

Water Resources Research

Supporting Information for

Whitewater Sound Dependence on Discharge and Wave Configuration at an Adjustable Wave Feature

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Introduction

Supporting content for this paper includes Boise Whitewater Park schedules for 2016, 2021, and 2022 (Figures S1, S2, and S3), rationale for low certainty days and sources (Figure S4, S5; Table S1, S2, and S3), and flood configuration images (Figure S6).

Text S1.

The purpose of this supplementary information is to justify assignment of Green Wave and Wave/Hole configurations. We assigned configurations to selected study periods based on annual park schedules (Figures S1, S2, and S3). For sections of the schedule determined to be unreliable, we referenced infrasound change timing, wave status posts (Figures S4 and S5), and wave cam images of the site. Rationale for alterations in the posted park schedule are provided in Tables S1, S2, and S3.

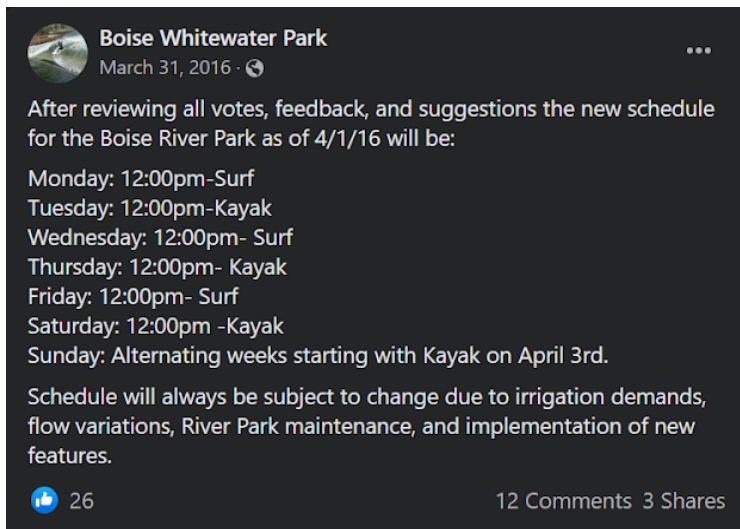


Figure S1. Boise Whitewater Park Phase 1 schedule for 2016 (Boise Whitewater Park, n.d.).



Figure S2. Boise Whitewater Park Phase 1 schedule for 2020-2021 (same graphic was used both years). Note that Monday configurations change at sunrise rather than at noon; the exact timing of these changes were determined to be inconsistent (Boise Whitewater Park, n.d.).



Figure S3. Boise Whitewater Park Phase 1 schedule for 2022. Note that Monday configurations change at sunrise rather than at noon; the exact timing of these changes were determined to be inconsistent (Boise Whitewater Park, n.d.).

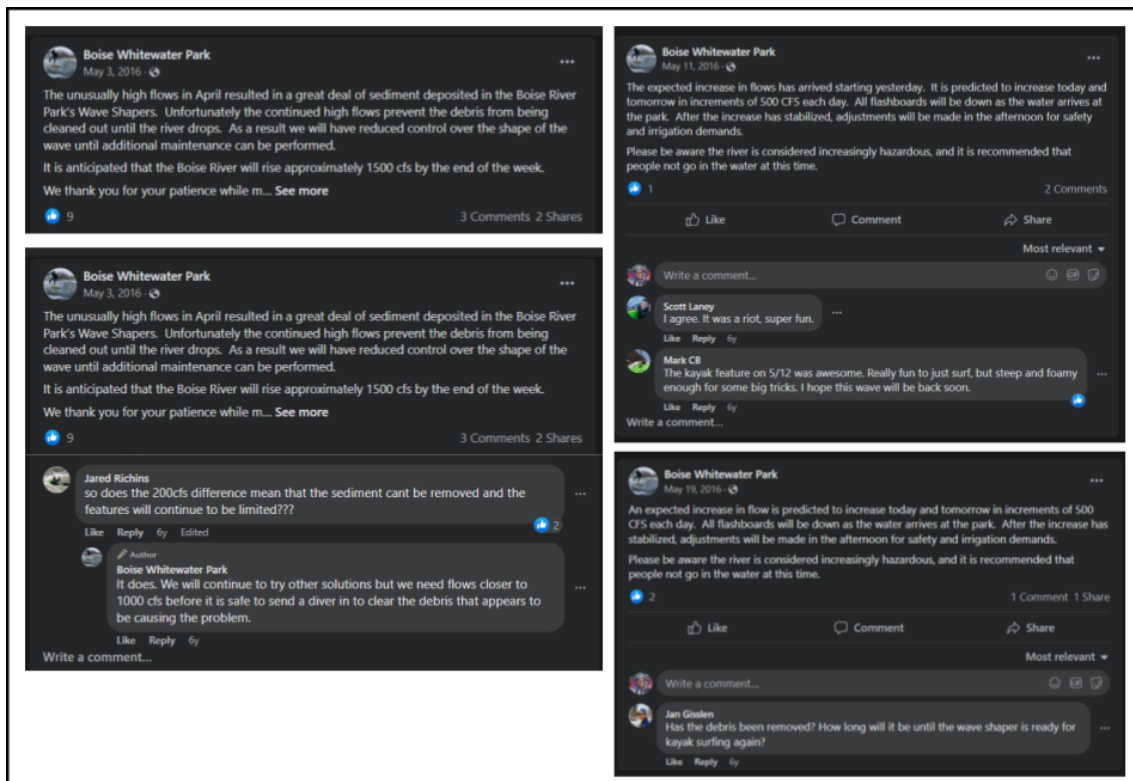


Figure S4. Wave status updates for 2016 monitoring period (Boise Whitewater Park, n.d.).

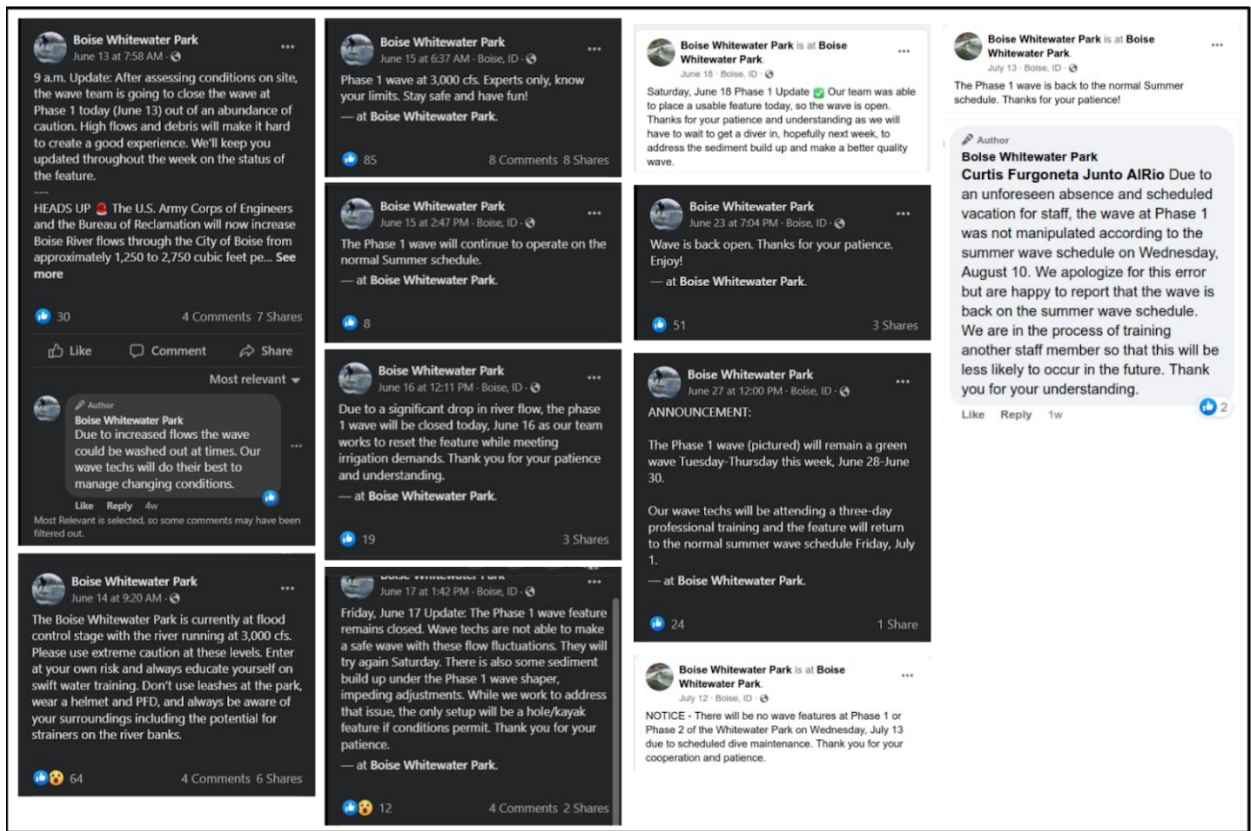


Figure S5. Wave status updates for 2022 monitoring period (Boise Whitewater Park, n.d.).

Date	Classification	Rationale
2016-05-02	Low Certainty	Uncertain configuration; Monday morning schedule alternated weekly.
2016-05-09	Low Certainty	Uncertain configuration; Monday morning schedule alternated weekly.
2016-05-11	Green Wave	Flashboards were down in the afternoon due to discharge increase and adjustment; wave had gone back to the traditional schedule by nighttime of May 11th. See Facebook Post 2016-05-11 (Figure S5).
2016-05-16	Low Certainty	Uncertain configuration; Monday morning schedule alternated weekly.
2016-05-20	Flood Configuration	During periods of high discharge, Boise Whitewater Park shuts down and assumes an open-dam flood configuration. See Facebook Post 2016-05-19 (Figure S5).
2016-05-21	Flood Configuration	During periods of high discharge, Boise Whitewater Park shuts down and assumes an open-dam flood configuration. See Facebook Post 2016-05-19 (Figure S5).
2016-05-22	Wave-Hole	Based on infrasound data, the wave appears to resume its normal schedule. See Facebook Post 2016-05-19 (Figure S5).
2016-05-23	Low Certainty	Uncertain configuration; Monday morning schedule alternated weekly.

Table S1. Low certainty and configuration rationale for 2016.

Date	Classification	Rationale
2021-05-03	Low Certainty	Uncertain configuration; configuration schedule states that configuration changes Monday at sunrise, but observations show varying configuration change times.
2021-05-10	Low Certainty	Uncertain configuration; configuration schedule states that configuration changes Monday at sunrise, but observations show varying configuration change times.
2021-05-17	Low Certainty	Uncertain configuration; configuration schedule states that configuration changes Monday at sunrise, but observations show varying configuration change times.
2021-05-24	Low Certainty	Uncertain configuration; configuration schedule states that configuration changes Monday at sunrise, but observations show varying configuration change times.
2021-05-31	Low Certainty	Uncertain configuration; configuration schedule states that configuration changes Monday at sunrise, but observations show varying configuration change times.
2021-06-07	Low Certainty	Uncertain configuration; configuration schedule states that configuration changes Monday at sunrise, but observations show varying configuration change times.
2021-06-13	None	No Infrasound Data
2021-06-14	None	No Infrasound Data
2021-06-21	Low Certainty	Uncertain configuration; configuration schedule states that configuration changes Monday at sunrise, but observations show varying configuration change times.
2021-06-28	Low Certainty	Uncertain configuration; configuration schedule states that configuration changes Monday at sunrise, but observations show varying configuration change times.

Table S2. Low certainty and configuration rationale for 2021. During low certainty Monday configurations, the waveform was checked to determine an exact time for changes in configuration; some Mondays were able to be identified, while others still remained unidentifiable.

Date	Classification	Rationale
2022-06-06	Low Certainty	Uncertain configuration; configuration schedule states that configuration changes Monday at sunrise, but observations show varying configuration change times.
2022-06-14 to 2022-06-18	Flood Configuration	During periods of high discharge, Boise Whitewater Park shuts down and assumes an open-dam flood configuration. See Facebook Posts 2022-06-13, 2022-06-14, 2022-06-15, 2022-06-16, 2022-06-17, 2022-06-18 (Figure S6).
2022-06-20	Low Certainty	Uncertain configuration; configuration schedule states that configuration changes Monday at sunrise, but observations show varying configuration change times.
2022-06-23	Wave/Hole	Closure for maintenance during the day of 2022-06-23 did not affect early mornings the day of or after, as shown by infrasound changes during work hours. See Facebook Post 2022-06-22 and 2022-06-23 (Figure S6).
2022-06-27	Green Wave	Mondays are normally uncertain; in this case, infrasound clearly changed Sunday evening.
2022-06-28 to 2022-06-30	Green Wave	Wave techs unavailable. See Facebook Post 2022-06-27 (Figure S6).
2022-07-04	Low Certainty	Uncertain configuration; configuration schedule states that configuration changes Monday at sunrise, but observations show varying configuration change times.
2022-07-11	Green Wave	Mondays are normally uncertain; in this case, infrasound clearly changed Sunday evening.
2022-07-13	Green Wave	Closure for maintenance began the morning of July 13th (timing confirmed by clear change in infrasound data); Park re-opened by 7/13 afternoon. See Facebook Post 2022-07-12 and 2022-07-13 (Figure S6).
2022-07-18	Wave/Hole	Mondays are normally uncertain; in this case, infrasound clearly changed Monday morning.
2022-07-25	Low Certainty	Uncertain configuration; configuration schedule states that configuration changes Monday at sunrise, but observations show varying configuration change times.
2022-08-01	Low Certainty	Uncertain configuration; configuration schedule states that configuration changes Monday at sunrise, but observations show varying configuration change times.
2022-08-08	Low Certainty	Uncertain configuration; configuration schedule states that configuration changes Monday at sunrise, but observations show varying configuration change times.
2022-08-11	Green Wave	Wave techs unavailable for scheduled change on August 10th. See Facebook Comment 2022-08-10 (Figure S6).

Table S3. Low certainty and configuration rationale for 2022. During low certainty Monday configurations, the waveform was checked to determine an exact time for changes in configuration; some Mondays were able to be identified, while others still remained unidentifiable.

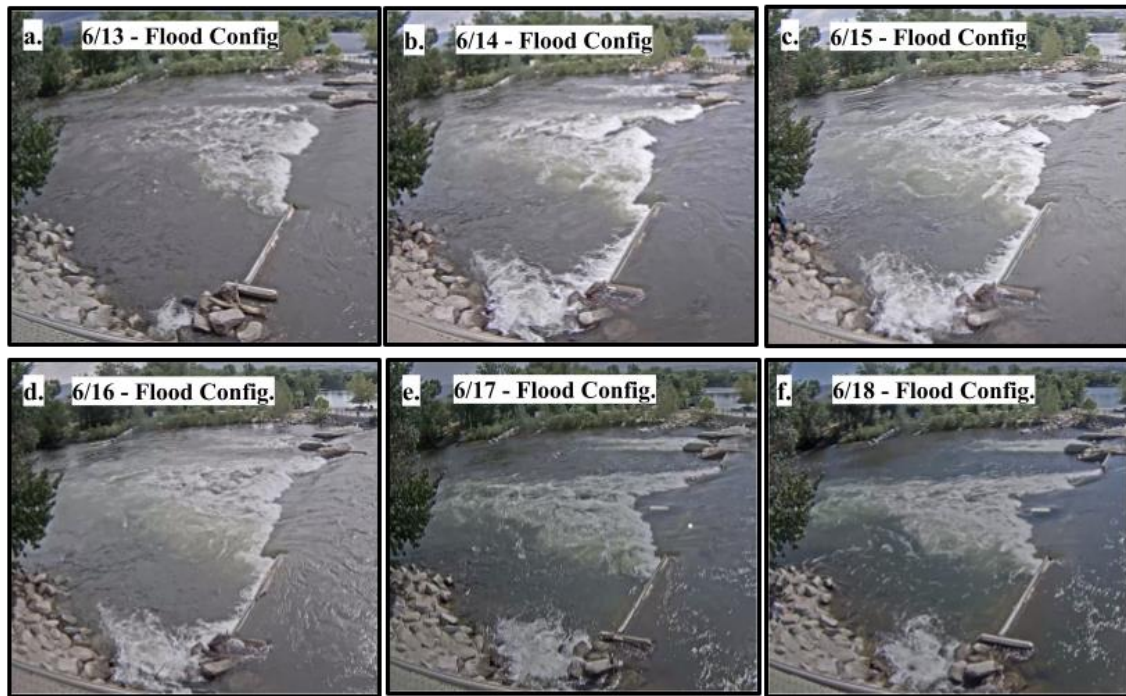


Figure S6. Photos of Boise Whitewater Park Phase 1 during flood configuration days (June 13-18 2022) when, due to high flow, the park had to use atypical settings to create recreational features while still meeting irrigation and safety standards. Flood configurations are identified by more open flashboards than normal Green Wave or Wave/Hole configurations. Images A and D show an open flashboard configuration without any additional significant features. Images B-C show an open flashboard configuration with Green Wave features and images E-F shows an open flashboard configuration with Wave/Hole features.