R Markdown Exercise

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R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see http://rmarkdown.rstudio.com.

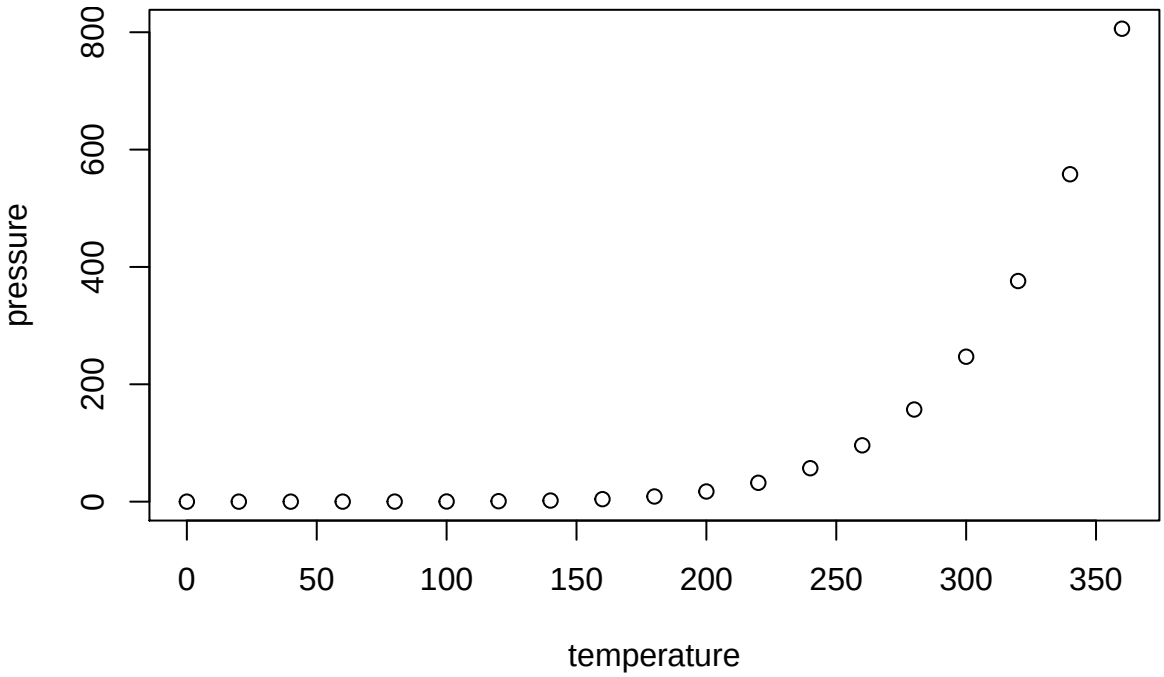
When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
summary(cars)
```

```
##      speed           dist       
##  Min.   : 4.0   Min.   :  2.00  
##  1st Qu.:12.0   1st Qu.: 26.00  
##  Median :15.0   Median : 36.00  
##  Mean   :15.4   Mean   : 42.98  
##  3rd Qu.:19.0   3rd Qu.: 56.00  
##  Max.   :25.0   Max.   :120.00
```

Including Plots

You can also embed plots, for example:



Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.data_url <- "https://knb.ecoinformatics.org/knb/d1/mn/v2/object/urn%3Auuid%3Af119a05b-bbe7-4aea-93c6-85434dcb1c5e"

esc <- tryCatch(read.csv("data/escapement.csv", stringsAsFactors = FALSE), error=function(cond) { message(paste("Escapement file does not seem to exist, so get it from the KNB.")) esc <- read.csv(url(data_url,

method = “libcurl”), stringsAsFactors = FALSE) return(esc) })

head(esc)

```
  library(leaflet)
  library(dplyr)
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
  library(tidyr)
  library(ggplot2)
  library(DT)
  library(sf)
```

```
## Linking to GEOS 3.7.2, GDAL 2.4.2, PROJ 5.2.0
```

```
  library(ggmap) # devtools::install_github("dkahle/ggmap")
```

```
## Google's Terms of Service: https://cloud.google.com/maps-platform/terms/.
```

```
## Please cite ggmap if you use it! See citation("ggmap") for details.
```

```
esc <- read.csv("https://knb.ecoinformatics.org/knb/d1/mn/v2/object/urn%3Auuid%3Af119a05b-bbe7-4aea-93c
```

Calculate Annual Escapement for Salmon Species

Visualize Escapement

Map Sampling Locations

#Calculate total annual escapement by region, year and species

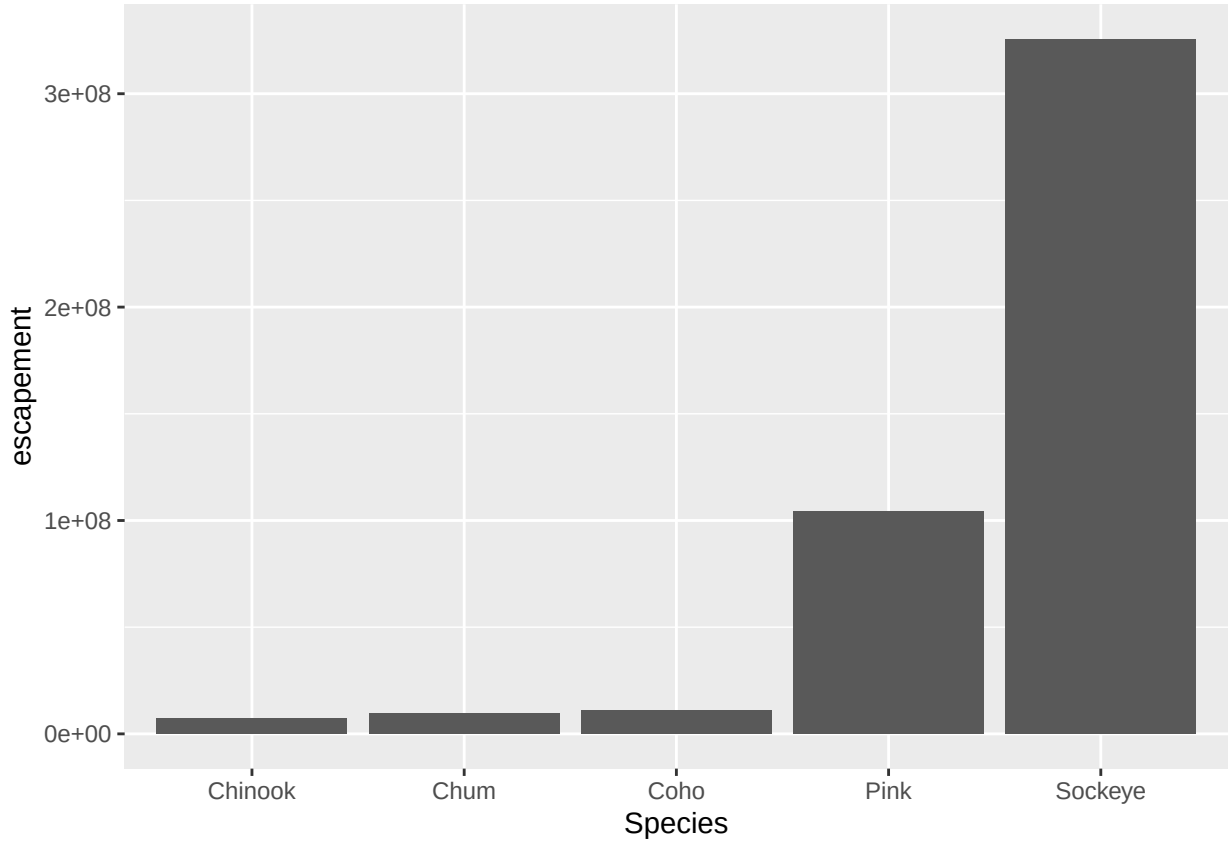
```
annual_esc <- esc %>%
  separate(sampleDate, c("Year", "Month", "Day"), sep = "-") %>%
  mutate(Year = as.numeric(Year)) %>%
  group_by(Species, SASAP.Region, Year) %>%
  summarize(escapement = sum(DailyCount)) %>%
  filter(Species %in% c("Chinook", "Sockeye", "Chum", "Coho", "Pink"))

head(annual_esc)
```

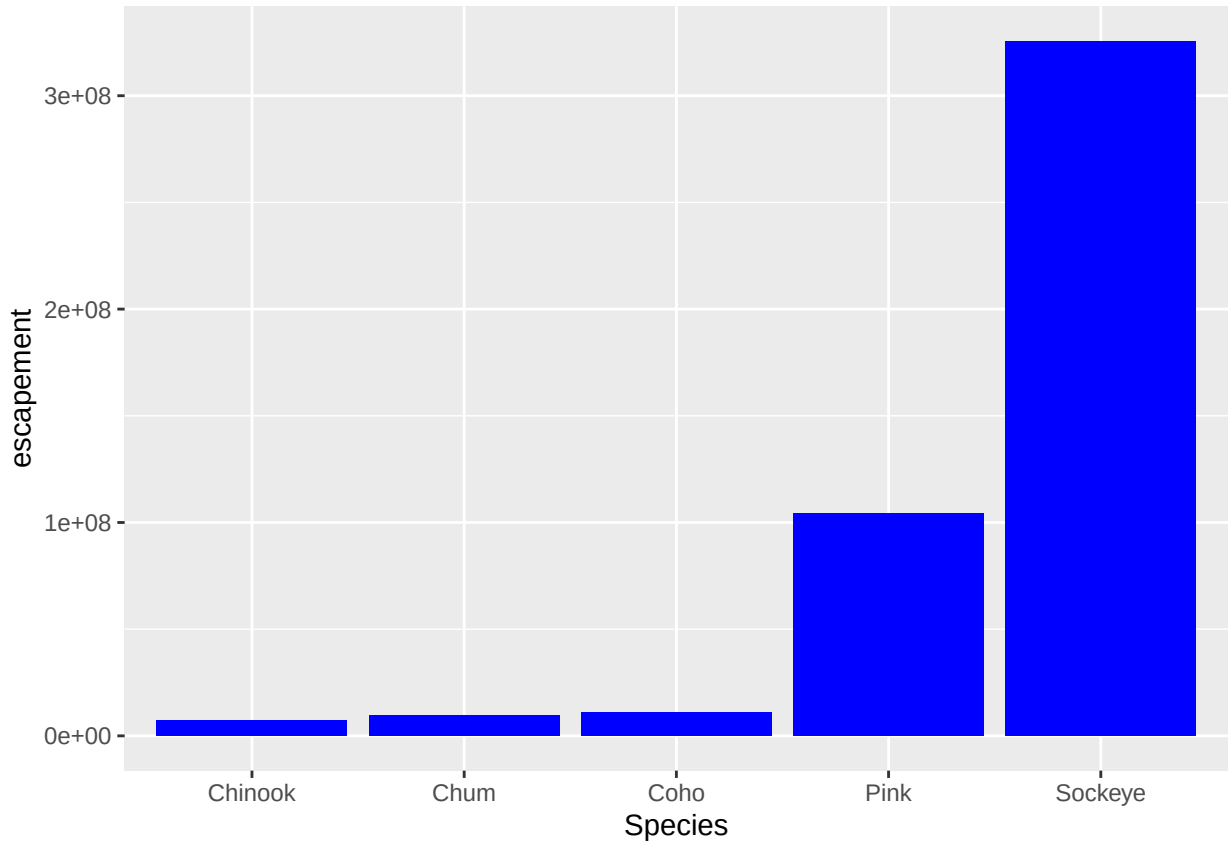
```
## # A tibble: 6 x 4
## # Groups:   Species, SASAP.Region [1]
##   Species SASAP.Region                            Year escapement
##   <chr>   <chr>                                  <dbl>      <int>
## 1 Chinook Alaska Peninsula and Aleutian Islands  1974       1092
## 2 Chinook Alaska Peninsula and Aleutian Islands  1975       1917
## 3 Chinook Alaska Peninsula and Aleutian Islands  1976       3045
## 4 Chinook Alaska Peninsula and Aleutian Islands  1977       4844
```

```
## 5 Chinook Alaska Peninsula and Aleutian Islands  1978       3901
## 6 Chinook Alaska Peninsula and Aleutian Islands  1979      10463
```

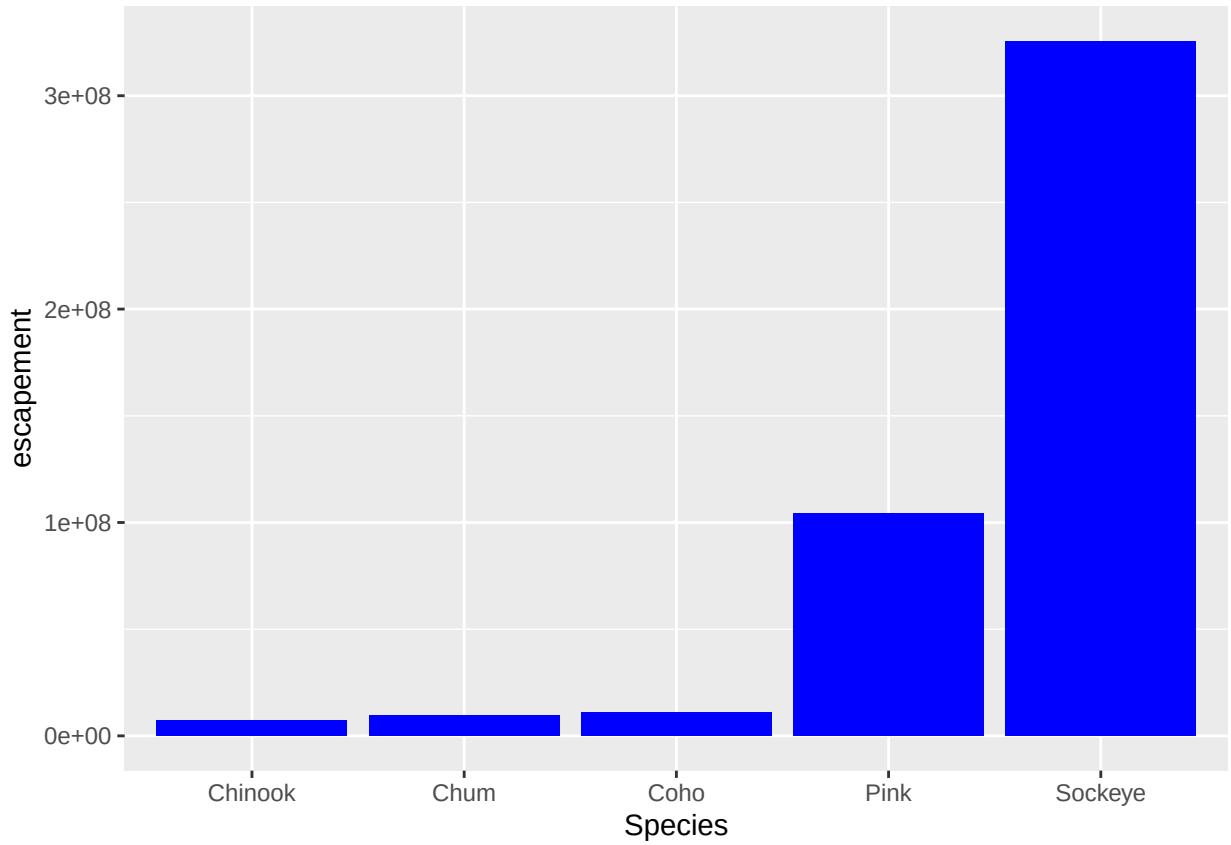
```
ggplot(annual_esc, aes(x = Species, y = escapement)) +
  geom_col()
```



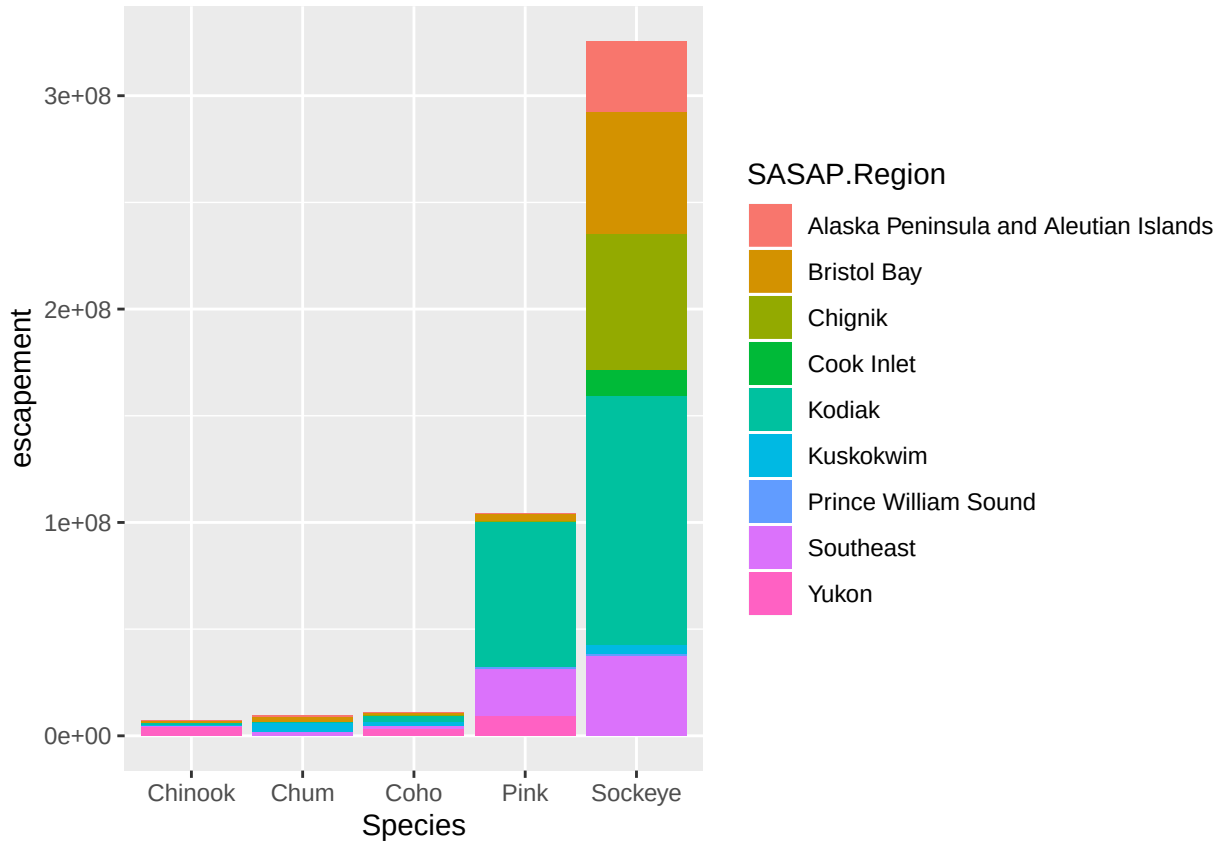

```
ggplot(annual_esc, aes(x = Species, y = escapement)) +
  geom_col(fill = "blue")
```



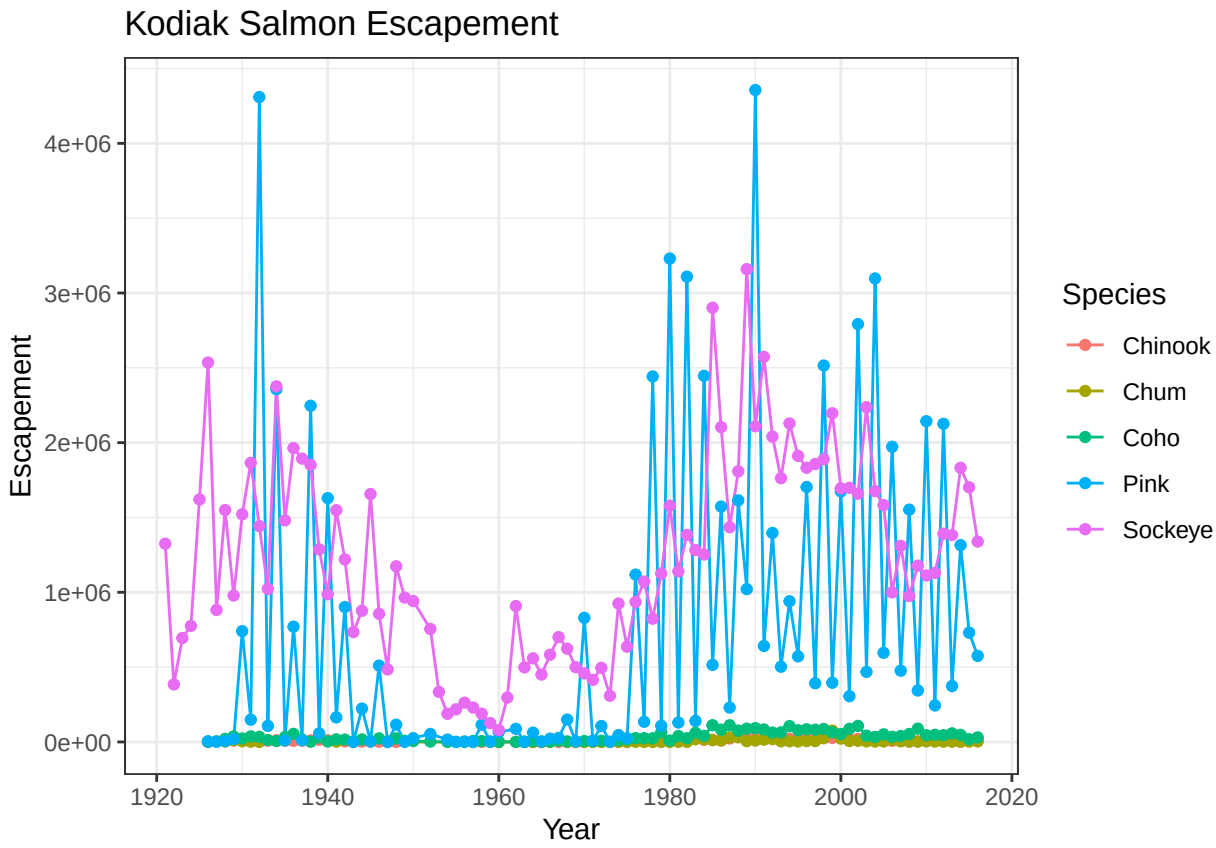

```
ggplot(annual_esc, aes(x = Species, y = escapement, fill = SASAP.Region)) +
  geom_col(fill = "blue")
```



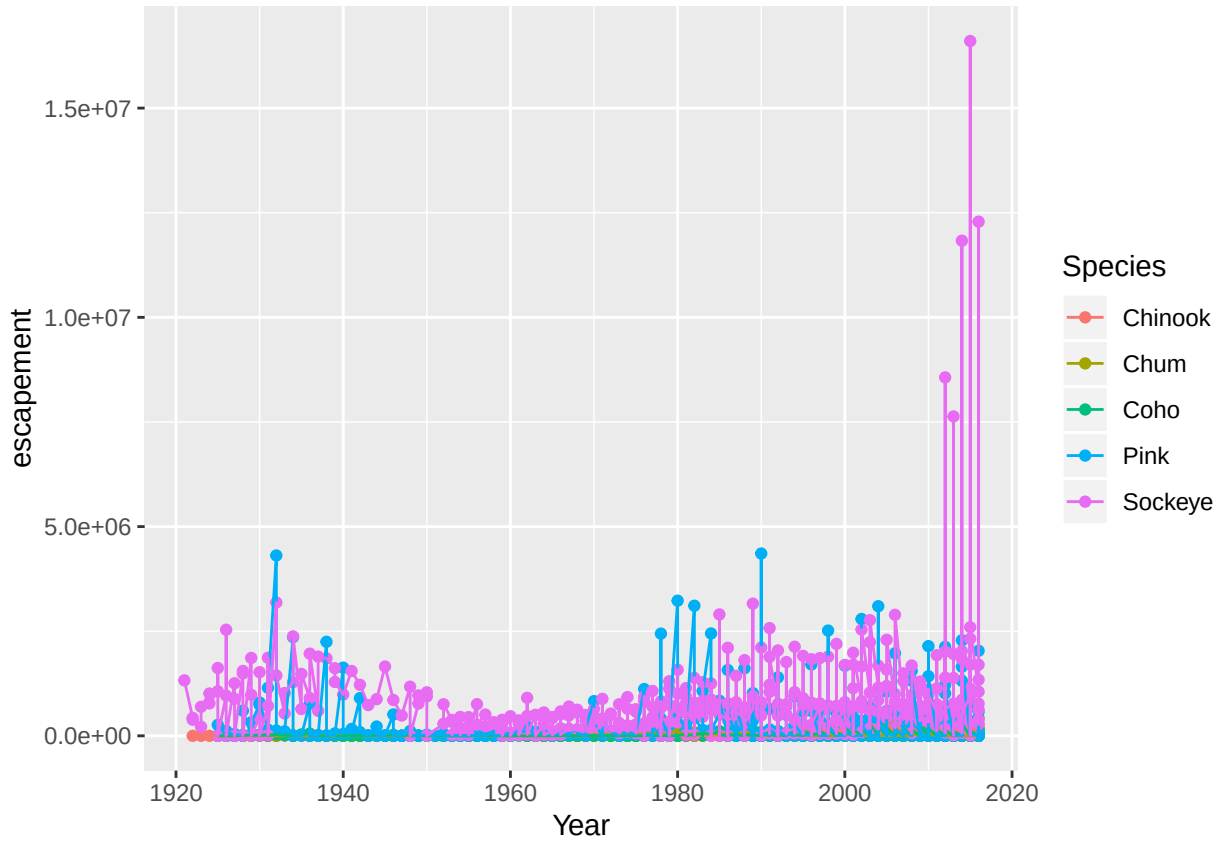

```
ggplot(annual_esc, aes(x = Species, y = escapement, fill = SASAP.Region)) +
  geom_col()
```




```
ggplot(filter(annual_esc, SASAP.Region == "Kodiak"), aes(x = Year, y = escapement, color = Species)) +
    geom_line() +
    geom_point() +
    ylab("Escapement") +
    ggtitle("Kodiak Salmon Escapement") +
    theme_bw()
```




```
ggplot(annual_esc, aes(x = Year, y = escapement, color = Species)) +
  geom_point() +
  geom_line()
```




```
facet_wrap(~SASAP.Region, scales = "free_y", ncol = 1)
```

```
## <ggproto object: Class FacetWrap, Facet, gg>
##     compute_layout: function
##     draw_back: function
##     draw_front: function
##     draw_labels: function
##     draw_panels: function
##     finish_data: function
##     init_scales: function
##     map_data: function
##     params: list
##     setup_data: function
##     setup_params: function
##     shrink: TRUE
##     train_scales: function
##     vars: function
##     super:  <ggproto object: Class FacetWrap, Facet, gg>
```