Lewandoski, S.A., Brenden, T.O., 2022. Forecasting Suppression of Invasive Sea Lamprey in Lake Superior. ***Journal of Applied Ecology***

Data and Model Code

Lewandoski, Sean (2022), Forecasting suppression of invasive Sea Lamprey in Lake Superior: data and code for Bayesian forecast model, Dryad, Dataset, https://doi.org/10.5061/dryad.69p8cz946

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Model code file list

```
LakeSuperiorSeaLampreySS.stan
LakeSuperiorSeaLampreySSModel.R
```

Model code file description

`LakeSuperiorSeaLampreySS.stan` — stan model file that is read through the r script (do not need to open to run model)
`LakeSuperiorSeaLampreySSModel.R` — R script for reading in datafiles and running model. The *rstan* package is used to access the stan script. This is the only file that needs to be opened to run the model. Set working directory to the file containing data files found in lewandoski_brenden_2022_JoAE.zip.

Data file list (files found within lewandoski_brenden_2022_JoAE.zip)

```
lewandoski_brenden_2022_JoAE_electric_wier_annual_index.t
    xt
lewandoski_brenden_2022_JoAE_gB_annual_effort_index.txt
lewandoski_brenden_2022_JoAE_km_blocked_annual_index.txt
```

lewandoski_brenden_2022_JoAE_lamprey_catch_annual_index_position.txt
lewandoski_brenden_2022_JoAE_lamprey_catch_assessment_unit_index.txt
lewandoski_brenden_2022_JoAE_log_lamprey_catch.txt
lewandoski_brenden_2022_JoAE_observation_covariate_stream_index.txt
lewandoski_brenden_2022_JoAE_SMRT_annual_dummy_ind.txt
lewandoski_brenden_2022_JoAE_streamIDs_with_estimated_yearaftertreat_cov.txt
lewandoski_brenden_2022_JoAE_streamIDs_with_fixed_yearaftertreat_cov.txt
lewandoski_brenden_2022_JoAE_TFM_annual_effort_index.txt
lewandoski_brenden_2022_JoAE_yearsafterTFmtreatment_observation_covariate.txt

Data file descriptions

lewandoski_brenden_2022_JoAE_electric_wier_annual_index.txt – annual index of control effort associated with electric weir operation.

lewandoski_brenden_2022_JoAE_gB_annual_effort_index.txt – annual index of granular Bayluscide control effort

lewandoski_brenden_2022_JoAE_km_blocked_annual_index.txt – annual index of control effort associated with km of stream blocked by permanent weirs.

lewandoski_brenden_2022_JoAE_lamprey_catch_annual_index_position.txt – index value relating adult sea lamprey catches to the corresponding year the data were collected.

lewandoski_brenden_2022_JoAE_lamprey_catch_assessment_unit_index.txt – index value relating each adult sea lamprey catches to the corresponding assessment unit.

lewandoski_brenden_2022_JoAE_log_lamprey_catch.txt – catch of adult sea lamprey in Lake Superior tributaries (log scale)

lewandoski_brenden_2022_JoAE_observation_covariate_stream_index.txt – index value relating each adult sea lamprey catches to the corresponding stream data were collected from.

lewandoski_brenden_2022_JoAE_SMRT_annual_dummy_ind.txt – annual dummy variable indicating years in which SMRT was applied or not applied.

lewandoski_brenden_2022_JoAE_streamIDs_with_estimated_yearaftertreat_cov.txt – stream IDs with information to estimate the years-after-treatment observation level covariate.

lewandoski_brenden_2022_JoAE_streamIDs_with_fixed_yearaftertreat_cov.txt – stream IDs without information to estimate the years-after-treatment observation level covariate. These covariates are fixed at zero in the model.

lewandoski_brenden_2022_JoAE_TFM_annual_effort_index.txt – annual index of TFM effort.

lewandoski_brenden_2022_JoAE_yearsafterTFmtreatment_observation_covariate.txt – observation-level covariate associated with each catch of adult sea lamprey that indicates how many years since the last TFM treatment.