

USE OF HALF DUPLEX PIT TAGS TO ASSESS THE PROBABILITY OF CULVERT PASSAGE OF YELLOWSTONE CUTTHROAT TROUT AND RAINBOW TROUT

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Culverts at road crossings are known to present possible passage barriers during salmonid migration. Yet existing models used to predict passage have not been sufficiently tested, particularly for non-anadromous species. Most existing evaluations give "yes" or "no" answers to passage questions when an estimate of the probability of passage under a given set of hydraulic conditions may be more useful. We utilized Passive Integrated Transponder (PIT) tags to examine the probability of Yellowstone cutthroat trout and rainbow trout to pass 3 distinct culvert types over a variety of hydraulic conditions. Use of PIT tags eliminates the need for multiple captures thereby reducing stress and biases associated with various

trapping methods. The use half duplex PIT tags instead of the more widely utilized full duplex tags reduces costs, allows for the construction of antennas customized for each location and their large reading range of 60 cm is nearly double that of full duplex tags. In addition to determining whether an individual successfully passes a particular culvert, we will be able to determine the number of attempts made at passage of each culvert, time spent in each culvert and travel time between culverts as well as residence time. Examining the probability of culvert passage over a variety of velocities may give a clearer determination of whether a particular culvert poses a barrier to fish passage.