

Title: The influence of offspring advantages on chinook salmon (*Onchorhynchus tshawytscha*) redd site selection

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The distribution of chinook salmon redds in the Cle Elum River, Washington has a clustered distribution. The possibility that redds are constructed in clusters because these areas have characteristics that are advantageous to offspring was explored. Embryo survival, length, and weight were compared to determine if alevin incubated in spawning sites had greater survival or competitive advantage than alevin incubated in nonspawning sites. Several habitat characteristics were measured to determine which characteristic, if any, may be responsible for potential differences in embryo characteristics. There was no difference in offspring survival or condition between spawning and nonspawning sites. Substrate size, surface water velocity, and dissolved oxygen provided offspring advantages; however, advantageous levels of these characteristics were not necessarily chosen by the adult female salmon. Alternative hypotheses for the clustered distribution of redds involve the offspring advantages gained by constructing the redd bedform and the social interactions that attract the adults to previous spawning sites.