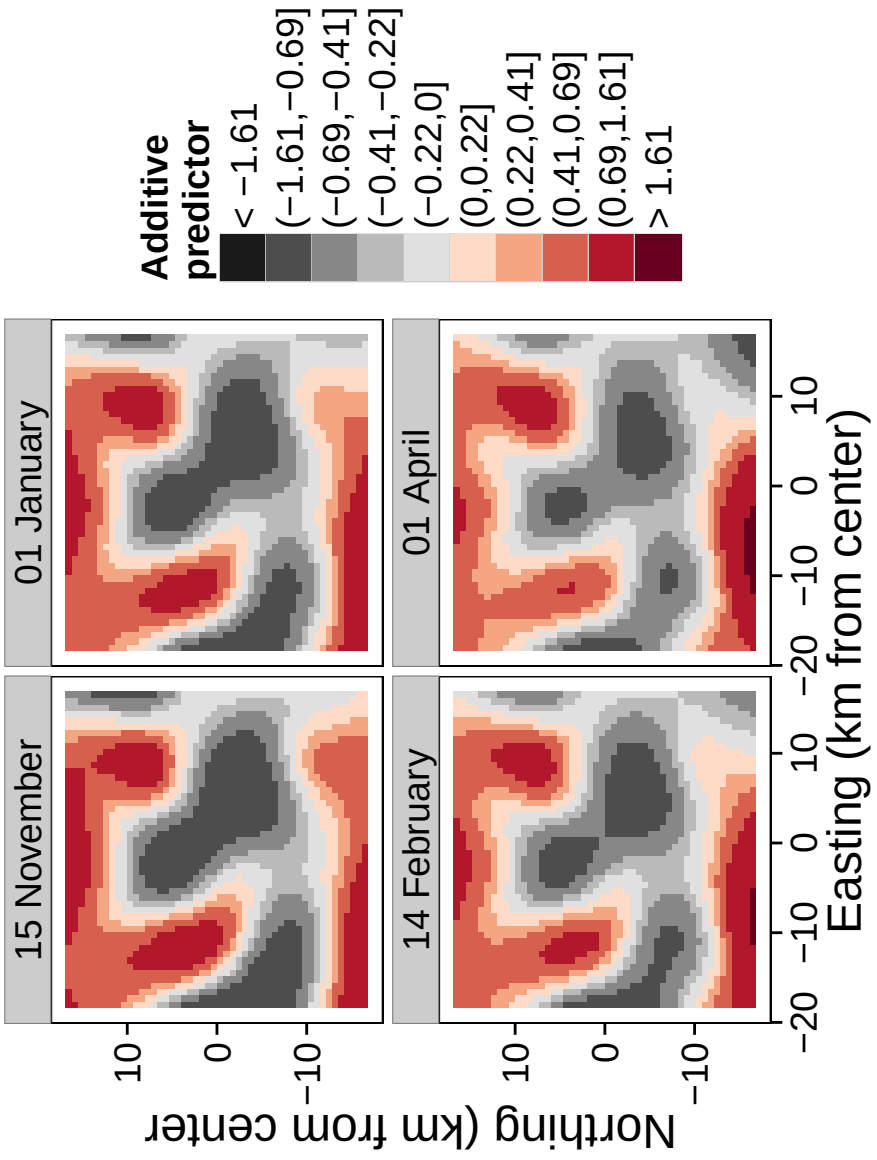
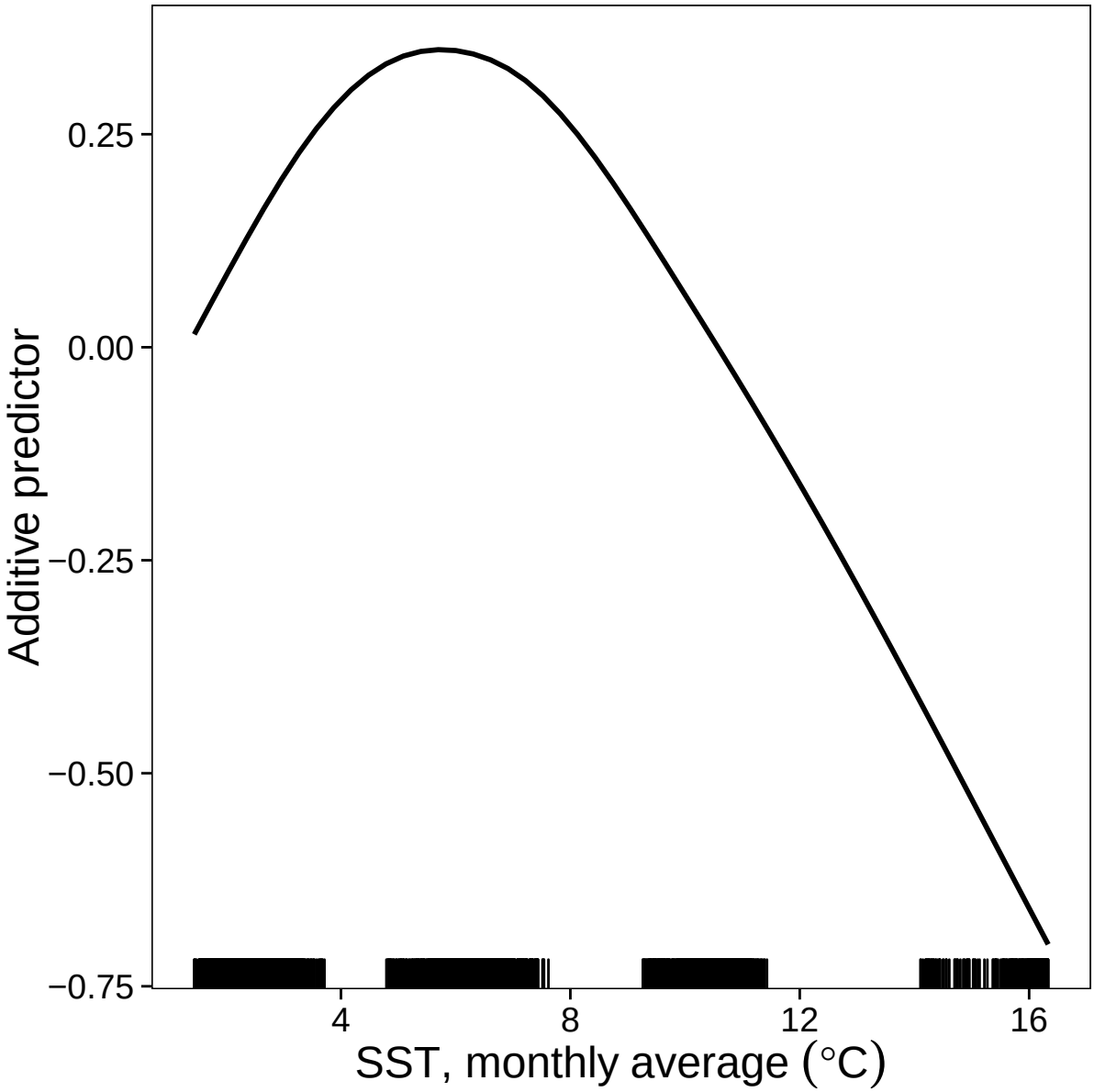
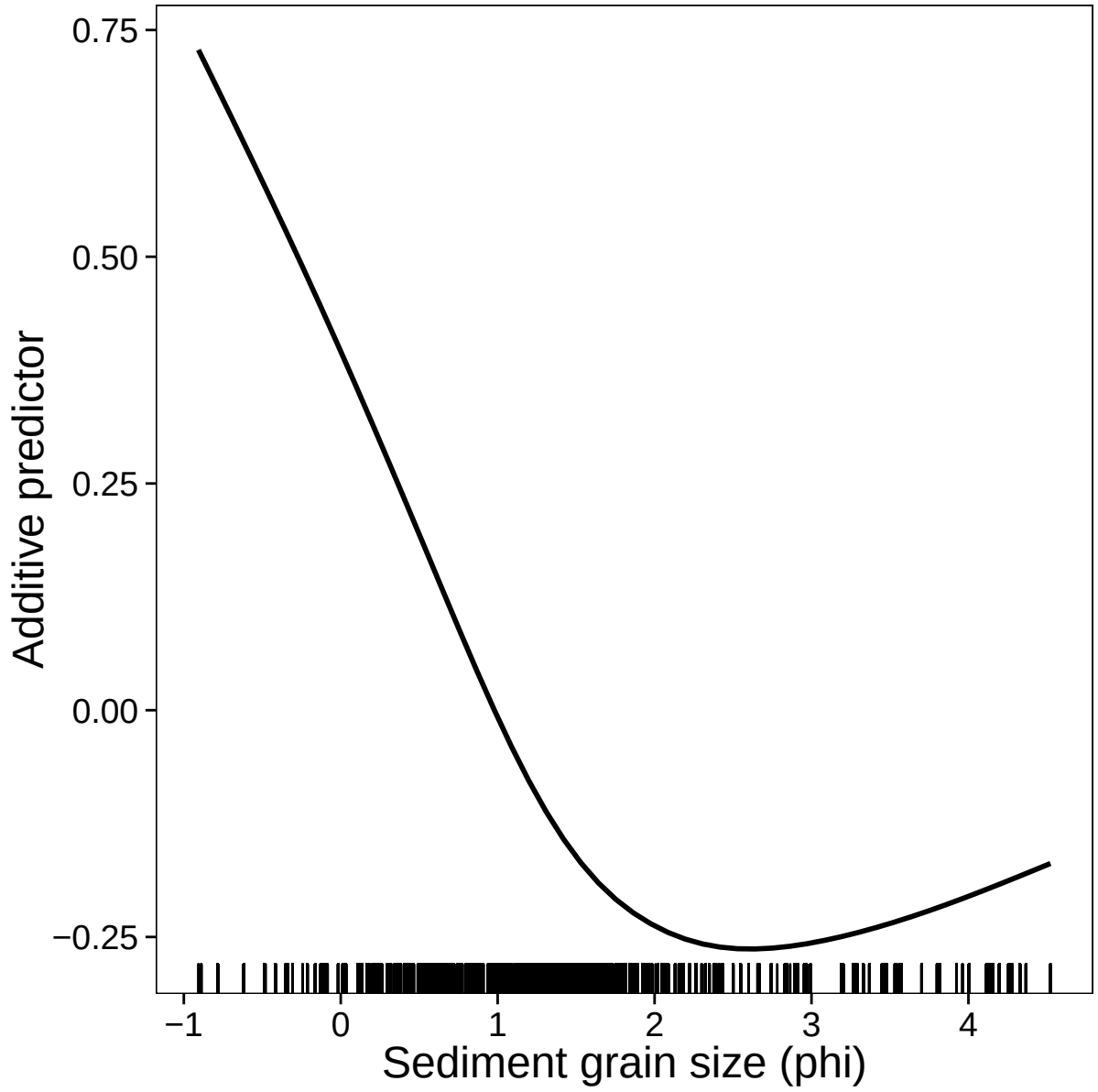
Appendix 5. Common Eider stable covariate effects

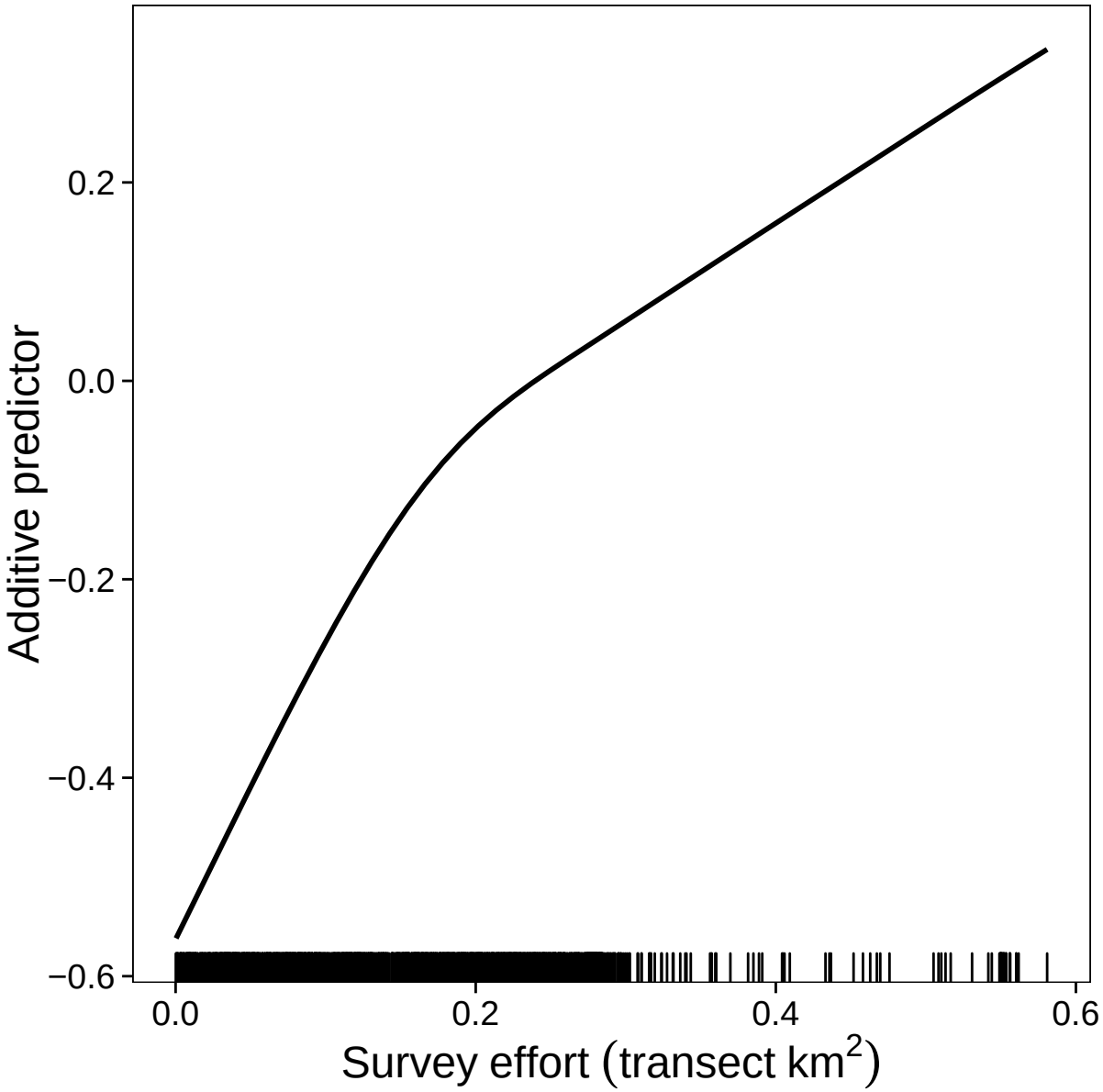
Covariate relationships with the occupancy, conditional mean abundance, and conditional overdispersion of abundance of Common Eiders in Nantucket Sound, Massachusetts, USA. Covariate plots are ordered roughly in descending order of the magnitude of their influence on the additive predictor in each model (or model parameter for count models). Covariates (and any abbreviations) are defined in detail in Appendix 2.

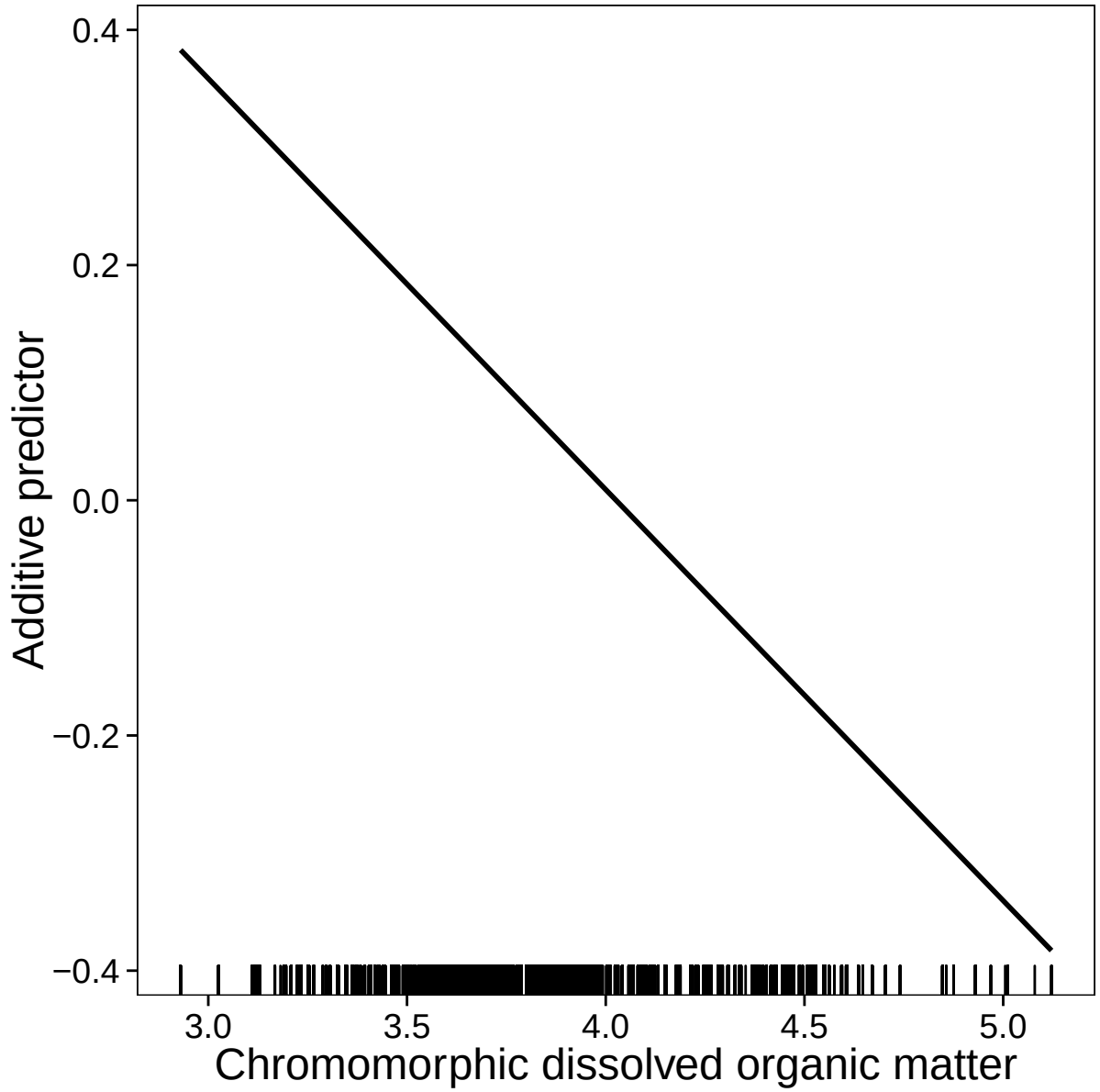
Occupancy

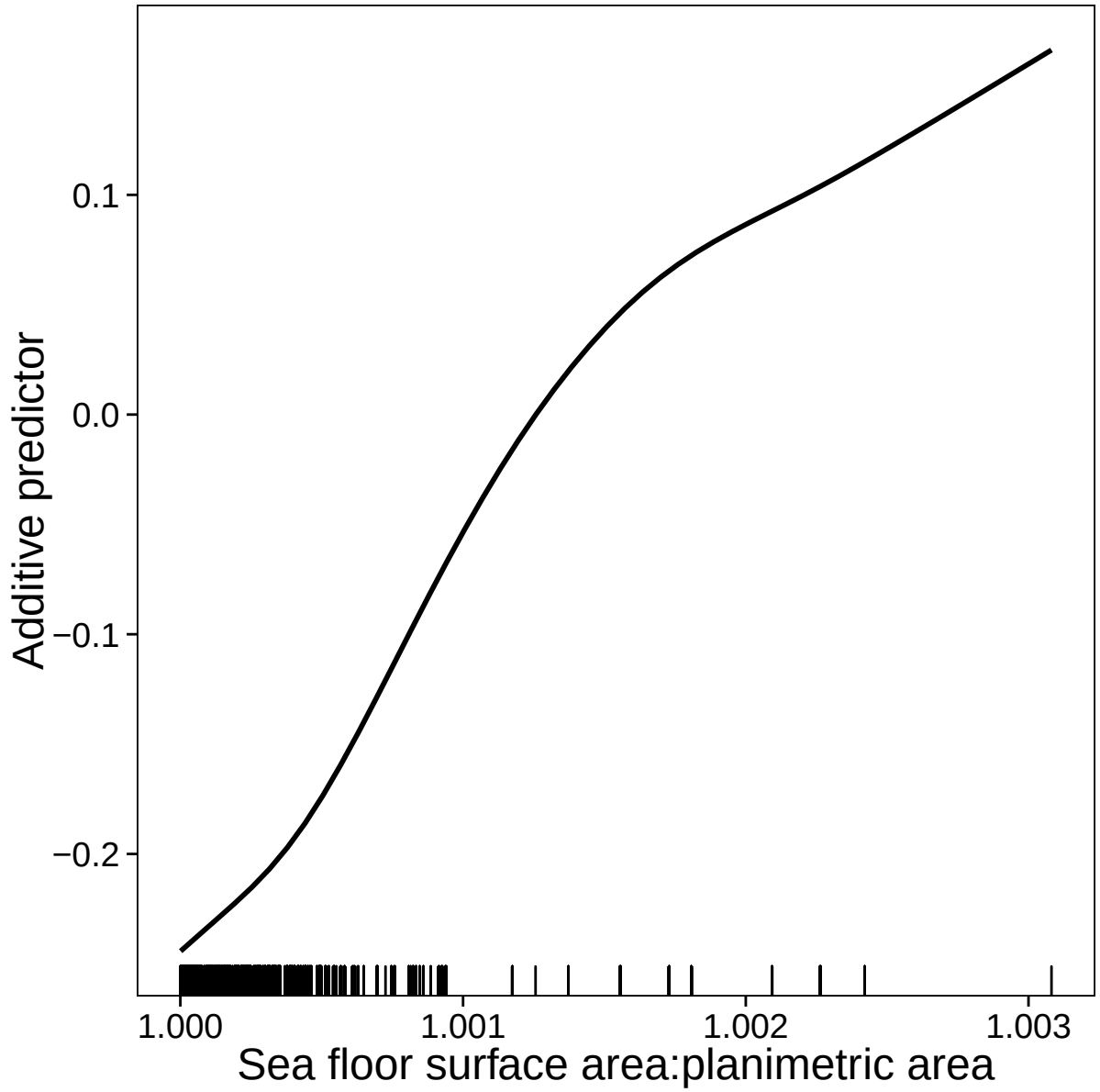

Additive predictor
< −1.61
(−1.61,−0.69]
(−0.69,−0.41]
(−0.41,−0.22]
(−0.22,0]
(0,0.22]
(0.22,0.41]
(0.41,0.69]
(0.69,1.61]
> 1.61
01 January
01 April
15 November
14 February
Northing (km from center)
Easting (km from center)
10
0
−10
−20

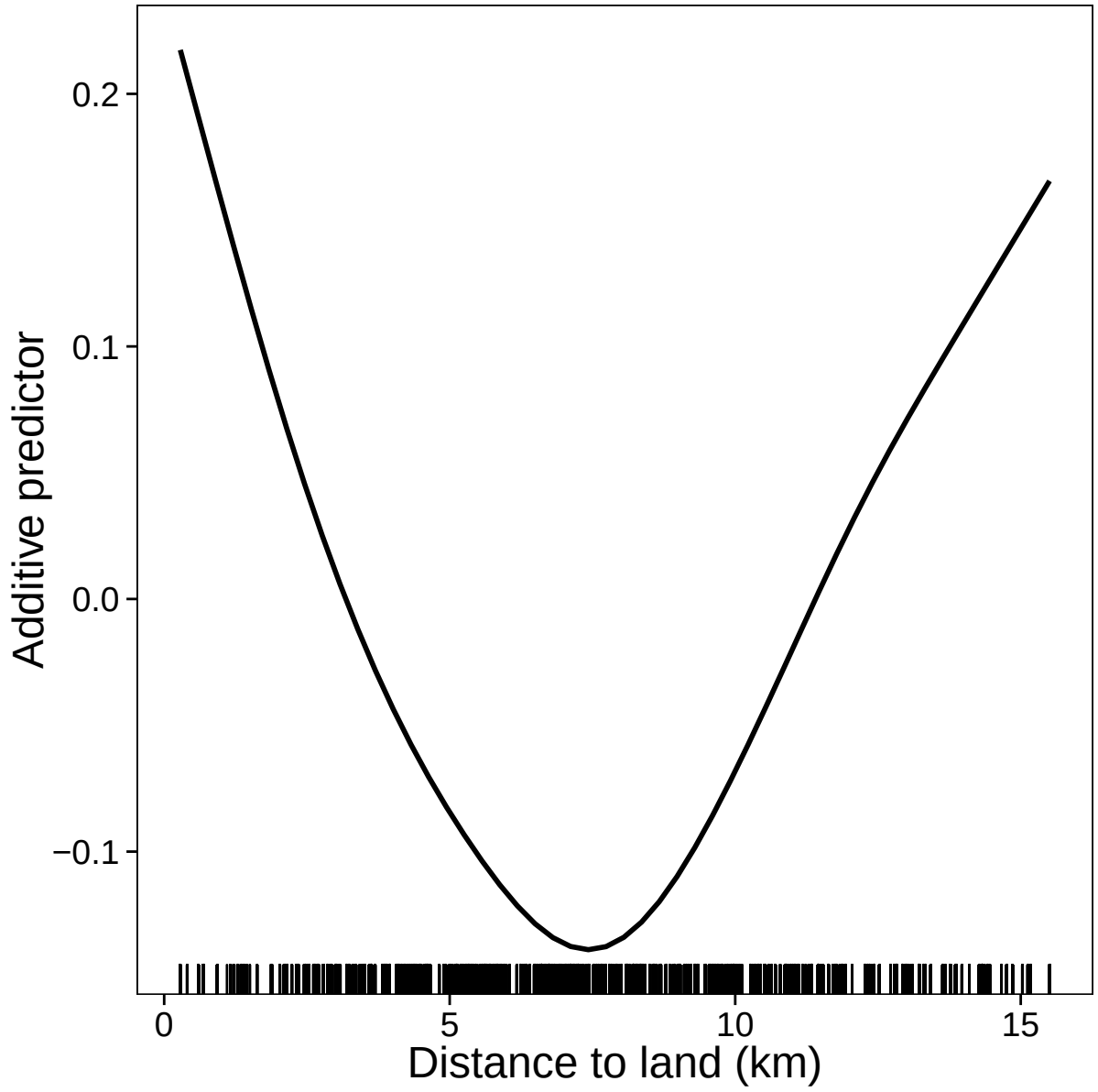

0.25
0.00
−0.25
−0.50
−0.75
Additive predictor
4
8
12
16
SST, monthly average (°C)

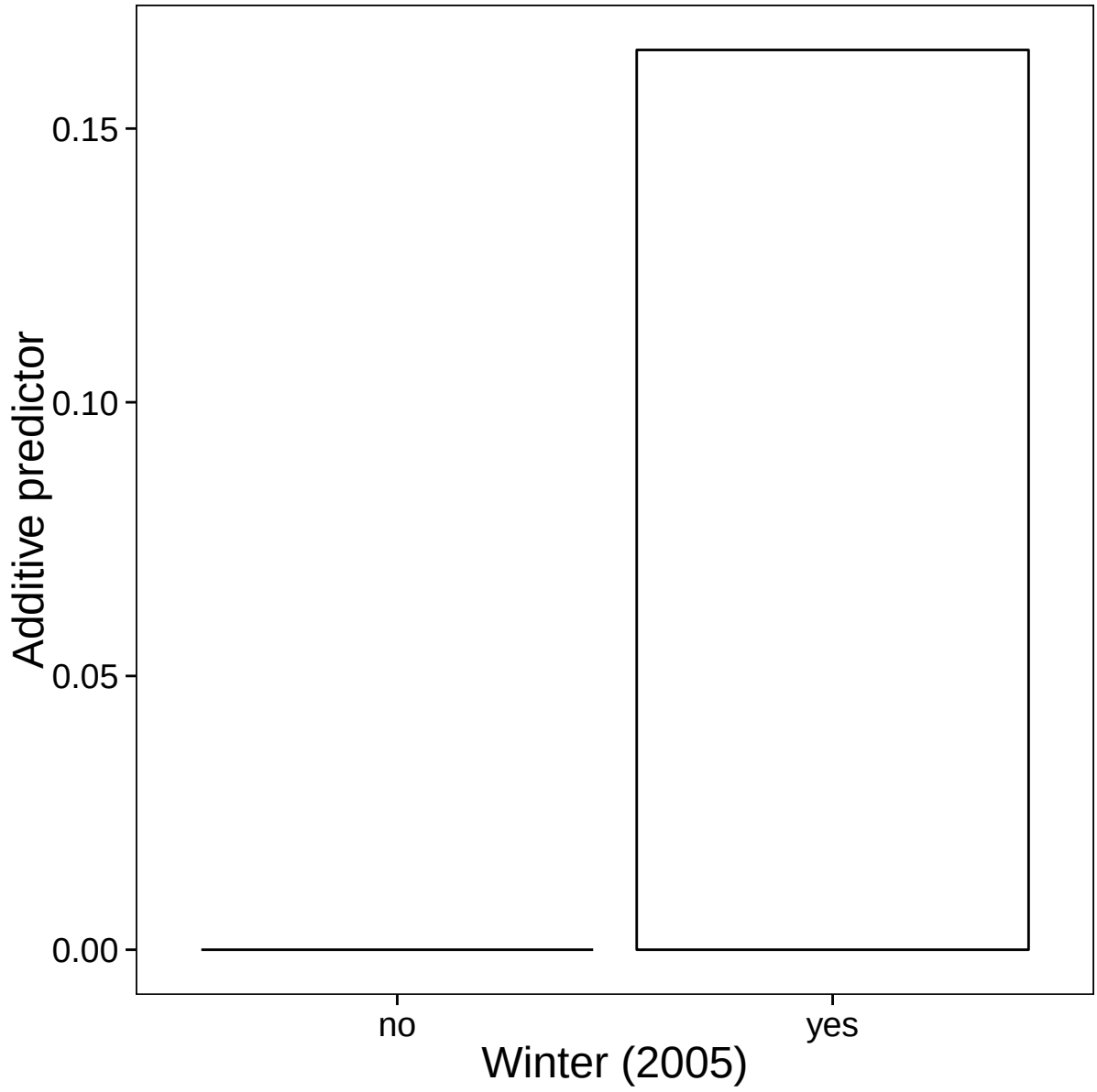

0.75
0.50
0.25
0.00
−0.25
Additive predictor
−1
0
1
2
3
4
Sediment grain size (phi)


0.2
0.0
−0.2
−0.4
−0.6
Additive predictor
0.0
0.2
0.4
0.6
Survey effort (transect km^2)

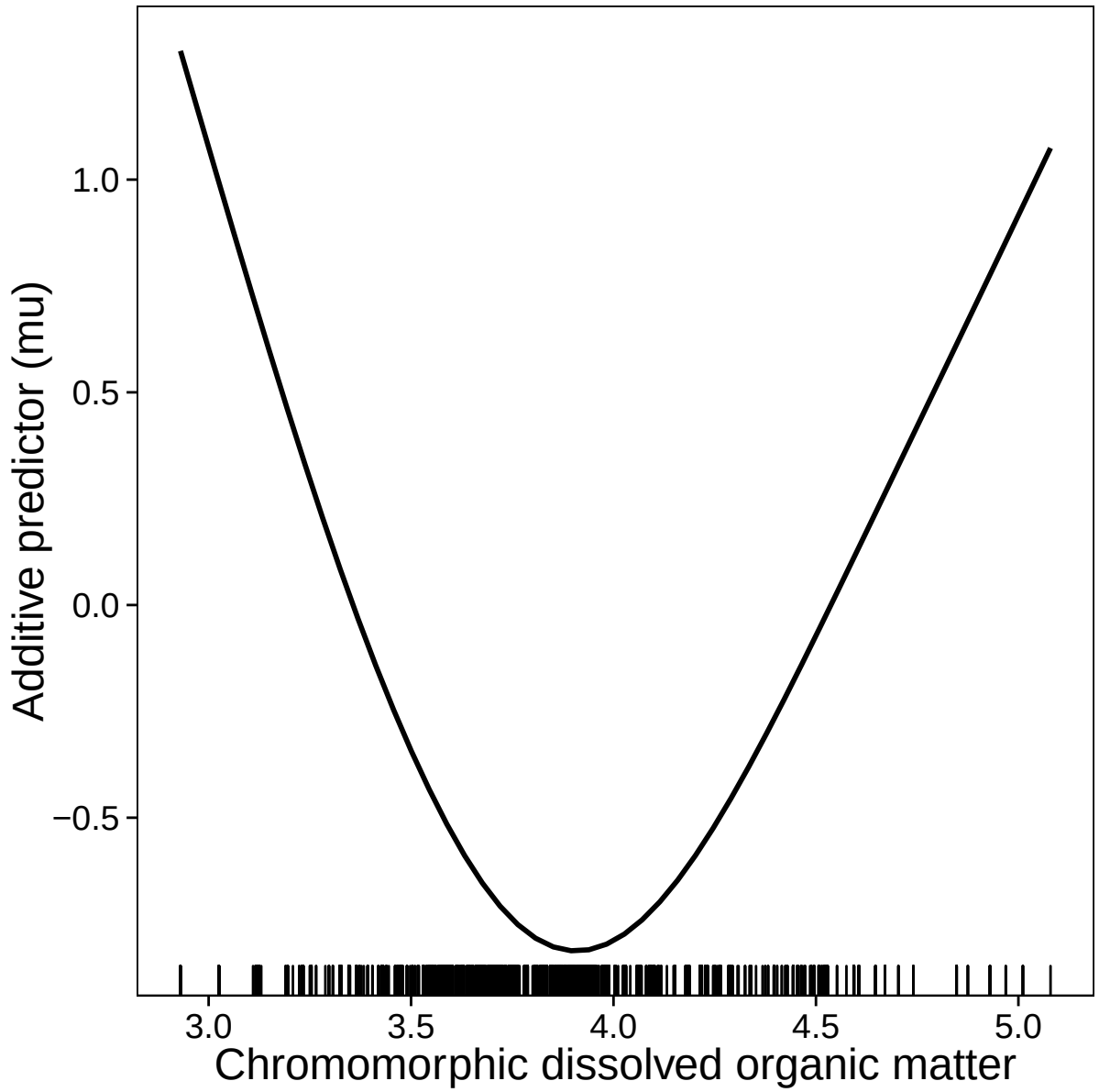

0.4
0.2
0.0
−0.2
−0.4
Additive predictor
3.0
3.5
4.0
4.5
5.0
Chromomorphic dissolved organic matter

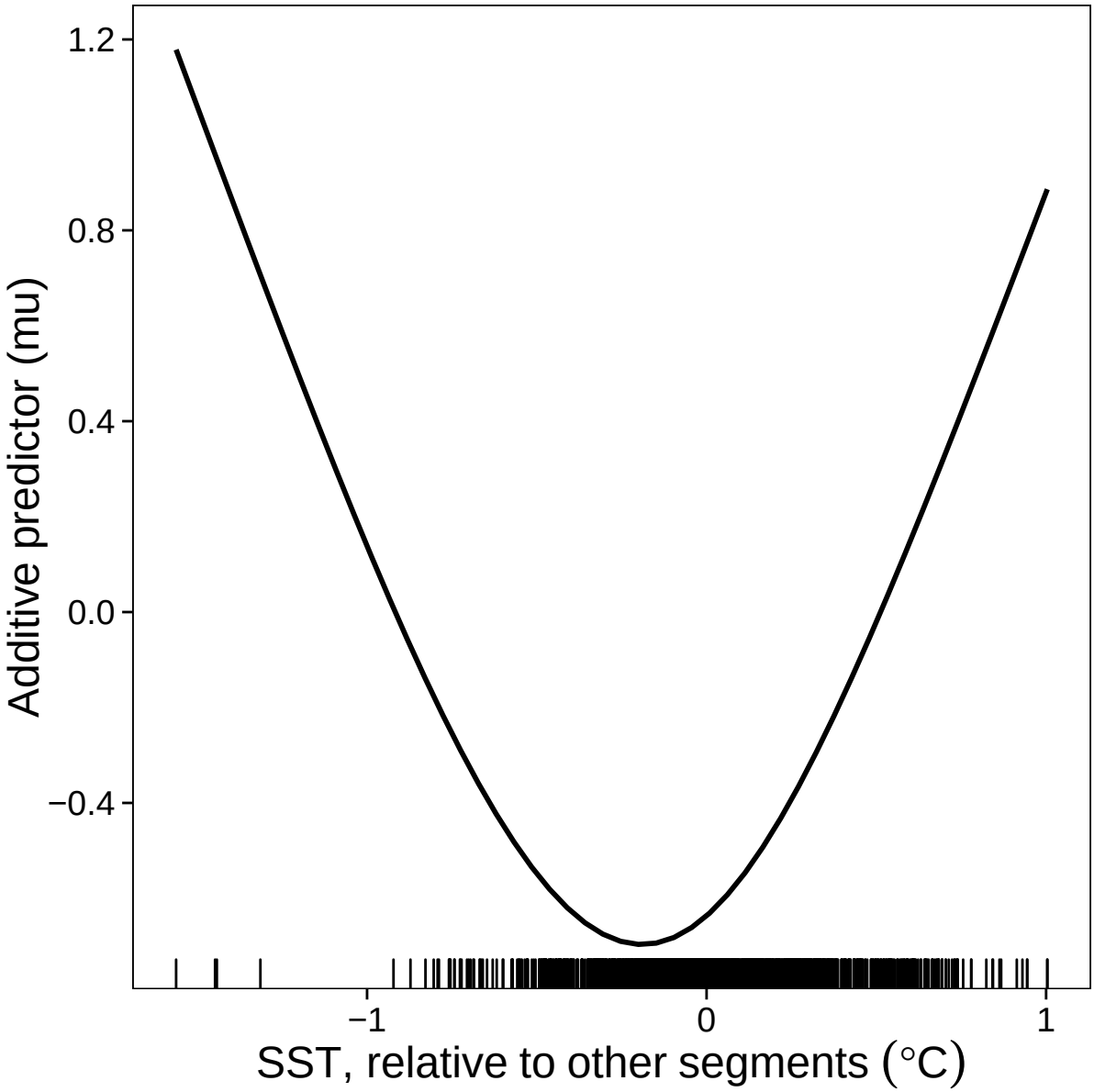

Additive predictor
0.1
0.0
−0.1
−0.2
1.000
1.001
1.002
1.003
Sea floor surface area:planimetric area

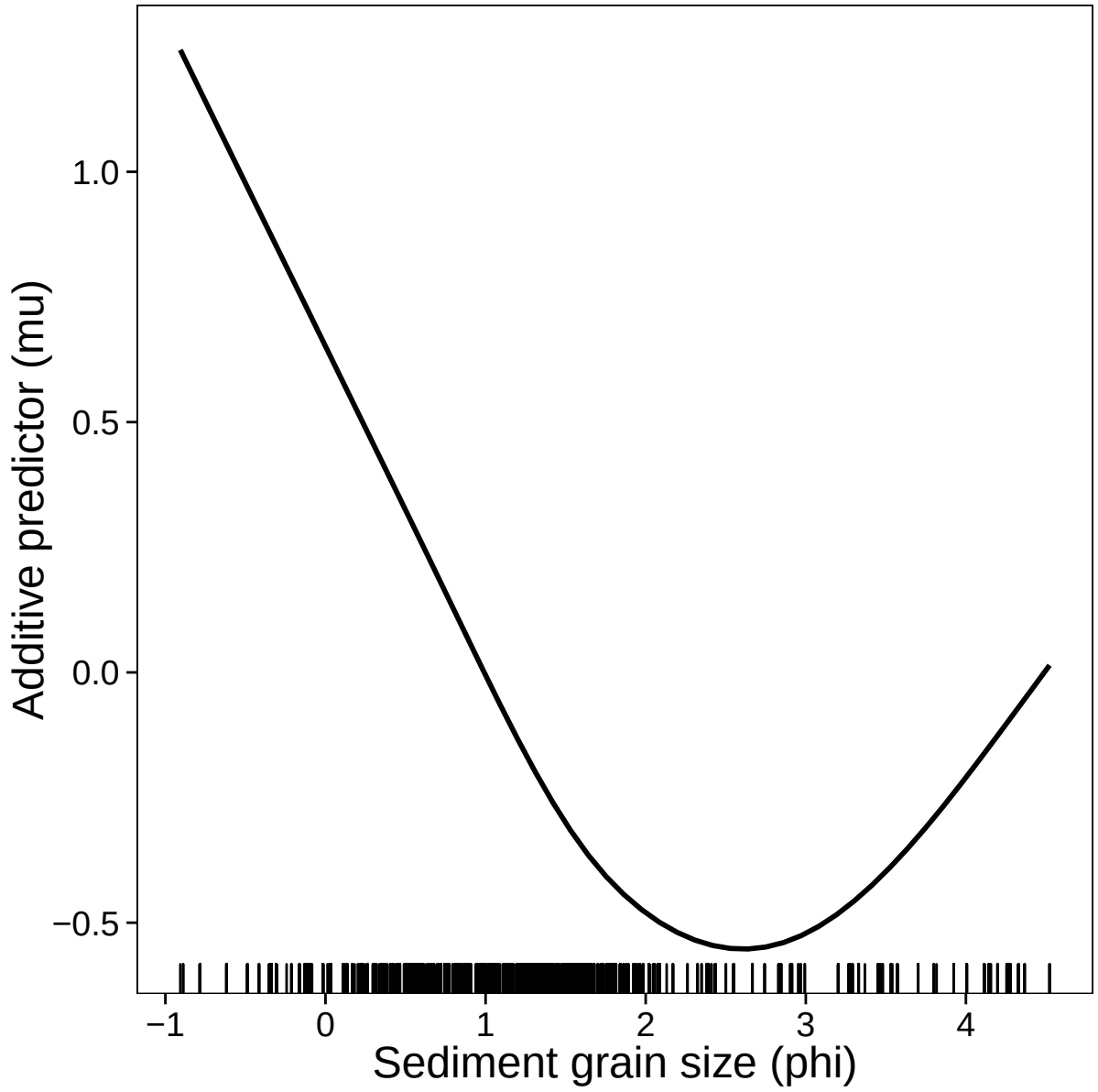

0.2
0.1
0.0
−0.1
Additive predictor
0
5
10
15
Distance to land (km)

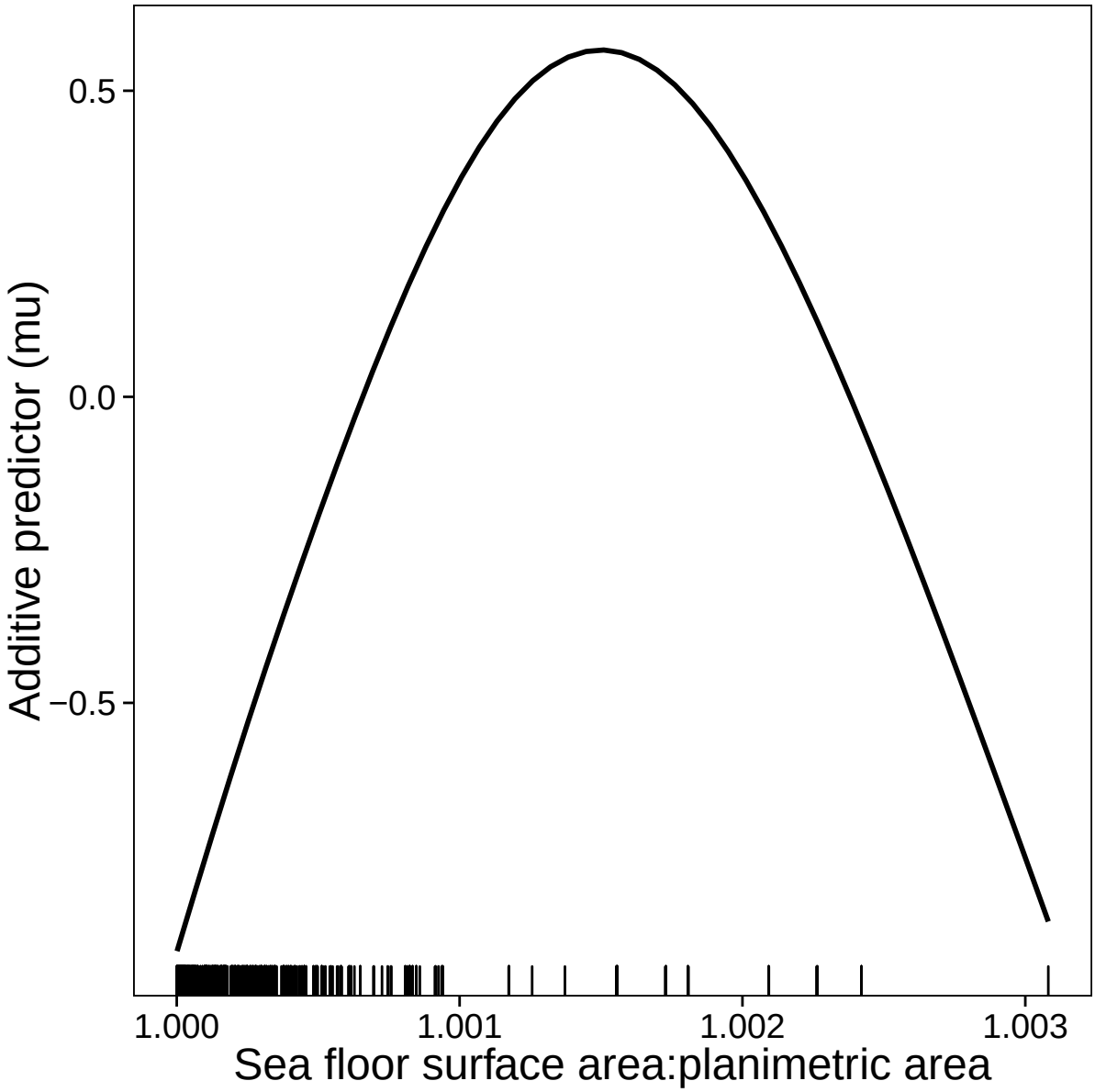

0.15
0.10
0.05
0.00
Additive predictor
no
yes
Winter (2005)

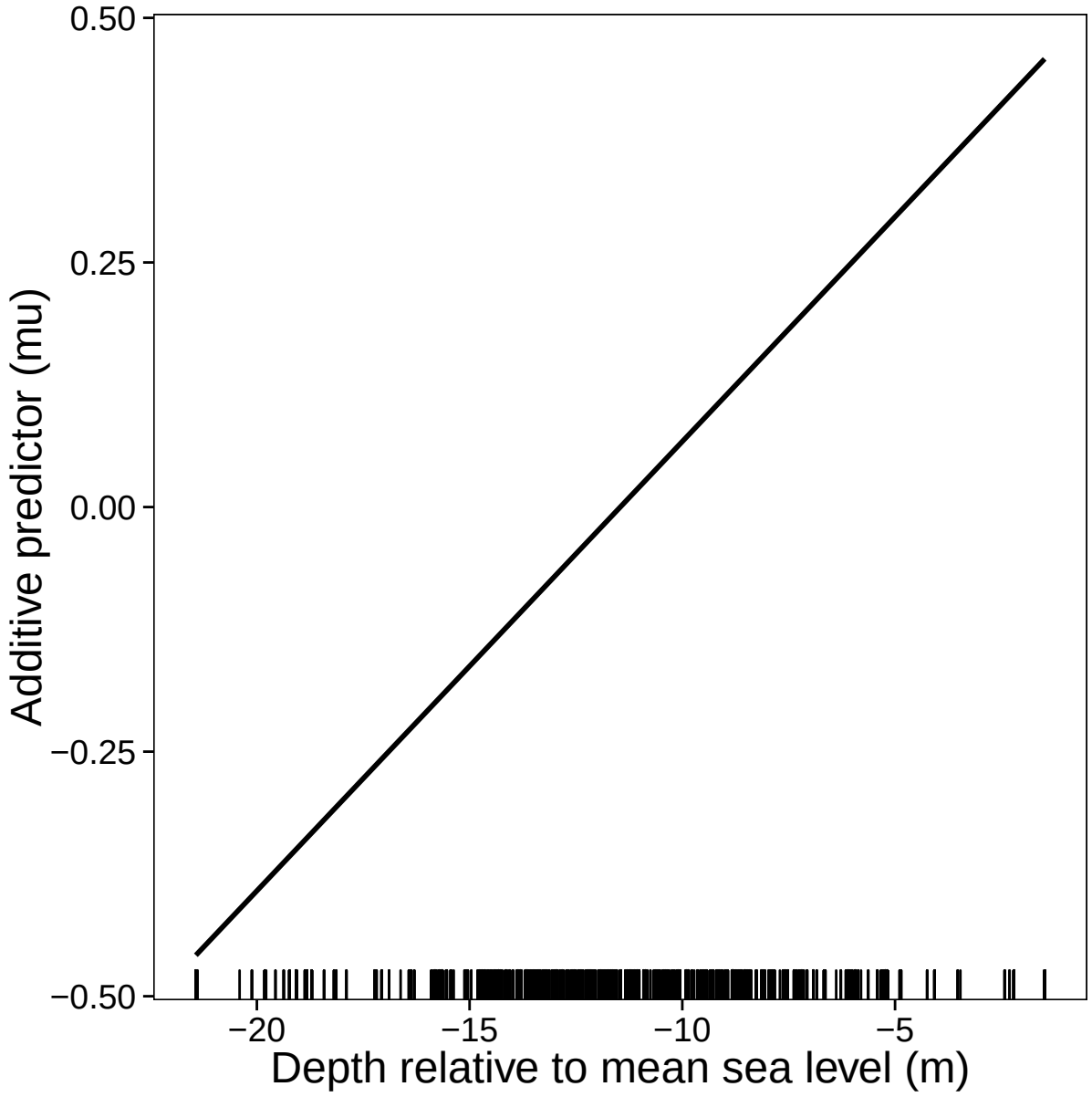
Conditional mean

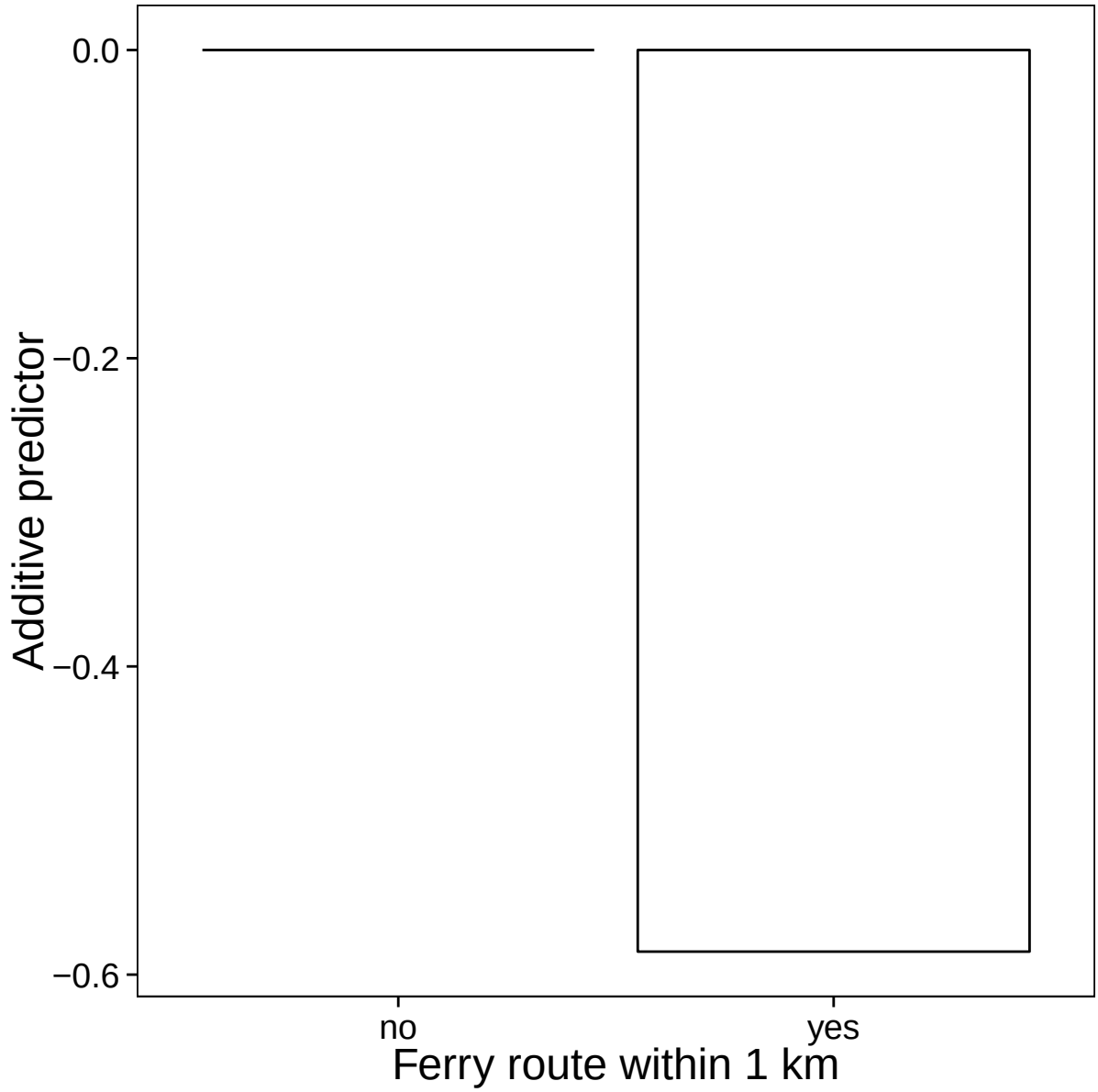



1.2
0.8
0.4
0.0
−0.4
Additive predictor (mu)
−1
0
1
SST, relative to other segments (°C)

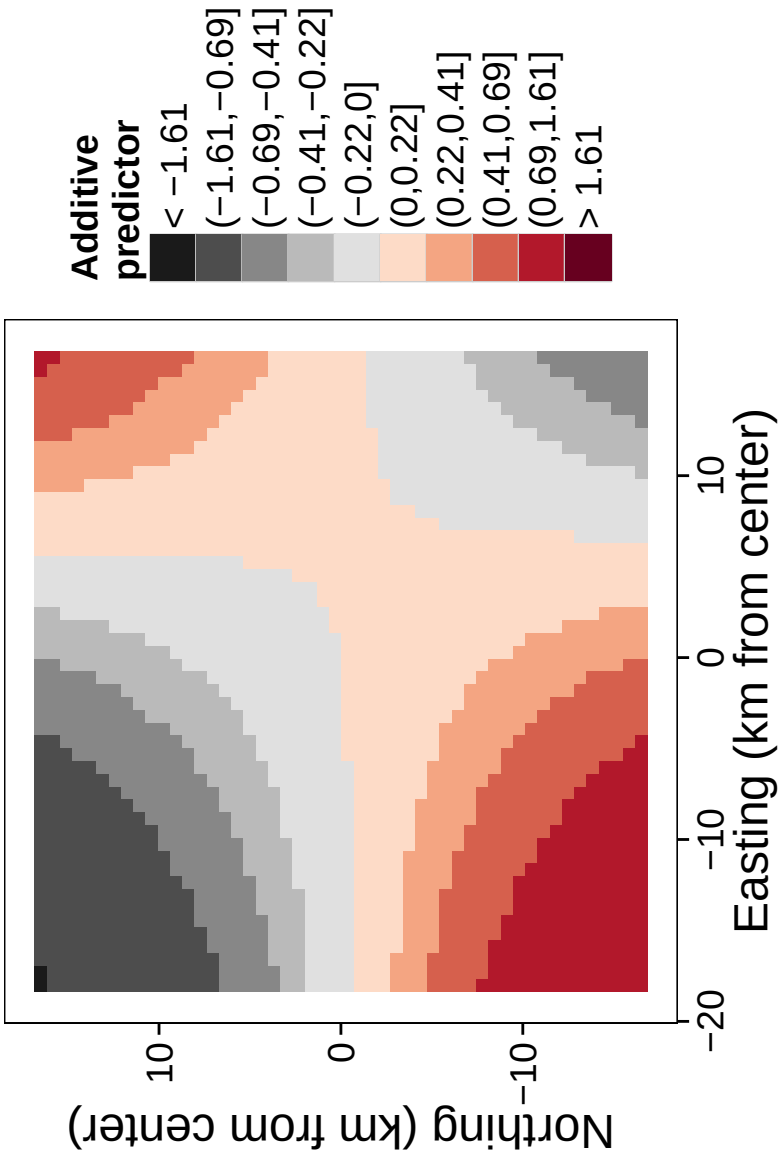

Additive predictor (mu)
1.0
0.5
0.0
−0.5
−1
0
1
2
3
4
Sediment grain size (phi)

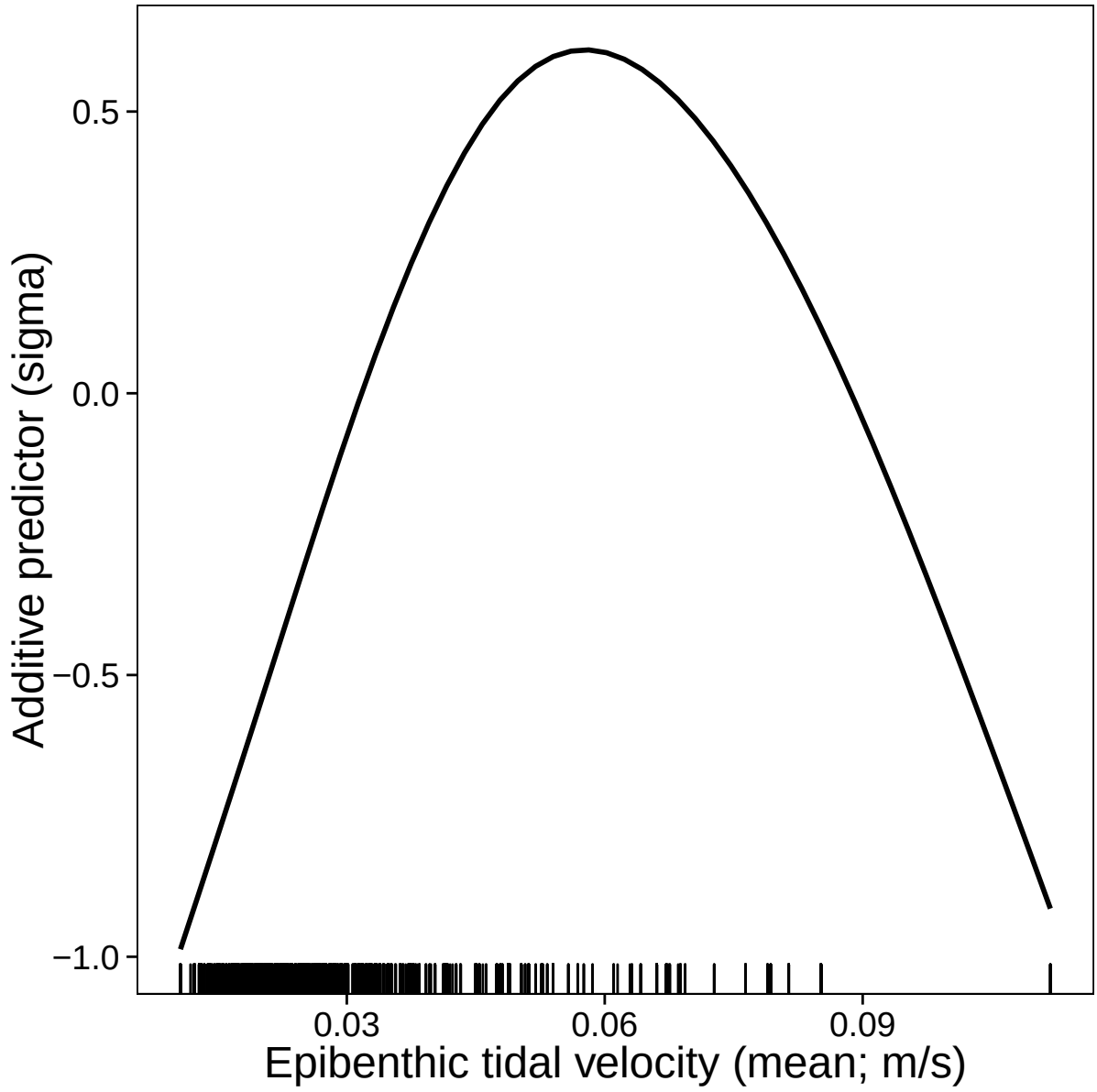

0.5
0.0
−0.5
Additive predictor (mu)
1.000
1.001
1.002
1.003
Sea floor surface area:planimetric area

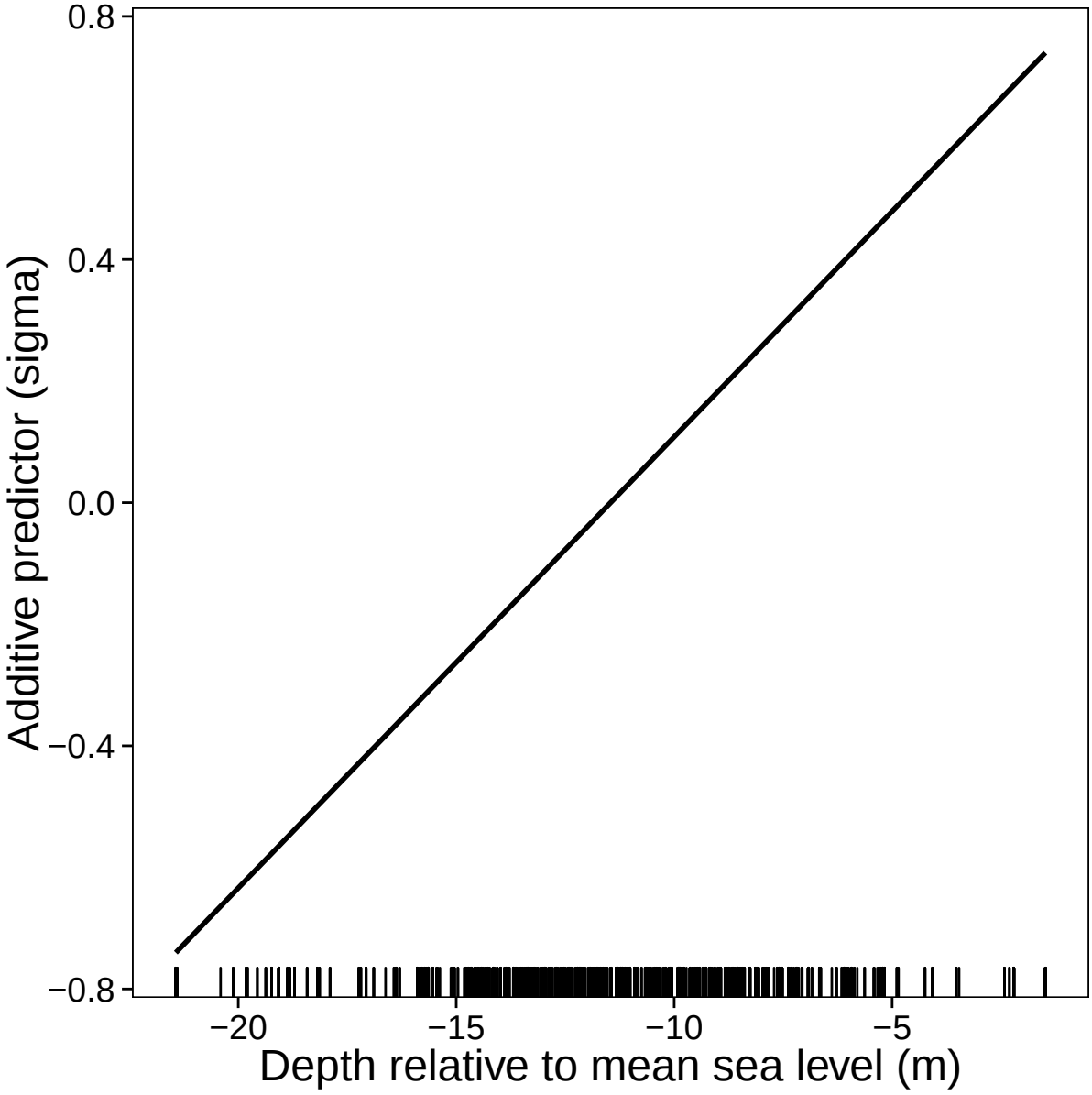

0.50
0.25
0.00
−0.25
−0.50
Additive predictor (mu)
−20
−15
−10
−5
Depth relative to mean sea level (m)

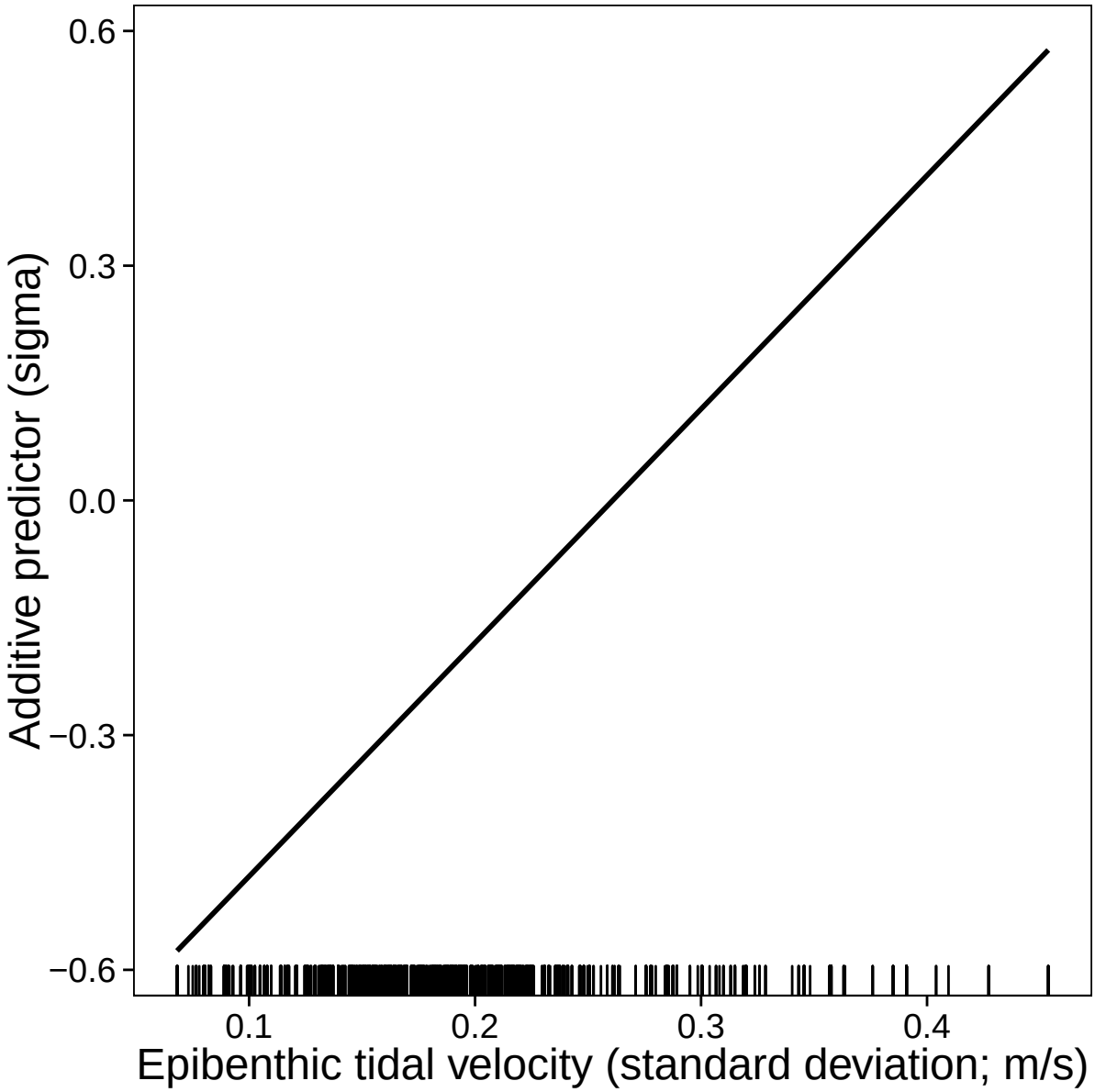

0.0
−0.2
−0.4
−0.6
Additive predictor
no
yes
Ferry route within 1 km

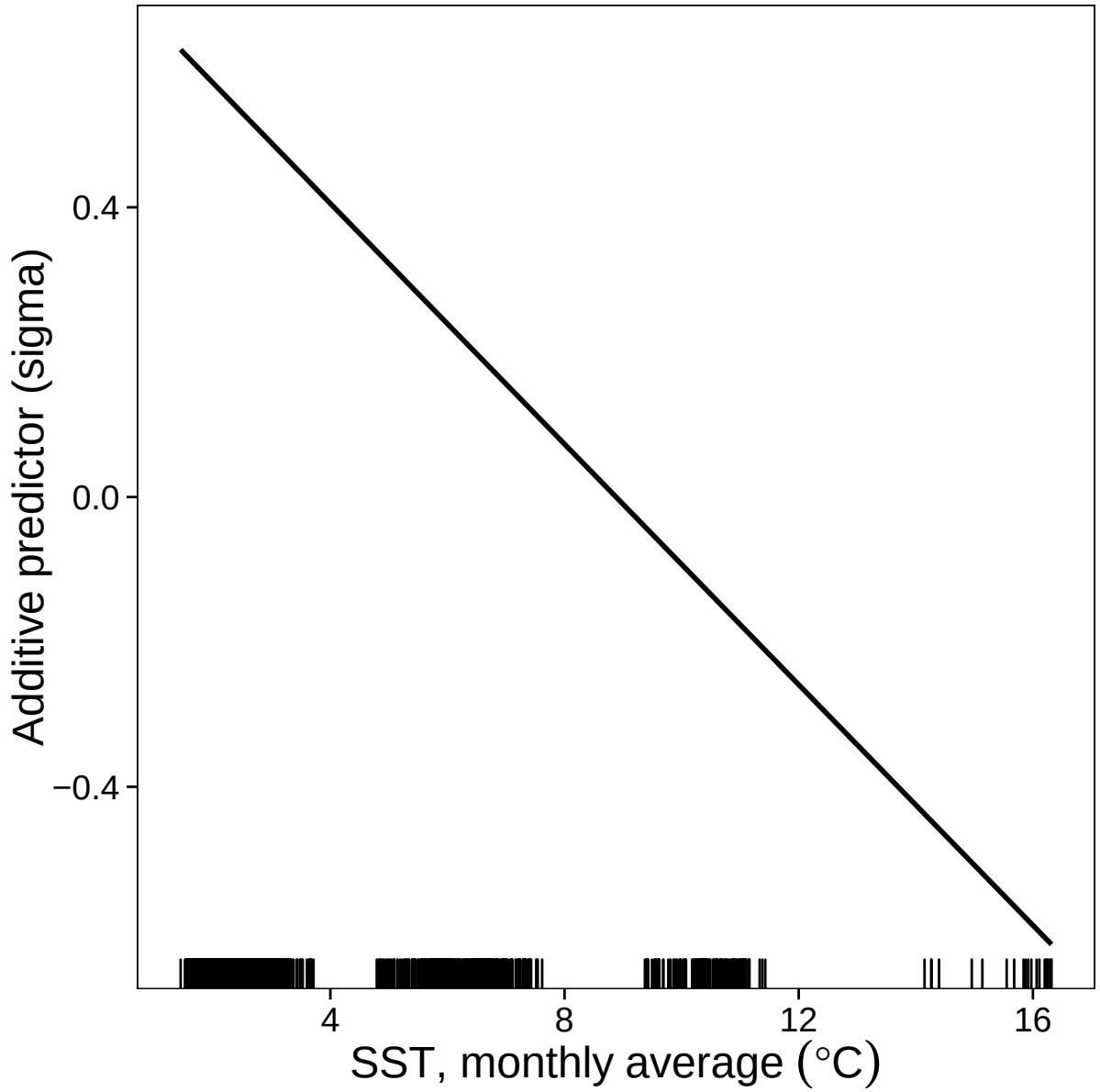
Conditional overdispersion

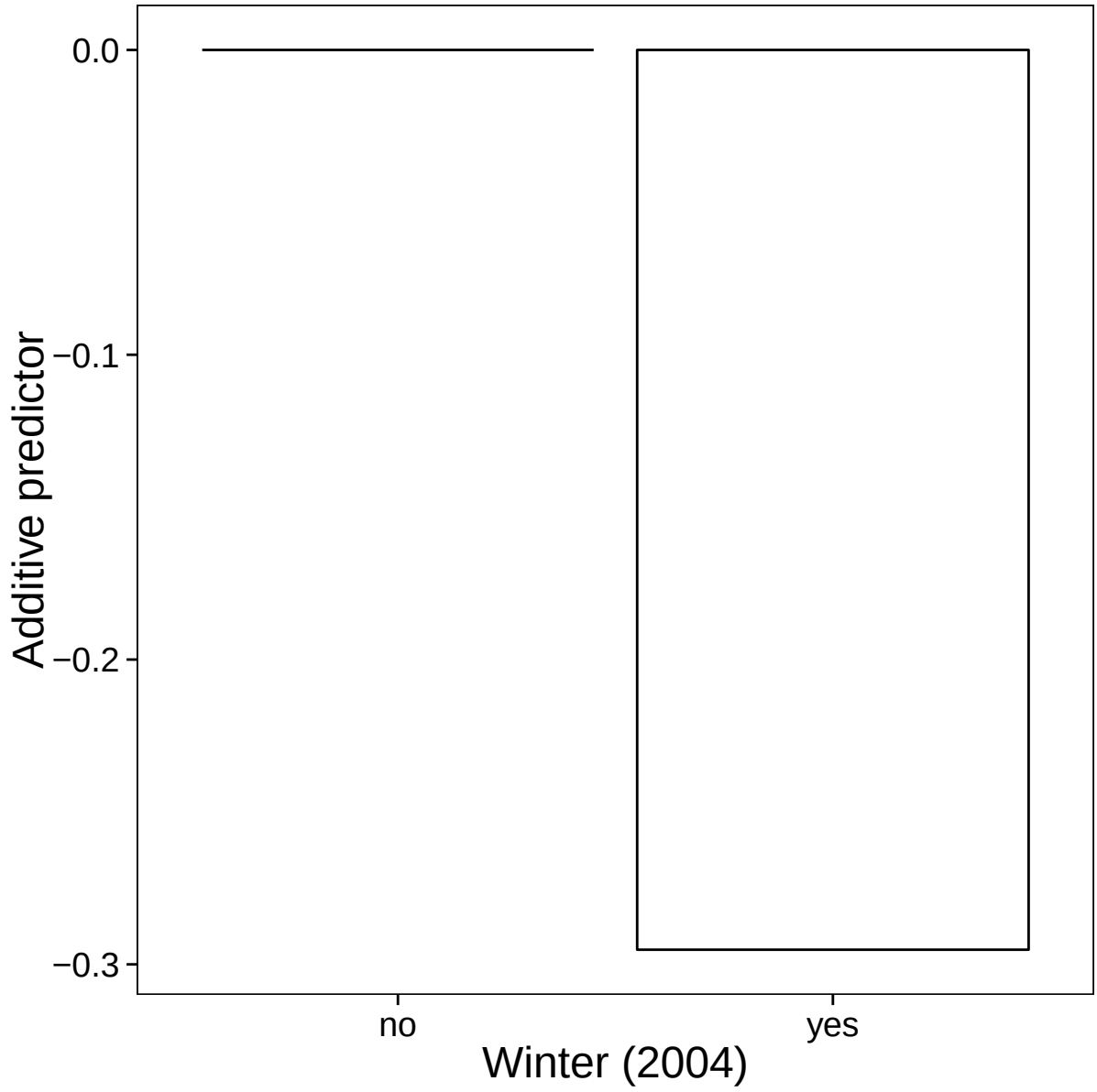



0.5
0.0
−0.5
−1.0
Additive predictor (sigma)
0.03
0.06
0.09
Epibenthic tidal velocity (mean; m/s)


0.8
0.4
0.0
−0.4
−0.8
Additive predictor (sigma)
−20
−15
−10
−5
Depth relative to mean sea level (m)


0.6
0.3
0.0
−0.3
−0.6
Additive predictor (sigma)
0.1
0.2
0.3
0.4
Epibenthic tidal velocity (standard deviation; m/s)


Additive predictor (sigma)
0.4
0.0
−0.4
4
8
12
16
SST, monthly average (°C)


0.0
−0.1
−0.2
−0.3
Additive predictor
no
yes
Winter (2004)