

Findings, Challenges, and Solutions: Restoring the Night Sky Gulf Coast Sea Turtle Restoration Project

W. Scott Kardel, Matt Root
International Dark-Sky Association







Photo by Julie Dermansky





Deepwater Horizon Natural Resource Damage Assessment Trustee Council

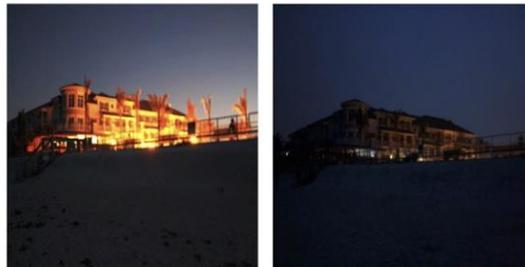
Improving Habitat Injured by Spill Response: Restoring the Night Sky

General Project Description

This project would improve the quality of nesting beach habitat by addressing artificial lighting, a pervasive negative impact to nesting loggerhead sea turtle females and hatchlings on Gulf beaches. Sites in Baldwin County, Alabama, and along public conservation lands and nesting beaches in Escambia, Santa Rosa, Okaloosa, Walton, Bay, Gulf, and Franklin counties in Florida are included in this project proposal (map on reverse side).

The project involves multiple components:

- For each conservation site identified, assessments would be conducted of existing lights visible from the beaches on project areas as well as adjacent properties prior to lighting retrofits;
- Coordination with site managers on development of plans to eliminate, retrofit, or replace existing light fixtures on the property or to otherwise decrease the amount of light reaching the loggerhead sea turtle nesting beach;
- Retrofitting streetlights and parking lot lights;
- Increased efforts by local governments to ensure compliance with local lighting ordinances; and
- A public awareness campaign including educational materials and revision of the FWC Lighting Technical Manual to include Best Available Technology.



Impacts of light pollution controls: Before and after.

Resource Benefits and Relationship to Injury

Response activities to the *Deepwater Horizon* oil spill, such as heavy equipment operation and lighting the beaches at night, caused significant disturbance to nesting habitat for loggerhead sea turtles. Artificial lights along beaches deter sea turtles from using the area and modify essential behaviors, including migration to and from the beach and successful nesting. In order to compensate for the disturbance caused by response, the goal of this project is to restore beach nesting habitat for sea turtles by replacing harmful artificial lighting.

Methods and Results of Offsets Elimination

For the purposes of negotiations of Offsets with BP in accordance with the Framework Agreement, the Trustees used Habitat Equivalency Analysis (HEA) to estimate Offsets provided by this project. Offsets reflect units of discounted service acre years (DSAYs) of nesting habitat for nesting loggerhead sea turtles, and will be applied against response injury to nesting habitat for loggerhead sea turtles along the Florida and Alabama coast injured by the Spill response as determined by the Trustees' injury assessment.

In determining DSAYs for this project, the Trustees considered a number of factors, including, but not limited to, the relative habitat benefits provided by reducing artificial lighting on loggerhead nesting beaches, the anticipated performance of the lights over time, and the potential number of acres of loggerhead nesting habitat that would be improved by the project.

Total estimated offsets is 1084 DSAYs:

- 1053 DSAYs of sea turtle nesting habitat in Florida; and
- 31 DSAYs of sea turtle nesting habitat in Alabama.

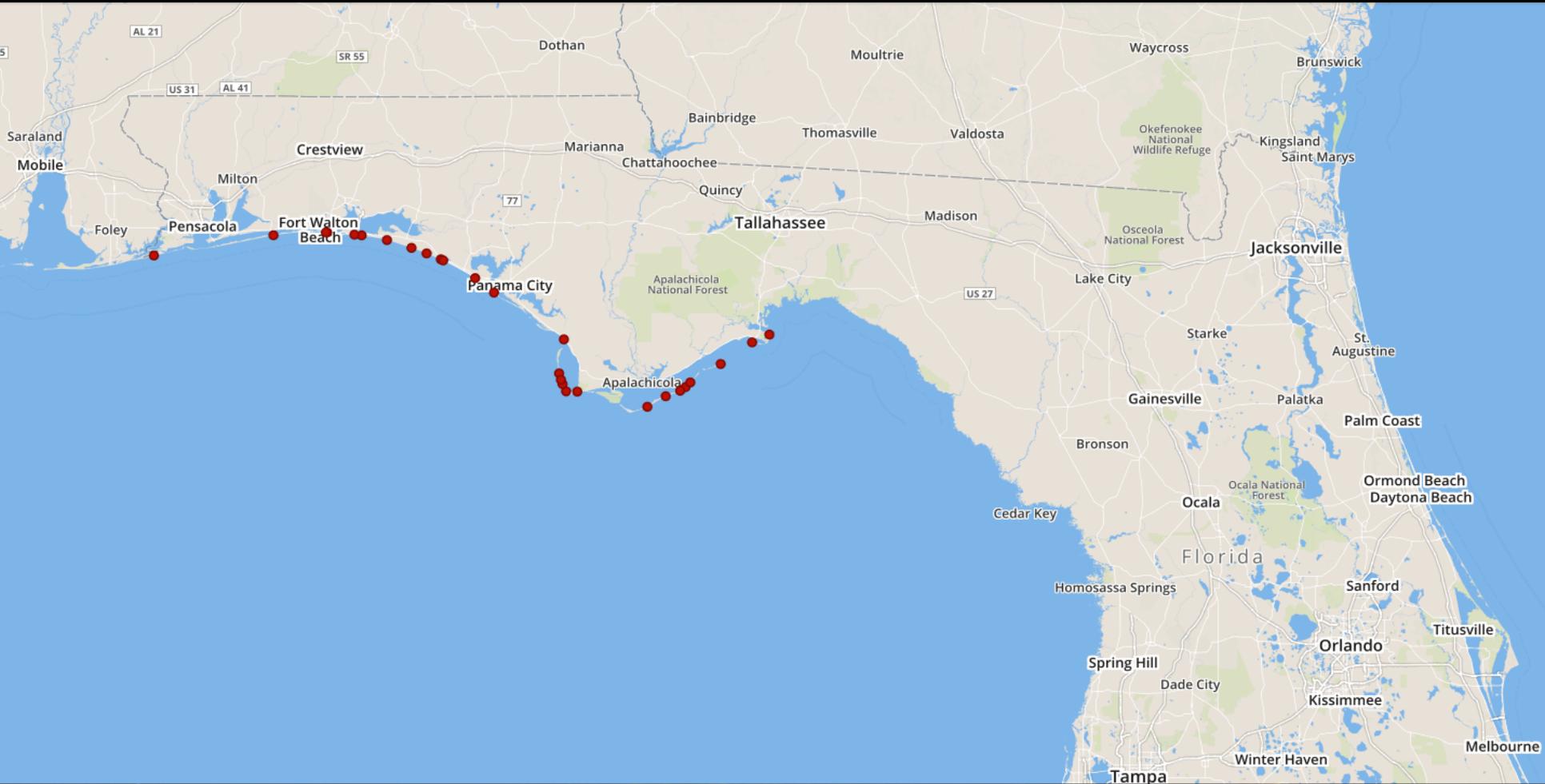
Estimated Cost

The total estimated cost of this four-year project is \$4,321,165.





The Florida Department of Environmental Protection and the Florida Fish & Wildlife Conservation Commission contracted with IDA in 2013 for beach lighting surveys.







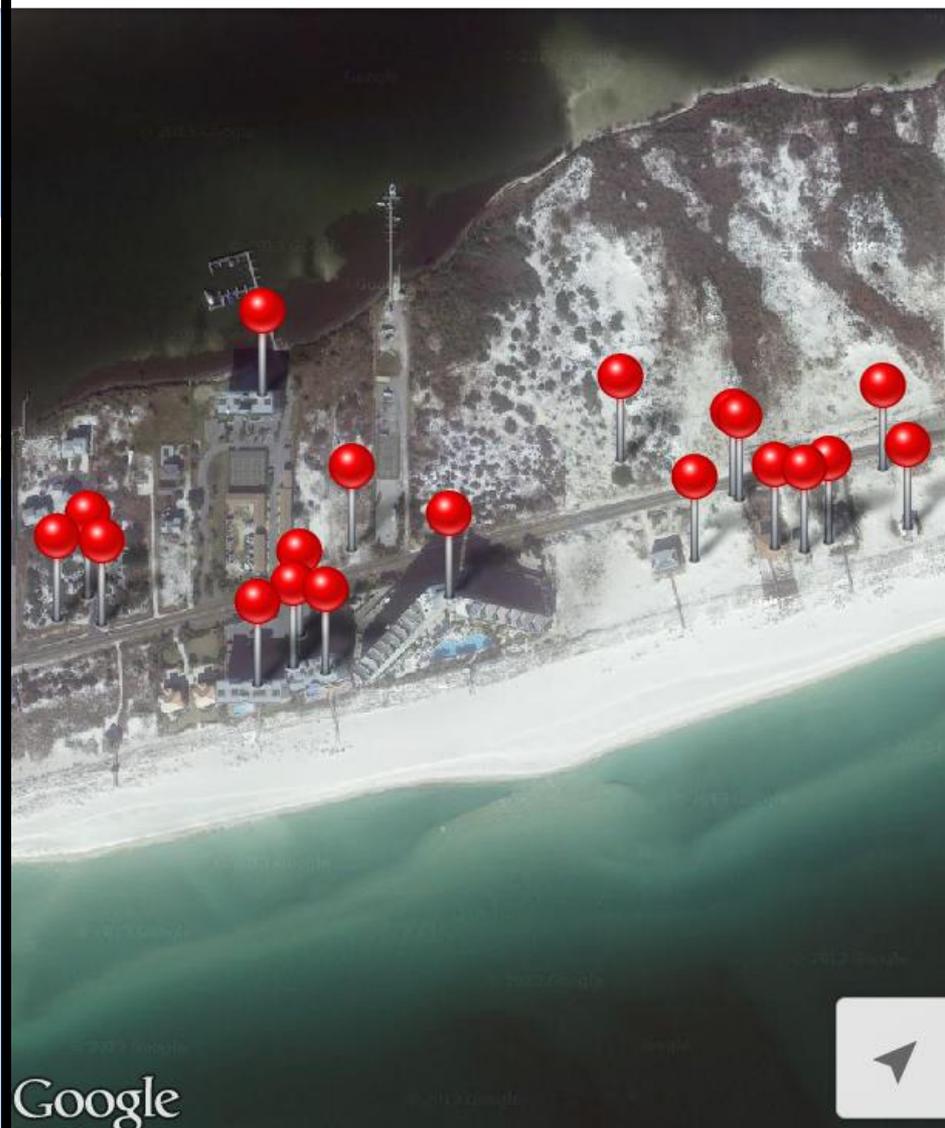
Perdido Key State...



Google



Perdido Key State...



Google



Close

Bald Point St. Park...

Save

Close

Bald Point St. Park...

Save

Date
2013-08-20

Time
10:37 pm

Team Member Name
Scott

Address (if known)
617 Bald Point Rd
Panacea 32346
US

Fixture Type
Roadway

Lamp Type
High Pressure Sodium

Wattage
250

Apparent Condition
Fair

Lumens

Safety Concerns (If Any)
none

Mounting Height est
20 feet

Location on Structure

Light Visible From Beach?
Yes

Was light on at night?
Yes

On Conservation Lands
No





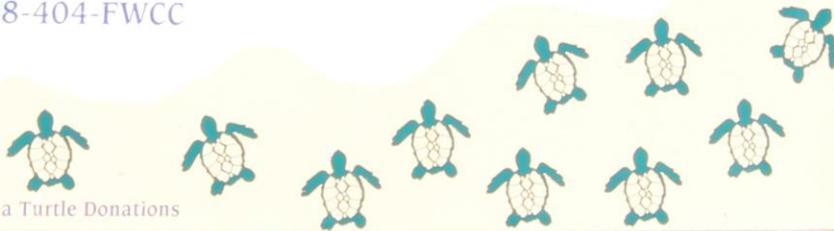
DO NOT DISTURB
SEA TURTLE
NEST
VIOLATORS SUBJECT
TO FINES AND
IMPRISONMENT

PROTECTED BY FEDERAL AND STATE LAWS
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
1666 EASTERN BLVD., SUITE 200
DENVER, CO 80218
303-733-9000
WWW.BLM.GOV

Lights Out!

Sea Turtles Nesting

To report disoriented hatchlings or
activities endangering a sea turtle
Please call 1-888-404-FWCC



Sign Courtesy of APTA Sea Turtle Donations

Keep All Beachfront Lights Off For Sea Turtles - May 1 - Oct 31

To report disoriented hatchlings, please call
the Central Panhandle Aquatic Preserve Office 850-670-4783 x104
or the FWC 24hr hotline at 888-404-3922



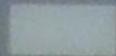
Courtesy of
Friends of St. Joseph Bay Preserves





**KEEP SEA TURTLES
IN THE DARK**

Close Window Treatments
Dusk to Dawn 017 - 10131











Y ORDINANCE #04—05

NHS E.A

728

PARK HOURS

OPEN: 1 HOUR
BEFORE SUNRISE

CLOSE: 1 HOUR
AFTER SUNSET

RES. 04—05













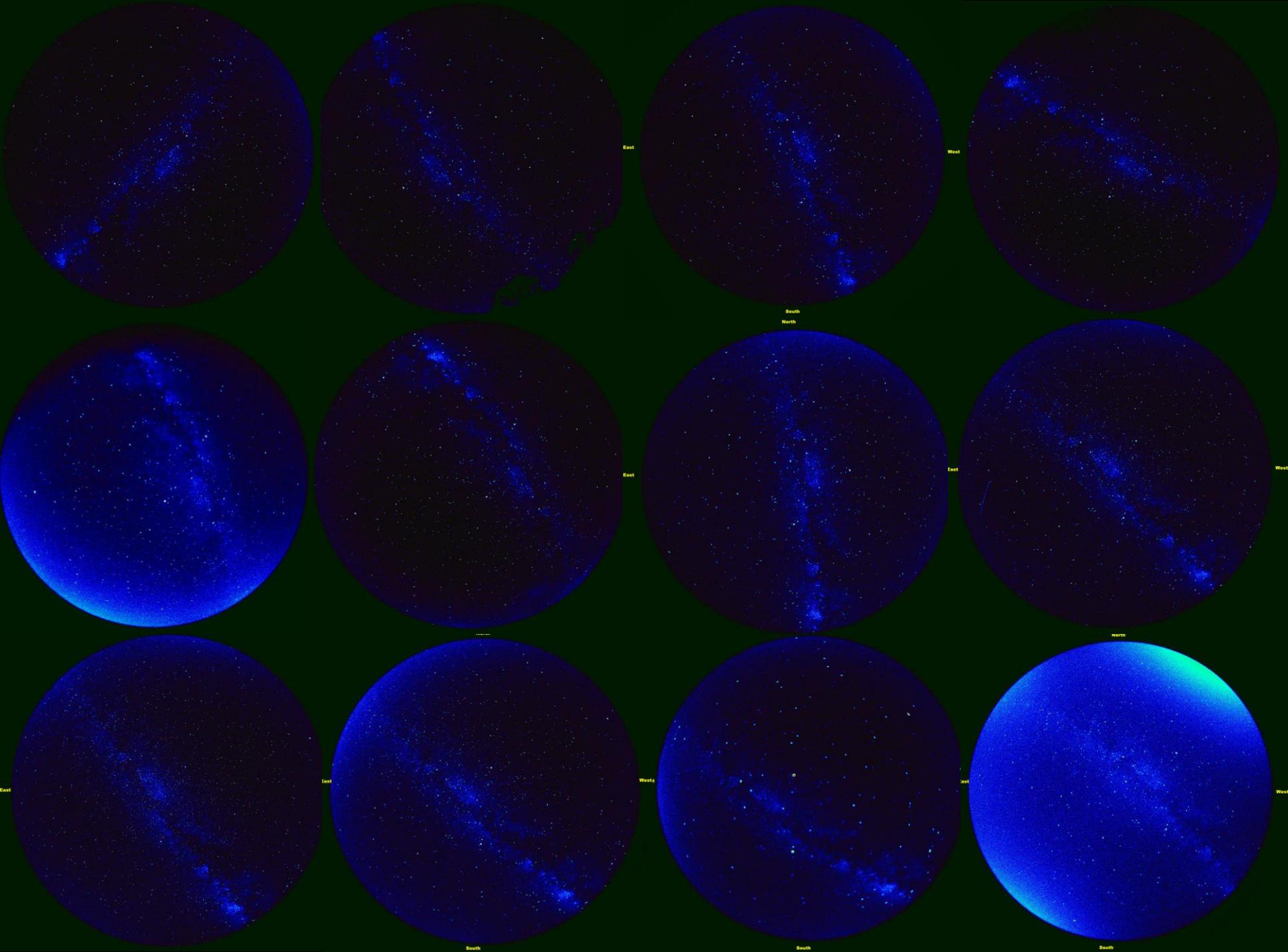


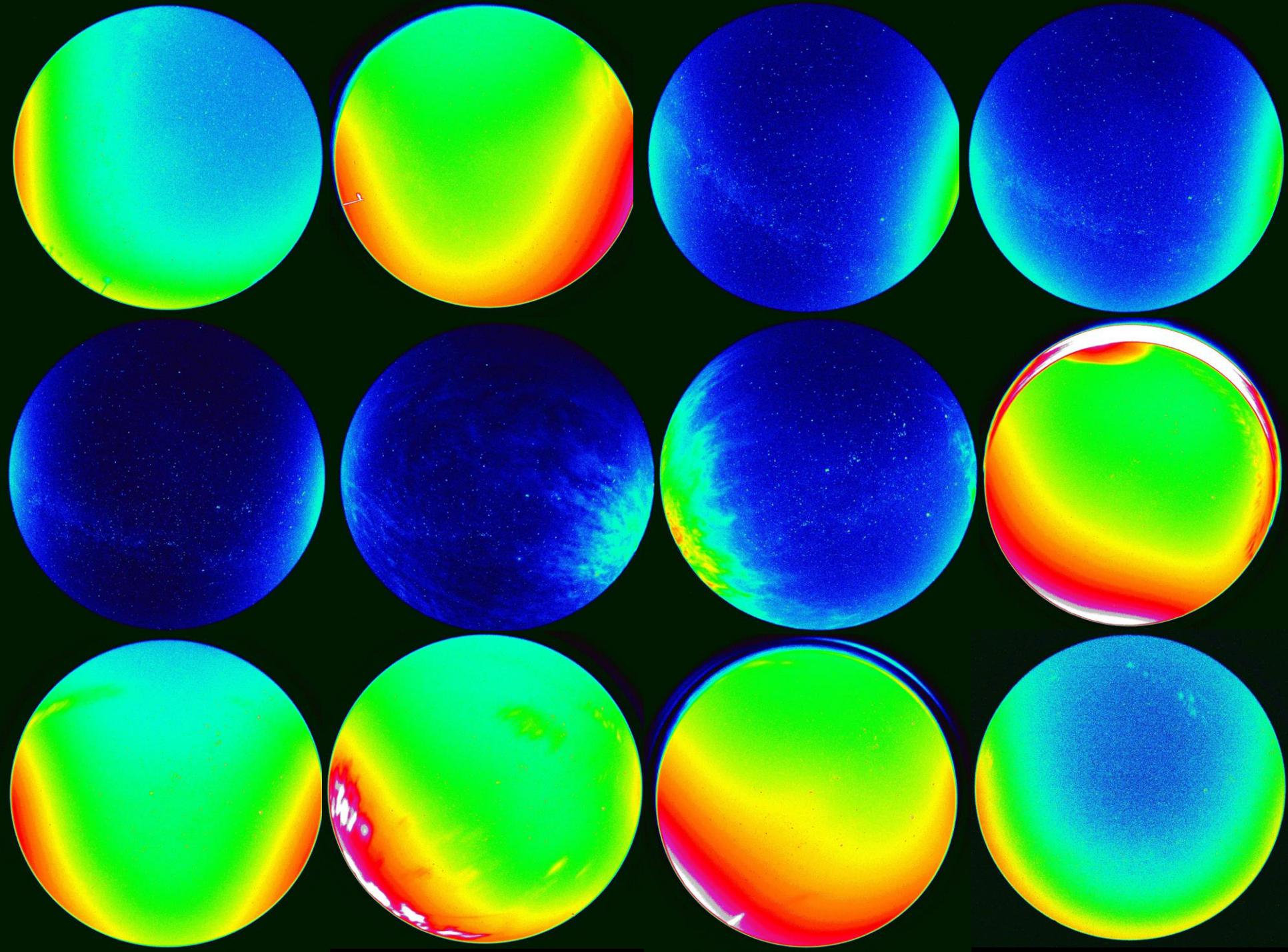


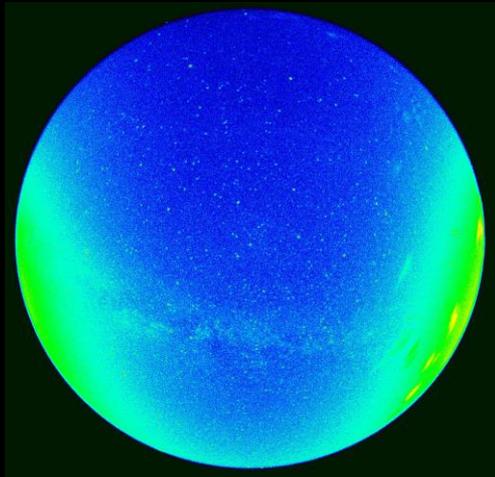




All in all, the 25 pre-retrofit survey reports submitted for the project included nearly 3,700 photographs and amassed nearly 16 and a half gigabytes of data.







Shielding Type

Unshielded

Light Barriers from Beach

Vegetation

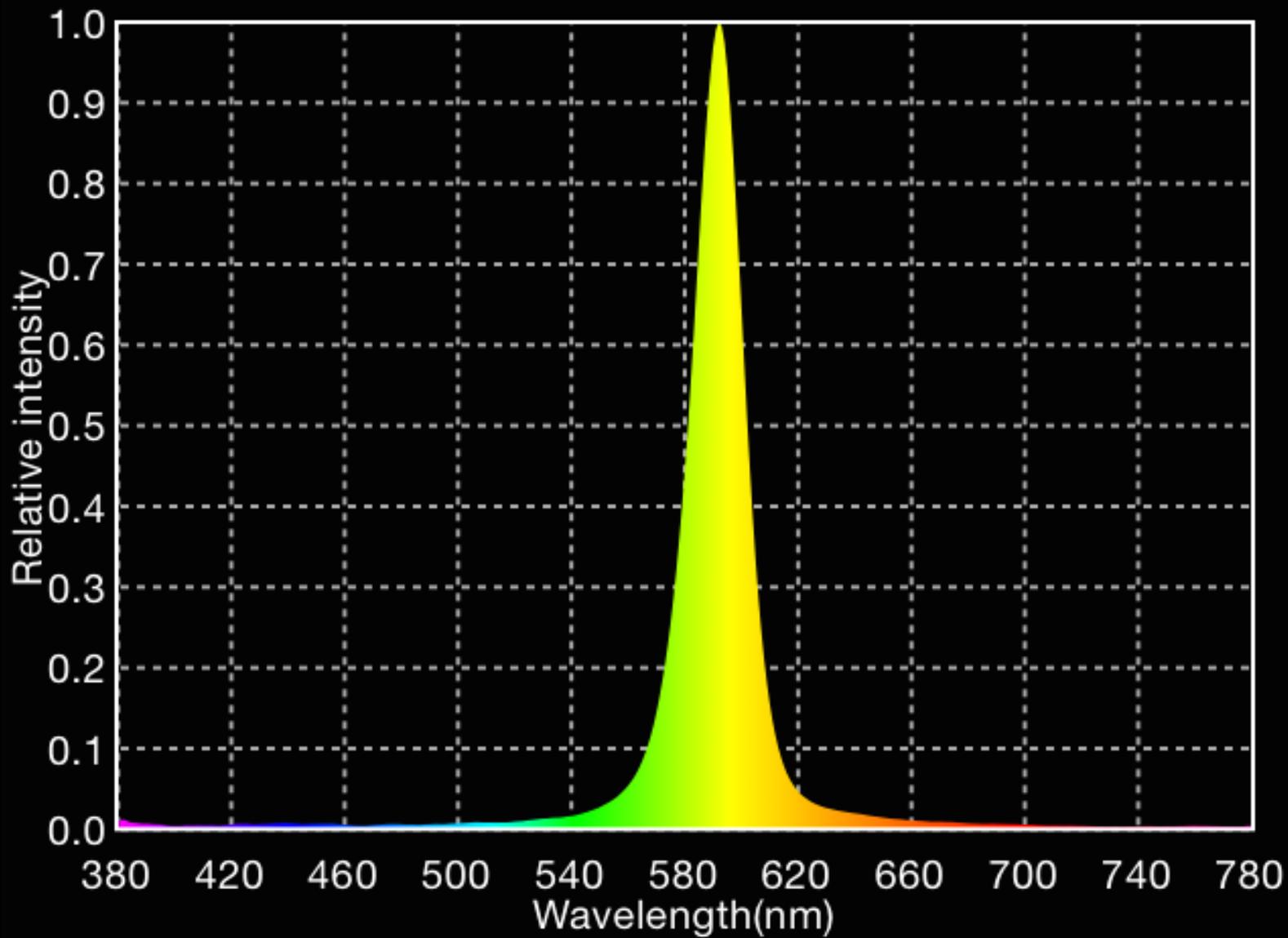
GPS coordinates

Recommendation Notes

Consider removal or replace with fully shield amber LED:Beacon Amber Viper- Small: VP-S/30E-40/AMB/T3/360/UNV- (360 degree shield) mount at 15ft

Photos





Retrofit Recommendation Light Source Table

LED Bulbs	
	<p>Name: Par16 Catalog Number: RSLPAR16 Manufacturer: Zenaro Lighting Required Options: Amber LED Spec Sheet: https://www.dropbox.com/s/3vq27dqnh0gtcgd/1364054734PAR_30C_38C_Amber_DATA_SPEC_SHEET_v1.1.pdf UL Wet Listed</p> <ul style="list-style-type: none"> • Use to relamp fully-shielded existing fixtures
	<p>Name: Par30 Catalog Number: RSLPAR30 Manufacturer: Zenaro Lighting Required Options: Amber LED Spec Sheet: https://www.dropbox.com/s/3vq27dqnh0gtcgd/1364054734PAR_30C_38C_Amber_DATA_SPEC_SHEET_v1.1.pdf Photometric Report: https://www.dropbox.com/s/3azhc08ynpfzhz8/PAR30_L_OA-2012-A0006.pdf UL Wet Listed</p> <ul style="list-style-type: none"> • Use to relamp fully-shielded existing fixtures
	<p>Name: Par38 Catalog Number: RSLPAR38 Manufacturer: Zenaro Lighting Required Options: Amber LED Spec Sheet: https://www.dropbox.com/s/3vq27dqnh0gtcgd/1364054734PAR_30C_38C_Amber_DATA_SPEC_SHEET_v1.1.pdf Photometric Report: https://www.dropbox.com/s/s735klputf0liy9/PAR38_OA-2012-A0005.pdf UL Wet Listed</p> <ul style="list-style-type: none"> • Use to relamp full-shielded existing fixtures



Name: WRDS

Catalog Number: WRDS-LED14

Manufacturer: RAB Designs Canada

Required Options: Amber Version Only

Link: <http://www.rabdesign.ca/files/products/792279237.pdf>

Category: Wall Mount/Porch

UL Wet Listed

- Use to replace wall mounted unshielded and/or non-narrowband amber fixtures
- Native Amber LED Fixture
- Suggested installation for new construction

Ceiling Mount



Name: Nemo Amber LED

Catalog Number: DLD-F-Q-AMB-7S

Manufacturer: Dasal Architectural Lighting

Required Options: Amber Version Only

Link: <https://www.dropbox.com/s/bf6oylnpsur2qzn/2-550-AMB.pdf>

Category: Ceiling Mount

UL Wet Listed

- Use to replace ceiling mounted unshielded and/or non-narrowband amber fixtures



www.darksky.org