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### Data S2

**Code to optimize sea otter surveys in Glacier Bay, Alaska with recursive Bayesian computation. Also available on github: https://github.com/jmeisaguirre/glba\_optimal\_design**

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### File list

RealData.RData

otter\_MCMCAlgorithm13.R

otter\_find\_opt\_design.R

otter\_prep\_for\_rec\_updates.R

otter\_rec\_updates\_for\_HPC\_jobs.R

otter\_run\_mcmc.R

**Description**

RealData.RData – sea otter survey and covariate data

otter\_MCMCAlgorithm13.R – MCMC algorithm composed of Gibbs and Metropolis-Hastings updates programed in R

otter\_run\_mcmc.R – R code to run the MCMC algorithm to estimate parameters and sample from the posterior predictive distribution

otter\_prep\_for\_rec\_updates.R – R code to prepare MCMC output for the recursive Bayes algorithm

otter\_rec\_updates\_for\_HPC\_jobs.R – R code to implement the recursive Bayes algorithm designed to be submitted in multiple batch jobs to an HPC cluster for parallel computation

otter\_find\_opt\_design.R – R code to find optimal design using output from the recursive Bayes algorithm (run in parallel on an HPC cluster)