HYDRO. TWG MEETING MINUTES

05/22/2013 AT 9:30 AM. CONF RM 602C & D

Attendees:

Linda Davis
Genna Ashley
Danielle Favreau
Michael Ciscell
Al Rea
John Courtright
Angie Hoff
Cindy Coulter
Tim Williams
Scott VanHoff

Via Phone:
Sabine Krier
Kathy Seaberg (Salmon Challis NF)
Maria McCormick (GNIS)
Dan White (BGN)

Notes:

Sign in, Welcome, Introductions

NHD and WBD News (See IDWR PowerPoint Presentation)

Current projects that update the NHD –

- *IDWR – Boise Basin, Springs, Irrigation Companies*
- *USGS – Names updates, photo-revision of large lakes and streams, & upcoming projects such as NHD Lite & Web editing*

Transitioning to the NHD (See IDFG PowerPoint Presentation)

- *IDFG uses a whole stream route system. Based on old EPA River Reach Files followed by PNW multi state project. In the 1990's, the LLID based whole stream routing system came out of the Forest Plan and adopted by StreamNet. Used by IDFG. Stream Names from old topos or assigned by field biologists. LLID system is 100k and easy to use. NHD is 1:24000, updated, and shareable across agencies. Currently developing a whole stream route system on top of the NHD geometry. Are conducting a NHD/GNIS/LLID names cross check looking by 8 digit HUC and identifying areas where names do not match. Common naming errors are at headwater branching, old stream beds, and forks that do not quite connect. By doing a series of dissolves after selecting NHD Flowlines with LLIDs, the main dataset is 30,000 records. Will update dataset on an update schedule to incorporate changes into the NHD. Exchanges of information will be done via geometry. IDFG is not planning to go to a NHD managed event process.*

Changing or Adding Names to the NHD –

- *Getting your hydro names into the Geographic Names Information System (GNIS) –Michael Ciscell, (IDWR, on the Idaho BGN).*
    1. The Board of Geographic Names (BGN) is where names go to be approved/ codified/ institutionalized. There is a National and a State BGN. Usually the National BGN defers to the State BGN. Once the BGN approves a name, the name then goes into GNIS and is available for use by NHD. To read policy statements or submit single new names or name changes, go to: http://geonames.usgs.gov/ There is a burden of proof requirement. Usually a bibliographic reference or source, preferably published. For bulk updates and questions, talk to Maria McCormick.
- *Roundtable Discussion – issues and questions from the group*

GNIS questions from the Idaho Hydro Community

Roger Payne & Lou Yost – BGN staff

1) *Name misspellings – how to resolve - do they go in as a variant, or can we fix them so that they are shown as the primary name?*

Typically these are corrected to show the proper spelling, usually through the BGN process.

If it is an obvious name error such as Cceek, send to Maria. If it is a change in spelling (Swim to Swimm or Born to Borne), in will probably need to go through the full BGN process as a name change.

2) *Cross-US boundary names - how are differences in spellings (for example Kootenai for the US and Kootenay for Canada) being handled?*

These are two different national Names databases.

In the Kootenai/Kootenay case, the 2 countries have agreed to disagree. The name will change at the Border. The 2 Country BGN agencies do try to coordinate and communicate.

3) *In the future, the capability to submit new names will be built into the NHD GeoEdit Tools. Can you describe the how the new process will work? Do you know when this will occur?*

Maria not sure of what the process will be yet. It is not defined yet. The timeline is unknown.

4) *Will the names still be points, or will they be migrated to lines (streams) and polygons (for lakes)?*

The GNIS layer will continue to be points. Where these names are applied to hydrographic features they will appear in the attribute table for a line or polygon.

Actually, the mouth (primary) coordinates and source coordinates are provided along with any number of secondary coordinates (if warranted), which are recorded on the linear feature somewhere within each quad through which the linear feature passes, but never on the quad boundary (some do exist, but they are errors and corrected whenever found).

Regarding any such change, I have passed this response and your question along to the GNIS Manager for additional response.

Roger L. Payne

---------- and ----------

The intention of The National Map at the USGS is to combine our separate databases, and have one vector representation of a feature. The way that will be accomplished for streams and other hydrographic features is to match the coordinates in GNIS with the digital representation in the National Hydrographic Dataset (NHD). This has been done for a large part already with streams, and we are working on other hydrographic features such as springs, waterfalls, lakes, and reservoirs. However problems have arisen such as a named lake having two named coves within it, which is represented by one polygon in NHD, but GNIS has three records that intersect the polygon. These problems are being addressed, but until there is a satisfactory solution, the representation in GNIS continues to be the geographic coordinate pairs, and unfortunately we do not have an estimated implementation date to convert the entire U.S. to this one vector representation.

Sincerely, Lou

GNIS will not be a broader spatial layer. It is a Gazetteer.

5) *What about the issue of being able to add "Gulch" names to NHD features? Are we close to getting a resolve for this?*

Thank you. I have added the water rights reports source to Whitlock Creek Gulch as the bibliographic reference, and was informed that NHD should not be a source since NHD uses what is in GNIS and there are established procedures for adding names part of which is solving this problem of generic usage. I'm sure Lou will be able to resolve the question soon.
- Roger

Maria – If there is a published reference/source, send them her way.

6) *What is the criteria for determining the headwaters of a stream in areas where the headwaters fork? Is there a set of criteria for determining which stream is the actual headwater - i.e., longest route, slope, etc.?*

Maria: Headwaters were determined by straightest route unless there was a name on the segment or there is a BGN decision. Maria may be able to make the change without going through the BGN if; the mouth coordinates are the same as documented, it does not have an existing BGN decision, there is a valid reference/source for the change, and other landowners are OK with the change.

7) *What is the process for looking at names that are offensive – for example "squaw" for native Americans?*

These are brought to the attention of State advisory groups and State BGNs for name changes.

The BGN does not change the names without a proposal. They need to know what it will be changed to. The offensive name is then listed as an alias/variant.

8) *What to do if Coordinates of a GNIS name are not on a NHD flowline?* Send them to Maria. There are many reasons why this may happen.
9) *If you have Lat/Lon data for Names in the GNIS that do not have a point, send them to Maria.*

What are others doing with NHD and WBD (See IDWR PowerPoint Presentation)

- *In-state survey results & discussion*
  - *17 Responses.*
- *Other examples of NHD Uses*
  - *Linking NHD data to Water Use, LiDAR, Water Rights, Data migration, and more.*

Edit Tool Information, Training Opportunities (See IDWR PowerPoint Presentation)

Other Discussion

- *Are there any plans to post a NHD download of just what has changed since the last posting?*
  - *A lot easier than downloading the whole state.*
  - *Not that anyone knows of.*
- *Catchments and River Volume*
  - *These are available with NHDPlus but at 100K*
- *Perennial/Intermittent updates*
  - *Coeur D'Alene Basin done in 2011.*
  - *No other specific projects in the works.*

NHD and WBD Activities in Idaho

Idaho Hydrography Technical Working Group Meeting – May 22, 2013

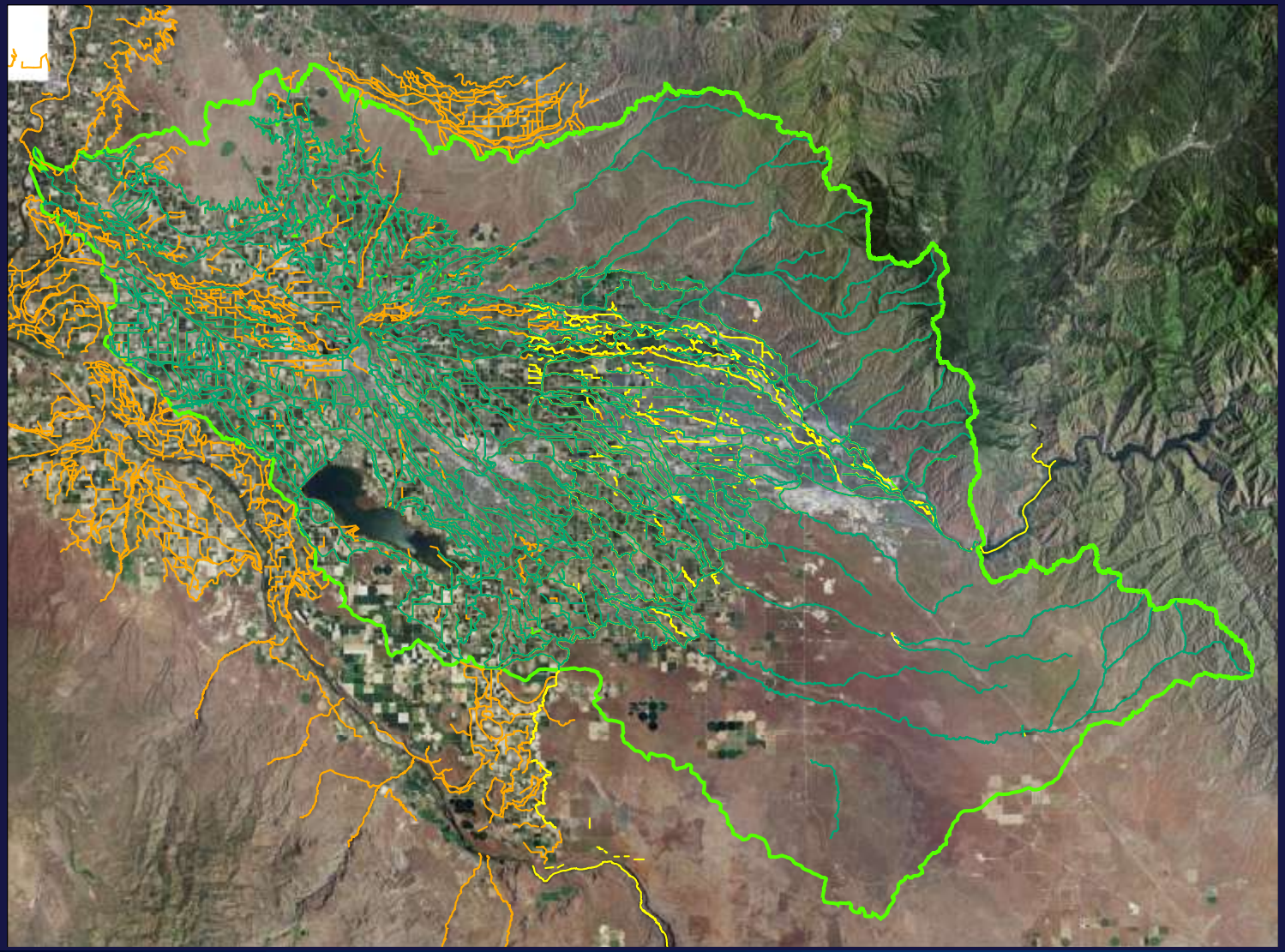
Idaho Department of Water Resources

News from IDWR

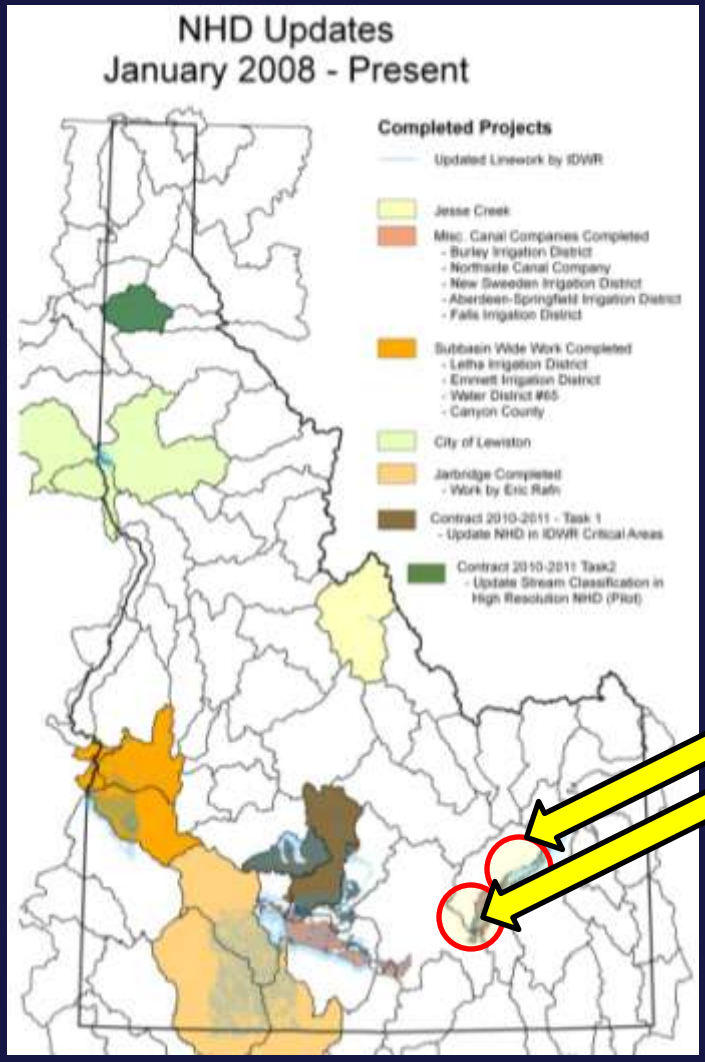
Current Idaho Projects that update the NHD -

- **Update Spring Feature Class:**
  - Based on IDWR WR POD Data as a result of the recent Idaho Adjudication effort
- **Names Update:**
  - Using the IDWR Water Rights Database, again as a result of the adjudication process
- **Update the Boise Basin**
- **Update NHD using Canal Company Data**
  - Big Wood / AFRD #2
  - Watson Canal Co., Falls Irrigation District, Idaho Irrigation District

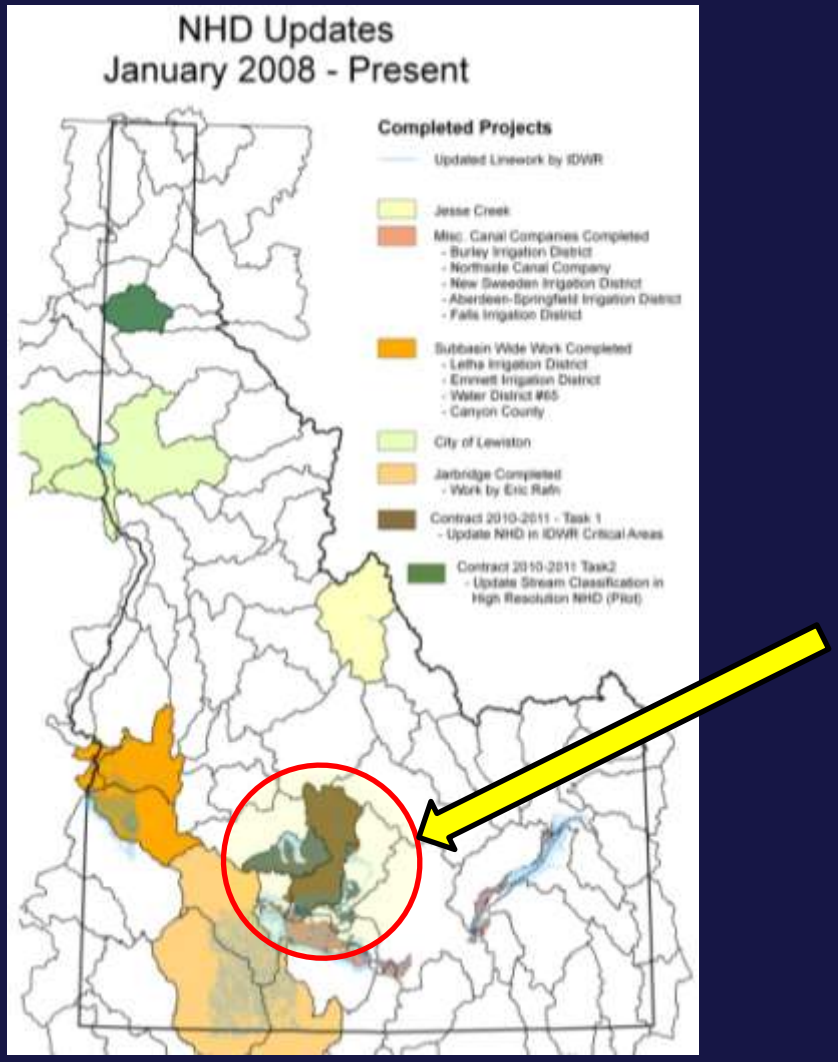
Update the NHD in the Treasure Valley



Falls ID, Watson CC



Big Wood River – Water District 37



"This program has been very helpful on numerous projects, for example; the Dietrich Pipeline, the Marley, the Lezamiz, the Lehmann, and a couple of other unnamed projects that are currently in progress. It is nice to have the various layers and options to get a truer picture of the overall projects. This program has provided a great tool to have for future changes that are made in our system."

American Falls Reservoir District #2

News from IDWR

Current National USGS Projects that update the NHD -

Network Improvement Project

- Identify and correct network problems existing in the high resolution NHD
- Idaho is complete

Hydro / Image Integration & GAZ Update

- Goal: to ensure hydro data is sufficient to support accuracy requirements for USTopo Production

National Water Information System Point-Event Indexing

- Adding point events to include Stream Gages, Water Quality Stations, Dams, and Diversions

NHD-Lite

Web Editing Capabilities

Idaho Department of Fish & Game Presentation

GNIS DISCUSSION

Hydro Survey

Are you using Hydrography or Watersheds in Your Work?

• *Yes, both hydro & watersheds*	*14*	*82.4%*
• *Just Hydrography*	*3*	*17.6%*
• *Just Watersheds*	*0*	*----*

Are you using the NHD?

• *Yes*	*15*	*93.8%*
• *No*	*1*	*6.3%*

Are you using the WBD?

• *Yes*	*15*	*88.2%*
• *No*	2	11.8%

How are you using the NHD?

Cartography, Water Quality Studies, Determining Connection to Waters of the US, Conservation Program Analysis, Determining Gas Pipe Water Crossings & Pipe in Proximity to Water, Base Layer & Background Display in Maps, With WBD and NED for Integrated Hydro/DEMS for NHDPlus and StreamStats, Reference/Planning, TIGER enhancement, Fish Presence/Absence, Identify Streams for Work on Salmon and Steelhead Protection

How are you using the WBD?

Cartography, Water Quality Studies, Conservation Program Analysis, Base Layer in Maps, With NHD and NED for Integrated Hydro/DEMS for NHDPlus and StreamStats, Reference & Planning, Research, Salmon Recovery Projects, Defining Watersheds Above a Certain Location, Work on Salmon/Steelhead Protection, Bounding Perimeters for Waters within HUCs.

Hydro Survey

Do you have suggestions for improvement – NHD?

- *Update the names and lines. In the urban areas, many streams and canal routes have been modified*
- *No – works for our needs*
- *Need to get updates/corrections to this dataset*
- *Need a unique non-ESRI GUID for the unique identifier*
- *Cleaned up Names*
- *Just keep identifying problems and fixing them. Engage more agency users*
- *More features with stream names identified*
- *Oh yes, many!*

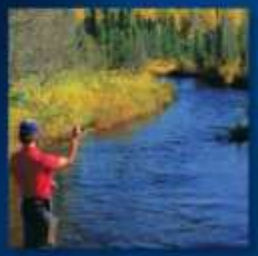
Do you have suggestions for improvement – WBD?

- *None – what we need*
- *None at this time*
- *Just keep identifying problems and fixing them. Engage more agency users*
- *Item to quickly select on to provide all watersheds upstream*
- *Maybe a few*

Do you have other info to share that can help us improve?

- *Would like a simpler way to get NHD data into the system*
- *Let's do a HiRes NHDPlus pilot in the Lower Boise*
- *Need to know more about how to get edits/updates into the NHD layers*
- *Yes, including GNIS recommendations*

IDAHO Department of Water Resources



NHD/WBD Applications in Idaho

IDWR
- Input for Flood Modeling
- HAZUS Model for FEMA – Dam Safety
- Reservoir Capacity
  - Using DEM's to show Channel Slopes
- Input for Water Quantity (such as StreamStats)
- Source of Water for Storage Sites
  - Public Drinking Water Supply Sites
  - Analyzing TMDL and other Water Quality Parameters
- Refining Water District Boundaries
- Updating other IDWR Layers based on Watersheds
  - Many IDWR Administrative Boundaries based on Watersheds

BLM
- Land Use Planning
- Aquatic Species Conservation Strategy
- Watershed Enhancement and Protection
- Watershed Analysis and Sub-basin Assessment
- NEPA Analysis
- EPA Section 7 Consultation – Population Analyses
- Minerals Operations and Determining Cumulative Effects Boundaries

US Forest Service
- Road Density
- Stream Crossings
- Clear-cut Acres
- Watershed Vulnerability
- Geomorphic Integrity
- Used for Project Area Boundaries/Analysis

Idaho Department of Fish & Game
- Spatial Cross-Reference of Fisheries Data

Ada County Highway District
- Watershed Planning, TMDL-related Studies
- Pollutant Load Models & Calculations

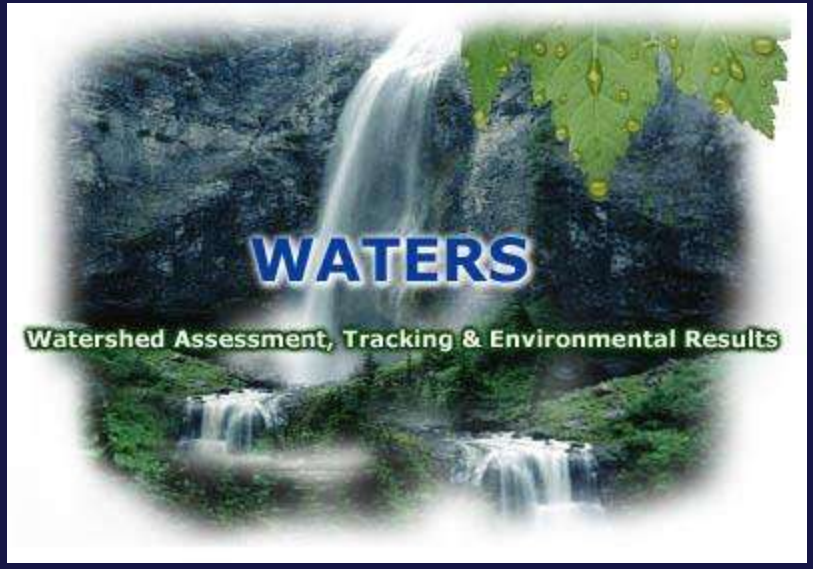
Other Application – Environmental Protection

WATERS (Watershed Assessment, Tracking & Environmental ResultS) unites water quality information that was previously available only from several independent and unconnected databases.

EPA gathers water quality information to address public concerns such as: How healthy is my watershed?

- Can I drink the water?
- Can I eat the fish?
- Is it safe to swim in the water?

http://www.epa.gov/waters/



MyWATERS Mapper dynamically displays snapshots of EPA Office of Water program data. This version of MyWATERS Mapper depicts the status of NPDES permits for each State; summary information from the Clean Watershed Needs Survey; and water quality assessments. Future versions will include other Office of Water Program Snapshots. ***MyWATERS Mapper also contains water-related geographic themes such as 12-digit watersheds, the National Hydrography Dataset, and other water-related map layers.*** MyWATERS Mapper enables you to create customized maps at national and local scales.

Vermont Flow-Frequency Tool

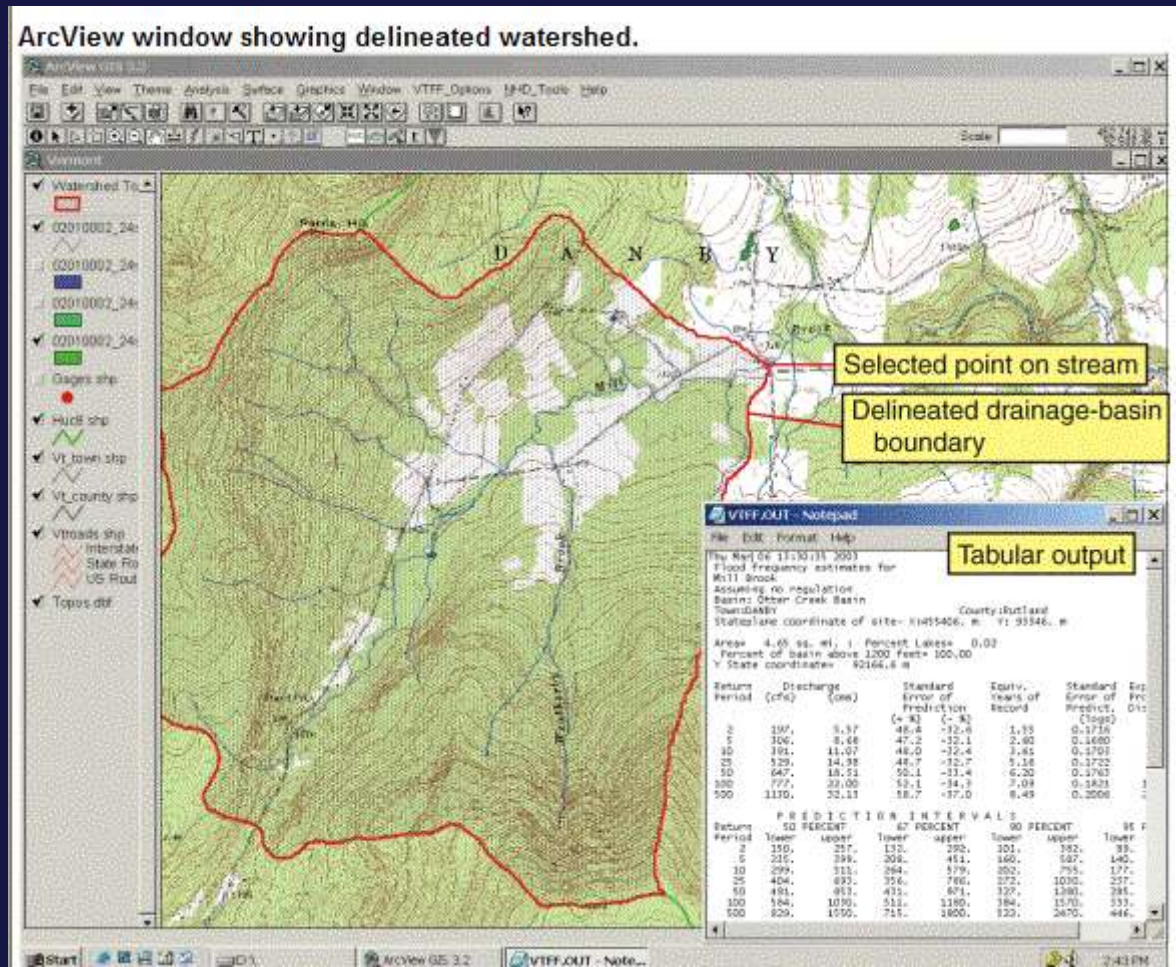
The USGS in cooperation with the Vermont Agency of Transportation developed this NHD-based tool to automate the calculation of basin characteristics required by flow-frequency equations that estimate peak-flow frequency and flow duration.

http://nh.water.usgs.gov/projects/vtfloodfreq/index.htm

VTFF available for download

Report available

ArcView window showing delineated watershed.



What are other States doing?

Washington Department of Fish and Wildlife - Partnership to update the National Hydrography Dataset (NHD) waterbody features for stocked lakes in the State.

Washington Department of Fish and Wildlife (WDFW) - Partnership to migrate WDFW fish passage barriers to the NHD.

Washington State Department of Ecology - Partnership to migrate LiDAR-generated hydrographic data from local and State agencies into the NHD.

Oregon Bureau of Land Management - Stewardship project to correct identified disparities in stream density, and related periodicity attributes, that exist within Oregon's National Hydrography Dataset (NHD) for selected watersheds.

Oregon LiDAR (Stream Delineation) Pilot Phase II- Evaluation the use of LiDAR sources and to provide the results to it's members and stakeholders.

USGS Florida Water Science Center - Partnership to define, develop, and implement a comprehensive sinkhole feature representation scheme for inclusion in the National Hydrography Dataset (NHD). Enhanced sinkhole representation in the NHD will serve to support the development of highly accurate surface-water flow models, especially in regions of karst topography.

University of Alaska Southeast - Stewardship project to update the National Hydrography Dataset (NHD) covering portions of southeast and south-central Alaska by integrating four discrete agencies' hydrography datasets.

What are other States doing?

City of Springfield, Oregon- pilot project to update the NHD with the city of Springfield municipal hydrography dataset.

Washington Dept of Ecology – hydro event data to support Clean Water Act Water Quality Standards including intakes and outfalls.

Washington Dept of Ecology – hydro event data including Monitoring stations, Water Right Diversions, NPDES point source discharges

Washington – Salmon Distribution data in a joint project with Northwest Indian Fisheries Commission and State Fish and Wildlife.

Louisiana – using WBD topology and ArcGIS Schematics to visualize downstream flow between HU's

Other News

- **NHD Update Tools**
  - Now available in 9.3 and 10.0
  - Beta testing for 10.1 in progress

- **Training Opportunities**
  - Training Class was held in March at USGS
  - Future Web-Based through USGS or IDWR
  - Possible Classroom Based

- **Upcoming Events**
  - July 24th – IDWR – StreamStats by Al Rea
  - Weekly Technical Exchange Meetings for NHD Editors

http://www.idwr.idaho.gov/GeographicInfo/NHD/default.htm

IDAHO Department of Water Resources

National Hydrography Dataset & Watershed Boundary Dataset in Idaho

The National Hydrography Dataset (NHD) is a comprehensive set of digital spatial data that contains information about surface water features such as lakes, ponds, streams, rivers, springs and wells. Download NHD data and find more information about the NHD on the United States Geological Survey NHD website.

The Watershed Boundary Dataset (WBD) has now been integrated with the NHD data model and is now packaged with the NHD downloads. Subbasins along the US/Canadian boundary now include NHD and WBD into Canada at the 8-digit level. New editing tools for both NHD and WBD are currently being developed and tested. More information on training will be posted soon - contact us if you would like to be notified as training opportunities may become available.

Download the WBD dataset from the USDA Natural Resources Geospatial Data Gateway.

Which features can be found in the NHD? View NHD Descriptions

How are you using the NHD?

Are you using the NHD for analysis, display or both?
Let us know!

SUBMIT

Contact Information:

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Idaho NHD Technical Point of Contact
Phone: (208) 287-4880

Linda Davis
Idaho NHD Principal Steward
Phone: (208) 287-4877

Idaho Department of Water Resources
322 East Front Street
PO Box 83720
Boise, Idaho 83720-0098

For a list of contacts for neighboring states, as well as a list of contacts for specific regions or hydrologic units, please email Genna Ashley.

Links:

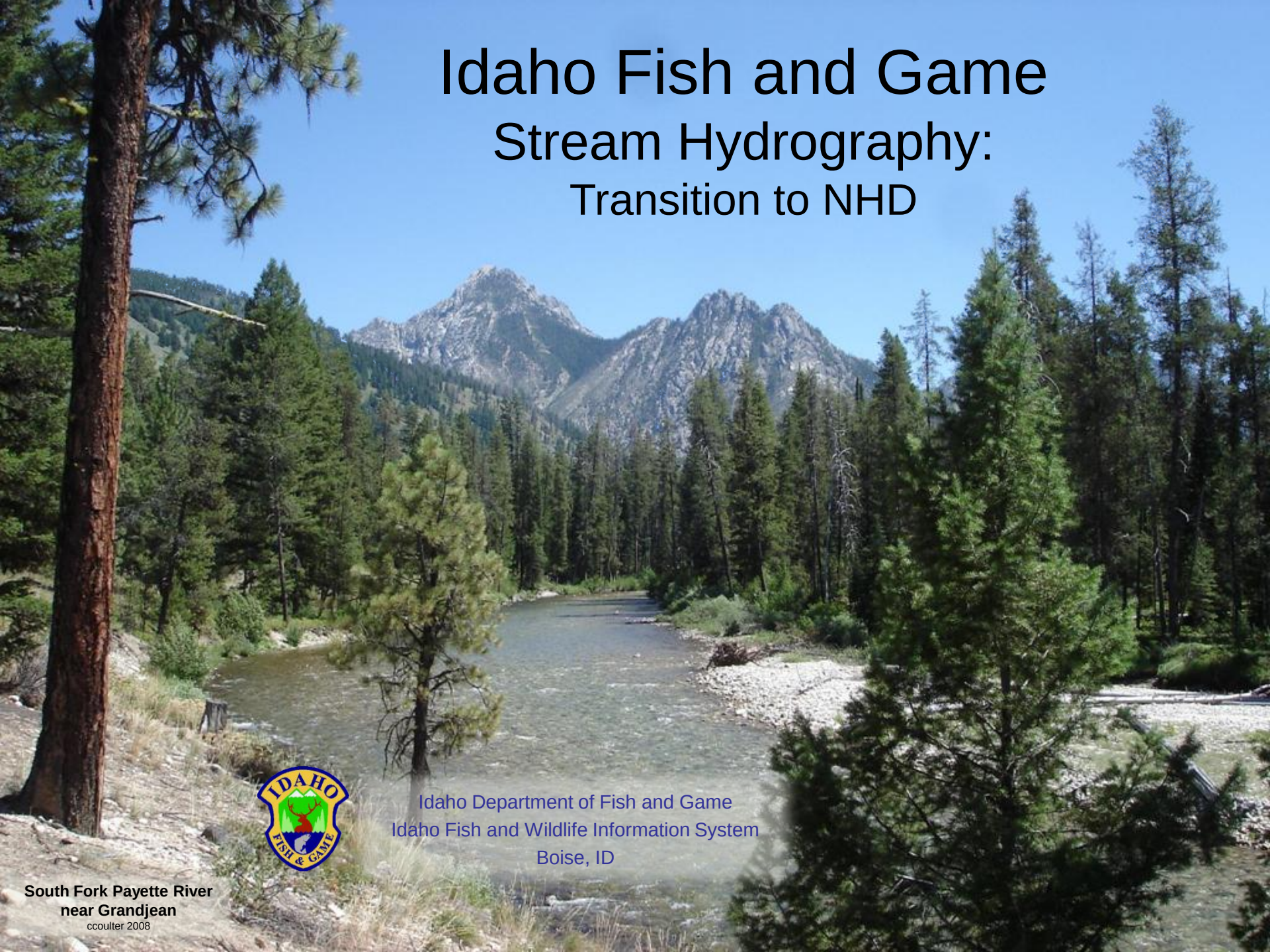
- USGS National Hydrography Dataset
- NRCS Watershed Boundary Dataset
- EPA Watershed Assessment - Tracking & Environmental Results
- USDA Forest Service
- USDA Forest Service - Rocky Mountain Research Station
- EPA - Locate Your Watershed
- ArcHydro Data Model Download
- NHD Plus
- USGS Idaho Streamstats
- ACWI Subcommittee on Spatial Water Data
- USGS National Elevation Dataset
- USGS GIS Data
- Best of the Web - Water Resources

Contact Information:
Genna Ashley, Idaho WBD & NHD Technical Point of Contact
Genna.Ashley@idwr.idaho.gov
Linda Davis, Idaho Principal Data Steward Linda.Davis@idwr.idaho.gov

Website Information:
http://www.idwr.idaho.gov/GeographicInfo/NHD/default.htm

QUESTIONS?

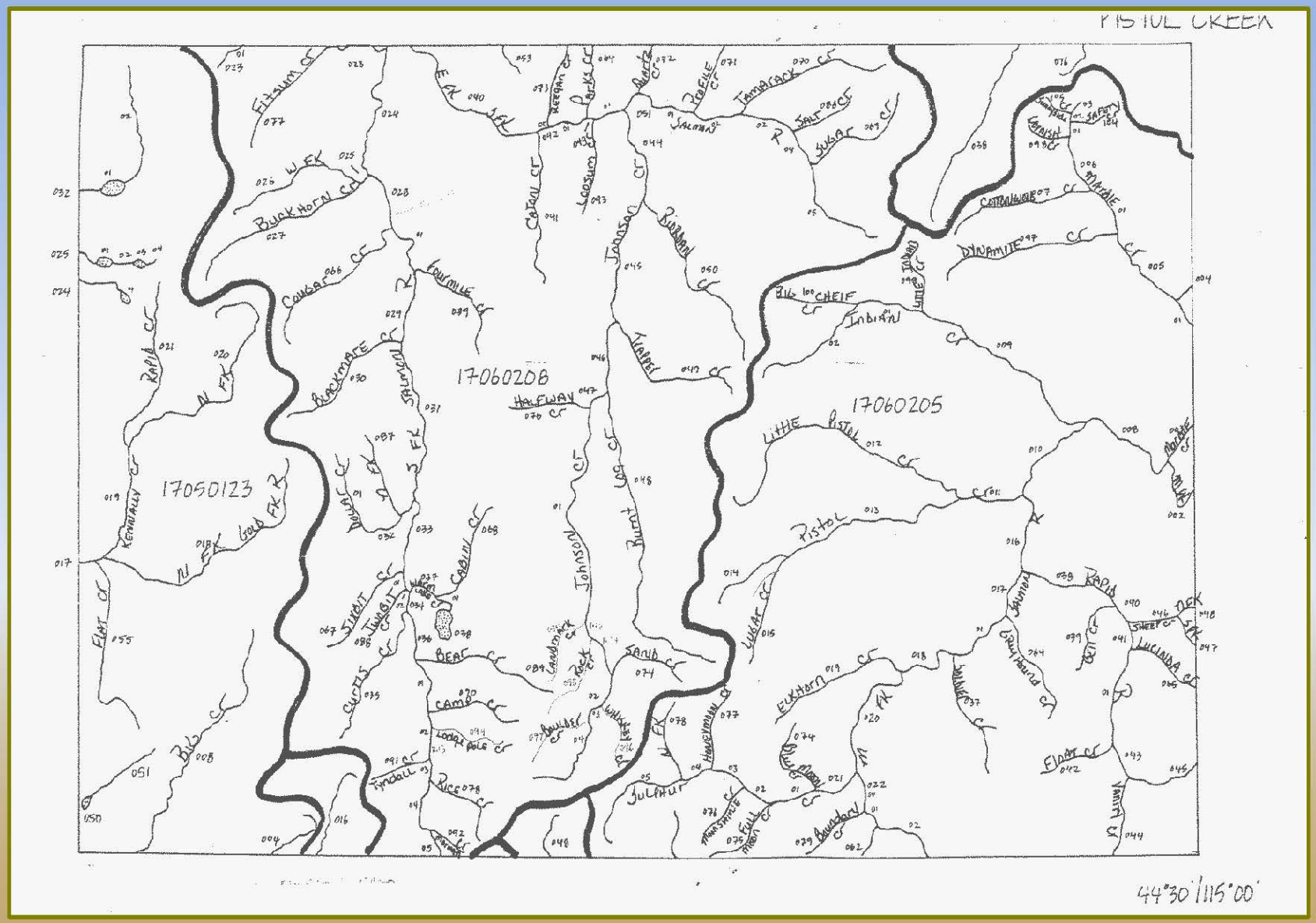
Idaho Fish and Game
Stream Hydrography:
Transition to NHD



Idaho Department of Fish and Game
Idaho Fish and Wildlife Information System
Boise, ID

South Fork Payette River near Grandjean
ccoulter 2008

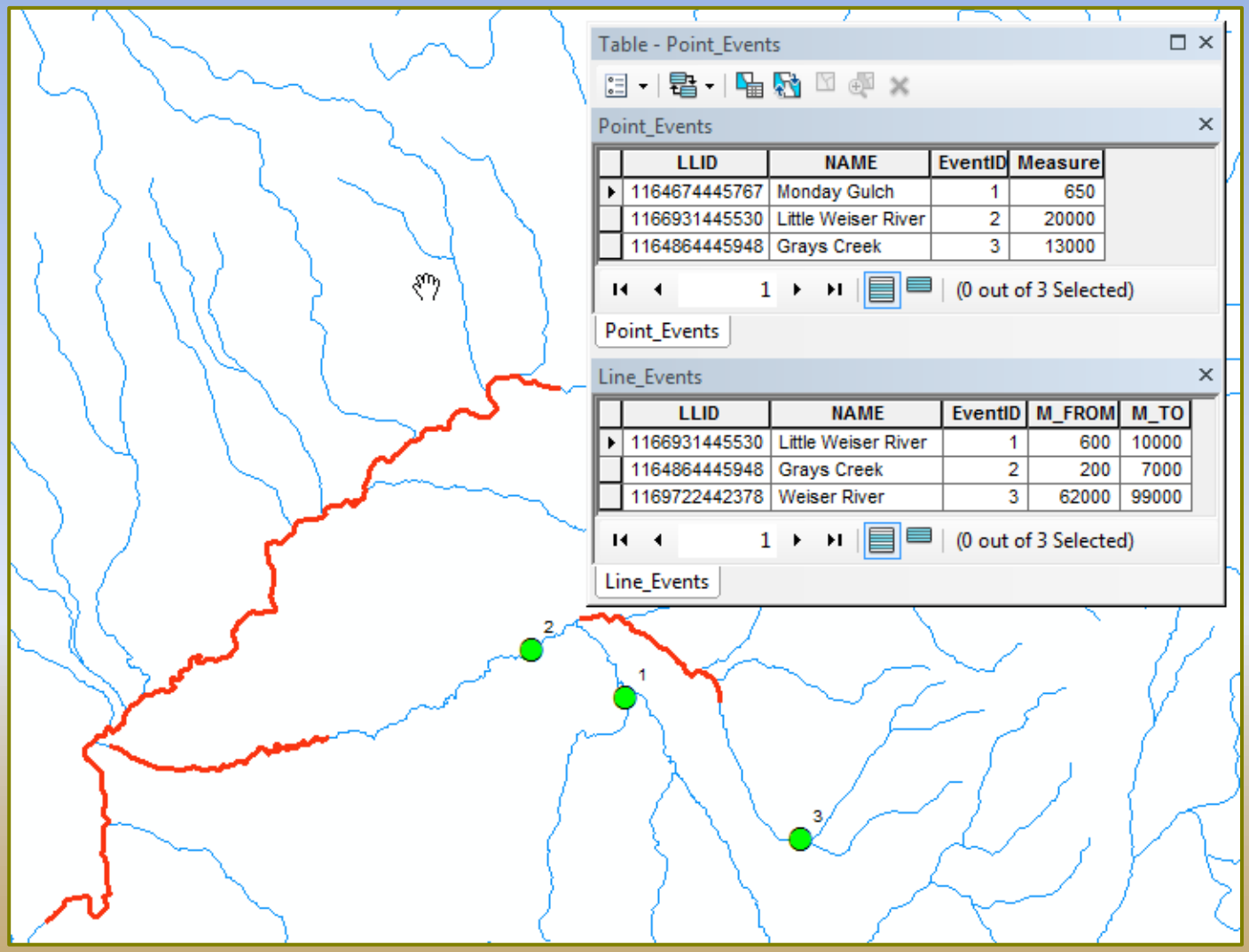
EPA River Reach



About IDFG stream hydrography

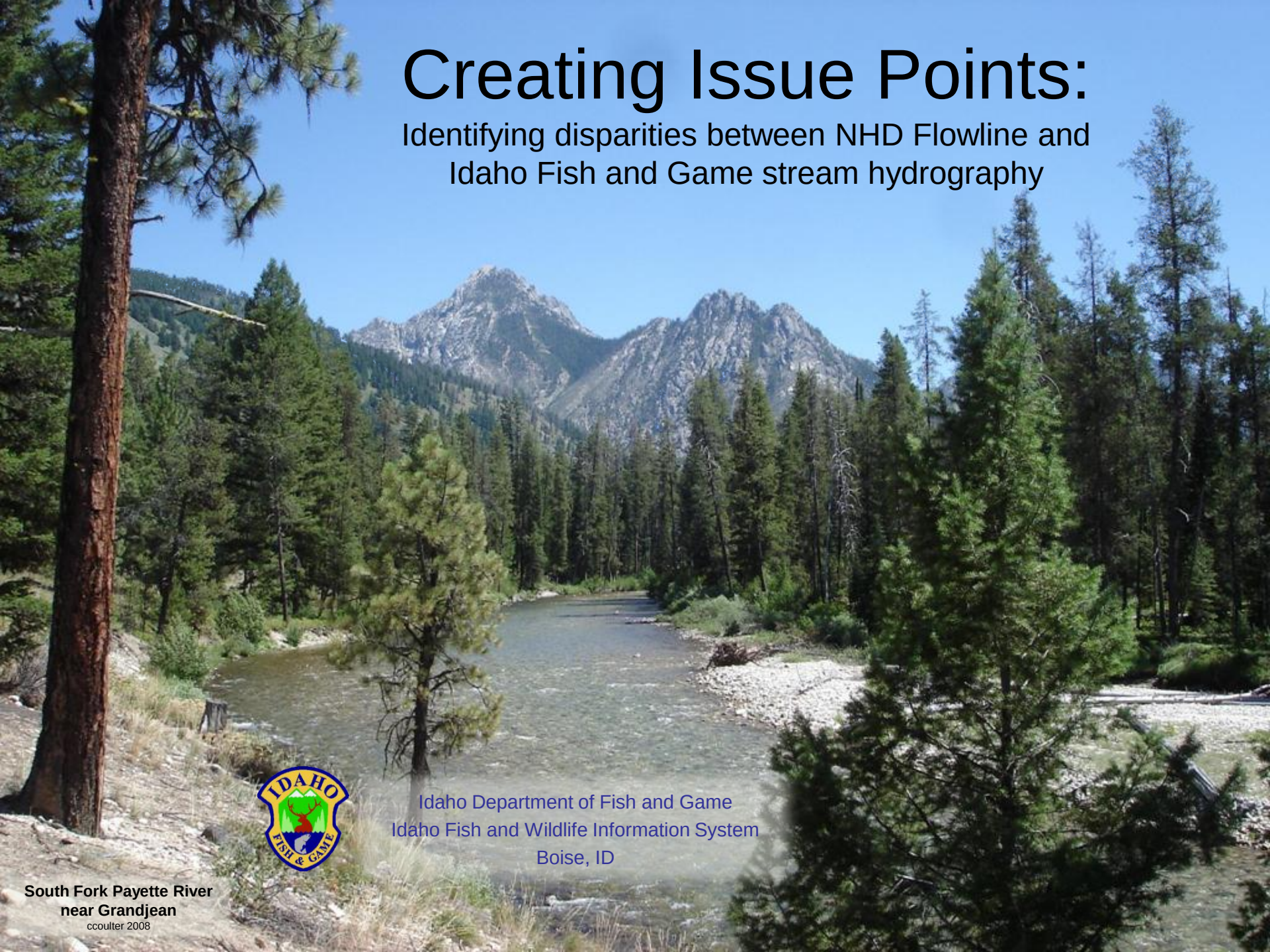
- LLID-based: concatenation of Lat/Lon, assigned at mouth of stream
- Whole-stream routing: one LLID entire length
- Measures defined from mouth to headwater
- Names taken from old topo maps or assigned by field biologists, many streams with historic stocking records
- Some names anecdotal or local knowledge

Stream Events



Creating Issue Points:

Identifying disparities between NHD Flowline and Idaho Fish and Game stream hydrography

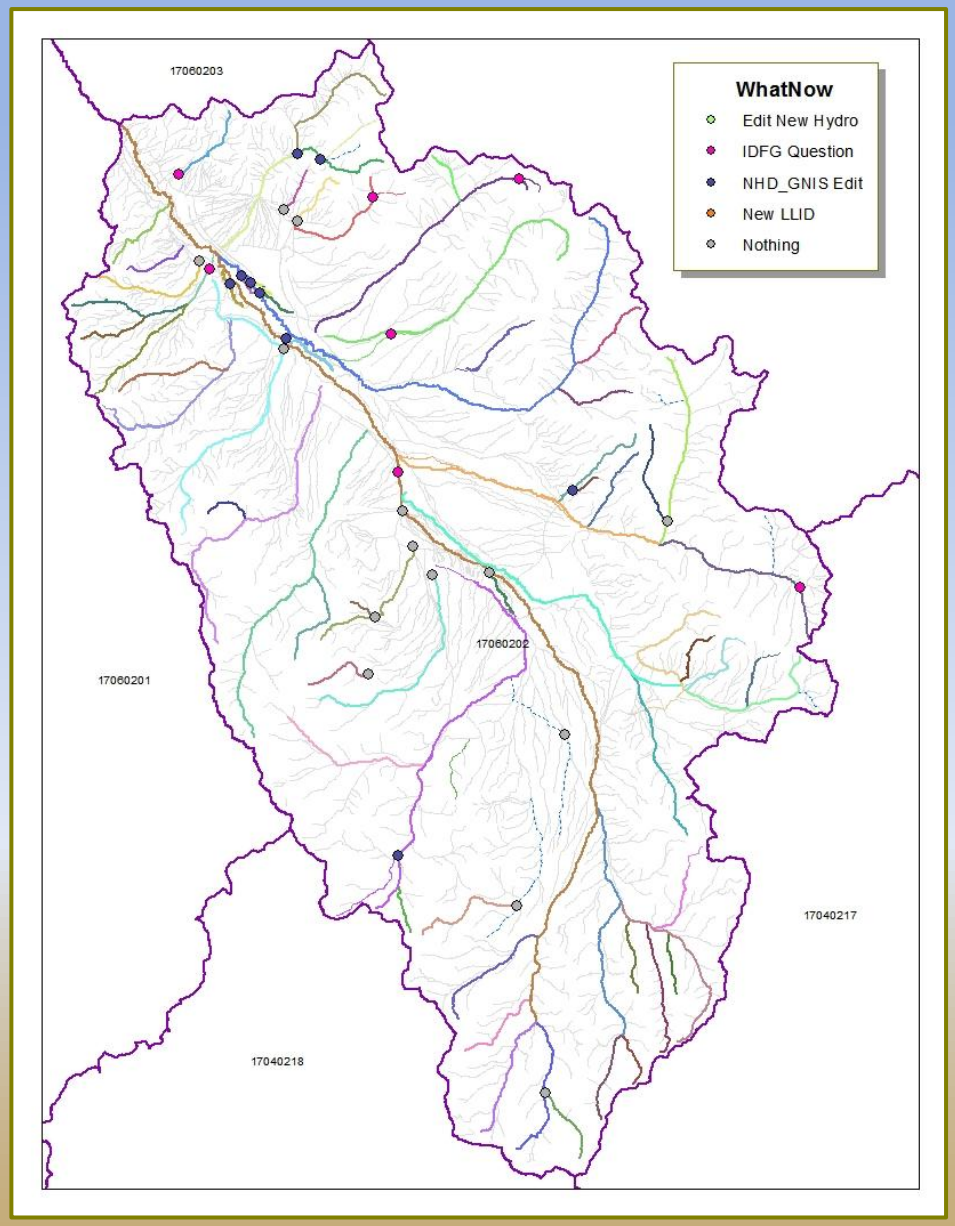


Idaho Department of Fish and Game
Idaho Fish and Wildlife Information System
Boise, ID

South Fork Payette River near Grandjean
ccoulter 2008

Identifying Issue Points

- Download NHD Subbasins with Flow tables from USGS
- About 80 4th-code HUCs, mostly within Idaho, some with small areas inside Idaho

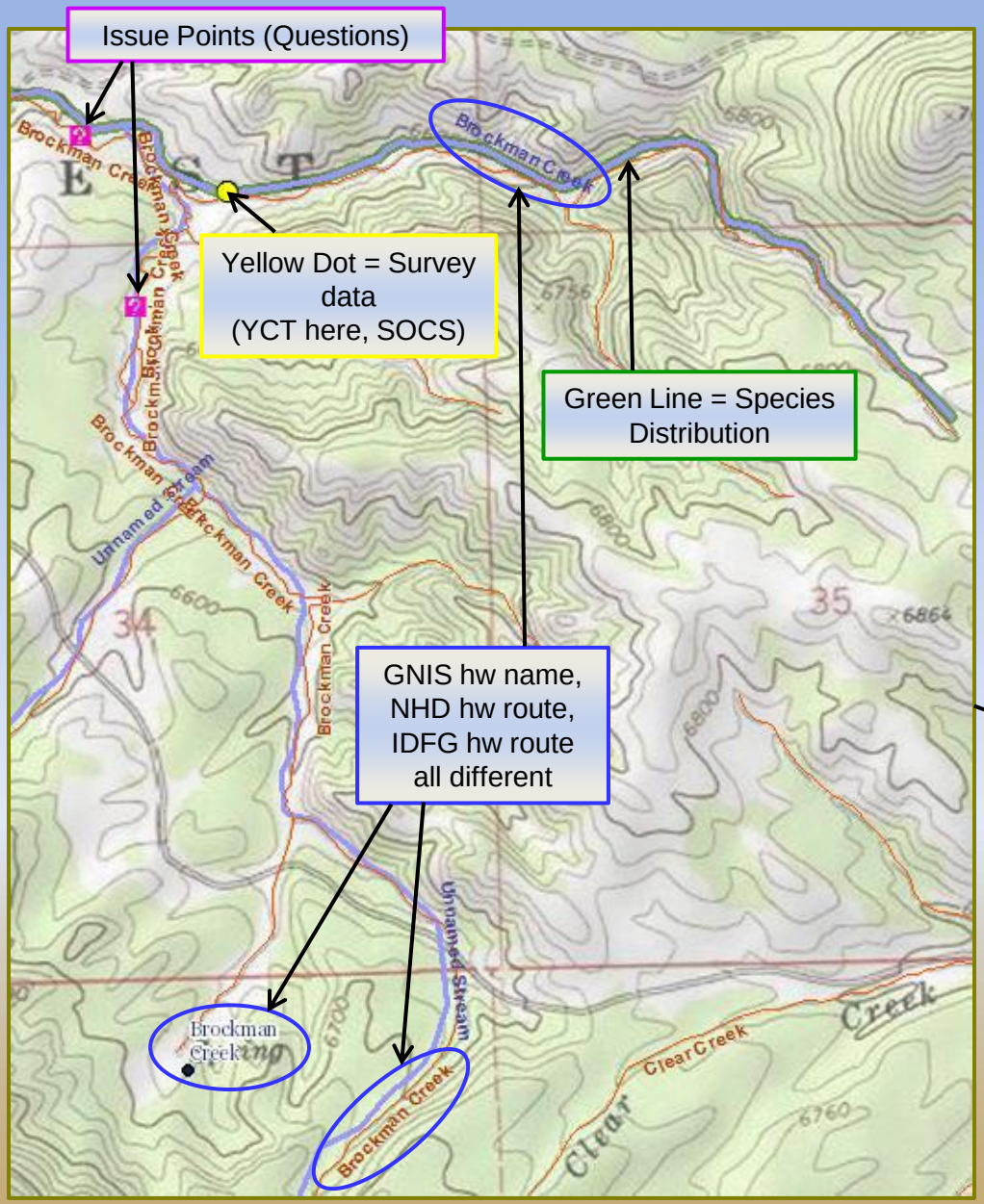


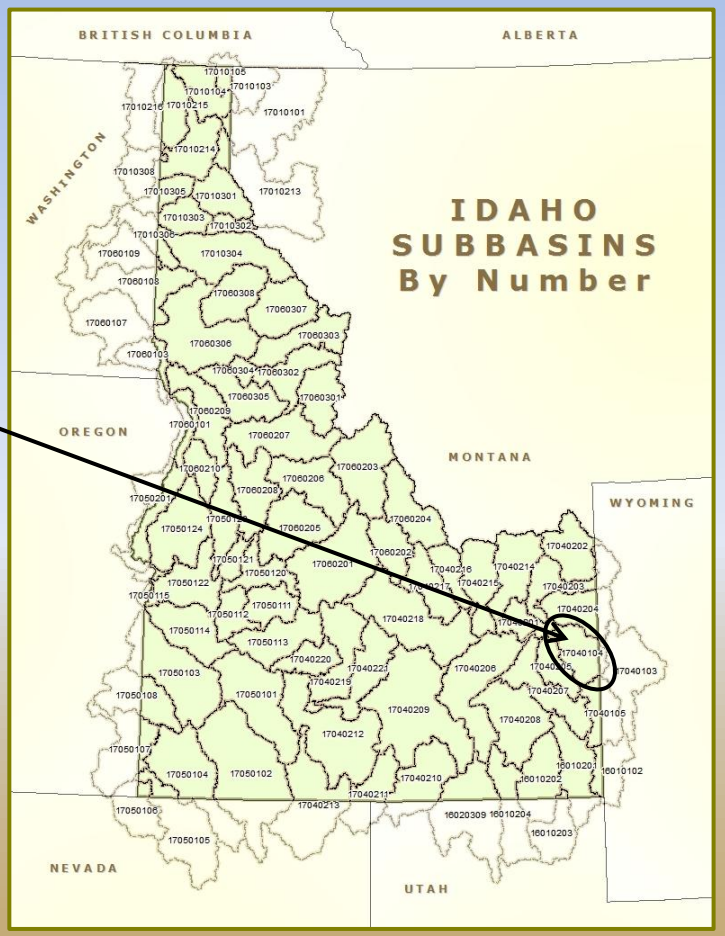
Identifying Issue Points

- HUC by HUC, match IDFG streams with same GNIS name in NHD Flowline
- Systematically compare FG and NHD routes & names for all streams and tributaries, from mouth to headwaters and back to mouth
- Flag all instances where stream routes & names do not match
- Nearly 500 instances were identified with NHD/GNIS recommendations, affecting thousands of NHD segments

Identifying Issue Points

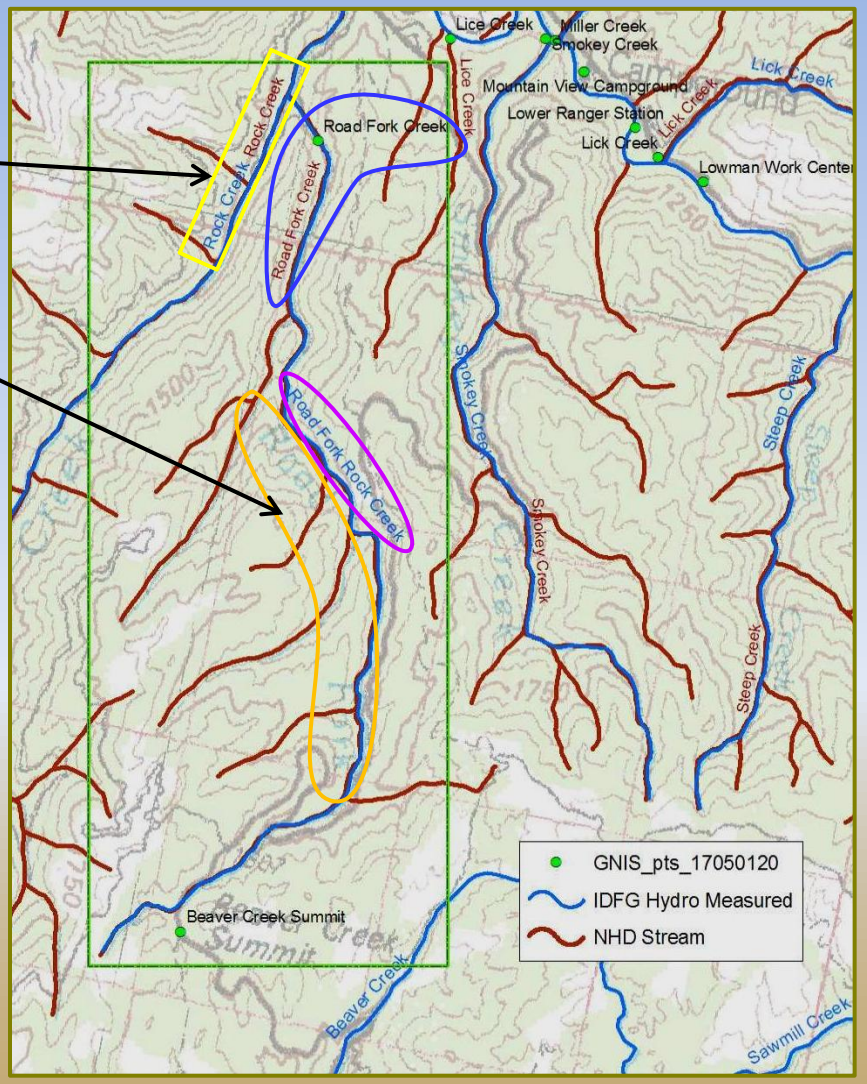
Repeat process for each stream within each HUC statewide





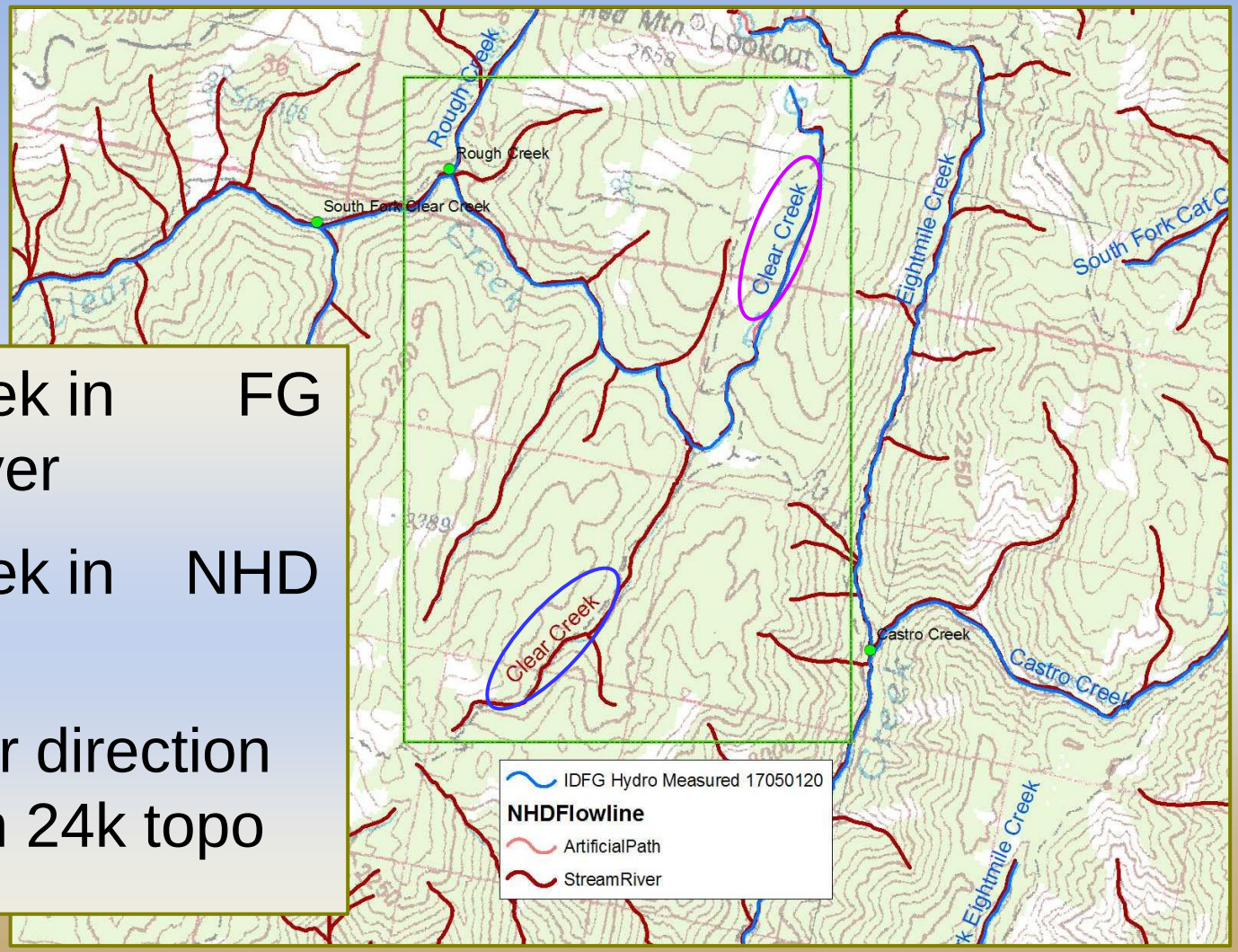
Example: Difference in Naming Format

- Parent stream is *Rock Creek* (IDFG/NHD)
- 24k topo is *Road Fork*
- GNIS/NHD are both *Road Fork Creek*
- IDFG is *Road Fork Rock Creek*



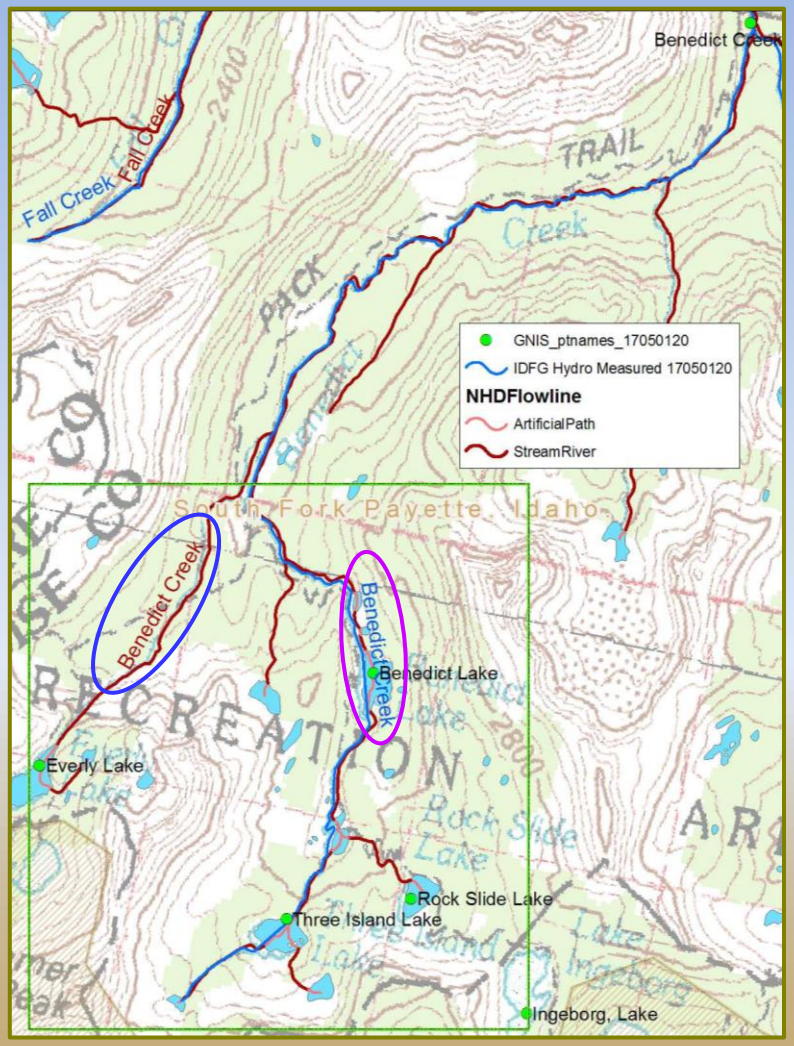
Example: Difference in Headwater Route

- Clear Creek in FG stream layer
- Clear Creek in NHD Flowline
- Headwater direction unclear on 24k topo



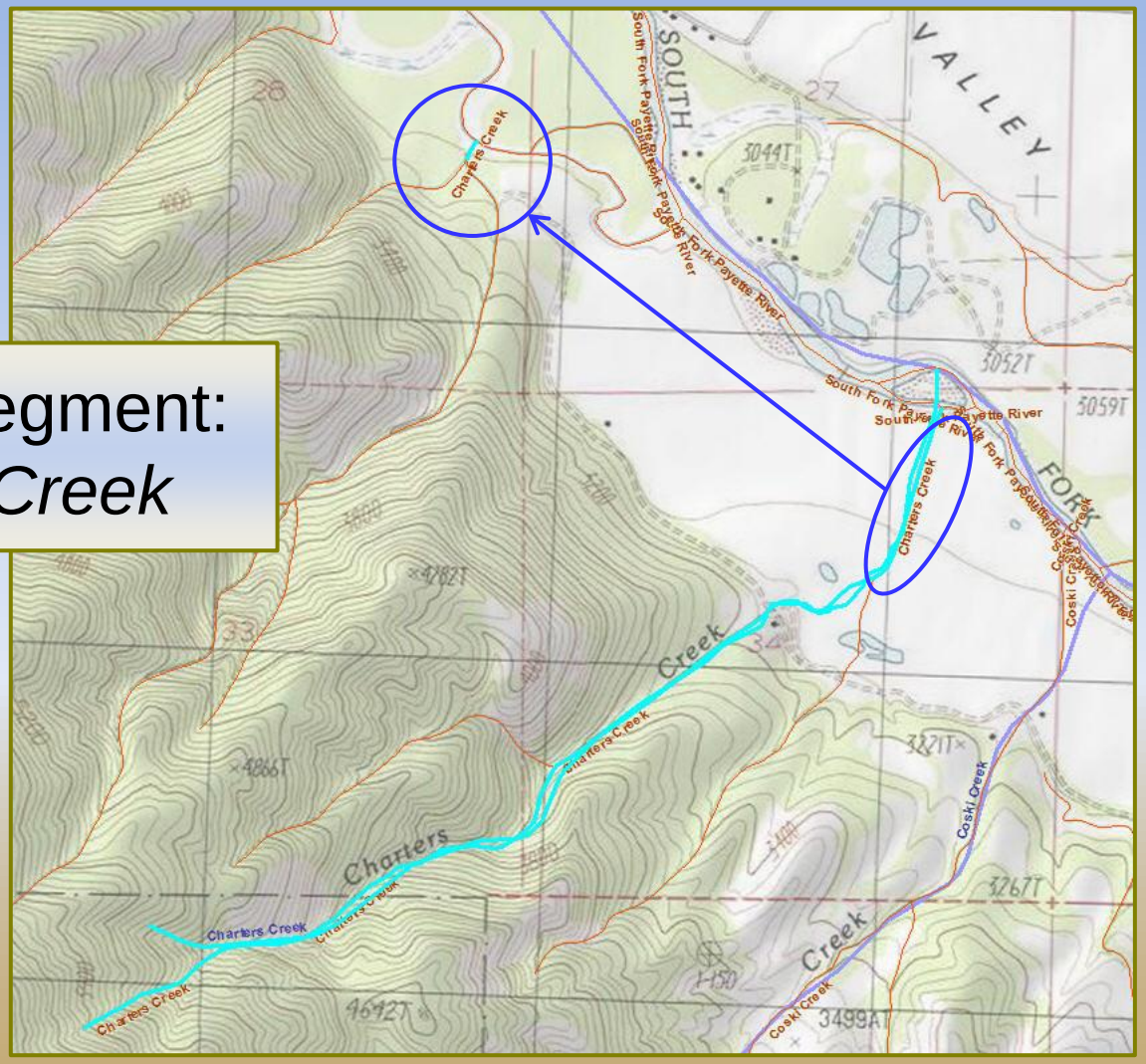
Example: Difference in Headwater Route

- Benedict Creek in NHD Flowline
- Benedict Creek in FG stream layer
- Is there a headwater selection protocol?

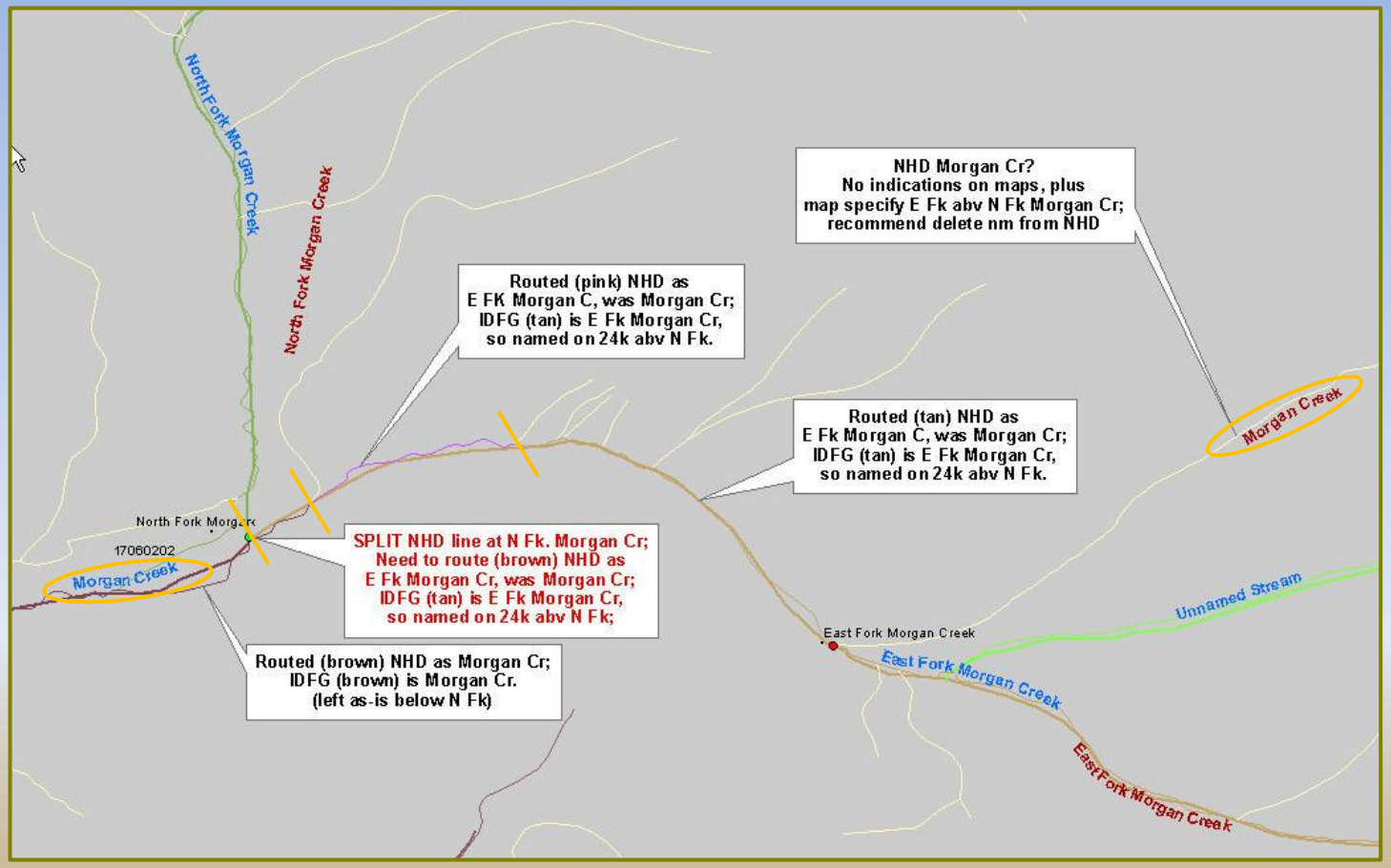


Example: Naming Anomaly

Remnant segment:
Charters Creek

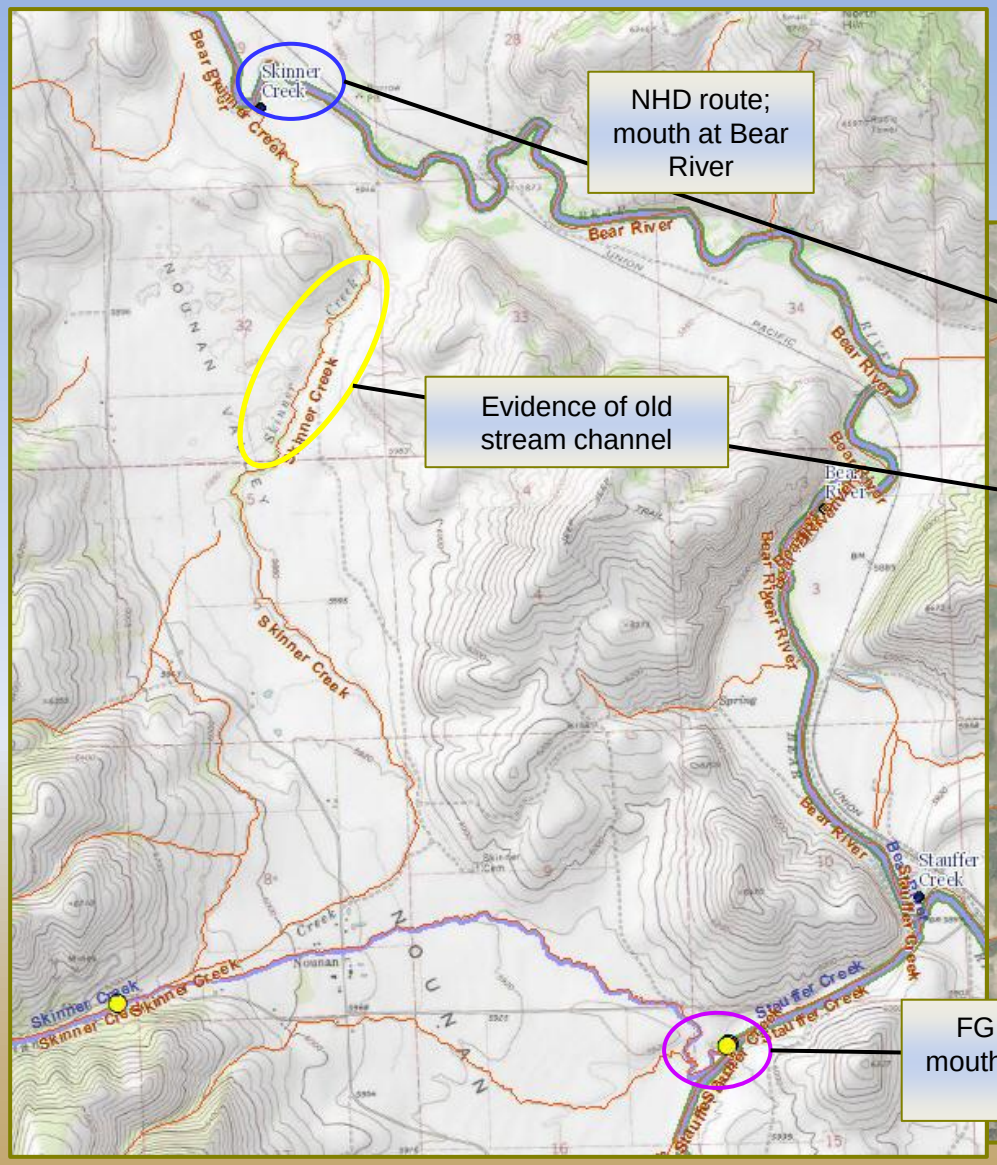


Example: Naming Anomaly



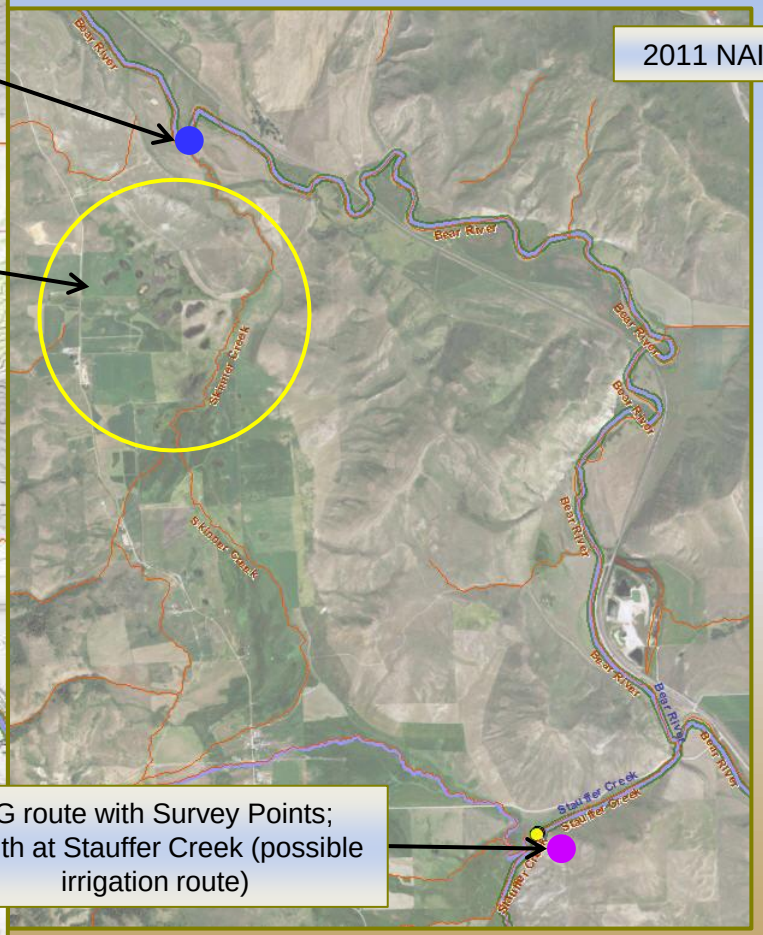
- Differing name segment breaks, locations

Example: Naming Anomaly



NHD route; mouth at Bear River

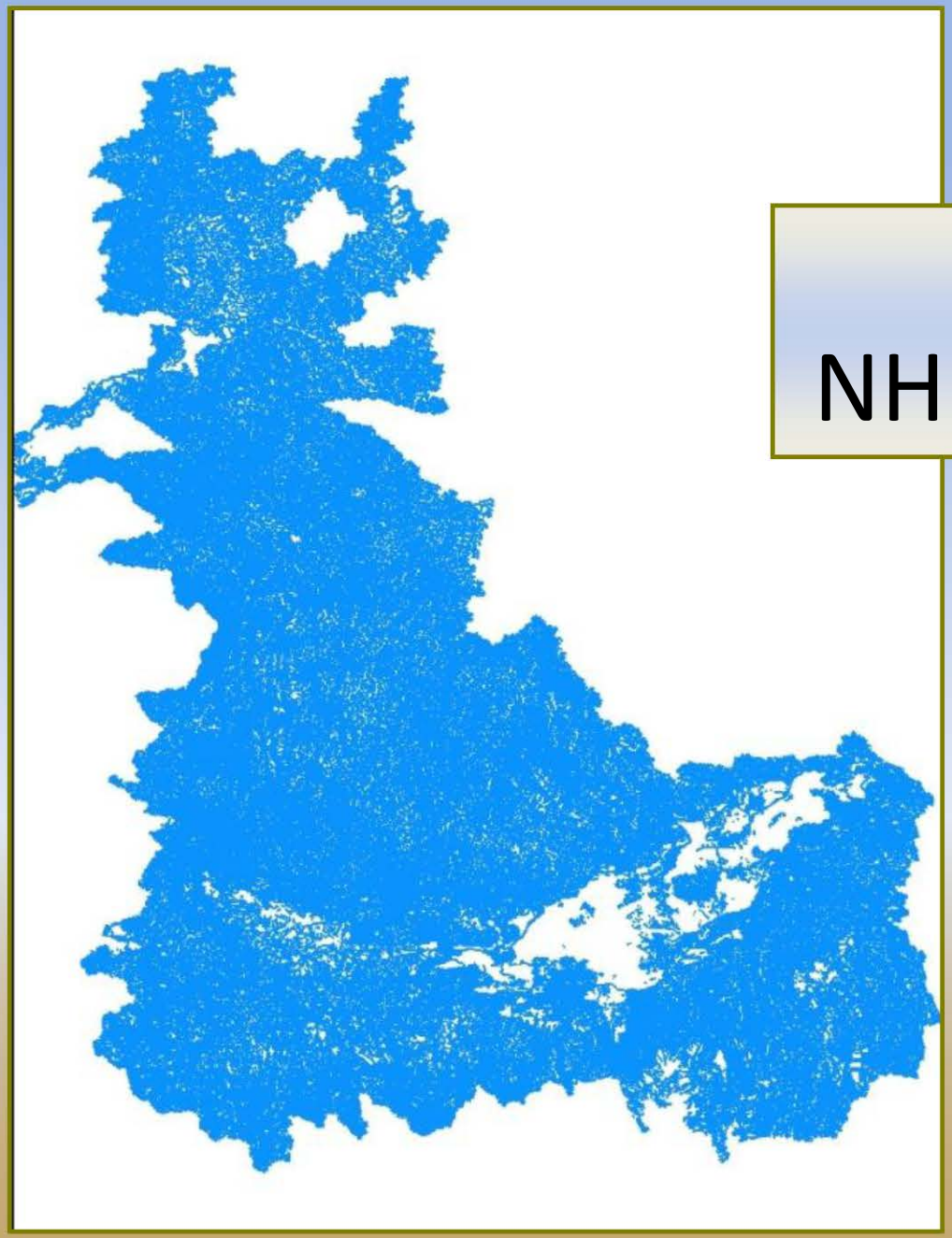
Evidence of old stream channel



2011 NAIP

FG route with Survey Points; mouth at Stauffer Creek (possible irrigation route)

- Research different routes, parent streams



Idaho
NHD_Flowline

IDFG Stream Hydro Layers

- **Hydro_24K_NHD_Flowline** maintains all the original com segments and attributes and routing of NHD_Flowline, plus the additional attributes of HUC4_ID, HUC5_ID, NAME, VAIRANT, and LLID.

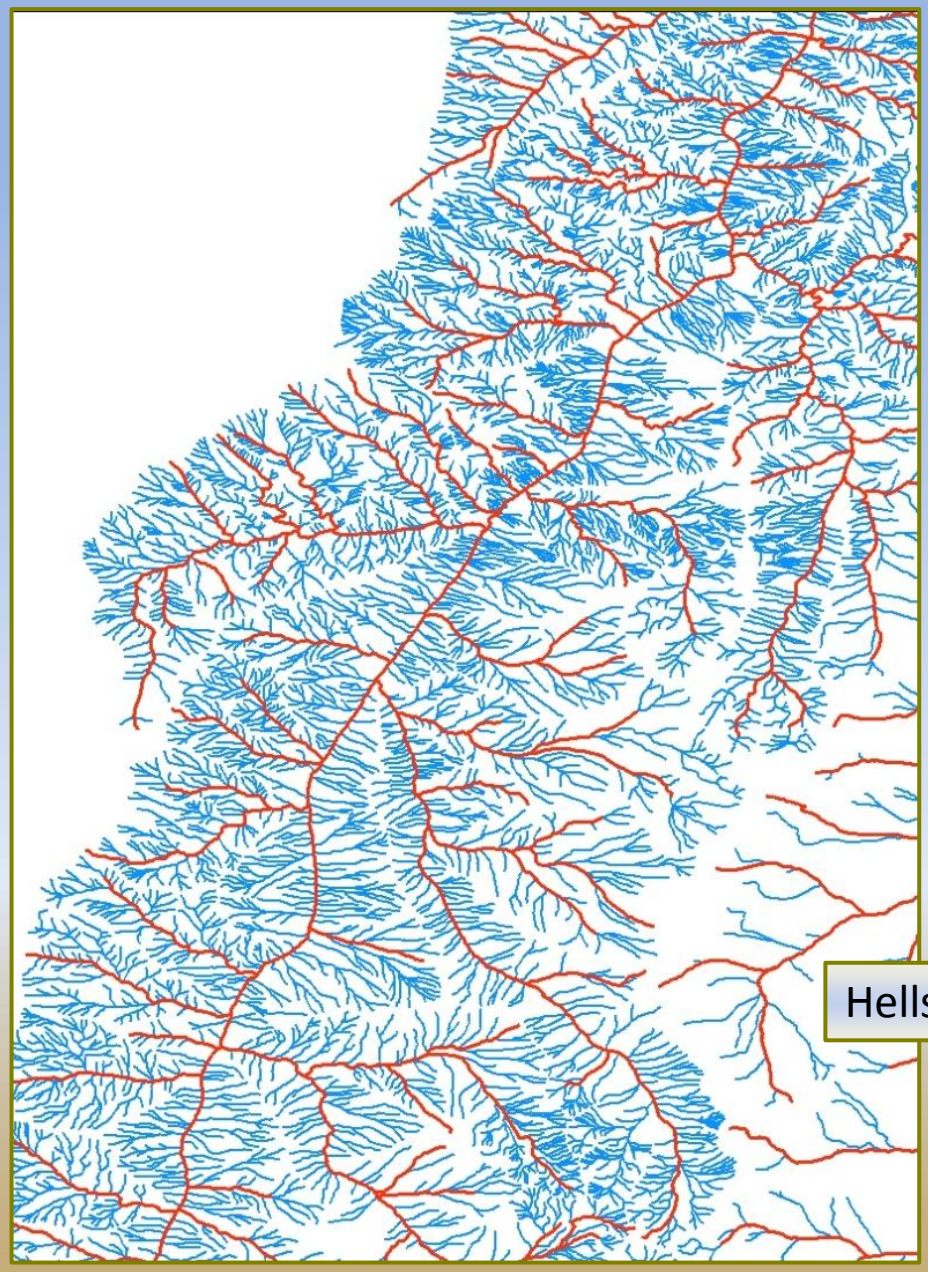
  545,470 Records

- **Hydro_24K_Stream_Reach** is an aggregation of Hydro_24K_NHD_Flowline created by selecting for stream segments with an LLID assigned, and dissolving on ReachCode and FCode.

  76,245 Records

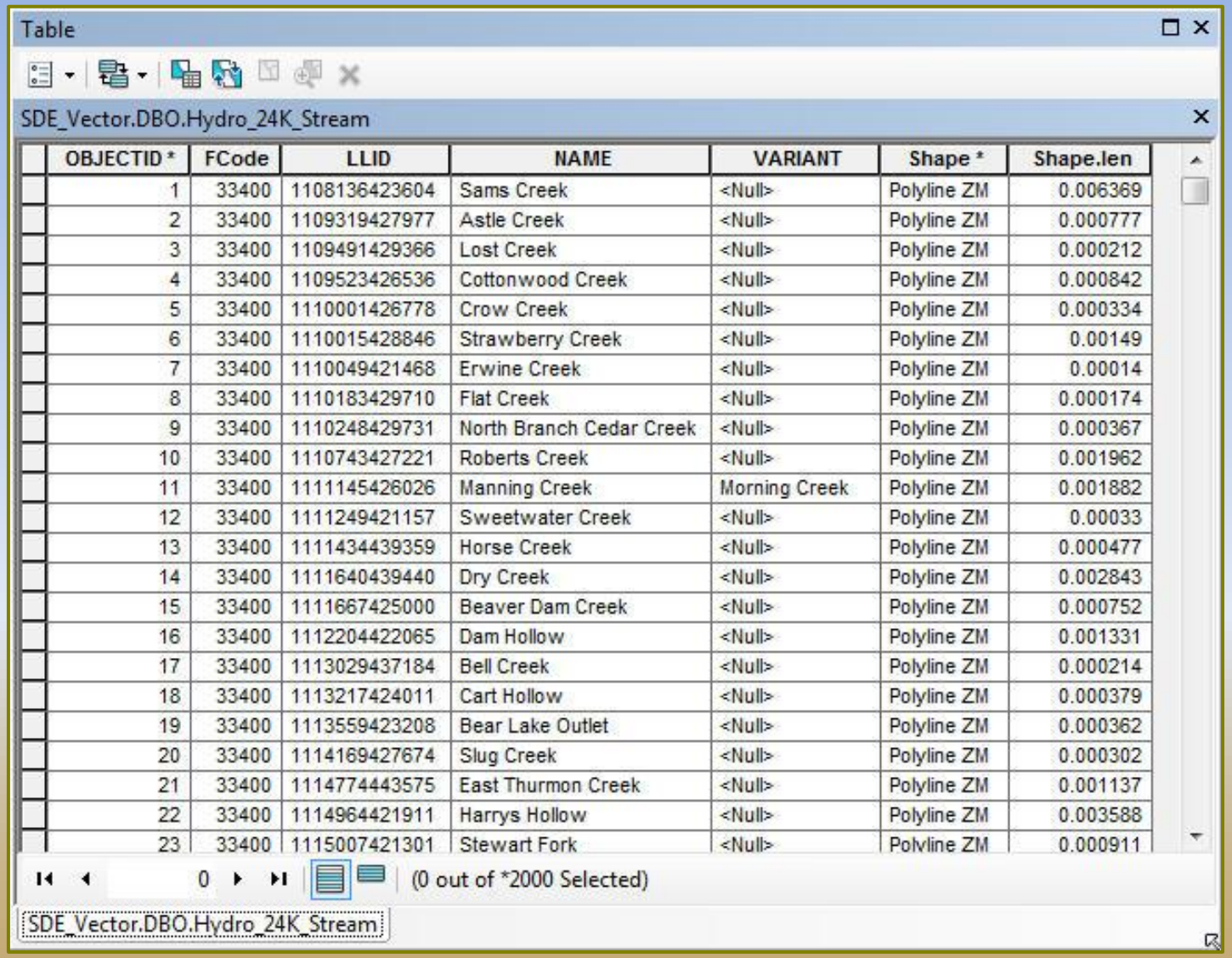
- **Hydro_24K_Stream** is an aggregation of Hydro_24K_Stream_Reach created by dissolving on LLID and FCode.

  27,317 Records



NHD_Flowline and Stream Routes

Hydro_24k_Stream Table



Table

SDE_Vector.DBO.Hydro_24K_Stream

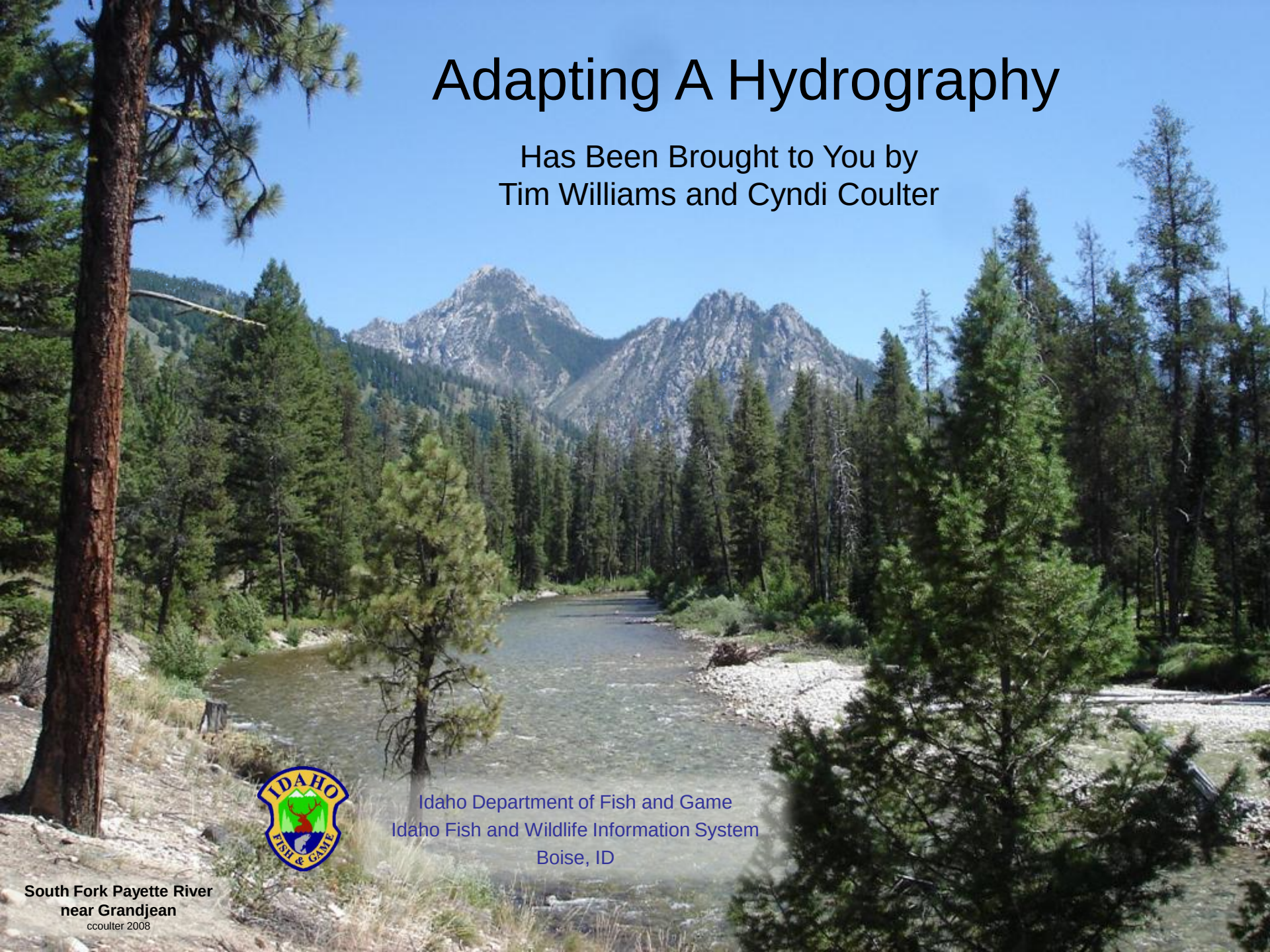
OBJECTID *	FCode	LLID	NAME	VARIANT	Shape *	Shape.len
1	33400	1108136423604	Sams Creek	<Null>	Polyline ZM	0.006369
2	33400	1109319427977	Astle Creek	<Null>	Polyline ZM	0.000777
3	33400	1109491429366	Lost Creek	<Null>	Polyline ZM	0.000212
4	33400	1109523426536	Cottonwood Creek	<Null>	Polyline ZM	0.000842
5	33400	1110001426778	Crow Creek	<Null>	Polyline ZM	0.000334
6	33400	1110015428846	Strawberry Creek	<Null>	Polyline ZM	0.00149
7	33400	1110049421468	Erwine Creek	<Null>	Polyline ZM	0.00014
8	33400	1110183429710	Flat Creek	<Null>	Polyline ZM	0.000174
9	33400	1110248429731	North Branch Cedar Creek	<Null>	Polyline ZM	0.000367
10	33400	1110743427221	Roberts Creek	<Null>	Polyline ZM	0.001962
11	33400	1111145426026	Manning Creek	Morning Creek	Polyline ZM	0.001882
12	33400	1111249421157	Sweetwater Creek	<Null>	Polyline ZM	0.00033
13	33400	1111434439359	Horse Creek	<Null>	Polyline ZM	0.000477
14	33400	1111640439440	Dry Creek	<Null>	Polyline ZM	0.002843
15	33400	1111667425000	Beaver Dam Creek	<Null>	Polyline ZM	0.000752
16	33400	1112204422065	Dam Hollow	<Null>	Polyline ZM	0.001331
17	33400	1113029437184	Bell Creek	<Null>	Polyline ZM	0.000214
18	33400	1113217424011	Cart Hollow	<Null>	Polyline ZM	0.000379
19	33400	1113559423208	Bear Lake Outlet	<Null>	Polyline ZM	0.000362
20	33400	1114169427674	Slug Creek	<Null>	Polyline ZM	0.000302
21	33400	1114774443575	East Thurmon Creek	<Null>	Polyline ZM	0.001137
22	33400	1114964421911	Harrys Hollow	<Null>	Polyline ZM	0.003588
23	33400	1115007421301	Stewart Fork	<Null>	Polyline ZM	0.000911

0 (0 out of *2000 Selected)

SDE_Vector.DBO.Hydro_24K_Stream

Adapting A Hydrography

Has Been Brought to You by
Tim Williams and Cyndi Coulter



Idaho Department of Fish and Game
Idaho Fish and Wildlife Information System
Boise, ID

South Fork Payette River near Grandjean
ccoulter 2008