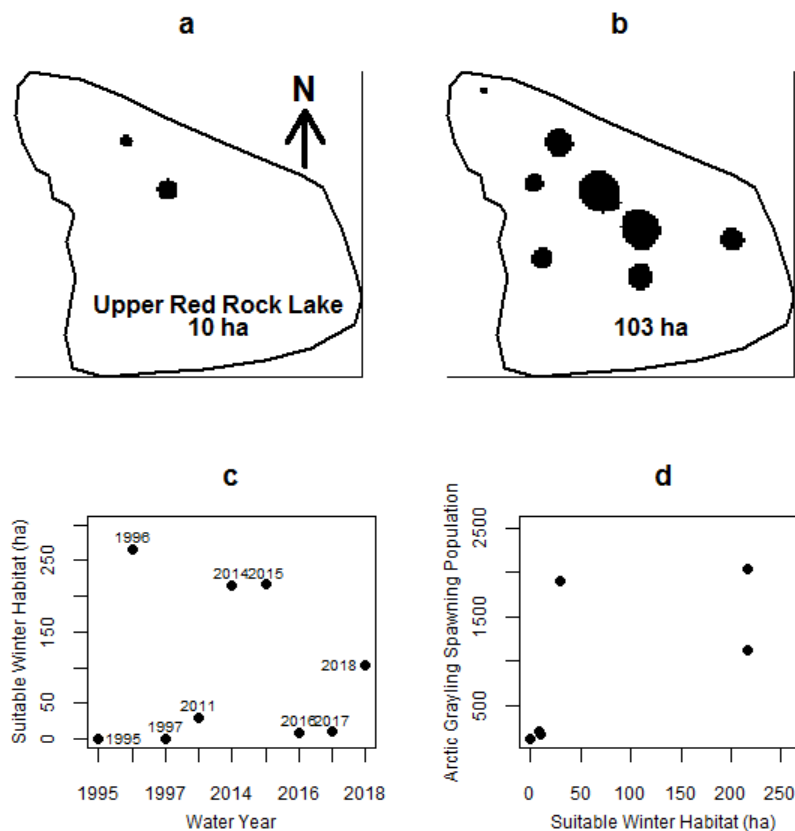


# Centennial Valley Arctic Grayling Adaptive Management Project 2018 Winter Addendum

Prepared by:  
Kyle Cutting and Matt Jaeger

The following is a winter addendum to the Centennial Valley Arctic Grayling Adaptive Management Project 2017 Spring Update. The purpose of this addendum is to provide 1) an update of winter habitat conditions in Upper Red Rock Lake and 2) updated model predictions for the 2018 Arctic Grayling spawning run in Red Rock Creek in the context of the Centennial Valley Arctic Grayling Adaptive Management Plan (AMP). A complete annual report will be prepared and disseminated sometime in 2018.

Suitable grayling winter habitat in Upper Red Rock Lake was quantified on 8 January 2018. At that time, predicted suitable habitat was 103 ha, an intermediate value for the period of record, and scattered throughout Upper Red Rock Lake (Fig. 1).



**Figure 1.** a) Extent of minimum area of suitable Arctic grayling winter habitat in Upper Red Rock Lake, 2017, b) 2018, c) annual estimate of minimum area of suitable habitat for water years 1995-2018, and d) grayling spawning population as a function of minimum area of suitable winter habitat for years when both were estimated.

Based on simulation results, the *Winter Habitat* model most closely predicted the true number of grayling observed in Red Rock Creek during the spawning season (Table 1). This suggests the importance of suitable winter habitat to spawning grayling abundance the following spring. The management by experiment phase of the AMP will continue for another three years.

**Table 1.** Arctic grayling spawning abundance model predictions, observed abundance, and relative model weights for 2017, and model predictions for 2018.

| Model            | 2017 Prediction | Observed | Model Weights | 2018 Prediction |
|------------------|-----------------|----------|---------------|-----------------|
| Winter Habitat   | 60              | 176      | 0.541         | 119             |
| Spawning Habitat | 467             | 176      | 0.345         | 416             |
| Non-native Fish  | 1057            | 176      | 0.115         | 840             |