Results of 2023 Riparian Health Assessment



How is Riparian Health Determined?

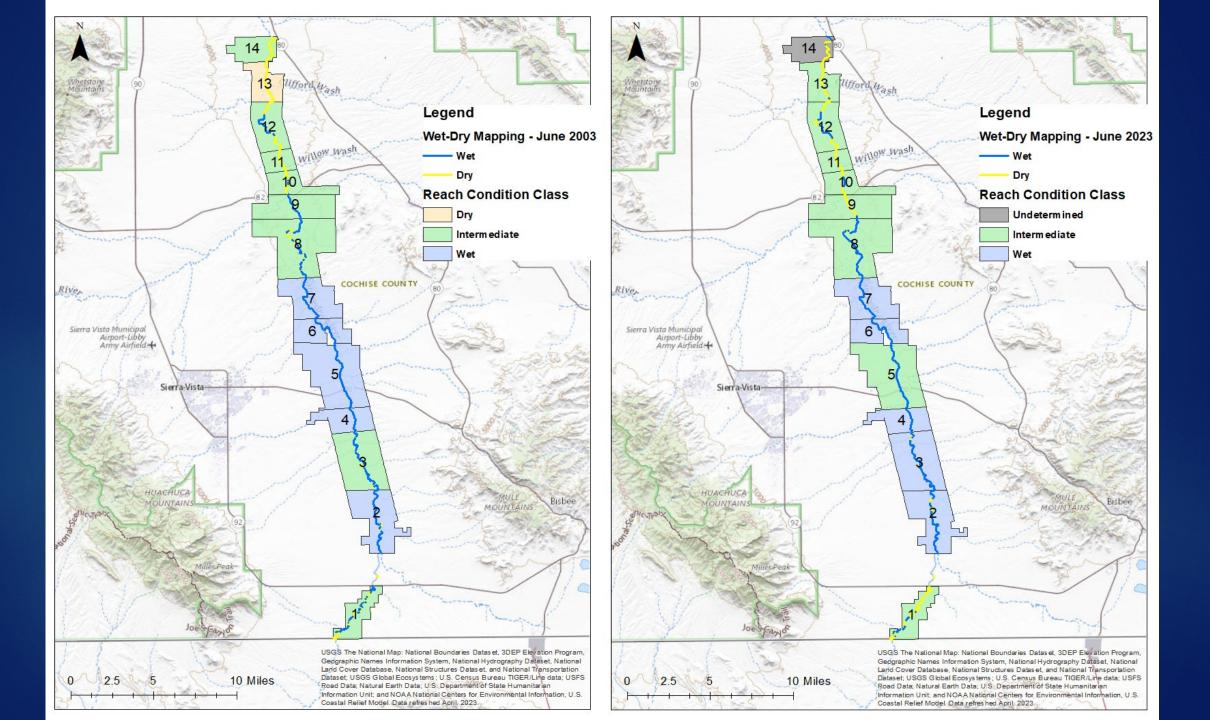
- ▶ Nine different vegetation measurements ("bioindicators")
 - Quantitative scores for each of these nine bioindicators calculated for each reach
 - Overall score for each reach determined, then classified into one of three "Condition Classes"
 - ▶ This scoring system developed in 2002 for the San Pedro River

Groundwater Decline

lifford Wash Legend Wet-Dry Mapping, June 2023 Willow Wash Dry **Reach Condition Class** Und eterm in ed Interm ediate Wet COCHISE COUNTY Airport-Libby Army Airfield USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program. Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS 10 Miles Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refres hed April, 2023.

2023 SPRNCA Riparian Health

From: Dixon and Robertson, 2024



Legend Site Condition Class Interm ediate Wet Wet-Dry Mapping - June 2023 Tombstone Tairbank North **Reach Condition Class Undetermined** Interm ediate Wet COCHISE COUNTY Charleston South Mosor 5 Springs Sierra-Vista-4 Cottonwood Hunter South Hereford Palominas South

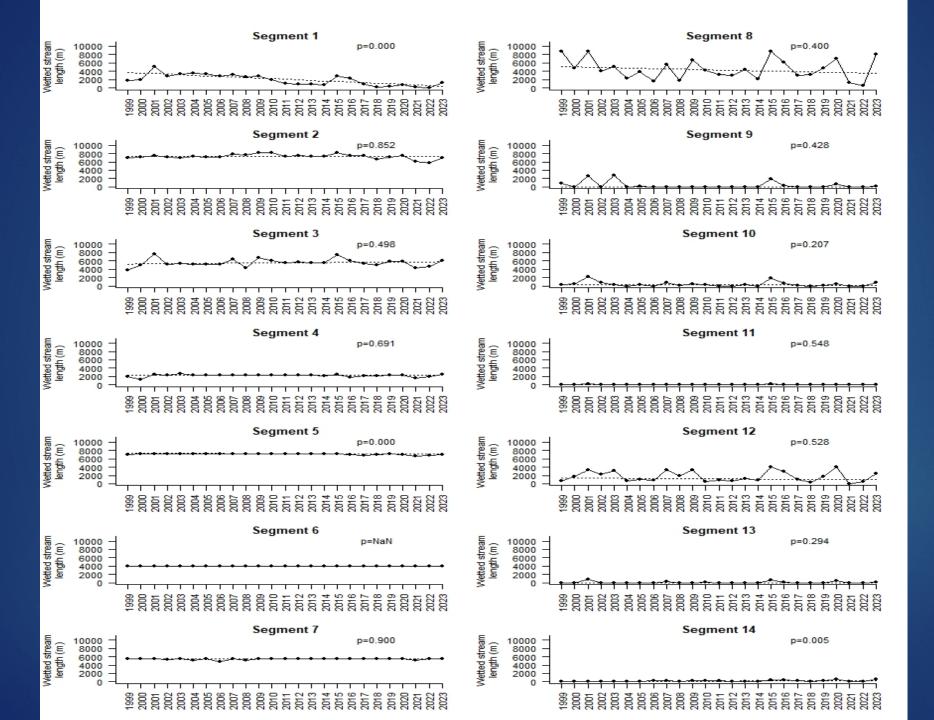
Comparison: 2002-2023

- Reaches 1, 2, 4, 6, 7, 8, 9,10, 11, 12
 No change
- Reach 3 changed to Class 3 (+)
- Reach 13 changed to Class 2 (+)
- Reach 5 changed to Class 2 (-)
- Reach 14 undetermined (?)

CURRENT RIPARIAN HEALTH PREVIOUS WET DRY TRENDS Assessment of SPRNCA Riparian 1999-2023 dataset available **Health Completed** December 2023 December 2023 **AMC Compares Current** Riparian Health to **Previous Wet Dry Trends** January 2024 AMC Develops and Implements Consensus Management Action Plan

January 2024

		Wet Dry Mapping Trends (Wetted Length)			
		Significant Improvement	No Change	Significant Decline	
	3	MOU Objectives satisfied	MOU Objectives satisfied	Additional monitoring and management will be considered	
CURRENT CLASS	2	MOU Objectives satisfied	Objectives may be satisfied, potential additional monitoring and management may be considered	Additional monitoring and action required	
Ω	1	MOU Objectives satisfied	Objectives may be satisfied, potential additional monitoring and management should be considered	Additional monitoring and action required	



Courtesy: The Nature Conservancy, 2024

Wet Dry 2023 Results

- ▶25 years measuring <u>wetted length</u> of SPRNCA
- ► Mann Kendall Trend Analysis:
 - ▶Test to determine the presence of a statistically significant trend
 - ▶1999-2023 Results:
 - ▶ SPRNCA Reach 1: Decreasing trend with greater than 99% confidence (decline in wetted length)
 - ▶ SPRNCA Reach 5: Decreasing trend with greater than 99% confidence (decline in wetted length)
 - SPRNCA Reach 14: Increasing trend with greater than 99% confidence (improvement in wetted length)
 - All other SPRNCA reaches, no trend

Status of Reach 1

- ► Intermediate Class 2 Riparian Health and not perennial for a long time
- ▶ Decline in wetted length (wet dry mapping) in this reach has persisted over several years
 - ▶ Led to prioritization of the Bisbee Effluent Recharge Project by the CCRN
 - ▶ Additional monitoring and action required: This result was expected

Status of Reach 5-Hydrology

- Formerly a Class 3 reach, now Class 2
- Wetted length decline in reach is slight, and recent. Still a largely perennial reach
- Regional groundwater benefits from EOP in this area
- Alluvial groundwater at Lewis Springs
 - ► Mean groundwater depth= .92 m
 - ▶ Groundwater fluctuation less than .5 m
 - ▶ Groundwater maximum depth less than 2 m
- Additional monitoring and action required: This result was NOT expected

Status of Reach 5-Vegetation

- Vegetation Sampling in this reach:
 - Almost a "perfect score" except for two bioindicators:
 - ► Absolute cover hydric perennials
 - Relative cover of hydric perennials
 - All bioindicators intended to reflect short-term hydrologic conditions
 - Could these two bioindicators at this site be reflecting impacts of local flood disturbance, instead of changes in water availability?



		Wet Dry Mapping Trends (Wetted Length)		
		Significant Improvement	No Change	Significant Decline
CURRENT CLASS	3	MOU Objectives satisfied	MOU Objectives satisfied	Additional monitoring and management will be considered
	2	MOU Objectives satisfied	Objectives may be satisfied, potential additional monitoring and management may be considered	Additional monitoring and action required
	1	MOU Objectives satisfied	Objectives may be satisfied, potential additional monitoring and management should be considered	Additional monitoring and action required

SPRNCA Reach	2023 Condition Classes	1999-2023 Wet Dry Trend	2024 Decision Matrix Results
	Class 1, 2, 3	Significant Improvement, No Change, Significant Decline	MOU Objectives Satisfied (Yes/No) Monitoring and/or management needs
14	Undetermined	Improvement	Add riparian health transect
13	2 (Improvement)	No Change	Additional monitoring and management may be considered
12	2 (No Change)	No Change	Additional monitoring and management may be considered
11	2 (No Change)	No Change	Additional monitoring and management may be considered
10	2 (No Change)	No Change	Additional monitoring and management may be considered
9	2 (No Change)	No Change	Additional monitoring and management may be considered
8	2 (No Change)	No Change	Additional monitoring and management may be considered
7	3 (No Change)	No Change	MOU Objectives Satisfied
6	3 (No Change)	No Change	MOU Objectives Satisfied
5	2 (Decline)	Decline	Additional Monitoring and Action Required
4	3 (No Change)	No Change	MOU Objectives Satisfied
3	3 (Improvement)	No Change	MOU Objectives Satisfied
2	3 (No Change)	No Change	MOU Objectives Satisfied
1	2 (No Change)	Decline	Additional Monitoring and Action Required