

McNary Dam Green Laser Bird Dissuasion Evaluation 2019

Goal

To evaluate effectiveness for green laser to reduce avian feeding behavior at the Juvenile Fish Facility outfall at McNary Dam

Methods

Compare numbers of birds present at and near the Juvenile Fish Facility Outfall (JFFOF) with the green laser on and off. The focus will be on two periods of typical peak bird counts, 15 April – 15 May and 15 June – 15 July (see 2015-2018 bird counts below). The laser will be operated in blocks of three days with the laser on for two days and off one day. The off day will be selected at random within each block (Table 1).

Data collected will be numbers of birds of each species counted in each of four zones; JFFOF, Powerhouse tailrace, spillway tailrace and forebay. Observers will also record the laser condition (on/off) and weather condition (sunny, partly cloudy, overcast and low visibility) as well as the normal variable of date, time and location (see datasheet below) and if hazing was occurring at time of counts. This model will provide approximately 20 replicate blocks with the four response variable (mean bird counts per day per zone), one fixed variable (laser condition) and two covariates (time and weather). We will use multivariate randomized block ANOVA and univariate ANOVA's by location if a significant outcome is found. We will also run some exploratory regression analyses to look for effects from environmental conditions (weather, light, flow, spill, etc.) and amount of use (i.e. habituation) on laser effectiveness.

Caveats

As this is a new application, some adaptive management will likely be needed in how the laser is used and evaluated. A result of no effect may indicate green lasers are not effective at deterring avian feeding behavior or that we are not using it correctly. Some of the evaluation will also be our subjective observations on how birds reacted to the laser.

If in the course of the study it is obvious that the laser is effective at disrupting feeding behavior of birds at the outfall, the project reserves to the option to discontinue the evaluation in preference of reducing predation on ESA-listed fish.

McNary Dam 2015 bird counts.



