S1 Table. **R scripts.** All files and model output are available for upload from the github.com/bchasco/sar\_paper.

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| File | Description | Output |
| create\_DataAndPars.r | Creates a list of data and parameter objects that are used by the TMB obj | data (list)parameters (list) |
| create\_MapAndObj.r | Creates a map list of parameters and random effects that are not to be estimated by the TMB object, Obj. | myMap (list)Obj (TMB) |
| wrapper\_modelRuns.r | A wrapper that takes user defined inputs and then run the optimization for the TMB object. | rep (list) – TMB outputSD (list) – TMB output |
| wrapper\_simRuns.r | A wrapper to do the simulation testing for the parameters of the best fit model to the wild spring/summer Chinook salmon | simMelt (data.frame) – estimated parameters for the simulated data sets |
| wrapper\_simQuadratic.r | A wrapper to compare the parameters estimates for the simulated data based on our AR1 model for day and day/year interaction model with a mixed-effect model where day effect is a fixed effect described linear combination of day and day2 | simMelt (data.frame) – estimated parameters for the simulated data sets |
| fig\_AnnualSurv\_ggplot.r | Plot of annual survival | fig\_AnnualSurv\_ggplot.tiff |
| fig\_DailySurv\_ggplot.r | Plot of daily survival, aggregated across years | fig\_DailySurv\_ggplot.tiff |
| fig\_DayXYearSurvival\_ggplot.r | Plot of daily survival by year | fig\_DayXYearSurvival\_ggplot.tiff |
| fig\_envEffect\_ggplot.r | Plot of the environmental effects | fig\_envEffect\_ggplot.tiff |
| fig\_EnvironmentalVariableWt\_ggplot.r | Plot of the predictive ability of the different environmental covariates | fig\_EnvironmentalVariableWt\_ggplot.tiff |
| table\_AIC.r | Table of the AIC values for the top models | table\_AICOutput.csv |
| table\_bestFitMods.r | Table of best-fit models for hatchery and wild fish | table\_bestFitMods.csv |
| table\_resDeviance.r | Table of residual deviances for different fixed and mixed-effect models | table\_resDeviance.csv |