

15. Energy use, CWR use, and survivorship results for Grande Ronde River summer steelhead under year 2017 temperatures for the Columbia River with simulated additional coldwater refuges

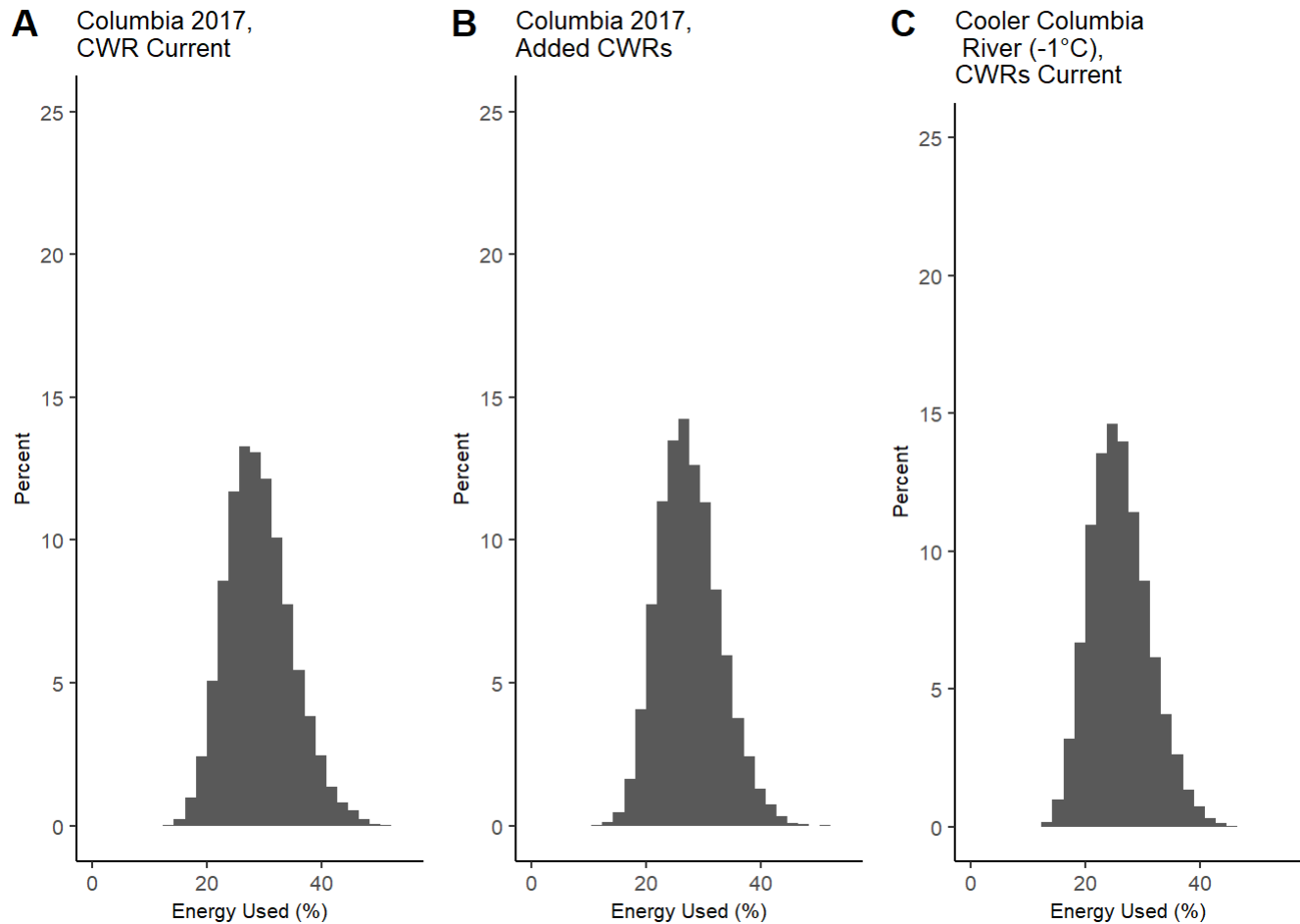


Fig. 15.1 Histogram of percent energy lost for modeled Grande Ronde River summer steelhead migrating through four different modeled thermalscapes.

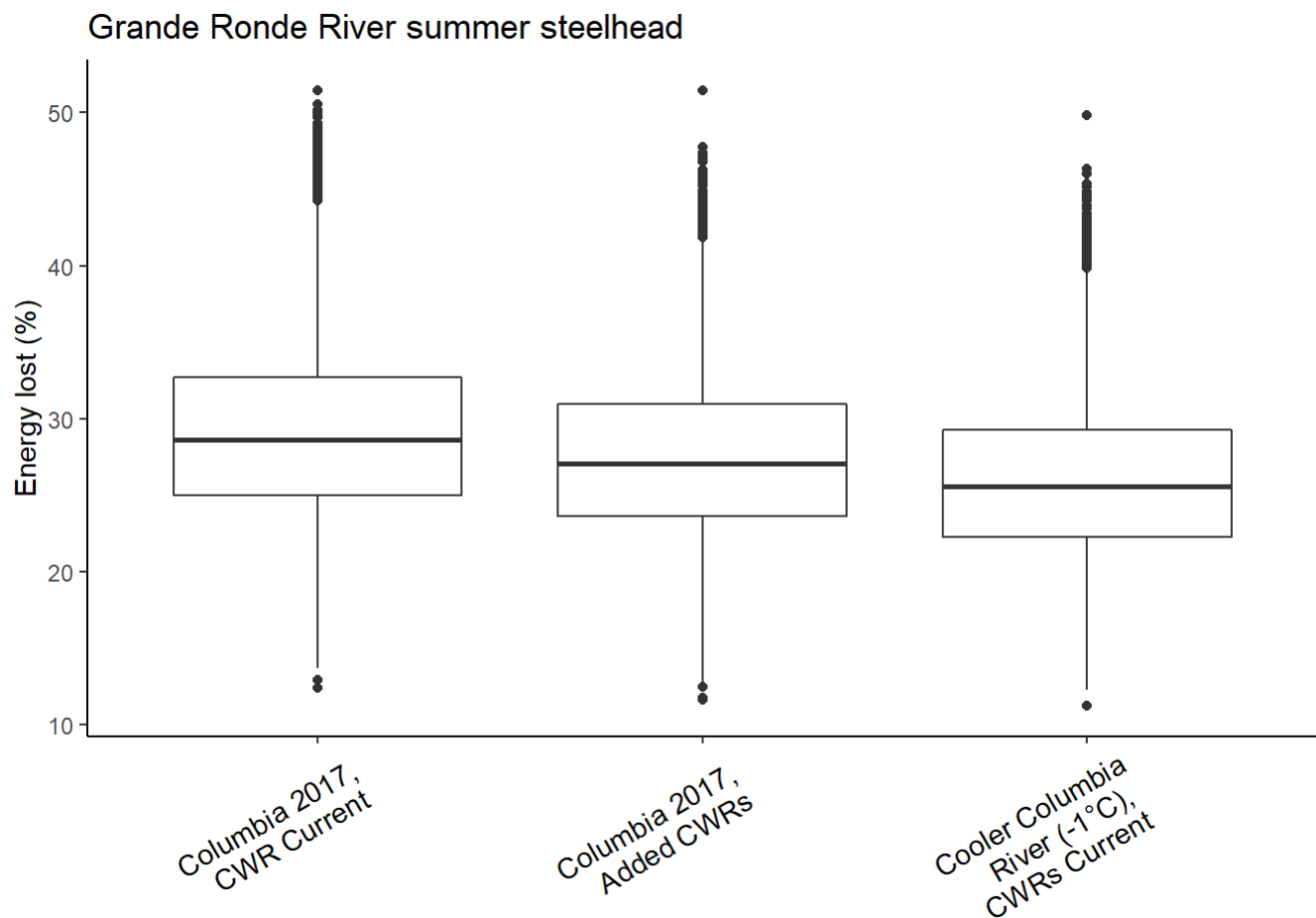


Fig. 15.2 Boxplot of percent energy lost for modeled Grande Ronde River summer steelhead migrating through four different modeled thermalscapes.

Table 15.1 Percent energy used across different HexSim thermalscapes summarized for Grande Ronde River summer steelhead.

Scenario	Minimum	25% quantile	Median	75% quantile	Maximum
Columbia 2017, CWR Current	12	25	29	33	51
Cooler Columbia River (-1°C), CWRs Current	11	22	26	29	50
Columbia 2017, Added CWRs	12	24	27	31	51

Table 15.2 Model output for hours residing in cold water refuges summarized for Grande Ronde River summer steelhead.

Scenario	CWR Residence (h/individual)
Columbia 2017,CWR Current	509
Cooler Columbia River (-1°C), CWRs Current	411
Columbia 2017, Added CWRs	523

Table 15.3 Model output for percent of individuals dying from acute temperature stress summarized for Grande Ronde River summer steelhead.

Scenario	Total mortality
Columbia 2017,CWR Current	0.32
Cooler Columbia River (-1°C), CWRs Current	0.02
Columbia 2017, Added CWRs	0.33