## Tucannon summer steelhead summarized fitness outcomes

MNSnyder 8/26/2019

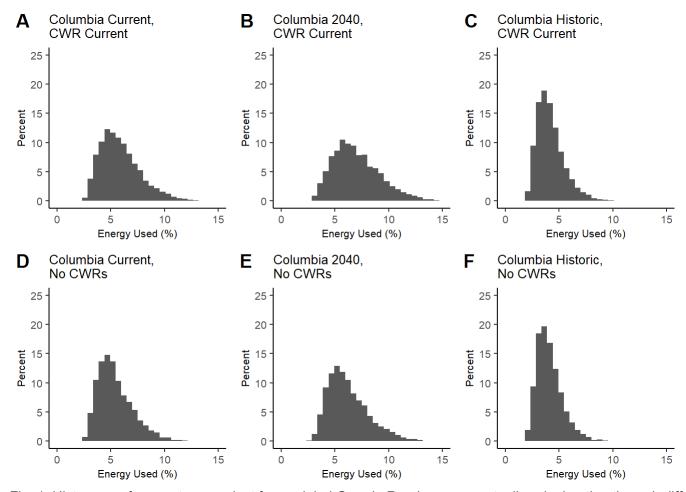


Fig. 1. Histogram of percent energy lost for modeled Grande Ronde summer steelhead migrating through different modeled thermalscapes.

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Fig. 2. Boxplot of percent energy lost for modeled Grande Ronde summer steelhead migrating through different modeled thermalscapes.

Table 1. Percent energy used across different HexSim thermalscapes summarized for Tucannon River Summer Steelhead.

Scenario	Minimum	25% quantile	Median	75% quantile	Maximum
Columbia 2040, CWR Current	2.6	5.4	6.7	8.4	15.8
Columbia Historic, CWR Current	1.8	3.3	4.0	4.8	10.8
Columbia Current, CWR Current	2.5	4.5	5.6	7.0	14.7
Columbia 2040, No CWRs	2.7	4.8	5.9	7.3	14.5
Columbia Historic, No CWRs	1.8	3.2	3.9	4.7	10.3
Columbia Current, No CWRs	2.2	4.2	5.1	6.3	13.3

Table 3. Model output for total hours residing in cold water refuges summarized for Tucannon River Summer Steelhead.

Scenario	Total CWR Residence (h)
Columbia Current, CWR Current	1772101
Columbia Current, No CWRs	9

Scenario	Total CWR Residence (h)
Columbia 2040, Current	2667476
Columbia 2040, No CWRs	12
Columbia Historic, Current	435933
Columbia Historic, No CWRs	3

Table 4. Model output for percent of individuals dying from acute temperature stress summarized for Tucannon River Summer Steelhead.

Scenario	Total mortality
Columbia Current, CWR Current	0
Columbia Current, No CWRs	0
Columbia 2040, Current	0.45
Columbia 2040, No CWRs	0.4
Columbia Historic, Current	0
Columbia Historic, No CWRs	0