WHERE ARE WE NOW?

The Gila River
and the
Arizona Water Settlements Act

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THE ARIZONA WATER SETTLEMENTS ACT

- **Up to $128 Million (indexed for inflation)**
- **Up to 140,000 acre-feet any 10 years**
  - ✓ **Measured as consumptive use**
- **Decision to develop water or not due by end of 2014**
  - ✓ **No water = lose up to $62M**

THE 2004 AWSA: WHO DECIDES?

- **NMISC determines allocation of the initial $66M — must meet "a water supply demand"**
- **Any $ above $66M is only for water development**
- **The contract for the water is between the Secretary of Interior and NM water users — NMISC must approve contract**
- **NM may opt to design, build, operate, and own any facilities to develop the water**
- **Requires a favorable ROD by 2019 (or 2030 if delayed through no fault of NM)**

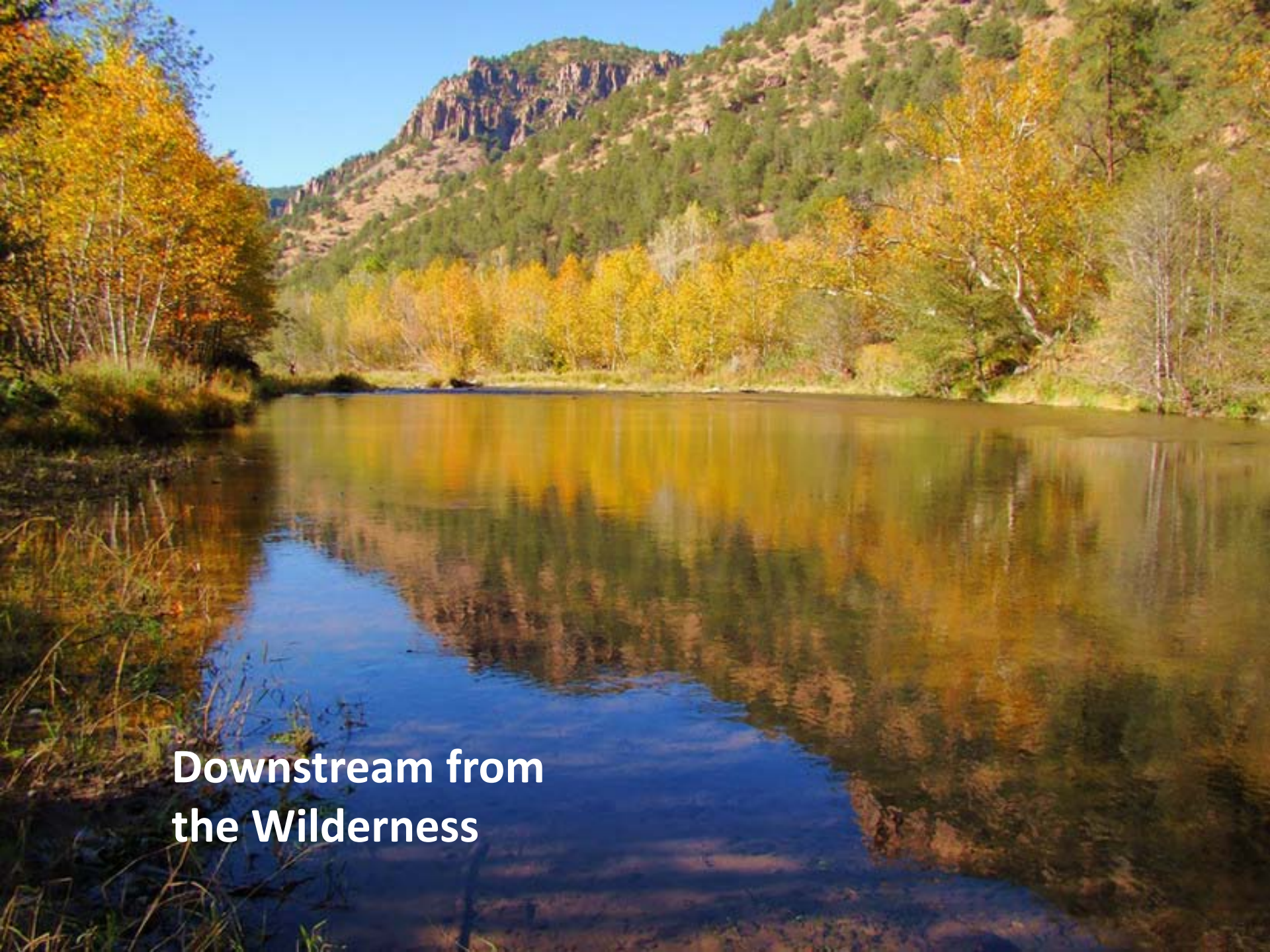
ISC Gila Policy
(Sept 2004)

"The Interstate Stream Commission recognizes **the unique and valuable ecology of the Gila Basin**. In considering any proposal for water utilization under Section 212 of the Arizona Water Settlements Act, the Commission will **apply the best available science** to fully assess and mitigate the ecological impacts on Southwest New Mexico, the Gila River, its tributaries and associated riparian corridors, while also considering **the historic uses of and future demands for water in the Basin and the traditions, cultures and customs affecting those uses.**"

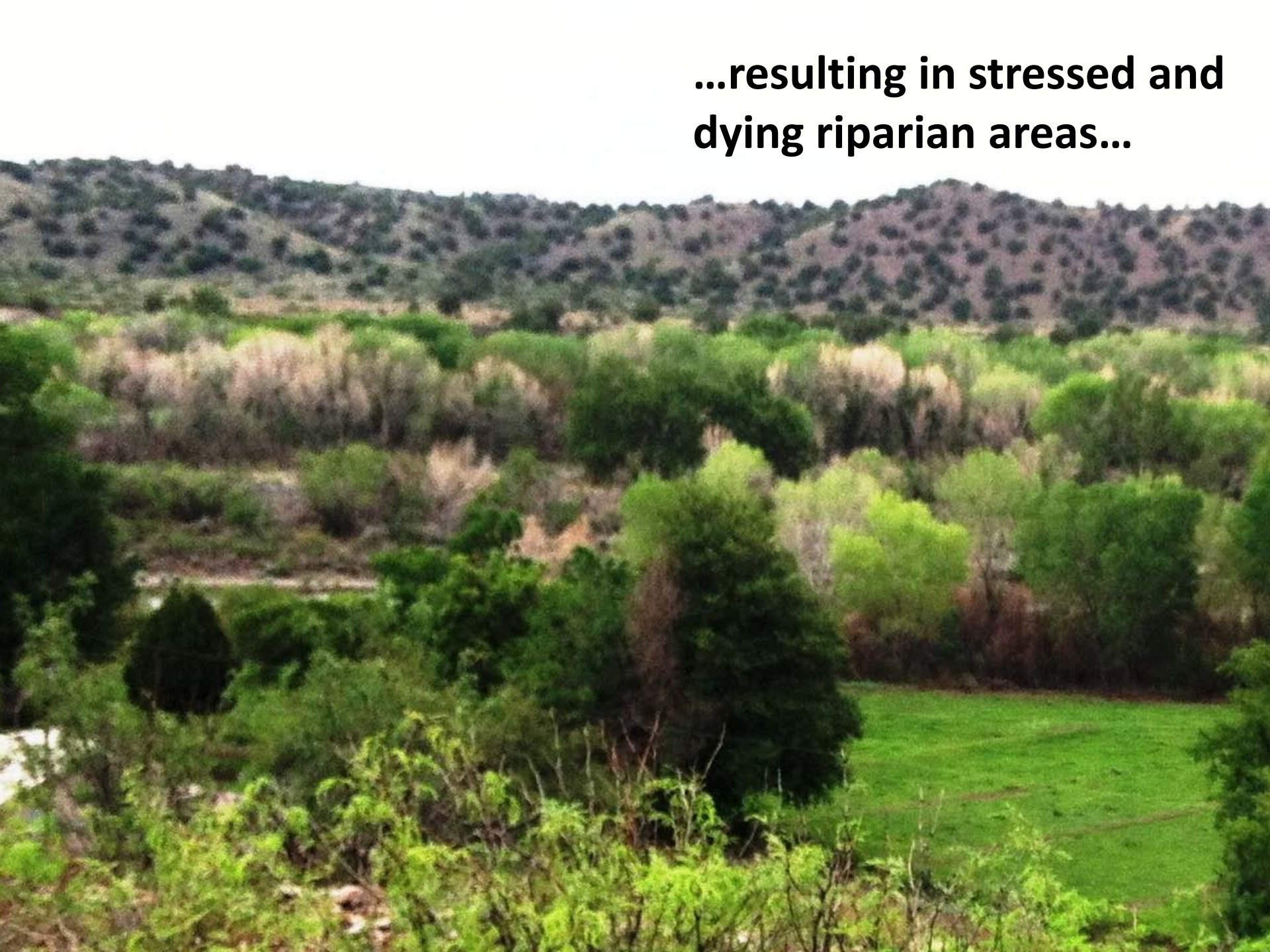
WHAT MIGHT INFLUENCE DECISIONS ON THE GILA?

- Legal issues?
- Municipal needs?
- Environmental concerns?
- Agricultural needs?
- Cultures/Demographics?
- Costs/Economics?
- Politics/NGO's?


The Gila in the Wilderness


Downstream from
the Wilderness


Just a bit further downstream, in the Cliff-Gila Valley, the Gila is often intermittent or dry for miles…
June 10, 2013


…resulting in stressed and
dying riparian areas…

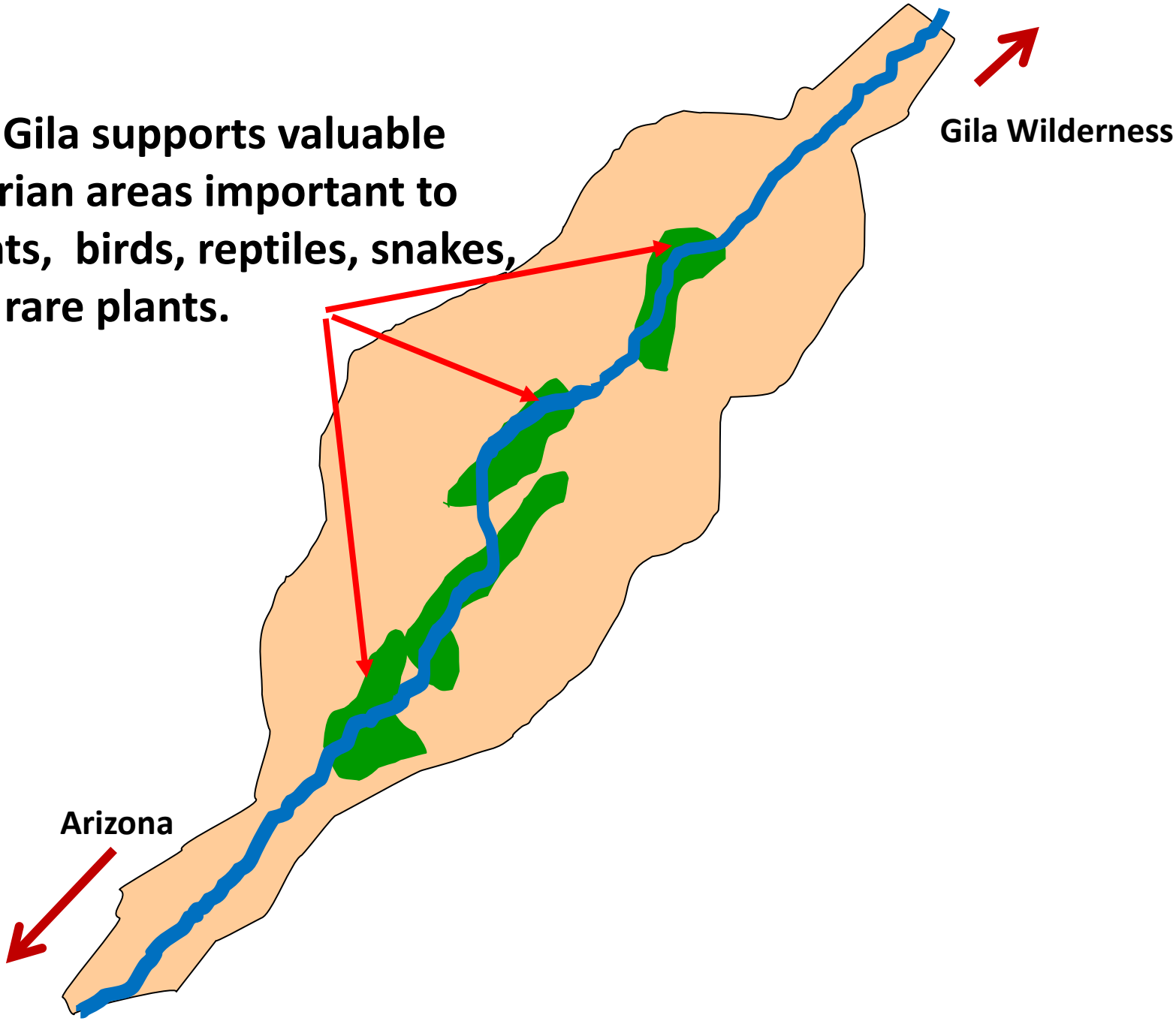

…and diminished habitat
for aquatic species


Further downstream
steady flow returns…

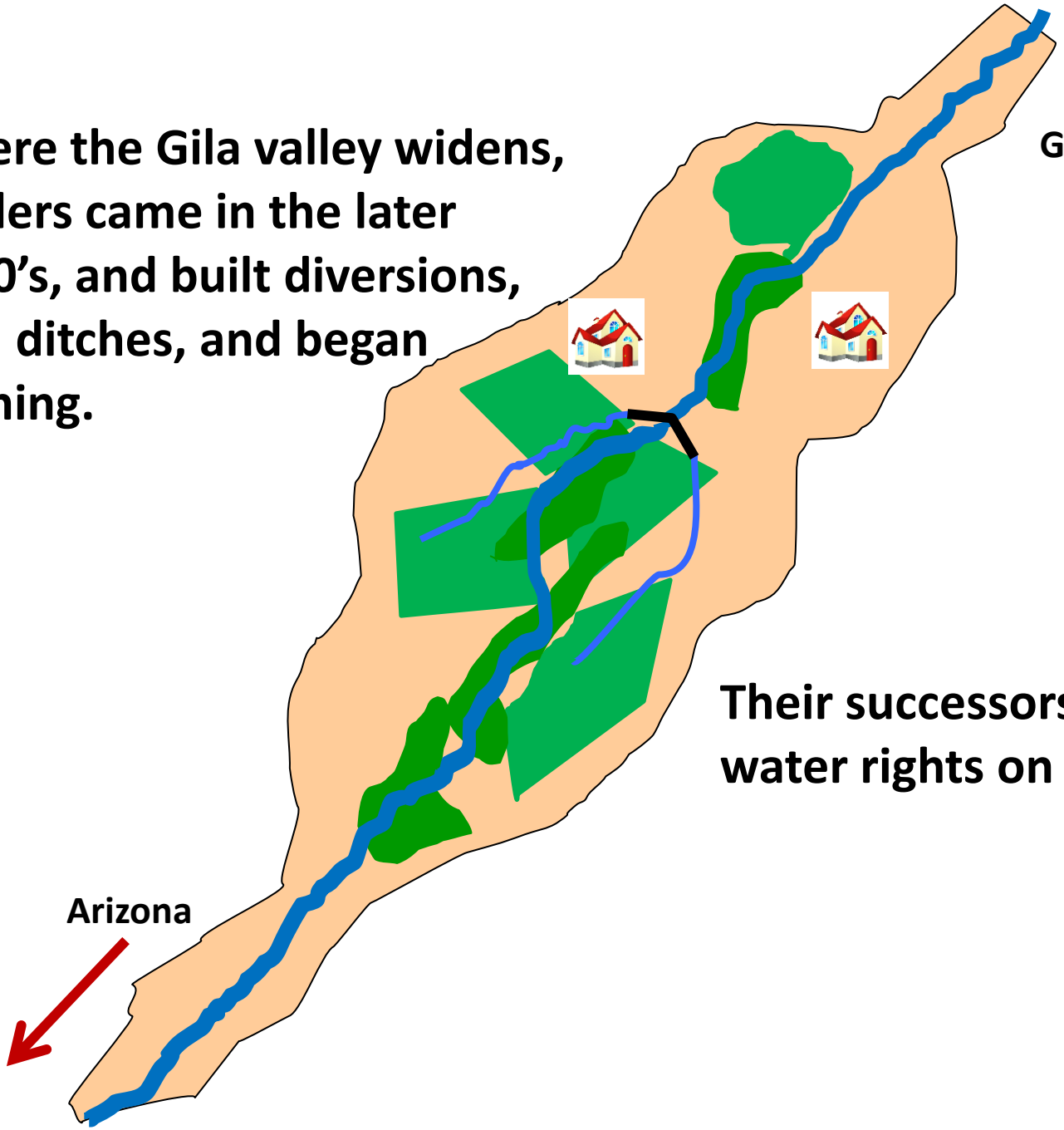

…but even longer dry stretches
return towards the AZ/NM border
What causes the river to dry up?


Gila Wilderness
This is the Gila River in New Mexico.
Upstream is the Gila Wilderness,
downstream is Arizona
Arizona

The Gila supports valuable riparian areas important to plants, birds, reptiles, snakes, and rare plants.

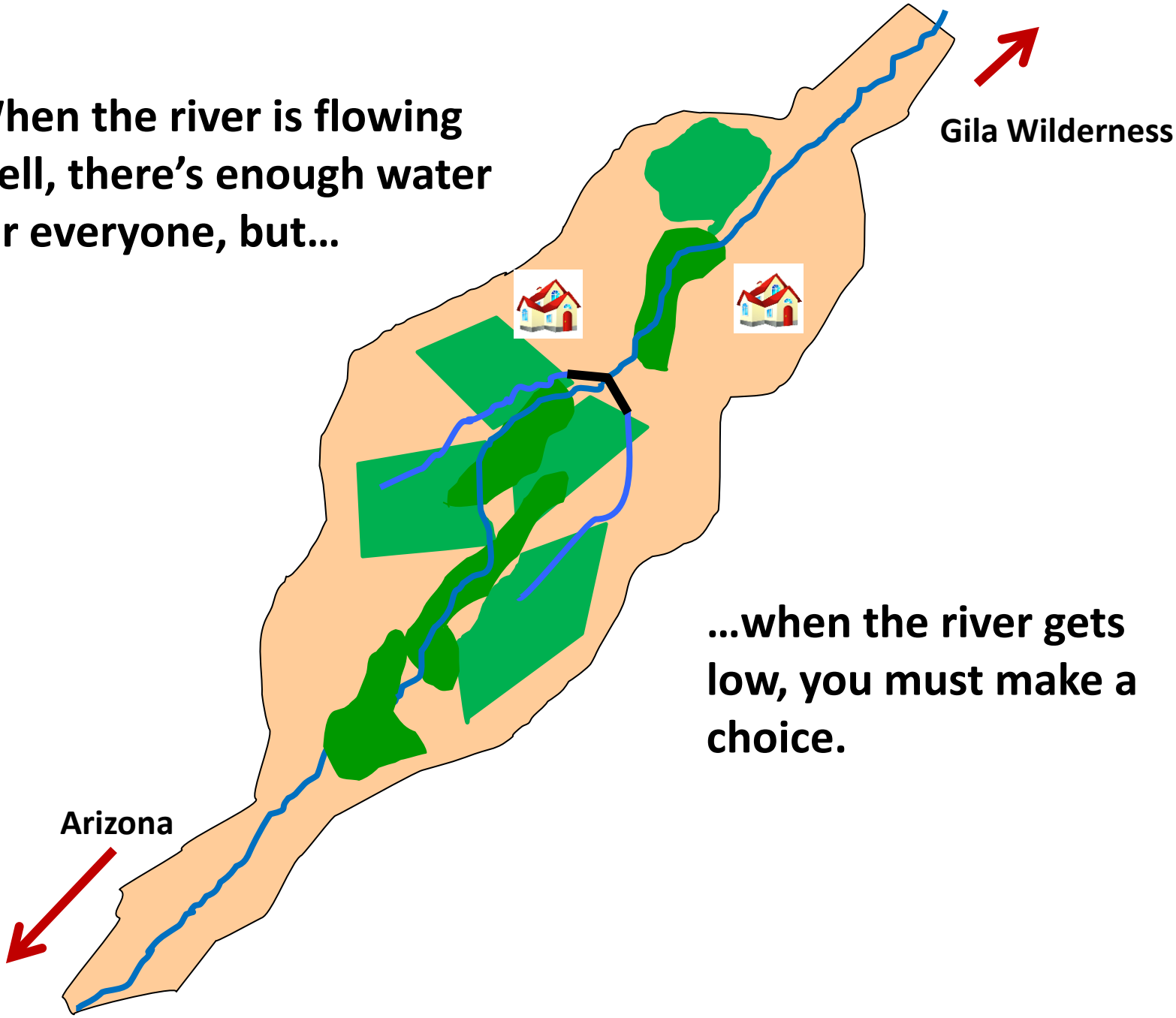


Where the Gila valley widens, settlers came in the later 1800's, and built diversions, dug ditches, and began farming.



Their successors have the senior water rights on the Gila.

When the river is flowing well, there's enough water for everyone, but…

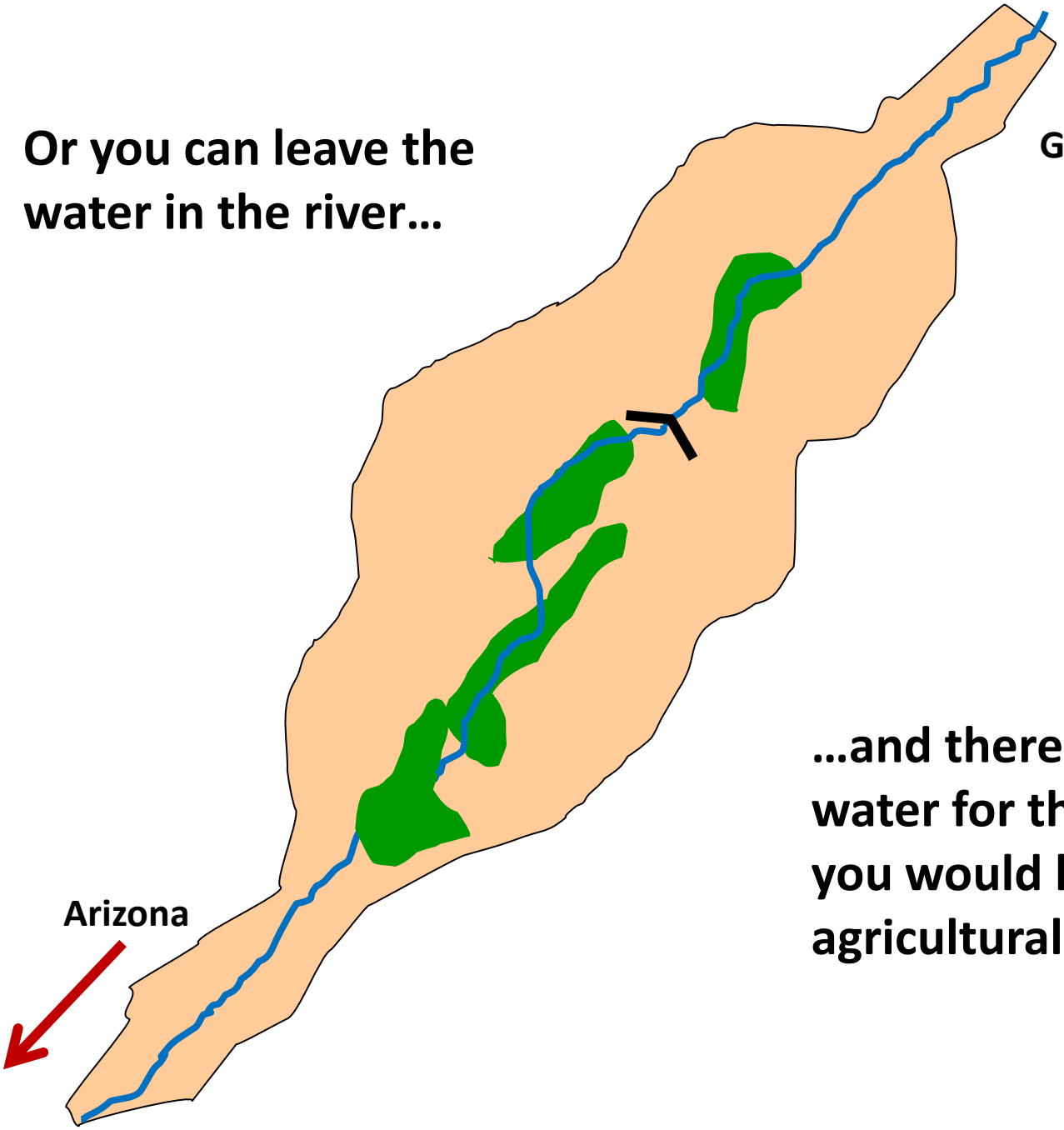


…when the river gets low, you must make a choice.

You can leave the water in the ditches…

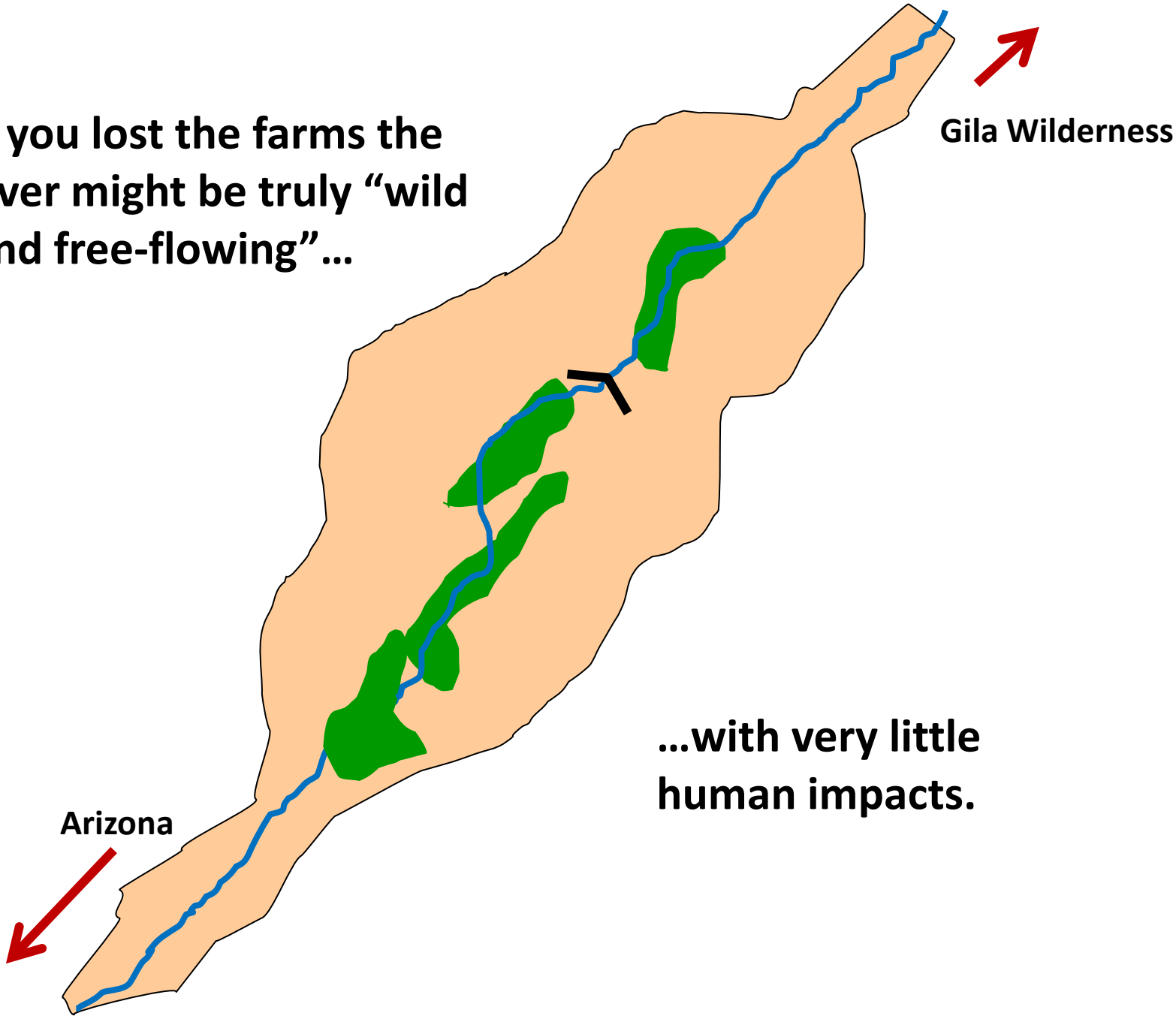
…but then there's not enough water for the river, and you lose riparian and aquatic habitat.

Or you can leave the water in the river…



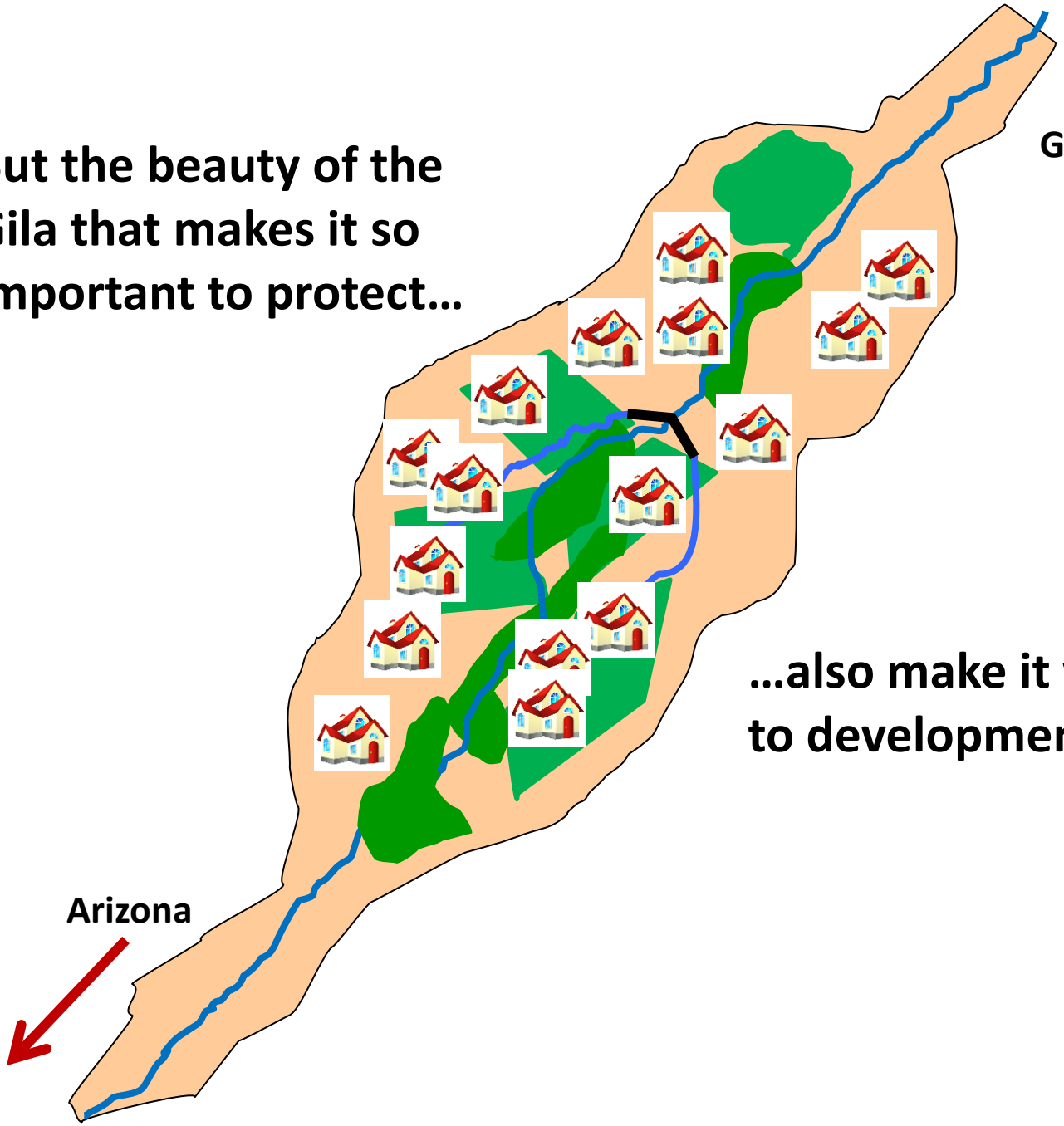
…and there will be no water for the farms and you would lose the agricultural community.

If you lost the farms the river might be truly “wild and free-flowing”…



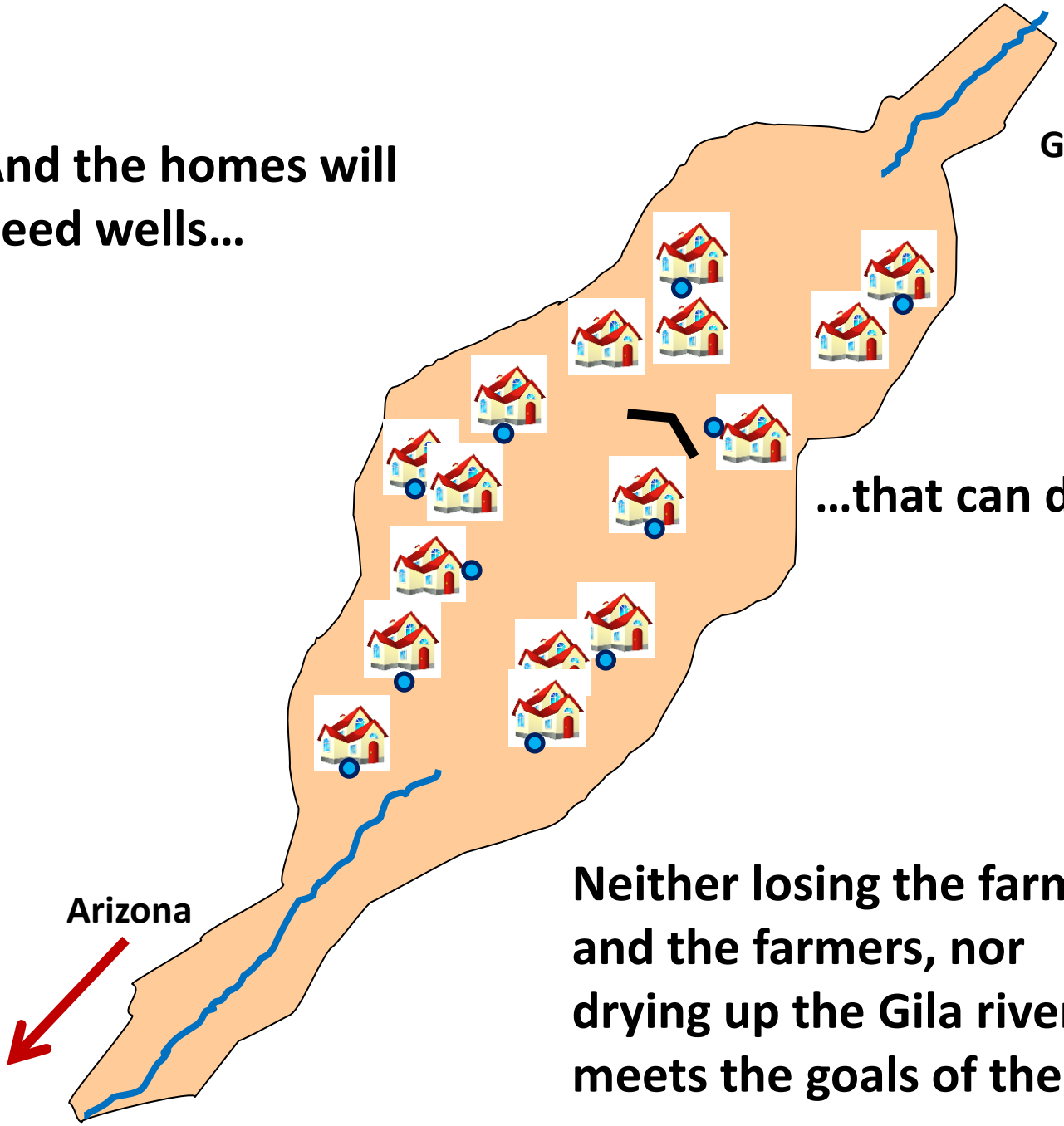
…with very little human impacts.

But the beauty of the Gila that makes it so important to protect…



…also make it very attractive to development…

And the homes will need wells…



…that can dry up the Gila.

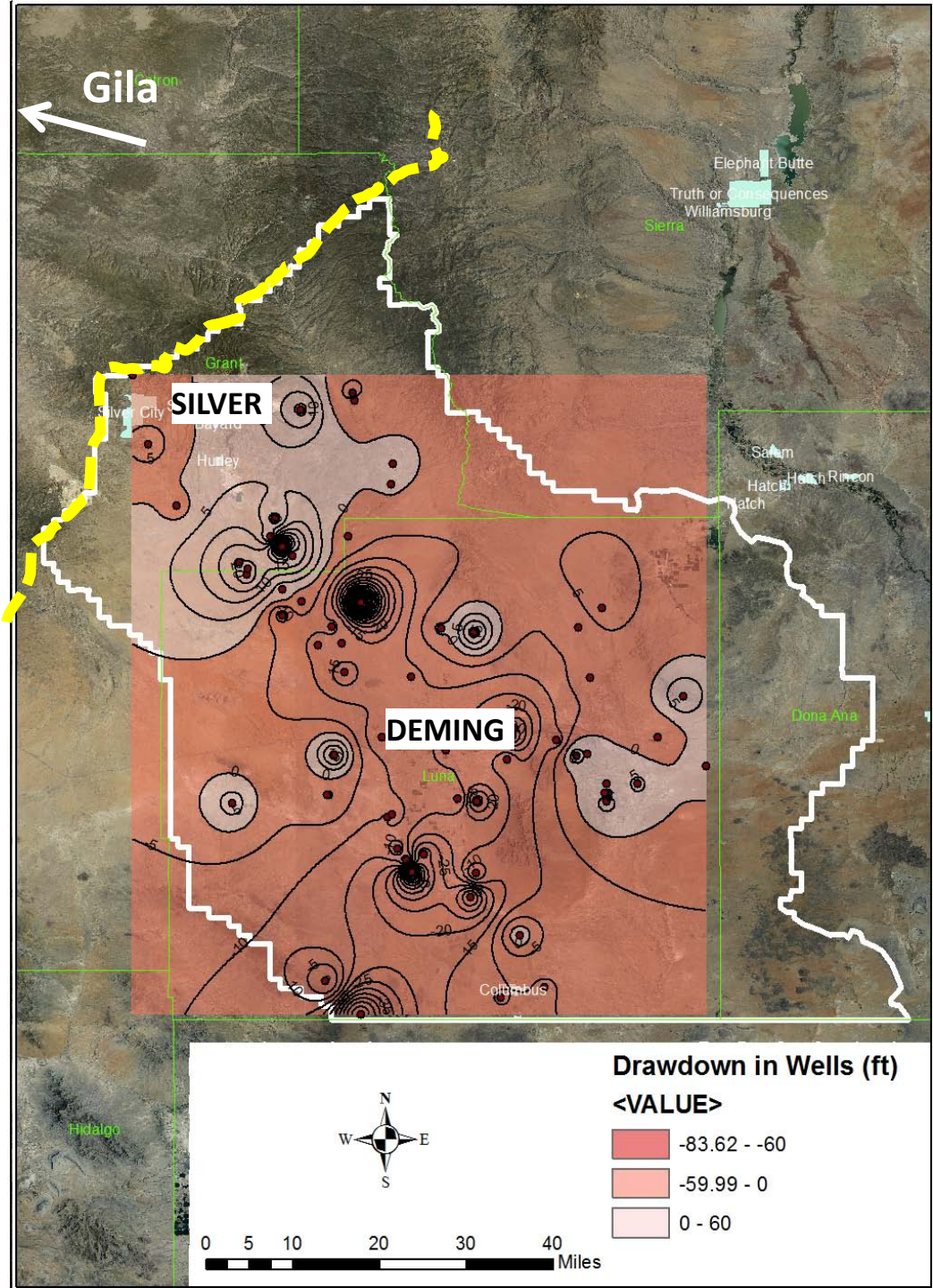
Neither losing the farms and the farmers, nor drying up the Gila river meets the goals of the ISC.

There are water shortages all throughout SW New Mexico

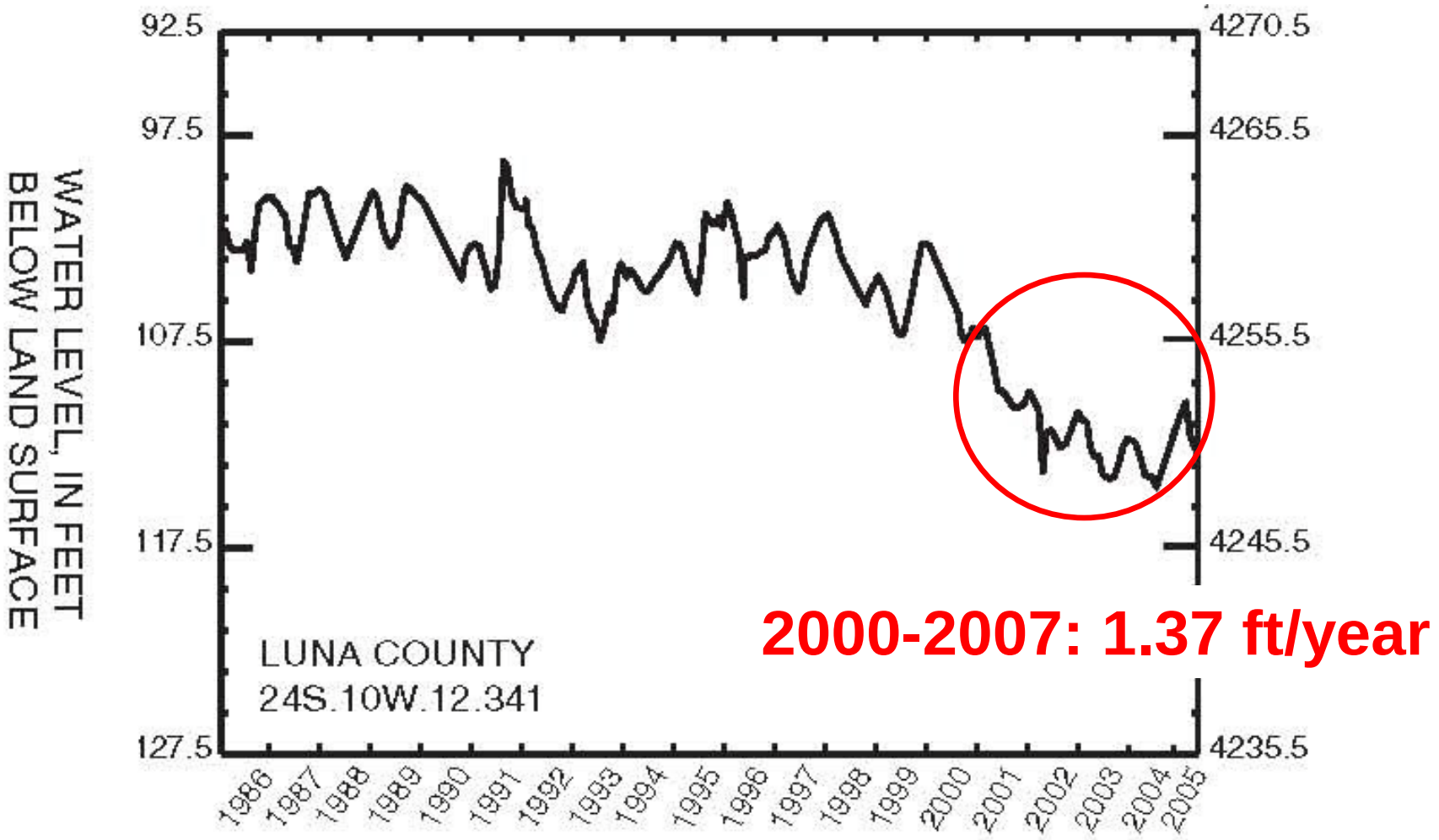
Mimbres Basin Aquifer:

Annual deficit:
30,000 AF/Y

Average decline:
0.3 ft/Y



Declines in groundwater levels are even more alarming in Luna County [1]



[1] *Water Resources Data-New Mexico, Water Year 2005, USGS, 2006*

WHO WANTS WATER IN SW NM?

- **Agriculture - 30,000 AF to 50,000 AF?[1]**
- **Municipalities - 2,500 AF to 14,000 AF?**
- **The environment - 500 AF to 1500 AF?**
- **Biofuels - 10,000 AF to 30,000 AF?**
- **Industries – 500 AF to 50,000 AF?**

45,000 AF? to 160,000 AF?

1 — Includes 30,000+ AFY Mimbres deficit

WHERE ARE WE NOW?

- 10 years trying for a consensus
- Led to NMISC Two-Tiered evaluation process
- 21 proposals advanced to Tier-2
  - Rankings by evaluation panel (ISC, OSE, NMED, EMNRD, and G&F)
  - Rankings by Gila San Francisco Water Commission
  - NM First Town Hall on the Gila
- The NMISC accepted 16 proposals for further study and evaluation (one withdrew)

15 PROPOSALS BEING EVALUATED

Municipal Conservation (1)

Wastewater Reuse (2)

Ditch Improvements (3)

Watershed Improvement (5)

Diversion & Storage (4)

EACH PROPOSAL EVALUATED FOR:

- Technical feasibility and design options
- Environmental impacts
- Cultural considerations
- Economics/cost
- Water yield

— $2.8M Budget

OTHER STUDIES

- Agricultural Conservation
- Wetlands study
- TNC's IHA model and ecologic study
- Climate change
- 24+ studies in all

Municipal Conservation

- **Silver City**
  - **Total annual pumping = 2850 AFY[1]**
  - **50% savings = 1425 AF/Y?**
- **Deming**
  - **Total annual pumping = 2856 AFY[1]**
  - **50% savings = 1428 AF/Y ?**

1 – Total supplied to all customers, from municipal water audits

WASTEWATER REUSE

- **Deming**
  - **200 AFY[1]**
- **Grant County Water Commission**
  - **750 AFY[2]**

1 – Engineer's calculations

2 – Maximum possible, may be significantly less depending on permit, municipal conservation

DITCH IMPROVEMENT SAVINGS

- Pleasanton Ditch
  - 180 AFY
- Luna Ditch
  - 64 AFY
- Sunset/New Model Ditch
  - 183 AFY
- Catron County Ditches (10)
  - 204 AFY

- Savings estimated as 20% of annual average diversion
- Does not include environmental impacts of reduced seepage and return flows?

WATERSHED IMPROVEMENTS

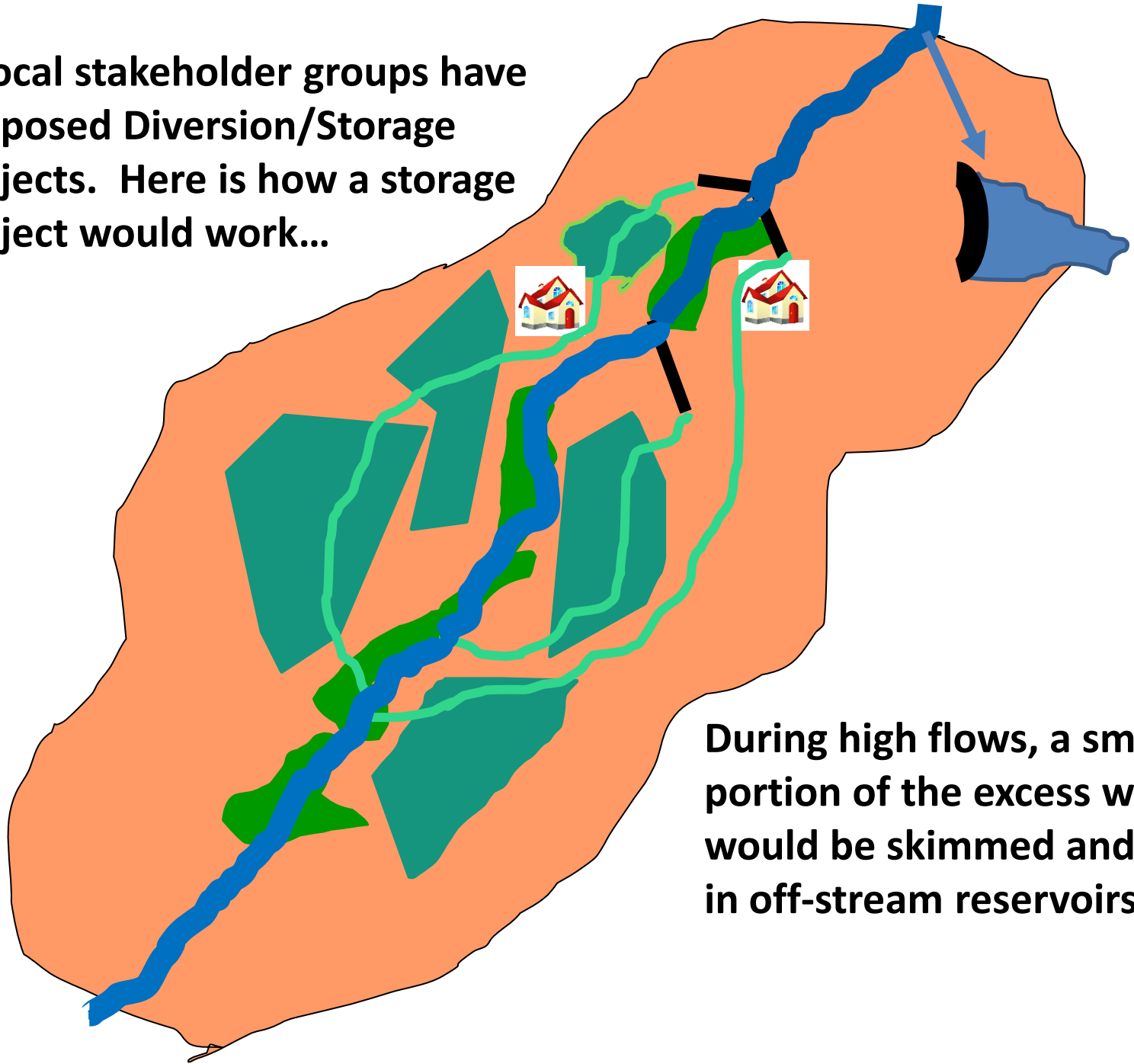
- Some studies predict water losses
- Some studies predict water savings
- Three proposals just to study effects
- Two proposals for tree thinning
- No consistency in approach or results among eight scientists in a watershed workgroup

AWSA Water

- Gila Basin Irrigation Comm.
- Hidalgo County
- Grant County Reservoir

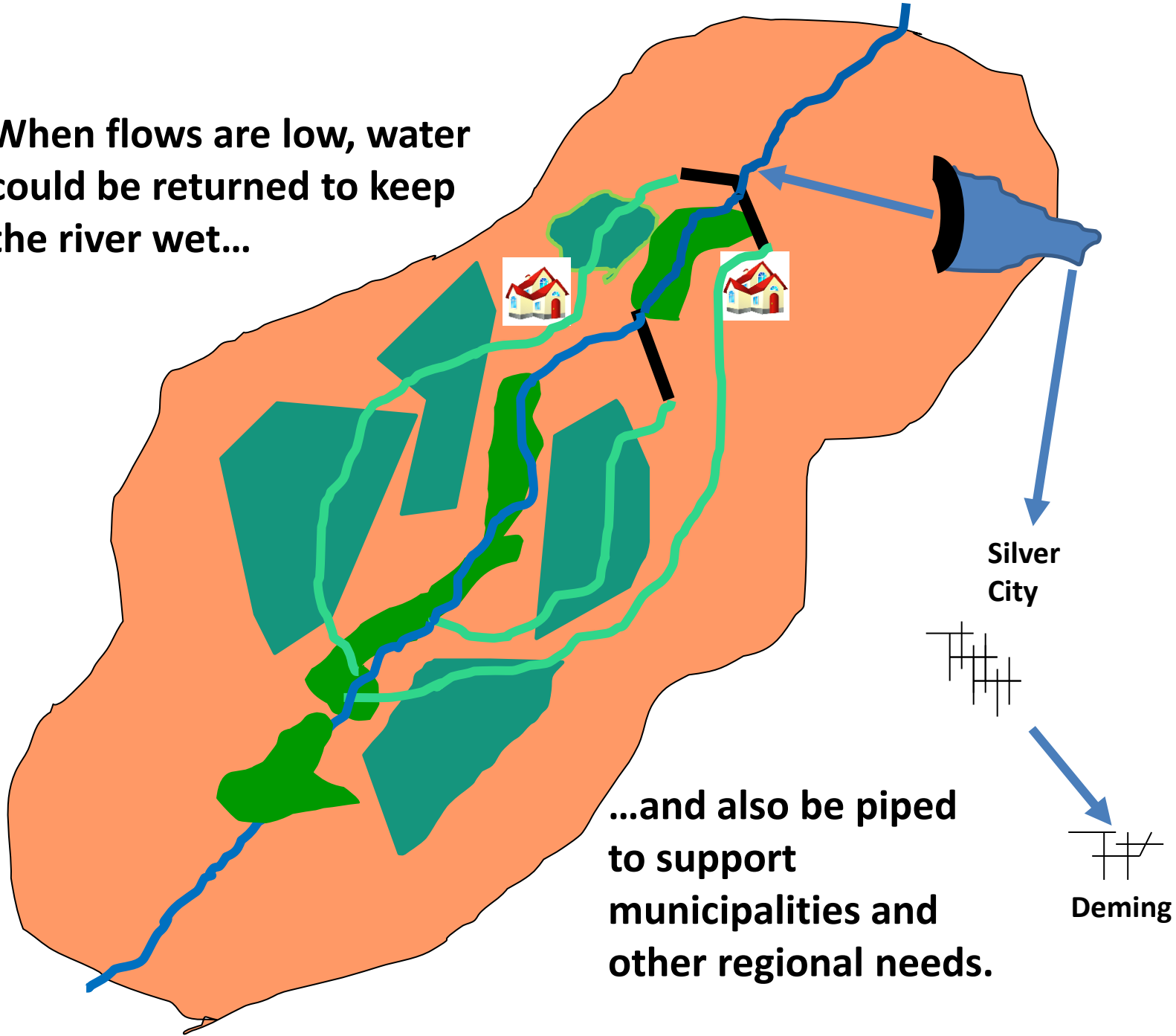
- Deming Regional Water Supply System
- All AWSA water proposals integrated
- Safe yield 7,000 AF to 10,000 AF?

3 Local stakeholder groups have proposed Diversion/Storage Projects. Here is how a storage project would work…

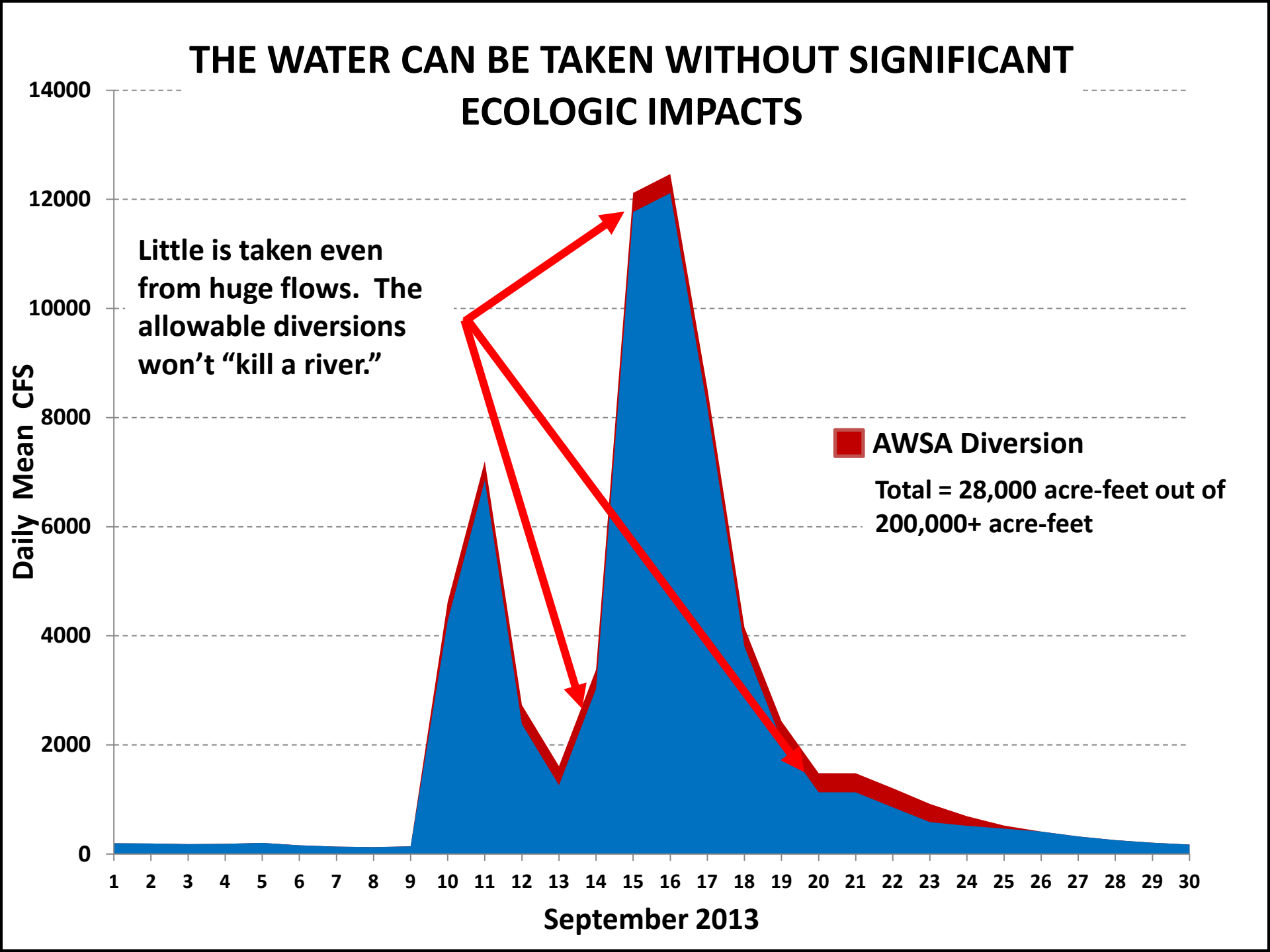


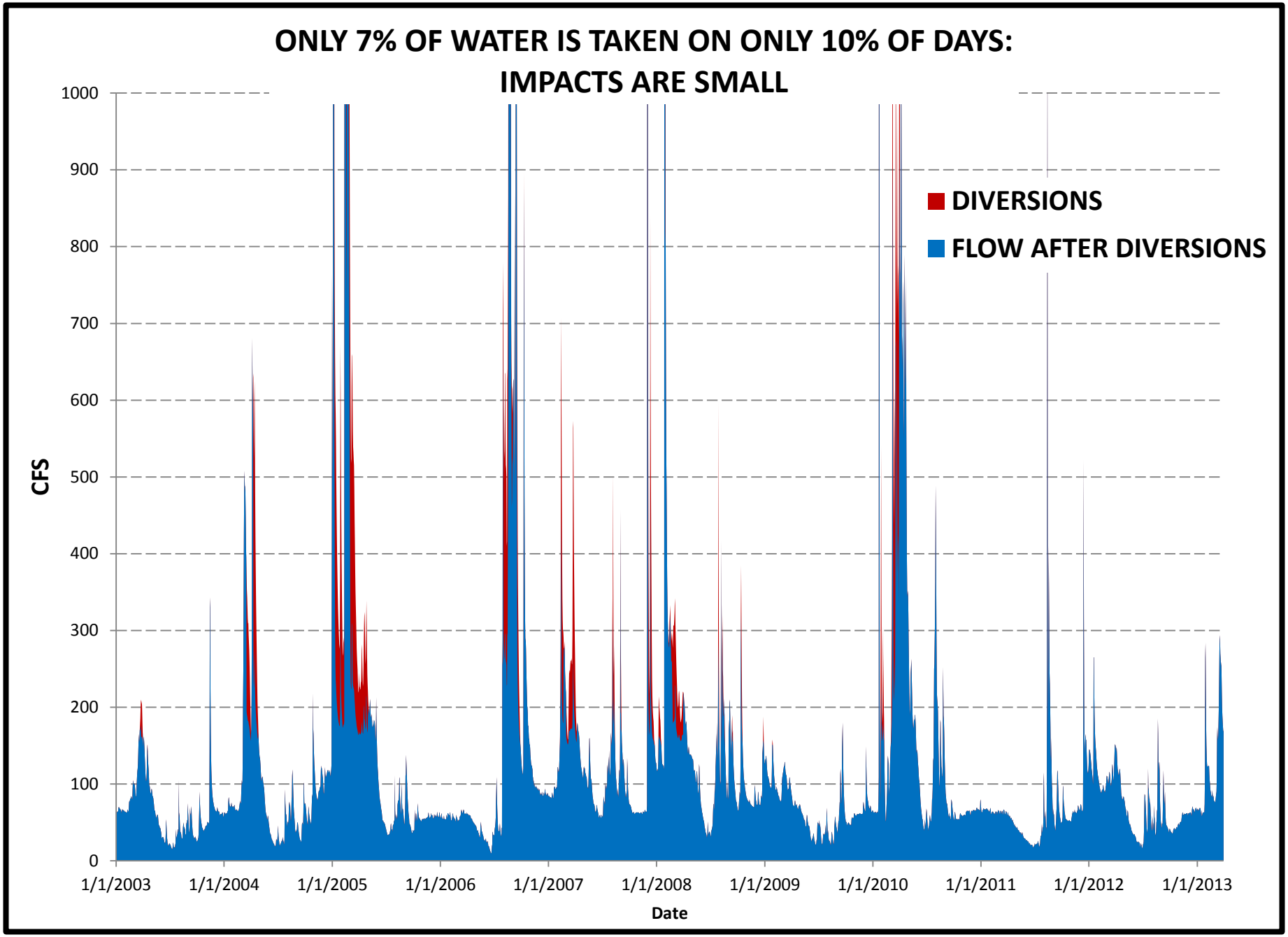
During high flows, a small portion of the excess water would be skimmed and stored in off-stream reservoirs.

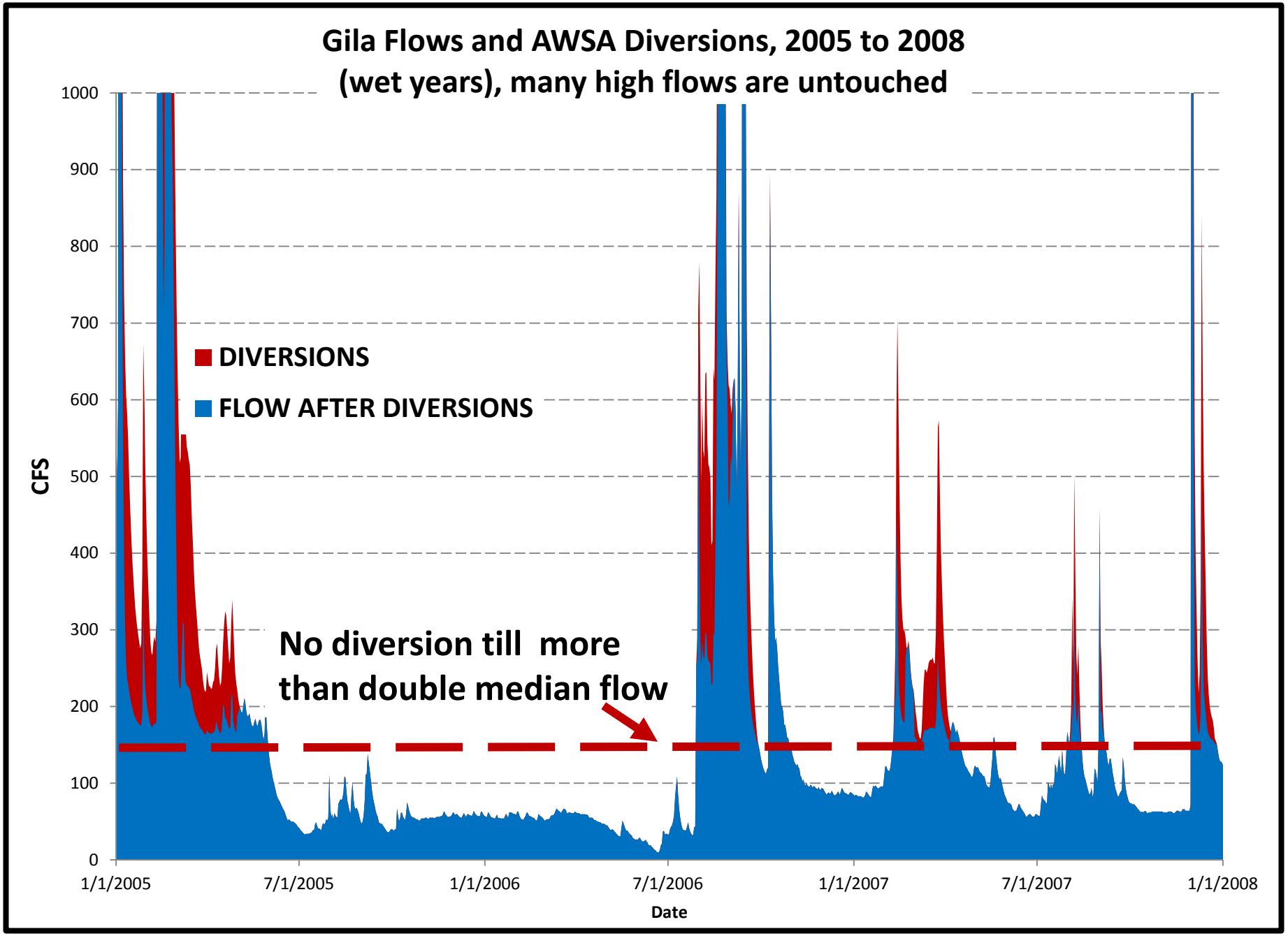
When flows are low, water could be returned to keep the river wet…

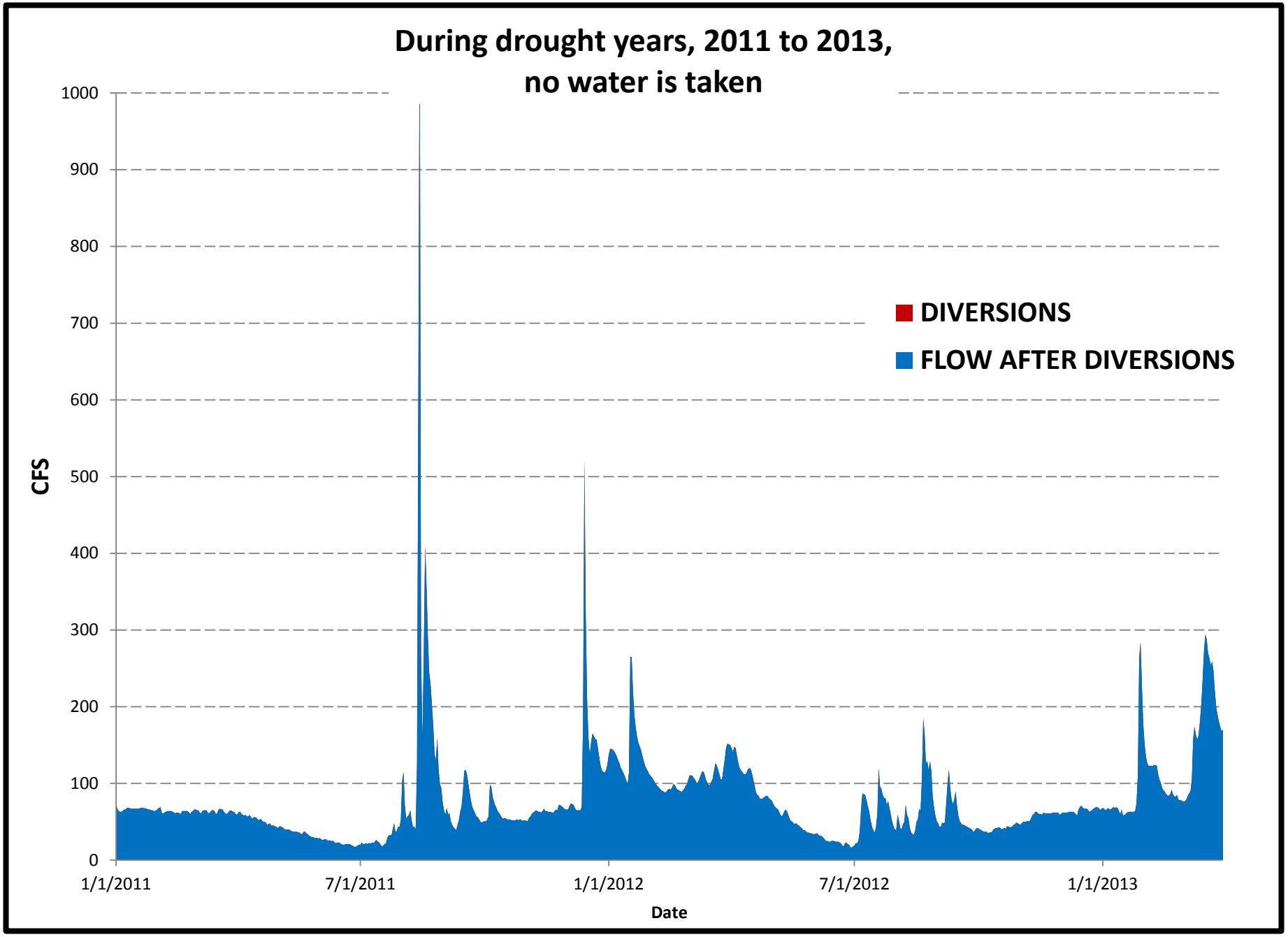


…and also be piped to support municipalities and other regional needs.


THE WATER CAN BE TAKEN WITHOUT SIGNIFICANT ECOLOGIC IMPACTS
Little is taken even from huge flows. The allowable diversions won't "kill a river."
AWSA Diversion
Total = 28,000 acre-feet out of 200,000+ acre-feet
Daily Mean CFS
14000
12000
10000
8000
6000
4000
2000
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
September 2013


ONLY 7% OF WATER IS TAKEN ON ONLY 10% OF DAYS:
IMPACTS ARE SMALL
DIVERSIONS
FLOW AFTER DIVERSIONS
CFS
1000
900
800
700
600
500
400
300
200
100
0
1/1/2003
1/1/2004
1/1/2005
1/1/2006
1/1/2007
1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
Date


Gila Flows and AWSA Diversions, 2005 to 2008
(wet years), many high flows are untouched
DIVERSIONS
FLOW AFTER DIVERSIONS
No diversion till more
than double median flow
CFS
1000
900
800
700
600
500
400
300
200
100
0
1/1/2005
7/1/2005
1/1/2006
7/1/2006
1/1/2007
7/1/2007
1/1/2008
Date


During drought years, 2011 to 2013,
no water is taken
1000
900
800
700
600
500
400
300
200
100
0
CFS
DIVERSIONS
FLOW AFTER DIVERSIONS
1/1/2011
7/1/2011
1/1/2012
7/1/2012
1/1/2013
Date

CLIMATE CHANGE/GILA FLOW REDUCTION

- **Reclamation Colorado River Basin Study: -9%**
- **TNC/University of Arizona: -6% average, -15% median**
- **UNM Climatologist: -7.4% and -8%**

Modeled[1] -10% stream flow reduction = -3% in yield
Modeled[1] -20% stream flow reduction = -9% in yield

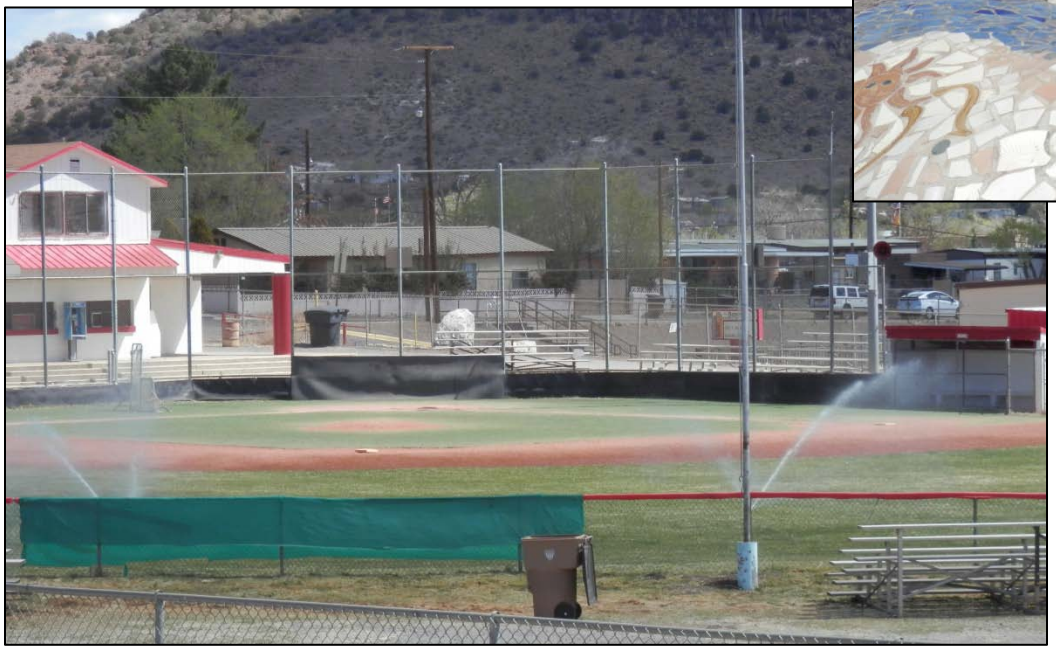
1 — ALL daily stream flows and San Carlos storage reduced by percentage


If you could store
water when
there’s an excess…


…and release some for the ecology and farmers when the river's like this…
June 10, 2013

…you could meet two needs with the same drop of water.

We could also use the stored water to…



…help sustain and improve the quality of life…

…improve the regional economy…

…and bring new jobs.

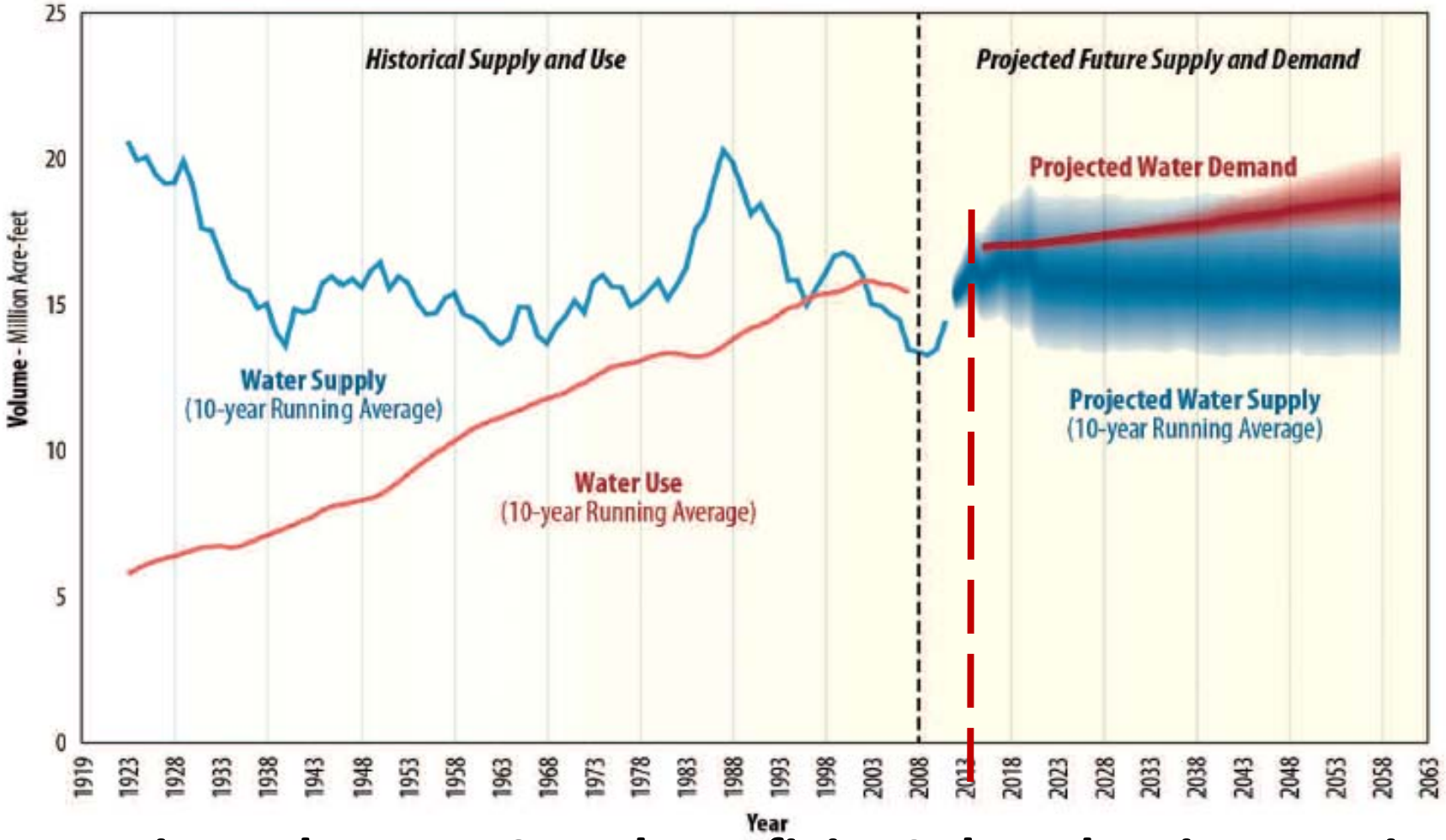
AWSA WATER WILL NOT BE CHEAP:

- **$200M to $500M infrastructure costs?**
- **$1M to $3M annual operating costs?**

FUTURE COSTS (If AZ doesn't take it):

- **If NM waits 10-20 years — $1B?**
- **If NM waits 20-40 years — $5B?**

There is a Water Supply Deficit in the Colorado River Basin



Projected Water Supply Deficit, Colorado River Basin

HEADLINES THROUGHOUT THE COUNTRY:

A New Frontier in Water Wars Emerges in the East

Water War: Stakes high in Montana-Wyoming legal battle

Congress puts focus on new reservoirs for California

BALANCE BETWEEN FARMS AND FISH SOUGHT IN OREGON WATER ACCORD

Snow shortage worries Yakima River water users

WHERE WILL WATER FOR SW NM COME FROM?

- **Municipal conservation - 3,000 AFY?**
- **Watershed restoration - +-2,000 AFY?? Maintenance$**
- **Effluent reuse - 1,000 AFY? Or less with conservation?**
- **Mine aquifers – 30,000+ AFY deficit now! Pumping $?**
- **Ditch improvements - 600 AFY??**
- **Drip irrigation - More consumption (8% - 48%)**
- **Import water - Where from?**
- **Import our food - At what cost? At what risk?**
- **Deep Aquifers/Desal - Pumping $? Disposal $?**
- **AWSA Water – 7,000 AFY to 10,000 AFY?**

THE NUMBERS

THE NEEDS:

- Minimum needs = 45,000 AF/Year
- Mimbres deficit alone = 30,000+ AF/Year
- Ag + watershed + reuse + muni + AWSA = 17,000 AF/Y

WHAT WE WILL HAVE TO DO:

- Develop new water
- Municipal conservation
- Ag conservation/crop changes
- Tap aquifers
- Change lifestyles 

THE CONFLICTS:

ECONOMICS, COSTS, LEGAL ISSUES, SPECIAL INTERESTS, POLITICS, LIFESTYLES, …

THE BASIC PROBLEM:

THERE ISN'T ENOUGH WATER

JUST RESOLVING THE CONFLICTS WON'T SOLVE THE PROBLEM!

I'll start with a glass of the

Animas Desalinated Deep Well?

and she'll have your

2017 Sparkling Silver City Toilet to Tap Reserve

Of course… might I also suggest a bottle of our excellent

2015 Vintage Deming Aquifer?