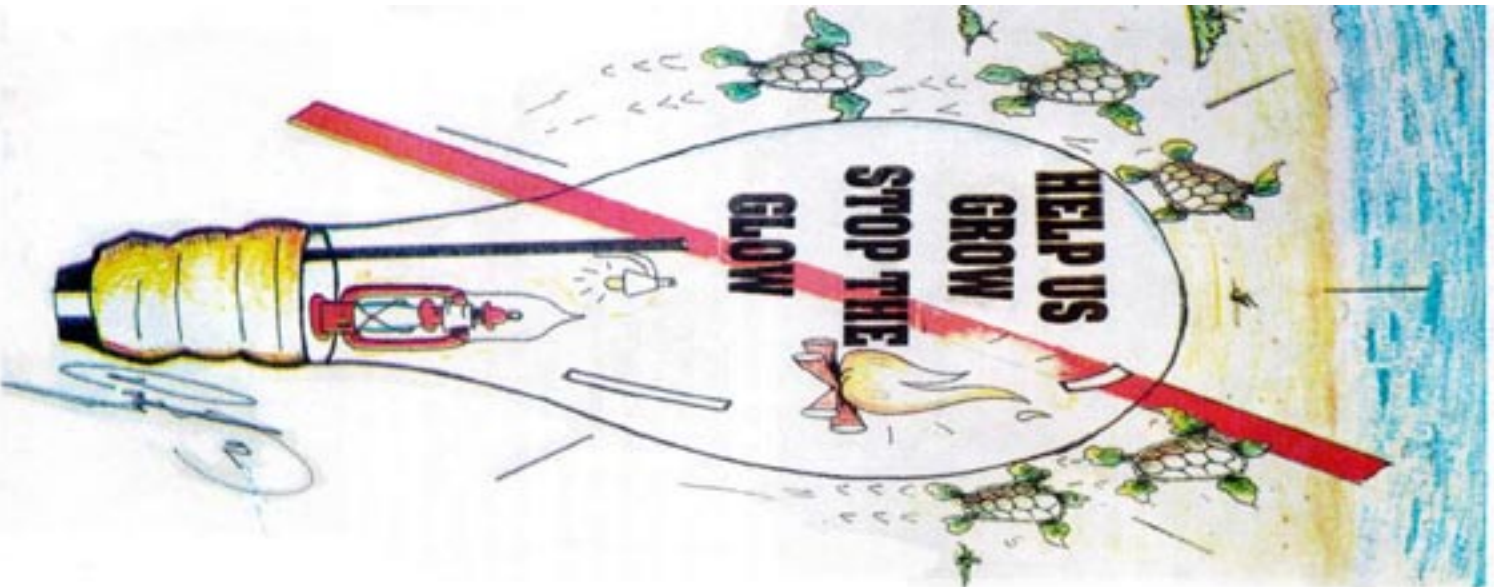




Lights Out!

What's the Problem with Beach Lighting?

Sea turtle hatchlings find the water by orienting themselves to the brightest and most open horizon, which, under natural conditions, will be the Caribbean Sea and the Atlantic Ocean. In the presence of artificial light, hatchlings become confused and disoriented and wander away from the sea towards the artificial lighting. Lost and disoriented, the hatchlings soon die from dehydration, heat exhaustion, predation or from being crushed on nearby streets. Beach lights appear brighter to sea turtles than to humans. These lights attract the hatchlings when they emerge from their nests in the sand and making their way to the water quickly.



Why are hatchlings attracted to artificial lighting?

Hatchlings crawl toward artificial light sources, because they follow the same instincts that lead them seaward to beaches that are lighted naturally. The hatchlings are usually led by the brightness and glare of the artificial lights.

How does artificial lighting affect nesting turtles?

Artificial lighting is a deterrent, but still many sea turtles do nest on lighted beaches. The level of lighting necessary to deter nesting is higher than the level necessary to misdirect hatchlings. Even if no nesting occurred on lighted beaches, hatchlings on adjacent beaches could be harmed.

Why should I modify the lights near my beachfront property?

Any lowering or reducing of lights around a nesting beach helps the turtles. As lighting is reduced, hatchlings emerging on moonlit nights and at locations far from lighted beach property will have a better chance of surviving.



How can the needs of human beings and sea turtles be met?

Human safety and security can be ensured without endangering sea turtles. The aim is to manage light so that it doesn't reach the nesting beach. This helps to reduce sea turtle harassment and mortality. Since sea turtles are a valuable resource, the protection of them is in our best interest.



What should be done with misdirected hatchlings?

Hatchling sea turtles found moving away from the ocean should be directed to a dark spot on the beach and allowed to walk into the surf on their own. Sluggish hatchlings can be placed into the ocean and allowed to swim away. However, handling hatchlings should always be a last resort.

How you Can Help!

- Turn off all lights that shine directly across the beach or lights that are visible from the beach from 9 p.m. to 6 a.m. during the nesting season April 1st to November 30th.
- Do not place any lighting regardless to wavelength between turtle nests and the sea.
- Turn off lights in rooms if you see a female turtle crawling onto a beach or digging a nest, remain quietly in the dark at a distance. Allow her enough room to return safely to the sea.
- Please do not build fires on the beach from April 1st to November 30th.
- Turn off lights in rooms that are not in use. Reminder notices on switches can help this effort.
- Relocate moveable lamps away from windows that are visible from the beach.
- Tint or treat windows that are visible from the beach so that light passing from inside to outside is reduced.
- Close curtains or blinds after dark to cover windows visible from the beach.
- Use light sources that turtles see poorly. (See the list on the next flap.)
- Plant native plants on the dune, since the plants will grow and enhance the dune habitat for other animals, and provide natural cues for the orientation of hatchlings.



These are just some measures that can be taken to reduce the effects of lighting on hatchlings. The most important measure to take is to use natural or artificial structures rising above the ground to the maximum extent to prevent the lighting from directly lighting the beach/dune system and to buffer noise and conceal human activity from the beach.

Artificial Light Types and their Effects

White, broad based-spectrum, short arc lighting (**extremely disruptive**). Types: Xenon and mercury arc lamps.

White, broad-spectrum, electric-discharge lighting (**extremely disruptive**). Types: Mercury-vapour, metal-halide and fluorescent type lighting.

Colour-phosphor and tinted-fluorescent lighting "blacklight" ultraviolet, violet, blue, green and mixtures of these colours (**extremely disruptive**).

White, broad-spectrum, incandescent lighting (**extremely disruptive**). Types: The common light bulb, flashlights, lanterns.

Colour-tinted incandescent lighting (blue and green) (**extremely disruptive**).

White pressurized fuel, glowing element lanterns (**extremely disruptive**). Types: Portable lanterns used for outdoor nighttime activities.

High Pressure sodium vapour (HPS) lighting (**highly disruptive**). This category is most commonly used for out door lighting.

Open fires (**moderately to highly disruptive**). This is dependent on the size and temperature.

Yellow-phosphorous and amber-tinted fluorescent lighting and red tubes (**moderately disruptive**).

Lamps with yellow or orange dichroic long-pass filters (**minimally to moderately disruptive**).

Colour-tinted incandescent lighting (yellow and red) (**minimally to moderately disruptive**). The yellow type in this category consists of bug lights.

Low-pressure sodium vapour (LPS) lighting (**minimally disruptive**). This is by far the least disruptive light source among those commonly used.

Red light-emitting diode (LED) lighting (**minimally disruptive**). These lights are miniature lamps that are not commonly used outdoors. These lights come close to being ideal for use near sea turtle nesting beaches.

Neon Tubes (**minimally disruptive**). True neon tubes (not tinted tubes) are a source of pure red light.

Neon tubes are sometimes difficult to shield, but their colour makes them minimally disruptive.

Transient light source (flashlights, electric torches, flash photography) (**disruptive characteristics vary**). This lighting is placed in a separate category because it is only in use for short periods of time. However, this light source has white incandescent lights and can be expected to affect sea turtles as the other sources do.

The types of lighting and their effects listed above can be very attractive to hatchlings and cause disorientation and death. Artificial lighting in close proximity to nesting beaches interferes with the ability of sea turtles to nest and the ability of hatchlings to find their way from their nest to the sea. This is so, because hatchlings can be misguided by the brightness of artificial light.

A good way to identify specific problem light sources is to conduct a series of nighttime beach surveys. The surveyor should walk the entire length of the beach at the tide line and recording artificial lighting sources. Any source that is visible from the beach should be recorded along with its location, appearance and methods for its correction. Since lighting problems may develop during the nesting season, a survey should also be conducted during this time. Surveys conducted prior to the nesting season will allow for the correction of the problem, and follow-up surveys during the season, to correct any problems that may be revealed.

Light management rather than light removal is the most realistic policy for developed nesting beaches. Property owners can rest assured that light management will allow them to direct light onto their property where it is needed as long as the light does not 'leak' out onto the beach.

