

Adopt – A – Beach:
Long-Term Monitoring of Camping Beaches in Grand Canyon
A Comparative Examination of the Results for Eight High Flow Experiments
in Grand Canyon, 1996 - 2018

By Paul Lauck¹

Abstract

For the past twenty-five years, volunteer photographers for the Adopt-A-Beach repeat photography program have been monitoring beaches along the Colorado River through Grand Canyon. Comparative examination of photos gathered through the year, often accompanied by on-the-spot observations contributed by the volunteers, reveal any changes in conditions pertaining to the desirability of the beach as a camp for rafting or hiking parties. Factors that contribute to changes that may have an effect on the camp, both positive and negative, include: fluctuating river flows, aeolian action, vegetation increase/decrease, human introduced change, rain associated erosion or other actions, natural or anthropomorphic. Probably the most important factor effecting the recreational opportunities on beaches, and the reason that initiated this study, are the manmade flood flow releases or High Flow Experiments (HFE). Since 1996, eight flow releases from Glen Canyon Dam of approximately 40,000 cubic feet per second have coursed through Grand Canyon and redistributed the sediment residing on the bottom and along the shoreline of the Colorado River. This report is a comparative look at the results of those floods, 1996, 2004, 2008, 2012, 2013, 2014, 2016 and 2018 as evaluated on their impacts to camping beaches for use by river parties.

Beginning at River Mile 11.3, as measured downstream from the United States Geological Survey gaging station at Lees Ferry, AZ (USGS, 2013), 44 separate beaches distributed along 250 miles of river are in the study. The resulting evaluations of the effects of a High Flow Experiment are divided into three classifications, relative to the status of the beach immediately prior to the event, as Improved, Unchanged or Degraded. In addition to the outcomes system wide, the results are additionally examined per their distribution in each of four separate geomorphic reaches. The conclusions are presented as observational, monitoring data only.

There were 278 useable data points spread across the 8 years in the study. This averages to slightly less than 35 beaches per year being evaluated. Overall, 189 (68%) were classified as having Improved thanks to the HFE, with a low success of just 41% in 2004 and a high of 86% during the first event in 1996. A total of 31 beaches Degraded after the HFE across the 8 years, or 11% of the instances. The lowest year for this classification was 2004 with 6% of the beaches suffering degradation. The highest was during the next event in 2008 at 20% of the reporting beaches. Beaches that remained Unchanged for all years totaled 58, 21% of the study and an average of 7.25 beaches per year.

In upstream to downstream order, the Marble Canyon reach, river miles 11 to 42, had a 63% Improvement rate, a 25% Degradation rate and an 11% overall Unchanged result. The Upper Granite Gorge, river miles 75 to 116, totaled a within reach of 69% Improvement rate, Degraded in 9% of the instances and remained Unchanged 22% through the 8 years. The Muav Gorge,

river miles 131 to 168, had the highest by reach Improved rate with 71%, Degraded in 5% of the examples for that reach and was Unchanged for 25%. The Lower Granite Gorge, river miles 230 to 250, had a within reach Improved rate of 64%, Degradation of 0% and 36% of the instances for that reach remained Unchanged.

¹ Grand Canyon River Guides, Inc., Flagstaff, Arizona (928) 773-1075

Keywords: repeat photography; river sandbar erosion; river sandbar restoration