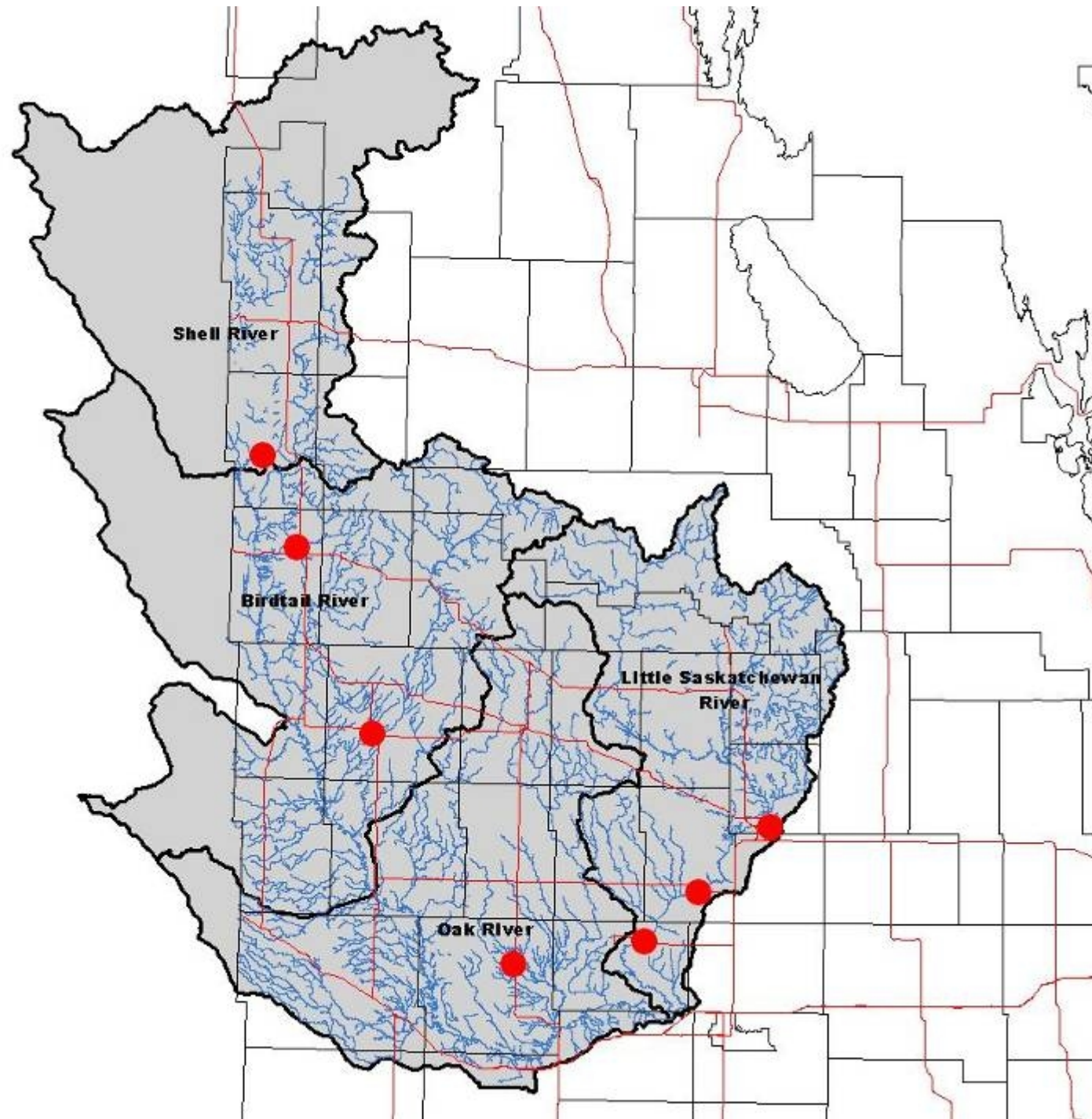
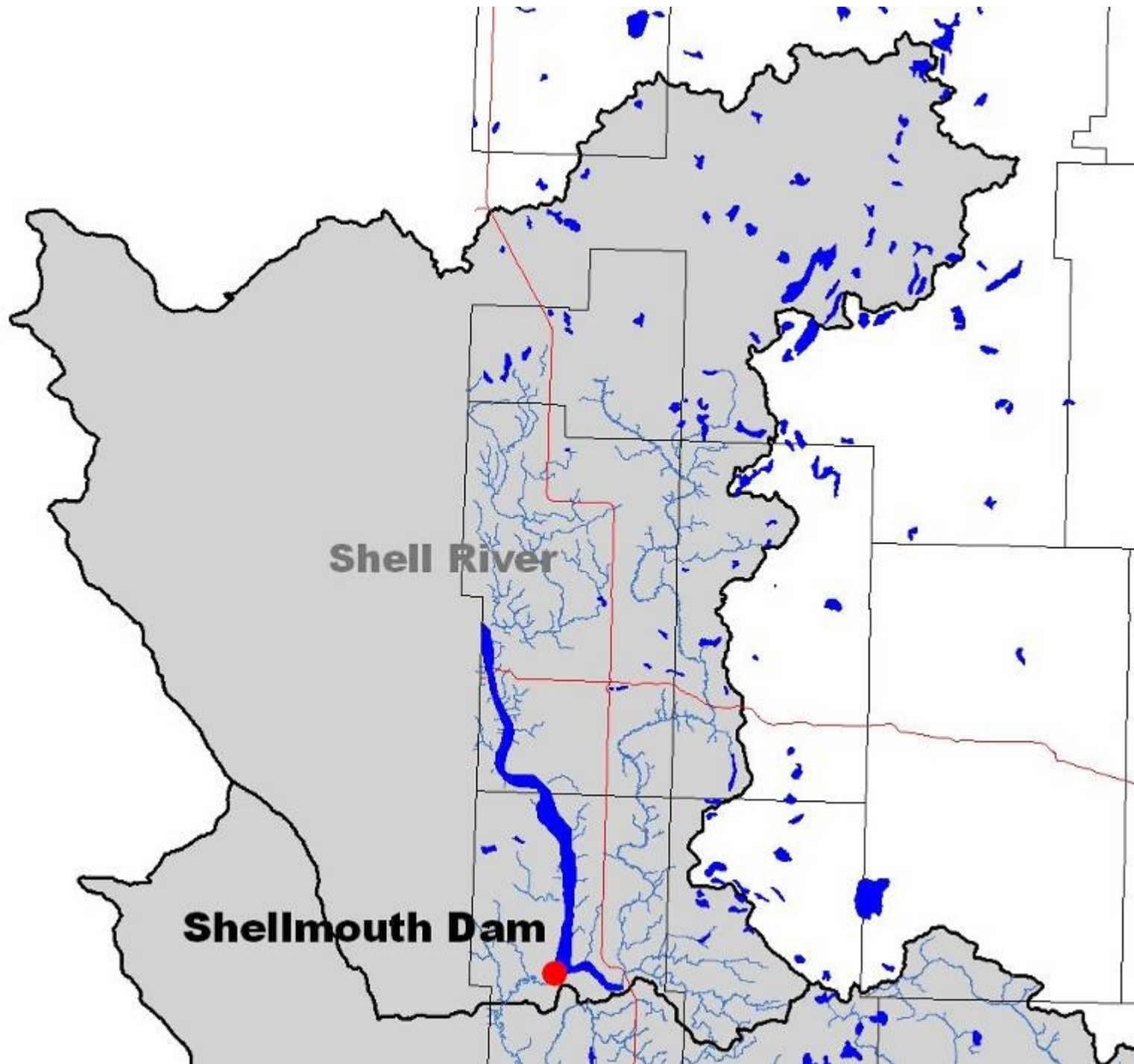


Large Dam Operations in Assiniboine 4 Watersheds

WPAT Meeting
October 18, 2007



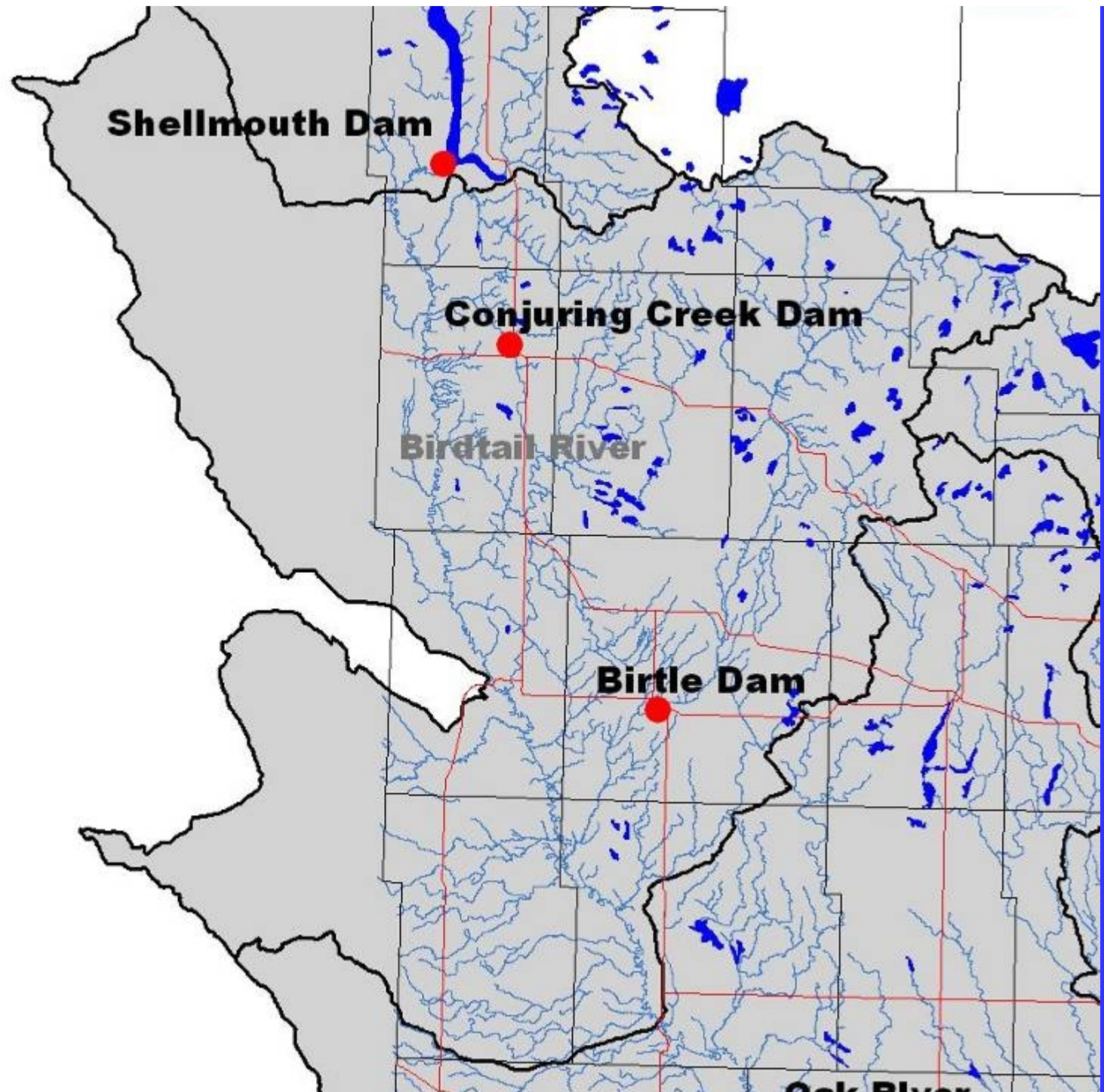


Shellmouth Dam

- Located 25 km north of Russell on PR 482
- Built in 1969 by PFRA – flood control
- 1300 m long, 21 m high, 477,000 dam³
(4265 ft; 69 ft; 386,700 ac-ft)
- Firm annual yield – 125,000 dam³ (101,000 ac-ft)
- Controls – concrete overflow spillway, 3 6 ft square gated concrete conduits
- Drainage area = 17850 km² (6850 mi²),
(note – 4 Watershed area = 8400 mi²)

Shellmouth Dam

- Top of Dam elevation = 435.2 m
- Reservoir 60 km long, reservoir area = 16,000 acres
- Summer operating Range = 427.45 – 428.1 m
- Normal Winter level = 424 m
- Recreation & downstream water supply factors into operation, priority is flood control
- Operation is guided by a committee of local stakeholders

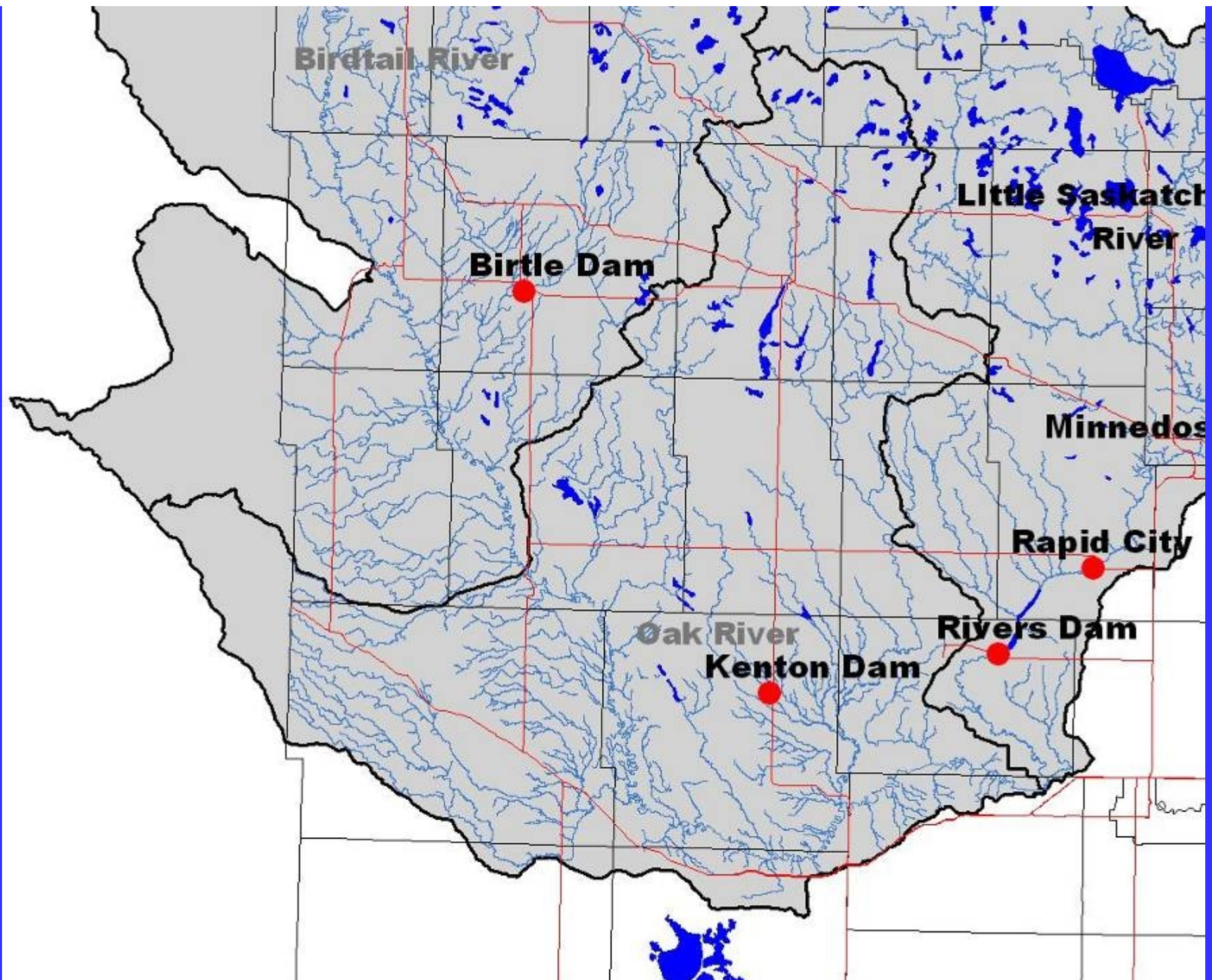


Conjuring Creek Dam

- Located just west of Russell
- Built in 1964 by PFRA
- Concrete morning glory spillway; gated riparian culvert
- Stores approx. 1000 ac-ft, reservoir = 140 ac
- Drainage area = 25 mi²
- No operations
- Purpose – conservation, agriculture, recreation

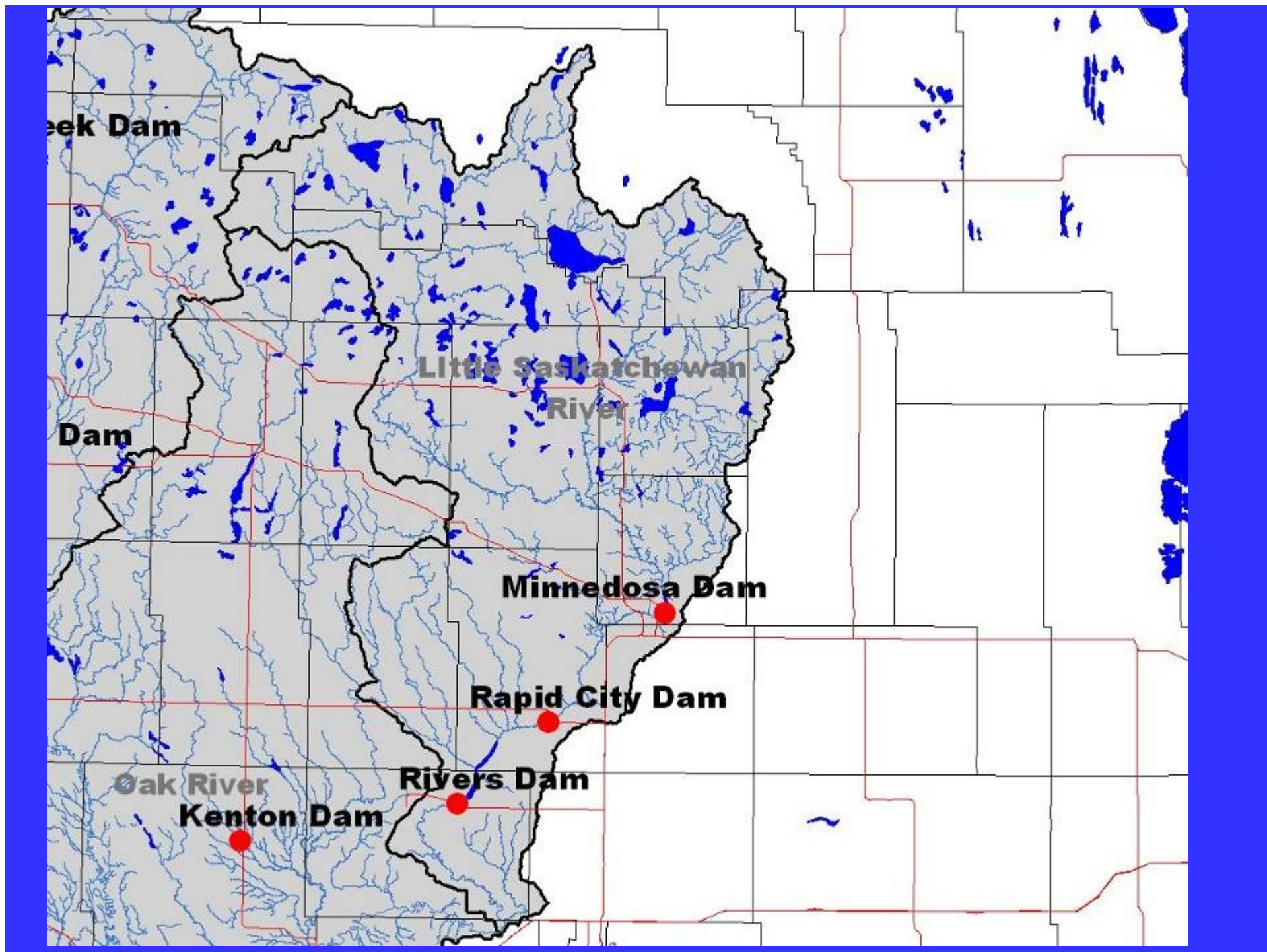
Birtle Dam

- Built in 1947 by PFRA, water supply
- Storage = 180 ac-ft
- Located on Birdtail Creek, in town of Birtle
- Dam owned by the town
- Fixed crest concrete dam on west side of town
- Has a pool and riffle fish ladder, similar to Rapid City and Minnedosa Dams



Kenton Dam

- Located on Bars Creek, south of the town of Kenton
- Built in 1969, PFRA, Water supply, agriculture
- Fixed crest morning glory spillway, riparian culvert
- Storage = 600 ac-ft
- Dam is rarely operated



Rivers Dam

- Located on Little Sask River just east of Rivers
- Built in 1960 by PFRA,
- Water supply – Rivers, a few downstream users
- Reservoir - 6 mi. long, 2000 ft wide, 55 ft deep
- Storage = 24,500 ac-ft, FSL = 1536 ft
- Drainage area = 1260 mi²

Rivers Dam

- Concrete overflow spillway, riparian culvert
- Riparian flow = 15 cfs, try to maintain elev 1534
- Occasionally in dry years, water released to supplement flow in Assiniboine River
- No fishway present
- *Is culvert gated??*

Rapid City Dam

- Located on the Little Saskatchewan River near Rapid City
- 8 bay stoplog structure
- Owned by province, operated by town under provincial engineer's guidance
- Storage = 200 ac-ft
- Operated to try and maintain FSL 1573 ft
- Use -ensures wells near lake don't go dry, recreation
- Has fishway constructed

Minnedosa Dam

- Located along Little Saskatchewan River by town of Minnedosa
- Built in 1912 by Mb Hydro, to generate electricity
- Later used by CPR for water supply
- Spillway failed in 1948, rebuilt in 1950 by PFRA
- Main function now is recreation
- PFRA provided eng. Assistance to town, in the process of transferring this duty to the province
- Province and town are currently developing operations guidelines for the dam

Minnedosa Dam

- Dam is 1475 ft long, 25 ft high
- FSL – 1681 ft
- Reservoir - 7090 acres, stores 1720 ac-ft
- 4 stoplog bays; fishway present
- 6 main concerns with developing operating plan

Operations Concerns

- Hazardous log removal in spring due to ice
- Hazardous log removal when water flowing
- Recreation concerns with lowering lake
- Minimum flow required downstream
- Dam safety concerns – seepage downstream
- Flood easements to elevation 1685 ft (1:100 flow, with all logs removed)

Operating Guidelines

- Maintain Summer level 1680.5 -1681.5 ft
- Riparian culvert operated by town as per their environmental license
- Low flow rules when Husky starts up, to ensure river doesn't go dry
- Spring operations as per Provincial recommendations
- After spring peak, target water levels to 1681-1682.5 ft , enables fish ladder to function
- Town will operate under Provincial direction