

## **Cowlitz/Riffe Lake Level Fact Sheet**

### **Feb. 14, 2017**

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The Cowlitz River Project produces hydroelectric power from the water stored behind Mayfield and Mossyrock dams. Completed in 1962, Mayfield Dam forms 13-mile-long Mayfield Lake. Mossyrock Dam, built in 1968, stands 606 feet above bedrock and is the tallest dam in Washington state. The dam forms 23.5-mile-long Riffe Lake.

Based on new information about regional seismicity, the United States Geological Survey (USGS) recently revised its earthquake predictions for the Cowlitz River basin. Although the probability of a large earthquake is very low, the revisions showed an increase to the potential impact just on the spillways of Mossyrock Dam (not to the dam structure itself). To protect public safety, Tacoma Power has proposed to hold Riffe Lake's elevation down approximately 30 feet lower than full (778 ft.) at least into the next decade. Approval by the federal agency that regulates the utility is pending.

Please note: The circumstances at Mossyrock Dam are significantly different than the current situation at Oroville Dam in Northern California. Tacoma Power is not reacting to a current situation – the operational changes are an abundant precautionary measure. There is no impending emergency at Mossyrock Dam and there is no structural damage.

Without a significant seismic event, which has a very low probability, there are no concerns about Mossyrock Dam. Mossyrock Dam is a concrete structure, while the Oroville Dam is an earthen structure. The spillways at the Oroville Dam sit on soil and bedrock, and are failing. At Mossyrock, the spillways rest on concrete, and, even when applying the revised seismic analysis, it is not predicted that an earthquake would compromise the dam – it would only impact the spillways. The mitigating response is keeping the lake level about 30 feet lower than full.

#### **Public safety**

- Public safety is our top priority. Although there is a very low probability of the type of seismic activity that would cause the spillways to fail, we have a responsibility to operate in a way that limits the risk to the public. Keeping the lake level lower accomplishes that. There are no modifications to the operations at Mayfield Dam.
- If we experience significant rainfall or a flood event, Tacoma Power may need to use the storage capacity of Riffe Lake to minimize downstream flooding by temporarily allowing the lake level to rise. After the risk of downstream flooding passes, we would then gradually lower the reservoir.

#### **Seismic information**

- This is not an issue with the structure of the dam, but is related to the piers that hold the spillway gates in place. Mossyrock Dam is a unique design – a tall, double curvature arch with spillways located high in the middle of the dam. No concrete arch dams have failed due to earthquakes, however, preliminary analysis concluded that specific seismic events could render the spillway gates useless, which could cause considerable downstream flooding. Lowering the lake level will limit the impact.
- We are looking at seismic retrofits. The development and implementation of possible solutions involves substantial analysis, planning and federal approval. The process required for making changes to a federally licensed hydroelectric dam is long and arduous.

**Recreation – camping and fishing**

- Boating, swimming and fishing will remain possible on Riffe Lake, although access could be limited. Two Tacoma Power-owned boat launches are anticipated to be usable during the summer at the lower lake elevations. The Taidnapam Park North boat launch has a dock servicing these lower elevations.
- Both the Kosmos and Taidnapam Park south boat launches will remain closed.
- Tacoma Power is considering other modifications to enable use at lower lake levels, including updating the existing boat launch at Mossyrock Park to accommodate a new dock and a new swim beach at Mossyrock Park.
- Kosmos Flats may not be accessible to vehicles.

**Cowlitz River flows** below Mayfield Dam

- Varying conditions impact downstream river flows; during normal weather and runoff conditions we do not anticipate the change in lake level will significantly alter river flows.

**Cultural resources**

- It is unlawful to remove minerals, wood and artifacts from the Cowlitz Wildlife Area and Tacoma Power lands without authorization.

**Aesthetics**

- Natural seeding of the newly exposed lakebed areas has already started; they should be filled in within the next couple of years.
- By way of comparison, these proposed lower lake levels will be similar to what we experienced in 2016.

**Mayfield Lake operations**

- We do not anticipate the elevation changes at Riffe Lake will impact the operating range of Mayfield Lake.

**For more information**

- Email [cowlitz@cityoftacoma.org](mailto:cowlitz@cityoftacoma.org)
- Call 502-8636
- Visit [MyTPU.org/RiffeLake](http://MyTPU.org/RiffeLake)

**Mossyrock Dam Spillway Piers**

**Full lake level**



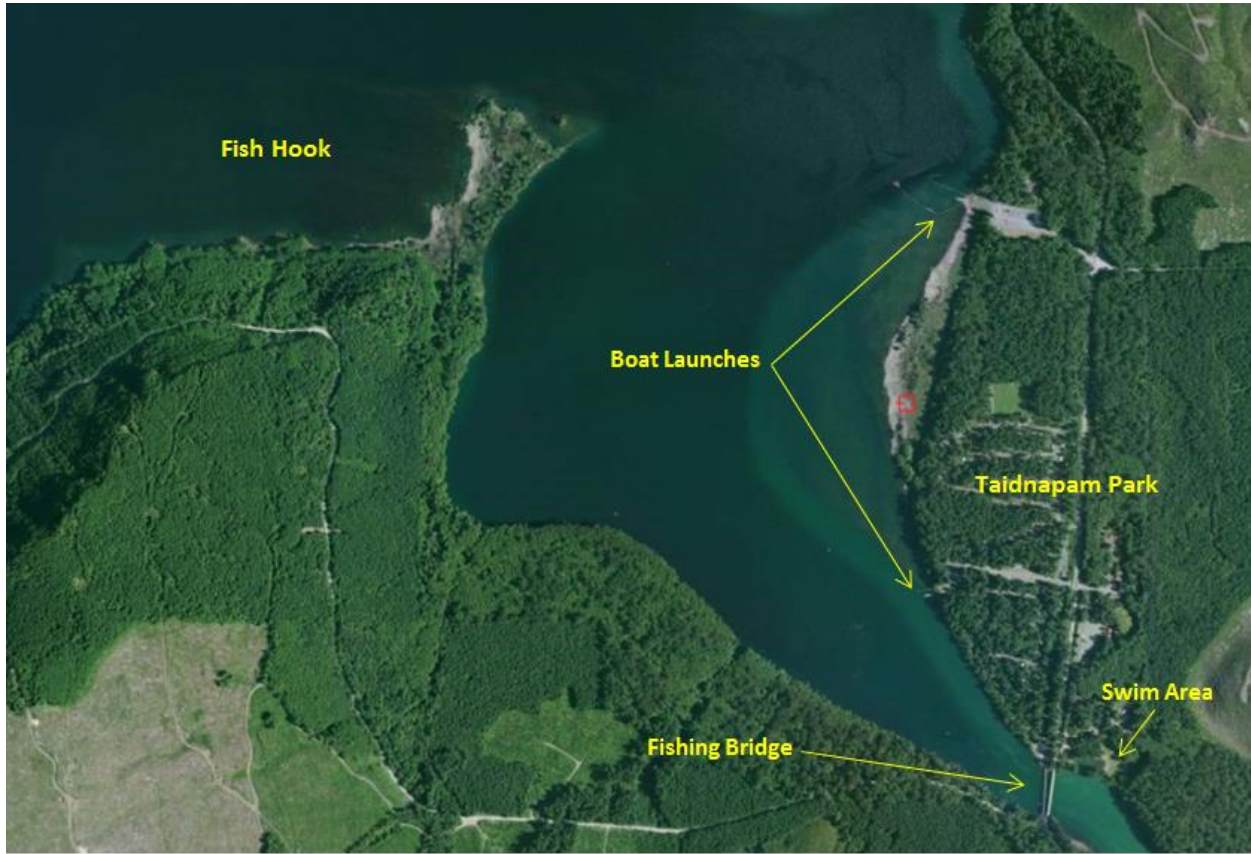
**Riffe Lake Levels – Visual Comparison of Full vs. Proposed**



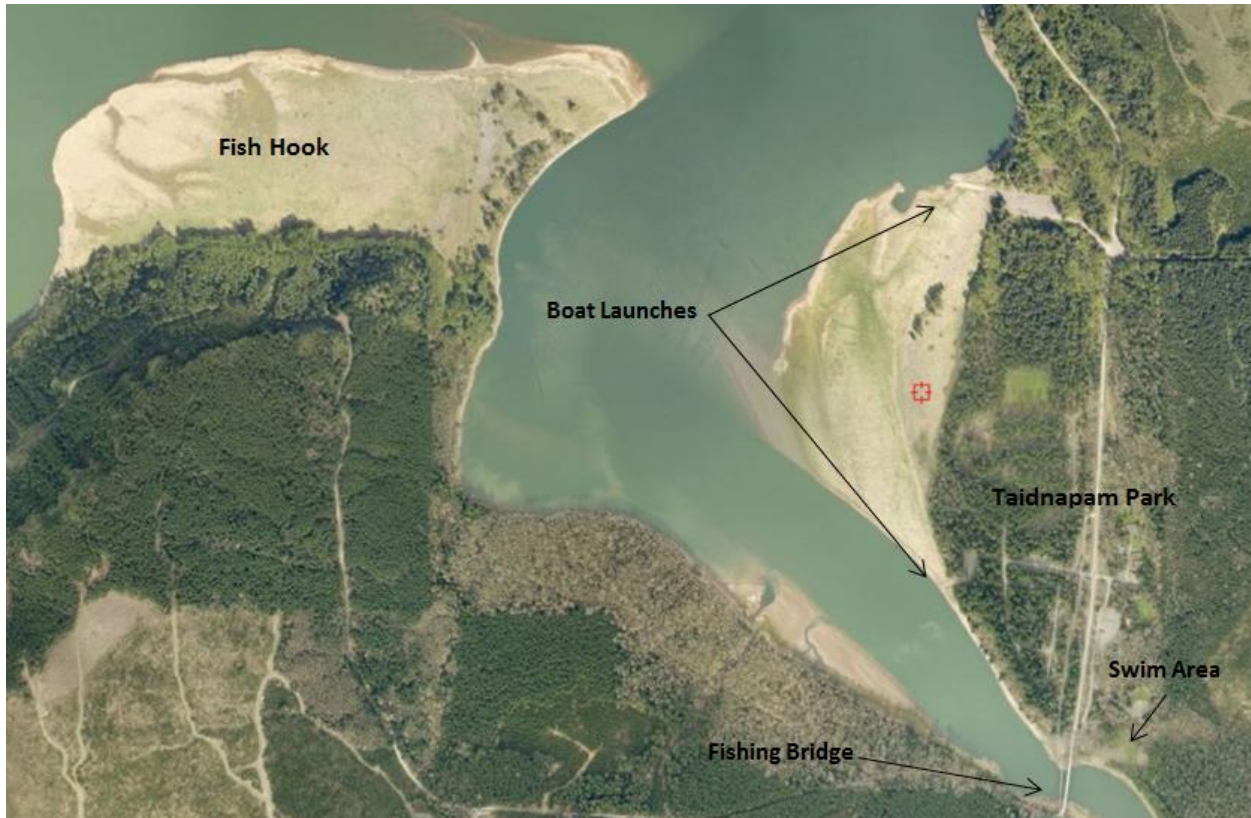
Mossyrock Park (approx. full)



Mossyrock Park (approx. 30 ft. lower than full)



Fish Hook and Taidnapam Park (approx. full pool)



Fish Hook and Taidnapam Park (approx. 30 ft. lower than full)