ASSP Wing Chord

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Read-in data

```
library(tidyr)
library(dplyr)
library(lubridate)
library(hms)
library(tidyverse)
library(ggplot2)
library(EnvStats)
library(here)

captures <- readRDS(here("Working", "captures.RDS"))
metadata <- readRDS(here("Working", "cpue.RDS"))

# Filter to LESP and ASSP
ASSP <- captures %>%
  filter(species == "ASSP")

LESP <- captures %>%
  filter(species == "LHSP")
```

Ashy Storm-Petrel

```
summary(ASSP$wing)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.    NA's
##   123.0   138.0   141.0   140.6   143.0   158.0     163
```

```
# Are there any lengths greater than 148mm?
long <- ASSP %>%
  filter(wing > 147)
# 138 observations
```

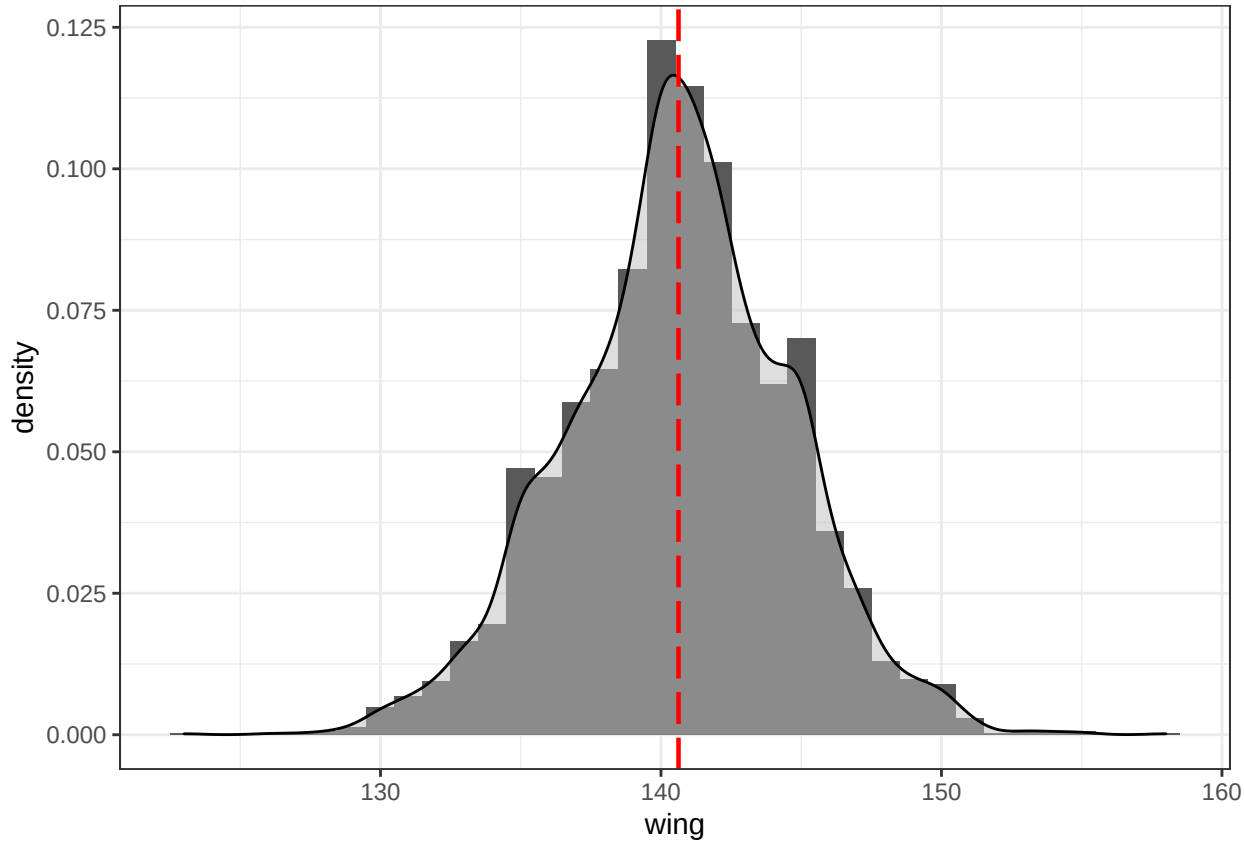
```
ggplot(data = ASSP, aes(x = wing), na.rm = TRUE) +
  geom_histogram(aes(y = ..density..), binwidth = 1) +
  geom_density(alpha = .5, fill = "gray") +
  geom_vline(aes(xintercept = mean(wing, na.rm = TRUE)),
             colour = "red", linetype ="longdash", size = .8) +
  stat_n_text(aes(y = mean(wing)), y.pos = 0.3) +
  theme_bw()
```

```
## Warning: Removed 163 rows containing non-finite values (stat_bin).
```

```
## Warning: Removed 163 rows containing non-finite values (stat_density).
```

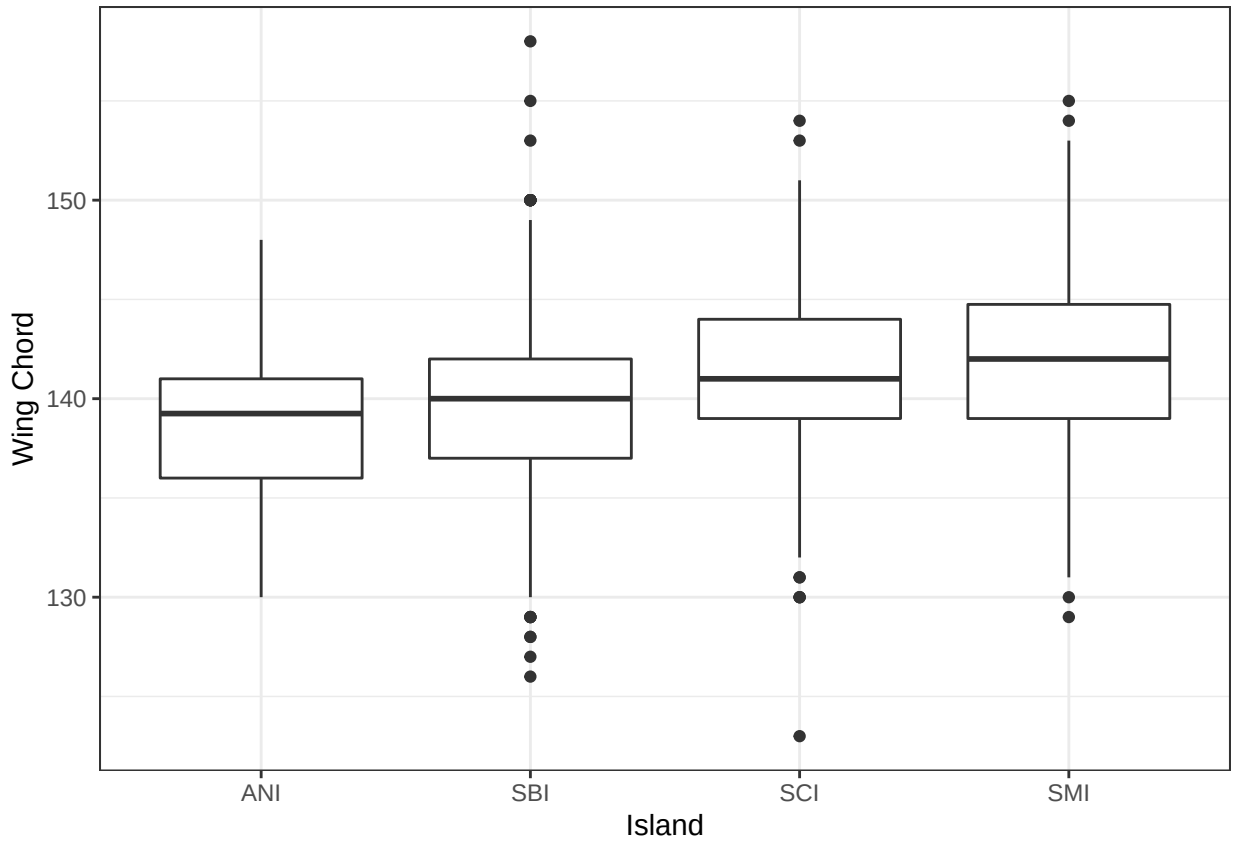
```
## Warning: Removed 3861 rows containing non-finite values (stat_n_text).
```

```
## Warning: Computation failed in `stat_n_text()`:
## arguments imply differing number of rows: 0, 1
```




```
wing <- ggplot(data = ASSP, aes(x = island_code, y = wing)) +
  geom_boxplot() +
  xlab("Island") + ylab("Wing Chord") +
  theme_bw()
wing
```

```
## Warning: Removed 163 rows containing non-finite values (stat_boxplot).
```



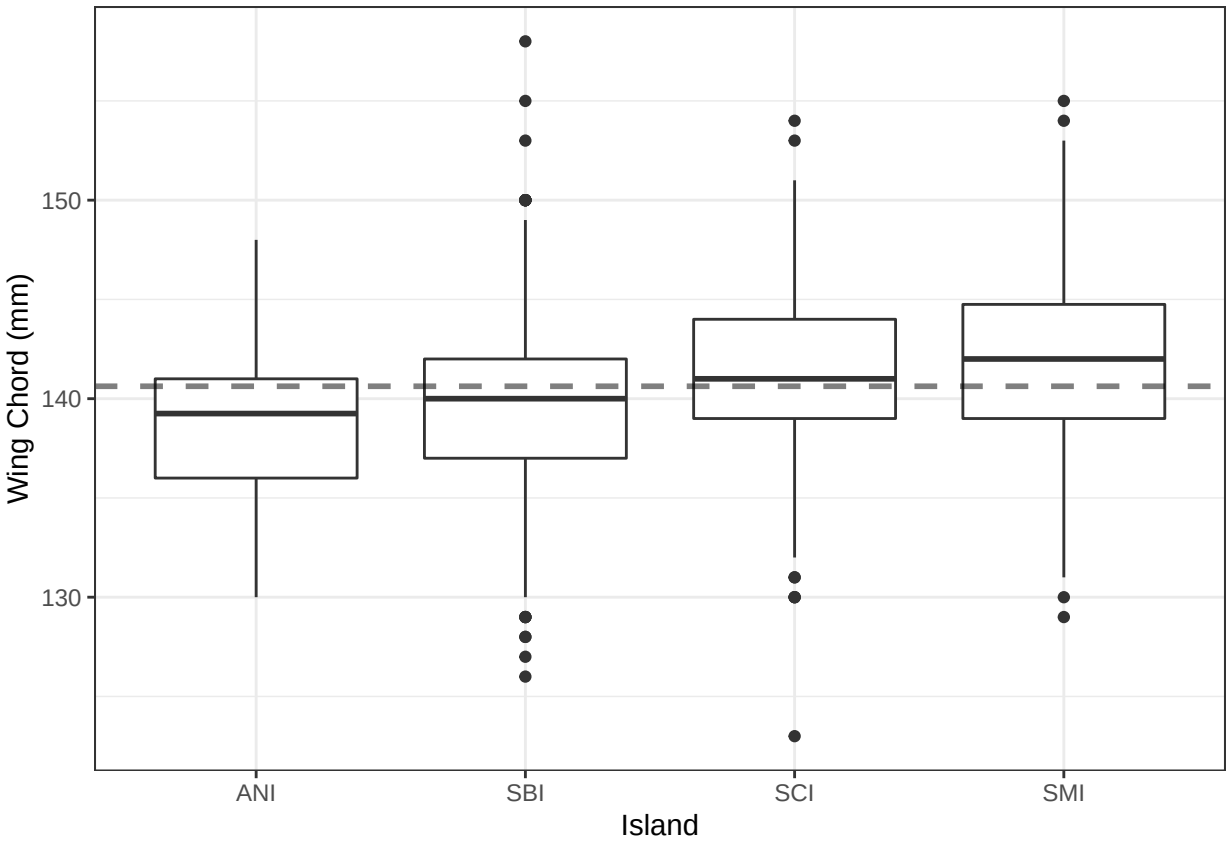

```
summary(ASSP$wing)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.    NA's
##   123.0   138.0   141.0   140.6   143.0   158.0     163
```

```
# Look for indication of different methods used to measure wing chord
# (e.g, flattened wing chord versus relaxed wing chord).
avwing <- mean(ASSP$wing, na.rm = TRUE)

# by island
wing.isl <- ggplot(ASSP, aes(x = island_code, y = wing)) +
  geom_boxplot() +
  xlab("Island") + ylab("Wing Chord (mm)") +
  geom_hline(yintercept = avwing, linetype = "dashed", color = "black", size = 1, alpha = 0.5) +
  theme_bw()
wing.isl
```

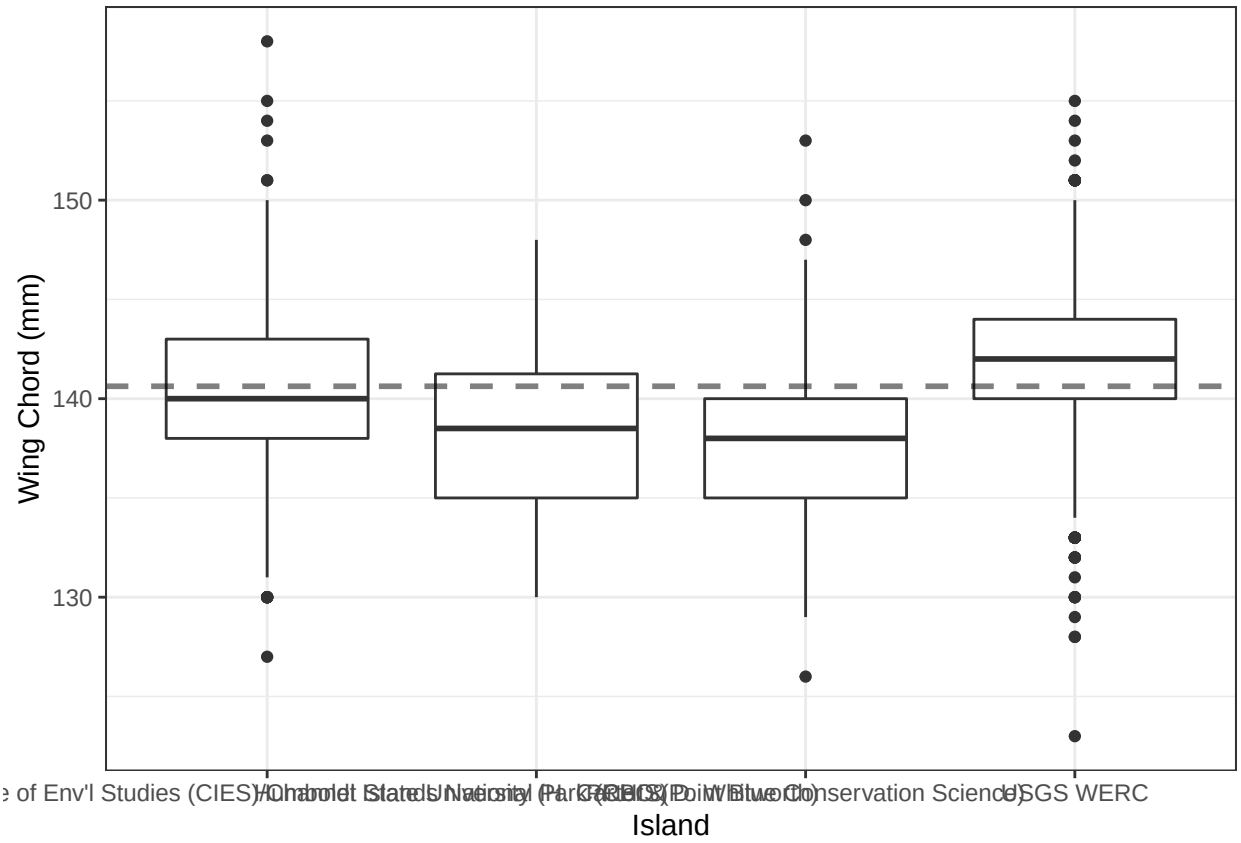
```
## Warning: Removed 163 rows containing non-finite values (stat_boxplot).
```




```
# by organization and island
ASSPorg <- inner_join(ASSP, metadata, by = "session_ID")

wing.org <- ggplot(ASSPorg, aes(x = org, y = wing)) +
  geom_boxplot() +
  xlab("Island") + ylab("Wing Chord (mm)") +
  geom_hline(yintercept = avwing, linetype = "dashed", color = "black", size = 1, alpha = 0.5) +
  theme_bw()
wing.org
```

```
## Warning: Removed 163 rows containing non-finite values (stat_boxplot).
```

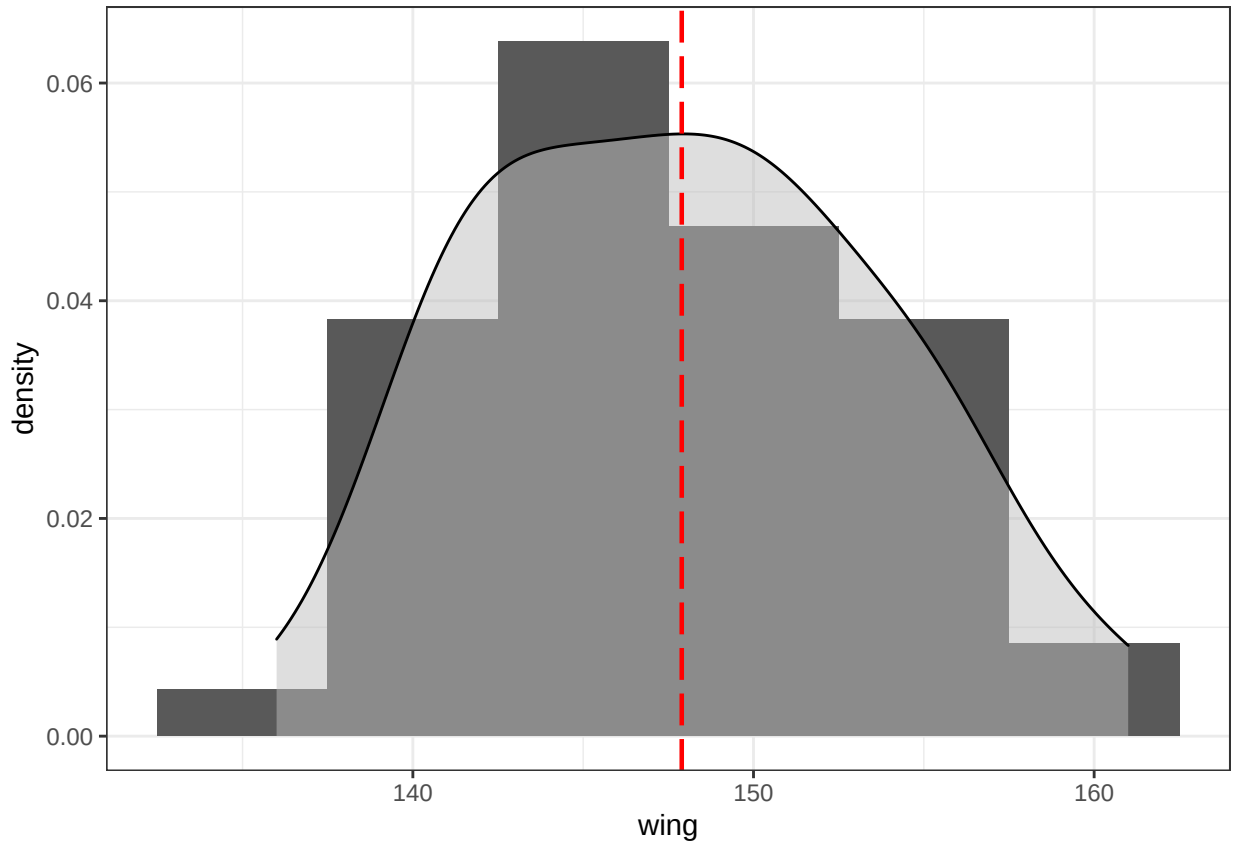



```
summary(LESP$wing)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   136.0   143.5   147.0   147.9   152.0   161.0
```

```
# only 47 observations

ggplot(data = LESP, aes(x = wing), na.rm = TRUE) +
  geom_histogram(aes(y = ..density..), binwidth = 5) +
  geom_density(alpha = .5, fill = "gray") +
  geom_vline(aes(xintercept = mean(wing, na.rm = TRUE)),
             colour = "red", linetype ="longdash", size = .8) +
  theme_bw()
```


0.06
0.04
0.02
0.00
density
140
150
160
wing