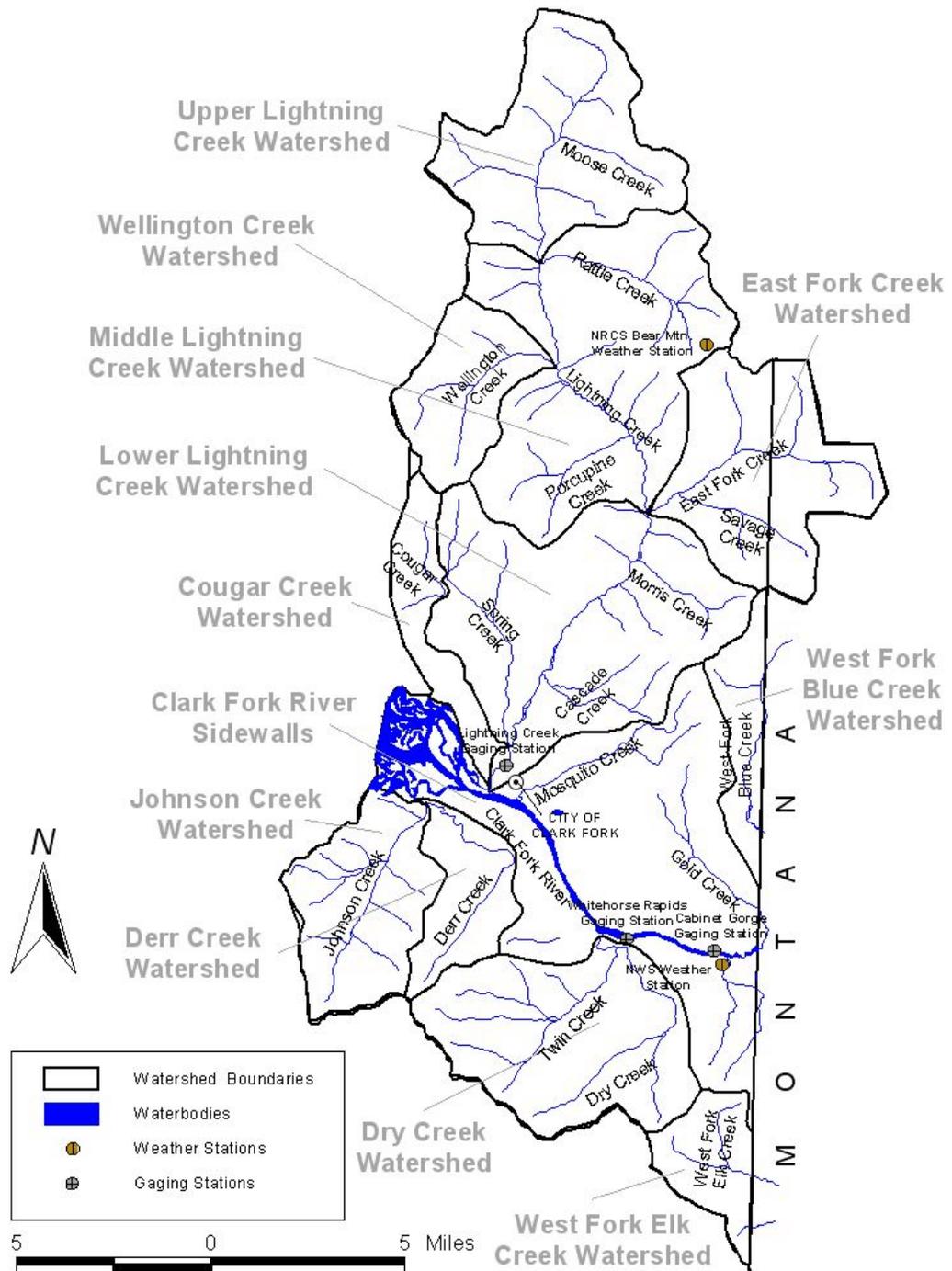


Lower Clark Fork Watershed Advisory Group

December 7, 2005



Lower Clark Fork River Subwatersheds



Background: Why do TMDL's?

- The Clean Water Act requires states to develop water quality standards
- Idaho's standards have been developed and approved by the EPA
- Standards are intended to protect, restore and preserve water quality so waters are available for their intended (beneficial) use
- Total Maximum Daily Loads (TMDLs) are required for all waterbodies not meeting water quality standards



Beneficial Uses

Water Body	Uses ^a	Type of Use
Clark Fork River (Idaho/Montana Border to Lake Pend Oreille)	CWAL, SS, PCR, DWS, SRW	Designated
Lightning Creek (Source to Mouth)		
Johnson Creek (Source to Mouth)	CWAL, SS, PCR or SCR	Existing
Cascade Creek (Source to Mouth)	CWAL, SS, SCR	Existing
East Fork Creek (Idaho/Montana Border to Mouth)	CWAL, SS, SCR	Existing
Rattle Creek (Source to Mouth)	CWAL, SS, SCR	Existing
Dry Creek (Source to Mouth)	CWAL, SS, SCR	Existing
Savage Creek (Idaho/Montana Border to Mouth)	CWAL, SS, SCR	Existing
Wellington Creek (Source to Mouth)	CWAL, SS, SCR	Existing

303(d) Listed Streams - 2002

Lower Clark Fork River:

*TDG, Metals, Temperature,
Unknown*

Johnson Creek:

Temperature, Sediment

Dry & Twin Creek: *Temperature*

Lightning Creek:

Unknown, Temperature

Porcupine & Morris Creeks:

Unknown, Temperature

Cascade Creek*: *Temperature*

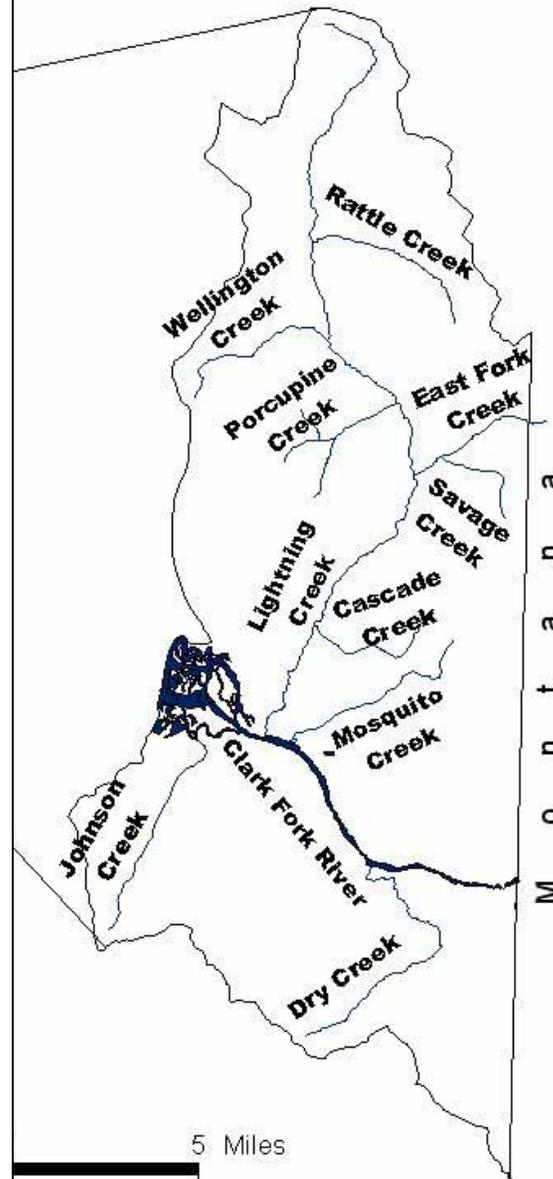
East Fork Creek:

Temperature, Sediment

Savage Creek: *Temperature*

Rattle Creek: *Temperature*

Wellington Creek: *Sediment,
Temperature*



Aquatic Life Uses

- Cold Water Aquatic Life: water quality appropriate for the protection and maintenance of a viable aquatic life community for cold water species.
- Salmonid Spawning: Waters which provide or could provide a habitat for active self-propagating populations of salmonid fisheries

Primary and Secondary Contact Recreation (IDAPA 58.01.02)

- Primary Contact Recreation: water quality appropriate for prolonged and intimate contact by humans or for recreational activities when ingestion of small quantities of water is likely to occur. Such activities include, but are not restricted to, those uses for swimming, water skiing, or skin diving.
- Secondary Contact Recreation: water quality appropriate for recreational uses on or about the water and which are not included in the primary contact category. These activities may include fishing, boating, wading, infrequent swimming and other activities where ingestion of raw water is not likely to occur.

Water Quality Issues in Subbasin (from pre-meeting surveys)



- Metals (from upstream sources)
- Temperature
- Sediment
- Nutrients from new development & potential new point source discharges
- Total Dissolved Gas (TDG)
- Too much forest harvest has been done with unstable road construction
- Lightning Creek moves a lot of sediment
- Degraded fisheries habitat and potential additional impacts to important fisheries and fisheries habitat

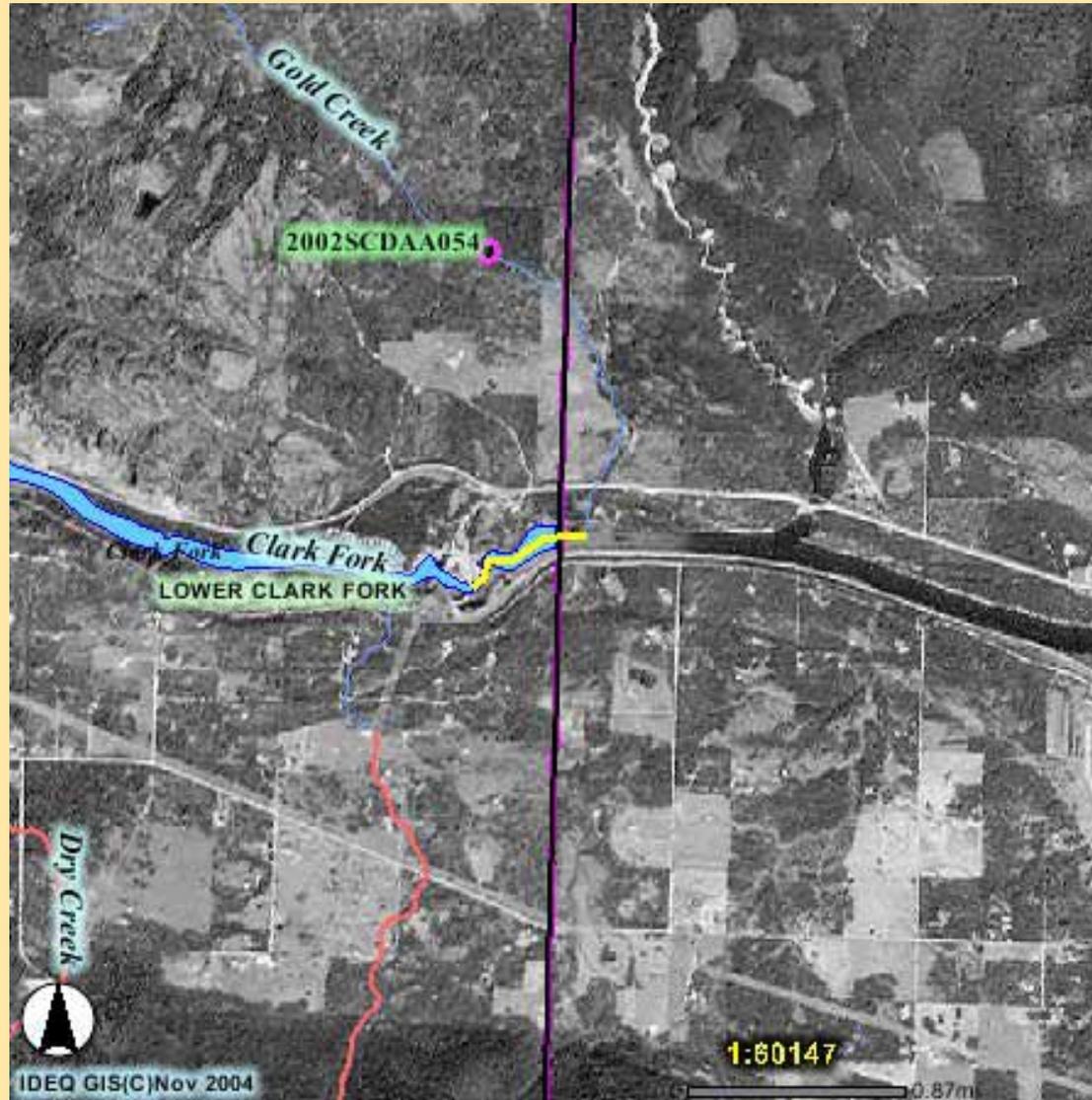
Goals of Subbasin Assessment and TMDL

- Present water quality information to date
- Where impairments are identified, develop water quality targets and allowable pollutant loads (TMDL) to return waterbody to “full support” of beneficial uses
- Identify data gaps and areas where further assessment is needed
- Establish needs for future implementation plan

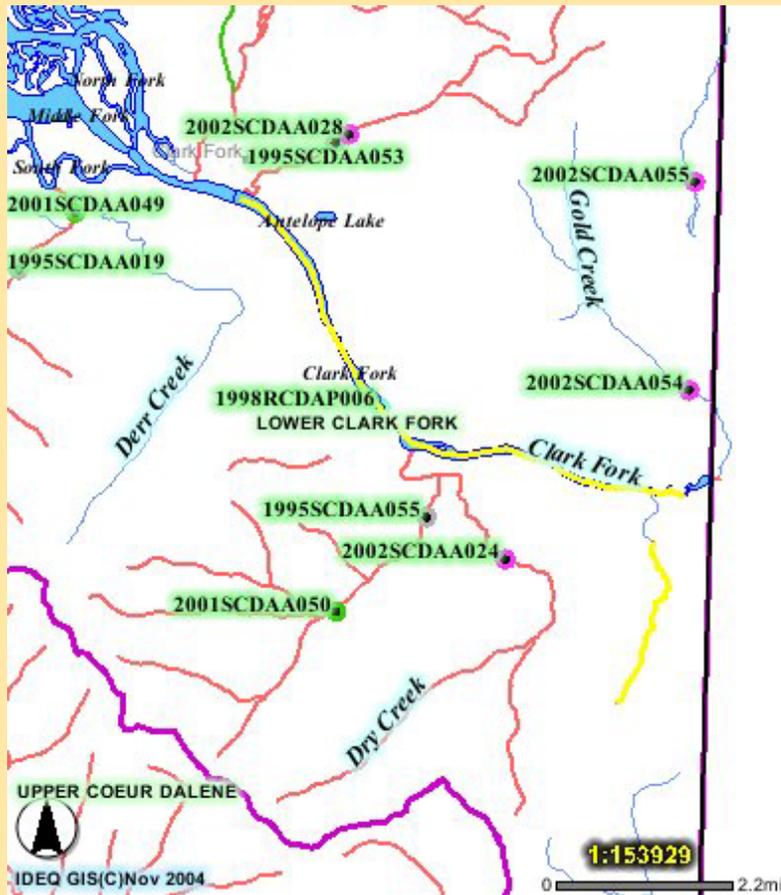


Clark Fork River: Border to Dam

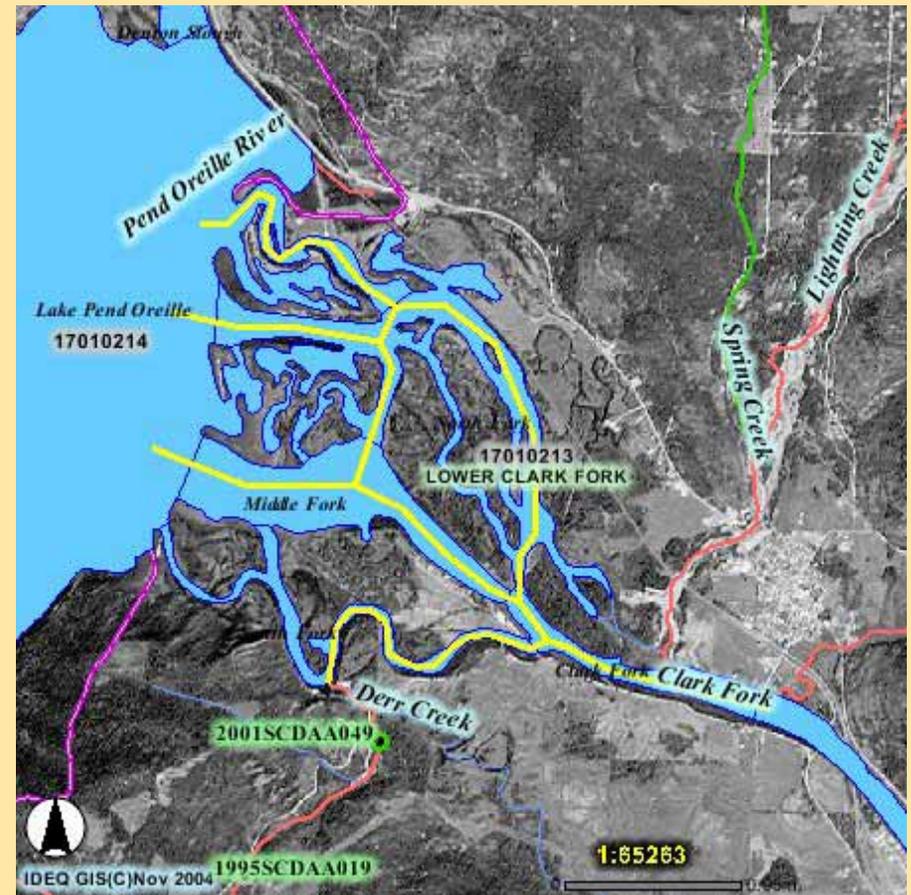
AU 17010213005_08



Mainstem Clark Fork Below Dam



17010312PN003_08 Dam to Mosquito Creek



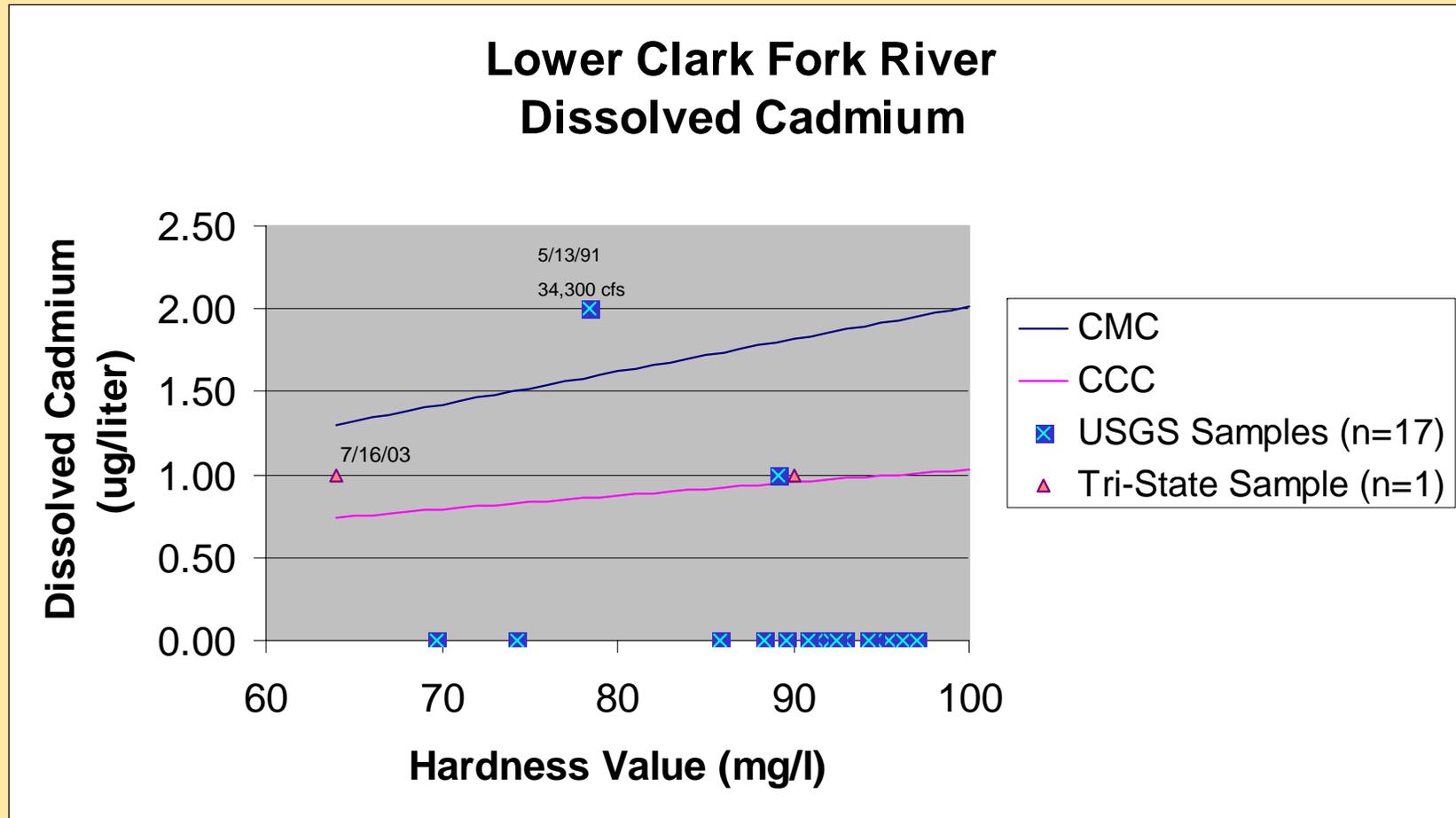
17010213PN001_08: Mainstem Mainstem to Lake Pend Oreille

Mainstem Clark Fork River

AU 005_08, 003_08, 001_08

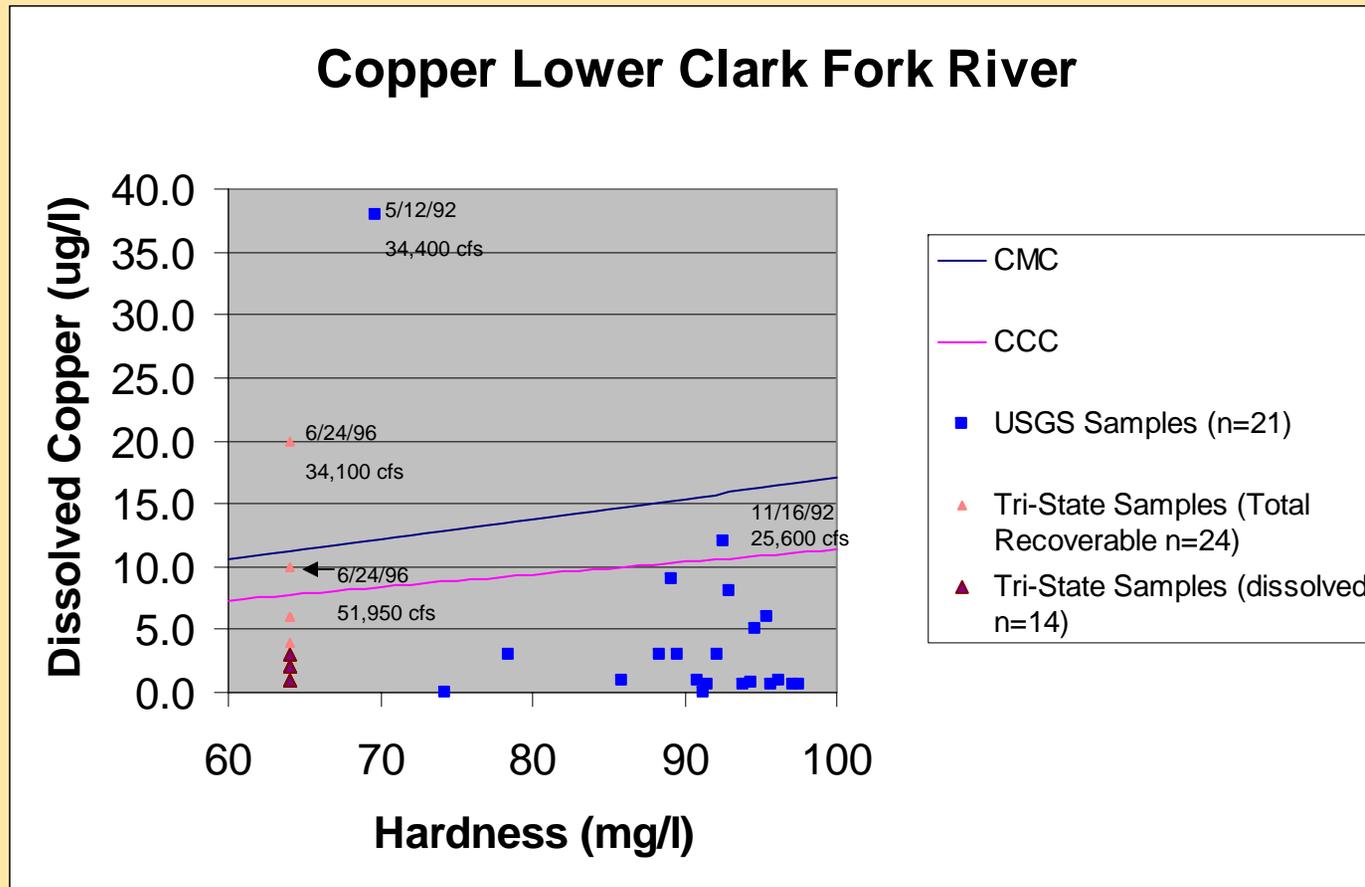
- Description: Mainstem Clark Fork River from the dam to Lake Pend Oreille
- Listing Basis:
 - Metals: 1996 list based on public comment; carryover to now. Exceedences of Zinc, Copper, Cadmium in the record. Prior to the late-1980s, frequent exceedences.
 - Flow and habitat alteration, TDG: 1998 additions, TDG based on Avista data
 - Temperature: 2002/2004: addition based on available data
- Available Water Quality Information/BURP sites:
 - No BURP data are available because the Clark Fork River is larger than the protocol allows
 - Agencies and Avista collected baseline data to inform the relicensing of Cabinet Gorge and Noxon Rapids dams completed in 1999, and continue to collect water quality and fisheries information as a condition of the relicensing
 - USGS gaging stations below Cabinet Gorge dam
 - Continuous flow measurements
 - Nutrient and Metals information at various intervals
 - Tri-State Water Quality Council data
 - 1984-1996: nutrient levels
 - 1998- present: metals and nutrient samples below Cabinet Gorge dam
- Land Uses/Ownership: Private, agriculture/livestock grazing, recreational areas, rural residential, hydropower operation
- Pollutant Sources:
 - Two point source permits on the river: Cabinet Gorge dam and Cabinet Gorge hatchery (both have NPDES permits for nutrients and TSS) – permits are not for TMDL pollutants
 - Metals: There are no known sources of metals pollution in Idaho. Metals contamination is attributed to transport from several possible sources in Montana, including four superfund sites upstream and possible accumulation in sediments
 - Temperature: Altered flow regime and reservoirs upstream, and possible canopy removal
- Recommended TMDLs
 - Temperature: potential natural vegetation method
 - Metals TMDL: Cadmium, Copper, possibly Zinc and Lead

Draft Clark Fork River Cadmium Analysis



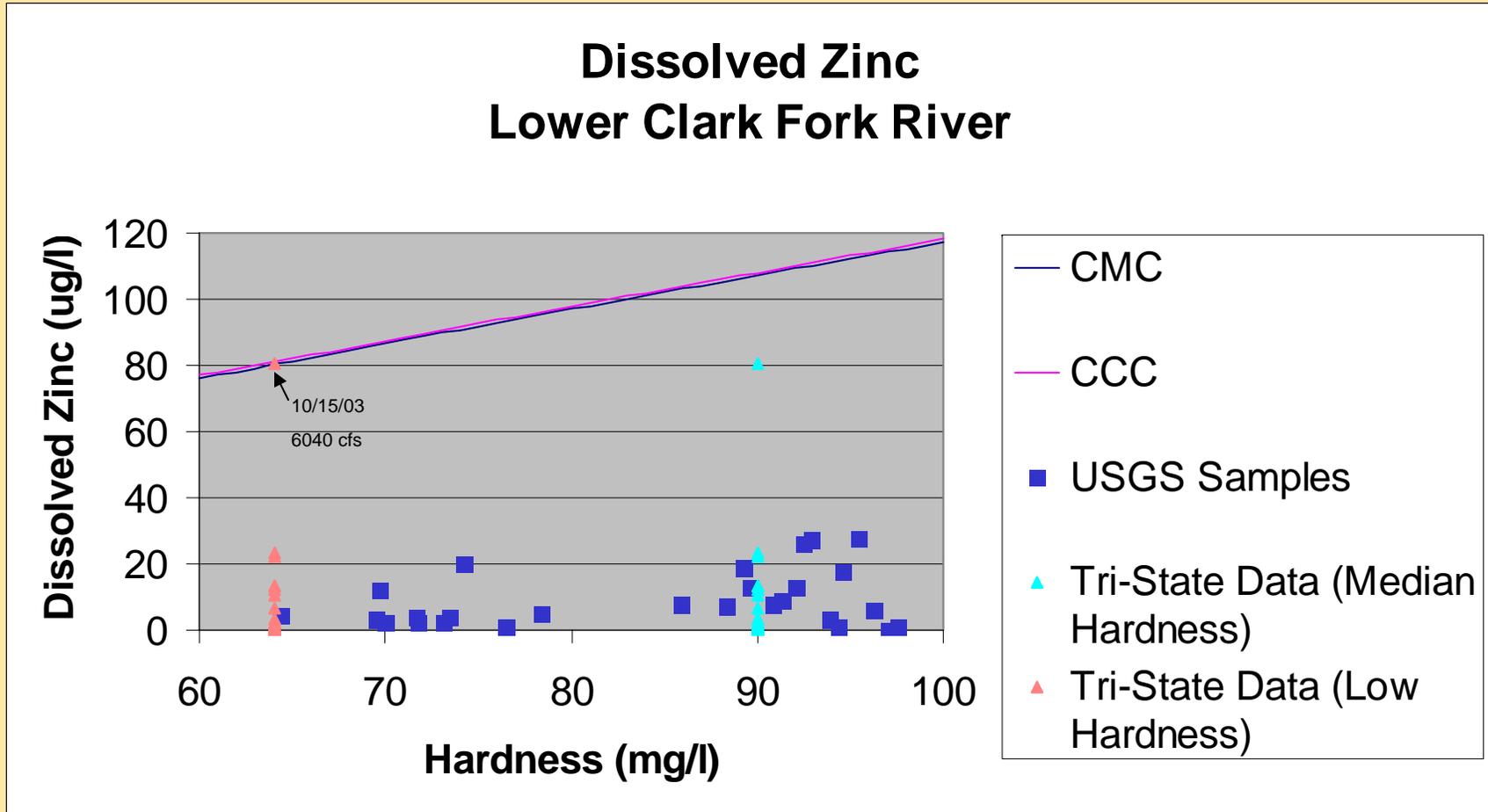
Note samples below detection limit are not graphed. Information subject to review.

Draft Clark Fork River Copper Analysis



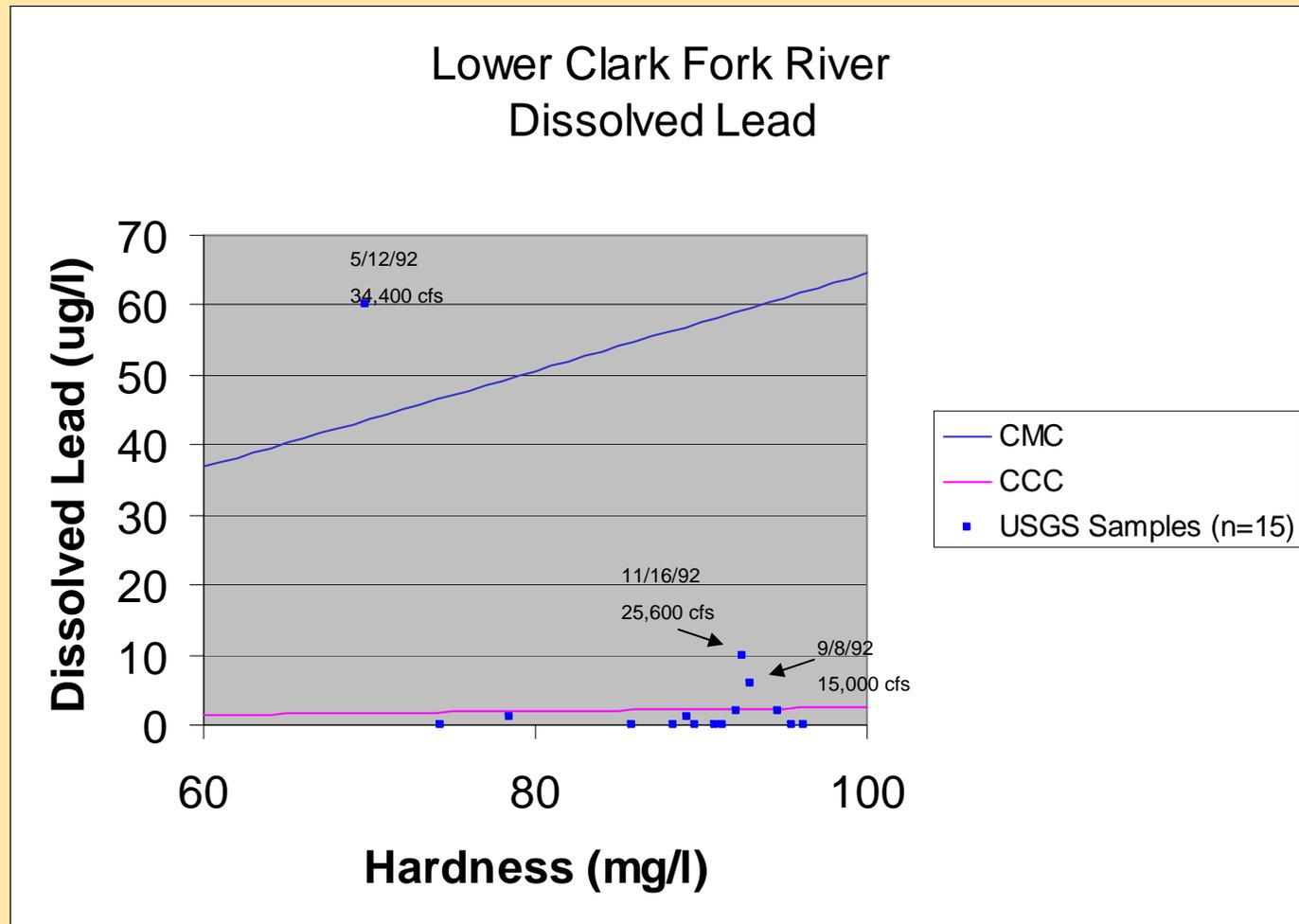
Note samples below detection limit are not graphed.
Information subject to review.

Draft Clark Fork River Zinc Analysis



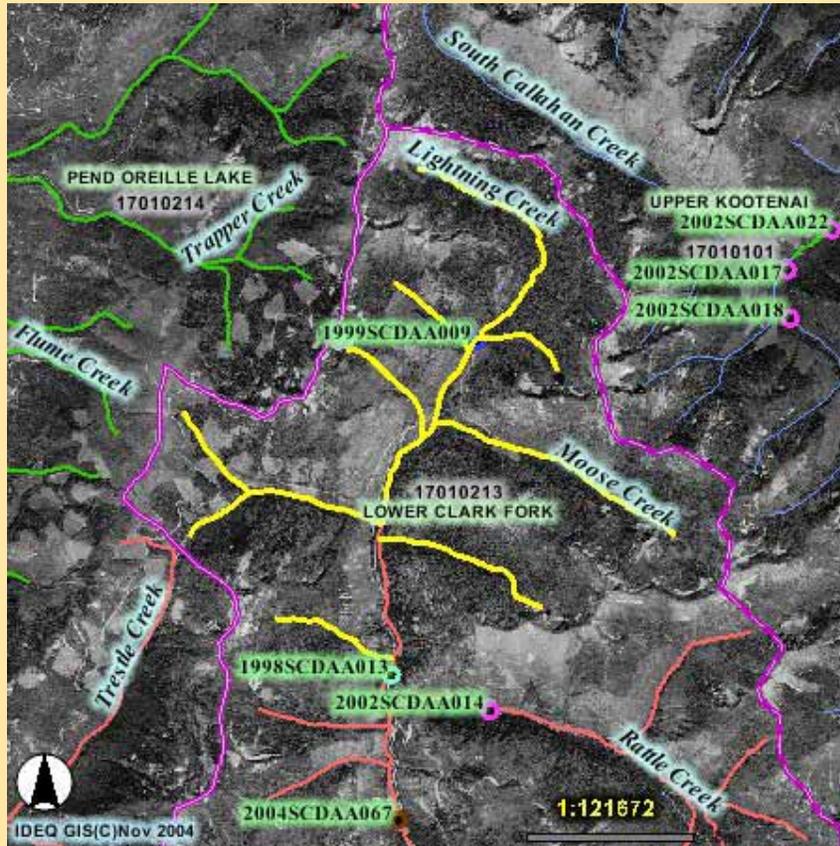
Note samples below detection limit are not graphed. Information presented subject to review.

Draft Clark Fork Lead Analysis

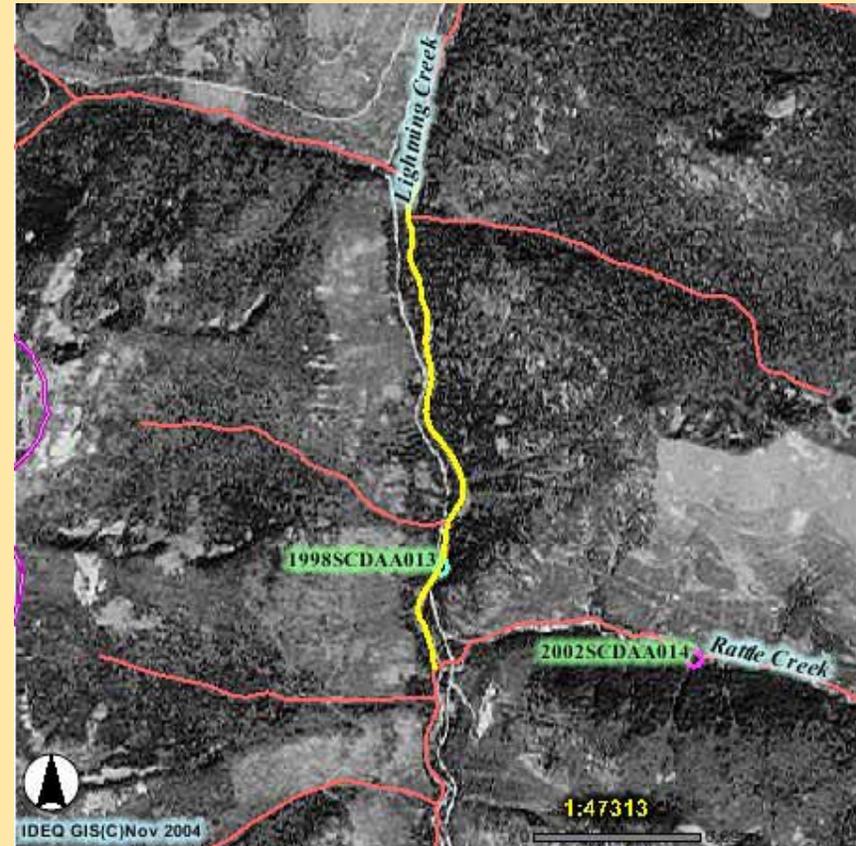


Note samples below detection limit are not graphed.
Information subject to review

Upper Lightning Creek



First and Second order portions:
AU 17010213PN0019_02



Third order portion mainstem (Fall
Creek to Rattle Creek)
AU 17010213PN0019_03

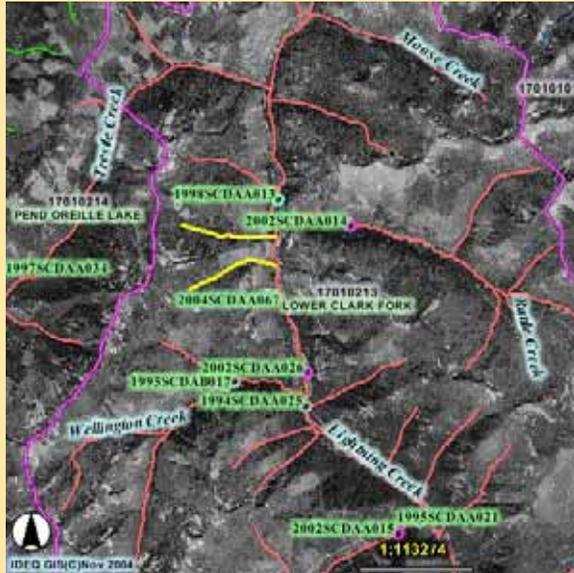
Upper Lightning Creek

AU 19_02, 19_03

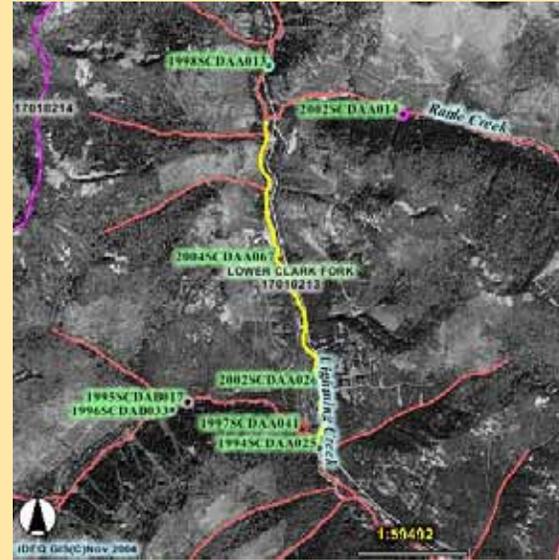
- Description: Lightning Creek and first and second order tributaries from headwaters to Rattle Creek.
- Listing Basis:
 - Sediment, Flow and Habitat alteration: 1996
 - Temperature: 1998 EPA addition
 - Unknown: 2002 addition due to field studies and observation of extreme bank destabilization and bedload movement
- Available Water Quality Information/BURP sites:
 - Overall condition: Not Full Support due to temperature and data showing declining trend in fish populations and stream structure.
 - 1999 Site: Highest in watershed. Located on Lightning Creek just above Gem Creek – Full Support
 - Macro – 1; Fish – 2; Habitat – 3; Average = 2
 - 1998 Site:
 - Macro – 2; Habitat - 3
 - CWE
 - Lightning Creek Watershed Assessment: extensive land management history, road survey and summary of landslide data. Above Rattle and below Darling lake considered relatively unimpacted, representative of historic conditions.
 - Fish: bull trout below Char Falls (natural barrier). Declining trends based on Fish and Game and other agency surveys
- Land Uses/Ownership: Forest Service. General Forest Management designation
- Pollutant Sources:
 - Sediment: Impacts generally below the mouth of Gem Creek. Forest roads, mass wasting, streambank erosion
 - Temperature: Canopy removal (fire and historic timber harvest – 10-30 years ago)
- Recommended TMDLs
 - Temperature: potential natural vegetation method
 - Sediment TMDL: One TMDL for all Lightning Creek Assessment Units

Middle Lightning Creek

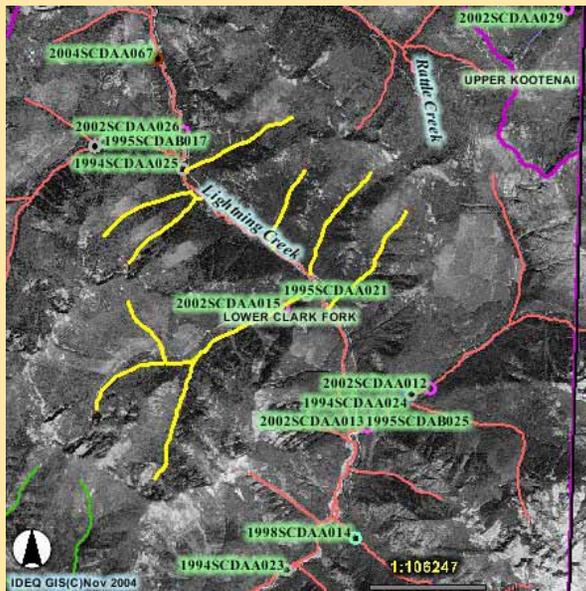
17_02



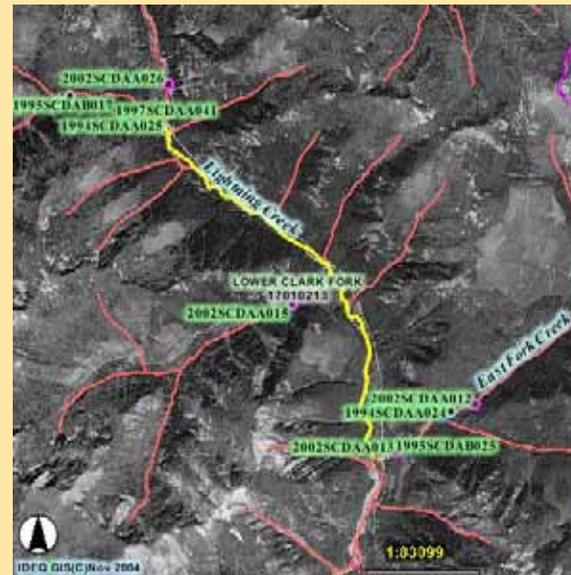
17_03



16_02
(includes
Porcupine
Creek)



16_03

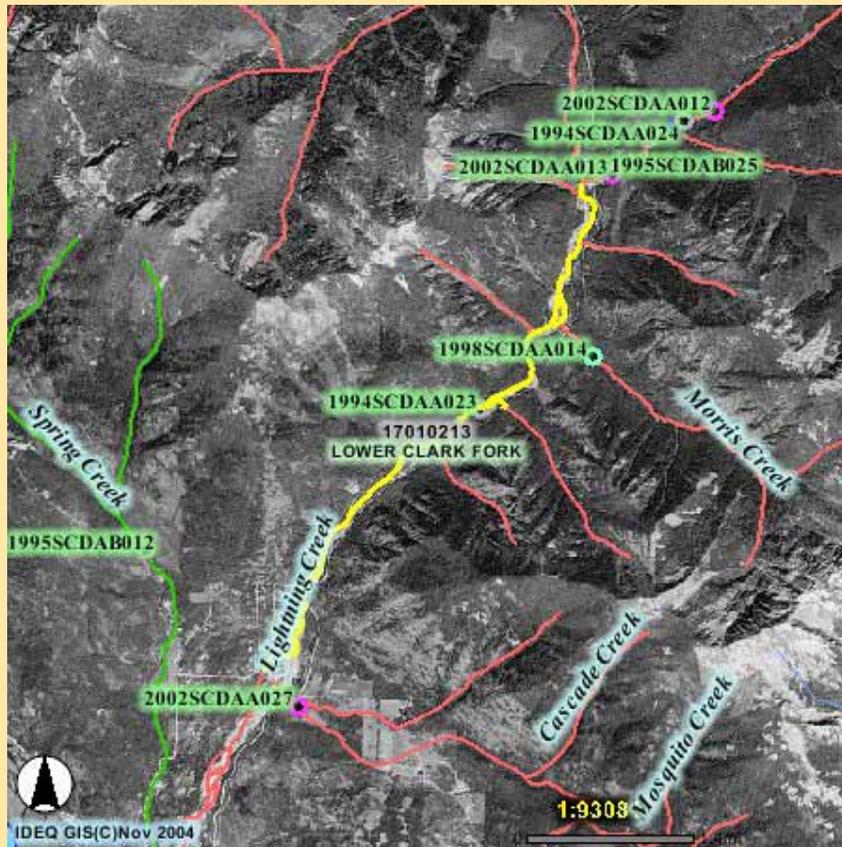


Middle Lightning Creek

17_02, 17_03, 16_02, 16_03

- Description: Mainstem Lightning Creek and all tributaries between Rattle Creek and East Fork Lightning Creek
- Listing Basis:
 - Flow and Habitat alteration: 1996
 - Sediment: 1994 addition, 1998 sediment removed (replaced with unknown biological impairment)
 - Temperature: 1998 EPA addition
 - Unknown: 2002 addition due to field studies and observation of extreme bank destabilization and bedload movement.
- Available Water Quality Information/BURP sites:
 - Not Full Support based on temperature and extensive field information regarding stream instability, bedload and sediment delivery
 - Porcupine Creek sites
 - 1995 (15 m upstream of confluence with Lightning Creek):
 - Macro (3); no fish; Habitat (2): Average 2.5
 - 2002 (.5 miles up Porcupine Creek Road)
 - Macro (2); fish (3); habitat (3); Average 2.67
 - Mainstem Sites
 - 1994 (just below Wellington Creek)
 - Macro (3); no fish; Habitat (1): Average 2
 - 2002 (below Wellington and above mink creek)
 - Macro (3); fish (1); habitat (2): Average 2
 - Fish and Game redd counts and fish population trend information – declining
 - Lightning Creek Watershed assessment detailed road survey, history of management and landslide activity and sedimentation analysis
- Land Uses/Ownership: Forest Service general forest management
- Pollutant Sources:
 - Sediment: bank erosion, bedload movement, forest roads, landslides (natural and road failure, timber harvest related)
 - Temperature: canopy removal – historic harvest and fire
- Recommended TMDLs
 - Temperature: Potential Natural Vegetation Method
 - Sediment: All Lightning Creek Assessment Units together

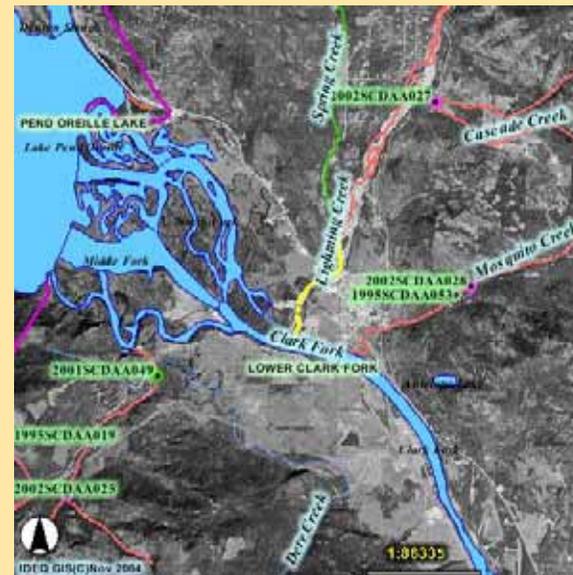
Lower Lightning Creek



13_04: East Fork Creek to Cascade Creek

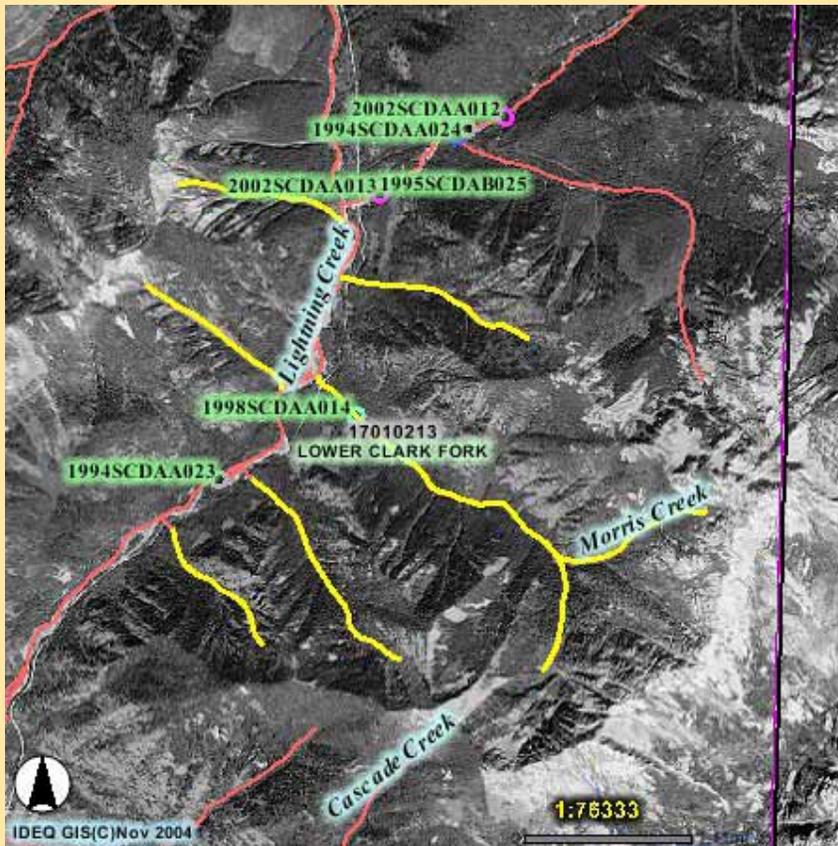


11-04
Cascade
Creek to
Mosquito

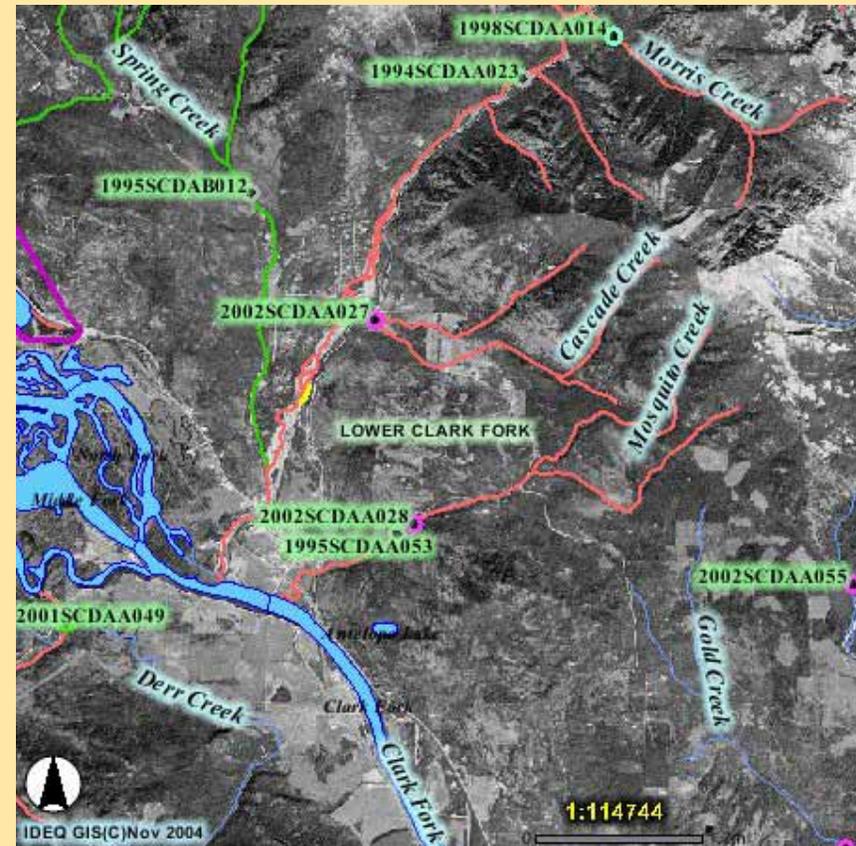


10_04
Mosquito
Creek to
Clark Fork
River

Lower Lightning Creek (cont.)



13_02 Second order portions from East Fork Creek to Cascade Creek



11_02: looks like a side channel of mainstem – incorporate into 11_04

Lower Lightning Creek

- Description: Mainstem and tributaries from East Fork Creek to confluence with Lower Clark Fork River
- Listing Basis:
 - Flow and Habitat alteration: 1996
 - Sediment: 1994 addition, 1998 sediment removed (replaced with unknown biological impairment)
 - Temperature: 1998 EPA addition
 - Unknown: 2002 addition due to field studies and observation of extreme bank destabilization and bedload movement
- Available Water Quality Information/BURP sites:
 - Not Full Support based on temperature and extensive field information regarding stream instability, bedload and sediment delivery
 - 1998 BURP site on Morris Creek
 - Macro (1); Fish (3); Habitat (3); Average 2.33
 - 1994 BURP on lower mainstem – not appropriate protocol due to size of river
 - Macro (3); no fish; Habitat (1)
- Land Uses/Ownership: Forest Service, general forest management, private, rural residential, residential, agriculture.
- Pollutant Sources:
 - Sediment: bank erosion, bedload movement, forest roads, landslides (natural and road failure, timber harvest related)
 - Temperature: canopy removal – historic harvest and fire
- Recommended TMDLs
 - Temperature: Potential Natural Vegetation Method
 - Sediment: All Lightning Creek Assessment Units together

Questions and Past Presentations

Lower Clark Fork River Watershed Advisory Group Web Page

- http://www.deq.idaho.gov/about/regions/lower_clark_fork_wag/index.cfm
- Or follow the links at deq.idaho.gov to: About Us; DEQ Regions; Coeur d'Alene Region; Surface Water Quality; Lower Clark Fork River Watershed Advisory Group
- Contact: Jenna Borovansky
208-769-1422
jenna.borovansky@deq.idaho.gov