

Grand Canyon National Park

Analysis of potential impacts/effects of bottle ban

1. Amount of waste eliminated and pros/cons to overall park operations

By volume, Grand Canyon National Park (GRCA) could eliminate up to 30% of what is currently recycled and up to 20% of the park's overall waste stream. GRCA custodial staff and Norton Environmental (the park's recycling contractor) agree that disposable plastic bottles (all bottles, not just water) comprise about 30% of the park's recyclables, **by volume**. In fiscal year 2010, the park recycled more than 900 tons.

Pros:

- Decreases in plastics going to the landfill (although about 35% of the park's waste stream is currently diverted to be recycled, it is estimated by the waste management staff that about 50% of what is taken to the landfill could also be recycled).
- Decreases in monetary costs to any visitor who would have purchased more than one bottle of water within the park; and if our education efforts are successful, visitors may save additional money as they continue to refill their reusable bottles after they leave the park.
- Savings of resources used and Green House Gases (GHCs) released during the transportation of waste and recyclables and during the recycling process.
- Decreases in litter associated with disposable bottles along both inner canyon and rim trails as well as below the rim. (Per NPS custodial/waste management staff, plastic bottles (and associated litter) are one of the top two sources of litter along rim trails).
- Decreases in risk to park staff and volunteers as below the rim litter removal can require technical skills and increased risk.
- Reduces risk of plastic bottle ingestion. Birds, rodents, and larger mammals are known to be attracted to plastic bottles. Thinking there is food/water inside, animals chew and inadvertently swallow plastic pieces. It is well documented that ingested plastic can become lodged in throats and choked on and/or accumulates and creates blockages in digestive tracks.
- Diminishes release of toxic chemicals such as bisphenol A (BPA). Toxins leached from plastics are known to have negative effects on wildlife.

Cons:

- Bottled water is a high profit margin item for the park concessioners and partners. If reusable bottle sales (lower profit margin) do not make up for this, concessioners and partners could incur some financial loss. (See #6 for additional analysis).
- Some people perceive a risk to visitors of dehydration. (Bottled water is a relatively recent retail innovation and this concern had been well addressed before its advent. Water filling stations have been placed at primary trailheads and reusable bottles starting at prices just a few cents above the cost of one bottle of water are being sold in retail outlets throughout the park. With these, water is now more readily available at the Hermit, Bright Angel and North/South Kaibab Trailheads, as well as along the most visited portions of the Rim Trail than it ever was before).
- As GRCA encourages visitors to use the park's water, the annual turbidity event (spring runoff) could pose perception issues regarding safety of water. (We are placing information on this in the spring Guide and have begun discussions on the need for informational signs at the filling stations during this event each year).

2. Infrastructure Costs and funding source(s) for filling stations

Grand Canyon National Park began construction of ten new water filling stations in FY 2010, and all were completed in FY 2011. Total construction cost was \$288,900. Funding sources included concessions franchise fees and base funding received from Intermountain Region Office (IMRO) at the end of FY 2010. Park concessioners have also installed three additional water bottle fillings stations and adapted various water fountains to allow for reusable water bottle filling.

3. Contractual implications on concessioners, including considerations of new leaseholder surrender interest or possessory interest

Sec 3(d) of the concessions contracts for Xanterra South Rim, LLC (Xanterra), Grand Canyon North Rim, LLC. (Forever Resorts), and Sec 2(b) of the concessions contracts for DNC Parks and Resorts at Grand Canyon, Inc. (DNC) states: "The Director reserves the right to determine and control the nature, type and quality of the visitor services described in this Contract, including, but not limited to, the nature, type and quality of merchandise, if any, to be sold or provided by the concessioner within the Area."

Xanterra is the park's biggest seller of bottled water and their initial contract term was set to expire on December 31, 2011. The concessioner is under a one year amendment set to expire on December 31, 2012. DNC is under the final year of the current contract which is set to expire on December 31, 2012. Forever Resorts contract expires on December 31, 2017.

DNC has installed two water filling stations and Xanterra has installed one filling station in the Maswik Cafeteria.

All concessioners have been involved in the discussions of removal and are supportive of discontinuance of bottled water sales.

4. Operational costs of filling stations including utilities and regular public health testing

The park estimates that it will spend about \$85 a year on each filling station, which includes switching their operation from fall/winter to winter/spring and water quality sampling. With a total of 10 stations, that is a total of \$850 per year.

5. Cost and availability of BPA-free reusable containers:

The lowest priced reusable bottle is sold by DNC and it is \$1.99; and is BPA-free. All concessioners and cooperators sell a variety of BPA-free, reusable, souvenir bottles at a range of prices. Bottled water in the park starts at approximately \$1.49 per bottle.

6. Effect on concessioner and cooperating association sales revenue

Sales information for our South Rim concessioners and our cooperating association are provided below. Our belief, which is supported by the following GCA data, is that concessioners will not have a substantial loss in gross sales revenue as the individual plastic water bottle sales will be replaced by reusable water bottle sales.

DNC

DNC has two outlets within the park (Market Plaza and Desert View) and they have installed water filling stations within these facilities. They continue to sell bottled water and in addition have sold xxx refillable water bottles year to date (YTD). They do not know how many people have brought in their own bottles to be filled. They provide signage on the doors of the facilities directing guest to the filling stations. Currently DNC has two vending machines at the visitor center and bottled water is available from the machines.

Chart Removed

Xanterra

Xanterra is the largest provider of bottled water in the park. According to their records, Xanterra has seen sales for bottled water flatten out in the last three years. Within the last year, they have also seen an increase in the number of reusable water bottles being filled and a decrease in the sales of bottled water. This trend was noticeable prior to construction of the water filling stations. Xanterra does have twenty-eight vending machines around the facilities; and bottled water is available from four of these machines.

Below is the 3-year trend that Xanterra has seen in the sale of bottled water and water bottles:

Chart Removed

Grand Canyon Association

GCA has seven retail outlets within GRCA. All of the retail outlets began selling bottled water in April 2007. The association, with the approval of their Board of Directors, voluntarily discontinued the sale of bottled water in June 2011. The following is a summary of their **bottled water sales**:

Qty Sold	Total Sales	
33,628	\$ 50,154.91	2007 Total
41,012	\$ 60,529.04	2008 Total
35,941	\$ 53,823.47	2009 Total
39,734	\$ 77,580.64	2010 Total
<u>9,898</u>	<u>\$ 19,406.15</u>	<u>2011 Total</u>
160,213	\$ 261,494.21	Grand Total

The following is a summary of the **water bottle sales** by GCA for 2010 and 2011 (May 1st to November 7th)

Description	2010		2011	
	Qty Sold	Total Sales	Qty Sold	Total Sales
Bottle Stainless Steel 20 oz Total	35	\$ 554.85	362	\$ 3,938.78
Bottle Stainless Steel 25 oz Total	2,774	\$ 46,278.57	4,118	\$ 61,609.64
Flip Top Stainless Bottle Total	0	\$ -	13	\$ 201.92
Bottle Recycle Refill 18 oz Total	0	\$ -	2,984	\$ 11,815.57
Bottle Recycle Refill 27 oz Total	0	\$ -	2,986	\$ 17,746.43
Bottle Geologic Cross Section Total	0	\$ -	863	\$ 12,623.73
Celebration of Art Bottle Total	93	\$ 1,184.30	39	\$ 499.88
Membership Bottle Total	124	\$ 1,483.94	142	\$ 1,696.96
Grand Total Refillable bottles	3,026	\$ 49,501.66	11,507	\$ 110,132.91

7. Availability of water within concessioner food service operations

All restaurants within the park provide (non-bottled) water at the table on request. All cafeterias have water available at their beverage service stations. In addition, Xanterra has added a filling station at Maswik Lodge at their cafeteria and has converted an existing faucet to a bottle filling spigot at Yavapai Lodge along with many other drinking fountains.

8. Visitor Education in the park and on line so that visitors may come prepared with their own water bottles

Within the park, information about the filling stations and reusable water bottle promotion is currently available in the park newspaper – *The Guide* and on all new filling stations. Placards with abbreviated information are almost completed for the park’s shuttle fleet. A site bulletin is being completed on the water filling stations and will be made available on-line and throughout the park. The NPS and concessioner staff within the park have been provided with information about the program (via e-mail) and encouraged to share this information with park visitors.

Externally, information on the voluntary program was put out to the media in a news release in March 2011 and is posted on the park’s News Release page. If the park implements a ban on individual disposable container water sales, a news release would again be sent to local and national media outlets, posted on the park’s news release page, and would be tweeted. In addition, the park has a web page dedicated to the filling stations and the reusable water bottle program. This site would be updated to reflect that water in individual disposable containers is no longer sold within the park; and a link to the filling station/ ban page would be featured on the park’s home page to ensure easy access to information about the change.

9. Results of consultation with NPS Public Health Office

The park has incorporated numerous consultation meetings with the NPS Public Health Office. The Public Health Office reviewed the design of the water filling stations, commented on placement of the stations to meet public needs and all aspects were found to be satisfactory. The NPS Public Health Office is fully supportive of this ban, as any concerns about public safety have been addressed.

10. A sign plan so that visitors can easily find filling stations

There is currently signage in place at all of the water filling stations within the park. The NPS has standardized signs on all NPS operated filling stations (attached photo). In addition, placards will

soon be displayed in all of the park's free shuttle buses (draft attached), the water filling stations are clearly marked on the park map in *The Guide*, and a site bulletin is in final review.

DNC has well designed informational signs at their water filling stations that educate the public about where our water comes from and the environmental benefits of refilling water bottles. In addition, DNC has signs on each entrance door directing visitors to the filling stations (attached photos). Xanterra has signage in place, as well (attached photo).

GCA has signage in their stores which provides educational information on the environmental benefits of refilling water bottles (attached photos).

11. Safety considerations for visitors who may resort to not carrying enough water or drinking from surface water sources with potential exposure to disease

Filling station locations were chosen specifically to provide immediate water access to the largest number of people who might have an immediate need. Due to the difficult terrain and desert nature of Grand Canyon's backcountry, very few inexperienced hikers (or others likely to hike with bottled water rather than hydration packs and/or "Nalgene" bottles and water filters) venture onto non-corridor trails. All corridor trailheads now have a filling station. The trail with the largest probability of inexperienced and under-prepared hikers venturing onto it now has a filling station at the trailhead in addition to the spigots that had already been available about every 1.5 miles for the first 4.5 miles of the trail. In addition, the park's Preventative Search And Rescue (PSAR) staff focuses a great deal of their efforts on this trail.

12. A system for annual evaluation of the program, including public response, visitor satisfaction, buying behavior, public safety, and plastic collection rates

On an annual basis the park would monitor and collect the following data:

- Visitor satisfaction/public response by using the visitor comment forms – log in complaints/compliments (Public Response and Visitor Satisfaction).
- PSAR/Canyon District – staff will continue to track incidents/contacts related to water availability and dehydration (Public Safety).
- Safety Officer/NPS Public Health Representative will keep a log of any safety issue related to water availability. (Public Safety).
- Concessions will track sales with Xanterra, DNC and Forever (Buying Behavior).
- Interpretation will track sales with GCA (Buying Behavior).
- Maintenance will track collection rates with input from our contracted carrier (Collection Rates).

A position in the park will be designated as the "project manager" to collect all of the data and evaluate the data on an annual basis.

13. Results of consultation with concessioners and cooperating associations

Consultation with the three concessioners located in the park and the cooperating association began on an informal scale in January 2010. These discussions included the development of alternative products that are both sustainable and affordable (various price points) in order to allow the organizations an opportunity to recoup revenue currently associated with bottled water sales.

On May 12, 2010, letters were sent to the three concessioners and GCA stating that water filling stations were being constructed and that the NPS would no longer allow the sale of water in plastic bottles within park boundaries after December 31, 2010 (See attached letter).

On December 22, 2010, letters again were sent to the concessioners informing them that the park's planned initiative for discontinuing the sale of water in plastic bottles had been temporarily delayed. This letter also stated that they could continue to sell bottled water, however they were advised that sales would likely be discontinued in the near future (See attached letter).

GCA voluntary decided to sell out the bottled water they had in stock and not restock it. They carry a variety of reusable water bottles and their staff verbally promotes the program. Their sales of reusable water bottles have jumped dramatically this year.

DNC installed filling stations in both of their markets and designed well-done informational signs to go with them. They stock a variety of reusable bottles including the park's lowest priced bottle at \$1.99.

Xanterra installed a new filling station in the Maswik Lodge cafeteria during a rehab project and has been converting existing water fountains and cafeteria water sources to include bottle friendly spigots. Xanterra carries a variety of reusable water bottles and say that they have seen marked increases in their sale this year as shown in the data above.

14. Timeline of phase in period

By January 2011, all concessioners and the park's cooperating association had broadened their lines of reusable bottles to include a variety of choices at a variety of price points. Also early in 2011, information about the park's voluntary reusable water bottle program was distributed to media outlets and park staff, as well as posted on the park's web site, so that visitors could be informed of their options and the environmental benefits of their choices. By mid-summer 2011, all but one of the new filling stations in the park was on-line. (One fillings station was added to the original plan at a later date. Most of the filling stations have experienced heavy use since they were installed.)

In December of 2011, NPS Director Jarvis issued a service wide policy on management of disposable plastic water bottles in parks. This new policy allowed for elimination of the sale of water packaged in disposable plastic bottles with the approval of the appropriate Regional Director. After performing the required assessment of the potential impacts and effects of a disposable water bottle ban, GRCA submitted a request for approval in January 2012.

If approved, the park would immediately inform concessioners and cooperators of the forthcoming ban on the sale of water in individual disposable containers, and would coordinate with concessioners and cooperators to ensure they could sell, transfer or return any product they already have in stock. Ideally, the ban would take effect 30 days from approval.