

# Stop NISP: Keep The Water In The Poudre!



Gary Wockner  
Save The Poudre

1,000 dues-paying  
members in Larimer



# The Poudre River Drained

**63% of the river is already drained out  
before it reaches downtown Fort Collins**

**Percent Reduction in Streamflow, Lincoln  
Street Gage, Downtown Fort Collins**  
(Table 6.4, Water Resources Technical Report, CD  
Smith 2014, SDEIS )

	May	June	July
Wet Year	44%	15%	16%
Average year	66%	25%	54%
Dry Year	58%	40%	2%
All Years	68%	25%	45%

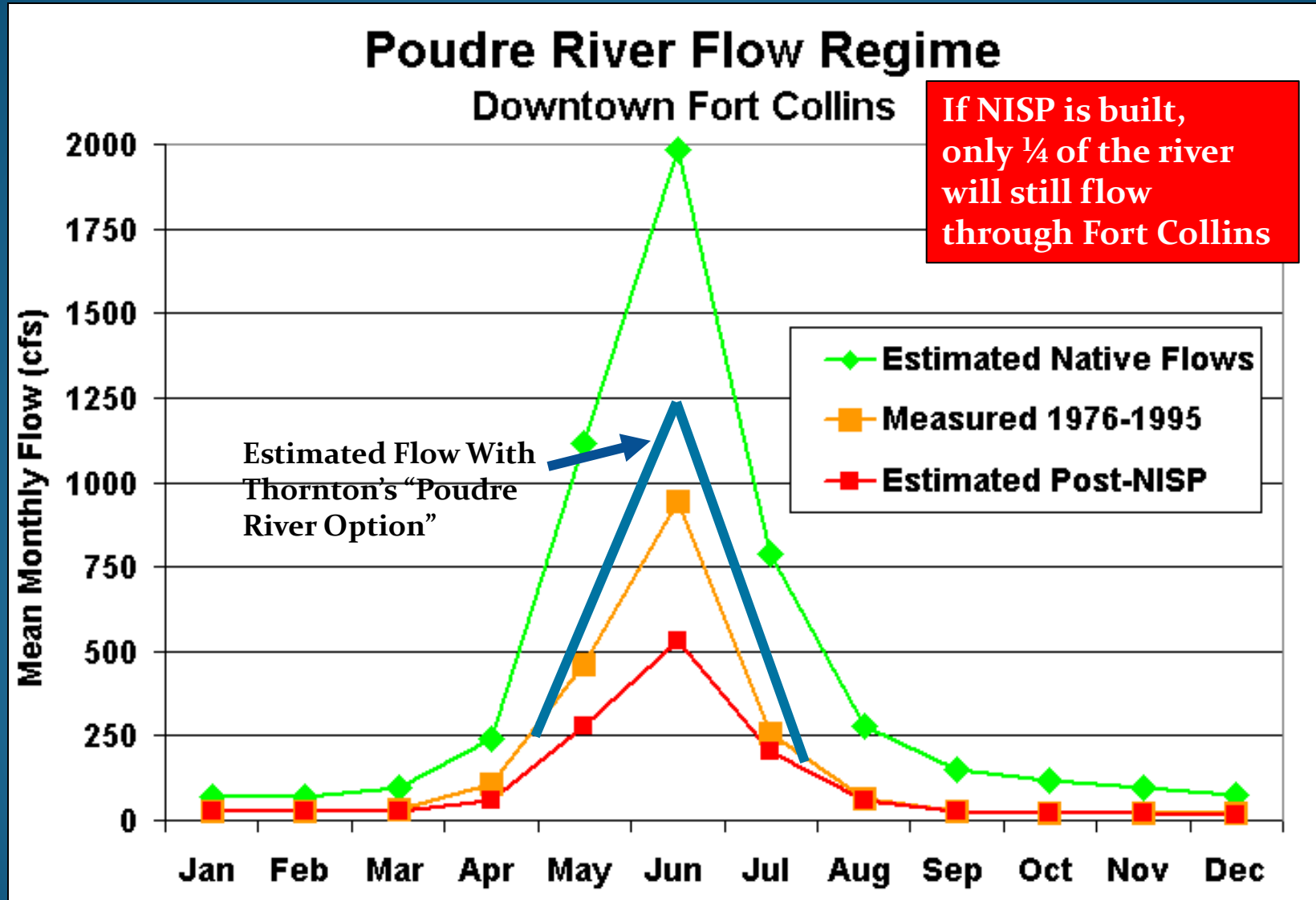
# Glade



Fort  
Collins

Timnath

# NISP Would Divert Significant Amounts of Water out of the Poudre River in Fort Collins





# Ten Negative Impacts of Draining the Poudre River of its Peak Flows

1. Causes river water to be warmer, can lead to fish die-offs
2. Sediment and mud build up
3. Trout can't spawn in mud
4. Algae growth in riverbed and on rocks
5. Pollution of City's stormwater and wastewater is much worse due to lack of dilution
6. Dries up wetlands
7. Dries up forest canopy – cottonwoods and willows
8. Destroys recreational opportunity, including the new Whitewater Park
9. Increases flooding
10. Ugly

# The City of Fort Collins Poudre River Health Report Card

C

OVERALL  
GRADE

## STATE of the POUDRE

### A River Health Report Card

The purpose of the River Health Report Card is to provide a description of the current health of the Poudre River from approximately Gateway Natural Area to I-25. This Report Card provides the City of Fort Collins with a new tool to benchmark progress towards its vision of sustaining a healthy and resilient Cache la Poudre River.

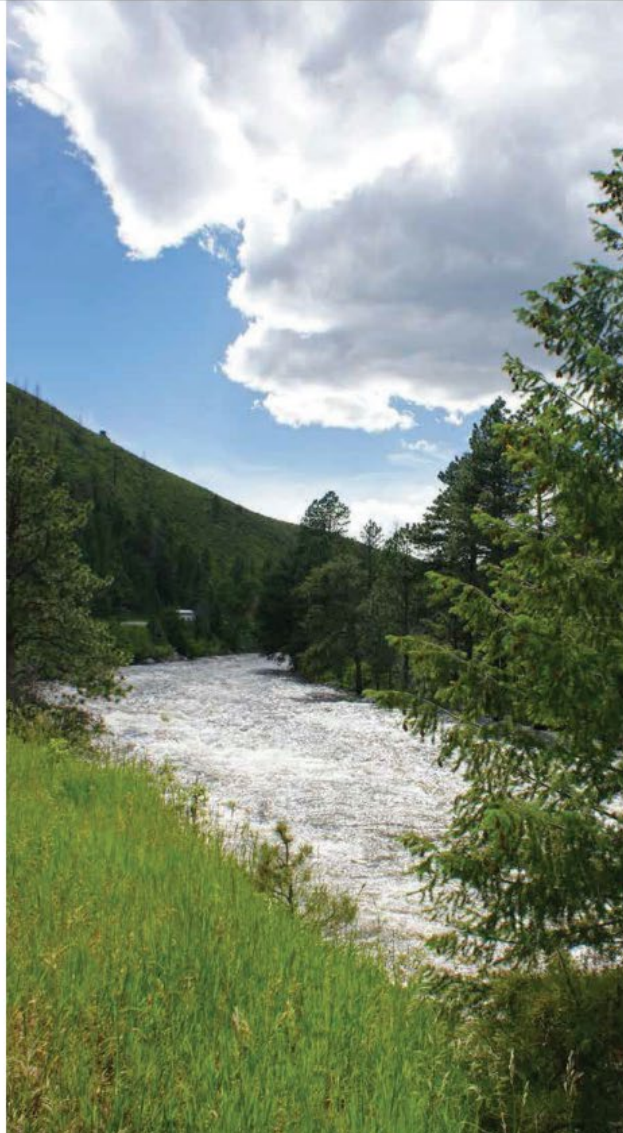
The Cache la Poudre River (Poudre) is a complex natural system that has been altered by nearly two centuries of human use. This has resulted in dramatic changes to water quantity and quality, the physical structure of the river, floodplain, forests, and wildlife communities associated with it. The human footprint continues to expand, placing additional pressure (or stresses) on the river ecosystem and the natural processes that sustain it.

### OVERALL GRADE

For the study area the Poudre River received an overall grade of C. This grade indicates that even though the Poudre has been altered and degraded by a suite of local and system wide stresses that impair its health, it continues to support basic elements of a functioning river ecosystem.

### APPROACH

While the Poudre flows 126 miles from its headwaters to its confluence with the South Platte near Greeley this study focuses on a 24-mile reach from the lower canyon through Fort Collins. Six key indicator groups are informed by metrics, the measurable elements of the system. Metrics grades are developed by collecting and incorporating many types of data and then translated into an A-F grading system.



### SIX KEY INDICATORS GROUPS

were used to evaluate river health.



#### FLOWS

River flows are the primary driver of river health. Runoff from snowmelt brings high flows in spring and early summer. These high flows refresh the riverbed for fish, scour away algae, and provide water to riverside vegetation. Base flows are low flows that occur throughout the rest of the year and sustain basic needs for life in the river. Understanding fluctuation of flows (how quickly flow volumes change over short time periods) is important as this can create unnatural and challenging conditions for fish and insects.



#### SEDIMENT

Sediment includes soil, sand, and rock that are washed from watershed slopes and the riverbanks into and down the river. A natural component of all rivers, too much or too little can cause imbalances in the river's physical processes. An imbalance of sediment can affect fish and insect populations as well as the capacity of the river channel to convey large floods.



#### RIVER CHANNEL

The shape of the river's winding path, its width and depth, and the presence of finer in-stream habitats across faster and slower moving waters influence this indicator group. The river's response, or resilience, to natural disturbances (such as floods or drought) is closely linked to the condition of its physical setting.



#### WATER QUALITY

This is the chemical ability of water to support life, including the plants and animals that live in and depend on it including humans. Dissolved oxygen and temperature are critical factors controlling which types of organisms can live there. While nutrients are necessary to support aquatic life, excessive levels can degrade water quality and cause algal blooms, decreased clarity, and bad odor.



#### AQUATIC LIFE

Introduced, non-native trout are prized for their recreational values while small bodied native fish are valued as a central element of a healthy Poudre River. Aquatic insects (insects that live part of their life on the river bottom) are an essential part of the river system and form the base of the food chain. The upstream-downstream connectivity of river habitats is a critically important component of this indicator.



#### RIPARIAN CORRIDOR

The interaction of land and water results in beautiful riverside forests, wetlands, and grasslands. Also, a healthy river-floodplain connection protects us in larger flood events because the river can access its floodplain. Valued as critical habitat for the majority of terrestrial wildlife, the riparian corridor supports river health by slowing floodwaters, filtering pollutants, and forming habitats for many animals closely tied to or dependent on the river itself.



# The City of Fort Collins Poudre River Report Card – Bad Grade in Fort Collins

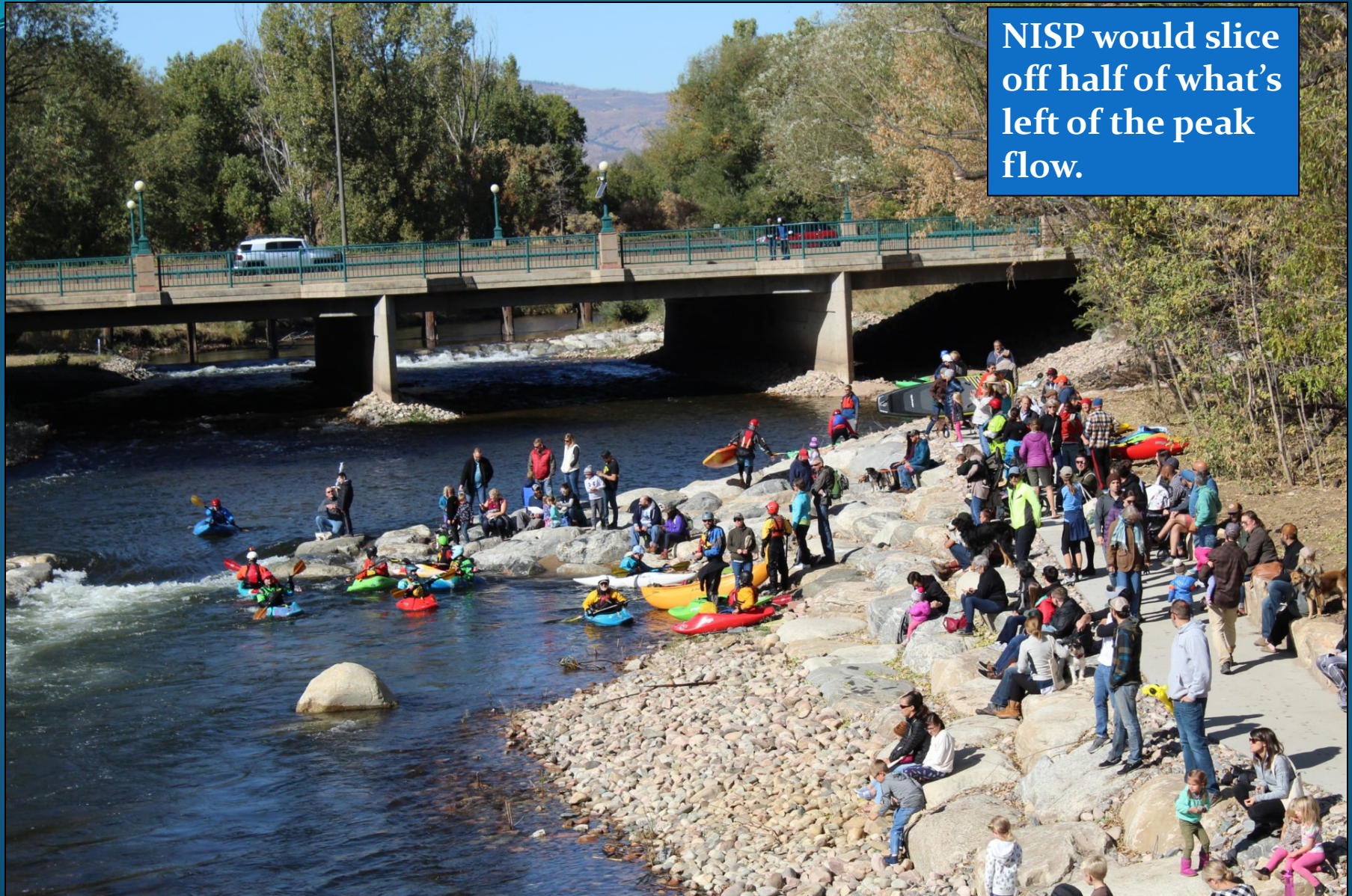
**Table 4.1: Summary of river health indicator scores and letter grades organized by zones and reaches.** Numerical scores are provided to illustrate the often subtle differences in the condition of health indicators. The assessment framework for the Poudre River uses a straight academic grading scale, where 90 and greater is an A grade, 80 and greater a B grade and so on. Letter grades are indicated through color coding. A key is presented below the table.

Zone	Canyon			Rural			Urban							Plains				
Reach	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Flow Regime	77	75	75	74	74	73	73	72	72	72	69	69	69	69	69	70	77	77
Sediment Regime	91	84	84	83	82	81	83	82	81	79	79	80	79	79	79	79	79	79
Water Quality	88	77	77	77	87	87	87	87	89	89	89	89	88	88	88	86	83	83
Floodplain Connectivity	78	82	85	74	65	85	62	61	87	50	67	73	70	77	50	98	82	71
Riparian Condition	85	87	85	77	73	74	64	69	76	63	65	70	71	73	70	76	71	68
River Form	82	74	72	79	68	78	67	74	76	70	78	74	75	77	67	74	75	69
Resilience	82	79	76	79	75	76	67	77	78	69	79	77	74	75	71	76	74	68
Physical Structure	76	74	71	82	72	79	66	77	79	77	81	70	77	76	63	74	74	69
Aquatic Life	80	81	78	76	76	76	77	78	72	74	79	79	85	85	85	78	78	78
River Health	82	79	78	77	74	78	70	74	78	70	74	74	75	76	70	78	76	73
	80			76			74							75				

Made Worse With NISP



# Negative Impact on Poudre Whitewater Park



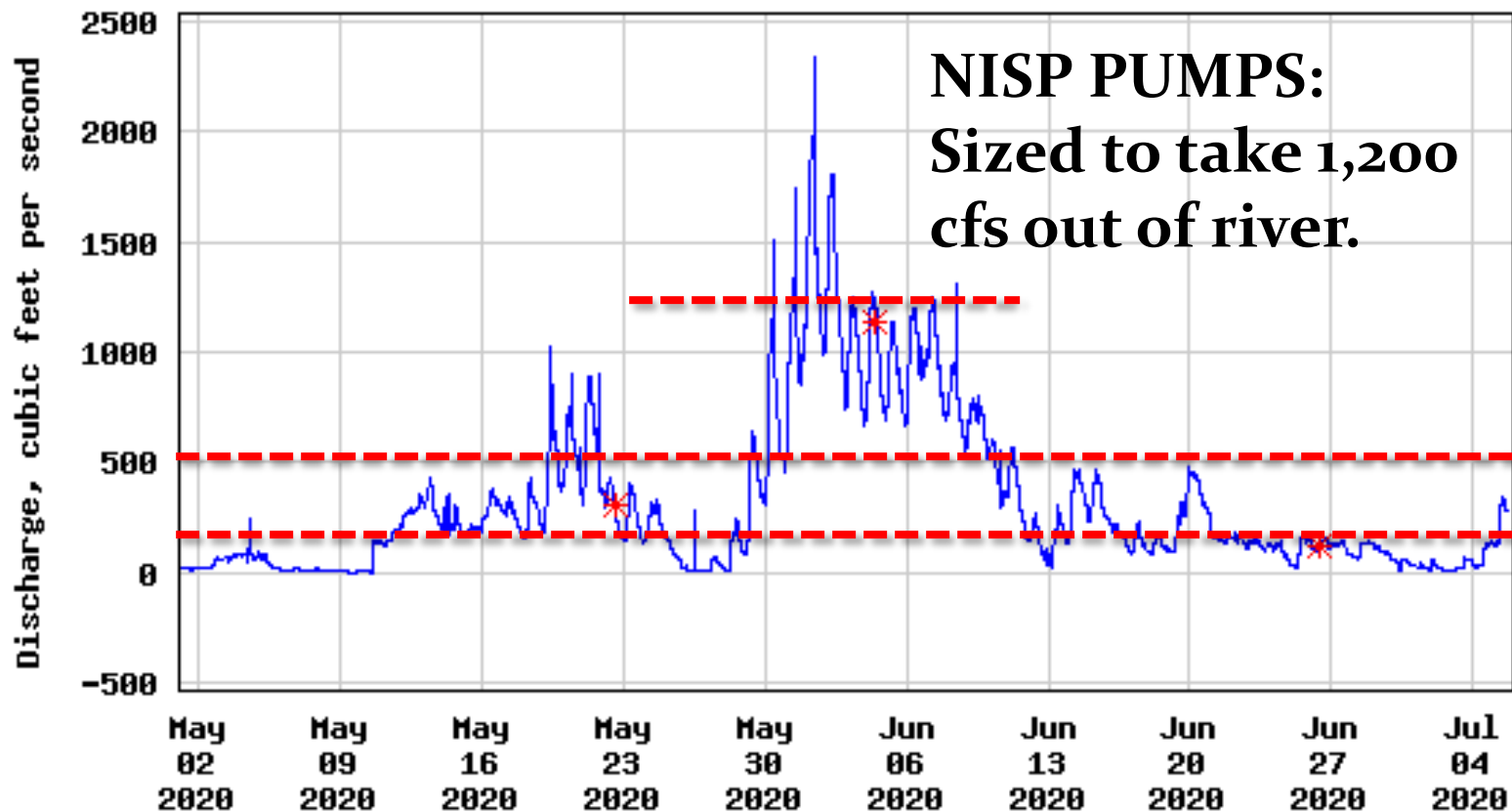
NISP would slice off half of what's left of the peak flow.



# Recreation on the Poudre in Fort Collins: 500 cfs needed for kayak; 150 to tube



USGS 06752260 CACHE LA POUUDRE RIVER AT FORT COLLINS, CO



----- Provisional Data Subject to Revision -----

— Discharge

\* Measured discharge

# Paper by Bestgen, Poff, et al (2020)

*Ecological Applications*, 30(1), 2020, e02005

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## Designing flows to enhance ecosystem functioning in heavily altered rivers

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**Citation:** Bestgen, K. R., N. L. Poff, D. W. Baker, B. P. Bledsoe, D. M. Merritt, M. Lorie, G. T. Auble, J. S. Sanderson, and B. C. Kondratieff. 2020. Designing flows to enhance ecosystem functioning in heavily altered rivers. *Ecological Applications* 30(1):e02005. 10.1002/eap.2005

**Abstract.** More than a century of dam construction and water development in the western United States has led to extensive ecological alteration of rivers. Growing interest in improving river function is compelling practitioners to consider ecological restoration when managing dams and water extraction. We developed an Ecological Response Model (ERM) for the Cache la Poudre River, northern Colorado, USA, to illuminate effects of current and possible future water management and climate change. We used empirical data and modeled interactions among multiple ecosystem components to capture system-wide insights not possible with the unintegrated models commonly used in environmental assessments. The ERM results showed additional flow regime modification would further alter the structure and function of Poudre River aquatic and riparian ecosystems due to multiple and interacting stressors. Model predictions illustrated that specific peak flow magnitudes in spring and early summer are critical for substrate mobilization, dynamic channel morphology, and overbank flows, with strong subsequent effects on instream and riparian biota that varied seasonally and spatially, allowing exploration of nuanced management scenarios. Instream biological indicators benefitted from higher and more stable base flows and high peak flows, but stable base flows with low peak flows were only half as effective to increase indicators. Improving base flows while reducing peak flows, as currently proposed for the Cache la Poudre River, would further reduce ecosystem function. Modeling showed that even presently depleted annual flow volumes can achieve substantially different ecological outcomes in designed flow scenarios, while still supporting social demands. Model predictions demonstrated that implementing designed flows in a natural pattern, with attention to base and peak flows, may be needed to preserve or improve ecosystem function of the Poudre River. Improved regulatory policies would include preservation of ecosystem-level, flow-related processes and adaptive management when water development projects are considered.

**Key words:** algae; aquatic insects; channel geomorphology; climate change; designed flow regime; fish; hydrology; modeling; NEPA policy change; probabilistic Bayesian Network model; riparian community; water development.

“Improving base flows while reducing peak flows, as currently proposed for the Cache la Poudre River, would further reduce ecosystem function.”



# Alternative 1: Water Conservation

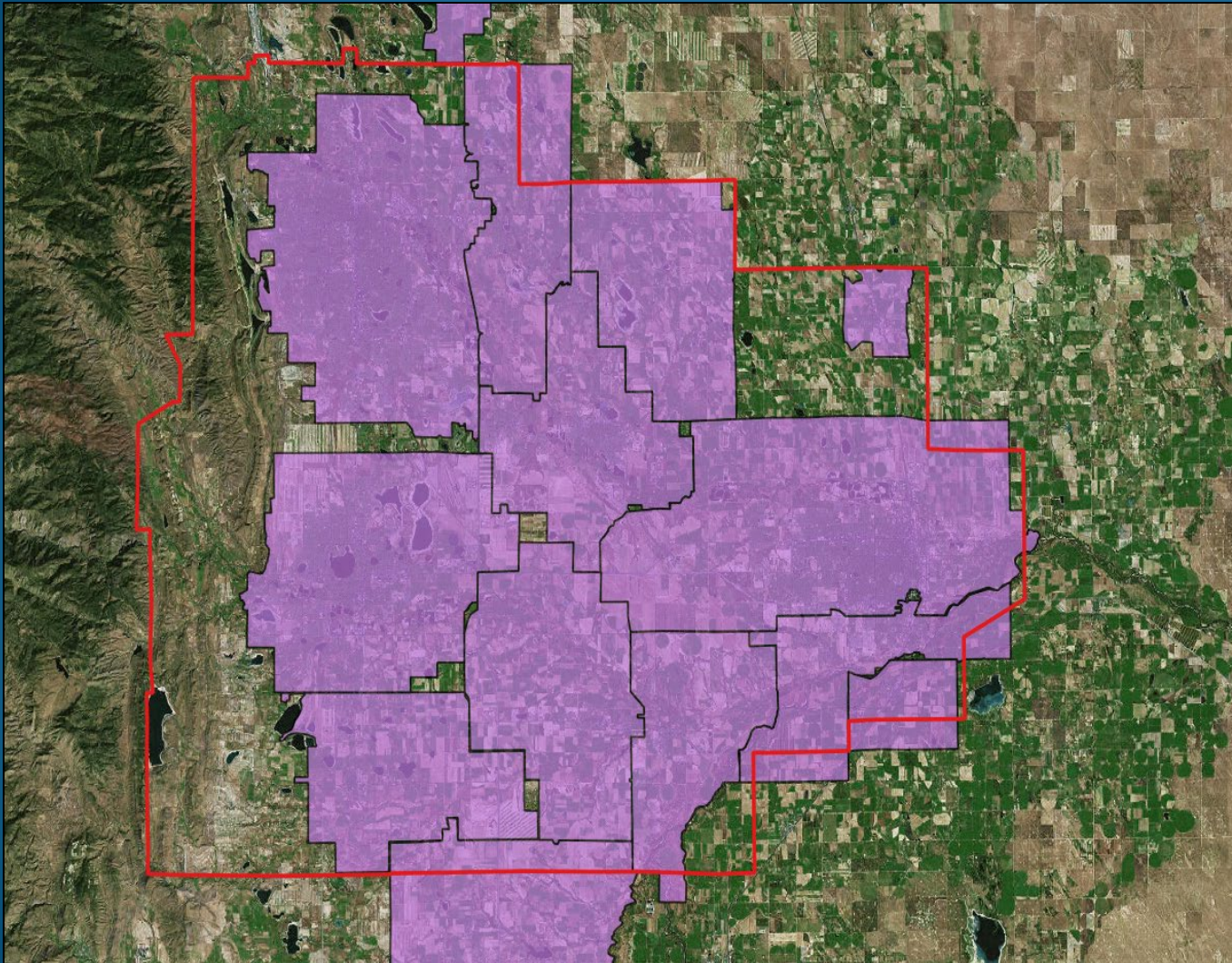
50% of water in NISP towns is used to keep the grass green.  
Xeriscape instead.





# NISP WON'T SAVE FARMS

What's Going To Happen To The Farms If NISP Is or Isn't Built?



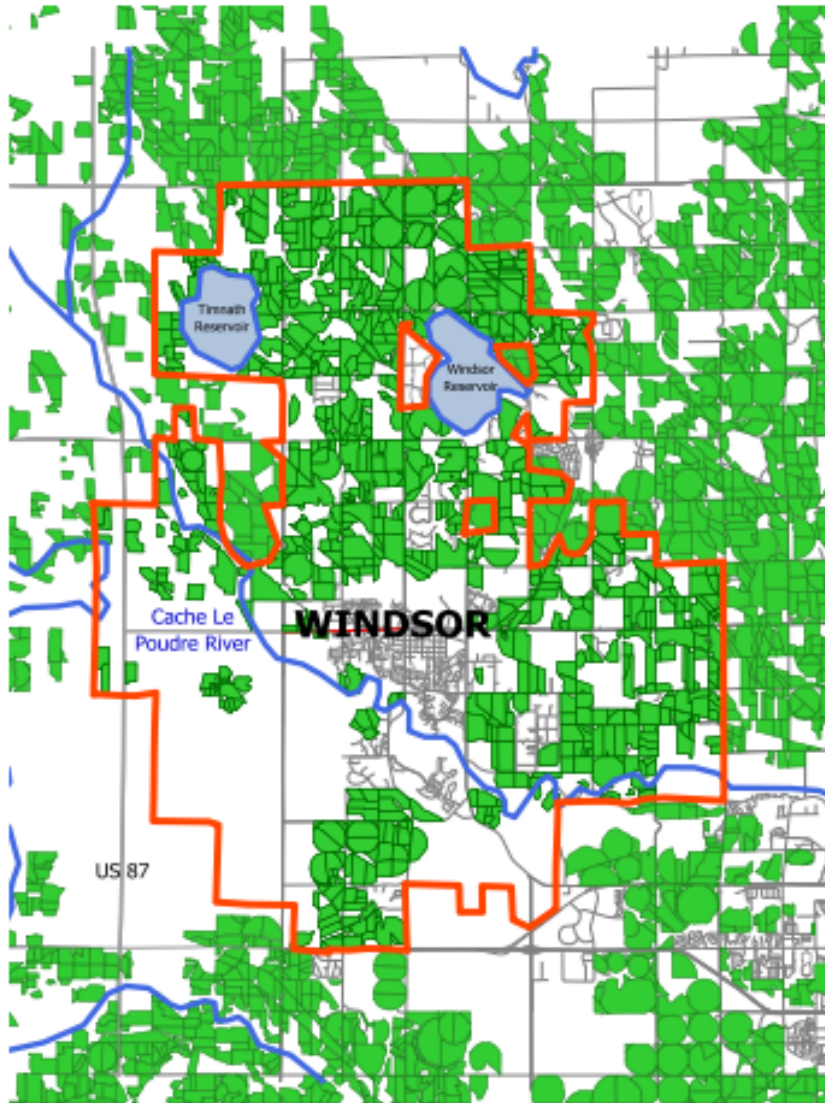
Alternative 2 –  
Use Farm Water:

North Front  
Range  
Metropolitan  
Planning  
Organization  
2060:

- 167,530 acres  
of farms sold
- 118,942 acre feet  
of water sold



## EXAMPLE OF NISP PARTICIPANT WINDSOR'S GROWTH MANAGEMENT AREA\* AND SURFACE-WATER- IRRIGATED LANDS†.



### ALTERNATIVE 2:

- Growth will happen on top of farms.
- Windsor and other NISP towns should buy water from farms that will be sold off and devoured by growth.

# Alternative 3: Clean The River Through Fort Collins

Around \$2 billion proposed to be spent draining the river before it reaches town.

Instead, clean the river and use it as a conveyance.



AbTech End of Pipe Unit at Kearney Point, New Jersey



The proposed mitigation – 18 cfs -- is a farce. Turns Poudre River into a muddy stinking ditch through Fort Collins.



# NISP Application Violates 1041 Criteria

- The application is incomplete.
- Does not meet Criteria 1: “proposal is consistent with the master plan and applicable intergovernmental agreements affecting land use development.” (NO, IT ISN’T)
- Does not meet Criteria 2: “applicant has presented reasonable siting and design alternatives or explained why no reasonable alternatives are available.” (NO, THEY HAVEN’T)
- Does not meet Criteria 3: “conforms with adopted county standards, review criteria and mitigation requirements concerning environmental impacts, including but not limited to those contained in this Code.” (NO, IT DOESN’T)
- Does not meet Criteria 6: “will not negatively impact public health and safety.” (YES, IT WILL – more concentrated pollution in river, including e Coli)



# NISP Application Violates 1041 Criteria

- Does not meet Criteria 7: “will not be subject to significant risk from natural hazards including floods, wildfire or geologic hazards.” (YES, IT WILL)
- Does not meet Criteria 10: “benefits of the proposed development outweigh the losses of any natural resources or reduction of productivity of agricultural lands as a result of the proposed development.” (NO, IT DOESN'T)
- Does not meet Criteria 11: “demonstrates a reasonable balance between the costs to the applicant to mitigate significant adverse affects and the benefits achieved by such mitigation.” (NO, IT DOESN'T)

# Stop NISP, Save Our Poudre!

