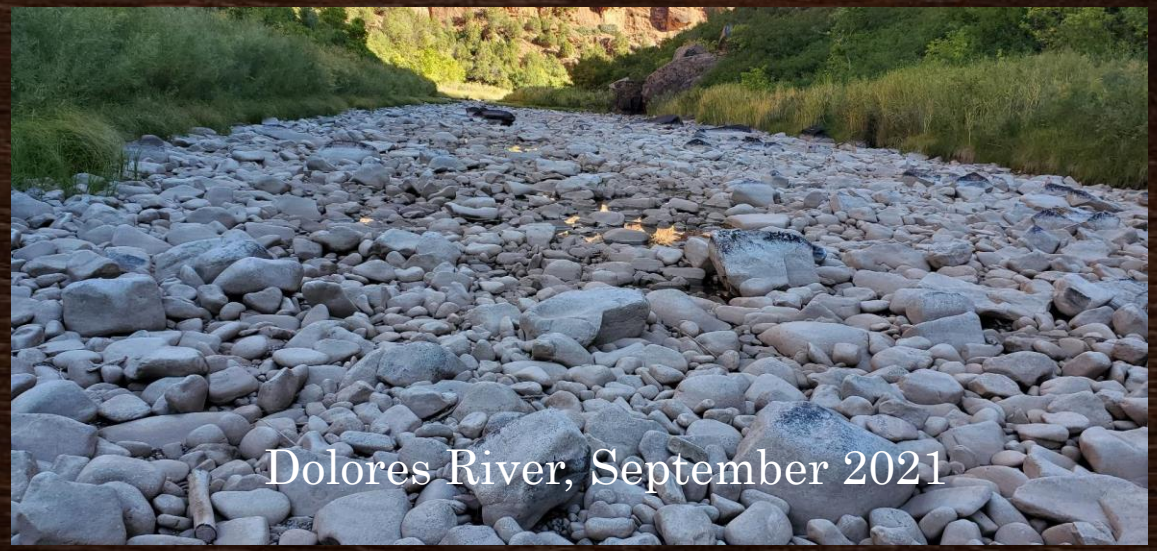
Shallow Waters: Fish conservation in a mega-drought.

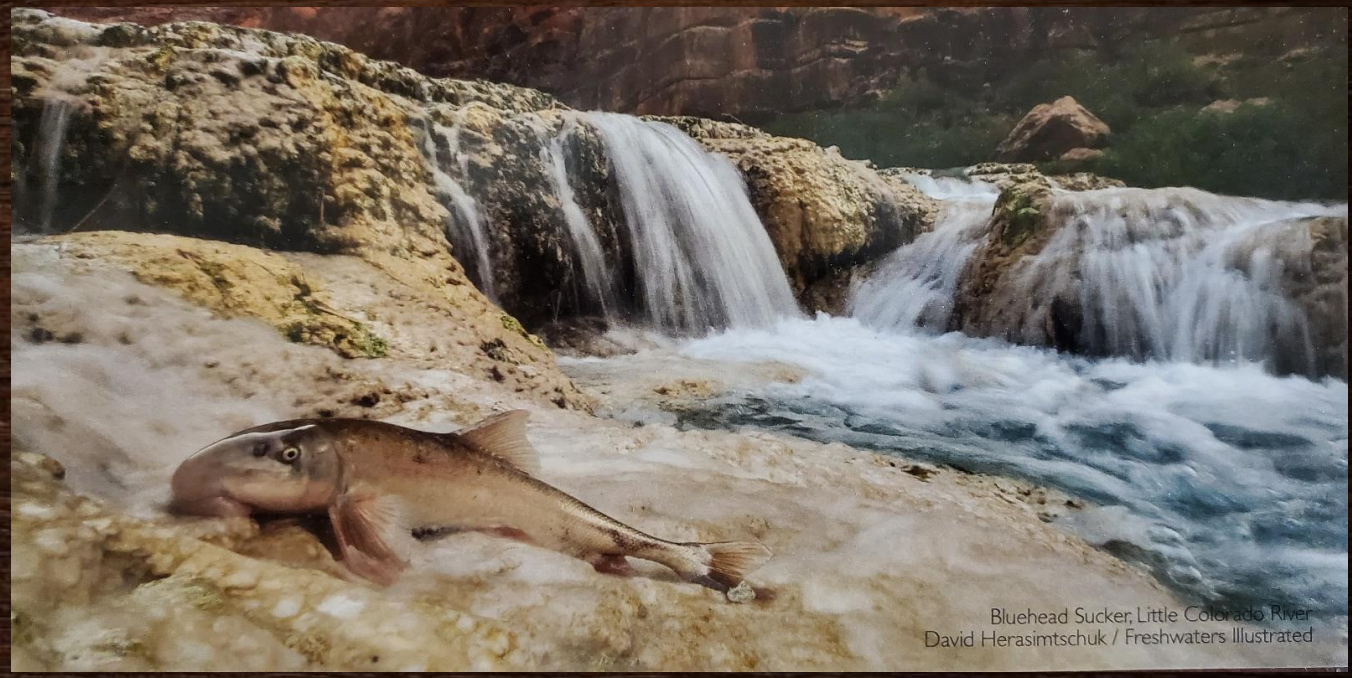


Dolores River, September 2021

JIM WHITE, CPW AQUATIC BIOLOGIST
J.WHITE@STATE.CO.US

Balancing water use and fish needs

- Fish need water
- But… timing, duration, magnitude all matter
- A fishes life history is critically important to understand so we can develop conservation strategies around water use
- Movement allows fishes to seek refuge, feed, and access reproductive areas



Bluehead Sucker, Little Colorado River
David Herasimtschuk / Freshwaters Illustrated

Critical Fish Habitat

Spawning habitat

Out-migrating Native Suckers

How do we balance fish management and water use?

Culvert barriers to movement

Cherry Creek. Perched culvert, La Plata County Road 113

Barriers to fish movement

Weber Diversion, Mancos River

Barriers to fish movement

Meet our Natives: The “3-Species”

Bluehead Sucker, Animas River

Bluehead Sucker

- Scraping ridges allow it to feed on the algae that grows on large cobbles
- Where do you find large cobbles? In the riffles!
- Can seek refuge in pools
- Makes long distance migrations to spawn as the peak of the snowmelt is starting to decline

Roundtail chubs

- Roundtail chubs occupy larger tributaries to the San Juan River
- They like pools with woody log jams and overhead cover
- They spawn just after high runoff in late June
- They feed on insects much like trout do
- You can catch them on a fly rod!

Upper San Juan River near Pagosa Springs

Flannelmouth Sucker: The “Salmon” of the suckers

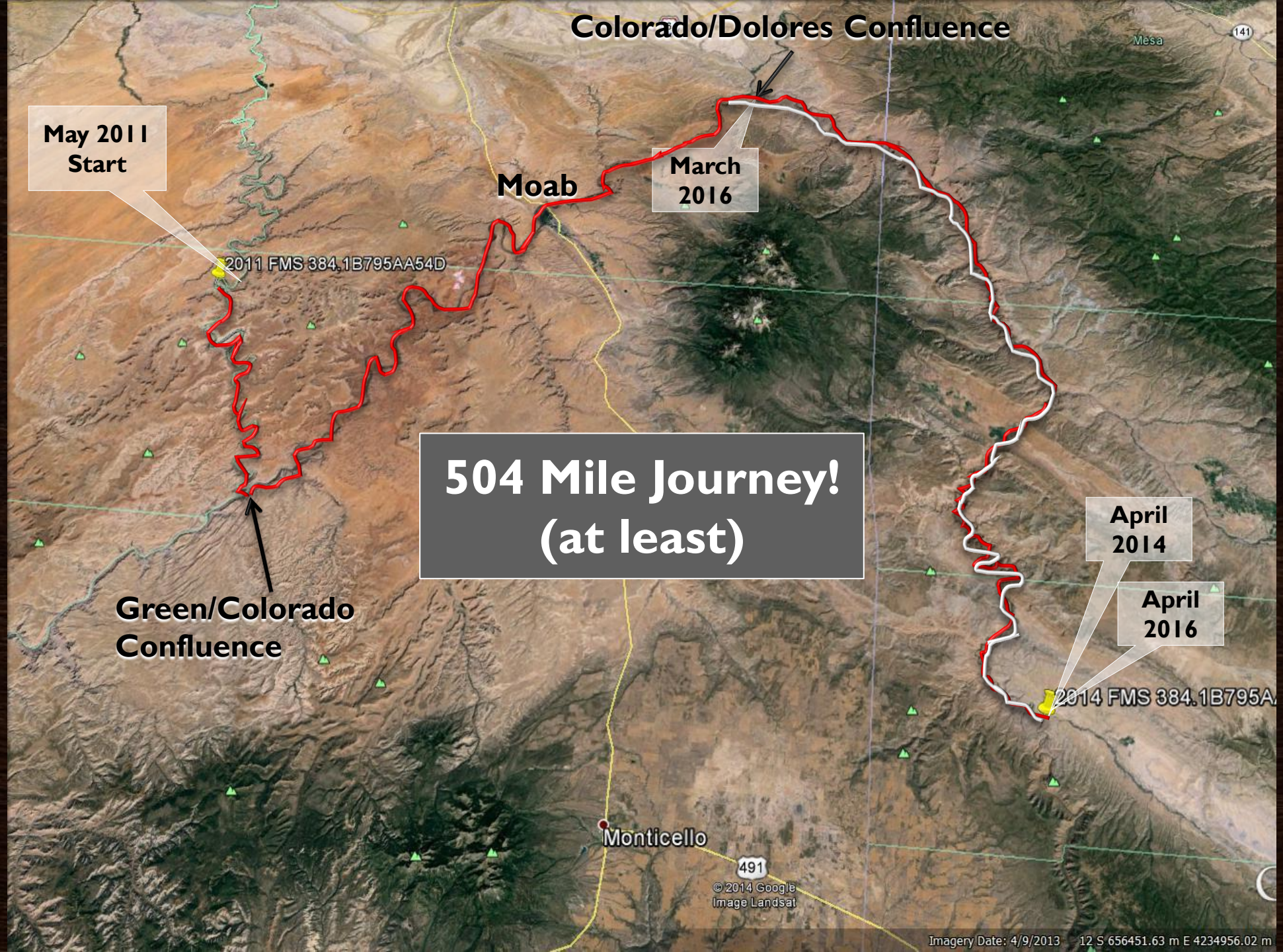
Flannelmouth Sucker

- Endemic
- Fleshy lips; Any guesses where this guy makes a living?
- Spawn in early spring as flows ramp up from snowmelt
- Make long distance spawning migrations

PIT Tag Array: Dolores River

Installed April 30th, 2013

Thanks to BLM, BOR, DWCD, SCTF (CPW) for funding

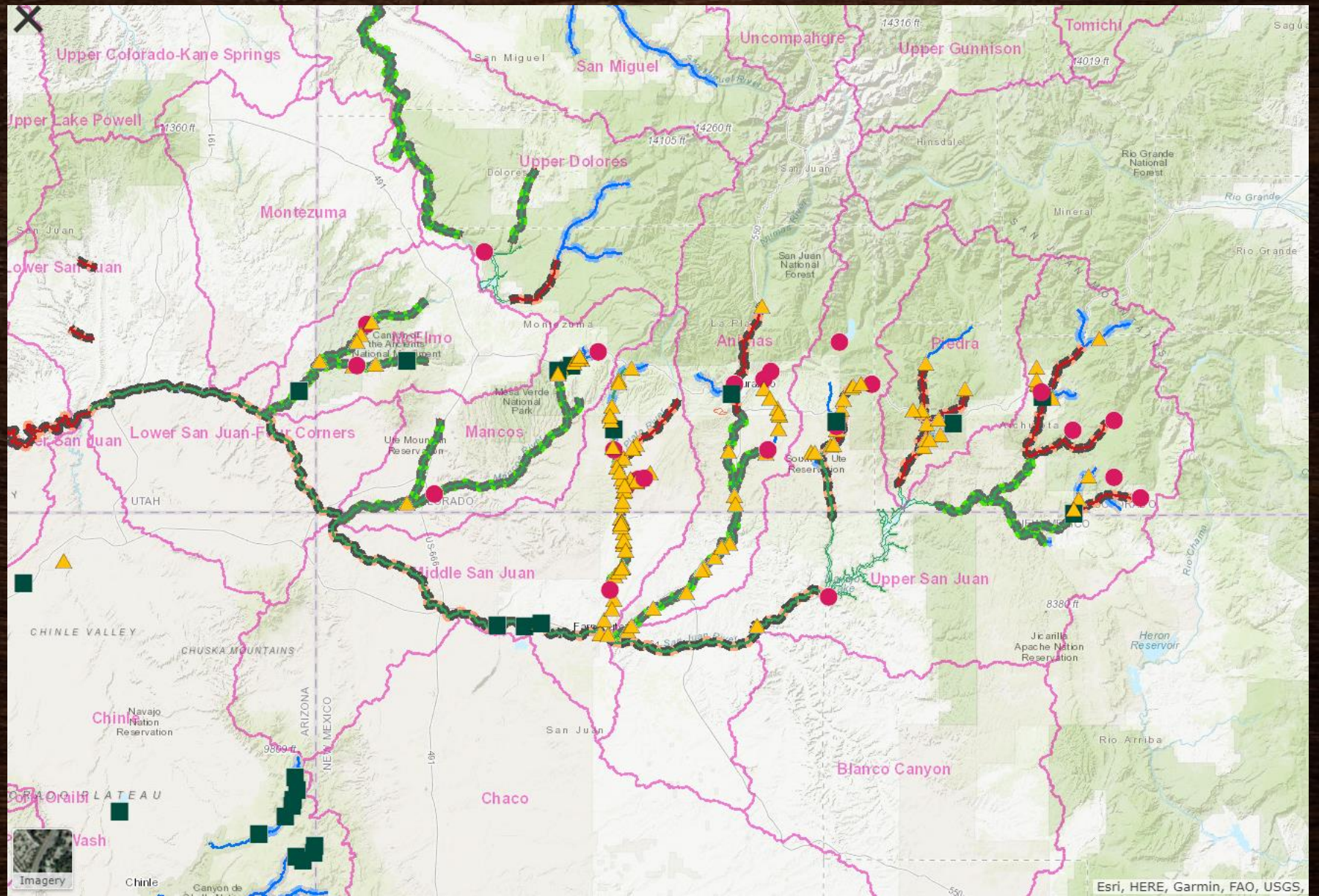

Colorado/Dolores Confluence
May 2011
Start
Moab
March
2016
2011 FMS 384.1B795AA54D
504 Mile Journey!
(at least)
Green/Colorado
Confluence
April
2014
April
2016
2014 FMS 384.1B795A
Monticello
491
© 2014 Google
Image Landsat
Imagery Date: 4/9/2013
12 S 656451.63 m E 4234956.02 m

Balancing Needs through connectivity

= known complete blockage

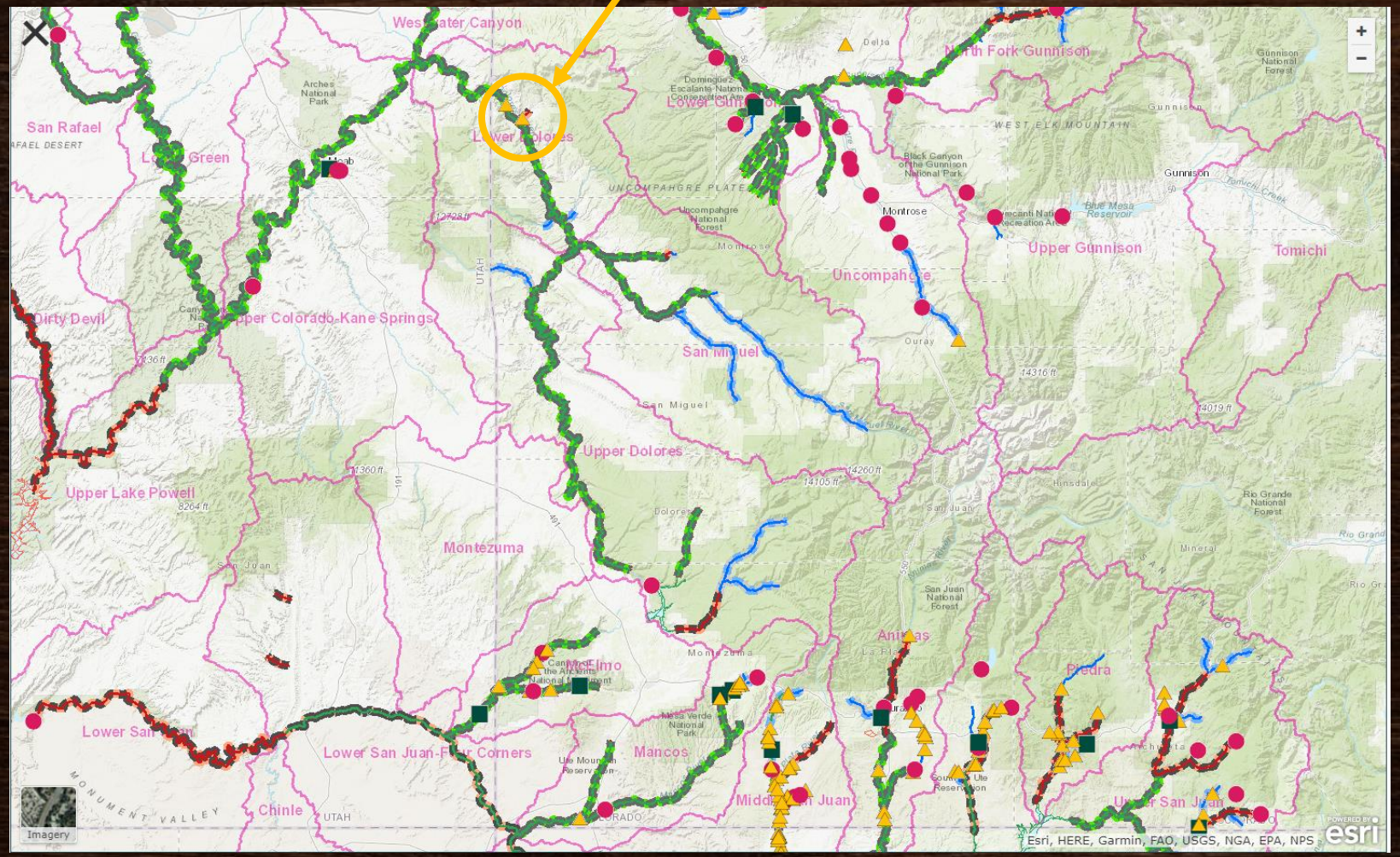
= unknown (i.e., road culverts, irrigation diversions)

= partial blockage



Connectivity

Passible under most flow conditions
(185 miles of habitat)



What can we do about fish passage?

Constructed Riffle

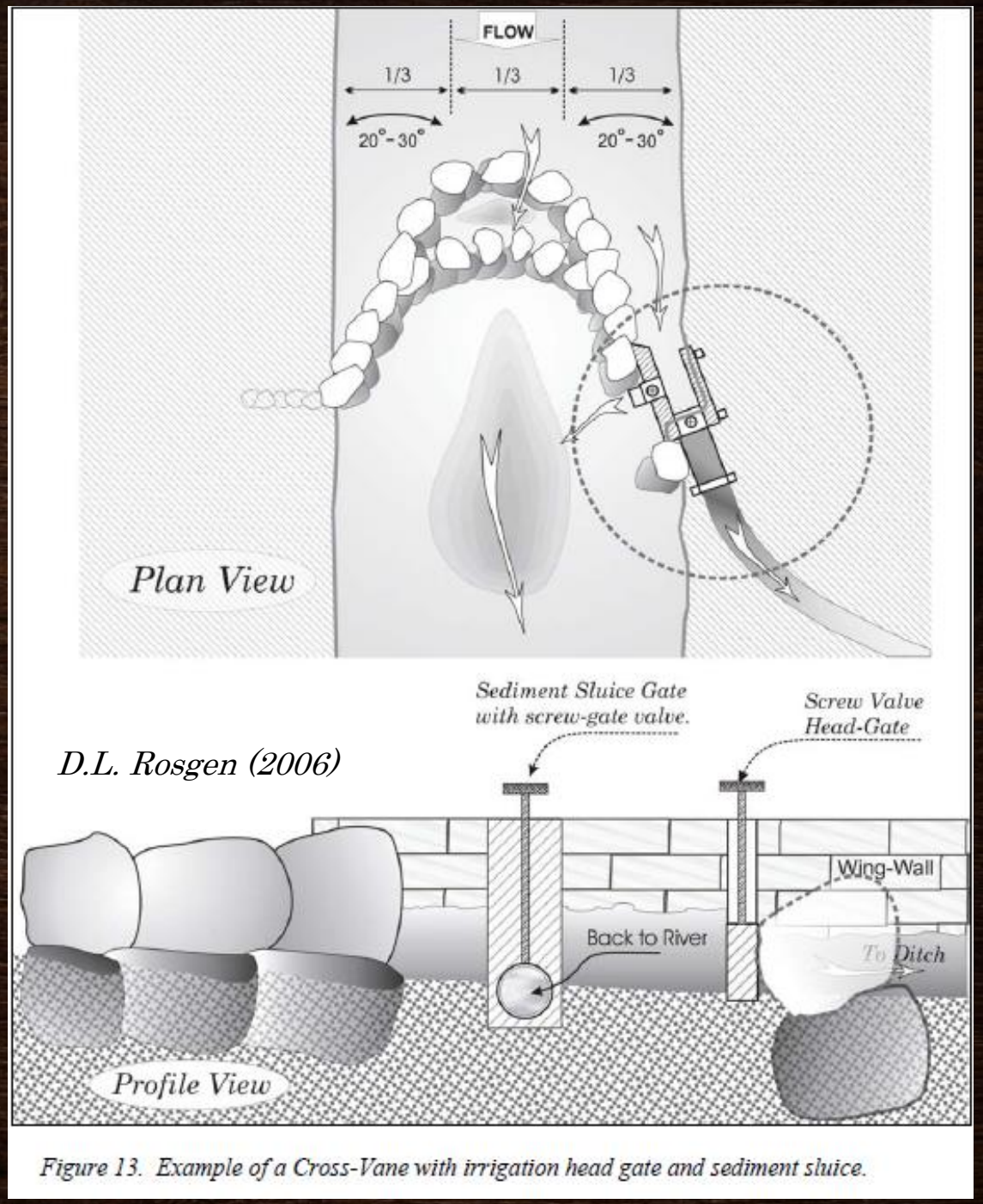
Fishways

Fishways

Step pool

Step Pool Design

- Passes water, sediment, debris efficiently
- Contains a sediment sluice for spring clean-out
- Enhances habitat for fishes
- Fish can pass under most conditions



D.L. Rosgen (2006)

Figure 13. Example of a Cross-Vane with irrigation head gate and sediment sluice.

Connectivity may not be the best alternative for native Cutthroat Trout

San Juan Cutthroat Trout

“Fences make good neighbors”

East Fork Hermosa Creek Fish Barrier

Fish Passage Summary

- Fish can move to better foraging and spawning habitats, find refuge from temperature, debris flows, and drying
- Irrigators can gain a reliable, low maintenance diversion that passes sediment
- Recreational boaters can pass safely
- Not all barriers to fish passage are harmful. They can be helpful for conservation of cutthroats
- Cost is high but shared/paid for thorough grant funding

Future of fish passage looks good

- Infrastructure Investment and Jobs Act, or HR 3684
- Recovering America's Wildlife Act (RAWA), or H.R.2773
- CPW's Fishing is Fun
- Basin Roundtable
- RESTORE Grants

Slade Ditch Diversion, La Plata River

Questions?

Roundtail Chubs, Dolores River,
Jason Houston (courtesy of TNC)