Agenda

- Preliminära resultat och feedback

- Nästa steg

Why models? Why spatial?

1. Occasionally large catches

2. Not normal

3. We want to make probabilistic statements:
   magnitude and probability of change

4. Data stem from surveys collected in space, account
   for spatial processes for better inference

5. Utilise built-in functionality to create population-
   level indices of abundance

1. Presence/absence

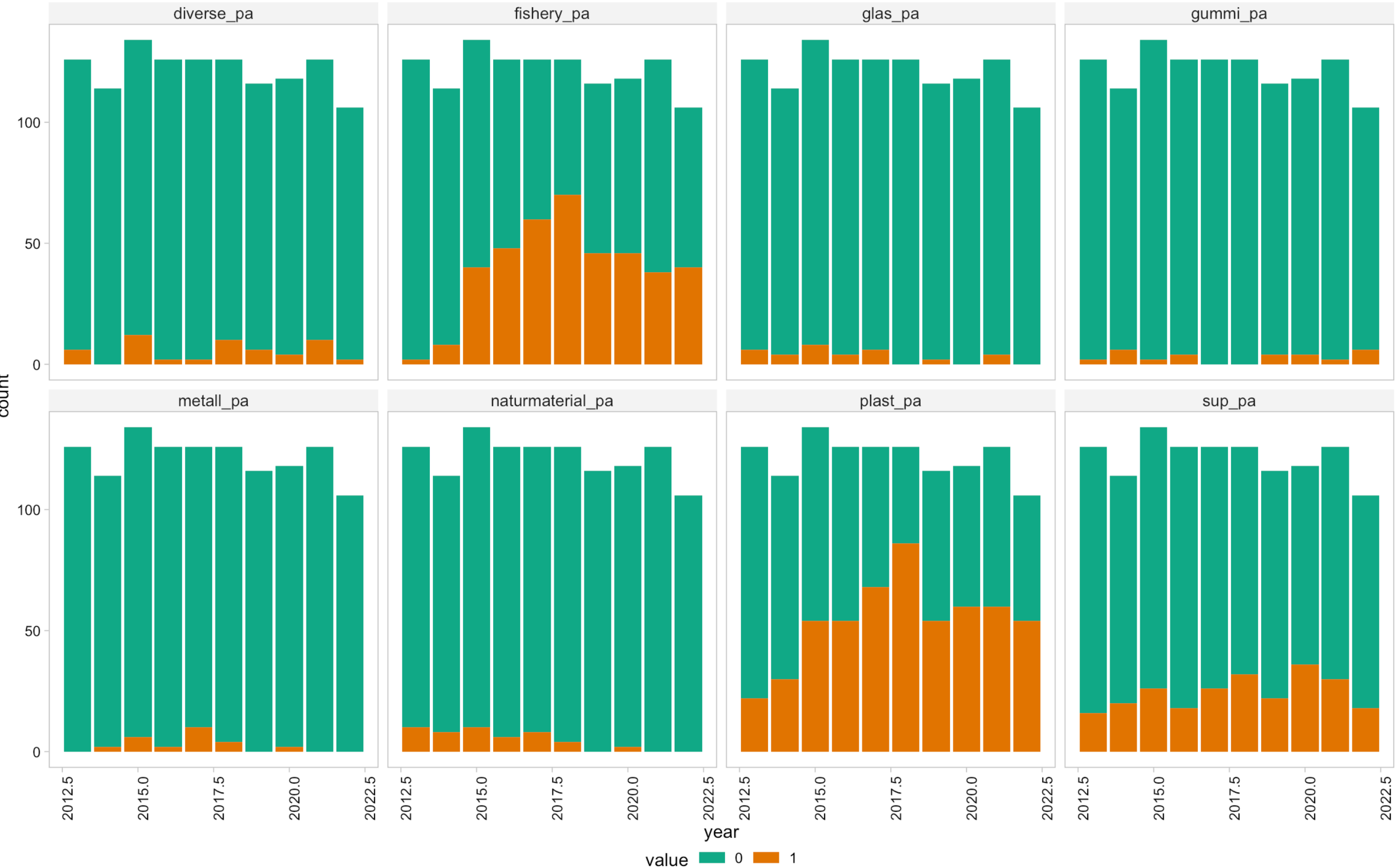
1. No random fields (no spatial correlation either)

2. `binomial(link = "logit")`

3. Swept area as offset

4. Year as random effect

1. Presence/absence



2. Count

1. Spatial random effect

2. `nbinom2(link = "log")`

3. Swept area as offset

4. Year as factor

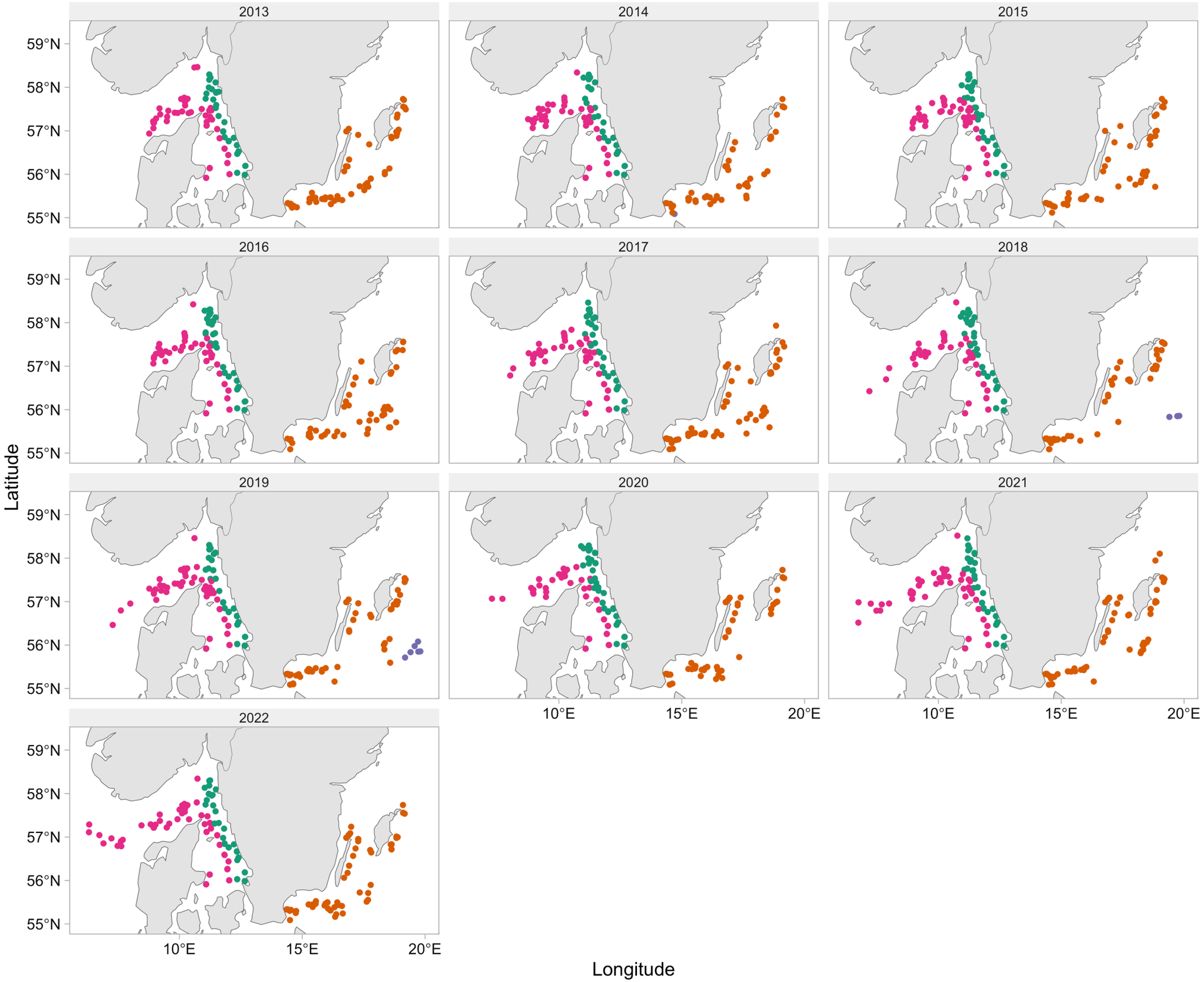
3. Biomass (density)

1. Spatial random effect

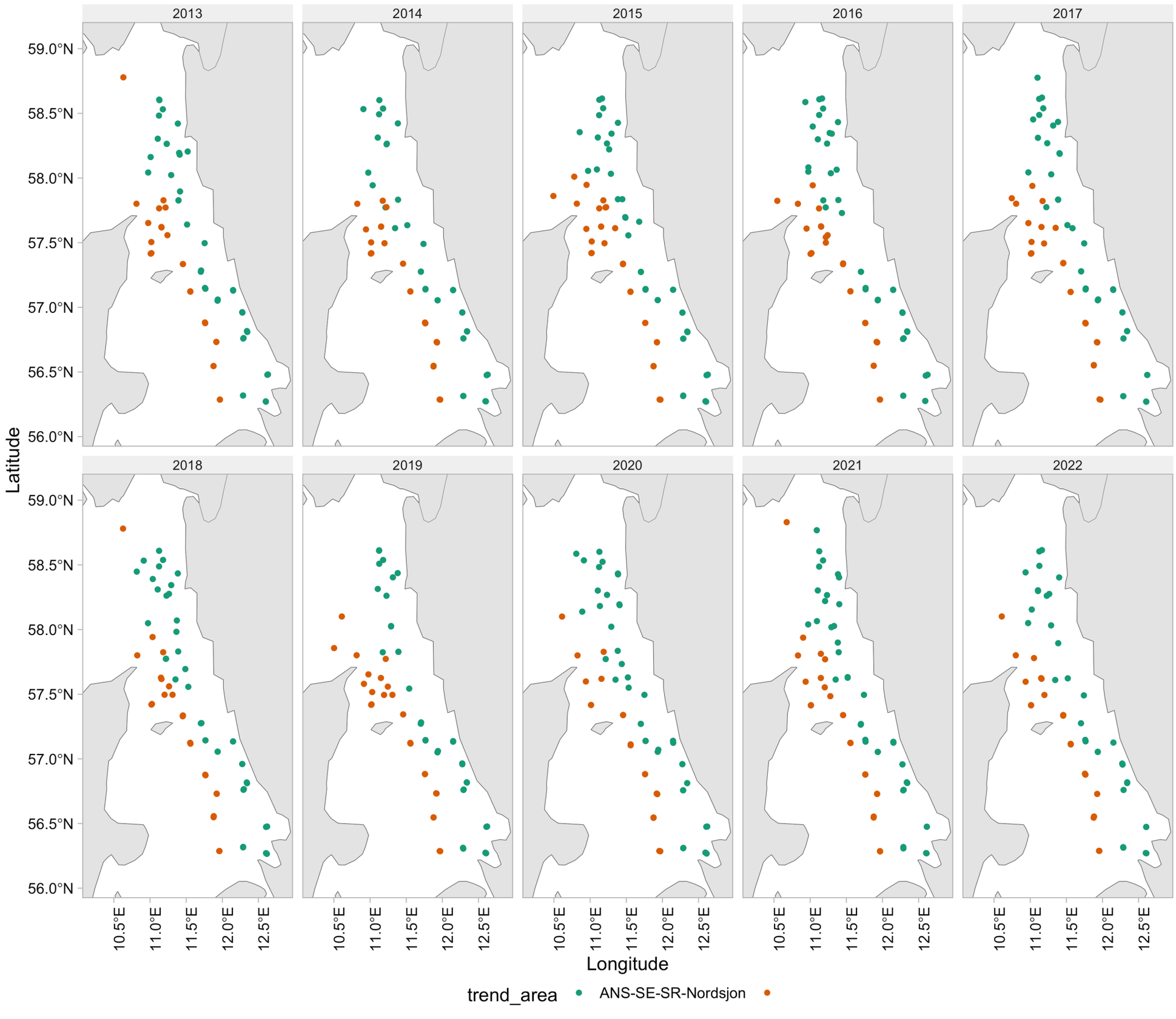
2. `Tweedie(link = "log")`

3. Year as factor

Full data


2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
59°N
58°N
57°N
56°N
55°N
10°E
15°E
20°E
Latitude
Longitude
trend_area
ANS-SE-SR-Nordsjon
BAL-SE-RG-Ostersjon

West coast—ok to mix?

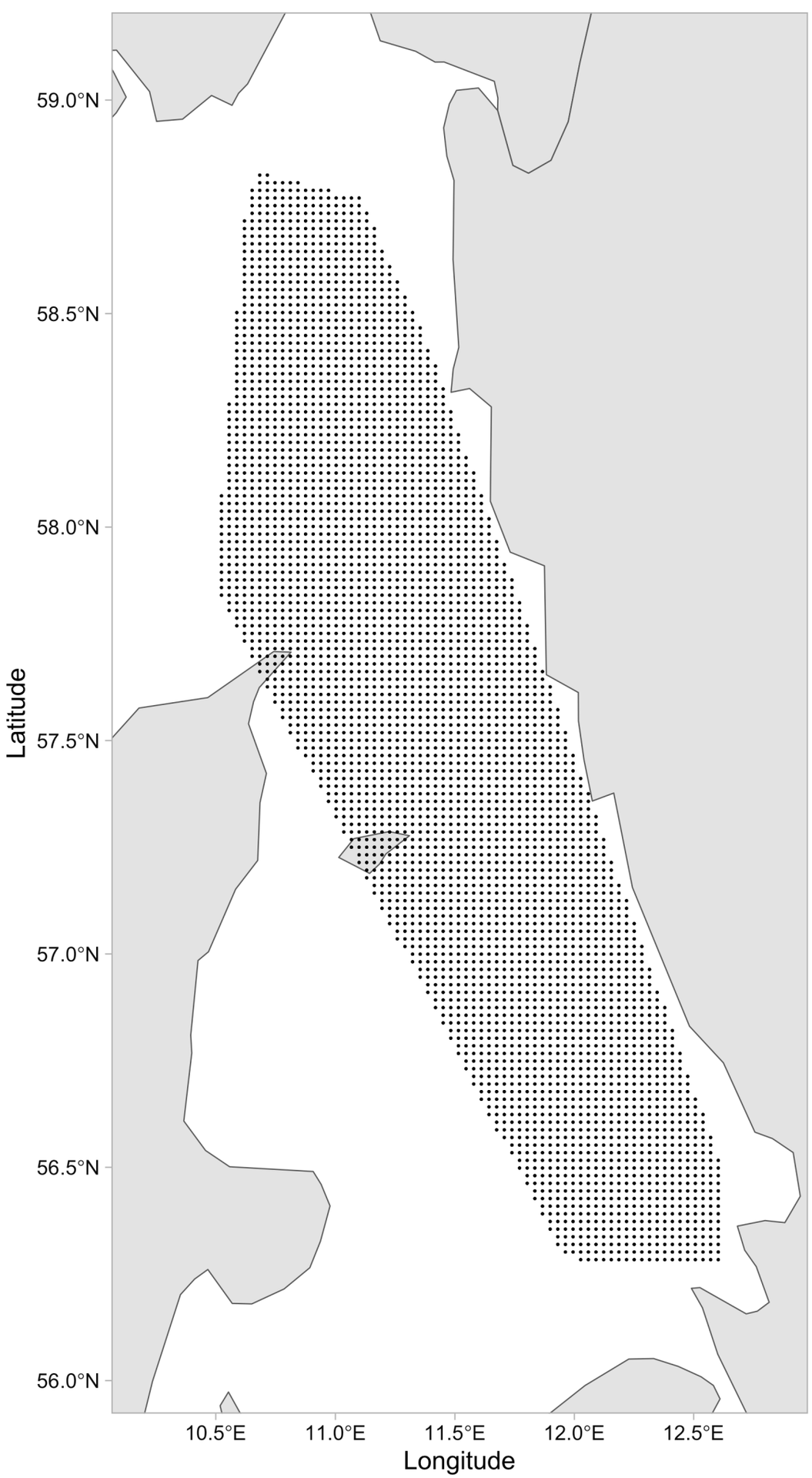


Calculate index

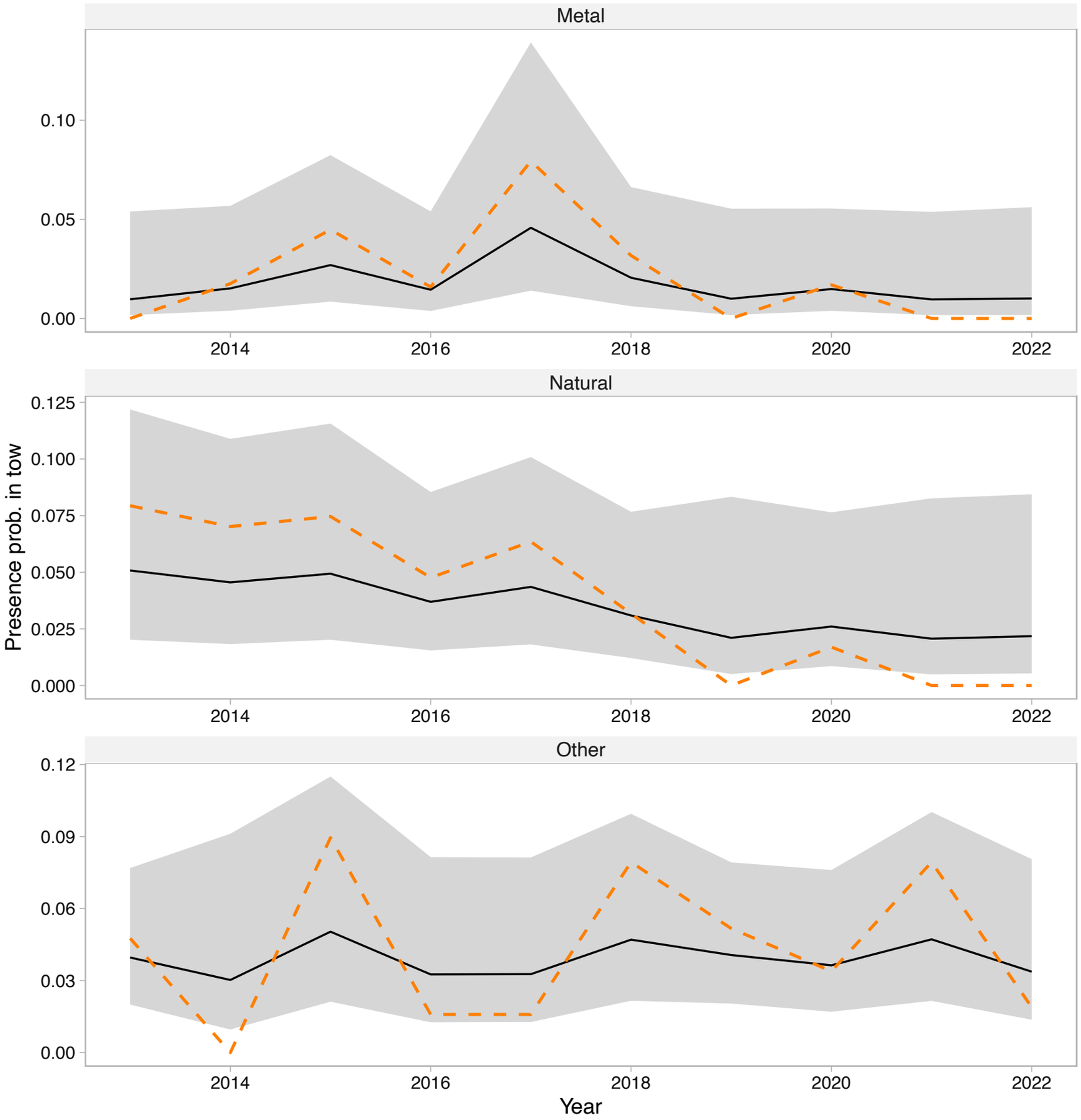
1. Predict onto grid (with random effects and depth)

2. Calculate “sum” (area-weighting)

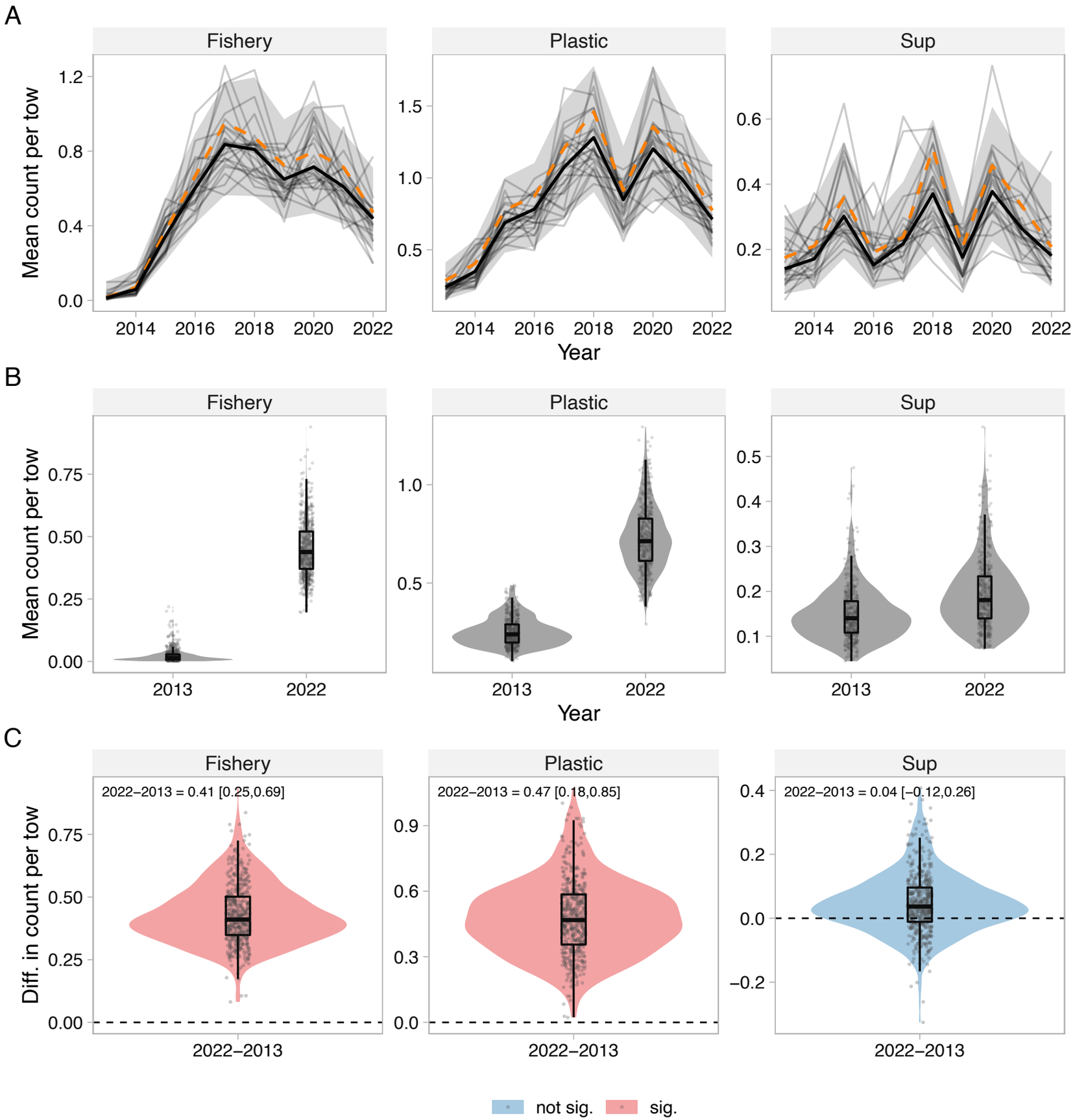
3. Draw simulations from the predictions



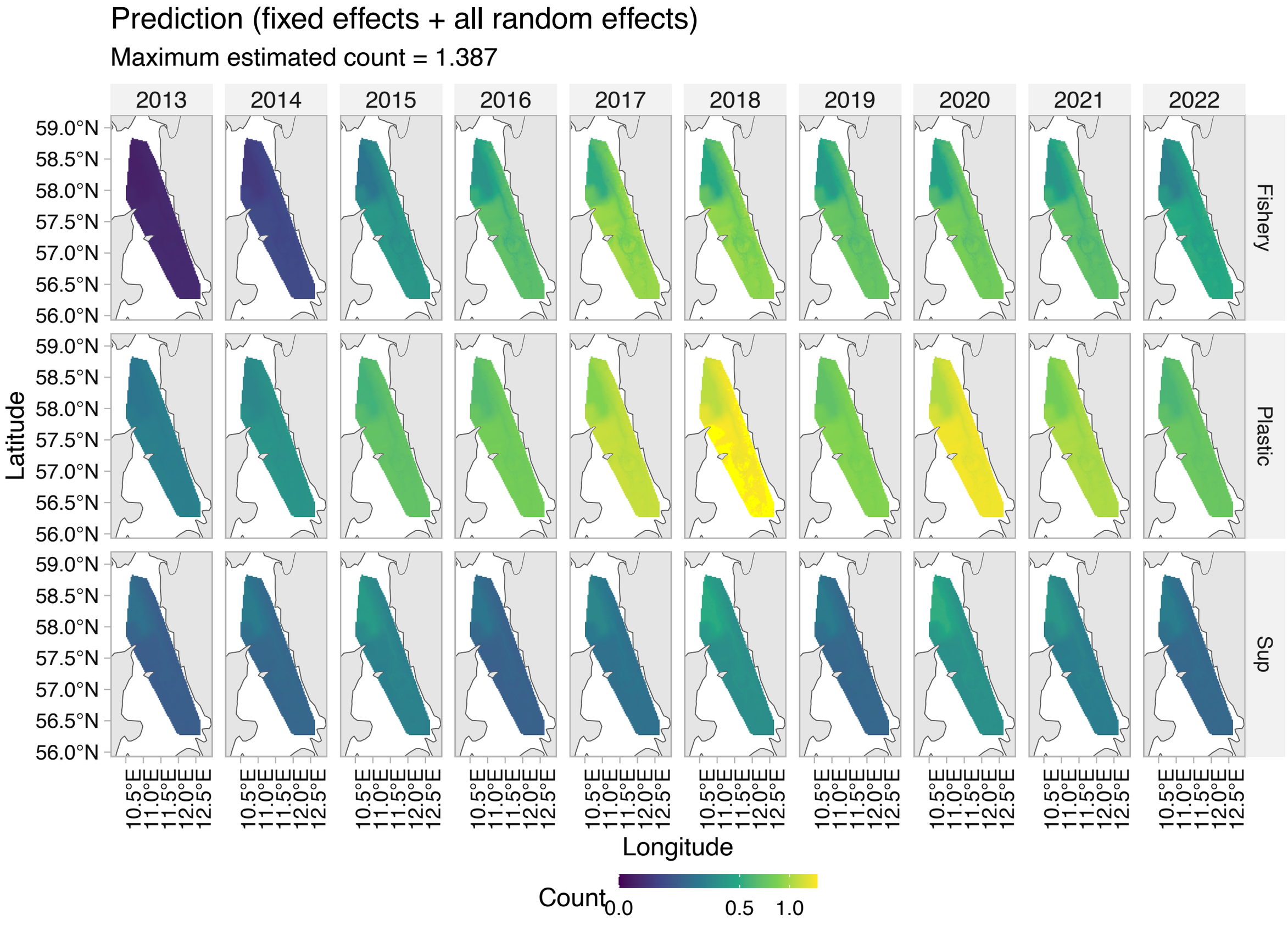
Presence/absence



Poission/count index

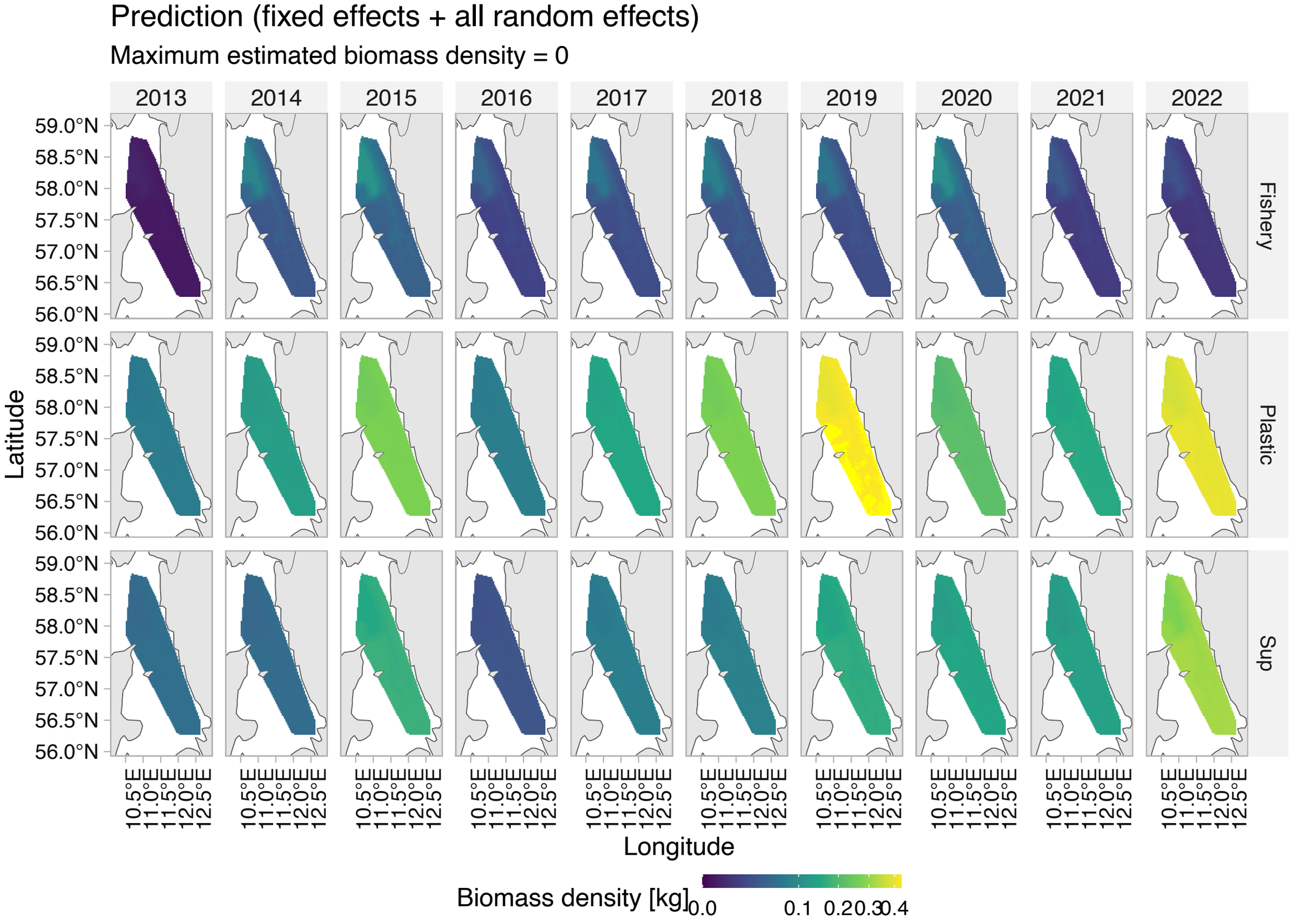


Spatial predictions (count)

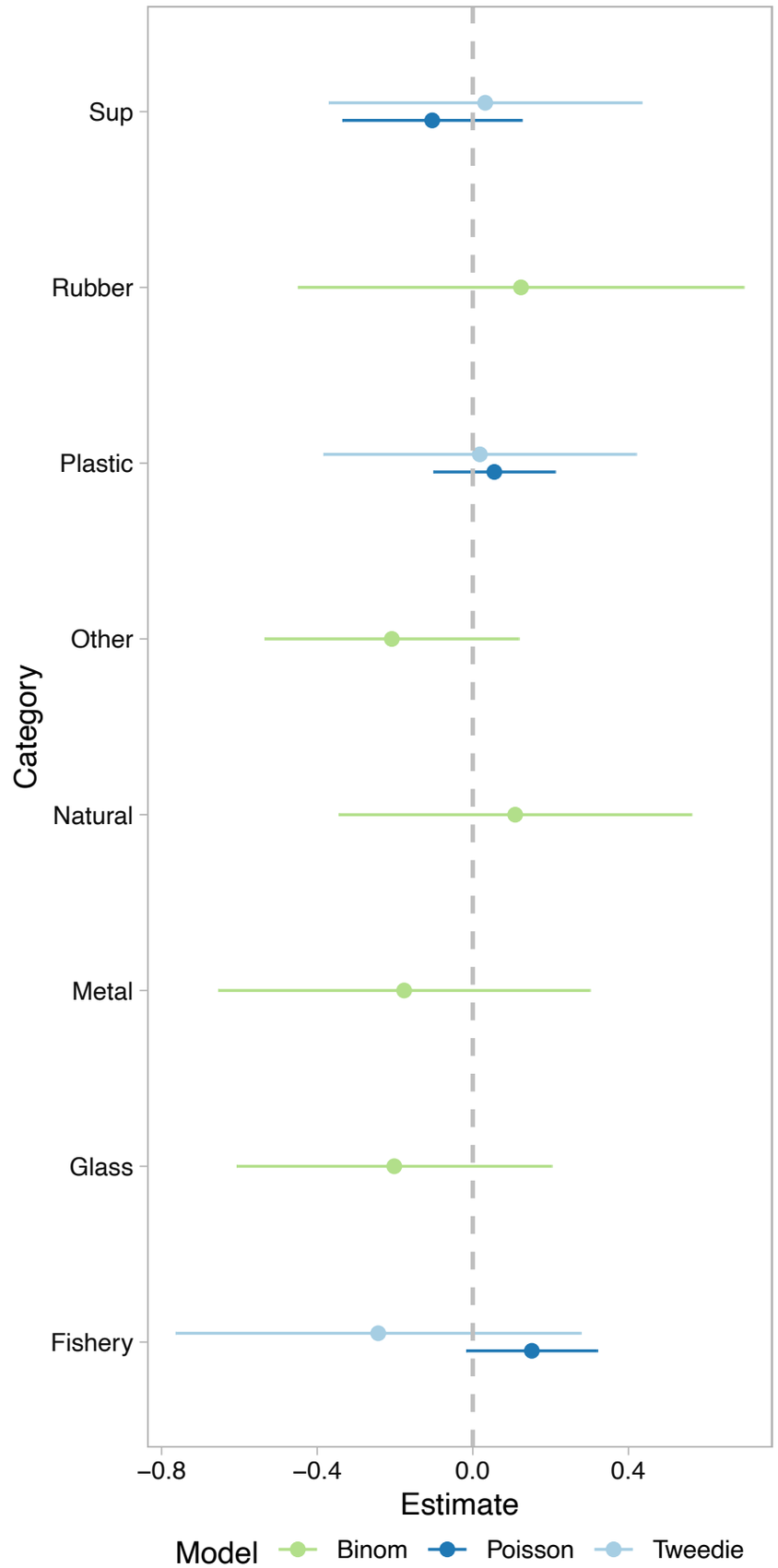


Tweedie models

Spatial predictions (biomass density)



Depth-coefficient



Baltic next

1. Report?

Links

https://github.com/maxlindmark/marine-litter

To do

1. Check grid w.r.t. areas (different for prediction and fit)?

2. Time-varying intercept (random walk, random)

3. 2013–2015 vs 2016–2021 (also 2015 vs 2016–2021) for violins

4. Add total category