Modeling Future Reliability of Environmental Flows in the Colorado River Basin

Alan Butler- CADSWES & USBR
Edie Zagona- CADSWES
Carly Jerla- USBR
Jim Prairie- USBR

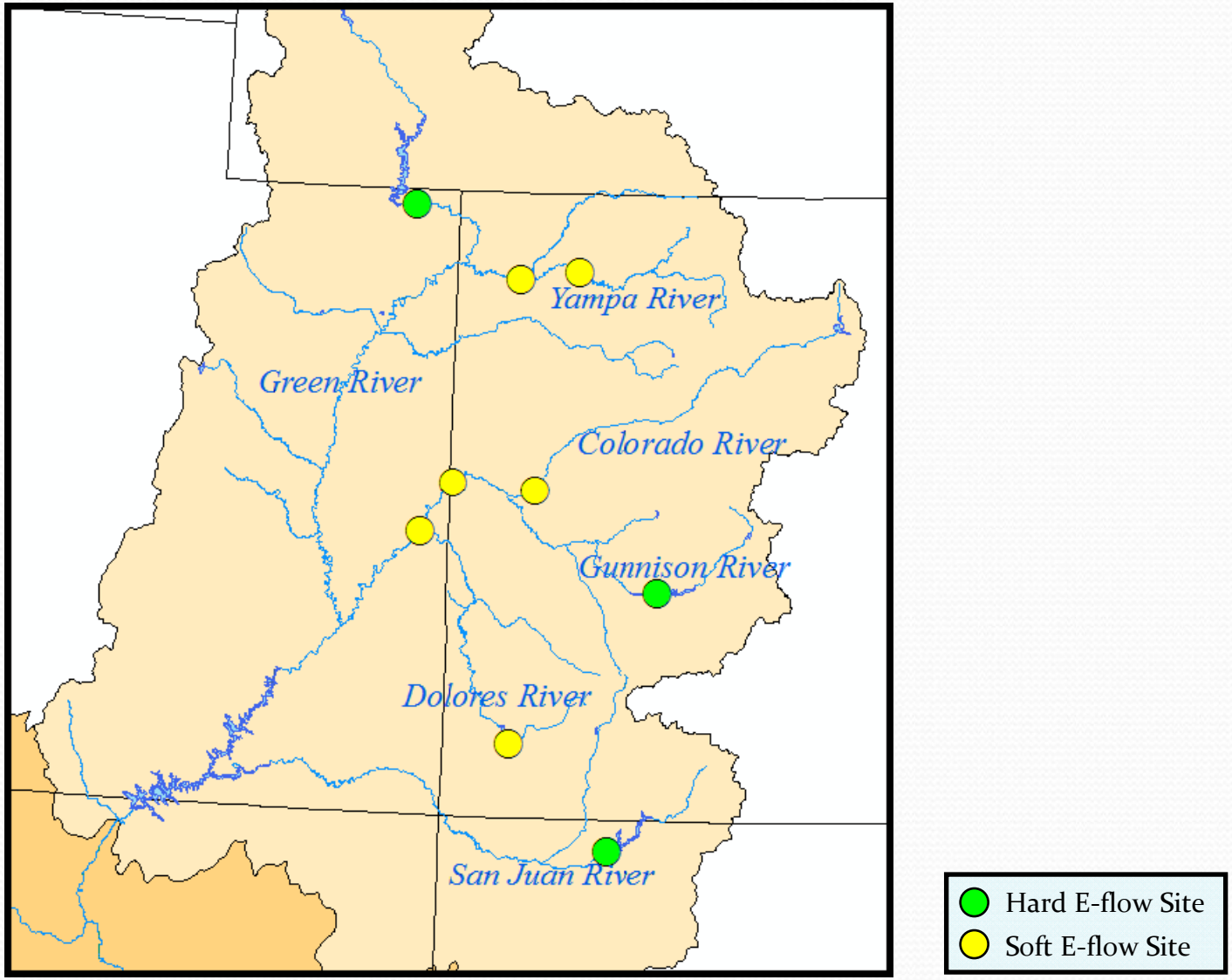
Project Introduction

- Goal is to assess the reliability of environmental flows under varying water availability and climate change
- Project will aim to improve the capability to capture environmental flows in long-term planning model (CRSS)
  - Will address the spatial and temporal scale discrepancies between biological interests and multi-objective integrated water resources management using RiverWare

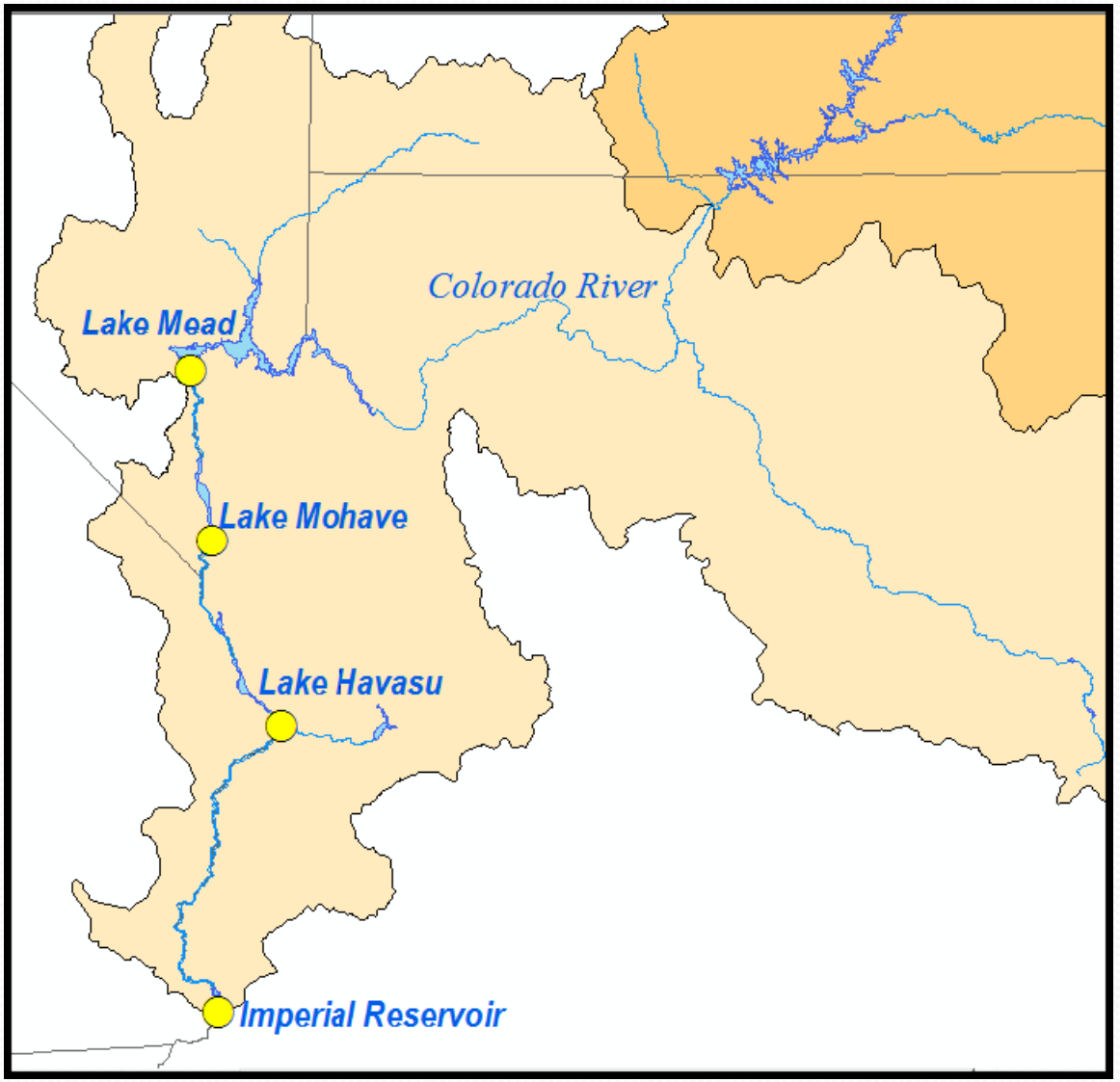
E-flow Identification

- Non-comprehensive basin wide inventory
  - Document a wide range of e-flows for model assessment
  - Not an interpretation of an environmental flow need
- Categorized into hard and soft e-flows
  - Hard e-flows: Mandated by a Record of Decision
  - Soft e-flows: Any others

Upper Basin E-flow Sites



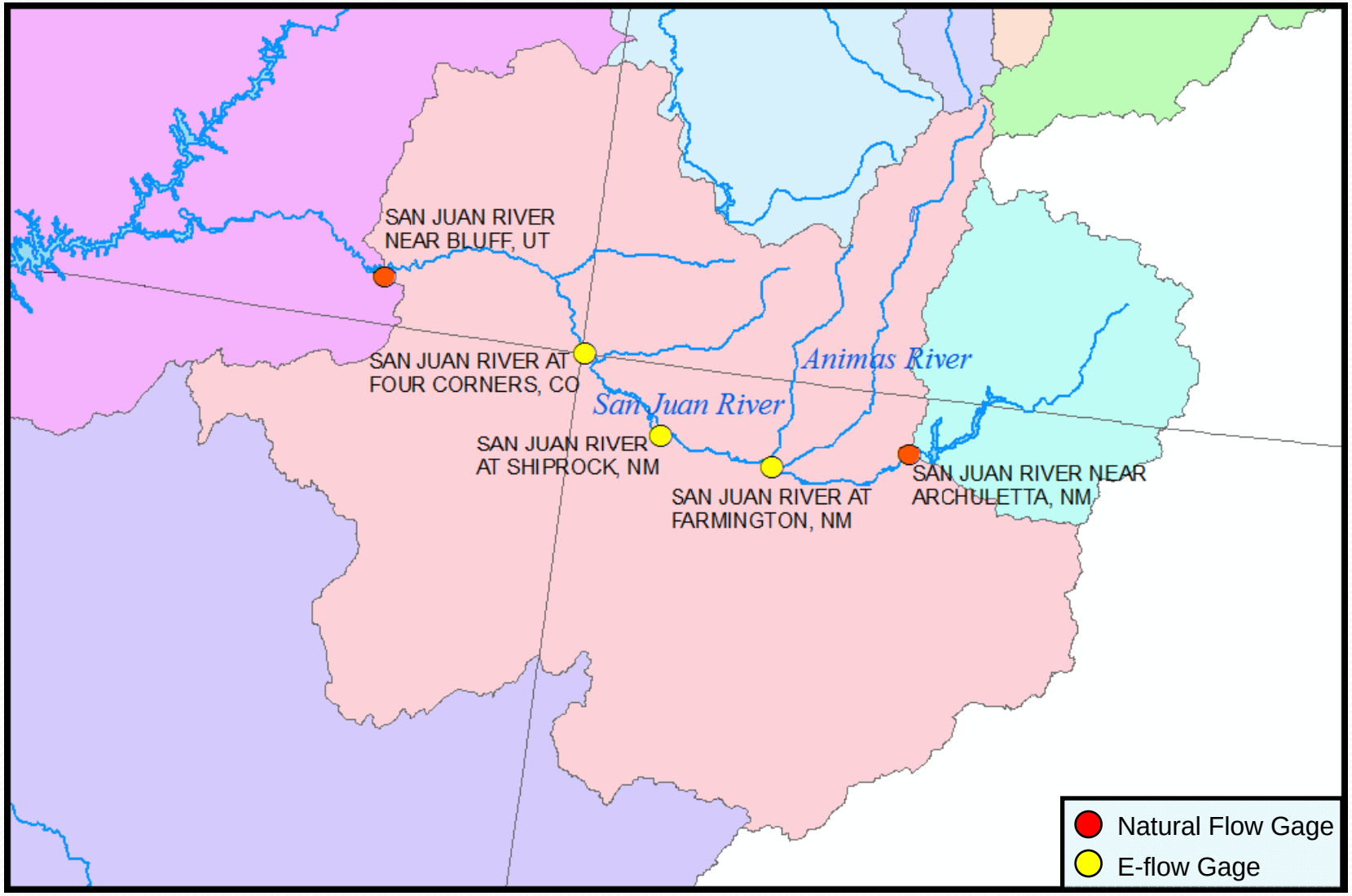
Lower Basin E-flow Sites



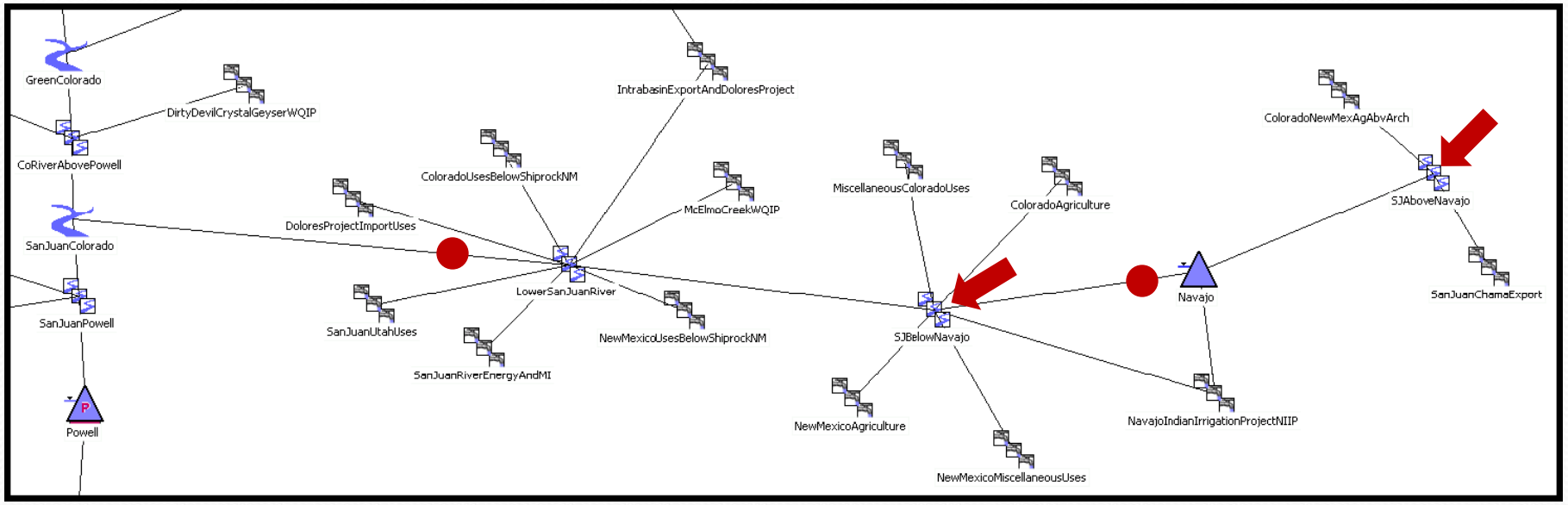
Modeling E-flows in CRSS

- Natural flow driven
- Aggregates reaches and demands over large areas
  - Study to better understand demands
- Temporal scale discrepancies
- Reservoir rules

San Juan River Example



San Juan River Example



Project Summary

- Establish e-flow points in CRSS
  - Address spatial and temporal scale discrepancies
- Model the reliability of e-flows
  - Climate change
  - Alternative demand scenarios
    - Sensitivity of e-flows

Thank You

CADSWES
Center for Advanced Decision Support for Water and Environmental Systems

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

The Nature Conservancy
Protecting nature. Preserving life.™

EDF
ENVIRONMENTAL DEFENSE FUND
Finding the ways that work

TROUT UNLIMITED