## Supplementary Material

**Table S1.** Summary of detection history for each hawksbill turtle including size at capture (curved carapace length). Residency index represents the number of unique days detected divided by the number of days between the first and last detection.

| ID | First detection | Last detection | Size at capture (cm) | No. of detections | No. days detected | No. days at liberty | Residency index |
|---|---|---|---|---|---|---|---|
| 1257 | 13-August-2017 | 05-March-2018 | 44.5 | 322462 | 205 | 205 | 1.00 |
| 1258 | 05-August-2017 | 25-February-2018 | 40.0 | 51171 | 196 | 205 | 0.96 |
| 1259 | 05-August-2017 | 25-February-2018 | 40.5 | 89978 | 198 | 205 | 0.97 |
| 1260 | 19-August-2017 | 11-March-2018 | 42.2 | 84438 | 198 | 205 | 0.97 |
| 1261 | 30-July-2017 | 19-February-2018 | 32.0 | 141242 | 204 | 205 | 1.00 |
| 1262 | 30-July-2017 | 23-May-2018 | 36.0 | 45842 | 297 | 298 | 1.00 |
| 1263 | 23-July-2017 | 23-May-2018 | 43.9 | 107036 | 304 | 305 | 1.00 |
| 1264 | 23-July-2017 | 22-May-2018 | 35.5 | 73223 | 303 | 304 | 1.00 |
| 2958 | 23-July-2016 | 29-August-2016 | 36.0 | 4725 | 38 | 38 | 1.00 |
| 2959 | 17-July-2016 | 05-April-2017 | 48.8 | 59399 | 260 | 263 | 0.99 |
| 2960 | 23-July-2016 | 01-December-2016 | 40.6 | 68522 | 132 | 132 | 1.00 |
| 2962 | 17-July-2016 | 05-April-2017 | 47.0 | 66341 | 257 | 263 | 0.98 |
| 10651 | 02-August-2015 | 11-February-2016 | 27.4 | 1772 | 115 | 194 | 0.59 |
| 12499 | 02-August-2015 | 27-December-2017 | 48.3 | 97635 | 847 | 879 | 0.96 |
| 15783 | 10-February-2018 | 24-May-2018 | 29.0 | 285164 | 104 | 104 | 1.00 |
| 15784 | 04-February-2018 | 22-May-2018 | 52.8 | 58410 | 108 | 108 | 1.00 |
| 15785 | 06-August-2017 | 23-May-2018 | 53.2 | 420288 | 291 | 291 | 1.00 |
| **Mean ± SD** | | | **41.0 ± 7.7** | **116332 ± 115700** | **239 ± 176** | **247 ± 180** | **0.96 ± 0.10** |

**Table S2.** Summary of model averaging output from general linear mixed-effects candidate models with $\Delta AIC_c < 2$.

| Variable | Relative importance | Number of models with variable | Estimate | Adjusted SE | z-value | P |
|---|---|---|---|---|---|---|
| ***Dive duration (minutes - log transformed)*** | | | | | | |
| (Intercept) | | | 1.474 | 0.023 | 63.766 | **<0.001** |
| Diel category:Night | 1.00 | 2 | 0.238 | 0.012 | 20.045 | **<0.001** |
| Mean depth | 1.00 | 2 | 0.062 | 0.008 | 24.284 | **<0.001** |
| Season:Spring | 1.00 | 2 | -0.031 | 0.009 | 3.269 | **0.001** |
| Season:Summer | | | -0.007 | 0.007 | 0.974 | 0.330 |
| Season:Spring | | | -0.014 | 0.010 | 1.358 | 0.174 |
| Size | 1.00 | 2 | 0.024 | 0.012 | 1.959 | **0.050** |
| Habitat:Nearshore | 1.00 | 2 | 0.014 | 0.010 | 1.401 | 0.161 |
| Habitat:Offshore | | | -0.018 | 0.008 | 2.222 | **0.026** |
| Habitay:Runway | | | -0.036 | 0.008 | 4.371 | **<0.001** |
| Temperature | 1.00 | 2 | -0.025 | 0.005 | 4.859 | **<0.001** |
| Wind speed | 1.00 | 2 | -0.003 | 0.005 | 1.149 | 0.251 |
| Diel category:Night*Mean depth | 1.00 | 2 | -0.035 | 0.005 | 8.199 | **<0.001** |
| Diel category:Night*Season:Spring | 1.00 | 2 | 0.037 | 0.012 | 3.000 | **0.003** |
| Diel category:Night*Season:Summer | | | <0.001 | 0.010 | 0.022 | 0.982 |
| Diel category:Night*Season:Winter | | | 0.027 | 0.012 | 2.222 | **0.026** |
| Diel category:Night*Size | 1.00 | 2 | -0.018 | 0.008 | 4.275 | **<0.001** |
| Diel category:Night*Habitat:Nearhore | 1.00 | 2 | -0.028 | 0.012 | 2.335 | **0.020** |
| Diel category:Night*Habitat:Offshore | | | 0.026 | 0.011 | 2.270 | **0.023** |
| Diel category:Night*Habitat:Runway | | | 0.026 | 0.011 | 2.238 | **0.025** |
| Diel category:Night*Wind speed | 1.00 | 2 | 0.009 | 0.008 | 2.454 | **0.014** |
| Diel category:Night*Temperature | 0.28 | 1 | 0.003 | 0.009 | 0.333 | 0.739 |
| ***Activity space - 95% UD ($km^2$ - log transformed)*** | | | | | | |
| (Intercept) | | | -0.661 | 0.030 | 22.344 | **<0.001** |
| Diel category:Night | 1.00 | 8 | -0.175 | 0.027 | 6.404 | **<0.001** |
| Air pressure | 1.00 | 8 | -0.035 | 0.010 | 3.594 | **<0.001** |
| Size | 1.00 | 8 | 0.050 | 0.028 | 1.770 | 0.077 |
| Wind speed | 0.73 | 6 | 0.015 | 0.009 | 1.620 | 0.105 |
| Temperature | 0.43 | 3 | -0.021 | 0.014 | 1.444 | 0.149 |
| Diel category:Night*Size | 0.16 | 2 | -0.010 | 0.024 | 0.409 | 0.683 |
| Diel category:Night*Wind speed | 0.08 | 1 | 0.005 | 0.016 | 0.309 | 0.757 |
| Diel category:Night*Air pressure | 0.08 | 1 | -0.004 | 0.016 | 0.246 | 0.806 |
| ***Rate of movement ($m \cdot 2hrs^{-1}$ - log transformed)*** | | | | | | |
| (Intercept) | | | 3.115 | 0.017 | 180.558 | **<0.001** |
| Diel category:Night | 1.00 | 3 | -0.070 | 0.011 | 6.272 | **<0.001** |
| Air pressure | 1.00 | 3 | 0.005 | 0.002 | 2.278 | 0.023 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Season:Spring | 1.00 | 3 | 0.005 | 0.009 | 0.570 | 0.569 |
| Season:Summer | | | -0.038 | 0.006 | 6.048 | **<0.001** |
| Season:Spring | | | -0.004 | 0.009 | 0.427 | 0.670 |
| Size | 1.00 | 3 | 0.021 | 0.012 | 1.759 | 0.079 |
| Temperature | 1.00 | 3 | 0.014 | 0.005 | 2.736 | 0.006 |
| Diel category:Night*Air pressure | 1.00 | 3 | -0.011 | 0.004 | 2.709 | 0.007 |
| Diel category:Night*Season:Spring | 1.00 | 3 | -0.026 | 0.017 | 1.520 | 0.128 |
| Diel category:Night*Season:Summer | | | 0.016 | 0.016 | 1.013 | 0.311 |
| Diel category:Night*Season:Winter | | | -0.006 | 0.021 | 0.259 | 0.795 |
| Diel category:Night*Size | 1.00 | 3 | -0.042 | 0.004 | 11.483 | **<0.001** |
| Diel category:Night*Temperature | 0.77 | 2 | 0.020 | 0.011 | 1.856 | 0.063 |
| Wind speed | 0.28 | 1 | -0.001 | 0.001 | 0.922 | 0.357 |

**Figure S1:** Attachment method for acoustic transmitters. Transmitter was attached to two marginal scutes using plastic coated wire and marine putty (white material).

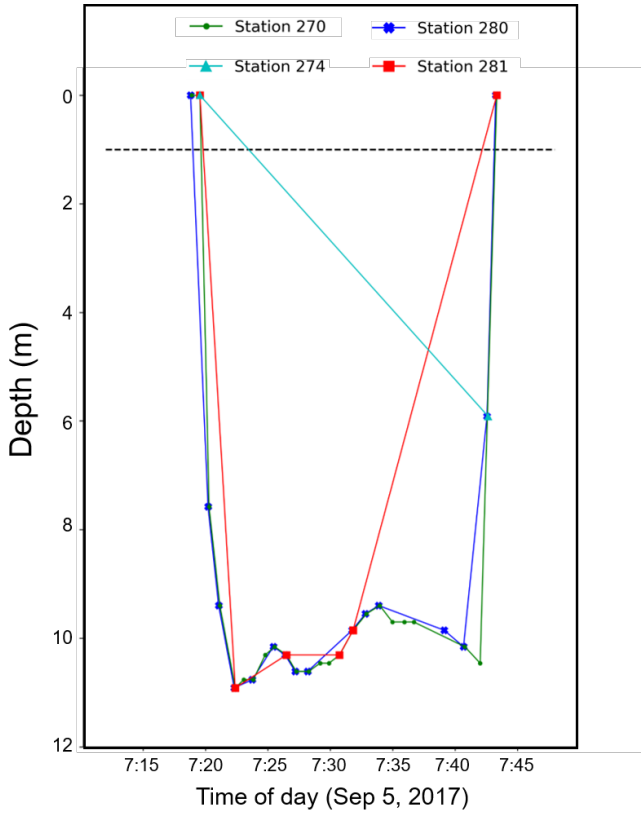


**Figure S2**. An example dive profile of a single dive by hawksbill #1257 detected by multiple stations. Note that Station 280 and Station 270 had very similar profiles, while station 281 and 274 had less frequent detections, nevertheless, the start and stop times for the dive would be the same. The dashed line shows the 1 m depth in which the turtle was considered to be at the surface.

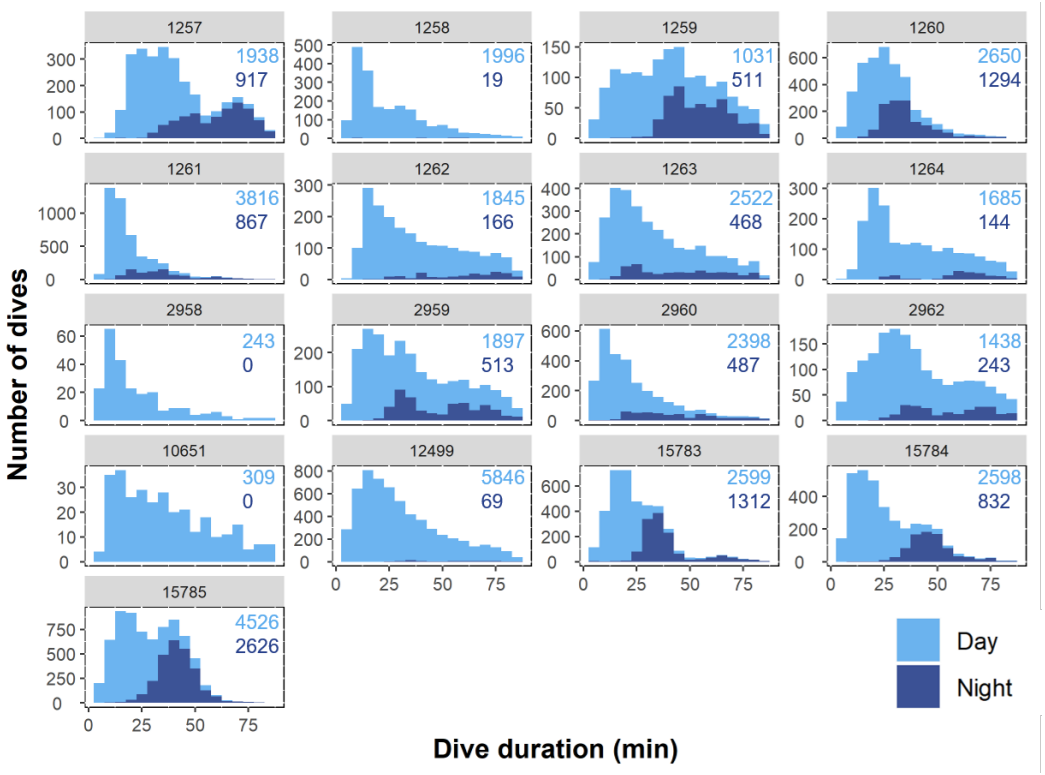


**Figure S3:** Histograms of day and night dive durations for each individual (ID located at top of each sub-plot). The numbers at the top right of each sub-plot indicates the total number of dives for each diel category.

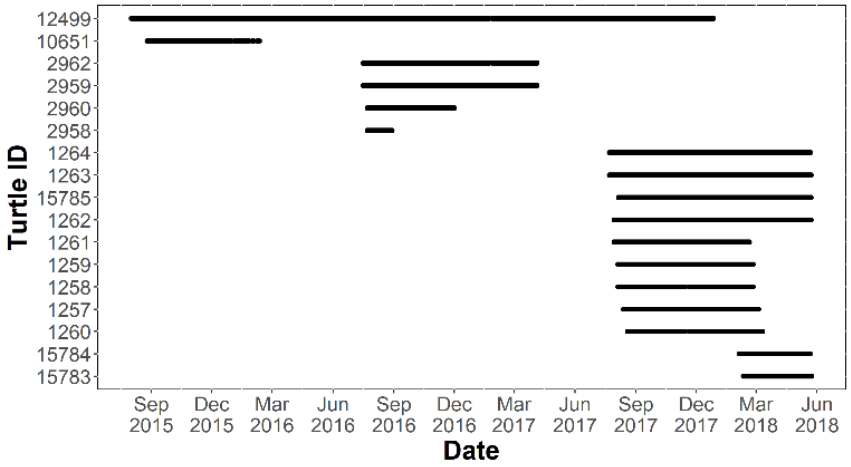


**Figure S4**: Daily detection plot in which black dots indicate a juvenile hawksbill turtle (tagged) was detected in the array on that day.