IDAHO DEPARTMENT OF WATER RESOURCES

Preliminary evaluation of trust water use impact on Snake River below Milner dam

Presented to the Swan Falls Technical Working Group

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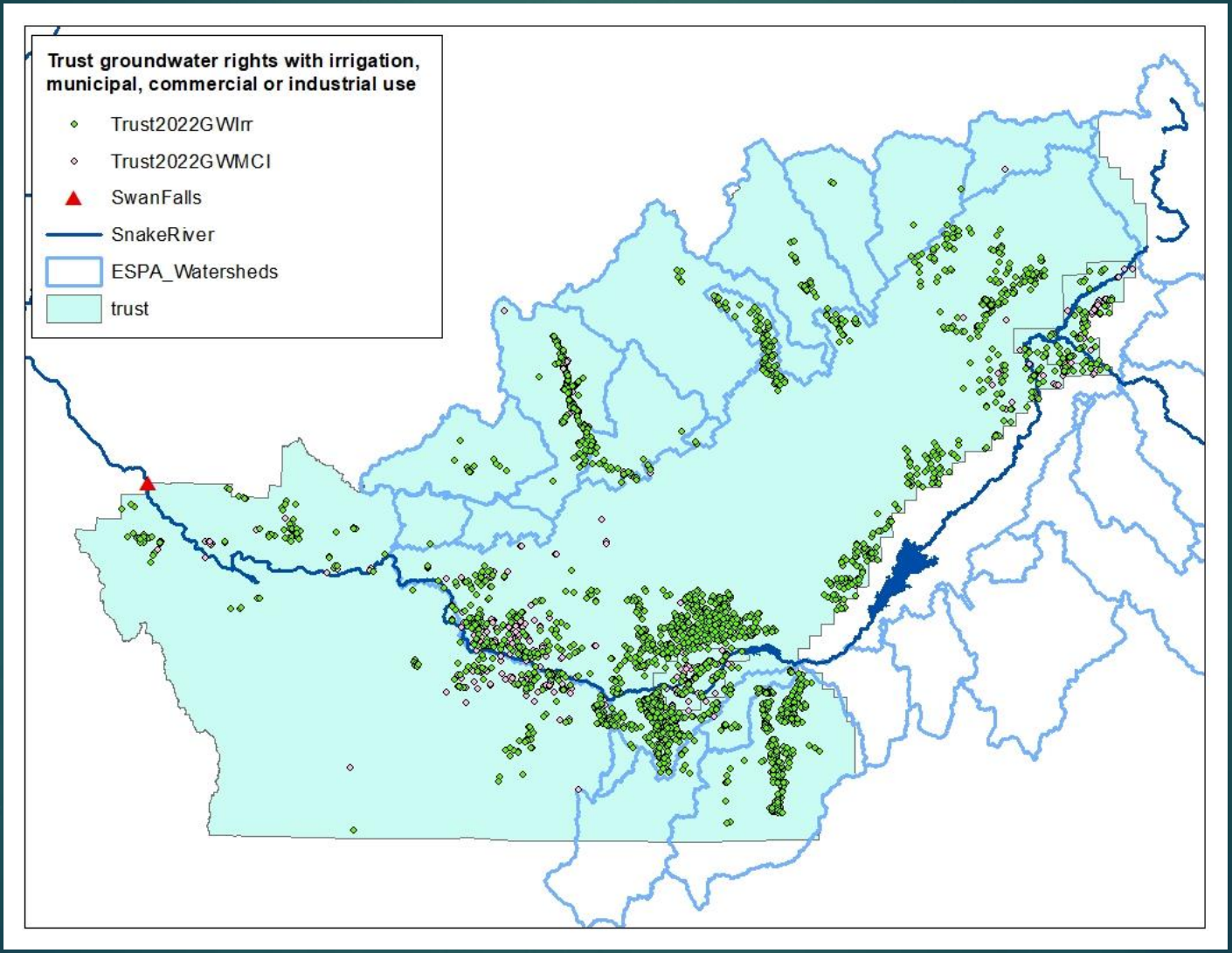
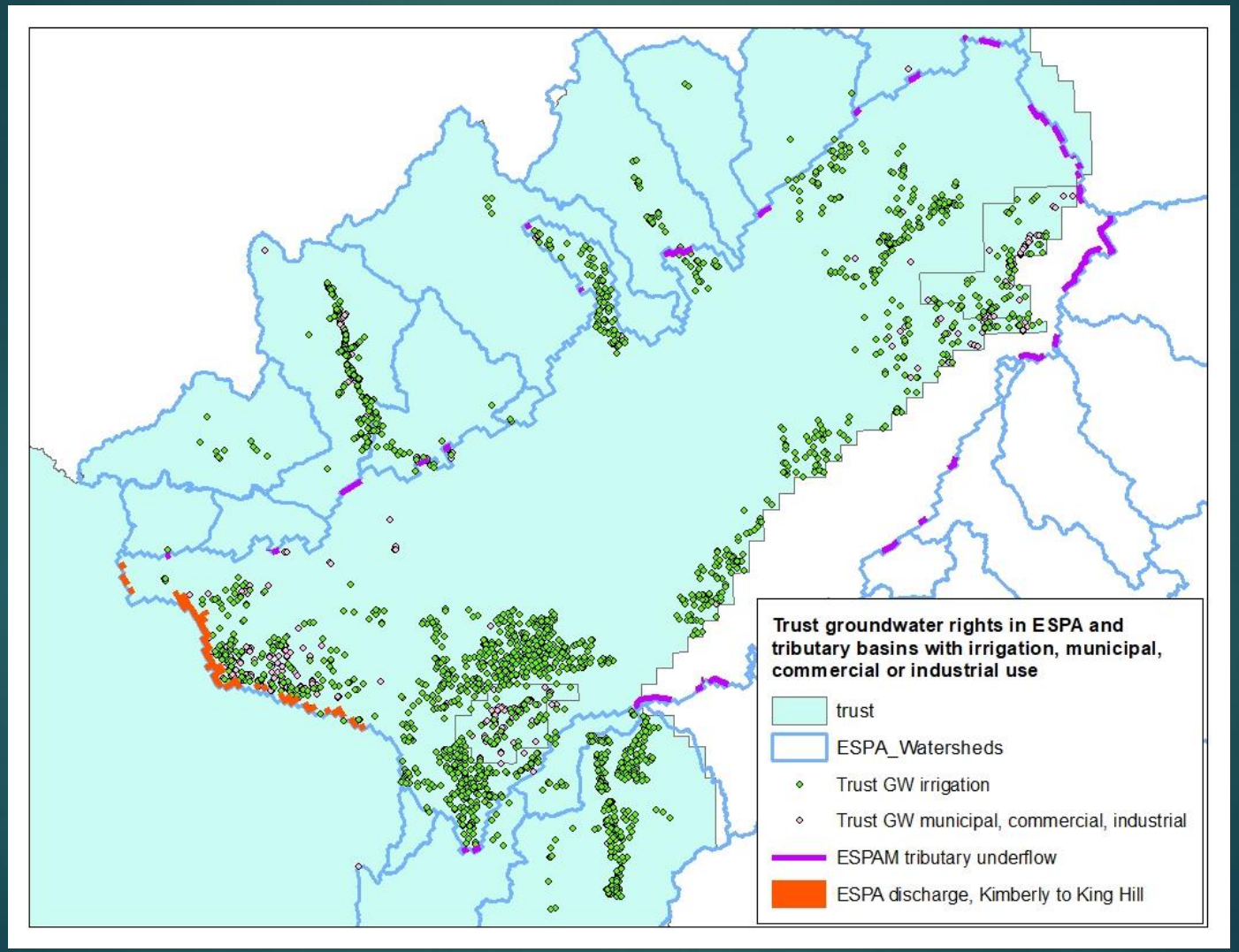
Q2. Analyze impacts of ESPA groundwater trust water rights to the Snake River below the Milner Dam



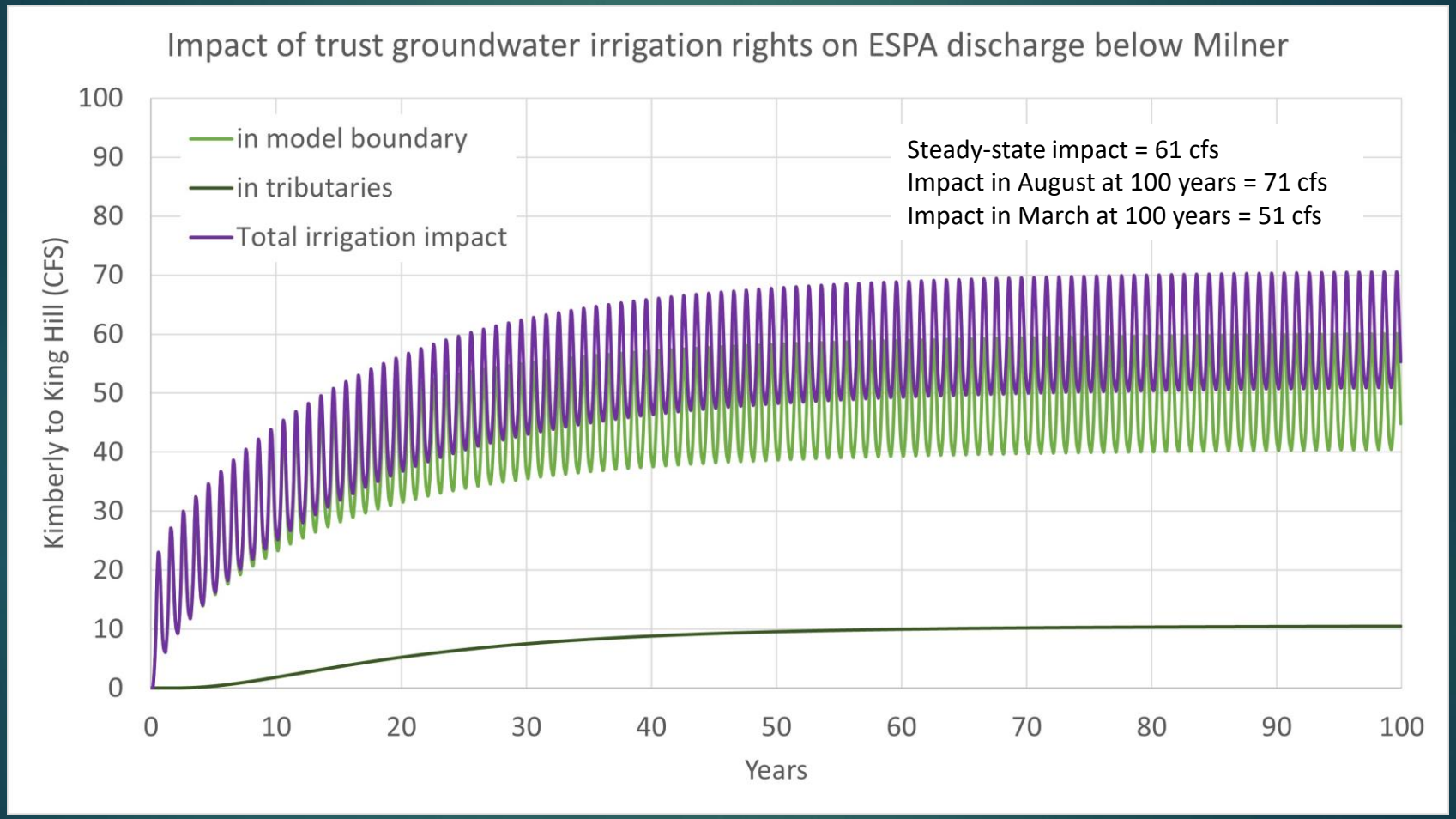
Q2. Assumptions

- Water uses other than irrigation, municipal, commercial and industrial were assumed to have minimal consumption use and were excluded
- Water rights flagged as non-consumptive or mitigated were excluded
- Irrigation water rights were assumed to irrigate one acre per 0.02 cfs and consumptive use was assumed to equal the monthly crop irrigation requirement
  - in ESPAM boundary – 10-year average monthly CIR from ESPAM2.2 (WY 2009 – WY 2018)
  - in ESPA tributaries – average monthly precipitation deficit from ET_{Idaho} (usually 30-year average) for peak alfalfa
- Paper diversion limits were assumed for municipal, commercial, and industrial water rights (maximum authorized diversion rate → likely overestimate of impact)
- ESPAM2.2 groundwater flow model used to predict volume and timing of impact to Snake River below Milner

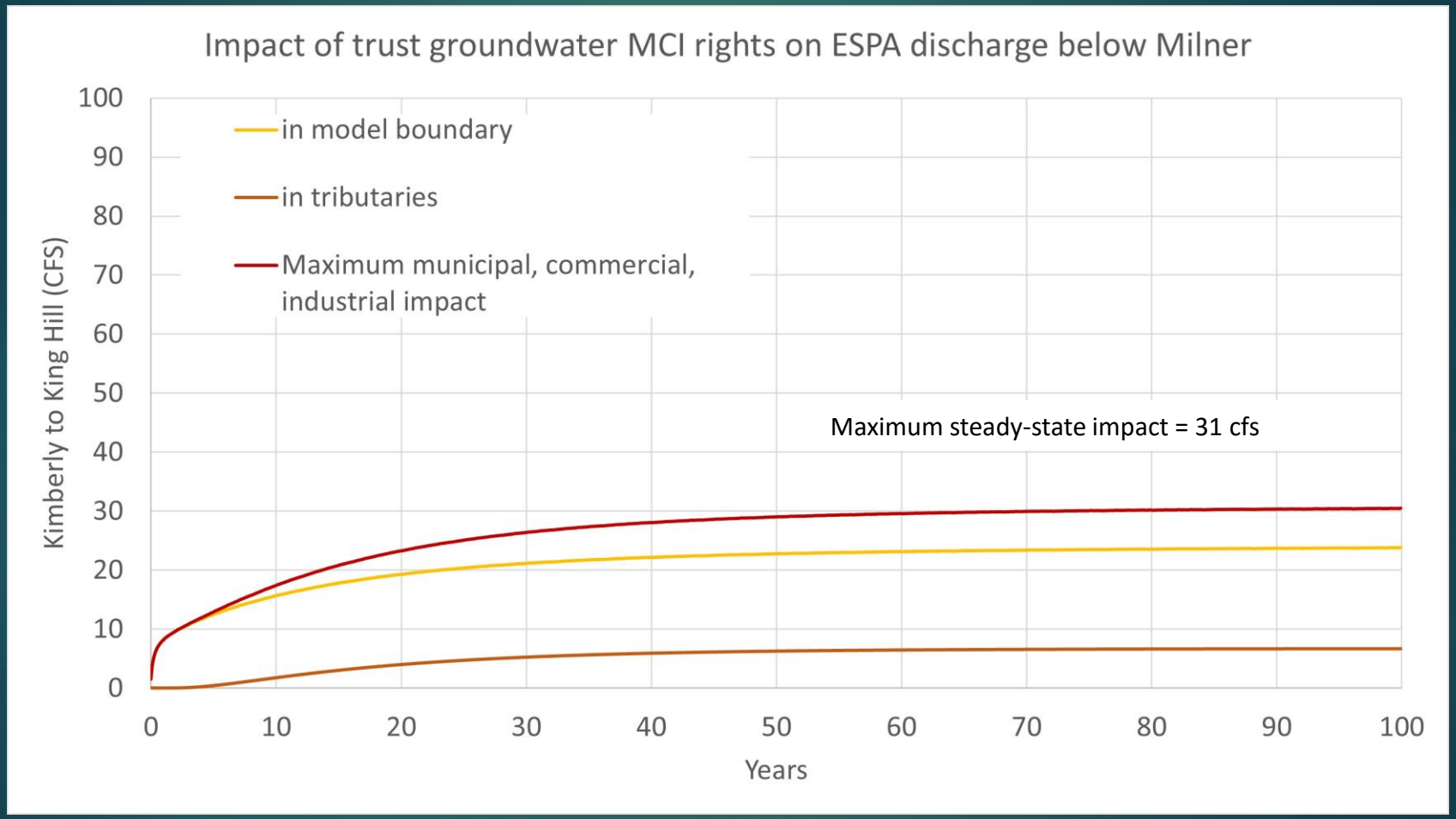
Q2. Modeled impact to ESPA discharge below Milner



Q2. ESPAM2.2 modeled impact (irrigation use)



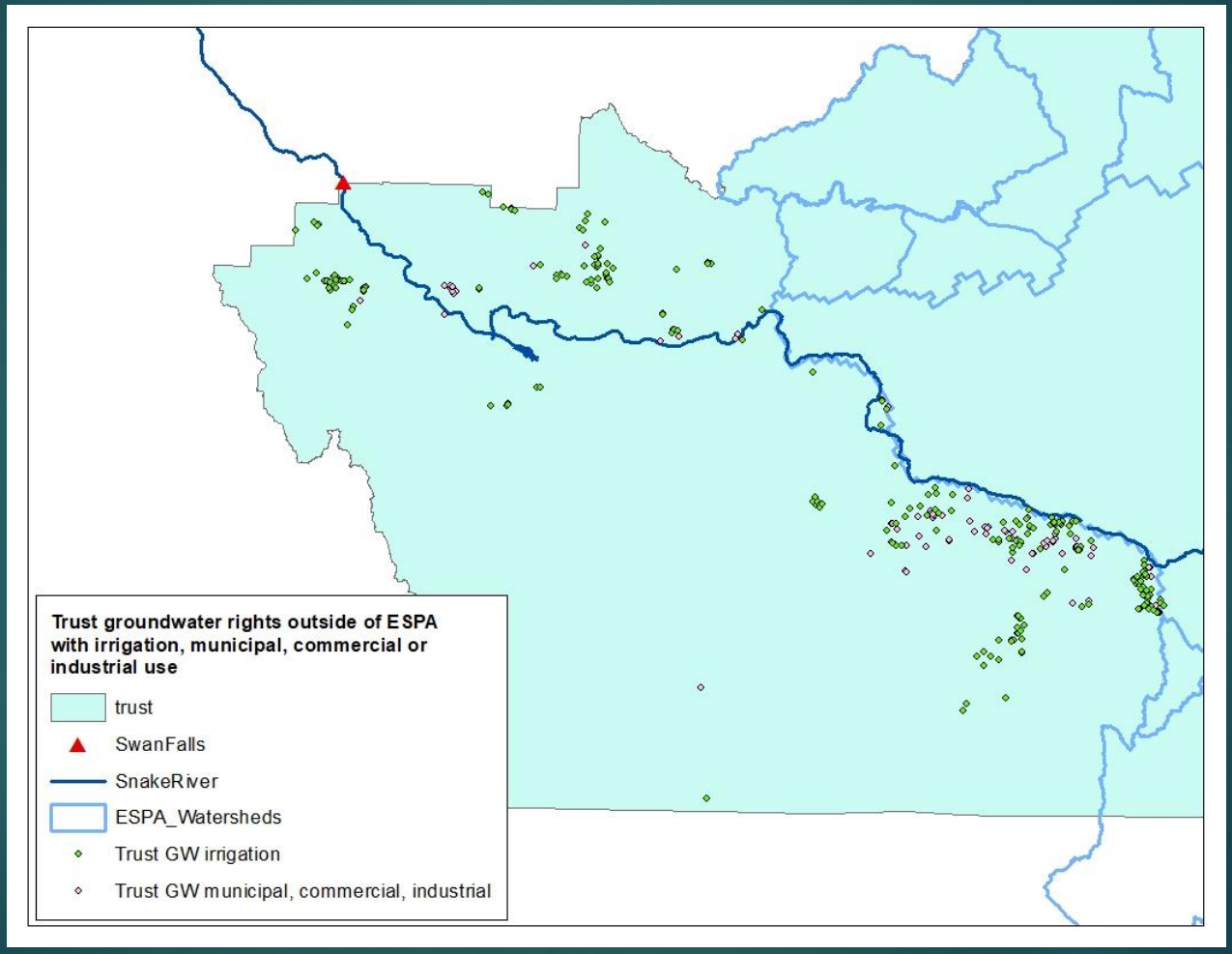
Q2. ESPAM2.2 modeled impact (MCI use)



Q2. ESPAM2.2 modeled impact

- Estimated long-term impact of trust groundwater rights on ESPA discharge to Snake River below Milner
  - average annual impact, 61 to 92 cfs
  - 51 to 82 cfs in March
  - 71 to 102 cfs in August

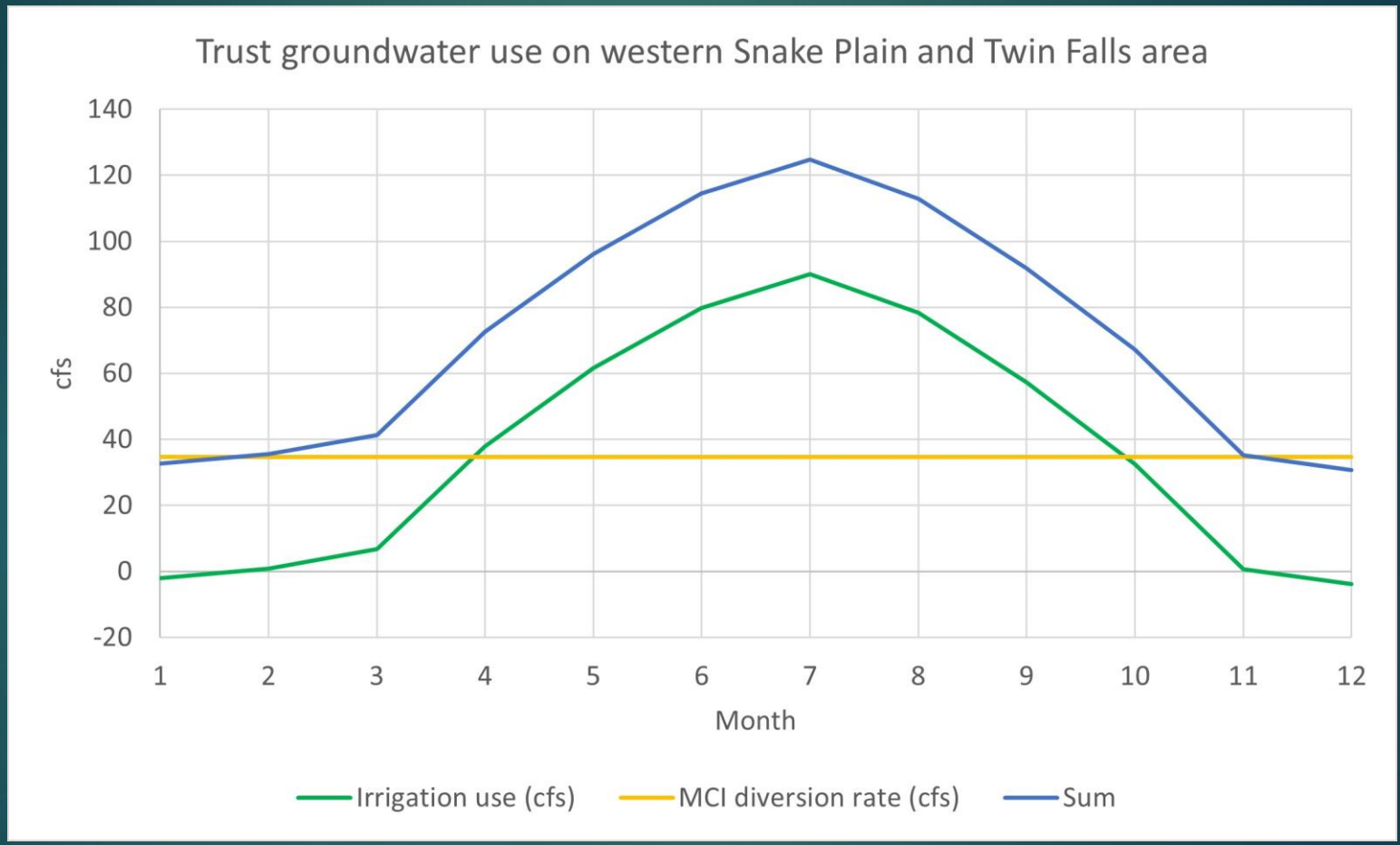
Q3. Analyze impacts of groundwater trust water rights not located on the ESPA to the Snake River below the Milner Dam



Q3. Assumptions

- Water uses other than irrigation, municipal, commercial and industrial were assumed to have minimal consumption use and were excluded
- Water rights flagged as non-consumptive or mitigated were excluded
- Irrigation water rights were assumed to irrigate one acre per 0.02 cfs and consumptive use was assumed to equal the monthly crop irrigation requirement
  - average monthly precipitation deficit from ET_{Idaho} (usually 30-year average) for peak alfalfa
- Paper diversion limits were assumed for municipal, commercial, and industrial water rights (maximum authorized diversion rate → likely overestimate of impact)
- Long-term volume of impact on Snake River below Milner is assumed to be equal to volume of consumptive use
- Timing of impact has not been evaluated

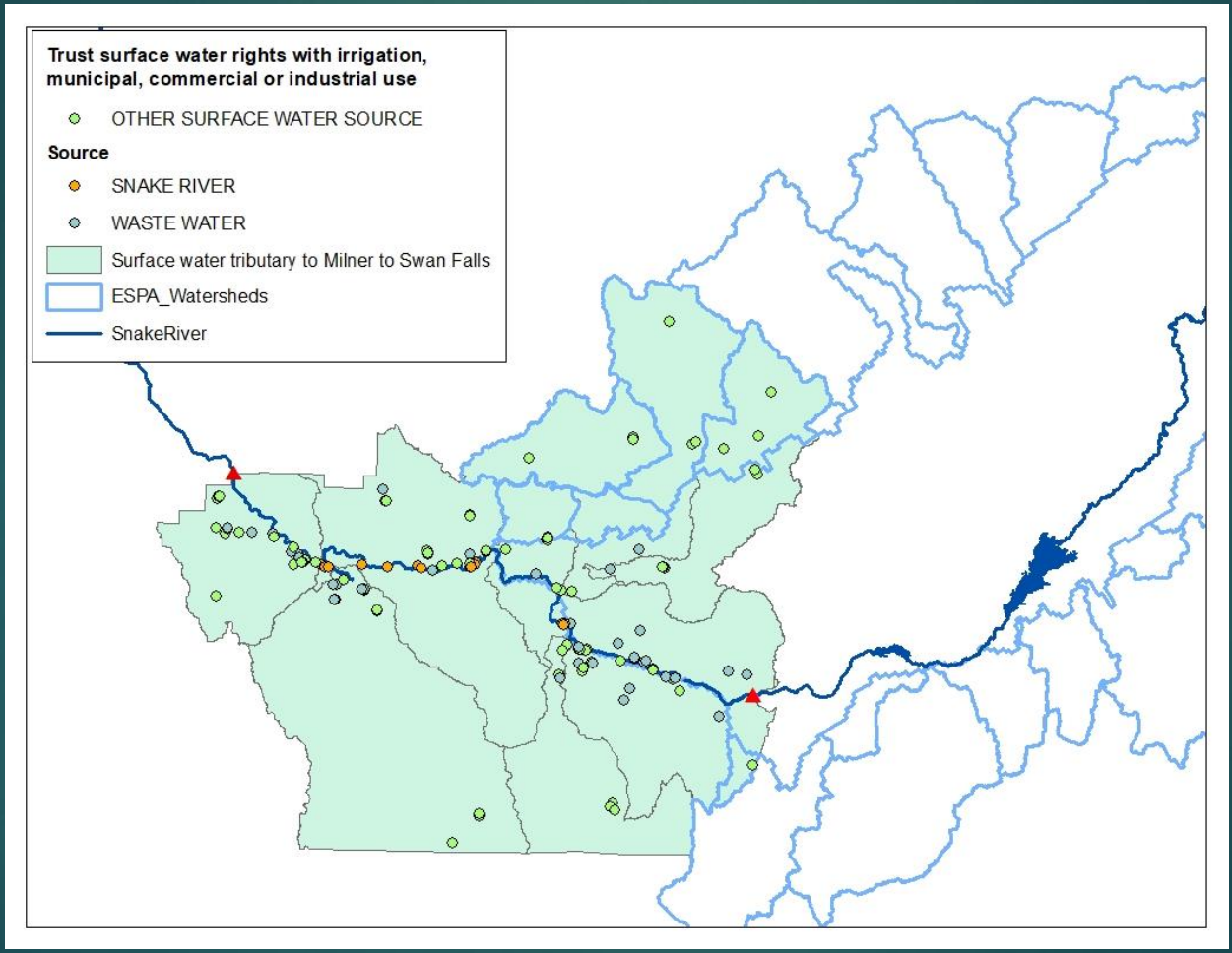
Q3. Trust groundwater use outside of ESPA



Q3. Impact of trust groundwater use outside of ESPA

- Estimated long-term impact of trust groundwater rights outside of ESPA on discharge to Snake River below Milner
  - Annual average impact, 37 to 72 cfs
  - Peak summer impact, 90 to 125 cfs, likely attenuated by response time
  - Timing of Snake River response to groundwater pumping not evaluated

Q4. Analyze impacts of surface water trust water right diversions to the Snake River below the Milner Dam



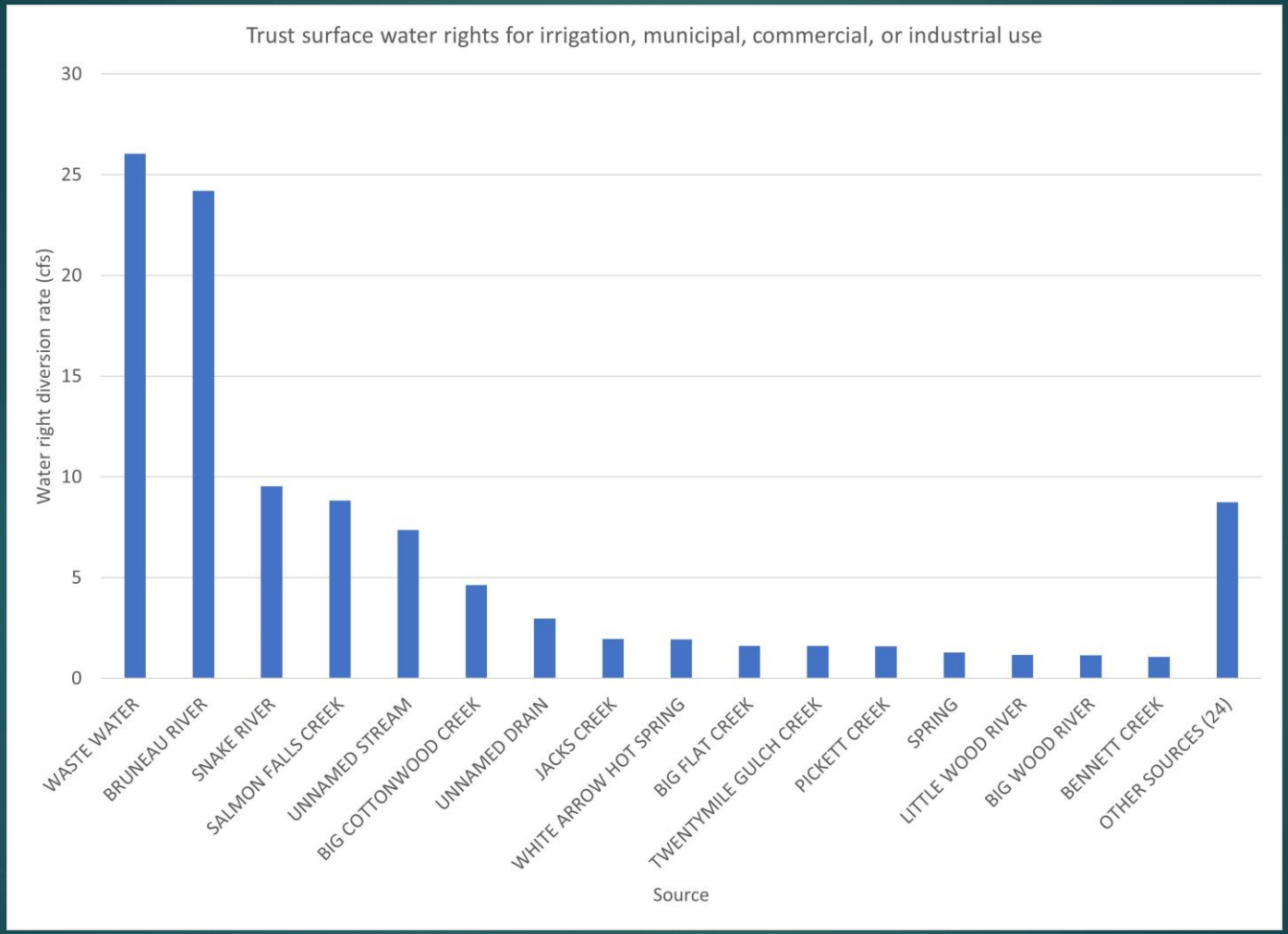
Q4. Assumptions

- Water uses other than irrigation, municipal, commercial and industrial were assumed to have minimal consumption use and were excluded
- Water rights flagged as non-consumptive or mitigated were excluded
- Irrigation water rights were assumed to irrigate one acre per 0.02 cfs and consumptive use was assumed to equal the monthly crop irrigation requirement
  - average monthly precipitation deficit from ET_{Idaho} (usually 30-year average) for peak alfalfa
- Paper diversion limits were assumed for municipal, commercial, and industrial water rights (maximum authorized diversion rate → likely overestimate of impact)

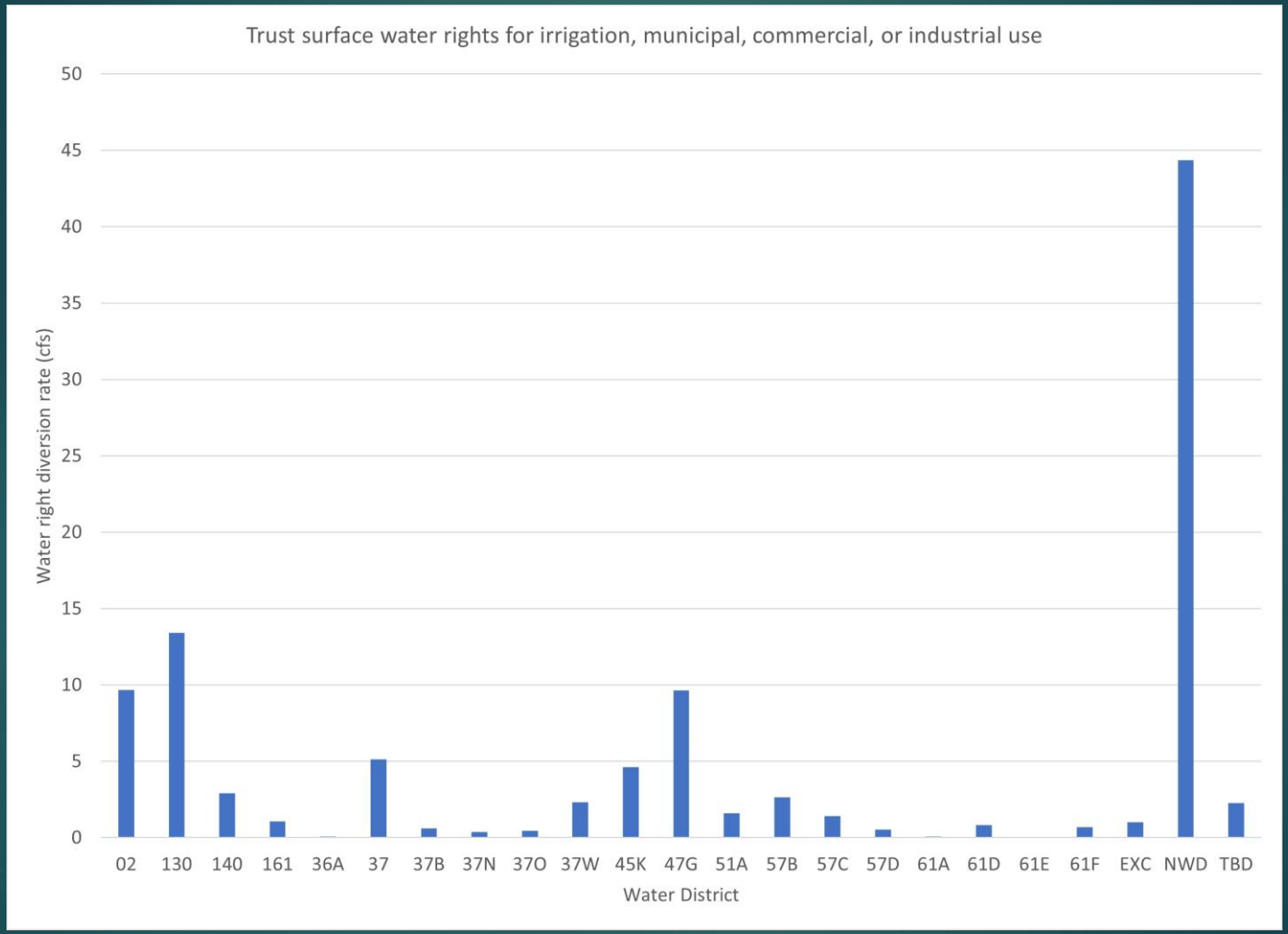
Q4. Quantifying impact of surface water trust rights

- Estimating potential impact
  - CIR for irrigation water rights based on peak alfalfa
    - 7 cfs in March
    - 68 cfs in July
  - 4 cfs municipal
  - < 1 cfs commercial
- How often and what time of year is water available to fill these water rights?
  - Are diversion records available for some water rights?

Q4. Surface water trust rights by source



Q4. Surface water trust rights by Water District



Q2 – Q4. Summary of preliminary long-term impact estimates

- Q2. ESPA and tributary groundwater trust rights
  - 51 to 82 cfs in March
  - 71 to 102 cfs in August
- Q3. non-ESPA groundwater trust rights
  - 37 to 71 cfs annual average
  - peak mid-summer impact up to 90 to 125 cfs
- Q4. surface water trust rights
  - less than 12 cfs in March
  - less than 73 cfs in July

Discussion