## Upper Colorado River Basin: Gunnison River Action Plan (GAP)

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## Policy



## Examples

### • Black Canyon Decree (2008)

- 30 year battle
- United States, conservationists, water users, the State of Colorado, and others
- Flow Targets Water Courts
- Final Environmental Impact Statement (2012)
  - Statement to save fish



### Target Flows

Period	Dates	Wet	Normal	Dry
1	January 1-31	1,000 CFS	1,000 CFS	600 CFS
2	February 1-14	1,800 CFS	1,800 CFS	1,200 CFS
3	February 15-28	3,350 CFS	3,350 CFS	2,250 CFS
4	March 1-15	3,350 CFS	3,350 CFS	2,250 CFS
5	March 16–22	1,800 CFS	1,800 CFS	1,200 CFS
6	March 23-31	2,400 CFS	2,400 CFS	1,700 CFS

\*\*\* Can depend on month, season, time of year \*\*\*





## **Background and History**

- Major tributary to the Colorado River
- Bound by Continental Divide and Blue Mesa Dam into the Black Canyon
- Top destination for recreational activities
- Cattle and sheep ranches, cornfields, hay production, and orchards can be found throughout the basin
- Tributaries to the river are controlled by several dams and diversions
- Most of the basin receives less than 15 in of rainfall per year
- 2008 Black Canyon Decree, 2012 Final Environmental Impact Statement
- Uncompangre Project, Aspinall Unit

### **Gunnison Basin:**



## **Mission Statement**

GAP's objective is to create and maintain a sustainable water resource plan with fishable and swimmable water quality standards in the Upper Gunnison River Valley by the year 2050.



## Problem 1: Inadequate Water Resources

### Causes:

- Agriculture
  - Estimated  $\frac{3}{4}$  of river depletion is due to agriculture  $\rightarrow$  used for alfalfa, grains, and pasture (immensely water intensive)
  - Bureau of Reclamation involved since 90s in setting up irrigation --> increased water development
- Increase in Colorado population
  - Expected that by 2050 there will be 3-5 million new residents in Colorado
  - Big portion of economy in this region is from outdoor recreation
- Climate Change
  - Decrease in flow, increased evaporation, and a decrease in the snowpack will increase the gap between supply and demand
- Drought

## Problem 1: Inadequate Water Resources

### Solutions:

### • Agricultural efficiency

- Use a more efficient form of irrigation such a drip irrigation
- Crop shifting and rotational fallowing
- Policies in effect to divert less water from the river for agricultural purposes
- $\circ$  Grow different and less water intensive crops
- Municipal conservation
  - Rainwater harvesting, improved landscape techniques, installing low-flow appliances, monetary incentives to use less water-intensive devices



## Problem 2: Declining Water Quality

### Some Groundwater Never Some Groundwater River Some G

### Causes:

- Salt, metal, and selenium found in Gunnison River soil
  - Selenium adversely affects downstream farmers and the reproductive abilities of four endangered fish species - Humpback/Boneytail chubs, Colorado pikeminnow, & Razorback sucker
  - Salinity, metals affect delicate water chemistry of the basin
- Mines and drilling near the river
  - Mancos shale decomposes, leaching cocktail of acidic heavy metals into the waterway
- Agricultural Runoff
  - Cows contribute excess of nitrogen, phosphate, fecal contaminants
  - Algal blooms

## Problem 2: Declining Water Quality

### Solutions:

### • Implement public outreach/education plan

- Higher standards for drillers/miners working near the river
- Institution of more efficient irrigation method for farmers
  - Replace dated practice of flood irrigation
- Educate GR stakeholders of their personal impact to water quality recreational effects
- Retrofit/maintain critical water infrastructure
  - Many civil infrastructures were established in the early 1900s and show their age
  - Clear out old reservoirs, modernize existing structures such as dams

## **Problem 3: In-Stream Habitat Degradation**

### Causes:

- Dams
  - Dams such as the Blue Mesa and Morrow's Point damn severely affect the Natural Hydrology
    - Trap sediment, Fish migration
- Drought
  - "Flows in the North Fork have decreased by 18 percent in the last 10 years compared to historic flows."
- Depletions
  - Agricultural uses causes the most depletions through evapotranspiration

## Problem 3: In-Stream Habitat Degradation

### Solutions:

- Droughts
  - Water banking
  - Agricultural efficiency methods
- Dam
  - Fish Ladder
- Depletions
  - Regulate groundwater pumping



### Morrow Point Dam

## Goals of GAP

- Install water efficiency programs across multiple states to ensure sustainable and equitable use of the singular water resource
- Prevent mine deposit leaching/chemical spills to increase water quality levels to swimmable and fishable state standards
- Changing crops grown from the resources of the Gunnison River
- Promote public outreach/education programs
- Restore degraded stream habitats/civil infrastructure
- Maintain current healthy stream habitats
- Promote water conservation practices

# Questions?