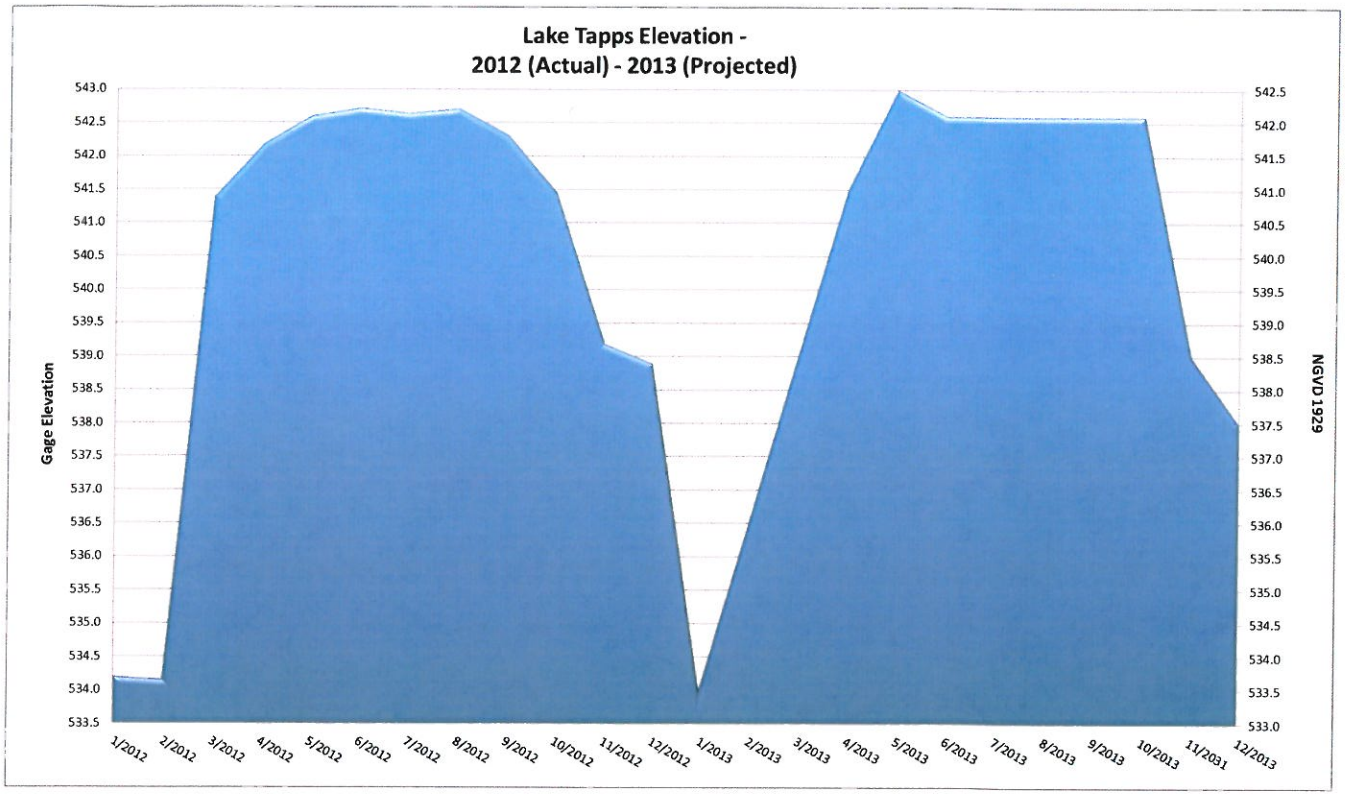

The US Geological Survey (USGS) reports Lake Levels in relation to the base height (or stage) for a gage. This reference "datum" is the base gage-height that has been established by a survey from known benchmarks or with precision GPS. In the case of the Lake Tapps gage (USGS 12101000 LAKE TAPPS NEAR SUMNER, WA), the USGS reports both the gage height and water surface elevation above National Geodetic Vertical Datum of 1929 (NGVD 1929). The Lake elevations reported by the USGS are exactly the same, just expressed from a different reference point.

When the USGS originally began reporting Lake Levels in NGVD 1929, the conversion factor used was gage height PLUS 0.7 feet equals NGVD 1929. Unfortunately, this conversion was not accurate. Survey work conducted for Cascade in 2009, indicated that the correct conversion was gage height MINUS 0.5 feet equals NGVD 1929. In November 2009, the USGS reviewed Cascade's survey work and agreed that the previous conversion factor was not accurate and has adjusted all its data to reflect the correct conversion

Historically, Lake Levels have been referred to in relation to the gage height (this is the reference in the Lake Tapps property deeds and is the first graph shown on the USGS web site). Using the gage height as the reference, summer Lake Level (or "Normal Full Pool" in Cascade's 2009 Agreement with the Lake Tapps Community Council) is between elevation 541.5 feet and 543.0 feet[1]. Cascade has agreed to maintain the Lake within this range from April 15 through September 30 each year. The equivalent Lake elevation, expressed as NGVD 1929 is 541.0 feet to 542.5 feet. Again, these elevations are exactly the same.

In summary, the following ranges represent exactly the same Lake elevation:

- 541.5 feet and 543.0 feet gage height (reported by the USGS);
- 542.2 feet and 543.7 feet incorrect NGVD 1929 conversion (no longer reported by the USGS); and
- 541.0 feet to 542.5 feet correct NGVD 1929 conversion (reported by the USGS).

[1]The conversion to NGVD 1929 in use at the time the 2009 Lake Tapps Community Council agreement was executed was incorrect. The 2009 agreement found on the Cascade web site refers to Normal Full Pool as "between 542.2 feet and 543.7 feet" with a footnote explaining that this is NGVD 1929 and is equivalent to 541.5 feet to 543.0 feet gage height. The correct range for Normal Full Pool, expressed in relation to NGVD 1929 is 540.0 feet to 542.5 feet.