



Lower Santa Cruz River Basin Study Public Meeting Hosted by the PAG Watershed Planning Subcommittee (WPS)

**Legal Action Report/Meeting Summary
November 30, 2016, 4:00 p.m. to 5:30 p.m.**

WPS Participants

Asia Philbin*, Town of Marana
Jim DuBois*, Pima County
Marie Light, Pima County DEQ
Wally Wilson*, City of Tucson

Environmental Planning Advisory Committee (EPAC) Participants

Adam Bliven, Pima County RWRD
Grace Gegenheimer, Tucson Metro Chamber
Howard Meyers, SAHBA
Janine Spencer, Town of Marana
Matt Clark, Tucson Audubon Society

Basin Study Project Team Participants

Bailey Kennett, University of Arizona
Brian Wong, BKW Farms
John Kmiec, Marana Water
John McKinney, Farmers Water Co.
Ken Taylor, Community Water Co. of GV
Mike Block, Metro Water District
Peter Abraham, Town of Oro Valley
Wally Wilson, Tucson Water

PAG Staff

Melanie Alvarez
Julie Morrison
Tiki Lawson
Jeff Hildebrand
Phil Cyr

Speakers

Mead Mier*, PAG
Mary Reece*, Bureau of Reclamation
Kathy Jacobs*, University of Arizona
Eve Halper*, Bureau of Reclamation
Kathy Chavez*, Pima County

**Also on the Basin Study Project Team*

Plus additional participants totaling 67 in attendance

1. Welcome and Introduction

The meeting was called to order by Mead Mier at 4:00 p.m. Ms. Mier explained PAG's role in stakeholder engagement for the Lower Santa Cruz River Basin Study, noting that PAG's Watershed Planning Subcommittee and Environmental Planning Advisory Committee provide opportunities for stakeholders, including members of the general public in the Tucson region to weigh in on the Basin Study, and that decision makers at Management Committee and Regional Council also will weigh in. She introduced Kathy Jacobs, Director of the Center for Climate Adaptation Science and Solutions at the University of Arizona, as the meeting's facilitator. Mary Reece, Manager, Program Development Division, Bureau of Reclamation, Phoenix Area Office, gave additional opening remarks. All three speakers emphasized the value of community feedback on Basin Study processes and products, both during today's meeting and throughout the course of the three-year study period.

2. Study Overview

Eve Halper, Bureau of Reclamation, provided an overview of the three-year Lower Santa Cruz River (LSCR) Basin Study. The LSCR Basin is defined as the extent of the Tucson Active Management Area. The study objectives are to identify where physical water resources are needed to mitigate future supply-demand imbalances, and to develop

strategies to improve water reliability for municipal, industrial, tribal, agricultural and environmental sectors. She explained how the study is designed to meet the unique needs of the LSCR Basin and to consider water for the environment. She described the process to develop “Worse Case,” “Best Case” and “Base Case” scenarios for supplies and demands. Each scenario will be run through a “chain of models” to assess future risks to each sector through 2060. Later in the Basin Study process, input will be sought from stakeholders and the general public to develop adaptation measures and perform a trade-off analysis of these measures. It is important to note that this analysis of adaptation measures is for regional planning purposes only.

Ms. Halper addressed questions and comments from the participants:

- How is the Lower Santa Cruz River Basin Study different than previous Reclamation Basin Studies?
 - o Reclamation’s Basin Studies have the flexibility to focus on whatever regional water uses are most significant. The LSCR Basin Study will place a strong emphasis on water for the environment. Additionally, this study will use dynamical downscaling of global climate models to derive local climate projections, whereas statistical downscaling has been used previously.

The presentation is available at:

<http://www.pagnet.org/documents/committees/wps/2016/WPS-2016-11-30-PublicMeetingPresentation-D2a-HalperChavezStudyOverview.pdf>

The handouts are available at:

<http://www.pagnet.org/documents/committees/wps/2016/WPS-2016-11-30-PublicMeetingHandout-5-LSCR-BasinStudyFactSheet-andFullPageMap.pdf>

<http://www.pagnet.org/documents/committees/wps/2016/WPS-2016-11-30-PublicMeetingHandout-4-LSCRBS-OverviewKeySlides-andOrgStructure.pdf>

3. Presentation on Climate, Water Supply and Environment

Kathy Jacobs, University of Arizona, discussed the projected impacts of climate change on the Southwest and how dynamically downscaled climate projections will be one of the tools used to estimate regional impacts on water supply and demand. The Third National Climate Assessment (NCA3), which was completed in 2014, evaluated the full range of scientific evidence related to a wide range of observations and modeling efforts. The study, which involved 300 authors and a 60 member advisory committee, as well as multiple reviews by the National Academies, the public, and agencies, identified climate change already observed in every region and sector of the US, including increases in global temperature and extreme weather events. Projections show that the Southwest will become hotter, with potential reductions in precipitation, snowpack and streamflow, and likely increased stress on groundwater supplies and aquatic and riparian ecosystems. This Basin Study will consider the impacts of climate change on human water supply and demand, including on local and imported (Central Arizona Project (CAP) supplies, and on environmental water needs.

Ms. Jacobs discussed the importance of considering multiple possible futures through the scenario planning process. She also described how dynamically downscaled climate projections will be used for the first time in a Basin Study to better represent important local climate characteristics. It was noted that dynamical downscaling results have been shown to replicate past climate conditions more accurately than statistical downscaling, and that

dynamically downscaled climate projections developed by the University of Arizona translated into greater shortages on the Colorado River than in Reclamation's Colorado River Basin Study (on the order of 10 to 20% above statistical modeling approaches).

Ms. Jacobs addressed questions and comments from the participants:

- Does the 10-20% additional reduction in Colorado River streamflow translate to a reduction in "volume"?
 - o Yes, this metric of reduced streamflow can be viewed as a reduction in the volume of water flowing through the river.
 - o This 10-20% reduction in streamflow/volume is in addition to the approximately 10% reduction assumed in the Colorado River Basin Study through the use of statistical downscaling.
- How do tropical storms impact regional climate projections, and will this be accounted for in the Basin Study?
 - o There has been much statistical analysis on how climate change will impact the frequency, intensity, and pattern of tropical storms, and there is significant debate about these projections and associated impacts, especially impacts to this region. Tropical cyclones (which typically occur in the Southwest in the late summer and early fall) are one of the most uncertain projections for climate scientists, and have yet to be resolved. regional climate simulations.

The presentation is available at:

<http://www.pagnet.org/documents/committees/wps/2016/WPS-2016-11-30-PublicMeetingPresentation-D2b-JacobsWater-andClimate.pdf>

The handout is available at:

<http://www.pagnet.org/documents/committees/wps/2016/WPS-2016-11-30-PublicMeetingHandout-3-Climate.pdf>

4. Study Partners

Kathy Jacobs asked if there were any questions from the participants to be addressed to study partners, which include experts from the municipal, industrial, tribal, agricultural and environmental sectors. The study partners who were in attendance addressed questions and comments from the audience.

- Is the Basin Study Project Team accounting for peak floods as an impact to infrastructure?
 - o Impacts to infrastructure from peak flood events (which may become more frequent or intense) are a risk that the Basin Study may consider. Stakeholder input can be helpful in this consideration – if there is a particular aspect of concern (e.g., stormbank overflow), please communicate this to the Project Team.
- What assumptions is the Project Team making about future demands, such as those for the energy, industrial, and municipal sectors?
 - o Demand assumptions are being addressed by members of the Sub-Teams that are working in those specific sectors.

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- Consistent assumptions will be used for the supply and demand scenarios. Many assumptions/variables of supply and demand can be tested, but there will be limits to how many groundwater models can be run.
 - For example, the Municipal Sub-Team is primarily relying upon data from the official state population projections. The Sub-Team is then able to vary these inputs to CAP's Service Area model (CAP:SAM) to account for various rates of population growth and fluctuations in municipal demand.
 - What demand projections will be made for irrigated lands?
 - Agricultural demand projections will be based on those outlined in ADWR's 4th Management Plan, which will then be vetted by the Project Team's agricultural sector representatives. According to these representatives, agricultural demand is not expected to vary significantly in the foreseeable future, despite some adjustments that will be made to reflect changes in crop plantings.
 - Does the Basin Study include "augmentation strategies"?
 - Yes, these will definitely be considered, though the Basin Study uses the term "adaptation measures".
 - As exempt wells are often located near riparian areas, demand can have a significant impact on riparian habitat. Will the Basin Study account for the water demands of exempt wells (<35gpm)?
 - Because there is no accounting of demand from exempt wells, the Municipal Sub-Team is utilizing the assumptions in ADWR's 4th Management Plan.
 - It is acknowledged that exempt well demand may vary over time (as additional wells are drilled or existing wells become inoperable as the water table drops), though this change in demand may not translate to a significant change in municipal projections.
 - Riparian demands and exempt well demands often occur in the same area, and data is insufficient for both. Due to the lack of quantitative measures, qualitative assessments and professional judgement will largely be used to describe these demands and interconnections.
 - Community and stakeholder suggestions for desired future conditions in the (lower) Santa Cruz River (e.g., year-round flow), can be considered in the evaluation of adaptation measures.

Project Team and Sub-Team partner organizations are listed at:

<http://www.pagnet.org/documents/committees/wps/2016/WPS-2016-11-30-PublicMeeting-Display-ProjectTeam-andSubTeams.pdf>



5. Stakeholder Involvement Opportunities: Conclusions and Closing Remarks

Kathy Chavez invited the participants to share their expertise as Stakeholder Advisors and provided closing remarks. Participants were encouraged to fill out comment cards and note on the cards whether they wished to become Stakeholder Advisors.

The handouts are available at:

<http://www.pagnet.org/documents/committees/wps/2016/WPS-2016-11-30-PublicMeetingHandout-1-2-StakeholderAdvisor.pdf>

<http://www.pagnet.org/documents/committees/wps/2016/WPS-2016-11-30-PublicMeeting-LSCR-BasinStudyCommentCard.pdf>

6. Closing

Feedback was recorded to help guide the study and will be summarized in comprehensive Basin Study records. Responses will be provided to participants.