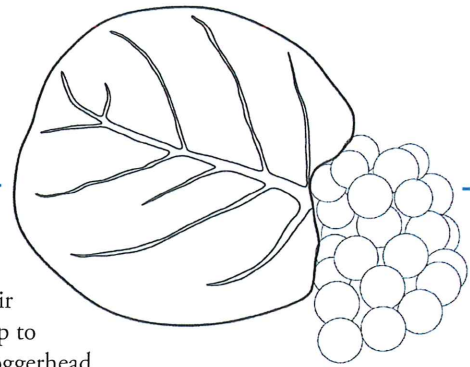


SEA GRAPE TRIMMING AND SEA TURTLES



What are sea grapes and how do I know if I have them?

Sea Grape, *Coccoloba wifera* is a remarkable native, salt-tolerant species of plant found along many of Florida's beaches. Plants may appear as low spreading bushes or tall continuous hedges along the sand dunes. This plant can be identified by its thick circular leaves 8" to 10" in diameter and its grape-like clusters of fruit. This fruit is consumed by a number of native birds and mammals, while the protective canopy provides habitat for animals including songbirds, lizards, gopher tortoise and beach mice.

In addition to providing habitat, sea grape helps to stabilize sand dunes and to protect upland structures from storm-induced erosion. In fact, this plant has been deemed important enough to protect under Florida Statute.

Does Florida really have sea turtles?

Yes. In fact, with its miles of warm sandy beaches, Florida is the single most important state for sea turtle nesting. Nesting season occurs from May 1st to October 31st throughout most of the state. From Brevard County to Broward County along the Atlantic coast, the nesting season extends from March 1st through October 31st.

Sea turtles are large air-breathing reptiles with paddle-shaped foreflippers and a number of adaptations that make them perfectly suited for a life at sea. These amazing animals once roamed the world's oceans in the millions with a surprising diversity of species. Today, only seven species remain worldwide. Five of these, the leatherback, green, loggerhead, Kemp's ridley and hawksbill, can be found in Florida's coastal waters. The first three regularly nest on Florida beaches. Sadly, all five species are listed as threatened or endangered.

It has only been in the last few centuries that demand for sea turtle meat, eggs, shell, leather and oil drastically reduced their numbers. Additional declines have continued from drowning in shrimp trawls, captures on long-lines, pollution and non-degradable debris in the ocean. One of the most devastating impacts to marine turtles has come from artificial light pollution onto nesting beaches.

Although they may live their entire life at sea, marine turtles must leave the relative safety of the ocean to nest. Usually, under cover of darkness, females will drag her body from the ocean across the beach where she will dig a nest and deposit roughly 100 leathery eggs in the warm sand. After about 60 days of incubation, the eggs will hatch

and the hatchlings will make their way as a group to the sea. For loggerhead turtles, it may be 15 to 20 years before one of these hatchlings returns to her natal beach to nest for the first time.

How can trimming my sea grapes affect sea turtles?

In a word, light. Artificial lighting trespassing onto sea turtle nesting beaches affects sea turtles in two ways. First, artificial lighting deters adult females from emerging from the surf to nest. Two studies conducted in Florida clearly demonstrated dramatic reductions in nesting attempts by loggerhead turtles where artificial lighting was introduced. This included effects by lighted piers and roadways close to beaches.

Secondly, hatchling turtles find their way to the ocean by orienting toward the brightest horizon. On a natural beach, this is the horizon over the ocean. The dark dune silhouette behind them keeps them from heading in the wrong direction. Hatchling turtles are highly sensitive to even minute quantities of short-wavelength or white light and will orient toward the brightest direction.

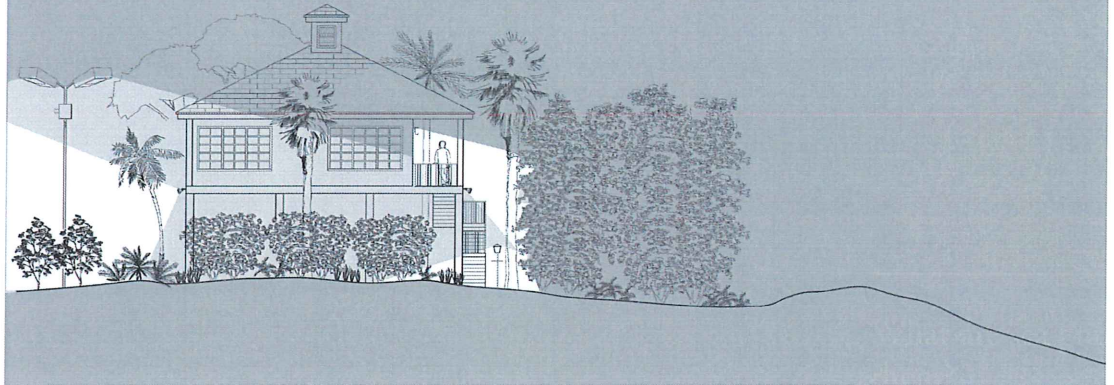
We don't often think of light as pollution. Yet when artificial light is introduced into this critical nesting habitat, the effects can be disastrous. Between 20,000 to 30,000 hatchlings disorient to artificial lights each year. Hatchlings that orient towards a streetlight, condominium light or residential porchlight usually die from exhaustion, dehydration, predation or more direct causes such as being run over by cars. Any steps to minimize this light trespass and direct the light only where it is needed will help to protect sea turtles and restore nesting beaches.

Throughout the state, stands of sea grape act as a natural vegetative barrier blocking artificial light from nesting beaches and minimizing upland glow. Trimming or removal of this vegetative barrier can increase illumination levels on the beach and deter nesting or disorient hatchlings. This is considered interference with the normal nesting behavior of threatened and endangered species and can expose the property owner to potential fines or imprisonment under the Endangered Species Act (1973) and Florida Statutes 161 and 379.2431(1) The following pages illustrates the best ways to minimize potential light trespass.



SEA GRAPE TRIMMING GUIDELINES

BEFORE
SEA GRAPE
TRIMMING



This diagram depicts a beach house with several styles of exterior lighting. These lights are shielded from the beach by a large stand of sea grape, *Coccoloba uvifera*. The homeowner would like to trim this stand of sea grape to improve the

view from the balcony but is concerned about light trespass onto a sea turtle nesting beach and potential liability should these lights cause the disorientation and deaths of protected sea turtles.

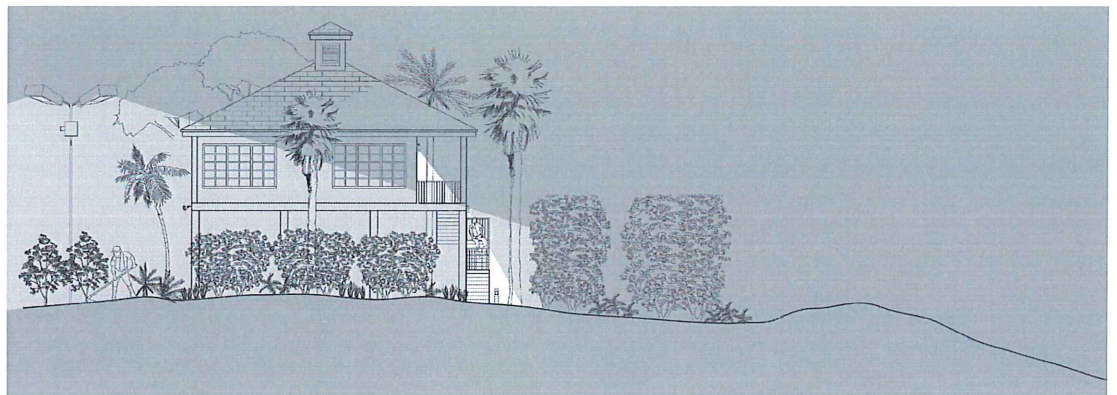
BAD
SEA GRAPE
TRIMMING



Here, the homeowner has over trimmed the sea grape stand. Although the homeowner now has a better view of the ocean, light pollution now shines onto the nesting beach disrupting normal sea turtle nesting behavior. Of particular concern are the poor light fixtures, car headlights and now the streetlight

are also visible from the beach. This unpermitted trimming damages the sea grape stand, disrupts sea turtle nesting and exposes the homeowner to potential legal action including substantial fines.

APPROPRIATE
SEA GRAPE
TRIMMING



The trimmed seagrape stand now allows a view of the ocean from the balcony. Realizing this would make the balcony light visible from the beach, the homeowner has replaced the jelly-jar light with well shielded canister downlight equipped with a FWC approved 3watt to 12watt Amber LED lamp. The

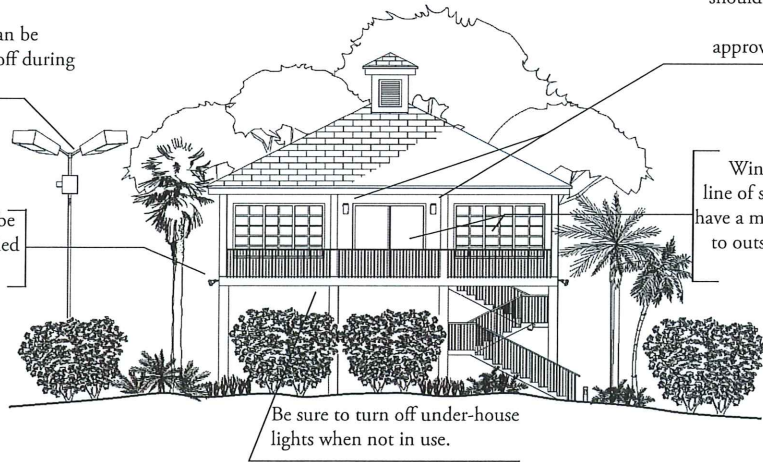
homeowner has also replaced the floodlight on the beachside of the house with another canister downlight and bollard fixture with downcast horizontal louvers to illuminate the stairs for safety. Even after trimming, the homeowner has actually reduced illumination visible to the nesting beach.

REPLACING BAD LIGHT FIXTURES

A TYPICAL BEACH HOUSE AS SEEN FROM THE OCEAN

Many streetlights can be shielded or turned off during nesting season.

Floodlights should be replaced with shielded downlights.



Unshielded balcony lights should be replaced by canister downlights with FWC approved Amber LED lamps.

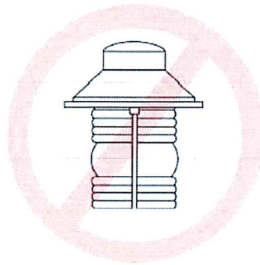
Windows and doors within line of site of the beach should have a minimum of 45% inside to outside light transmittance window tinting.

Be sure to turn off under-house lights when not in use.

This diagram depicts a typical beach house with several styles of exterior light fixtures. These fixtures are inappropriate for use near sea turtle nesting beaches and should be replaced with shielded, downward directed lights. When correcting problem light fixtures, don't forget about your interior lights. Windows within line of site of the beach should

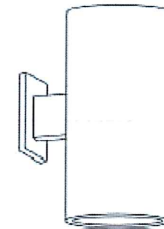
be tinted with 15% to 45% inside to outside light transmittance film. Try to make it a habit to keep your window blinds closed at night during sea turtle nesting season from May 1st through October 31st through most of the state and from March 1st through October 31st from Brevard through Broward County on the Atlantic coast.

REPLACE POORLY SHIELDED LIGHTS PRIOR TO TRIMMING VEGETATION



“Jelly-Jar” Balcony Lights

Inexpensive unshielded balcony lights like the one shown above are visible up and down nesting beaches and cause problems for sea turtles every summer. It is not uncommon to see these poorly designed \$3 and \$4 fixtures on homes costing between \$250,000 and \$500,000.



Canister Downlights

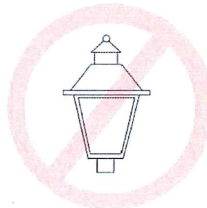
The best light fixture for beachfront property is the canister downlight using a 3watt to 12watt FWC approved Amber LED lamp. Excellent for human safety minimum glare, these lights allow almost no light trespass to occur.

REPLACE FLOODLIGHTS AND UNSHIELDED FIXTURES WITH WALKWAY AND PATH LIGHTING

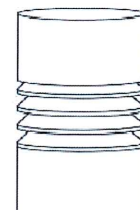


Floodlights

These unshielded exterior lights are poorly suited for use near sea turtle nesting beaches. These light fixtures contribute to light trespass onto neighbor's property as well as the beach.



Carriage Lamps



Bollard Fixture

This bollard fixture is equipped with horizontal downcast louvers. This is an excellent fixture for illuminating pathways and landscaping. Specified with long wavelength FWC approved Amber lamps, these lights reduce glare and actually improve night vision. Shields can also be added to the seaward side of many fixtures such as this bollard to block visibility from the beach.