# Transect Report

## Overview

This report provides summary statistics and figures for ongoing transect sampling. The first section of the report focuses on the current sampling (Winter 2020-2021) and how the collected data compare to last year's sampling (Winter 2019-2020). So far 16 days have been sampled this season. The second half of the report gives summaries of all of the data that have been collected since the beginning of the project (2010-05-27). In total, 109 days have been sampled over this entire project.

### Definition of Localities

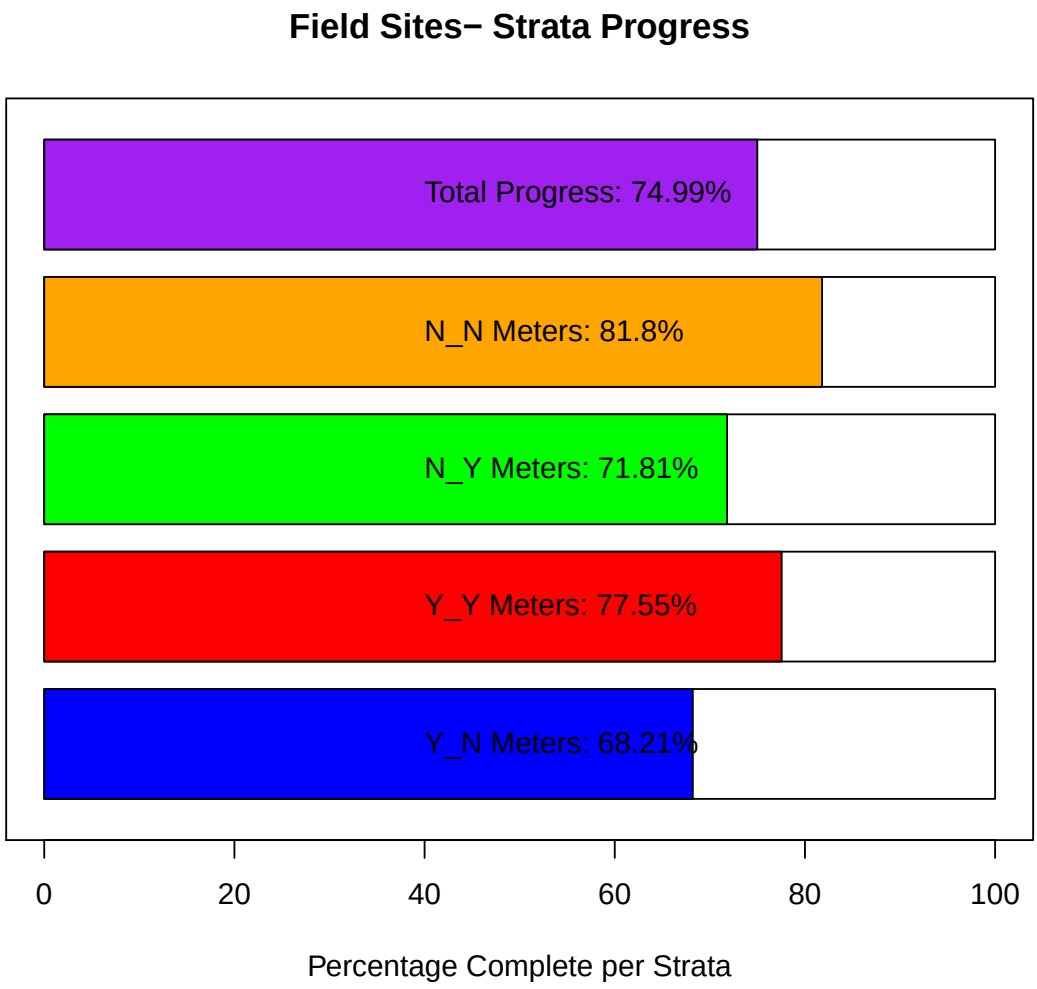
| LOCALITY | LOCATION |
|---|---|
| BT | Big Trout |
| CK | Cedar Key |
| CR | Corrigan's Reef |
| HB | Horseshoe Beach |
| LC | Lone Cabbage |
| LT | Little Trout |
| NN | No Name |

### Definition of Strata

| STRATA | DEFINITION |
|---|---|
| Y_N | Yes Harvest, No Rock |
| Y_Y | Yes Harvest, Yes Rock |
| N_N | No Harvest, No Rock |
| N_Y | No Harvest, Yes Rock |
| N_PILOT | No Harvest, Pilot Rocks |

## Current Sampling

Here, we provide a progress bar showing how much of the sampling has been completed for this season, plus summary tables and plots comparing live counts and density of oysters between this current season and last year. **The current sampling period is period 22, and last year's sampling period is period 20.**



## Summary Tables for Periods 18, 20 and 22

These summary tables provide summary statistics on live counts and oyster densities for just periods **18 (Winter 2018-2019), 20 (Winter 2019-2020) and 22 (Winter 2020-2021).**

Summary statistics include:
- Locality or Strata or Period - Mean
- Median
- Standard Deviation (SD)
- Variance (Var)
- Coefficient of variation (CV)
- Standard Error (SE)
- Lower 95% Confidence Interval assuming normal distribution (L95)
- Upper 95% Confidence Interval assuming normal distribution (U95)
- Bootstrap Mean (Bstrap Mean)
- Lower 95% Confidence Interval from Bootstrap Values (L95 Bstrap)
- Upper 95% Confidence Interval from Bootstrap Values (U95 Bstrap)

### Summary of Live Counts for Periods 18, 20 and 22

Live Oyster Counts by Locality

| Locality | Mean | Median | SD | Var | CV | SE | L95 | U95 | Bstrap_Mean | L95_Bstrap | U95_Bstrap |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BT | 1691 | 856 | 2355 | 5547854 | 1.39 | 680 | 359 | 3024 | 1664 | 672 | 3070 |
| LC | 1417 | 907 | 1630 | 2656516 | 1.15 | 157 | 1109 | 1724 | 1410 | 1135 | 1718 |
| LT | 1054 | 877 | 645 | 416505 | 0.61 | 167 | 728 | 1381 | 1052 | 787 | 1372 |
| NN | 720 | 649 | 644 | 414522 | 0.89 | 204 | 321 | 1119 | 708 | 389 | 1135 |

Live Oyster Counts by Strata

| Strata | Mean | Median | SD | Var | CV | SE | L95 | U95 | Bstrap_Mean | L95_Bstrap | U95_Bstrap |
|---|---|---|---|---|---|---|---|---|---|---|---|
| N_N | 1096 | 766 | 1264 | 1598540 | 1.15 | 175 | 752 | 1440 | 1087 | 815 | 1463 |
| N_PILOT | 356 | 356 | NA | NA | NA | NA | NA | NA | 178 | 7 | 349 |
| N_Y | 2364 | 1619 | 2201 | 4846019 | 0.93 | 440 | 1501 | 3227 | 2380 | 1593 | 3283 |
| Y_N | 889 | 698 | 793 | 629003 | 0.89 | 110 | 673 | 1104 | 894 | 692 | 1118 |
| Y_Y | 2242 | 2039 | 2376 | 5645351 | 1.06 | 613 | 1039 | 3444 | 2245 | 1295 | 3586 |

Live Oyster Counts by Period

| Period | Mean | Median | SD | Var | CV | SE | L95 | U95 | Bstrap_Mean | L95_Bstrap | U95_Bstrap |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 | 982 | 695 | 935 | 874733 | 0.95 | 120 | 748 | 1217 | 982 | 751 | 1225 |
| 20 | 1844 | 1253 | 2125 | 4517189 | 1.15 | 310 | 1236 | 2451 | 1824 | 1294 | 2451 |
| 22 | 1344 | 700 | 1509 | 2278098 | 1.12 | 248 | 857 | 1830 | 1333 | 915 | 1800 |

Live Density by Locality

| Locality | Mean | Median | SD | Var | CV | SE | L95 | U95 | Bstrap_Mean | L95_Bstrap | U95_Bstrap |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BT | 257 | 212 | 198 | 39335 | 0.77 | 57 | 145 | 370 | 257 | 163 | 381 |
| LC | 171 | 154 | 126 | 15992 | 0.74 | 12 | 147 | 195 | 171 | 149 | 195 |
| LT | 274 | 239 | 152 | 23145 | 0.56 | 39 | 197 | 351 | 275 | 201 | 353 |
| NN | 215 | 154 | 234 | 54714 | 1.09 | 74 | 70 | 360 | 215 | 108 | 375 |

Live Density by Strata

| Strata | Mean | Median | SD | Var | CV | SE | L95 | U95 | Bstrap_Mean | L95_Bstrap | U95_Bstrap |
|---|---|---|---|---|---|---|---|---|---|---|---|
| N_N | 233 | 190 | 170 | 28981 | 0.73 | 24 | 187 | 279 | 234 | 191 | 281 |
| N_PILOT | 102 | 102 | NA | NA | NA | NA | NA | NA | 51 | 3 | 99 |
| N_Y | 150 | 138 | 98 | 9545 | 0.65 | 20 | 112 | 189 | 150 | 112 | 187 |
| Y_N | 193 | 179 | 150 | 22356 | 0.78 | 21 | 152 | 233 | 192 | 153 | 233 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Y_Y | 122 | 112 | 87 | 7615 | 0.71 | 23 | 78 | 167 | 121 | 81 | 166 | |

Live Density by Period

| Period | Mean | Median | SD | Var | CV | SE | L95 | U95 | Bstrap_Mean | L95_Bstrap | U95_Bstrap |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 | 177 | 155 | 131 | 17117 | 0.74 | 17 | 144 | 210 | 176 | 145 | 208 |
| 20 | 258 | 203 | 188 | 35185 | 0.73 | 27 | 204 | 312 | 259 | 213 | 313 |
| 22 | 132 | 127 | 68 | 4683 | 0.52 | 11 | 110 | 154 | 133 | 110 | 153 |

**Summary of Dead Counts for Periods 18, 20 and 22**

Dead Oyster Counts by Locality

| Locality | Mean | Median | SD | Var | CV | SE | L95 | U95 | Bstrap_Mean | L95_Bstrap | U95_Bstrap |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BT | 325 | 169 | 328 | 107312 | 1.01 | 95 | 140 | 510 | 327 | 170 | 508 |
| LC | 124 | 70 | 126 | 15901 | 1.01 | 12 | 101 | 148 | 125 | 101 | 149 |
| LT | 240 | 210 | 202 | 40850 | 0.84 | 52 | 137 | 342 | 239 | 149 | 345 |
| NN | 100 | 68 | 100 | 10018 | 1.00 | 32 | 38 | 162 | 101 | 50 | 165 |

Dead Oyster Counts by Strata

| Strata | Mean | Median | SD | Var | CV | SE | L95 | U95 | Bstrap_Mean | L95_Bstrap | U95_Bstrap |
|---|---|---|---|---|---|---|---|---|---|---|---|
| N_N | 207 | 125 | 215 | 46152 | 1.04 | 30 | 148 | 265 | 207 | 152 | 270 |
| N_PILOT | 9 | 9 | NA | NA | NA | NA | NA | NA | 5 | 1 | 9 |
| N_Y | 79 | 55 | 95 | 9095 | 1.21 | 19 | 41 | 116 | 79 | 47 | 121 |
| Y_N | 132 | 87 | 128 | 16256 | 0.97 | 18 | 97 | 166 | 131 | 99 | 168 |
| Y_Y | 157 | 104 | 168 | 28145 | 1.07 | 43 | 73 | 242 | 157 | 85 | 249 |

Dead Oyster Counts by Period

| Period | Mean | Median | SD | Var | CV | SE | L95 | U95 | Bstrap_Mean | L95_Bstrap | U95_Bstrap |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 | 133 | 55 | 192 | 36903 | 1.44 | 25 | 85 | 182 | 133 | 88 | 181 |
| 20 | 148 | 107 | 140 | 19727 | 0.95 | 20 | 108 | 188 | 148 | 111 | 193 |
| 22 | 185 | 108 | 162 | 26173 | 0.87 | 27 | 133 | 237 | 185 | 137 | 240 |

Dead Oyster Density by Locality

| Locality | Mean | Median | SD | Var | CV | SE | L95 | U95 | Bstrap_Mean | L95_Bstrap | U95_Bstrap |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BT | 54 | 42 | 35 | 1250 | 0.66 | 10.2 | 34 | 74 | 53 | 36 | 73 |
| LC | 20 | 11 | 22 | 489 | 1.09 | 2.1 | 16 | 24 | 20 | 16 | 24 |
| LT | 58 | 47 | 40 | 1570 | 0.68 | 10.2 | 38 | 78 | 58 | 38 | 78 |
| NN | 28 | 16 | 26 | 668 | 0.91 | 8.2 | 12 | 45 | 29 | 15 | 45 |

Dead Oyster Density by Strata

| Strata | Mean | Median | SD | Var | CV | SE | L95 | U95 | Bstrap_Mean | L95_Bstrap | U95_Bstrap |
|---|---|---|---|---|---|---|---|---|---|---|---|
| N_N | 43.3 | 36.9 | 33.1 | 1097 | 0.77 | 4.59 | 34.3 | 52 | 43.1 | 34.1 | 52.7 |
| N_PILOT | 2.6 | 2.6 | NA | NA | NA | NA | NA | NA | 1.5 | 1.0 | 2.0 |
| N_Y | 5.2 | 3.8 | 4.5 | 21 | 0.87 | 0.91 | 3.4 | 7 | 5.2 | 3.6 | 7.1 |
| Y_N | 28.4 | 22.0 | 25.7 | 662 | 0.91 | 3.57 | 21.4 | 35 | 28.3 | 22.1 | 35.7 |
| Y_Y | 8.8 | 8.6 | 6.6 | 43 | 0.75 | 1.70 | 5.5 | 12 | 8.8 | 5.5 | 11.9 |

Dead Oyster Density by Period

| Period | Mean | Median | SD | Var | CV | SE | L95 | U95 | Bstrap_Mean | L95_Bstrap | U95_Bstrap |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 | 26 | 16 | 31 | 980 | 1.19 | 4.0 | 19 | 34 | 26 | 19 | 35 |
| 20 | 28 | 18 | 26 | 698 | 0.95 | 3.9 | 20 | 35 | 28 | 21 | 36 |
| 22 | 29 | 15 | 29 | 862 | 1.02 | 4.8 | 19 | 38 | 28 | 20 | 39 |

### Summary Plots for Periods 18, 20 and 22

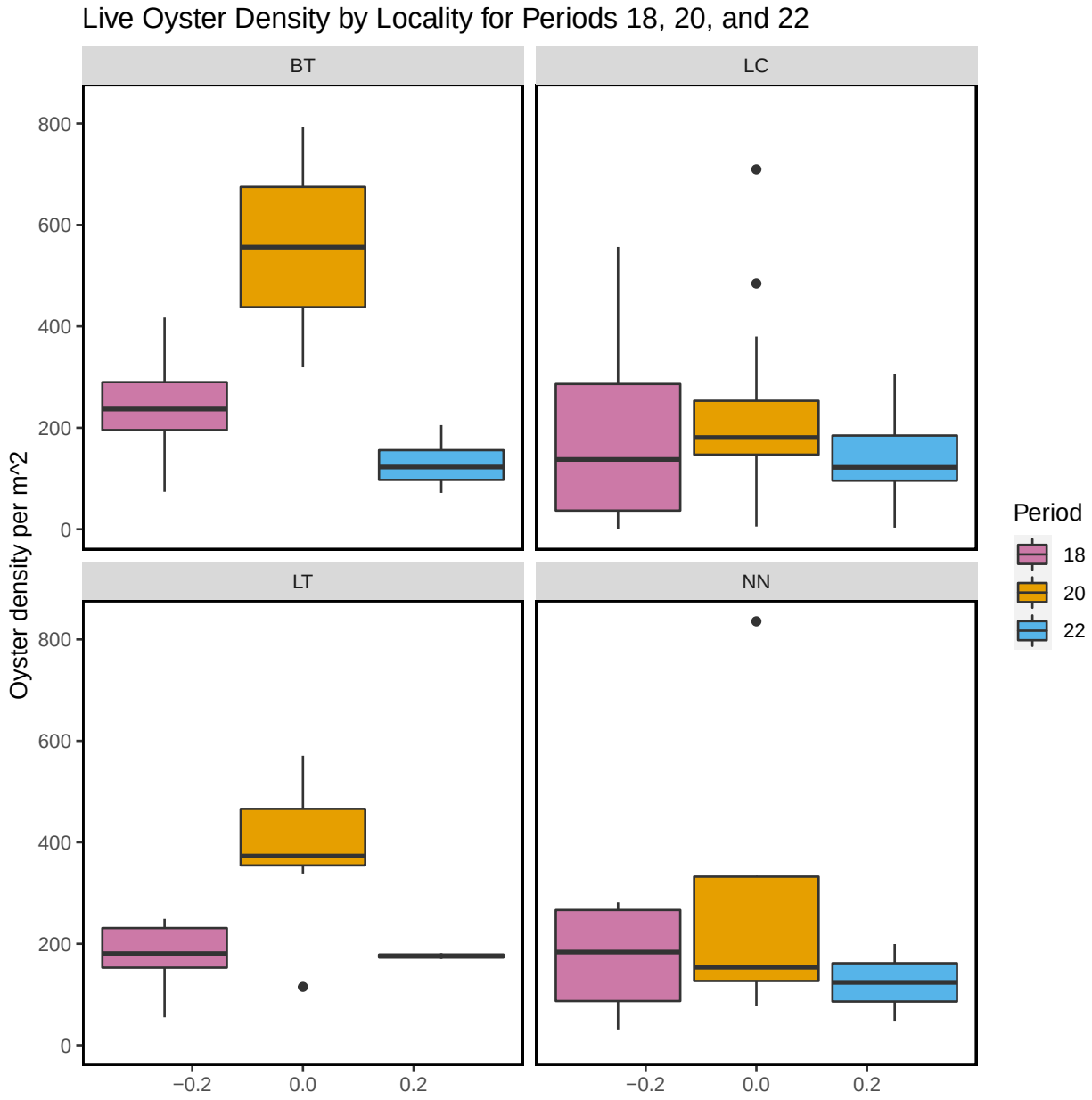



Figure- Calculated live oyster density by locality for periods 18 (Winter 2018-2019), 20 (Winter 2019-2020) and 22 (Winter 2020-2021) with the last sample date of period 22 as 2021-01-15.

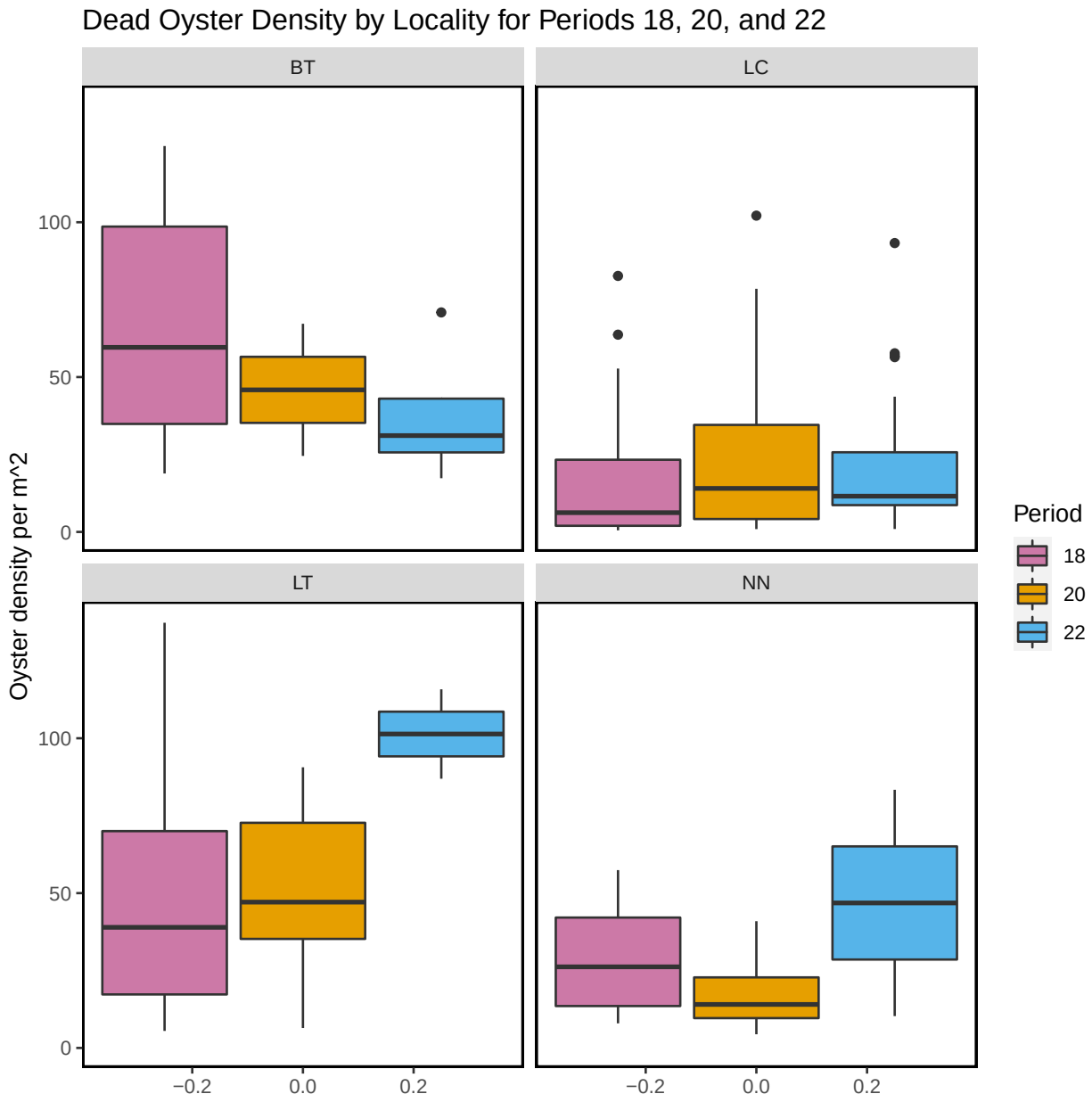



Figure- Calculated dead oyster density by locality for periods 18 (Winter 2018-2019), 20 (Winter 2019-2020) and 22 (Winter 2020-2021) with the last sample date of period 22 as 2021-01-15.

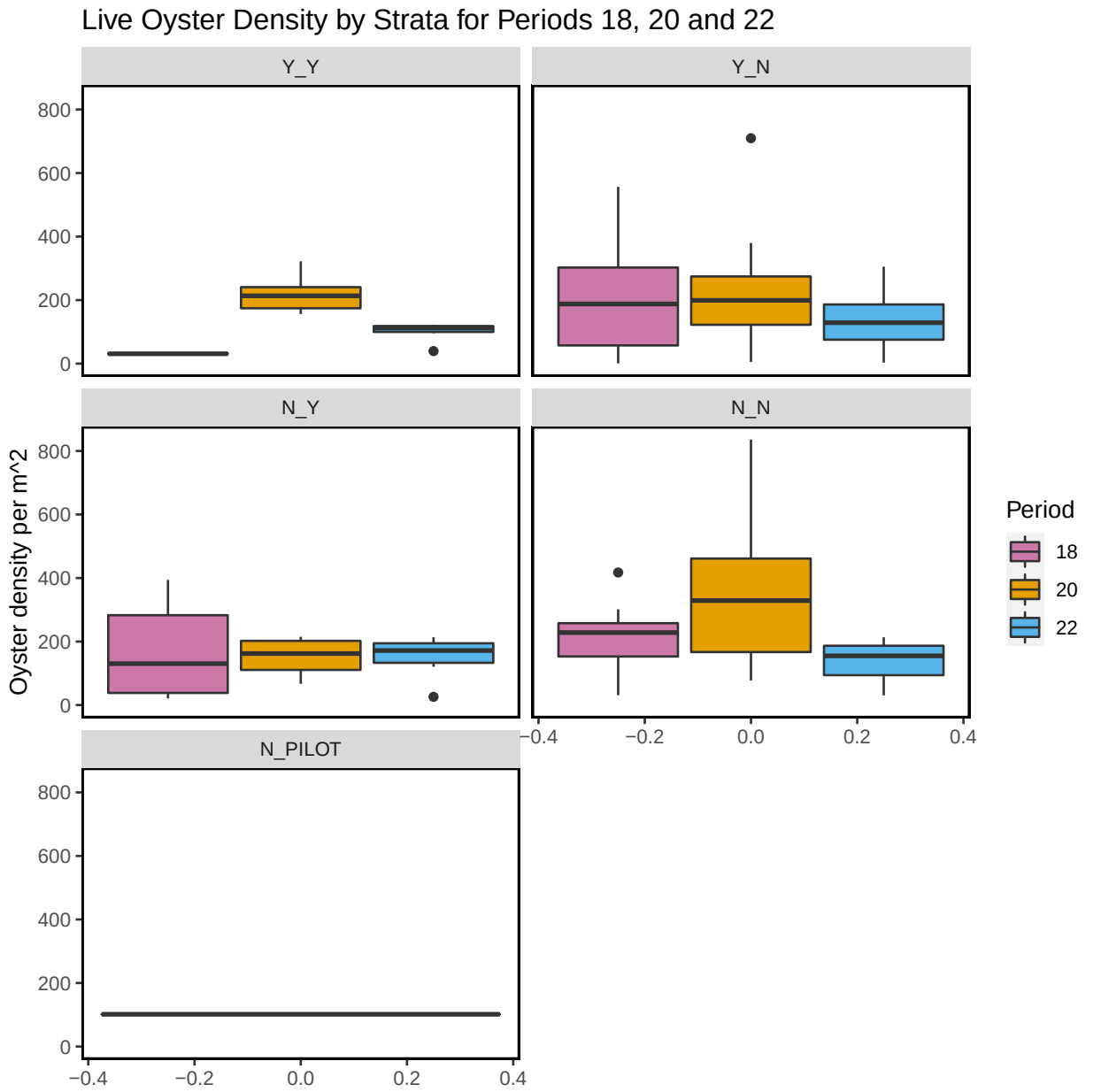



Figure- Calculated live oyster density by strata for periods 18 (Winter 2018-2019), 20 (Winter 2019-2020) and 22 (Winter 2020-2021) with the last sample date of period 22 as 2021-01-15.

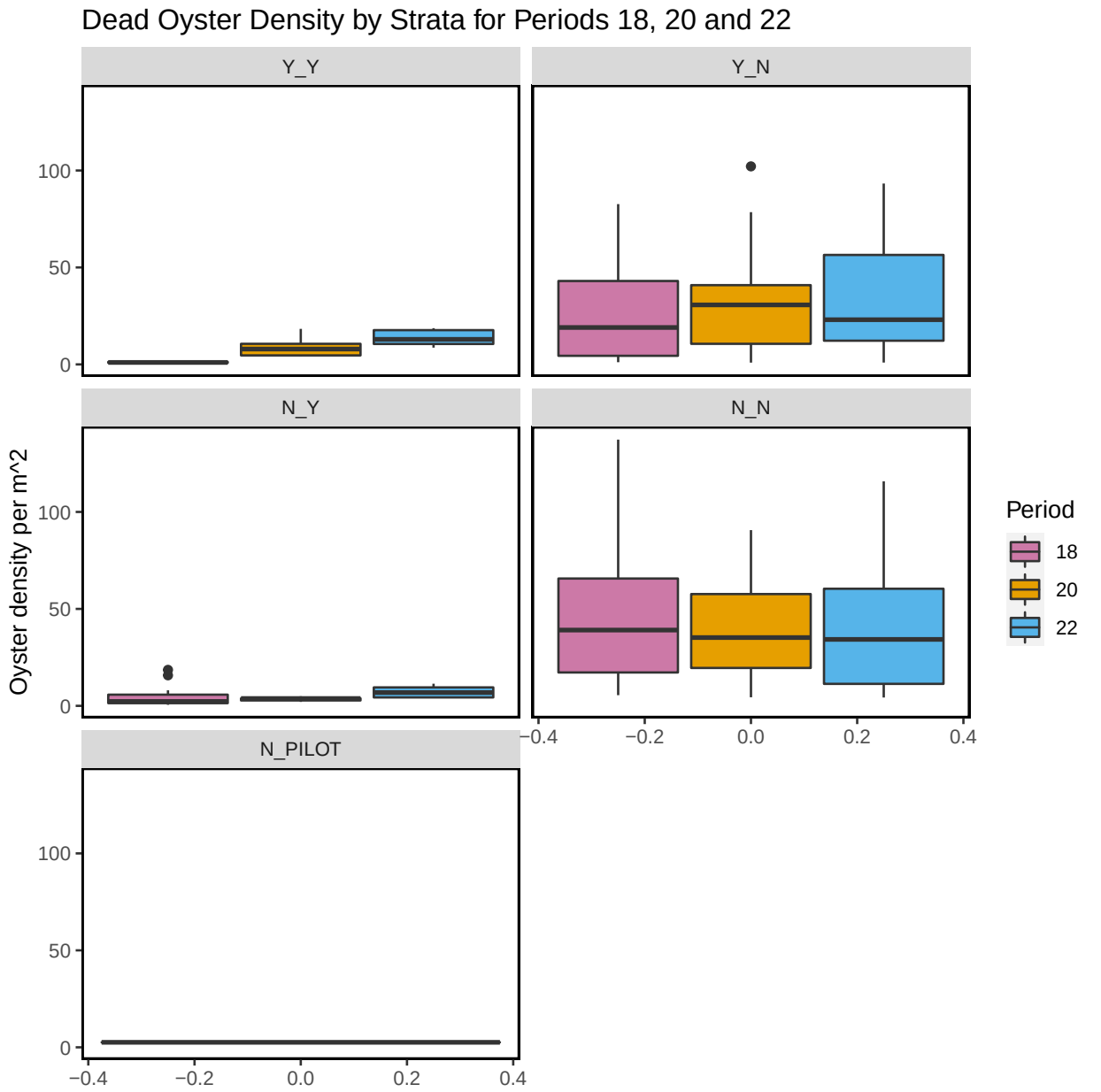



Figure- Calculated dead oyster density by strata for periods 18 (Winter 2018-2019), 20 (Winter 2019-2020) and 22 (Winter 2020-2021) with the last sample date of period 22 as 2021-01-15.

The following summary plot is calculated in R using the `geom_density` (https://ggplot2.tidyverse.org/reference/geom_density.html) statistical function in `ggplot`. The `geom_density` function computes and draws kernel density estimates, which is then represented as a smoothed version of a histogram.

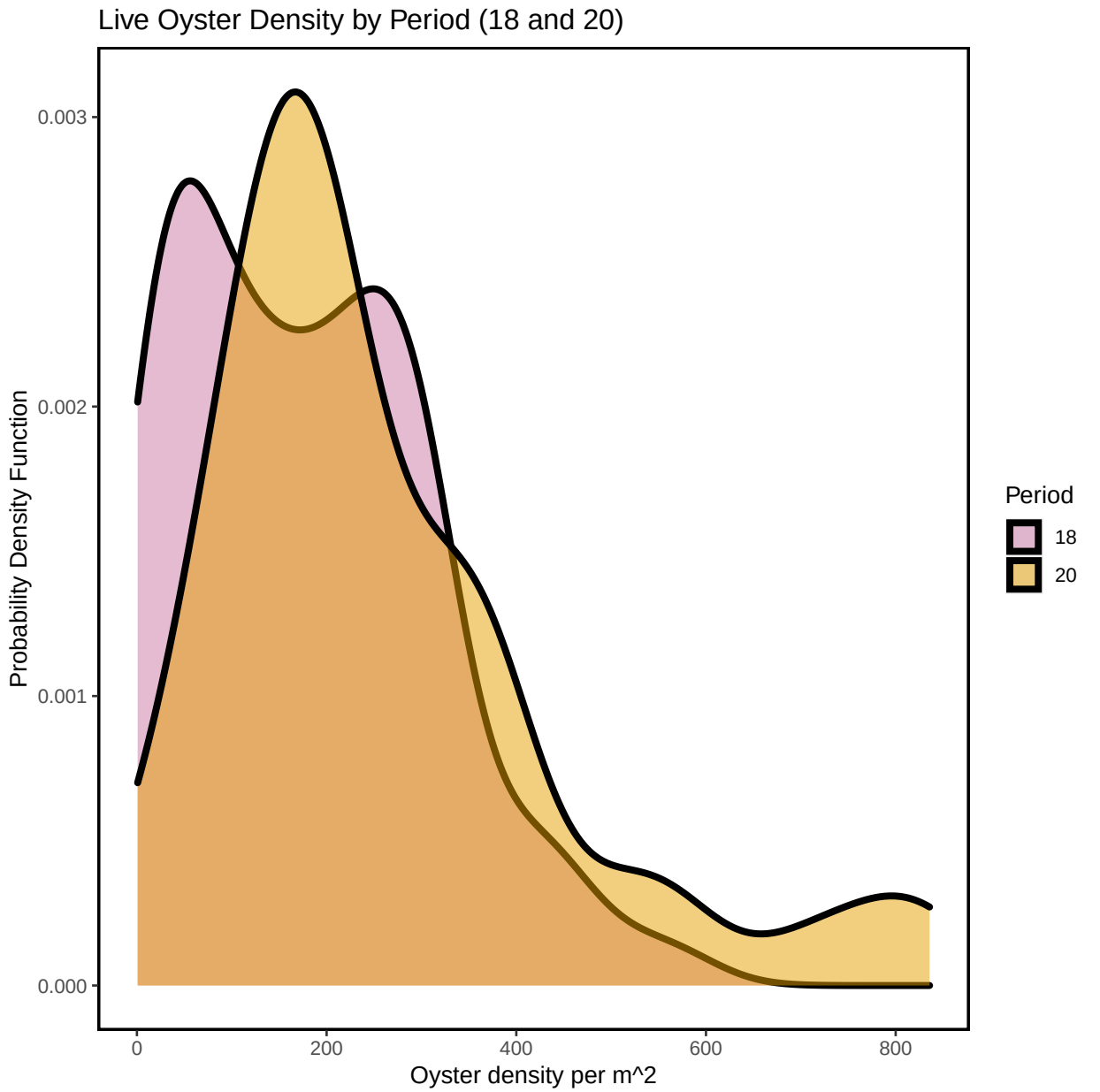



Figure- Calculated live oyster density by periods 18 (Winter 2018-2019) and 20 (Winter 2019-2020) using a probability density function with the last sample date of period 22 as 2021-01-15.

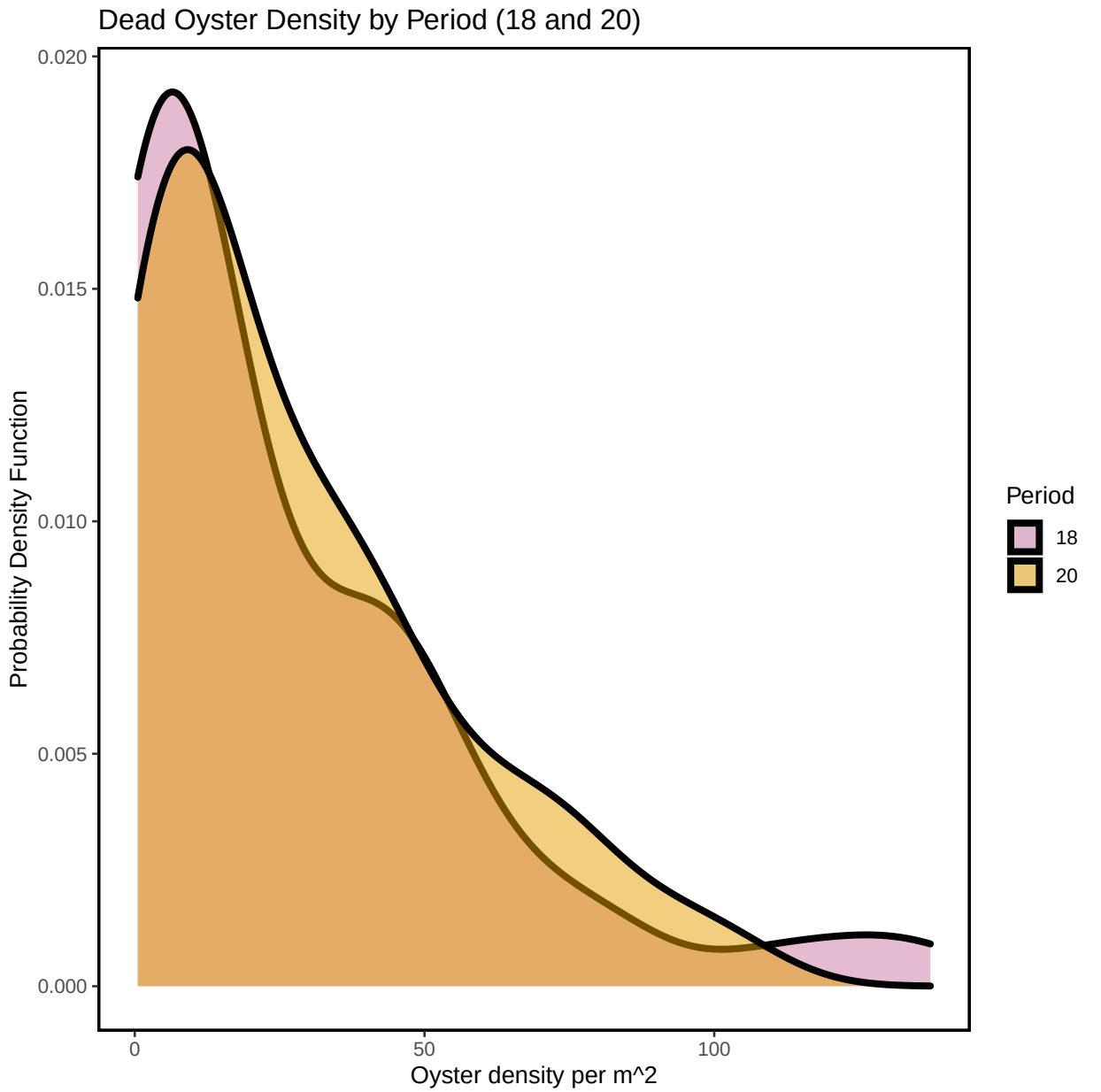



Figure- Calculated dead oyster density by periods 18 (Winter 2018-2019) and 20 (Winter 2019-2020) using a probability density function with the last sample date of period 22 as 2021-01-15.

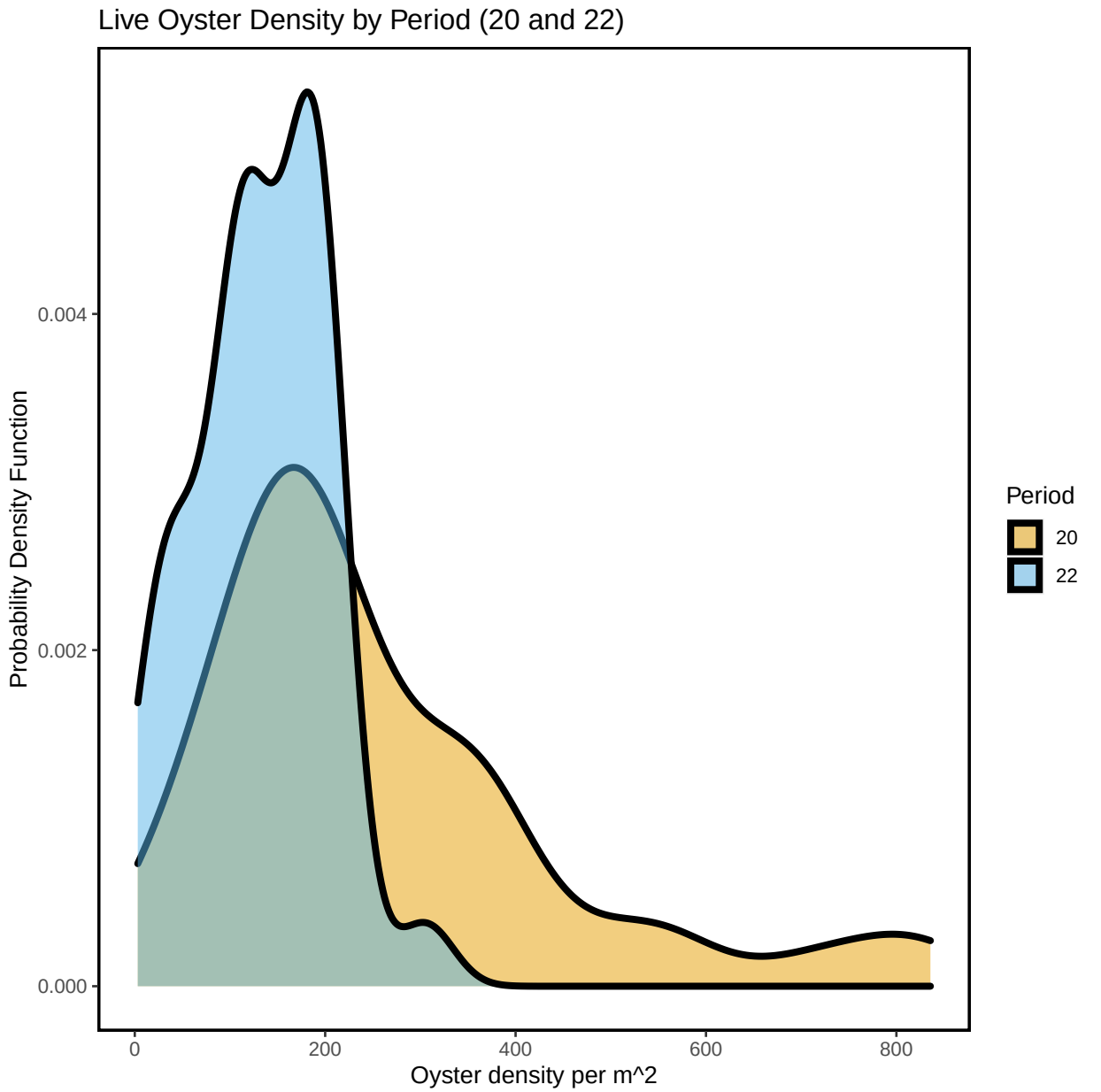



Figure- Calculated live oyster density by periods 20 (Winter 2019-2020) and 22 (Winter 2020-2021) using a probability density function with the last sample date of period 22 as 2021-01-15.

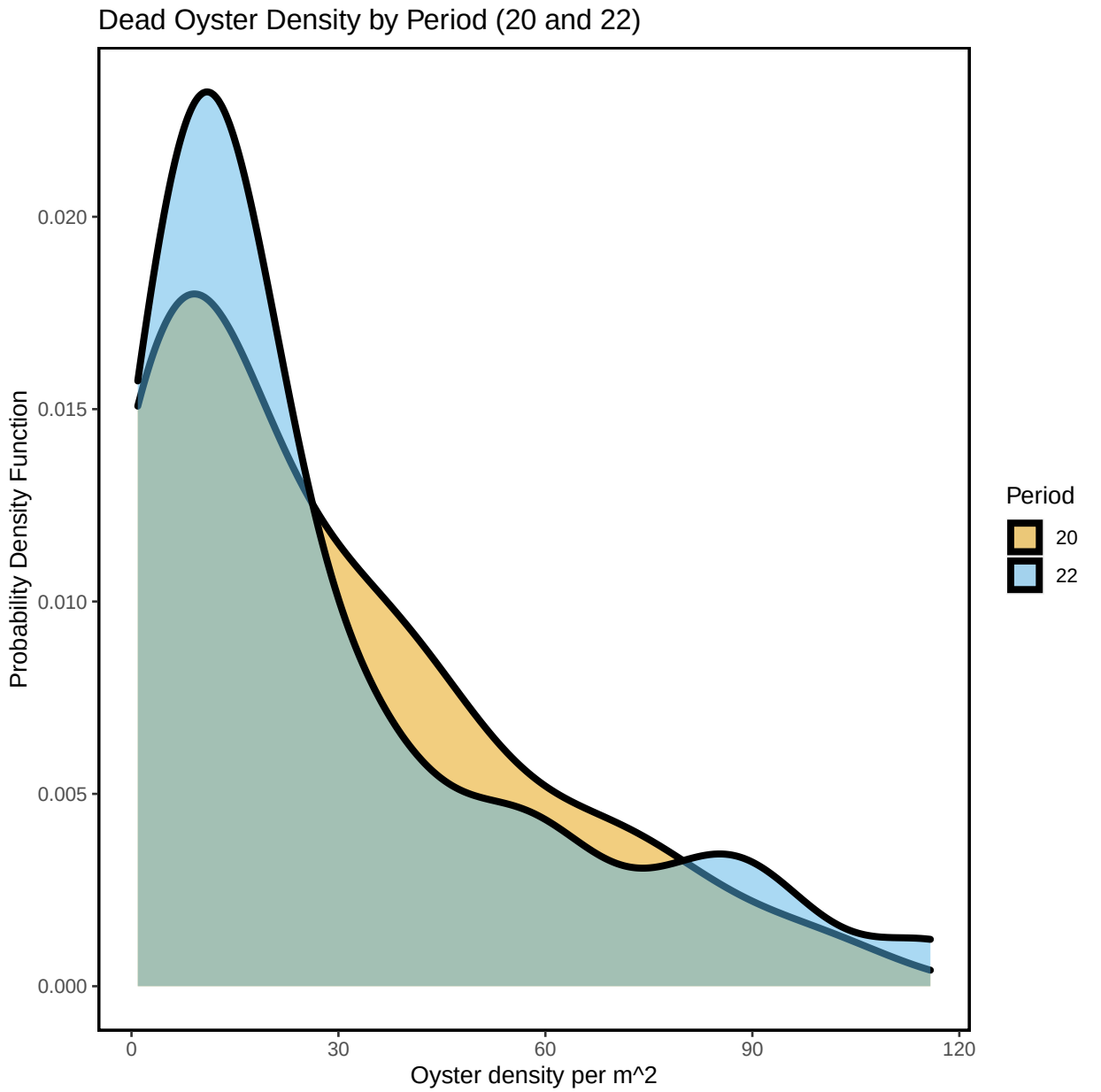



Figure- Calculated dead oyster density by periods 20 (Winter 2019-2020) and 22 (Winter 2020-2021) using a probability density function with the last sample date of period 22 as 2021-01-15.

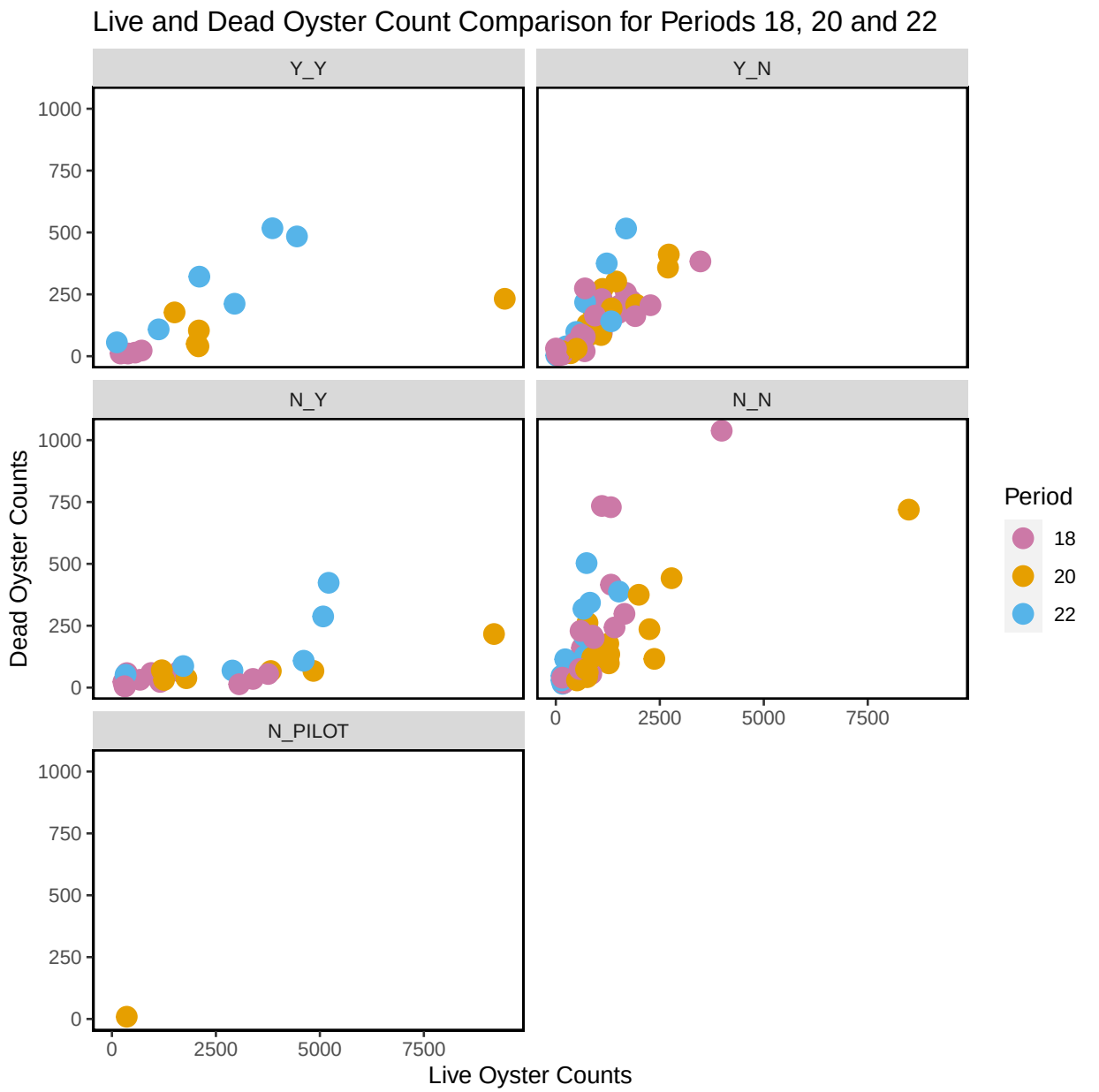



Figure- Live and dead oyster count comparison by periods 18 (Winter 2018- 2019), 20 (Winter 2019-2020) and 22 (Winter 2020-2021), last sample date of period 22 as 2021-01-15.

**Live Counts Double Pass Results**

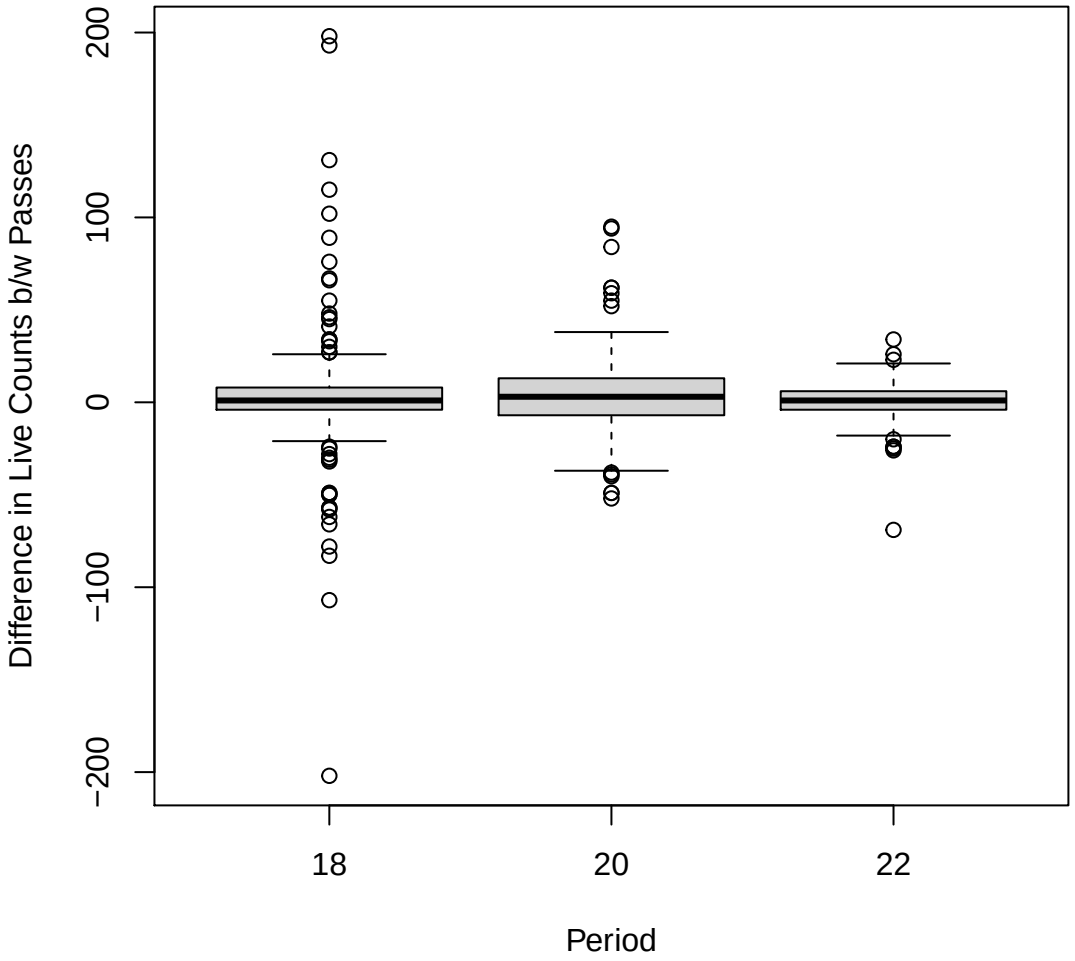



Figure- Boxplot of the difference in live counts between pass 1 and pass 2 (pass 1 live counts - pass 2 live counts) for period 18, 20, and 22

| locality | period | CV_1 | CV_2 |
|---|---|---|---|
| BT | 18 | 0.82 | 0.83 |
| LC | 18 | 1.34 | 1.43 |
| NN | 18 | 0.47 | 0.63 |
| LC | 20 | 0.83 | 0.80 |
| LT | 20 | 0.61 | 0.60 |
| BT | 22 | 0.39 | 0.52 |
| LC | 22 | 0.66 | 0.70 |
| LT | 22 | 0.47 | 0.43 |

Table- Coefficient variation between pass 1 and pass 2, aggregated by locality and period for live counts

## Dead Counts Double Pass Results

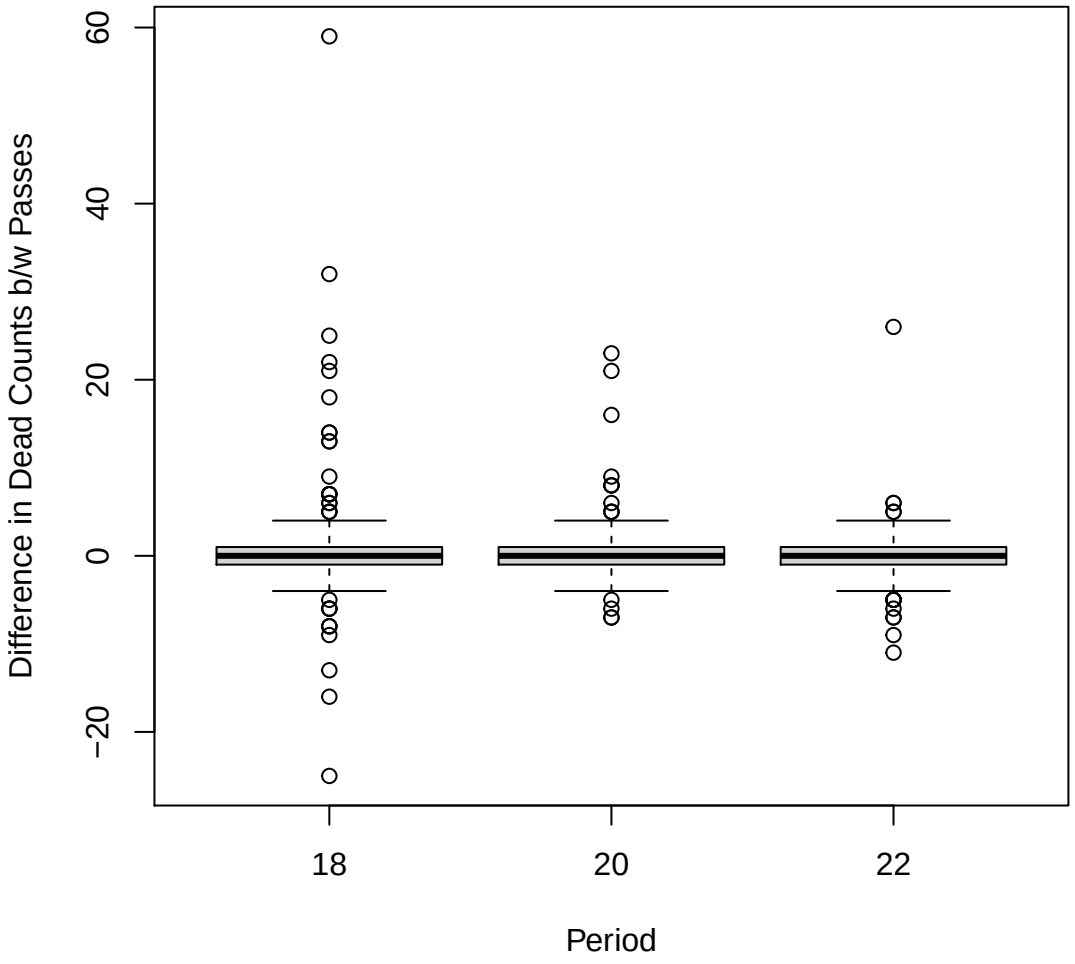



Figure- Boxplot of the difference in dead counts between pass 1 and pass 2 (pass 1 dead counts - pass 2 dead counts) for period 18, 20, and 22

| locality | period | CV_1 | CV_2 |
|---|---|---|---|
| BT | 18 | 0.78 | 0.82 |
| LC | 18 | 2.35 | 2.06 |
| NN | 18 | 0.55 | 0.73 |
| LC | 20 | 1.93 | 1.62 |
| LT | 20 | 0.76 | 0.67 |
| BT | 22 | 0.60 | 0.66 |
| LC | 22 | 0.99 | 0.96 |
| LT | 22 | 0.79 | 0.74 |

Table- Coefficient variation between pass 1 and pass 2, aggregated by locality and period for dead counts

## Sampling for all Periods

Next, we provide summary tables and plots for all transect sampling. These data were collected between 2010-05-27 and 2021-01-15. The following are only for live oysters.

### Definitions of Periods

| PERIOD | SEASON | YEAR |
|---|---|---|
| 1 | Summer | 2010 |
| 2 | Winter | 2010-2011 |
| 3 | Summer | 2011 |
| 4 | Winter | 2011-2012 |
| 5 | Summer | 2012 |
| 6 | Winter | 2012-2013 |
| 7 | Summer | 2013 |
| 8 | Winter | 2013-2014 |
| 9 | Summer | 2014 |
| 10 | Winter | 2014-2015 |
| 11 | Summer | 2015 |
| 12 | Winter | 2015-2016 |
| 13 | Summer | 2016 |
| 14 | Winter | 2016-2017 |
| 15 | Summer | 2017 |
| 16 | Winter | 2017-2018 |
| 17 | Summer | 2018 |
| 18 | Winter | 2018-2019 |
| 19 | Summer | 2019 |
| 20 | Winter | 2019-2020 |
| 21 | Summer | 2020 |
| 22 | Winter | 2020-2021 |

## Summary of Effort for all Periods

These effort summaries show the total number of transects and total number of meters walked per locality, strata, locality per period, and strata per period. **These tables contain all data collected on the transects.**

Effort by Locality

| Locality | Number of Transects | Total Length (m) |
|---|---|---|
| BT | 12 | 438 |
| CK | 26 | 712 |
| CR | 46 | 1330 |
| HB | 45 | 1129 |
| LC | 188 | 9721 |
| LT | 15 | 406 |
| NN | 10 | 255 |

Effort by Strata

| Strata | Number of Transects | Total Length (m) |
|---|---|---|
| N_N | 109 | 3608 |
| N_PILOT | 13 | 799 |
| N_Y | 25 | 2699 |
| Y_N | 180 | 5163 |
| Y_Y | 15 | 1721 |

Effort by Period

| Period | Number of Transects | Total Length (m) |
|---|---|---|
| 1 | 42 | 1086 |
| 2 | 30 | 753 |
| 3 | 25 | 619 |
| 6 | 33 | 874 |
| 7 | 8 | 528 |
| 10 | 8 | 512 |
| 11 | 8 | 511 |
| 16 | 8 | 528 |
| 18 | 61 | 2632 |
| 19 | 35 | 921 |
| 20 | 47 | 2556 |
| 22 | 37 | 2469 |

Effort by Locality and Period

| Period | Locality | Number of Transects | Total Length (m) |
|---|---|---|---|
| 1 | CK | 9 | 242 |
| 1 | CR | 10 | 300 |
| 1 | HB | 12 | 293 |
| 1 | LC | 11 | 250 |
| 10 | LC | 8 | 512 |
| 11 | LC | 8 | 511 |
| 16 | LC | 8 | 528 |
| 18 | BT | 6 | 238 |
| 18 | LC | 45 | 2128 |
| 18 | LT | 6 | 182 |
| 18 | NN | 4 | 84 |
| 19 | CK | 9 | 221 |
| 19 | CR | 9 | 227 |

| | | | |
|---|---|---|---|
| 19 | HB | 9 | 247 |
| 19 | LC | 8 | 226 |
| 2 | CR | 9 | 283 |
| 2 | HB | 11 | 271 |
| 2 | LC | 10 | 199 |
| 20 | BT | 2 | 96 |
| 20 | LC | 34 | 2163 |
| 20 | LT | 7 | 171 |
| 20 | NN | 4 | 126 |
| 22 | BT | 4 | 104 |
| 22 | LC | 29 | 2268 |
| 22 | LT | 2 | 52 |
| 22 | NN | 2 | 46 |
| 3 | CR | 9 | 269 |
| 3 | HB | 7 | 184 |
| 3 | LC | 9 | 167 |
| 6 | CK | 8 | 248 |
| 6 | CR | 9 | 250 |
| 6 | HB | 6 | 134 |
| 6 | LC | 10 | 242 |
| 7 | LC | 8 | 528 |

Effort by Strata and Period

| Period | Strata | Number of Transects | Total Length (m) |
|---|---|---|---|
| 1 | N_N | 8 | 149 |
| 1 | Y_N | 34 | 937 |
| 10 | N_N | 4 | 256 |
| 10 | N_PILOT | 4 | 256 |
| 11 | N_N | 4 | 255 |
| 11 | N_PILOT | 4 | 256 |
| 16 | N_N | 4 | 264 |
| 16 | N_PILOT | 4 | 264 |
| 18 | N_N | 18 | 571 |
| 18 | N_Y | 13 | 962 |
| 18 | Y_N | 26 | 723 |
| 18 | Y_Y | 4 | 376 |
| 19 | N_N | 5 | 80 |
| 19 | Y_N | 30 | 841 |
| 2 | N_N | 8 | 148 |
| 2 | Y_N | 22 | 605 |
| 20 | N_N | 18 | 590 |
| 20 | N_PILOT | 1 | 23 |
| 20 | N_Y | 6 | 888 |
| 20 | Y_N | 17 | 602 |
| 20 | Y_Y | 5 | 454 |
| 22 | N_N | 16 | 442 |
| 22 | N_Y | 6 | 850 |
| 22 | Y_N | 9 | 287 |
| 22 | Y_Y | 6 | 891 |
| 3 | N_N | 8 | 147 |
| 3 | Y_N | 17 | 472 |
| 6 | N_N | 8 | 178 |
| 6 | Y_N | 25 | 695 |
| 7 | N_N | 8 | 528 |

### Effort Plot Summaries for all Periods

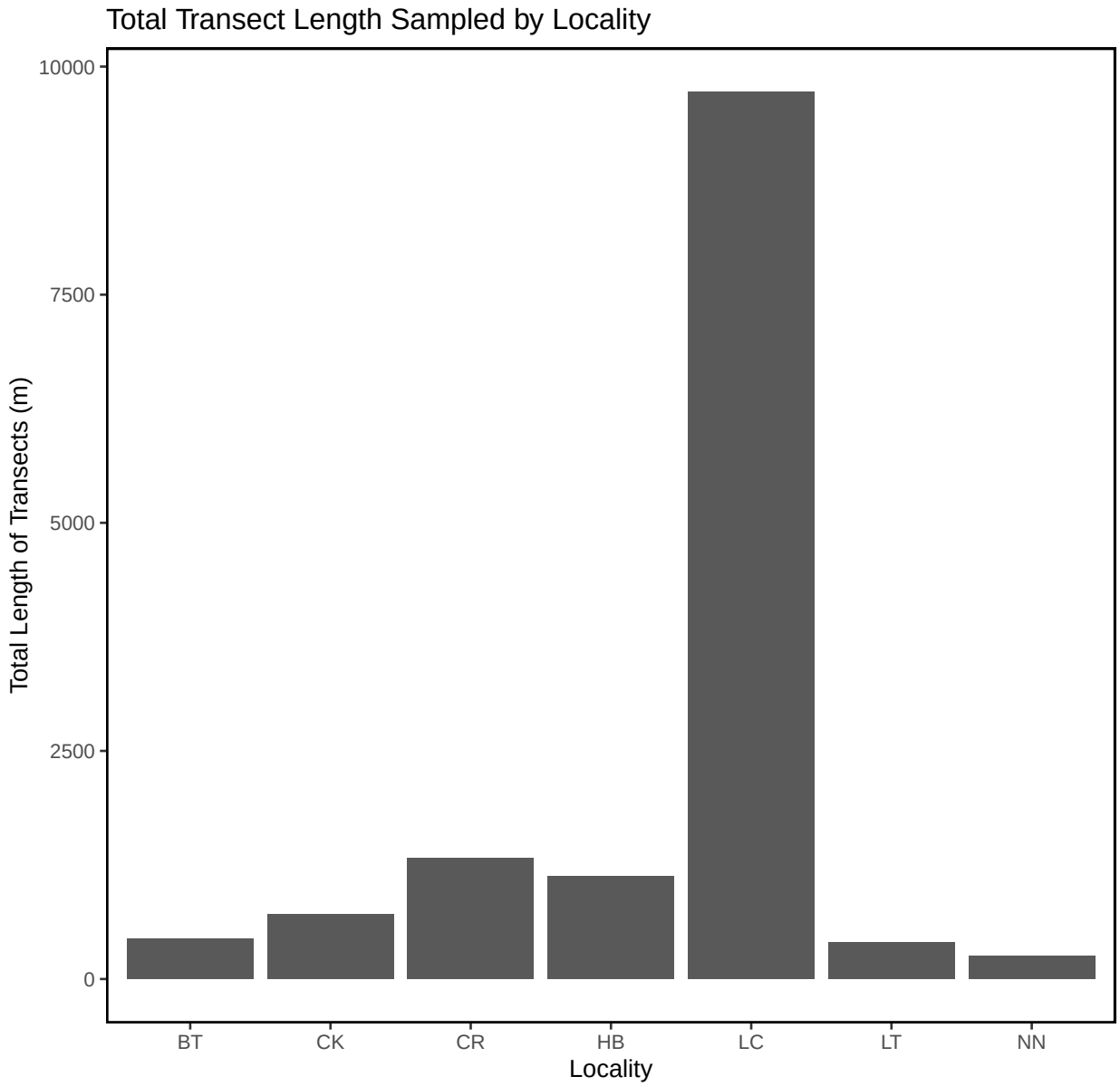



Figure − Bar plot of total transect length in meters sampled by locality for all periods.

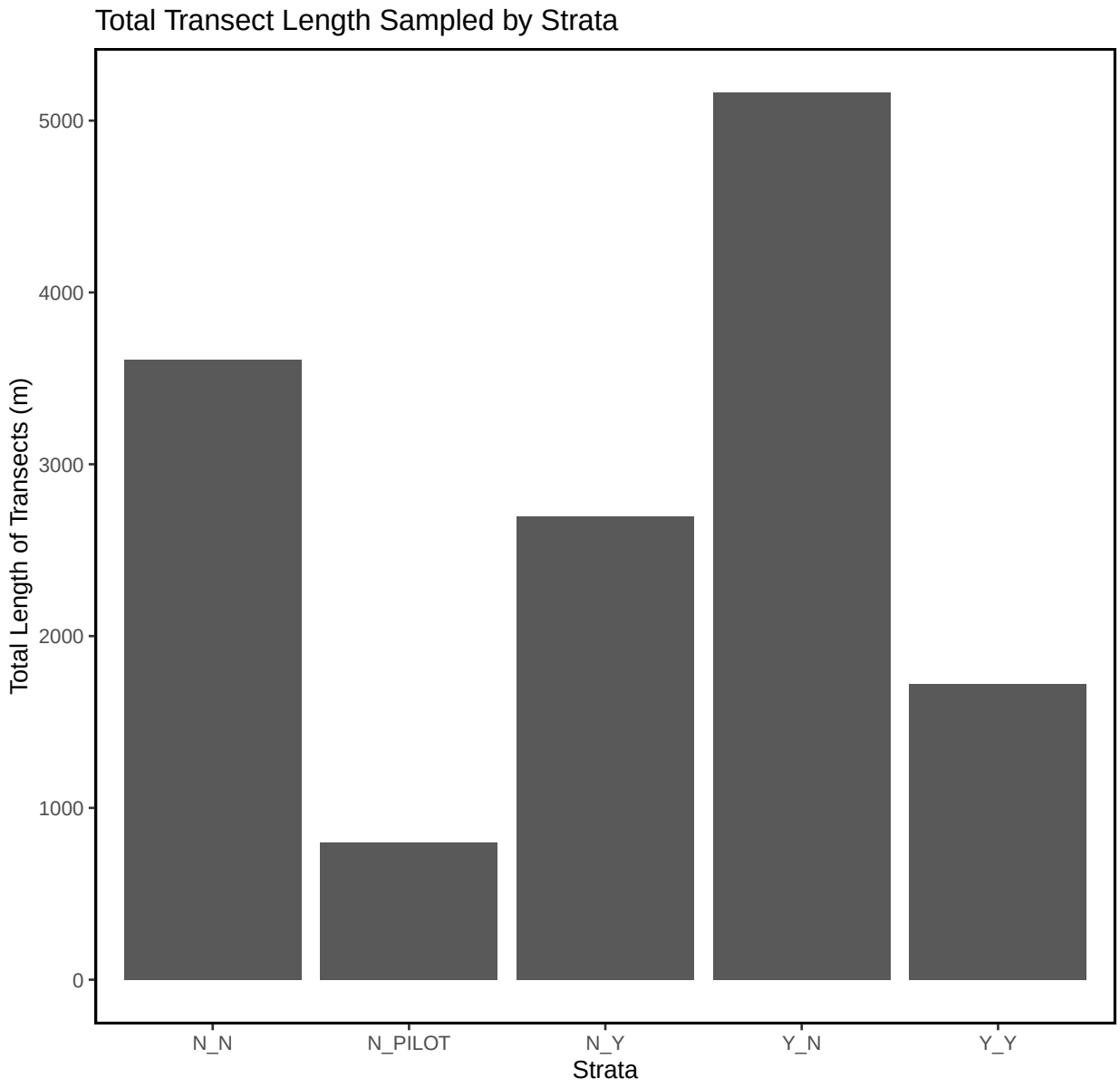
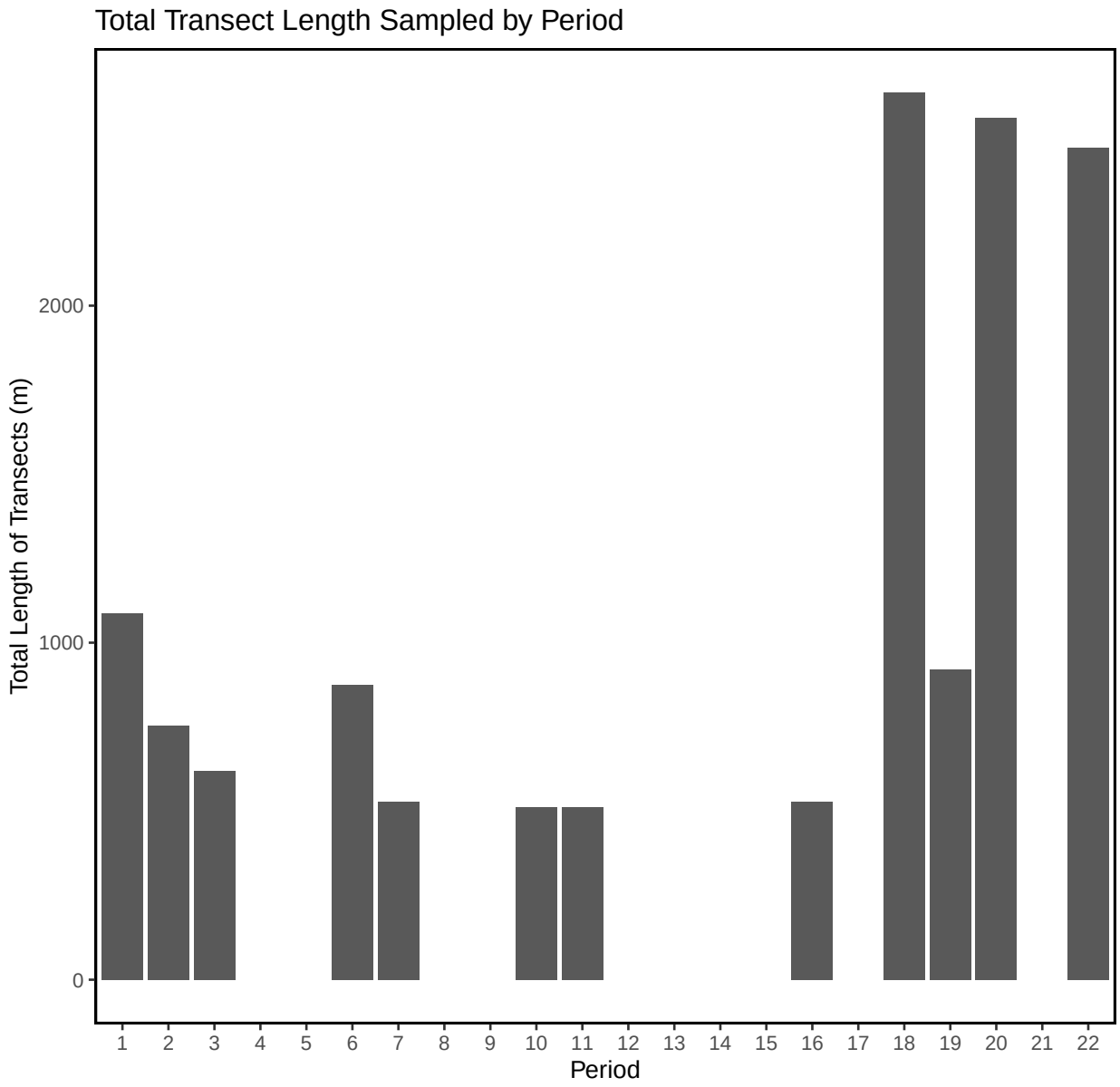



Figure − Bar plot of total transect length in meters sampled by strata for all periods.




Figure− Bar plot of total transect length in meters sampled by period for all periods.

# Summary Tables for all Periods

These summaries display summary statistics of live oysters by locality, strata, and period. These contain all data collected on the oyster transects.

The summary statistics include:
- Locality or Strata or Period - Mean
- Median
- Standard Deviation (SD)
- Variance (Var)
- Coefficient of variation (CV)
- Standard Error (SE)
- Lower 95% Confidence Interval assuming normal distribution (L95)
- Upper 95% Confidence Interval assuming normal distribution (U95)
- Bootstrap Mean (Bstrap Mean)
- Lower 95% Confidence Interval from Bootstrap Values (L95 Bstrap)
- Upper 95% Confidence Interval from Bootstrap Values (U95 Bstrap)

## Live Count Statistics for all Periods

Live Oyster Counts by Locality

| Locality | Mean | Median | SD | Var | CV | SE | L95 | U95 | Bstrap_Mean | L95_Bstrap | U95_Bstrap |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BT | 1691 | 856 | 2355 | 5547854 | 1.39 | 680 | 359 | 3024 | 1680 | 715 | 2991 |
| CK | 857 | 444 | 1091 | 1190933 | 1.27 | 214 | 438 | 1277 | 855 | 473 | 1290 |
| CR | 1026 | 716 | 1035 | 1072162 | 1.01 | 153 | 727 | 1325 | 1028 | 746 | 1340 |
| HB | 902 | 364 | 1047 | 1095622 | 1.16 | 158 | 592 | 1211 | 905 | 590 | 1227 |
| LC | 1082 | 693 | 1373 | 1886301 | 1.27 | 101 | 884 | 1280 | 1081 | 901 | 1283 |
| LT | 1054 | 877 | 645 | 416505 | 0.61 | 167 | 728 | 1381 | 1049 | 772 | 1384 |
| NN | 720 | 649 | 644 | 414522 | 0.89 | 204 | 321 | 1119 | 715 | 414 | 1105 |

Live Oyster Counts by Strata

| Strata | Mean | Median | SD | Var | CV | SE | L95 | U95 | Bstrap_Mean | L95_Bstrap | U95_Bstrap |
|---|---|---|---|---|---|---|---|---|---|---|---|
| N_N | 985 | 749 | 1073 | 1150831 | 1.09 | 103 | 783 | 1188 | 984 | 807 | 1188 |
| N_PILOT | 1046 | 1109 | 627 | 392853 | 0.60 | 174 | 705 | 1386 | 1046 | 742 | 1398 |
| N_Y | 2364 | 1619 | 2201 | 4846019 | 0.93 | 440 | 1501 | 3227 | 2381 | 1602 | 3268 |
| Y_N | 791 | 436 | 926 | 857695 | 1.17 | 70 | 654 | 927 | 793 | 659 | 941 |
| Y_Y | 2242 | 2039 | 2376 | 5645351 | 1.06 | 613 | 1039 | 3444 | 2237 | 1232 | 3516 |

Live Oyster Counts by Period

| Period | Mean | Median | SD | Var | CV | SE | L95 | U95 | Bstrap_Mean | L95_Bstrap | U95_Bstrap |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1404 | 1018 | 1288 | 1657932 | 0.92 | 199 | 1014 | 1793 | 1409 | 1016 | 1823 |
| 2 | 890 | 476 | 945 | 893727 | 1.06 | 176 | 546 | 1234 | 893 | 571 | 1217 |
| 3 | 738 | 296 | 817 | 668064 | 1.11 | 167 | 411 | 1065 | 742 | 443 | 1107 |
| 6 | 433 | 176 | 534 | 284791 | 1.23 | 96 | 245 | 621 | 430 | 260 | 617 |
| 7 | 50 | 29 | 56 | 3186 | 1.12 | 20 | 11 | 90 | 50 | 17 | 92 |
| 10 | 1207 | 1074 | 671 | 449607 | 0.56 | 237 | 743 | 1672 | 1202 | 813 | 1643 |
| 11 | 886 | 776 | 678 | 459708 | 0.77 | 240 | 416 | 1356 | 875 | 473 | 1339 |
| 16 | 494 | 366 | 467 | 217855 | 0.95 | 165 | 170 | 817 | 498 | 222 | 841 |
| 18 | 982 | 695 | 935 | 874733 | 0.95 | 120 | 748 | 1217 | 981 | 757 | 1242 |
| 19 | 555 | 329 | 573 | 328431 | 1.03 | 97 | 365 | 745 | 550 | 384 | 748 |
| 20 | 1844 | 1253 | 2125 | 4517189 | 1.15 | 310 | 1236 | 2451 | 1828 | 1264 | 2478 |
| 22 | 1344 | 700 | 1509 | 2278098 | 1.12 | 248 | 857 | 1830 | 1345 | 910 | 1836 |

## Live Density Statistics for all Periods

Live Density by Locality

| Locality | Mean | Median | SD | Var | CV | SE | L95 | U95 | Bstrap_Mean | L95_Bstrap | U95_Bstrap |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BT | 257 | 212 | 198 | 39335 | 0.77 | 57 | 145 | 370 | 256 | 165 | 380 |
| CK | 241 | 112 | 321 | 102795 | 1.33 | 63 | 118 | 365 | 243 | 127 | 382 |
| CR | 288 | 181 | 294 | 86231 | 1.02 | 43 | 203 | 373 | 286 | 207 | 377 |
| HB | 257 | 101 | 303 | 92052 | 1.18 | 46 | 168 | 347 | 258 | 174 | 348 |
| LC | 155 | 122 | 150 | 22514 | 0.97 | 11 | 133 | 177 | 155 | 134 | 177 |
| LT | 274 | 239 | 152 | 23145 | 0.56 | 39 | 197 | 351 | 274 | 209 | 348 |
| NN | 215 | 154 | 234 | 54714 | 1.09 | 74 | 70 | 360 | 214 | 108 | 363 |

Live Density by Strata

| Strata | Mean | Median | SD | Var | CV | SE | L95 | U95 | Bstrap_Mean | L95_Bstrap | U95_Bstrap |
|---|---|---|---|---|---|---|---|---|---|---|---|
| N_N | 261 | 186 | 260 | 67828 | 1.00 | 25 | 212 | 310 | 260 | 216 | 311 |
| N_PILOT | 111 | 111 | 60 | 3604 | 0.54 | 17 | 79 | 144 | 111 | 81 | 143 |
| N_Y | 150 | 138 | 98 | 9545 | 0.65 | 20 | 112 | 189 | 151 | 115 | 186 |
| Y_N | 190 | 117 | 220 | 48473 | 1.16 | 17 | 158 | 223 | 189 | 158 | 223 |
| Y_Y | 122 | 112 | 87 | 7615 | 0.71 | 23 | 78 | 167 | 123 | 83 | 164 |

Live Density by Period

| Period | Mean | Median | SD | Var | CV | SE | L95 | U95 | Bstrap_Mean | L95_Bstrap | U95_Bstrap |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 393 | 300.8 | 362.6 | 131444 | 0.92 | 56 | 283.8 | 503.1 | 393.9 | 285.1 | 503 |
| 2 | 255 | 119.0 | 285.2 | 81348 | 1.12 | 53 | 151.3 | 358.9 | 253.2 | 163.1 | 357 |
| 3 | 234 | 85.3 | 269.3 | 72523 | 1.15 | 55 | 126.1 | 341.6 | 232.6 | 126.9 | 349 |
| 6 | 122 | 72.2 | 150.9 | 22769 | 1.24 | 27 | 68.6 | 174.9 | 123.4 | 74.9 | 178 |
| 7 | 5 | 2.9 | 5.6 | 31 | 1.12 | 2 | 1.1 | 8.9 | 5.1 | 1.8 | 9 |
| 10 | 124 | 113.3 | 67.4 | 4536 | 0.54 | 24 | 76.9 | 170.3 | 124.6 | 85.4 | 172 |
| 11 | 90 | 79.5 | 67.8 | 4596 | 0.75 | 24 | 43.4 | 137.4 | 90.9 | 50.6 | 138 |
| 16 | 49 | 36.3 | 46.4 | 2154 | 0.95 | 16 | 16.9 | 81.2 | 49.4 | 20.6 | 83 |
| 18 | 177 | 154.5 | 130.8 | 17117 | 0.74 | 17 | 144.3 | 210.0 | 177.3 | 145.4 | 209 |
| 19 | 160 | 85.6 | 171.9 | 29552 | 1.08 | 29 | 102.9 | 216.8 | 160.7 | 105.5 | 218 |
| 20 | 258 | 202.8 | 187.6 | 35185 | 0.73 | 27 | 204.4 | 311.7 | 256.9 | 204.1 | 313 |
| 22 | 132 | 126.8 | 68.4 | 4683 | 0.52 | 11 | 110.2 | 154.3 | 131.9 | 111.4 | 154 |

## Dead Count Statistics for all Periods

Dead Oyster Counts by Locality

| Locality | Mean | Median | SD | Var | CV | SE | L95 | U95 | Bstrap_Mean | L95_Bstrap | U95_Bstrap |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BT | 325 | 169 | 328 | 107312 | 1.01 | 94.6 | 139.6 | 510 | 325 | 168 | 507 |
| CK | 78 | 32 | 106 | 11170 | 1.36 | 37.4 | 4.3 | 151 | 79 | 19 | 153 |
| CR | 60 | 47 | 38 | 1444 | 0.63 | 12.7 | 35.2 | 85 | 60 | 39 | 85 |
| HB | 44 | 21 | 45 | 2000 | 1.02 | 14.9 | 14.8 | 73 | 44 | 20 | 72 |
| LC | 106 | 66 | 115 | 13240 | 1.09 | 9.5 | 87.1 | 124 | 106 | 90 | 125 |
| LT | 240 | 210 | 202 | 40850 | 0.84 | 52.2 | 137.2 | 342 | 237 | 150 | 338 |
| NN | 100 | 68 | 100 | 10018 | 1.00 | 31.7 | 38.1 | 162 | 99 | 49 | 158 |

Dead Oyster Counts by Strata

| Strata | Mean | Median | SD | Var | CV | SE | L95 | U95 | Bstrap_Mean | L95_Bstrap | U95_Bstrap |
|---|---|---|---|---|---|---|---|---|---|---|---|
| N_N | 154 | 79 | 194 | 37509 | 1.26 | 22 | 110 | 197 | 153 | 113 | 198 |
| N_PILOT | 82 | 87 | 46 | 2136 | 0.56 | 13 | 57 | 108 | 82 | 60 | 109 |
| N_Y | 79 | 55 | 95 | 9095 | 1.21 | 19 | 41 | 116 | 79 | 46 | 115 |
| Y_N | 104 | 64 | 116 | 13358 | 1.11 | 13 | 79 | 130 | 105 | 82 | 132 |
| Y_Y | 157 | 104 | 168 | 28145 | 1.07 | 43 | 73 | 242 | 159 | 83 | 247 |

Dead Oyster Counts by Period

| Period | Mean | Median | SD | Var | CV | SE | L95 | U95 | Bstrap_Mean | L95_Bstrap | U95_Bstrap |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 29 | 18 | 30 | 898 | 1.03 | 10.6 | 8.2 | 50 | 30 | 11 | 50 |
| 10 | 80 | 88 | 65 | 4245 | 0.82 | 23.0 | 34.5 | 125 | 79 | 36 | 125 |
| 11 | 50 | 40 | 25 | 620 | 0.49 | 8.8 | 33.2 | 68 | 50 | 36 | 66 |
| 16 | 44 | 28 | 41 | 1708 | 0.93 | 14.6 | 15.6 | 73 | 44 | 18 | 71 |
| 18 | 133 | 55 | 192 | 36903 | 1.44 | 24.6 | 85.1 | 182 | 132 | 89 | 182 |
| 19 | 63 | 44 | 67 | 4548 | 1.08 | 11.6 | 40.0 | 85 | 63 | 41 | 87 |
| 20 | 148 | 107 | 140 | 19727 | 0.95 | 20.5 | 107.6 | 188 | 148 | 108 | 189 |
| 22 | 185 | 108 | 162 | 26173 | 0.87 | 26.6 | 133.1 | 237 | 185 | 137 | 239 |

## Dead Density Statistics for all Periods

Dead Oyster Density by Locality

| Locality | Mean | Median | SD | Var | CV | SE | L95 | U95 | Bstrap_Mean | L95_Bstrap | U95_Bstrap |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BT | 54 | 42.3 | 35 | 1250 | 0.66 | 10.2 | 33.6 | 74 | 53 | 35.8 | 73 |
| CK | 21 | 11.3 | 28 | 757 | 1.29 | 9.7 | 2.3 | 40 | 21 | 5.8 | 41 |
| CR | 20 | 13.8 | 15 | 235 | 0.77 | 5.1 | 10.0 | 30 | 20 | 11.2 | 30 |
| HB | 13 | 8.0 | 14 | 201 | 1.12 | 4.7 | 3.4 | 22 | 13 | 4.7 | 22 |
| LC | 17 | 8.6 | 20 | 420 | 1.21 | 1.7 | 13.6 | 20 | 17 | 13.7 | 20 |
| LT | 58 | 47.1 | 40 | 1570 | 0.68 | 10.2 | 38.2 | 78 | 58 | 39.3 | 76 |
| NN | 28 | 16.1 | 26 | 668 | 0.91 | 8.2 | 12.5 | 45 | 29 | 14.8 | 46 |

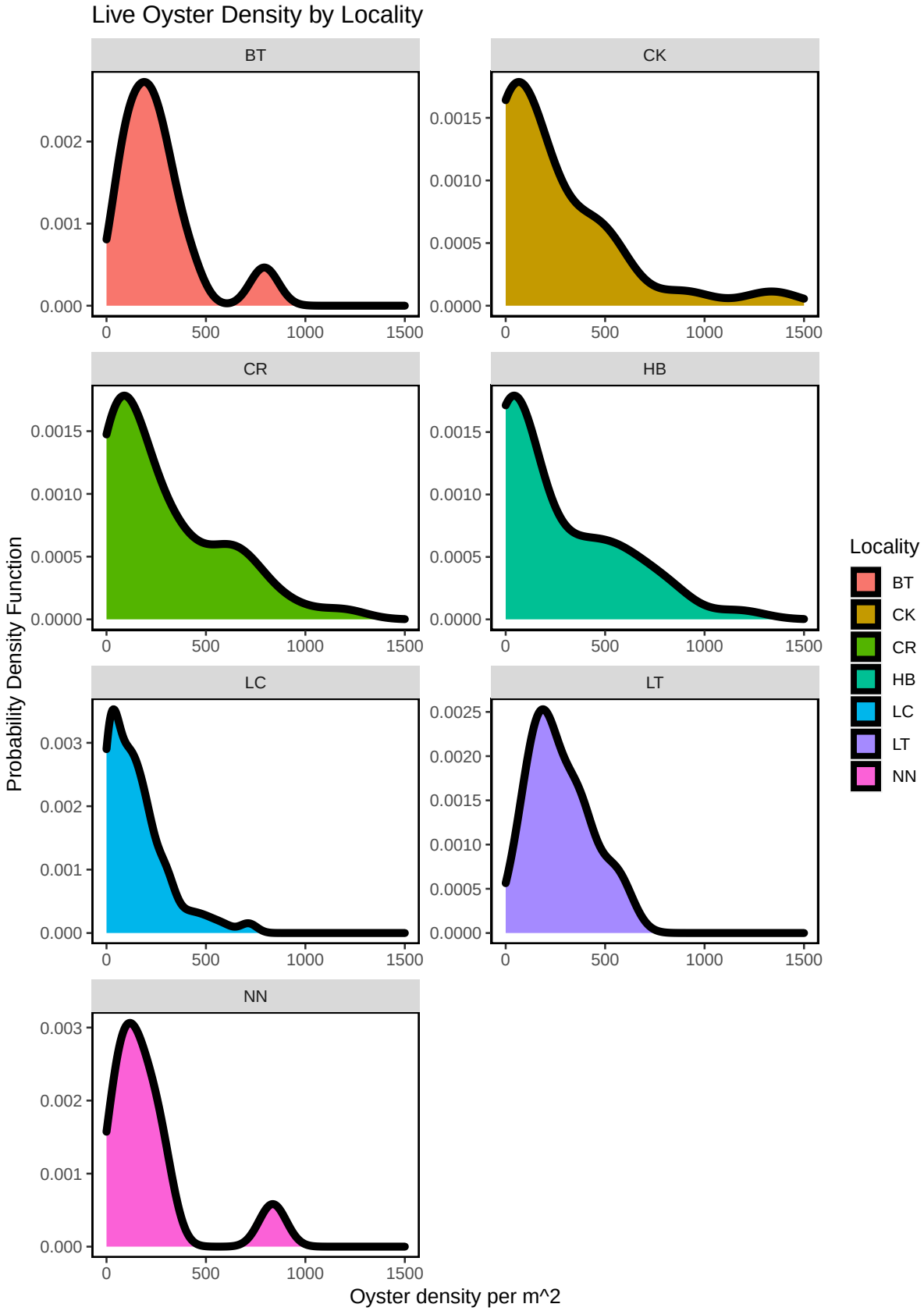
Dead Oyster Density by Strata

| Strata | Mean | Median | SD | Var | CV | SE | L95 | U95 | Bstrap_Mean | L95_Bstrap | U95_Bstrap |
|---|---|---|---|---|---|---|---|---|---|---|---|
| N_N | 32.6 | 24.5 | 32.6 | 1060 | 1.00 | 3.71 | 25.4 | 40 | 32.5 | 25.6 | 40 |
| N_PILOT | 8.5 | 8.7 | 4.5 | 20 | 0.53 | 1.25 | 6.1 | 11 | 8.5 | 6.5 | 11 |
| N_Y | 5.2 | 3.8 | 4.5 | 21 | 0.87 | 0.91 | 3.4 | 7 | 5.2 | 3.5 | 7 |
| Y_N | 23.3 | 15.0 | 24.0 | 578 | 1.03 | 2.67 | 18.0 | 29 | 23.3 | 18.1 | 29 |
| Y_Y | 8.8 | 8.6 | 6.6 | 43 | 0.75 | 1.70 | 5.5 | 12 | 8.8 | 5.6 | 12 |

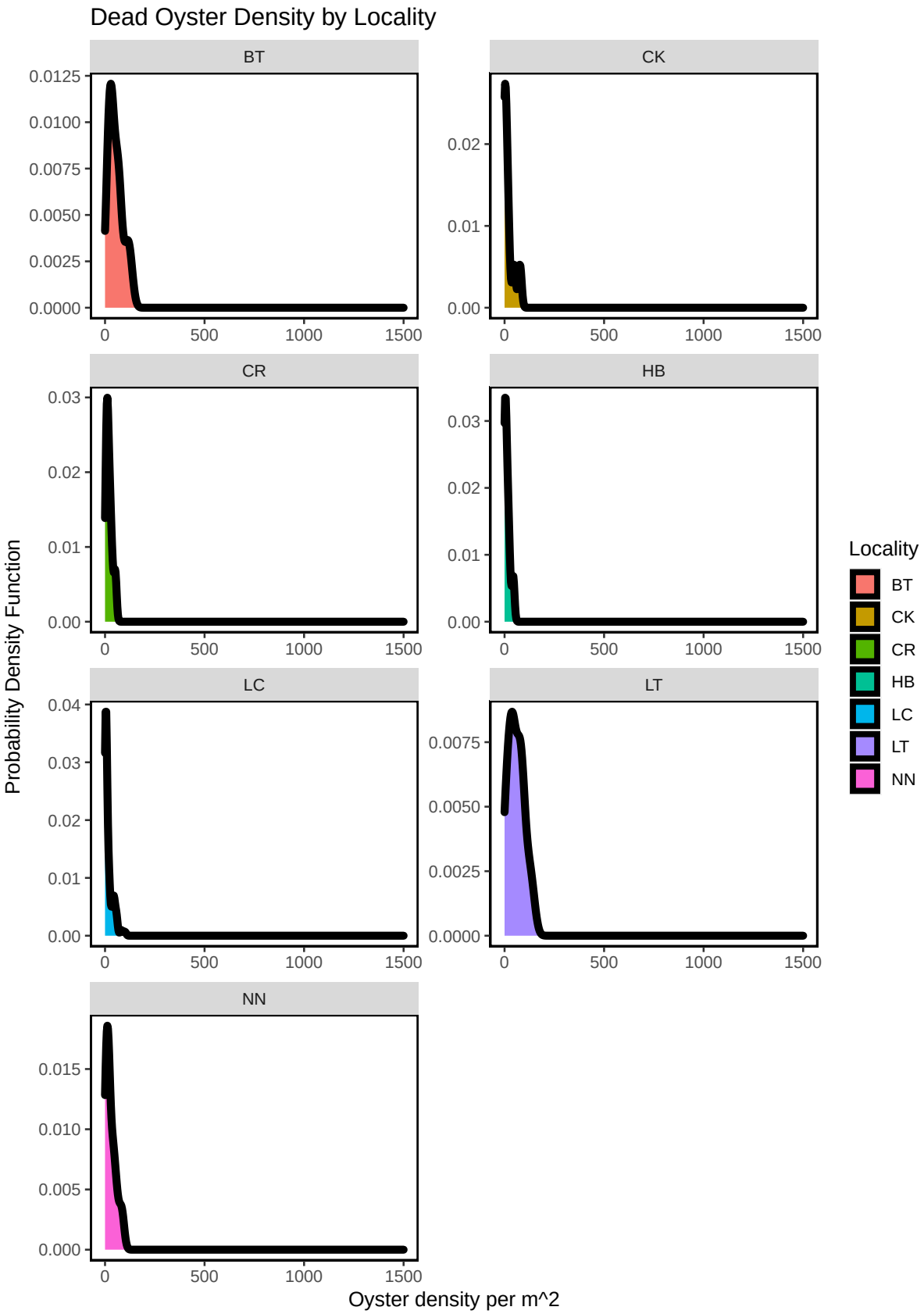
Dead Oyster Density by Period

| Period | Mean | Median | SD | Var | CV | SE | L95 | U95 | Bstrap_Mean | L95_Bstrap | U95_Bstrap |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 2.9 | 1.8 | 3.0 | 8.9 | 1.03 | 1.05 | 0.82 | 4.9 | 2.9 | 1.1 | 4.8 |
| 10 | 8.2 | 8.9 | 6.6 | 44.0 | 0.81 | 2.35 | 3.58 | 12.8 | 8.2 | 4.2 | 12.9 |
| 11 | 5.2 | 4.1 | 2.6 | 6.6 | 0.49 | 0.91 | 3.41 | 7.0 | 5.2 | 3.6 | 6.8 |
| 16 | 4.4 | 2.8 | 4.1 | 16.9 | 0.93 | 1.45 | 1.55 | 7.2 | 4.4 | 2.0 | 7.1 |
| 18 | 26.4 | 15.7 | 31.3 | 980.1 | 1.19 | 4.01 | 18.54 | 34.3 | 26.3 | 18.6 | 35.0 |
| 19 | 18.1 | 13.1 | 19.3 | 370.6 | 1.07 | 3.30 | 11.59 | 24.5 | 17.9 | 12.0 | 24.6 |
| 20 | 27.9 | 18.4 | 26.4 | 697.6 | 0.95 | 3.85 | 20.38 | 35.5 | 28.1 | 20.8 | 35.9 |
| 22 | 28.9 | 15.0 | 29.4 | 862.1 | 1.02 | 4.83 | 19.40 | 38.3 | 28.5 | 20.0 | 38.1 |

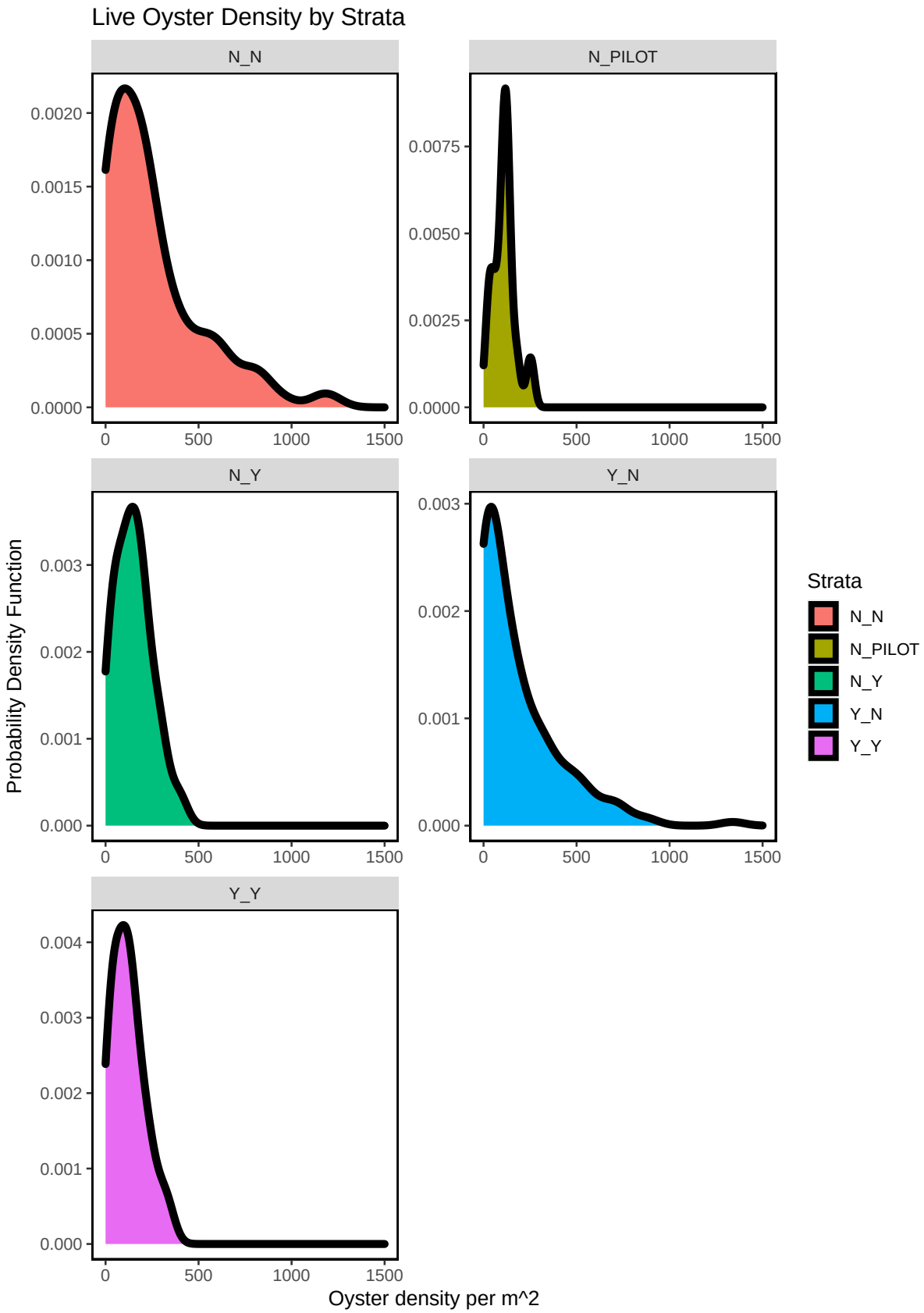
## Summary Density Plots for all Periods



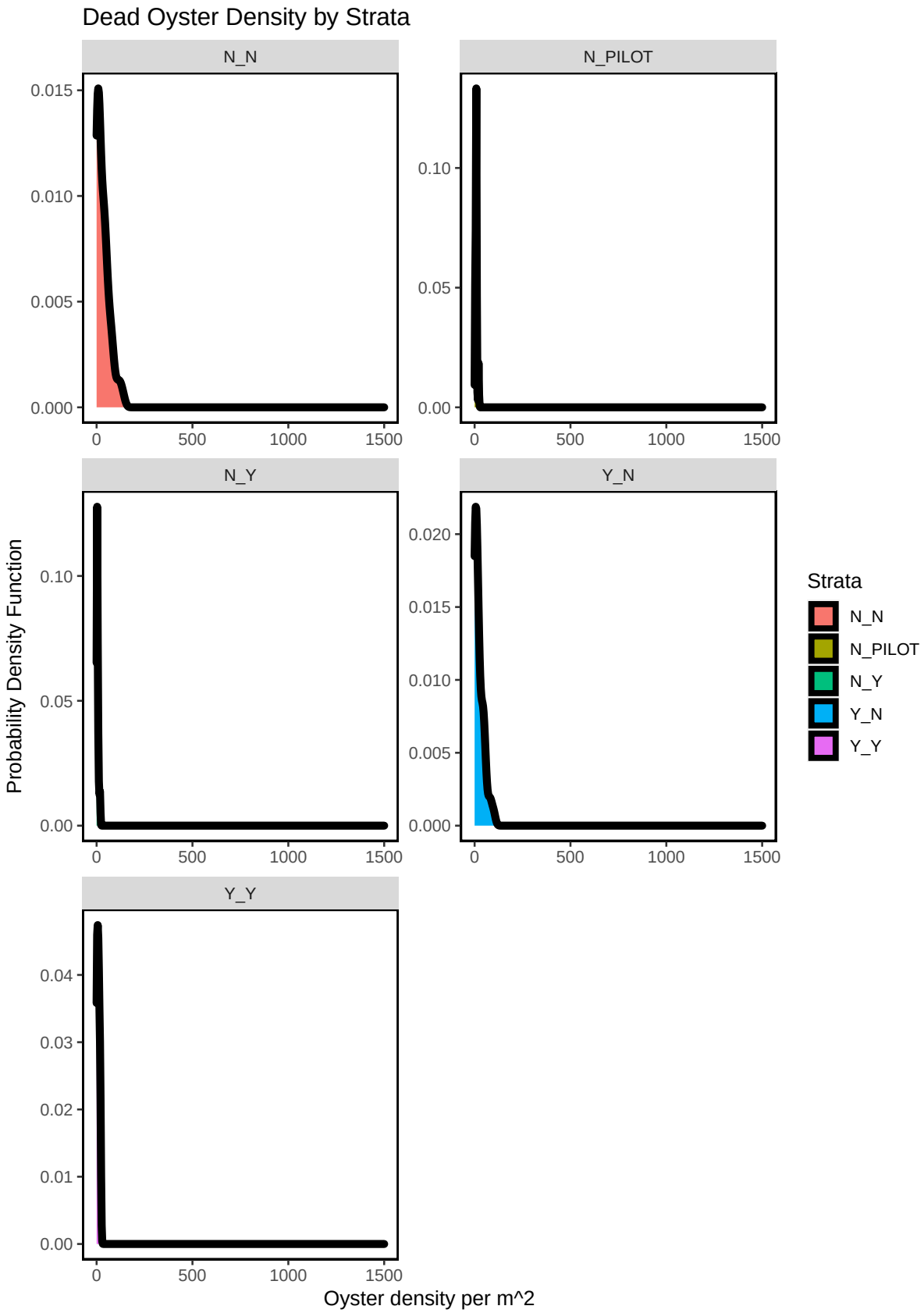

Figure− Calculated live oyster density by locality for all periods including period 22 (current period).



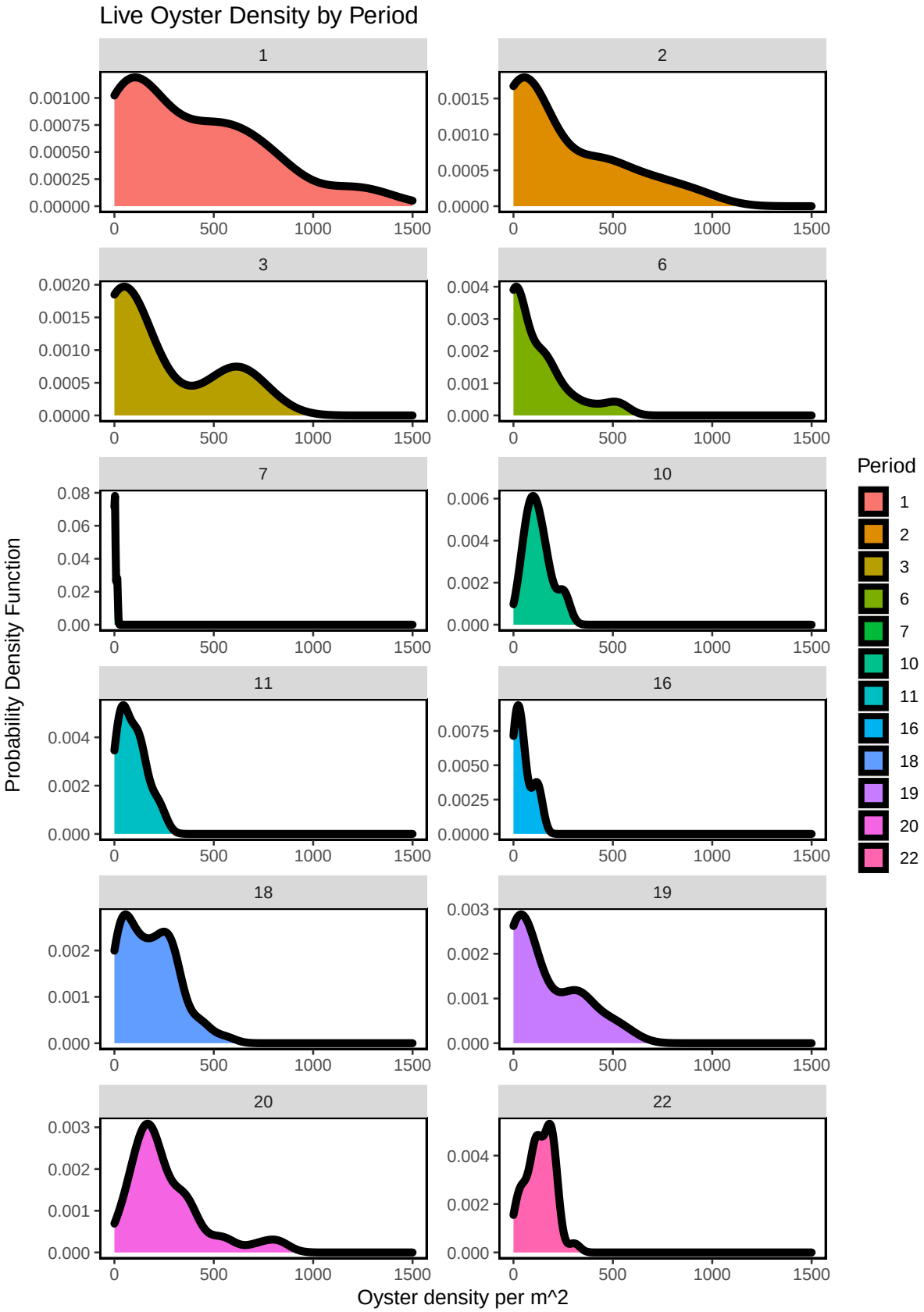

Figure− Calculated dead oyster density by locality for all periods including period 22 (current period).



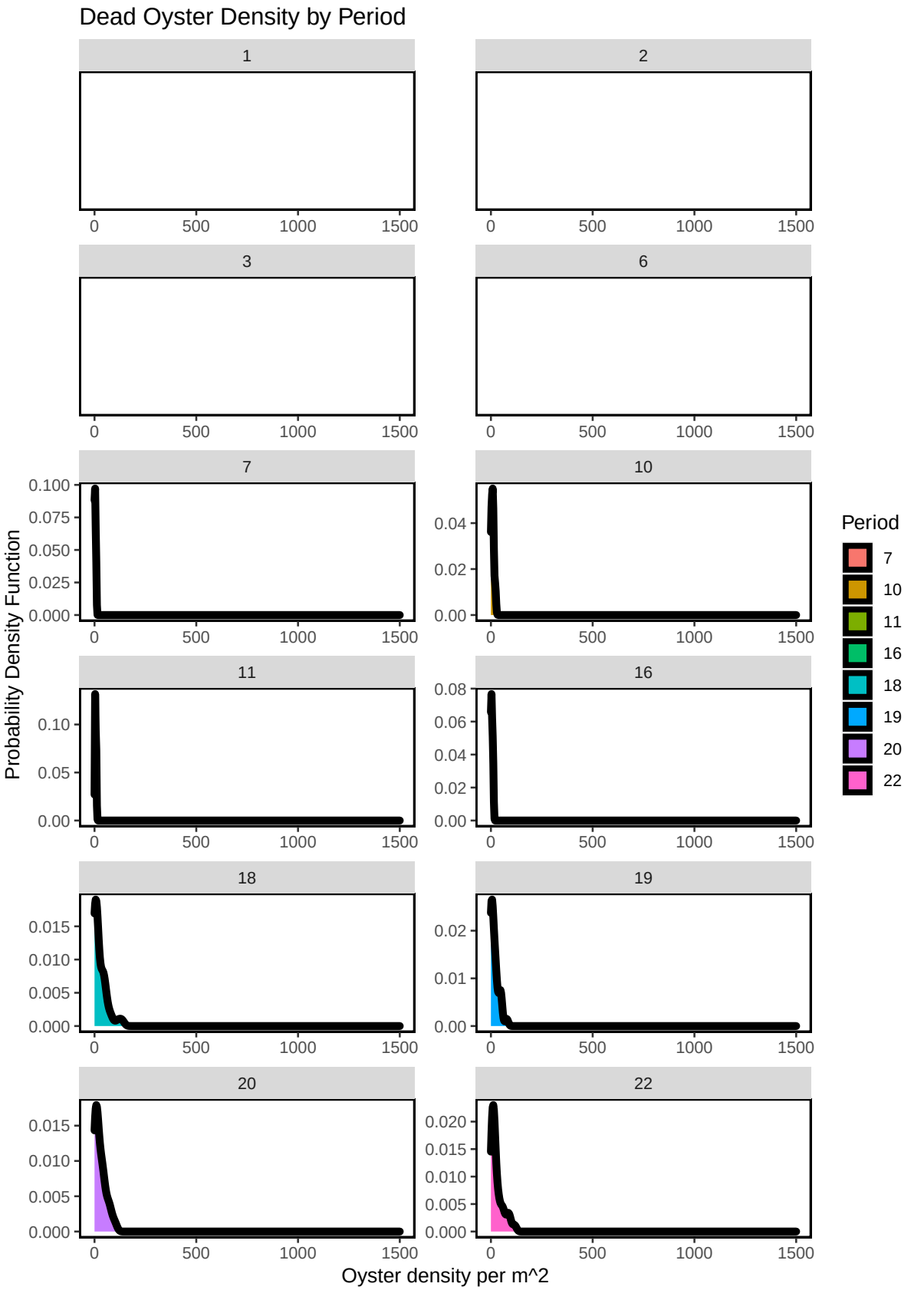

Figure− Calculated live oyster density by strata for all periods including period 22 (current period).



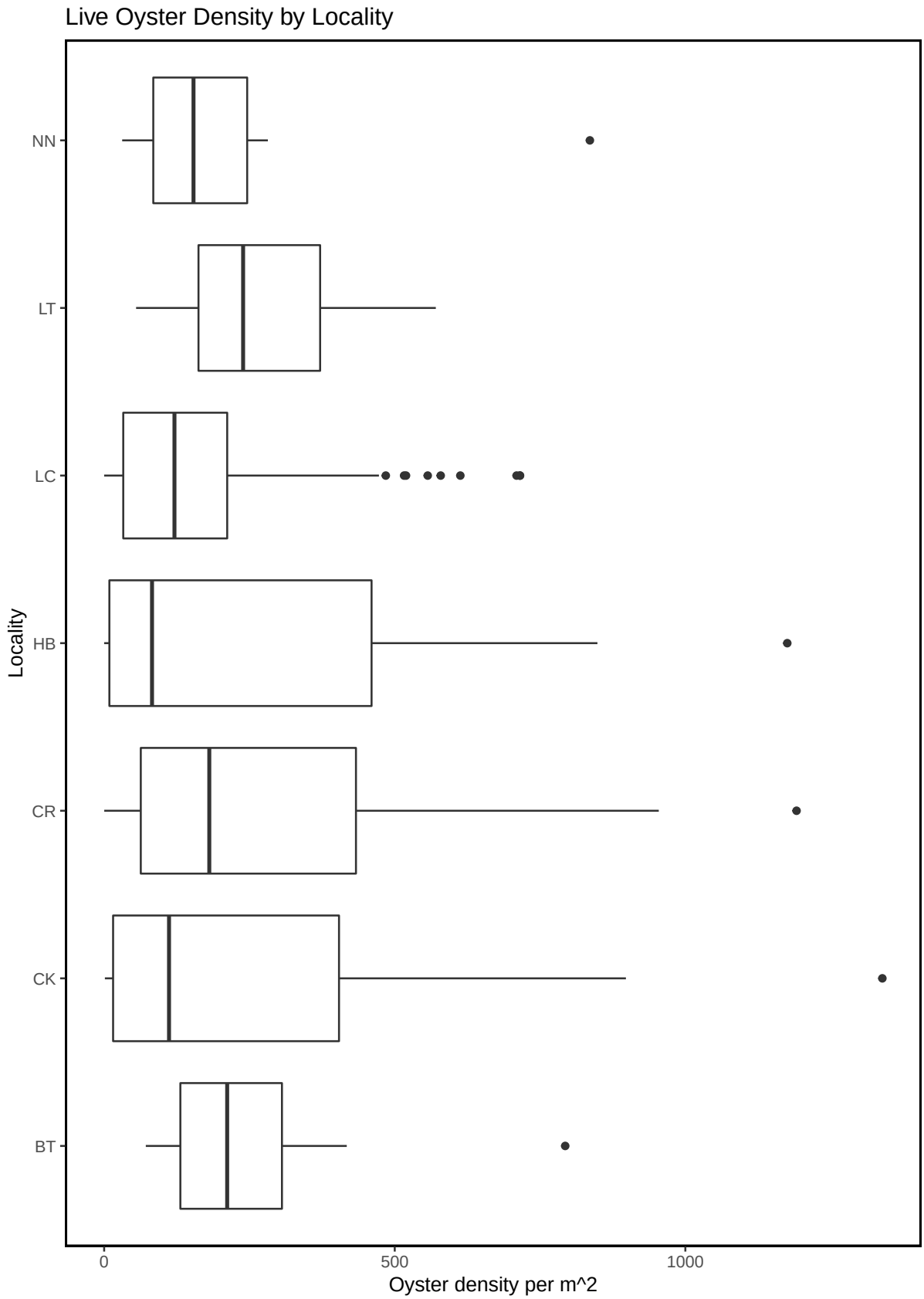

Figure− Calculated dead oyster density by strata for all periods including period 22 (current period).



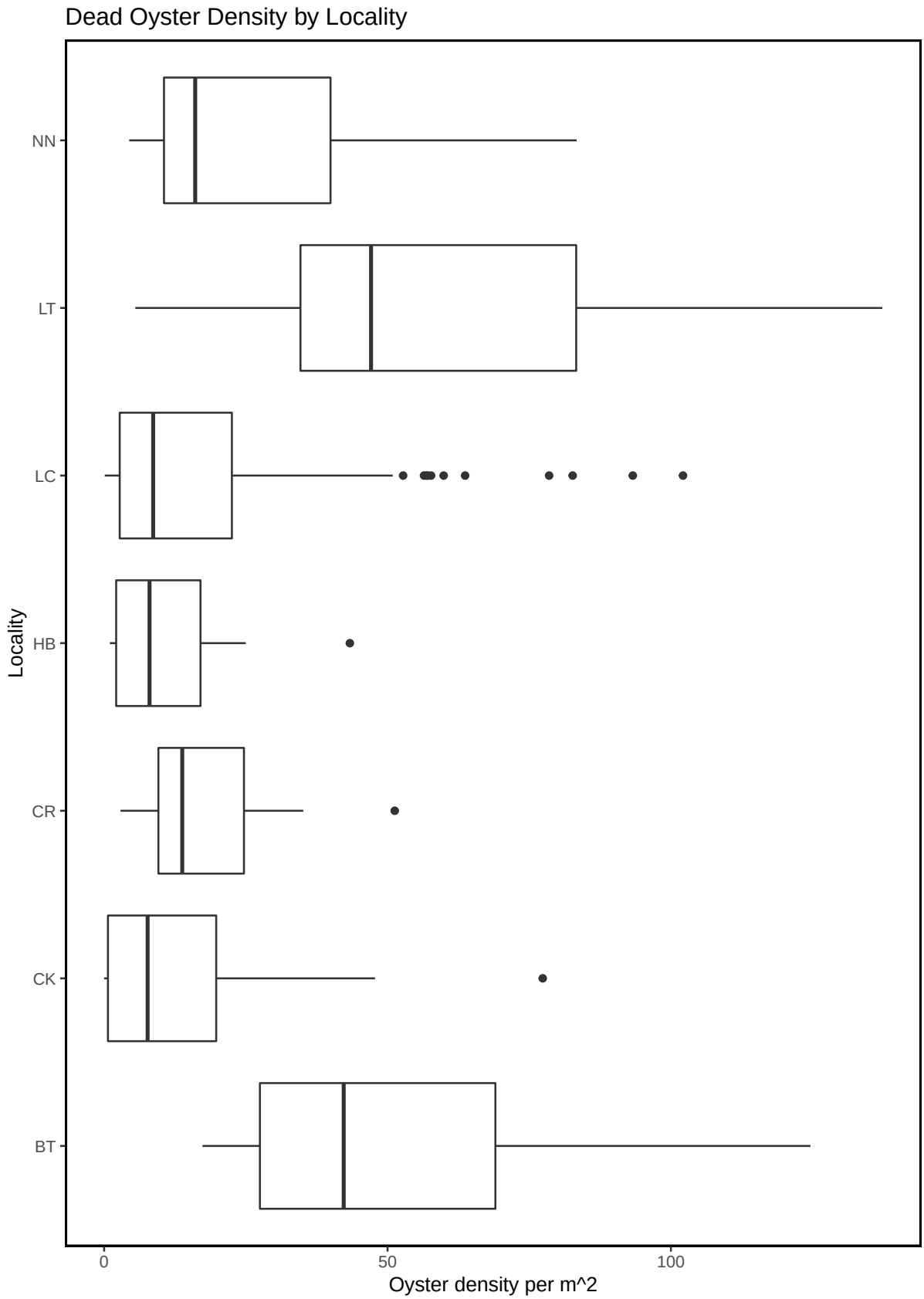

Figure− Calculated live oyster density for all periods including period 22 (current period) using a probability densit



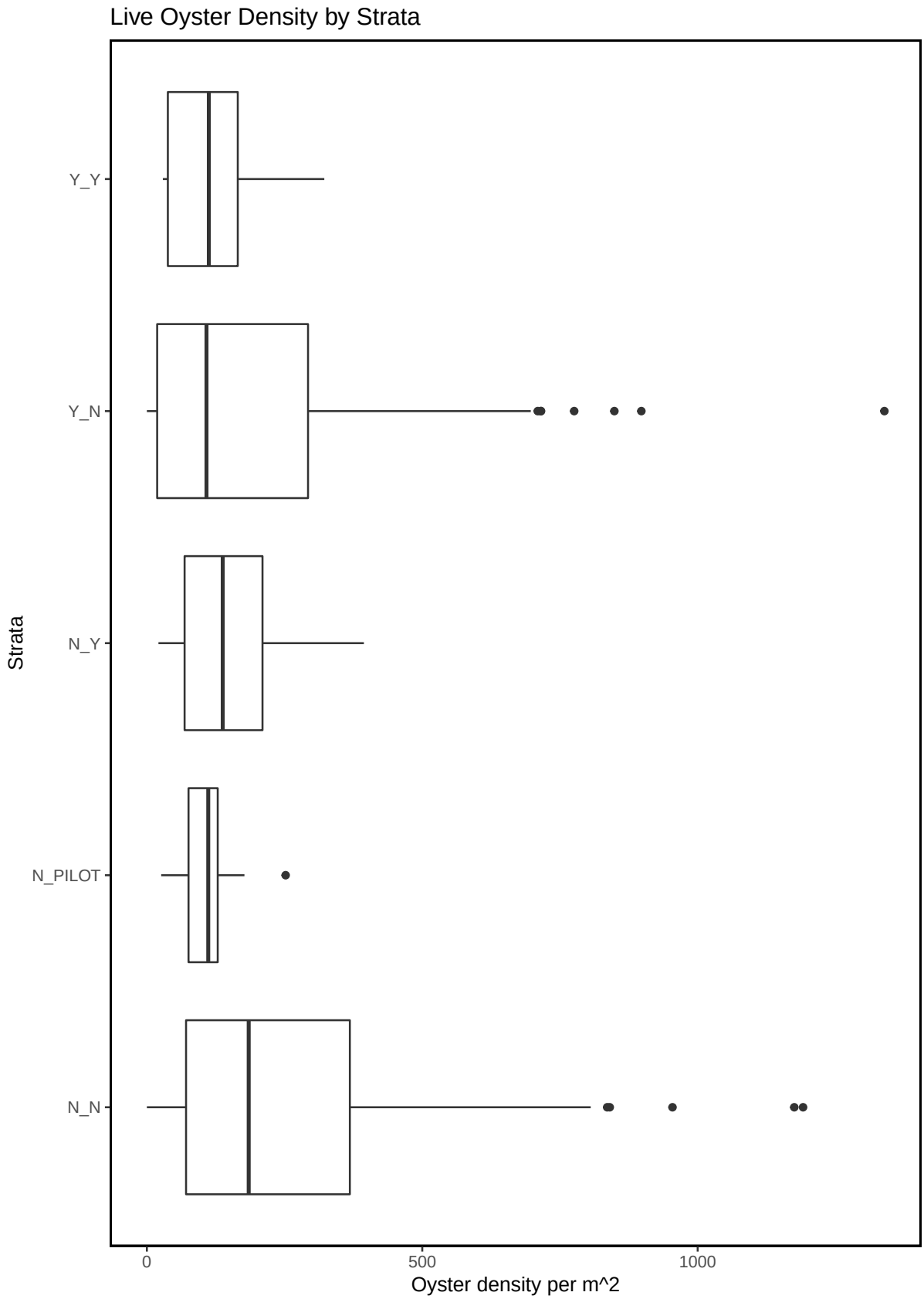

Figure− Calculated Dead oyster density for all periods including period 22 (current period) using a probability densit



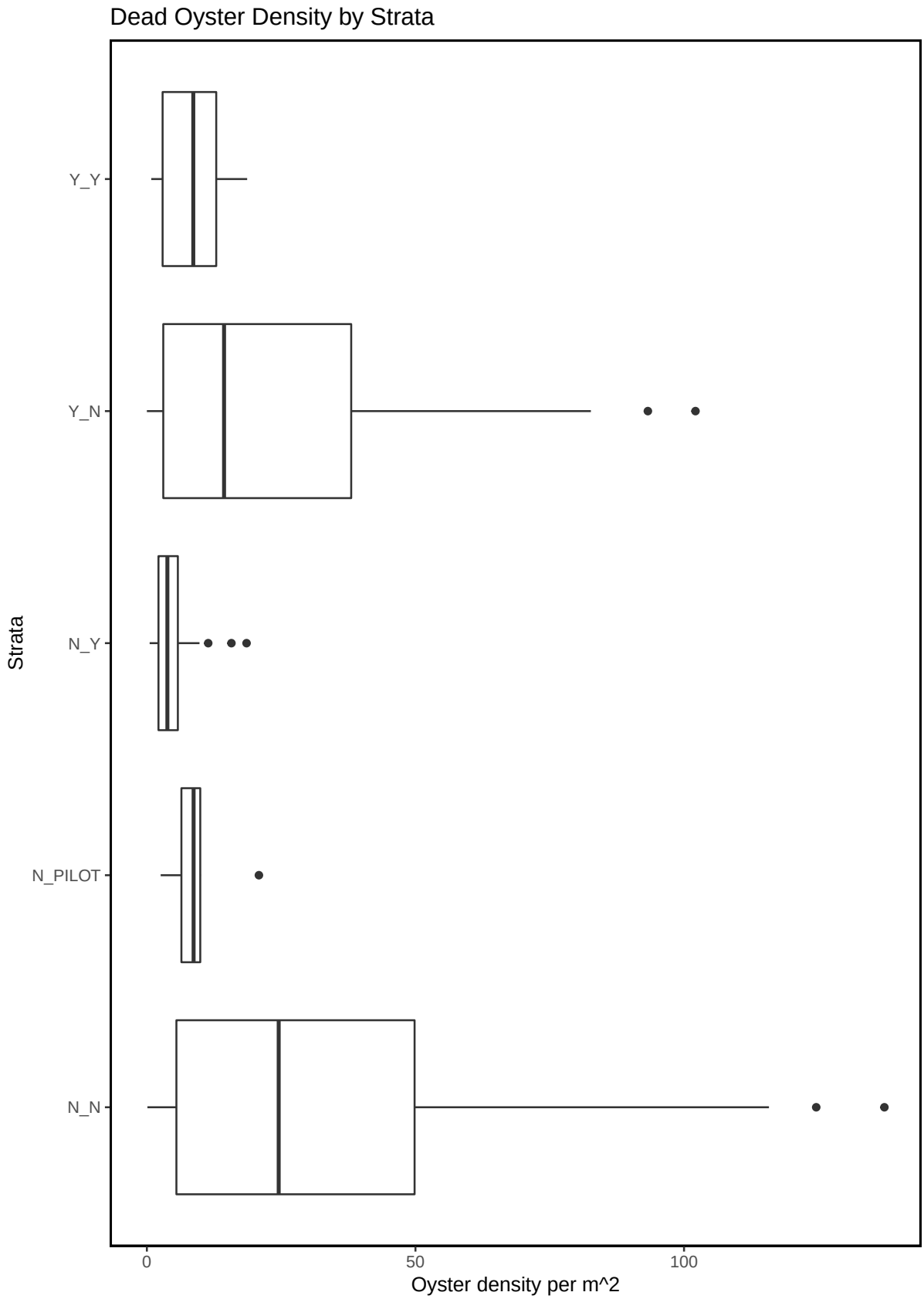

Figure− Box plot depicting live oyster density by locality for all periods including period 22 (current period).



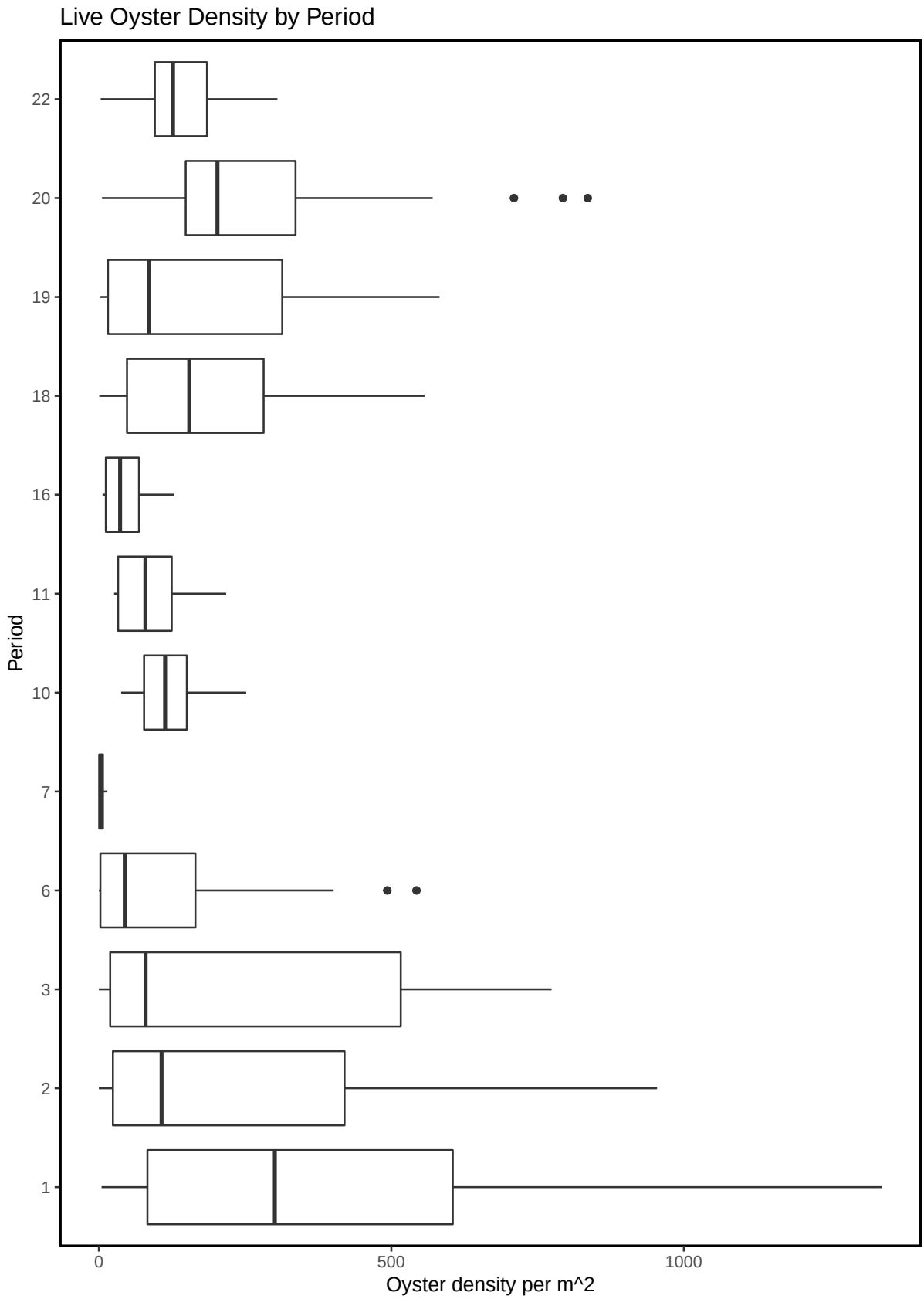

Figure− Box plot depicting dead oyster density by locality for all periods including period 22 (current period).



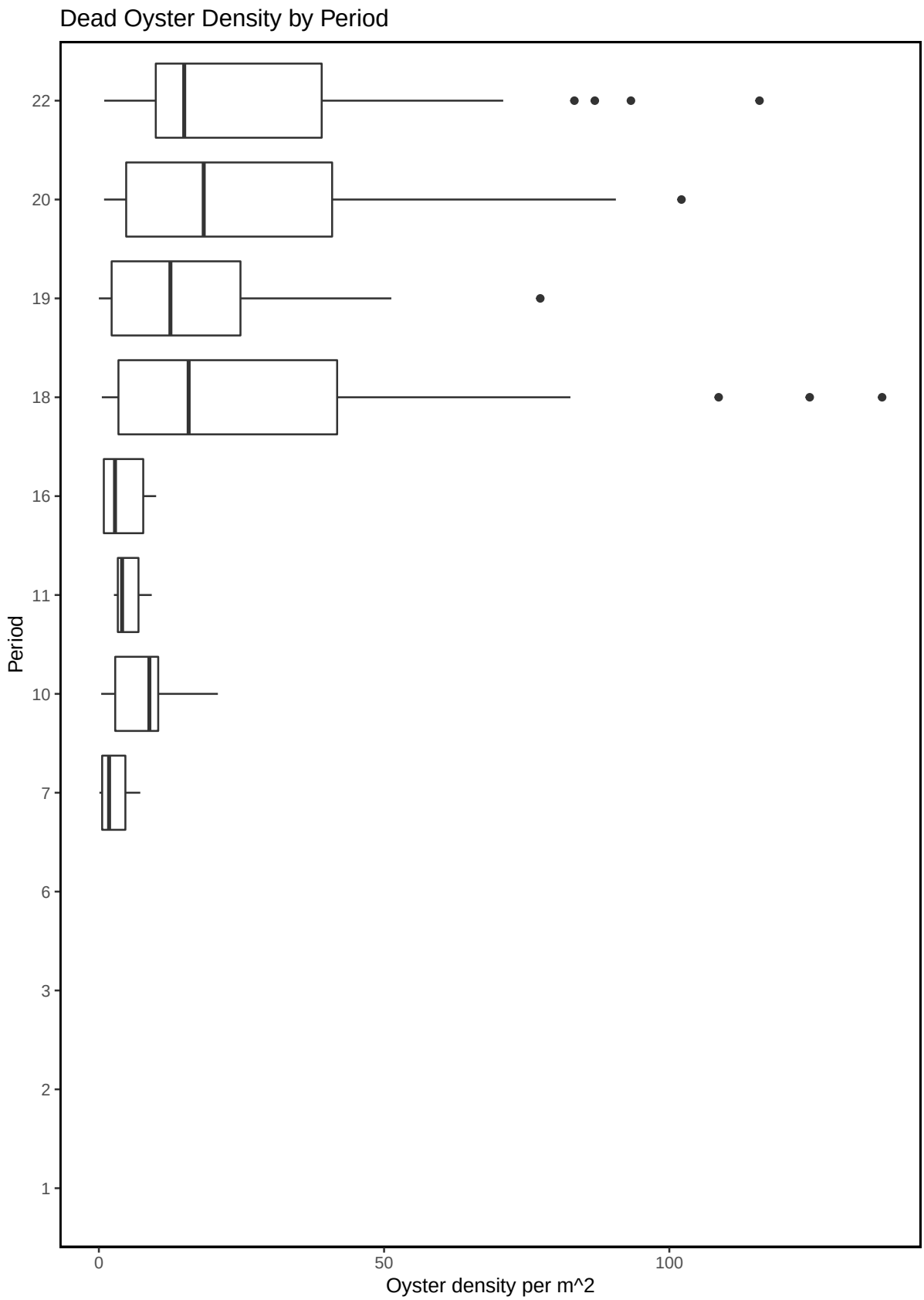

Figure− Box plot depicting live oyster density by strata for all periods including period 22 (current period).




Figure− Box plot depicting dead oyster density by strata for all periods including period 22 (current period).




Figure− Box plot depicting live oyster density by period for all periods including period 22 (current period).




Figure− Box plot depicting dead oyster density by period for all periods including period 22 (current period).

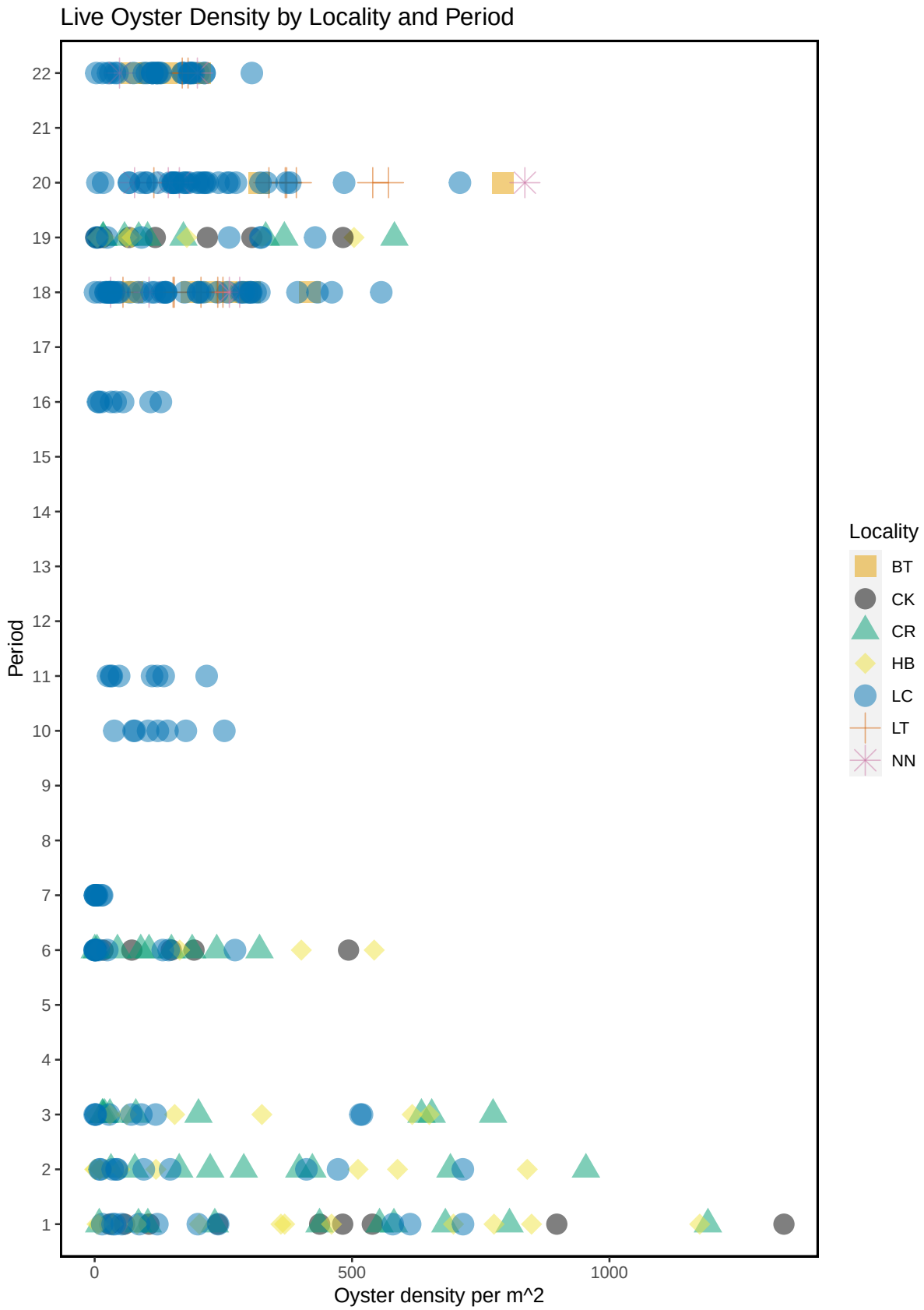



Figure − Live oyster density by locality and period for all periods including period 22 (current period).

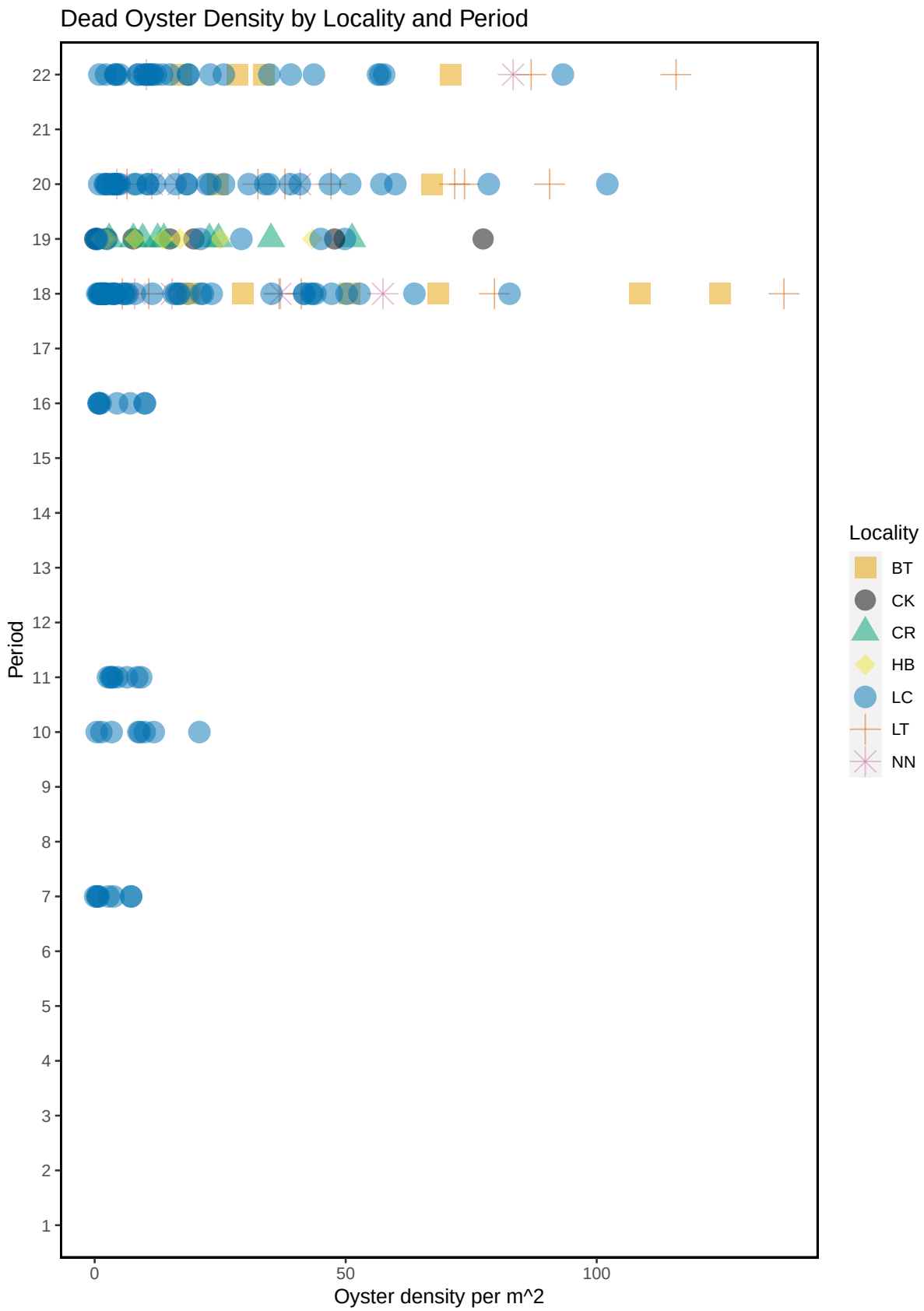



Figure − Dead oyster density by locality and period for all periods including period 22 (current period).

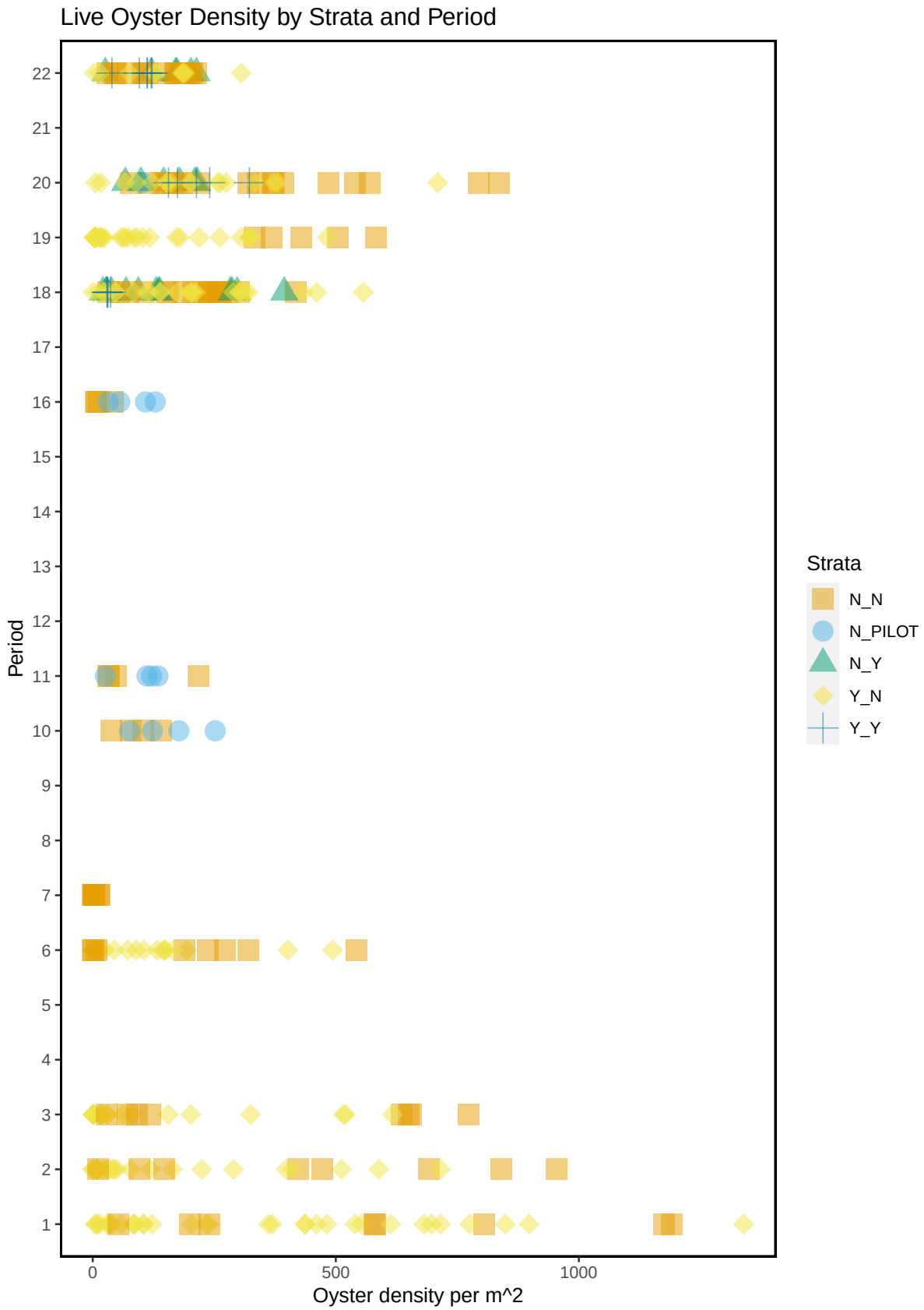



Figure − Live oyster density by strata and period for all periods including period 22 (current period).

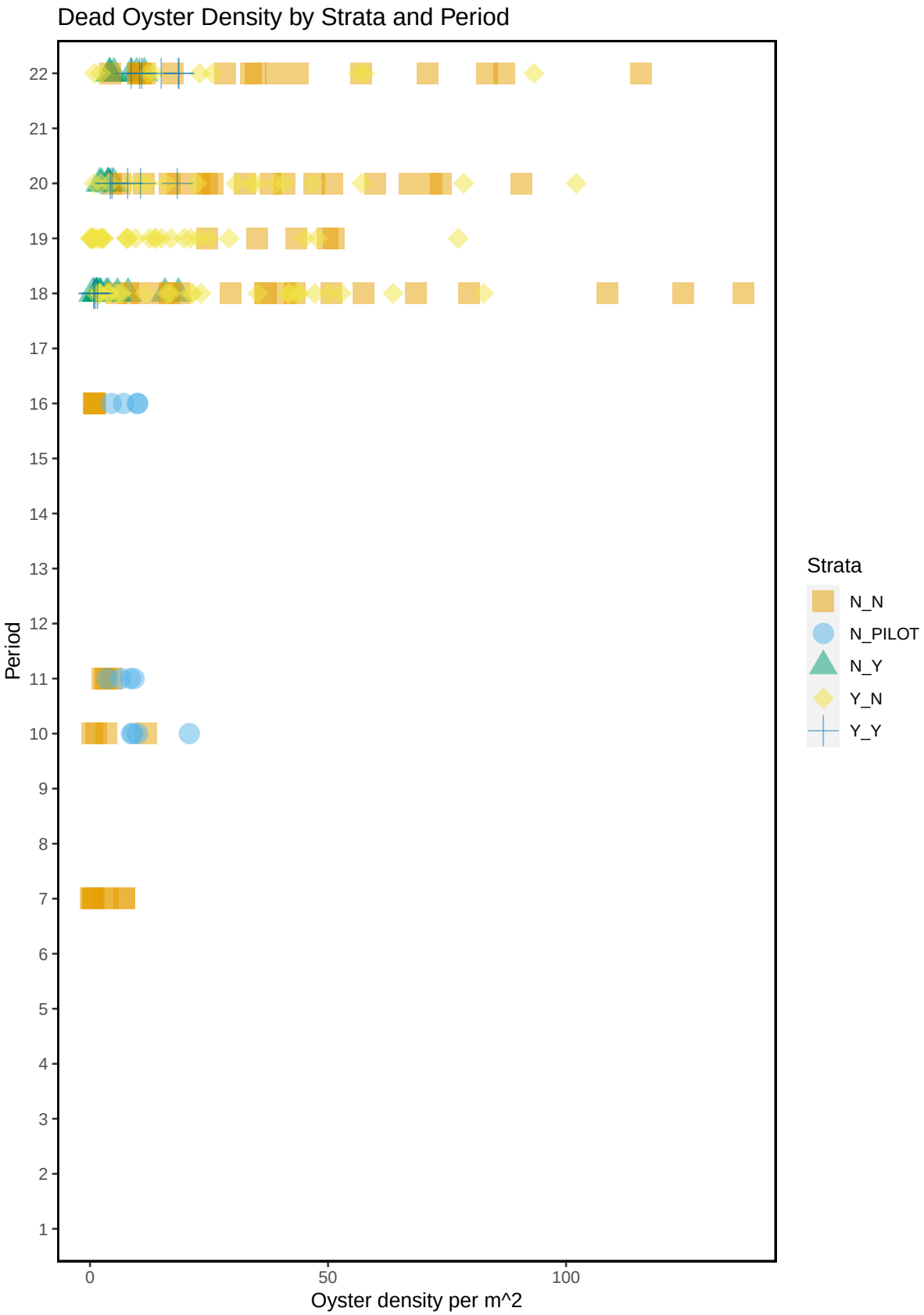



Figure − Dead oyster density by strata and period for all periods including period 22 (current period).

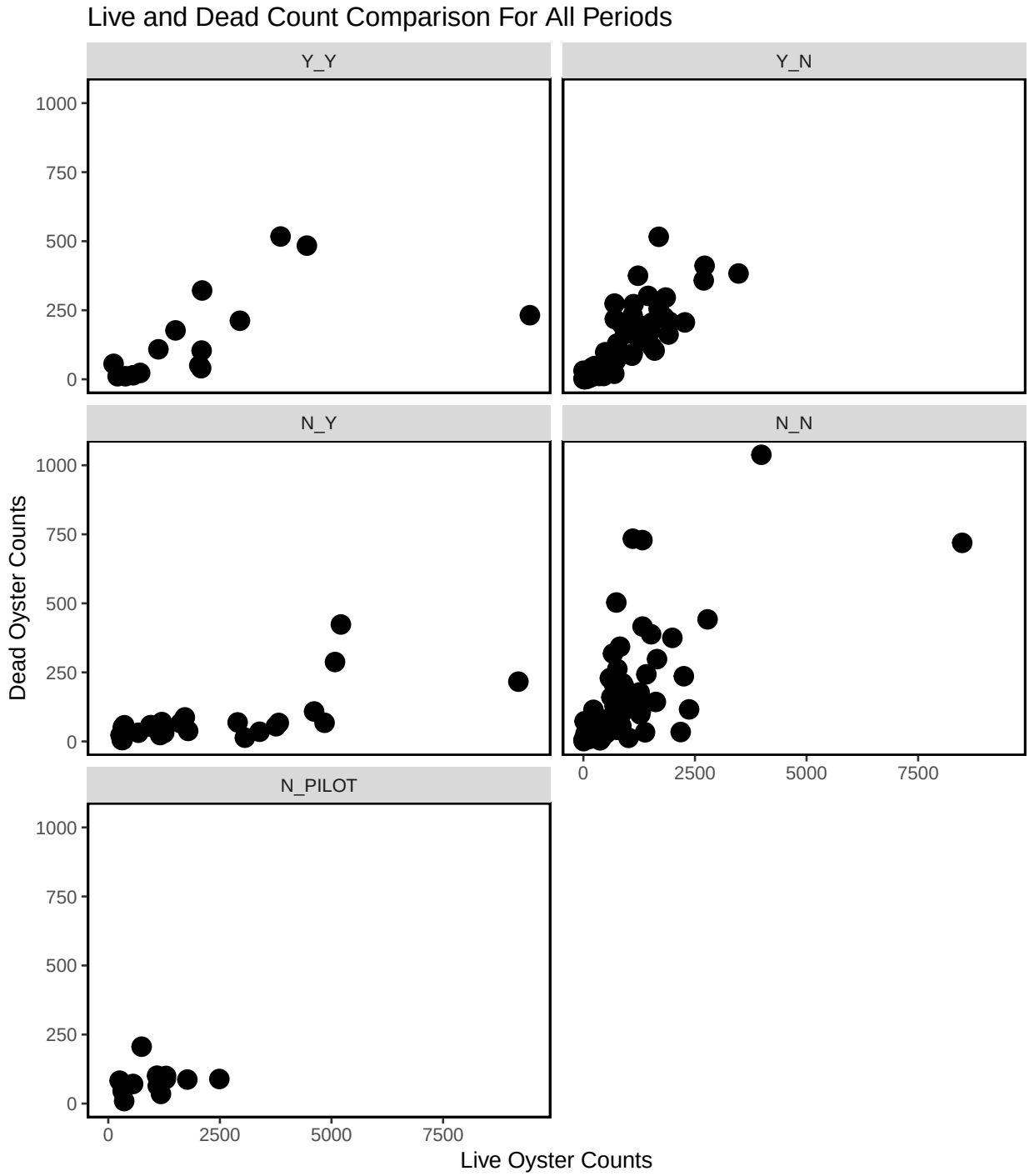



Figure- Live and dead oyster comparison for all periods, last sample date of period 22 is 2021-01-15.

## Summary Plots for Pilot Study Sites

A subset of the oyster transect locations were sampled over time for a pilot study. Here we provide plots of live oyster counts and density for these pilot stations with Lone Cabbage (LCO10B, LCO11A, LCO8B, LCO9A).

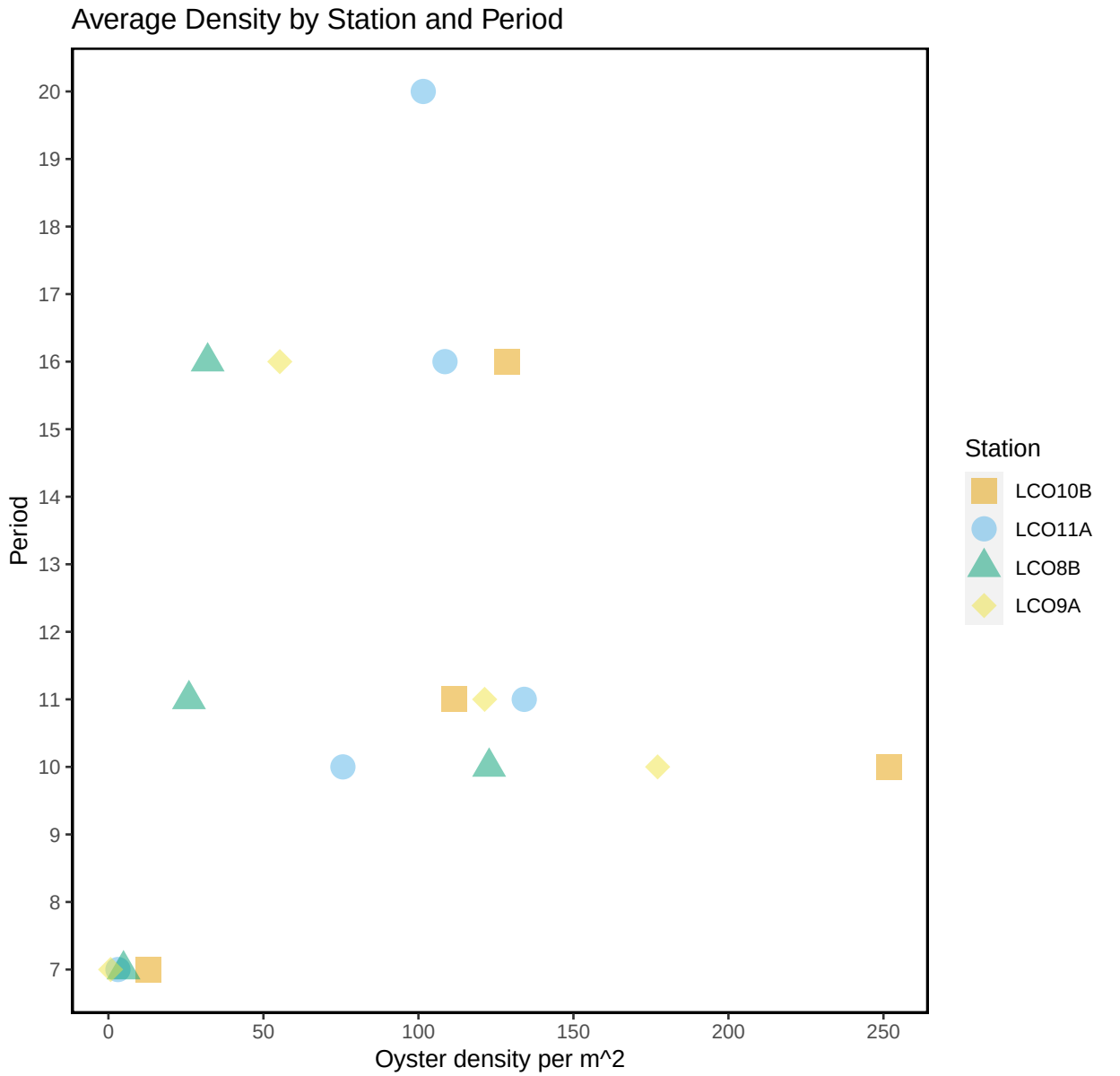



Figure − Average live oyster density comparison by station and period for all stations that were sampled during the pilc

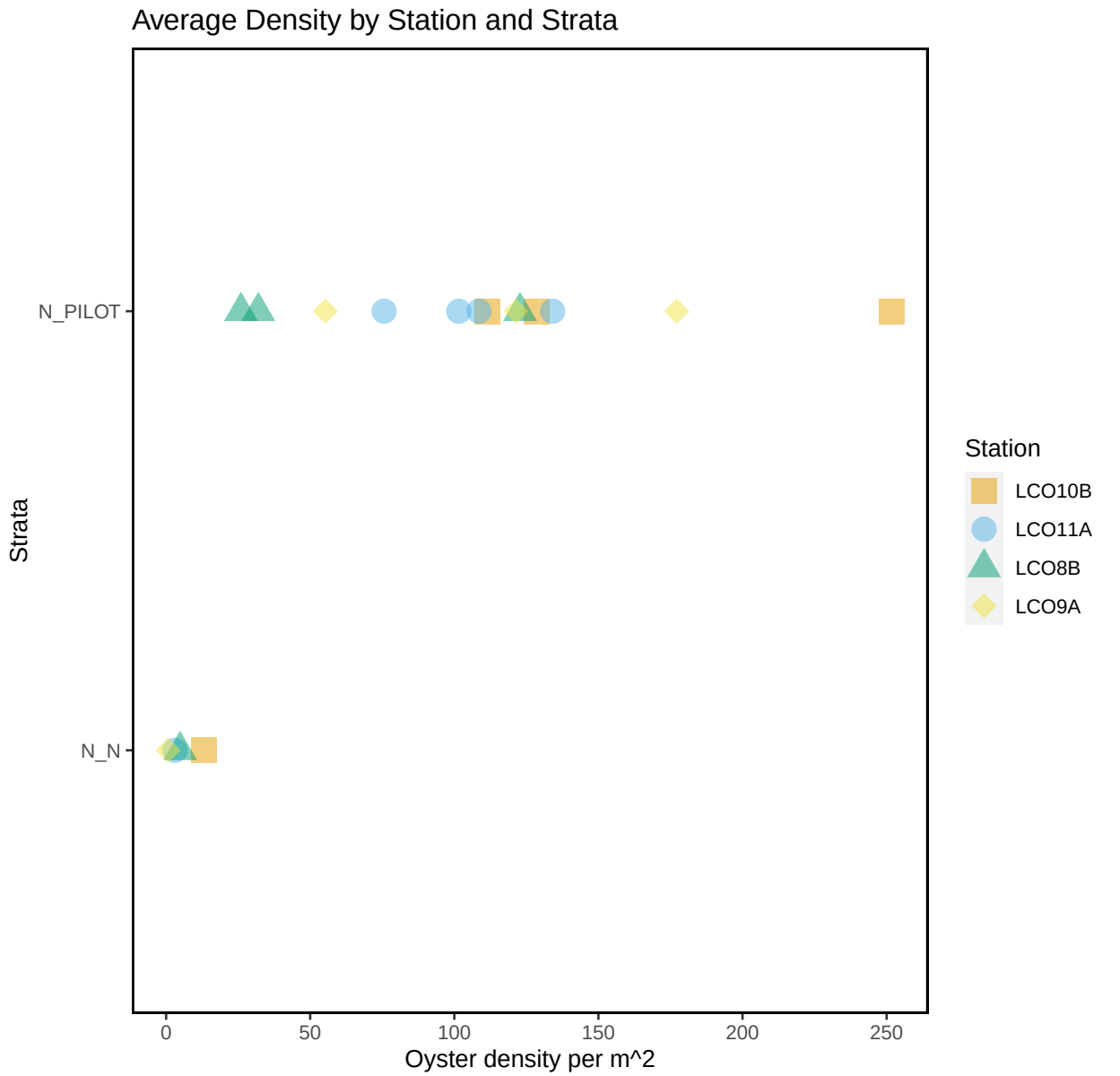



Figure − Average live oyster density comparison by station and strata for all stations that were sampled during th

## Latest Data Entered

Displayed are the entries for the last date of sampling (2021-01-15).

| date | station | tran_length | count_live | count_dead | treatment | strata |
|---|---|---|---|---|---|---|
| 2021-01-15 | LCI38 | 2.5 | 171 | 13 | control | N_N |
| 2021-01-15 | LCI38 | 5.0 | 0 | 0 | control | N_N |
| 2021-01-15 | LCI38 | 7.5 | 0 | 0 | control | N_N |
| 2021-01-15 | LCI38 | 10.0 | 114 | 43 | control | N_N |
| 2021-01-15 | LCI38 | 12.5 | 107 | 14 | control | N_N |
| 2021-01-15 | LCI38 | 14.9 | 45 | 9 | control | N_N |
| 2021-01-15 | LCI39 | 2.5 | 92 | 13 | control | N_N |
| 2021-01-15 | LCI39 | 5.0 | 110 | 1 | control | N_N |
| 2021-01-15 | LCI39 | 7.5 | 14 | 3 | control | N_N |
| 2021-01-15 | LCI39 | 10.0 | 24 | 1 | control | N_N |
| 2021-01-15 | LCI39 | 12.5 | 44 | 1 | control | N_N |
| 2021-01-15 | LCI39 | 15.0 | 4 | 1 | control | N_N |
| 2021-01-15 | LCI39 | 17.5 | 49 | 5 | control | N_N |
| 2021-01-15 | LCI39 | 19.8 | 44 | 2 | control | N_N |