

**MEETING OF THE
INTEGRATED RESOURCE PLANNING ADVISORY COMMITTEE
MEETING SUMMARY**

April 23, 2014, 4:00 p.m.

Colorado River Conference Rooms, Southern Nevada Water Authority
100 City Parkway, Seventh Floor, Las Vegas, Nevada

IRPAC Members Present	Thalia Dondero Bob Ferraro John Guedry Joyce Haldeman Warren Hardy Carol Jefferies	Jennifer Lewis April Mastroluca Phil Ralston Danny Thompson Katherine Jacobi Virginia Valentine
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IRPAC Members Absent	Tom Burns Yvanna Cancela Garry Goett Brain McAnallen Otto Merida	Bobby Miracle Terry Murphy John Restrepo David Scherer
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Staff Present:	John Entsminger Phil Speight Julie Wilcox Dave Johnson	Ken Albright Andy Belanger Zane Marshall Katie Horn
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PUBLIC COMMENT

For full public comment remarks, please visit www.snwa.com/apps/agenda/snwa/index.cfm

There were no persons wishing to speak.

SUMMARY OF ACTIVITIES

The SNWA's Integrated Resource Planning Advisory Committee (IRPAC) met on Wednesday, April 23, 2014. The meeting began at 4:20 p.m.

Approve the meeting summary for March 26, 2014. There being no comments or questions, the meeting summary was approved by the committee.

Receive a presentation on climate change. Brad Udall, Director of the Getches-Wilkinson Center at the University of Colorado, Boulder, gave a presentation on climate change and how changes in climate could affect the southwestern United States, including the Colorado River, Lake Mead and Lake Powell reservoirs, and SNWA operations.

Mr. Udall began his presentation with an overview of basic climate science. Heat-trapping gases are increasing and driving climate change. As the atmosphere warms, moisture levels increase, creating several changes in our climate. Climate change is most apparent in the hydrologic cycle; it's generally expected that wet regions will become wetter while arid areas will become even drier.

Mr. Udall then described how climate change could affect the Colorado River Basin. Small temperature changes in climate will make a large difference in the hydrology of the Colorado River Basin. An Intergovernmental Panel on Climate Change (IPCC) 2013 study singles out the Mediterranean and the southwestern United States as regions that are likely to become more arid in the future. A more arid West could mean less snow in the Colorado Rocky Mountains, the source of spring runoff that feeds the Colorado River. While not a certainty, Mr. Udall said that 75 percent of climate models show declines in future flows of the Colorado River, with a median decline of 9 percent at mid-century. Associated threats to a dryer Southwest include pine beetle outbreaks, an increase in forest fires, and airborne dust deposited on Colorado snowpack. He noted a previous statement made by Pat Mulroy, former SNWA General Manager, where she stated solutions are going to involve shared sacrifice from all Colorado River users.

April Mastroluca asked Mr. Udall when the Upper Colorado River Basin would be unable to meet its obligation to the Lower Basin. Mr. Udall said it is difficult to predict, but when flows on the Colorado River drop by another 15 percent, there will likely be clear effects, especially for the state of Arizona, which will take the largest amount of shortage when declared.

Mr. Ralston asked how the lack of certainty and predictability involving climate change could hinder IRPAC from determining where to devote resources to help the region with its water issues. Mr. Udall said it's impossible to be specific when predicting future climate; there are too many variables. He emphasized the risks are real, but uncertain in their magnitude.

Warren Hardy asked if the climate change debate, including the issue of water shortages, is more of a national debate versus a regional debate. Mr. Udall agreed that it's almost impossible to discuss local water issues without discussing how climate change affects the entire Colorado River Basin as well as the federal government's role in managing western water issues.

Receive a presentation on the Colorado River Basin Study. John Entsminger introduced Carly Jerla of the Bureau of Reclamation, and Kay Brothers, former deputy general manager of the SNWA and contributor to the Basin Study. He reminded IRPAC members of the SNWA's existing intake facilities and associated lake elevations, as the information contained in Ms. Jerla's presentation may have considerable impacts on existing SNWA facilities.

Ms. Jerla explained that the Colorado River Basin Supply and Demand Study was a joint effort between the Bureau of Reclamation and the seven Basin States. Taking three years to complete, the Study addressed future supply-demand imbalances in the Basin and explored different strategies to resolve those imbalances.

Ms. Jerla reviewed how the Study considered a multitude of different Colorado River supply and demand scenarios that could take place in the future, based on different flow patterns of the river.

Ms. Brothers emphasized that the average annual flow of the Colorado River is in decline and pointed out that the last 14 years have averaged even less flow than what the Basin Study assumed to be a “new normal” with climate change.

Ms. Jerla reviewed the major drivers that could increase demand on the Colorado River. Assuming different rates of population growth and other variables, there is expected to be a supply-demand deficit on the Colorado River of between 0 and 7 million acre-feet annually with a median of about 3 million acre-feet annually.

Bob Ferraro asked if there was a consensus by those who have read the Study on what to do about climate change and its effects on water resources. Ms. Jerla said that the Study is more of a “call to action” and to identify the issues that need attention.

Ms. Jerla then reviewed the probability of Lake Mead water levels declining to specific elevations. Ms. Brothers reinforced the point that as lake levels decline, SNWA water intakes become more vulnerable. Ms. Jerla then mentioned a few strategies to help resolve the supply-demand imbalance, such as additional reuse, importation, desalination and conservation. The amount of “new” water estimated to be created from these strategies is approximately 5 million acre-feet annually. Mr. Udall added that the above scenarios discount the Law of the River, in that the Basin States would need to overlook what they are currently entitled to legally, and cooperate outside of those established contracts in order to accomplish such augmentation of the river.

Mr. Ralston suggested IRPAC members pay added attention to the cost profile of the different tactics to meet the supply-demand imbalance. Mr. Entsminger agreed that IRPAC will need to give direction to the Board on these issues.

Ms. Jerla showed projections for Lake Mead and Lake Powell elevations based on historical records and the probability of going into a shortage condition based on potential future hydrological scenarios. If Lake Mead’s elevation were to fall to 1,000 ft. above sea level, it would take approximately 10 years of normal hydrology to recover to elevation 1,025 ft.

Mr. Ralston asked if Lake Powell’s decline could affect Lake Mead and SNWA’s intakes. Mr. Entsminger said that if the water level of Lake Powell drops far enough, Powell would be unable to provide additional water to Lake Mead - even if there was a desire to do so.

Mr. Ralston asked what was significant about Lake Mead elevation 1,025 ft. Mr. Entsminger explained that SNWA should not wait for the lake to drop to 1,000 ft. before it takes action. At 1,025 ft., Nevada and Arizona will reconvene to establish new shortage sharing criteria as well as explore all other mitigation measures among Colorado River users.

Ms. Jerla finished her presentation and Mr. Ebersold directed questions that Mr. Scherer, who was absent, wanted asked of Ms. Jerla; “What new technologies are needed to understand climate change relationships?” Ms. Jerla said future discussions should be about the risks from climate change and how to manage those risks; the science is fairly consistent. Mr. Ebersold asked a follow-up question, “Does the third-intake lower the risk from climate change?” Ms. Brothers answered by saying the

third intake not only provides better water quality, it would also make SNWA's entire system more reliable, assuming the third pumping station was constructed.

Ms. Mastroluca asked Mr. Entsminger if he would be able to provide the costs/benefits among the various strategies to augment the Colorado River and to meet SNWA's future needs. Mr. Ebersold said IRPAC would be discussing the attributes in a future meeting and then staff will provide a technical summary based on those attributes for the committee to review.

Mr. Ebersold discussed a facility tour to be held on May 21, 2014 at 3 p.m. Topics will include:

- Alfred Merritt Smith Water Treatment Facility
- Lake Mead
- Intakes
- Water quality
- Declining lake levels
- Las Vegas Wash

PUBLIC COMMENT

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Ed Uehling, Las Vegas, understood from the presentation that it would require roughly \$5 billion to create 5.6 million acre-feet of additional water (CO River supply) to meet the supply-demand imbalance on the Colorado River by mid-century. Kay Brothers explained it would require a \$5 billion investment per year as opposed to a total amount.

ADJOURNMENT

The meeting was adjourned at 6:32 p.m.