

# Sea turtles and coastal roadway lighting, reaching a balance for sea turtle survival



**2008 NRLI Practicum**

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# Presentation Overview

- Purpose
- Background
- Issue
- Objectives-
  - Stakeholders and Focus Group meeting
  - Expand Stakeholder list– others needed to engage
- Next steps
- Most significant challenge and NRLI tools

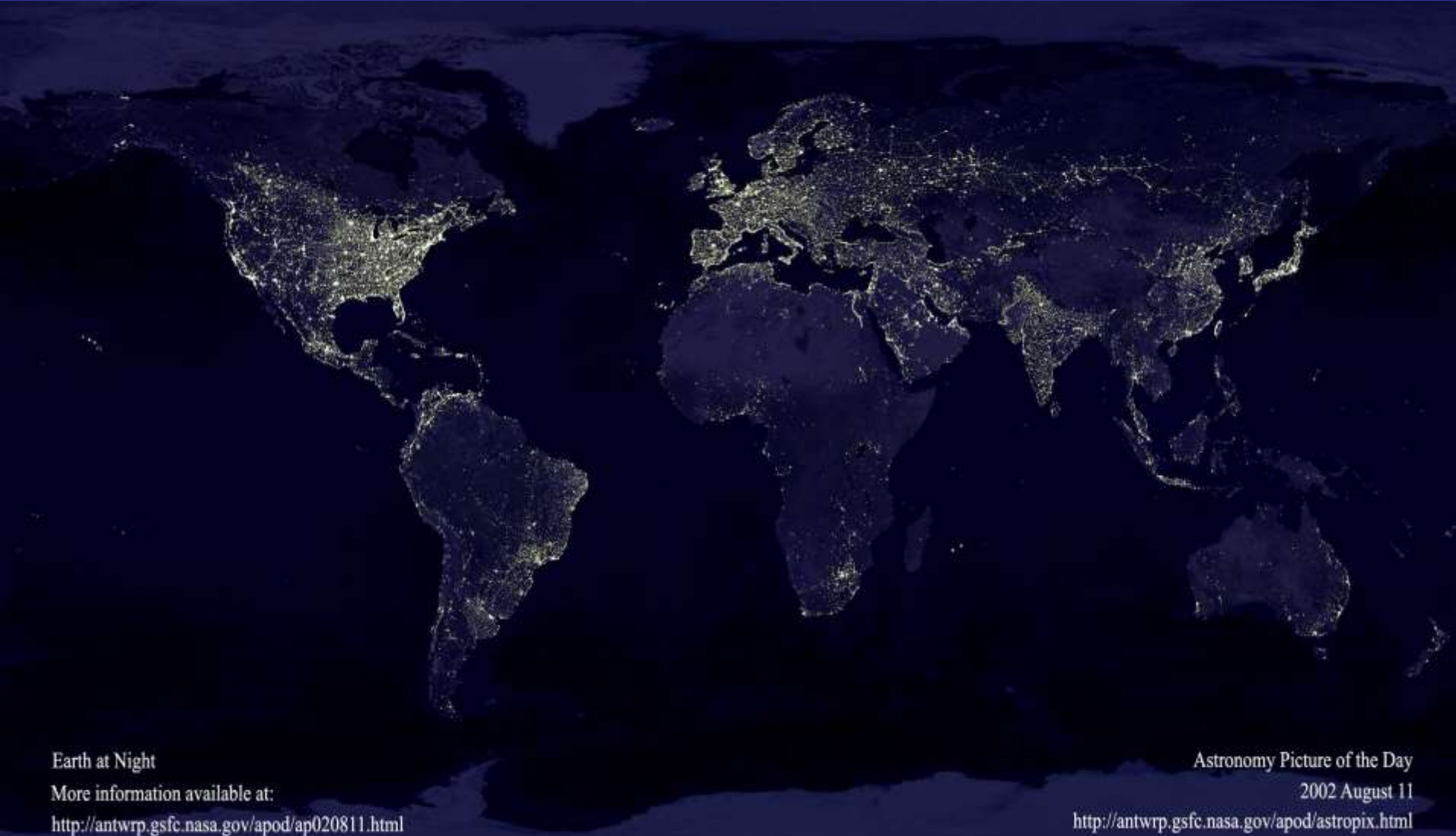
# PURPOSE

**Street lights are a contributing factor to sea turtle disorientations which result in death of numerous animals each year; we seek to improve current streetlight management processes**



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**The world's night skies are increasingly brighter with human development and the use of electricity and night lighting across the globe.**



Earth at Night

More information available at:

<http://antwrp.gsfc.nasa.gov/apod/ap020811.html>

Astronomy Picture of the Day

2002 August 11

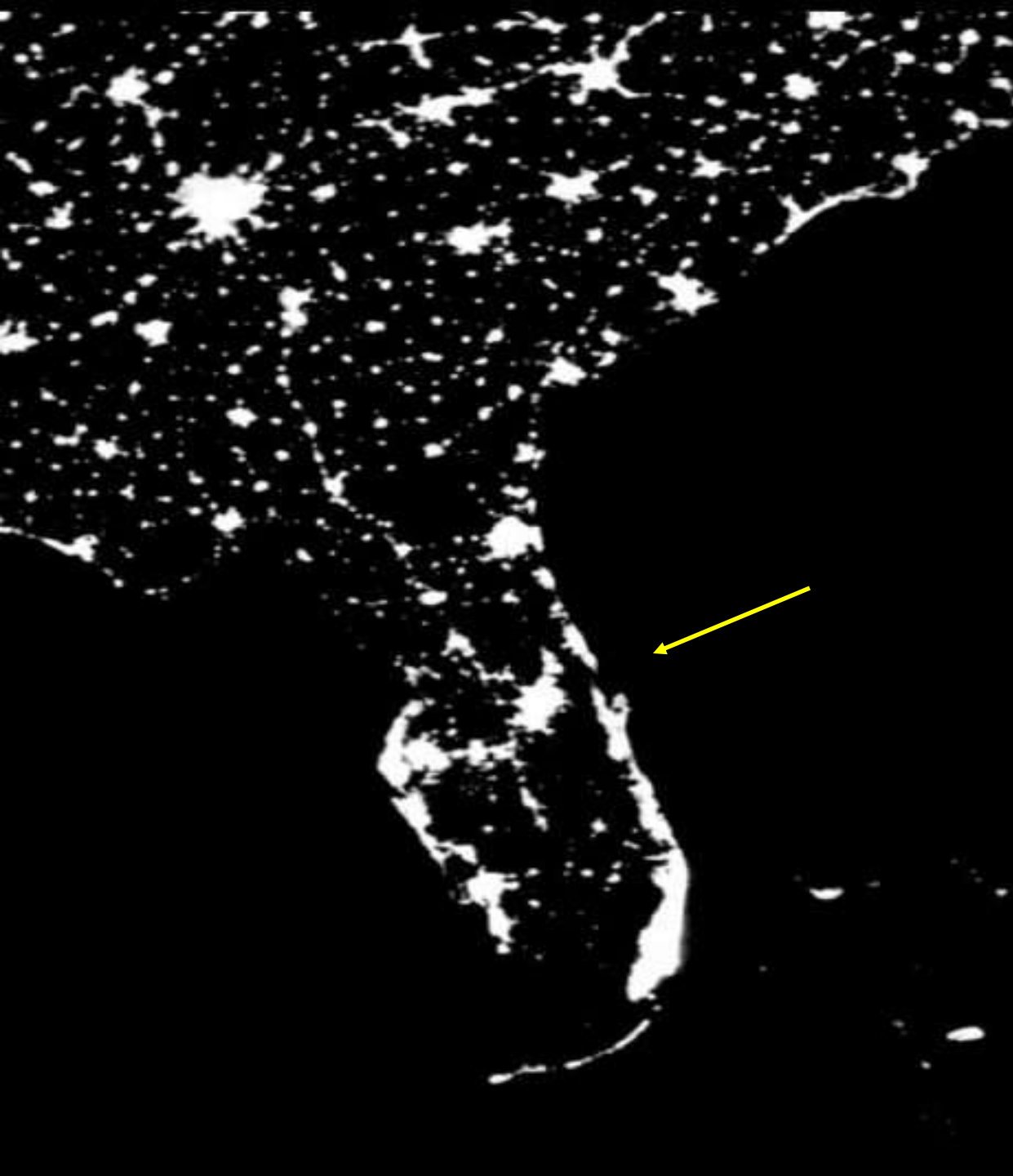
<http://antwrp.gsfc.nasa.gov/apod/astropix.html>



A satellite map of the state of Florida, showing its coastline and internal land features. The coastline is highlighted with a yellow line. The land is primarily green, indicating vegetation, with some brown and grey areas representing urban or developed regions. The surrounding water is dark blue. The map is tilted slightly to the right.

## The Florida Coastline:

- Nesting beaches for the largest population of Loggerhead sea turtles in the Western hemisphere
- 18.2 million people (2007) live here with **80%** of Floridians living or working in one of the state's 35 coastal counties



**Southeast U.S.  
Nighttime Lighting**

**Florida has few dark  
sky zones**



**Power lines and light poles at the edge of the nesting beaches are a common site all along the Florida coast.**



**The average citizen is unaware of the problem these lights can cause and most are oblivious of their presence.**

**Lights directly near the beach front are a source of PHOTO-POLLUTION impacting the beach every night, all night long- the only nesting habitat available to sea turtles**






**Specific lights in the distance can often be seen for miles, in addition lights in groups can form a glow that can be seen for many miles**



**Cloudy, rainy nights increase the extent of the glow of lights, making them more obvious in the night sky**





A photograph of a sandy beach with sparse vegetation and tire tracks. The foreground is filled with numerous tire tracks in the sand. In the background, there are clumps of green and brown coastal plants under a clear sky.

**From 2000-2007 there were 700-1521 disorientations events/year .  
= 28,000 to 79,000 hatchlings/yr, and 18-50 adults / yr)**

**Over 20% of sea turtle disorientations are attributed to coastal lights  
along streets and parking lots (FWC, 2008).**

**IMPACT:**

**Deterrence for nesting females and hatchling survival....**

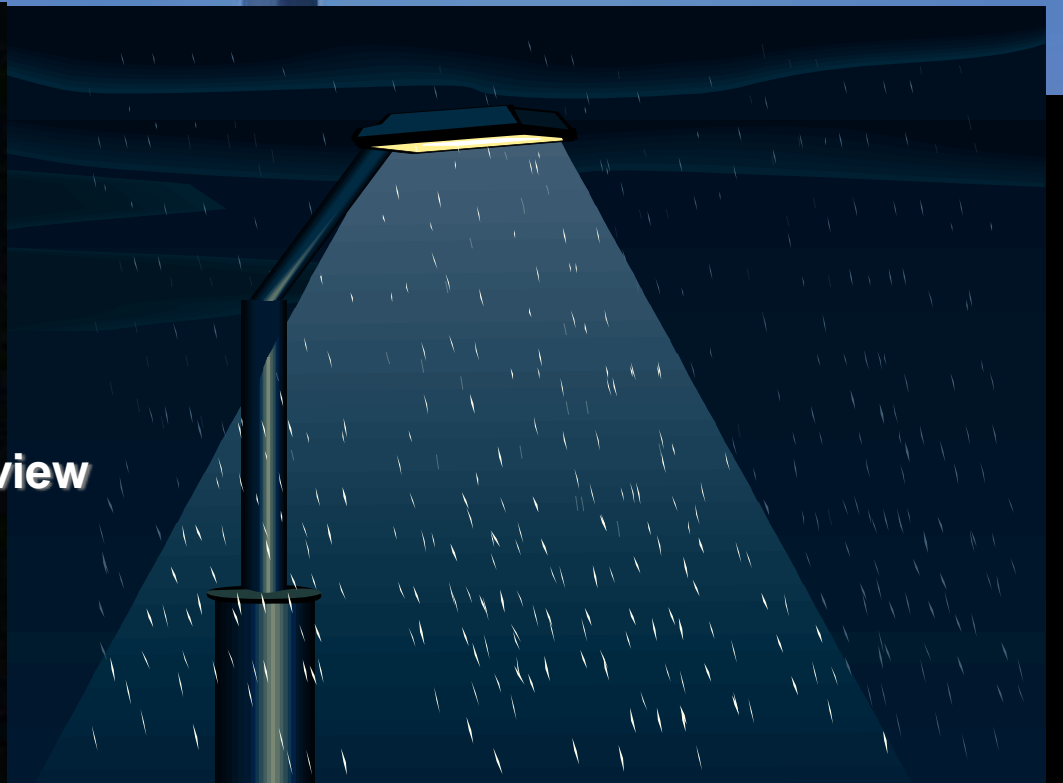
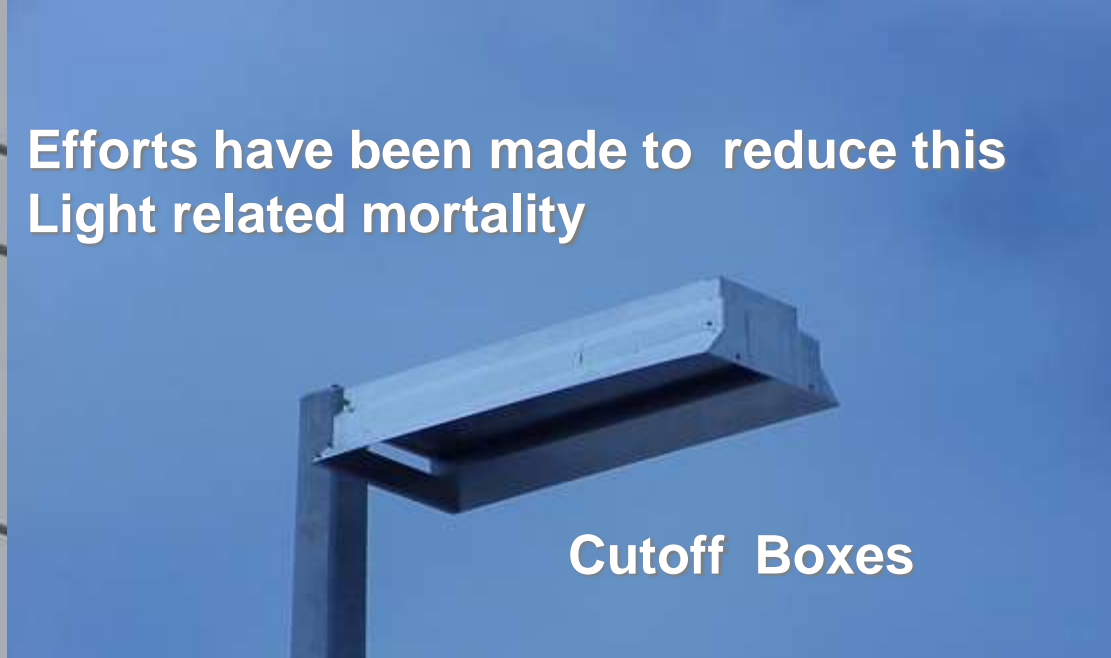
Efforts have been made to reduce this  
Light related mortality

Day view

Shields

Cutoff Boxes

Night view







## Examples (cont'd.)

**Streetlights  
replaced  
with embedded  
roadway  
Lights in Boca  
Raton, FL (Salmon  
et al. 2003)**



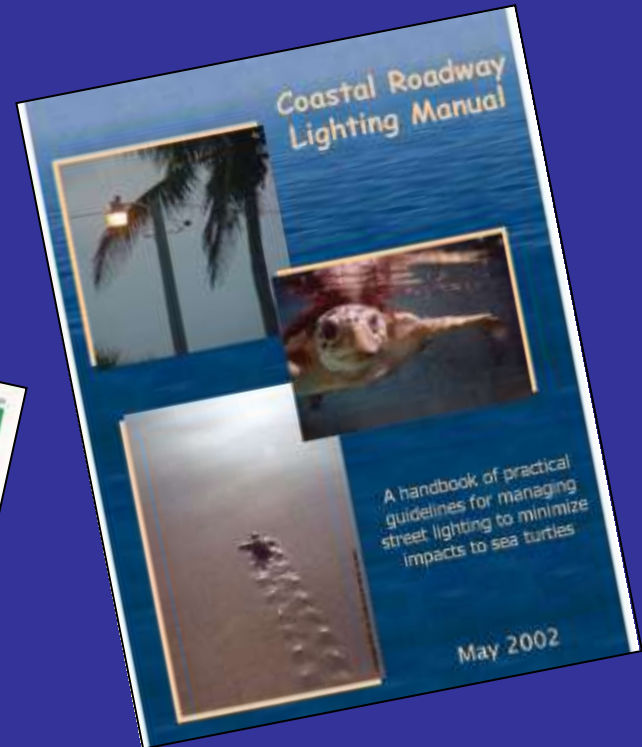
**Broward County (Ft. Lauderdale streetlights)**  
**Photo credits Melody Ray-Culp**



# Problem

*so what's the problem now?*

- Most coastal counties have been educated
- Manuals have been written
- Ordinances have been passed



**BUT the problem continues without many solutions implemented and the resources are not utilized to their fullest extent.**



# So, how do we go about fixing the problem?



## USE NRLI TOOLS !!!

....to motivate & assist critical stakeholders

# Start with a Matrix of Stakeholders interests

**ISSUE:** Sea Turtles & Streetlights. Utility companies lease lights adjacent to the most important sea turtle nesting habitat in the western hemisphere, the east coast of Florida. Sea turtle hatchlings are attracted to bright lights when they emerge from their nests and coastal street lights are responsible for thousands of sea turtle disorientations and deaths each year. Many utility companies do not offer sea turtle friendly streetlights for their leasee's to rent. Instead, they leave it up to the leasee to request and pay for modifications to streetlights. The modifications they offer are not standard, are very expensive and are not the best alternatives available on the market to reduce the effects on sea turtles. The other option utility companies give for resolving the problem is to turn the lights off when in the vicinity of a nest. This often poses a safety hazard and becomes a political debate

Focus counties are Volusia, Brevard, Palm Beach, St. Lucie, Martin & Indian River on the east coast of Florida.

STAKEHOLDERS	POSITIONS	INTERESTS	POWER	CONTEXT	OTHER?
<b>Utility companies</b> Florida Power and Light (FPL), Progress Energy, Gulf Power, Vero Beach Utilities, Ft Pierce, NASA & Patrick Air Force Base and New Smyrna Utilities	It is the Leasees responsibility to pay for modifications to streetlights to make them compliant with state & local lighting regulations.	This puts the responsibility on the Leasee to do the right thing and saves the utility company money. They have an easy out by not being responsible.	++1, Very powerful, They own the lights and typically are the only "provider of services"- sole supplier. They are a large, private company with lots of money and resources to argue lawsuits.	Some utilities even prints and distributes sea turtle educational materials throughout Florida but they do not take responsibility to have the best technology available to ensure sea turtles are protected in the real world. Turning of lights takes time and costs them staff time & resources.	They don't make any money on doing modifications to lights. They don't lose any money by turning lights off. They have different regions covered by different staff.
<b>Florida Fish and Wildlife Conservation Commission. (FWC)</b>	This agency is charged with Imperiled Species Management, including sea turtles. They review plans to ensure that newly proposed lights will not negatively affect sea turtles in the coastal area.	Offering a standard of sea turtle friendly streetlights will make the review process less difficult and would ensure that fewer sea turtles are negatively affected by poor options.	++1, Govt. organization that collects and archives data showing amount of disoriented sea turtles, led into streets for over 10 years throughout the state. They have an advantage as the state steward of these charismatic species , as well as regulatory authority	FWC is a well respected organization that works closely with other agencies and organizations throughout the state and govt. including, the permit holders, FDEP & FWC & FDOT, and the federal gov. with USFWS and NMFS.	FWC does not have a rule regarding standardizing streetlights or a model for them to follow. They only recommend solutions and acceptable lighting types.
<b>Florida Department Of Traffic Engineering (FDOT)</b>	This agency has an environmental section that is looking at the effects of street lighting on turtles, but are mainly	They want a road that is lit both safely for people and sea turtles.	++1, The agency approves any proposed lighting fixture to be installed along a road to ensure roadway safety standards are met..	They recently failed at a legislative change attempt to make lighting standards compliant with the ESA. & to ensure that if lights are extinguished, FDOT will not be held liable.	ESA protection is a concern and they have a state renowned expert on staff. FDOT performs roadway safety evaluations

# NRLI Process

Utilized the **Focus Group Process** (Marczak and Sewell 2008, Krueger, R. A. 1988)

WHAT FOCUS GROUPS CAN TELL YOU:

- Give information on how groups think or feel about a particular topic
- Give greater insight into why certain opinions are held
- Help improve the planning and design of new programs
- Provide a means of evaluating existing programs
- Produce insights for developing strategies for outreach
- Help identify stakeholders



# How to Conduct a Focus Group

- **Conceptualization Phase**
  - Purpose
- **Interview Phase**
  - Developing Questions
  - Moderator Team
  - Participants
- **Analysis Phase**
  - Notes
  - Tape Record
- **Report Phase**
  - Feedback to Focus Group
  - NRLI Practicum

**NRLI team convened a  
Focus Group in June 2008  
in Vero, FL with attendees  
from 6 counties,  
Florida FWC &  
U.S. Fish & Wildlife Service**



**Focus Group Meeting Purpose:**

**To interview regulators and share  
the current status of streetlights  
and electric company providers in  
each target county. Volusia,  
Brevard, Indian River, Martin, St.  
Lucie & Palm Beach**

# Tools Used in the Focus Group Process

- Agenda
- Flipchart
- Facilitator (Maintenance functions)
- Video and note taking
- Assigned Group tasks (action items)
- Snacks (most essential)
- Action Items
- Meeting minutes distributed





## Questions for the Focus Group *(Focus group members are all responsible for regulatory processes related to this ever increasing problem in sea turtle protection)*

1. What are some of the problems encountered in trying to get leased street lights to come into compliance with state or local reg's?
2. Identify stakeholders- Who is your power company provider? Do you have a good relationship with them? Do you lease lights from them? Does FDOT lease lights in your community? Do local municipalities lease lights from the same company?
3. What type of streetlights does your power provider lease? Are they sea turtle friendly?
4. Does your county have a sea turtle lighting ordinance? Do any of the municipalities within your county have a separate ordinance?
5. What problem would you most like to see resolved first? Lights in compliance, cost of getting compliant lights, communication between companies and lighting inspectors?
6. Suggestions or ideas for resolving some of problems identified above?



# Findings

**FPL's Coastal Roadway Lighting Manual (2002) is out of date - originally developed in 1996 to address this problem (i.e. we are re-visiting a well known problem)**

**Roadway Lighting Manual Updates voted as very important**

**Poor communication and inconsistent responses within Utilities regarding turtle lighting procedures and products**

**Need to encourage the Utilities to improve communication for regional offices and field stations to optimize use of best practices and products**

**Another stakeholder needed to engage is the Public Service Commission --the Utility company regulator**

# Focus Group Consensus

- To have lights that are in compliance without turning them off
- To have shields or fixtures that work ( best technology available)
- The desire for options & flexibility to be the most effective
- To do the groundwork once





# Most Significant Challenges

Identifying the right people to engage

Getting the right people to commit

Scheduling

Convenient location

Future -choosing appropriate facilitator for succeeding meetings

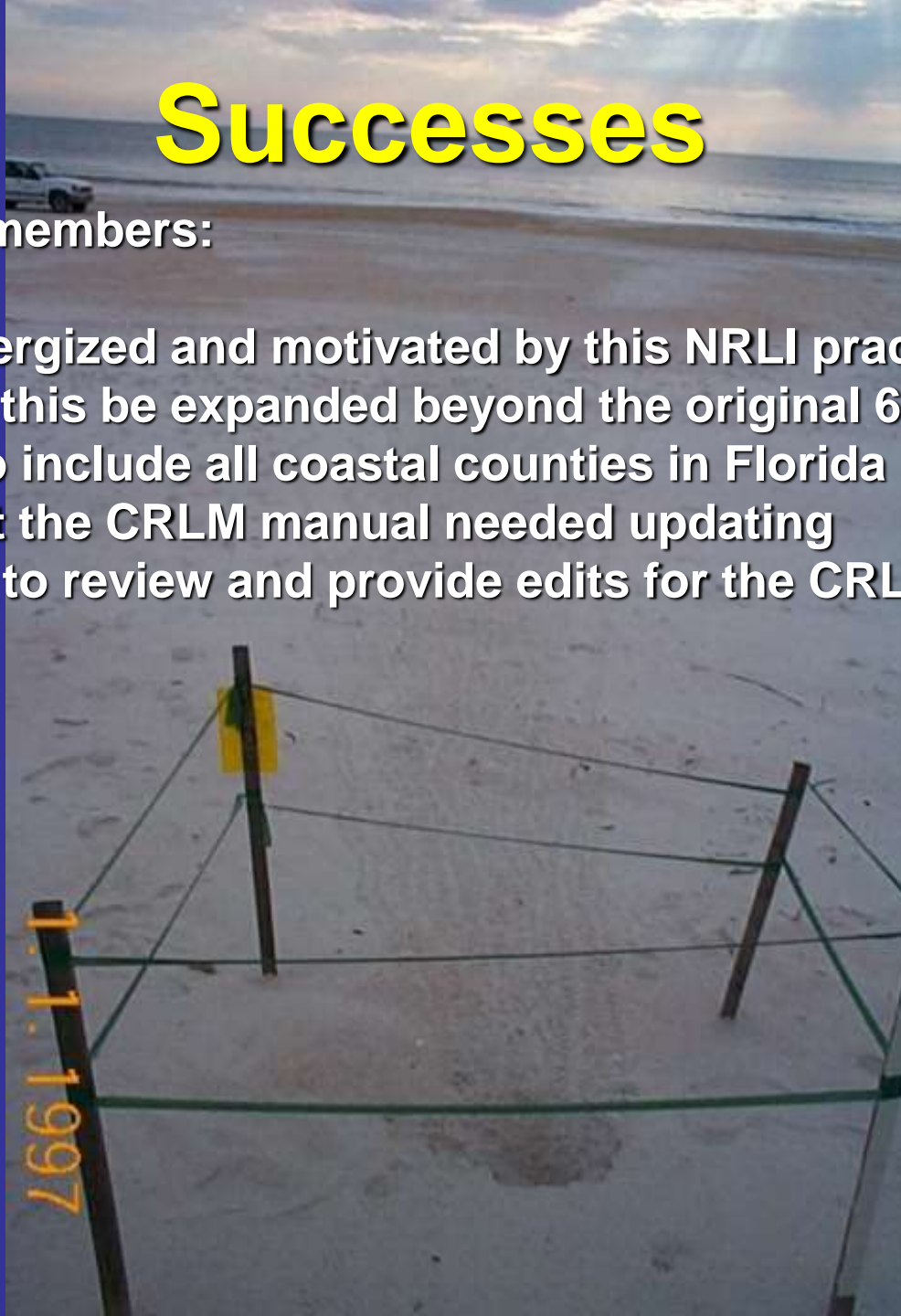




# Successes

Focus group members:

- were re-energized and motivated by this NRLI practicum
- suggested this be expanded beyond the original 6 county focus area to include all coastal counties in Florida
- agreed that the CRLM manual needed updating
- committed to review and provide edits for the CRLM



# Other discoveries along the way

- FDOT plans for updating an Alternative Lighting Design Standards for Coastal Roadways Adjacent to Sea turtle Nesting Beaches document



- A state wide coastal HCP is being developed and it would be a good place to address coastal roadway lighting problems collectively at the state level

# Next Steps

**Stakeholder Meeting with PSC, FPL, FDOT, FWC, USFWS & CRLM consultant to re-introduce the problems & suggest manual updates, streamlining & field improvements**

**This practicum will be sent to FDEP Secretary Sole (DEP is responsible for coastal construction permit reviews & is a stakeholder in the state wide HCP development where this topic should also be addressed)**

**Update the Coastal Roadway Lighting Manual (CRLM) by gathering more suggested edits from a statewide region of affected stakeholders**

**FDOT is in process of updating Standards for Coastal Roadways Adjacent to Sea Turtle Nesting Beaches Manual this should be reviewed for consistency with the CRLM prior to approval and implementation**



# THANK YOU

for giving us the tools to make a difference!!

