**Spatiotemporal Models for Ecologists**

**Lab #1 – Generalized linear models in Template Model Builder**

Goal: Practice and demonstrate ability to estimate parameters for generalized linear models in Template Model Builder.

**Part 1 – Case study demonstration**

First, please load survey catch rate data for Alaska Pollock in the eastern Bering Sea using “EBS\_pollock\_data.csv”. Feel free to base this on textbook code from [Chap-1](https://github.com/James-Thorson/Spatio-temporal-models-for-ecologists/tree/main/Chap_1), e.g., “Poisson\_point\_process.R” and “poisson\_glm.cpp”

This data set contains the catch rate (labelled “catch”) as well as some potential covariates.

Then, write a template file in TMB that can be used to estimate parameters for a Tweedie GLM. Please use a single TMB template (i.e., a single “.cpp” file).

The Tweedie has syntax in TMB:

// dtweedie( Y\_i(i), mean, sd, power, true );

// where:

// mean > 0

// sd > 0

// 1 < power < 2