ESU	Run	Lifestage	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Peak_Median	References
CA CV Late-Fall	Late-Fall	Incubation	1	1	1	1	1	1	0	0	0	0	0	1	5	3,10,12,13,17,19
CA CV Late-Fall	Late-Fall	Emergence	0	0	0	1	1	1	0	0	0	0	0	0	5	3,10,12,13,17
CA CV Late-Fall	Late-Fall	Juv Rearing	1	1	1	1	1	1	1	1	1	1	1	1	NA	3,10,12,13,17
CA CV Late-Fall	Late-Fall	Outmig Juv	0	0	0	1	1	1	1	1	1	1	0	0	5.5	3,10,12,13,17,19
CA CV Late-Fall	Late-Fall	Ocean Entry	1	1	1	1	1	0	0	0	0	1	1	1	1.5	3,10,12,13,17
CA CV Spring	Spring	Mig Adult	1	1	1	1	1	1	1	1	1	1	1	0	5	3,10,12,13,17, 19
CA CV Spring	Spring	Holding Adult	0	0	1	1	1	1	1	1	1	0	0	0	6	3,10,12,13,17
CA CV Spring	Spring	Spawning	0	0	0	0	0	0	0	1	1	1	1	1	9	3,10,12,13,17, 19
CA CV Spring	Spring	Incubation	1	1	1	1	0	0	0	1	1	1	1	1	12.5	3,10,12,13,17, 19
CA CV Spring	Spring	Emergence	1	1	1	1	1	0	0	0	0	1	1	1	1	3,10,12,13,17,27
CA CV Spring	Spring	Juv Rearing	1	1	1	1	1	1	1	1	1	1	1	1	NA	3,10,12,13,17
CA CV Spring	Spring	Outmig Juv	1	1	1	1	1	1	1	0	0	0	0	1	1.5	3,10,12,13,17,28
CA CV Spring	Spring	Ocean Entry	1	1	1	1	1	1	0	0	0	0	1	1	2.5	3,10,12,13,17
CA CV Winter	Winter	Mig Adult	1	1	1	1	1	1	1	0	0	0	1	1	3.5	3,10,12,13,17,19
CA CV Winter	Winter	Holding Adult	1	1	1	1	0	0	0	0	0	0	0	0	2.5	3,10,12,13,17
CA CV Winter	Winter	Spawning	0	0	0	1	1	1	1	1	0	0	0	0	5.5	3,10,12,13,17
CA CV Winter	Winter	Incubation	0	0	0	1	1	1	1	1	1	1	0	0	7	3,10,12,13,17
CA CV Winter	Winter	Emergence	0	0	0	0	0	0	1	1	1	1	0	0	8.5	3,10,12,13,17
CA CV Winter	Winter	Juv Rearing	1	1	1	1	0	0	1	1	1	1	1	1	11.5	3,10,12,13,17
CA CV Winter	Winter	Outmig Juv	1	1	1	1	1	1	0	0	1	1	1	1	11	3,10,12,13,17,19
CA CV Winter	Winter	Ocean Entry	1	1	1	1	1	0	0	0	0	0	1	1	2	3,10,12,13,17
LC Fall	Fall	Mig Adult	0	0	0	0	0	0	0	1	1	1	1	0	9.5	3,5,11,12,15,17
LC Fall	Fall	Holding Adult	0	0	0	0	0	0	0	0	0	0	0	0	NA	3,5,11,12,15,17
LC Fall	Fall	Spawning	0	0	0	0	0	0	0	0	1	1	1	1	10.5	3,5,11,12,15,17,20
LC Fall	Fall	Incubation	1	1	0	0	0	0	0	0	0	1	1	1	12	3,5,11,12,15,17
LC Fall	Fall	Emergence	0	1	1	1	0	0	0	0	0	0	0	0	3	3,5,11,12,15,17
LC Fall	Fall	Juv Rearing	0	1	1	1	1	1	1	1	0	0	0	0	5	3,5,11,12,15,17
LC Fall	Fall	Outmig Juv	0	0	0	0	1	1	1	1	0	0	0	0	6.5	3,5,11,12,15,17
LC Fall	Fall	Ocean Entry	0	0	0	0	0	0	0	1	1	1	1	0	9.5	3,5,11,12,15,17
LC Spring	Spring	Mig Adult	1	1	1	1	1	0	0	0	0	0	0	0	3	3,5,11,12,15,17
LC Spring	Spring	Holding Adult	0	1	1	1	1	1	1	1	0	0	0	0	5	3,5,11,12,15,17
LC Spring	Spring	Spawning	0	0	0	0	0	0	0	1	1	1	0	0	9	3,5,11,12,15,17,20
LC Spring	Spring	Incubation	0	0	0	0	0	0	0	0	1	1	1	0	10	3,5,11,12,15,17
LC Spring	Spring	Emergence	1	0	0	0	0	0	0	0	0	1	1	1	11.5	3,5,11,12,15,17
LC Spring	Spring	Juv Rearing	1	1	1	1	1	1	1	1	1	1	1	1	NA	3,5,11,12,15,17
LC Spring	Spring	Outmig Juv	0	0	1	1	1	1	0	0	0	0	0	0	4.5	3,5,11,12,15,17
LC Spring	Spring	Ocean Entry	0	0	0	0	1	1	1	0	0	0	0	0	6	3,5,11,12,15,17
MC Fall	Fall	Mig Adult	0	0	0	0	0	0	0	1	1	1	0	0	9	3,8,12,15,17
MC Fall	Fall	Holding Adult	0	0	0	0	0	0	0	0	0	0	0	0	NA	3,8,12,15,17

ESU	Run	Lifestage	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Peak_Median	References
MC Fall	Fall	Spawning	0	0	0	0	0	0	0	0	0	1	1	1	11	3,8,12,15,17
MC Fall	Fall	Incubation	1	1	0	0	0	0	0	0	0	1	1	1	12	3,8,12,15,17
MC Fall	Fall	Emergence	0	1	1	1	0	0	0	0	0	0	0	0	3	3,8,12,15,17
MC Fall	Fall	Juv Rearing	0	1	1	1	1	1	1	1	0	0	0	0	5	3,8,12,15,17
MC Fall	Fall	Outmig Juv	0	0	0	0	1	1	1	1	0	0	0	0	6.5	3,8,12,15,17
MC Fall	Fall	Ocean Entry	0	0	0	0	0	0	1	1	1	1	1	0	9	3,8,12,15,17
MC Spring	Spring	Mig Adult	0	0	1	1	1	1	0	0	0	0	0	0	4.5	3,8,12,15,17,21
MC Spring	Spring	Holding Adult	0	0	0	1	1	1	1	1	0	0	0	0	6	3,8,12,15,17
MC Spring	Spring	Spawning	0	0	0	0	0	0	0	1	1	0	0	0	8.5	3,8,12,15,17
MC Spring	Spring	Incubation	1	1	0	0	0	0	0	1	1	1	1	1	11	3,8,12,15,17
MC Spring	Spring	Emergence	1	1	0	0	0	0	0	0	0	1	1	1	12	3,8,12,15,17
MC Spring	Spring	Juv Rearing	1	1	1	1	1	1	1	1	1	1	1	1	NA	3,8,12,15,17
MC Spring	Spring	Outmig Juv	0	0	1	1	1	1	0	0	0	0	0	0	4.5	3,8,12,15,17,18
MC Spring	Spring	Ocean Entry	0	0	0	1	1	1	1	0	0	0	0	0	5.5	3,8,12,15,17
MC Summer	Summer	Mig Adult	0	0	0	0	0	1	1	0	0	0	0	0	6.5	3,8,12,15,17
MC Summer	Summer	Holding Adult	0	0	0	0	0	0	1	1	1	0	0	0	8	3,8,12,15,17
MC Summer	Summer	Spawning	0	0	0	0	0	0	0	0	1	1	1	0	10	3,8,12,15,17
MC Summer	Summer	Incubation	1	1	1	0	0	0	0	0	1	1	1	1	12	3,8,12,15,17
MC Summer	Summer	Emergence	1	1	1	0	0	0	0	0	0	0	0	1	1.5	3,8,12,15,17
MC Summer	Summer	Juv Rearing	1	1	1	1	1	1	0	0	0	0	0	1	3	3,8,12,15,17
MC Summer	Summer	Outmig Juv	0	0	0	0	0	1	1	1	0	0	0	0	7	3,8,12,15,17
MC Summer	Summer	Ocean Entry	0	0	0	0	0	0	1	1	1	1	1	0	9	3,8,12,15,17
OR Coast Fall	Fall	Mig Adult	0	0	0	0	0	0	1	1	1	1	0	0	8.5	3,12,16,17
OR Coast Fall	Fall	Holding Adult	0	0	0	0	0	0	0	0	0	0	0	0	NA	3,12,16,17
OR Coast Fall	Fall	Spawning	1	1	1	0	0	0	0	0	1	1	1	1	12	3,12,16,17
OR Coast Fall	Fall	Incubation	1	1	1	1	1	1	0	0	1	1	1	1	1.5	3,12,16,17
OR Coast Fall	Fall	Emergence	1	1	1	1	1	1	0	0	0	0	0	1	3	3,12,16,17
OR Coast Fall	Fall	Juv Rearing	1	1	1	1	1	1	1	1	1	1	0	1	5	3,12,16,17
OR Coast Fall	Fall	Outmig Juv	0	0	0	0	1	1	1	1	1	1	0	0	7.5	3,12,16,17
OR Coast Fall	Fall	Ocean Entry	0	0	0	0	1	1	1	1	1	1	0	0	7.5	3,12,16,17
OR Coast Spring	Spring	Mig Adult	0	0	1	1	1	1	1	0	0	0	0	0	5	3,12,16,17
OR Coast Spring	Spring	Holding Adult	0	0	1	1	1	1	1	1	0	0	0	0	5.5	3,12,16,17
OR Coast Spring	Spring	Spawning	0	0	0	0	0	0	0	0	1	1	1	1	10.5	3,12,16,17
OR Coast Spring	Spring	Incubation	1	1	1	0	0	0	0	0	1	1	1	1	12	3,12,16,17
OR Coast Spring	Spring	Emergence	1	1	1	0	0	0	0	0	0	0	0	1	2	3,12,16,17
OR Coast Spring	Spring	Juv Rearing	1	1	1	1	1	1	1	1	1	1	0	1	5	3,12,16,17
OR Coast Spring	Spring	Outmig Juv	0	0	0	0	1	1	1	1	1	1	0	0	7.5	3,12,16,17
OR Coast Spring	Spring	Ocean Entry	0	0	0	0	1	1	1	1	1	1	0	0	7.5	3,12,16,17
OR Coast Summer	Summer	Mig Adult	0	0	0	0	0	0	1	1	1	1	0	0	8.5	3,12,16,17

ESU	Run	Lifestage	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Peak_Median	References
OR Coast Summer	Summer	Holding Adult	0	0	0	0	0	0	1	1	1	1	0	0	8.5	3,12,16,17
OR Coast Summer	Summer	Spawning	0	0	0	0	0	0	0	0	0	1	1	0	10.5	3,12,16,17
OR Coast Summer	Summer	Incubation	1	1	0	0	0	0	0	0	0	1	1	1	12	3,12,16,17
OR Coast Summer	Summer	Emergence	1	1	1	1	1	0	0	0	0	0	0	0	3	3,12,16,17
OR Coast Summer	Summer	Juv Rearing	1	1	1	1	1	1	1	1	1	1	0	0	5.5	3,12,16,17
OR Coast Summer	Summer	Outmig Juv	0	0	0	0	1	1	1	1	1	1	0	0	7.5	3,12,16,17
OR Coast Summer	Summer	Ocean Entry	0	0	0	0	1	1	1	1	1	1	0	0	7.5	3,12,16,17
Puget Sound Fall	Fall	Mig Adult	0	0	0	0	0	0	1	1	1	0	0	0	8	2,3,12,17
Puget Sound Fall	Fall	Holding Adult	0	0	0	0	0	0	0	0	0	0	0	0	NA	2,3,12,17
Puget Sound Fall	Fall	Spawning	0	0	0	0	0	0	0	0	1	1	1	1	10.5	2,3,12,17
Puget Sound Fall	Fall	Incubation	1	1	0	0	0	0	0	0	1	1	1	1	11.5	2,3,12,17
Puget Sound Fall	Fall	Emergence	1	1	1	0	0	0	0	0	0	0	0	1	2.5	2,3,12,17
Puget Sound Fall	Fall	Juv Rearing	1	1	1	1	1	1	1	0	0	0	0	0	4	2,3,12,17
Puget Sound Fall	Fall	Outmig Juv	1	1	1	1	1	1	1	0	0	0	0	0	4	2,3,12,17
Puget Sound Fall	Fall	Ocean Entry	1	1	1	1	1	1	1	0	0	0	0	0	4	2,3,12,17
Puget Sound Spring	Spring	Mig Adult	0	0	1	1	1	1	1	0	0	0	0	0	5	2,3,12,17
Puget Sound Spring	Spring	Holding Adult	0	0	1	1	1	1	0	0	0	0	0	0	4.5	2,3,12,17
Puget Sound Spring	Spring	Spawning	0	0	0	0	0	0	1	1	1	1	0	0	8.5	2,3,12,17
Puget Sound Spring	Spring	Incubation	1	0	0	0	0	0	1	1	1	1	1	1	10	2,3,12,17
Puget Sound Spring	Spring	Emergence	1	1	0	0	0	0	0	0	0	1	1	1	12	2,3,12,17
Puget Sound Spring	Spring	Juv Rearing	1	1	1	1	1	1	1	0	0	1	1	1	2.5	2,3,12,17
Puget Sound Spring	Spring	Outmig Juv	1	1	1	1	1	1	1	0	0	1	1	1	2.5	2,3,12,17
Puget Sound Spring	Spring	Ocean Entry	1	1	1	1	1	1	1	0	0	0	0	0	4	2,3,12,17
Puget Sound Summer	Summer	Mig Adult	0	0	0	0	0	1	1	1	0	0	0	0	7	2,3,12,17
Puget Sound Summer	Summer	Holding Adult	0	0	0	0	0	1	1	0	0	0	0	0	6.5	2,3,12,17
Puget Sound Summer	Summer	Spawning	0	0	0	0	0	0	0	1	1	1	0	0	9	2,3,12,17
Puget Sound Summer	Summer	Incubation	1	0	0	0	0	0	0	1	1	1	1	1	10.5	2,3,12,17
Puget Sound Summer	Summer	Emergence	1	1	0	0	0	0	0	0	0	0	1	1	12.5	2,3,12,17
Puget Sound Summer	Summer	Juv Rearing	1	1	1	1	1	1	1	0	0	0	1	1	3	2,3,12,17
Puget Sound Summer	Summer	Outmig Juv	1	1	1	1	1	1	1	0	0	0	0	0	4	2,3,12,17
Puget Sound Summer	Summer	Ocean Entry	1	1	1	1	1	1	1	0	0	0	0	0	4	2,3,12,17
Snake River Fall	Fall	Mig Adult	0	0	0	0	0	0	1	1	1	1	1	1	9	1,3,9,12,15,17,22
Snake River Fall	Fall	Holding Adult	0	0	0	0	0	0	0	0	0	0	0	0	NA	1,3,9,12,15,17
Snake River Fall	Fall	Spawning	0	0	0	0	0	0	0	0	0	1	1	1	11	1,3,9,12,15,17,25
Snake River Fall	Fall	Incubation	1	1	1	1	0	0	0	0	0	1	1	1	1	1,3,9,12,15,17
Snake River Fall	Fall	Emergence	0	0	1	1	0	0	0	0	0	0	0	0	3.5	1,3,9,12,15,17
Snake River Fall	Fall	Juv Rearing	0	0	1	1	1	1	1	0	0	0	0	0	5	1,3,9,12,15,17
Snake River Fall	Fall	Outmig Juv	0	0	0	1	1	1	1	0	0	0	0	0	5.5	1,3,9,12,15,17
Snake River Fall	Fall	Ocean Entry	0	0	0	0	0	0	1	1	1	1	1	0	9	1,3,9,12,15,17

ESU	Run	Lifestage	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Peak_Median	References
Snake River Spring	Spring	Mig Adult	0	0	1	1	1	1	1	1	1	0	0	0	5	1,3,9,12,15,17,22
Snake River Spring	Spring	Holding Adult	0	0	0	1	1	1	1	0	0	0	0	0	5.5	1,3,9,12,15,17
Snake River Spring	Spring	Spawning	0	0	0	0	0	0	1	1	1	0	0	0	9	1,3,9,12,15,17,22
Snake River Spring	Spring	Incubation	0	0	0	0	0	0	1	1	1	1	1	1	9.5	1,3,9,12,15,17
Snake River Spring	Spring	Emergence	0	0	0	0	0	0	0	0	0	1	1	1	11	1,3,9,12,15,17
Snake River Spring	Spring	Juv Rearing	1	1	1	1	1	1	1	1	1	1	1	1	NA	1,3,9,12,15,17
Snake River Spring	Spring	Outmig Juv	0	0	1	1	1	1	0	0	0	0	0	0	4.5	1,3,9,12,15,17
Snake River Spring	Spring	Ocean Entry	0	0	0	1	1	1	1	0	0	0	0	0	5.5	1,3,9,12,15,17
Snake River Summer	Summer	Mig Adult	0	0	0	0	1	1	1	0	0	0	0	0	6	1,3,9,12,15,17,22
Snake River Summer	Summer	Holding Adult	0	0	0	0	1	1	1	0	0	0	0	0	6	1,3,9,12,15,17
Snake River Summer	Summer	Spawning	0	0	0	0	0	0	0	1	1	1	0	0	9	1,3,9,12,15,17,22
Snake River Summer	Summer	Incubation	0	0	0	0	0	0	0	1	1	1	1	1	10	1,3,9,12,15,17
Snake River Summer	Summer	Emergence	0	0	0	0	0	0	0	0	0	1	1	1	11	1,3,9,12,15,17
Snake River Summer	Summer	Juv Rearing	1	1	1	1	1	1	1	1	1	1	1	1	NA	1,3,9,12,15,17
Snake River Summer	Summer	Outmig Juv	0	0	1	1	1	1	0	0	0	0	0	0	4.5	1,3,9,12,15,17
Snake River Summer	Summer	Ocean Entry	0	0	0	1	1	1	1	0	0	0	0	0	5.5	1,3,9,12,15,17
SONCC Fall	Fall	Mig Adult	1	1	0	0	0	0	0	1	1	1	1	1	11	3,7,10,12,13,14,17
SONCC Fall	Fall	Holding Adult	0	0	0	0	0	0	0	0	0	0	0	0	NA	3,7,10,12,13,14,17
SONCC Fall	Fall	Spawning	1	1	0	0	0	0	0	0	0	1	1	1	12	3,7,10,12,13,14,17,24
SONCC Fall	Fall	Incubation	1	1	1	1	0	0	0	0	0	1	1	1	1	3,7,10,12,13,14,17
SONCC Fall	Fall	Emergence	1	1	1	1	1	0	0	0	0	0	1	1	2	3,7,10,12,13,14,17
SONCC Fall	Fall	Juv Rearing	0	1	1	1	1	1	1	1	0	0	0	0	5	3,7,10,12,13,14,17
SONCC Fall	Fall	Outmig Juv	0	1	1	1	1	1	1	1	0	0	0	0	4.5	3,7,10,12,13,14,17,24
SONCC Fall	Fall	Ocean Entry	0	0	1	1	1	1	1	1	0	0	0	0	5.5	3,7,10,12,13,14,17
SONCC Spring	Spring	Mig Adult	0	0	1	1	1	1	1	0	0	0	0	0	5	3,7,10,12,13,14,17
SONCC Spring	Spring	Holding Adult	0	0	1	1	1	1	1	1	0	0	0	0	5.5	3,7,10,12,13,14,17
SONCC Spring	Spring	Spawning	0	0	0	0	0	0	0	0	1	1	1	1	10.5	3,7,10,12,13,14,17
SONCC Spring	Spring	Incubation	1	1	0	0	0	0	0	0	1	1	1	1	11.5	3,7,10,12,13,14,17
SONCC Spring	Spring	Emergence	1	1	0	0	0	0	0	0	0	0	0	1	1.5	3,7,10,12,13,14,17
SONCC Spring	Spring	Juv Rearing	1	1	1	1	1	1	1	1	1	1	0	1	5	3,7,10,12,13,14,17
SONCC Spring	Spring	Outmig Juv	0	0	0	0	1	1	1	1	1	1	0	0	7.5	3,7,10,12,13,14,17
SONCC Spring	Spring	Ocean Entry	0	0	0	0	1	1	1	1	1	1	0	0	7.5	3,7,10,12,13,14,17
UKTR Fall	Fall	Mig Adult	0	0	0	0	0	0	1	1	1	1	1	1	9.5	3,10,12,13,14,17
UKTR Fall	Fall	Holding Adult	0	0	0	0	0	0	1	1	1	1	0	0	8.5	3,10,12,13,14,17
UKTR Fall	Fall	Spawning	1	0	0	0	0	0	0	0	1	1	1	1	11.5	3,10,12,13,14,17
UKTR Fall	Fall	Incubation	1	1	1	1	0	0	0	0	1	1	1	1	12.5	3,10,12,13,14,17
UKTR Fall	Fall	Emergence	1	1	1	1	1	0	0	0	0	0	1	1	2	3,10,12,13,14,17
UKTR Fall	Fall	Juv Rearing	1	1	1	1	1	1	0	0	0	0	1	1	2.5	3,10,12,13,14,17
UKTR Fall	Fall	Outmig Juv	1	1	1	1	1	1	1	0	0	0	0	0	5	3,10,12,13,14,17

ESU	Run	Lifestage	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Peak_Median	References
UKTR Fall	Fall	Ocean Entry	0	0	1	1	1	1	1	0	0	0	0	0	5	3,10,12,13,14,17
UKTR Spring	Spring	Mig Adult	0	0	1	1	1	1	1	1	0	0	0	0	5.5	3,10,12,13,14,17
UKTR Spring	Spring	Holding Adult	0	0	1	1	1	1	1	1	0	0	0	0	5.5	3,10,12,13,14,17
UKTR Spring	Spring	Spawning	0	0	0	0	0	0	0	1	1	1	0	0	10	3,10,12,13,14,17
UKTR Spring	Spring	Incubation	1	1	1	1	1	0	0	1	1	1	1	1	12.5	3,10,12,13,14,17
UKTR Spring	Spring	Emergence	1	1	1	1	1	1	0	0	0	0	1	1	2.5	3,10,12,13,14,17
UKTR Spring	Spring	Juv Rearing	1	1	1	1	1	1	1	0	0	0	1	1	3	3,10,12,13,14,17
UKTR Spring	Spring	Outmig Juv	0	1	1	1	1	1	1	0	0	0	0	0	4.5	3,10,12,13,14,17
UKTR Spring	Spring	Ocean Entry	0	0	0	1	1	1	1	1	0	0	0	0	6	3,10,12,13,14,17
UC Fall	Fall	Mig Adult	0	0	0	0	0	0	0	1	1	1	0	0	9	3,4,12,15,17
UC Fall	Fall	Holding Adult	0	0	0	0	0	0	0	0	0	0	0	0	NA	3,4,12,15,17
UC Fall	Fall	Spawning	0	0	0	0	0	0	0	0	0	1	1	1	11	3,4,12,15,17,23
UC Fall	Fall	Incubation	1	1	0	0	0	0	0	0	0	1	1	1	12	3,4,12,15,17
UC Fall	Fall	Emergence	0	1	1	1	0	0	0	0	0	0	0	0	3	3,4,12,15,17
UC Fall	Fall	Juv Rearing	0	1	1	1	1	1	1	1	0	0	0	0	5	3,4,12,15,17
UC Fall	Fall	Outmig Juv	0	0	0	0	1	1	1	1	0	0	0	0	6.5	3,4,12,15,17
UC Fall	Fall	Ocean Entry	0	0	0	0	0	0	1	1	1	1	1	0	9	3,4,12,15,17
UC Spring	Spring	Mig Adult	0	0	1	1	1	1	1	0	0	0	0	0	5	3,4,12,15,17
UC Spring	Spring	Holding Adult	0	0	0	1	1	1	1	0	0	0	0	0	5.5	3,4,12,15,17
UC Spring	Spring	Spawning	0	0	0	0	0	0	1	1	1	0	0	0	8	3,4,12,15,17,20
UC Spring	Spring	Incubation	0	0	0	0	0	0	1	1	1	1	1	1	9.5	3,4,12,15,17
UC Spring	Spring	Emergence	0	0	0	0	0	0	0	0	0	1	1	1	11	3,4,12,15,17
UC Spring	Spring	Juv Rearing	1	1	1	1	1	1	1	1	1	1	1	1	NA	3,4,12,15,17
UC Spring	Spring	Outmig Juv	0	0	1	1	1	1	0	0	0	0	0	0	4.5	3,4,12,15,17
UC Spring	Spring	Ocean Entry	0	0	0	1	1	1	1	0	0	0	0	0	5.5	3,4,12,15,17
UC Summer	Summer	Mig Adult	0	0	0	0	0	1	1	0	0	0	0	0	6.5	3,4,12,15,17
UC Summer	Summer	Holding Adult	0	0	0	0	0	0	1	1	1	0	0	0	8	3,4,12,15,17
UC Summer	Summer	Spawning	0	0	0	0	0	0	0	0	1	1	1	0	10	3,4,12,15,17
UC Summer	Summer	Incubation	1	1	1	0	0	0	0	0	1	1	1	1	12	3,4,12,15,17
UC Summer	Summer	Emergence	1	1	1	0	0	0	0	0	0	0	0	1	1.5	3,4,12,15,17
UC Summer	Summer	Juv Rearing	1	1	1	1	1	1	0	0	0	0	0	1	3	3,4,12,15,17
UC Summer	Summer	Outmig Juv	0	0	0	0	0	1	1	1	0	0	0	0	7	3,4,12,15,17
UC Summer	Summer	Ocean Entry	0	0	0	0	0	0	1	1	1	1	1	0	9	3,4,12,15,17
UWR Spring	Spring	Mig Adult	1	1	1	1	1	1	1	1	0	0	0	0	4.5	3,6,12,15,17
UWR Spring	Spring	Holding Adult	1	1	1	1	1	1	1	1	0	0	0	0	4.5	3,6,12,15,17
UWR Spring	Spring	Spawning	0	0	0	0	0	0	0	1	1	1	0	0	9	3,6,12,15,17
UWR Spring	Spring	Incubation	1	1	1	0	0	0	0	1	1	1	1	1	11.5	3,6,12,15,17
UWR Spring	Spring	Emergence	1	1	1	0	0	0	0	0	0	0	0	1	1.5	3,6,12,15,17
UWR Spring	Spring	Juv Rearing	1	1	1	1	1	1	1	1	1	1	1	1	NA	3,6,12,15,17

ESU	Run	Lifestage	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Peak_Median	References
UWR Spring	Spring	Outmig Juv	1	1	1	1	1	0	0	0	0	1	1	1	1.5	3,6,12,15,17
UWR Spring	Spring	Ocean Entry	0	0	0	0	1	1	1	0	0	0	0	0	6	3,6,12,15,17
WA Coast Fall	Fall	Mig Adult	0	0	0	0	0	0	1	1	1	0	0	0	8	3,12,17
WA Coast Fall	Fall	Holding Adult	0	0	0	0	0	0	0	0	0	0	0	0	NA	3,12,17
WA Coast Fall	Fall	Spawning	0	0	0	0	0	0	0	0	1	1	1	1	10.5	3,12,17
WA Coast Fall	Fall	Incubation	1	1	1	0	0	0	0	0	1	1	1	1	12	3,12,17
WA Coast Fall	Fall	Emergence	1	1	1	0	0	0	0	0	0	0	0	1	1.5	3,12,17
WA Coast Fall	Fall	Juv Rearing	1	1	1	1	1	1	1	0	0	0	0	1	3.5	3,12,17
WA Coast Fall	Fall	Outmig Juv	1	1	1	1	1	1	1	0	0	0	0	0	4	3,12,17
WA Coast Fall	Fall	Ocean Entry	1	1	1	1	1	1	1	0	0	0	0	0	4	3,12,17
WA Coast Spring	Spring	Mig Adult	0	0	0	1	1	1	1	1	0	0	0	0	6	3,12,17
WA Coast Spring	Spring	Holding Adult	0	0	0	1	1	1	1	1	0	0	0	0	6	3,12,17
WA Coast Spring	Spring	Spawning	0	0	0	0	0	0	0	1	1	1	0	0	9	3,12,17
WA Coast Spring	Spring	Incubation	1	1	0	0	0	0	0	1	1	1	1	1	11	3,12,17
WA Coast Spring	Spring	Emergence	1	1	0	0	0	0	0	0	0	0	1	1	12.5	3,12,17
WA Coast Spring	Spring	Juv Rearing	1	1	1	1	1	1	1	0	0	0	1	1	3	3,12,17
WA Coast Spring	Spring	Outmig Juv	1	1	1	1	1	1	1	0	0	0	1	1	3	3,12,17
WA Coast Spring	Spring	Ocean Entry	1	1	1	1	1	1	1	0	0	0	1	1	3	3,12,17
WA Coast Summer	Summer	Mig Adult	0	0	0	1	1	1	1	1	0	0	0	0	6	3,12,17
WA Coast Summer	Summer	Holding Adult	0	0	0	1	1	1	1	1	0	0	0	0	6	3,12,17
WA Coast Summer	Summer	Spawning	0	0	0	0	0	0	0	1	1	1	0	0	9	3,12,17
WA Coast Summer	Summer	Incubation	1	1	0	0	0	0	0	1	1	1	1	1	11	3,12,17
WA Coast Summer	Summer	Emergence	1	1	0	0	0	0	0	0	0	0	1	1	12.5	3,12,17
WA Coast Summer	Summer	Juv Rearing	1	1	1	1	1	1	1	0	0	0	1	1	3	3,12,17
WA Coast Summer	Summer	Outmig Juv	1	1	1	1	1	1	1	0	0	0	1	1	3	3,12,17
WA Coast Summer	Summer	Ocean Entry	1	1	1	1	1	1	1	0	0	0	1	1	3	3,12,17

Appendix 1 List 1. References used for phenology database (Appendix 1 Table S1.1).

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Appendix 2 Table S2.1. Candidate list of streams and data availability. The streams we propose to focus our framework are highlighted.

River	Fall	Spring	# Temp monitors	# km	Regulated	Migration Data	Spawn Data	Juvenile Data	Disease Data	Data Type
American River	X	O	3		X		X	X		Carcass survey, redd survey, screw trap
Antelope Creek	X	X	1			X	X			Snorkel survey, redd, bio survey, video monitoring
Auburn Ravine	X		0		X		X			Redd survey, gaps in yearly monitoring
Battle Creek	X	X	Lots	30						Carcass survey/ Snorkel redd survey, hatchery counting,
Bear Creek	X		2	37		X				Video monitoring
Big Chico Creek	X	X	2	83			X	X		Snorkel/Carcass survey, rotary screw trap
Butte Creek	X	X	2	169	X	X	X	X		Carcass survey, snorkal survey, video monitoring, rotary screw traps
Clear Creek	X	X	13		X					Redd/Carcass survey, Video monitoring, rotary screw traps
Consumnes River	X		0				X	X		Carcass survey, screw trap, gaps in yearly monitoring
Cottonwood Creek	X	X	5			X	X	X		Carcass survey, Video monitoring, seine and rotary screw traps
Cow Creek	X		1	90		X	X			Video monitoring, carcass survey
Deer Creek	X	X	2	120		X	X	X		Carcass/redd survey, snorkal, video survey
Feather River	X	X	2*	125	X		X	X	X	Redd survey, carcass survey, screw traps, snorkal survey
Merced River	X	O	4*	277	X		X		X	Carcass survey, fish distribution/redd counts
Mill Creek	X	X	2	104		X	X	X		Carcass, redd, snorkal, video survey, rotary screw trap
Mokelumne River	X	O	0	159	X	X	X	X		Video trap and monitoring, carcass survey, redd count/distribution, screw trap
Sacramento River	X	O	Lots	652	X	X	X	X	X	Carcass survey, redd survey, screw traps, snorkal survey
San Joaquin River	X	X		568	X	X	X	X	X	Redd survey, carcass survey, screw traps, snorkal survey
Stanislaus River	X	O	~4	157	X	X	X	X	X	Carcass survey, redd distribution, weir video monitoring, snorkal, seine, tagging
Thomes Creek		X	2	145						
Tuolomne River	X	O	~4	258	X	X	X	X	X	Carcass survey, redd distribution, weir video monitoring, snorkal survey, beach seine, rotary screw trap
Yuba River	X	X	~5	74	X		X	X		Carcass survey, Redd survey, limited screw trap data

*Temperature monitors are far downstream of spawning grounds