20th ANNIVERSARY
TAHOE CITY MARINA
LAKE TAHOE • CALIFORNIA

(530) 583-1039 · TahoeCityMarina.com

NEWSLETTER · JULY 3, 2016

Fuel Dock // 7:30 a.m. to 9 p.m.
Boat Rentals // 8 a.m. to 6 p.m.
7 DAYS A WEEK

Summer Thunderstorms: Boat Safety

During the summer months, the weather on Lake Tahoe can include afternoon thunderstorms that can pop up without much warning. Sometimes the storms are brief, but often once they move in, they can last for hours. Lightning can strike miles in front of a storm and can strike even after a storm seems to have passed. If you find yourself out on the water during these storms, there are many steps you can take to ensure your safety.

When thunderstorms begin to build, it is a good idea to start heading toward shore. When you are on open water, you are the tallest object between the shorelines and a favored target for a lightning strike. The gusty winds that accompany thunderstorms can also catch you off guard and capsize boats in an instant. If you are far from the Marina, you can typically take shelter at any marina along the Lake.

The marinas on the Lake realize the safety concerns that thunderstorms present and will provide safe harbor for the duration of the storm. If you cannot find a marina in close proximity, find a pier or a place close to shore where you can anchor your boat and point the bow of your boat into the wind. Turn off as much of your electronic equipment as you can and be sure to wear your personal floatation devices (PFDs or life jackets).

If you get into real trouble and need help, contact the U.S. Coast Guard on VHF Channel 16 or by phone at (530) 583-4433.

LAKE LEVELS Readings taken on Friday, July 1, 2016

Lake Tahoe *Natural rim 6,223'* **Elevation** *6,223.96'* | **Elevation in 2015** *6,222.90'*

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Warm water contributes to decline in clarity

Clarity levels at Lake Tahoe in 2015 declined in both summer and winter, due in part to warmer waters, according to researchers at the University of California, Davis, who have studied the lake for the last half-century.

Data released recently by the UC Davis Tahoe Environmental Research Center and the Tahoe Regional Planning Agency reported the average annual clarity level for 2015 at 73.1 feet. That is the depth at which a 10-inch white disk, called a Secchi disk, remains visible when lowered into the water.

This is a 4.8-foot decrease from the previous year but is still more than 9 feet greater than the lowest recorded average of 64.1 feet in 1997.

The declines are not considered to be part of a long-term trend, according to the report. They are part of the year-to-year variability that has always characterized conditions at the lake. The record indicates that Lake Tahoe's long-term trend of decline ended about 15 years ago. Since then, clarity has hovered around a value of 71 feet.

Warmer runoff water affects lake

"It is commonly believed that drought years produce clearer water conditions, but the reality is more complicated than that," said Geoffrey Schladow, director of the UC Davis Tahoe Environmental Research Center, in a press release.

The annual precipitation for 2015 was 18 inches, only slightly lower than the previous year. However, the fraction of precipitation that fell as snow was only 5.3 percent, the lowest recorded measurement in 105 years.

"In 2015, the runoff water into the lake was warmer than the previous year, on account of the low snow-to-rain ratio," Schladow said. "As a consequence, fine particles flowed in closer to the surface, where they impacted clarity, rather than plunging to the deeper parts of the lake."

Seasonal variability

The 2015 clarity level is the average of 30 individual readings taken from January through December 2015. The highest value recorded in 2015 was 86.5 feet on April 22, and the lowest was 59.9 feet on Feb. 3.

Winter clarity last year declined by 7.6 feet. The winter average of 71.6 feet was above the worst winter average, 66.6 feet, seen in 1997.

During most years, summer clarity is poorer than winter clarity, but 2015 was an exception. Summer clarity averaged 73 feet, a 3.7-foot decline over the preceding year. The lack of deep mixing during the winter resulted in little of the pristine, deep water being brought up to the lake surface to dilute the clarity-reducing contaminants. Despite this, the long-term decline in summer conditions is still a major concern.

Working together

The Tahoe Regional Planning Agency leads the collaborative effort to reduce stormwater runoff and manages the multijurisdictional Lake Tahoe Environmental Improvement Program to repair past damage to the ecosystem.

Over the past two decades, the Environmental Improvement Program has resulted in substantial public and private investment in projects to improve water quality and other environmental indicators at Lake Tahoe. Among the hundreds of measurements the TRPA tracks, mid-lake clarity is a key indicator of whether restoration programs are working.

Clarity a key indicator for Tahoe

Water clarity measurements have been taken continuously since 1968, when the Secchi disk could be seen down to 102.4 feet, and is one of the longest, unbroken clarity records in the world. Secchi depth is the most widely used method of clarity measurement, and the values agree with laser-based measurements taken by TERC researchers.

Improved real-time monitoring instruments, together with sophisticated models of the lake currents that transport contaminants in Lake Tahoe, are helping researchers build a deeper understanding of restoration progress within the entire lake ecosystem.

"The Secchi depth is but one indicator of Lake Tahoe's ecological health, albeit a very good one," Schladow said. "The extreme conditions in 2015 are also impacting other parts of the system such as the nearshore zone. Separating out what is a long-term change from the expected year-to-year variability for all aspects of the lake is a major challenge for researchers."

While the average annual clarity in the past decade has been better than in preceding decades, it is still short of the clarity restoration target of 97.4 feet set by federal and state regulators, a goal agencies and the Tahoe Basin community continue to work toward. **| terc.ucdavis.edu**