

# ISAC Report to Governance Committee

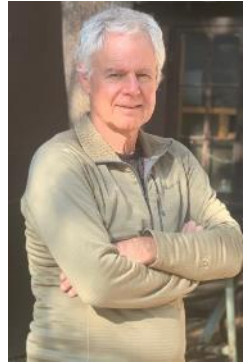
## Feedback on Feb. 15-17 Science Plan Reporting Session

March 8, 2022



**David Marmorek**, ESSA Technologies Ltd, co-chair

**Jennifer Hoeting**, Hoeting Consulting, co-chair



**Ned Andrews**, Tenaya Water Resources

**Brian Bledsoe**, University of Georgia

**Adrian Farmer**, Wild Ecological Solutions



**David Galat**, Coop. Assoc. Prof. Retired, University of Missouri



# ISAC actions since last GC meeting

- Reviewed 12 documents in preparation for Feb 15-16 reporting session
- Attended Feb 15-16 reporting session
- Met Feb 17 to discuss our comments with each other and EDO scientists
- Today: overview for GC of our reflections and feedback

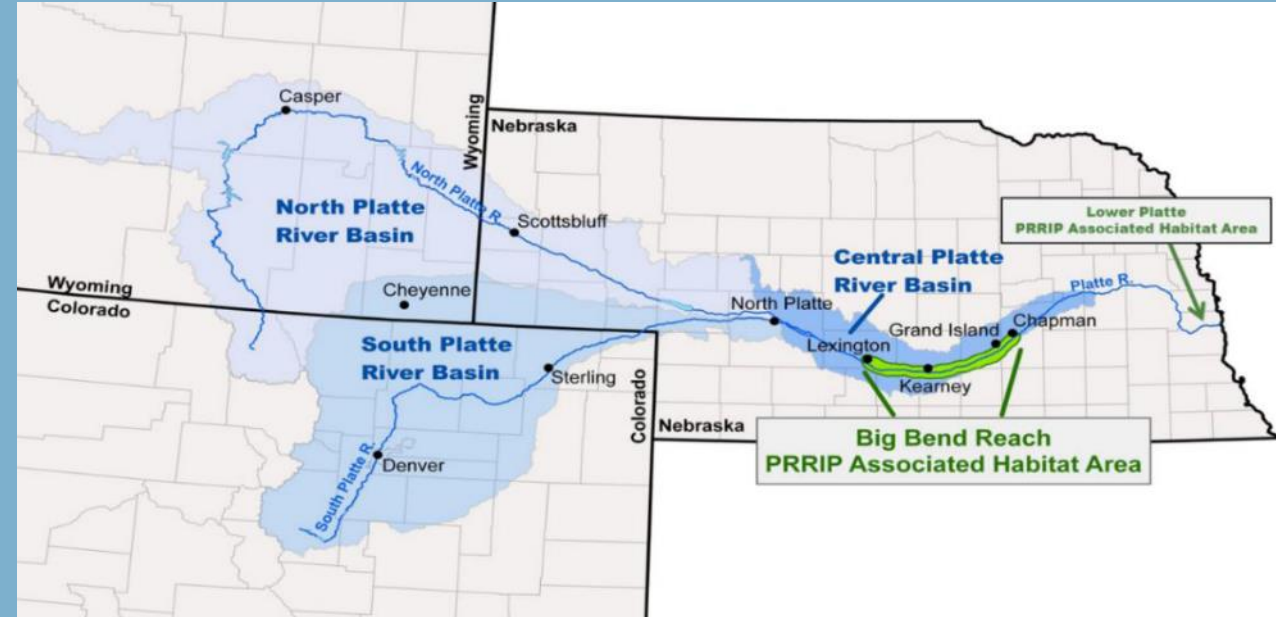
# Overall Feedback

1. EDO continues to do high quality science, with a dedicated, talented team
2. Broadening understanding of target species' life histories outside of the AHR will help to guide Program management.
3. Increasingly doing more cross-disciplinary science (also good!)
4. Science Plan is evolving well and is a strong foundation for the Extension.
5. Explore effects of climate change on all Program components.



# Categories of ISAC recommendations

1. Science Plan
2. Piping Plover Predator Management
3. Whooping Cranes
4. Pallid Sturgeon
5. Geomorphology & In-Channel Vegetation Monitoring
6. Wet Meadow Hydrology
7. Channel Width Modeling
8. Effects of Climate Change



# Science Plan

- ISAC impressed with the structure and content of the Extension Science Plan
- Protocols well established. Adjust them if needs change
- Keep moving towards statistically testable hypotheses
- Triggers:
  - Good to see triggers. Purpose?
  - Triggers for other BQs? EBQs?
  - Clarify *why* triggers are proposed for each BQ or EBQ, *how* they were derived, and *what* they would trigger *when*
- Workload:
  - Need to ensure talented group at EDO does not get overloaded; more staff will help
  - Sequence science activities given highest priority information needs for negotiation of Second Increment

FIRST INCREMENT EXTENSION  
SCIENCE PLAN



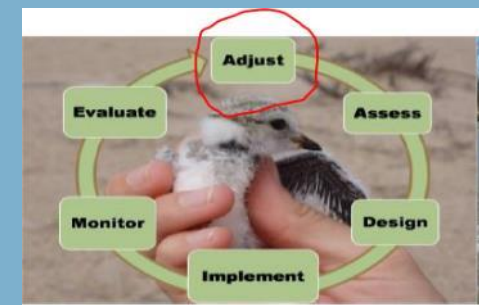
February  
15-17, 2022

PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM  
EXTENSION SCIENCE PLAN  
DRAFT for Science Plan Reporting Session



Warning  
signs?

OR

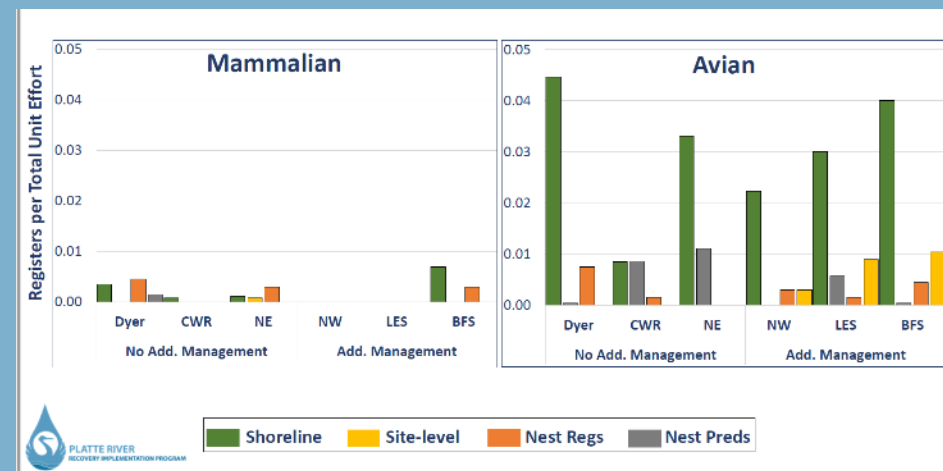


Inputs to AM  
decisions?



# Piping Plover Predator Management

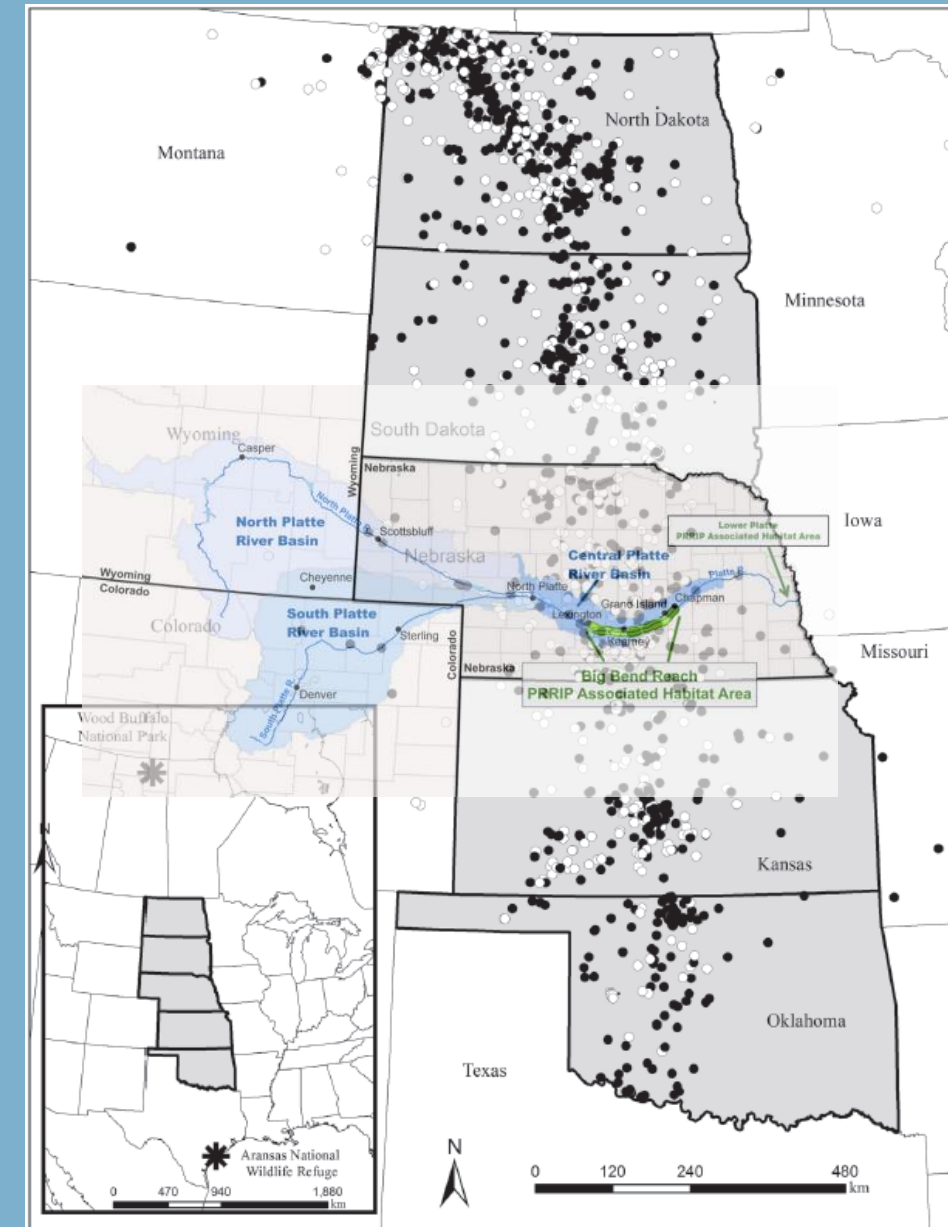
- Very valuable data being collected on predation; worth continuing through 2023
  - Assess effectiveness of trapping, fencing and lighting before adding other actions (e.g., cages)
  - If 2024 assessment shows existing measures insufficient, consider formal test of nest cages
- Key question is how much predation is acceptable to the Program and USFWS?
  - Consider best way to analyze predation data to isolate effects of predator control actions given site differences
  - Want OCSWs to be a population source, not a sink
- Great to have USGS studies summarized by Rose Swift
  - Continue dialogue with other researchers grappling with predation issue (USGS, MRRP)



Shoreline Site-level Nest Regs Nest Preds

# Whooping Cranes

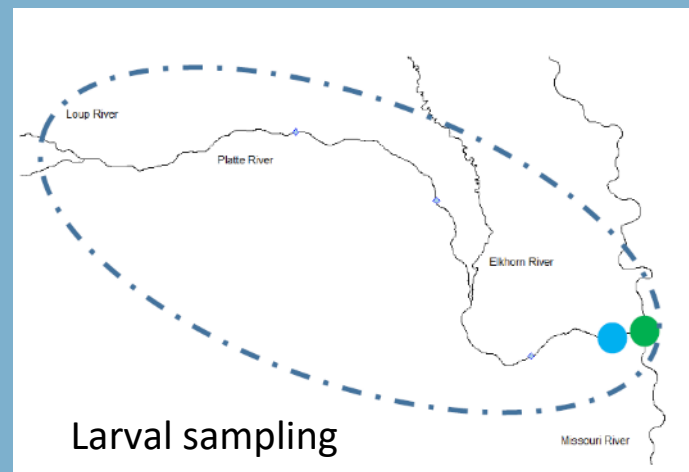
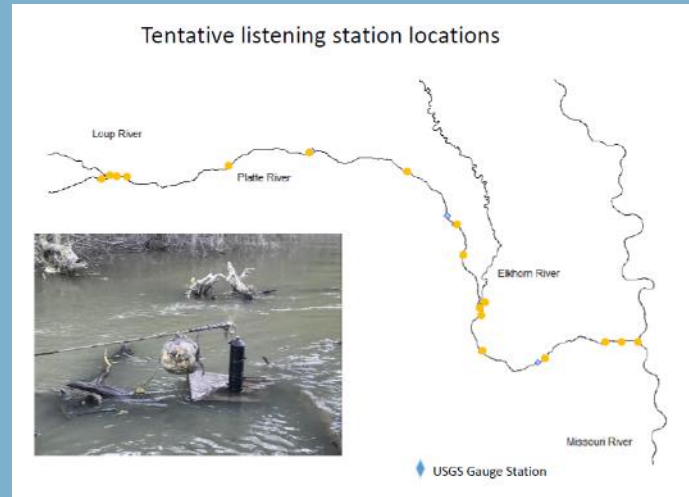
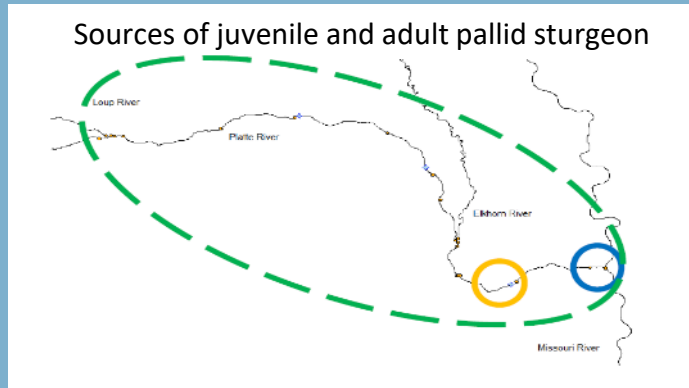
- For EBQ 4, 5 and 6, better to look at WCs over the entire flyway, not just Platte R.
- How do sites interact to deliver WCs to breeding grounds? What's relative role of the Platte?
- Provide funding for collaborative efforts with other researchers, sign Data Sharing Agreements (not easy, but worthwhile)
- Collaboration will help with other questions (e.g., effects of weather on migration)
- Flow less likely to influence stopovers than other factors visible from the air (e.g., wetted width)
- What's an acceptable level of stopovers and length of stay? How does Platte River rank?



Spring (○); Fall (●); Jorgensen et al. 2017

# Pallid Sturgeon

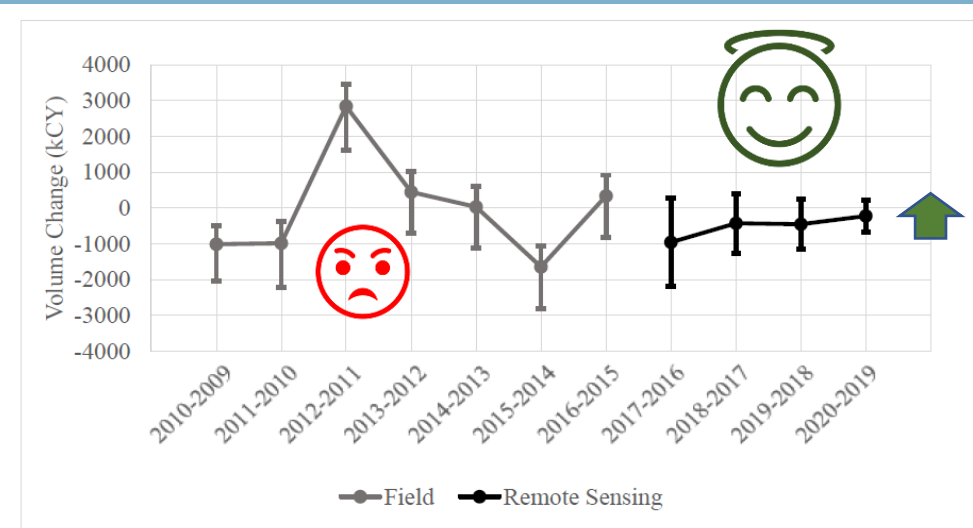
- Great progress working with UNL, SIU and NGPC; Malinda's role on thesis committees is important
- LiDAR flyover of Lower Platte River is worth doing (during low flows) - will help to estimate water depths and roughness for hydraulic modeling (but just 1 flyover)
- Continue to encourage UNL and NGPC to use good study design principles so results will be usable in the future
- Will be difficult to determine relationships between habitat conditions (flows, depth, velocity) and habitat selection by juvenile and adult fish
- Will also be difficult to determine % contribution of Platte R to Missouri R population (age-0 PS are rare)



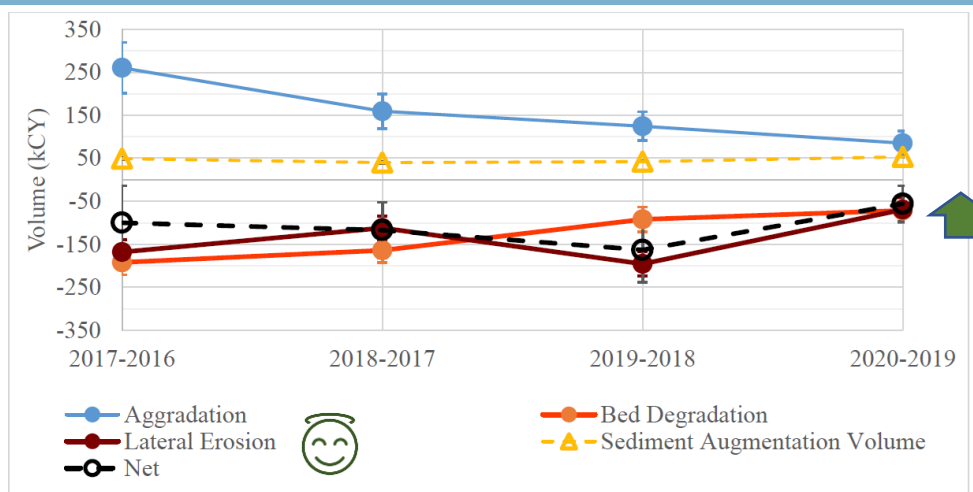


# Geomorphology & In-Channel Vegetation Monitoring

- Tremendous progress on use of LiDAR and data analysis; huge progress since 2016!
- Uncertainty in 2010-2016 estimates of sediment balance much larger than shown (drop these data)
- Program at leading edge of sediment balance analysis. Excellent work! Worth publishing
- Sediment augmentation effective, appears to protect main channel below Overton Bridge
- Bank / lateral erosion in south channel = natural sediment augmentation (good).
- Effects on sediment stored vs. effects on sediment transport downstream. Over entire reach, close to sediment balance.
- Existing analysis filters out a lot of the LiDAR data; important to explore this further

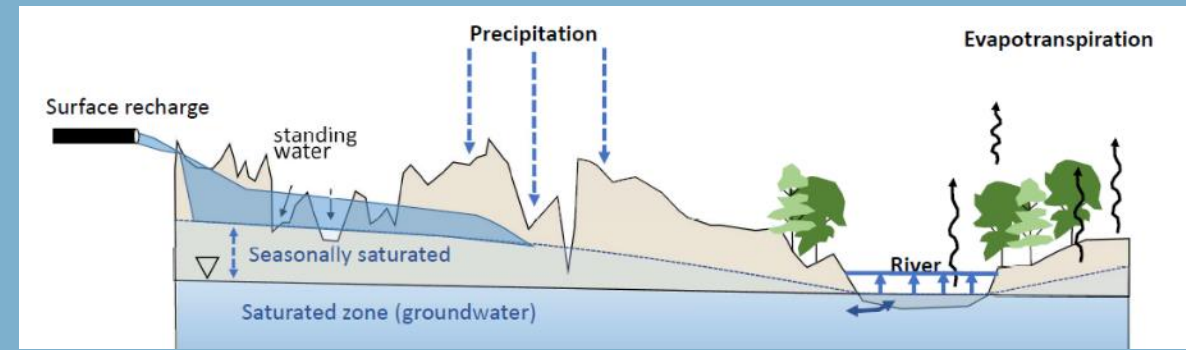


**Figure 30.** Net volume change estimates (points), and 95% confidence intervals (bars), as measured with both field and remote sensing methods in all channels from Overton to Grand Island.

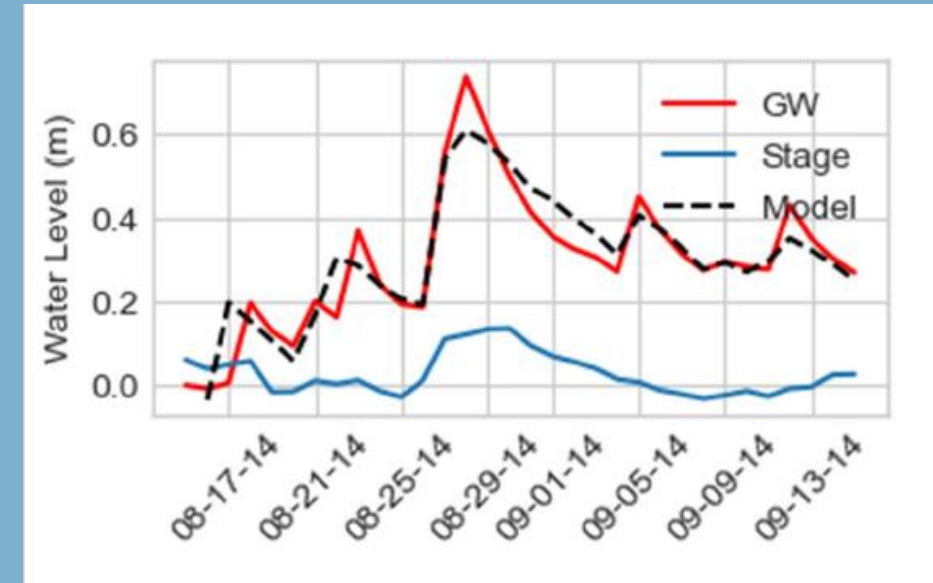


**Figure 35.** Total volumes of classified areas of significant elevation change by year, and sediment augmentation volume, for the J2 Return to Overton reach

# Wet Meadow Hydrology



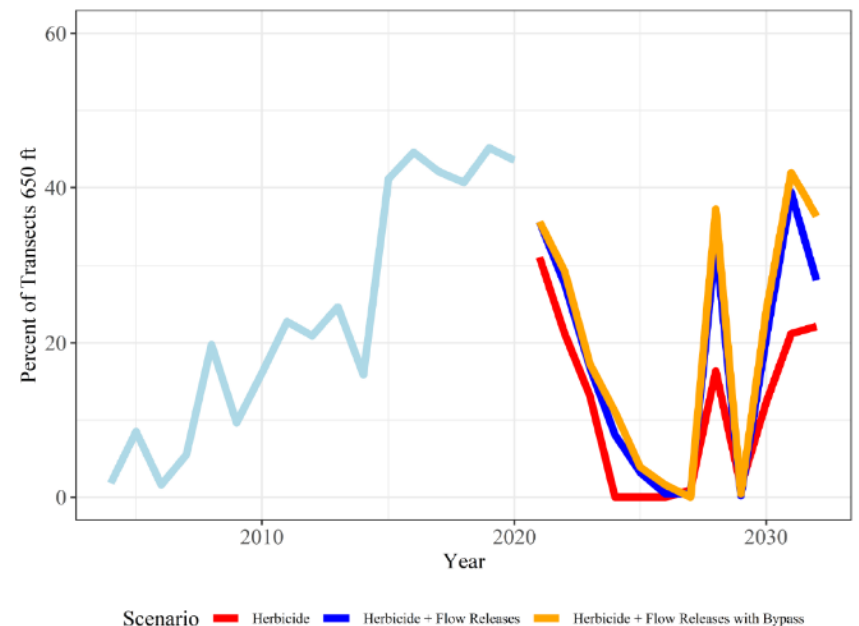
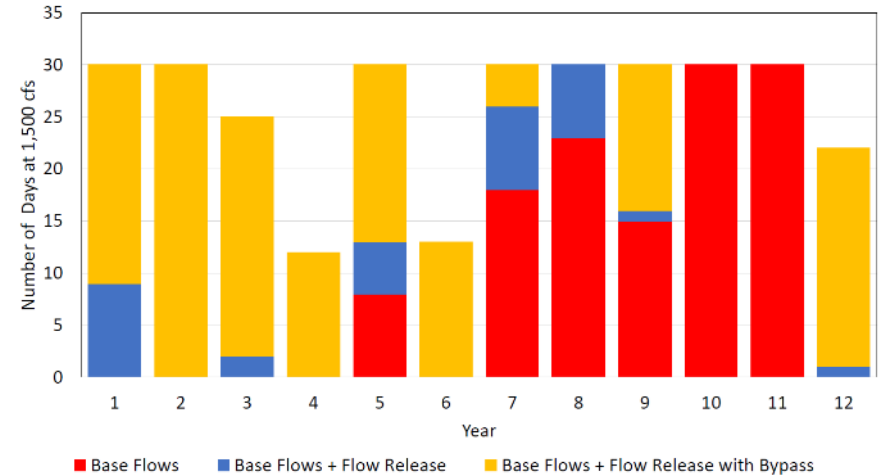
- ISAC agrees with Program that wet meadows are an important part of the AHR ecosystem
- Great progress by EDO in melding empirical information and modeling
- Work helps to better understand effects of flow (and factors beyond Program control) on wet meadows
- Good first step in helping land managers to better manage wet meadows
- Since WCs don't use wet meadows much,
  - meadow management likely won't change WC use, and
  - likely won't motivate changes in Program flows.
- But managing wet meadows well has other benefits
- How sensitive to drought?



# Channel Width Modeling

- Modeling is a great advance; connects [climate + flow + herbicide] to channel widths to WC habitat.
- Also complex. Need further model testing, understand causes of counter-intuitive predictions
- Benefits of bypass may change with more model testing
- Parts of system (e.g., changes in vegetation over multiple year droughts) are outside of model
- Climate variation may have more effects on outcomes for WC habitat than management actions
- Existing model is anchored in historical data; other analyses and tools might be helpful to explore scenarios beyond past conditions
- Important to test model predictions with field data (e.g., predicted vs. observed changes in Maximum Unobstructed Channel Width)

Flow scenario: Base Flows + Flow Releases with Bypass



# White Paper on Climate Change / Extreme Weather

ISAC proposes the EDO develop a white paper discussing potential impacts of climate change on Program:

- Water
- Species and their habitats
- Use of analytical tools to rigorously explore the range of possible future conditions under climate change
- Actions doable now to make AHR more resilient to climate change impacts
- Ability to meld Adaptive Management and Climate Change Adaptation



# Conclusions

- EDO has made excellent progress on the Draft Science Plan and associated analyses
- Strong team of scientists at the EDO - analytical, creative and open to suggestions for improving tools and methods
- Prioritization of information needs for negotiation of the Second Increment will help manage work loads



**End of March 2022 ISAC Check-in with PRRIP GC**

**Questions?**