**File organization**

**PBF\_modeling**

**CDFWBlocks -** holds axillary code/csv and shapefiles about CDFW fishing blocks

**block\_location.csv -** output csv file of block\_locations.R; lat/long info of blocks

**block\_locations.R -** code to extract lat/long of CDFW blocks (midpoint)

**finescale\_regions.csv -** csv file identifying CDFW fishing blocks to finescale regions

**fishingblocks\_shp -** shapefile  of CDFW fishing blocks

**EnvironmentalData –** in the process of revising environmental data

**FisheriesData -** holds prepared fisheries data and code

**Clean**

**mutli\_trips\_clean.csv** - output file of **trip\_id\_multi.R**; unique trip events for trips identified as “Multi-Day” by CDFW

**na\_trips\_clean.csv** - output file of **trip\_id\_na.R**; unique trip events for unidentified trips by CDFW

**single\_trips\_clean.csv**  - output file of **trip\_id\_single.R**; unique trip events for trips identified as “Single Day” by CDFW

**clean\_trips\_combined.csv** - output csv file of **trips\_combined.R**; combined (multi, single, and unidentified) unique trip events

**prepare\_data.R -** code to prepare data; combining env and block location data with fisheries catch and effort data

**Prepared -** holds output csv file of **prepare\_data.R**

**pbf\_nominal\_cpue\_data\_block.csv** - pre-standardization data; includes all variables needed for modeling

**Raw** - holds raw CDFW CPFV catch and effort data (in the code you can change this to the actual file path of raw data; serves as a place holder)

**trip\_id\_multi.R** - code to appropriately identify unique trip events for trips identified as ‘Multi-Day’ by CDFW

**trip\_id\_na.R** - code to appropriately identify unique trip events for trips unidentified by CDFW

**trip\_id\_single.R** - code to appropriately identify unique trip events for trips identified as ‘Single Day’ by CDFW

**trips\_combined.R -** code to appropriately combine all unique trips events from single, mult- and unidentified CDFW trips (csv files in **Clean** folder)

**Modeling**

**cpue\_standardization\_binary.R** – code to standardize PBF presence (binary-GAM modeling)

**cpue\_standardization\_positive.R** – code to standardize PBF CPUE when present (positive- GAM modeling)

**model\_outputs –** holds model outputs of cpue\_standardization\_binary.R, cpue\_standardization\_positive.R, visualize\_compenent\_plots.R, and predict\_cpue.R

**model\_selection\_table.R** – code to conduct model selection using AIC and develop model selection table

**predict\_cpue.R** – code to predict median CPUE and 95% quantile range (both timeseries and annual spatial maps)

**visualize\_component\_plots**.**R** – code to visualize component plots for both binary and positive GAMs.

**binary\_model\_fits.RData** – R workspace that holds binary model fits, model diagnistics checks, aic, and deviance

**positive\_model\_fits.RData** – R workspace that holds positive model fits, model diagnistics checks, aic, and deviance

**Workflow**

1. Run trip\_id\_multi.R, trip\_id\_single.R, and trip\_id\_na.R (in no particular order) to appropriately identify unique trip events.
2. Run trips\_combined.R to appropriately combine outputs of the above mentioned code files and reclassify Vessel ID.
3. Run prepare\_data.R to combine associated env data and block data into fisheries catch and effort data with all variables needed for CPUE modeling.
4. Run cpue\_standardization\_binary.R and cpue\_standardization\_positive.R (in no particular order) to standardize presence and CPUE of PBF.
5. Run model\_selection\_table.R to determine best performing model for binary and positive GAM.
6. Run predict\_cpue.R to standardized CPUE using the best performing models.