

Update on Recent Events Related to Beach Habitat Building Flow Tests

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The 2008 high flow experiment occurred as scheduled March 4 to March 9 with approximately 41,500 cfs of water released from the dam for 60 hours. The U.S. Geological Survey's (USGS) Grand Canyon Monitoring and Research Center (GCMRC) coordinated science activities during the high flow to measure streamflow and sediment transport (sand mass balance or accounting of recent inputs from tributaries vs. downstream movement). The GCMRC is also coordinating pre- and post-high flow experimental research and monitoring activities that will be used to measure the response of the high flow at more than 100 discrete monitoring sites that were established before the experiment. These data, which will be collected in the coming months, include measurements of sandbar erosion and deposition, evaluation of native fish habitat and aquatic food base response, and time-lapse photography of selected study sites. The only "results" we can report at this time are based on personal observations and a few photographs that have not been systematically analyzed, and are, therefore, anecdotal. Most observers have reported widespread sand deposition and that sand bars are generally larger now than before the latest high flow experiment. There is general consensus that deposition was more widespread than in 1996 or 2004. We also know, however, that this response was not ubiquitous and that bars decreased in size in some segments of the river.

While these initial reports are encouraging, it is important to remember that previous high flow experiments (1996 and 2004) also resulted in sand bar building and the preliminary anecdotal assessments of the success of the 1996 high flow ultimately demonstrated to be overly optimistic once the analysis of the data was completed and published. The observations we have at this time don't answer many of the critical questions for this experiment, which include whether the sandbar deposition was quantifiably more widespread (i.e. larger bars throughout more of Grand Canyon), whether there was gain or loss of sand in submerged parts of eddies (which isn't captured by casual observations or photographs), and whether the depositional patterns created more near-shore fish habitat. These and other questions related to the experiment will be answered based on data that will be collected in the next several months. We know that these bars will erode under normal dam operations in the coming months and benefits derived from this experimental release may be short-lived. USGS scientists have proposed that more frequent high-flows (i.e. every 1 to 2 years) may be the only possible means to build progressively larger sand bars, especially in the downstream portions of Grand Canyon. Testing this hypothesis that successive high flows can build on the results of previous high flows would require an additional high flow in the next six to 18 months, provided sufficient additional input of sand from tributaries and additional funding to support another high flow test.