

[10.1071/MF23052](https://doi.org/10.1071/MF23052)

*Marine and Freshwater Research*

### Supplementary Material

#### **Accuracy and precision of sea-finding orientation as a function of dune proximity in hatchlings of two species of sea turtles**

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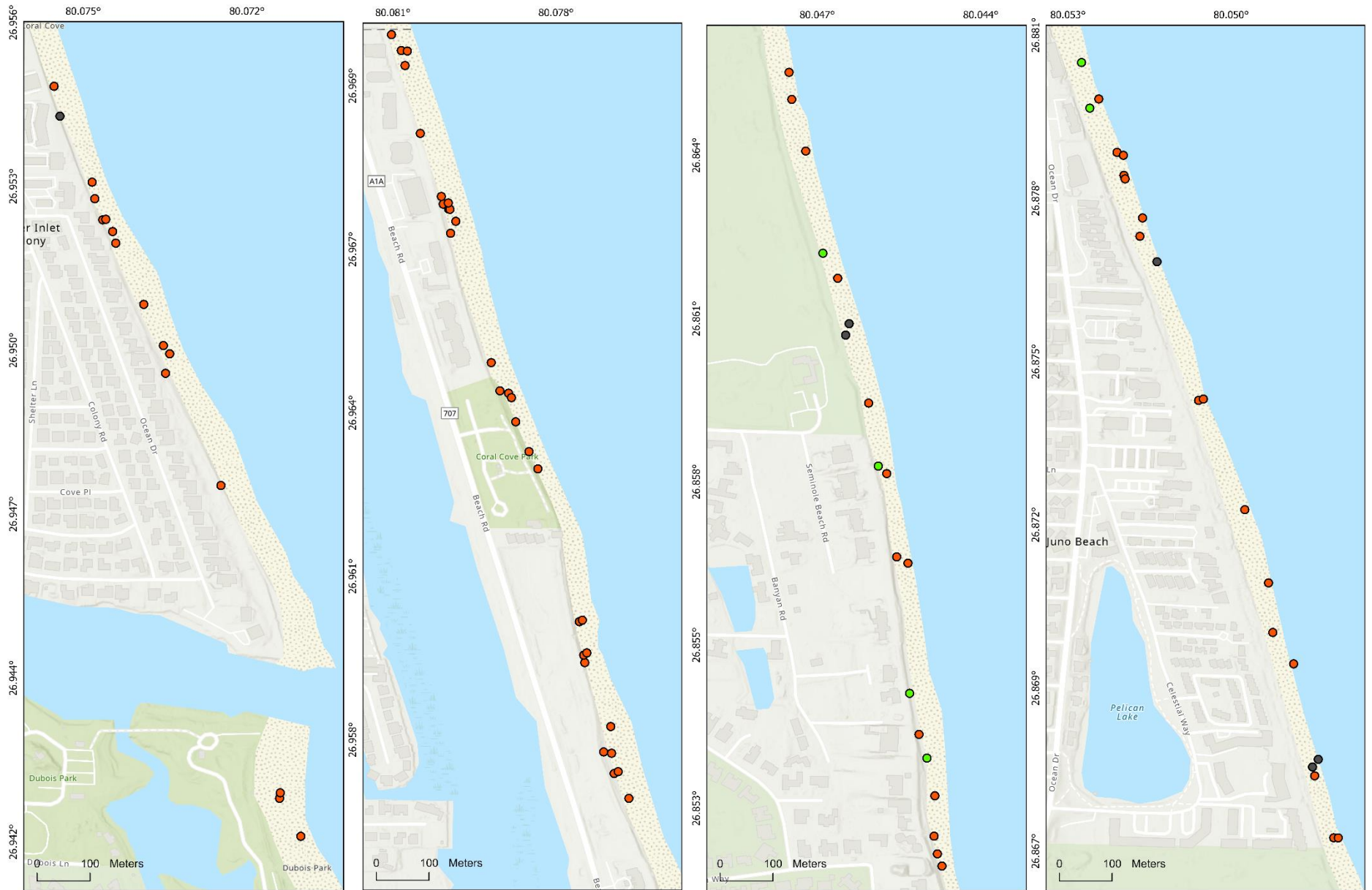
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**Fig. S1.** Maps showing locations of nests for three sea turtle species: loggerhead (*Caretta caretta*;  $n = 178$ ; red dots), green (*Chelonia mydas*;  $n = 50$ ; green dots) and leatherback (*Dermochelys coriacea*;  $n = 15$ ; grey dots). The nests were deposited during 2016–2018 at Juno Beach, FL, USA, depicted here in sections.

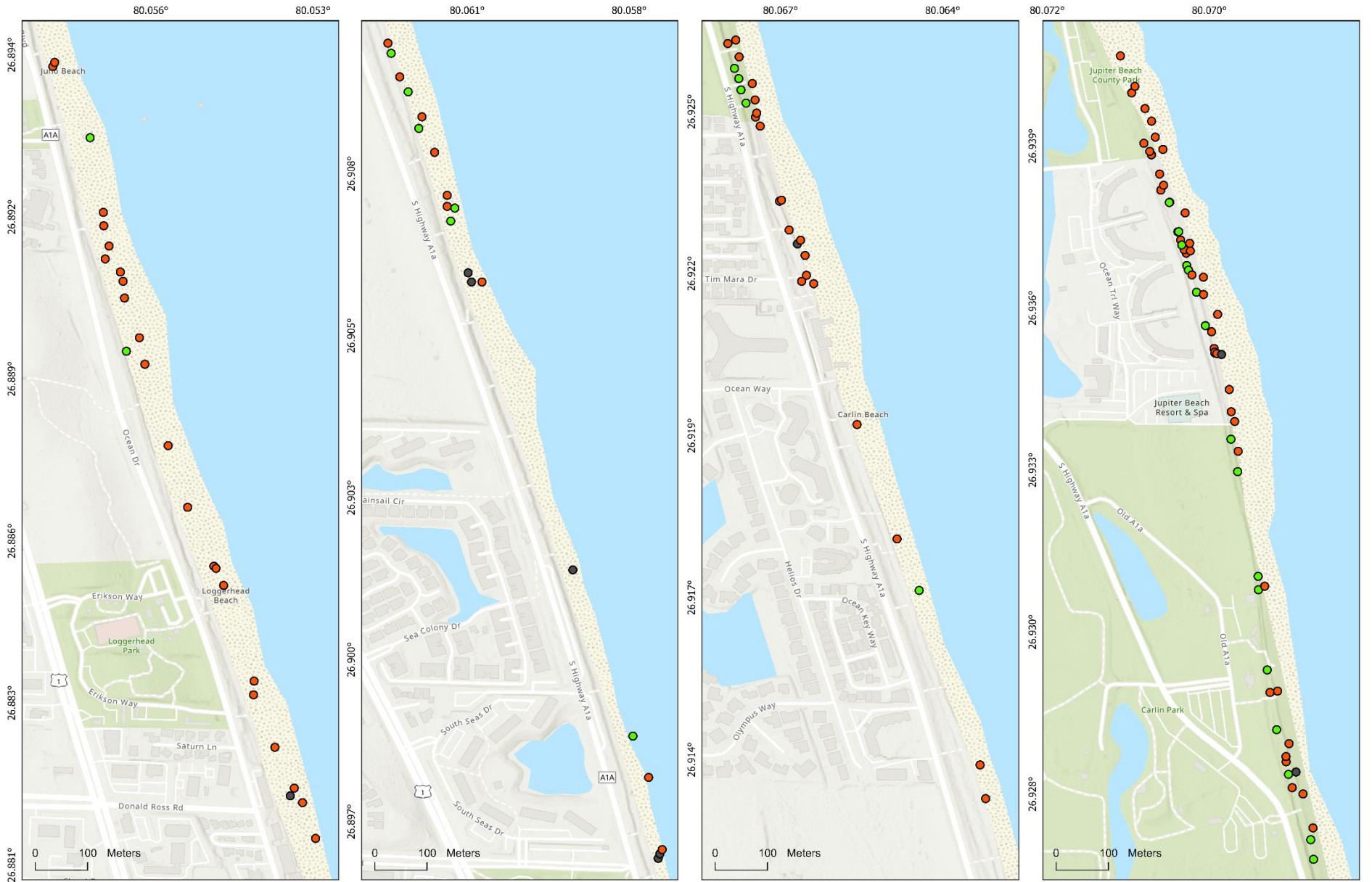
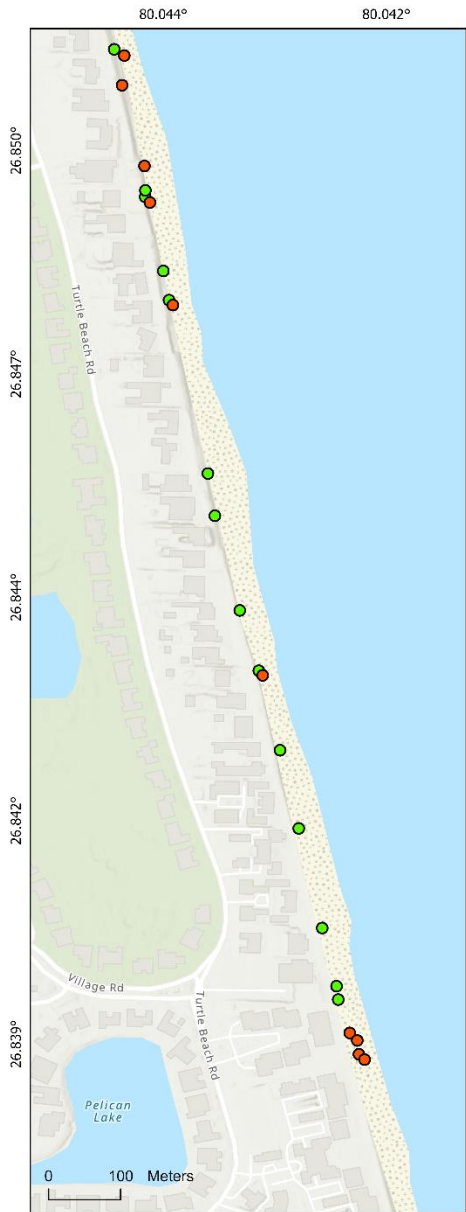


Fig. S1. (Cont.)



**Fig. S1.** (Cont.)

**Table S1.** Descriptive statistics of two parameters (angular range and modal divergence) that describe the precision and accuracy of leatherback sea turtle hatchling orientation and distance from nest to dune at Juno Beach, FL, USA.

<i>n</i>	Angular range (°)			Modal divergence (°)			Distance from nests to dune (m)		
	Mean	Median	Min.–max.	Mean	Median	Min.–max.	Mean	Median	Min.–max.
15	50 ± 34	39	7–133	8 ± 7	7	1–28	9.4 ± 6.1	8.5	2.1–23.5

The sample size for leatherback nests in this study was not large enough to provide sufficient statistical power to discern differences ( $n = 15$  nests). We report summary statistics of leatherback turtle nests distance from nest to dune, hatchling angular range, and hatchling modal divergence, as well as their distribution of nest location in reference to loggerhead and green turtles.

**Table S2.** Results of the negative-binomial mixed-effects models for the influence of distance from nests to dune (distance to dune) on modal divergence and angular range for loggerhead ( $n = 178$ ) and green sea ( $n = 50$ ) turtles at Juno Beach, FL, USA.

	Loggerhead	Green turtle
<b>Angular range</b>	<b>Estimate (95% CI)</b>	<b>Estimate (95% CI)</b>
Intercept	3.90 (3.67–4.14)	3.61 (3.50–3.72)
Distance to dune	0.02 (0.01–0.03)	0.03 (0.02–0.05)
Lunar phase: $\sigma^2$	0.31	0.10
<b>Modal divergence</b>	<b>Estimate (95% CI)</b>	<b>Estimate (95% CI)</b>
Intercept	2.30 (1.96–2.64)	1.46 (1.19–1.72)
Distance to dune	0.03 (0.01–0.05)	0.08 (0.04–0.11)
Lunar phase: $\sigma^2$	0.81	0.51

Lunar phase was a random intercept in the model. Estimates are the log-means of the coefficients. CI, confidence interval.

**Table S3.** Results of the negative-binomial mixed-effects models for the effect of species on modal divergence and angular range for loggerhead ( $n = 46$ ) and green ( $n = 43$ ) sea turtles nesting at overlapping distances, truncating at  $-2$  to  $6$  m from the dune vegetation line (Figure 1; main text), at Juno Beach, FL, USA.

Coefficient	Estimate (95% CI)
<b>Angular range</b>	
Intercept	3.84 [3.71 – 3.98]
Species	-0.18 [-0.38 to 0.02]
<b>Modal divergence</b>	
Intercept	2.02 [1.68 – 2.35]
Species	-0.40 [-0.76 to -0.04]
<i>Lunar phase</i> ( $\sigma^2$ )	0.53

Lunar phase was a random intercept in the model. Estimates are the log-means of the coefficients. Species were dummy coded, where 1 = green turtles and 0 = loggerheads. CI, confidence interval.