TESTIMONY OF PAUL BRATOVICH

1. I am the Vice President and Principal Scientist of Surface Water Resources, Inc. (SWRI). I have over 23 years of professional water resources and fisheries experience and have been employed by SWRI since 1996. Exhibit YCWA-4 contains an accurate statement of my qualifications and experience.

2. I am providing this expert testimony on the issues pertaining to Yuba County Water Agency (YCWA), the Yuba River Development Project and related facilities that will be discussed during the January 10-13 State Water Resources Control Board (SWRCB) hearing to consider YCWA's petition to change the effective date of the long-term instream flow requirements established in Revised Decision 1644 (RD-1644).

3. SWRI prepared the Initial Study/Proposed Mitigated Negative Declaration (IS/ND) (Exhibit YCWA-9) for YCWA's petition to change the effective date of the long-term instream flow requirements in RD-1644.

4. To examine environmental impacts of the proposed project, relative to the existing regulatory baseline (the interim minimum instream flow requirements of RD-1644), the Initial Study (IS) extensively used two-trace exceedance plots displaying the cumulative probability distribution of lower Yuba River flows (Appendix 4 of the IS) and water temperatures (Appendix 5 of the IS) that may occur each month with implementation of either the proposed project or the RD-1644 interim requirements. (The proposed project in the IS is the combination of the RD-1644 interim flows and the lower Yuba River Accord flows.) The IS also included an Environmental Analysis (EA) (Appendix 2 of the IS) which, again using two-trace exceedance plots, displayed the cumulative probability distribution of flows and water temperatures that may occur with implementation of either the proposed project or the RD-1644 Long-term requirements.

5. SWRI also utilized three-trace exceedance plots displaying the cumulative probability distribution of the lower Yuba River flows and water temperatures that may occur with implementation of either the proposed project, the RD-1644 interim flows, or the RD-1644 Long-term flows (Appendix B of the EA). The data displayed in these three-trace exceedance plots are identical to the data used in the IS and EA.

6. The flow and water temperature exceedance plots were examined to assess potential impacts that implementation of the proposed project is expected to have on five fish species or runs of management concern: (1) steelhead; (2) spring-run Chinook salmon; (3) fall-run Chinook salmon; (4) green sturgeon; and (5) American shad. (Although it is uncertain whether or not lower Yuba River spring-run Chinook salmon and fall-run Chinook salmon are distinct runs, this testimony treats them as distinct runs.) For each month of the proposed project, the potential occurrence of each life stage of each of the five species was

considered. If a species/life stage combination could be expected to occur in the lower Yuba River during a particular month of the proposed project, then the potential impact of the proposed project on that species/life stage combination was assessed, relative to that of either RD-1644 interim or RD-1644 Long-term. The fish species or runs and life stages of management concern in the lower Yuba River for the 11 months of the proposed project are illustrated in slide 1.

7. For example, during the first month of the proposed project (April 2006), potential impacts of the proposed project, relative to RD-1644 interim and RD-1644 Long-term, were considered for the following species or run/life stage combinations, which may be present in the lower Yuba River in that month:

- Steelhead: Spawning and Embryo Incubation; Juvenile Rearing; Smolt Emigration;
- Spring-run Chinook Salmon: Adult Immigration and Holding; Juvenile Rearing; Smolt Emigration;
- Fall-run Chinook Salmon: Juvenile Rearing and Outmigration;
- Green Sturgeon: Adult Immigration and Holding; Spawning and Embryo Incubation; Juvenile Rearing; and
- American Shad: Adult Immigration and Spawning

8. As shown in slide 2, during April, proposed project flows at the Marysville gage are expected to be from 100 cfs up to 670 cfs higher than the flows expected to occur under either RD-1644 interim or RD-1644 Long-term for 88 percent and 87 percent of the cumulative probability distribution, respectively; the highest 12 percent of flows are expected to be equivalent under all three scenarios. Flows at the Marysville gage are expected to be equal to or higher than the upper optimal flow (i.e., Yuba Accord Schedule 1, 1,000 cfs) with a 70 percent probability if the proposed project is implemented, but with only a 59 percent probability if either RD-1644 interim or RD-1644 Long-term were implemented. The lower optimal flow (Yuba Accord Schedule 2) is 700 cfs from April 1-15, and 800 cfs from April 16-30. During low flow conditions (represented by approximately 30% of the cumulative distribution), flows at the Marysville gage have a high probability (all but 5%) of equaling or exceeding 700 cfs with implementation of the proposed project, whereas flows would be expected to remain below 700 cfs with implementation of either RD-1644 interim or RD-1644 Long-term.

9. As shown in slide 3, during May, the first month of the proposed project when water temperatures may become an important stressor to lower Yuba River fish, water temperatures at Marysville with implementation of the proposed project are expected to be essentially equivalent to water temperatures with implementation of either RD-1644 interim or RD-1644 Long-term flows for 75 percent and 90

percent of the cumulative probability distributions, respectively. During the warmest 25 percent of the water temperature distribution for May at Marysville, proposed project water temperatures are expected to be approximately 1.0°F to approximately 3.5°F lower than RD-1644 interim water temperatures. During the warmest 10 percent of the water temperature distribution, proposed project water temperatures are expected to be generally cooler (up to approximately 1.5°F) than RD-1644 Long-term.

10. In addition to monthly flow and water temperature analyses, an evaluation of spring-run Chinook salmon and fall-run Chinook salmon spawning habitat availability was conducted. The potential impacts of simulated proposed project flows on the adult spawning life stage of Chinook salmon in the lower Yuba River were evaluated by examining the available spawning habitat for the months of September through December, as expressed as weighted usable area (WUA) (CDFG 1991). The analysis included summing the WUAs that correspond to average monthly flows during the Chinook salmon spawning season within one section of the river (above Daguerre Point Dam) for spring-run Chinook salmon, and two sections of the river (above and below Daguerre Point Dam) for fall-run Chinook salmon.

11. For analytical purposes, September was assumed to represent a distinct period of spring-run Chinook salmon spawning, and fall-run Chinook salmon spawning was assumed to occur from October through December, although considerable temporal and spatial overlap in spawning actually occurs between these two runs. These time periods were used to compare the potential impacts of the proposed project on spring-run and fall-run Chinook salmon spawning habitat availability, relative to either RD-1644 interim or RD-1644 Long-term.

As shown in slide 4, for September, Chinook salmon spawning habitat availability (expressed as percent maximum WUA) expected with implementation of the proposed project is higher for about 43 percent of the cumulative distribution than either RD-1644 interim or RD-1644 Long-term, and is lower for about 57 percent of the distribution. With implementation of the proposed project, 99 to 100 percent of maximum WUA is expected with more than 40 percent probability, whereas RD-1644 interim and RD-1644 Long-term are not expected to provide more than about 96 percent of maximum WUA. Overall, over the 83-year simulation period, the proposed project is expected to provide an average of about 86 percent of maximum WUA, compared to 89 percent for RD-1644 interim and 90 percent for RD-1644 Long-term.

As shown in slide 5, for October through December, implementation of the proposed project is expected to provide equal or higher (up to about 20 percent higher) spawning habitat availability over the entire range of the cumulative probability distribution than either RD-1644 interim or RD-1644 Long-term. With implementation of the proposed project, 90 percent or more of maximum WUA is expected with more than 60 percent probability, whereas RD-1644 interim and RD-1644 Long-term are expected to provide 90 percent or more of maximum WUA with about a 50 percent probability. Overall, the proposed project is expected to provide an average of about 86 percent of maximum WUA, compared to 80 percent for RD-1644 interim and 81 percent for RD-1644 Long-term.

12. In the IS (basis of comparison = RD-1644 interim) and the EA (basis of comparison = RD-1644 Long-term), flows during all months of the proposed project were evaluated in the manner described above for April, and water temperatures from May through October (when water temperatures have the potential to be stressful for fish in the Yuba River) were evaluated in the manner described above for May. The three-trace flow exceedance plots at Marysville for all other months of the proposed project, and at Smartville for all months of the proposed project are illustrated in slides 13 through 23. The three-trace water temperature exceedance plots at Marysville for all other months, and at Daguerre Point Dam for all months of the proposed project are illustrated in slides 24 through 29. The monthly flow and water temperature evaluations, along with the Chinook salmon spawning habitat availability evaluations for September through December, and findings of YCWA's monitoring studies conducted in 2001, 2002, and 2004, provided the basis, in the IS and the EA, for the following conclusions. Relative to either RD-1644 interim or RD-1644 Long-term, the proposed project is expected to provide the following results for the following species:

<u>Steelhead (see slide 6)</u>

- Lower (as much as 2°F) and therefore more suitable water temperatures below Daguerre Point Dam during the late summer and early fall adult immigration and holding period (August through October);

- Equivalent or more protective water temperature (May) and flow conditions during the spawning and embryo incubation life stage (January through May);

- Generally lower (as much as 2°F) and therefore more suitable water temperatures below Daguerre Point Dam during the juvenile steelhead over-summer rearing period (May through October);

- Lower (as much as 2°F) and therefore more suitable water temperatures, and generally more protective flows below Daguerre Point Dam during the juvenile downstream movement life stage (May through September)

- Lower and therefore more suitable water temperatures (October through May), and generally equivalent or more protective flows during smolt emigration (October through May); and

- Similar protection against juvenile non-volitional downstream movement.

Spring-run Chinook Salmon (see slide 7)

- Generally equivalent flow and temperature conditions during adult upstream migration and holding (February through September);
- Similar rates of non-indigenous adult Chinook salmon straying;
- Higher spawning habitat availability in September during low flow conditions (e.g., drier years); higher spawning habitat availability from October through December;
- Nearly identical spawning temperatures (September and October);
- Lower (as much as 2°F) and therefore more suitable water temperatures during the juvenile spring-run Chinook salmon over-summer rearing (May through October) period below Daguerre Point Dam;
- Similar protection against juvenile non-volitional downstream movement; and
- Generally equivalent or enhanced smolt outmigration (November through June) conditions with an improved temporal pattern, which more closely mimics unimpaired hydrology, with peak flows occurring earlier in the spring during drier conditions.

Fall-run Chinook Salmon (see slide 8)

- Higher flows (up to 250 cfs) and lower water temperatures (as much as 2°F) below Daguerre Point Dam during adult immigration and holding (August through October);
- Similar rates of non-indigenous adult Chinook salmon straying;
- More spawning habitat overall, and more spawning habitat (generally 10 to 20 percent more) when spawning habitat is least available, which occurs with about a 60 percent probability;
- Lower (as much as 1°F) and therefore more suitable water temperatures during the early part (i.e., October) of the spawning season;
- Similar protection against juvenile non-volitional downstream movement; and
- Lower water temperatures below Daguerre Point Dam in May and June, and generally equivalent or more protective juvenile rearing and outmigration

flow conditions with an improved temporal pattern, which more closely mimics unimpaired hydrology, with peak flows occurring earlier in the spring during drier conditions (slide 9).

Green Sturgeon (see slide 10)

- Generally equivalent or more protective flows and water temperatures during the adult immigration and holding (February through July) and spawning and embryo incubation (April through July) life stages;

- Substantially lower water temperatures during over-summer (May through October) juvenile rearing periods; and

- Generally equivalent flows and lower water temperatures during juvenile emigration (May through September).

American Shad (see slide 11)

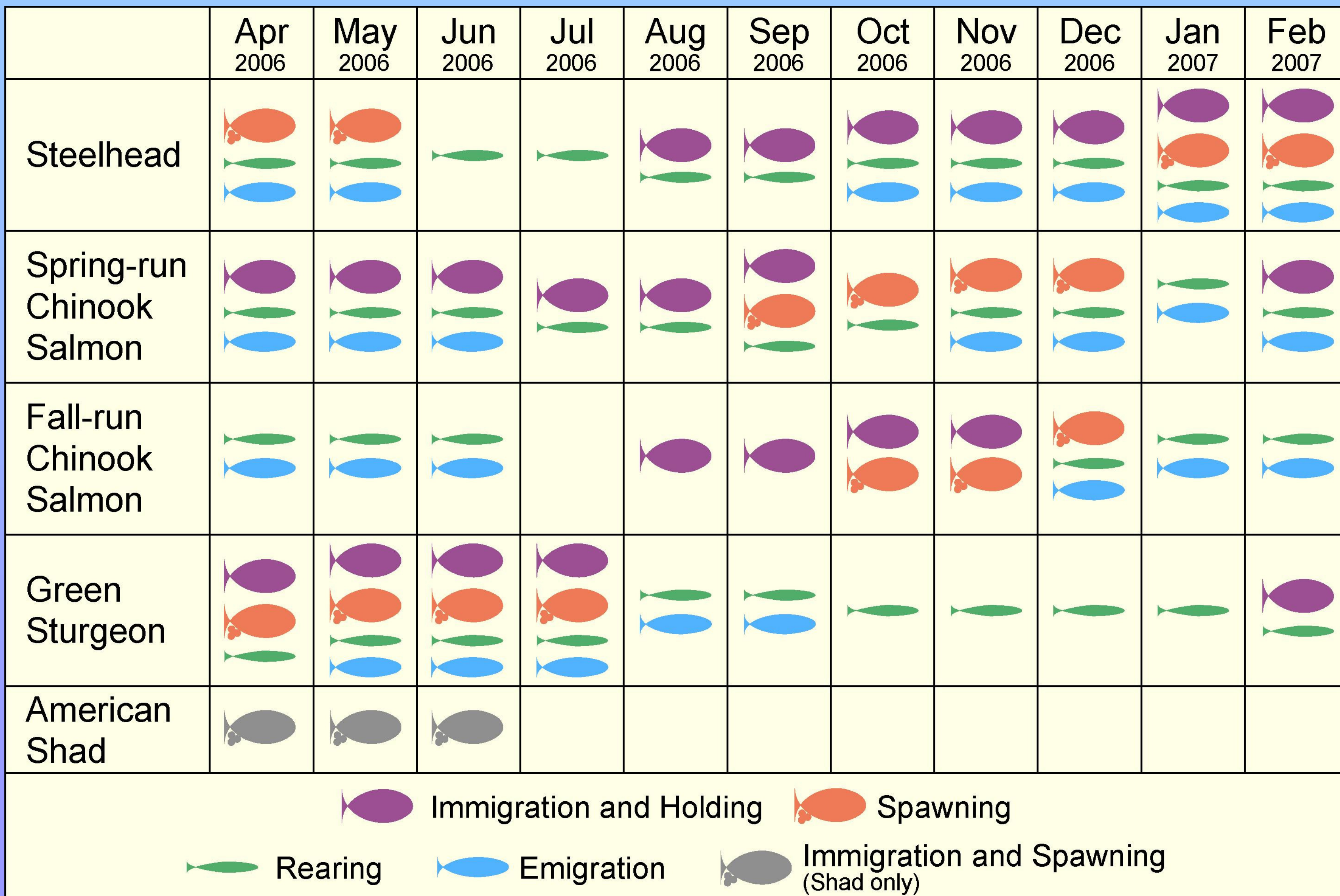
- Flows of sufficient magnitude to attract American shad into the lower Yuba River to spawn (April through June).

13. In conclusion, the proposed project is expected to result in less-than-significant impacts on the lower Yuba River populations of steelhead, spring-run Chinook salmon, fall-run Chinook salmon, green sturgeon, and American shad, and is expected to provide an equivalent or higher level of protection, relative to either RD-1644 interim or RD-1644 Long-term, for these species.

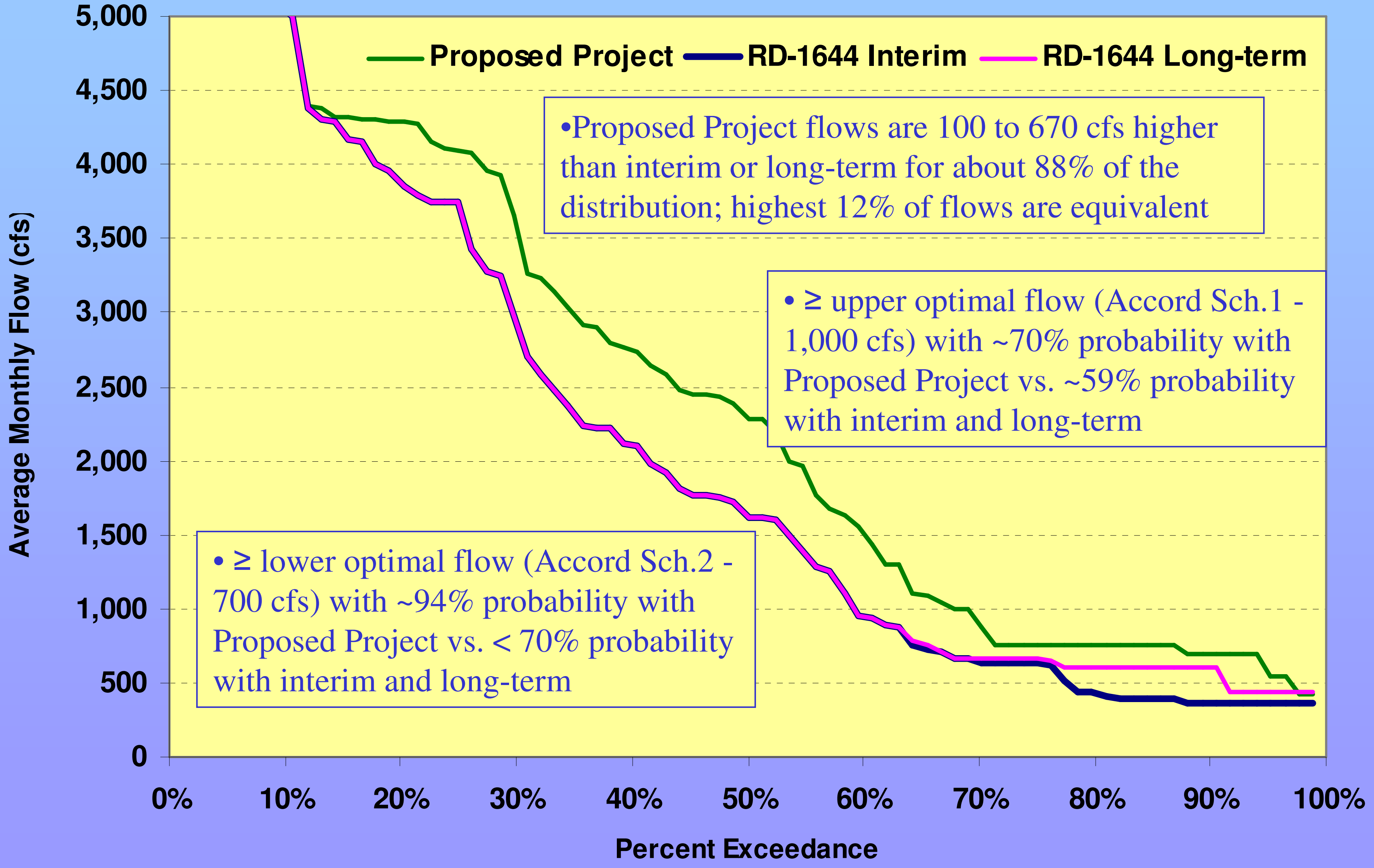
References

CDFG. 1991. Lower Yuba River Fisheries Management Plan.

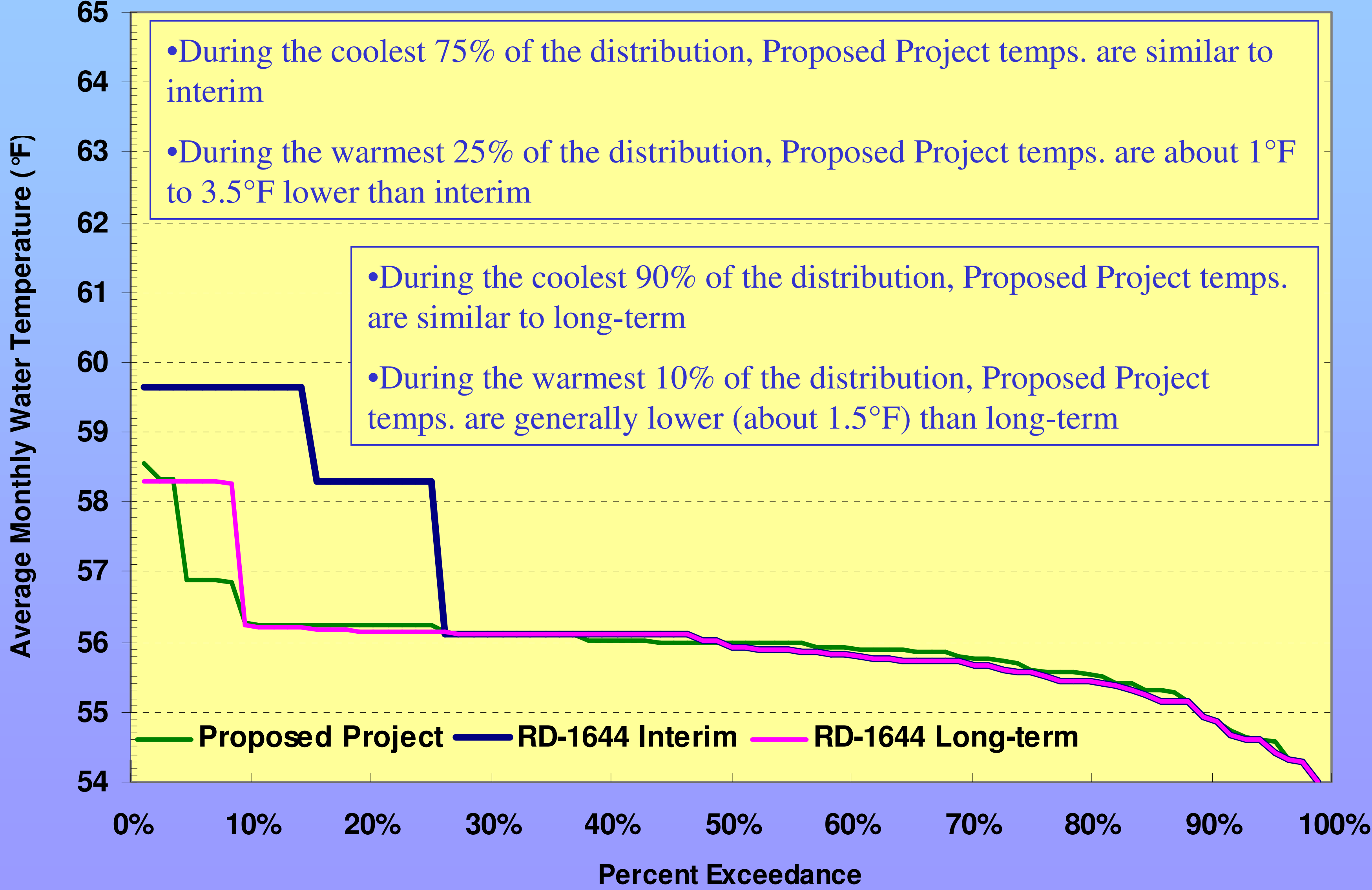
Lower Yuba River Fish Life Stage Evaluations



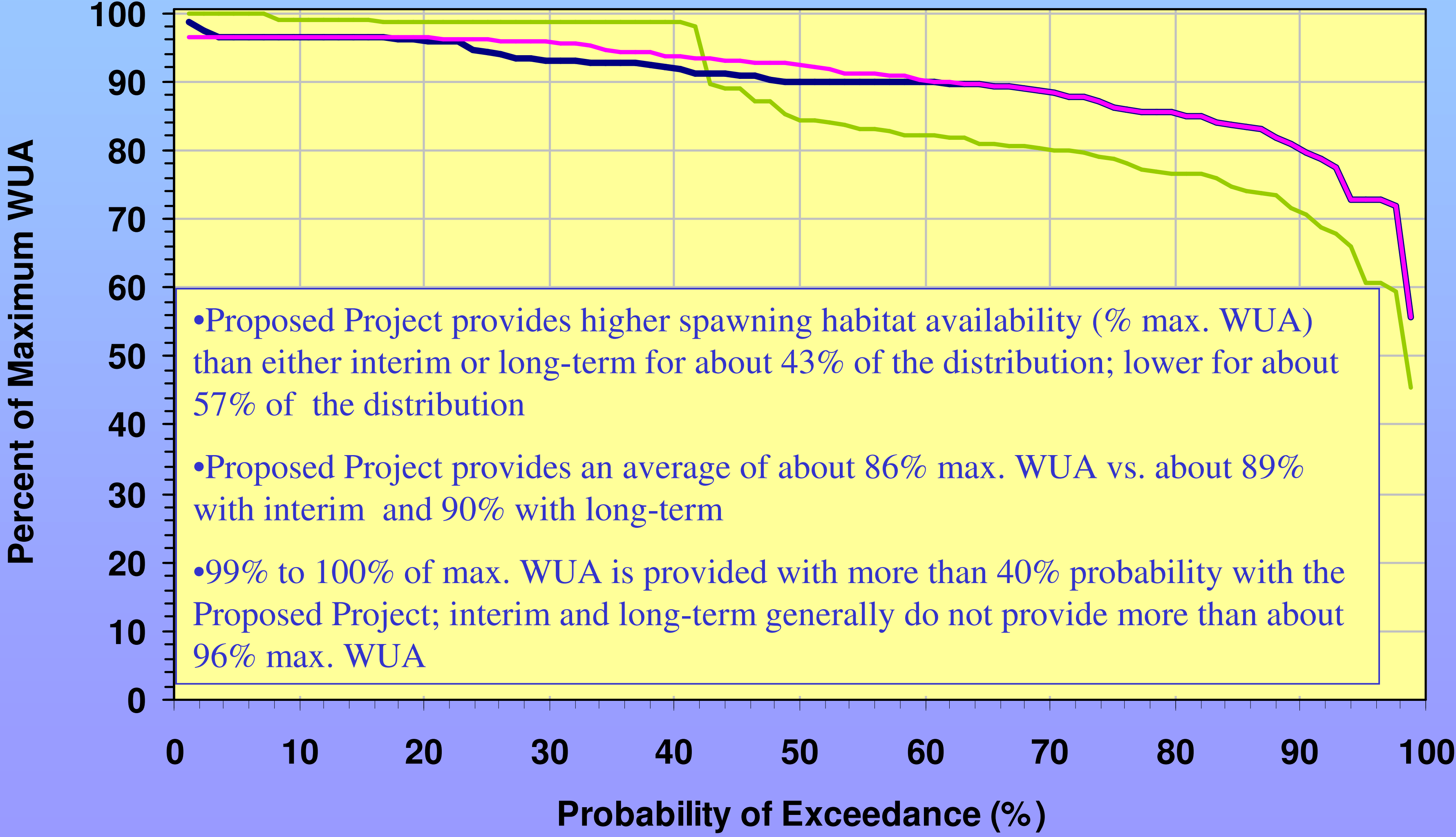
April Flow - Marysville



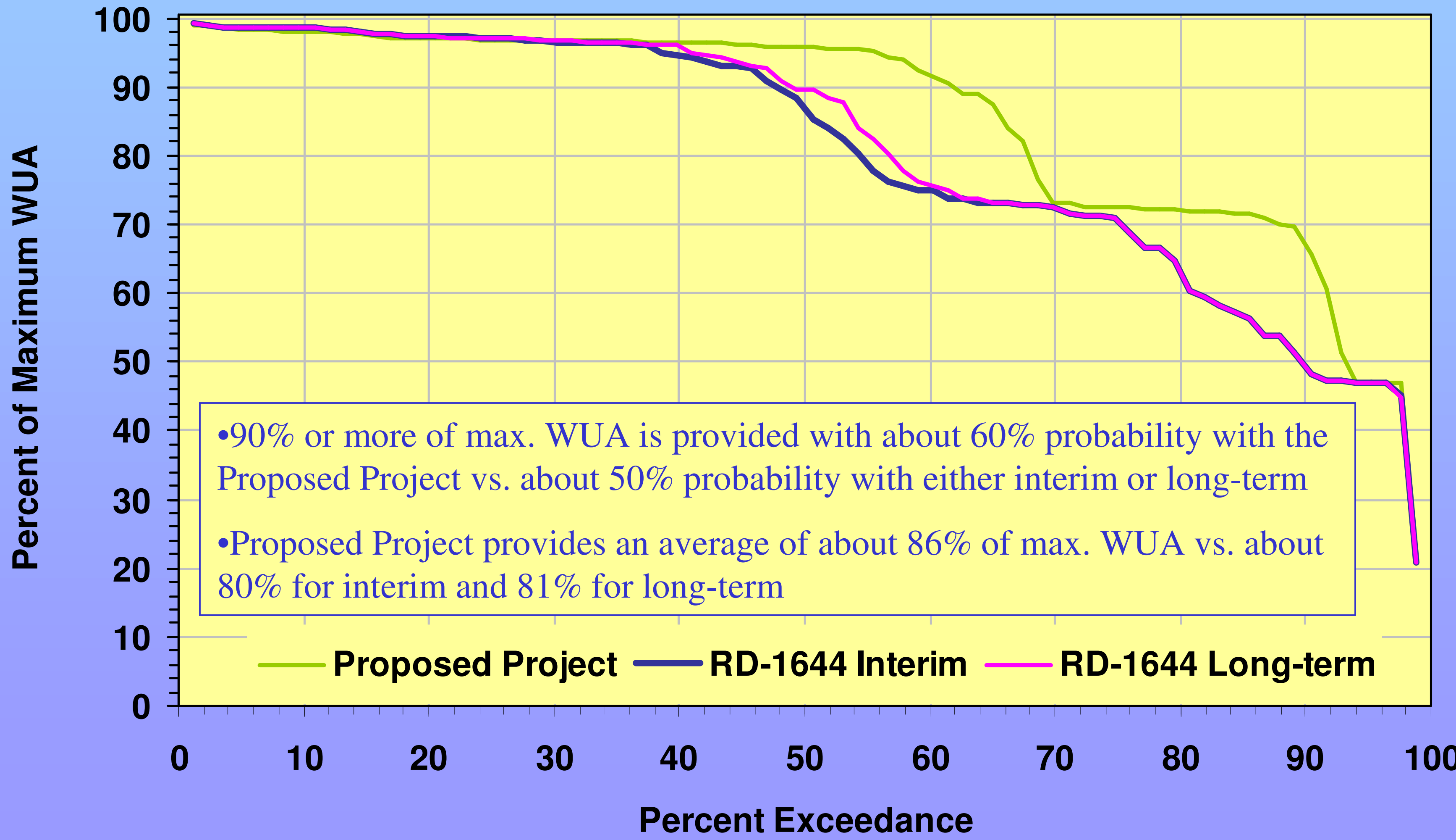
May Water Temperature - Marysville



Chinook Salmon
Spawning Habitat Availability
September



Chinook Salmon
Spawning Habitat Availability
October through December



Steelhead

Relative to RD-1644 Interim and RD-1644 Long-term, the Proposed Project is expected to provide:

- Lower (up to 2°F) temperatures during late summer and fall adult immigration and holding (Aug - Oct)
- Equivalent or more protective temperature (May) and flows during spawning and embryo incubation (Jan - May)
- Generally lower (up to 2°F) temperatures during juvenile rearing (May - Oct)
- Lower (up to 2°F) temperatures, and generally more protective flows during juvenile downstream movement (May - Sep)
- Lower temperatures (Oct and May), and generally equivalent or more protective flows during smolt emigration (Oct - May)
- Similar protection against juvenile non-volitional downstream movement

Spring-run Chinook Salmon

Relative to RD-1644 Interim and RD-1644 Long-term, the Proposed Project is expected to provide:

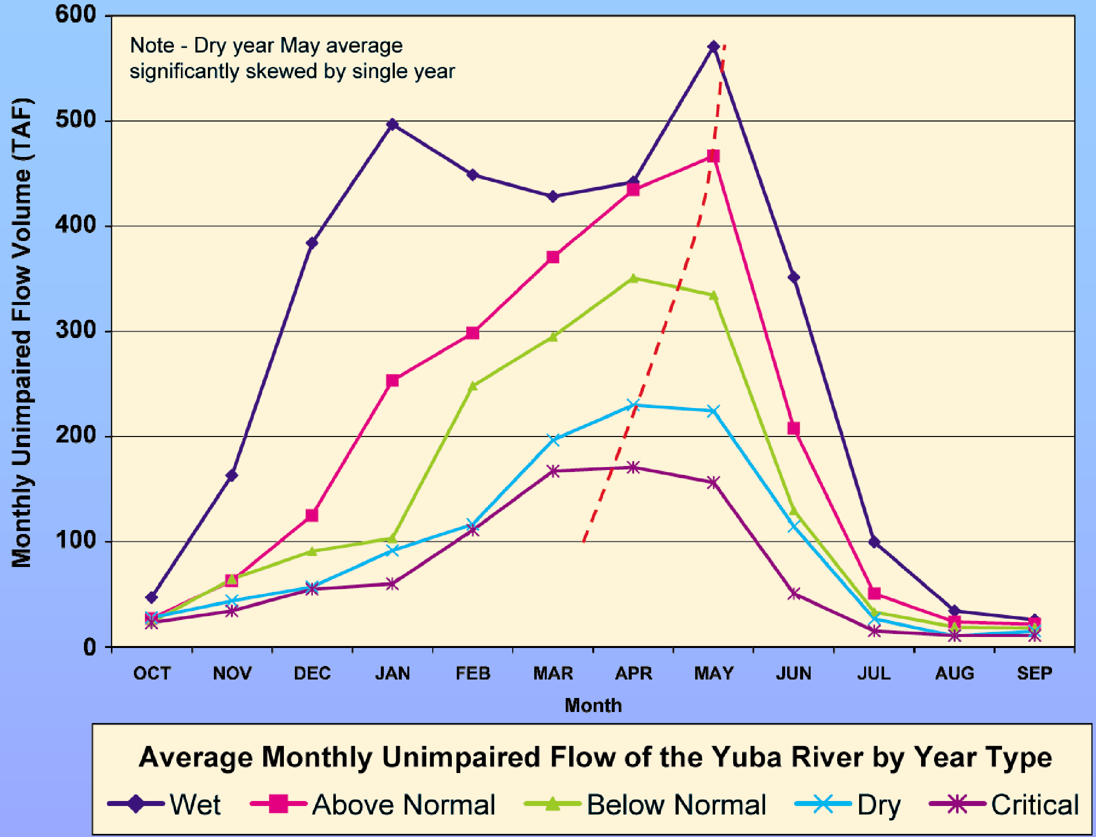
- Generally equivalent flow and temperature conditions during adult upstream migration and holding (Feb - Sep)
- Similar rates of non-indigenous adult Chinook salmon straying
- Higher spawning habitat availability (in Sep) during low flow conditions (e.g., drier years); higher spawning habitat Oct - Dec
- Nearly identical spawning temperatures (Sep - Oct)
- Lower (about 2 °F) temperatures below Daguerre Point Dam during the over-summer rearing period (May – Oct)
- Similar protection against juvenile non-volitional downstream movement, and generally equivalent or enhanced smolt outmigration (Nov - Jun) conditions

Fall-run Chinook Salmon

Relative to RD-1644 Interim and RD-1644 Long-term, the Proposed Project is expected to provide:

- Higher flows (up to 250 cfs) and lower temperatures (up to 2°F) during adult immigration and holding (Aug - Nov)
- Similar rates of non-indigenous adult Chinook salmon straying
- More spawning habitat overall, and more (generally 10% - 20%) when habitat is least available (60% occurrence probability)
- Lower (up to 1°F) temperatures (Oct) during spawning (Oct-Dec)
- Similar protection against juvenile non-volitional downstream movement
- Generally equivalent or more protective flows; lower temperatures (May and Jun) during juvenile rearing and outmigration (Dec - Jun)

Average Monthly Unimpaired Flow at Smartville



Accord Flow Schedules, Marysville Gage (cfs)

Schedule	OCT		NOV	DEC	JAN	FEB	MAR	APR		MAY		JUN		JUL	AUG	SEP	Total Annual Volume (AF)
	1-15	16-31	1-30	1-31	1-31	1-29	1-31	1-15	16-30	1-15	16-31	1-15	16-30	1-31	1-31	1-30	
1	500	500	500	500	500	500	700	1000	1000	2000	2000	1500	1500	700	600	500	574200
2	500	500	500	500	500	500	700	700	800	1000	1000	800	500	500	500	500	429066
3	500	500	500	500	500	500	500	700	700	900	900	500	500	500	500	500	398722
4	400	400	500	500	500	500	500	600	900	900	600	400	400	400	400	400	361944
5	400	400	500	500	500	500	500	500	600	600	400	400	400	400	400	400	334818
6	350	350	350	350	350	350	350	350	500	500	400	300	150	150	150	350	232155

* Indicated flows represent average volumes for the specified time period. Actual flows may vary from the indicated flows according to established criteria.

* Indicated Schedule 6 flows do not include an additional 30 TAF available from groundwater substitution to be allocated according to established criteria.

Green Sturgeon

Relative to RD-1644 Interim and RD-1644 Long-term, the Proposed Project is expected to provide:

- Generally equivalent flows and temperatures during adult immigration and holding (Feb - Jul), and spawning and embryo incubation (Apr - Jul)

- Lower temperatures during over-summer (May - Oct) juvenile rearing

- Generally equivalent flows and lower water temperatures during juvenile emigration (May - Sep)

American Shad

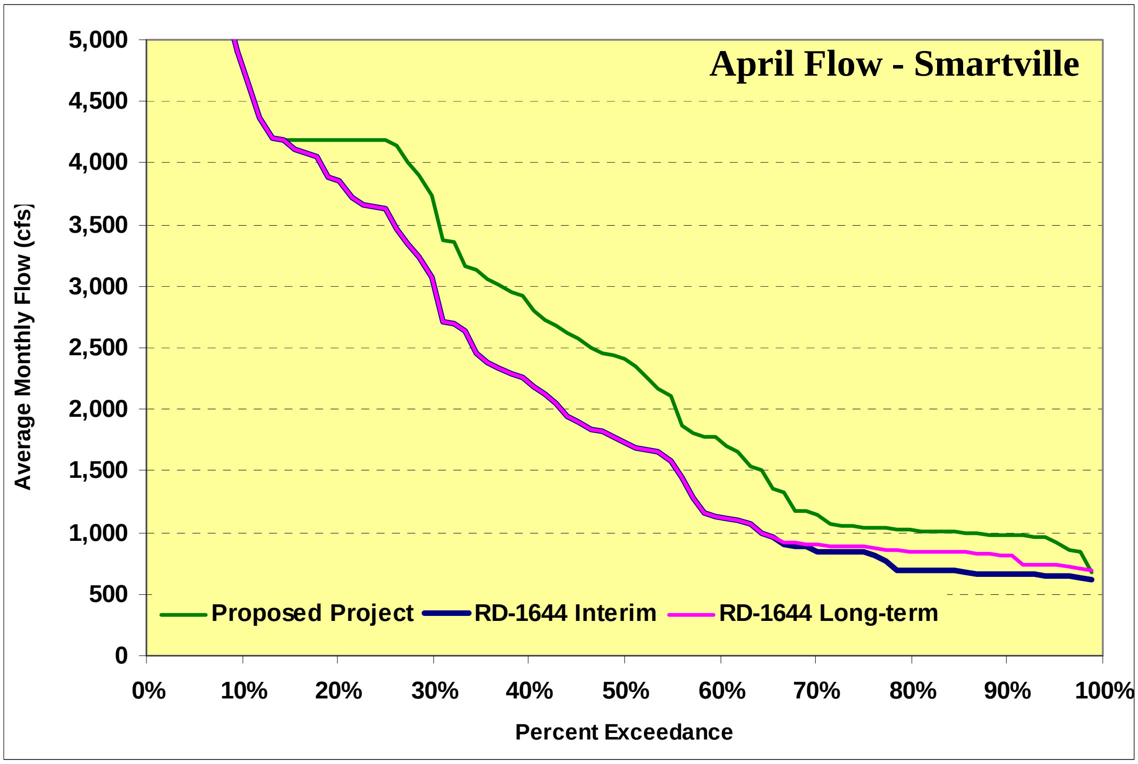
Relative to RD-1644 Interim and RD-1644 Long-term, the Proposed Project is expected to provide:

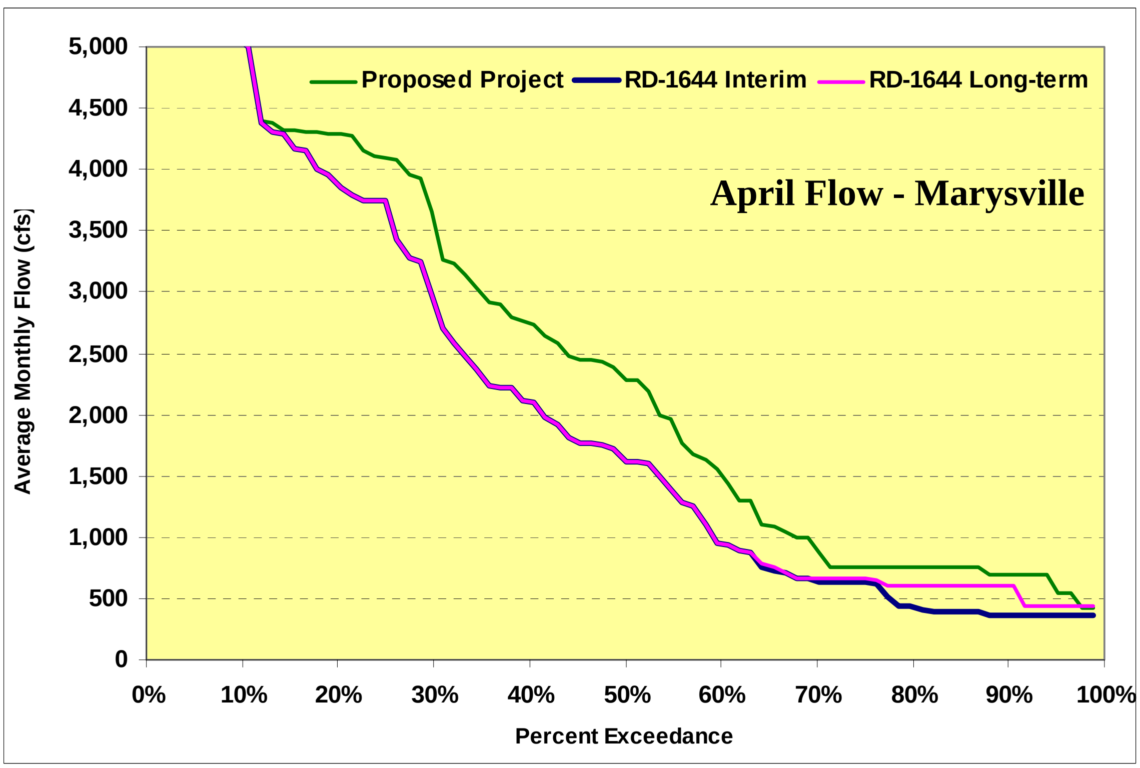
- Flows of sufficient magnitude to attract American shad into the lower Yuba River to spawn (Apr - Jun)

Conclusions

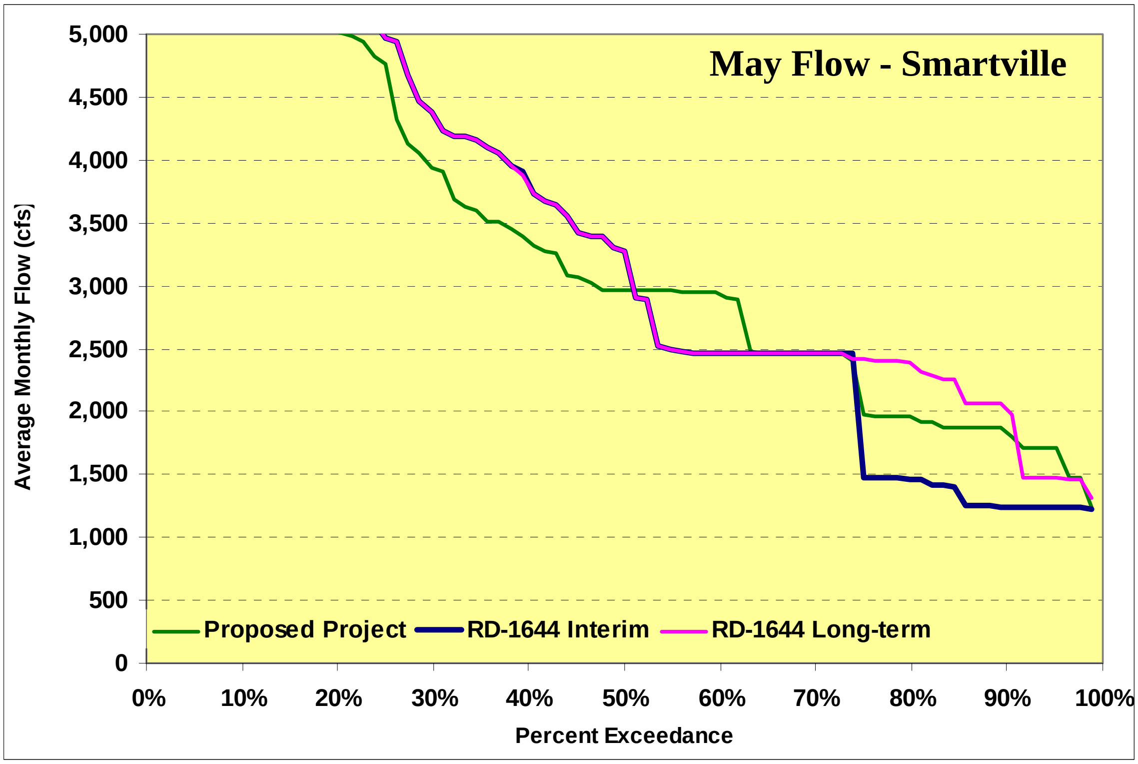
- Proposed project is not expected to result in significant or unreasonable impacts on lower Yuba River fish, relative to either RD-1644 interim or long-term

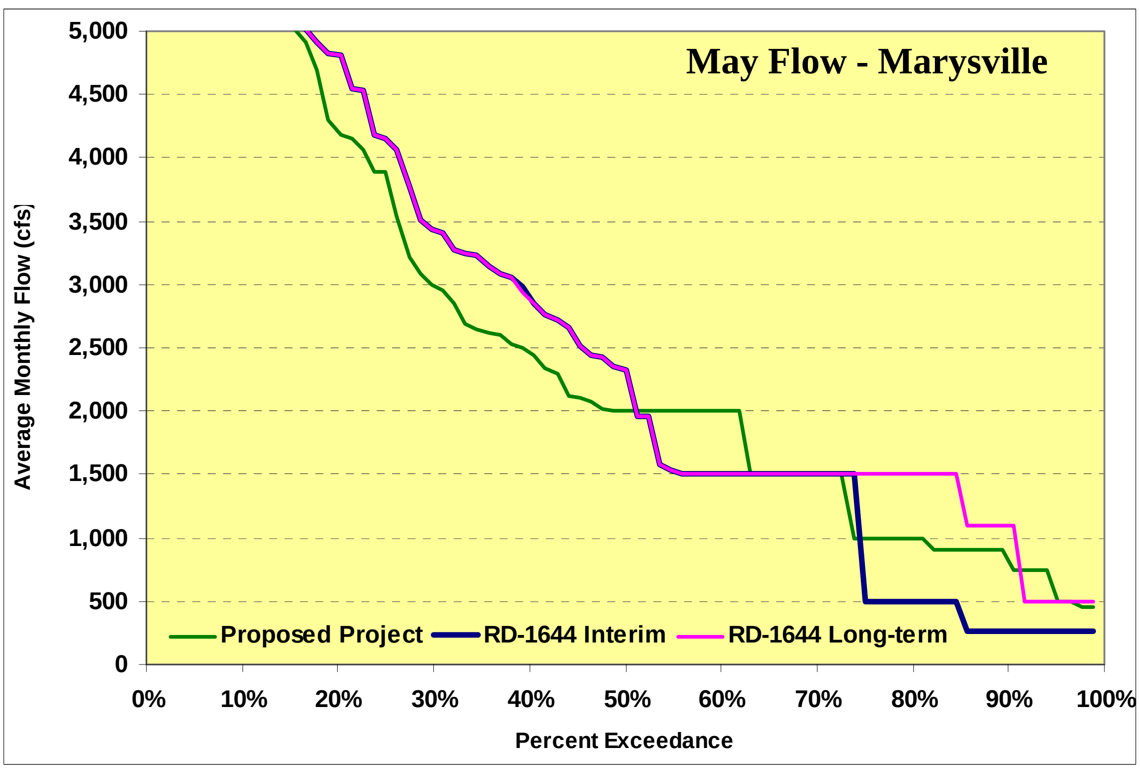
- Proposed project is expected to provide an equivalent or higher level of protection for lower Yuba River fish, relative to either RD-1644 interim or long-term


April Flow - Smartville
Average Monthly Flow (cfs)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
Proposed Project
RD-1644 Interim
RD-1644 Long-term
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance

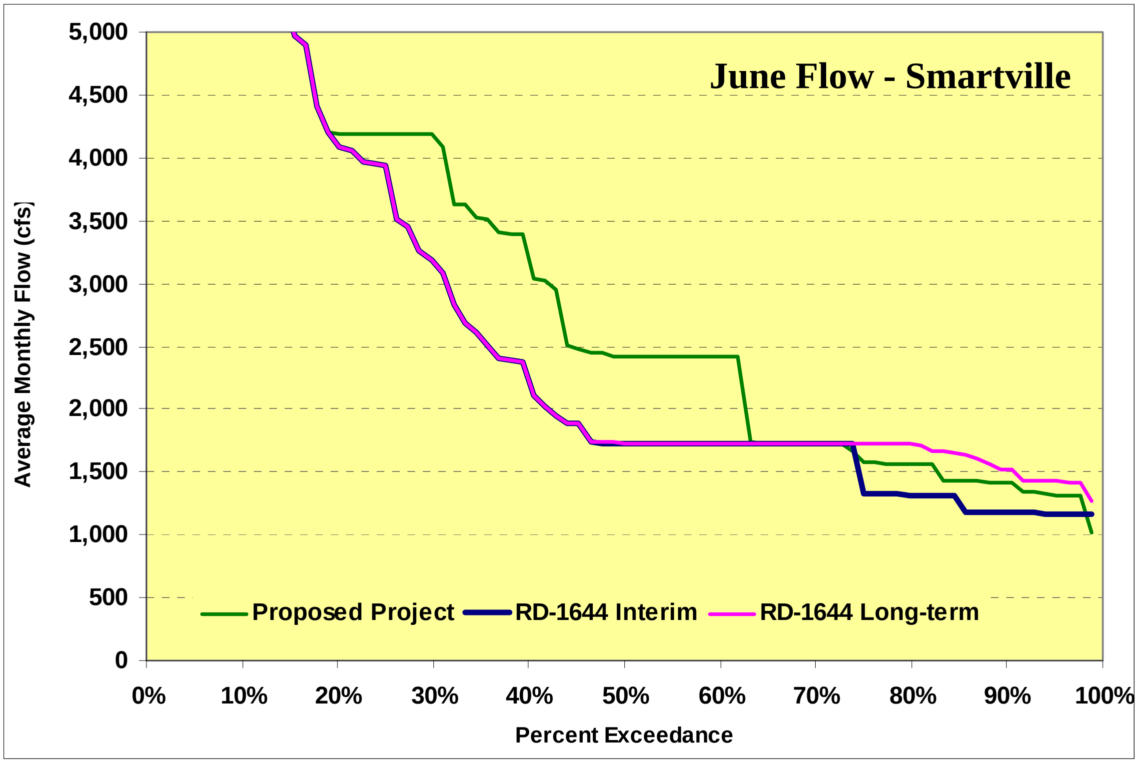

April Flow - Marysville
Average Monthly Flow (cfs)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
Proposed Project
RD-1644 Interim
RD-1644 Long-term
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance

Slide 13

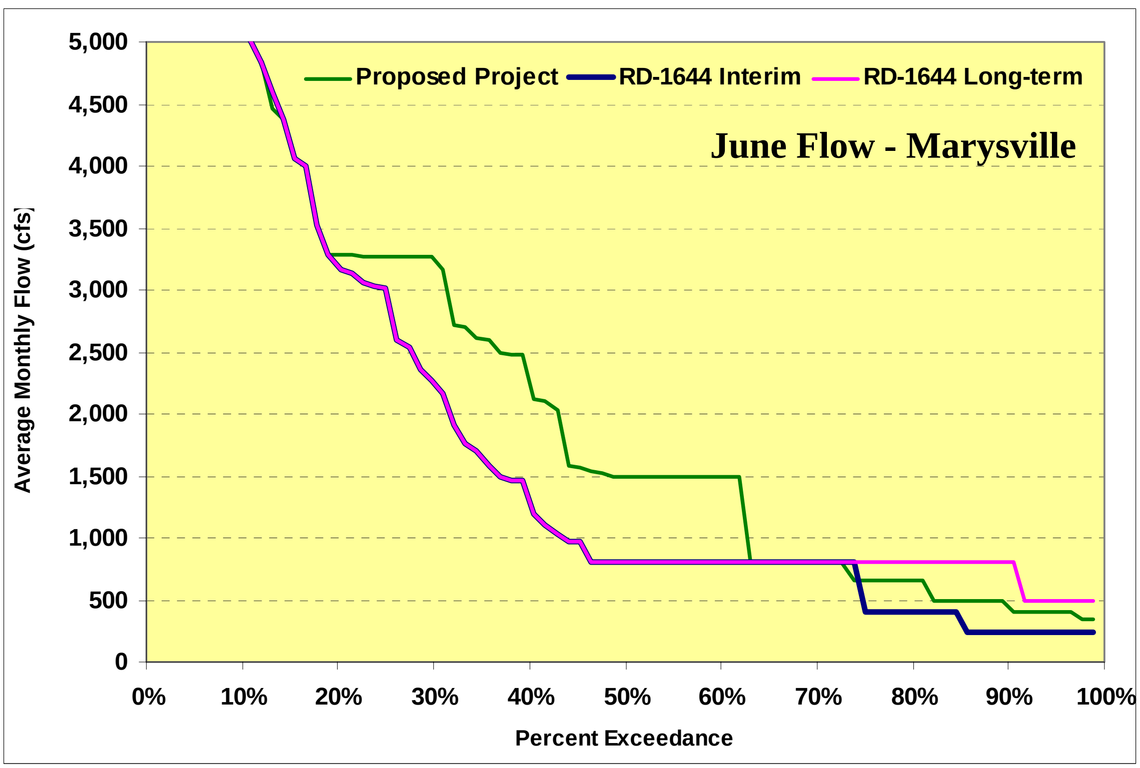

May Flow - Smartville
Average Monthly Flow (cfs)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
Proposed Project
RD-1644 Interim
RD-1644 Long-term
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance


May Flow - Marysville
Average Monthly Flow (cfs)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
Proposed Project
RD-1644 Interim
RD-1644 Long-term
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance

Slide 14

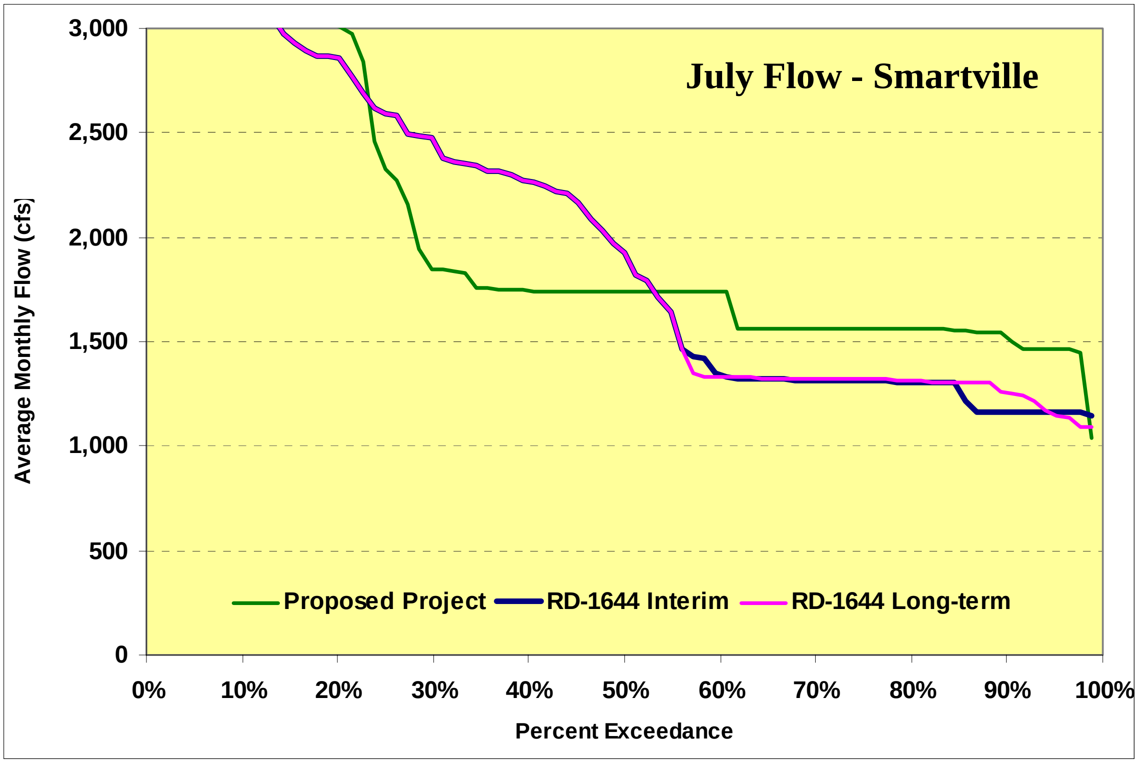


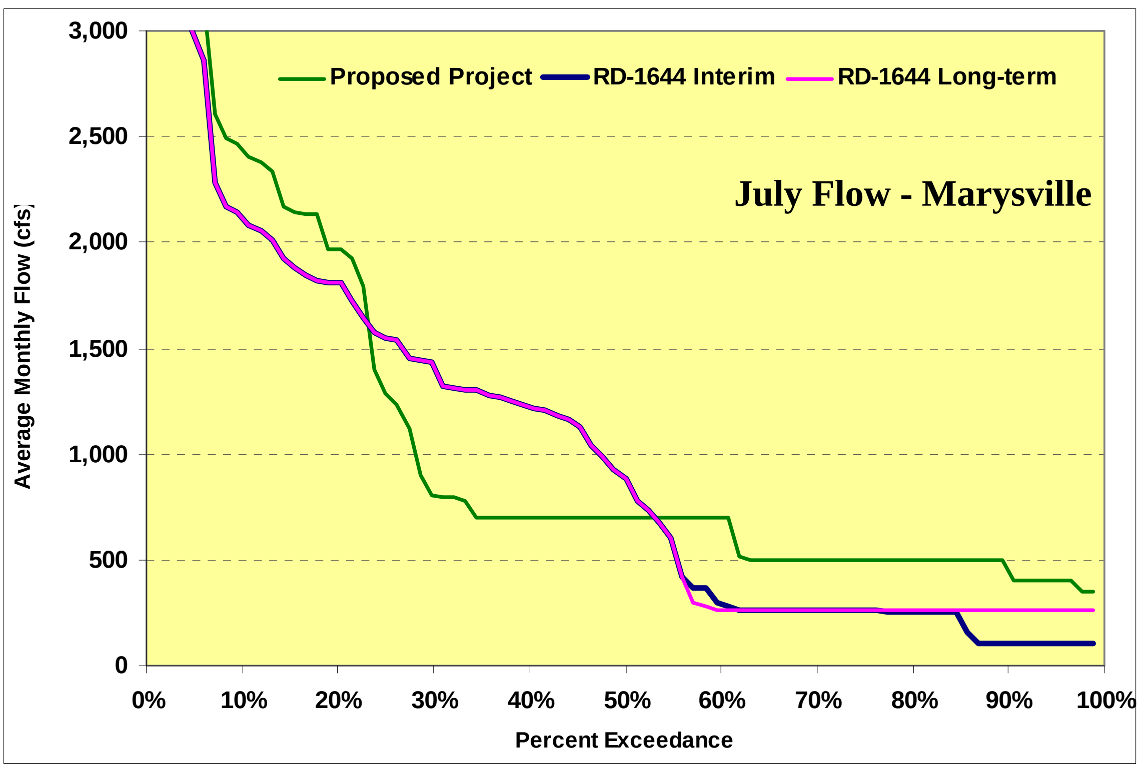
June Flow - Smartville
Average Monthly Flow (cfs)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance
Proposed Project
RD-1644 Interim
RD-1644 Long-term



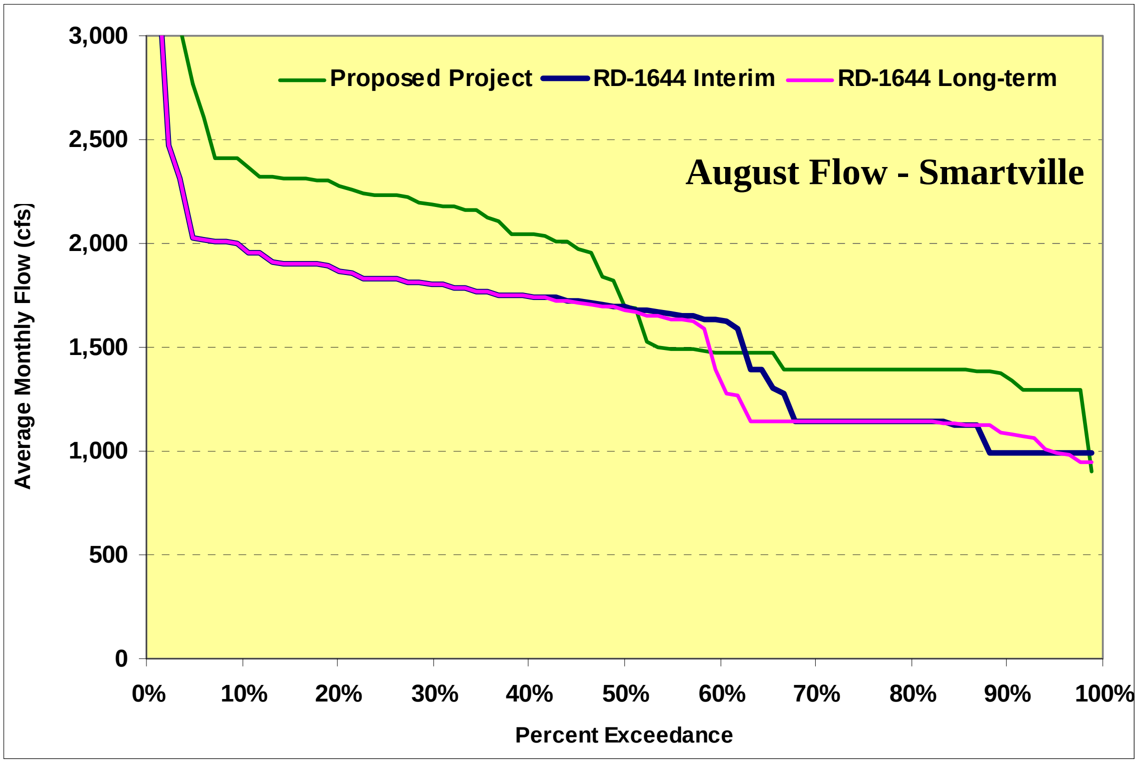
June Flow - Marysville
Average Monthly Flow (cfs)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance
Proposed Project
RD-1644 Interim
RD-1644 Long-term

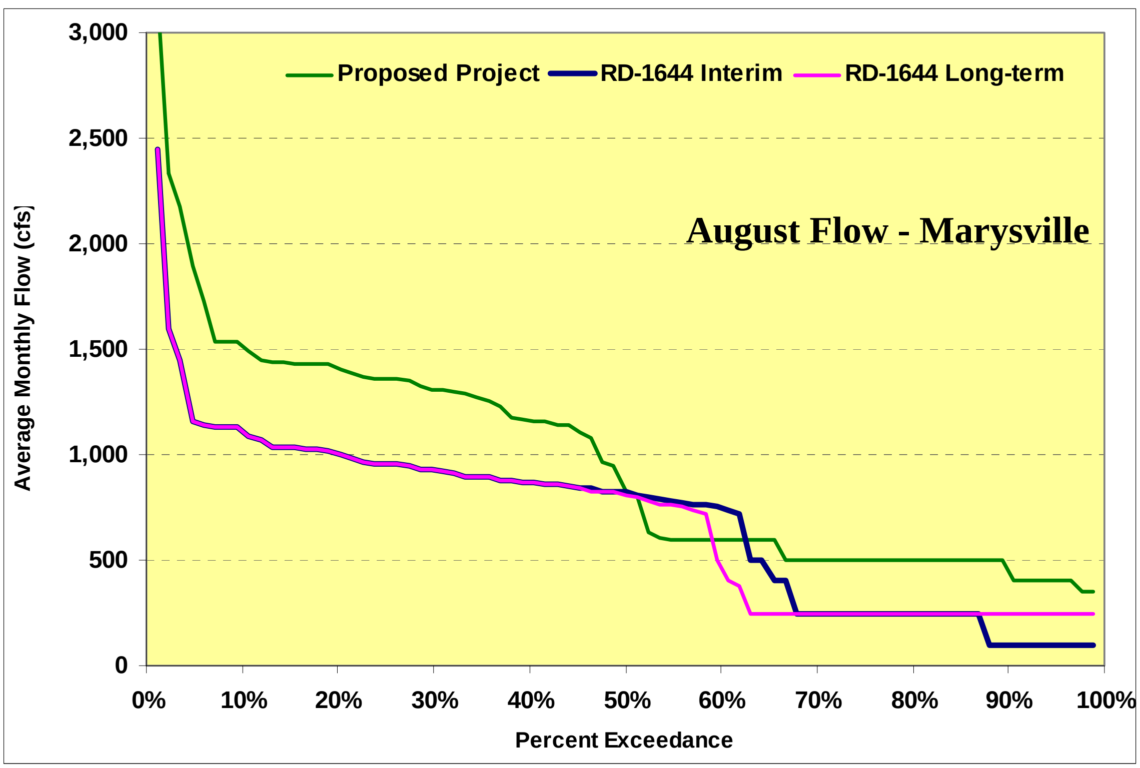
Slide 15


July Flow - Smartville
Average Monthly Flow (cfs)
3,000
2,500
2,000
1,500
1,000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance
Proposed Project
RD-1644 Interim
RD-1644 Long-term

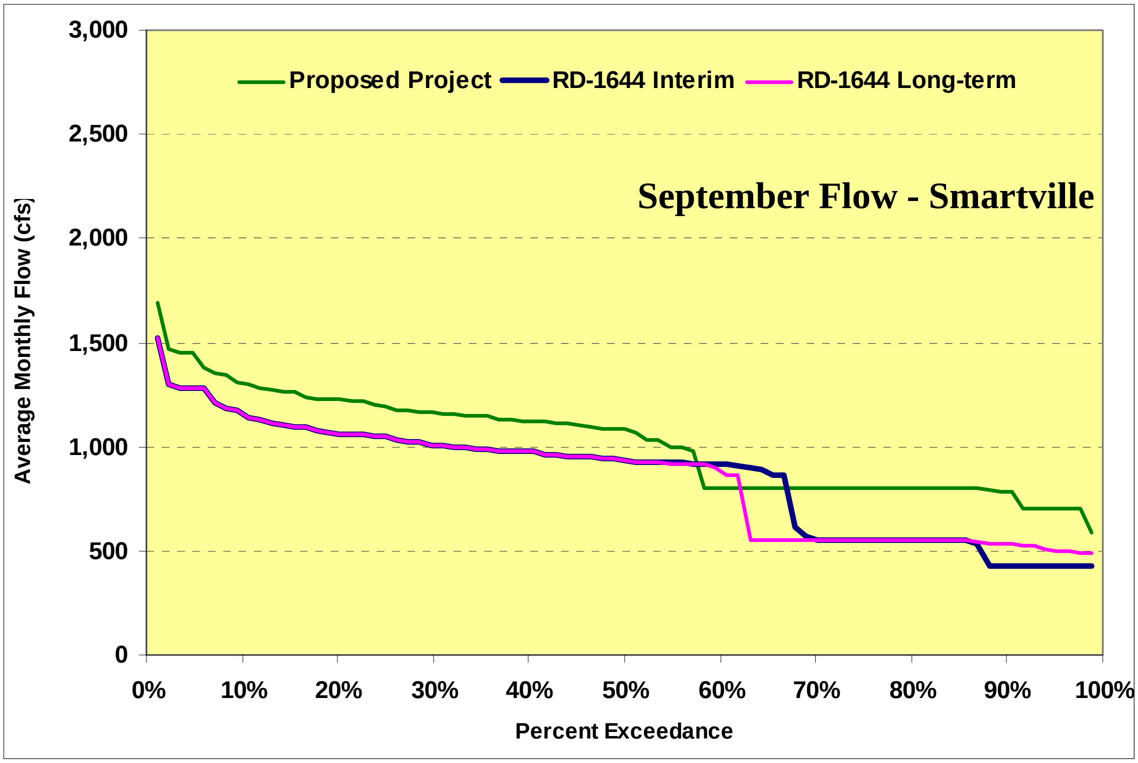

July Flow - Marysville
Average Monthly Flow (cfs)
3,000
2,500
2,000
1,500
1,000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance
Proposed Project
RD-1644 Interim
RD-1644 Long-term

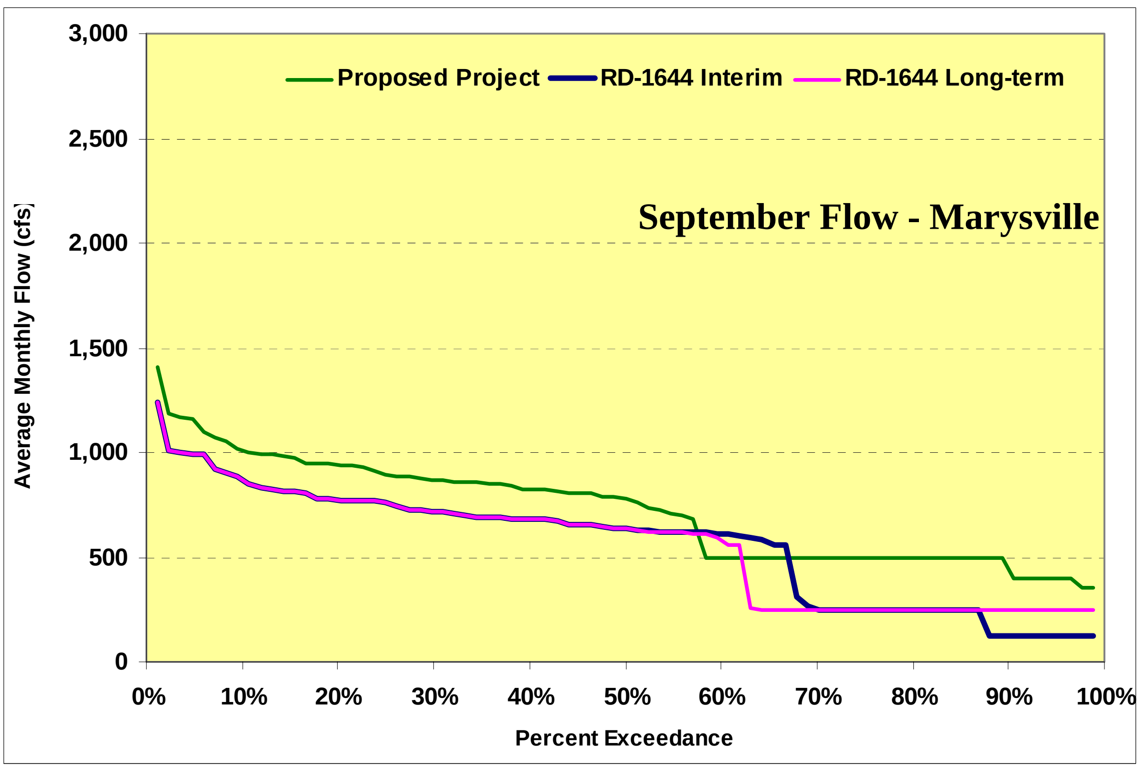
Slide 16


August Flow - Smartville
Proposed Project
RD-1644 Interim
RD-1644 Long-term
Average Monthly Flow (cfs)
3,000
2,500
2,000
1,500
1,000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance

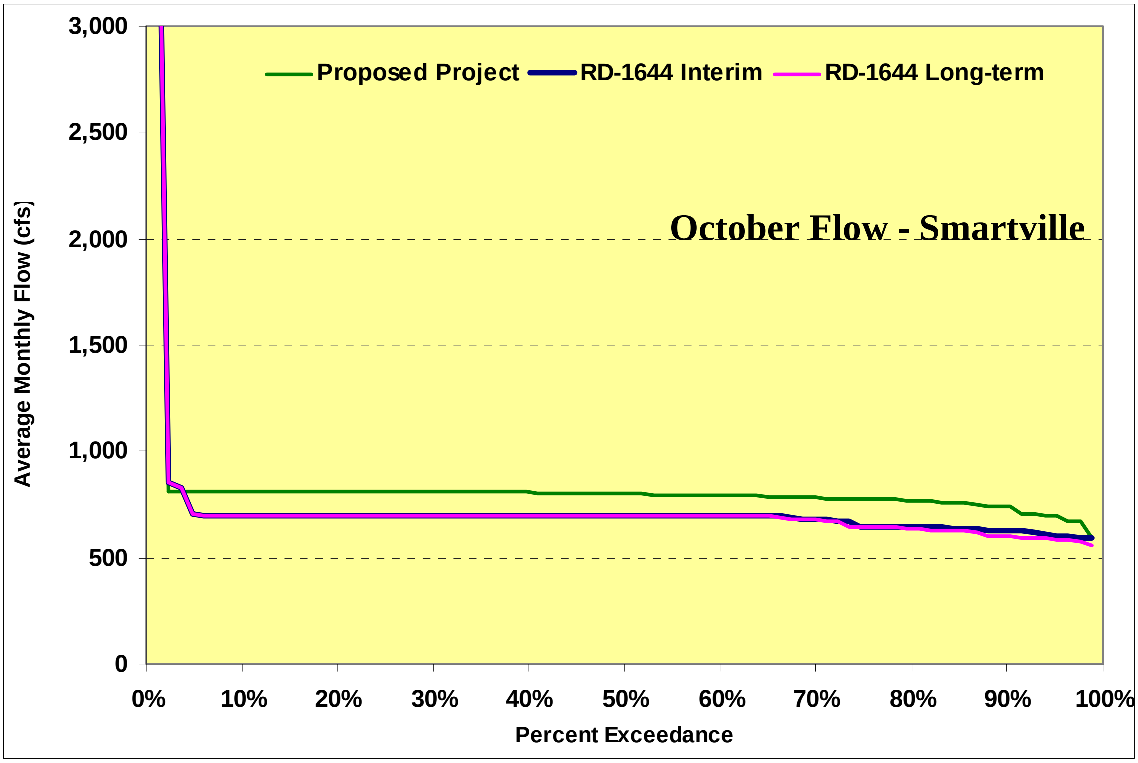

August Flow - Marysville
Proposed Project
RD-1644 Interim
RD-1644 Long-term
Average Monthly Flow (cfs)
3,000
2,500
2,000
1,500
1,000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance

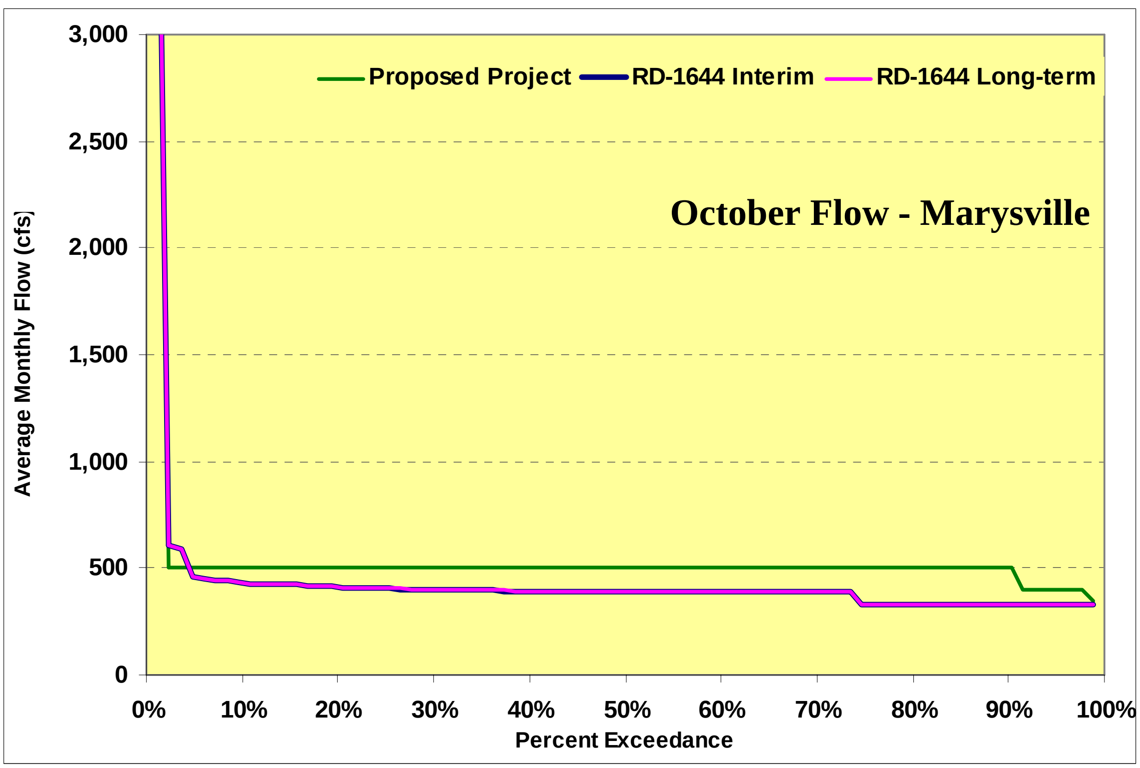
Slide 17


Proposed Project
RD-1644 Interim
RD-1644 Long-term
September Flow - Smartville
Average Monthly Flow (cfs)
3,000
2,500
2,000
1,500
1,000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance

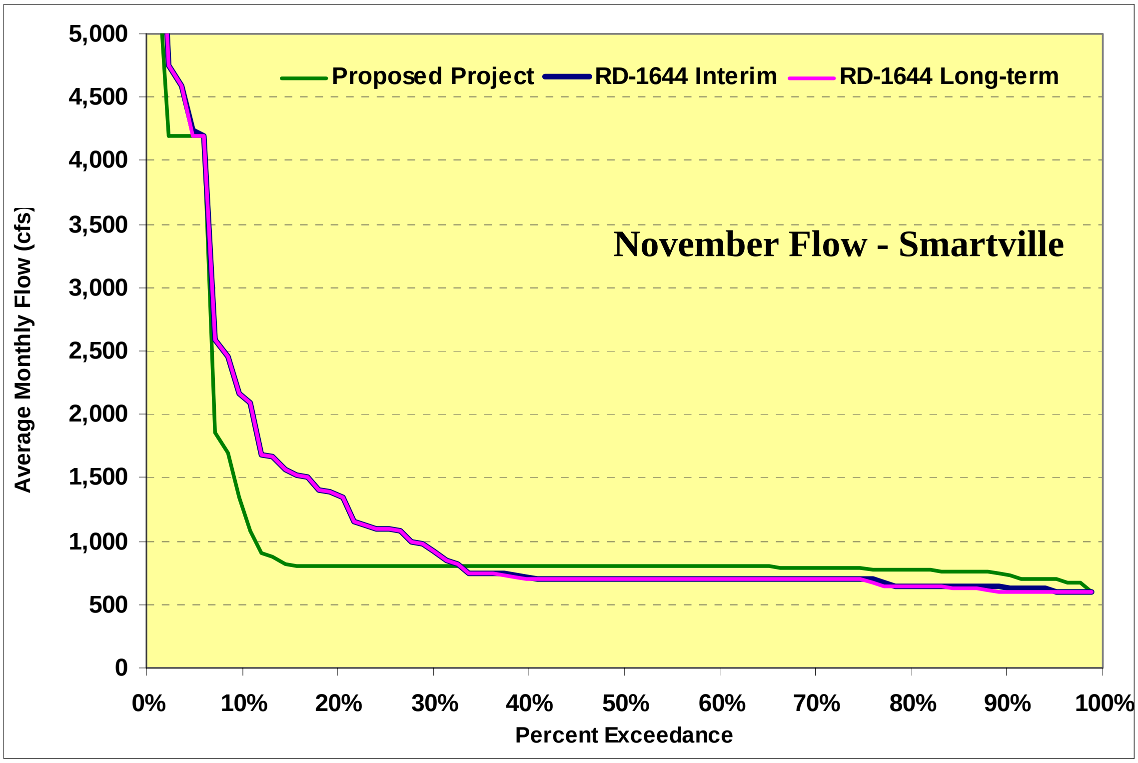

Proposed Project
RD-1644 Interim
RD-1644 Long-term
September Flow - Marysville
Average Monthly Flow (cfs)
3,000
2,500
2,000
1,500
1,000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance

Slide 18

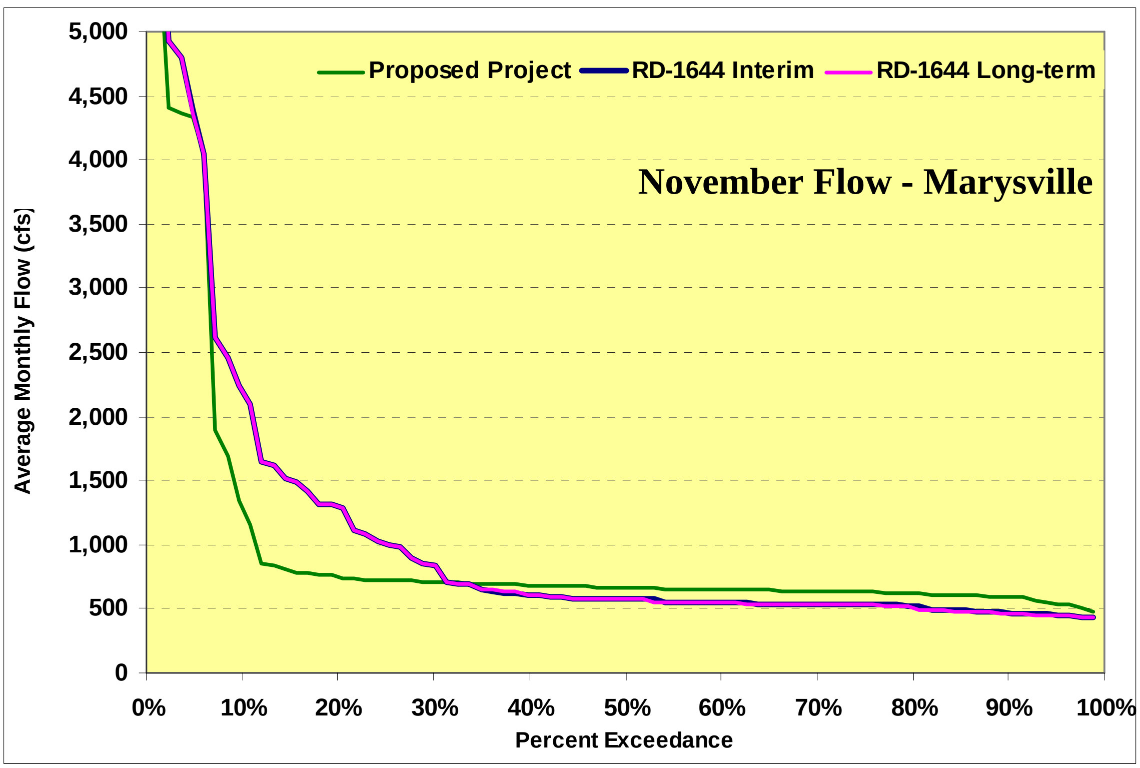

3,000
2,500
2,000
1,500
1,000
500
0
Average Monthly Flow (cfs)
Proposed Project
RD-1644 Interim
RD-1644 Long-term
October Flow - Smartville
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance


3,000
2,500
2,000
1,500
1,000
500
0
Average Monthly Flow (cfs)
Proposed Project
RD-1644 Interim
RD-1644 Long-term
October Flow - Marysville
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance

Slide 19

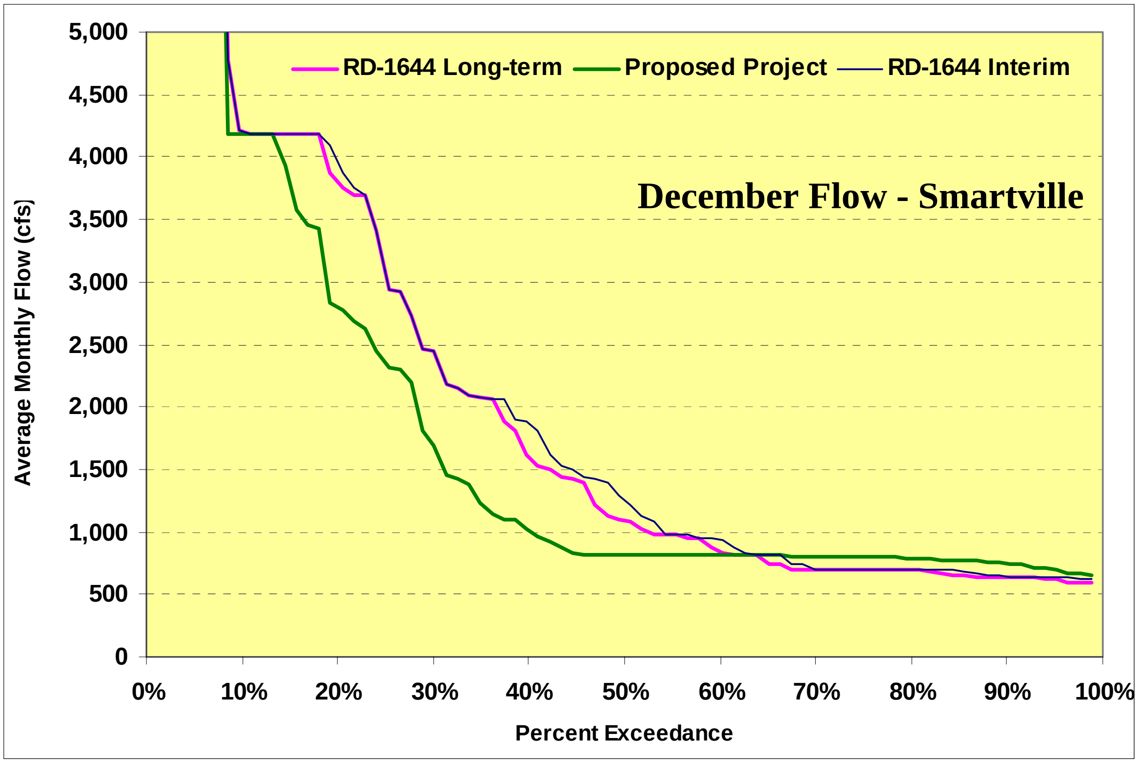


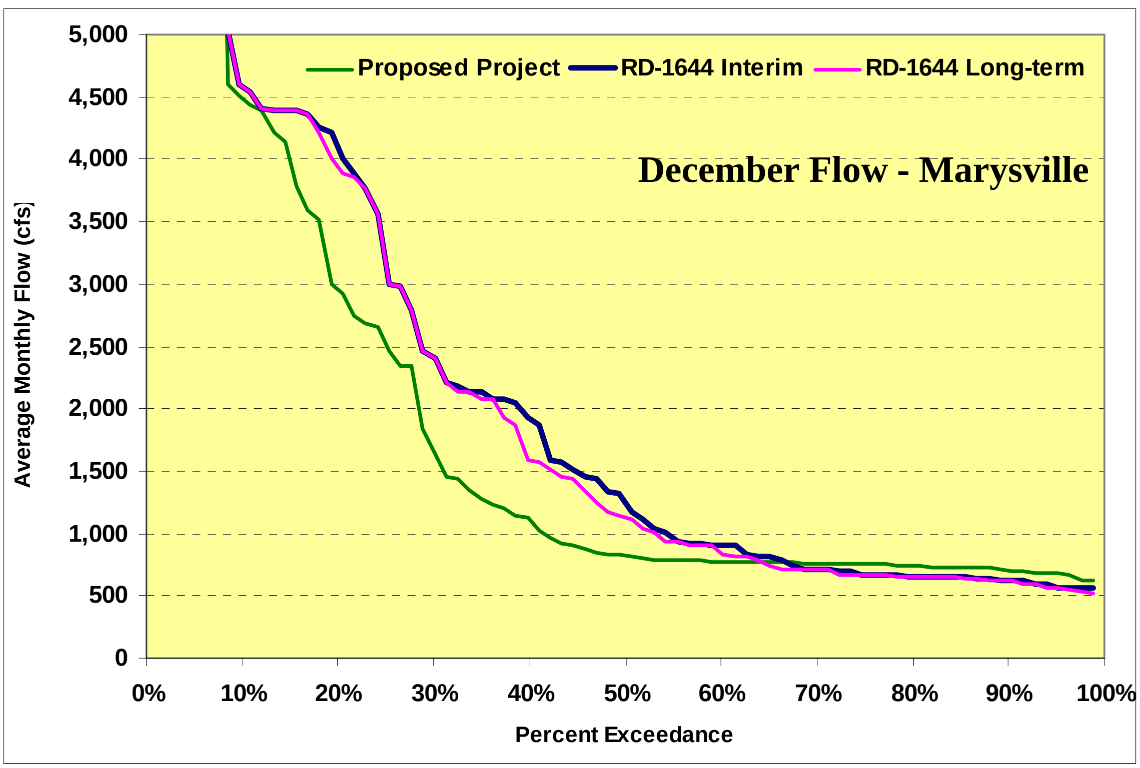
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
Average Monthly Flow (cfs)
Proposed Project
RD-1644 Interim
RD-1644 Long-term
November Flow - Smartville
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance



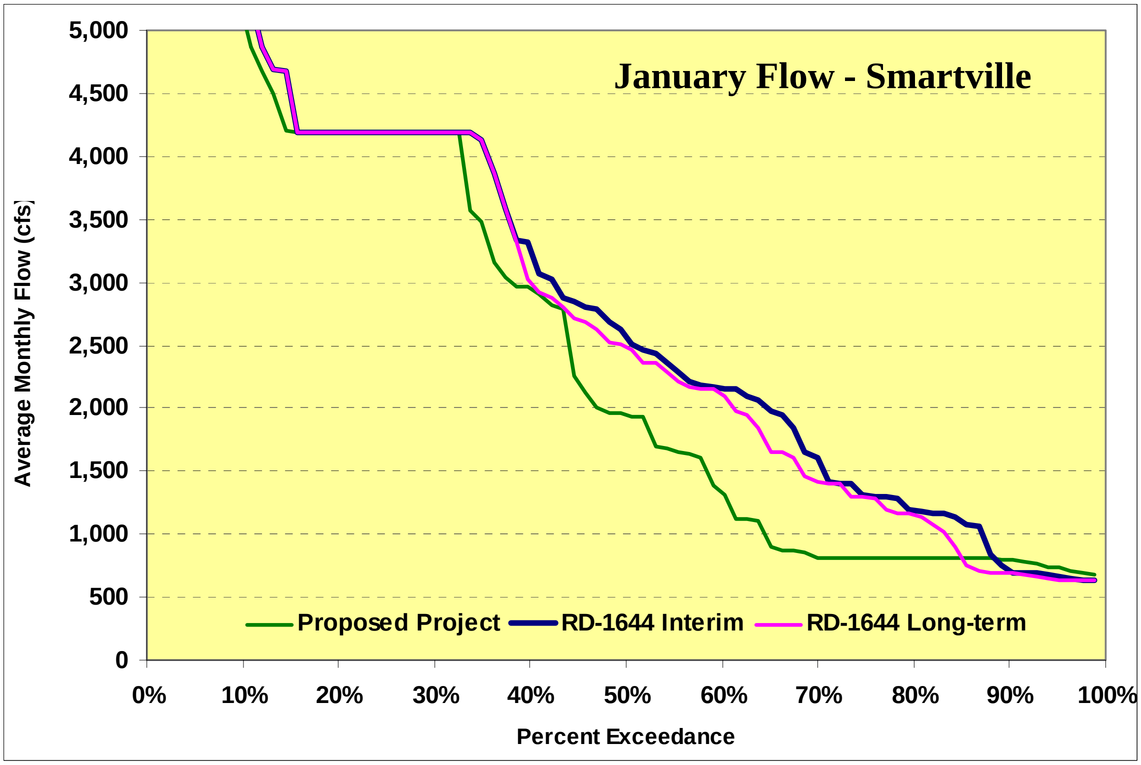
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
Average Monthly Flow (cfs)
Proposed Project
RD-1644 Interim
RD-1644 Long-term
November Flow - Marysville
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance

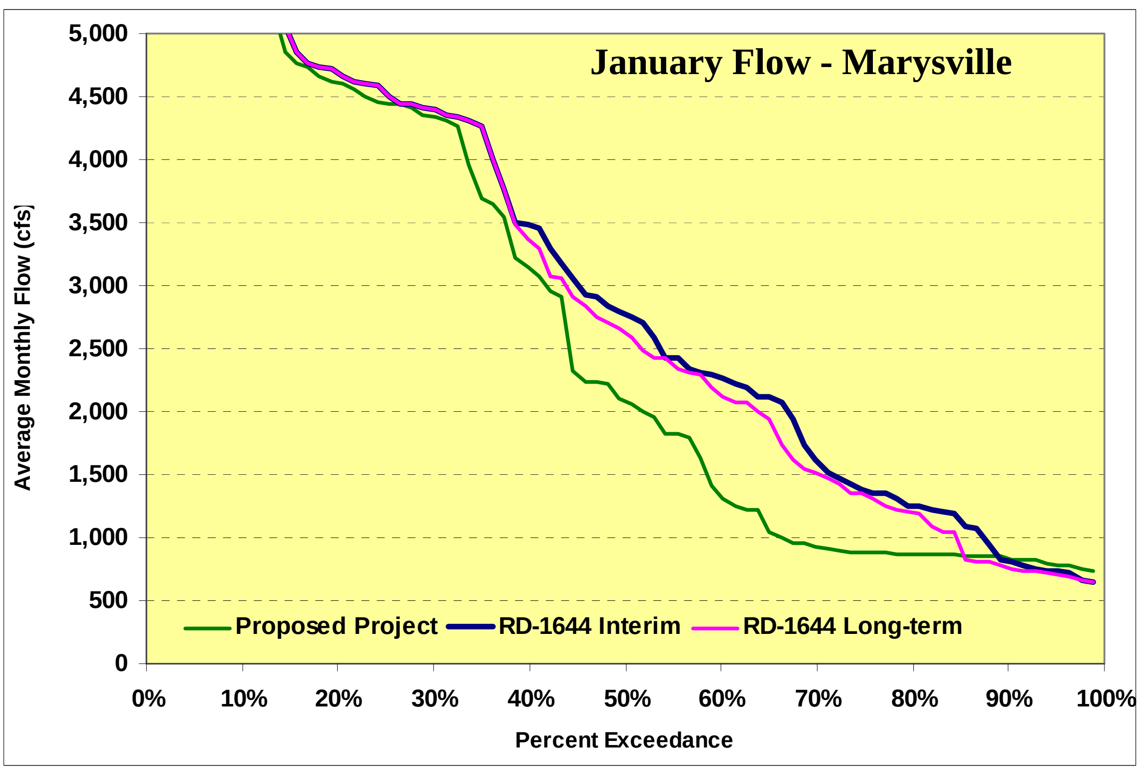
Slide 20


December Flow - Smartville
RD-1644 Long-term
Proposed Project
RD-1644 Interim
Average Monthly Flow (cfs)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance

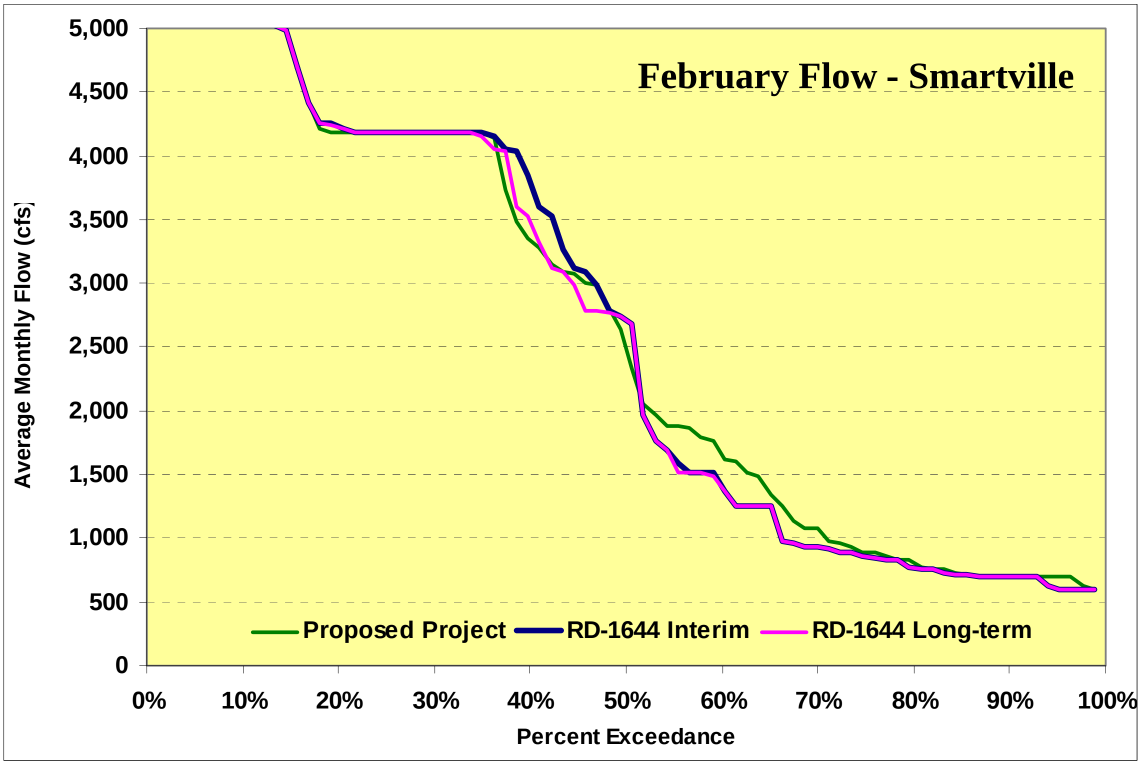

December Flow - Marysville
Proposed Project
RD-1644 Interim
RD-1644 Long-term
Average Monthly Flow (cfs)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance

Slide 21

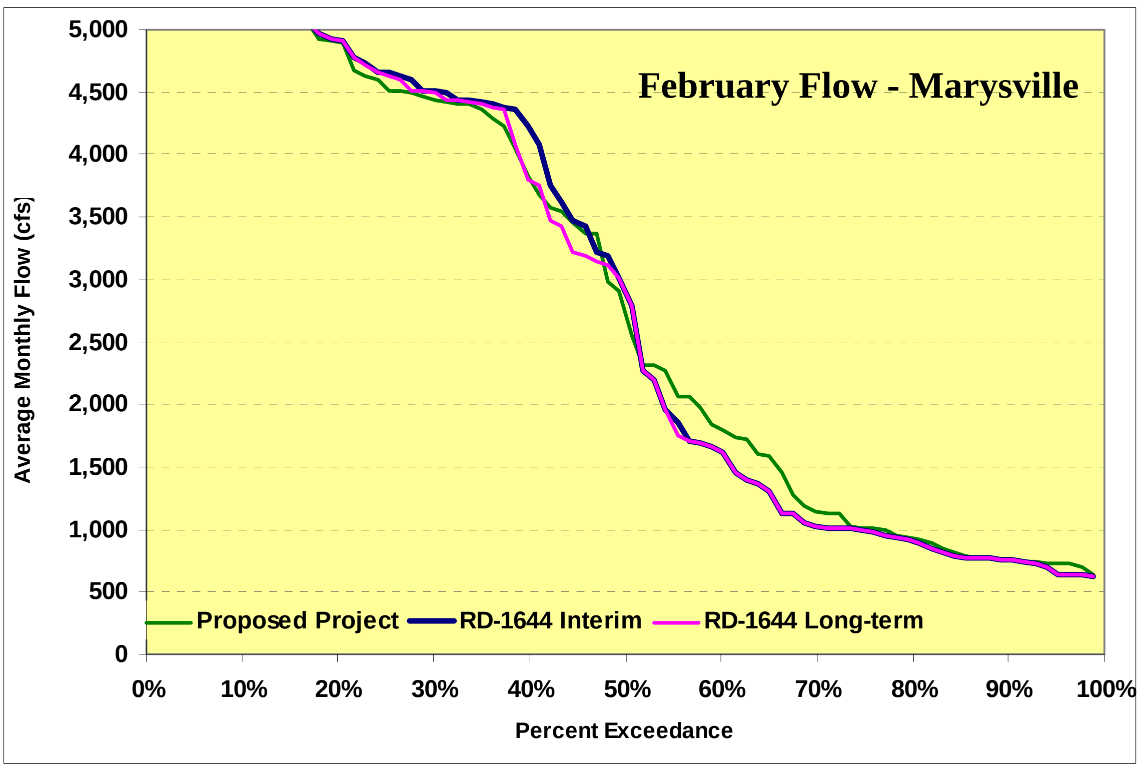

January Flow - Smartville
Average Monthly Flow (cfs)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance
Proposed Project
RD-1644 Interim
RD-1644 Long-term


January Flow - Marysville
Average Monthly Flow (cfs)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance
Proposed Project
RD-1644 Interim
RD-1644 Long-term

Slide 22

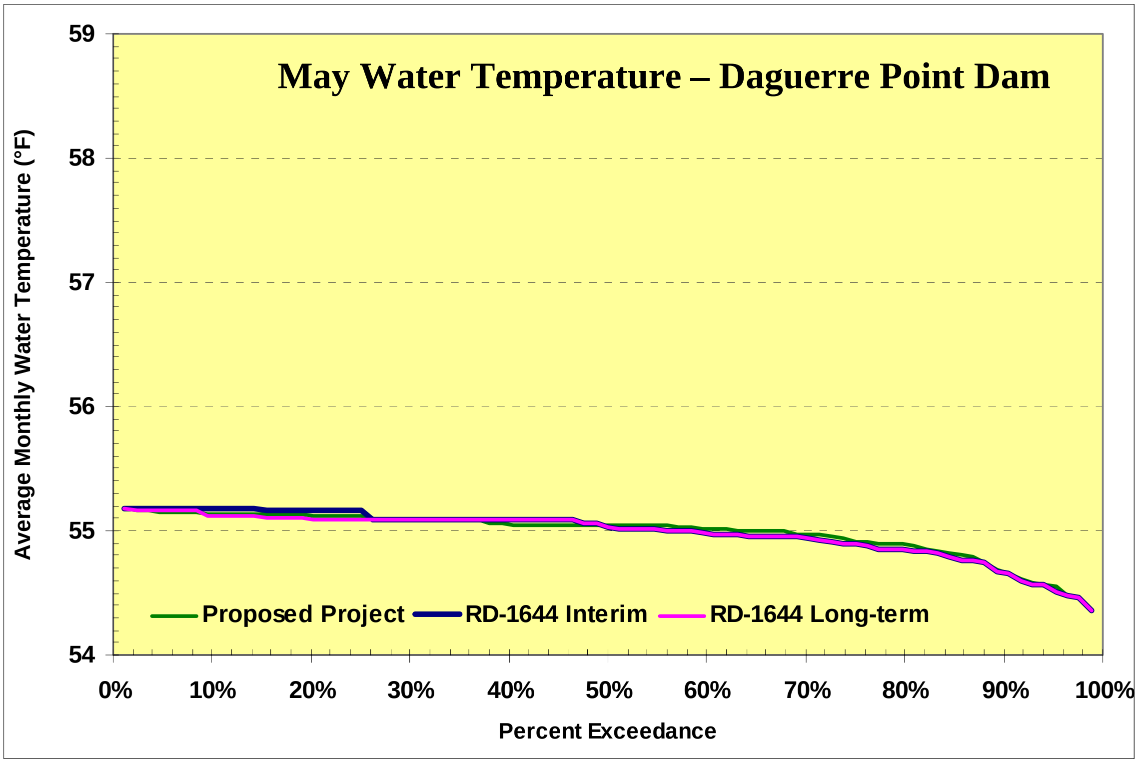


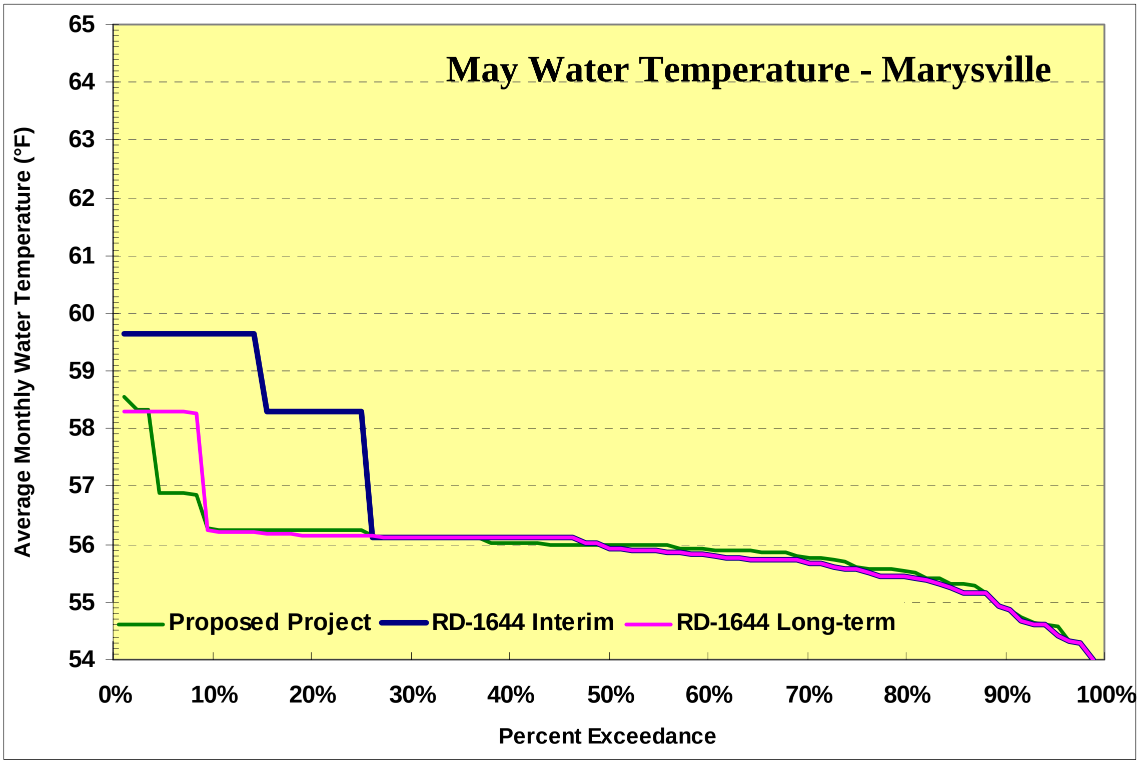
February Flow - Smartville
Average Monthly Flow (cfs)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance
Proposed Project
RD-1644 Interim
RD-1644 Long-term



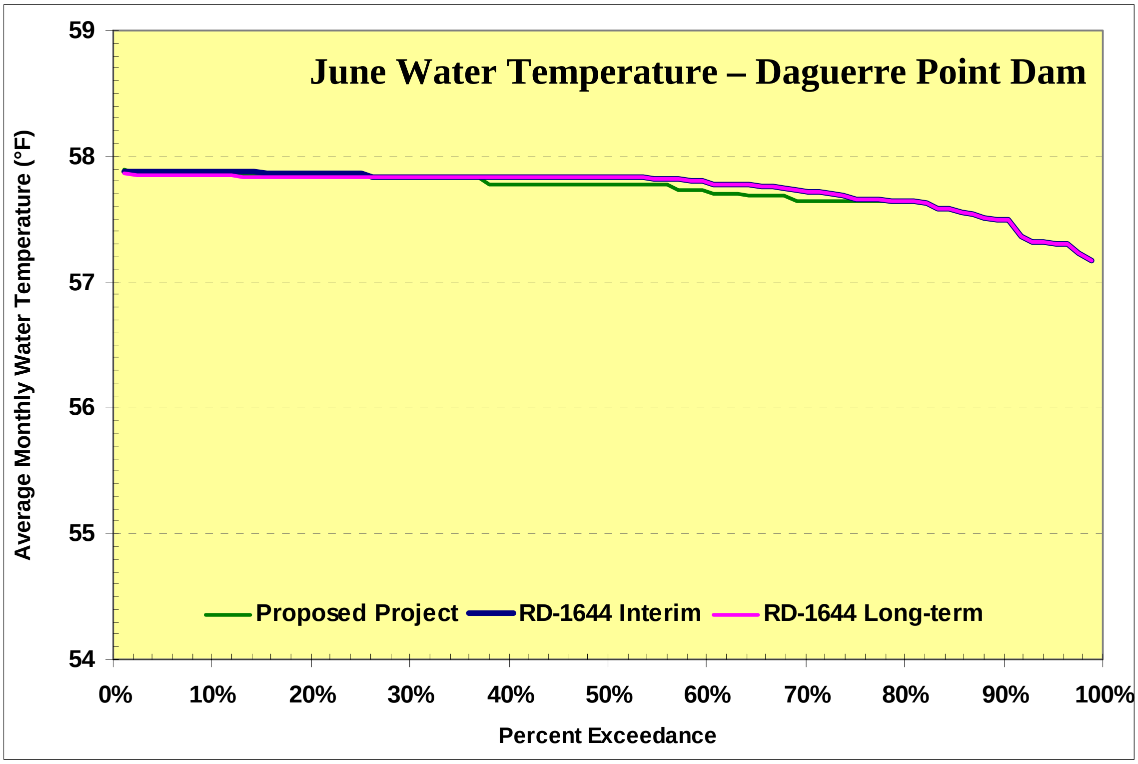
February Flow - Marysville
Average Monthly Flow (cfs)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance
Proposed Project
RD-1644 Interim
RD-1644 Long-term

Slide 23

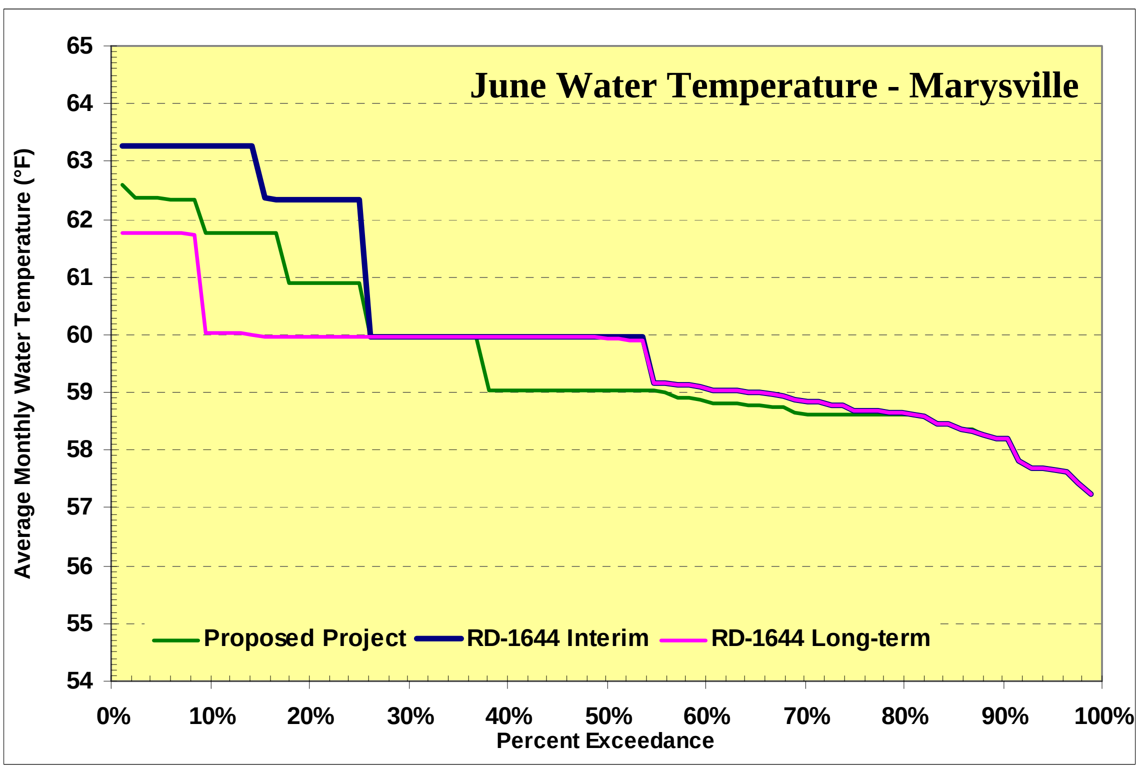

May Water Temperature – Daguerre Point Dam
Average Monthly Water Temperature (°F)
59
58
57
56
55
54
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance
Proposed Project
RD-1644 Interim
RD-1644 Long-term


May Water Temperature - Marysville
Average Monthly Water Temperature (°F)
65
64
63
62
61
60
59
58
57
56
55
54
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance
Proposed Project
RD-1644 Interim
RD-1644 Long-term

Slide 24

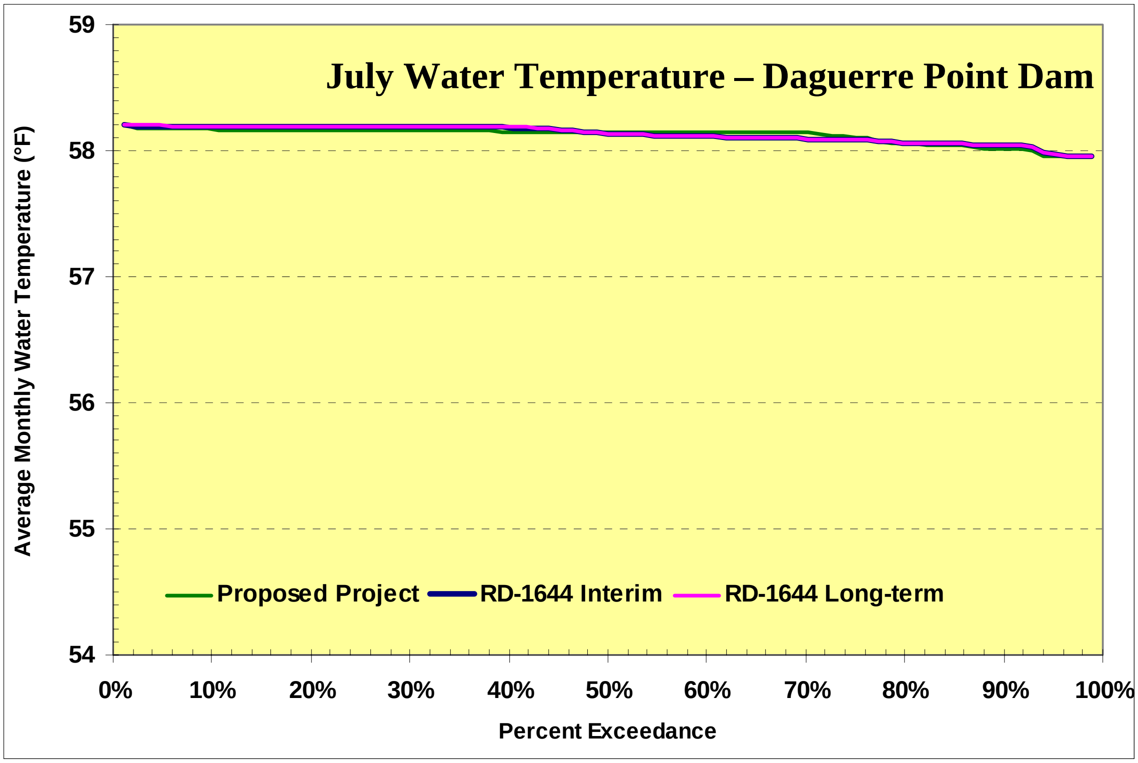


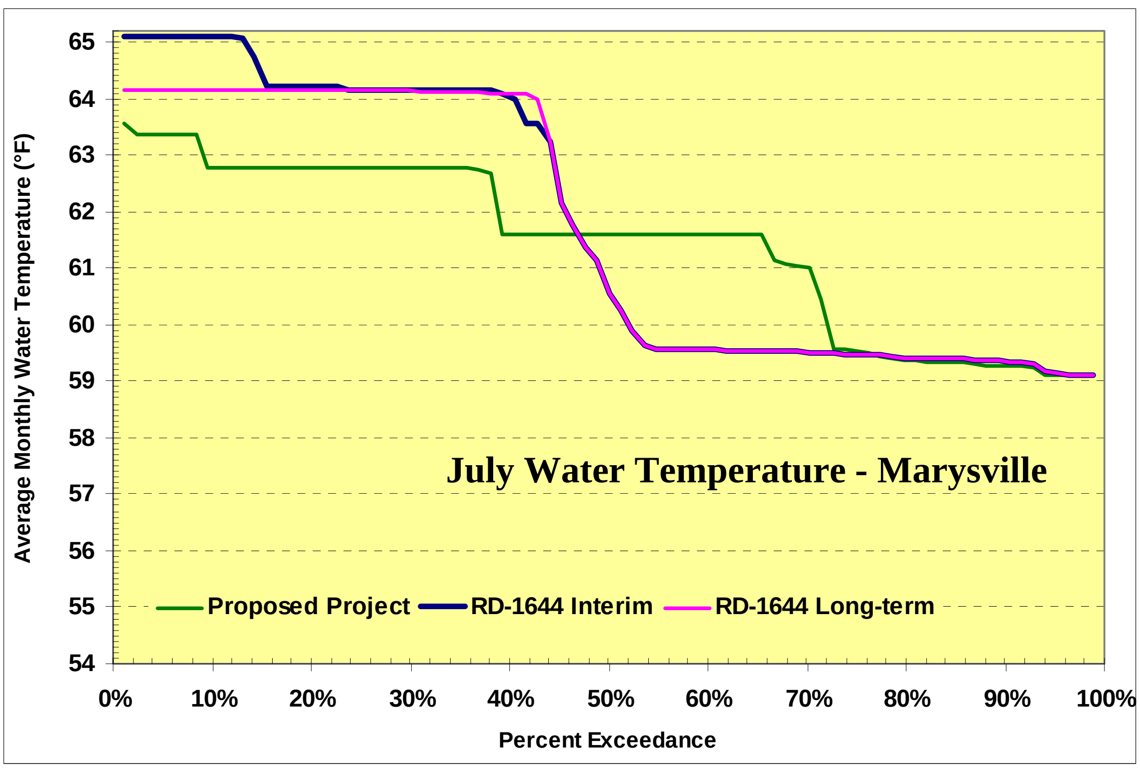
June Water Temperature – Daguerre Point Dam
Average Monthly Water Temperature (°F)
59
58
57
56
55
54
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance
Proposed Project
RD-1644 Interim
RD-1644 Long-term



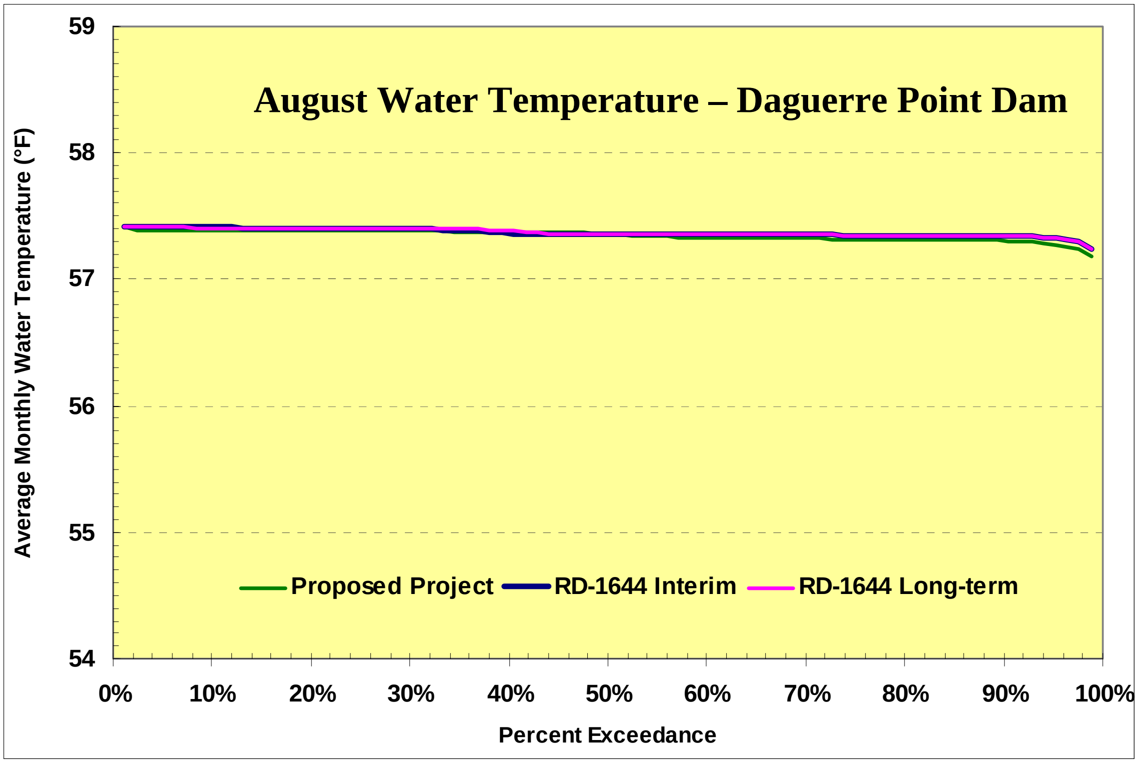
June Water Temperature - Marysville
Average Monthly Water Temperature (°F)
65
64
63
62
61
60
59
58
57
56
55
54
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance
Proposed Project
RD-1644 Interim
RD-1644 Long-term

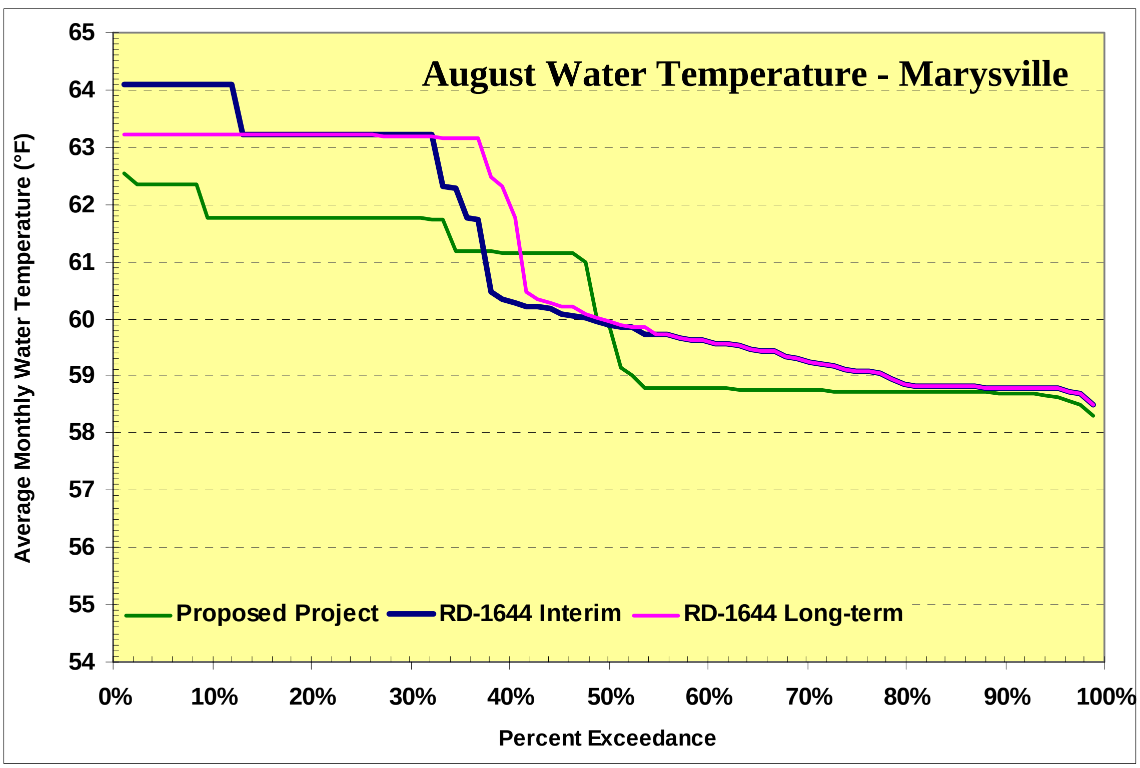
Slide 25


July Water Temperature – Daguerre Point Dam
Average Monthly Water Temperature (°F)
59
58
57
56
55
54
Proposed Project
RD-1644 Interim
RD-1644 Long-term
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance

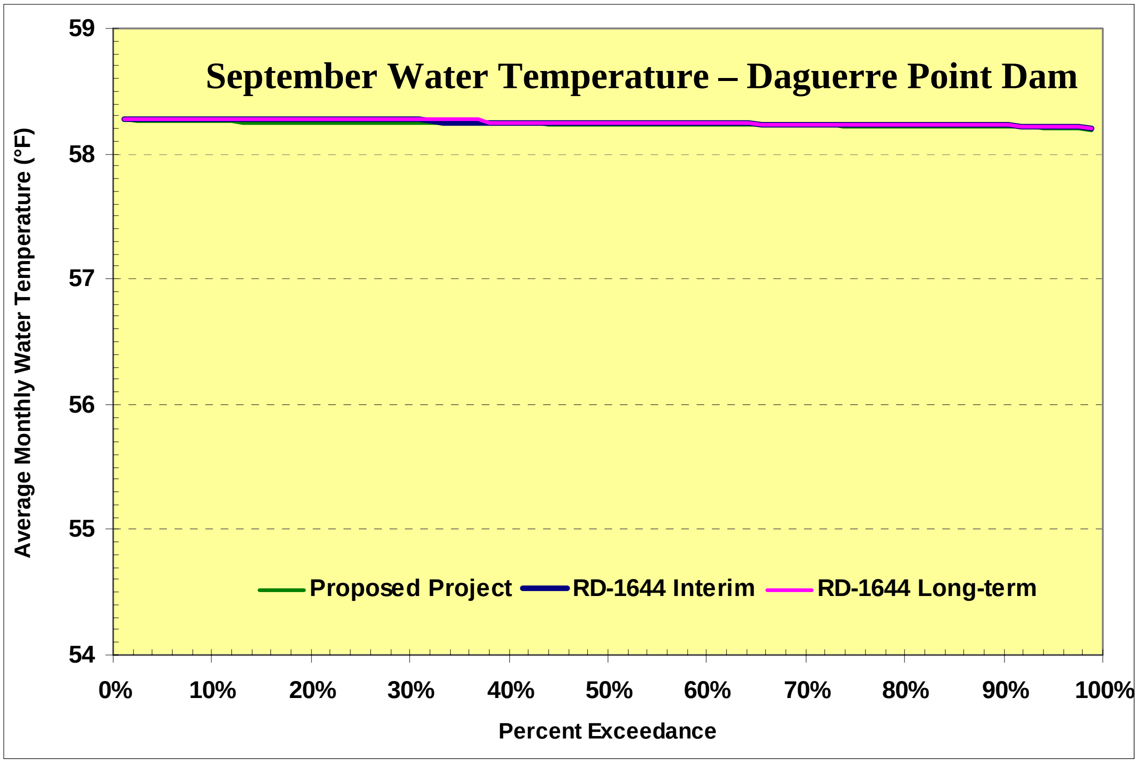

July Water Temperature - Marysville
Average Monthly Water Temperature (°F)
65
64
63
62
61
60
59
58
57
56
55
54
Proposed Project
RD-1644 Interim
RD-1644 Long-term
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance

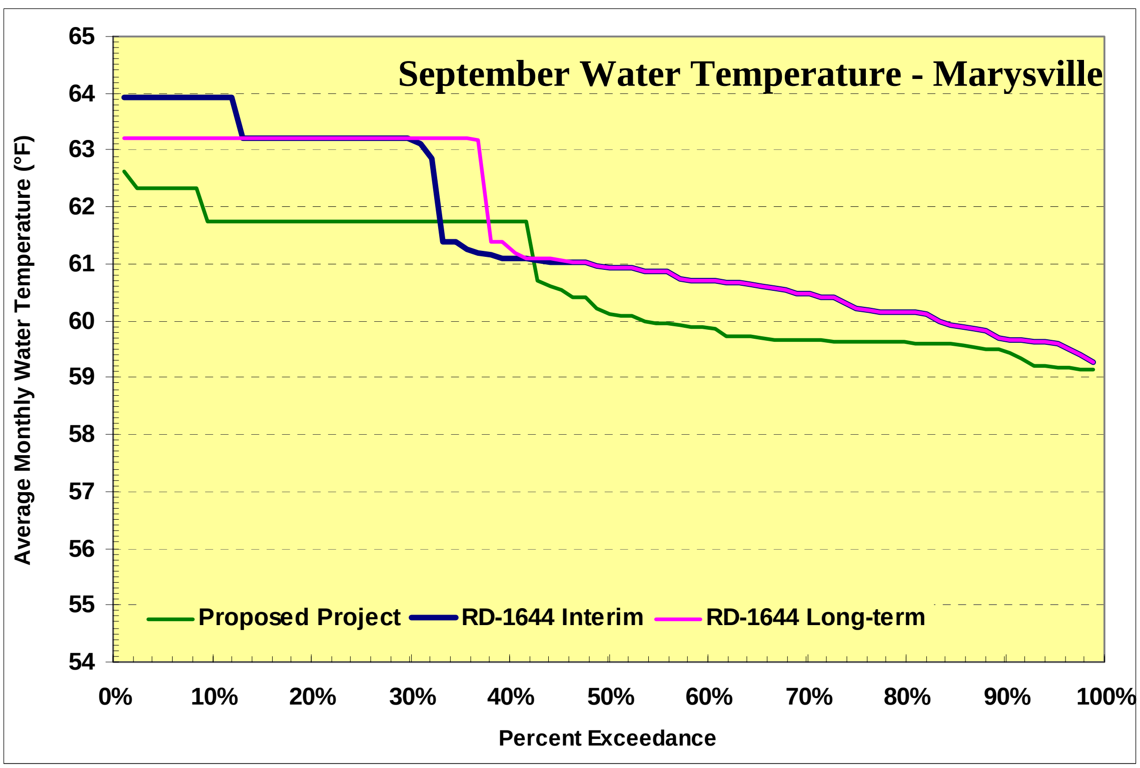
Slide 26


August Water Temperature – Daguerre Point Dam
Average Monthly Water Temperature (°F)
59
58
57
56
55
54
Proposed Project
RD-1644 Interim
RD-1644 Long-term
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance

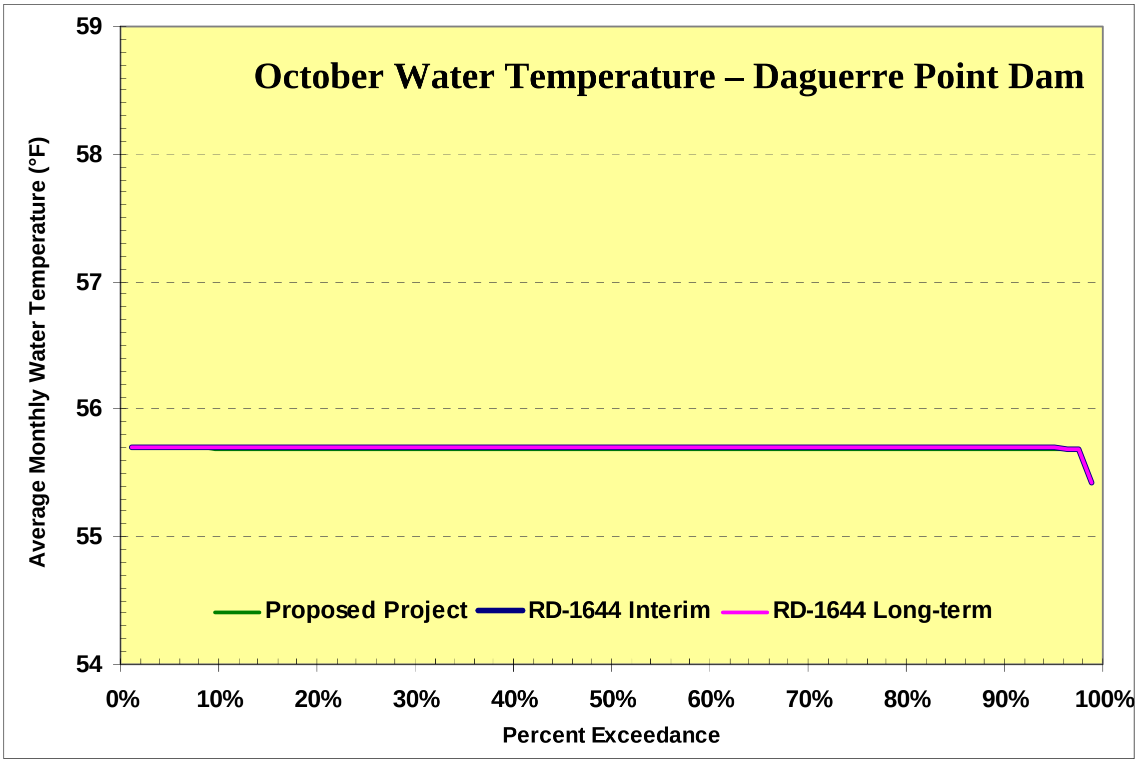

August Water Temperature - Marysville
Average Monthly Water Temperature (°F)
65
64
63
62
61
60
59
58
57
56
55
54
Proposed Project
RD-1644 Interim
RD-1644 Long-term
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance

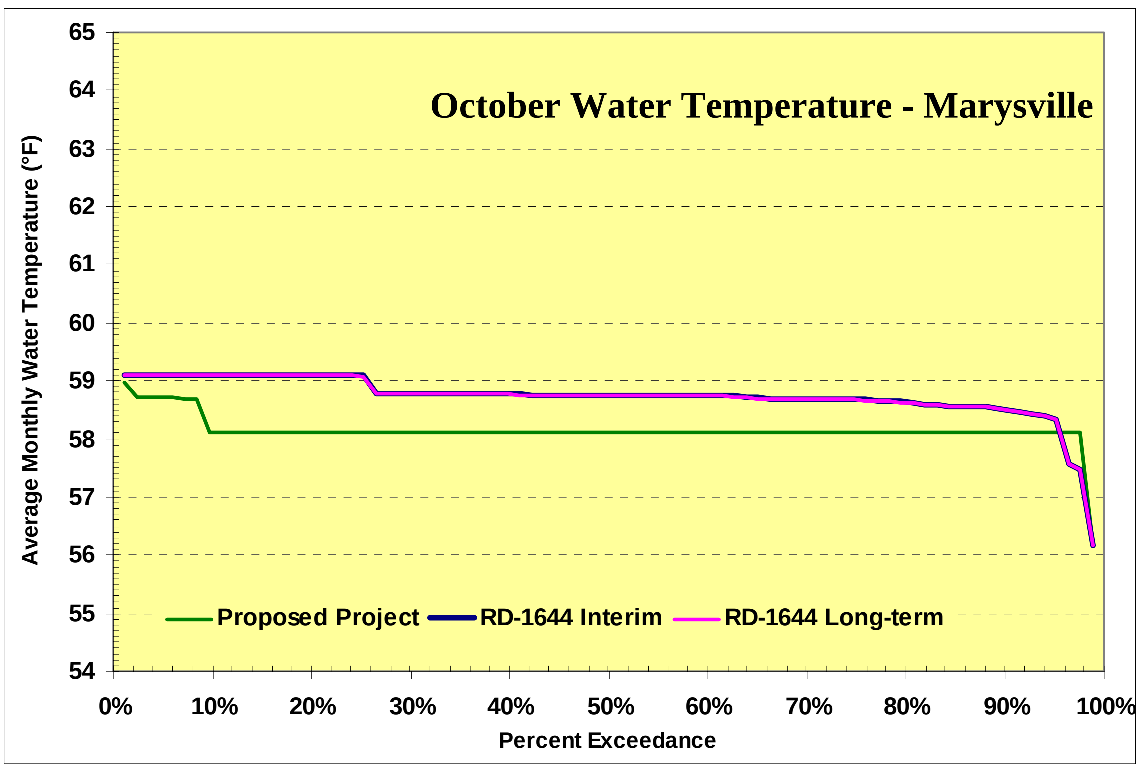
Slide 27


September Water Temperature – Daguerre Point Dam
Average Monthly Water Temperature (°F)
59
58
57
56
55
54
Proposed Project
RD-1644 Interim
RD-1644 Long-term
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance


September Water Temperature - Marysville
Average Monthly Water Temperature (°F)
65
64
63
62
61
60
59
58
57
56
55
54
Proposed Project
RD-1644 Interim
RD-1644 Long-term
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance

Slide 28


October Water Temperature – Daguerre Point Dam
Average Monthly Water Temperature (°F)
59
58
57
56
55
54
Proposed Project
RD-1644 Interim
RD-1644 Long-term
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance


October Water Temperature - Marysville
Average Monthly Water Temperature (°F)
65
64
63
62
61
60
59
58
57
56
55
54
Proposed Project
RD-1644 Interim
RD-1644 Long-term
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance

Slide 29