

Glen Canyon Dam Long Term Experimental and Management Plan Draft EIS Alternatives Key

Condition Dependent Elements	Alternative A (No action)	Alternative B	Alternative C	Alternative D (Preferred Alternative)	Alternative E	Alternative F	Alternative G
Monthly Release Pattern	Historic monthly release volumes. Higher volumes in high electric demand months of Dec., Jan., Jul., and Aug.; volume released in Oct.–Dec. = 2.0 maf in >8.23-maf years	Same as Alternative A	Highest volume in high electric demand months of Dec., Jan., and Jul.; Feb.–Jun. volumes proportional to contract rate of delivery; lower volumes Aug.–Nov.	Comparable to Alternative E, but Aug. and Sep. volume increased, with additional volume taken from Jan.–Jul.; volume released in Oct.–Dec. = 2.0 maf in \geq 8.23-maf years	Monthly volumes proportional to the contract rate of delivery, but with a targeted reduction in Aug.–Oct. volumes; volume released in Oct.–Dec. = 2.0 maf in >8.23-maf years	Relative to Alternative A, higher release volumes in Apr.–Jun.; lower volumes in remaining months	Equal monthly volumes, adjusted with changes in runoff forecast
Daily Fluctuation Range (cfs/24 hr)	5,000 for monthly volumes <600 kaf 6,000 for monthly volumes 600–800 kaf 8,000 for monthly volumes >800 kaf	Dec. and Jan.: 12,000 Feb., Jul., and Aug.: 10,000 Oct., Nov., Mar., Jun., and Sep.: 8,000 Apr. and May: 6,000	Equal to 7 × monthly volume (in kaf) in all months	Equal to 10 × monthly volume (in kaf) in Jun.–Aug., and 9 × monthly volume (in kaf) in other months; daily range not to exceed 8,000 cfs	Equal to 12 × monthly volume (in kaf) in Jun.–Aug., and 10 × monthly volume (in kaf) in other months	0 cfs ^a	0 cfs ^a
Sediment Triggered Spring High Flow Experiments (HFEs)	Implement when triggered through 2020 when protocol expires	Implement when triggered during entire LTEMP period, but not to exceed one spring or fall HFE every other year	Implement when triggered during entire LTEMP period	Implement when triggered during entire LTEMP period, but no spring HFEs in first 2 years, and no spring HFE in the same water year as an extended-duration (>96 hr) fall HFE	Implement when triggered during entire LTEMP period, except no spring HFEs in first 10 years	Implement when triggered during entire LTEMP period	Implement when triggered during entire LTEMP period

^a Hourly water release volumes would be nearly the same among all hours, while allowing for fluctuations in instantaneous flow rates to accommodate regulation services and calls on reserve generation to respond to system emergencies. Regulation affects instantaneous operations that deviate above and below the mean hourly flow with minimal impact on the mean hourly flow.

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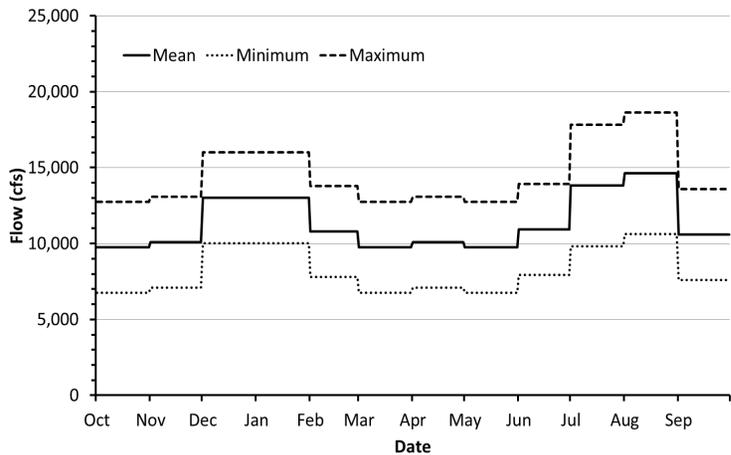
Condition Dependent Elements	Alternative A (No action)	Alternative B	Alternative C	Alternative D (Preferred Alternative)	Alternative E	Alternative F	Alternative G
Sediment Triggered Fall HFEs	Implement when triggered through 2020 when protocol expires	Implement when triggered during entire LTEMP period, but not to exceed one spring or fall HFE every other year	Implement when triggered during entire LTEMP period	Implement when triggered during entire LTEMP period	Implement when triggered during entire LTEMP period	Implement when triggered during entire LTEMP period	Implement when triggered during entire LTEMP period
Spring Proactive HFE in High Volume years (≥ 10 maf)	No	No	Yes, if no other spring HFE in same water year	Yes, if no other spring HFE in same water year, no proactive spring HFE in first 2 years	No	No	Yes, if no other spring HFE in same water year
Extended Duration Fall HFEs	No	No	Yes, but HFE volume limited to that of a 45,000 cfs, 96-hr flow (357,000 ac-ft)	Yes, magnitude (up to 45,000 cfs) and duration (up to 250 hr ^b) dependent on sediment supply; limited to no more than four in a 20-year period	No	No	Yes, magnitude (up to 45,000 cfs) and duration (up to 336 hr) dependent on sediment supply
Low summer flows	No	No	Test if triggered by number of adult chub, and release temperature is sufficiently warm to achieve 13°C only if low flows are provided; within-day range 2,000 cfs	Test in second 10 years if triggered by number of adult chub, and release temperature is sufficiently warm to achieve 14°C if low flows are provided; within-day range 2,000 cfs	Test in second 10 years if releases have been cold, number of adult chub >7,000, and temperature of at least 16°C can be reached	No change in operations, which already feature low flows during summer	No

^b The duration of extended-duration HFEs would be increased stepwise; the first test of an extended-duration HFE under Alternative D would be limited to 192 hr; depending on the results of that first test, subsequent durations could be longer. Sediment concentration in the river would be monitored during the HFE at least during the first test.

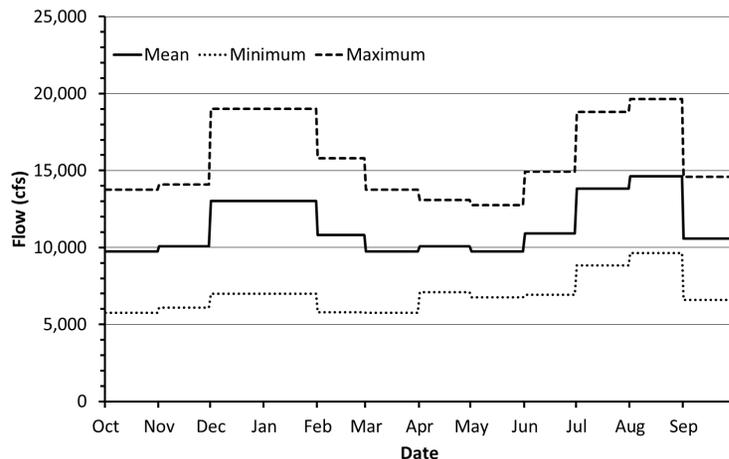
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Trout Management Flows (TMFs)	Test	Test and implement if successful	Test and implement if successful; tests in first 5 years not dependent on high trout population	Test and implement if successful; test may be conducted early in the 20-year period even if not triggered by high trout recruitment	2 × 2 factorial design testing with/without HFE and with/without TMFs under warm and cold conditions	No	Test and implement if successful
Steady Low Weekend Flows for Aquatic Invertebrate Production	No	No	No	Test, but avoid confounding effects on TMFs. Minimum monthly flow would be held constant on Saturdays and Sundays of May through Aug.	No	No	No
Mechanical Removal of Trout	Yes	Yes	Yes	Yes	Yes	No	Yes
Hydropower Improvement Flows	No	Maximum daily flow (held for as long as possible): 25,000 cfs (Dec.–Feb., Jun.–Aug.) 20,000 cfs (Sep.–Nov.) 15,000 cfs (Mar.–May) Minimum daily flow all months: 5,000 cfs Ramp rate up and down: 5,000 cfs/hr Test in 4 years	No	No	No	No	No

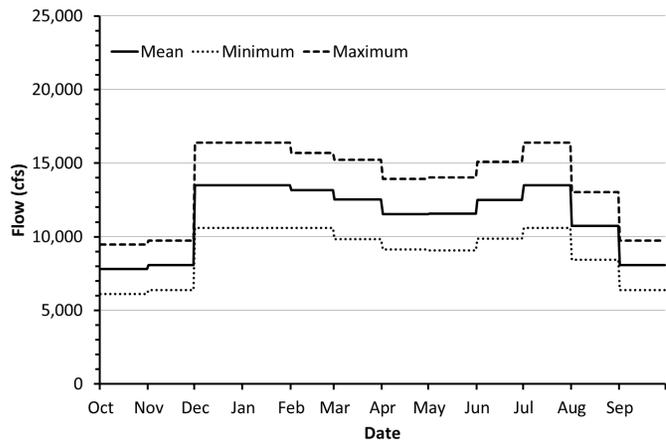
Alternative A (No Action)



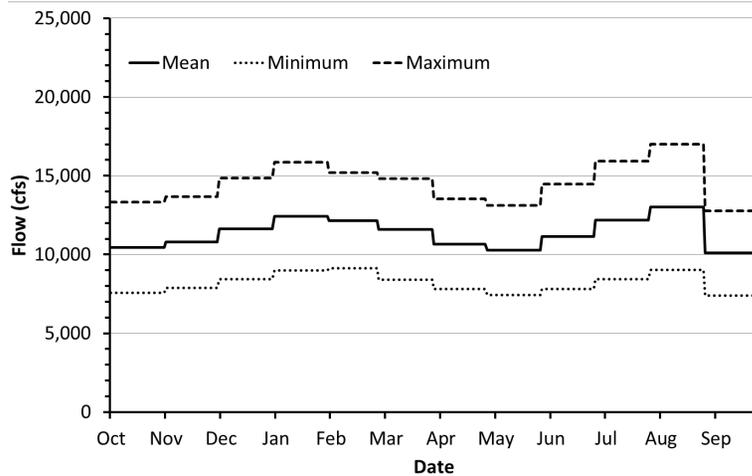
Alternative B



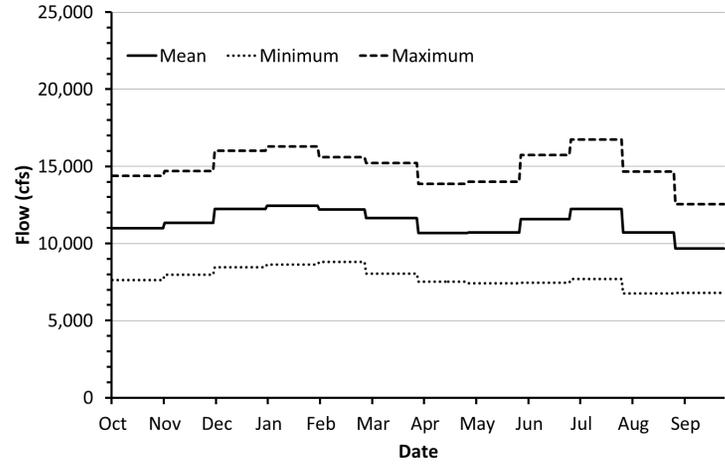
Alternative C



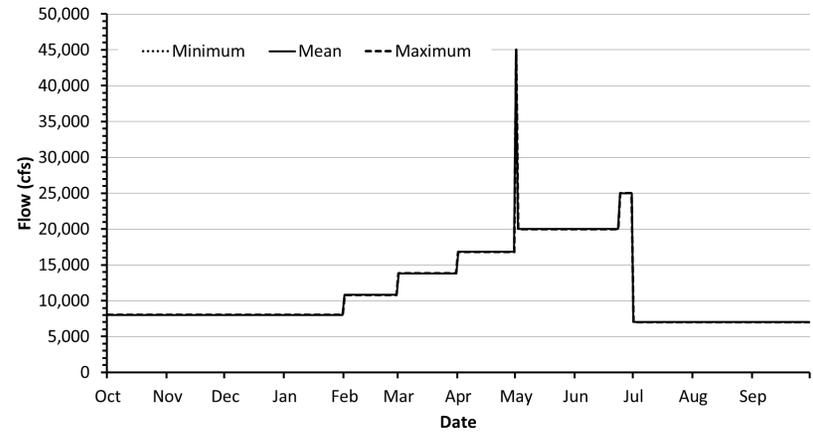
Alternative D



Alternative E



Alternative F



Alternative G

