

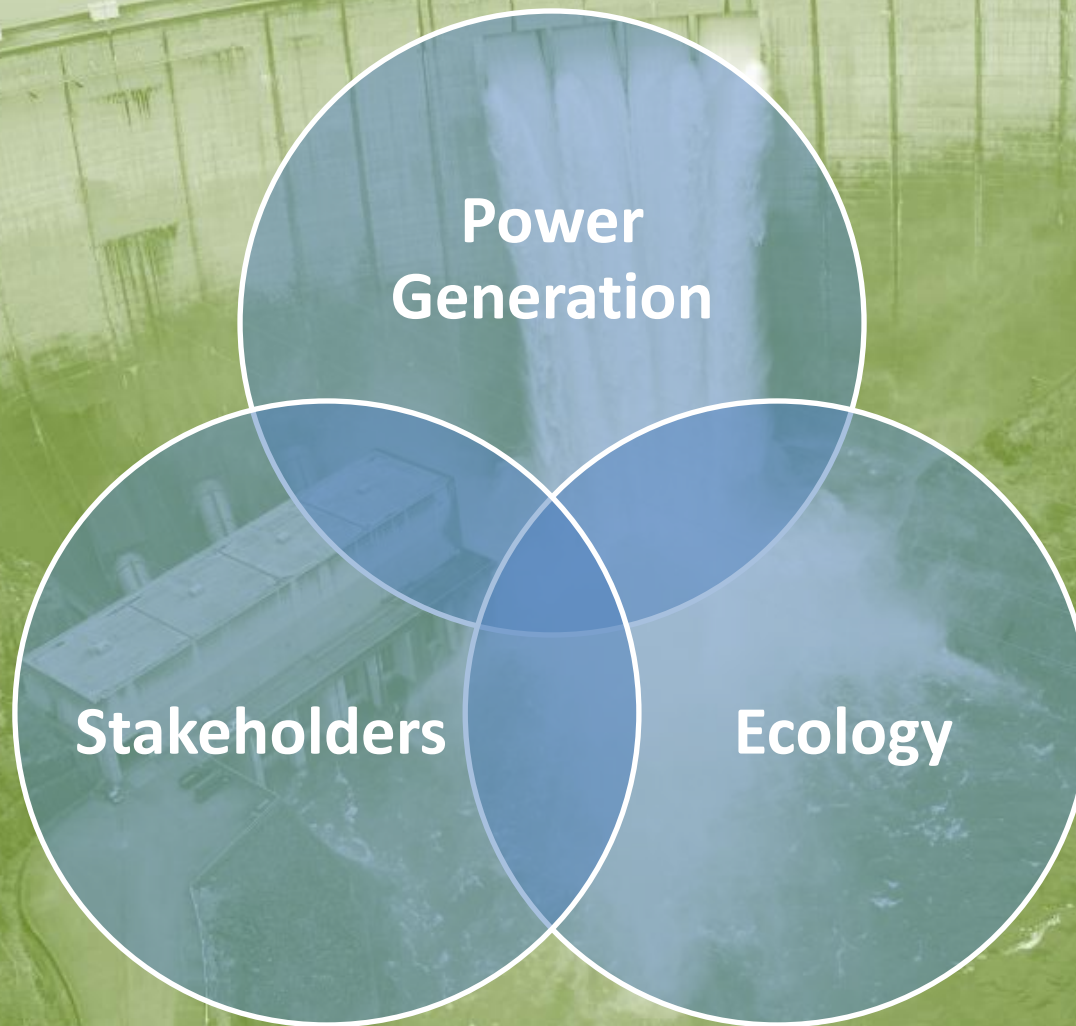
Cowlitz Water Management: Instream flow and reservoir conditions update and impacts

Florian Leischner

Cowlitz River Annual Project Review and Fisheries
Science Conference

July 10, 2019

Cowlitz Water Management:



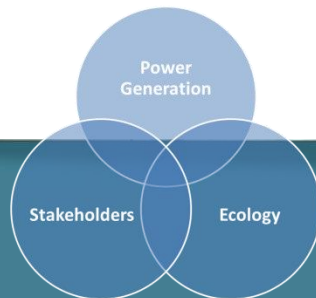
Outline

- Current Issues
- Water Management Impact on Generation, Fish, and Stakeholders (*recreation, flood management, water supply, etc.*)

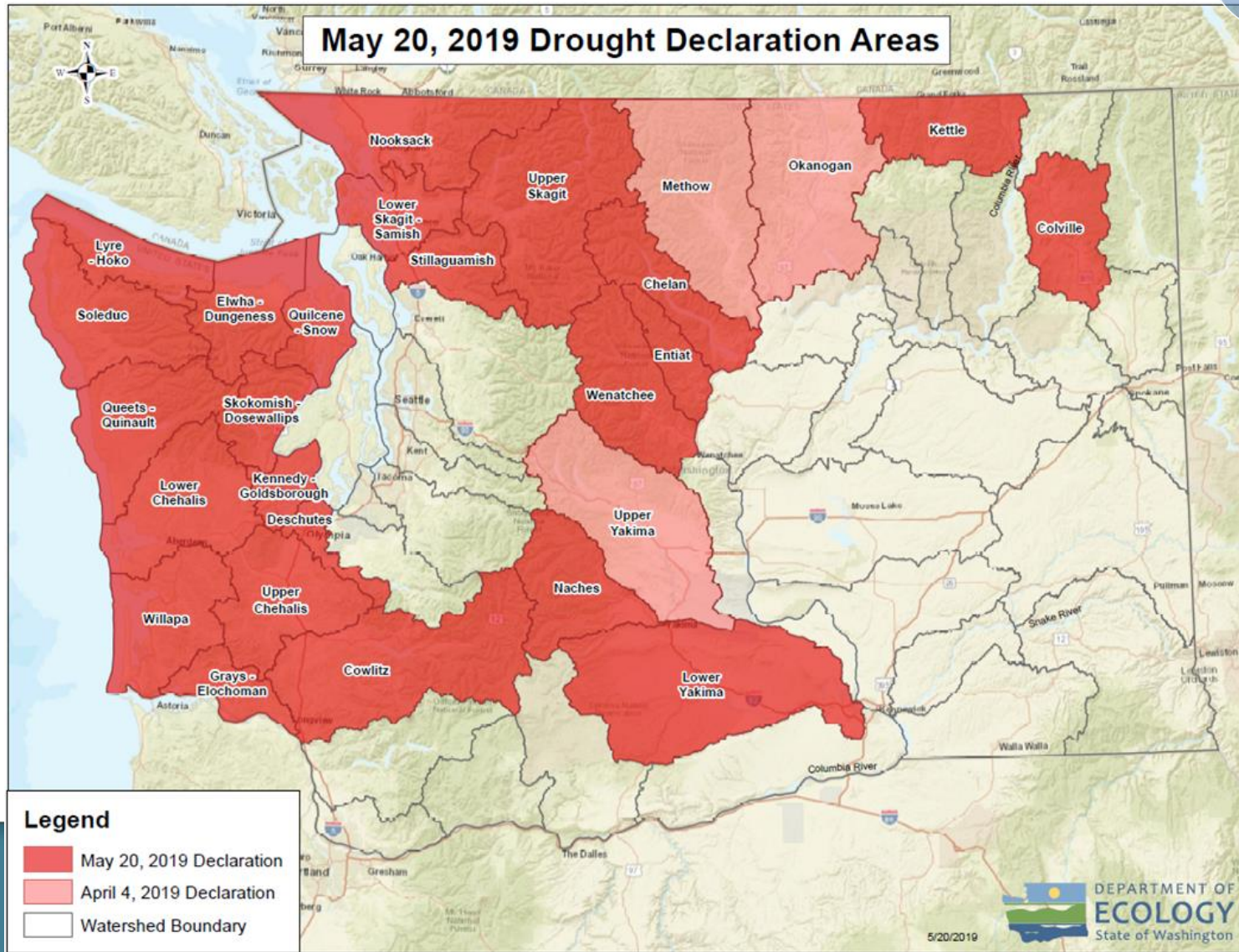
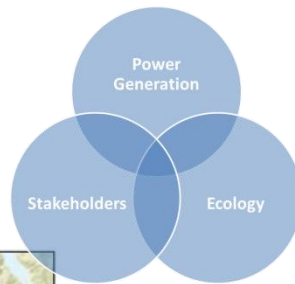


Current Issues - Adjusted operation of Mossyrock Dam

- New seismic studies indicated potential issues with spillway piers during large earthquake
- Precautionary operation of Riffle Lake below (749 ft. vs. 778 ft.)
- Impact downstream and lake levels

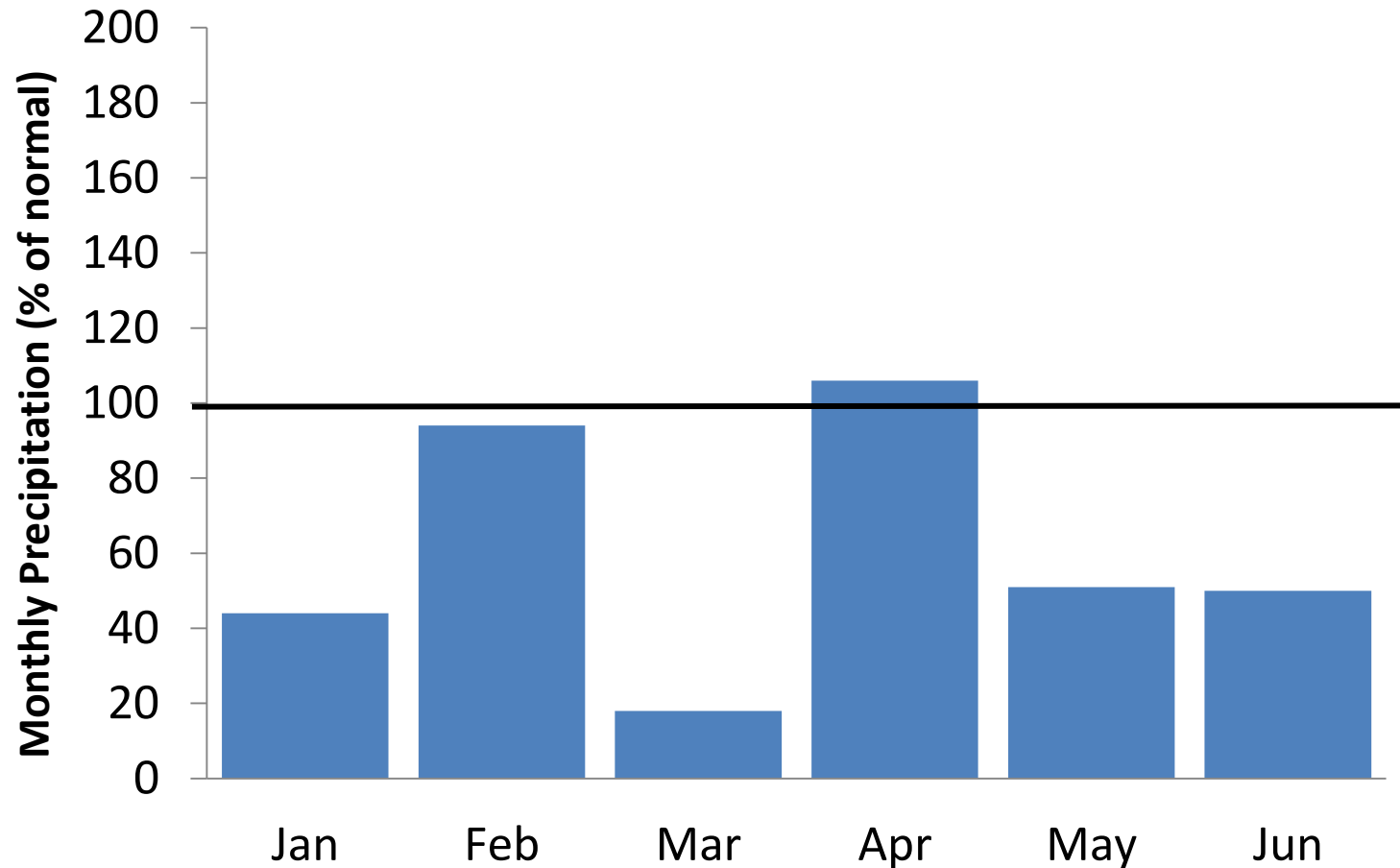


Current Issues - 2019 Cowlitz Basin Drought



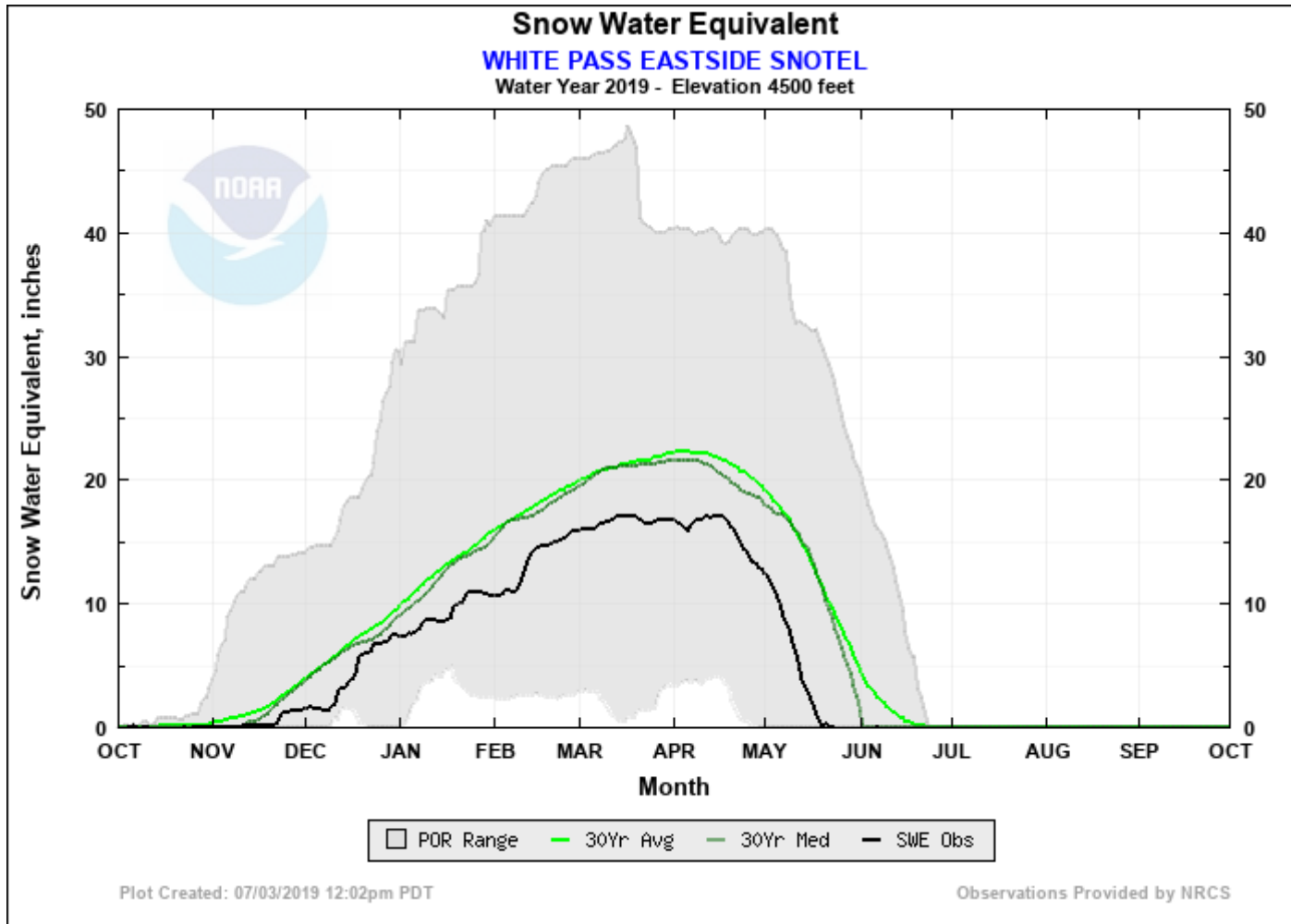
Current Issues -

2019 Cowlitz Basin Drought – Precipitation



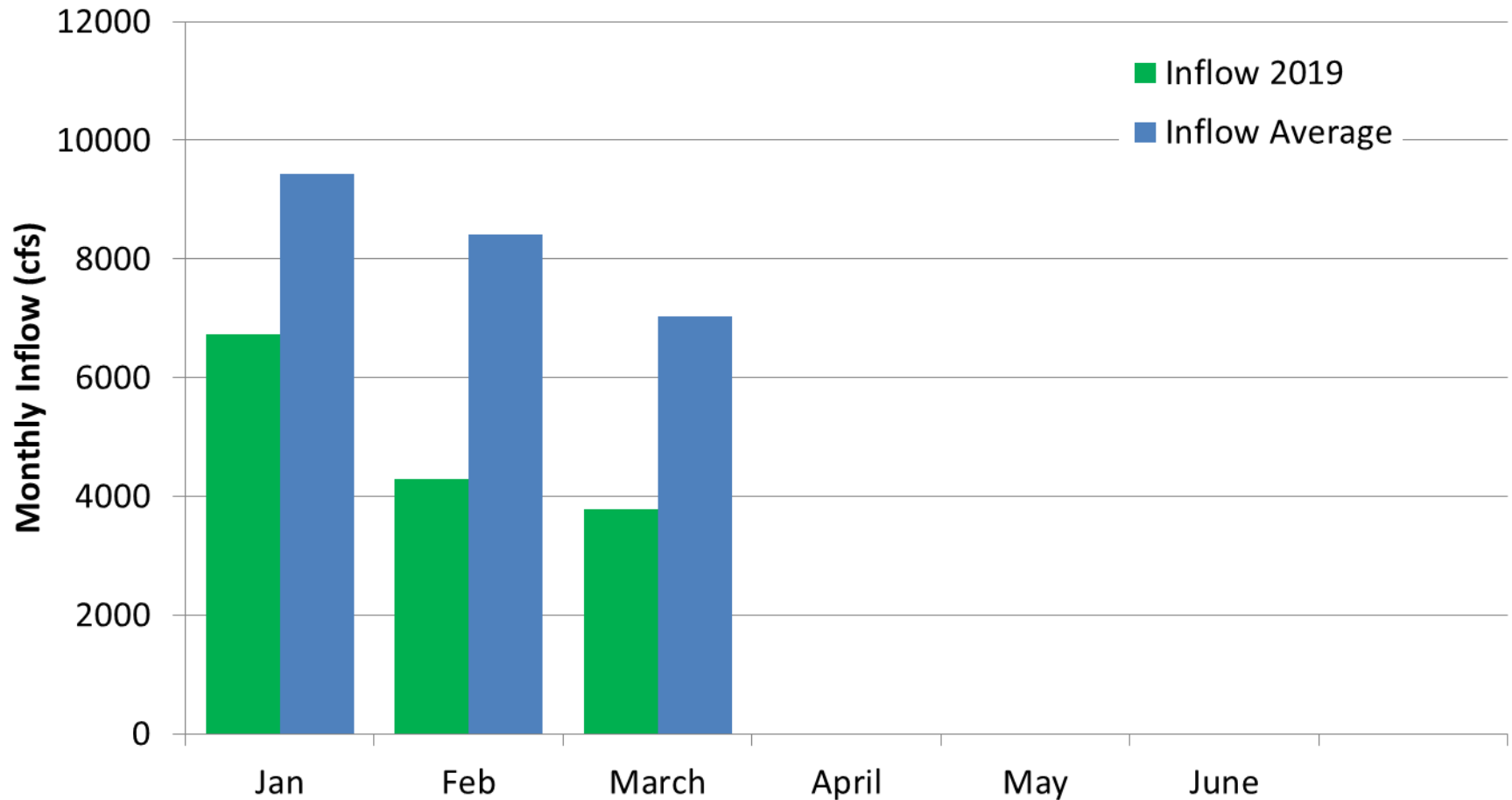
Current Issues -

2019 Cowlitz Basin Drought – Snowpack



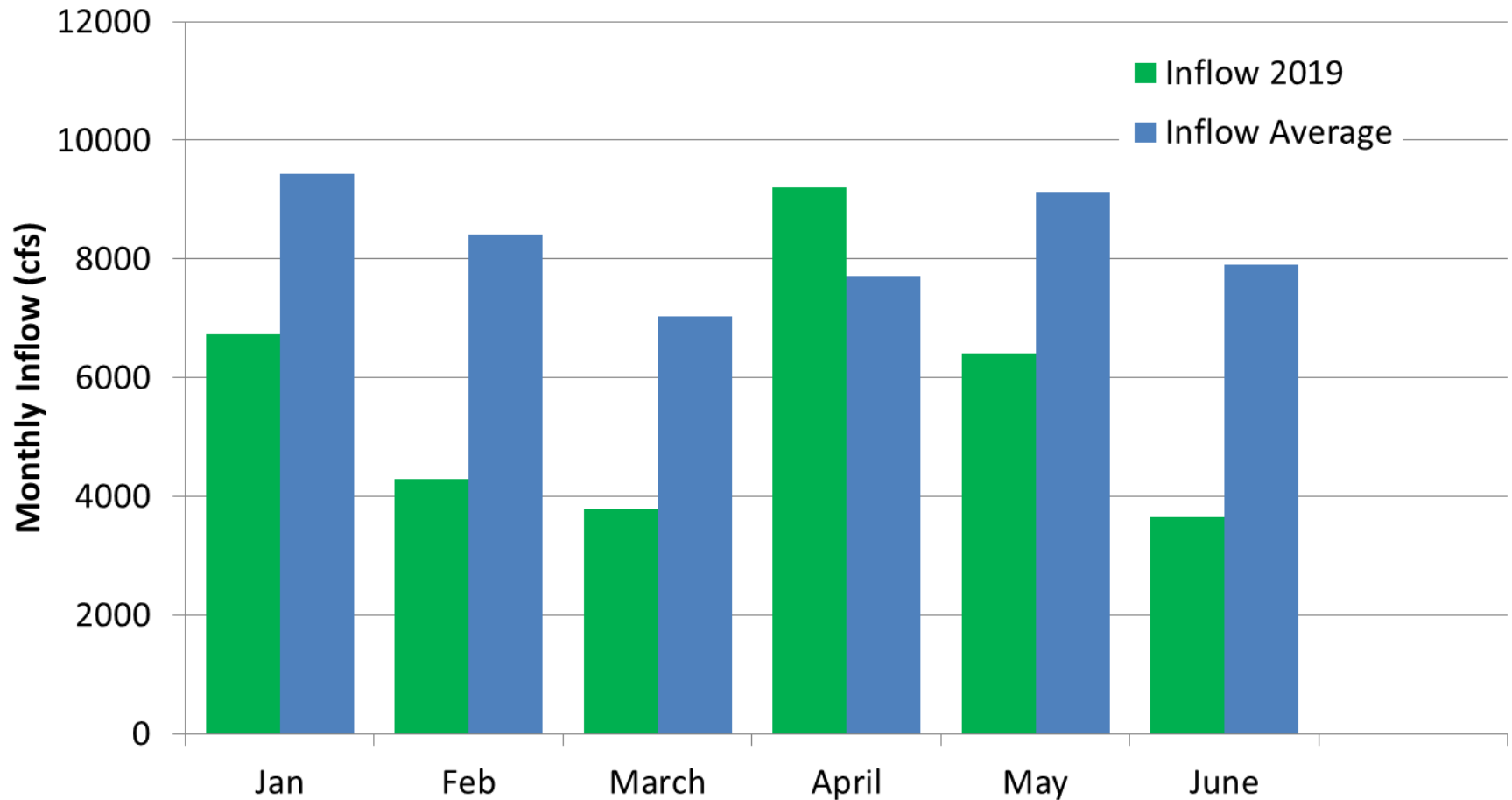
Current Issues -

2019 Cowlitz Basin Drought - Inflows



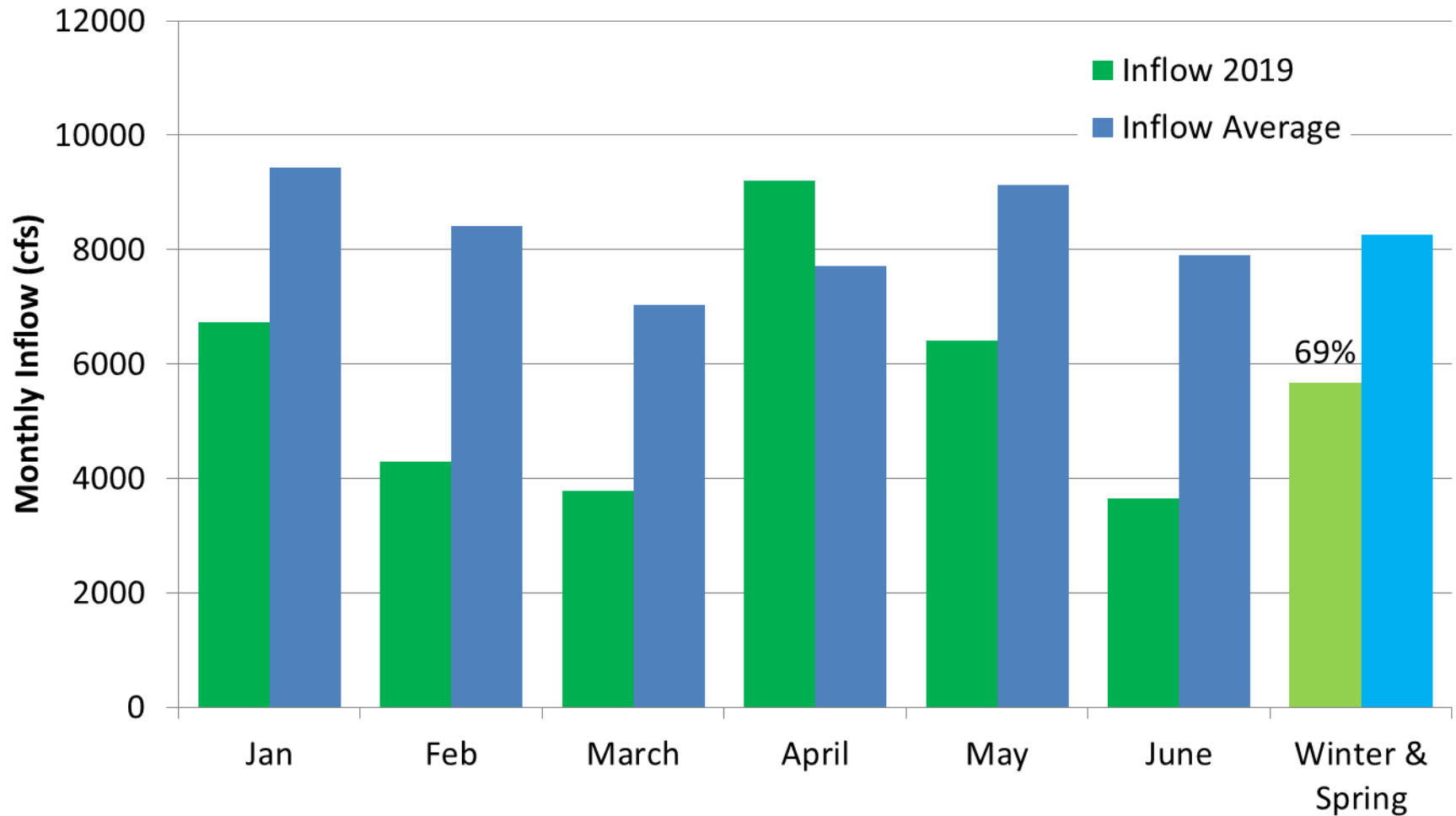
Current Issues -

2019 Cowlitz Basin Drought - Inflows

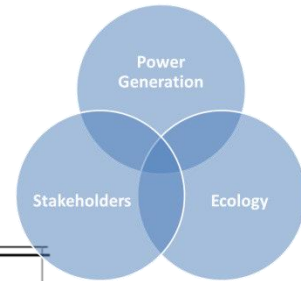
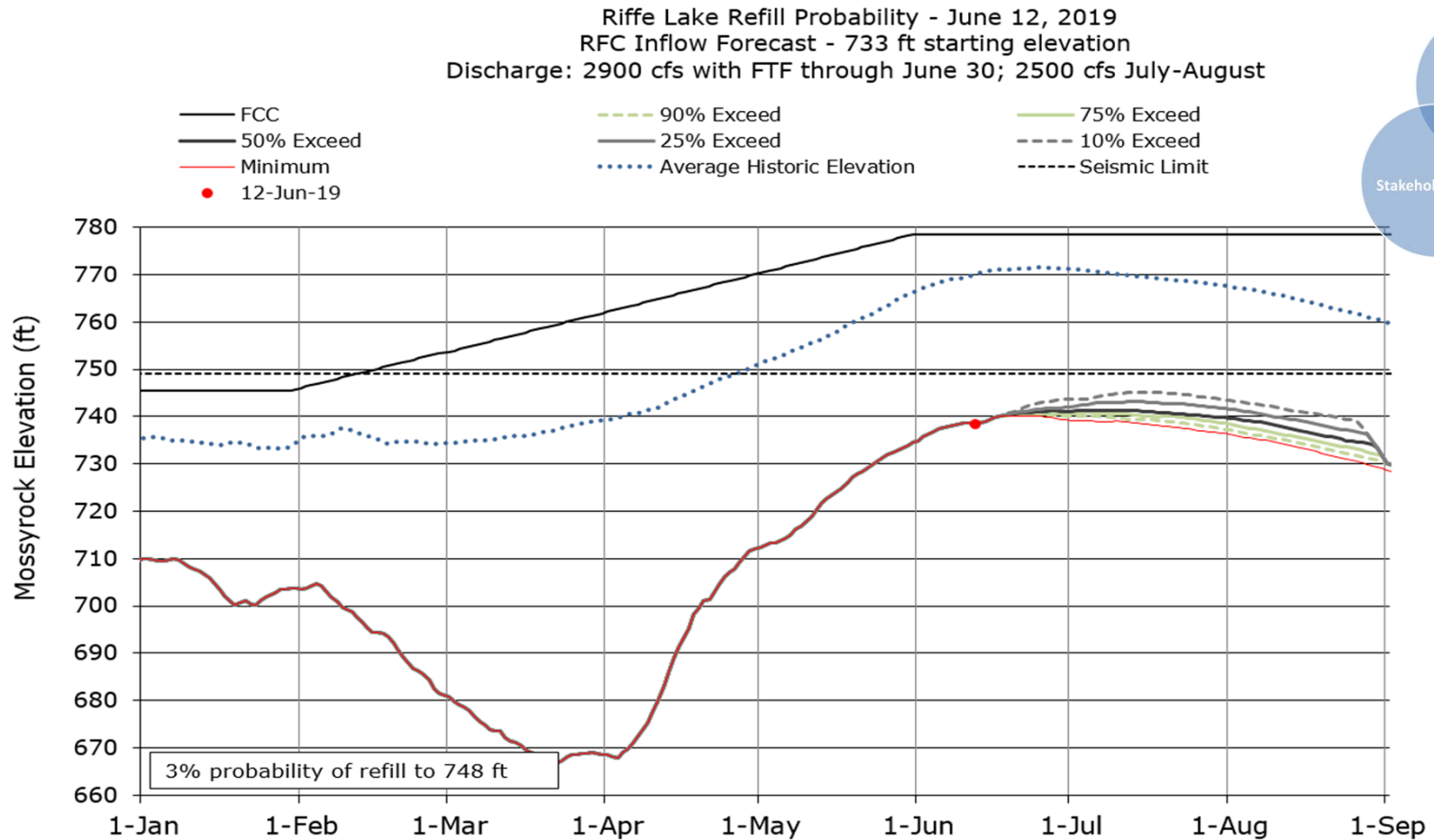


Current Issues -

2019 Cowlitz Basin Drought - Inflows

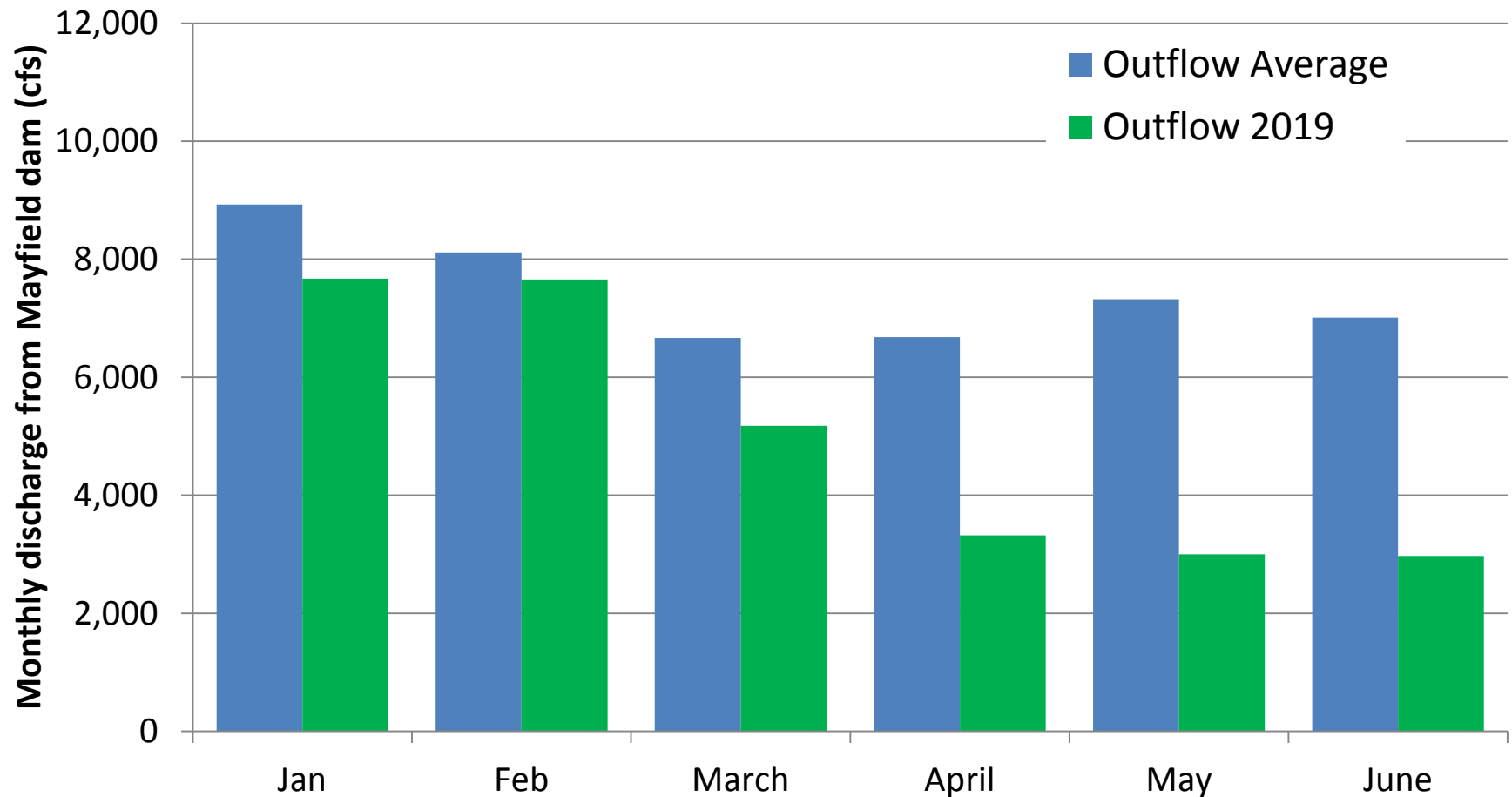


Current Issues - 2019 Cowlitz Basin Drought – Riffe Lake



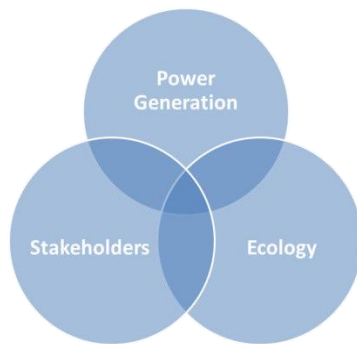
Current Issues -

2019 Cowlitz Basin Drought - Downstream



Current Issues - Mayfield Unit #41 Maintenance

- One month outage of main unit in Mayfield powerhouse
- July 22-26 testing and commissioning
- Impact on total river flow and ramping



Cowlitz Water Management-Ramping

| Time of Year | Daylight Rates* | Night Rates** |
|---------------------------|-------------------|-------------------|
| February 16 to June 15 | No Ramping | 2 inches per hour |
| June 16 to October 31 | 1 inch per hour | 1 inch per hour |
| November 1 to February 15 | 2 inches per hour | 2 inches per hour |

- In effect at flows less than 6,000 cfs
- Based on WDFW standard ramping requirements for protection adults and juveniles

Cowlitz Water Management-Ramping

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| February 16 to June 15 | No Ramping | 2 inches per hour |
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Biological need:

- **Spring** – Small fry in channel margins / outmigration at night
- **Summer** – Larger juveniles, adults
- **Fall/Winter** – Larger juveniles, adults



Cowlitz Water Management - Minimum Flow

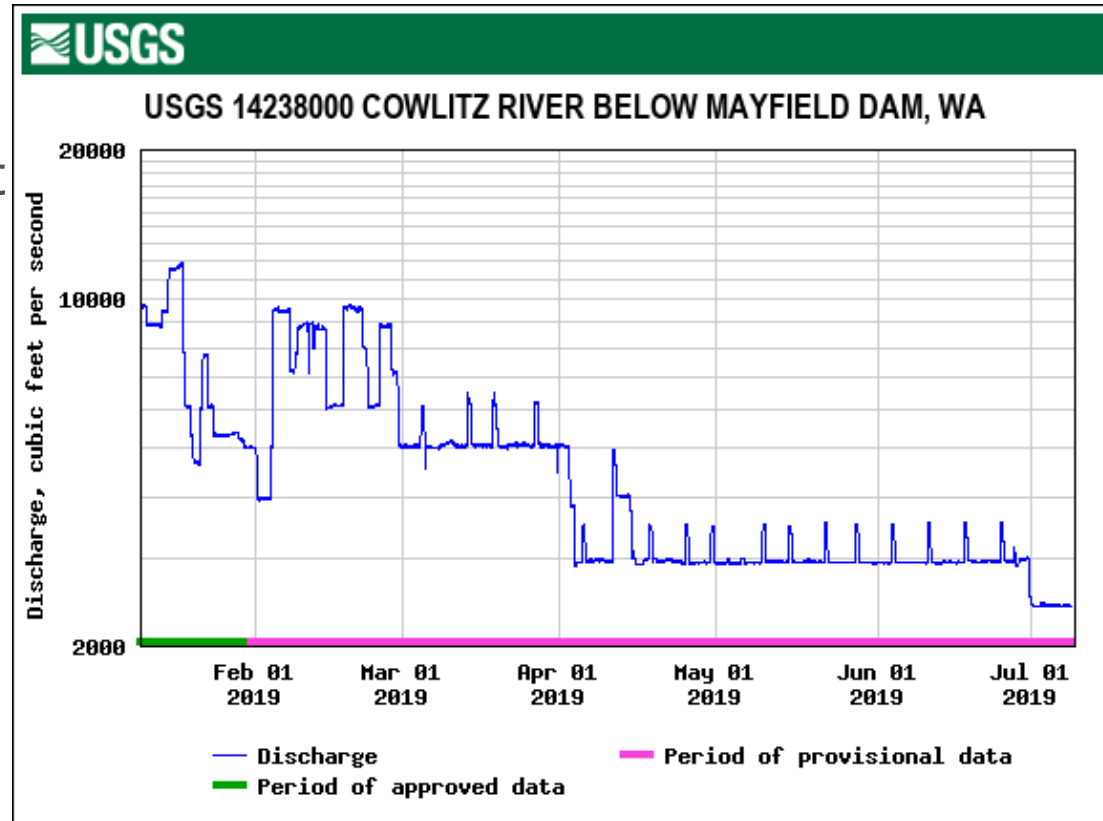
March 1 – June 30

5,000 cfs (unless forecast indicates no refill)

If flows < 8,000 cfs →
weekly fish pulses
of 120 %

July 1 – Aug. 14

2,000 cfs



Cowlitz Water Management - Minimum Flow

Aug. 15 – Sept. 30

2,000 cfs

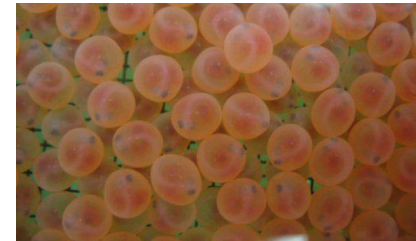
If above 5,000 cfs for more than five days → 5,000 cfs minimum



Oct. 1 – Nov. 20

3,500 cfs

If above 5,000 cfs for more than five days → 5,000 cfs minimum



Nov. 21 – Feb. 28

5,000 cfs OR

8 inches below highest consecutive five-day average flow during which active spawning occurred

Cowlitz Water Management - Minimum Flow

Lewis County PUD Cowlitz Falls Project

1,000 cfs minimum flow requirement

<

1,800 cfs minimum turbine capacity

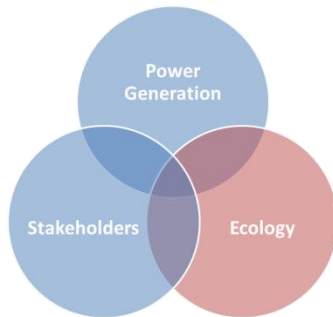


- At inflows below 1,800 cfs – operation is cycled between spill and turbine.
- Coordinated between utilities to split spill between fish collector (~500 cfs) and dam (~500 cfs).

Cowlitz Water Management- Impact on Recreation - Lakes

Mayfield Lake

- 415-425 ft. allowed operating range; mostly above 419 ft.
- Lower Mayfield Lake to 410 feet of elevation Sept. 15-30, 2019 for boat launch repair.



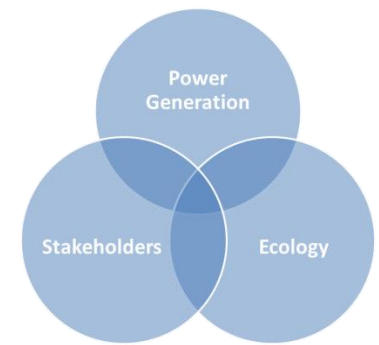
Cowlitz Water Management- Impact on Recreation - Lakes

Riffe Lake

- Mossyrock boat launch ~708 ft. elevation (75 ft. operating range)
- Taidnapam North useable until ~720 ft.
- Swim beaches
- Others (Pedestrian Bridge, etc.)

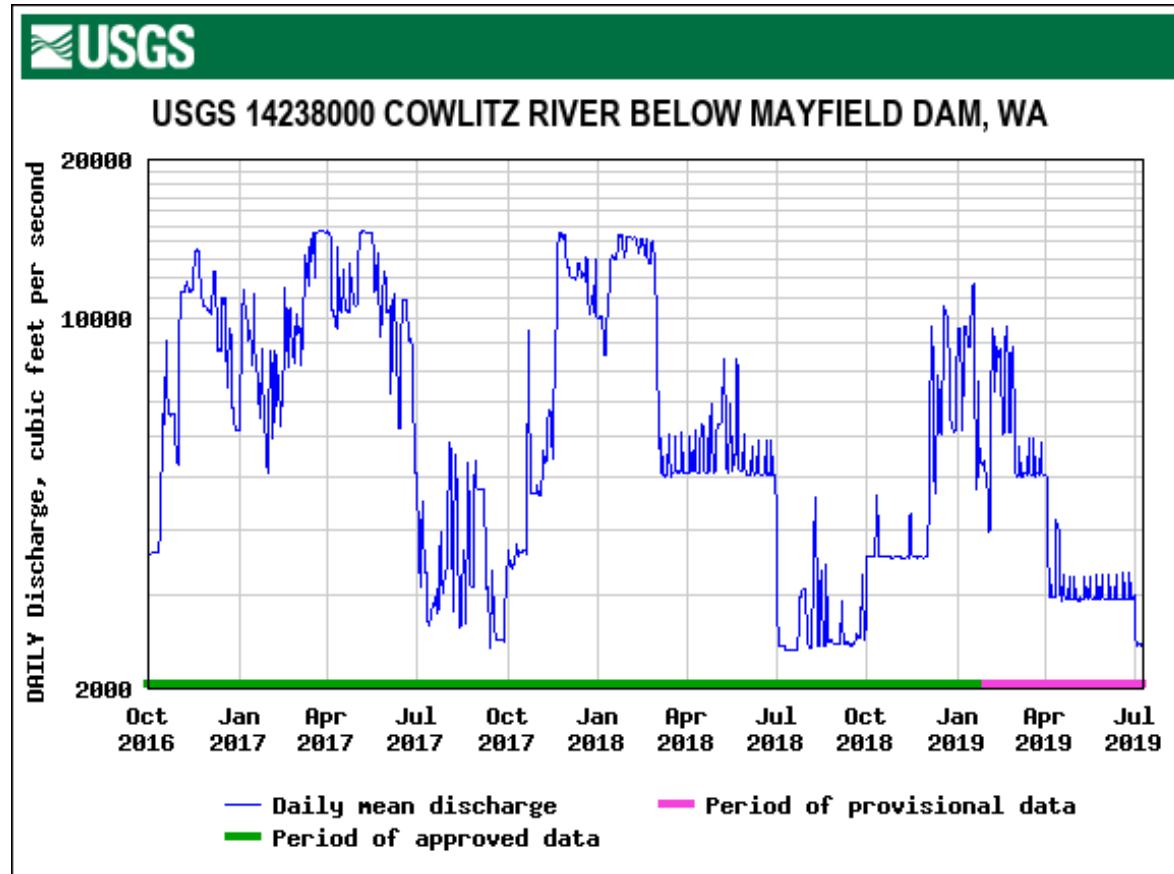


Cowlitz Water Management- Impact on Recreation - River



Lower Cowlitz boating and fishing

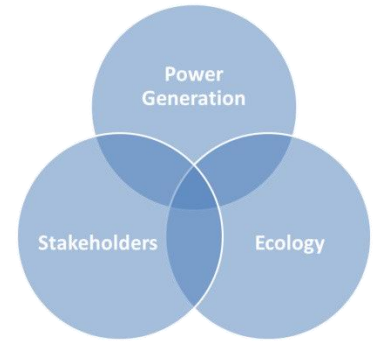
- Varying flows seasonally, flows can change daily
- Different flows – different fishing methods and access



Cowlitz Water Management- Impact on Recreation - River

Lower Cowlitz boating and fishing

- Angling success/flow study: Analysis of correlation of river discharge and fishing method angling success
- Self-imposed minimum 2,400 cfs vs. 2,000 cfs during summer, informed by stakeholders



Cowlitz Project Water Management- Data Availability

- **MyTPU.org/LakeLevels** – lake levels, river flows, downstream forecast
- **River Forecast Center** (<https://www.nwrfc.noaa.gov/rfc/>)
- **USGS gaging stations**
(<https://waterdata.usgs.gov/WA/nwis/current/?type=flow>)
- **Hydro model for upper Cowlitz**

IF YOU HAVE ANY QUESTIONS



LET MINNOW