

## **\*\*Where are all The Ducks - Predicting Harlequin Duck Occupancy in Western Montana and Northern Idaho**

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The Harlequin Duck (HADU), a sea duck that breeds on whitewater streams in the mountains, is listed as imperiled in Montana due to low and potentially declining population numbers. Biologists and land managers across the Northern Rockies (Montana, Idaho, Wyoming, and Alberta) have collaborated to identify information needs pertaining to HADU. One objective is to identify important breeding streams for HADU to better estimate population status and trends. To address this objective, we are building a predictive occupancy model across western Montana and northern Idaho using an integrated spatial distribution model which allows us to combine data from the last 15 years of structured surveys, incidental sightings, environmental DNA, and citizen science. We will consider several habitat covariates representing stream characteristics and surrounding landscape features. This model will provide a predictive map of spatial distribution which can be used as a tool to help managers identify streams to survey for HADU to most efficiently use limited resources and better estimate population trends.