week11bHW Factors

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Contents

Load Libraries

```
library(here)
library(tidyverse)
library(janitor)
```

Read in data:

```
intertidal<-read.csv(here("week9", "data", "intertidaldata.csv"))
intertidaldictionary<-read.csv(here("week9", "data", "intertidal_data_dictionary.csv"))
intertidallatitude<-read.csv(here("week9", "data", "intertidaldata_latitude.csv"))

glimpse(intertidal)
```

```
## Rows: 450
## Columns: 13
## $ Site                <chr> "Scripps", "Scripps", "Scripps", "Scripps", "Scrip~
## $ Transect            <int> 1, 1, 1, 2, 2, 2, 3, 3, 3, 4, 4, 4, 5, 5, 5, 6, 6,~
## $ Quadrat             <chr> " Low  .", "Mid", "High", "Low", "Mid", "High", "L~
## $ Bare.Rock           <int> 25, 50, 20, 10, 40, 40, 0, 30, 60, 0, 45, 70, 5, 3~
## $ Algae               <int> 75, 0, 50, 85, 5, 5, 100, 5, 4, 100, 10, 0, 70, 0,~
## $ Mussels             <int> 0, 5, 1, 0, 10, 0, 0, 10, 1, 0, 3, 0, 0, 5, 0, 0, ~
## $ Small.Barnacles     <int> 2, 50, 50, 0, 40, 55, 0, 40, 20, 0, 25, 25, 20, 60~
## $ Large.Barnacles     <int> 5, 5, 0, 0, 1, 0, 1, 0, 0, 0, 15, 5, 5, 0, 0, 5, 0~
## $ Gooseneck.Barnacles <int> 0, 0, 0, 5, 5, 0, 0, 30, 5, 0, 0, 0, 0, 0, 0, 0, 0~
## $ Anemone             <int> 3, 0, 0, 0, 0, 0, 0, 0, 0, 0, 5, 0, 0, 10, 0, 0, 1~
## $ Whelks..Counts.     <int> 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 1, 0, 0, 0,~
## $ Crabs..Counts.      <int> 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,~
## $ Stars..Counts.      <int> 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,~
```

```
view(intertidaldictionary)
view(intertidallatitude)
View(intertidal)
```

Merge data sets

```
intertidal2 <- intertidal %>%
  left_join(intertidallatitude, by = "Site") #joins latitude column into intertidal data set

head(intertidal2)
```

```
##      Site Transect Quadrat Bare.Rock Algae Mussels Small.Barnacles
## 1 Scripps        1  Low  .        25    75       0               2
## 2 Scripps        1     Mid        50     0       5              50
## 3 Scripps        1    High        20    50       1              50
## 4 Scripps        2     Low        10    85       0               0
## 5 Scripps        2     Mid        40     5      10              40
## 6 Scripps        2    High        40     5       0              55
##   Large.Barnacles Gooseneck.Barnacles Anemone Whelks..Counts. Crabs..Counts.
## 1               5                   0       3               0              0
## 2               5                   0       0               0              0
## 3               0                   0       0               0              0
## 4               0                   5       0               0              0
## 5               1                   5       0               0              0
## 6               0                   0       0               0              0
##   Stars..Counts. Latitude
## 1              0 32.87138
## 2              0 32.87138
## 3              0 32.87138
## 4              0 32.87138
## 5              0 32.87138
## 6              0 32.87138
```

Figure 1. Algae count by site

```
ggplot(data = intertidal2, aes(x = Site,
                               y = Algae,
                               color = Latitude)) +
  geom_point(size = 3, alpha = .7) +
  geom_jitter(width = 0.2, height = 0) +
  theme_minimal()+
  labs(title = "Algae Count by Site and Latitude",
       x = "Site",
       y = "Algae Count",
       color = "Latitude") +
  theme(axis.text.x = element_text(angle = 45,
                                   hjust = 1)) #angle adjust names at the bottom
```

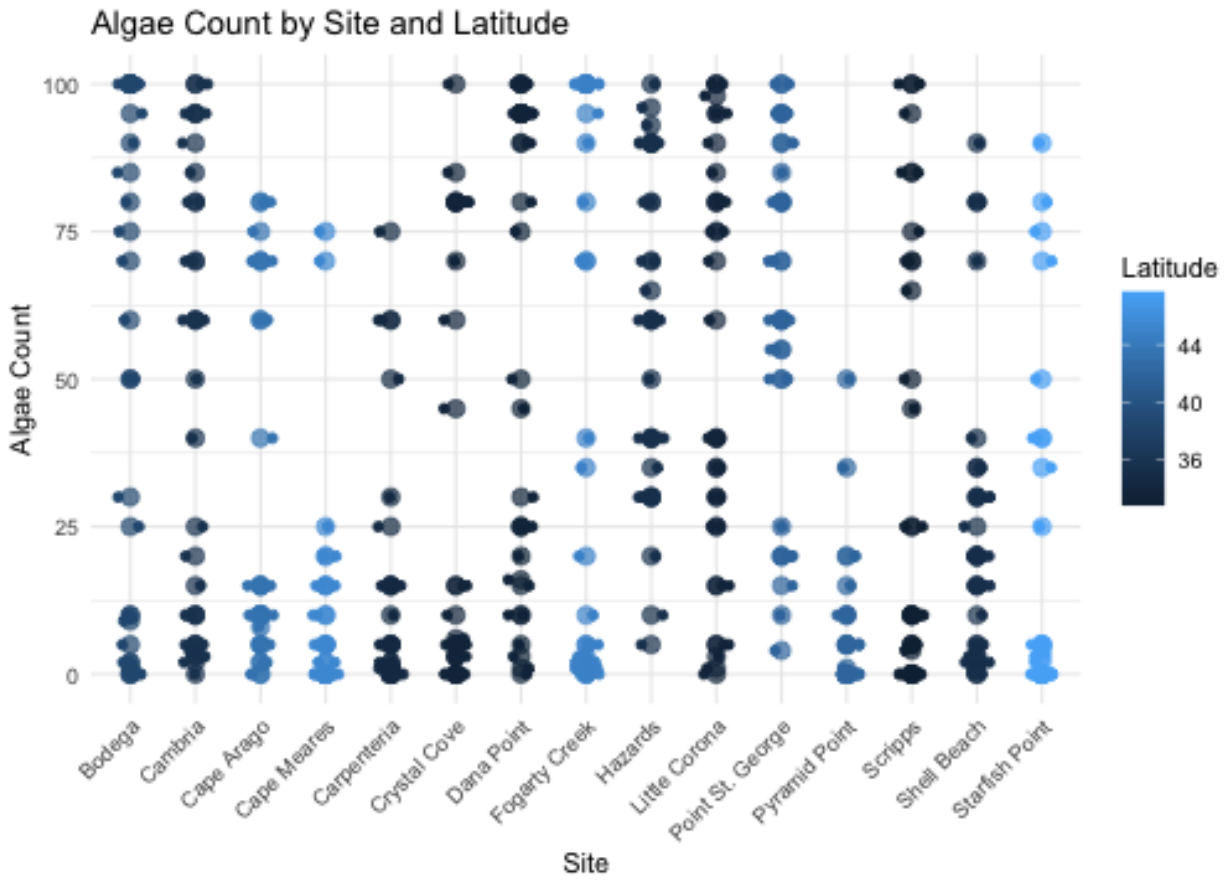


Figure 2. Algae Count by Site and Latitude #### Factor = sties, redordering sites based on meadian algae count using fct_redorder2()

```
ggplot(data = intertidal2, aes(x = fct_reorder(Site, Algae, .fun = median), #.fun = median is an argume
                               y = Algae,
                               color = Latitude)) +
  geom_point(size = 3, alpha = .7) +
  geom_jitter(width = 0.2, height = 0) +
  theme_minimal()+
  labs(title = "Meadian Algae Count by Site and Latitude",
       x = "Site",
       y = "Algae Count",
       color = "Latitude") +
  theme(axis.text.x = element_text(angle = 45,
                                   hjust = 1)) #angle adjust names at the bottom
```

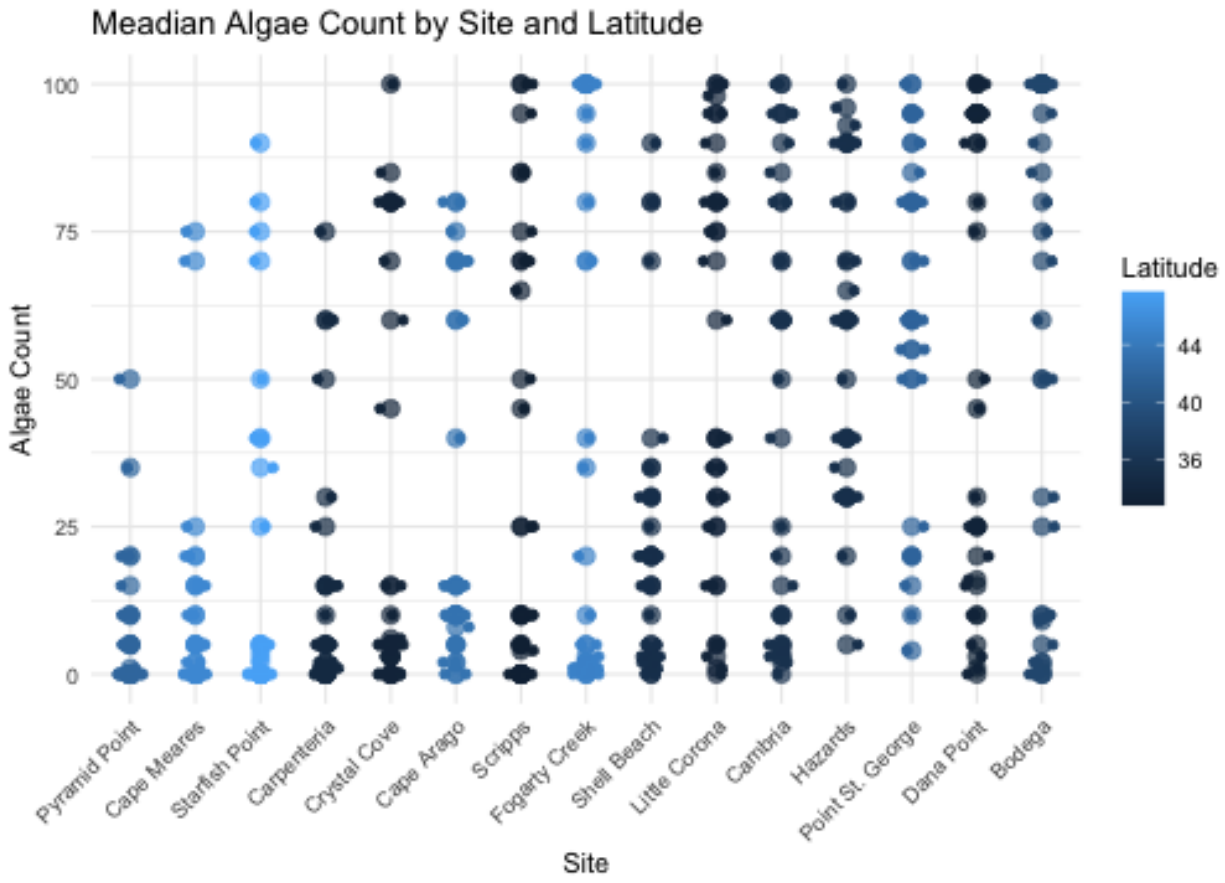
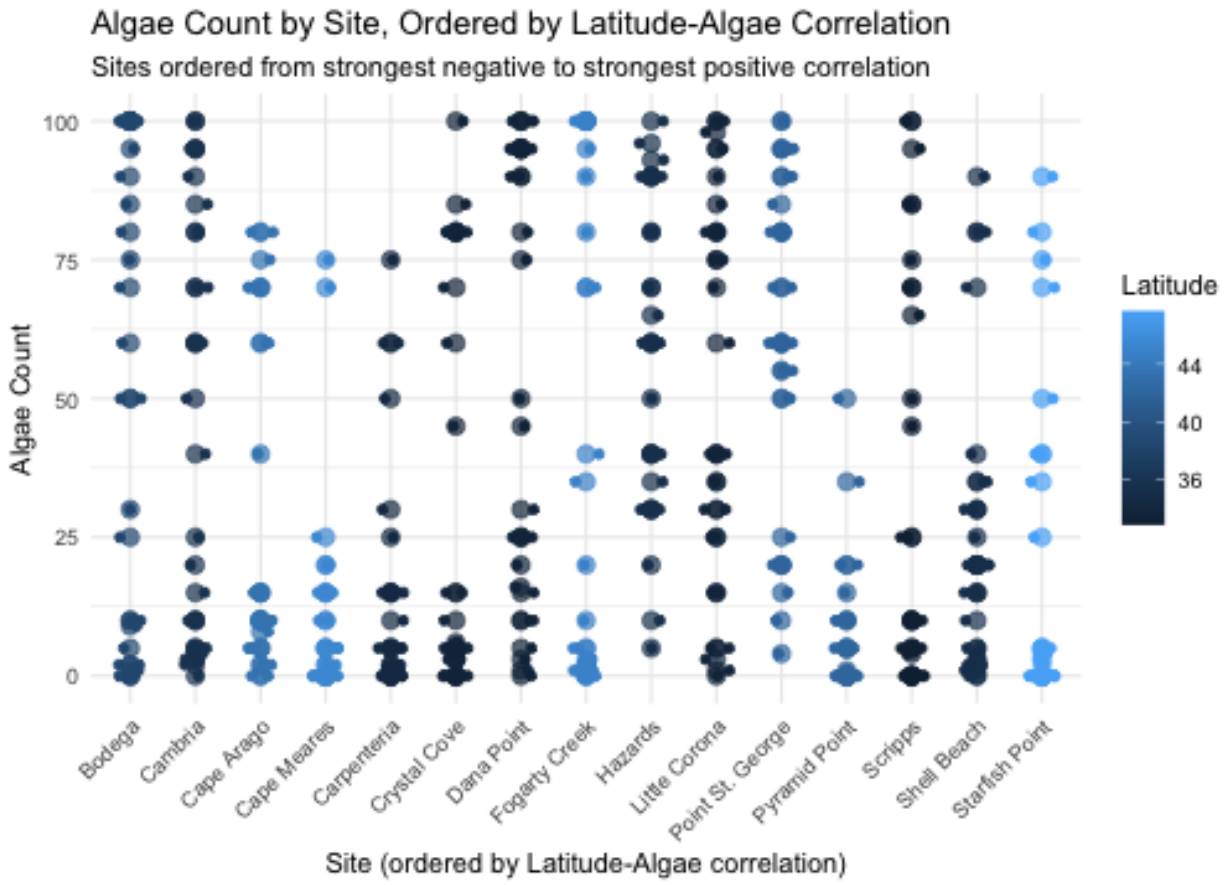


Figure 3. Algae Counts by Site and Latituide Correlation #### Reordering sites based on the correlation between Latitude and Algae counts

```
ggplot(data = intertidal2, aes(x = fct_reorder2(Site, Latitude, Algae,

.fun = function(lat, alg) cor(lat, alg)), #.fun = function is an argument from forcats package, I am us
                               y = Algae,
                               color = Latitude)) +
  geom_point(size = 3, alpha = .7) +
  geom_jitter(width = 0.2, height = 0) +
  theme_minimal()+
  labs(title = "Algae Count by Site, Ordered by Latitude-Algae Correlation",
      subtitle = "Sites ordered from strongest negative to strongest positive correlation",
       x = "Site (ordered by Latitude-Algae correlation)",
       y = "Algae Count",
       color = "Latitude") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))#angle adjust names at the bottom
```


Algae Count by Site, Ordered by Latitude-Algae Correlation
Sites ordered from strongest negative to strongest positive correlation
Algae Count
100
75
50
25
0
Latitude
44
40
36
Bodega
Cambria
Cape Arago
Cape Meares
Carpenteria
Crystal Cove
Dana Point
Fogarty Creek
Hazards
Little Corona
Point St. George
Pyramid Point
Scripps
Shell Beach
Starfish Point
Site (ordered by Latitude-Algae correlation)