2025 Sacramento River Pulse Flows Operations Plan

April 25, 2025

Background

As part of the Action for the Long term Operation of the Central Valley Project and State Water Project, Reclamation would release up to 150 thousand acre-feet (TAF) in pulse flow(s) each water year, typically in the spring, to benefit Chinook salmon in the Sacramento River watershed when the pulse does not interfere with the ability to meet temperature objectives or other anticipated operations of the reservoir. Reclamation will schedule this pulse after coordination through the Sacramento River Group (SRG) and the Shasta Operations Team (SHOT) and may include coordinating timing with natural flow events, potential storage management operations and/or pulse flows in tributaries. The timing, magnitude, duration, and frequency of the pulse flows will be refined through the SRG to maximize multi-species benefits, which may include coordinating timing with natural flow events, potential storage management operations, potential Sacramento River Settlement Contractors (SRSC) demands and infrastructure limitations, and/or pulse flows in tributaries or reducing the volume of the pulse flow. The pulse flow volume and schedule will be developed through the SRG and provided to the SHOT. Reclamation, through the SHOT, will discuss the plan and make any appropriate and/or necessary refinements prior to implementation. For more information, refer to Proposed Action "3.1.7 Sacramento River Pulse Flows."

Reclamation has been coordinating pulse flow planning through SRG and SHOT. As described in the Proposed Action 3.13.3.1.2, the SRG develops temperature and flow plans using the best available science including current hydrologic forecasts, operational outlooks, fishery information, and modeling information. Reclamation will coordinate through SRG to develop a protocol for agency collaboration regarding temperature and flow models and will strive to create shared understanding of model constraints, uncertainties, limitations, applied assumptions and interpretations; develop management questions and scenarios that may benefit from modeling support; develop and review early season operational scenarios to support temperature management and flow planning. Beginning in March 2025, the technical sub-team of the SRG met to develop a Pulse Flow Operations Plan.

Forecasted and Current Conditions

Shasta storage exceeds 3.9 MAF as of March 26, 2025. Total May 1 Shasta Reservoir storage is predicted to be 4.1 MAF based on the March 90% exceedance forecast and 4.4 MAF based on the March 50% exceedance forecast. Under Bin 2A, hydrologic conditions are more limited than in Bin 1 and adequate water resources are not available to meet all demands. Bin 2A is defined as having an end of September storage between 2.2 and 2.4 MAF. Based on the 90% March forecast, the projected end of September storage projected to be 2.3 MAF. However, there is potential that the year could be reclassified as a Bin 1 category later this season.

CVP actual operations do not follow any forecasted operation or outlook; actual operations are based on real-time conditions. CVP operational forecasts or outlooks represent general system-wide dynamics and do not necessarily address specific watershed/tributary details. CVP releases or export values represent monthly averages. CVP Operations are updated monthly as new hydrology information is made available December through May.

Chinook Salmon Benefits and Action Effectiveness

Optimal timing, magnitude, duration, and frequency for implementation of a managed pulse release from Keswick Reservoir to improve outmigration survival of spring-run Chinook salmon smolts, have been discussed during the SRG meetings. Late April and early May are likely to have the greatest benefits for wild smolt survival in most years. Spring-run smolts typically experience the worse outmigration conditions due to their later outmigration timing. For example, historical temperatures at critical migration points in the delta can exceed 68 F as early as late April in some years (see Figure 2). To support the outmigration success of this year's spring-run smolts, April and May pulse releases are predicted provide the greatest species benefit. To evaluate the effectiveness of the spring pulse, juvenile fall chinook salmon from CNFH will be acoustically tagged and tracked as described in the Study Plan. Initial real-time results for this year's Pulse Flow Study as well as previous years are posted to: CalFishTrack. Final results will be posted to: Central Valley Enhanced Acoustic Tagging Project (noaa.gov) and will also be reported in the Shasta Winter Storage Rebuilding and Spring Pulse Flow Seasonal Report.

Temperature modeling is unreliable before thermoclines establish in Shasta, typically in late April. As a result, temperature-dependent mortality (TDM) of Chinook salmon was not modeled for specific pulse flow scenarios. However, general relationships between Shasta storage and TDM exist, as shown in Figure 1. In this positional analysis, TDM was estimated using a 53° F, 54°F, and 55° F temperature target at Clear Creek, combining different starting storage levels, hydrology, and meteorology in CalSim2. This produced 100 TDM estimates at individual end-of-April storage values across a range of these storage levels, summarized in boxplots in Figure 1 below. However, it should be noted that this analysis and resulting figure utilizes the Calsim II model with deprecated No Action Alternative operations logic. Nonetheless, with few exceptions, TDM remains low when end-of-April Shasta storage is at or above 3.8 MAF. Current forecasts project end-of-April Shasta storage to exceed 3.8 MAF, thus TDM is unlikely to be significant in WY2025 and would not be influenced by any individual pulse flow scenario. However, in drier years with lower forecasted end-of-April storage, pulse flows may have a more pronounced impact on TDM.

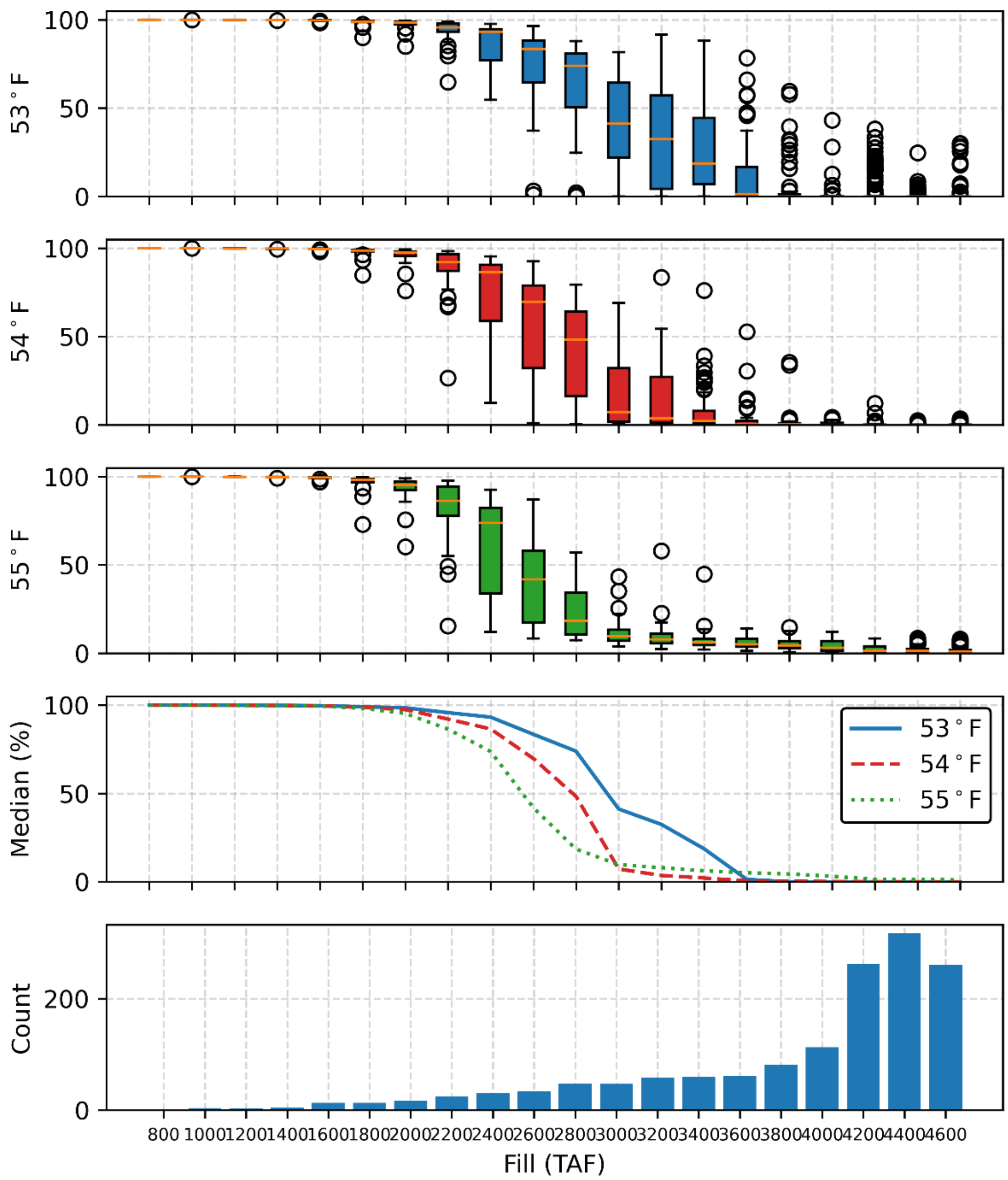

Figure 1. Winter-run Chinook salmon percent temperature dependent mortality (TDM) estimates associated with Shasta fill (e.g., end of April storage; thousand of acre feet (TAF). This figure utilizes the Calsim II model with deprecated No Action Alternative operations logic.

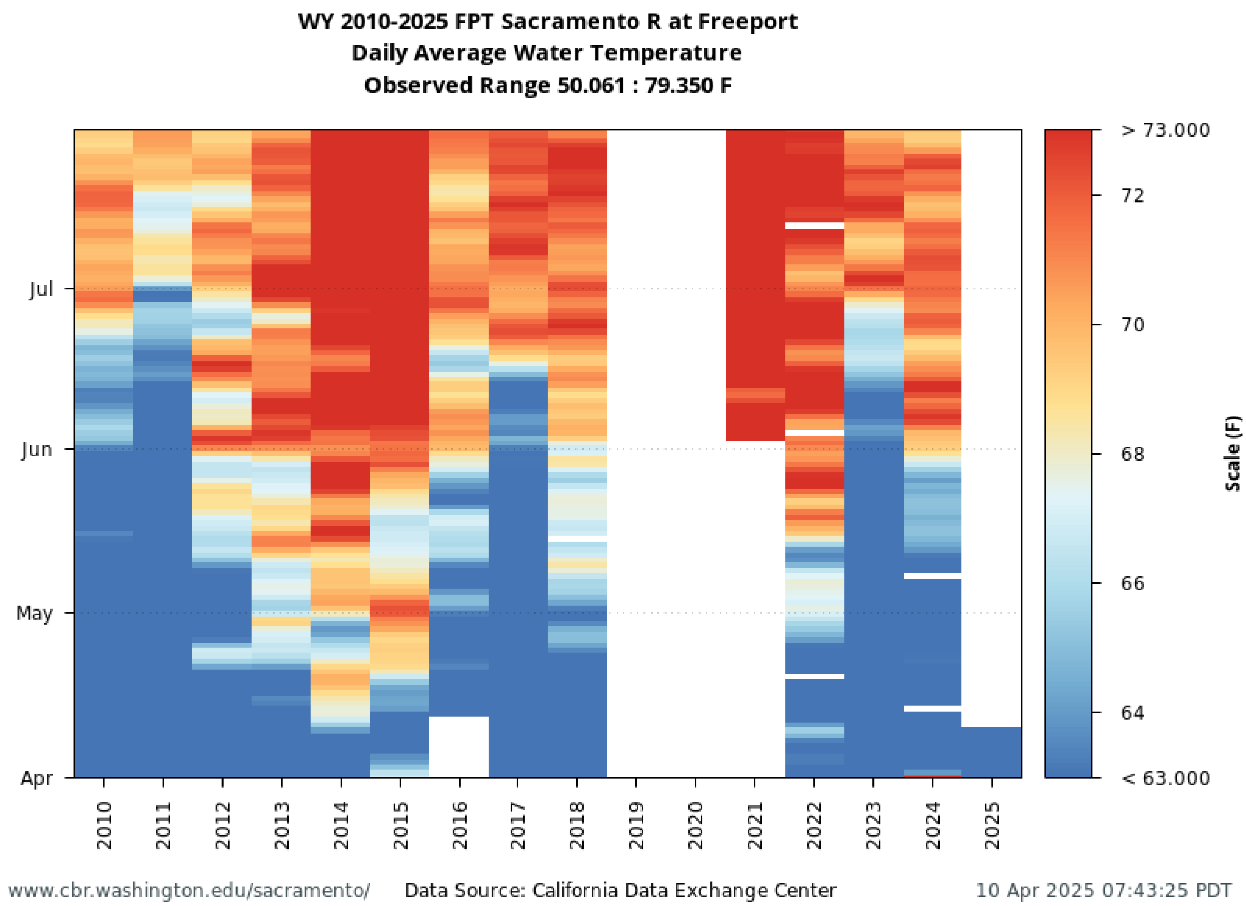

Figure 2. Historical water temperature (degree F) in the Sacramento River at Freeport using a 68 degree F temperature threshold above which is unsuitable for outmigrating juvenile salmonids (Marine and Cech 2004). This figure demonstrates that in historical wet years water temperatures appear suitable for outmigrating juvenile salmonids in May while in dry years water temperatures are unsuitable.

Pulse Flow Alternatives

Reclamation prepared an operational forecast on March 24, 2025, April 1, 2025, and April 15, 2025 that were shared with University of California, Santa Cruz/NOAA Science Center who modelled juvenile chinook salmon outmigration survival for every possible scenario based on this recent operation forecast (see attachment 2025 Spring Pulse Flow Survival Simulations for Flow Scenarios). A similar naming convention was used to describe the pulse scenarios as was used last year. As an example: X5.4o8.4 is a scenario, where 5.4 is the first pulse (5th week of the April/May period, 4 days long), and 8.4 is the second pulse (8th week of the April/May period, 4 days long). The other characters do not have meaning. X5.4 would mean just one pulse the 5th week of the April/May period, 4 days long. X5.4o7.4o8.4 would be 3 pulses, one the 5th week of the period, one the 7th week, and one the 8th week.

- Week 1: week of March 31
- Week 2: week of April 7
- Week 3: week of April 14
- Week 4: week of April 21
- Week 5: week of April 28
- Week 6: week of May 5
- Week 7: week of May 12
- Week 8: week of May 19

UCSC/SWFSC developed a new tool to show predicted improvement in spring outmigration survival over the baseline scenario (i.e., no pulse scenario) as shown in figures 5 and 7 of Attachment 2025 Spring Pulse Flow Survival Simulations for Flow Scenarios. This Burford et al. model is different from the Michel et al. (2021) model (that is used to estimate survival improvement in the other figures) in 3 ways: 1) it uses a continuous, non-linear relationship between flow and survival (i.e., not a threshold), 2) it incorporates a seasonal component in the flow survival relationship (e.g., survival is worse in June vs April for the same flow), and most importantly 3) it incorporates responses in the number of fish initiating migration as a function of flow changes. Pulse flows not only increase survival but also increase the number of fish that initiate migration during those beneficial flows and therefore is an effect multiplier. However, the best scenarios are generally similar between the two models.

Using the April 15 operations information, all scenarios have a pulse volume less than the established 150 TAF water budget, utilize 15% ramping rates, and achieve a pulse magnitude of at least 11,000 cfs at Wilkins Slough. Conditions and water cost will continue to be assessed throughout the season. Ideally, pulse flows would start after flows at Wilkins Slough stabilize in the 5,000 to 10,000 cfs range. Additional constraints and considerations include: ACID dam needs, power impacts, delta needs, SRSC diversions, and timing of other pulse flow actions. Top performing scenarios in terms of greatest estimated outmigration survival have two pulses in weeks 6,7,8 (i.e., May 5-26); however, this timeframe is expected to have greater water cost to reach the 11,000 cfs Wilkins Slough threshold target.

Constraints and Other Considerations:

- ACID dam requires low flows (4,000 to 6,000 cfs) during its installation, and cannot sustain high flows greater than 15,000 cfs while installed. ACID dam was installed in early April in 2025.

- No impacts to construction of Sacramento River habitat restoration projects has been identified as by implementation of pulse flows on the Sacramento River this season.

- Flow fluctuations are anticipated to impact monitoring efforts. For example, efforts for juvenile stranding surveys increase, and effectiveness monitoring for habitat restoration projects (Kapusta Island Side Channel and Shea Island Side Channel) is hindered during flow fluctuations.
- In terms of power cost impacts, it is generally preferrable to schedule the peak of a pulse flow to occur during the week rather than the weekend, and during warmer periods.

- Shasta Dam is capacity limited, must provide flood control, and adheres to safe operations. In wet years, (e.g., spring 2023) flows are likely to stay high rather than be shaped into a pulse due to constraints.

- Flows exceeding 18,000 cfs at Wilkins Slough have been reported to create seepage problems. Also, weir spills limit the ability for ground preparation and farming within the bypasses, so those thresholds should be considered.

Uncertainties:

Interested parties have provided observations and described concerns related to reduced insect abundance, juvenile stranding, redd scouring, and other disruptions to spawning events that they believe are associated with pulse/storm flows releases. In 2024, trout guides observed impacts to invertebrate community following large flood control release that were around 36,000 cfs—three orders of magnitude greater than the spring pulse flows.

Currently, we do not have many tools to estimate these potential tradeoffs in a quantifiable manner. Michel et al. 2021 describes a few thresholds associated with juvenile chinook salmon outmigration survival. We are targeting a more optimal flow threshold of 11,000 cfs. Michel et al. 2021 described a flow of 22,500 cfs with reduced salmon survival, presumably because these flows contribute to increase in juvenile stranding, food web effect, and negative causal linkages. Adhering to established ramping rates as described in the Proposed Action will also help reduce juvenile stranding. Furthermore, flows exceeding 18,000 cfs at Wilkins Slough have been reported to create seepage problems. Reclamation would plan to avoid flows of this magnitude to avoid stranding, seepage, and other impacts, unless needed for flood control.

USFWS and other interested parties have indicated an interest in releasing hatchery fish during a pulse flow event. As of April 16,2025, Coleman National Fish Hatchery planned on releasing chinook salmon during the week 3 (week of April 14), and in week 5 (late April /early May).

Although survival estimates for some scenarios were greater, other scenarios are likely preferrable to other scenarios, in terms of experimental design, as they provide a week in between pulse flows to better understand the mechanisms behind the pulse flows and juvenile salmonid survival. Another consideration is that the flow threshold survival model does not account for number fish available to migrate, so pulse flows scheduled closer together may not have additive benefits.

On April 16th, SRG developed a schedule for consideration that included three pulses starting Tuesday April 29th, Friday May 9th, and Tuesday May 20. These scenarios consist of a few days in between each pulse and ramp down which allows times for monitoring (e.g., RST and acoustic telemetry) during the non-pulse periods. SHOT should continue to reassess these scenarios, especially mid/late May pulse scenarios, and their associated water cost. There is considerable uncertainty with the forecasts and conditions during this time of year. In addition, temperature modelling of planned scenarios will be included in the 2025 Sacramento River Temperature Management Plan.

References

Marine, K. R., and J. J. Cech Jr. 2004. Effects of high water temperature on the growth, smoltification, and predator avoidance in juvenile Sacramento River Chinook Salmon. North American Journal of Fisheries Management 24:198–210

Michel, CJ, JJ Notch, F Cordoleani, AJ Ammann, EM Danner. 2021. Nonlinear survival of imperiled fish informs managed flows in a highly modified river. Ecosphere. 12:1-20.

2025 Spring Pulse Flow Survival Simulations for Flow Scenarios

Prepared by Cyril Michel, UC Santa Cruz, cyril.michel@noaa.gov

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## [1] "Using operational forecasts from file: Spring Pulse Flow Apr 15 2025.xlsx"
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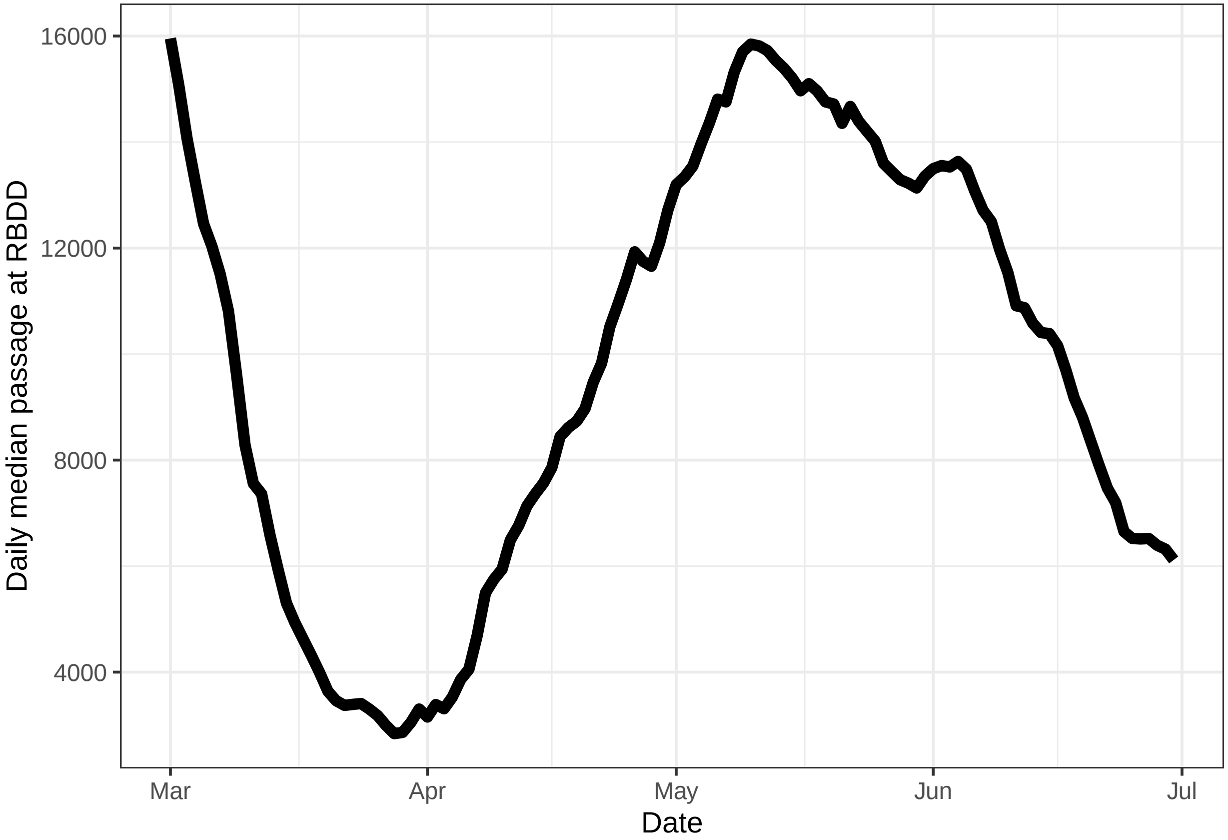

Fig. 1. Historic median daily passage (with 20-day moving average smoothing) at Red Bluff Diversion Dam USFWS Screw traps for all years of data (2006-2019)

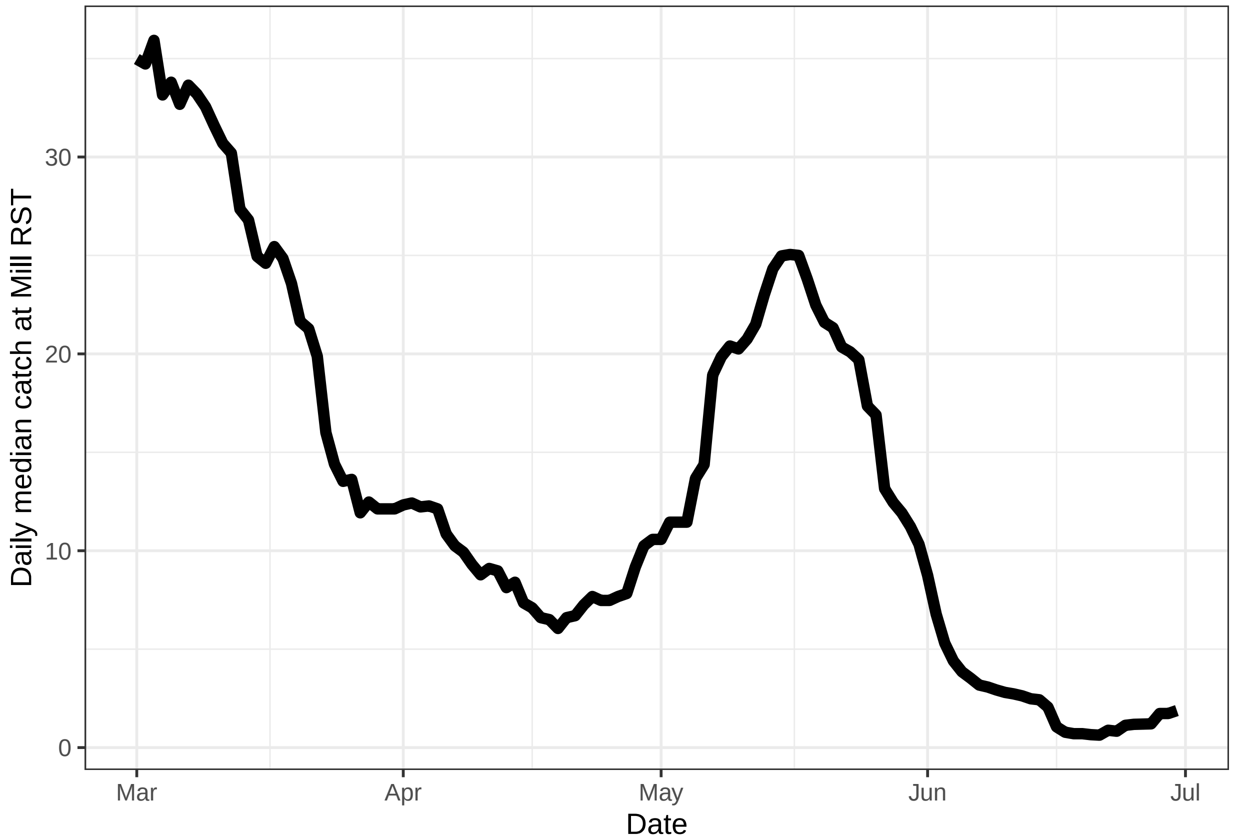

Fig. 2. Historic median daily catch (with 20-day moving average smoothing) at Mill Creek CDFW Screw trap for all years of data (1996, 2000, 2001, 2002, 2003, 2007, 2008, 2009, and 2010)

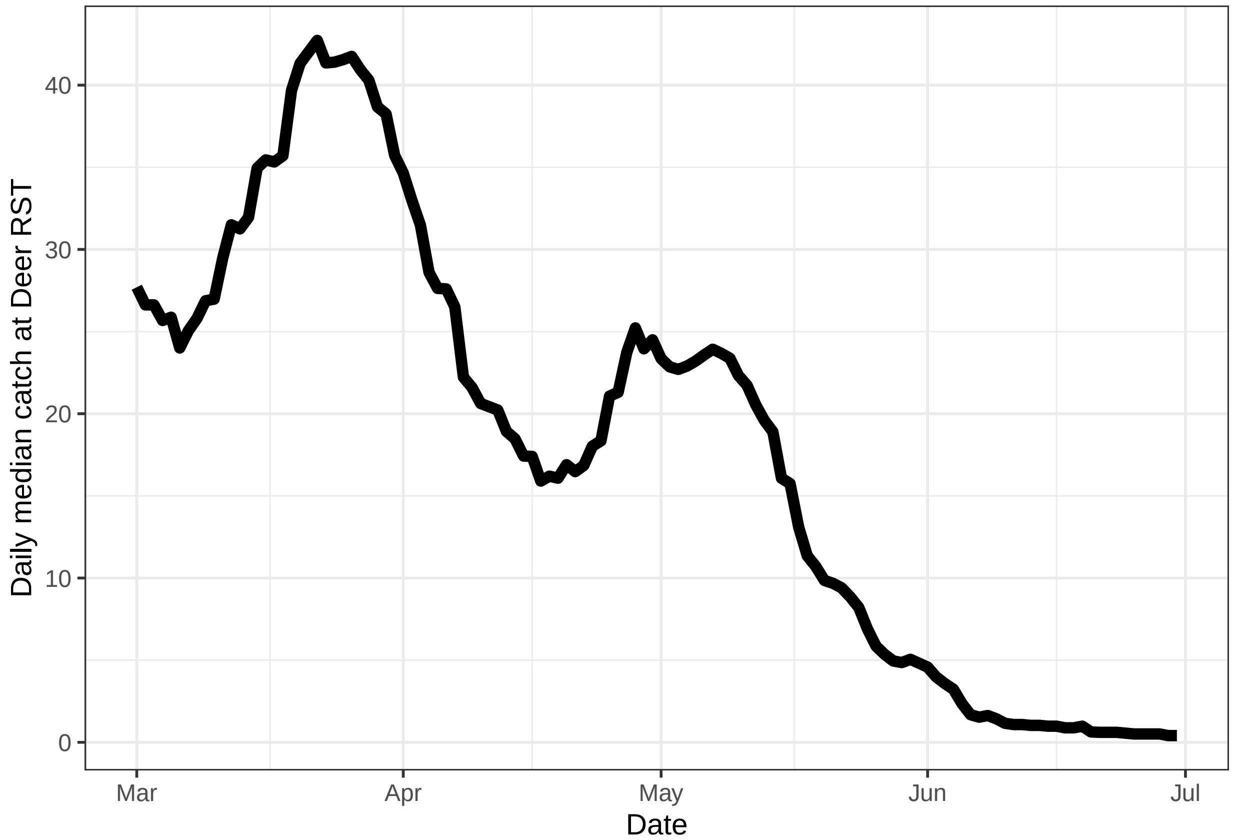

Fig. 3. Historic median daily catch (with 20-day moving average smoothing) at Deer Creek CDFW Screw trap for all years of data (1995, 1996, 2000, 2001, 2002, 2003, 2004, 2005, 2007, 2009, and 2010)

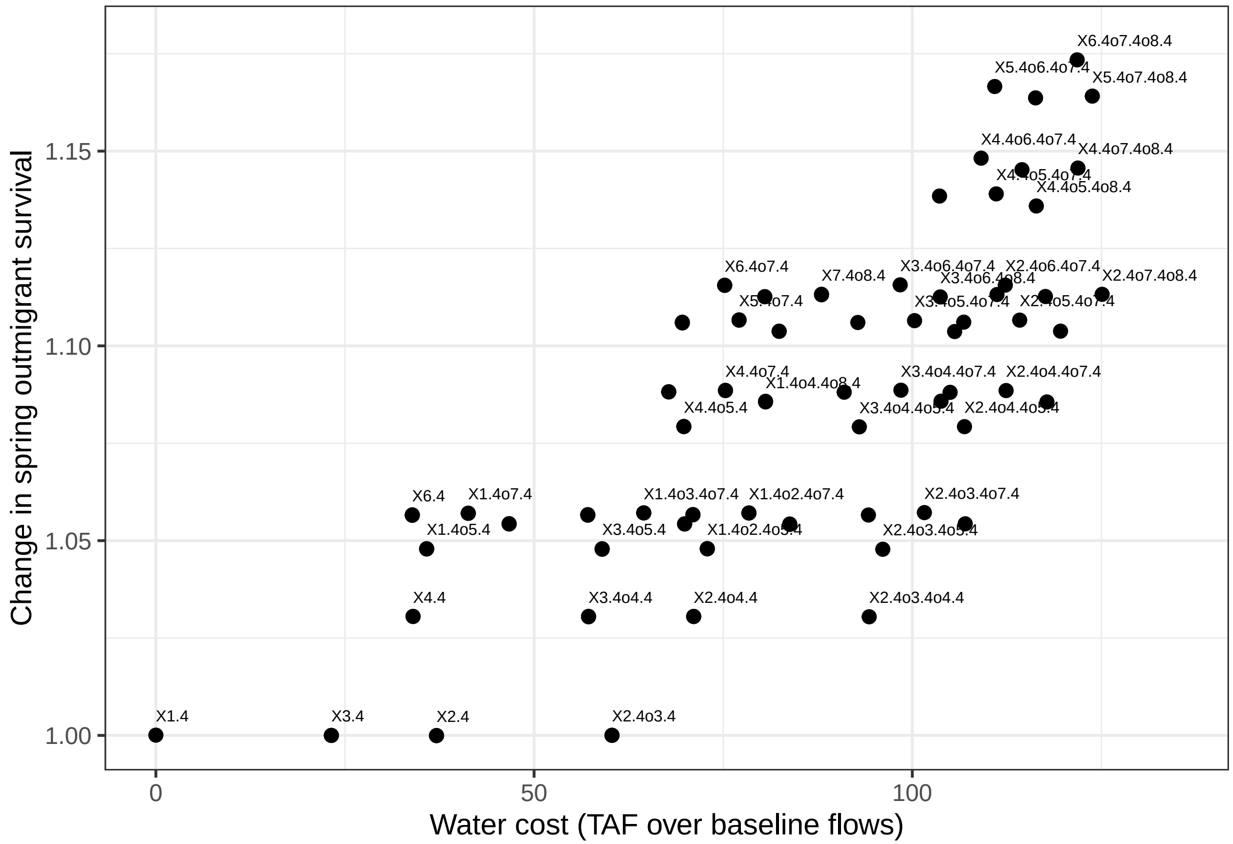

Fig. 4. Change in spring outmigration survival (over status quo) as a function of water cost (TAF) for all pulse flow scenarios using all years of fish passage data at RBDD (2006-2019), and using the Michel et al. (2021) nonlinear flow:survival relationship

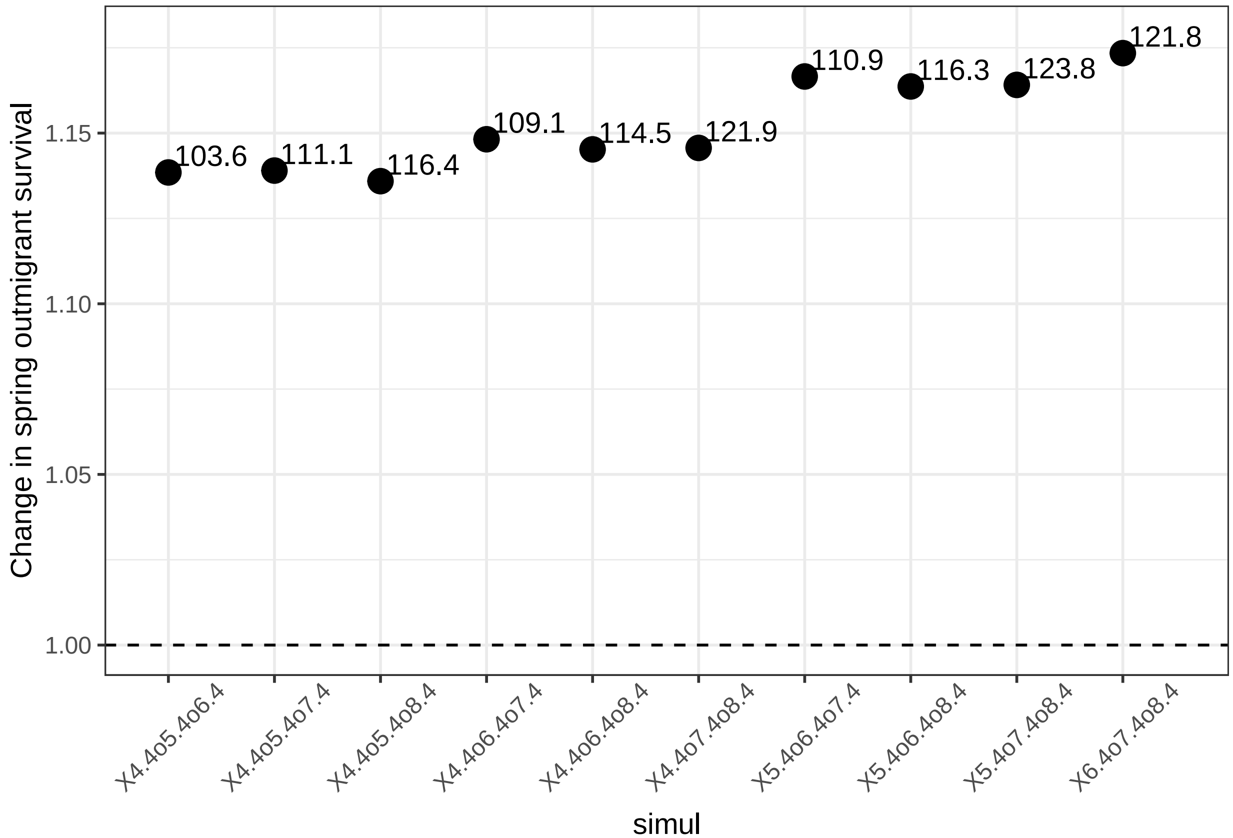

Fig. 5. Top 10 pulse flow scenarios as ranked by best spring season survival improvement (over status quo), using all years of fish passage data at RBDD (2006-2019), and using the Michel et al. (2021) nonlinear flow:survival relationship. Water cost is shown as point labels (TAF)

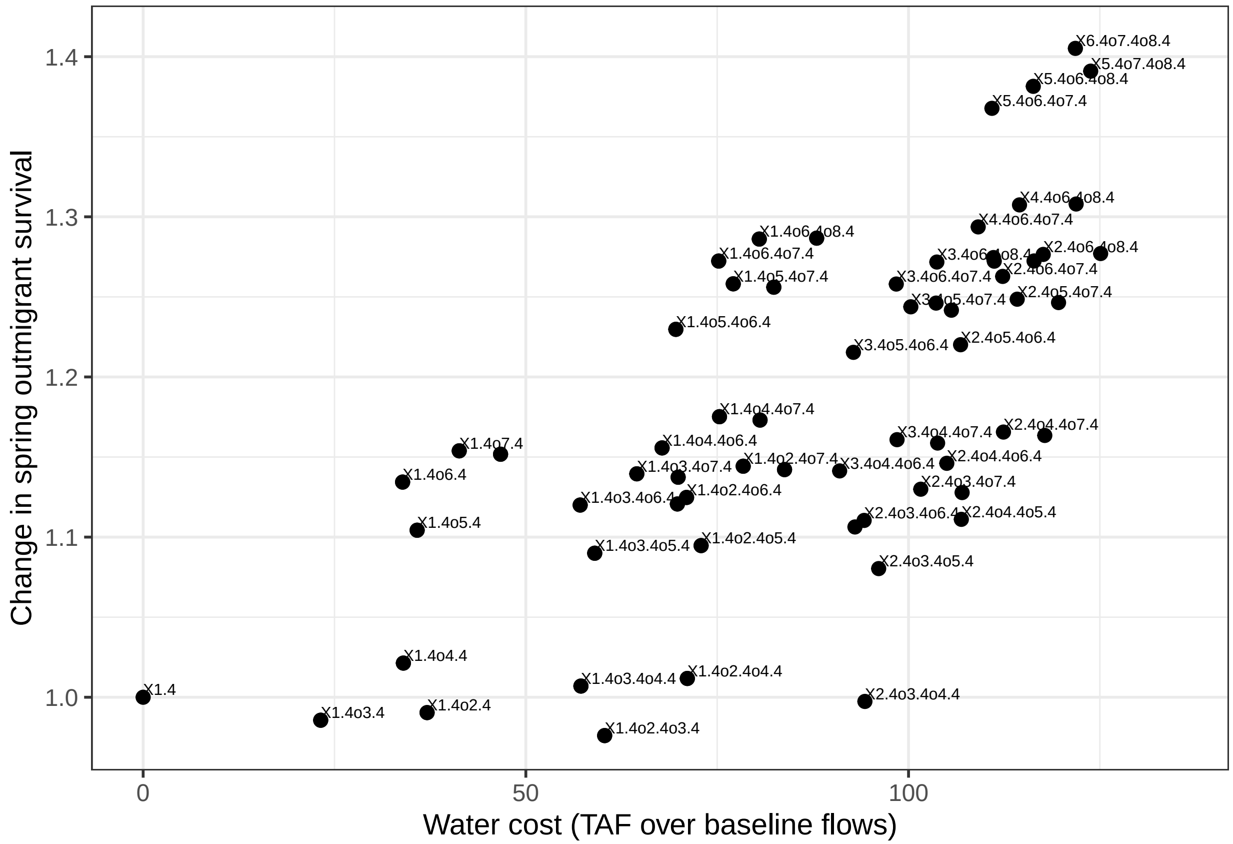

Fig. 6. Change in spring outmigration survival (over status quo) as a function of water cost (TAF) for all pulse flow scenarios using the Burford et al. (*in review at Ecological Applications*) model. This model is different from the Michel et al. (2021) model in 3 ways: 1. it uses a continuous, non-linear relationship between flow and survival (i.e., not a threshold), 2. it incorporates a seasonal component in the flow survival relationship (e.g., survival is worse in June vs April for the same flow), and 3. it incorporates responses in the number of fish initiating migration as a function of flow changes

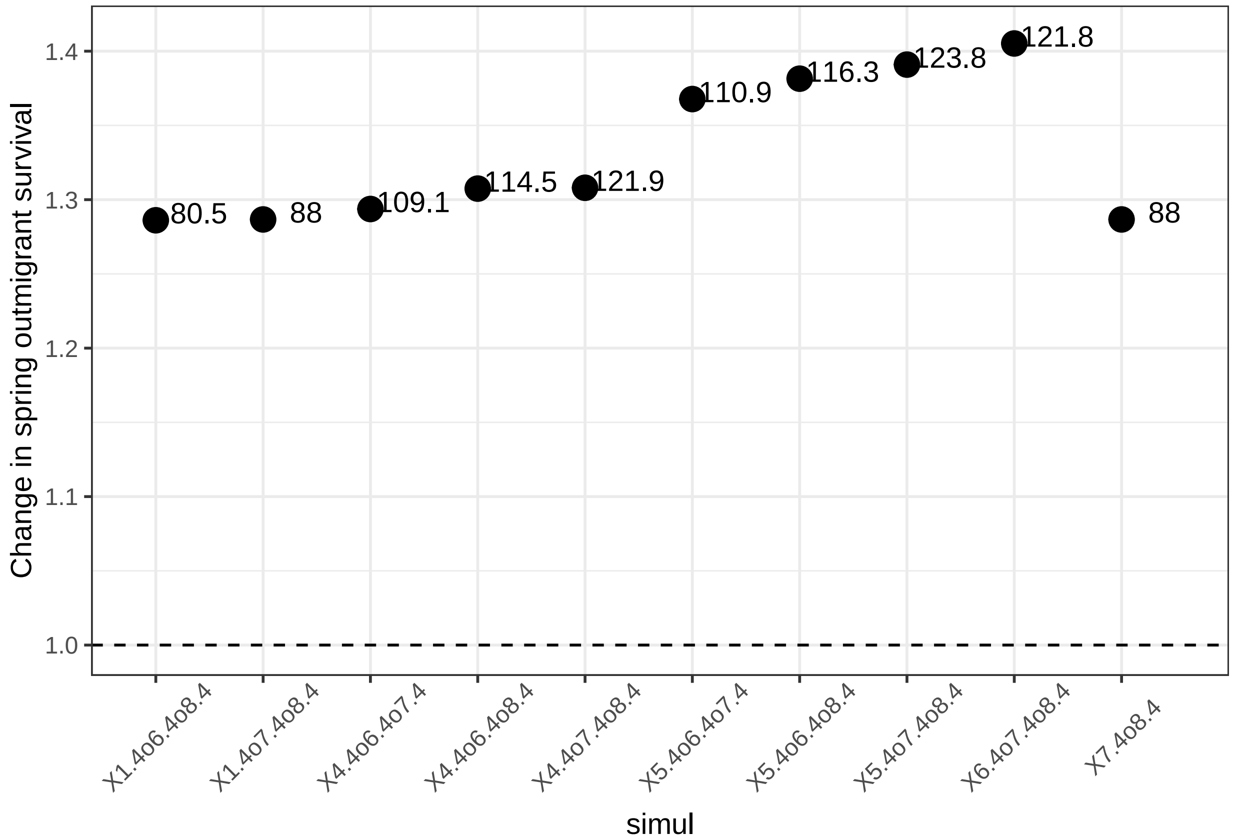

Fig. 7. Top 10 pulse flow scenarios as ranked by best spring season survival improvement (over status quo) using the Burford et al. (*in review at Ecological Applications*) model. This model is different from the Michel et al. (2021) model in 3 ways: 1. it uses a continuous, non-linear relationship between flow and survival (i.e., not a threshold), 2. it incorporates a seasonal component in the flow survival relationship (e.g., survival is worse in June vs April for the same flow), and 3. it incorporates responses in the number of fish initiating migration as a function of flow changes Water cost is shown as point labels (TAF)

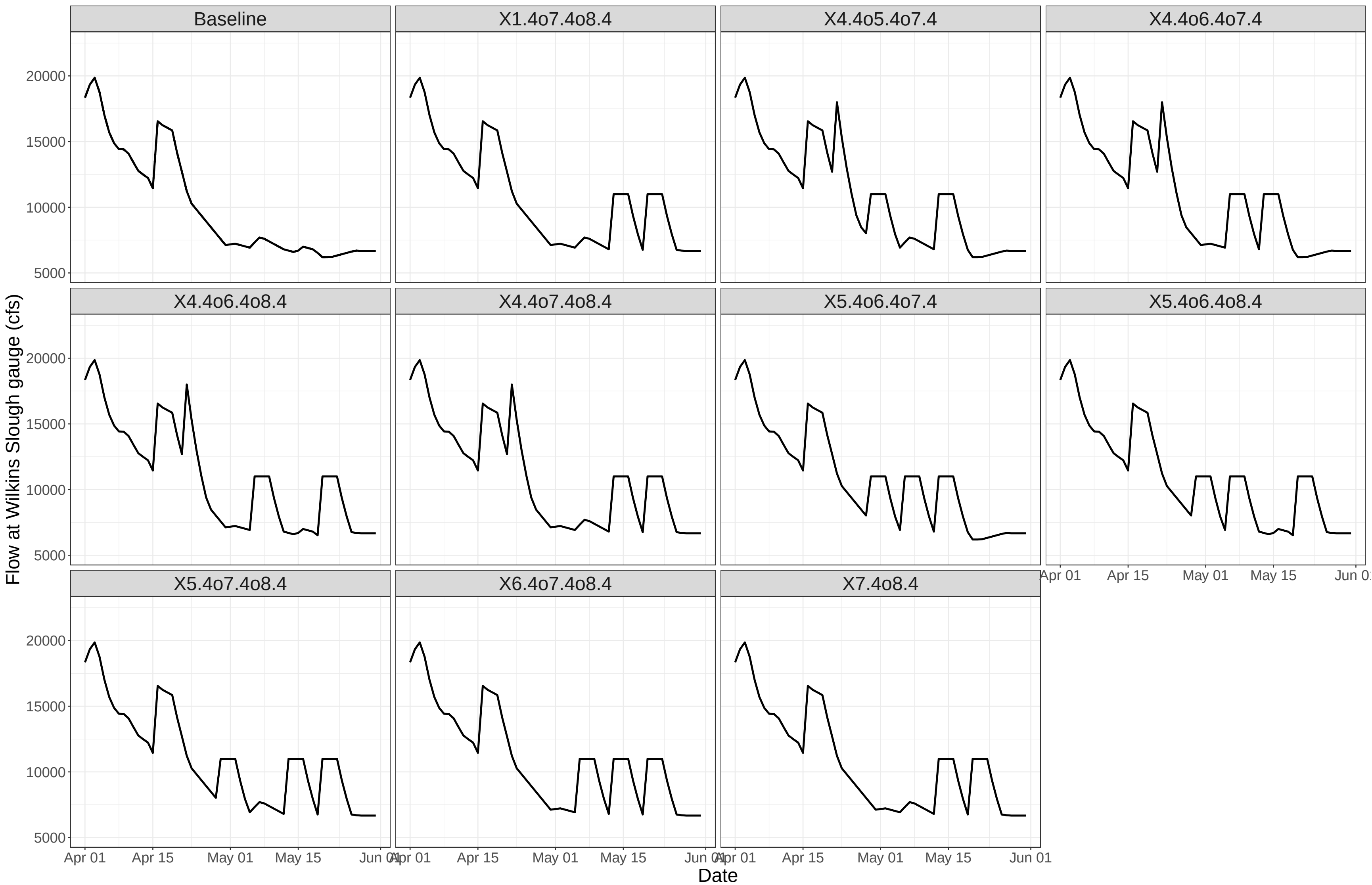

Fig. 8. Spring pulse flow hydrographs for the top 10 scenarios as ranked by both Michel et al. and Burford et al. models, and including baseline flows (dashed black line)

Table 1. Spring season survival estimates, survival improvement over baseline, and rank for the top 10 scenarios as ranked by both Michel et al. and Burford et al. models, and including baseline flows. PLEASE NOTE SURVIVAL ESTIMATES ARE INFORMED BY HISTORICAL FISH ABUNDANCES AND PASSAGE TIMING AND SHOULD ONLY BE USED FOR SCENARIO EVALUATION AND NOT USED AT FACE VALUE

Scenarios	TAF	Spring Survival Michel	Survival Improvement over Baseline Michel	Spring Survival Burford	Survival Improvement over Baseline Burford	Rank Michel	Rank Burford
X6.4o7.4o8.4	121.8	0.312	1.173	0.428	1.405	1	1.0
X5.4o7.4o8.4	123.8	0.310	1.164	0.424	1.391	3	2.0
X5.4o6.4o7.4	110.9	0.310	1.167	0.417	1.368	2	4.0
X5.4o6.4o8.4	116.3	0.309	1.164	0.421	1.381	4	3.0
X4.4o7.4o8.4	121.9	0.305	1.146	0.398	1.308	6	5.0
X4.4o6.4o7.4	109.1	0.305	1.148	0.394	1.294	5	7.0
X4.4o6.4o8.4	114.5	0.304	1.145	0.398	1.307	7	6.0
X4.4o5.4o7.4	111.1	0.303	1.139	0.388	1.275	8	14.0
X7.4o8.4	88.0	0.296	1.113	0.392	1.287	15	8.5
X1.4o7.4o8.4	88.0	0.296	1.113	0.392	1.287	18	8.5
Baseline	0.0	0.266	1.000	0.305	1.000	90	85.5

Table 2. Hydrograph at Wilkins Slough for baseflow, as well as for the top 10 scenarios as ranked by both Michel et al. and Burford et al. models

Date	X6.4o7.4o8.4	X5.4o7.4o8.4	X5.4o6.4o7.4	X5.4o6.4o8.4	X4.4o7.4o8.4	X4.4o6.4o7.4	X4.4o6.4o8.4	X4.4o5.4o7.4	X7.4o8.4	X1.4o7.4o8.4	Baseline
2025-04-01	18342	18342	18342	18342	18342	18342	18342	18342	18342	18342	18342
2025-04-02	19340	19340	19340	19340	19340	19340	19340	19340	19340	19340	19340
2025-04-03	19858	19858	19858	19858	19858	19858	19858	19858	19858	19858	19858
2025-04-04	18762	18762	18762	18762	18762	18762	18762	18762	18762	18762	18762
2025-04-05	17023	17023	17023	17023	17023	17023	17023	17023	17023	17023	17023
2025-04-06	15702	15702	15702	15702	15702	15702	15702	15702	15702	15702	15702
2025-04-07	14877	14877	14877	14877	14877	14877	14877	14877	14877	14877	14877
2025-04-08	14425	14425	14425	14425	14425	14425	14425	14425	14425	14425	14425
2025-04-09	14409	14409	14409	14409	14409	14409	14409	14409	14409	14409	14409
2025-04-10	14075	14075	14075	14075	14075	14075	14075	14075	14075	14075	14075
2025-04-11	13411	13411	13411	13411	13411	13411	13411	13411	13411	13411	13411
2025-04-12	12772	12772	12772	12772	12772	12772	12772	12772	12772	12772	12772
2025-04-13	12490	12490	12490	12490	12490	12490	12490	12490	12490	12490	12490
2025-04-14	12230	12230	12230	12230	12230	12230	12230	12230	12230	12230	12230
2025-04-15	11450	11450	11450	11450	11450	11450	11450	11450	11450	11450	11450
2025-04-16	16550	16550	16550	16550	16550	16550	16550	16550	16550	16550	16550
2025-04-17	16250	16250	16250	16250	16250	16250	16250	16250	16250	16250	16250
2025-04-18	16050	16050	16050	16050	16050	16050	16050	16050	16050	16050	16050
2025-04-19	15850	15850	15850	15850	15850	15850	15850	15850	15850	15850	15850
2025-04-20	14150	14150	14150	14150	14150	14150	14150	14150	14150	14150	14150
2025-04-21	12700	12700	12700	12700	12700	12700	12700	12700	12700	12700	12700
2025-04-22	11225	11225	11225	11225	18000	18000	18000	18000	11225	11225	11225
2025-04-23	10275	10275	10275	10275	15300	15300	15300	15300	10275	10275	10275
2025-04-24	9825	9825	9825	9825	13005	13005	13005	13005	9825	9825	9825
2025-04-25	9375	9375	9375	9375	11054	11054	11054	11054	9375	9375	9375
2025-04-26	8925	8925	8925	8925	9396	9396	9396	9396	8925	8925	8925
2025-04-27	8475	8475	8475	8475	8475	8475	8475	8475	8475	8475	8475
2025-04-28	8025	8025	8025	8025	8025	8025	8025	8025	8025	8025	8025
2025-04-29	7575	11000	11000	11000	7575	7575	7575	11000	7575	7575	7575
2025-04-30	7125	11000	11000	11000	7125	7125	7125	11000	7125	7125	7125
2025-05-01	7175	11000	11000	11000	7175	7175	7175	11000	7175	7175	7175
2025-05-02	7225	11000	11000	11000	7225	7225	7225	11000	7225	7225	7225
2025-05-03	7125	9350	9350	9350	7125	7125	7125	9350	7125	7125	7125
2025-05-04	7025	7948	7948	7948	7025	7025	7025	7948	7025	7025	7025
2025-05-05	6925	6925	6925	6925	6925	6925	6925	6925	6925	6925	6925
2025-05-06	11000	7325	11000	11000	7325	11000	11000	7325	7325	7325	7325
2025-05-07	11000	7700	11000	11000	7700	11000	11000	7700	7700	7700	7700
2025-05-08	11000	7600	11000	11000	7600	11000	11000	7600	7600	7600	7600
2025-05-09	11000	7400	11000	11000	7400	11000	11000	7400	7400	7400	7400
2025-05-10	9350	7200	9350	9350	7200	9350	9350	7200	7200	7200	7200
2025-05-11	7948	7000	7948	7948	7000	7948	7948	7000	7000	7000	7000
2025-05-12	6800	6800	6800	6800	6800	6800	6800	6800	6800	6800	6800

(continued)

Date	X6.4o7.4o8.4	X5.4o7.4o8.4	X5.4o6.4o7.4	X5.4o6.4o8.4	X4.4o7.4o8.4	X4.4o6.4o7.4	X4.4o6.4o8.4	X4.4o5.4o7.4	X7.4o8.4	X1.4o7.4o8.4	Baseline
2025-05-13	11000	11000	11000	6700	11000	11000	6700	11000	11000	11000	6700
2025-05-14	11000	11000	11000	6600	11000	11000	6600	11000	11000	11000	6600
2025-05-15	11000	11000	11000	6700	11000	11000	6700	11000	11000	11000	6700
2025-05-16	11000	11000	11000	7000	11000	11000	7000	11000	11000	11000	7000
2025-05-17	9350	9350	9350	6900	9350	9350	6900	9350	9350	9350	6900
2025-05-18	7948	7948	7948	6800	7948	7948	6800	7948	7948	7948	6800
2025-05-19	6756	6756	6756	6525	6756	6756	6525	6756	6756	6756	6525
2025-05-20	11000	11000	6200	11000	11000	6200	11000	6200	11000	11000	6200
2025-05-21	11000	11000	6200	11000	11000	6200	11000	6200	11000	11000	6200
2025-05-22	11000	11000	6225	11000	11000	6225	11000	6225	11000	11000	6225
2025-05-23	11000	11000	6325	11000	11000	6325	11000	6325	11000	11000	6325
2025-05-24	9350	9350	6425	9350	9350	6425	9350	6425	9350	9350	6425
2025-05-25	7948	7948	6525	7948	7948	6525	7948	6525	7948	7948	6525
2025-05-26	6756	6756	6625	6756	6756	6625	6756	6625	6756	6756	6625
2025-05-27	6700	6700	6700	6700	6700	6700	6700	6700	6700	6700	6700
2025-05-28	6675	6675	6675	6675	6675	6675	6675	6675	6675	6675	6675
2025-05-29	6675	6675	6675	6675	6675	6675	6675	6675	6675	6675	6675
2025-05-30	6675	6675	6675	6675	6675	6675	6675	6675	6675	6675	6675
2025-05-31	6675	6675	6675	6675	6675	6675	6675	6675	6675	6675	6675

Table 3. Hydrograph at Keswick for baseflow, as well as for the top 10 scenarios as ranked by both Michel et al. and Burford et al. models

Date	KES	X5.4o7.4o8.4	X5.4o6.4o7.4	X5.4o6.4o8.4	X4.4o7.4o8.4	X4.4o6.4o7.4	X4.4o6.4o8.4	X4.4o5.4o7.4	X7.4o8.4	X1.4o7.4o8.4	Baseline
2025-04-01	8294	8294	8294	8294	8294	8294	8294	8294	8294	8294	8294
2025-04-02	7503	7503	7503	7503	7503	7503	7503	7503	7503	7503	7503
2025-04-03	6652	6652	6652	6652	6652	6652	6652	6652	6652	6652	6652
2025-04-04	6094	6094	6094	6094	6094	6094	6094	6094	6094	6094	6094
2025-04-05	5852	5852	5852	5852	5852	5852	5852	5852	5852	5852	5852
2025-04-06	5591	5591	5591	5591	5591	5591	5591	5591	5591	5591	5591
2025-04-07	5578	5578	5578	5578	5578	5578	5578	5578	5578	5578	5578
2025-04-08	5361	5361	5361	5361	5361	5361	5361	5361	5361	5361	5361
2025-04-09	5143	5143	5143	5143	5143	5143	5143	5143	5143	5143	5143
2025-04-10	4888	4888	4888	4888	4888	4888	4888	4888	4888	4888	4888
2025-04-11	4738	4738	4738	4738	4738	4738	4738	4738	4738	4738	4738
2025-04-12	4650	4650	4650	4650	4650	4650	4650	4650	4650	4650	4650
2025-04-13	4570	4570	4570	4570	4570	4570	4570	4570	4570	4570	4570
2025-04-14	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
2025-04-15	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
2025-04-16	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
2025-04-17	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
2025-04-18	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
2025-04-19	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
2025-04-20	8500	8500	8500	8500	8500	8500	8500	8500	8500	8500	8500
2025-04-21	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500
2025-04-22	6500	6500	6500	6500	13275	13275	13275	13275	6500	6500	6500
2025-04-23	6000	6000	6000	6000	11025	11025	11025	11025	6000	6000	6000
2025-04-24	6000	6000	6000	6000	9180	9180	9180	9180	6000	6000	6000
2025-04-25	6000	6000	6000	6000	7679	7679	7679	7679	6000	6000	6000
2025-04-26	6000	6000	6000	6000	6471	6471	6471	6471	6000	6000	6000
2025-04-27	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
2025-04-28	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
2025-04-29	6000	9425	9425	9425	6000	6000	6000	9425	6000	6000	6000
2025-04-30	6000	9875	9875	9875	6000	6000	6000	9875	6000	6000	6000
2025-05-01	6500	10325	10325	10325	6500	6500	6500	10325	6500	6500	6500
2025-05-02	7000	10775	10775	10775	7000	7000	7000	10775	7000	7000	7000
2025-05-03	7500	9725	9725	9725	7500	7500	7500	9725	7500	7500	7500
2025-05-04	8000	8923	8923	8923	8000	8000	8000	8923	8000	8000	8000
2025-05-05	8500	8500	8500	8500	8500	8500	8500	8500	8500	8500	8500
2025-05-06	9000	9000	12675	12675	9000	12675	12675	9000	9000	9000	9000
2025-05-07	9500	9500	12800	12800	9500	12800	12800	9500	9500	9500	9500
2025-05-08	9500	9500	12900	12900	9500	12900	12900	9500	9500	9500	9500
2025-05-09	9500	9500	13100	13100	9500	13100	13100	9500	9500	9500	9500
2025-05-10	9500	9500	11650	11650	9500	11650	11650	9500	9500	9500	9500
2025-05-11	9500	9500	10448	10448	9500	10448	10448	9500	9500	9500	9500
2025-05-12	9500	9500	9500	9500	9500	9500	9500	9500	9500	9500	9500

(continued)

Date	KES	X5.4o7.4o8.4	X5.4o6.4o7.4	X5.4o6.4o8.4	X4.4o7.4o8.4	X4.4o6.4o7.4	X4.4o6.4o8.4	X4.4o5.4o7.4	X7.4o8.4	X1.4o7.4o8.4	Baseline
2025-05-13	9500	13800	13800	9500	13800	13800	9500	13800	13800	13800	9500
2025-05-14	9500	13900	13900	9500	13900	13900	9500	13900	13900	13900	9500
2025-05-15	9500	13800	13800	9500	13800	13800	9500	13800	13800	13800	9500
2025-05-16	9500	13500	13500	9500	13500	13500	9500	13500	13500	13500	9500
2025-05-17	9500	11950	11950	9500	11950	11950	9500	11950	11950	11950	9500
2025-05-18	9500	10648	10648	9500	10648	10648	9500	10648	10648	10648	9500
2025-05-19	9500	9731	9731	9500	9731	9731	9500	9731	9731	9731	9500
2025-05-20	9500	14300	9500	14300	14300	9500	14300	9500	14300	14300	9500
2025-05-21	9500	14300	9500	14300	14300	9500	14300	9500	14300	14300	9500
2025-05-22	9500	14275	9500	14275	14275	9500	14275	9500	14275	14275	9500
2025-05-23	9500	14175	9500	14175	14175	9500	14175	9500	14175	14175	9500
2025-05-24	9500	12425	9500	12425	12425	9500	12425	9500	12425	12425	9500
2025-05-25	9500	10923	9500	10923	10923	9500	10923	9500	10923	10923	9500
2025-05-26	9500	9631	9500	9631	9631	9500	9631	9500	9631	9631	9500
2025-05-27	9500	9500	9500	9500	9500	9500	9500	9500	9500	9500	9500
2025-05-28	9500	9500	9500	9500	9500	9500	9500	9500	9500	9500	9500
2025-05-29	9500	9500	9500	9500	9500	9500	9500	9500	9500	9500	9500
2025-05-30	9500	9500	9500	9500	9500	9500	9500	9500	9500	9500	9500
2025-05-31	9500	9500	9500	9500	9500	9500	9500	9500	9500	9500	9500

Table 4. Starting dates for each week of the April/May period

Week 1: week of March 31

Week 2: week of April 7

Week 3: week of April 14

Week 4: week of April 21

Week 5: week of April 28

Week 6: week of May 5

Week 7: week of May 12

Week 8: week of May 19