draft_figures_12.18.18

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Contents

KOBE Plots with only most recent year of fisheries

RAM only

No data: ITQ = FALSE

```
#read in data: this is updated projection data (updated using RAMs) and Corbett's ITQ/Turf data applied

fisheries_recent <- read_csv("data/fisheries_recent.csv")
```

```
## Parsed with column specification:
## cols(
##   .default = col_double(),
##   Country = col_character(),
##   assess_id_short = col_character(),
##   Year.x = col_integer(),
##   CommName = col_character(),
##   Dbase = col_character(),
##   SciName = col_character(),
##   IdLevel = col_character(),
##   SpeciesCat.x = col_integer(),
##   itq = col_character(),
##   ivq = col_character(),
##   iq = col_character(),
##   turf = col_character()
## )
```

```
## See spec(...) for full column specifications.
```

```
#assuming that when no data is avaliable on the fishery inregardes to ITQ or Turfs that means there are
fisheries_recent$itq[is.na(fisheries_recent$itq)] <- "FALSE"
fisheries_recent$ivq[is.na(fisheries_recent$ivq)] <- "FALSE"
fisheries_recent$iq[is.na(fisheries_recent$iq)] <- "FALSE"
fisheries_recent$turf[is.na(fisheries_recent$turf)] <- "FALSE"
```

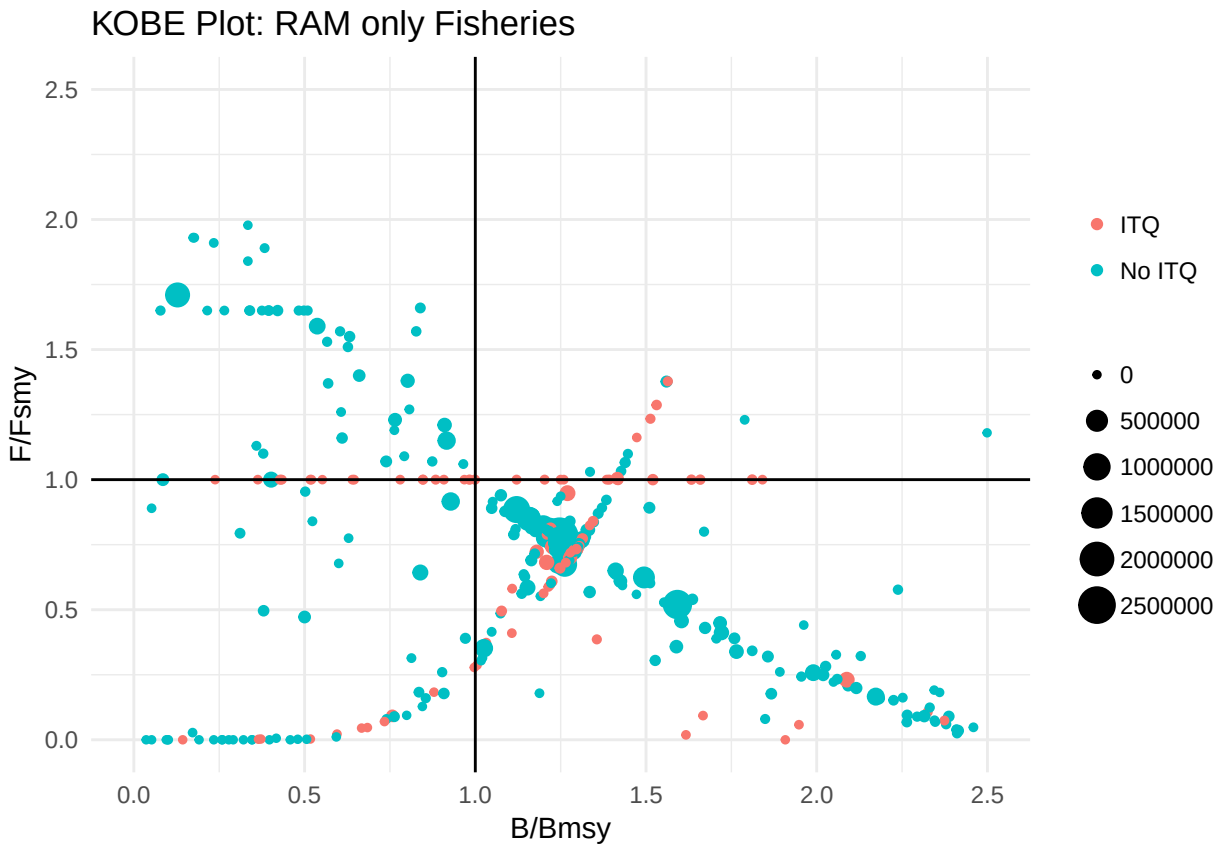
```
#only looking at fisheries data that come from RAMS database
# creating new column called "rightsbased" where 1 = ITQ and 0 = No ITQ
fisheries_KOBE_ram <- fisheries_recent %>%
```

```
  filter(Dbase == "RAM") %>%
  mutate(rightsbased = case_when(
    itq == TRUE | iq == TRUE | ivq == TRUE ~ "1",
    itq == FALSE & iq == FALSE & ivq == FALSE ~ "0"))

#graphing
fisheries_KOBE_ram$rightsbased[fisheries_KOBE_ram$rightsbased == "0"]<- "No ITQ"
fisheries_KOBE_ram$rightsbased[fisheries_KOBE_ram$rightsbased == "1"]<- "ITQ"

ggplot(data = fisheries_KOBE_ram, aes( x=BvBmsy, y=FvFmsy, colour= rightsbased, size = Catch ))+
  geom_point()+
  labs(x = "B/Bmsy", y= "F/Fsmy") +
  theme_minimal()+
  theme(legend.title=element_blank())+
  ylim(0, 2.5)+
  xlim(0, 2.5)+
  geom_hline(aes(yintercept=1))+
  geom_vline(aes(xintercept=1))+
  ggtitle("KOBE Plot: RAM only Fisheries")
```

```
## Warning: Removed 44 rows containing missing values (geom_point).
```



KOBE Plots with only most recent year of fisheries

All Data Sources

No data: ITQ = FALSE

```
fisheries_KOBE <- fisheries_recent %>%
  mutate(rightsbased = case_when(
    itq == TRUE | iq == TRUE | ivq == TRUE ~ "1",
    itq == FALSE & iq == FALSE & ivq == FALSE ~ "0"))

fisheries_KOBE$rightsbased[fisheries_KOBE$rightsbased == "0"]<- "No ITQ"
fisheries_KOBE$rightsbased[fisheries_KOBE$rightsbased == "1"]<- "ITQ"

#graphing
F_B_graph <- ggplot(data = fisheries_KOBE, aes( x=BvBmsy, y=FvFmsy, colour= rightsbased, size = Catch ))
  geom_point()+
  labs(x = "B/Bmsy", y= "F/Fsmy") +
  theme_minimal()+
  theme(legend.title=element_blank())+
  ylim(0, 2.5)+
  xlim(0, 2.5)+
  geom_hline(aes(yintercept=1))+
  geom_vline(aes(xintercept=1))+
  ggtitle("KOBE Plot:  All Fisheries")
```

LOOK AT THIS TOMORROW. ITQ AND NO ITQ CATCH PROJECTIONS SHOULD BE THE SAME, USING SAME DATA, BUT THEY ARE NOT. WTF?

Total Catches in most recent year of ITQ, no ITQ, and Turfs

```
fisheries_recent <- read_csv("data/fisheries_recent.csv")
```

```
## Parsed with column specification:
## cols(
##   .default = col_double(),
##   Country = col_character(),
##   assess_id_short = col_character(),
##   Year.x = col_integer(),
##   CommName = col_character(),
##   Dbase = col_character(),
##   SciName = col_character(),
##   IdLevel = col_character(),
##   SpeciesCat.x = col_integer(),
##   itq = col_character(),
##   ivq = col_character(),
##   iq = col_character(),
##   turf = col_character()
## )
```

```
## See spec(...) for full column specifications.
```

```
#assuming that when no data is present for itqs/turf that means there are none
fisheries_recent$turf[is.na(fisheries_recent$turf)] <- "FALSE"
```

```
fisheries_recent$itq[is.na(fisheries_recent$itq)] <- "FALSE"
fisheries_recent$ivq[is.na(fisheries_recent$ivq)] <- "FALSE"
fisheries_recent$iq[is.na(fisheries_recent$iq)] <- "FALSE"

fisheries_rightsbased <- fisheries_recent %>%
  mutate(rightsbased = case_when(
    turf == TRUE ~ "2",
    itq == FALSE & iq == FALSE & ivq == FALSE ~ "0",
    itq == TRUE | iq == TRUE | ivq == TRUE ~ "1"
    ))

turfs <- filter(fisheries_rightsbased, rightsbased == "2")
itq <- filter(fisheries_rightsbased, rightsbased == "1")
no_itq <- filter(fisheries_rightsbased, rightsbased == "0")

sum(turfs$Catch, na.rm = TRUE)
```

```
## [1] 174065.5
```

```
#174065.5

sum(itq$Catch, na.rm = TRUE)
```

```
## [1] 3874741
```

```
#3874741

sum(no_itq$Catch, na.rm = TRUE)
```

```
## [1] 66155763
```

```
#66155763
```

turf = 174,065.5 = 0.248% of total catch itq = 3,874,741 = 5.5% of total catch no itq = 66,155,763 = 94.23% of total catch Total = 70,204,569.5

Total Catch: A more generous estimation of Turf catch

```
fisheries_recent <- read_csv("data/fisheries_recent.csv")
```

```
## Parsed with column specification:
## cols(
##   .default = col_double(),
##   Country = col_character(),
##   assess_id_short = col_character(),
##   Year.x = col_integer(),
##   CommName = col_character(),
##   Dbase = col_character(),
##   SciName = col_character(),
##   IdLevel = col_character(),
##   SpeciesCat.x = col_integer(),
##   itq = col_character(),
##   ivq = col_character(),
##   iq = col_character(),
##   turf = col_character()
```

```
## )
```

```
## See spec(...) for full column specifications.
```

```
#load in data for turf/itq only projection
turf_itq_isscaap <- read_csv("data/turf_itq_isscaap.csv")
```

```
## Parsed with column specification:
## cols(
##   SciName = col_character(),
##   Country = col_character(),
##   programstart = col_integer(),
##   itq_now = col_integer(),
##   iq = col_logical(),
##   itq = col_logical(),
##   ivq = col_logical(),
##   turf = col_logical(),
##   SpeciesCat = col_integer()
## )
```

```
turf_only <- turf_itq_isscaap %>%
  select(SciName, Country, turf)

fisheries_recent_generousturf_1 <- select(fisheries_recent, Country, assess_id_short, Year.x,SciName, Ca

#merge the most recent data on each fishery with turf data
fisheries_recent_generousturf <- merge(fisheries_recent_generousturf_1,turf_only, by = c("Country", "Sci

#assuming that when no data is present for itqs/turf that means there are none
fisheries_recent_generousturf$turf[is.na(fisheries_recent_generousturf$turf)] <- "FALSE"
fisheries_recent_generousturf$itq[is.na(fisheries_recent_generousturf$itq)] <- "FALSE"
fisheries_recent_generousturf$ivq[is.na(fisheries_recent_generousturf$ivq)] <- "FALSE"
fisheries_recent_generousturf$iq[is.na(fisheries_recent_generousturf$iq)] <- "FALSE"

fisheries_recent_generousturf_rightsbased <- fisheries_recent_generousturf %>%
  mutate(rightsbased = case_when(
    turf == TRUE ~ "2",
    itq == FALSE & iq == FALSE & ivq == FALSE ~ "0",
    itq == TRUE | iq == TRUE | ivq == TRUE ~ "1"
    ))

#create dfs for turf, itq, and no itq fisheries to calculate the sum of each
#NOTE to rememeber: the data from these fisheries are the most recent numbers we have. they are not all
turfs_generous <- filter(fisheries_recent_generousturf_rightsbased, rightsbased == "2")
itq_generous <- filter(fisheries_recent_generousturf_rightsbased, rightsbased == "1")
no_itq_generous <- filter(fisheries_recent_generousturf_rightsbased, rightsbased == "0")

sum(turfs_generous$Catch, na.rm = TRUE)
```

```
## [1] 1530353
```

```
#1530353

sum(itq_generous$Catch, na.rm = TRUE)
```

```
## [1] 8374634
```

```
#8374634

sum(no_itq_generous$Catch, na.rm = TRUE)
```

```
## [1] 69025946
```

```
#69025946
```

Generous Turf Catch Estimates:

turf = 1,530,353 -> 1.93% global catch itq= 8,374,634 -> 10.6% global catch no itq = 69,025,946 -> 87.46% global catch

Total: 78,930,933

*note: 5643 actual rows 5707 when manually added added - this means 64 species were matched with existing species in database - when separated out all by species it was worse - separate remaining by genus?

Logit regressions

new UN GDP data, 2016 only Scaled GDPs Rerun Regressions ###itq or turf: probablity of itq = f(ISSCAPP and GDP)

```
fisheries_recent <- read_csv("data/fisheries_recent.csv")
```

```
## Parsed with column specification:
## cols(
##   .default = col_double(),
##   Country = col_character(),
##   assess_id_short = col_character(),
##   Year.x = col_integer(),
##   CommName = col_character(),
##   Dbase = col_character(),
##   SciName = col_character(),
##   IdLevel = col_character(),
##   SpeciesCat.x = col_integer(),
##   itq = col_character(),
##   ivq = col_character(),
##   iq = col_character(),
##   turf = col_character()
## )
```

```
## See spec(...) for full column specifications.
```

```
fisheries_recent$itq[is.na(fisheries_recent$itq)] <- "FALSE"
fisheries_recent$ivq[is.na(fisheries_recent$ivq)] <- "FALSE"
fisheries_recent$iq[is.na(fisheries_recent$iq)] <- "FALSE"
fisheries_recent$turf[is.na(fisheries_recent$turf)] <- "FALSE"

turf_itq_isscaap <- read_csv("data/turf_itq_isscaap.csv")
```

```
## Parsed with column specification:
## cols(
##   SciName = col_character(),
##   Country = col_character(),
##   programstart = col_integer(),
##   itq_now = col_integer(),
```

```
##   iq = col_logical(),
##   itq = col_logical(),
##   ivq = col_logical(),
##   turf = col_logical(),
##   SpeciesCat = col_integer()
## )
```

```
turf_only <- turf_itq_isscaap %>%
  select(SciName, Country, turf, SpeciesCat)

fisheries_recent_generousturf_1 <- fisheries_recent %>%
  select(Country, assess_id_short, Year.x, CommName, Biomass, Catch, BvBmsy, FvFmsy, Dbase, SciName, Id

fisheries_recent_generousturf <- merge(turf_only, fisheries_recent_generousturf_1, by = c("Country", "S

fisheries_recent_generousturf$turf[is.na(fisheries_recent_generousturf$turf)] <- "FALSE"
fisheries_recent_generousturf$itq[is.na(fisheries_recent_generousturf$itq)] <- "FALSE"
fisheries_recent_generousturf$ivq[is.na(fisheries_recent_generousturf$ivq)] <- "FALSE"
fisheries_recent_generousturf$iq[is.na(fisheries_recent_generousturf$iq)] <- "FALSE"

fisheries_recent_generousturf_rightsbased <- fisheries_recent_generousturf %>%
  mutate(rightsbased = case_when(
    itq == TRUE | iq == TRUE | ivq == TRUE ~ "1",
    itq == FALSE | iq == FALSE | ivq == FALSE ~ "0"
    ))

gdp_all <- read_excel("data/un_gdp_2016.xls")

gdp <- gdp_all %>%
  select(Country, gdp_center) %>%
  filter( gdp_center != "NA")


merge_gdp_rightsbased <- merge(gdp, fisheries_recent_generousturf_rightsbased, by = c("Country"))

gdp_rightsbased <- filter(merge_gdp_rightsbased, SpeciesCat != "NA" )

gdp_rightsbased$SpeciesCat <- factor(gdp_rightsbased$SpeciesCat)
gdp_rightsbased$rightsbased <- as.numeric(gdp_rightsbased$rightsbased)


itq_glm <- glm(formula = rightsbased ~ gdp_center + SpeciesCat, family = "binomial", data = gdp_rightsb
itq_glm
```

```
##
## Call:  glm(formula = rightsbased ~ gdp_center + SpeciesCat, family = "binomial",
##     data = gdp_rightsbased)
##
## Coefficients:
##  (Intercept)    gdp_center  SpeciesCat22  SpeciesCat23  SpeciesCat24
##   -1.940e+01     2.217e+00    -1.327e+00    -5.097e+00     2.307e-06
## SpeciesCat31  SpeciesCat32  SpeciesCat33  SpeciesCat34  SpeciesCat35
##   -3.147e+00     2.083e+01     1.577e+01     1.777e+01     1.779e+01
## SpeciesCat37  SpeciesCat42  SpeciesCat43  SpeciesCat44  SpeciesCat45
##    1.615e+01     1.522e+01     1.879e+01    -6.003e-01    -3.330e+00
```

```
## SpeciesCat47  SpeciesCat52  SpeciesCat53  SpeciesCat54  SpeciesCat55
##   -1.735e+00    -1.850e+00    -3.817e+00    -1.992e+00    -1.805e+00
## SpeciesCat56  SpeciesCat57  SpeciesCat58  SpeciesCat74  SpeciesCat76
##   -2.933e+00    -2.347e+00    -7.922e-01    -1.007e+00    -1.391e+00
## SpeciesCat77
##   -1.952e+00
##
## Degrees of Freedom: 326 Total (i.e. Null);  301 Residual
## Null Deviance:       388.6
## Residual Deviance: 168.4     AIC: 220.4
```

```
summary(itq_glm)
```

```
##
## Call:
## glm(formula = rightsbased ~ gdp_center + SpeciesCat, family = "binomial",
##     data = gdp_rightsbased)
##
## Deviance Residuals:
##      Min        1Q    Median        3Q       Max
## -2.68637  -0.22999  -0.00004   0.51469   2.90251
##
## Coefficients:
##                Estimate Std. Error z value Pr(>|z|)
## (Intercept)  -1.940e+01  1.773e+04  -0.001    0.999
## gdp_center    2.217e+00  4.956e-01   4.473 7.72e-06 ***
## SpeciesCat22 -1.327e+00  2.507e+04   0.000    1.000
## SpeciesCat23 -5.097e+00  1.915e+04   0.000    1.000
## SpeciesCat24  2.307e-06  2.507e+04   0.000    1.000
## SpeciesCat31 -3.147e+00  2.047e+04   0.000    1.000
## SpeciesCat32  2.083e+01  1.773e+04   0.001    0.999
## SpeciesCat33  1.577e+01  1.773e+04   0.001    0.999
## SpeciesCat34  1.777e+01  1.773e+04   0.001    0.999
## SpeciesCat35  1.779e+01  1.773e+04   0.001    0.999
## SpeciesCat37  1.615e+01  1.773e+04   0.001    0.999
## SpeciesCat42  1.522e+01  1.773e+04   0.001    0.999
## SpeciesCat43  1.879e+01  1.773e+04   0.001    0.999
## SpeciesCat44 -6.003e-01  2.161e+04   0.000    1.000
## SpeciesCat45 -3.330e+00  1.802e+04   0.000    1.000
## SpeciesCat47 -1.735e+00  2.157e+04   0.000    1.000
## SpeciesCat52 -1.850e+00  1.823e+04   0.000    1.000
## SpeciesCat53 -3.817e+00  1.897e+04   0.000    1.000
## SpeciesCat54 -1.992e+00  1.918e+04   0.000    1.000
## SpeciesCat55 -1.805e+00  1.893e+04   0.000    1.000
## SpeciesCat56 -2.933e+00  1.799e+04   0.000    1.000
## SpeciesCat57 -2.347e+00  1.858e+04   0.000    1.000
## SpeciesCat58 -7.922e-01  1.811e+04   0.000    1.000
## SpeciesCat74 -1.007e+00  2.172e+04   0.000    1.000
## SpeciesCat76 -1.391e+00  2.028e+04   0.000    1.000
## SpeciesCat77 -1.952e+00  1.948e+04   0.000    1.000
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
```

```
##     Null deviance: 388.62  on 326  degrees of freedom
## Residual deviance: 168.40  on 301  degrees of freedom
## AIC: 220.4
##
## Number of Fisher Scoring iterations: 19
```

Run Turf versus ITQ probably: prob(ITQ). Turf = 1 and ITQ = 0 with the data set that was the turf/itq only one

```
fisheries_recent <- read_csv("data/fisheries_recent.csv")
```

```
## Parsed with column specification:
## cols(
##   .default = col_double(),
##   Country = col_character(),
##   assess_id_short = col_character(),
##   Year.x = col_integer(),
##   CommName = col_character(),
##   Dbase = col_character(),
##   SciName = col_character(),
##   IdLevel = col_character(),
##   SpeciesCat.x = col_integer(),
##   itq = col_character(),
##   ivq = col_character(),
##   iq = col_character(),
##   turf = col_character()
## )
```

```
## See spec(...) for full column specifications.
```

```
fisheries_recent$itq[is.na(fisheries_recent$itq)] <- "FALSE"
fisheries_recent$ivq[is.na(fisheries_recent$ivq)] <- "FALSE"
fisheries_recent$iq[is.na(fisheries_recent$iq)] <- "FALSE"
fisheries_recent$turf[is.na(fisheries_recent$turf)] <- "FALSE"

turf_itq_isscaap <- read_csv("data/turf_itq_isscaap.csv")
```

```
## Parsed with column specification:
## cols(
##   SciName = col_character(),
##   Country = col_character(),
##   programstart = col_integer(),
##   itq_now = col_integer(),
##   iq = col_logical(),
##   itq = col_logical(),
##   ivq = col_logical(),
##   turf = col_logical(),
##   SpeciesCat = col_integer()
## )
```

```
turf_only <- turf_itq_isscaap %>%
  select(SciName, Country, turf, SpeciesCat)

fisheries_recent_generousturf_1 <- fisheries_recent %>%
  select(Country, assess_id_short, Year.x, CommName, Biomass, Catch, BvBmsy, FvFmsy, Dbase, SciName, Id

fisheries_recent_generousturf <- merge(turf_only, fisheries_recent_generousturf_1, by = c("Country", "S
```

```r
fisheries_recent_generousturf$turf[is.na(fisheries_recent_generousturf$turf)] <- "FALSE"
fisheries_recent_generousturf$itq[is.na(fisheries_recent_generousturf$itq)] <- "FALSE"
fisheries_recent_generousturf$ivq[is.na(fisheries_recent_generousturf$ivq)] <- "FALSE"
fisheries_recent_generousturf$iq[is.na(fisheries_recent_generousturf$iq)] <- "FALSE"

fisheries_recent_generousturf_rightsbased <- fisheries_recent_generousturf %>%
  mutate(rightsbased = case_when(
    turf == TRUE ~ "1",
    itq == TRUE | iq == TRUE | ivq == TRUE ~ "0"
    ))

gdp_all <- read_excel("data/un_gdp_2016.xls")

gdp <- gdp_all %>%
  select(Country, gdp_center) %>%
  filter( gdp_center != "NA")


join_gdp_rightsbased <- merge(gdp, fisheries_recent_generousturf_rightsbased, by = c("Country"))

gdp_rightsbased <- filter(join_gdp_rightsbased, SpeciesCat != "NA" )

gdp_rightsbased$SpeciesCat <- factor(gdp_rightsbased$SpeciesCat)
gdp_rightsbased$rightsbased <- as.numeric(gdp_rightsbased$rightsbased)


itq_turf_glm <- glm(formula = rightsbased ~ gdp_center + SpeciesCat, family = "binomial", data = gdp_ri
itq_glm
```

```
##
## Call:  glm(formula = rightsbased ~ gdp_center + SpeciesCat, family = "binomial",
##     data = gdp_rightsbased)
##
## Coefficients:
##  (Intercept)    gdp_center  SpeciesCat22  SpeciesCat23  SpeciesCat24
##   -1.940e+01     2.217e+00    -1.327e+00    -5.097e+00     2.307e-06
## SpeciesCat31  SpeciesCat32  SpeciesCat33  SpeciesCat34  SpeciesCat35
##   -3.147e+00     2.083e+01     1.577e+01     1.777e+01     1.779e+01
## SpeciesCat37  SpeciesCat42  SpeciesCat43  SpeciesCat44  SpeciesCat45
##    1.615e+01     1.522e+01     1.879e+01    -6.003e-01    -3.330e+00
## SpeciesCat47  SpeciesCat52  SpeciesCat53  SpeciesCat54  SpeciesCat55
##   -1.735e+00    -1.850e+00    -3.817e+00    -1.992e+00    -1.805e+00
## SpeciesCat56  SpeciesCat57  SpeciesCat58  SpeciesCat74  SpeciesCat76
##   -2.933e+00    -2.347e+00    -7.922e-01    -1.007e+00    -1.391e+00
## SpeciesCat77
##   -1.952e+00
##
## Degrees of Freedom: 326 Total (i.e. Null);  301 Residual
## Null Deviance:       388.6
## Residual Deviance: 168.4     AIC: 220.4
```

```r
summary(itq_turf_glm)
```

```
##
```

```
## Call:
## glm(formula = rightsbased ~ gdp_center + SpeciesCat, family = "binomial",
##     data = gdp_rightsbased)
##
## Deviance Residuals:
##      Min        1Q    Median        3Q       Max
## -2.78655  -0.32591   0.00004   0.17282   2.59183
##
## Coefficients:
##                Estimate Std. Error z value Pr(>|z|)
## (Intercept)   1.953e+01  1.773e+04   0.001    0.999
## gdp_center   -1.968e+00  4.897e-01  -4.018 5.86e-05 ***
## SpeciesCat22  1.178e+00  2.507e+04   0.000    1.000
## SpeciesCat23  4.525e+00  1.915e+04   0.000    1.000
## SpeciesCat24 -1.137e-06  2.507e+04   0.000    1.000
## SpeciesCat31  2.794e+00  2.047e+04   0.000    1.000
## SpeciesCat32 -2.095e+01  1.773e+04  -0.001    0.999
## SpeciesCat33 -1.618e+01  1.773e+04  -0.001    0.999
## SpeciesCat34 -1.926e+01  1.773e+04  -0.001    0.999
## SpeciesCat35 -1.821e+01  1.773e+04  -0.001    0.999
## SpeciesCat37 -1.651e+01  1.773e+04  -0.001    0.999
## SpeciesCat42 -1.570e+01  1.773e+04  -0.001    0.999
## SpeciesCat43 -1.911e+01  1.773e+04  -0.001    0.999
## SpeciesCat44  5.243e-01  2.163e+04   0.000    1.000
## SpeciesCat45  2.871e+00  1.803e+04   0.000    1.000
## SpeciesCat47  1.529e+00  2.160e+04   0.000    1.000
## SpeciesCat52  1.587e+00  1.824e+04   0.000    1.000
## SpeciesCat53  3.353e+00  1.900e+04   0.000    1.000
## SpeciesCat54  1.713e+00  1.923e+04   0.000    1.000
## SpeciesCat55  1.538e+00  1.897e+04   0.000    1.000
## SpeciesCat56  2.521e+00  1.800e+04   0.000    1.000
## SpeciesCat57  2.052e+00  1.860e+04   0.000    1.000
## SpeciesCat58  6.990e-01  1.811e+04   0.000    1.000
## SpeciesCat74  8.944e-01  2.172e+04   0.000    1.000
## SpeciesCat76  1.211e+00  2.031e+04   0.000    1.000
## SpeciesCat77  1.674e+00  1.954e+04   0.000    1.000
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 379.13  on 312  degrees of freedom
## Residual deviance: 134.16  on 287  degrees of freedom
##   (14 observations deleted due to missingness)
## AIC: 186.16
##
## Number of Fisher Scoring iterations: 19
```

Bar Chart: Coefficient Species Category