

APPENDIX A

GIS Data Documentation

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INTRODUCTION

The *Yankee Fork Tributary Assessment Map Atlas* provides GIS-based maps that illustrate key results from geologic and geomorphic mapping, hydraulic and sediment analysis, and habitat features accomplished for the *Yankee Fork Tributary Assessment, Custer County, Idaho* (Reclamation 2011). The assessment area covers approximately 13.5 miles of the Yankee Fork from just north of Polecamp Creek to just north of Eightmile Creek (river miles 2.9 to 16.4). This *Atlas* also includes several general maps that cover the entire Yankee Fork watershed based on ongoing mapping efforts by the U.S. Forest Service and information available from the U.S. Geological Survey.

Metadata for GIS-based mapping are provided in the related GIS files available for the *Tributary Assessment* report. The *Yankee Fork Map Atlas* was generated by PN Region GIS on behalf of the River Systems Analysis Group at the PN Region Office of the Bureau of Reclamation.

GIS Data Sources and Citations:

Vegetation by Cover Type - *National Land Cover Dataset*, U.S. Environmental Protection Agency, Multi-Resolution Land Characteristics Consortium; spectral land cover mapping via change detection modeling and classifications.

Land Ownership - *Land Status in Idaho*, U.S. Bureau of Land Management, Idaho State Lands; derived by dissolving based on the "owner_type" field of the master PLSS/land status GIS dataset kept by the BLM Idaho State Office.

Precipitation - *Mean Annual Precipitation for Idaho*, Idaho State Climate Services; these data are intended to serve as a reference for mean annual precipitation for Idaho.

Yankee Fork Subwatersheds - *HydroUnit_12th_WBD*, Natural Resources Conservation Service; Watershed Boundary Dataset, digital hydrologic unit boundary layer displayed at the subwatershed (12-digit) 6th level.

Spring Chinook Presence - *Fish Distribution*, Streamnet, Shoshone-Bannock Tribes, U.S. Forest Service; modified from 1:100k source layer data-modifications determined by local biologists (Sho-Ban Tribes, USFS, USBR).

Summer Steelhead Presence - *Fish Distribution*, Streamnet, Shoshone-Bannock Tribes, U.S. Forest Service; modified from 1:100k source layer data-modifications determined by local biologists (Sho-Ban Tribes, USFS, USBR).

Bull Trout Presence - *Fish Distribution*, Streamnet, Shoshone-Bannock Tribes, U.S. Forest Service; modified from 1:100k source layer data-modifications determined by local biologists (Sho-Ban Tribes, USFS, USBR).

Bedrock Geology - *U.S. Geological Survey, NRCS Online Gateway*; modified from 1:100k source layer data-modifications determined by Tributary Assessment Geologist (Ed Lyon).

Stream Order - *Strahler Order*, U.S. Geological Survey, Idaho Department of Water Resources; stream stratification.

Watershed High/Low Points - *Hydrologic Points of Interest*, U.S. Geological Survey, Idaho Department of Water Resources; derived from 10m National Elevation Dataset (DEM).

Debris Slides Hazards - *Landslide Data for Yankee Fork Watershed, Idaho*, U.S. Forest Service, Rocky Mountain Research Station; taken from the Yankee Fork Watershed Analysis Study, 1999 Draft Report.

Climate Station - *NOAA National Weather Service COOP, USGS Discharge Sites, NRCS Snotel, USFS RAWS*; created from geographic coordinates obtained online from web sites.

Water Rights - *Idaho Department of Water Resources*; developed from GCDB QQ for Place of Use (POU) or GCDB QQ/QQQ centroids for Points of Diversion (POD).

Gages - *Shoshone-Bannock Tribes Gages*; created from geographic coordinates obtained from Shoshone-Bannock Tribes.

Sediment Monitoring - *Sediment Monitoring Locations*, U.S. Forest Service; GIS data acquired from Salmon-Challis National Forest sediment monitoring locations.

TIR Thermal Survey - *TIR/FLIR*, Watershed Sciences, Inc.; Airborne Thermal Infrared Remote Sensing data used for mapping spatial temperature patterns in rivers and streams.

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Timber Harvest Activities - *Timber_Harvest*, U.S. Forest Service, Salmon-Challis National Forest; compiled historic timber stand harvest activity information for the Yankee Fork Watershed (1928-2010).

Fire History (Point Locations) - *Fire History*, Salmon-Challis National Forest, U.S. Forest Service; geographic point locations for fire history (1924-2006).

Fire History (Polygonal Areas) - *Fire History*, Salmon-Challis National Forest, U.S. Forest Service; geographic point locations for fire history (1937-2006).

Landslides - *Debris, Slides and Hazards*, Salmon-Challis National Forest, U.S. Forest Service; data based on the "debris_sld" field of the master land polygon dataset referenced from the 1994 Rocky Mountain Research Station's Yankee Fork Watershed Analysis Report.

LandUse - *LandUse/LandCover National Cropland Data Layer*, USDA-National Agriculture Statistics Service; categorized land cover data layer produced using satellite imagery.

Transportation Routes - *Roads and Highways*, Salmon-Challis National Forest, U.S. Forest Service, ESRI Data and Maps: StreetMap; combined data based on ESRI StreetMap and local known routes published by the Salmon-Challis National Forest.

Mining Activities - *Idaho Mines and Prospects*, Idaho Geological Survey; compiled mining datasets from U.S. Bureau of Mines and U.S. Geological Survey.

Selenium Sample Locations - *Stream Sediment Geochemistry*, U.S. Geological Survey; compiled from sample and location data tables acquired from the U.S. Geological Survey. Reference: *Stream-Sediment Geochemistry in Mining-Impacted Drainages of the Yankee Fork of the Salmon River, Custer County, Idaho*.

Selenium in Fine Sediment (mg/kg) - *Stream Sediment Geochemistry*, U.S. Geological Survey; compiled from sample and location data tables acquired from the U.S. Geological Survey. Reference: *Stream-Sediment Geochemistry in Mining-Impacted Drainages of the Yankee Fork of the Salmon River, Custer County, Idaho*.

Selenium in Intermediate Sediment (mg/kg) - *Stream Sediment Geochemistry*, U.S. Geological Survey; compiled from sample and location data tables acquired from the U.S. Geological Survey. Reference: *Stream-Sediment Geochemistry in Mining-Impacted Drainages of the Yankee Fork of the Salmon River, Custer County, Idaho*.

Mercury Sample Locations - *Stream Sediment Geochemistry*, U.S. Geological Survey; compiled from sample and location data tables acquired from the U.S. Geological Survey. Reference: *Stream-Sediment Geochemistry in Mining-Impacted Drainages of the Yankee Fork of the Salmon River, Custer County, Idaho*.

Mercury in Fine Sediment - *Stream Sediment Geochemistry*, U.S. Geological Survey; compiled from sample and location data tables acquired from the U.S. Geological Survey. Reference: *Stream-Sediment Geochemistry in Mining-Impacted Drainages of the Yankee Fork of the Salmon River, Custer County, Idaho*.

Mercury in Intermediate Sediments - *Stream Sediment Geochemistry*, U.S. Geological Survey; compiled from sample and location data tables acquired from the U.S. Geological Survey. Reference: *Stream-Sediment Geochemistry in Mining-Impacted Drainages of the Yankee Fork of the Salmon River, Custer County, Idaho*.

Map Panel Index - *Map_PanelIndex*, U.S. Bureau of Reclamation; Map Panel Index for the Yankee Fork and Jordan Creek organized by geomorphic reach code designations.

River Miles - *River_Miles*, U.S. Bureau of Reclamation; River mile points calculated for Yankee Fork and Jordan Creek, Yankee Fork Watershed, Idaho. Calculated from High Resolution NHD Flowlines.

Yankee Fork 1945 Aerial Photography - *Aerial Photography, 1945*, U.S. Forest Service; Photography flown September 19th, 1945. Photos: 149, 151, 153, 155, 157 of 16PL M 8 16PS 5M273.

Yankee Fork 1952 Aerial Photography - *Aerial Photography, 1952*, U.S. Forest Service; Photography flown September 15th, 1952. Photos: DRF 6-89, 6-90, 6-91, 6-92, 6-93.

Yankee Fork 1966 Aerial Photography - *Aerial Photography, 1966*, U.S. Forest Service; Photography flown August-September, 1966.

Dates and Photos:

8-24-1966: EQX 8-10, 72, 73, 125, 126, 208, 210, 262, 263

9-2-1966: EQX 12-121, 123, 125, 127, 129, 131, 173, 175, 177, 179, 181

EQX 13-100, 168, 175, 17, 19, 22, 24, 96, 98

EQX 14-10, 12, 10, 149, 151, 15, 78, 80

9-13-1966: EQX 13-100, 168, 173, 75, 17, 19, 22, 24, 96, 98

EQX 29-68, 69, 70

9-14-1966: EQX 7-197, 199, 200, 244, 245

Yankee Fork 2008 Aerial Photography - *Aerial Photography, 2008*, Shoshone-Bannock Tribes, CH2MHill; Photography flown unknown date, 2008. Photos: Yankee_Fork_01, 02, 03.

Yankee Fork 2010 Aerial Photography - *Aerial Photography, 2010*, Trout Unlimited, Watershed Sciences, Inc.; Photography flown September 23rd, 2010. All 2010 acquired imagery displayed in map.

Geomorphic Reach Breaks - *Reach Breaks for the Yankee Fork and Jordan Creek*, U.S. Bureau of Reclamation; Delineated by Yankee Fork Tributary Assessment Geologist.

Geomorphic Reach Boundary - *Geomorphic_Boundary*, U.S. Bureau of Reclamation; displays the modeled geomorphic reach boundaries. Modeled by tributary assessment Geology and River Systems Analysis staff.

Surficial Geology - *Surficial Geology for the Yankee Fork Tributary Assessment*, U.S. Bureau of Reclamation; surficial geology based on interpretation of geologic and geomorphic features analyzed from 1m LiDAR surface models. Delineations were created by tributary assessment Geology and River Systems Analysis staff.

Valley Floor Width - *Valley_Floor_Widths*, U.S. Bureau of Reclamation; based on interpretation of valley features analyzed from 1m LiDAR surface models. Defined as measurements between valley walls. Created by tributary assessment Geology and River Systems Analysis staff.

Constrained Valley Width - *ConValleyWidth*, U.S. Bureau of Reclamation; based on interpretation of valley features analyzed from 1m LiDAR surface models. Defined as area between geologic or geomorphic constrictions along the valley floor that restrict lateral channel migration. Created by tributary assessment Geology and River Systems Analysis staff.

Channel Widths - *ChannelWidths*, U.S. Bureau of Reclamation; based on interpretation of valley features analyzed from 1m LiDAR surface models. Location of channel widths. Measurements between channel bank scarps. Created by tributary assessment Geology and River Systems Analysis staff.

Historic Channel Locations - *Channel Planform*, U.S. Bureau of Reclamation; "Wetted" channel alignments delineated by geomorphic reach based on aerial imagery and a pre-dredging plat map (YF2). Created by tributary assessment Geology and River Systems Analysis staff.

Flood Inundation - *10 and 100 Year Flood Inundations*, U.S. Bureau of Reclamation; based on 1m LiDAR data modeling at the geomorphic reach level. Created by tributary assessment Geology and River Systems Analysis staff.

Historic Channel Migration Zone - *ChannelMigration*, U.S. Bureau of Reclamation; based on multiple year aerial imagery analysis. Created by tributary assessment Geology and River Systems Analysis staff.

Yankee Fork Assessment Area - *Yankee Fork Tributary Assessment Delineated Area*, U.S. Bureau of Reclamation; displays the area of focus for the Yankee Fork Tributary Assessment.

Yankee Fork Watershed Boundary - *HydroUnit_8th_WBD*, Natural Resources Conservation Service; Digital hydrologic unit boundary layer displayed at the watershed (10-digit) 5th level.

Waterbodies - *NHDWaterbodies*, U.S. Geological Survey; The National Hydrography Dataset (NHD) displaying surface water drainage system.

Rivers and Streams - *NHD Flowlines*, U.S. Geological Survey; The National Hydrography Dataset (NHD) displaying surface water drainage system.