# Hydrogeology of Tributaries to Coeur d'Alene Lake

**presented to**

**Coeur d' Alene**

**Watershed Advisory Group**

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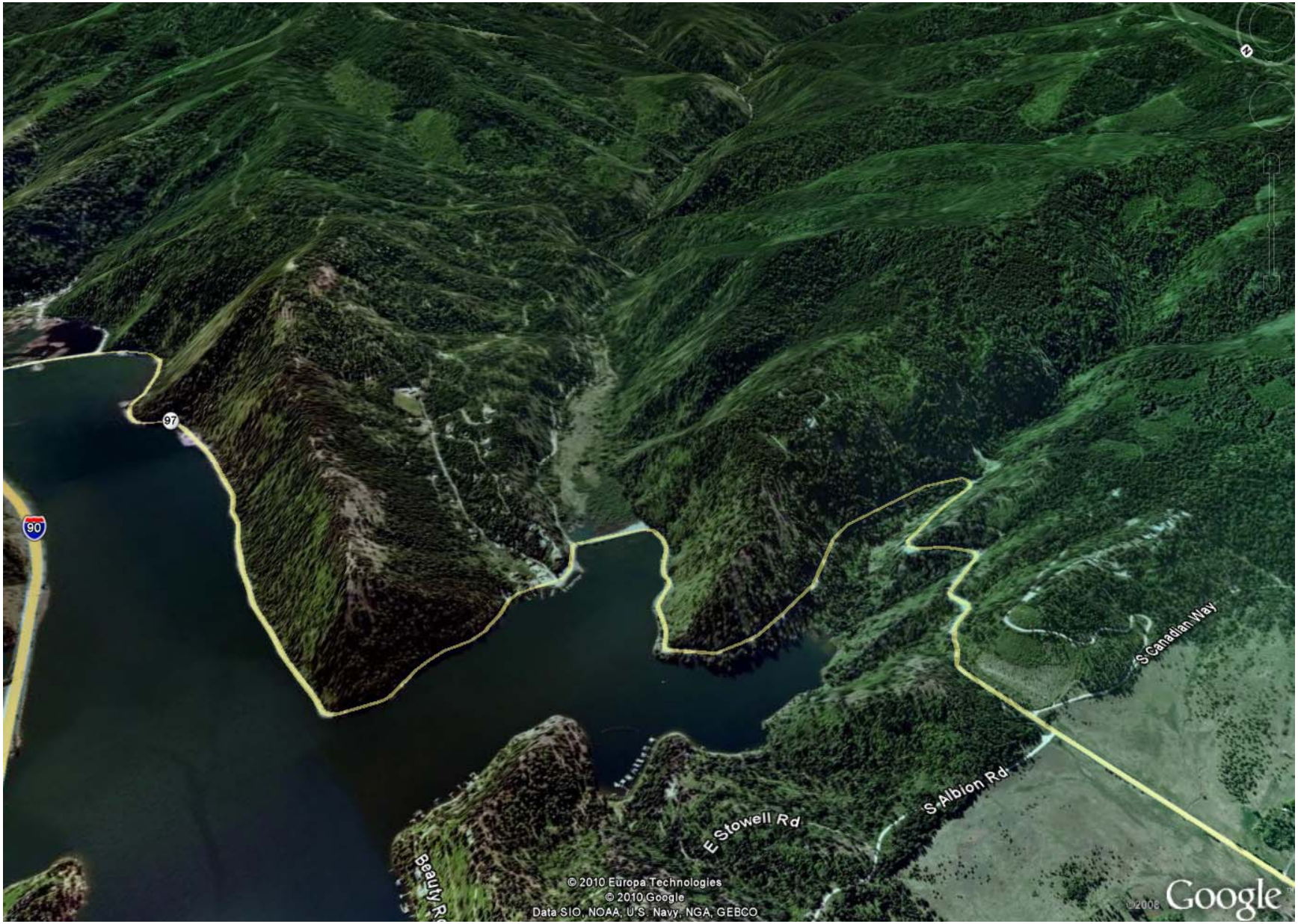
# Intro

- Collection of water quality data has been challenging because Coeur d' Alene tributaries "went dry" much earlier than most Idaho streams
- In July, 2010 Coeur d' Alene Regional Office hypothesized what's hydro-geologically going on.


97
90
S Canadian Way
S Albion Rd
E Stowell Rd
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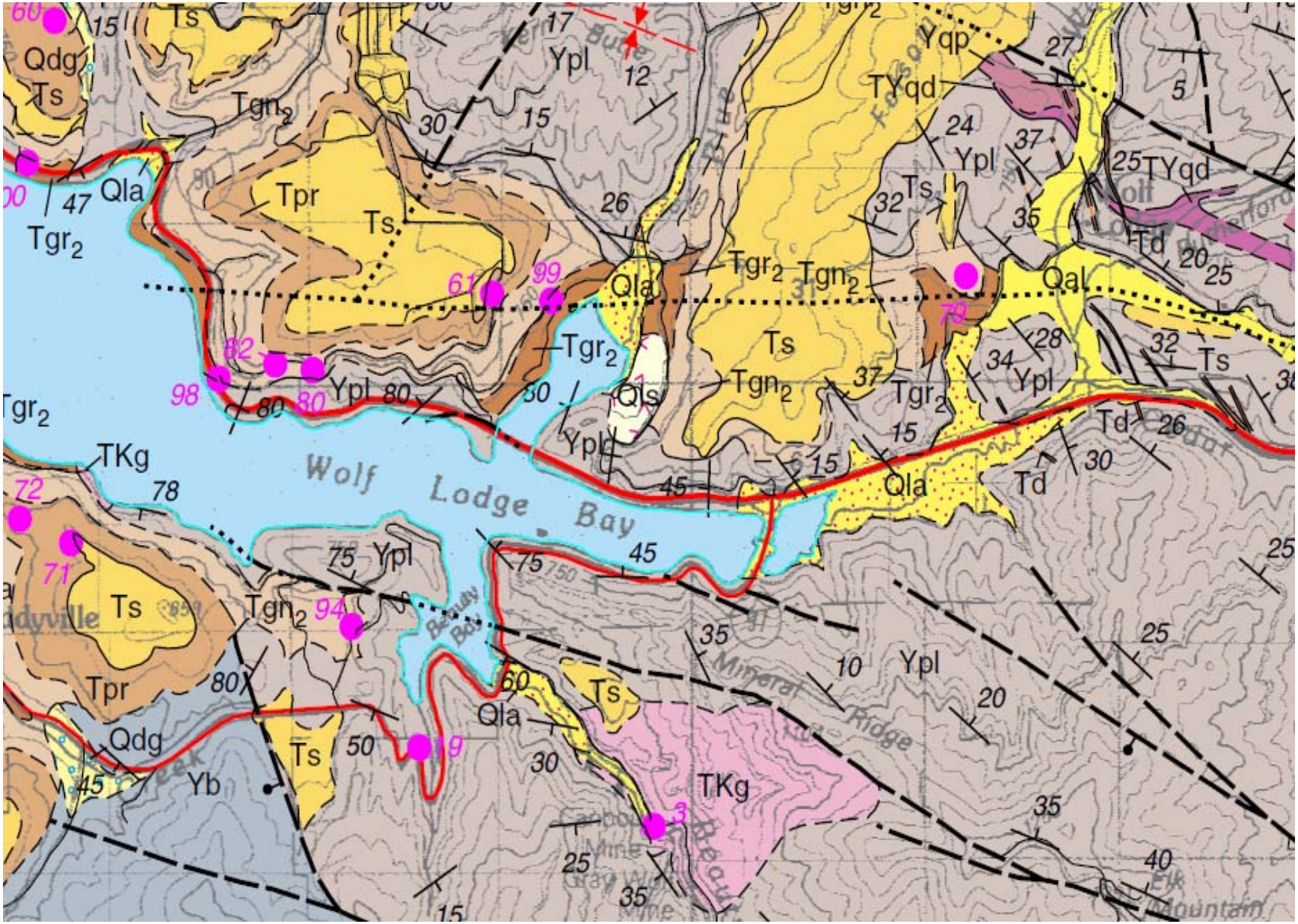
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Google

# Monitoring

- Access
  - Road Crossings
  - Public Lands
- Representation
  - Lower portions of watershed are typically targeted


Wolf Lodge Bay
Qdg
Ts
Tgn2
Tpr
Qla
Tgr2
Ypl
TKg
Yb
Yqp
TYqd
Qal
Td
Qls
Mineral Ridge
Elk Mountain

# HOLOCENE DEPOSITS


Alluvial deposits (Holocene)

Lacustrine sediments and alluvium (Holocene)

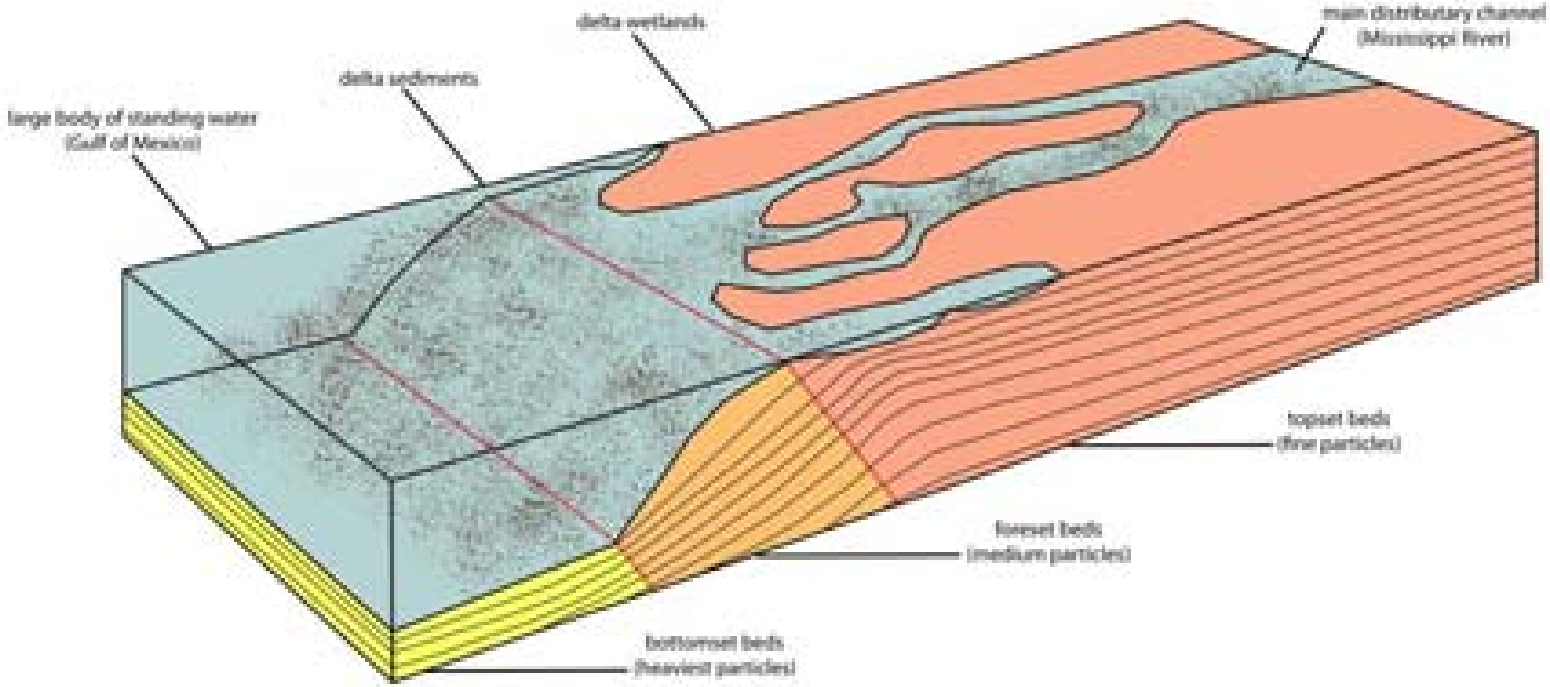
Landslide deposits (Holocene)

Fluvial gravel (Pleistocene and Holocene)

Palouse Formation (Pleistocene and Holocene) *(pattern only)*

# Coeur d’ Alene Lake Geologic History

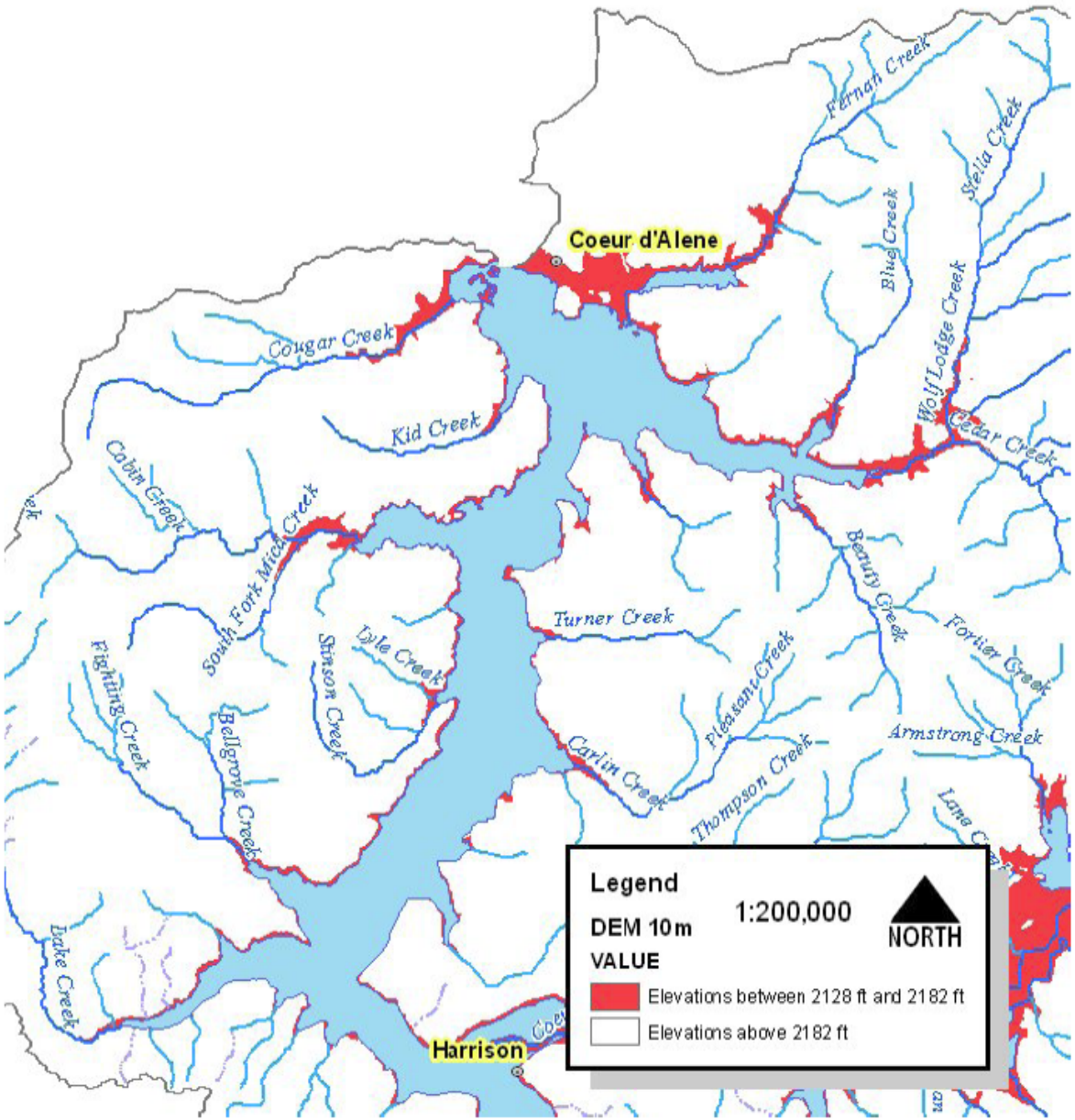
- Lake elevation variable
- Coeur d’ Alene Lake is southern extent of most recent glacial activity
- Glacier flowing south in the Purcell Trench (10-15k years ago)
- Lake elevation was 52 feet higher for a long period in the past
- Delta-like deposition occurred in flooded v-shaped valleys


delta wetlands
main distributary channel
(Mississippi River)
delta sediments
large body of standing water
(Gulf of Mexico)
topset beds
(fine particles)
foreset beds
(medium particles)
bottomset beds
(heaviest particles)

# Length of Emergent Delta Formations

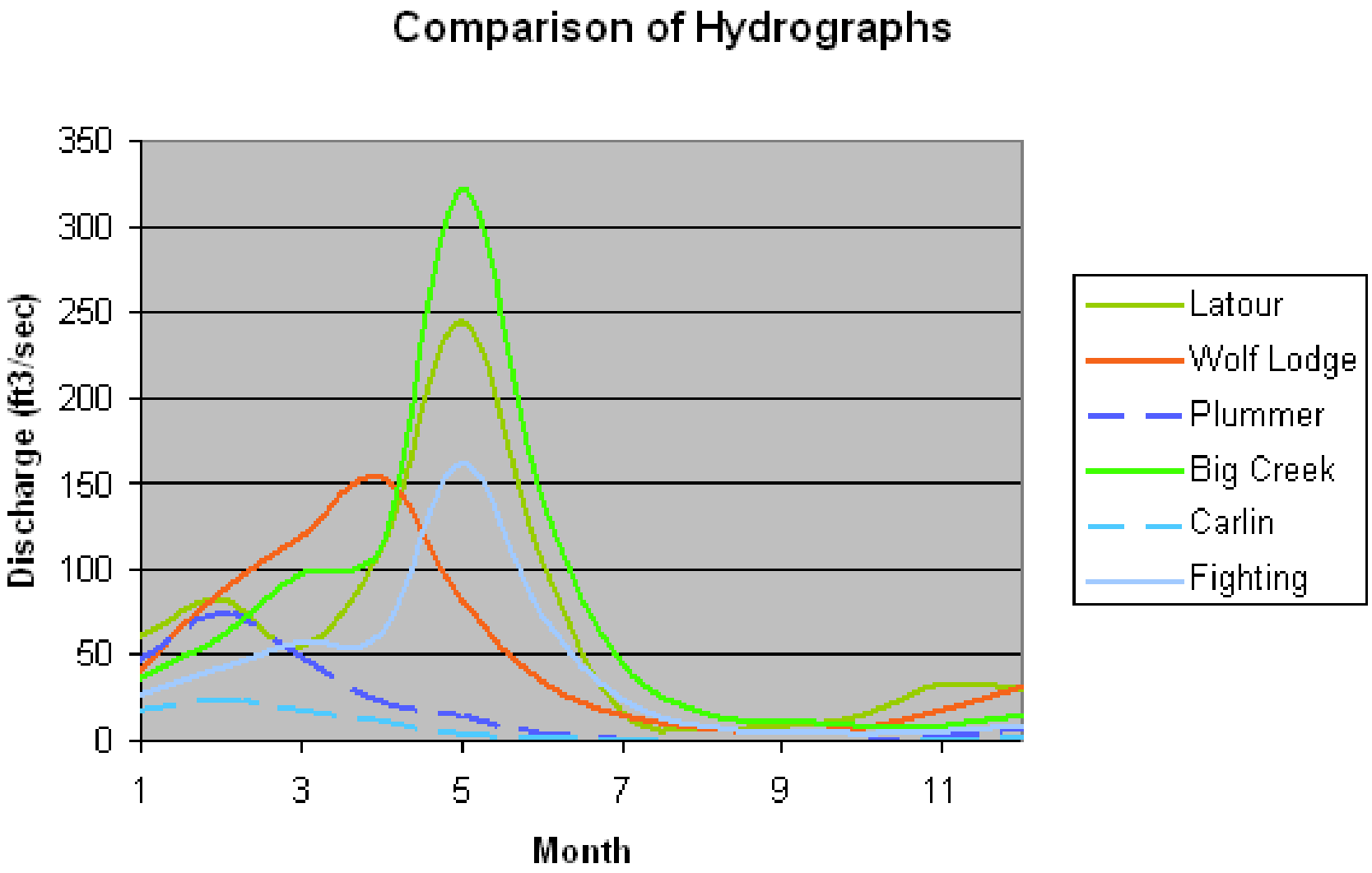
- Beauty Creek, 5,000 feet
- Wolf Lodge Creek, 19,000 feet
- Blue Creek, 8,550 feet
- Fernan Creek, 11,700 feet
- Cougar Creek, 12,100 feet
- Kid Creek, 4,000 feet
- Mica Creek, 11,700 feet
- Rockford Creek, 3,700 feet

**Figure 29: Map of deltaic sediments between 2128 and 2182 on tributaries to Coeur d'Alene Lake.**



# Other deposition

- Coeur d’ Alene Lake Full Pool 2128’ elevation
- Change in knick point
- Stream Energy not enough to move cobbles and cobble deposition occurs and transitions


Comparison of Hydrographs
Discharge (ft3/sec)
350
300
250
200
150
100
50
0
1
3
5
7
9
11
Month
Latour
Wolf Lodge
Plummer
Big Creek
Carlin
Fighting

# Hydrologic differences

- Typical North Idaho Tributaries
  - Peak flow in May
  - Base flow in July to August
- Coeur d' Alene Tributaries (lower portions of the bigger streams)
  - Peak flow in February or March
  - Base flow in May and June
  - Subsurface July