

Water Conservation at Emerald Bay

In 2009, Camp Emerald Bay began efforts to reduce its environmental footprint. Camp's first focus was to reduce water consumption due to increasing water prices. Camp started retrofitting and replacing water fixtures that had substantial use with lower flow models.

- **Showerheads**

- *Before:* 2.5 gallons per minute
- *After:* 0.6 gallons per minute
- 75% reduction



- **Sinks**

- *Before:* 2.0 gallons per minute
- *After:* 0.5 gallons per minute
- 75% reduction



- **Toilets**

- *Before:* 1.6 to 3.0 gallons per flush
- *After:* 3 different models, ranging from 0 to 1.6 gallons per flush

1. **Dual Flush (1.1 or 1.6 gallons per flush)**

Green handles give the option to flush up for liquid waste using 1.1 gallons or down for solid waste using 1.6 gallons. This technology is popular in Europe, but has not yet taken off in the United States.



2. **Pressure Assist (1.0 gallons per flush)**

Air pressure is used to push water through the bowl, only using 1 gallon for even the most difficult flushes.



3. **Waterless Urinals (0 gallons per flush)**

Use zero water, and not only has helped save thousands of gallons, but also has been incredibly popular among guests due to their novelty.



- **Washing Machines**

- *Before*: 35-40 gallons per load
- *After*: 14 gallons per load
- 60% reduction



- **Water Softeners**

- *Before*: 175 gallons of salty brine discharged weekly
- *After*: 0 gallons and 0 salt
- 100% reduction



- **Hose Bibs**

- *Before*: standard handles that could be turned on (and left on) by anyone
- *After*: keyed models that restrict unauthorized access
- Estimated 25% reduction

- **Drip Irrigation**

- Plants receive direct, precise amounts of water. Water is no longer lost to the air or to unnecessary plants as with traditional sprinkler systems.

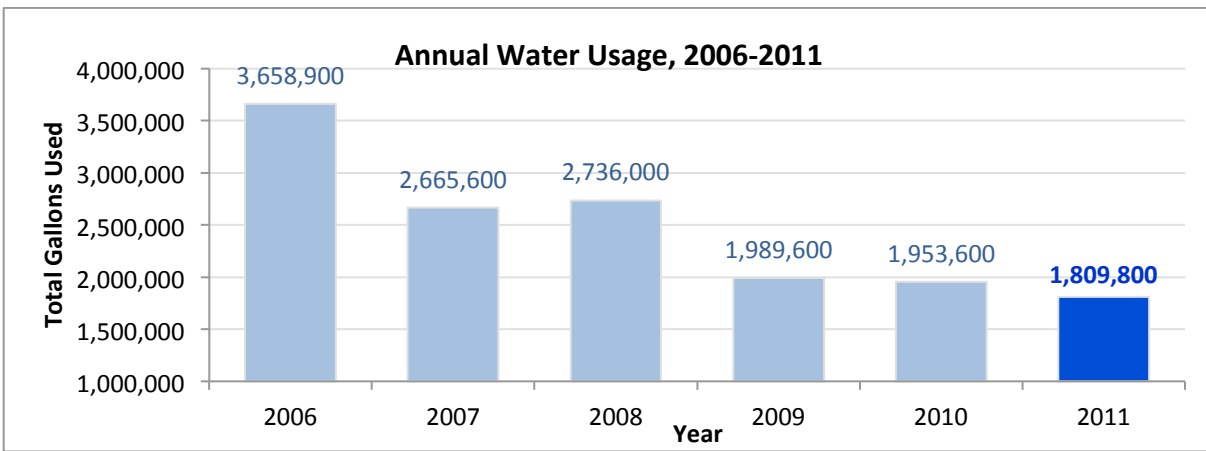
- **Water meters**

- Water meters measure the amount of water going into a building. Camp has installed an advanced network of meters at various building interfaces. This network of meters provides a more detailed understanding of where, when, and how much water is consumed throughout the facility. Some can be read in real time, which have been a tremendous benefit because it immediately identifies problems such as running toilets or broken pipes. Additionally, the real time monitoring issues an email alert anytime water use is above a certain threshold.



Water Conservation Results

This myriad of water conservation efforts has helped Camp Emerald Bay save over 1.5 million gallons per year, or use 50% less water than what was used in 2006.



The camp not only saw generous reductions in water consumption but also saw environmental impacts as well.

- **Improved health of native plant species**

With a drip irrigation system, native vegetation has flourished due to direct, precise amounts of water on each plant.

- **Improved leech fields**

All drains in the camp lead to septic tanks, large underground storage tanks that purify the water and release it back into vegetated areas known as leech fields. The elimination of salt-based water softeners has reduced the salty brine from the septic system and produced better soil in the leech fields.

- **Reduction in propane usage**

Using less water for showering means less propane needs to be used to heat it. In addition, the switch to on-demand water heaters that heat water only when it is needed have led to lower consumption of propane, saving 9.36 metric tons of carbon dioxide each year.

- **Protection of the natural aquifer**

Fresh water on the island comes from an underground aquifer that currently flows out to sea. If too much water were used, that underground river could be weakened enough to reverse the direction of flow, allowing saltwater intrusion.

- **Increased awareness**

Most importantly, camp guests are becoming more conservation-minded. It has become a camp standard to conserve water and practice environmental stewardship.

