Long Term Monitoring of Camping Beaches In Grand Canyon: A Summary of Results from 1996 – 2005, with an Emphasis on the Results of High Experimental Flow of November 2004

Annual Report of Repeat Photography
By Grand Canyon River Guides, Inc.[1]
(Adopt-A-Beach Program)

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EXECUTIVE SUMMARY

The Adopt-A-Beach Program was implemented in 1996 as a means to assess and monitor changes in beach size and camping quality on the Colorado River in Grand Canyon, Arizona. Each year, volunteers take photographs of their "adopted" beach each time they travel on the river. These photos, acquired from pre-selected locations at each site, provide a series of repeat images that record changes to the beach throughout the year.

The photos, along with additional comments recorded by the volunteers, help investigators evaluate visible changes to the beaches resulting from regulated flow regimes, rainfall, wind and human impacts. The research also evaluates the longevity of beaches replenished by Beach/Habitat Building Flows (BHBF), also referred to as controlled floods, which occurred in 1996 and 2004. To date, more than 1750 repeat photos and related data sheets have been acquired, providing the most extensive visual record of beach change on the Colorado River in the Grand Canyon.

The selected beaches are located within four critical reaches of the river corridor. These are designated as: Marble Canyon, the Upper Granite Gorge, Muav Gorge and the Lower Granite Gorge. A critical reach is defined as an extended area in which camping beaches are small, sparse and/or in high demand.

In November 2004, a High Experimental Flow (HEF) of 41,000 + cfs was conducted in the Grand Canyon. Evaluation of the initial beach photos acquired the following spring conclude that the HEF did succeed in increasing beach campsite size through sand deposition. Indeed, the increased area on 54% of the beaches evaluated exceeds the 39% reported by Kaplinski and others (2006). However, only 40% of the beaches in this study were considered to have improved campability as a result of the HEF.

Change for the 2005 primary boating season show that 53% of the beaches improved by the HEF had degraded. The factors precipitating these changes are fluctuating flows from dam releases and rainfall resulting in gullies within the beaches. Also present, but considered very secondary causes of degradation, were human impacts and wind. This indicates short-term longevity for beach improvements by controlled floods unless other factors are mitigated.

When compared to Pre- 1996 BHBF photos, 40% of the beaches evaluated at the end of the 2005 season are considered to have improved. This still indicates an overall degradation of 60% of the beaches during the 10 years this program has been in existence.

As evidenced in the photo archive, vegetation encroachment above the 25,000 cfs level on the beaches is considered to be an increasing threat to camping area and influences recreational use preference. Some vegetation was scoured as a result of the 2004 HEF. Without physical removal, perhaps the only mechanism available to maintain camp areas above the 25,000 cfs level would be frequent high flow events. As recommended by Kaplinski and others (2006), high flow events should be implemented whenever enough sediment is available for redeposition.