



PIMA COUNTY
WASTEWATER RECLAMATION

PIMA COUNTY LOCAL DROUGHT IMPACT GROUP
(LDIG)

Wednesday, November 12, 2014
Pima County Public Works Building

RECAP

Attendance: Erin Boyle (NWS), Mead Meir (PAG), Ashley Hullinger (PAG/WRRD), Kathy Chavez (RWRD), Lilian von Rago (RWRD), Colby Bowser (RWRD), Frank Postillion (RFCD), Vicki France (Pima NRCD), David Sclalero (RFCD), Brian Powell (OSC), Andrew Greenhill (Tucson Water)

1. Welcome and Introductions -Welcome and Introductions were made
2. Updates
 - Recap September 10
 - NWS Monsoon Report; Confirmed Tucson is below precipitation average for both the calendar year and water year though the area did receive average monsoon precipitation.
 - Conservation discussion among the Lower Basin states, CAP and Colorado Basin outlook.
 - Drought Status Maps
 - Long Term (June, July, August) indicates some monsoon improvement though 24 and 48 month averaging reflects cumulative condition. Santa Cruz and San Simon watersheds are in Severe drought. Lower Gila watershed portion within Pima County is Abnormally Dry.
 - Short Term (updated weekly) indicates majority Moderate condition with Severe within San Pedro area and Abnormally Dry in western Pima County.
 - MTC November 6 Meeting
 - Discussion of recent Long Term map
 - Many watersheds are on the cusp of improvement but given previous Severe condition did not improve enough across a majority of the respective area to warrant status change; there are areas of localized significant improvement indicative of the very localized monsoon activity.
 - ICG November 13 Meeting
 - Discussion of upcoming Governor's Inter-Agency Coordinating Group agenda.
 - ADWR Annual Drought Report
 - K Chavez informed LDIG that a final report will be forwarded and posted once completed by ADWR; no comments or additions from LDIG on Pima County's LDIG report.
 - Final draft is receiving minor edits.

3. Cienega Creek Hydrologic Research and Findings

- Record breaking drought along Cienega Creek; PAG has submitted to the County inclusions to the ADWR Annual Drought Report documenting condition.
- Cienega has been monitored since 1989; it is representative of how riparian habitat is impacted though it is especially fragile to drought as a unique groundwater dependent system and critical wildlife corridor.
- Groundwater pumping and diversions in Cienega are monitored by PAG.
- Perennial 9.5 mile segment existed in the 1980's. Current stream flow is 9% of recorded extent; at record low 0.21 cfs and 0.865 miles- even during historic peak time of year. In general, Cienega is reduced to very small segments of flow.
 - Isotope research reveals Cienega aquifer is a mix of "old" water recharged thousands of years ago and "new" water recharged through the system of washes.
- Map shows wildlife linkage, providing safe harbor for species and connection to Pantano then to Rillito and Santa Cruz.
- Groundwater levels are at their lowest in past 10-15 years; Average 15' drop in well levels; past two years averaging 5' drop each year. Groundwater levels are connected to stream flow.
- Cottonwood willows are succumbing to stress, water at lowest levels to adequately sustain a population. Other species impacted; low water levels making it difficult to survive through June, driest most difficult period before monsoon activity. Even deep rooted mesquite experiencing mortality at Cienega and other shallow groundwater systems, such as the Rillito-Tanque Verde.
- Long term implications- the severity and length of drought has stressed the habitat and species of Cienega. Area needs more precipitation to halt declining groundwater, surface water and flow extent.
- Many private wells impacting area, 355 exempt wells. Increase every decade. Increasing outreach to well owners informing them of drought status and conservation beneficial to shallow groundwater areas. Importance of coordinating drought messaging.
 - Watershed Management Group has a pilot program facilitating better understanding of the aquifer, its low depth to water and surface and underground flows.
- Continuing efforts- restoration and monitoring.
 - County recognizes problem of recharge and recovery disconnect, a current theme in water management. PAG will continue to monitor hot spots impacted by this disconnect.
 - PAG will build upon monitoring of water levels and habitat but also look at restoration of any terrain features that increase flow in shallow groundwater areas.
 - Lack of studies re: shallow groundwater and flow hinder movement of policy; PAG will continue working with the County to collect data.
- Question of end result of data collection and end user. M Meir commented on collaboration at local level research such as WRRC compilation defining environmental water needs.
 - RFCD assisting in study of Cienega and deviation of winter precipitation, loss of summer rains to upland area. Creeks are good media for recharge, better infiltration. RFCD developing adaptive management recommendations.
- Cienega has undergone this level of stress in past record; tree ring research proves wet/dry periods and cyclical drought periods, a "mega-drought" in the 1300's and 1964-1978 dry period and 1978-1994 wet period.

- Cienega experienced an increase in summer rains (July-September) but remains in drought. If an El Niño occurs it will be a weak event. Updated to 58% probability.

4. Drought Observations on Pima County's Open Space Lands

- Water resources and drought impacts are monitored on Pima County owned and managed lands as part of the SDCP and MSCP. The longest period of monitoring has been at Cienega Creek.
- Review of SDCP and MSCP
 - MSCP Section 10 permit, part of ESA, will allow impacts provided mitigation and monitoring is in place. Purchase by fee or lease of open space lands to mitigate, continuous monitoring of those lands. Much of it active grazing ranches.
 - Covers mostly private activity but some public, 44 riparian and aquatic species. Permit is for 30 years.
 - Surface water, shallow groundwater areas provide much of the habitat for endangered species.
 - Close to issuance, waiting on last minute language changes with US Fish and Wildlife. Completed public comment period. Issuance in 2015?
 - MSCP is part of SDCP, the larger cultural and natural resource protection program for the county.
- Threats to lands
 - Drought and climate change
 - Average temperature increases and changes in precipitation patterns.
 - Exempt wells in shallow groundwater areas
 - Invasive species
- Monitoring open water distribution and number
 - Streams, springs, tinajas and stock tanks on County land are monitored long term. Requirement of permit.
 - Wet/Dry Mapping maps where the water is and amount of flow
 - Spring Assessments are thorough evaluations of springs which are uploaded to the Spring Stewardship Institute database, a critical historic resource cataloging springs.
 - Ranchers report springs are drying up.
- Future Efforts
 - Continued Wet/Dry Mapping
 - Increased intensity in monitoring 2015/2016 after permit issued. Not a complete inventory of County lands at this time, still finding new springs on some ranches.
 - County data will continue to add to larger efforts such as the spring assessment and San Pedro efforts
- Discussion
 - Source of some springs is unknown as we do not know the hydrology of all County lands.
 - Agua Caliente spring is failing due to lack of winter rains, some recovery after monsoons but not quite enough. Pumping the aquifer to re-supply the pond is contributing to spring decline. Monsoon recovery could be greater without pumping. Annual winter rains have decreased in this area 20-25% over the last decade. Large part of water lost to seepage and vegetation.

5. Adjournment – The next meeting is January 14, 2015.