**Code summary**

**Title:** An ensemble approach to species distribution modeling reconciles systematic differences in estimates of habitat utilization and range area

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**Code and Related Documents**

We have archived 8 R scripts in relation to this article.

Scripts **Functions\_akgfmaps.R**, **Functions\_ensemble.R**, **Functions\_GamModel.R**, **Functions\_LoadMap.R**, and **Functions\_Maxent.R** all contain functions that are used in other scripts, categorized by their major area of application. The script **Functions\_LoadMap.R** contains a variety of miscellaneous functions in addition to just loading the maps used for SDM predictions. These scripts are the basis of the EFMSDM package, which is available at Github (https://github.com/alaska-groundfish-efh/EFHSDM).

This project began as part of the 2023 EFH Review for the Alaska region in the United States. The majority of model runs and outputs were produced using the **Meatgrinder6.R** script. This script uses the functions available elsewhere to run through the large body of SDM models. On a single machine, this script would likely take over 3 months to run to completion, so steps were taken to distribute the workload across the different authors. The **Masterplan.csv** file provides information that allows different computers to divide the workload, as well as providing some important reference values such as names and abbreviations.

The initial run for the 2023 EFH Review discarded the results from models that were not included in the ensemble (See Figure 2 in the paper for details). However, we eventually realized that this information would be beneficial for comparison purposes in the paper, so it was necessary to rerun some of the models. This is covered in the **Model\_Followup.R** script, which picks out only those models where the information was missing and runs them again, this time saving all results.

Finally, **Make\_Manuscript\_Table\_Final.R** contains the code to produce the figures and tables included in the article.

**Data Files**

The data used to fit the models is present in three csv files labeled by region. Map covariates are stored in three sets of rasters in .grd format, and are available as zipfiles in this repository. The above scripts will automatically load the correct set of data and map raster provided the appropriate directory is added near the top of the script.