



Hydrogeologic Framework of the SVRP Aquifer

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Spokane Valley-Rathdrum Prairie Aquifer Study Results and Policy Summit
Centerplace, Spokane Valley, Washington

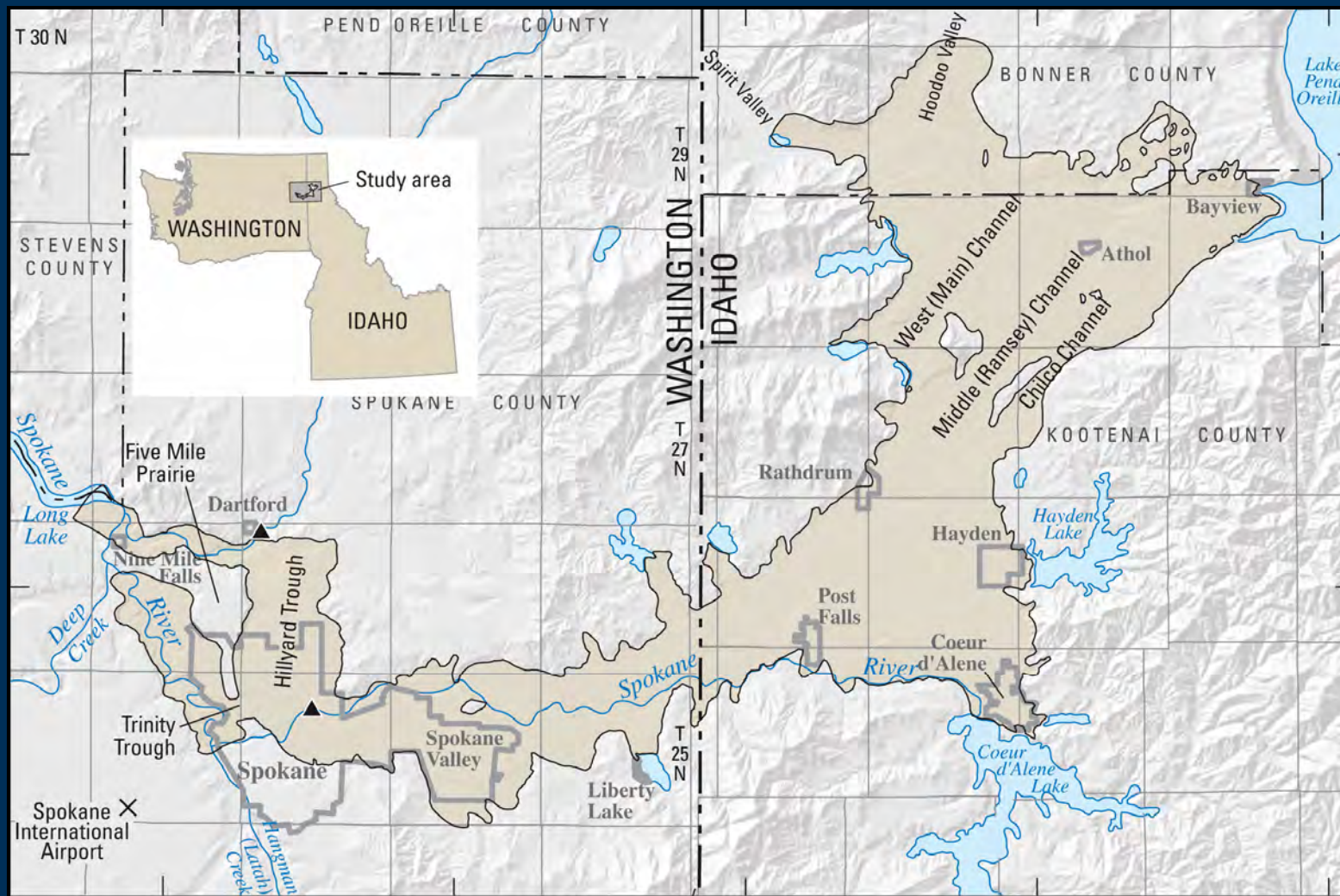
May 8-9, 2007

U.S. Department of the Interior
U.S. Geological Survey

Outline

- **Setting**
- **Geologic history**
- **Description of the aquifer**
 - **Horizontal extent**
 - **Vertical extent**
 - **Lithologic variations within the aquifer**
- **Summary**

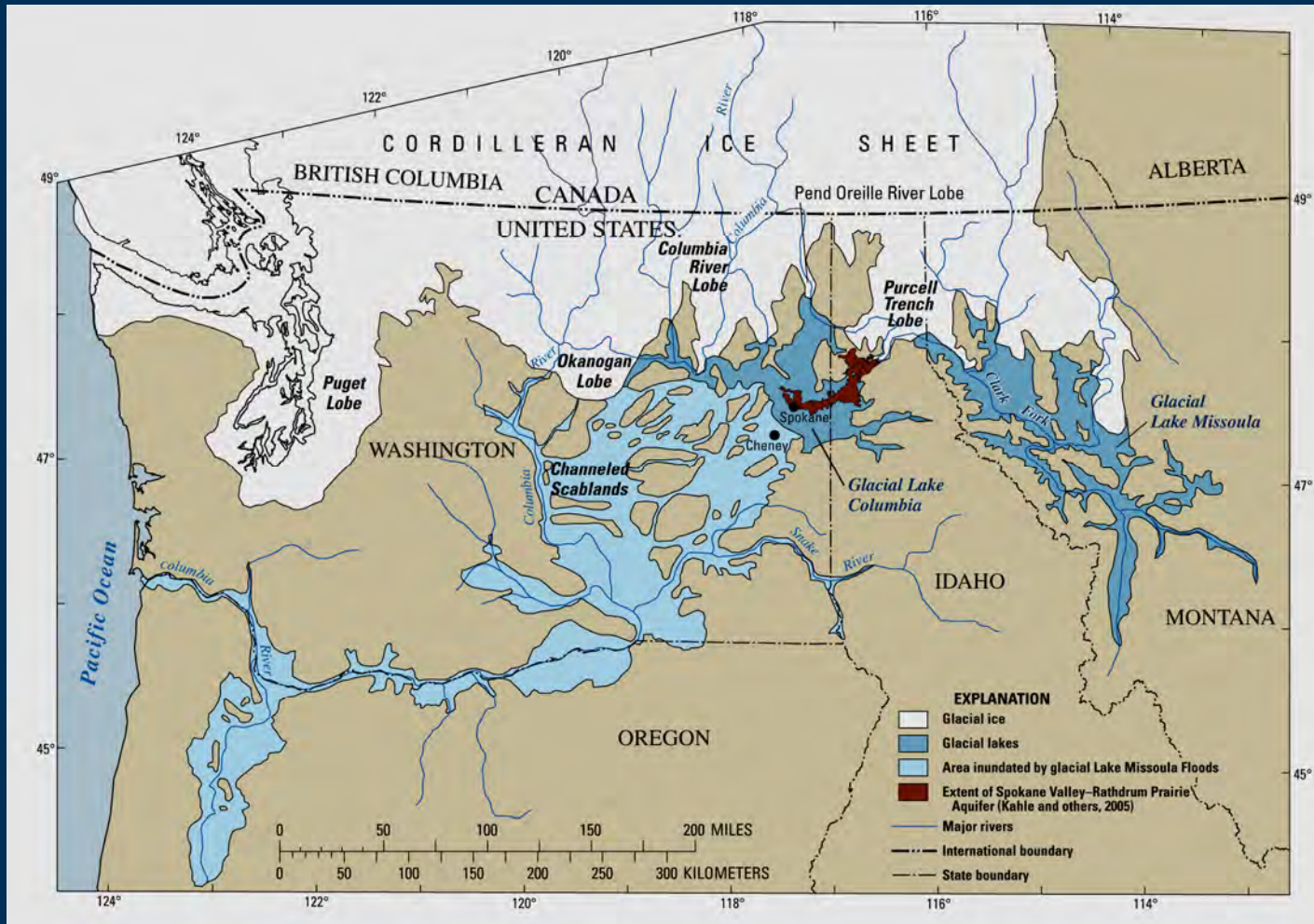
Setting



Geologic history

- Development of ancient Rathdrum-Spokane River valley
- Period of valley filling--basalt and interbeds
- Long period of downcutting
- Repeated cycles of glacial and interglacial sedimentation
- Repeated cycles of outburst flooding from Glacial Lake Missoula

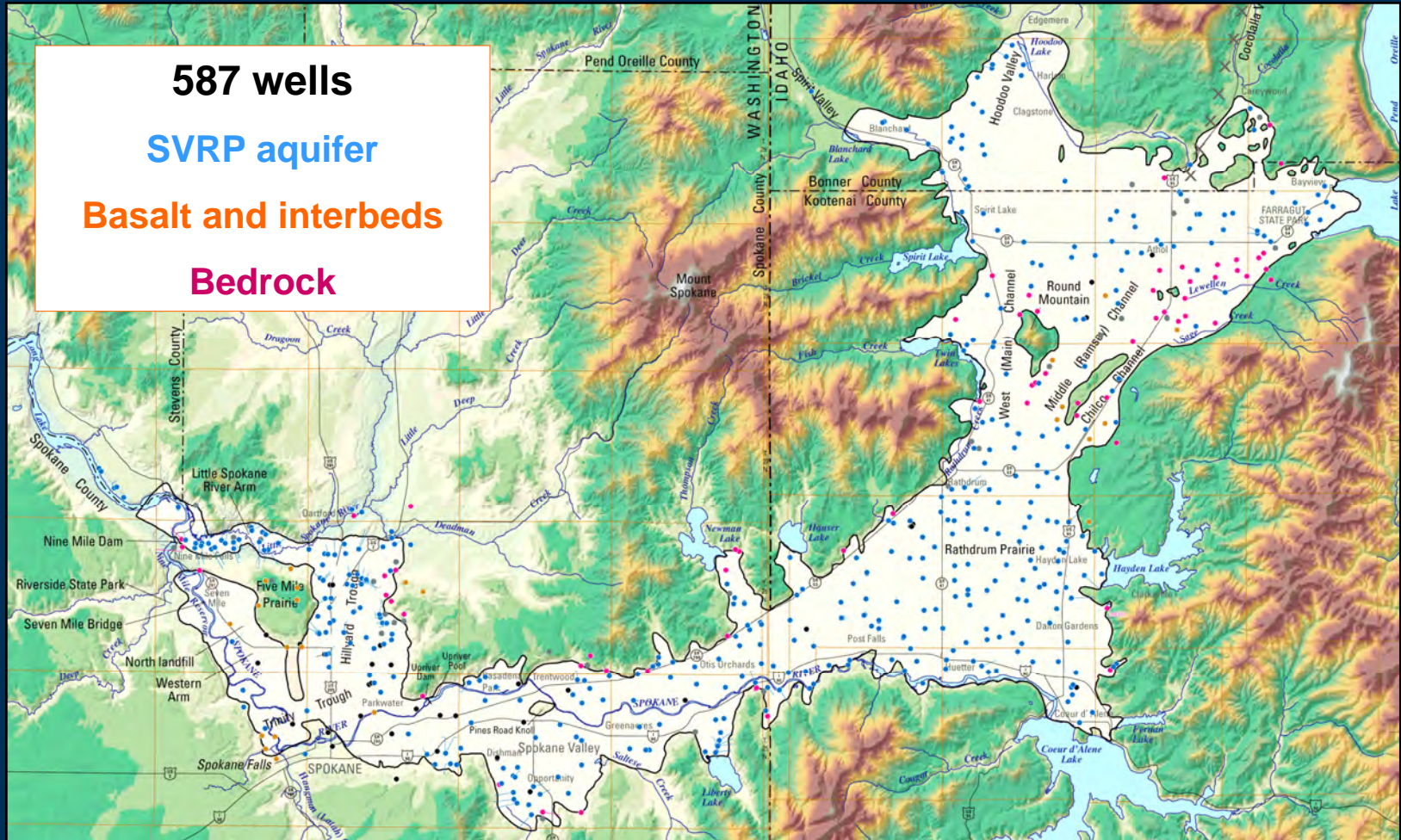
Geologic history (late-glacial)



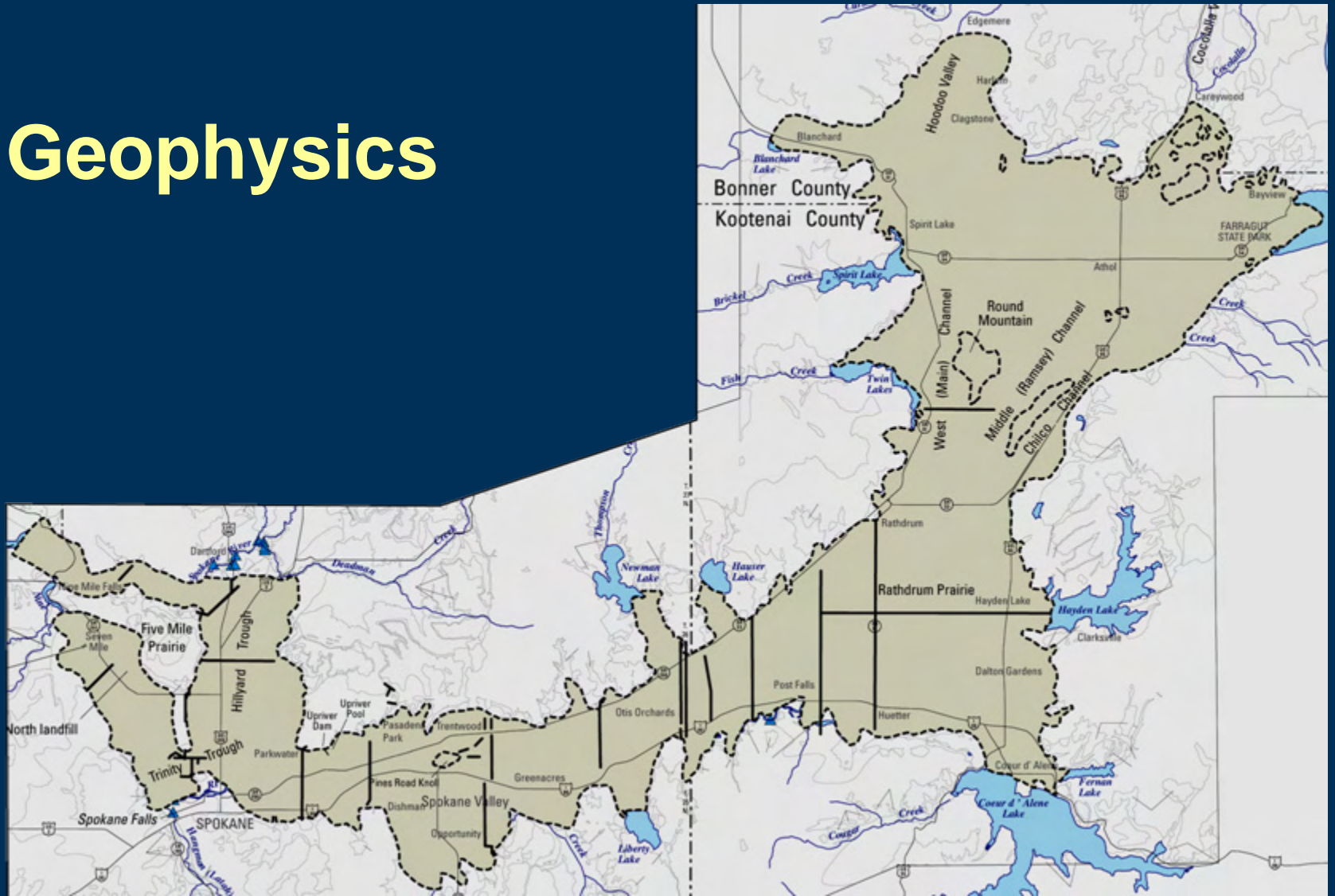
Sources of Information

- **Geologic maps**
- **Drillers' logs for 587 wells**
- **Geophysical transects (1953-2003)**
- **Other investigations (1931-2006)**

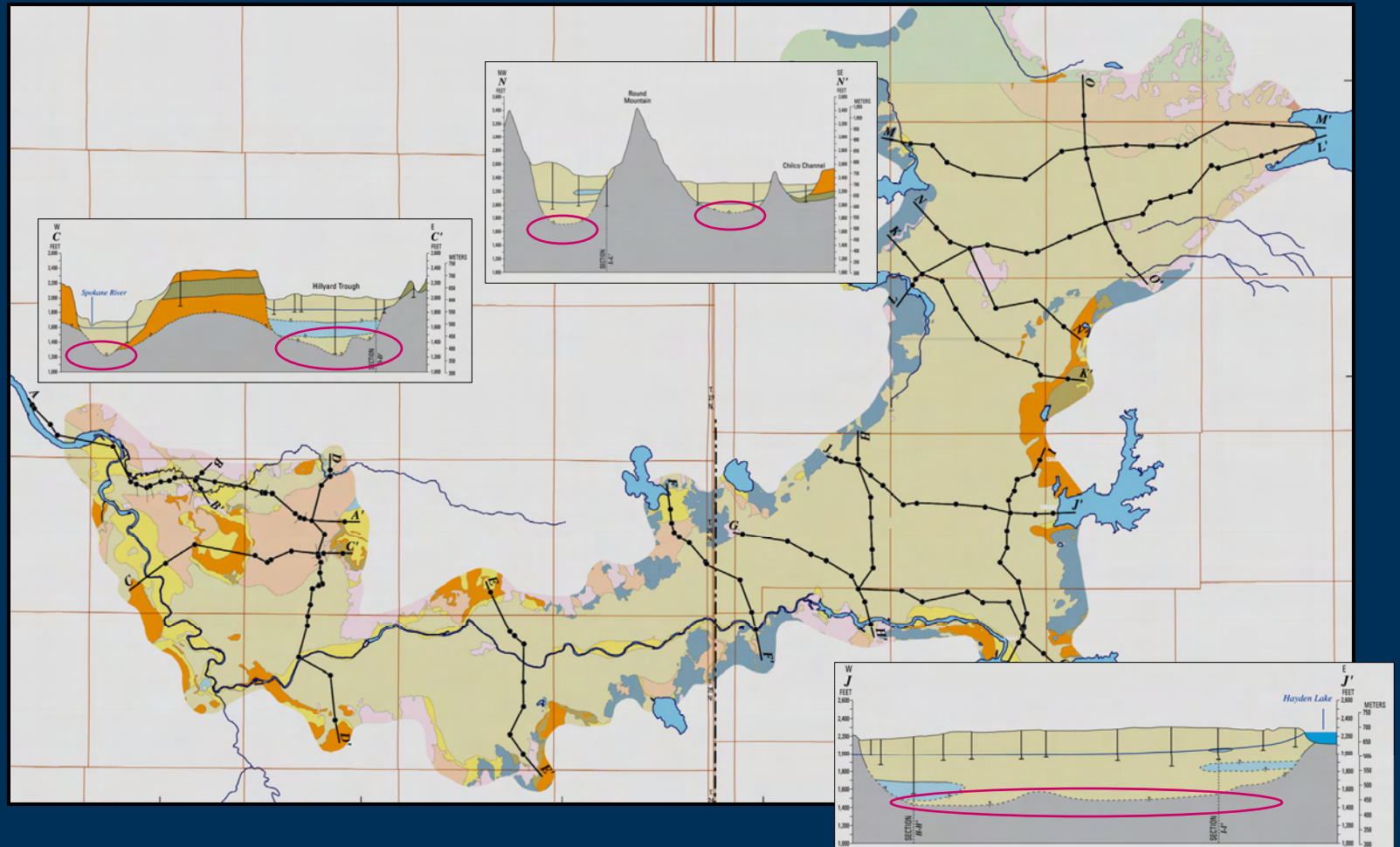
Wells



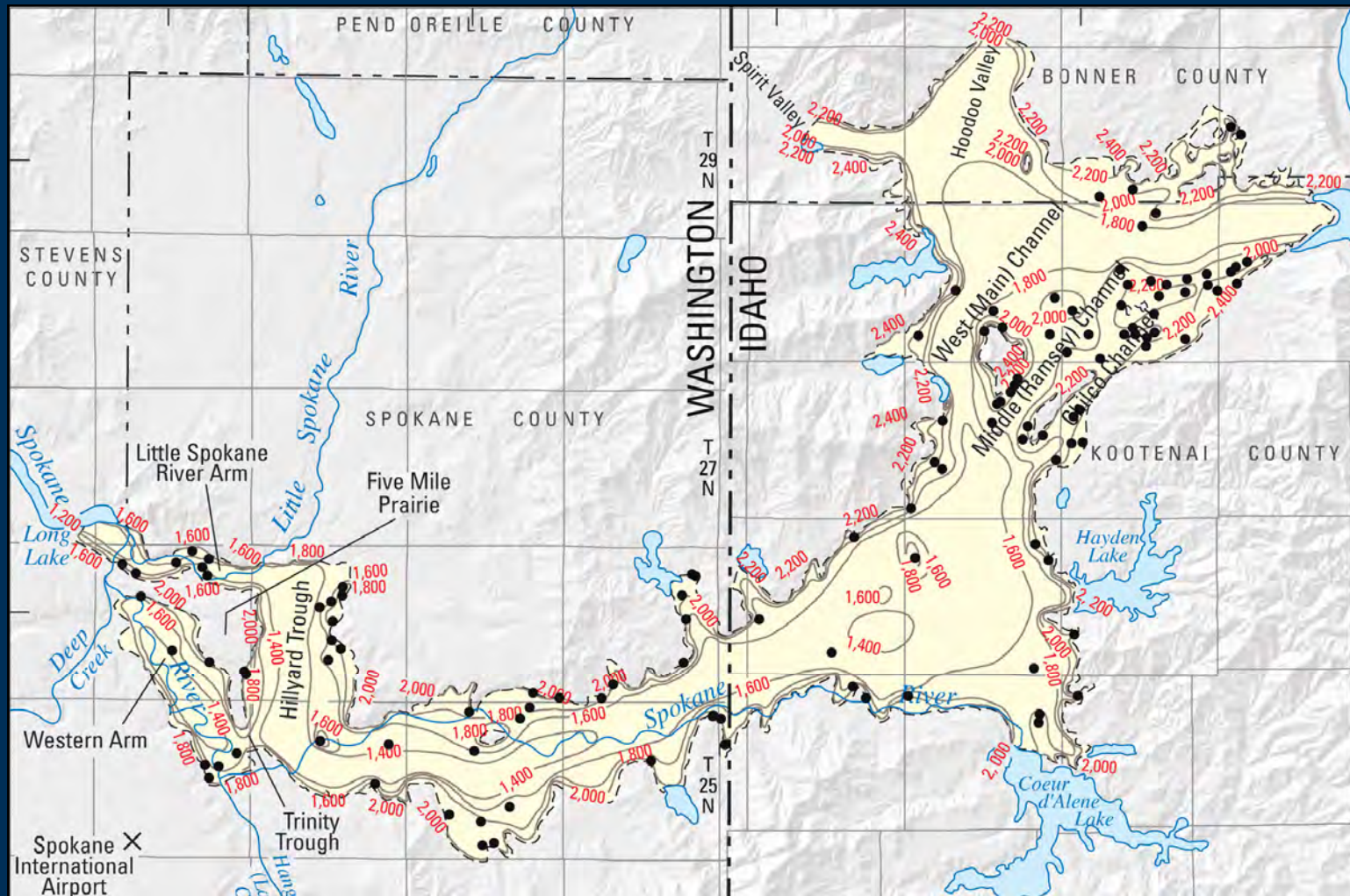
Geophysics



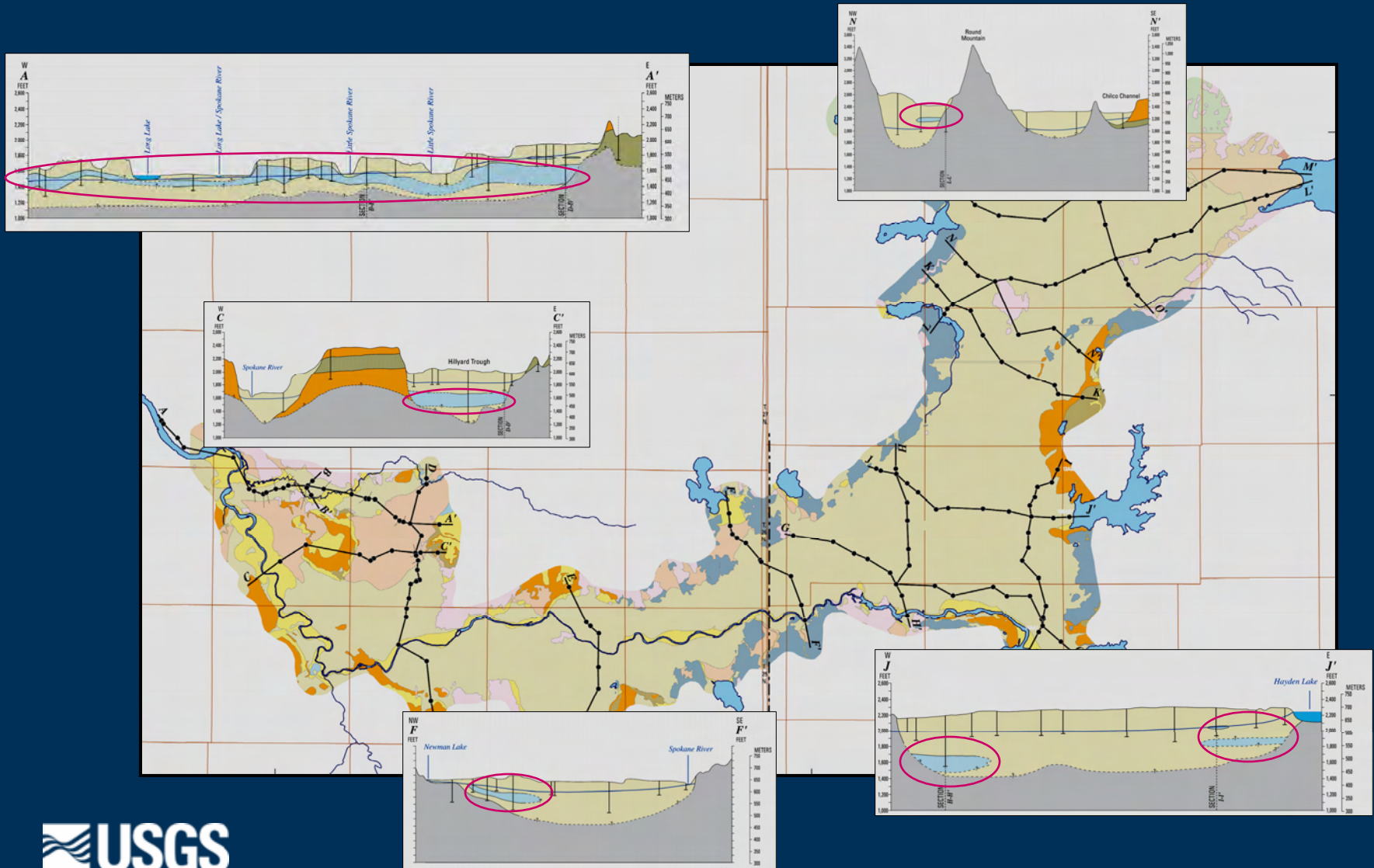
Vertical extent



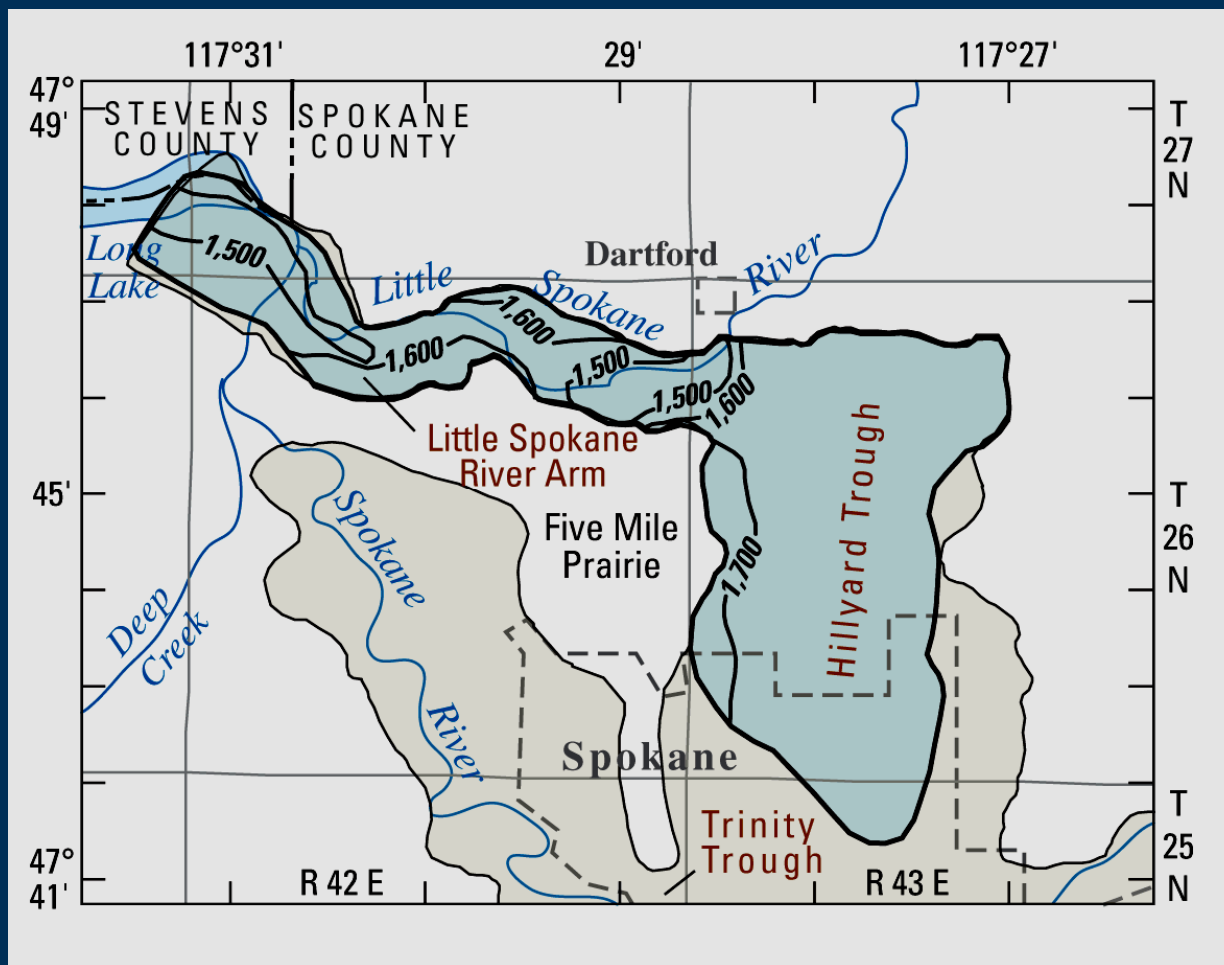
Vertical extent (approximate base)



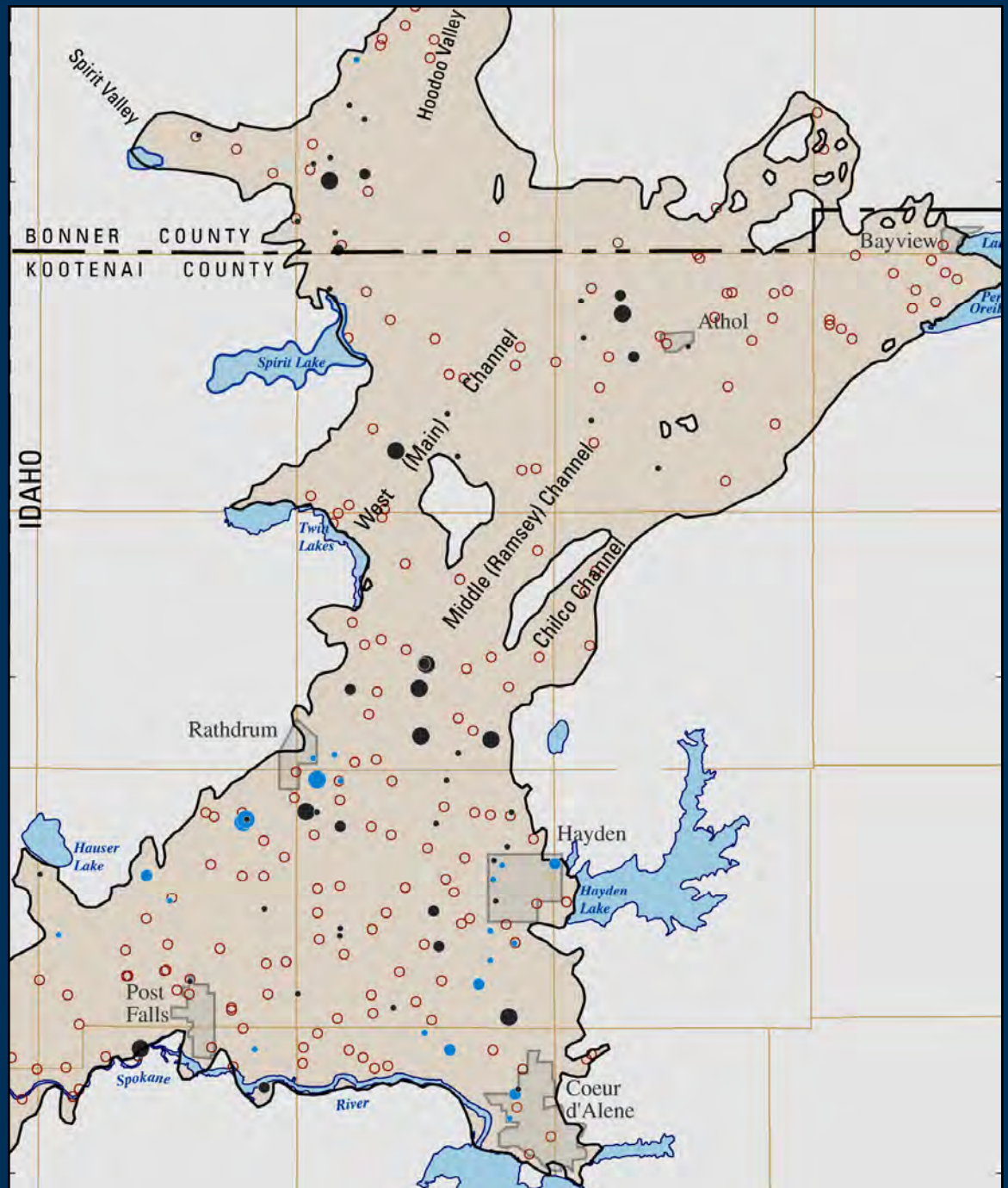
Lithologic variations (fine-grained layers)



Lithologic variations (Hillyard Trough and Little Spokane River)



Lithologic variations (Rathdrum Prairie)



Summary

- SVRP aquifer consists mostly of coarse-grained sediment
- Simplified geologic model
 - Infilling with basalt and fine-grained interbeds
 - Down cutting
 - Glacial and interglacial sedimentation
 - Outburst flooding
- Aquifer is bounded by bedrock, or basalt and fine-grained interbeds.
- Fine-grained layers occur within SVRP aquifer
- Base of aquifer ranges from less than 1,800 feet to 1,200 feet along its central axis