



**CHASE SARAIVA**

HEAD BREWER



# MISSION STATEMENT

Arizona Wilderness Brewing Company has a true passion for its craft. It is a passion which stems from the owner exploration of the vastly diverse state of Arizona. They allow their love for Arizona to influence their vision for creating high quality, artfully crafted beers. **This passion has turned into a mission in which highlighting Arizona's agricultural community is a root cause. It is the essence of naturalism and conservation that truly excites this brewery.**

# WHO IS ARIZONA WILDERNESS BREWING COMPANY?



# WHO IS ARIZONA WILDERNESS BREWING COMPANY?

- Founded by Jonathan Buford and Pat Ware in 2013
- Voted Best New Brewery of the Year by RateBeer in 2014
- Heavy focus on foraged ingredients, conservation, and supporting local farmers



# WHO IS ARIZONA WILDERNESS BREWING COMPANY?

## Foraging:



# WHO IS ARIZONA WILDERNESS BREWING COMPANY?



## Conservation:

- Sinagua malt
- Composting
- Waterless urinals
- Side streaming waste products

# WHO IS ARIZONA WILDERNESS BREWING COMPANY?

Focuses on  
working with local  
farmers and  
producers



# WATER'S ROLE IN BREWING

- Growing cereal grains
- Growing hops
- Water (as an ingredient)
- Cleaning





# SUSTAINABILITY & CONSERVATION EFFORTS



# HUMMINGBIRD SPRINGS SAISON

**1<sup>st</sup> Western Rivers  
Brewers Council  
Branded beer**



## Goals:

- Engage Colorado River Basin small businesses in advocating for sound water polity
- Expand Audobon's reach outside of their own network to connect with a different audience



# AZW & THE AZ PURE WATER BREW CHALLENGE



A statewide campaign to **better inform Arizonans about water issues, water reuse and technologies currently available to purify recycled wastewater** producing safe, high-quality drinking water.

# AZW & THE AZ PURE WATER BREW CHALLENGE



## Why we decided to get involved:

- Brewing is very water intensive
- We live in one of the driest areas of the country
- Improve public perception of this process and the water
- Educate our clientele
- Strong alignment with some of our core business philosophies

# WHAT ABOUT THE WATER?!

| Typical PURE Water Characteristics <sup>(1)</sup> |                           |            |  |
|---|---------------------------|------------|--|
| Compound  | Unit                      | PURE Water | EPA/WHO Guideline Value <sup>(2)</sup> |
| pH  | pH units                  | 7.6        | 6.5 – 8.5                              |
| Conductivity                                      | S/cm                      | 31.8       | -                                      |
| Alkalinity  | mg/L as CaCO <sub>3</sub> |            | -                                      |
| Total Dissolved Solids                            | mg/L                      | 18.6       | 500                                    |
| Hardness  | mg/L as CaCO <sub>3</sub> | 1.64       | -                                      |
| Calcium   | mg/L                      | 0.67       | -                                      |
| Fluoride  | mg/L                      | <0.2       | 1.5                                    |
| Nitrite   | mg/L                      | <0.1       | 0.06 – 0.91                            |
| Nitrate   | mg/L                      | <2         | 10                                     |
| Ammonia   | mg/L as N                 | <0.09      | 1.2 (aesthetic)                        |
| Chloride  | mg/L                      | <10        | 250                                    |
| Turbidity   | NTU                       | 0.07       | <0.3 for 95% of samples                |
| Manganese   | mg/L                      | <0.01      | 0.05                                   |
| Sulfate   | mg/L                      | <0.5       | 250                                    |
| Phosphate   | mg/L                      | <0.1       | -                                      |
| Sodium  | mg/L                      | 5.78       | 200                                    |
| Total organic carbon                              | mg/L                      | 0.36       | -                                      |
| Chlorine  | mg/L                      | 1.1        | -                                      |
| Total coliforms                                   | MPN/100mL                 | Absent     | -                                      |
| Fecal coliforms                                   | MPN/100mL                 | Absent     | -                                      |
| Enterovirus                                       | Present/absent            | Absent     | -                                      |

(1) Results typical of PURE Water produced at the Agua Nueva WRF in Tucson.

(2) Lowest published limit of either U.S. EPA or WHO.

# AZW & THE AZ PURE WATER BREW CHALLENGE



**What we  
brewed and  
why...**

**AZ Pure  
Water DIPA**



# AZW & THE AZ PURE WATER BREW CHALLENGE

## Outcomes:

- Reactions to the beer
- Pouring at the Water Symposium
- Brewing Contest



# WATER CONSERVATION BEYOND THE BREWERY





# Watermelon Gose



# Sinagua Malt & the Verde River Agriculture and Conservation

Working with land and water managers in the Verde Valley to explore innovative ways to restore streamflow to the threatened Verde River while promoting our community and heritage.

# The Colorado River Basin



An aerial view of salt flats and hydromorphological formations of the Colorado River Delta in Mexico. Photo credit: © Nick Hall for The Nature Conservancy



## The Verde River: A Precious Resource

- Provides critical habitat to nearly 50 threatened, endangered, sensitive, or special status fish and wildlife species.
- Utilized by agricultural through the Verde Valley to drive the local economy.
- Holds cultural significance to its surrounding tribal communities.
- Provides a crucial water supply to the Phoenix metropolitan area.

# The Verde River Valley

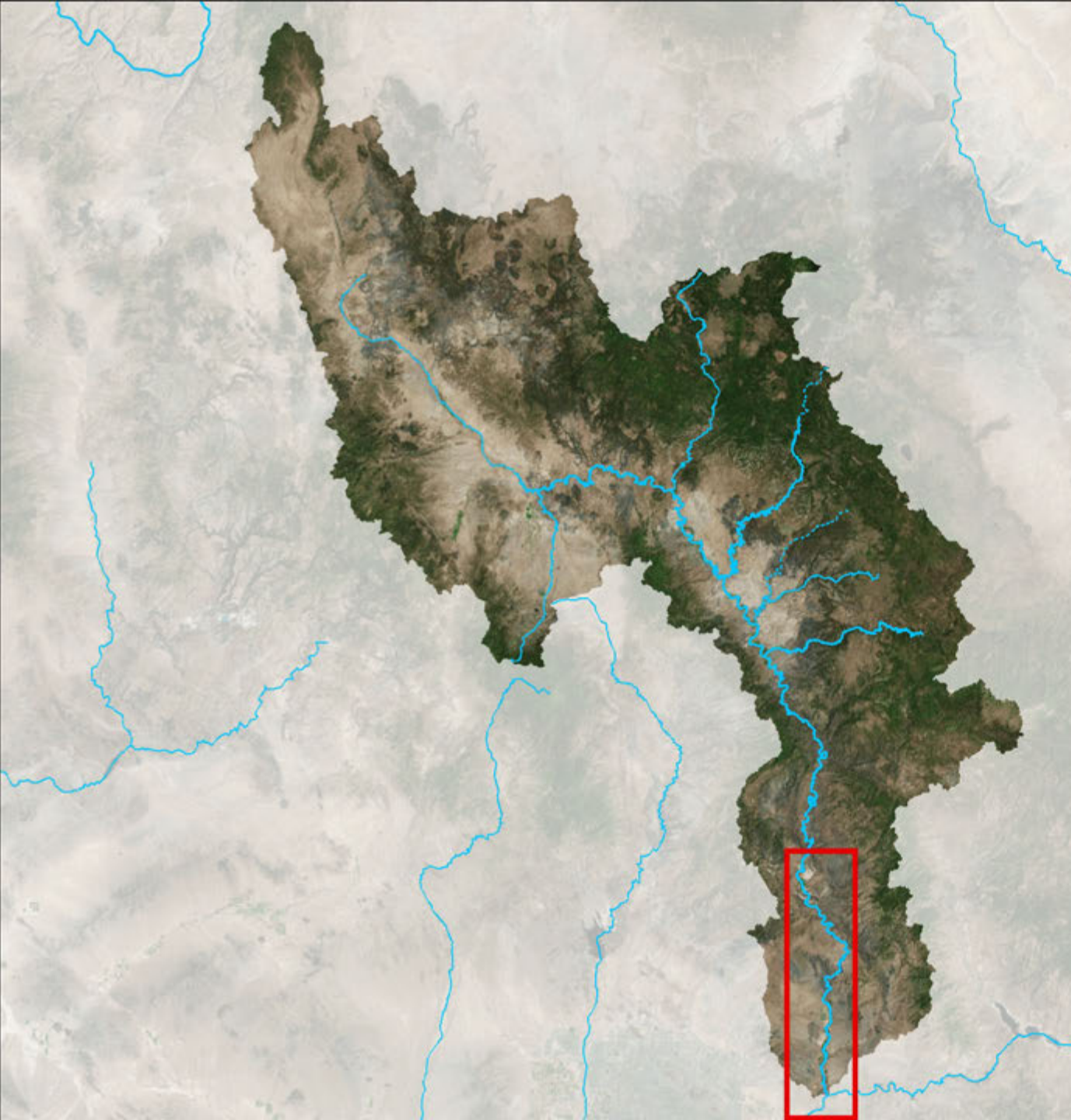


# Wild and Scenic Designation



Photo Credit: Tana Kappel, The Nature Conservancy





# Phoenix Metropolitan Area



Aerial view of track housing in Anthem © Dan Campbell/TNC

# RECAP: WHY IS THIS RIVER SO IMPORTANT?

- **Where it travels**
  - Prescott, Sedona, Phoenix
- **Habitat**
  - Increased flow means more wildlife
- **Economy**
  - Farmers and recreation





# SINAGUA MALT // VERDE RIVER



**SINAGUA**  
MALT

# WHAT IS MALTED BARLEY?

- Important ingredient in beer
- Malting process: steeping, germination, kilning
- How it's used in the brewing process





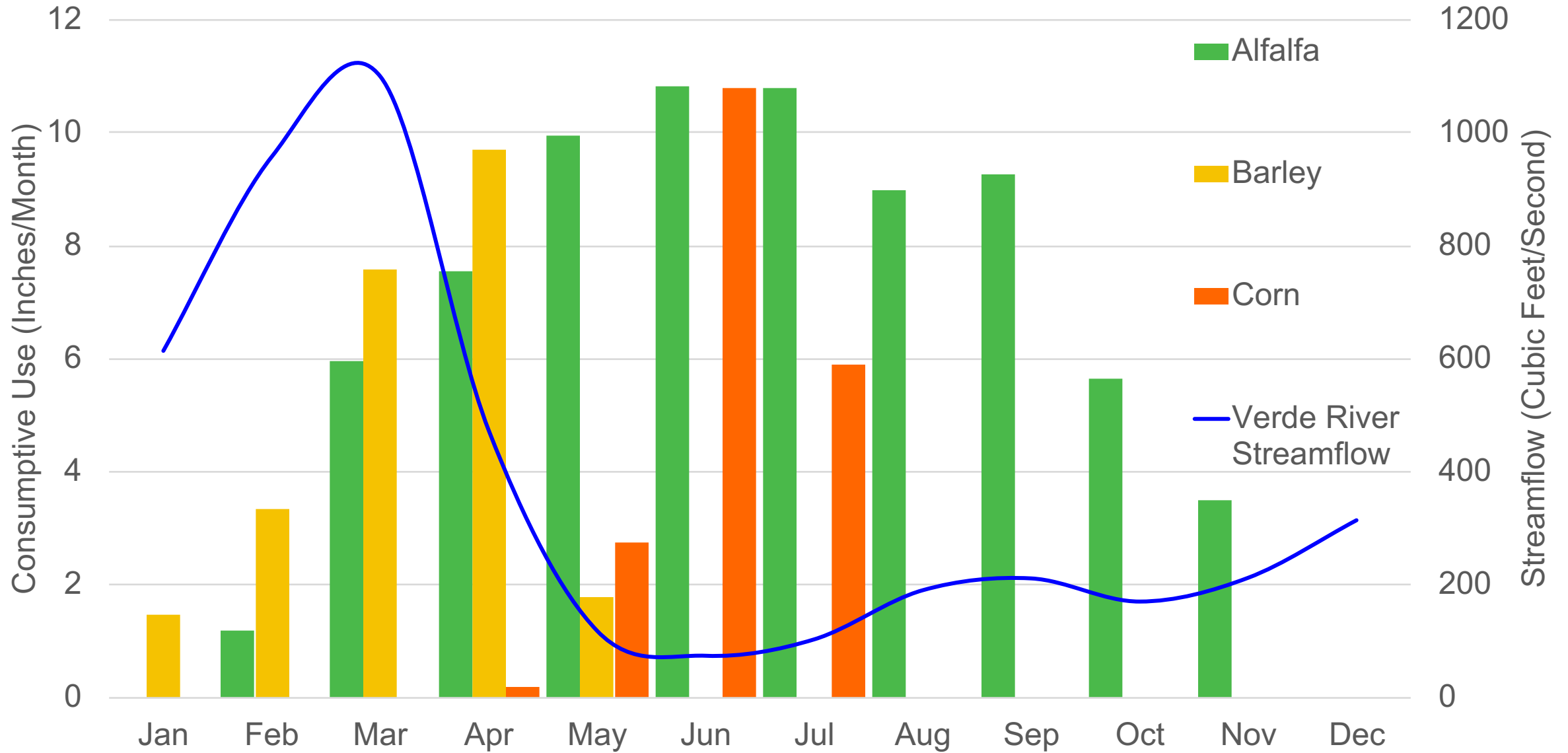
# Crop Switching

# CROP SWITCHING

- Corn and Alfalfa to Barley
- Water requirements of corn/alfalfa
- Benefits of barley crops in AZ



# Water Requirements for Barley Compared to Alfalfa and Corn





**SINAGUA**  
MALT



# CONNECTION SAISON



First beer brewed  
with AZ grown and  
Sinagua malted barley



# **PROGRESS REPORT**



# PROGRESS REPORT

- 15 acre test crop in 2016
- 144 acres planted in 2017
- Impact to the river
- What is the future of the project?



## **END RESULT:**

**Verde gets more flow**

**Farmers get access to a local market**

**Brewers get barley with a tie to the land**

# Thank you!



# Questions?