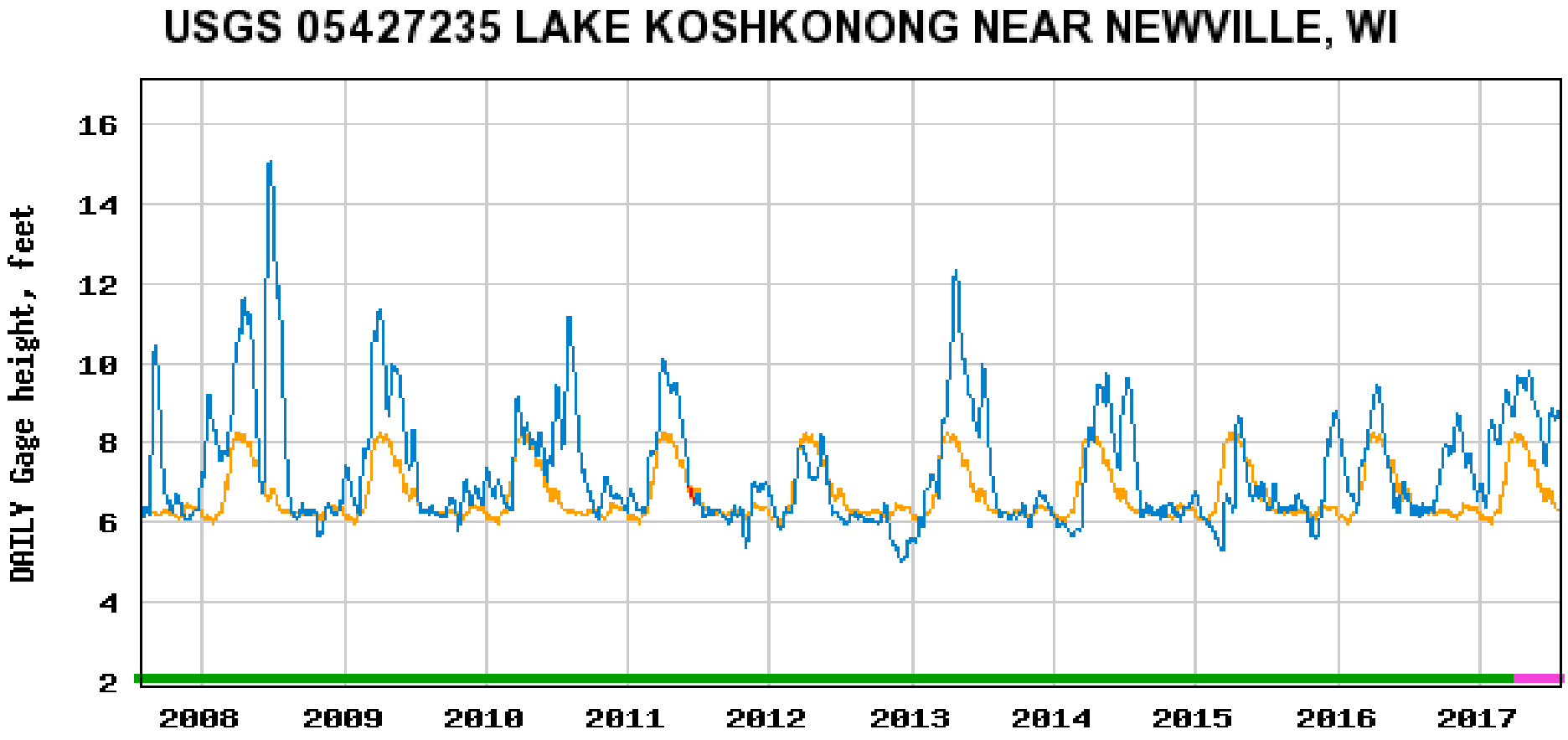
Water Resources Report
RKLD Annual Meeting 2017

July 29, 2017

Topics

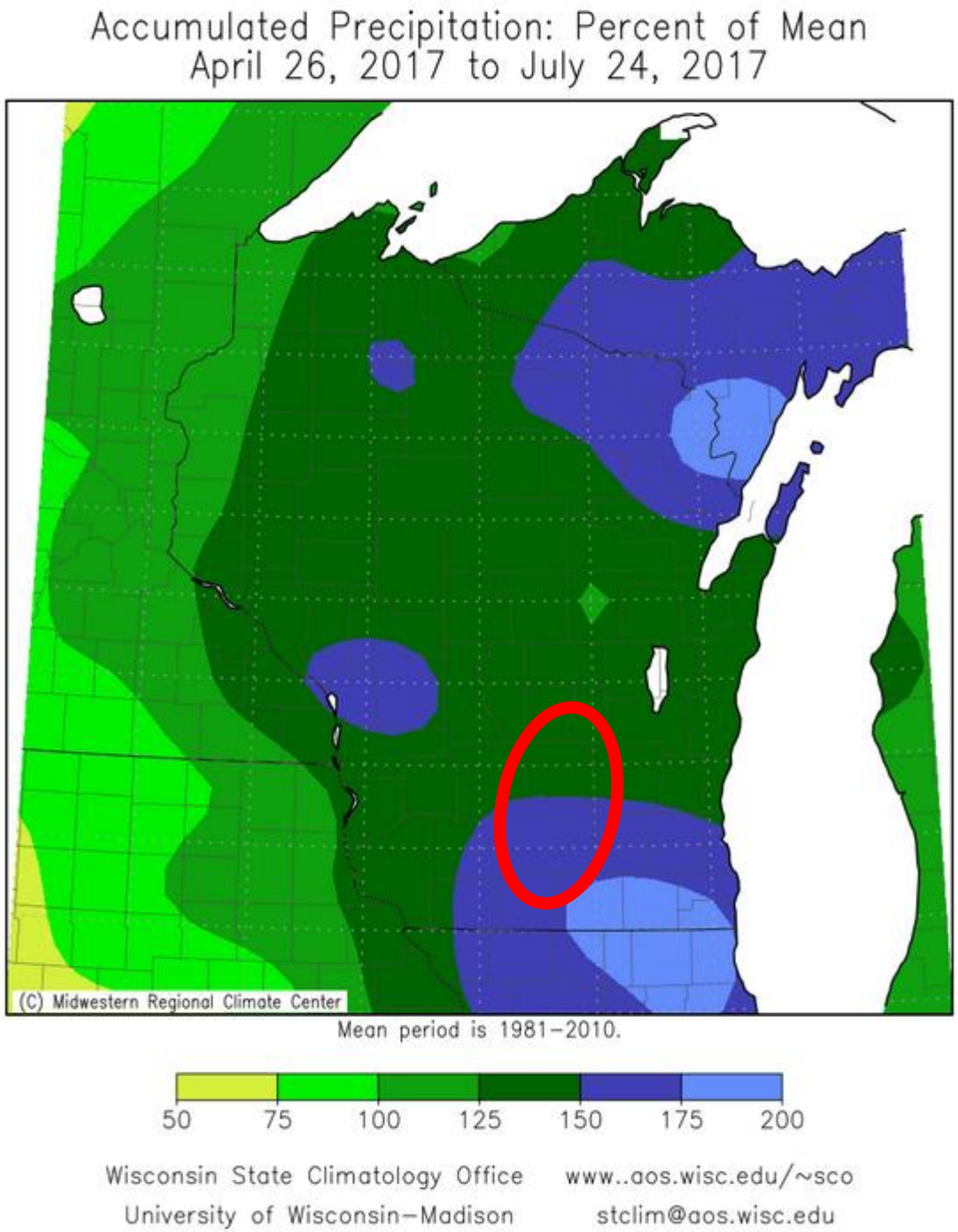
- Hydrology Report
- Indianford Dam Wicket gates analysis

2016 and 2017 was ~ moderate flood peak - but unusual timing and duration



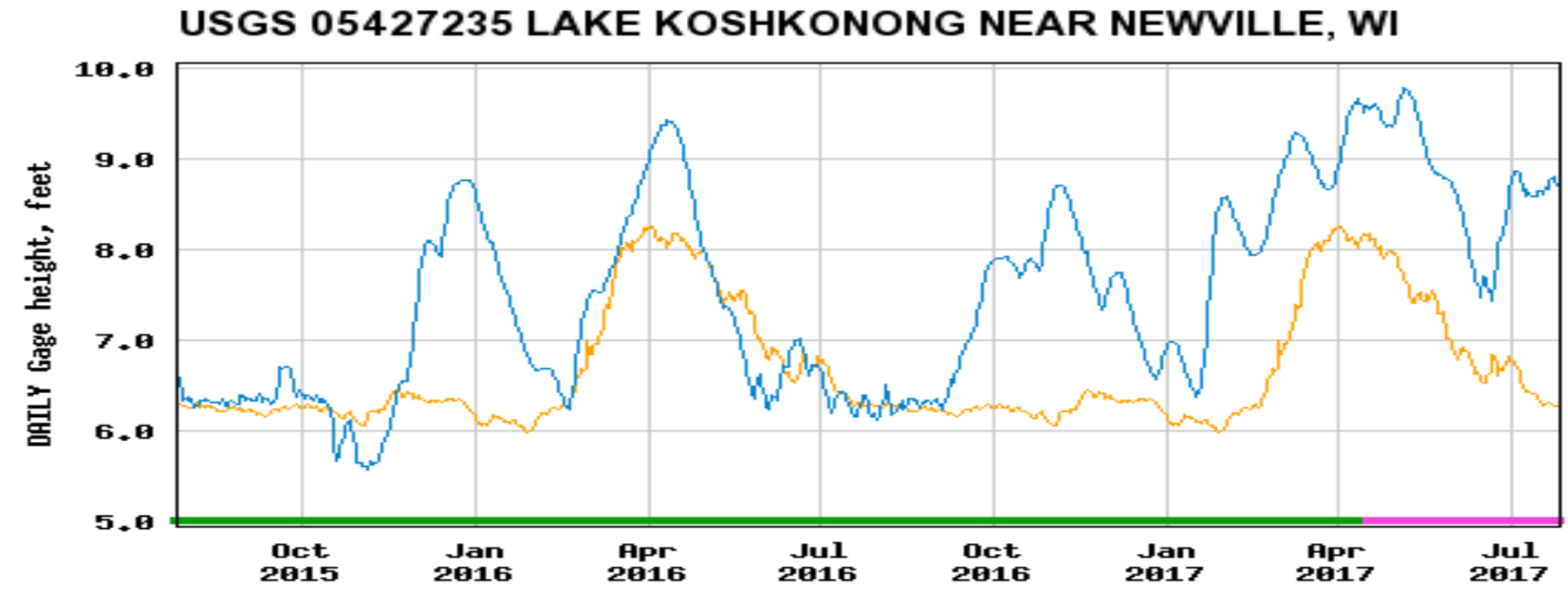
2017 Precipitation

- About 50% above long term average



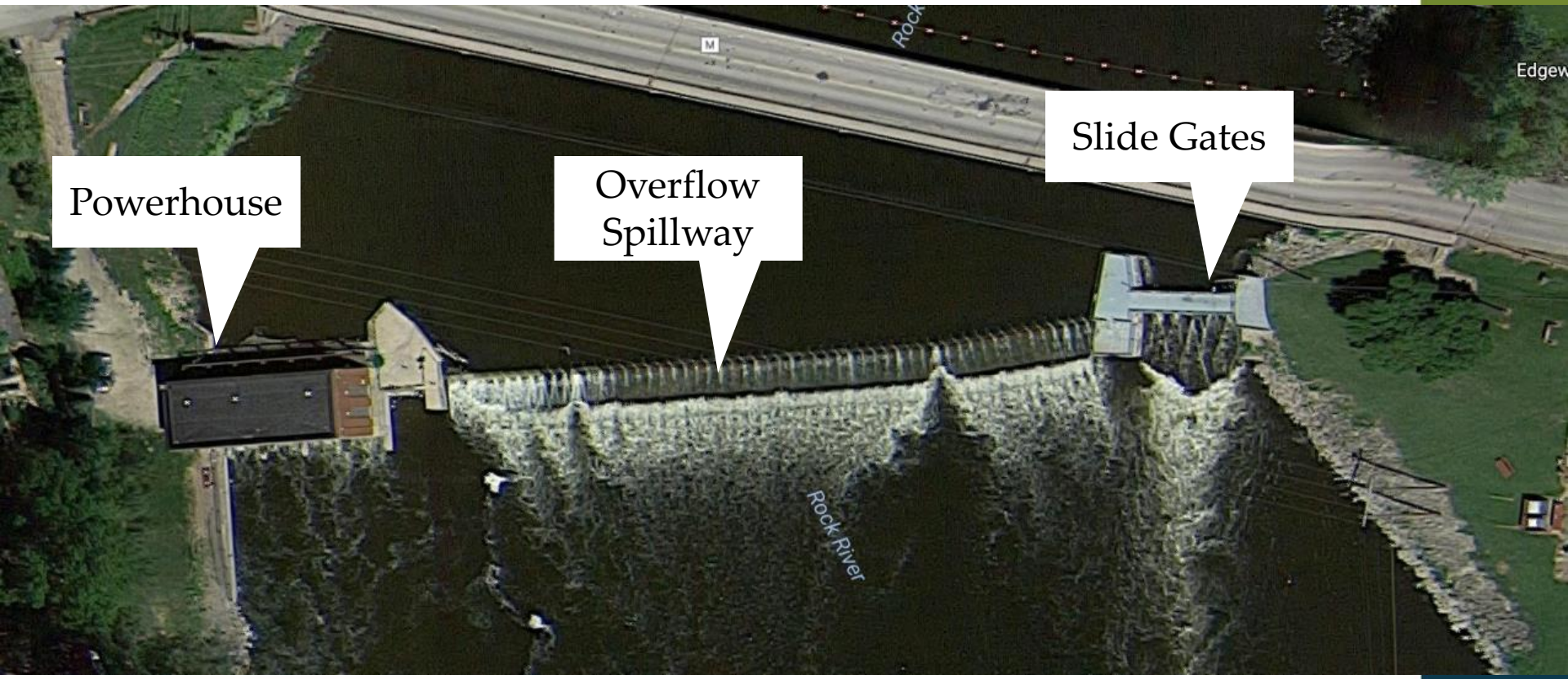
2016 & 2017

- Both years saw Winter floods
- Nov 2016 flood
- 2017 flood was double the average volume



Indianford Dam

- Acquired from Rock Co. in 2004
- Wicket gates repaired
- Trash racks cleaned 2015
- Debris barrier installed 2016



6 Slide Gates

Overflow Spillway

Powerhouse with Debris Barrier
2 wicket gates inside

Downstream face of Powerhouse showing wicket gate discharge

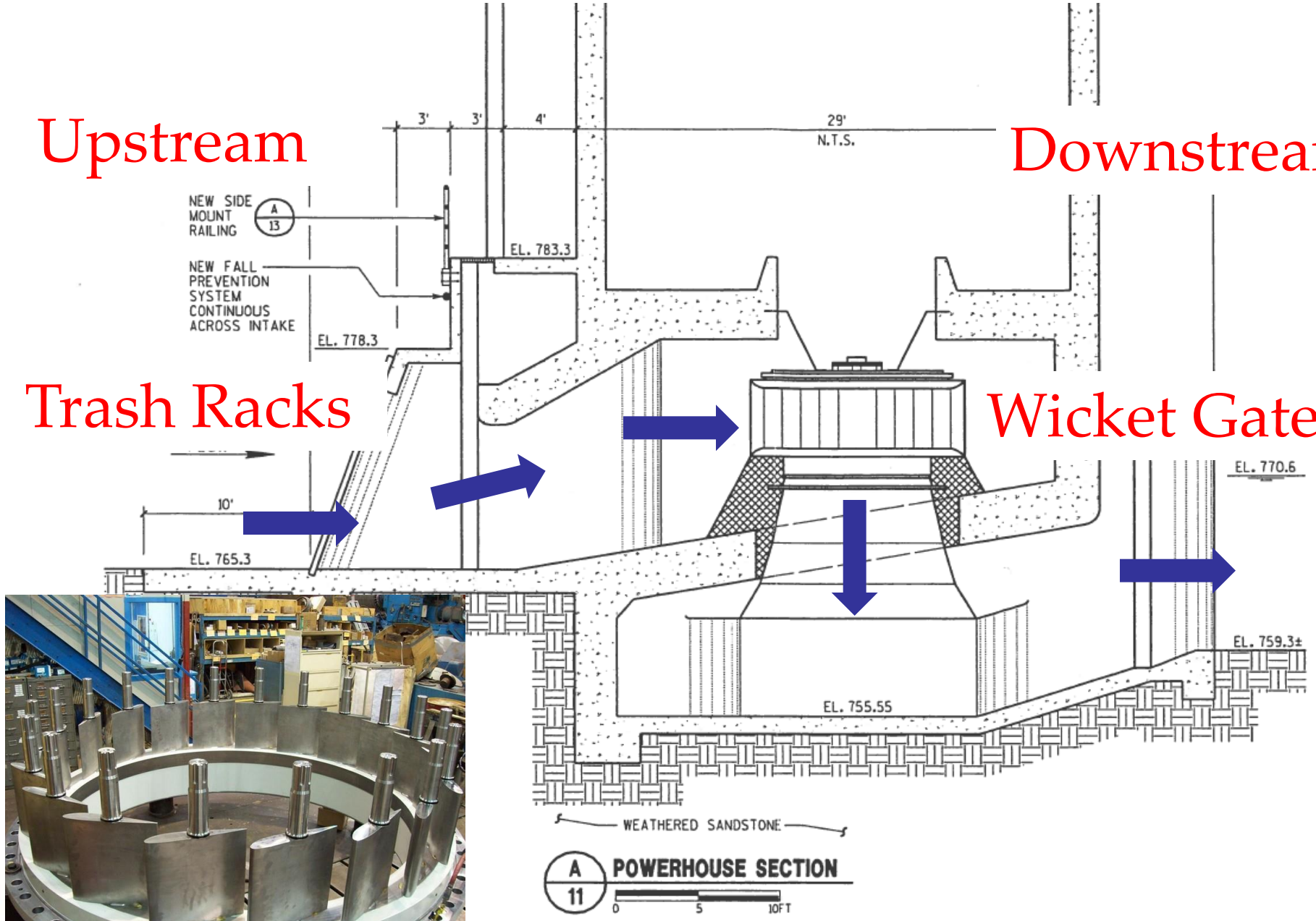
Section through Powerhouse

Upstream

Downstream

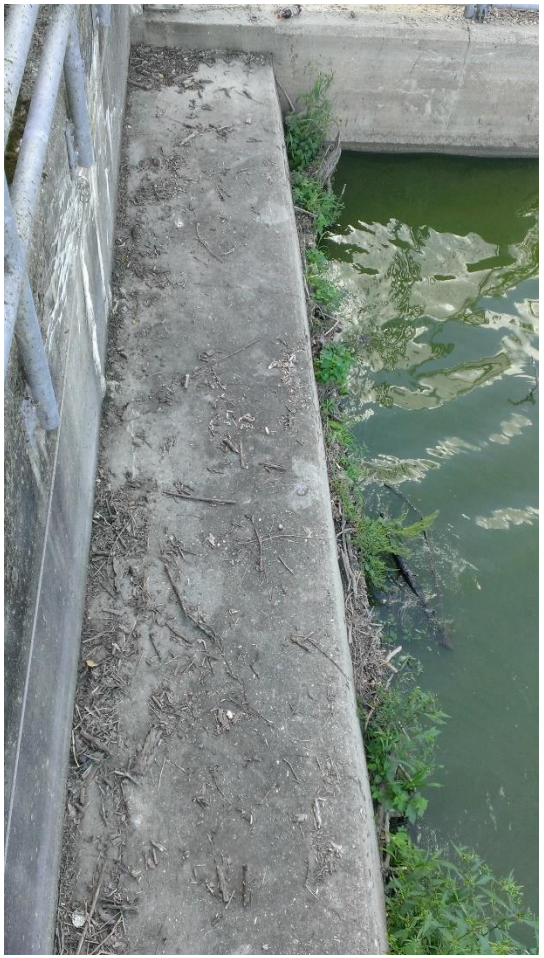
Trash Racks

Wicket Gates



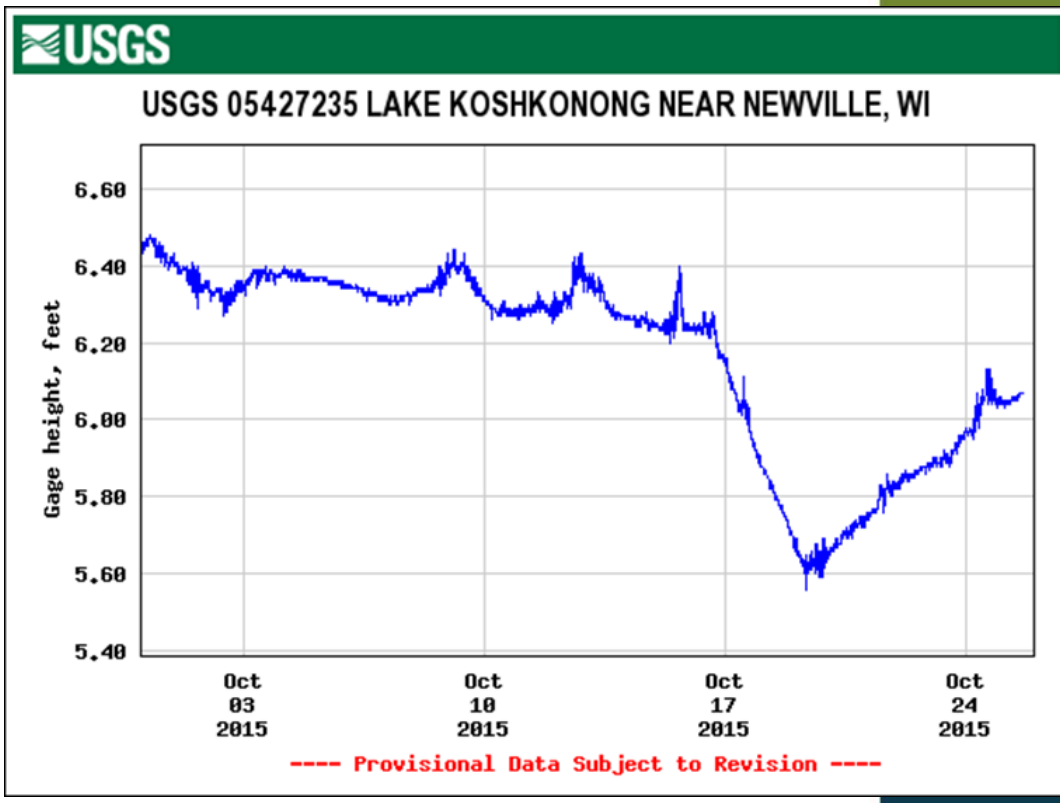
Trash Rack Cleaning

- Trash Racks Cleaned
- Debris barrier installed



Effect of repaired Wicket Gates and 2015 trash rack cleaning

- Test of opening gates- Lake drawdown was more rapid than previously

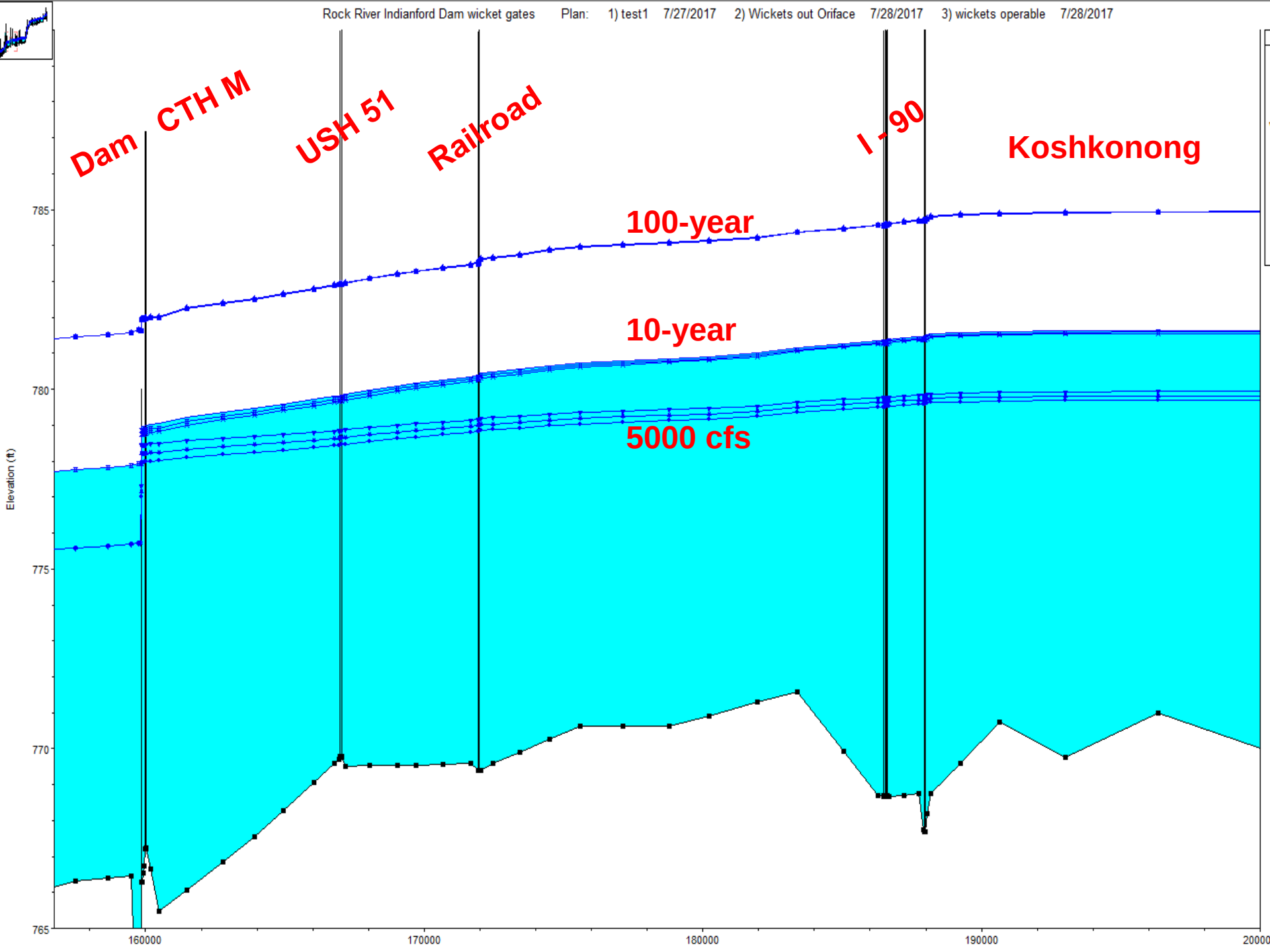


Possible Project: Remove the Wicket gates

- Could reduce maintenance by removing trash racks but must keep upstream debris barrier in place
- Replace and mechanize slide gates behind trash racks
- Remove wicket gates

Effectiveness Analysis

- 5000 cfs (current conditions)
- 10-year flood – 8500 cfs
- 100-year flood – 14830 cfs
- Wicket gates SHUT
- Wicket gates OPEN
- Wicket gates REMOVED


Rock River Indianford Dam wicket gates
Plan: 1) test1 7/27/2017 2) Wickets out Oriface 7/28/2017 3) wickets operable 7/28/2017
Dam
CTH M
USH 51
Railroad
I - 90
Koshkonong
100-year
10-year
5000 cfs
Elevation (ft)
785
780
775
770
765
160000
170000
180000
190000
200000

Results

5000 CFS			
Location	Wicket gates SHUT	Wicket gates OPEN	Wicket gates REMOVED
Dam	778.5	778.3	778.0
Railroad Bridge	779.2	779.0	778.9
Koshkonong	779.9	779.8	779.7

Differences are smaller at higher flows

Conclusions

1. The water surface difference between Gates SHUT & Gates OPEN as about the same as Gates OPEN & Gates REMOVED
2. At Spring flows this year (~5000 cfs), at RR Bridge, difference between Gates SHUT and Gates REMOVED is about 4 inches, which is about 2 inches lower than current gate OPEN condition
3. In fall drawdown, Lake response would be incrementally faster
4. In spring flood transition, practically no effect

Questions?