Everything you always wanted to know about **sex**

*but were afraid to ask*

Explained by **David Reuben, M.D.**

Bestseller

Tahoe

Heather Segale, UC Davis TERC
An ancient, modern lake – 2 million years old, but first viewed by “Europeans” in 1844 (two years before the Donner Party)
How do lakes work??
LIMNOLOGY 101

LAKE IS “PARTITIONED” BASED ON THERMAL (aka DENSITY) STRATIFICATION

Mixed layer depth

Epilimnion

Metalimnion

Hypolimnion

TEMPERATURE (°C)

DEPTH (m)
(Underwater cable to shore)
WEATHER

Tahoe enjoys sunshine about 300 days of the year, but rain, hail, or even snow can happen in any season. Check the forecast and be prepared!

Wind Speed

Wind speed is recorded at weather stations around Lake Tahoe. Daily fluctuations depend on time of day and seasonal weather fronts.
Varying wave height, water temperature, algae concentrations, clarity, and lake levels all combine to create a complex and ever-changing freshwater environment.

Water Temperature

Lake Tahoe water is cold for most swimmers, with surface temperatures ranging from 42 degrees in the winter to over 70 degrees in July and August. Though refreshing on a hot day, a plunge into Lake Tahoe can literally take your breath away. Swimmers should be prepared for dangerously cold conditions.

Photo Credit: Emily Czok
Clarity
Father Angelo Secchi (1818-1878) was the “Father of Astrophysics”, renowned meteorologist, founder of the Vatican observatory. And credited by others for inventing the Secchi disk.
Fine Particles < 20 microns (really < 8)

5x10^{20}/year

- Non-urban Upland: 9%
- Stream Channel Erosion: 4%
- Atmospheric Deposition: 15%
- Shoreline Erosion: < 1%
- Urban Upland: 72%
PARTICLE INPUT TO THE LAKE FROM URBAN AREAS – THE LEADING LOCAL CAUSE OF CLARITY LOSS
Lake Tahoe Clarity in 2017 – Harbinger of the Future or Confluence of Extreme Events?

“The average annual clarity level for 2017 was 59.7 feet. This was a 9.5-foot decrease from the previous year, surpassing the previous lowest value of 64.1 feet in 1997”
Individual Secchi depth measurements for 2010-2016 (hollow circles) and 2017 (filled circles)
Here is what happened
- There was a 5 year drought that was the most extreme in 1600 years
- The drought was ended with the wettest winter on record (300% of annual precipitation; 58 Atmospheric Rivers…
- 5 years of material that had accumulated in the streams PLUS a lot of new material all got washed into the lake
- The runoff occurred relatively late in the year, so the impacts persisted late into the year
ANNUAL SEDIMENT LOAD FROM UPPER TRUCKEE RIVER

Water Year

Metric Tons


0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000 13000
Fine particle distribution in Lake Tahoe during 2017

Log Number of particles (<16 μm) per milliliters

Depth (Meters)

Depth (Feet)

Jan | Mar | May | Jul | Sep | Nov | Jan

0 | 200 | 400 | 600 | 800 | 1000 | 1200 | 1400
CLIMATE CHANGE
Snow as a fraction of precipitation - Tahoe
Annual Average Lake Surface Temperature = 11.9° C
Increasing Lake Stability - Tahoe
“RUBICON CLIFFS” AT THE EDGES OF LAKE TAHOE
MYSIS SHRIMP AT THE BOTTOM OF LAKE TAHOE