

## **Green Living Project Water Team – Executive Summary**

Over the last two academic quarters, the water team component of the Green Living Project achieved the goal of measuring, categorizing, and understanding the water usage habits of UCLA’s on-campus residents. The team began with the goal of determining how much water students could save, and thus whether the school could afford to “pay students back” for their savings to encourage conservation. In fact, students in on-campus residences use less water than originally projected, so the water team changed its goals accordingly. Rather than encourage the school to incentivize further water conservation through financial means, the team turned to educational programs and “best practices” recommendations for the Office of Residential Life, the Housing Administration Office, the on-campus housing department of Facilities and Maintenance, and other offices (collectively referred to as Housing). The team also sought to provide an estimate of the “average student” in terms of water consumption, and to make worthwhile data available to these various offices.

The water team achieved these goals through a four-part data collection process. The initial data collection examined the water use of automatic versus manual flush toilets. Taking half-hour shifts inside different Residence Hall restrooms (split between Sproul, Hedrick, and Dykstra), team members tallied the number of flushes of each type of toilet and compared it to the number of residents that physically entered the bathroom area during that same duration. After several of these examinations (and all the awkward feelings they generated), the team concluded that automatic flush toilets flush thirty percent more often than the manual flush variety. The team’s second data collection effort yielded over 940 responses to an online survey, created via SurveyMonkey, a statistics-keeping website. By setting up tables and computer banks inside residence halls and residential dining halls, the team took shifts in asking passersby to fill out the survey. The survey asked for details on the water use habits of students, and included questions about time spent in the shower, whether students left the tap on under a variety of circumstances, how students acquired their drinking water and in what type of container, and others. Use of the survey allowed the water team to get a broad, general picture of the water use of students. The team discovered a number of interesting facts: the average student takes a twelve-minute shower once per day; over fifty percent of students use disposable bottles for their water needs; and others.

The team supplemented that broad picture with more specific, detailed information on a select group of students. Using “Eco Showerdrops”, shower timers that doubled as liter-counters, the team went around the odd floors of on-campus residences and asked random students if they would consent to time their showers and tally their toilet flushes for a week (all with ORL approval). 149 students consented to do so, totaling 734 showers’ worth of data, and a number of “toilet tallies”. The “Eco Showerdrops”, however, could not appear to withstand water – which actually provided the team’s most interesting data point. The team discovered, upon switching out in-shower Showerdrops for out-of-shower stopwatches, that students who had the timer in the shower (which also beeped at the user after 35 liters) used 20% less water than the average student with a stopwatch. The team also reiterated their average time data from the survey, concluding that the median shower for an on-campus resident consumes 55

liters of water. The team also created an “average student” graph, determining that such a student consumes 117.6 liters of water per day during the school year.

The water team’s last project consisted of monitoring the building-wide meters for the De Neve buildings Cedar, Dogwood, and Evergreen each hour, on the hour, for an entire day. Displaying this total use data over time gave the team a bimodal distribution that corresponded nicely to a similar distribution of data plotting at what times students regularly took showers. Comparing the two, it seemed that students took showers most often during the morning hours, peaking at between eight and nine o’clock. The other peak occurred later in the evening, generally after dinnertime and before midnight, though it was not as pronounced as the morning mode.

Having compiled all this data, the water team made a number of recommendations to the offices of Housing. The team made a list of “best product purchases” regarding toilets, showerheads, sink aerators, and other products, concluding that the most eco-friendly versions of these products generally have payback times under three years compared with the cheapest models available. The team also encouraged further educational programming, after survey results showed that over a third of students would respond to it. Over fifty percent of students recommended water use stickers on water products – a quick investment that could save the school lots of money down the line. Lastly, the team recommended that Housing find a way to incorporate shower timers into existing showers, so the school could get the benefit of roughly 20% decreased consumption.