

Passive acoustic monitoring on the North Atlantic right whale calving grounds

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Supplement. This supplement includes the statistical results of ANOVA tests examining the main effects and interaction terms of photoperiod, deployment season, site, and black drum chorusing on ambient noise levels, and the detection of right whale, airplane, and shipping events

Table S1.

ANOVA test of ambient noise levels, fixed effects, SS Type III. Effects include photoperiod (DayNight), presence/ absence of black drum chorusing (DrumPA), deployment season (DeployIdx: 2009, 2010), and site (SiteIdx: J (Jacksonville), S (Savannah)). × indicates the interaction between two effects. * indicates significant at $\alpha = 0.05$

| Source | SS | df | Mean Sq. | F | p |
|-----------------------------------|----------|------|----------|---------|---------|
| DayNight | 6560 | 1 | 6560 | 122.26 | 0* |
| DrumPA | 36092.1 | 1 | 36092.1 | 672.66 | 0* |
| DeployIdx(2009,2010) | 844.3 | 1 | 844.3 | 15.74 | 0.0001* |
| SiteIdx(J,S) | 56615 | 1 | 56615 | 1055.16 | 0* |
| DayNight×DrumPA | 8738.5 | 1 | 8738.5 | 162.86 | 0* |
| DayNight×DeployIdx(2009,2010) | 960.8 | 1 | 960.8 | 17.91 | 0* |
| DayNight×SiteIdx(J,S) | 250.8 | 1 | 250.8 | 4.67 | 0.0307 |
| DrumPA×DeployIdx(2009,2010) | 5269.9 | 1 | 5269.9 | 98.22 | 0* |
| DrumPA×SiteIdx(J,S) | 3904.1 | 1 | 3904.1 | 72.76 | 0* |
| DeployIdx(2009,2010)×SiteIdx(J,S) | 4096.9 | 1 | 4096.9 | 76.35 | 0* |
| Error | 403328.9 | 7517 | 53.7 | | |
| Total | 671732.4 | 7527 | | | |

Table S2.

ANOVA test of right whale call presence, fixed effects, SS Type III. * indicates significant at $\alpha = 0.05$. For abbreviations see Table S1

| Source | SS | df | Mean Sq. | F | p |
|-----------------------------------|----------|------|----------|--------|---------|
| DayNight | 703.6 | 1 | 703.6 | 8.12 | 0.0044* |
| DrumPA | 5886.1 | 1 | 5886.1 | 67.94 | 0* |
| DeployIdx(2009,2010) | 287.6 | 1 | 287.6 | 3.32 | 0.0685 |
| SiteIdx(J,S) | 275.2 | 1 | 275.2 | 3.18 | 0.0748 |
| DayNight×DrumPA | 1147.4 | 1 | 1147.4 | 13.24 | 0.0003* |
| DayNight×DeployIdx(2009,2010) | 59.2 | 1 | 59.2 | 0.68 | 0.4086 |
| DayNight×SiteIdx(J,S) | 78.8 | 1 | 78.8 | 0.91 | 0.3403 |
| DrumPA×DeployIdx(2009,2010) | 11221.5 | 1 | 11221.5 | 129.53 | 0* |
| DrumPA×SiteIdx(J,S) | 8853.6 | 1 | 8853.6 | 102.19 | 0* |
| DeployIdx(2009,2010)×SiteIdx(J,S) | 2578.6 | 1 | 2578.6 | 29.76 | 0* |
| Error | 651233.7 | 7517 | 86.6 | | |
| Total | 715431.8 | 7527 | | | |

Table S3.

ANOVA test of plane passings, fixed effects, SS Type III. * indicates significant at $\alpha = 0.05$. For abbreviations see Table S1

| Source | SS | df | Mean Sq. | <i>F</i> | p |
|-----------------------------------|---------|------|----------|----------|---------|
| DayNight | 1269.8 | 1 | 1269.85 | 693.06 | 0* |
| DrumPA | 81.3 | 1 | 81.29 | 44.37 | 0* |
| DeployIdx(2009,2010) | 7.7 | 1 | 7.66 | 4.18 | 0.0409* |
| SiteIdx(J,S) | 150.6 | 1 | 150.57 | 82.18 | 0* |
| DayNight×DrumPA | 22.1 | 1 | 22.08 | 12.05 | 0.0005* |
| DayNight×DeployIdx(2009,2010) | 4.7 | 1 | 4.68 | 2.55 | 0.11 |
| DayNight×SiteIdx(J,S) | 384.7 | 1 | 384.72 | 209.97 | 0* |
| DrumPA×DeployIdx(2009,2010) | 0.8 | 1 | 0.83 | 0.46 | 0.4999 |
| DrumPA×SiteIdx(J,S) | 0 | 1 | 0.04 | 0.02 | 0.8816 |
| DeployIdx(2009,2010)×SiteIdx(J,S) | 20.1 | 1 | 20.06 | 10.95 | 0.0009* |
| Error | 13772.8 | 7517 | 1.83 | | |
| Total | 16067.9 | 7527 | | | |

Table S4.

ANOVA test of shipping noise presence, fixed effects, SS Type III. * indicates significant at $\alpha = 0.05$. For abbreviations see Table S1

| Source | SS | df | Mean Sq. | <i>F</i> | p |
|------------------------------------|----------|------|----------|----------|---------|
| DayNight | 57405.2 | 1 | 57405.2 | 122.62 | 0* |
| DrumPA | 66377.6 | 1 | 66377.6 | 141.78 | 0* |
| DeployIdx(2009,2010) | 1612.8 | 1 | 1612.8 | 3.44 | 0.0635 |
| SiteIdx(J,S) | 272753.8 | 1 | 272753.8 | 582.59 | 0* |
| DayNight×DrumPA | 12012.9 | 1 | 12012.9 | 25.66 | 0* |
| DayNight×DeployIdx(2009,2010) | 2451.1 | 1 | 2451.1 | 5.24 | 0.0222* |
| DayNight×SiteIdx(J,S) | 2051.2 | 1 | 2051.2 | 4.38 | 0.0364* |
| DrumPA×DeployIdx(2009,2010) | 29001.4 | 1 | 29001.4 | 61.95 | 0* |
| DrumPA×SiteIdx(J,S) | 597.8 | 1 | 597.8 | 1.28 | 0.2585 |
| DeployIdx(2009,2010) ×SiteIdx(J,S) | 18190.8 | 1 | 18190.8 | 38.85 | 0* |
| Error | 3519260 | 7517 | 468.2 | | |
| Total | 4505758 | 7527 | | | |