



COFFEE BREAK: Myth Busters

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Brief Summary

SPEAKERS

Jeff Bennett, Conservation Delivery Specialist, American Bird Conservancy
Dr. Juan M. Huerta-Tolis, Director General of Juan M. Huerta Inc., of Sarasota
Paul Tashjian, Audubon Southwest
Colin McDonald, Senior Policy Analyst

Moderators: Rosario Sanchez, Senior Research Scientist, TWRI; Samuel Sandoval Solis, Professor, UC Davis.

The Forum convened to discuss various myths or assumptions about rivers and water generally. Myths were submitted and discussed by each of the scholars.

Myth #1 - Vegetation Management Can Make New Water

Jeff Bennett - The myth is that removing riparian vegetation can save water use. Yet there is little evidence, e.g., it was tried twice on the Pecos and no additional water was measured in the gage. This has been used as an excuse by ranchers in West Texas to clear riparian forests.

Myth #2 – I Can Get Water When I Need To!

Dr. Huerta – Developers seem to trust that there will always be water to support their constructions. But this is not always obvious in Mexico. They make plans for buildings, land, trees...then ask what about the water that is needed. The answer becomes, “Don’t worry, we’ll get it.”

But this can be location dependent, too. In places where there is drought, such promises cannot be easily made. Looking at three cities – Mexico City; Monterrey, MX; St. George, UT – yields different answers. Mexico City has a regional population of 21M people. St. George is considering an aqueduct solution to bring water from 140 miles away, 40.6 MM3/year. Perhaps water can be obtained but at what cost? Economic? Environmental? Social? The water that exists is ground water that is frequently contaminated. In the Central Plateau, water wells need to go to depths of 3,000M and require powerful pumps.

Myth #3 – The Trees Are Stealing All the Water

Paul Tashjian – Vegetated bars and islands have replaced the formerly open channel in the Middle Rio Grande south of Albuquerque, NM. But there is a movement to “mow” this vegetation as it is seen as water-consumptive. A simple calculation shows that this is not true and water consumption has been reduced by 10% to 20%. A more complex validation is forthcoming through OpenET (a NASA satellite-based water data resource) calculations. The question for the Myth becomes, “Does an emergent riparian forest consume more water?”

The Rio Grande was modified in the 1950s to a 200M wide channel with armored banks and a disconnected flood plain. Since 2010, the river has formed an inset flood plain within the former channel footprint comprised of native vegetation, willow and cottonwood trees. The narrower channel increases water conveyance, although there is a valid concern for levee erosion.

The Rio Grande has improved its habitat despite an extended drought. Mowing is costly and clears the way for invasive species. The river now appears to be coming to a state of equilibrium. The Myth is false – let it be!

Myth #4 – That’s a Bad Place to Paddle

Colin McDonald – Outside of National Parks, it is assumed that the Rio Grande/Rio Bravo is not a good place to travel. Personal anecdotes and photos disprove this Myth. Colin recounts the experiences of two young women who walked the length of the US-Mexico border in 2018 without incident; a 2004 canoe trip from Cd Juarez to Boca Chica; a 1977 Dartmouth team that traveled from Stony Pass to Boca Chica; his own trip on the same reach in 2014 without incident. Then, the personal encounters with the people who live and work along the river, none of whom face actual dangers from the river itself. Risk is more perception than reality on both sides of the river.

The Myth is false and the Rio Grande/Rio Bravo is a good place to travel.

Myth #5 – In the Rio Grande Basin, Under Flood Irrigation, Can All Applied Water Percolating Below the Crop Root Zone be Considered Ground Water Recharge?

Bill Hargrove - First, the source of irrigation water matters. If it is from surface water, yes, water leaching past the root zone could be considered recharge if it makes it to the groundwater system. But if the irrigation water is pumped from groundwater, it should be considered return flow, since it is water that was pumped originally from the groundwater and only what is not used is being returned. Thus, flood irrigation using surface water is efficient, but it is not efficient when using groundwater. Drip irrigation would be more efficient when groundwater is the source. Second, the transmission of water percolating past the root zone to groundwater is not perfect. There is potential for lateral flow before reaching the groundwater and perhaps

transpiration by non-target plants. These losses are normally considered relatively small but could be significant.

There are many factors but the short answer to Myth #5 is, Yes. Water pressure and soil permeability play a role here, too. As much as 20% to 30% of flood water can be recaptured. The effect of the tree canopy in orchards can make flood irrigation even more efficient and it also removes more salt than drip irrigation. But there is no free lunch and conjunctive use of ground and surface water contributes to salinity.

Thus, salinity is a result of applying saline water, salt in the soil itself leaching out, mobilizing salt in groundwater and application of chemicals to fields. We also need to find a disposal for the hyper-saline waste from desalination plants. A new technology of forward osmosis offers promise in this area.

Water is increasing in cost due to processing expense as more “difficult” water is accessed. This will affect agriculture and urban consumers, too. There will be water but at a price.

Myth #6 – We Need a New Treaty to Address Groundwater

Not really, the existing 1944 Treaty has its own instruments to make it happen. For example, the Colorado River has been reallocated under the existing 1944 Treaty. The 1906 Treaty has drought conditions for American deliveries but the 1944 Treaty resets the clock on Mexican deliveries every time they are achieved as opposed to there being a drought contingency and a five-year window. It really should be an eight-to-fifteen-year window. There is no drought contingency for Mexican deliveries on the Rio Bravo and nothing about groundwater. So, there is room for additional Treaty Minutes as the Treaty itself is dynamic.