lobster

Yingfei Jiang

11/12/2018

library(tidyverse)

## ── Attaching packages ───────────────────────────────────────────────────────────────── tidyverse 1.2.1 ──

## ✔ ggplot2 3.0.0 ✔ purrr 0.2.5  
## ✔ tibble 1.4.2 ✔ dplyr 0.7.6  
## ✔ tidyr 0.8.1 ✔ stringr 1.3.1  
## ✔ readr 1.1.1 ✔ forcats 0.3.0

## ── Conflicts ──────────────────────────────────────────────────────────────────── tidyverse\_conflicts() ──  
## ✖ dplyr::filter() masks stats::filter()  
## ✖ dplyr::lag() masks stats::lag()

library(vcdExtra)

## Loading required package: vcd

## Loading required package: grid

## Loading required package: gnm

##   
## Attaching package: 'vcdExtra'

## The following object is masked from 'package:dplyr':  
##   
## summarise

library(ggpubr)

## Loading required package: magrittr

##   
## Attaching package: 'magrittr'

## The following object is masked from 'package:purrr':  
##   
## set\_names

## The following object is masked from 'package:tidyr':  
##   
## extract

lob\_a\_draft <- read\_csv("lobster\_size\_abundance.csv")

## Parsed with column specification:  
## cols(  
## YEAR = col\_integer(),  
## MONTH = col\_integer(),  
## DATE = col\_character(),  
## SITE = col\_character(),  
## SBC\_LTER\_TRANSECT = col\_integer(),  
## LOBSTER\_TRANSECT = col\_character(),  
## SIZE = col\_integer(),  
## COUNT = col\_integer()  
## )

lob\_t\_draft <- read\_csv("lobster\_traps.csv")

## Parsed with column specification:  
## cols(  
## YEAR = col\_integer(),  
## MONTH = col\_integer(),  
## DATE = col\_character(),  
## FISHING\_SEASON = col\_character(),  
## SITE = col\_character(),  
## SWATH\_START = col\_character(),  
## SWATH\_END = col\_character(),  
## TRAPS = col\_integer(),  
## OBSERVER = col\_integer(),  
## NOTES = col\_character()  
## )

#Some basic data wrangling in this chunk, column lob\_year is for future use when plotting trend, here i am assuming fishing season "x-x+1" is counted as year x+1. This means when we analyze trap count in the future, it is the trap count before the lobster count of the same year, which is collected in August   
  
lob\_a\_draft <- as.data.frame(lob\_a\_draft) #coerce to data.frame  
lob\_a <- expand.dft(lob\_a\_draft, freq = "COUNT") #get the data into case format  
  
  
lob\_t <- lob\_t\_draft %>%   
 mutate(  
 lob\_year = case\_when(  
 FISHING\_SEASON == "2012-2013" ~ 2013,  
 FISHING\_SEASON == "2013-2014" ~ 2014,  
 FISHING\_SEASON == "2014-2015" ~ 2015,  
 FISHING\_SEASON == "2015-2016" ~ 2016,  
 FISHING\_SEASON == "2016-2017" ~ 2017  
 )  
 )

#Plotting trend in lobster count and trap count  
  
lob\_a\_trend <- lob\_a %>%  
 group\_by(YEAR, SITE) %>%  
 summarize(lob\_counts = length(SIZE))  
  
lob\_t\_trend <- lob\_t %>%  
 filter (  
 SITE == "AQUE" |  
 SITE == "NAPL" |  
 SITE == "MOHK" |  
 SITE == "IVEE" |  
 SITE == "CARP"  
 ) %>%   
 group\_by(lob\_year, SITE) %>%   
 summarize(trap\_counts = sum(TRAPS)) %>%   
 #summarize(trap\_counts = round(mean(TRAPS), 2)) %>%   
 rename(YEAR = lob\_year)  
  
trend <- full\_join(lob\_a\_trend, lob\_t\_trend)

## Joining, by = c("YEAR", "SITE")

## Warning: Column `SITE` joining factor and character vector, coercing into  
## character vector

trend\_plot <- ggplot(trend) +  
 geom\_line(aes(x = YEAR, y = lob\_counts, color = "Lobster Counts")) +  
 geom\_line(aes(x = YEAR - 0.5, y = trap\_counts/2, color = "Trap Counts")) +  
 scale\_y\_continuous(sec.axis = sec\_axis(~./0.5, name = "Trap Counts")) +  
 facet\_wrap(~SITE, scale = "free") +  
 theme\_pubr() +  
 theme(axis.text.x = element\_text(angle = 90, hjust = 1)) +  
 labs(x = "Year",  
 y = "Lobster Counts",  
 colour = "Counts")  
   
  
trend\_plot

## Warning: Removed 1 rows containing missing values (geom\_path).

