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 4 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, 97 days have been sampled over this entire project.

Definition of Localities

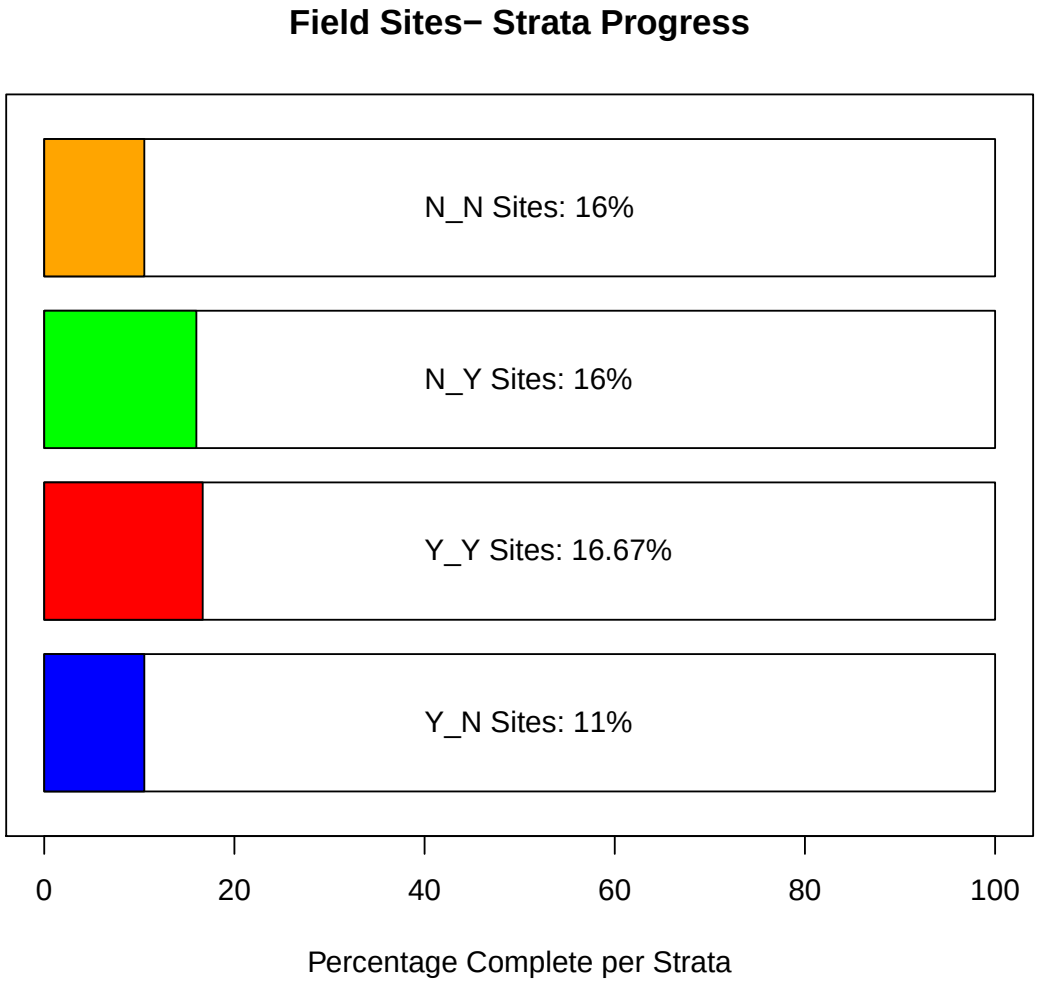
LOCALITY	LOCATION
BT	Big Trout
CK	Cedar Key
CR	Corrigan's Reef
HB	Horseshoe Beach
LC	Lone Cabbage
LT	Little Trout
NN	No Name

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 20 and 22

These summary tables provide summary statistics on live counts and oyster densities for just periods **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)

Total Counts by Locality

Locality	Mean	Median	SD	Var	CV	SE	L95	U95	Bstrap_Mean	L95_Bstrap	U95_Bstrap
BT	3368	1275	4457	19867717	1.32	2573	-1676	8412	3422	343	8487
LC	1854	1273	2017	4066482	1.09	319	1229	2479	1866	1305	2575
LT	1191	877	737	542939	0.62	246	709	1672	1176	792	1668
NN	1030	767	757	572337	0.73	338	367	1693	1036	612	1728

Total Counts by Strata

Strata	Mean	Median	SD	Var	CV	SE	L95	U95	Bstrap_Mean	L95_Bstrap	U95_Bstrap
N_N	1473	878	1696	2875596	1.15	362	765	2182	1466	924	2295
N_PILOT	356	356	NA	NA	NA	NA	NA	NA	180	10	347
N_Y	3338	2344	2695	7265438	0.81	953	1470	5206	3352	1840	5392
Y_N	971	769	779	607464	0.80	179	621	1322	967	638	1326
Y_Y	3173	2091	2798	7827570	0.88	1057	1101	5246	3216	1915	5282

Total Counts by Period

Period	Mean	Median	SD	Var	CV	SE	L95	U95	Bstrap_Mean	L95_Bstrap	U95_Bstrap
20	1844	1253	2125	4517189	1.15	310	1236	2451	1847	1331	2473
22	1348	758	991	981586	0.74	313	733	1962	1343	785	1929

Density by Locality

Locality	Mean	Median	SD	Var	CV	SE	L95	U95	Bstrap_Mean	L95_Bstrap	U95_Bstrap
BT	395	319	367	134449	0.93	212	-20.2	810	399	72	793
LC	200	174	127	16139	0.63	20	160.9	240	200	165	244
LT	339	370	159	25324	0.47	53	235.0	443	338	245	438
NN	282	164	312	97564	1.11	140	8.1	556	281	117	568

Density by Strata

Strata	Mean	Median	SD	Var	CV	SE	L95	U95	Bstrap_Mean	L95_Bstrap	U95_Bstrap
N_N	312	204	217	47295	0.70	46	221	403	310	230	396
N_PILOT	102	102	NA	NA	NA	NA	NA	NA	49	2	99
N_Y	157	172	52	2667	0.33	18	122	193	158	121	189
Y_N	215	190	161	25866	0.75	37	143	287	213	148	288
Y_Y	193	174	72	5241	0.38	27	139	246	192	148	242

Density by Period

Period	Mean	Median	SD	Var	CV	SE	L95	U95	Bstrap_Mean	L95_Bstrap	U95_Bstrap
20	258	203	188	35185	0.73	27	204	312	259	209	314
22	153	170	38	1472	0.25	12	129	176	152	128	172

Summary Plots for Periods 20 and 22

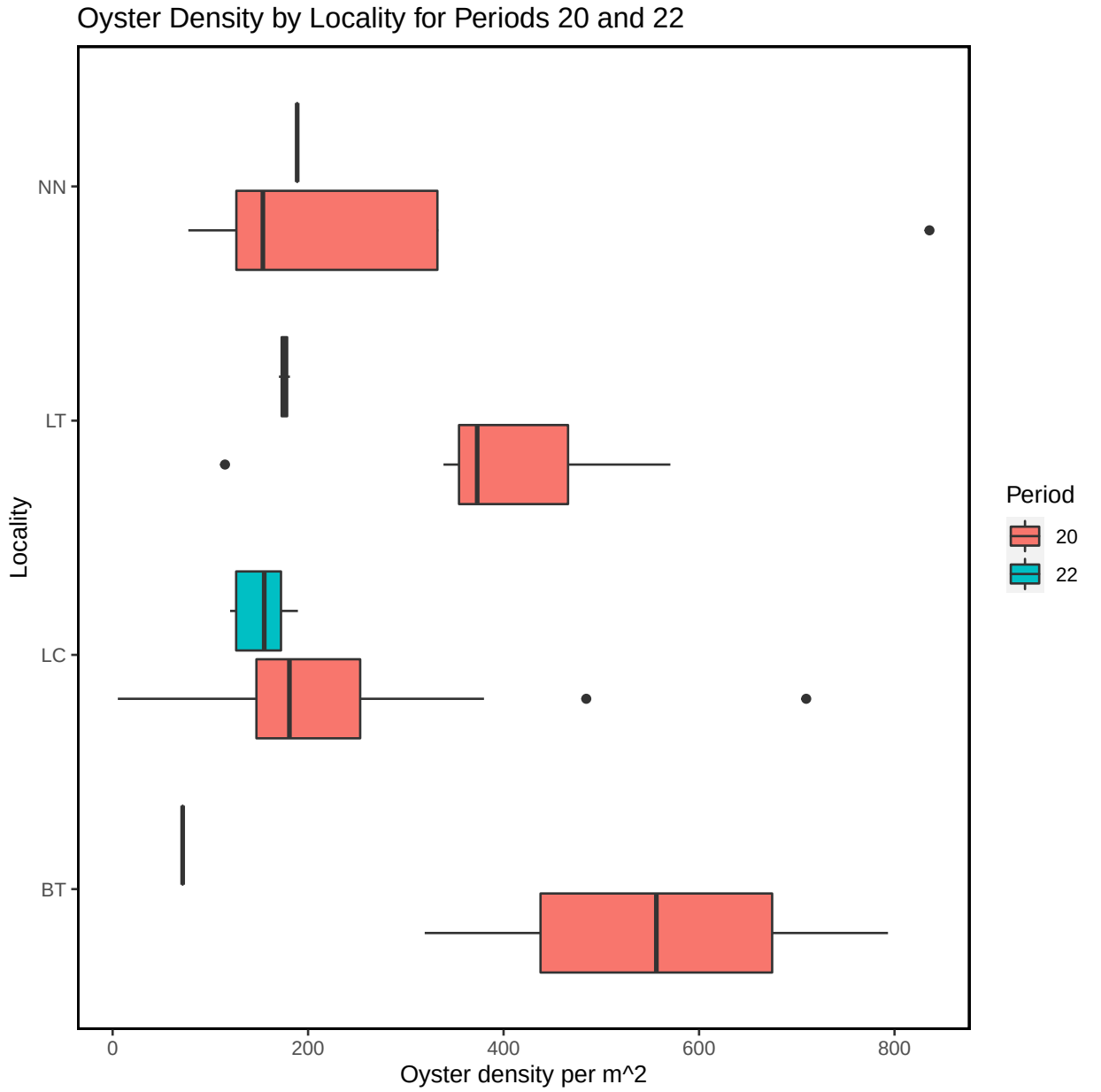


Figure- Calculated oyster density by locality for periods 20 (Winter 2019-2020) and 22 (Winter 2020-2021) with the last sample date of period 22 as 2020-11-18.

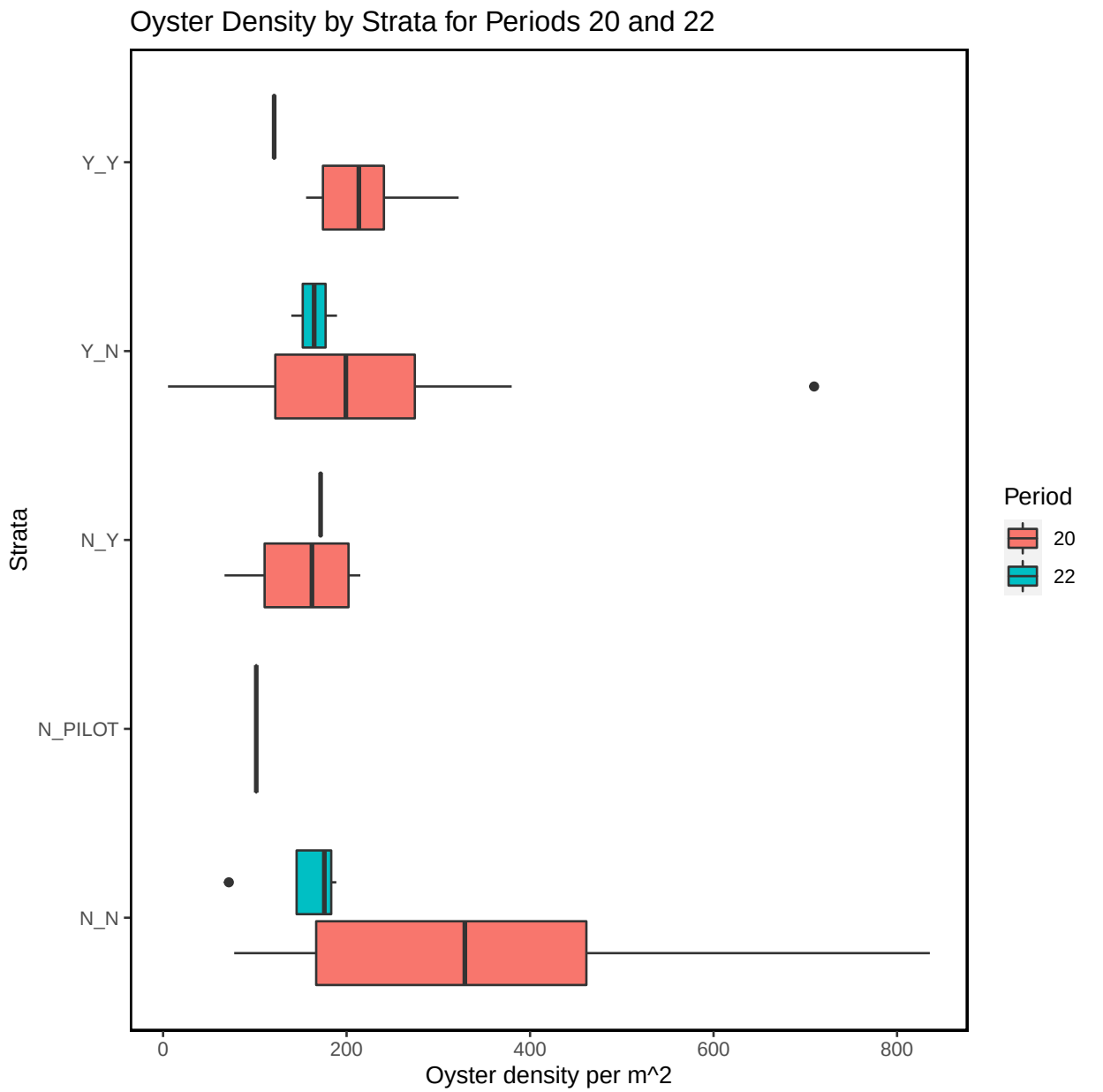


Figure- Calculated oyster density by strata for periods 20 (Winter 2019-2020) and 22 (Winter 2020-2021) with the last sample date of period 22 as 2020-11-18.

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.

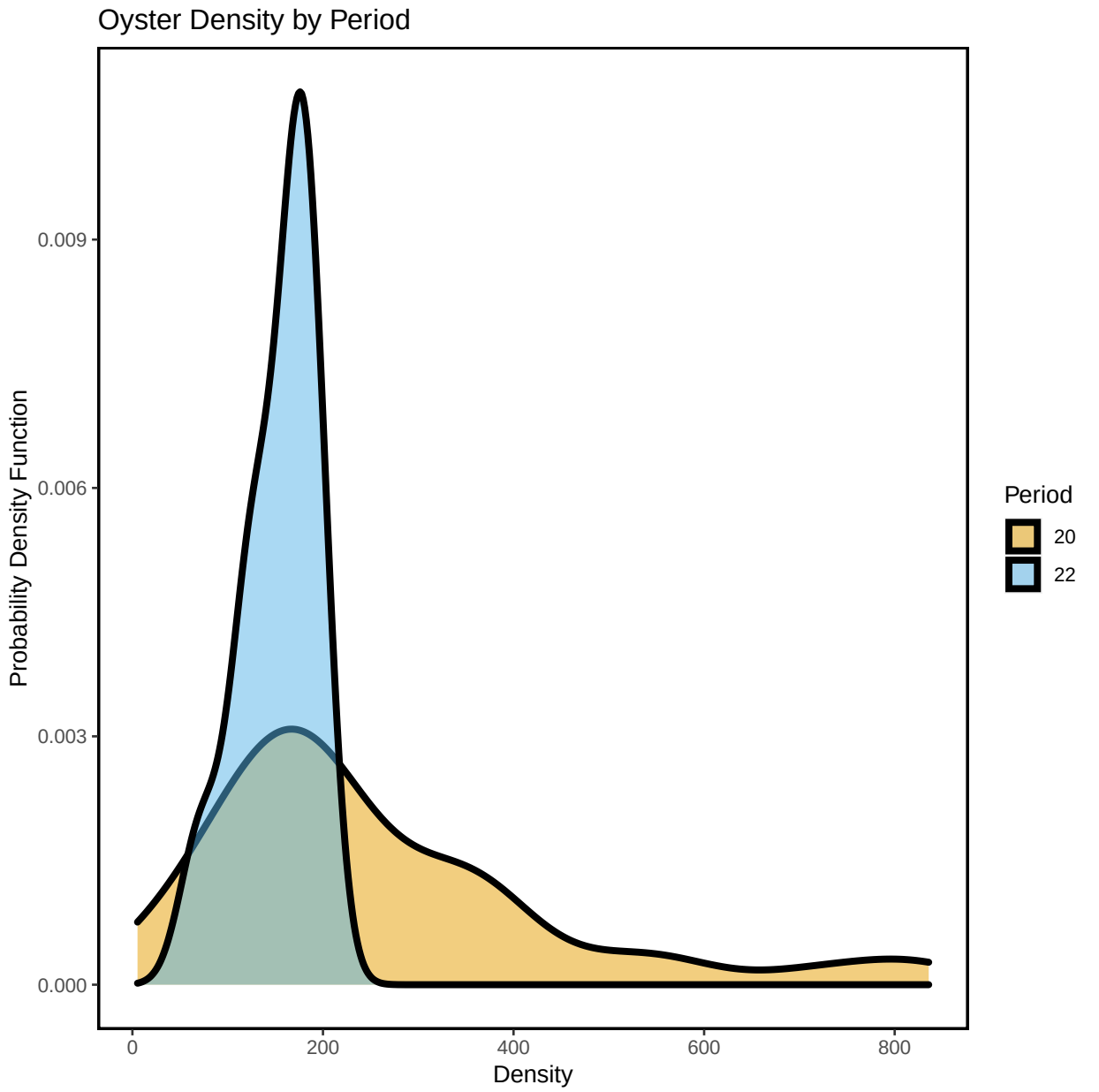


Figure- Calculated oyster density by periods 20 (Winter 2019-2020) and 22 (Winter 2020-2021) using a probability density function with the last sample date of period 22 as 2020-11-18.

Sampling for all Periods

Next, we provide summary tables and plots for all transect sampling. These data were collected between 2010-05-27 and 2020-11-18.

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	9	366
CK	26	712
CR	46	1330
HB	45	1129
LC	165	7956
LT	15	406
NN	9	237

Effort by Strata

Strata	Number of Transects	Total Length (m)
N_N	97	3277
N_PILOT	13	799
N_Y	21	2026
Y_N	173	4929
Y_Y	11	1104

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	10	614

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	1	31
22	LC	6	503
22	LT	2	52
22	NN	1	27
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	4	111
22	N_Y	2	176
22	Y_N	2	52
22	Y_Y	2	274
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

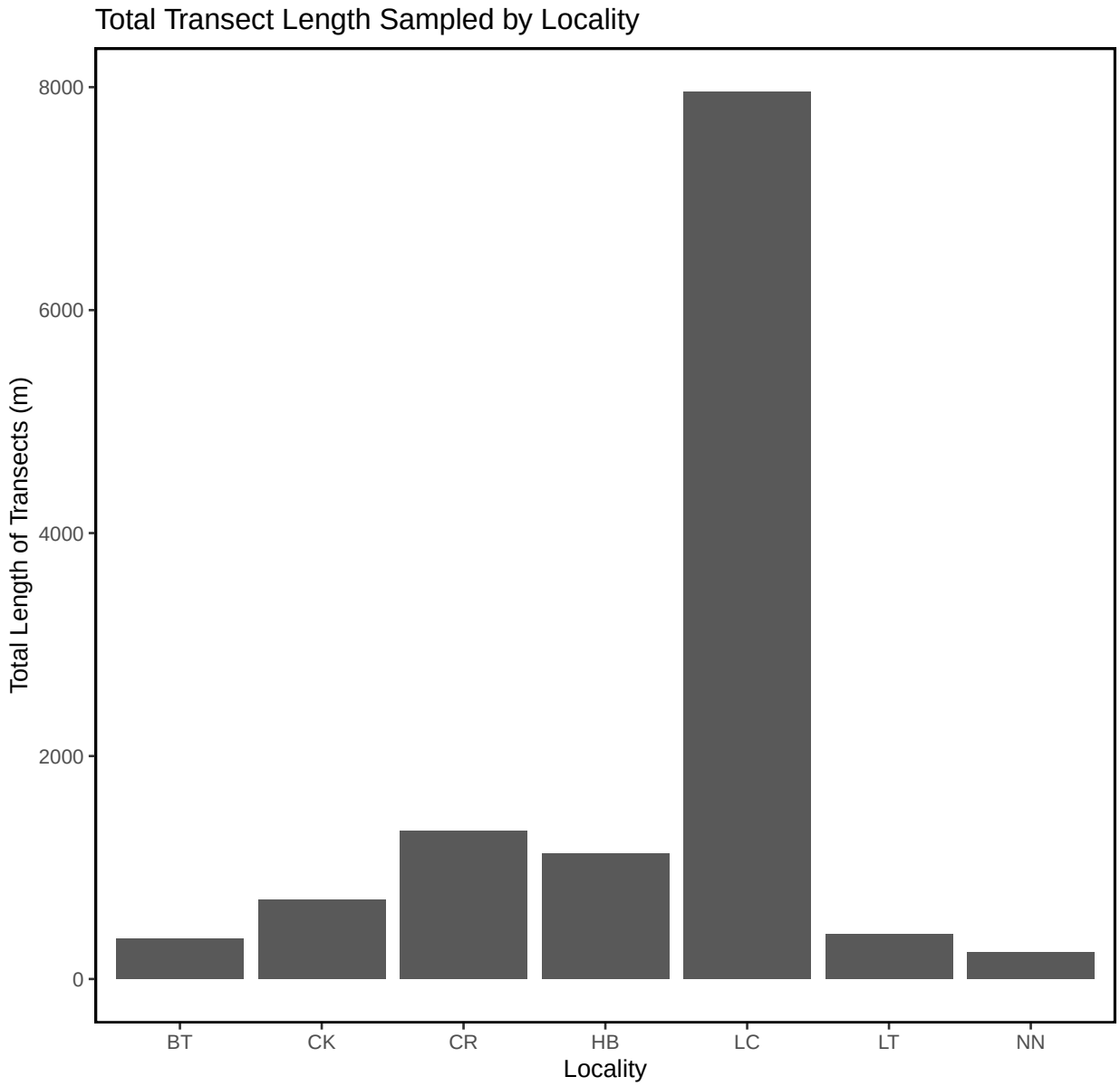


Figure − Bar plot of total transect length in meters sampled by locality for all periods.

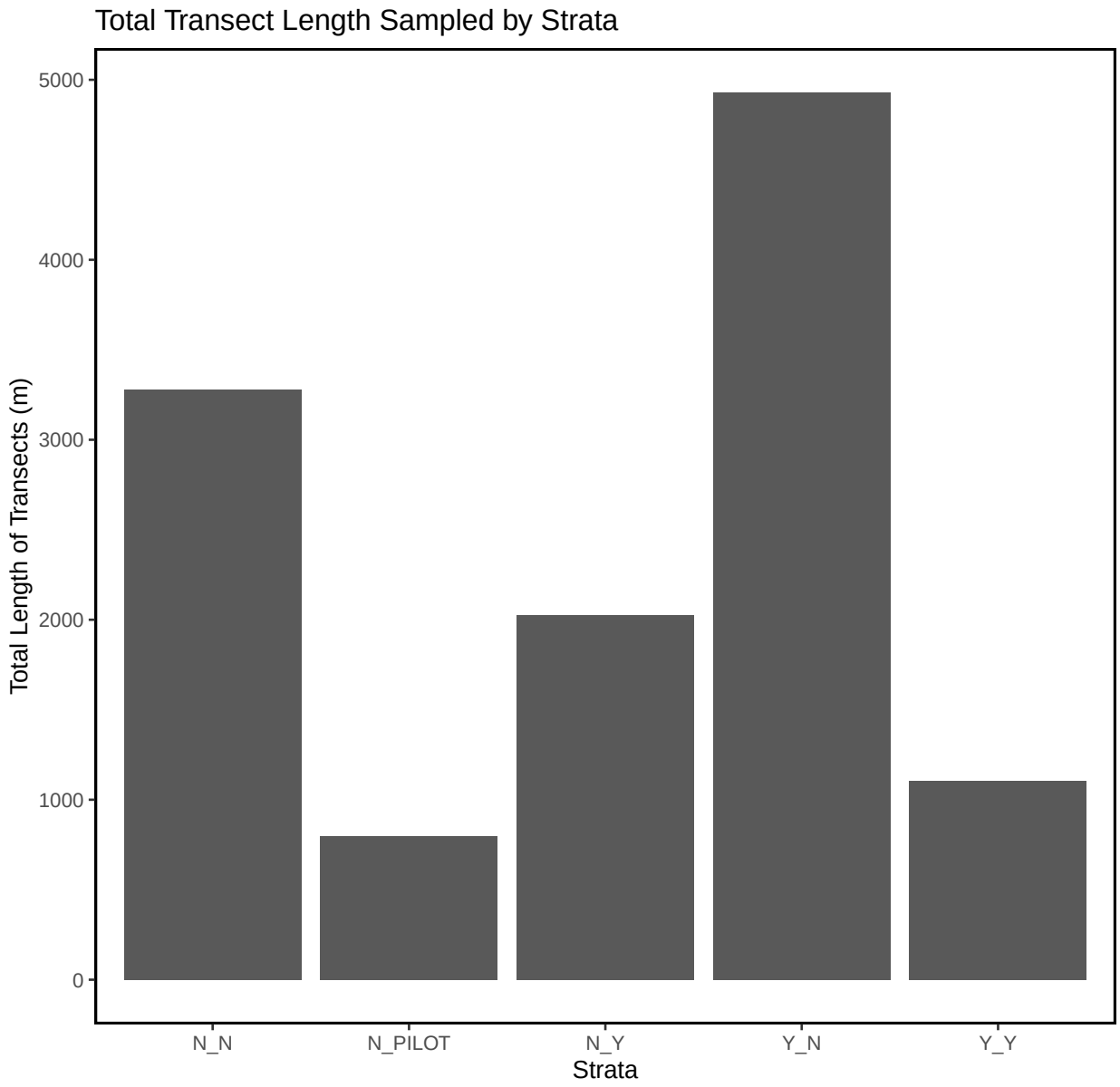
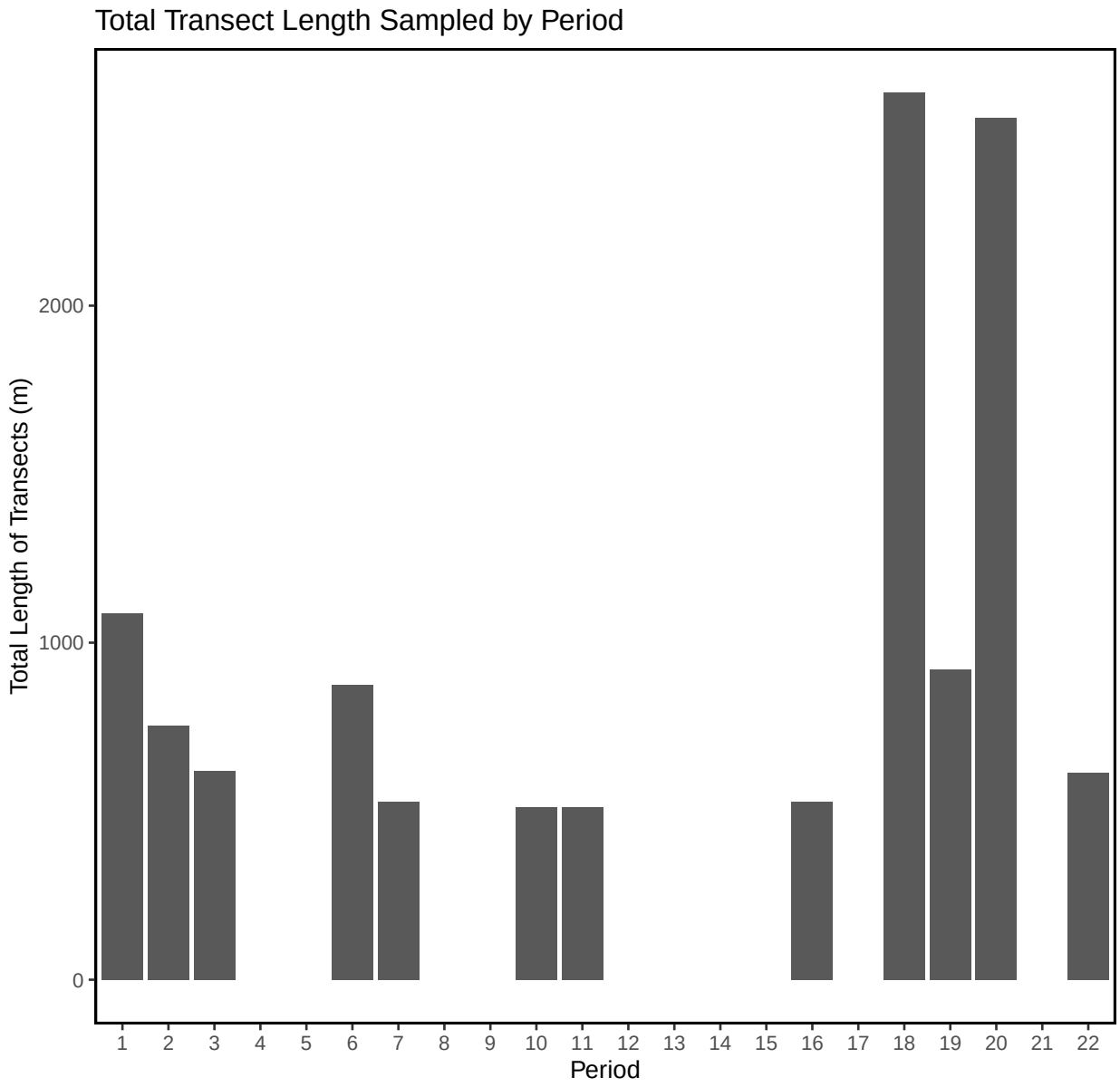


Figure − Bar plot of total transect length in meters sampled by strata for all periods.



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

Total Counts by Locality

Locality	Mean	Median	SD	Var	CV	SE	L95	U95	Bstrap_Mean	L95_Bstrap	U95_Bstrap
BT	2096	1108	2621	6871801	1.25	874	384	3809	2095	864	3813
CK	857	444	1091	1190933	1.27	214	438	1277	863	492	1289
CR	1026	716	1035	1072162	1.01	153	727	1325	1025	754	1366
HB	902	364	1047	1095622	1.16	158	592	1211	907	617	1214
LC	1022	684	1304	1699466	1.28	102	822	1223	1023	819	1248
LT	1054	877	645	416505	0.61	167	728	1381	1056	771	1421
NN	780	727	647	418779	0.83	216	357	1203	771	452	1226

Total Counts by Strata

Strata	Mean	Median	SD	Var	CV	SE	L95	U95	Bstrap_Mean	L95_Bstrap	U95_Bstrap
N_N	1042	787	1118	1249152	1.1	114	819	1266	1041	845	1277
N_PILOT	1046	1109	627	392853	0.6	174	705	1386	1048	719	1397
N_Y	2089	1253	2122	4502453	1.0	463	1182	2997	2087	1326	3016
Y_N	793	436	936	876585	1.2	72	653	934	790	659	917
Y_Y	2189	2039	2564	6575741	1.2	773	673	3704	2248	1053	3754

Total 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	1402	1040	1784
2	890	476	945	893727	1.06	176	546	1234	883	556	1217
3	738	296	817	668064	1.11	167	411	1065	739	418	1100
6	433	176	534	284791	1.23	96	245	621	433	267	628
7	50	29	56	3186	1.12	20	11	90	50	17	88
10	1207	1074	671	449607	0.56	237	743	1672	1209	815	1648
11	886	776	678	459708	0.77	240	416	1356	890	510	1370
16	494	366	467	217855	0.95	165	170	817	497	211	844
18	982	695	935	874733	0.95	120	748	1217	985	758	1241
19	555	329	573	328431	1.03	97	365	745	558	378	737
20	1844	1253	2125	4517189	1.15	310	1236	2451	1847	1275	2482
22	1348	758	991	981586	0.74	313	733	1962	1343	799	1945

Dead Count Statistics for all Periods

Total Counts by Locality

Locality	Mean	Median	SD	Var	CV	SE	L95	U95	Bstrap_Mean	L95_Bstrap	U95_Bstrap
BT	390	178	357	127548	0.92	119.0	156.3	623	394	188	629
CK	78	32	106	11170	1.36	37.4	4.3	151	75	19	148
CR	60	47	38	1444	0.63	12.7	35.2	85	60	38	84
HB	44	21	45	2000	1.02	14.9	14.8	73	44	18	72
LC	90	59	93	8700	1.03	8.3	74.1	107	91	75	108
LT	240	210	202	40850	0.84	52.2	137.2	342	239	152	337
NN	108	74	103	10568	0.95	34.3	40.8	175	107	54	180

Total Counts by Strata

Strata	Mean	Median	SD	Var	CV	SE	L95	U95	Bstrap_Mean	L95_Bstrap	U95_Bstrap
N_N	160	80	206	42308	1.28	25.5	110	210	159	117	212
N_PILOT	82	87	46	2136	0.56	12.8	57	108	82	61	107
N_Y	52	53	44	1972	0.85	9.7	33	71	52	36	74
Y_N	96	58	104	10740	1.07	12.0	73	120	97	76	120
Y_Y	109	50	109	11932	1.00	32.9	44	173	109	50	171

Total 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	29	10	50
10	80	88	65	4245	0.82	23.0	34.5	125	78	39	124
11	50	40	25	620	0.49	8.8	33.2	68	50	35	68
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	93	184
19	63	44	67	4548	1.08	11.6	40.0	85	63	43	87
20	148	107	140	19727	0.95	20.5	107.6	188	146	110	190
22	209	150	154	23677	0.73	48.7	114.1	305	212	125	307

Density Statistics for all Periods

Density by Locality

Locality	Mean	Median	SD	Var	CV	SE	L95	U95	Bstrap_Mean	L95_Bstrap	U95_Bstrap
BT	293	256	218	47695	0.74	73	151	436	295	178	441
CK	241	112	321	102795	1.33	63	118	365	240	128	374
CR	288	181	294	86231	1.02	43	203	373	290	214	381
HB	257	101	303	92052	1.18	46	168	347	257	169	345
LC	160	122	157	24735	0.99	12	135	184	159	137	183
LT	274	239	152	23145	0.56	39	197	351	274	202	355
NN	232	164	240	57801	1.04	80	75	389	234	122	395

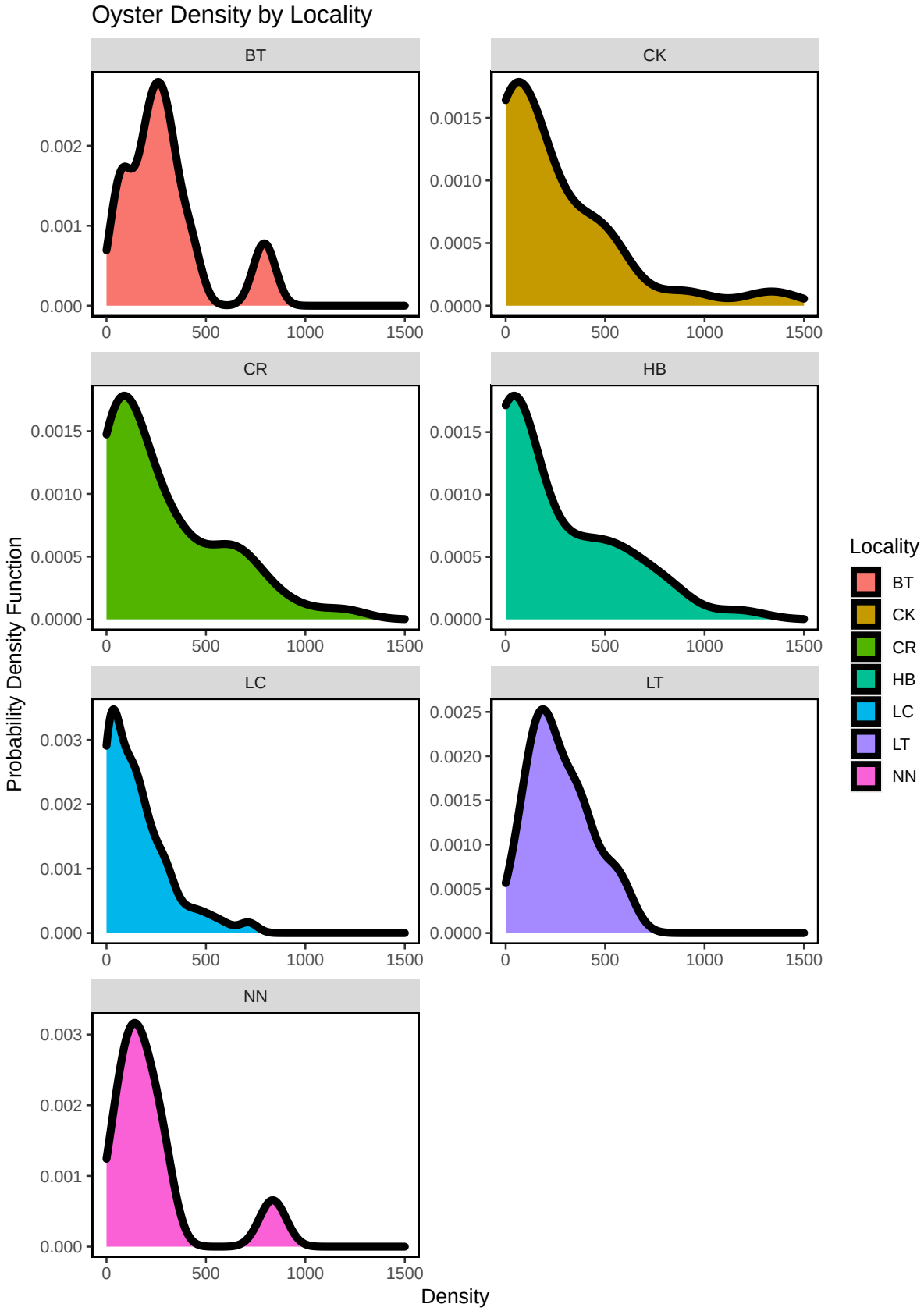
Density by Strata

Strata	Mean	Median	SD	Var	CV	SE	L95	U95	Bstrap_Mean	L95_Bstrap	U95_Bstrap
N_N	277	195	271	73454	0.98	28	223	331	276	224	333
N_PILOT	111	111	60	3604	0.54	17	79	144	111	79	144
N_Y	152	138	101	10301	0.67	22	109	196	152	113	197
Y_N	193	114	223	49898	1.16	17	159	226	193	162	226
Y_Y	134	122	99	9727	0.74	30	76	192	134	85	187

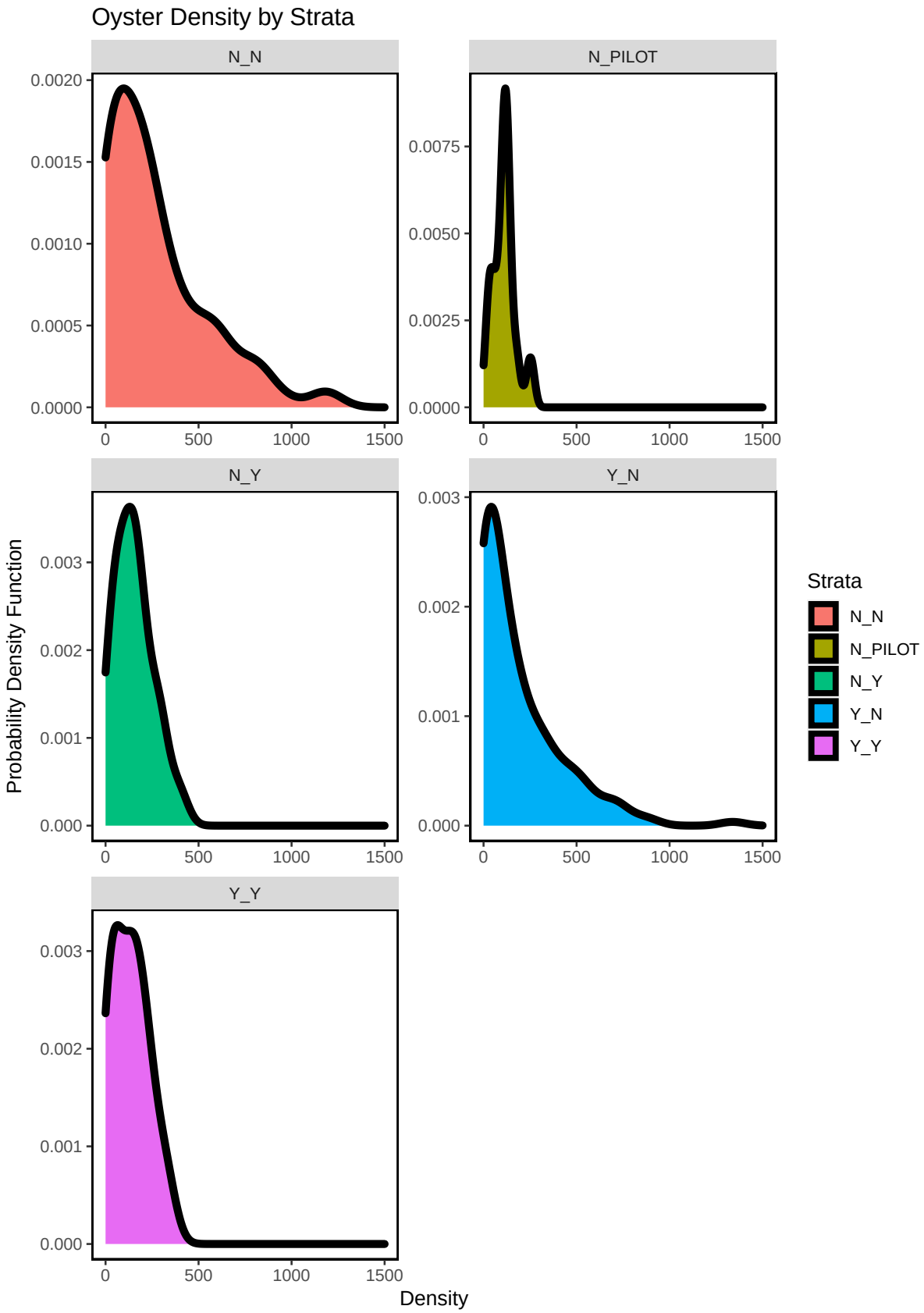
Density by Period

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	394	288.4	499
2	255	119.0	285.2	81348	1.12	53	151.3	358.9	256	153.9	356
3	234	85.3	269.3	72523	1.15	55	126.1	341.6	234	129.6	342
6	122	72.2	150.9	22769	1.24	27	68.6	174.9	122	71.8	176
7	5	2.9	5.6	31	1.12	2	1.1	8.9	5	1.7	9
10	124	113.3	67.4	4536	0.54	24	76.9	170.3	124	83.0	172
11	90	79.5	67.8	4596	0.75	24	43.4	137.4	90	46.7	138
16	49	36.3	46.4	2154	0.95	16	16.9	81.2	49	21.0	82
18	177	154.5	130.8	17117	0.74	17	144.3	210.0	176	145.7	209
19	160	85.6	171.9	29552	1.08	29	102.9	216.8	160	107.0	222
20	258	202.8	187.6	35185	0.73	27	204.4	311.7	259	210.7	316
22	153	170.3	38.4	1472	0.25	12	128.9	176.5	153	128.8	173

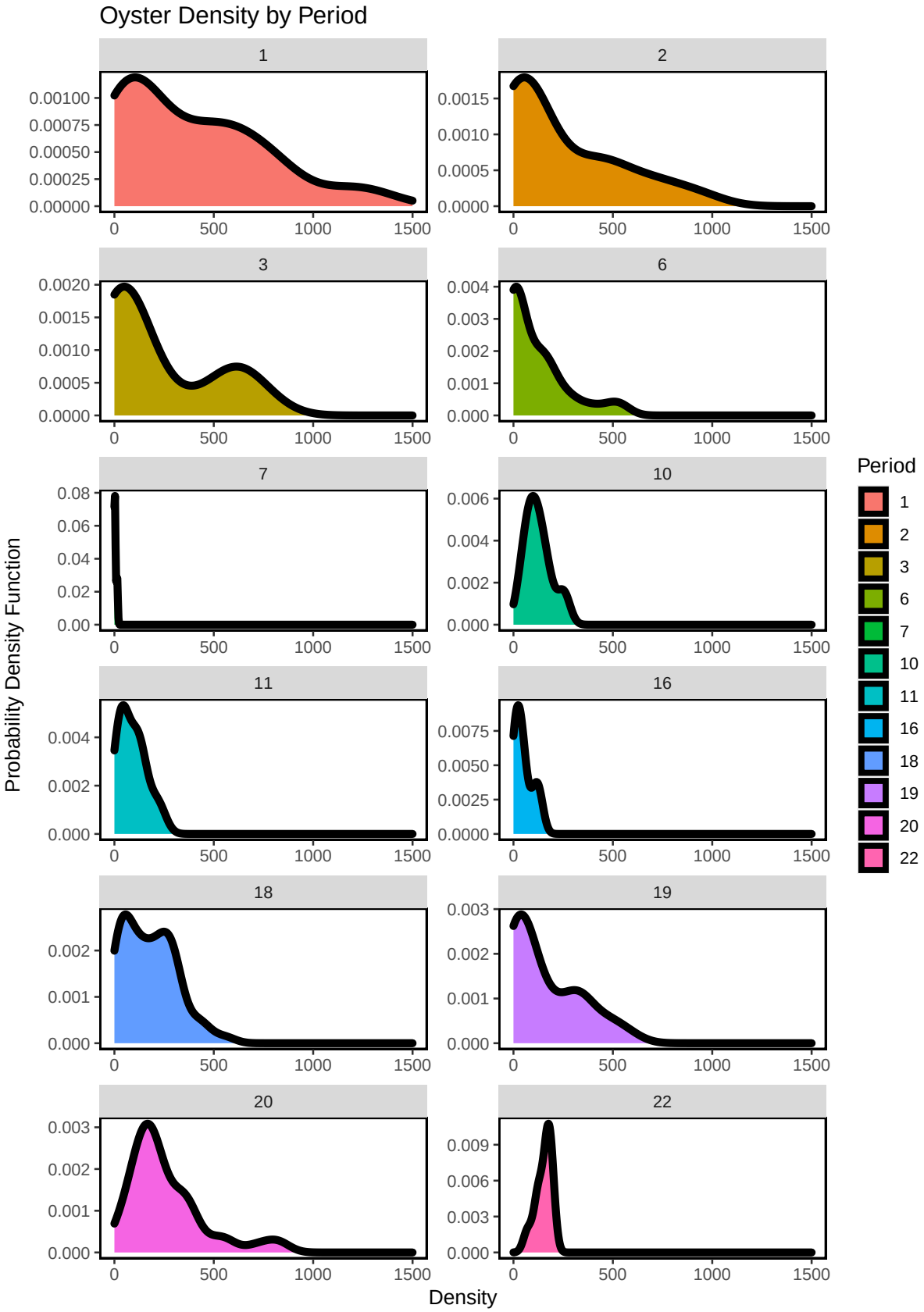
Summary Density Plots for all Periods



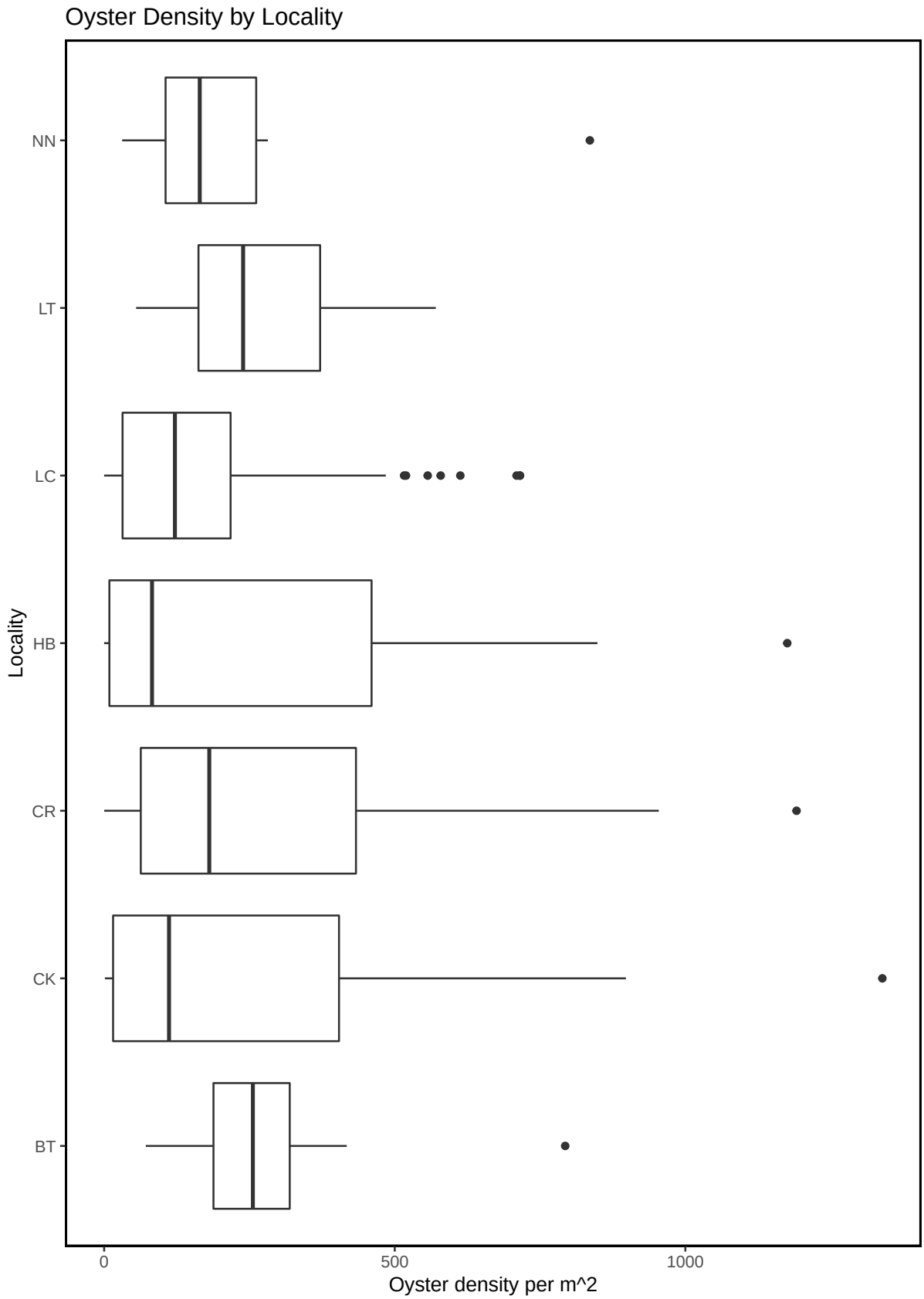
Figure− Calculated oyster density by locality for all periods including period 22 (current period).



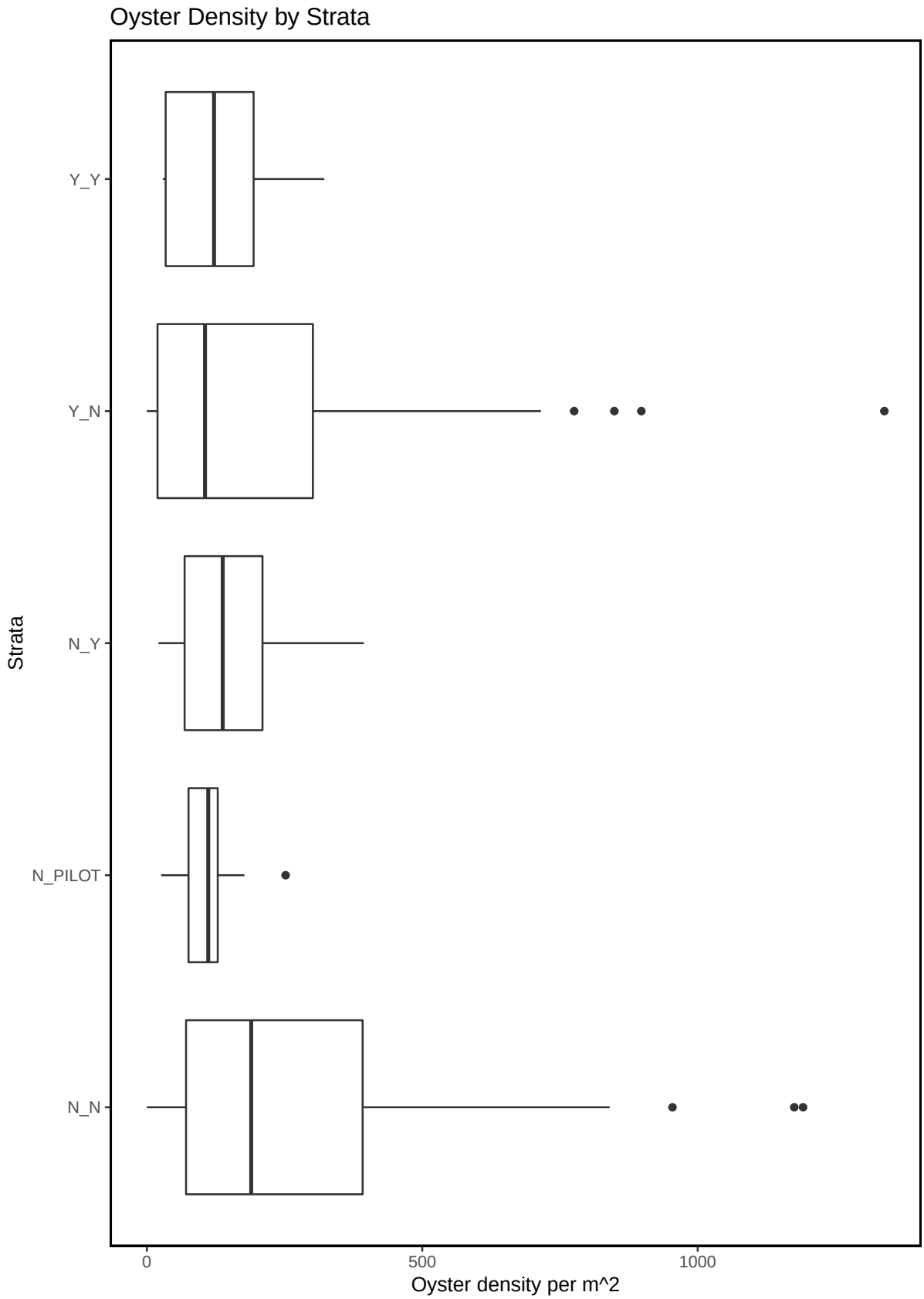
Figure− Calculated oyster density by strata for all periods including period 22 (current period).



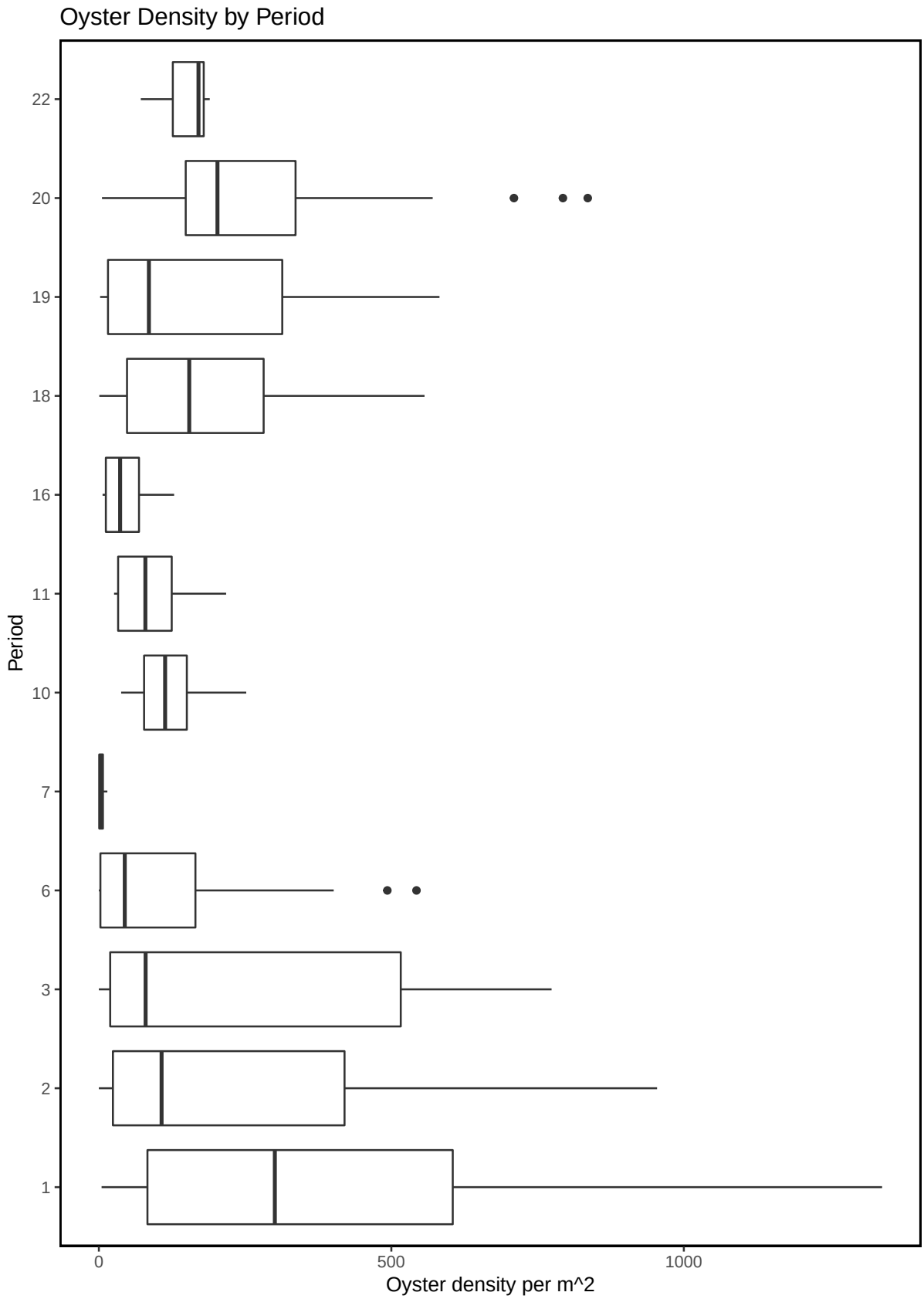
Figure− Calculated oyster density for all periods including period 22 (current period) using a probability density fu



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



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



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

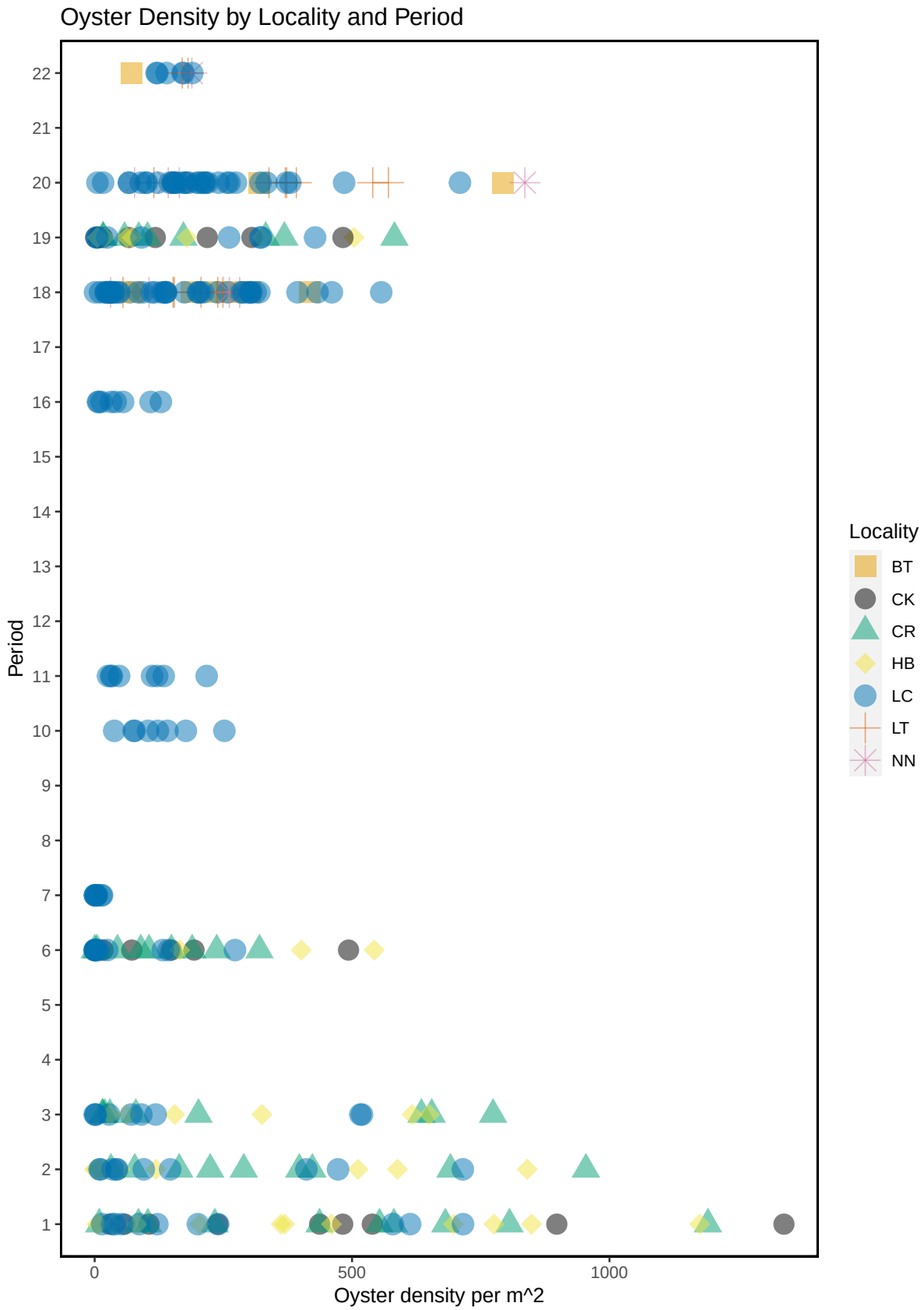


Figure − Oyster density by locality and period for all periods including period 22 (current period).

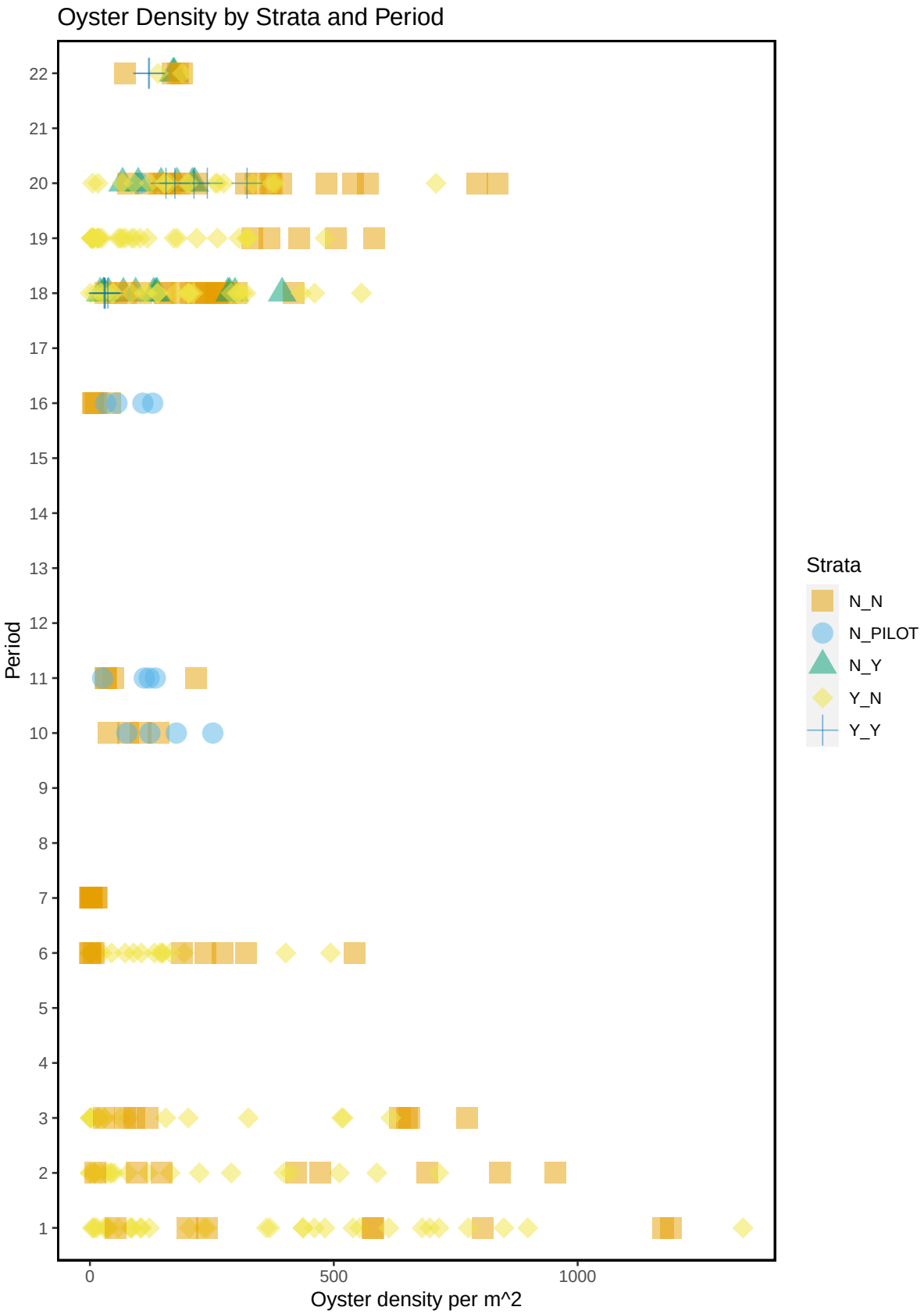


Figure − Oyster density by strata and period for all periods including period 22 (current period).

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).

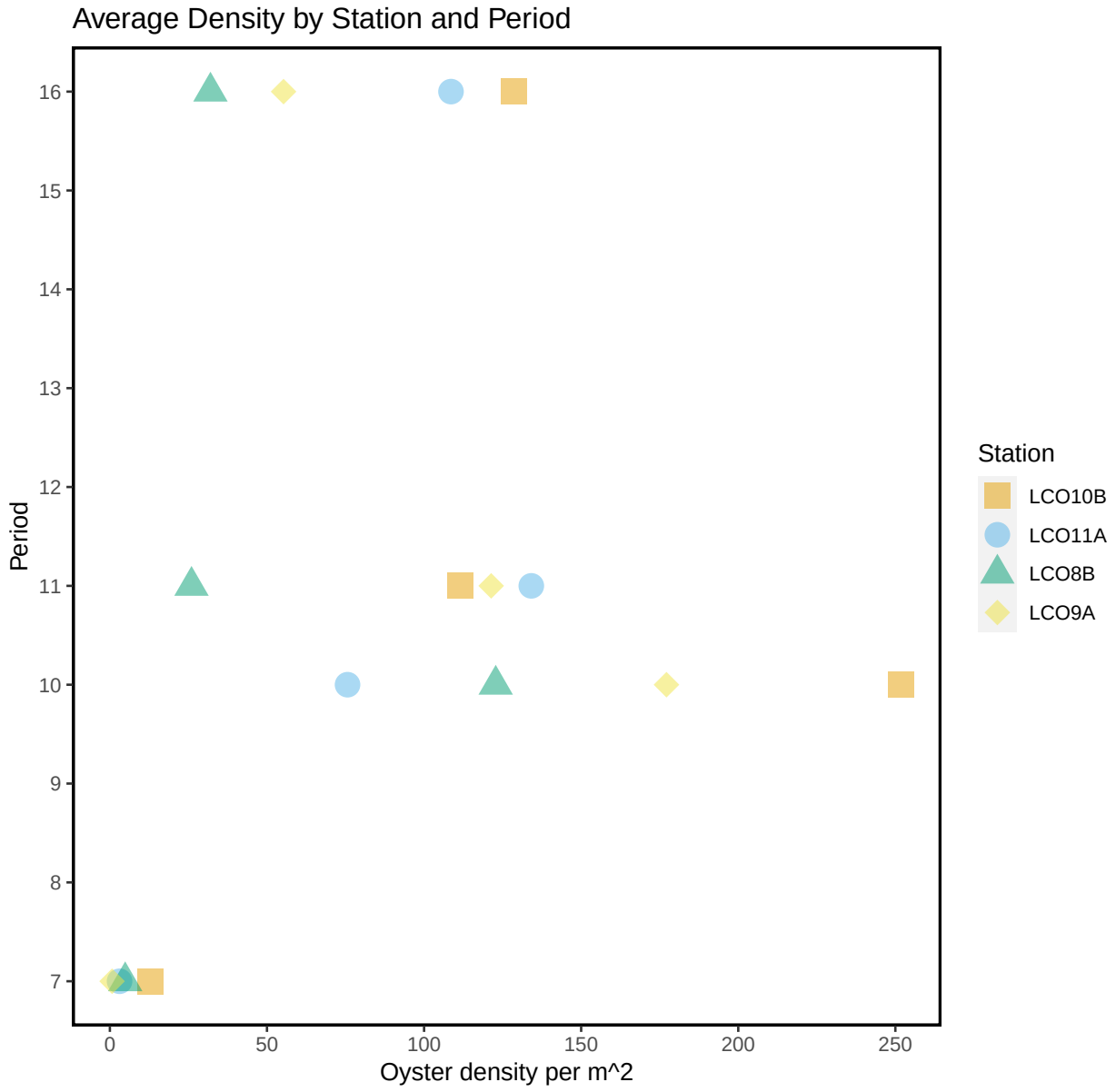


Figure − Average density comparison by period for all stations that were sampled during the pilot study.

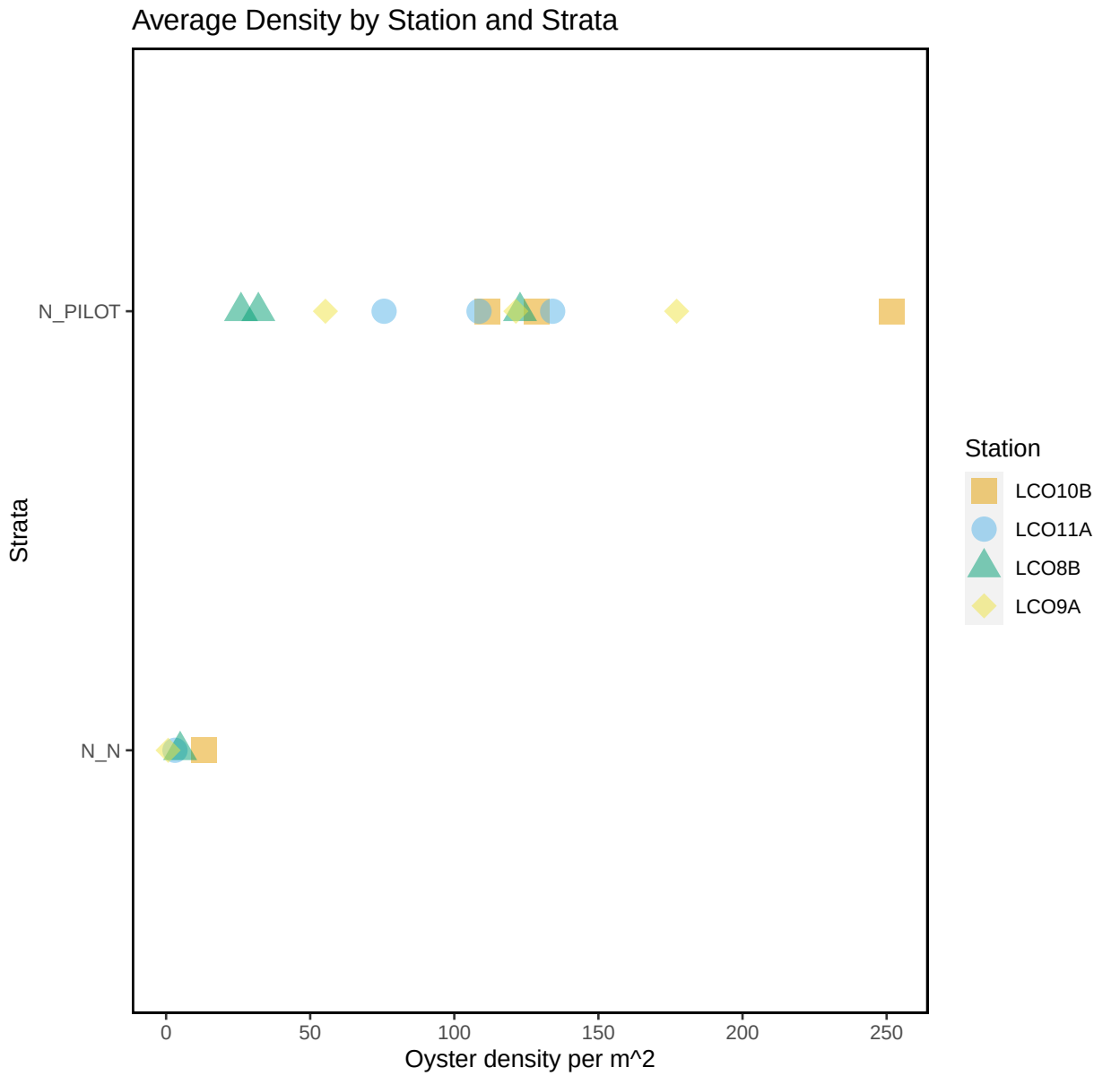


Figure − Average density comparison by strata and period for all stations that were sampled during the pilot stuc

Latest Data Entered

Displayed are the entries for the last date of sampling (2020-11-18).

date	station	tran_length	count_live	count_dead	treatment	strata
2020-11-18	LCO20	2.5	96	15	rocks	Y_Y
2020-11-18	LCO20	5.0	119	17	rocks	Y_Y
2020-11-18	LCO20	7.5	119	12	rocks	Y_Y
2020-11-18	LCO20	10.0	111	7	rocks	Y_Y
2020-11-18	LCO20	12.5	35	8	rocks	Y_Y
2020-11-18	LCO20	15.0	59	4	rocks	Y_Y
2020-11-18	LCO20	17.5	72	8	rocks	Y_Y
2020-11-18	LCO20	20.0	79	10	rocks	Y_Y
2020-11-18	LCO20	22.5	44	7	rocks	Y_Y
2020-11-18	LCO20	23.3	23	6	rocks	Y_Y
2020-11-18	LCO20	2.5	5	0	rocks	Y_Y
2020-11-18	LCO20	5.0	11	3	rocks	Y_Y
2020-11-18	LCO20	7.5	20	8	rocks	Y_Y
2020-11-18	LCO20	10.0	26	3	rocks	Y_Y
2020-11-18	LCO20	12.5	31	2	rocks	Y_Y
2020-11-18	LCO20	15.0	3	0	rocks	Y_Y
2020-11-18	LCO20	17.5	95	12	rocks	Y_Y
2020-11-18	LCO20	20.0	26	6	rocks	Y_Y
2020-11-18	LCO20	22.5	6	1	rocks	Y_Y
2020-11-18	LCO20	22.8	4	1	rocks	Y_Y
2020-11-18	LCO20	2.5	72	10	rocks	Y_Y
2020-11-18	LCO20	5.0	32	6	rocks	Y_Y
2020-11-18	LCO20	7.5	26	3	rocks	Y_Y
2020-11-18	LCO20	10.0	25	10	rocks	Y_Y
2020-11-18	LCO20	12.5	46	13	rocks	Y_Y
2020-11-18	LCO20	15.0	40	9	rocks	Y_Y
2020-11-18	LCO20	17.5	42	7	rocks	Y_Y
2020-11-18	LCO20	20.0	48	9	rocks	Y_Y
2020-11-18	LCO20	22.5	32	5	rocks	Y_Y
2020-11-18	LCO20	23.0	7	3	rocks	Y_Y
2020-11-18	LCO20	2.5	4	0	rocks	Y_Y
2020-11-18	LCO20	5.0	18	0	rocks	Y_Y
2020-11-18	LCO20	7.5	5	2	rocks	Y_Y
2020-11-18	LCO20	10.0	7	2	rocks	Y_Y
2020-11-18	LCO20	12.5	4	2	rocks	Y_Y
2020-11-18	LCO20	15.0	2	3	rocks	Y_Y
2020-11-18	LCO20	17.5	20	0	rocks	Y_Y
2020-11-18	LCO20	20.0	34	3	rocks	Y_Y
2020-11-18	LCO20	22.5	19	3	rocks	Y_Y
2020-11-18	LCO20	23.3	10	2	rocks	Y_Y
2020-11-18	LCO20	2.5	51	7	rocks	Y_Y
2020-11-18	LCO20	5.0	76	11	rocks	Y_Y
2020-11-18	LCO20	7.5	59	13	rocks	Y_Y
2020-11-18	LCO20	10.0	57	11	rocks	Y_Y
2020-11-18	LCO20	12.5	88	9	rocks	Y_Y
2020-11-18	LCO20	15.0	92	19	rocks	Y_Y
2020-11-18	LCO20	17.5	77	5	rocks	Y_Y
2020-11-18	LCO20	20.0	89	17	rocks	Y_Y
2020-11-18	LCO20	20.7	23	4	rocks	Y_Y

2020-11-18	LCO20	2.5	46	7	rocks	Y_Y
2020-11-18	LCO20	5.0	100	12	rocks	Y_Y
2020-11-18	LCO20	7.5	71	17	rocks	Y_Y
2020-11-18	LCO20	10.0	59	9	rocks	Y_Y
2020-11-18	LCO20	12.5	76	8	rocks	Y_Y
2020-11-18	LCO20	15.0	106	17	rocks	Y_Y
2020-11-18	LCO20	17.5	69	10	rocks	Y_Y
2020-11-18	LCO20	20.0	86	19	rocks	Y_Y
2020-11-18	LCO20	20.7	25	4	rocks	Y_Y
2020-11-18	NNI6	2.5	18	3	control	N_N
2020-11-18	NNI6	5.0	71	7	control	N_N
2020-11-18	NNI6	7.5	159	25	control	N_N
2020-11-18	NNI6	10.0	110	30	control	N_N
2020-11-18	NNI6	12.5	79	19	control	N_N
2020-11-18	NNI6	15.0	17	10	control	N_N
2020-11-18	NNI6	17.5	65	68	control	N_N
2020-11-18	NNI6	22.5	21	102	control	N_N
2020-11-18	NNI6	25.0	43	31	control	N_N
2020-11-18	NNI6	27.5	96	26	control	N_N
2020-11-18	NNI6	29.5	98	22	control	N_N