



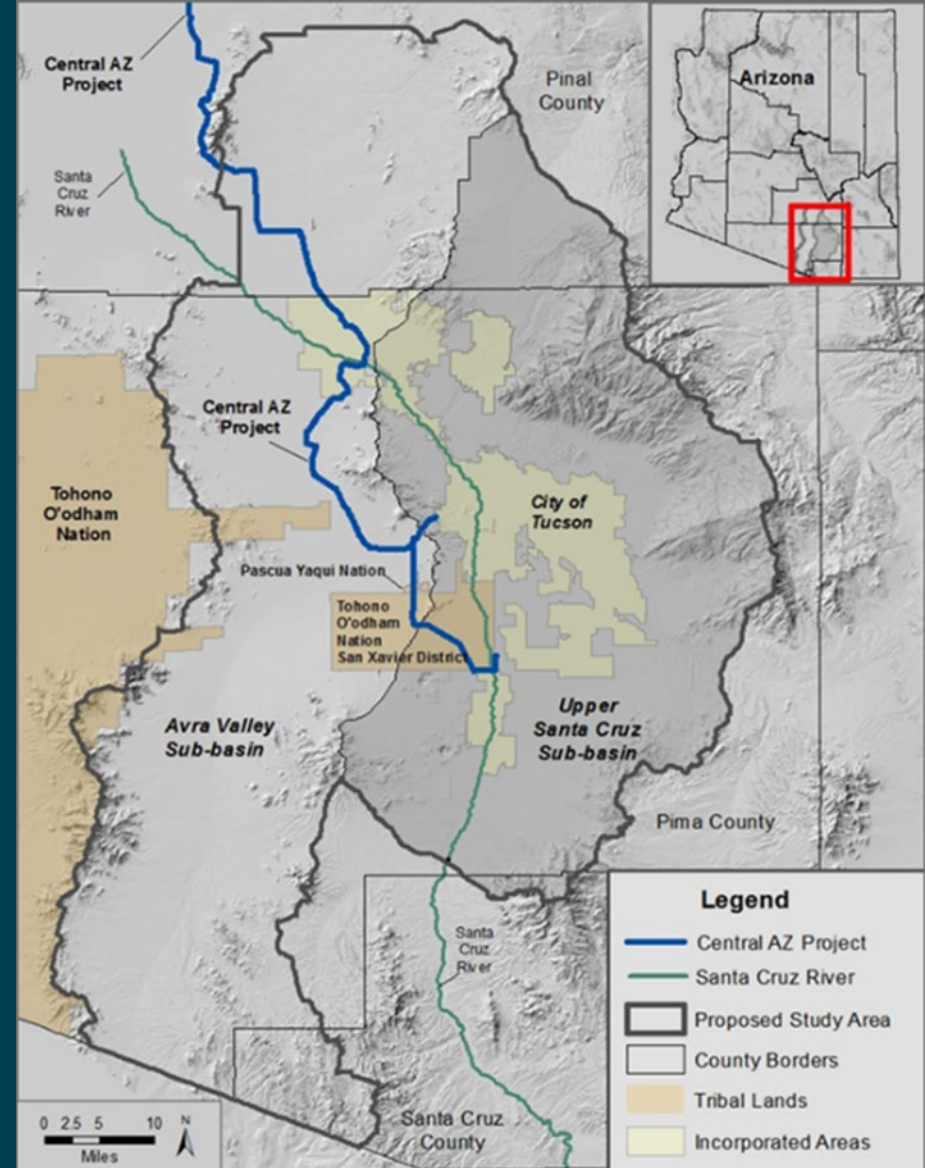
— BUREAU OF —
RECLAMATION

Lower Santa Cruz River Basin Study

Adaptation Strategy Workshop #2

February 22, 2021

Marie Light, Pima County



Day One Agenda

1:00	Lower Santa Cruz River Basin Study Background (Optional presentation for new participants and those who wish a detailed refresher on the study to date)	Kathy Chavez, Pima County & Eve Halper, Reclamation
1:45	Break	
2:00	Welcome and Introductions, Purpose of Meeting, Review Agenda for the Workshop (& technical instructions for zoom)	Marie Light, Pima County
2:10	Lower Santa Cruz River Basin Study Project Progress (Presentation/short overview of key phases, including scenario development)	Eve Halper & Kathy Chavez
2:25	Groundwater Modeling Results <ul style="list-style-type: none"> Modelling Outcomes – Brandon House (45 minutes) Questions (10 minutes) Q&A on the modeling and results, moderated by Kathy Chavez Poll #1 Indicate level of support for areas of concern	Brandon House, Reclamation
3:20	Break	
3:30	Discussion of Areas of Concern, Potential Risks and Path Forward <ul style="list-style-type: none"> Water Supply Environmental Issues 	Wally Wilson, Metro Water & Julia Fonseca, Pima County
3:45	Management Objectives for Areas of Concern (Handouts: maps, management objectives) <ul style="list-style-type: none"> Sabino Canyon and Tanque Verde Area Cañada del Oro and Saddlebrooke Area Southeast Tucson, Vail and Cienega Creek Area Green Valley and Sahuarita Area Poll #2 Indicate level of support for Management Objectives	Kathy Chavez
4:00	Criteria for Review of Adaptation Strategies Poll #3	Neha Gupta, University of Arizona
4:20	Synopsis of Strategies developed in Adaptation #1 Workshop (November 19, 2019) <ul style="list-style-type: none"> Original results Streamlined results (Handout: Synopsis of Strategies) 	Kathy Jacobs, University of Arizona
4:45	First impressions of Proposed Adaptation Strategies (Handout: Adaptation Strategies with descriptions) <ul style="list-style-type: none"> Do we have the right strategies? Are any strategies missing? 	Kathy Jacobs
4:55	Review of Goals for Day Two; Adjourn	Eve Halper

Day Two Agenda

9:00	Welcome, Review of the Day	Marie Light
9:05	Information needed by Reclamation to develop high-level cost and benefit estimates for Adaptation Strategies,	Mark Spears, Reclamation
9:15	Explanation of Breakout Groups and Maps	Kathy Jacobs
9:20	<p>Breakout group discussions to refine adaptation strategies</p> <p>Each pre-assigned group will discuss strategies for one of the following areas of concern:</p> <ul style="list-style-type: none"> • Sabino Canyon and Tanque Verde Area • Cañada del Oro and Saddlebrooke Area • Southeast Tucson, Vail and Cienega Creek Area • Green Valley and Sahuarita Area <p>Structure of discussion: What is missing? What should be removed? Details to be considered within each location and option</p>	Facilitated by Kathy Jacobs, Eve Halper, Kathy Chavez and Neha Gupta
9:55	Break	
10:05	Breakout Groups Continue - Second area of concern	Facilitated by Kathy Jacobs, Eve Halper, Kathy Chavez and Neha Gupta
10:40	<p>Reassemble in plenary and share findings/discuss path forward</p> <ul style="list-style-type: none"> • Refinements/additional strategies • Refinements for specific areas <p>Discussion of priority Adaptation Strategies to be evaluated for each area Identify 3 top priority Adaptation Strategies in each area, by consensus</p>	Facilitated by Kathy Jacobs
11:40	Next steps: Concept Level Analysis of Costs/Benefits/Considerations (request for volunteers)	Eve Halper
12:00	Adjourn	

List of Supporting Materials Sent by Email

- Workshop Agenda
- Management Objectives
- Evaluation Criteria
- Adaptation Strategies w/ Description
- Overview Map
- Groundwater Elevation change Maps for Scenario B (Best) and Scenario F (Worse) for 2020 - 2060
 - Cañada Del Oro and Saddlebrooke
 - Cienega Creek - Vail
 - Green Valley - Sahuarita
 - Sabino Canyon - Tanque Verde

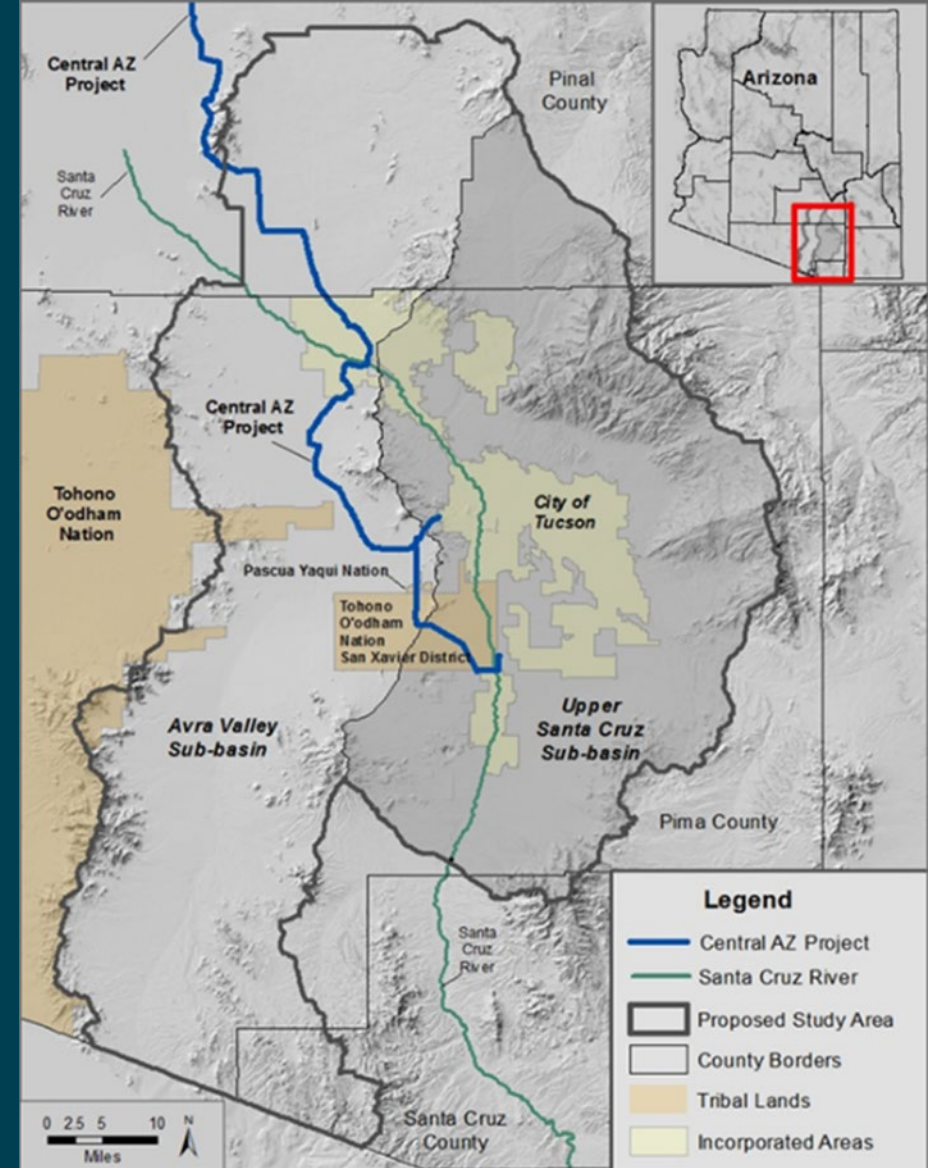


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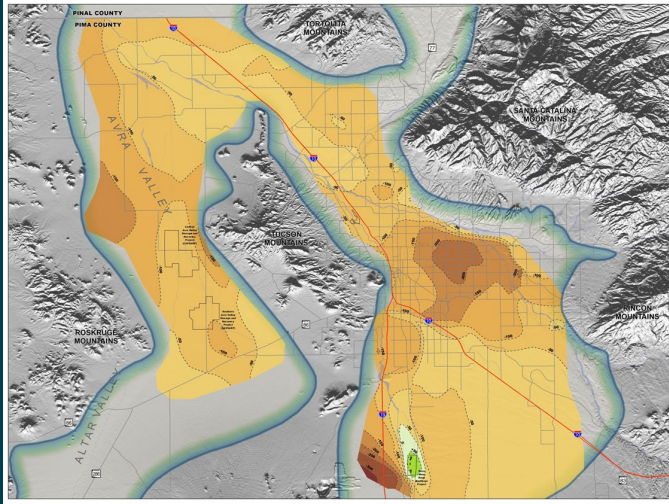
Lower Santa Cruz River Basin Study Overview

Adaptation Strategy Workshop #2
February 22, 2021

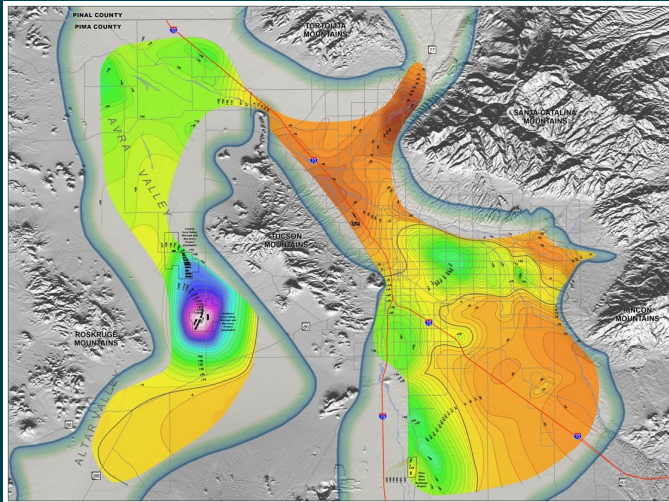
Eve Halper, Reclamation



Tucson Basin Water Level Changes



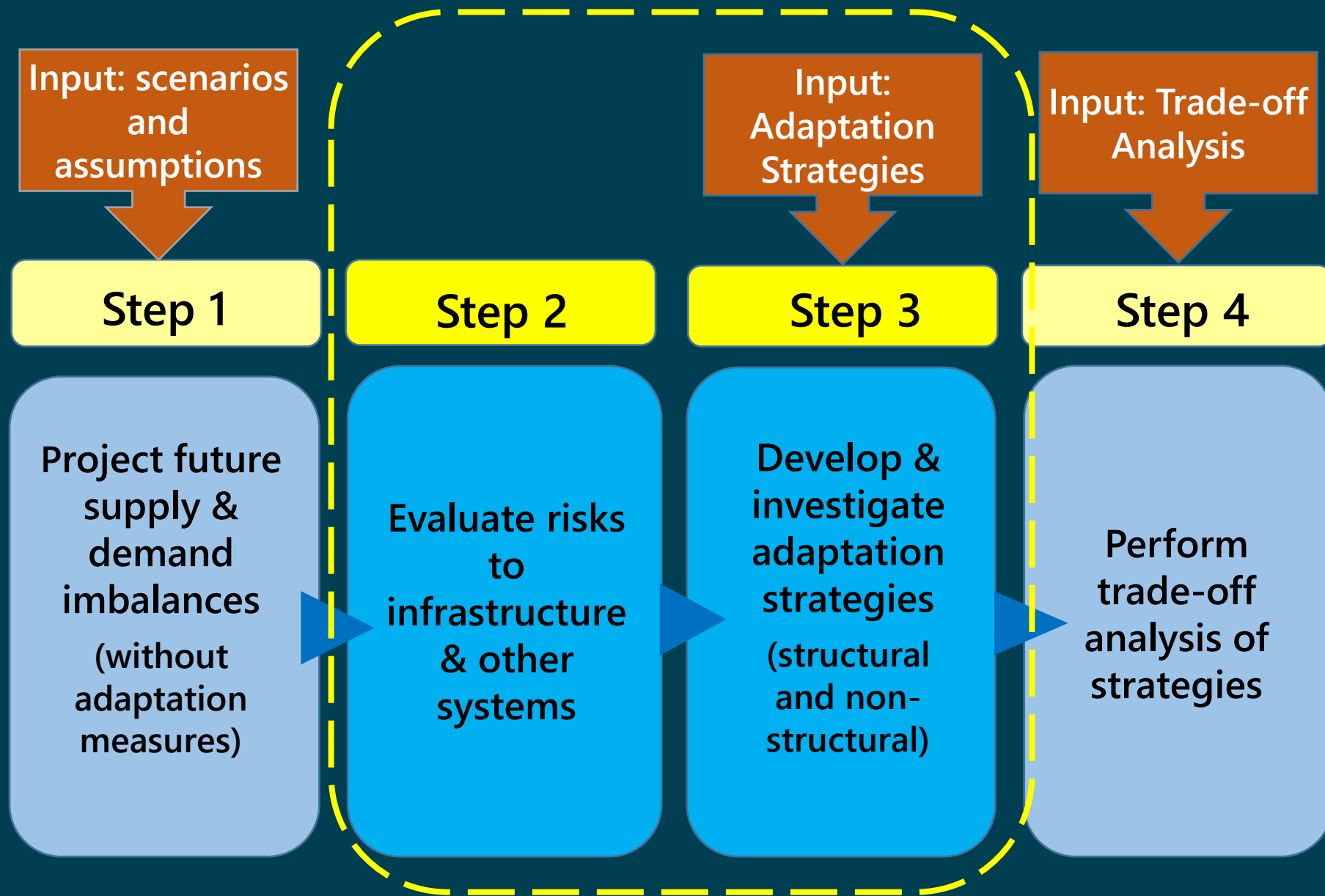
1950 - 2000



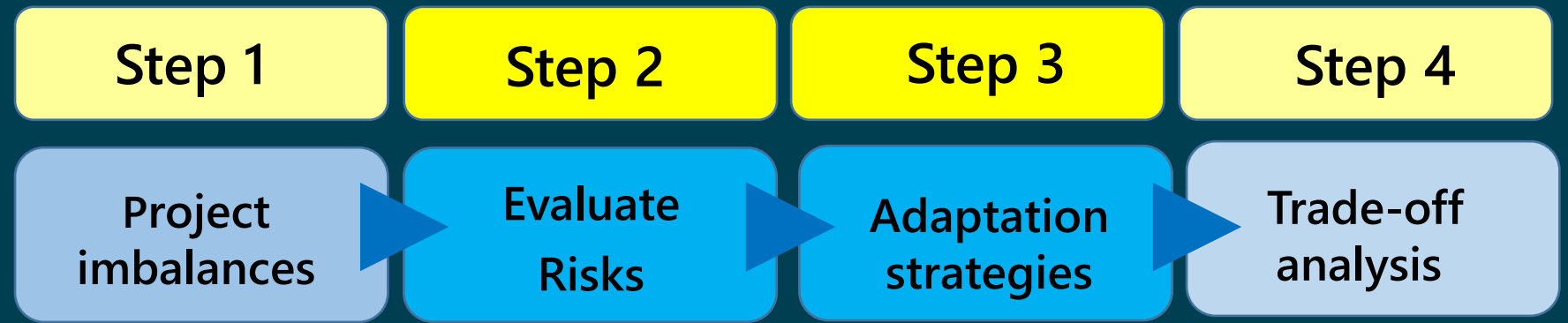
2000 - 2014

LSCR Basin Study Objectives

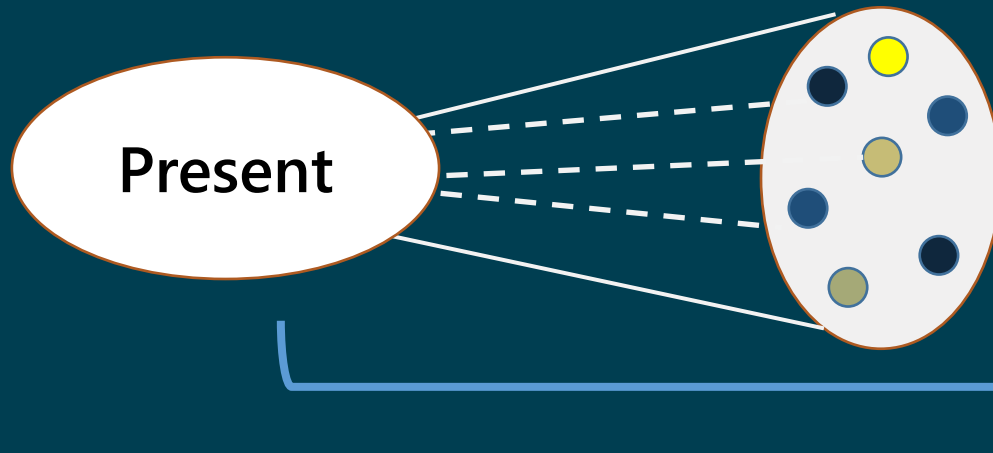
- Identify Where Physical Water Resources are Needed to Mitigate Supply-Demand Imbalances
- Develop Strategies to Improve Water Reliability for Municipal, Industrial, Agricultural and Environmental Sectors
- Study Time Horizon through 2060 to align with CR Basin Study



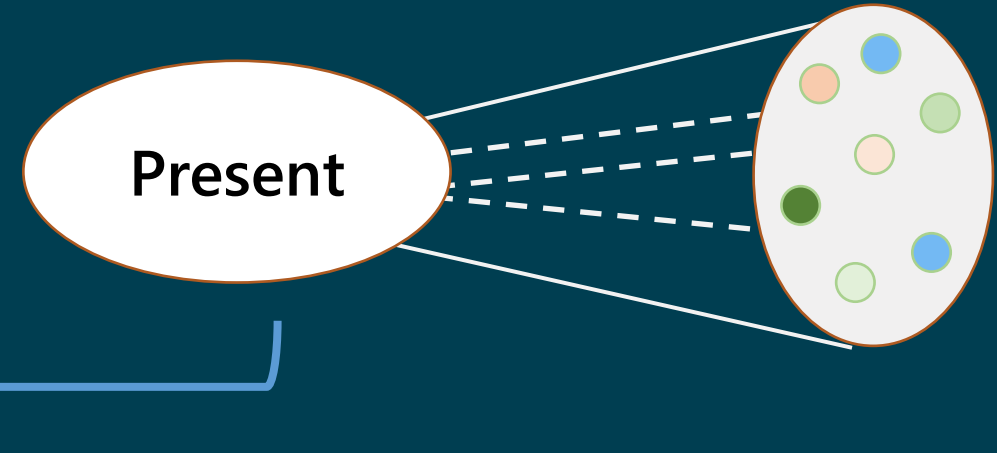
Today



Today's GW Modeling Results:
Future without Additional Adaptation



Future with
Additional Adaptation



Benefits and Costs

Study Process and Scenario Planning

Follow up to opportunities to Basin Study –

er, Eve B - Outlook X | 2021-02-19_Zoom Rehearsal Ag X | reclamation watersmart pilot op X | News Archive: Bureau of Reclam X

https://www.usbr.gov/newsroom/newsrelease/detail.cfm?RecordID=65083

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NEWS RELEASE ARCHIVE

Bureau of Reclamation initiates a new funding for water operation pilots

Funding is to further analyze and develop water management options identified in completed basin studies

Media Contact: Peter Soeth, 303-445-3615, psoeth@usbr.gov

For Release: March 13, 2019



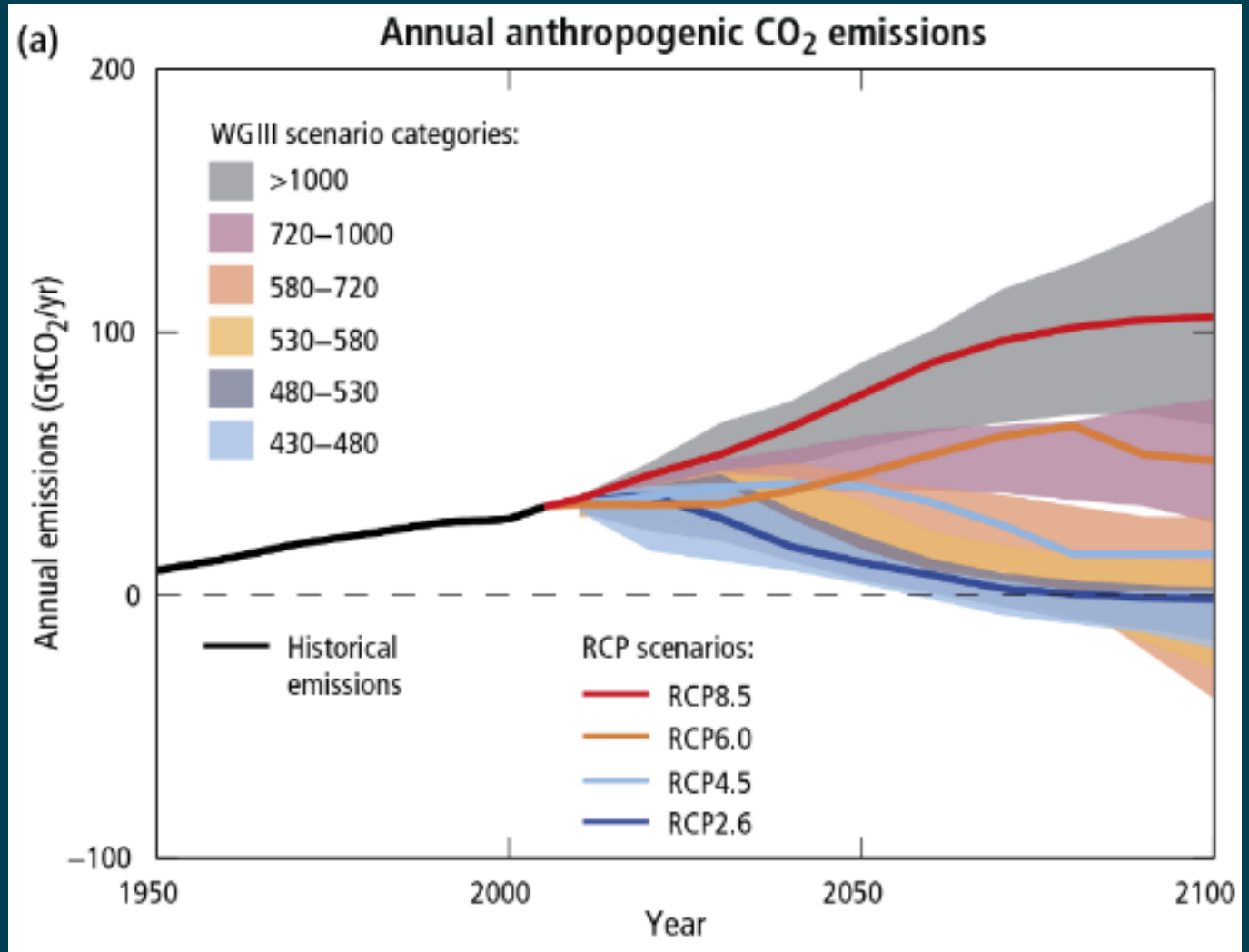
WASHINGTON — The Bureau of Reclamation has initiated a new funding opportunity through its Basin Study Program for water operation pilots. These pilot studies will allow entities that have completed a basin study to build on the analyses and strategies developed in the basin study.

"These pilots will allow Reclamation and its partners to explore strategies and apply tools and information to address water management challenges and supply and demand imbalances," Basin Study Program Coordinator Amanda Erath said.

Reclamation is making available \$4 million available for these pilots. Those interested in applying should

Representative Concentration Pathways (RCPs)

- Scenarios that include a time series of emissions and concentrations of the full suite of greenhouse gases.... •
- Used to compare results of climate models in an “apples to apples” manner



Simplified Modeling Overview

Tucson AMA Groundwater Model

Climate
Driving Forces
(Precipitation,
Temperature)

EMISSIONS
SCENARIOS
(RCP)

GLOBAL
CLIMATE
MODELS

SURFACE
HYDROLOGY
MODEL

Socio-Economic
Driving Forces
(Demographics,
Economics,
Technological,
Regulatory)

CAP SERVICE
AREA MODEL



Socio-Economic Modeling

Factors that Affect Water Supply and Demand

- Population Growth
- CAP Shortages
- Climate
- Socioeconomics
- Sector Trends
- Policy Changes
- Behavioral Shifts

“Driving Forces”

3 Growth Scenarios

Official State Projections:

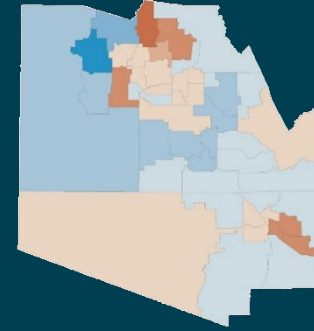
- Based on medium growth series
- Baseline growth pattern

Slow Compact Growth:

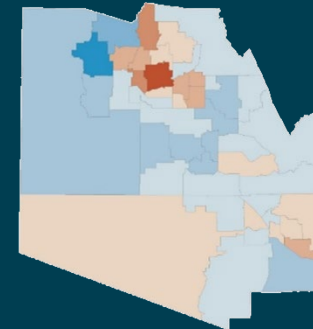
- Low growth series
- In-Fill/Redevelopment
- Water Providers with renewable water

Rapid Outward Growth:

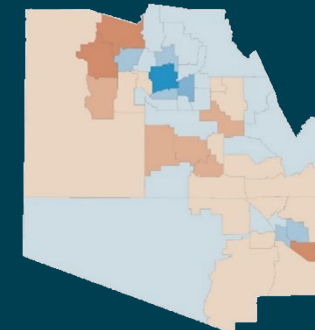
- High growth series
- Outward development
- Higher dependence on groundwater



Redevelopment



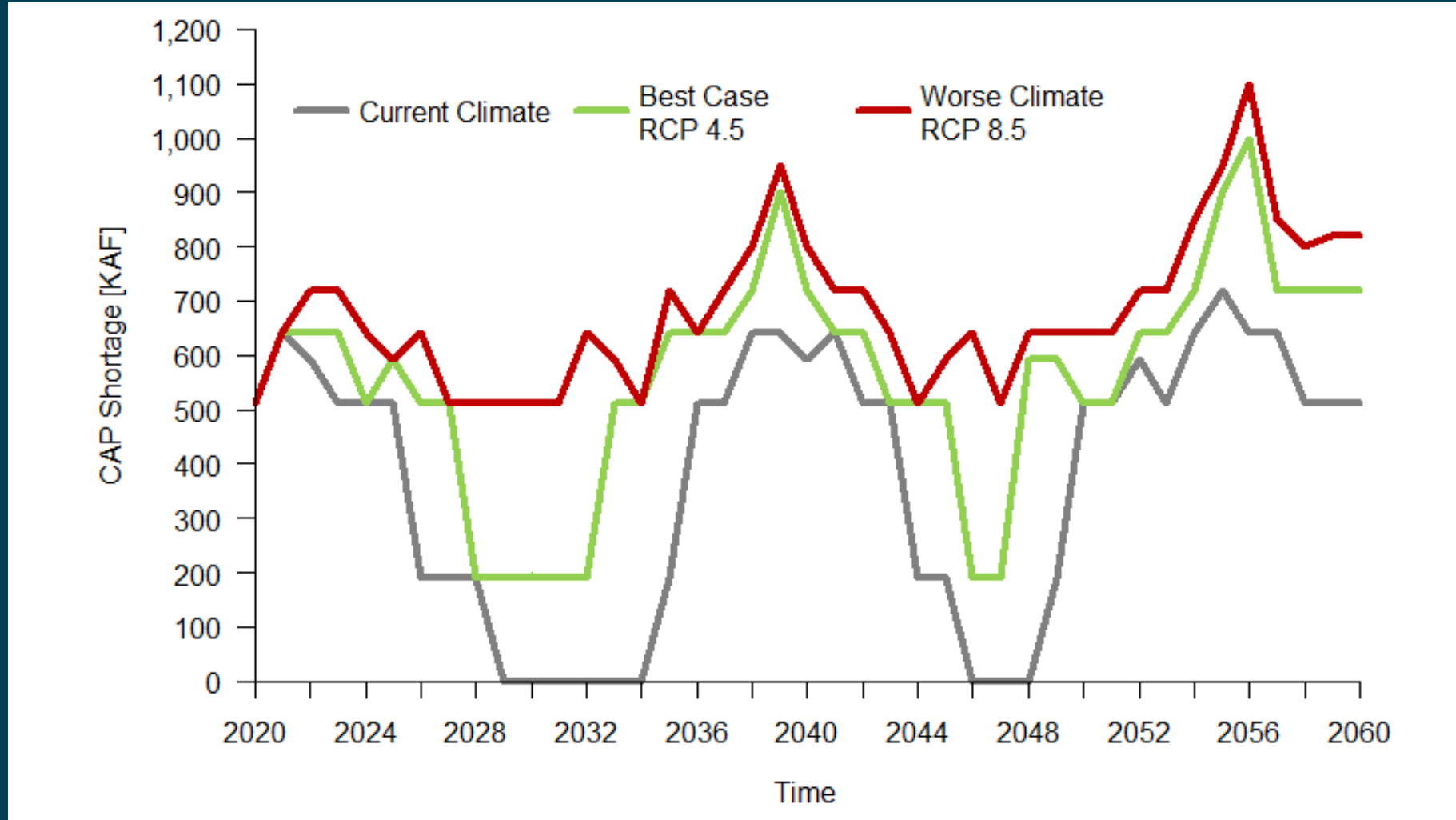
Infill



Outward Growth



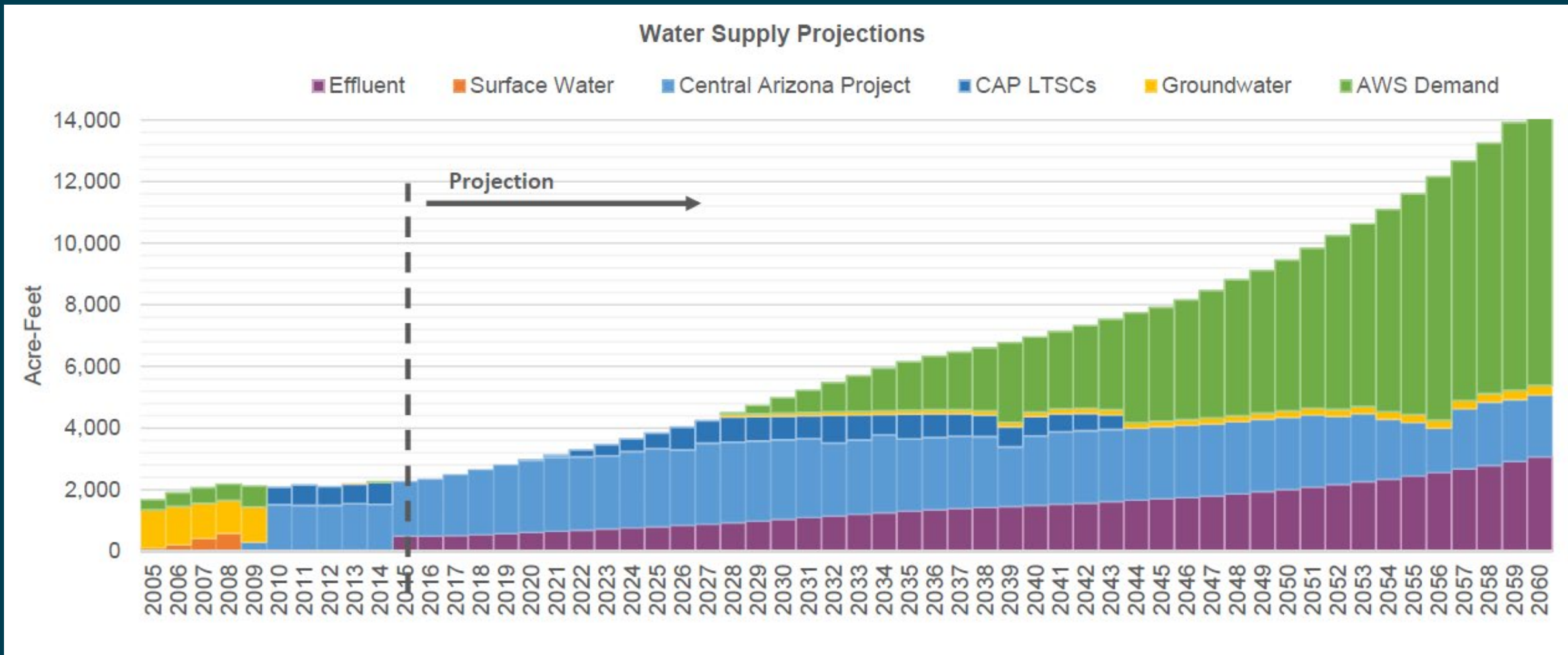
Simulated CAP Shortages



“Synthetic” shortage sequences simulate periods of reduced supply and test system resilience

CAP-Service Area Model – CAP:SAM

- Model Runs for six Climate-Growth Scenarios and 26 Water Providers



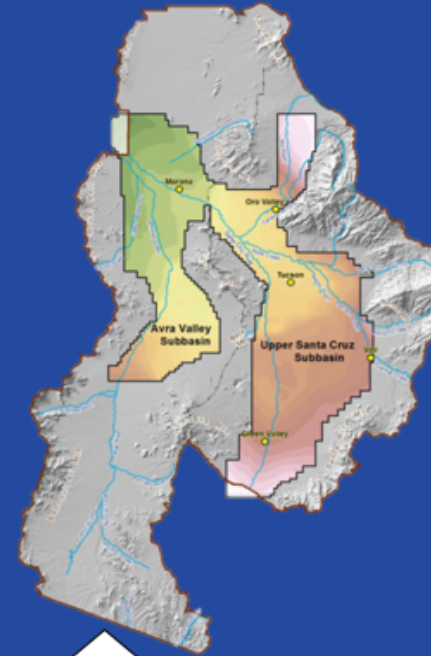
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Technological,
Regulatory)

CAP SERVICE
AREA MODEL


EMISSIONS
SCENARIOS
(RCP)



Six Scenarios

- A. *Official Projections*. Medium, mixed-density growth and Current climate
- B. Slow, compact growth and *Best Case* climate
- C. Rapid, outward growth and *Best Case* climate
- D. Slow, compact growth and *Worse Case* climate
- E. Official Projections and *Worse Case* climate
- F. Rapid, outward growth and *Worse Case* climate

		Growth		
		Slow, Compact	Medium, Official	Rapid, Outward
Climate	Worse Case	D	E	F
	Best Case	B		C
	Current Climate		A	



2018-05-08