

Clearwater Marine Aquarium's Sea Turtle Friendly Lighting Initiative

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Sea turtles nest on our beaches!

Loggerhead sea turtle
Kemp's ridley

Credit: Florida Fish and Wildlife Conservation Commission (FWC)



Green sea turtle



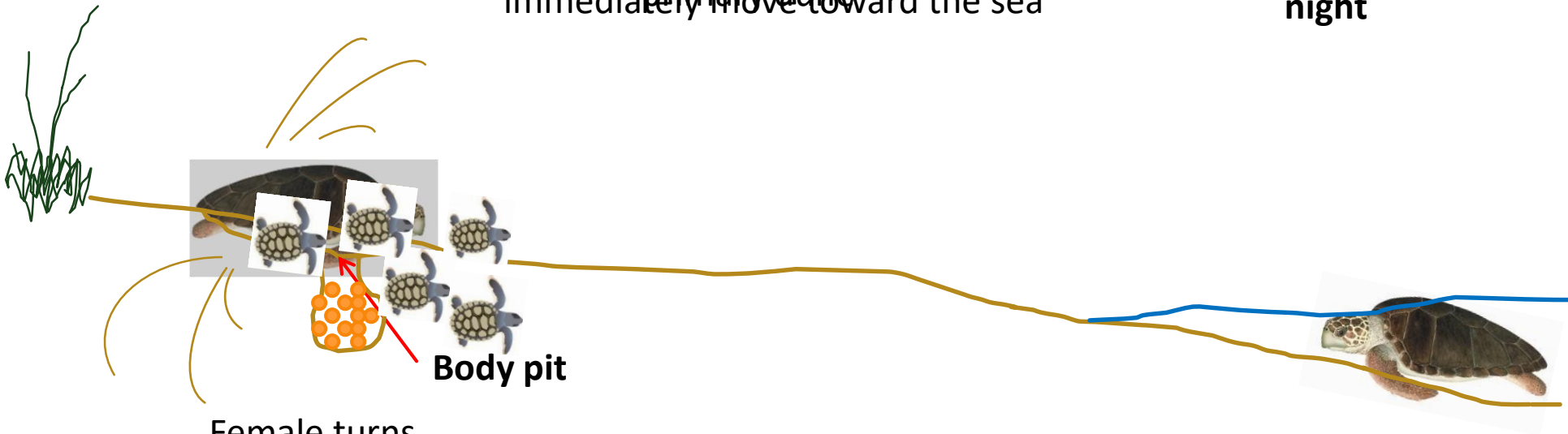
Nesting Process

Female prepares the nest site by pushing or

Female crawls up the beach to a point digging surface sand away to about two months later:

“body parts will emerge from the nest and **right**
immediately **primary dune** move toward the sea”

Admiral Mahan's message
and from the surf zone at
night



Female turns
Female flaps her "eggs cavity"
Female flaps one flipper at the nest site by
Female flaps one flipper and
Female flaps one flipper and
casting sand, principally with front-flipper
rear flippers
strokes

Dark Beach



Disorientation



Disorientations



Residential lighting

Location of the nest

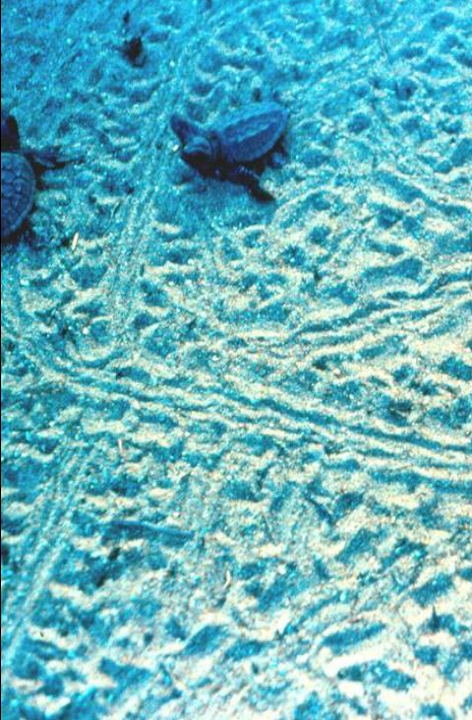
Crawl of the adult female

Warning:

The following pictures are graphic

Credit: CMA

All photos provided by FWC

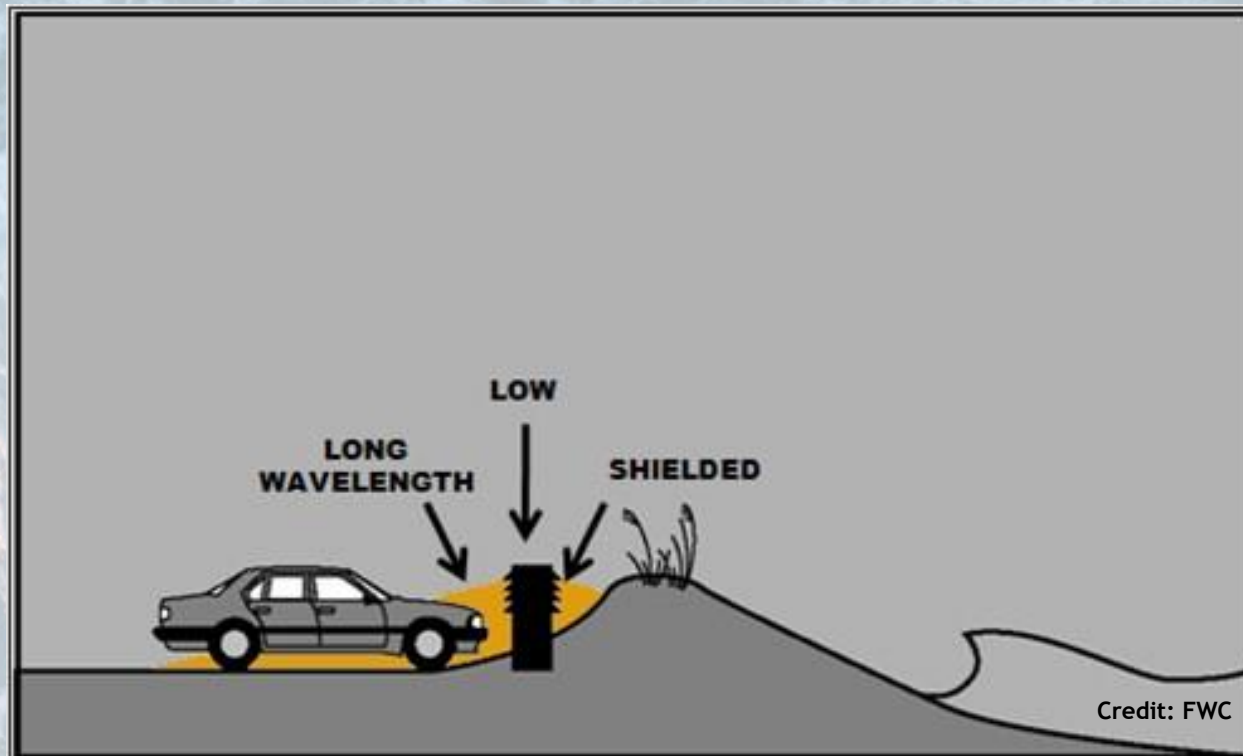


Credit: CMA



How Can Cities Help?

The FWC's motto for sea turtle friendly lighting is “long, low and shielded.”



IMPORTANT:

**All three
guidelines
must be met to
be considered
sea turtle
friendly**

Change Can Be Good

BEFORE



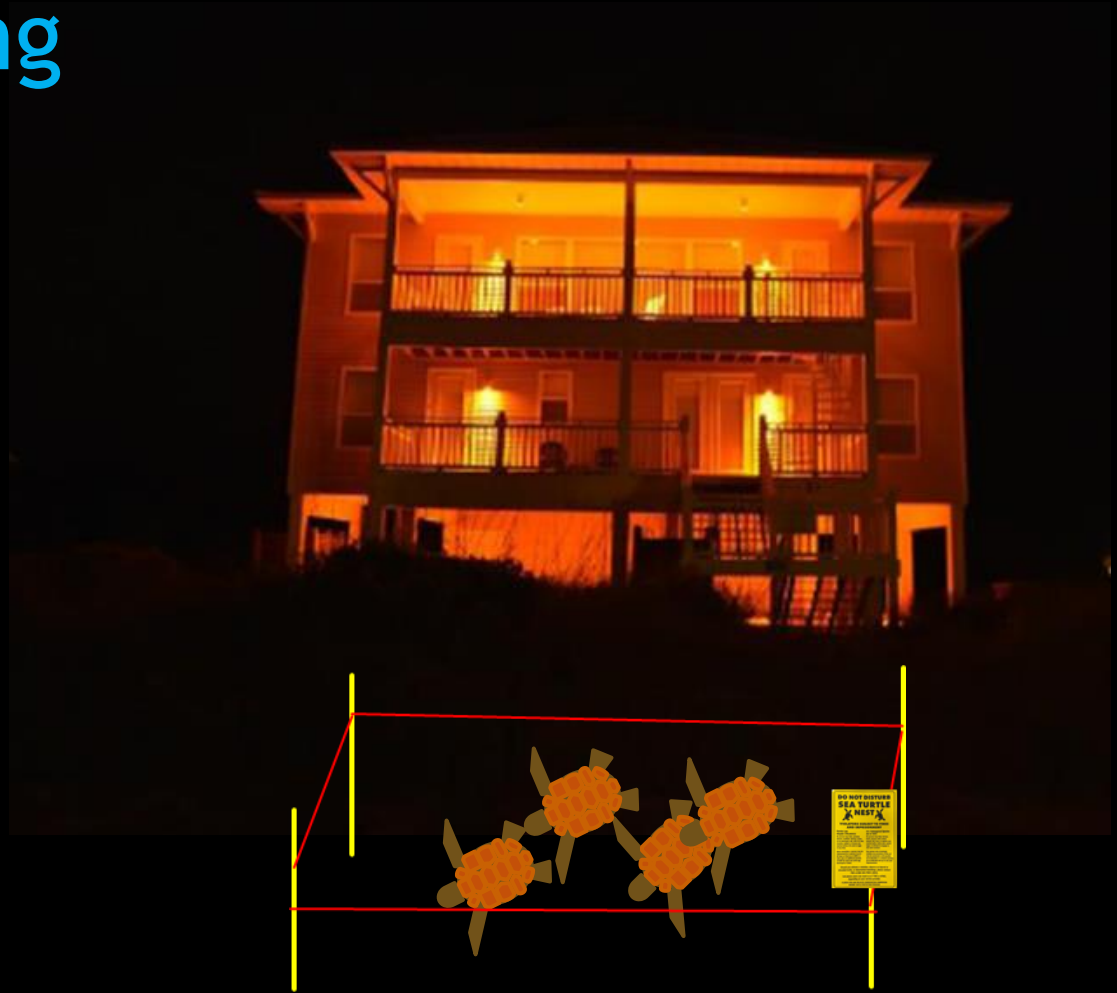
AFTER



Credit: Sea Turtle Conservancy

From left to right: Photo 1 - View of Eastern Mist property taken 'before' retrofit from the back yard adjacent to the beach. Photo 2 - 'After' retrofit view of property illustrating replacement of unshielded beachside fixtures with full spectrum bulbs replaced with full-cutoff fixtures lamped with long wavelength amber LED bulbs.

Sea Turtle Friendly Lighting



Can sea turtles really see a difference?

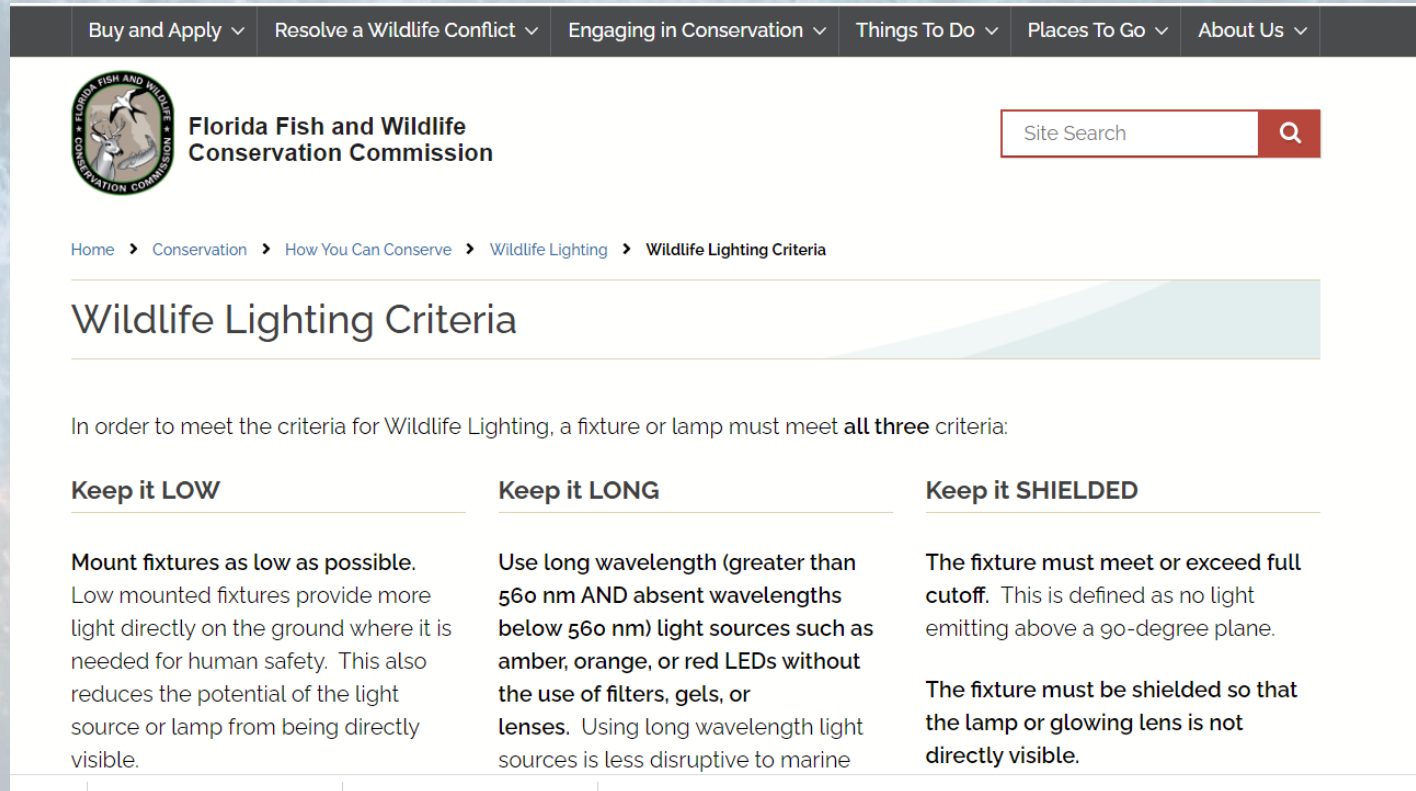


Credit: Sea Turtle Conservancy

From left to right: Photo 1 - View of Eastern Mist property taken 'before' retrofit from the back yard adjacent to the beach. Photo 2 - 'After' retrofit view of property illustrating replacement of unshielded beachside fixtures with full spectrum bulbs replaced with full-cutoff fixtures lamped with long wavelength amber LED bulbs.

What Can CMA Do For Beachfront Properties?

- Provide a free lighting site visit
- Educational materials
 - Sea Turtle Safelight Guide
 - Useful websites to learn more about sea turtle friendly lighting
- Contacts for
 - lighting distributors
 - possible funding sources



The screenshot shows the Florida Fish and Wildlife Conservation Commission website. The header includes navigation links: Buy and Apply, Resolve a Wildlife Conflict, Engaging in Conservation, Things To Do, Places To Go, and About Us. The main content area is titled "Wildlife Lighting Criteria" and includes a breadcrumb trail: Home > Conservation > How You Can Conserve > Wildlife Lighting > Wildlife Lighting Criteria. The page states that to meet the criteria for Wildlife Lighting, a fixture or lamp must meet all three criteria:

Keep it LOW	Keep it LONG	Keep it SHIELDED
<p>Mount fixtures as low as possible. Low mounted fixtures provide more light directly on the ground where it is needed for human safety. This also reduces the potential of the light source or lamp from being directly visible.</p>	<p>Use long wavelength (greater than 560 nm AND absent wavelengths below 560 nm) light sources such as amber, orange, or red LEDs without the use of filters, gels, or lenses. Using long wavelength light sources is less disruptive to marine</p>	<p>The fixture must meet or exceed full cutoff. This is defined as no light emitting above a 90-degree plane.</p> <p>The fixture must be shielded so that the lamp or glowing lens is not directly visible.</p>

Sea Turtle Conservancy Beachfront Lighting Retrofit Program



- Organization received funds from the National Fish and Wildlife Foundation's Gulf Environmental Benefit Fund (GEBF)
- Replace (retrofit) artificial lights on Florida properties with wildlife friendly alternatives
- Benefits:
 - Protect adult and hatchling sea turtles
 - Save up to 75% in energy costs
 - Help bring beachfront properties into compliance with lighting ordinances
 - Install aesthetically pleasing LED light that also improves night visibility
- We have assisted STC with the retrofit process at **25 properties in Pinellas County** since August 2020!



Ocean Allies: A CMA Partner

- It takes a partnership with many organizations to further our sea turtle friendly lighting initiative
- Ocean Allies
 - Organization that works with businesses in the city of Clearwater to achieve an “Ocean Friendly” certification
- “Ocean Friendly”
 - Ocean Allies works to inspire whole communities to make simple switches to protect the marine ecosystems vital to human health and hearts around the world
 - If the business can be seen from the sandy beach, they must utilize sea turtle friendly lighting that adheres to all FWC guidelines



Thank you!



Credit: FWC