



What's this about?

Exploring the Watershed Workspace

Good Samaritan Projects

Watershed Community Action

Clear Creek Watershed Foundation: A Watershed Community Resource





- Click to edit Master text styles
 - Second level
 - Third level
 - Fourth level
 - Fifth level

CCWF Many-varied Projects

- **Fiscal Management-Public and private funds**
- **Volunteer clean-ups and restoration projects**
- **Mine remediation**
- **Fish habitat construction**
- **Mine drainage improvement**
- **Renewable energy policy**
- **Wildfire Mitigation Planning**
- **Environmental Education & Public Outreach efforts**
- **Watershed community Support**

Partial List

- Local Communities
- Water providers
- State Agencies-WQCD;
DWR, CWCB, CPW,
CDOT; et al.
- Greenway Users
- Wastewater Treatment
operators
- Regular watershed
visitors
- Irrigators
- Rafting companies and
their customers
- Beer makers
- Snow makers

Federal Agencies-EPA,
USACE,USFS, USFWS et al.
Mining companies
Non profit agencies and other
organizations focused on land
and water issues
Owners of Water and Storage
rights
Hikers and cyclists
Sport *fishers*
Gold *panners*
Terrestrial and aquatic residents
of the watershed community

Clear Creek Watershed Community

- Clear Creek Forum created including project portfolio with priorities- 1990-1992
- Establishment of UCCWA- 1993
- Clear Creek Watershed Management Agreement
- Establishment of the Watershed Foundation
- Cooperative watershed monitoring
- Spill reporting and tracking
- Site-specific standards development
- Watershed Plan Development

Clear Creek Watershed Community Action

WATERSHED COMMUNITY ACTION:

- Achieve common understanding of problem(s)
- Agree to joint goals to address the problem
- Arrive at common indicators of success
- **Create collective Impact**

Source: Channeling Change: Making Collective Impact Work,
Stanford Social Innovation Review, by Fay Hanley brown, John
Kania,
& Mark Kramer

- Support community dialogue
- Organize Targeted Forums
- Participate in the community
- Build Consensus, Find Solutions

Balanced Stewardship

- Assist in data collection & analysis
- Coordinate community outreach
- Support prioritization of watershed Issues & Goals
- Mobilize funding

Identify Interrelated Initiatives
Identify project partners
Understand each individual community organization's needs
Find solutions that can bridge these needs

CCWF: A Watershed Community Backbone Organization



- Pollution Prevention
- Monitoring & Assessment
- Source Water Protection
- Development of Water Quality Standards
- Point & Nonpoint Source Pollution Control
- Clean Water Infrastructure Planning/Financing

Clean Water



Storm Water



Alpine Mine Drainage



Point Source Impacts

SAFE WATER

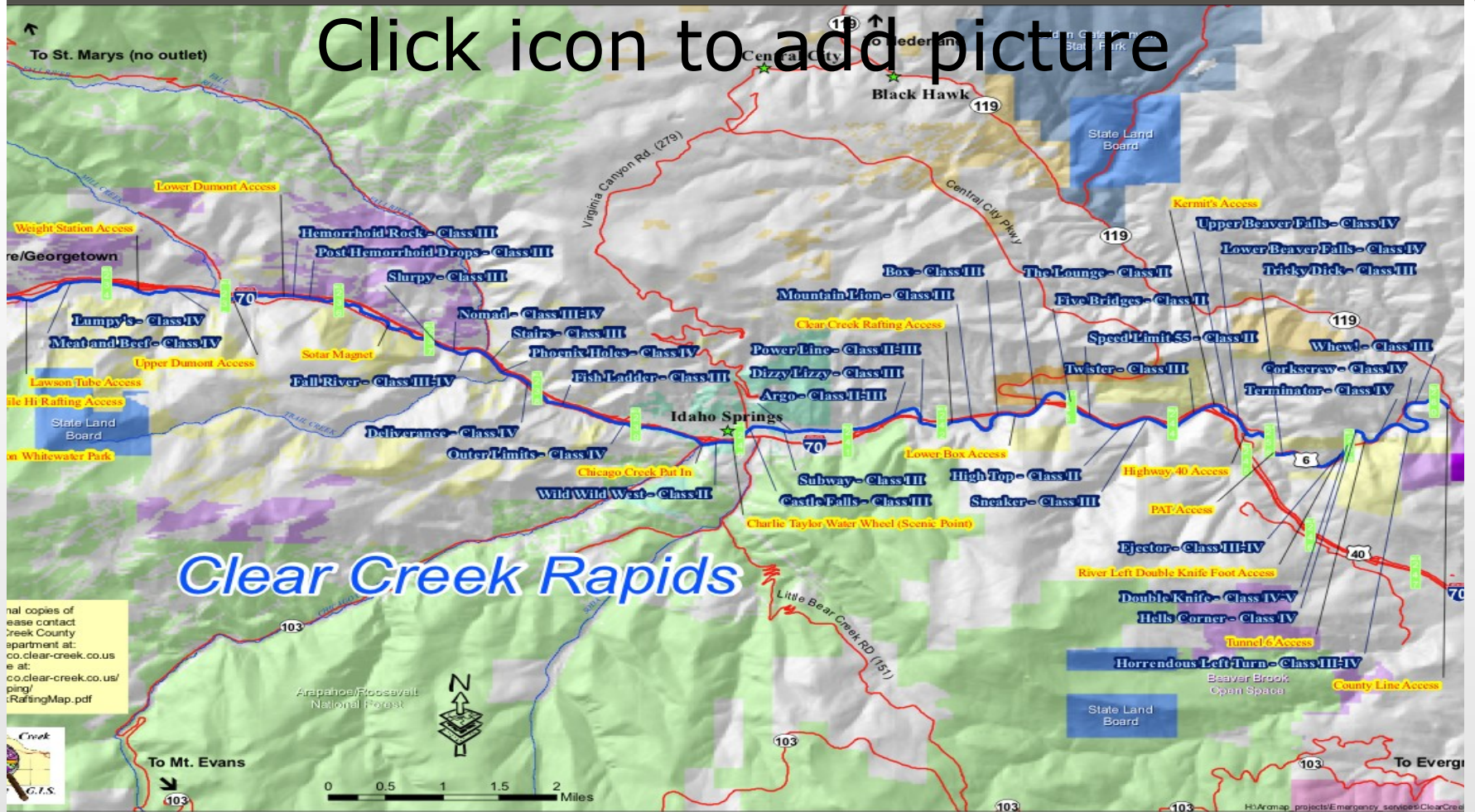
- Water Supply Withdrawals
- Aquatic Life Use of Stream
- In-stream Recreational Uses
- Agricultural Diversions

Beneficial Uses



Recreational Fishing

Click icon to add picture



For more information or to purchase a map, please contact Clear Creek Rafting at: www.clear-creek.co.us or call 303.438.1111. For a PDF of the map, visit www.clear-creek.co.us/pdfs/RaftingMap.pdf.



Clear Creek Rafting Map



Irrigation Diversion

Better Water

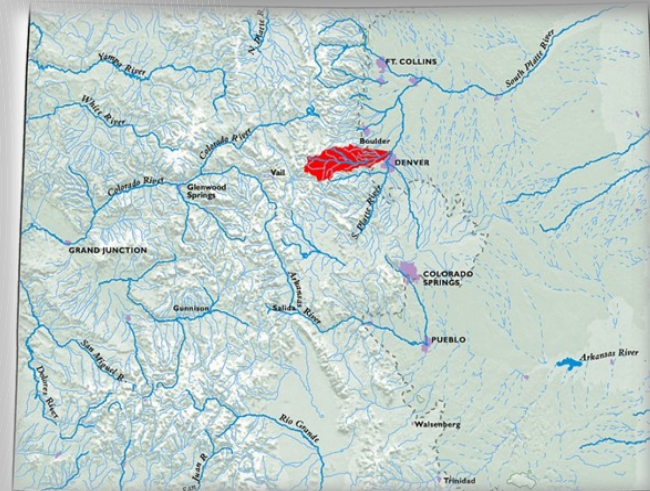
- Inactive / Abandoned Mine Reclamation
- *Passive* Mine Drainage Treatment
- Erosion Control
- Burned Land Restoration
- Stream Channel Stabilization
- Restoration of flooded lands

Restored Lands

GOOD SAMARITAN

As a “Good Samaritan” entity per a 2003 EPA Action Memo, CCWF has been working with numerous stakeholders to facilitate cleanup of the 1,600+ orphan mine and mill sites not covered by the Clear Creek/Central City Superfund program:

- Silver Cycle
- Little Bear
- Minnesota Mine Runoff
- McClellan Mill
- Freeland Area
- North Empire Ck





EPA

Good Samaritan Policy:

2012 Interpretive Memorandum
for 2007 Guidance



North Empire Creek

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Terraced reactors

- Second level

$Q = 5$ to 10 gpm (27 - 54 m³/d), $Zn = 63$ mg/L ($.97$ mM/L), $pH = 3.0$

- Third level

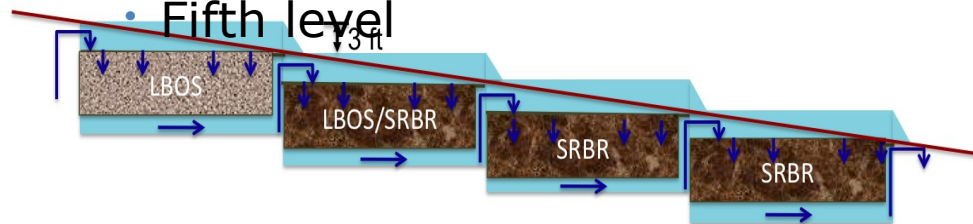
• Nominal characteristics: 4 cells, 50 ft by 12 ft by 8 ft deep per cell, 5ft of substrate, total V of 340 m³, Empty Bed HRT of 6.3 d to 12.6 d.

Profile

- Fourth level

Ground surface

- Fifth level



LBOS = lime buffered organic substrate, SRBR = sulfate reducing bioreactor

Plan view



Effluent to aerobic cascade prior to infiltration

Gilson Gulch Passive Treatment

- In-stream Habitat Restoration & Improvement
- Wetland Protection & Enhancement
- Riparian Zone Revitalization
- Wildfire Risk Reduction

Healthy Habitats

Click icon to add picture



Fish Habitat Enhancement



Restoration Challenges after Fire

- Water quality monitoring and assessment
- Natural history and ecology of the Watershed
- Historical/Cultural resources
- Community sustainability
- Outdoor learning opportunities
- Environmental education

Watershed Knowledge



Monitoring and Assessment

got flow?

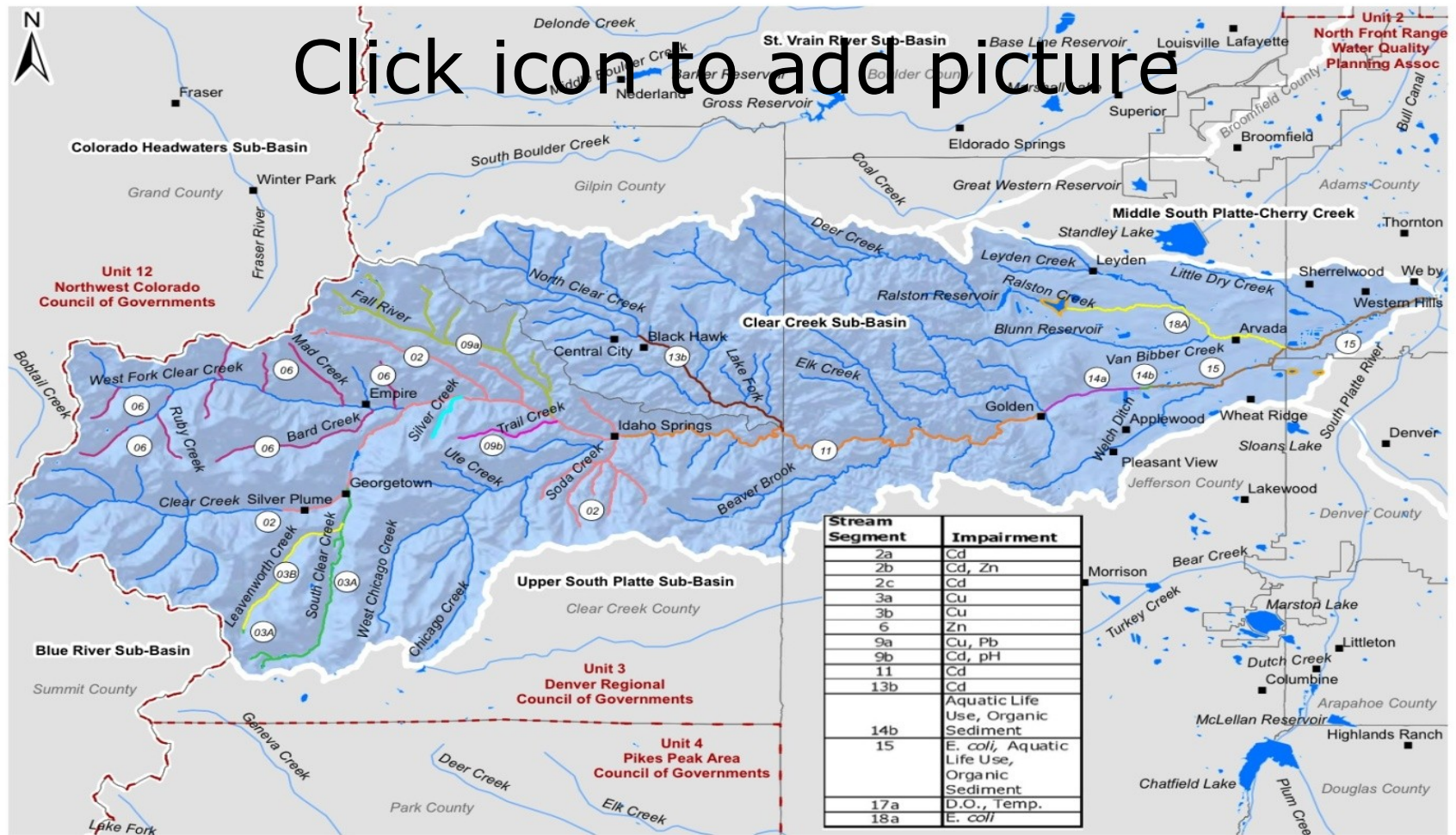
**click here for real-time
water flow info**



Go to: www.clearcreekwater.org

Clear Creek Flow at Kermit's Gage

Click icon to add picture



Stream Segment	Impairment
2a	Cd
2b	Cd, Zn
2c	Cd
3a	Cu
3b	Cu
6	Zn
9a	Cu, Pb
9b	Cd, pH
11	Cd
13b	Cd
14b	Aquatic Life Use, Organic Sediment
15	E. coli, Aquatic Life Use, Organic Sediment
17a	D.O., Temp.
18a	E. coli

Impaired Stream Segments from 2010 305(b) Report, Clear Creek Sub-Basin, Colorado

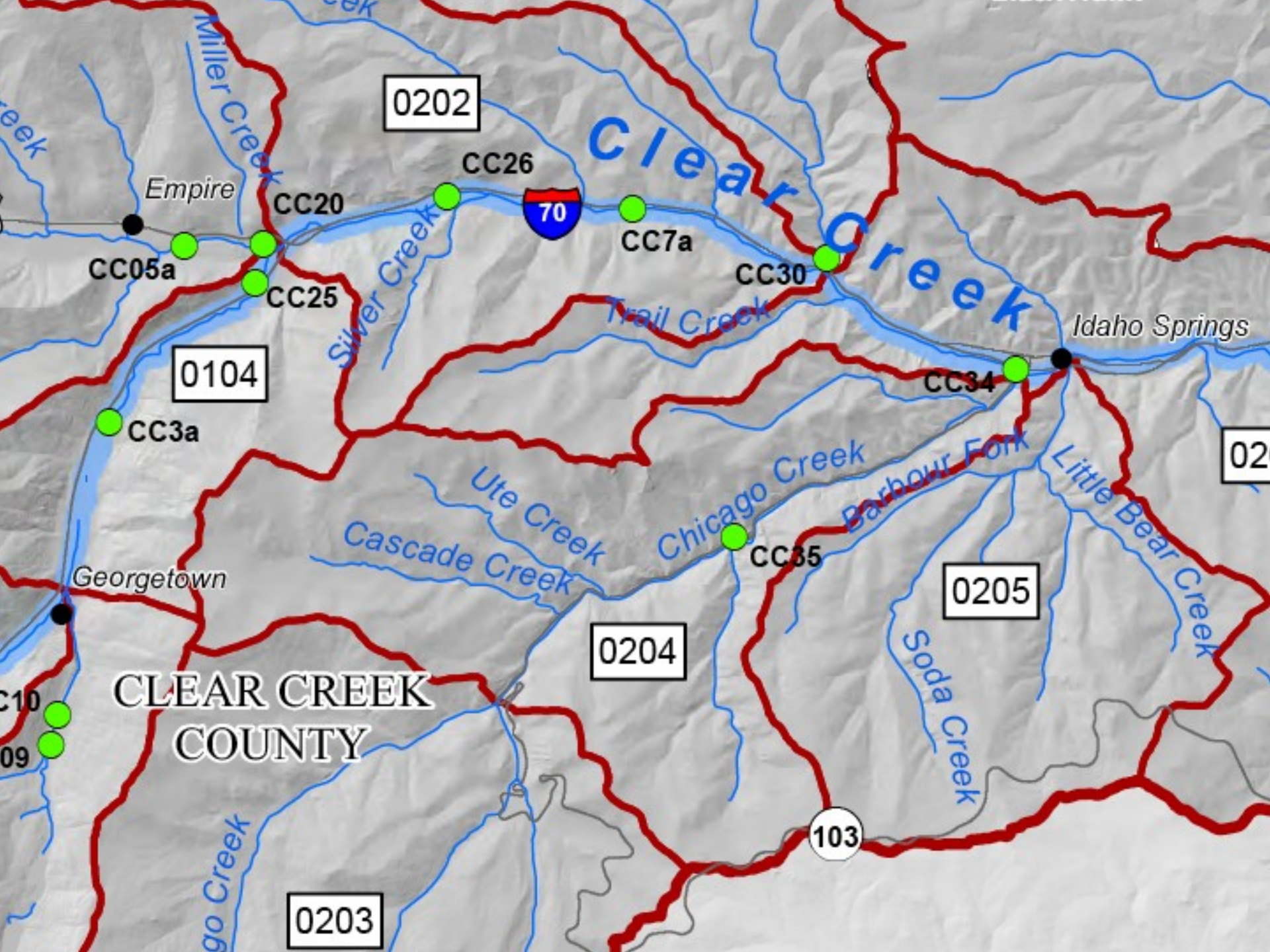
- Legend**
- Major Cities
 - County Boundaries
 - Sub-Basin Boundaries
 - Colorado Water Quality Planning Units
 - Waterbodies
 - Impaired Waterbodies

Impaired stream segments are indicated by differing colors and are labeled according to inset table



SPG Environmental, LLC
 Permitting and Compliance Specialists
 J.M. Ashby, cartographer

Clear Creek Monitoring Stations/Impaired Waters



0202

Clear Creek

CC26



CC7a

CC30

Empire

CC20

CC05a

CC25

0104

CC3a

CC34

Idaho Springs

02

Ute Creek

Chicago Creek

Barbour Fork

Little Bear Creek

Cascade Creek

Georgetown

CC35

0205

0204

CLEAR CREEK
COUNTY

CC10
09

0203

103

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