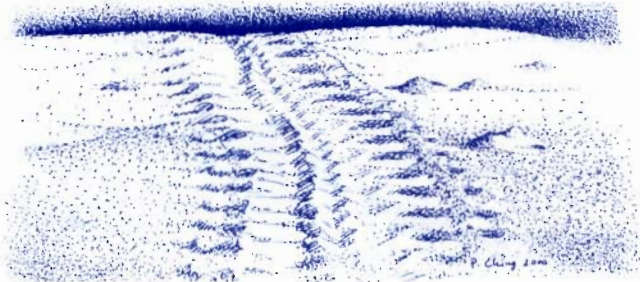


What should be done with misdirected hatchlings or tracks found on the beach?

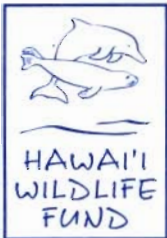
On Maui, the State Department of Land and Natural Resources (808-243-5294 or 984-8110) or the U.S. Fish and Wildlife Service (808-875-1582) should be notified immediately. At night and on weekends, and for all other islands, call the police, or dial 0, and ask for Enterprise 5469.



Hawai'i Wildlife Fund's Commitment to Conservation

Hawai'i Wildlife Fund is a non-profit research and education organization dedicated to protecting Hawai'i's native marine life. We work closely with state and federal agencies and the local community to help in the recovery of the endangered hawksbill sea turtle.

We have further information about lights and turtles and helpful suggestions on how to manage outdoor lighting. Contact us for more information.



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"Let's preserve our natural environment and keep Maui beautiful."

MAUI ELECTRIC COMPANY, LIMITED

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Hawai'i's Endangered Hawksbill Sea Turtles Need Your Help



A guide to "turtle friendly" coastal lighting

Common Questions About Sea Turtles And Lighting

When do hatching sea turtles emerge from nests?

Hatchlings emerge from nests throughout the months of July through December. The incubation period is typically 50-60 days. When hatchlings are preparing to emerge, they wait below the sand at the top of the nest until surface conditions cool. This changing temperature cue prompts hatchlings to leave their nest primarily at night, although some late-afternoon and early-morning emergences do occur.

How do hatchlings know the direction of the ocean when they emerge from their nests?

Hatchlings possess an inborn tendency to move in the direction of the brightest light. On a naturally lighted beach, ambient star and moonlight brightens the sky and ocean allowing hatchlings to use these natural visual cues to lead them to the sea. Hatchlings emerge and locate the sea at all phases and positions of the moon. Hatchlings also tend to move away from darkly silhouetted objects associated with the dune profile and vegetation.



How can lights on my property contribute to the problem?

Hatchlings will crawl toward artificial light sources following the same instinct that leads them seaward on naturally lighted beaches. Artificial lights are bright and glaring, but not intense enough to illuminate the ocean. As a result, light from these artificial sources appear many times brighter than light reflecting on the ocean. The hatchlings become confused and head the wrong way.

But I've had lights up for years, what difference will it make now?

More than 20 years may pass before a hatchling will return to its natal beach as an adult to nest. Adult females avoid lighted beaches and may be forced to nest in unsuitable habitat where the risk to their own and their hatchling's lives may be high.



Natural History of Hawksbill Sea Turtles

Hawksbill sea turtles are found throughout the world's tropical oceans, but they are severely depleted throughout their range. They are critically endangered in Hawai'i, with fewer than 50 known nesting females. Historically they were hunted for their beautiful shells which were used as ornamentation and jewelry, and in Hawai'i they were also used for medicinal purposes.

When full grown, they can weigh as much as 150 pounds and can reach 3 feet in length. Like all sea turtles, if protected, they can live very long lives. Hawksbill turtles do not reach sexual maturity until at least 20-30 years of age. Those that live in Hawai'i migrate around and between the main islands and lay their eggs every 2-4 years in late spring and summer months at night on sandy, darkened beaches. Each nesting female may lay up to 6 nests per season, with some 200 eggs per clutch! During the 2 to 3 week interval between laying each nest, the females rest in the nearby coral reefs. The reef is very important habitat for them. Around the world, they feed on sponges, other invertebrates, and even coral, but their feeding habits in Hawai'i are largely unknown.

Hawai'i's Endangered Hawksbill Sea Turtles (Honu'ea) Need Your Help

They are so rare, there may only be 3-5 dozen adult females in all of the Hawaiian Islands and more than half of them nest each summer on Big Island, south Maui and Molokai beaches. Under cover of darkness, female hawksbill sea turtles emerge from the surf to lay eggs in the sand. Several months later, tiny hatchlings struggle from these nests and scramble to the ocean. Lighting in developed areas near nesting beaches can disrupt normal nesting behaviors of females and can contribute to the deaths of hatchlings. However, with some modifications, most coastal lighting can be made "turtle friendly."



The Problem With Lights

Hatchling sea turtles emerging from nests at night are naturally attracted to the ambient light of the stars and moon reflected off the ocean. But they can easily be misled and become attracted to man-made light sources along the shoreline instead. Consequently, hatchlings move towards our street lights, porch lights, security lights, interior lights visible through windows and even beach fires, all of which take the hatchlings away from the relative sanctuary of the ocean.

After emergence, hatchlings have only a short burst of energy to get to the water and begin their swim away from shore. Any delays in this critical period make it less likely they will survive. If attracted to artificial lights, hatchlings fail to find their way to the ocean and succumb to exhaustion, dehydration, attacks by predators (mongoose, dogs, cats), or strikes by automobiles on roads and parking lots.

Quite literally, a single bright light near a sea turtle nesting beach can misdirect and kill hundreds of hatchlings.

Artificial lighting also alters the nocturnal behaviors of adult female sea turtles, namely, how they choose a nesting site and how they return to the sea after nesting. Studies have shown that lighted beaches are less frequently used as nesting sites. Even at great distances from a beach, bright lights may deter females from coming up to nest. Since mother turtles nest on their natal beach, we must work to ensure those beaches are safe for their return.



Solutions - You Can Help

Solving the problems created by artificial lighting on Hawai'i's sea turtle nesting beaches requires the kokua, or cooperation, of those living within these coastal communities. Reducing the effects of beach lighting can be accomplished with little inconvenience and without compromise to human safety. If eliminating all beachfront lighting is not practical, we offer some guidelines that are a good balance between the sea turtles' needs and our needs living along the shore.

To help Hawai'i's hawksbill sea turtles recover from their critically endangered status we must reduce lighting near nesting beaches to the necessary minimum.

A Guide to "Turtle Friendly" Coastal Lighting:

Although sea turtles spend most of their lives at sea, their activities on land are critical to the survival of the species. Hawaiian hawksbill sea turtles are considered dangerously close to extinction and artificial lighting on their nesting beaches can contribute to habitat loss. To protect sea turtles, consider the suggestions below and make your coastal lighting more "turtle friendly." It is not too late to make a difference.



Optimal for Sea Turtles:

Keep outdoor beachfront lighting turned off during the nesting and hatching season.

For hawksbill sea turtles in Hawai'i, this season extends from May through early December.

Place security lighting on motion-sensor switches that keeps lighting off when it is not needed.

Lights that come on only when approached can be quite effective for security purposes and less expensive to operate and are much more "turtle friendly."

Draw curtains soon after dark or apply dark window tinting to windows visible from the beach.

Interior lighting can also be reduced by moving lamps away from windows.



If lights must be used:

Reduce the light directly on beaches and near shore waters by lowering, shielding, recessing and/or redirecting light sources.

Any light source visible to an observer on the beach is likely to affect sea turtles. Lights that are indirectly visible from the beach, such as those that shine against buildings or vegetation seen from the beach, may also cause problems for sea turtles. For these reasons, low-mounted lights directed downward are preferred over high-mounted lights that shine outward.

Minimize the number and wattage of outdoor lights.

Sea turtles are attracted to bright lights. By simply minimizing the number of lights and the wattage you use, coupled with the above suggestion of redirecting them, sea turtles are less likely to be disoriented.

Replace existing lights with those that emit less detrimental light to sea turtles.

Sea turtles are attracted to the brightest lights, but the color of a light can also influence the direction that a sea turtle orients itself on land. Studies have shown that sea turtles are less attracted to deep red or yellow lights and more to white light sources. With this in mind, the best lights to use along the coastline are low pressure sodium vapor lamps which emit a pure yellow light. Yellow incandescent light bulbs, commonly called "bug lights", are also preferable if they are kept at low wattage.

Lights that should be avoided near sea turtle nesting beaches include fluorescent, mercury vapor, high pressure sodium vapor, metal halide, and white incandescent lighting.