SUPPLEMENT

Spatiotemporal segregation of ocean sunfish species (Molidae) in the eastern North Pacific

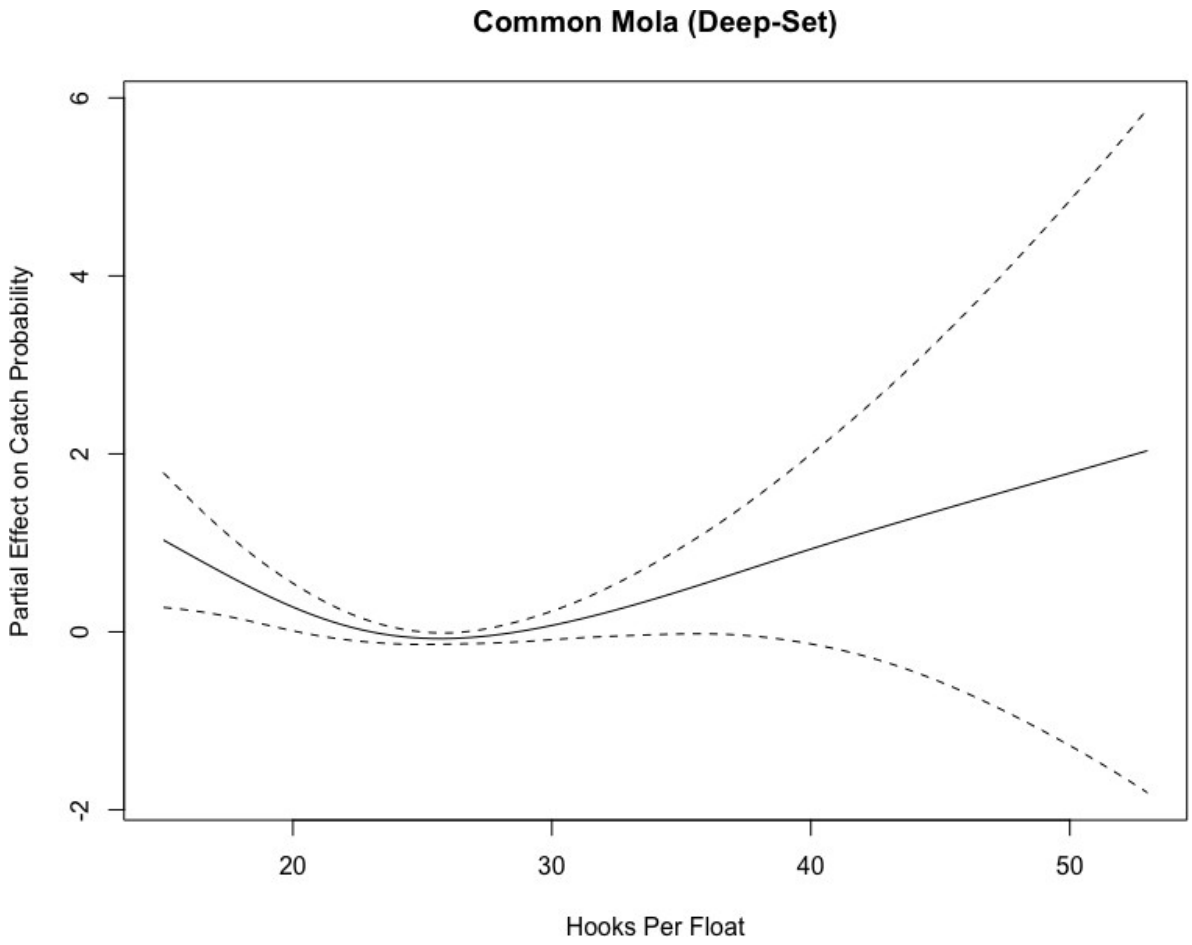

Figure S1: Partial effect of hooks per float (a proxy for fishing depth) in the species distribution model of common mola in the deep-set sector. Shallower fishing depths are represented by less hooks per float, and vice-versa. The solid line designates the effect estimate and the dashed lines indicate the 95% CI.

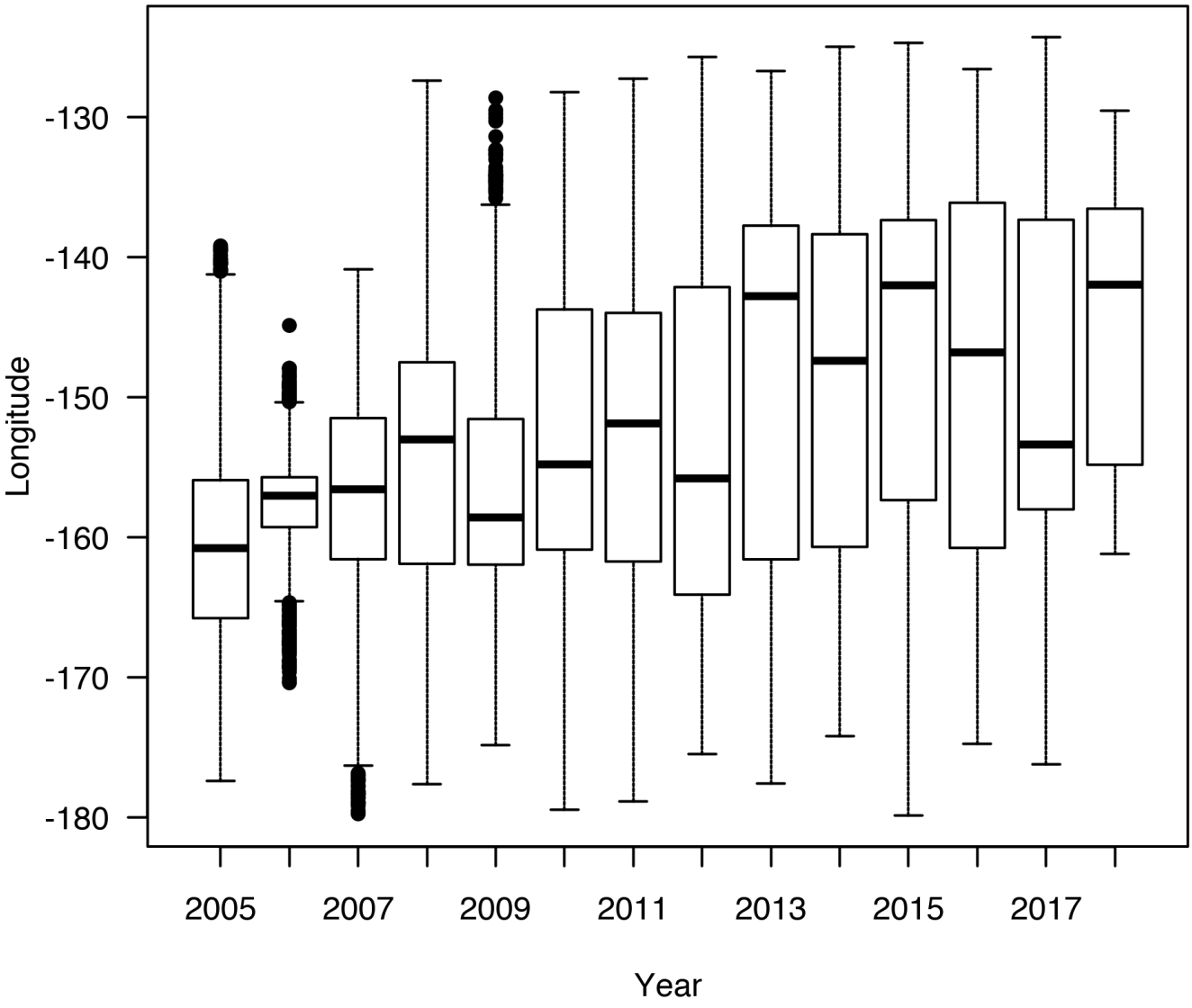

Figure S2: Longitudinal distribution of effort in the shallow-set sector in the years after the emergency fishing closure. The bold horizontal line indicates the median, the box indicates the interquartile range, the whiskers indicate the furthest extent of data within 1.5 times the interquartile range from the box, and the points indicate outliers.

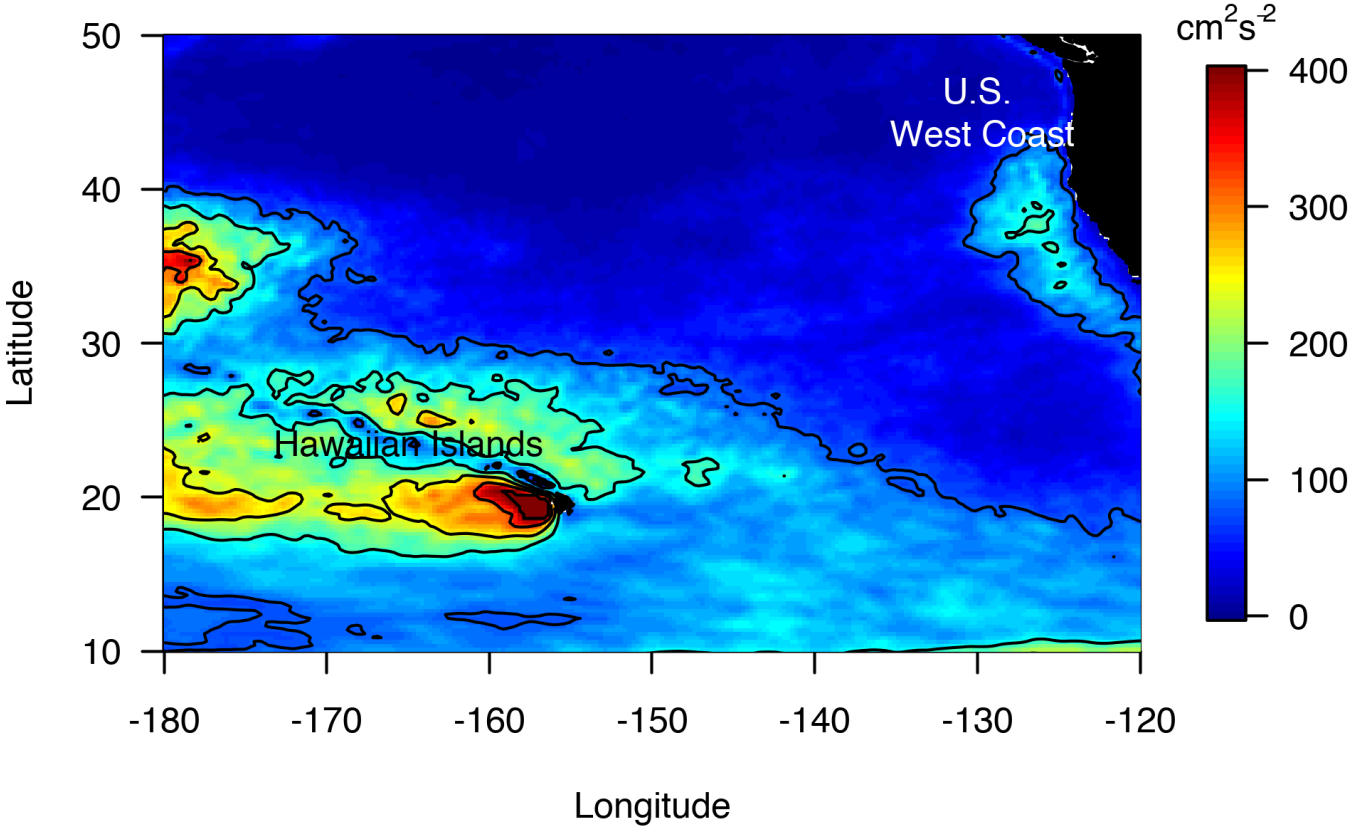

Figure S3: Average eddy kinetic energy in the eastern North Pacific from 1995 – 2004. Note that values above 400 $cm^2\ s^{-2}$ are truncated to emphasize patterns across the region. The data come from an analysis of the Copernicus Marine Environment Monitoring Service (CMEMS) 1/4 degree mapped L4 delayed-time sea level anomaly product. See Chelton et al. (2011) for methodology to compute eddy kinetic energy via high-pass filter and finite difference of sea surface height fields.

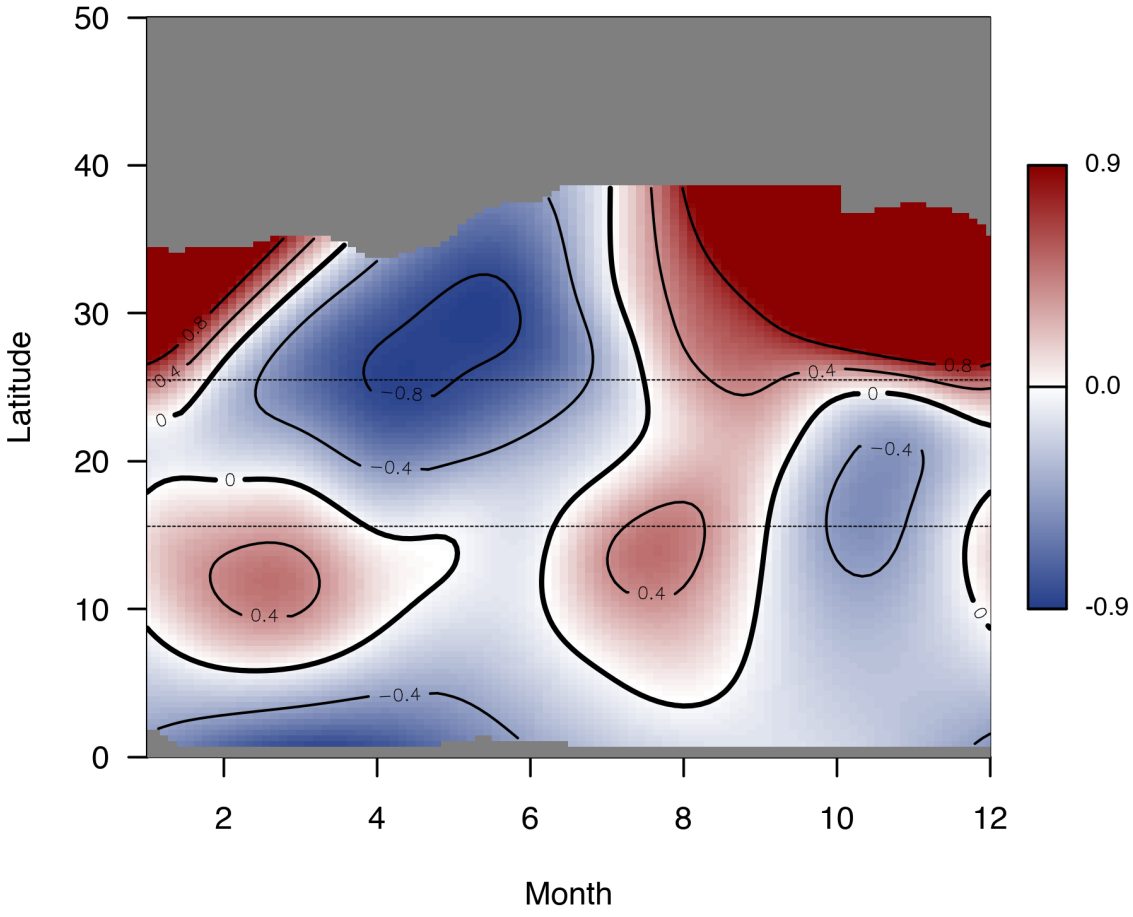

Figure S4: Spatiotemporal partial effects on the catch probability of common mola in the deep-set sector using data only from 2004 – 2018 (the period in which sharptail mola were enumerated separately). This year-truncated model used the same terms as the 1995 – 2018 version presented in the manuscript, and exhibited an explained deviance of 4.3% and AUC of 0.69. The bivariate tensor product of month and latitude is presented at the scale of the linear predictor. Red (blue) denotes month/latitude combinations of relatively increased (decreased) catch probability, and grey denotes when/where no proximal data were available. In this plot, the effect range is truncated at the extremes to ensure equal color gradient discernment above and below the zero center. The dashed horizontal lines indicate the latitudinal bounds of the U.S. Exclusive Economic Zone surrounding the eight main Hawaiian Islands.

Reference

Chelton DB, Gaube P, Schlax MG, Early JJ, Samelson RM (2011) The influence of nonlinear mesoscale eddies on near-surface oceanic chlorophyll. Science 334: 328–332