

1 November 2023

Kennard Watson, Director  
Panama City Beach Turtle Watch, Inc.  
6509 Palm Court  
Panama City Beach, Florida 32408

Dan Rowe, Executive Director  
Bay County Tourist Development Council  
17001 Panama City Beach Parkway  
Panama City Beach, Florida 32417

Dear Mr. Rowe:

This letter provides results for the 2023 sea turtle nesting season on Panama City Beach. The information is submitted by Panama City Beach Turtle Watch, Inc. (aka Turtle Watch) to fulfill requirements of our contract with the Bay County Tourist Development Council. Season highlights include:

- Record green turtle nesting with 9 nests found this season along with 37 loggerhead nests.
- Hatchling production of 2518 turtles from 4782 eggs, giving an overall emergence success of 53%, lower than last year due to Hurricane Idalia which flooded many nests.
- Artificial lights continue to threaten sea turtles on our beach, disorienting 52% of hatchlings emerging from nests at night this season. Condo lights, streetlights, and urban glow were the main contributors.
- Twenty strandings occurred within the survey area, 14 of which involved turtles accidentally hooked or entangled in fishing gear near the two Gulf piers. Gulf World Marine Institute responded to these incidents.
- Only 6 adult turtles were obstructed by beach furniture while attempting to nest at night, continuing a positive trend of fewer obstruction incidents due to improved regulations within the City of Panama City Beach.
- Turtle Watch in cooperation with Bay County Audubon coordinated an effort to rescue injured brown pelicans and shorebirds as part of a new volunteer group trained in recovery techniques for injured birds in need of transport to treatment facilities.

Major results are summarized below. Additional reports have been submitted to the Florida Fish and Wildlife Conservation Commission (FWC) to fulfill requirements of our State Permits 038 and 271. These documents are available upon request.

Survey Area and Nourishment Activities. Turtle Watch monitors sea turtle activity along 17.5 miles of Gulf beach between St. Andrews State Park and Camp Helen State Park. Portions of the survey area were nourished in 2021-22 with sand pumped onto the beach from an offshore source. Figure 1 is a map of the survey area showing two construction segments totaling about 13 miles along with Florida Department of Environmental Protection Reference Monuments (R-markers). Sand pumping was performed on the western segment (R-1 to R-41) from 15 September 2021 to 13 February 2022 and the eastern segment (R-62 to R-92) from 22 October 2021 to 16 April 2022. The eastern segment was tilled while the western segment was left untilled as part of a joint research project by the U.S. Fish and Wildlife Service and U.S. Geological Survey.

Nest Identification and Relocation. Morning surveys to identify fresh sea turtle crawls were performed from May 1 to September 15. The surveys were done on all-terrain vehicles, and nests were identified solely from the physical evidence left in the sand by the nesting turtle (body pit and sand mound created by flippers). Beginning on September 16 and continuing through October 25, surveys were limited to checks of existing nests which were monitored daily until they hatched and/or were excavated. Regarding nest relocation, nests found in the nourishment project area, including the reference area (Figure 1), were required to remain in place unless laid next to a storm drain, in which case they could be moved to a safer spot nearby.

Nesting and Hatchling Production. We found 46 nests and 32 non-nesting emergences (false crawls) during 2023. Of the 46 nests, 37 were made by threatened loggerheads and 9 by threatened green turtles. Of the 32 false crawls,

29 were made by loggerheads and 3 by greens. Locations of nests and false crawls are shown in Figure 2, a map of the survey area with each column of symbols representing activity on a 0.5-mile section of beach (35 sections). Tables 1-4 provide detailed information on each nest and false crawl, including the location, date found, date hatched, and nest excavation results. Key results are as follows:

- Combined loggerhead hatchling production was 1618 turtles from 3566 eggs for an overall emergence success of 45% (34 evaluated nests, Figure 3). Average loggerhead nest size was 106 eggs (range 83-155, 33 nests, excluding one partial washout) and average incubation period was 63 days (range 55-79, 20 nests, Figure 4).
- Combined green hatchling production was 900 turtles from 1216 eggs for an overall emergence success of 74% (9 evaluated nests, Figure 3). Average green nest size was 135 eggs (range 92-159, 9 nests) and average incubation period was 56 days (range 52-62, 8 nests, Figure 4).
- One loggerhead nest laid near a storm drain was moved to a safer location nearby. All other nests were left in situ per permit guidelines.
- One nesting green turtle was tagged during nighttime beach cleaning operations. A metal tag was applied to each front flipper and an electronic PIT tag was injected into the left shoulder.
- One loggerhead nest missed by the morning surveys was found by a beach vendor.
- Hurricane Idalia flooded 21 nests and washed out an additional 3 when the storm hit on August 30. The impacts were mainly to loggerhead nests laid close to the water, while the green nests laid higher on the beach, closer to the dune, mostly escaped wash-over from the storm.
- Public nest excavations were performed at 24 nests following hatching. In addition to 2179 people who attended in person, many more joined virtually at several events streamed live on our Facebook page.

Beachfront Lighting Affecting Nesting and Hatchling Turtles. Artificial lights from beachfront development continue to pose a serious threat to sea turtles on our urban beach, causing substantial numbers of hatchlings to become disoriented when emerging from nests at night. We submitted disorientation data to FWC's online system and provided a separate summary report with more on this subject, including procedures to monitor nests and estimate lighting effects on nesting and hatchling turtles. Key results are as follows:

- Lights disoriented 1169 of 2244 hatchlings or 52% of those emerging at night from 26 nests.
- Condo lights were the largest contributor at 32% (interior and exterior). Urban glow and streetlights contributed 21% and 10%, respectively (Figure 5).
- Adult loggerheads were disoriented at one nest and one false crawl.

Beach Furniture Affecting Nesting Turtles. We documented only 6 incidents where adult turtles encountered obstructions while attempting to nest or after successfully nesting (Table 5). This good news continues a positive trend that began last year within the City limits, thanks to an updated Leave No Trace (LNT) ordinance requiring nightly storage of vendor chairs at the base of the dune. Only 2 of the 6 obstructed nesting incidents shown in Table 5 occurred on the municipal beach, although these results may also reflect lower nesting activity in this area during 2023.

Stranding Incidents. Twenty (20) turtles stranded within the survey area between May and October (Table 6). They consisted of 16 loggerheads, 3 Kemp's ridleys, and one green turtle. Five were found dead on the beach or in the water, and one carcass was taken to the National Marine Fisheries Service for examination. The beach cleaning contractor, Coastal Parasail, removed dead turtles from the beach as part of their beach cleaning duties. Gulf World Marine Institute (GWMI) responded to 14 turtles found alive near the two Gulf piers with embedded hooks or entangled in fishing gear. These turtles were taken to GWMI for treatment. Overall, stranding activity continues to be higher than normal, partly due to better reporting of turtles caught by fishermen, thanks to educational efforts by GWMI and Turtle Watch.

Seabird and Shorebird Nesting. Turtle Watch surveyors coordinated with FWC personnel who posted three locations within the survey area at Bid-a-Wee Beach, Laguna Beach, and Sunnyside Beach to protect seabirds and shorebirds. All sites had nesting least terns, the largest colony located at Laguna Beach where 170 nests were identified, producing 15 fledglings. One black skimmer nest at Sunnyside Beach produced 2 chicks, but neither survived. As in

prior years, the greatest impacts to the colonies involved fireworks and disturbance from people walking through the posted colonies, vehicle impacts, and dogs on the beach. Nesting was less successful than last year.

Injured Bird Response. Bay County Audubon, Audubon Florida, and Turtle Watch co-sponsored a workshop earlier this year which led to the creation of an informal group to respond to injured birds found on our Gulf beach. Participants included biologists, GWMI, Beach and Surf Patrol officers, City code enforcement staff, and concerned citizens. While the group responds to all bird species, brown pelicans were the initial focus due to their prevalence near recreational fishing activity at the two Gulf piers, making these birds particularly vulnerable to injury and entanglement from fishing gear. Volunteers were trained in safety procedures, required equipment, and proper rescue techniques to ensure that injured birds aren't further harmed from handling and transport to treatment facilities. The current group, consisting of about 14 attendees from the workshop, has responded to numerous injured birds within our survey area, including 13 pelicans, 2 terns, and one osprey since early September (Figure 6).

Beach Cleaning Coordination. Turtle Watch surveyors notified Coastal Parasail each morning when surveys were done and nests marked so that beach cleaning could begin. Additionally, Turtle Watch provided Wildlife Observers as part of enforcement of the LNT ordinances performed nightly between May 8 and September 17, removing tents and other personal gear covered by the ordinances. The Wildlife Observer drove a gator (mule) while watching for nesting and hatchling turtles and other wildlife, including birds. The vehicle stopped, lights were turned off, and crews were advised to halt operations when turtles were observed. Crews received training from Turtle Watch representatives on nighttime operations to minimize impacts on beach wildlife.

If you have questions, please contact me during business hours at (850) 238-9895 or at [pcbturtle@yahoo.com](mailto:pcbturtle@yahoo.com). Thanks.

Sincerely,

*Kennard Watson*

Kennard Watson  
Turtle Watch Director

cc: Robbin Trindell (FWC Tallahassee), Meghan Koperski (FWC Tequesta), Beth Mongiovi (FWRI St Petersburg), Nick Vitale (FWC Panama City), Patty Kelly (FWS Panama City), Margaret Lamont (USGS Gainesville), Justin Lashley (COE Mobile), Lisa Armbruster (Sustainable Beaches), Lauren Albrittain (GWMI), Timothy Justice (Bay County Code Enforcement), Lanie Smith (PCB Code Enforcement), Mel Leonard (Panama City Beach), Drew Whitman (Panama City Beach), Norman Capra (Audubon Bay County), Caroline Stahala (Audubon Florida)



Figure 1. Survey area showing two beach sections nourished in 2021-2022.

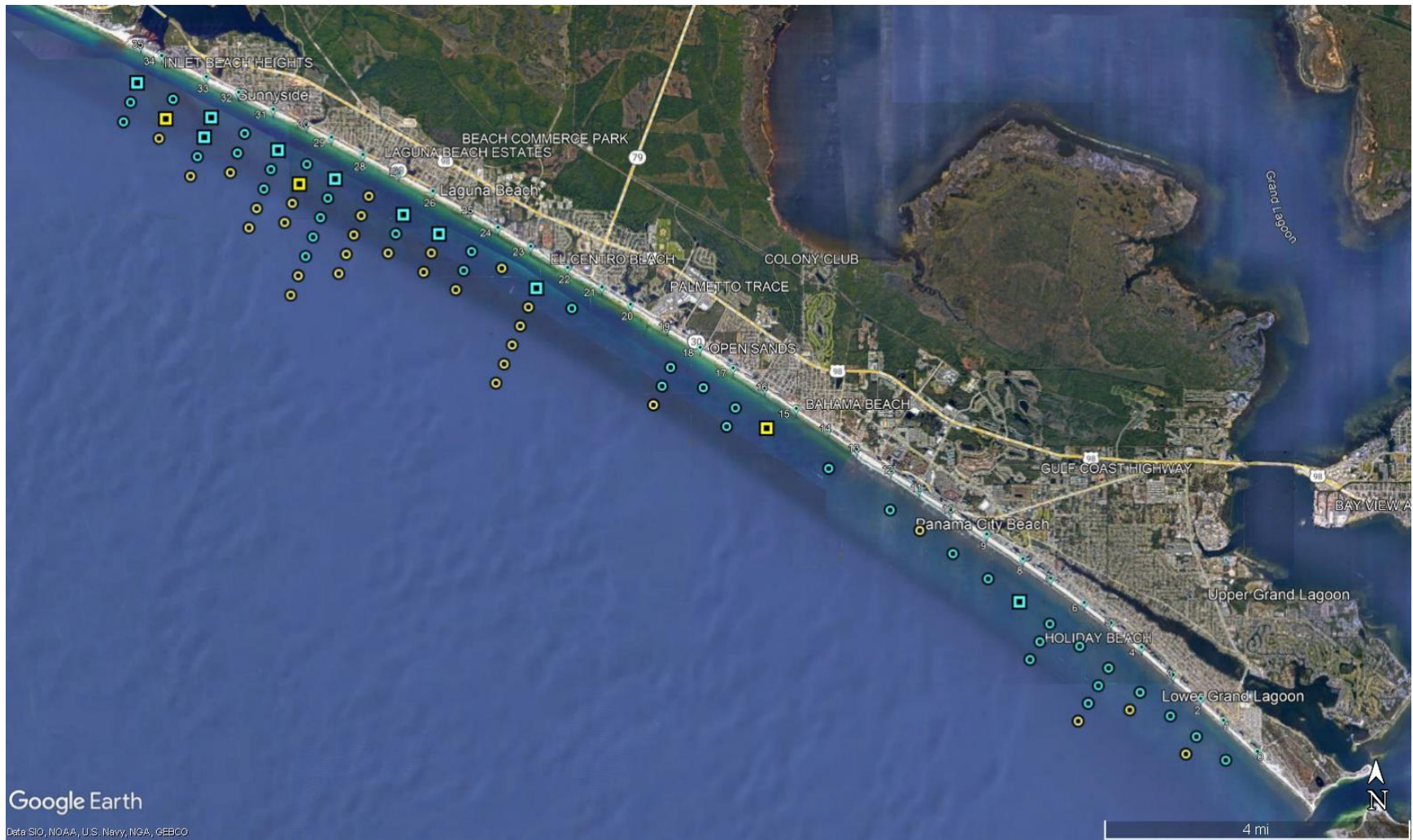
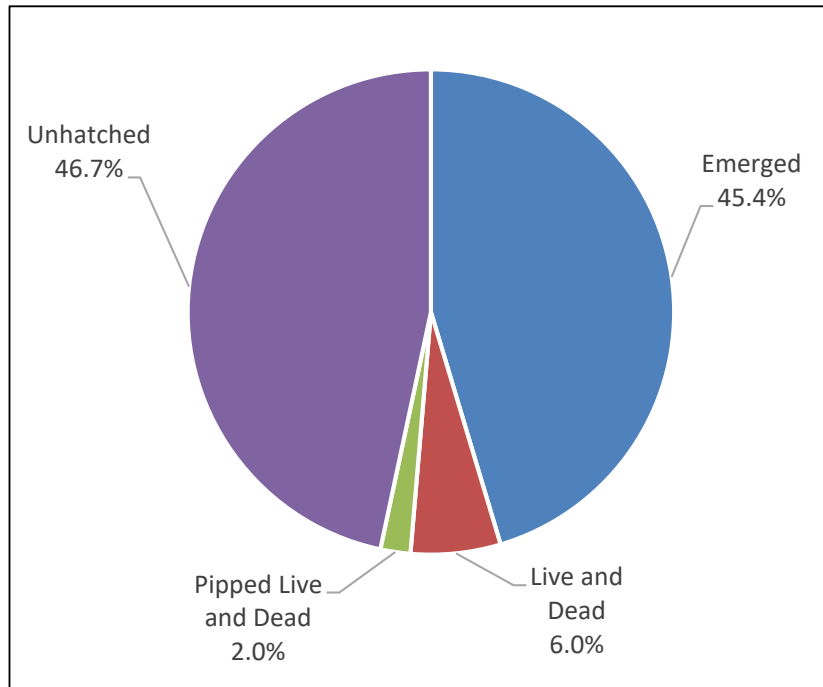
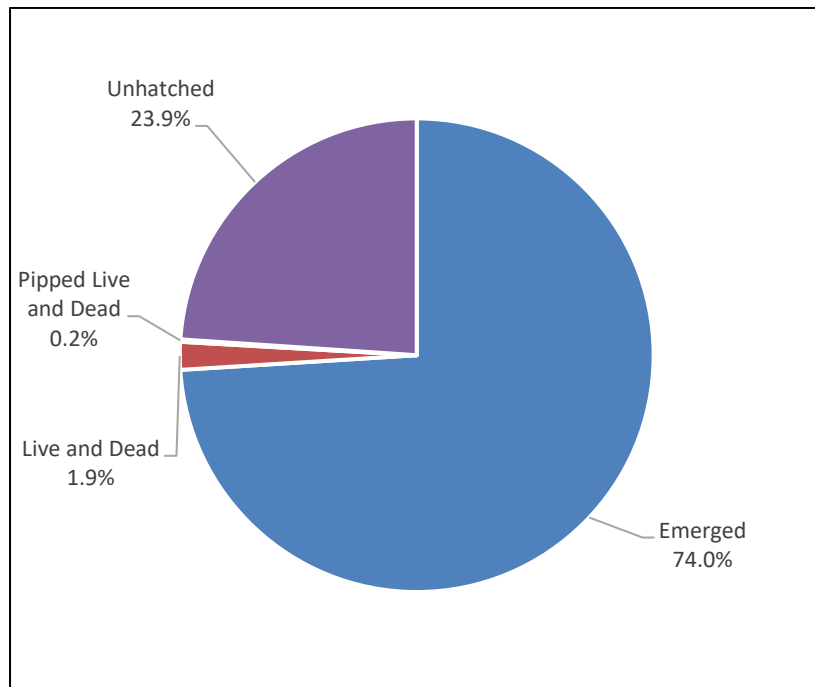


Figure 2. Sea turtle nest and false crawl locations on Panama City Beach in 2023. Each column of symbols represents crawls on 1/2-mile beach segment (blue nests, yellow false crawls, circles loggerhead, squares green turtle).



(a) Loggerhead (34 nests)



(b) Green (9 nests)

Figure 3. Emergence success for loggerhead and green nests on Panama City Beach in 2023. Contents are unhatched eggs, live and dead hatchlings found in nest, pipped eggs where hatchling partially broke free of shell, and emerged hatchlings that escaped the nest.

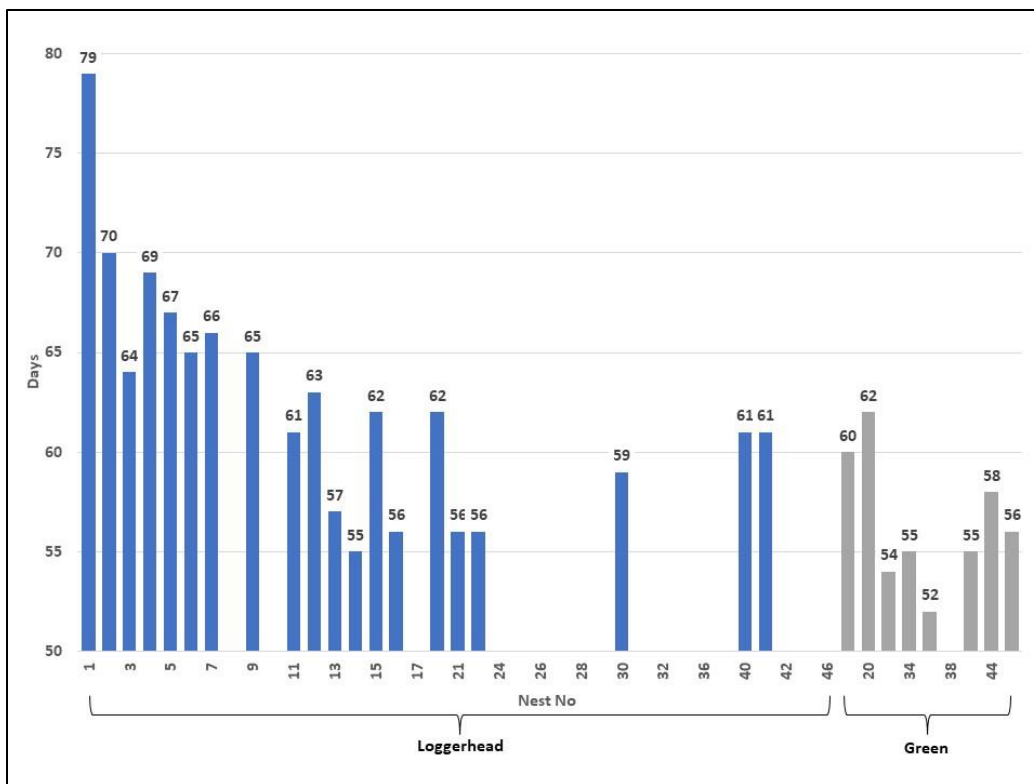


Figure 4. Nest incubation periods on Panama City Beach in 2023 (20 loggerhead nests, 8 green nests). Blanks indicate nests that failed to hatch or had unknown incubation periods.

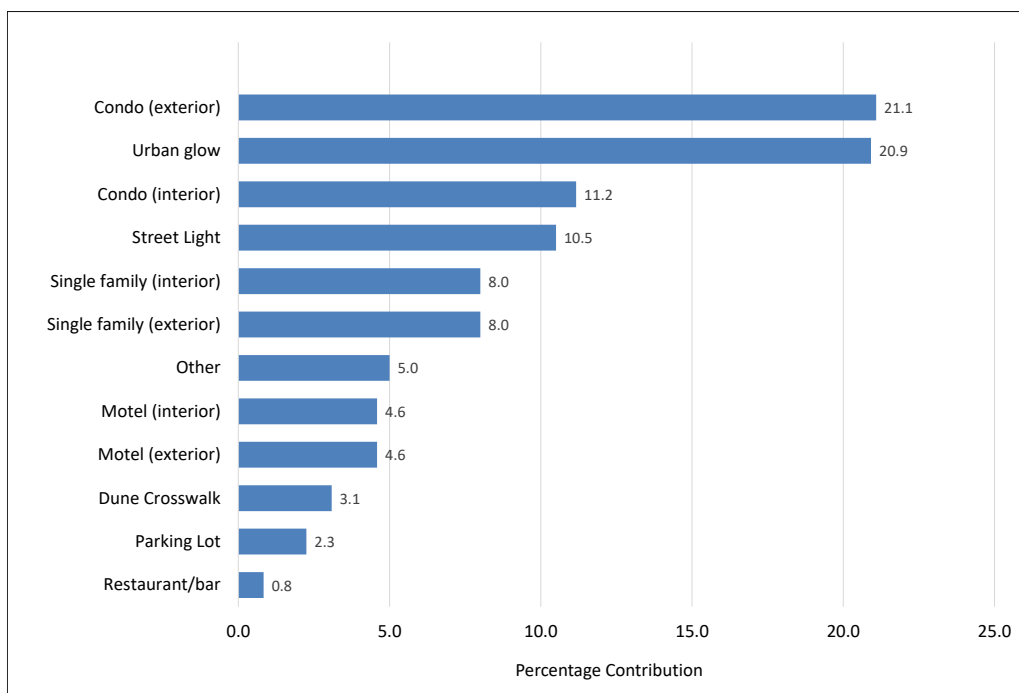


Figure 5. Lights contributing to hatchling disorientation incidents on Panama City Beach in 2023 (16 loggerhead nests, 4 green nests).



Figure 6. Brown pelicans with injuries from recreational fishing gear transported to an animal care facility in 2023.

Table 1. Sea turtle nest locations and hatching information on Panama City Beach in 2023.  
Cc loggerhead, Cm green, UNK unknown

Nest No	Species	Address	In Situ or Relocated	Date Laid	Date Hatched	Incubation (days)	Total Eggs	Turtles Emerged	Latitude	Longitude
1	Cc	House, 22339 Front Beach Rd	In situ	12-May	29-Jul	79	126	104	30.256883	-85.965800
2	Cc	Pinnacle Port Condo, 23223 Front Beach Rd	In situ	13-May	21-Jul	70	151	142	30.265219	-85.986508
3	Cc	Osprey Motel, 15801 Front Beach Rd	In situ	29-May	31-Jul	64	155	153	30.212351	-85.872559
4	Cc	House, 5407 Gulf Dr	In situ	29-May	5-Aug	69	105	91	30.142624	-85.757487
5	Cc	House, 20816 Front Beach Rd	In situ	4-Jun	9-Aug	67	98	70	30.247651	-85.944397
6	Cc	House, 318 Beachside Dr, Carillon Beach	In situ	4-Jun	8-Aug	65	89	81	30.263226	-85.981620
7	Cc	House, 22115 Front Beach Rd	In situ	8-Jun	13-Aug	66	92	14	30.255336	-85.962474
8	Cc	Runaway Island Restaurant, 14521 Front Beach Rd	In situ	12-Jun	UNK	UNK	126	0	30.204095	-85.857217
9	Cc	Sugar Sands Motel, 20723 Front Beach Rd	In situ	13-Jun	16-Aug	65	85	72	30.246588	-85.942192
10	Cc	Vacant, 20825 Front Beach Rd (intersection of FBR and Buena Vista Ave)	In situ	15-Jun	UNK	UNK	134	2	30.247730	-85.944809
11	Cc	Edgewater Beach Resort, 11212 Front Beach Rd	In situ	17-Jun	16-Aug	61	97	94	30.183919	-85.821089
12	Cc	Lollye on the Beach Motel, 8507 Surf Dr	In situ	17-Jun	18-Aug	63	112	108	30.164382	-85.788094
13	Cc	House, 22005 Front Beach Rd	In situ	19-Jun	14-Aug	57	113	104	30.254361	-85.960159
14	Cc	Largo Mar Condo, 5717 Thomas Dr	Relocated	21-Jun	15-Aug	55	85	79	30.145702	-85.760882
15	Cc	House, 21208 Front Beach Rd	In situ	24-Jun	24-Aug	62	112	107	30.249971	-85.949404
16	Cc	Aqua Resort, 15625 Front Beach Rd	In situ	25-Jun	19-Aug	56	106	101	30.211704	-85.871322
17	Cc	House, 6619 Gulf Dr	In situ	26-Jun	UNK	UNK	UNK	0	30.152720	-85.771083

18	Cm	House, 21515 Front Beach Rd	In situ	26-Jun	24-Aug	60	137	129	30.252071	-85.953663
19	Cc	En Soleil Condo, 7505 Thomas Dr	In situ	28-Jun	28-Aug	62	86	83	30.158963	-85.779789
20	Cm	Sugar Beach Condo, 8727 Thomas Dr	In situ	1-Jul	1-Sep	62	147	136	30.166834	-85.791649
21	Cc	Hidden Dunes Condo, 7115 Thomas Dr	In situ	1-Jul	25-Aug	56	71	70	30.156285	-85.776199
22	Cc	Chateau Motel, 12525 Front Beach Rd	In situ	4-Jul	29-Aug	56	131	85	30.192165	-85.835760
23	Cm	House, 18920 Front Beach Rd	In situ	6-Jul	29-Aug	54	126	123	30.236212	-85.918917
24	Cc	Seaside Villas, 4701 Thomas Dr	In situ	6-Jul	UNK	UNK	83	0	30.135653	-85.748704
25	Cc	House, 6701 Gulf Dr	In situ	7-Jul	UNK	UNK	89	1	30.153359	-85.771714
26	Cc	Bel Air Condo, 8511 Surf Dr	In situ	9-Jul	UNK	UNK	93	0	30.164413	-85.788422
27	Cc	House, 17817 Front Beach Rd	In situ	9-Jul	UNK	UNK	100	0	30.233708	-85.914453
28	Cc	The Shores Condo, 22519 Front Beach Rd	In situ	9-Jul	UNK	UNK	128	0	30.258521	-85.970413
29	Cc	Coral Reef Condo, 6609 Thomas Dr	In situ	12-Jul	UNK	UNK	118	0	30.152103	-85.770085
30	Cc	Long Beach Resort, 10511 Front Beach Rd	In situ	13-Jul	10-Sep	59	134	2	30.177151	-85.809938
31	Cc	Beachside Resort, 21905 Front Beach Rd	In situ	14-Jul	UNK	UNK	93	1	30.253649	-85.958493
32	Cc	Pinnacle Port Condo, 23223 Front Beach Rd	In situ	16-Jul	UNK	UNK	92	0	30.265522	-85.987285
33	Cc	Boardwalk Beach Hotel and Convention Center, 9600 S Thomas Dr	In situ	19-Jul	UNK	UNK	94	0	30.171900	-85.800647
34	Cm	House, 20816 Front Beach Rd	In situ	19-Jul	12-Sep	55	146	129	30.247760	-85.944022
35	Cm	Pinnacle Port Condo, 23223 Front Beach Rd	In situ	19-Jul	9-Sep	52	127	114	30.265942	-85.987861
36	Cc	Fontainebleau Terrace, 14401 Front Beach Rd	In situ	20-Jul	UNK	UNK	UNK	0	30.202913	-85.855059
37	Cc	House, 17799 Front Beach Rd	In situ	24-Jul	UNK	UNK	85	0	30.233349	-85.913909
38	Cm	Harbur Arms Condo, 19947	In situ	25-Jul	UNK	UNK	126	0	30.241419	-85.931057

Front Beach Rd										
39	Cm	The Shores Condo, 22519 Front Beach Rd	In situ	29-Jul	22-Sep	55	159	147	30.258292	-85.969029
40	Cc	Surf Club Condo, 8517 Surf Dr	In situ	31-Jul	29-Sep	61	97	30	30.164541	-85.788505
41	Cc	Aqua Vista Condo, 17155 Front Beach Rd	In situ	31-Jul	30-Sep	61	90	19	30.222973	-85.893038
42	Cc	Pineapple Villas, 19979 Front Beach Rd	In situ	5-Aug	UNK	UNK	89	0	30.241902	-85.932085
43	Cc	House, 21018 Front Beach Rd	In situ	7-Aug	UNK	UNK	107	5	30.248838	-85.947156
44	Cm	Palazzo Condo, 17281 Front Beach Rd	In situ	8-Aug	5-Oct	58	156	64	30.224640	-85.896351
45	Cm	Townhouse, 22813 Front Beach Rd	In situ	10-Aug	5-Oct	56	92	58	30.259422	-85.971434
46	Cc	Bennett's Reef Hotel, 15201 Front Beach Rd	In situ	UNK	23-Aug	UNK	UNK	UNK	30.207650	-85.863050

Table 2. Sea turtle false crawl locations and crawl dates on Panama City Beach in 2023.  
Cc loggerhead, Cm green

Crawl No	Species	Address	Crawl Date	Latitude	Longitude
1	Cc	House, 5405 Gulf Dr	11-May	30.14236	-85.75733
2	Cc	Townhouse, 19993 Front Beach Rd	26-May	30.24246	-85.93341
3	Cc	Barefoot Bar and Grill, 11073 Front Beach Rd	26-May	30.18107	-85.81671
4	Cc	Seachase Condo, 17351 Front Beach Rd	26-May	30.22552	-85.89816
5	Cc	Continental Condo, 15413 Front Beach Rd	29-May	30.20985	-85.86795
6	Cc	House, 21809 Front Beach Rd	12-Jun	30.25327	-85.95745
7	Cc	Shoreline Villas, 23007 Front Beach Rd	13-Jun	30.25980	-85.97257
8	Cc	House, 334 Beachside Dr, Carillon Beach	12-Jun	30.26283	-85.98052
9	Cc	Tropic Winds Condo, 17643 Front Beach Rd	14-Jun	30.23083	-85.90823
10	Cc	Sunnyside Beach and Tennis Club, 22400 Front Beach Rd	21-Jun	30.25616	-85.96481
11	Cm	Surfside Christian Retreat, 21429 Front Beach Rd	26-Jun	30.25138	-85.95284
12	Cc	Townhouse, 17329 Front Beach Rd	27-Jun	30.22526	-85.89773
13	Cc	Vacant lot, 5943 Gulf Dr	6-Jul	30.14747	-85.76397
14	Cc	House, 21104 Front Beach Rd	8-Jul	30.24921	-85.94809
15	Cc	Blue Horizon Lodge, 19016 Front Beach Rd	9-Jul	30.23630	-85.91990
16	Cc	House, 20521 Front Beach Rd	9-Jul	30.24496	-85.93887
17	Cc	House, 21022 Front Beach Rd	9-Jul	30.24897	-85.94754
18	Cc	House, 21328 Front Beach Rd	9-Jul	30.25092	-85.95160
19	Cm	House, 13908 Front Beach Rd	12-Jul	30.20067	-85.85098
20	Cc	Suntrek Condo, 6805 Gulf Dr	17-Jul	30.15446	-85.77350
21	Cc	Townhouse, 19106 Front Beach Rd	19-Jul	30.23675	-85.92103
22	Cc	Townhouse, 21000 Front Beach Rd	19-Jul	30.24831	-85.94621
23	Cc	Seachase Condo, 17351 Front Beach Rd	23-Jul	30.22552	-85.89828
24	Cc	Landmark Condo, 17501 Front Beach Rd	23-Jul	30.22836	-85.90396
25	Cm	House, 380 Beachside Dr, Carillon Beach	28-Jul	30.26201	-85.97784
26	Cc	Palazzo Condo, 17281 Front Beach Rd	30-Jul	30.22459	-85.89651
27	Cc	Vacant lot, 17851 Front Beach Rd	30-Jul	30.23413	-85.91567
28	Cc	House, 21523 Front Beach Rd	5-Aug	30.25196	-85.95427
29	Cc	Pineapple Villas, 19979 Front Beach Rd	7-Aug	30.24195	-85.93241
30	Cc	House, 20001 Front Beach Rd	7-Aug	30.24258	-85.93375
31	Cc	Laguna Beach Christian Retreat, 20225 Front Beach Rd	7-Aug	30.24381	-85.93654
32	Cc	House, 20607 Front Beach Rd	12-Aug	30.24521	-85.93945

Table 3. Loggerhead nest excavation data on Panama City Beach in 2023 (34 nests). Contents are unhatched eggs, live and dead hatchlings found in nest, pipped eggs where hatchling partially broke free of shell, and emerged hatchlings that escaped the nest. **Red indicates nest partially washed out.**

Nest No	Eggs	Turtles Emerged	Live in Nest	Dead in Nest	Pipped Live	Pipped Dead	Unhatch	Emergence Success	In Situ or Relocated
1	126	104	2	0	0	0	20	0.83	In situ
2	151	142	0	3	0	0	6	0.94	In situ
3	155	153	0	0	0	0	2	0.99	In situ
4	105	91	0	0	0	0	14	0.87	In situ
5	98	70	12	0	0	0	16	0.71	In situ
6	89	81	0	0	0	0	8	0.91	In situ
7	92	14	1	0	0	0	77	0.15	In situ
8	126	0	0	0	0	0	126	0.00	In situ
9	85	72	0	0	0	0	13	0.85	In situ
10	134	2	0	1	0	0	131	0.01	In situ
11	97	94	1	0	0	0	2	0.97	In situ
12	112	108	0	0	0	0	4	0.96	In situ
13	113	104	0	0	0	0	9	0.92	In situ
14	85	79	0	1	0	0	5	0.93	Relocated
15	112	107	0	0	0	0	5	0.96	In situ
16	106	101	0	0	0	0	5	0.95	In situ
19	86	83	0	0	0	0	3	0.97	In situ
21	71	70	0	0	0	0	1	0.99	In situ
22	131	85	0	1	0	0	45	0.65	In situ
24	83	0	0	74	0	0	9	0.00	In situ
25	89	1	0	72	0	0	16	0.01	In situ
26	93	0	0	0	0	0	93	0.00	In situ
27	100	0	0	21	0	40	39	0.00	In situ
28	128	0	0	15	0	31	82	0.00	In situ
29	118	0	0	0	0	0	118	0.00	In situ
30	134	2	0	0	0	0	132	0.01	In situ
31	93	1	0	0	0	0	92	0.01	In situ
32	92	0	0	0	0	0	92	0.00	In situ
33	94	0	0	0	0	0	94	0.00	In situ
37	85	0	0	0	0	0	85	0.00	In situ
40	97	30	1	0	0	0	66	0.31	In situ
41	90	19	0	0	0	0	71	0.21	In situ
42	89	0	0	0	0	0	89	0.00	In situ
43	107	5	0	8	0	0	94	0.05	In situ
<b>TOTAL</b>	<b>3566</b>	<b>1618</b>	<b>17</b>	<b>196</b>	<b>0</b>	<b>71</b>	<b>1664</b>	<b>0.45</b>	

Table 4. Green turtle nest excavation data on Panama City Beach in 2023 (9 nests). Contents are unhatched eggs, live and dead hatchlings found in nest, pipped eggs where hatchling partially broke free of shell, and emerged hatchlings that escaped the nest.

Nest No	Eggs	Turtles Emerged	Live in Nest	Dead in Nest	Pipped Live	Pipped Dead	Unhatch	Emergence Success	In Situ or Relocated
18	137	129	4	0	0	0	4	0.94	In situ
20	147	136	4	0	0	0	7	0.93	In situ
23	126	123	0	1	0	0	2	0.98	In situ
34	146	129	3	2	0	2	10	0.88	In situ
35	127	114	3	0	0	0	10	0.90	In situ
38	126	0	0	0	0	0	126	0.00	In situ
39	159	147	2	0	0	0	10	0.92	In situ
44	156	64	1	0	0	0	91	0.41	In situ
45	92	58	2	1	0	0	31	0.63	In situ
<b>TOTAL</b>	<b>1216</b>	<b>900</b>	<b>19</b>	<b>4</b>	<b>0</b>	<b>2</b>	<b>291</b>	<b>0.74</b>	

Table 5. Obstacles encountered by sea turtles during nesting attempts on Panama City Beach in 2023. Cc loggerhead, Cm green.

Crawl No	Species	Crawl Type	Address	Latitude	Longitude	Incident Date	Obstacles Encountered
9	Cc	Nest	Sugar Sands Motel, 20723 Front Beach Rd	30.246588	-85.942192	13-Jun	vendor shed
24	Cc	Nest	Seaside Villas, 4701 Thomas Dr	30.135653	-85.748704	6-Jul	vendor chairs
27	Cc	Nest	House, 17817 Front Beach Rd	30.233708	-85.914453	9-Jul	personal chair
45	Cm	Nest	Townhouse, 22813 Front Beach Rd	30.259422	-85.971434	10-Aug	private walkway
9	Cc	False Crawl	Tropic Winds Condo, 17643 Front Beach Rd	30.23083	-85.90823	15-Jun	personal items
25	Cm	False Crawl	House, 380 Beachside Dr, Carillon Beach	30.26201	-85.97784	28-Jul	vendor chairs

Table 6. Sea turtle strandings on Panama City Beach from May to October 2023.  
 NMFS National Marine Fisheries Service, Cc loggerhead, Cm green, Lk Kemp's ridley, UNK unknown.

No.	Date	Location	Latitude	Longitude	Species	Shell Length (cm)	Final Disposition
1	4-May	Russell-Fields City Pier, 16201 Front Beach Rd	30.21224	-85.87973	Cc	70.8	Gulf World
2	5-May	Russell-Fields City Pier, 16201 Front Beach Rd	30.21364	-85.8784	Cc	76.6	Gulf World
3	17-May	Edgewater Beach Condo, 11212 Front Beach Rd	30.18481	-85.82307	Cc	85.2	NMFS
4	20-May	M.B. Miller County Pier, 12213 Front Beach Rd	30.18648	-85.83405	Cc	68	Gulf World
5	20-May	M.B. Miller County Pier, 12213 Front Beach Rd	30.18663	-85.83369	Cc	67.7	Gulf World
6	23-May	M.B. Miller County Pier, 12213 Front Beach Rd	30.19048	-85.83076	Cc	74	Gulf World
7	4-Jun	Russell-Fields City Pier, 16201 Front Beach Rd	30.21198	-85.87948	Cc	77.1	Gulf World
8	7-Jun	House, 13001 Oleander Dr	30.19494	-85.84039	Lk	63.6	Buried, off beach
9	11-Jun	Russell-Fields City Pier, 16201 Front Beach Rd	30.21289	-85.87906	Cc	75.5	Gulf World
10	14-Jun	Russell-Fields City Pier, 16201 Front Beach Rd	30.21281	-85.879	Cc	78.8	Gulf World
11	28-Jun	Russell-Fields City Pier, 16201 Front Beach Rd	30.21202	-85.87948	Cc	80.4	Gulf World
12	4-Jul	Russell-Fields City Pier, 16201 Front Beach Rd	30.21295	-85.87895	Cc	69.8	Gulf World
13	7-Jul	Russell-Fields City Pier, 16201 Front Beach Rd	30.21247	-85.87574	Cc	71	Gulf World
14	9-Jul	Ambassador Condo, 15617 Front Beach Rd	30.21109	-85.87045	Cc	90	Buried, off beach
15	15-Jul	Russell-Fields City Pier, 16201 Front Beach Rd	30.21205	-85.87954	Cc	72	Gulf World
16	15-Aug	M.B. Miller County Pier, 12213 Front Beach Rd	30.18638	-85.83377	Lk	59.4	Gulf World
17	16-Aug	SpringHill Suites, 12513 Front Beach Rd	30.19138	-85.83456	Cc	75	Buried, off beach
18	4-Sep	Seaside Villas, 4701 Thomas Dr	30.13526	-85.7485	Lk	UNK	Buried, off beach
19	8-Sep	House, 348 Beachside Dr, Carillon Beach	30.26234	-85.97966	Cm	45.9	Gulf World
20	20-Oct	House, 5307 Gulf Dr	30.14177	-85.75641	Cc	89.3	Buried, off beach