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Global sensitivity analysis of water age and temperature for informing salmonid disease management

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1 **Global sensitivity analysis of water age and temperature for informing salmonid disease**
2 **management**

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12
13 **Abstract**

14 Many rivers in the Pacific Northwest region of North America are anthropogenically
15 manipulated via dam operations, leading to system-wide impacts on hydrodynamic
16 conditions and aquatic communities. Understanding how dam operations alter abiotic and
17 biotic variables is important for designing management actions. For example, in the Klamath
18 River, dam outflows could be manipulated to alter water age and temperature to reduce risk
19 of parasite infections in salmon by diluting or altering viability of parasite spores. However,
20 sensitivity of water age and temperature to the riverine conditions such as bathymetry can
21 affect outcomes from dam operations. To examine this issue in detail, we conducted a global
22 sensitivity analysis of water age and temperature to a comprehensive set of hydraulics and

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