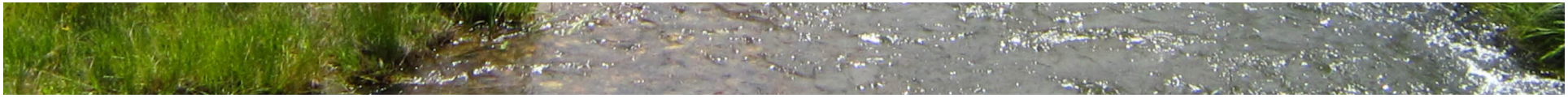
Agenda Item 13

- Summary of the initial water needs analysis contained in draft Chapter 4 - Identification of Water Needs
  - Initial water needs analysis is complete
  - DB17 calculation (handout)
  - Summary of needs/locations/WUGs
  - Next steps with WMS for needs analysis



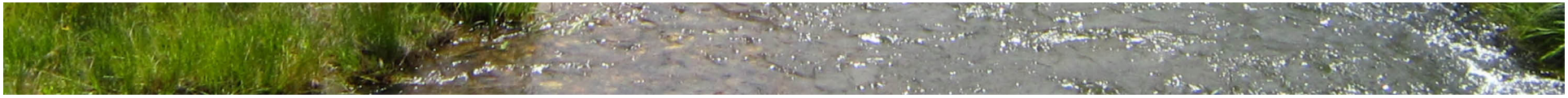
Agenda Item 14

- Draft Chapter 7 - Drought response information, activities, and recommendations
  - Summary of current preparations for drought in Region O
  - Received 51 different DCPs that represent the majority of municipalities and water suppliers within the region
  - Happy and Kress still developing their DCPs



Agenda Item 14

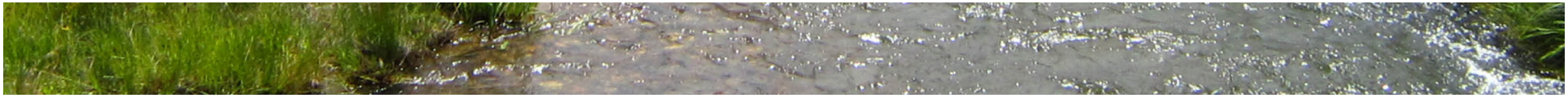
- Recommended triggers and actions to be taken in drought
  - Surface water sources in Region O
    - Mackenzie Reservoir
    - White River Reservoir
    - Lake Alan Henry
- Recommend the drought triggers and associated actions developed by the operator of the reservoirs be the Region O triggers



Agenda Item 14

Mackenzie Reservoir Drought Triggers and Responses

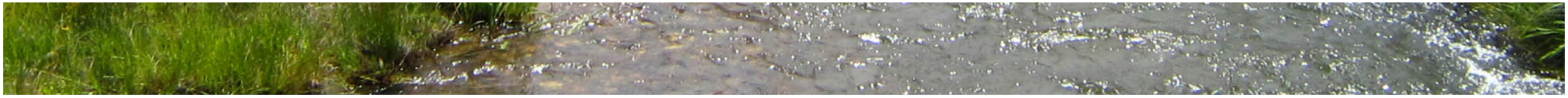
Drought Stage	Trigger	Action
Mild (1)	Lake storage 70 to 80%	Voluntary 5 to 10 % reduction Implement Stage 1 of customer's DCP
Moderate (2)	Lake storage 50 to 69%	10 to 15 percent reduction Implement Stage 2 of customer's DCP
Severe (3)	Lake storage 30 to 49%	15 to 20 % reduction Implement Stage 3 of customer's DCP
Critical Emergency (4)	Lake storage 20 to 29% Termination at 15% or less Major line break or system failure Contamination of water supply source	Actions as appropriate



Agenda Item 14

White River Reservoir Drought Triggers and Responses

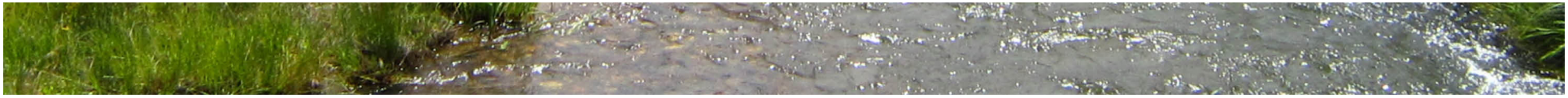
Drought Stage	Trigger	Action
Mild (A)	Reach 90% of production capacity for 3 days	Voluntary measures to limit water use to less than 100% of production capacity
Moderate (B)	Reach 100% of production capacity for 3 days	Mandatory measures to limit water use to less than 100% production capacity
Severe (C)	Reach 110% of production capacity for 3 days	Mandatory measures to limit water use to less than 90% of production capacity
Emergency (D)	Water system failure or contamination	Mandatory measures to limit water use to less than 90% of production capacity



Agenda Item 14

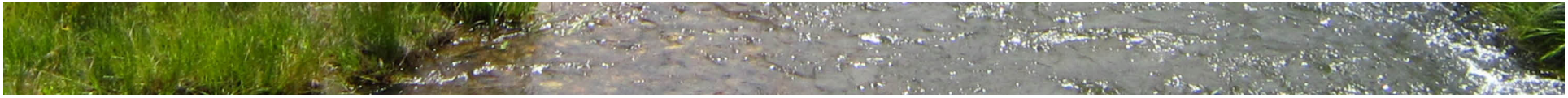
Lake Alan Henry Drought Triggers and Responses

Drought Stage	Trigger	Action
Mild (1)	Exceed 80% of daily supply capacity for 10 consecutive days Lake level is low and of concern to future water supplies due to drought or emergency	Mandatory measures to limit water use to less than 90% of daily supply capacity
Moderate (2)	Exceed 90% of daily supply capacity for 10 consecutive days Lake water availability is below normal and may continue to decline	Mandatory measures to limit water use to less than 80% daily supply capacity
Severe (3)	Exceed 100% of daily supply capacity for 5 consecutive days Lake water availability is well below normal and continues to decline	Mandatory measures to limit water use to less than 70% daily supply capacity
Emergency (4)	Exceed 105% of daily supply capacity for 5 consecutive days Water system failure or contamination	Mandatory measures to limit water use to less than 50% daily supply capacity



Agenda Item 14

- Recommended triggers and actions to be taken in drought
  - Groundwater sources in Region O
    - Ogallala, Edwards-Trinity (High Plains)
    - Dockum, Seymour, and Other Aquifers
- Recommend groundwater providers follow the U.S. Drought Monitor for tracking drought conditions in their planning efforts leading to drought measure implementation

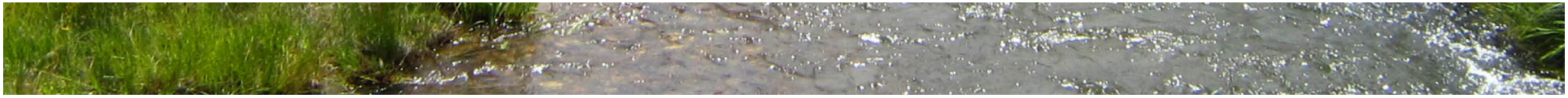


Agenda Item 14

U.S. Drought Monitor Classification Scheme

Category	Description	Possible Impacts	Palmer Drought Index
D0	Abnormally dry	Going into drought: Short-term dryness slowing planting Growth of crops or pastures Coming out of drought: Some lingering water deficits Pastures or crops not fully recovered	-1.0 to -1.9
D1	Moderate drought	Some damage to crops, pastures Streams, reservoirs, or wells low Some water shortages developing or imminent Voluntary water-use restrictions requested	-2.0 to -2.9

http://droughtmonitor.unl.edu/AboutUs/ClassificationScheme.aspx



Agenda Item 14

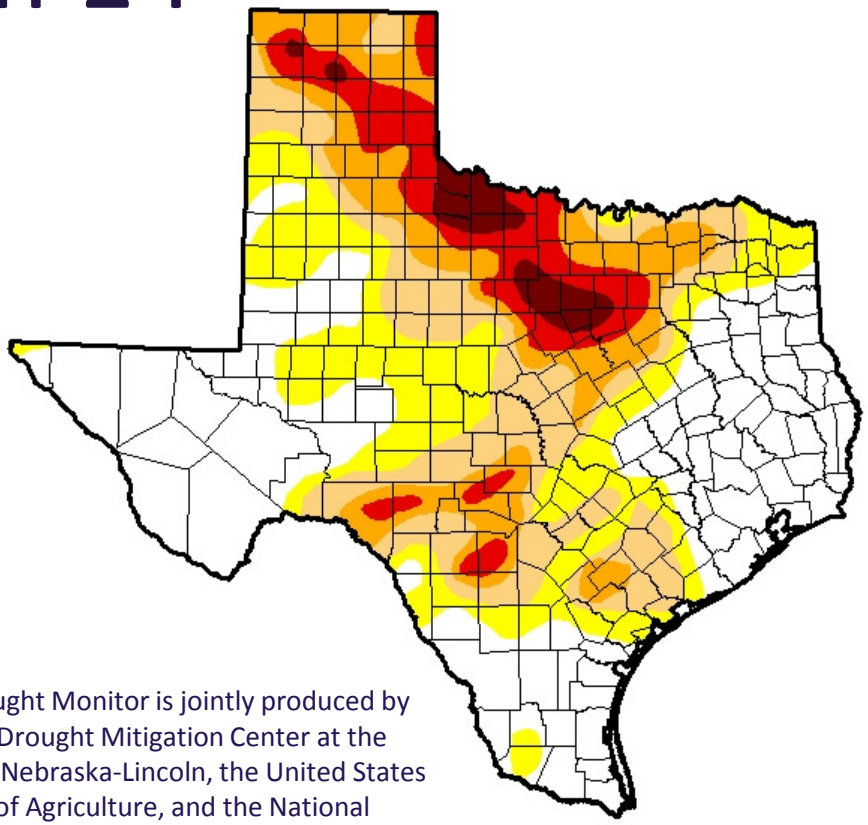
U.S. Drought Monitor Classification Scheme

Category	Description	Possible Impacts	Palmer Drought Index
D2	Severe drought	Crop or pasture losses likely Water shortages common Water restrictions imposed	-3.0 to - 3.9
D3	Extreme drought	Major crop/pasture losses Widespread water shortages or restrictions	-4.0 to -4.9
D4	Exceptional drought	Exceptional and widespread crop/pasture losses Shortages of water in reservoirs, streams, and wells creating water emergencies	-5.0 or less

http://droughtmonitor.unl.edu/AboutUs/ClassificationScheme.aspx

Agenda Item 14

U.S. Drought Monitor
Texas



The U.S. Drought Monitor is jointly produced by the National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture, and the National Oceanic and Atmospheric Administration.
Map courtesy of NDMC-UNL.

January 13, 2015
(Released Thursday, Jan. 15, 2015)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	39.80	60.20	40.34	23.49	11.03	2.90
Last Week 1/6/2015	38.95	61.05	41.81	24.07	10.72	2.47
3 Months Ago 10/14/2014	30.96	69.04	48.42	27.50	10.97	2.88
Start of Calendar Year 12/30/2014	34.37	65.63	44.68	25.73	11.70	3.17
Start of Water Year 9/30/2014	28.92	71.08	48.95	29.54	11.26	2.69
One Year Ago 1/14/2014	26.18	73.82	44.54	21.59	6.68	0.79

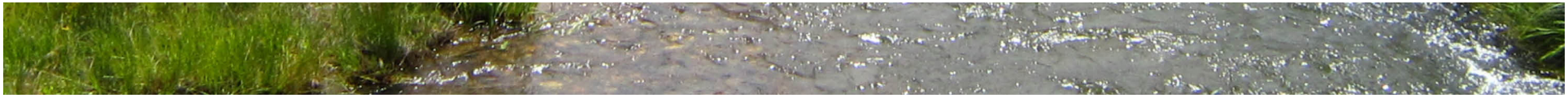
Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

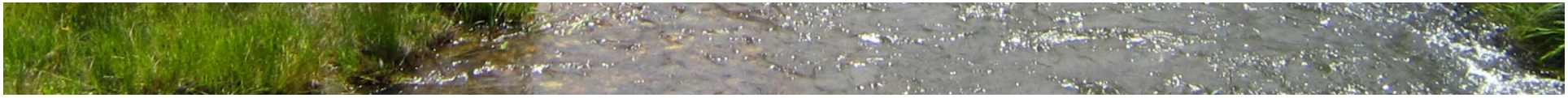
Author:
Richard Tinker
CPC/NOAA/NWS/NCEP

http://droughtmonitor.unl.edu/



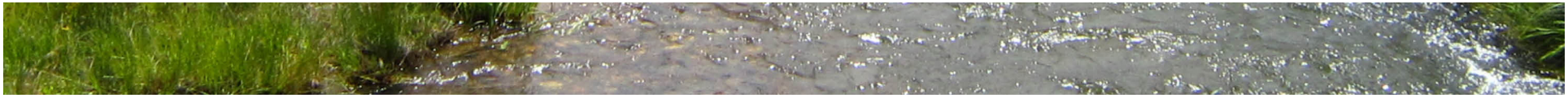
Agenda Item 14

- Abnormally Dry (D0)
  - Entities should begin to review their DCP, status of current supplies and current demands to determine if implementation of a DCP stage is necessary
- Moderate Drought (D1)
  - Entities should review their DCP, status of current supplies and current demands to determine if implementation of a DCP stage is necessary



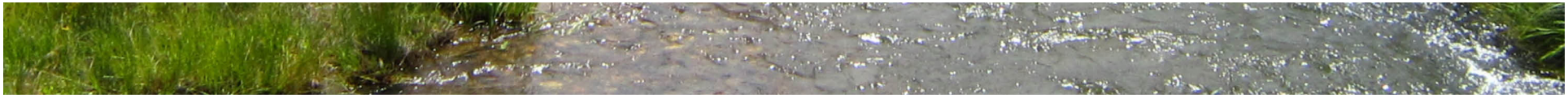
Agenda Item 14

- Severe Drought (D2)
  - Entities should review their DCP, status of current supplies and current demands to determine if implementation of a DCP stage or changing to a more stringent stage is necessary
  - At this point if the review indicates current supplies may not be sufficient to meet reduced demands the entity should begin considering alternative supplies



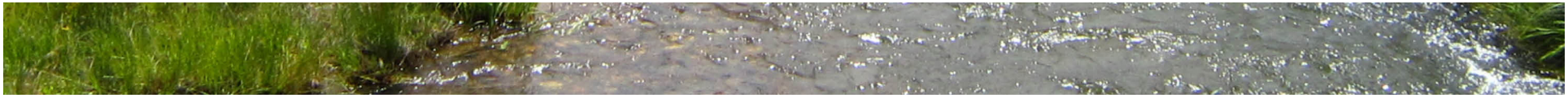
Agenda Item 14

- Extreme Drought (D3)
  - Entities should review their DCP, status of current supplies and current demands to determine if implementation of a DCP stage or changing to a more stringent stage is necessary
  - At this point if the review indicates current supplies may not be sufficient to meet reduced demands the entity should consider alternative supplies



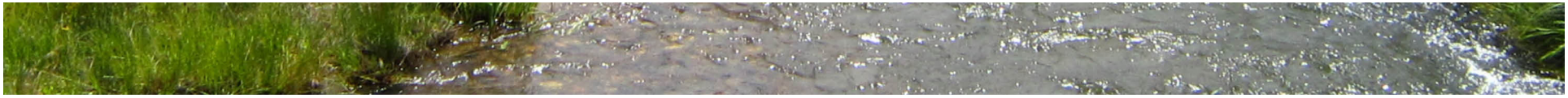
Agenda Item 14

- Exceptional Drought (D4)
  - Entities should review their DCP, status of current supplies and current demands to determine if implementation of a DCP stage or changing to a more stringent stage is necessary
  - At this point if the review indicates current supplies are not sufficient to meet reduced demands the entity should implement alternative supplies



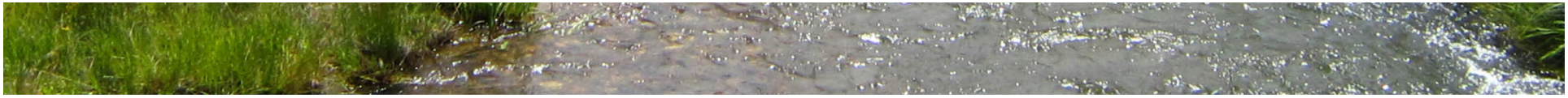
Agenda Item 14

- Emergency responses to local drought conditions or loss of municipal supply
  - High level review - screening level evaluation
  - General indicator of potential options
  - Municipal WUGs
    - 2010 population less than 7,500 and sole source
    - All County-other WUGs



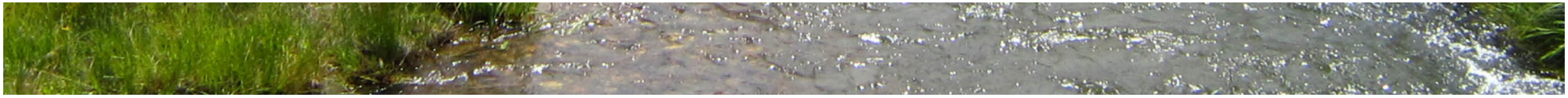
Agenda Item 14

- Potential Emergency Supplies - Screening Level Analysis (handout)
  - Emergency response options considered
    - Local groundwater well
    - Brackish groundwater (limited treatment and desalination)
    - Emergency interconnect
    - Other named local supply
    - Trucked-in water
    - Purchase of land with existing wells
    - Other
  - Implementation requirements



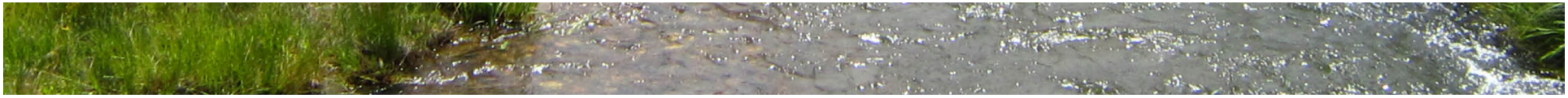
Agenda Item 15

- Chapter 8 - Unique Stream Segments and Reservoir Sites and Other Recommendations
- Discussion of 2011 recommendations and what recommendations should be included in the current regional water plan



Agenda Item 15

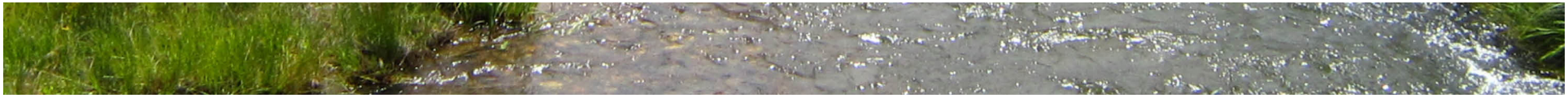
- 2011 Recommendations
  - Unique Stream Segments: The LERWPG did not recommend any stream segments for designation as stream segments of unique ecological value.
  - Unique Reservoir Sites: HB 3096 provided legislative designation of the Post Reservoir site as a unique reservoir site in 2001, and the LERWPG supported this designation in the 2011 RWP.



Agenda Item 15

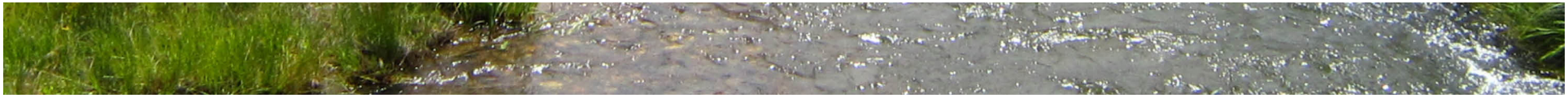
- 2011 Other Recommendations

    1. Some level of state financial assistance will be required in order to implement the regional water plans within the needed timeframe. The LERWPG recommends that the legislature identify a dedicated revenue source (e.g., low interest loans, direct grants, or cost-sharing) to complete the high priority strategies (public water supply, watershed management, water conservation, and development of drought-tolerant crops and more efficient irrigation strategies).



Agenda Item 15

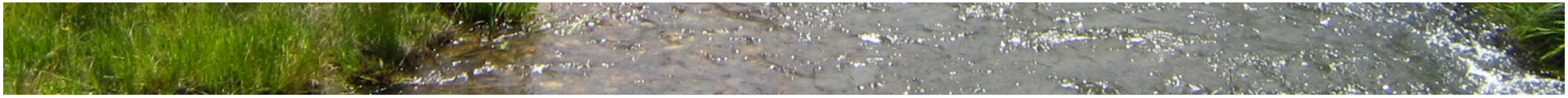
- 2011 Other Recommendations (continued)
    2. After three rounds of planning, the LERWPG recommends expanding the planning process to allow for evaluation of additional region-specific planning options (including involvement in the projections), rather than just updating the plan every 5 years.
    3. The next planning round should incorporate the desired future conditions (DFCs) that are adopted for the Groundwater Management Areas (GMAs), with this information replacing the current projections of supply.



Agenda Item 15

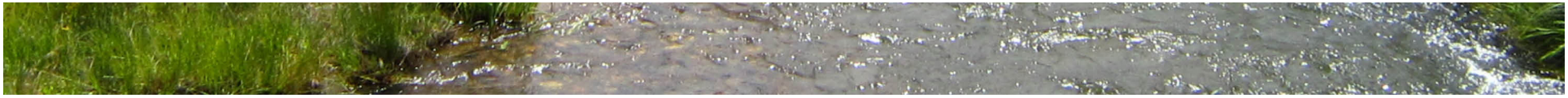
- 2011 Other Recommendations (continued)

    4. The planning process should be reviewed by a statewide representative stakeholder group and then revised to better capture region-specific effects (e.g., more alternatives of supply and demand, changed conditions due to the potential impacts of climate change, changed conditions due to the 2008 Farm Bill).



Agenda Item 15

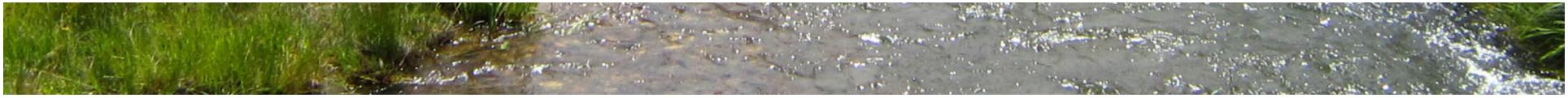
- 2011 Other Recommendations (continued)
  5. Continued Texas Legislature support, including providing funding for
     - strategy implementation
     - public education regarding water supply issues
     - continued funding and support of basic water data collection, processing, and analysis
     - continued funding and support of the ongoing development and improvement of the Groundwater Availability Models
     - implementation of a statewide public awareness program for water conservation achievements
     - continuation and funding of the water conservation advisory council



Agenda Item 15

- 2011 Other Recommendations (continued)

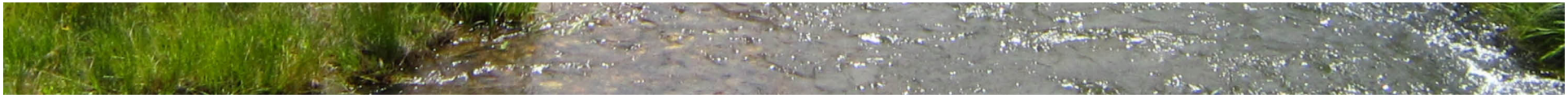
6. The LERWPG supports the Water Conservation Advisory Council efforts to develop standard methodologies, definitions, and data for characterizing per capita water use and other metrics.
7. The LERWPG continues to support the following recommendations from the 2006 RWP:
   - support the rule of capture
   - support the State's policy that groundwater conservation districts are the preferred method for managing groundwater
   - urge the State not to empower the regional water planning groups with any water management or regulatory authority
   - support continued funding by the legislature for Ogallala aquifer recharge studies



Agenda Item 15

- 2011 Other Recommendations (continued)

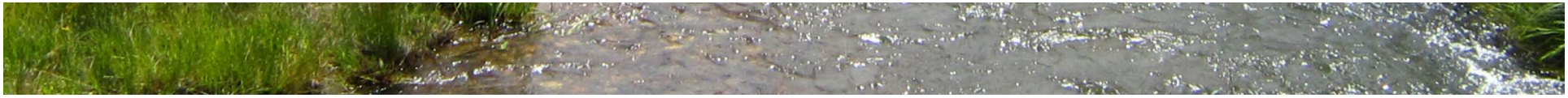
8. The LERWPG supports and encourages the development and voluntary use of BMPs to improve recharge and protect playas from siltation. The TWDB's BMP guide should be updated with new BMPs added to help in protecting this resource.
9. The LERWPG supports controlling aquatic vegetation as a water conservation practice. It encourages CRMWA's salt cedar control efforts along the Canadian River upstream of Lake Meredith, as well as similar projects upstream of Mackenzie Reservoir, White River Reservoir, and Lake Alan Henry.



Agenda Item 15

- 2011 Other Recommendations (continued)

  10. The LERWPG supports voluntary protection of springs and seeps, and encourages the use of best management practices to maintain them in the region.



Next Steps

- Post draft chapters on planning group website as available for review
- March meeting
  - Presentation of Chapters 1, 5, & 6
  - Acceptance of draft plan for submittal
- Draft plan is due to the TWDB by May 1, 2015