



CASE STUDY

Port Entry Light Helps U.S. Coast Guard Maintain Navigation Safety on Great Lakes

St. Marys River, Great Lakes, USA



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Project Overview



Application

Replace Existing Range Light



Product

PEL-10 Sector Light



Location

St. Mary's River between Lakes Superior and Huron, USA



Date

September 2016



Background

The five Great Lakes which straddle the borders of the United States and Canada are nicknamed, "America's Inland Oceans." Covering approximately 95,000 square miles of water with a total coastline of 10,000 miles, the lakes stretch for a distance twice as long as the center of the North American continent. The lakes are accessible to ocean-going vessels via the Great Lakes Seaway-St. Lawrence Seaway, where more than 160 million tons of cargo are transported annually contributing billions of dollars to the U.S. and Canadian economies. The primary navigation channel connecting two of the lakes, Lake Superior and Lake Huron, is the St. Marys River. It represents a major navigation challenge for Great Lakes mariners.



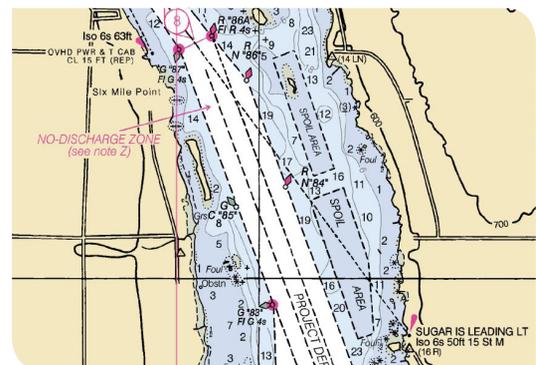
"Lake Freighter Algosoo Enters Duluth Ship Canal"
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Stretching for a total length of approximately 63-75 miles (101-121 km), the St. Marys has an average depth of only 20'. As one of the busiest waterways in the world, it requires ongoing maintenance and dredging to allow the passage of bulk ore carriers up to 1,000 ft. in length. Navigation hazards including shallow water, sandbars, islands and reefs cause vessel captains to change course approximately 20 times to stay in the main channel to ensure the safety of vessel, cargo and human life.

The Challenge

The U.S. Coast Guard 9th District carries the heavy responsibility of monitoring and maintaining the navigation channels in the Great Lakes waterways for the United States. One of their many goals is to ensure safe passage for ships that travel the challenging St. Marys River.

To assist ship captains and pilots in their navigation on the river, the U.S. Coast Guard installed a set of leading lights on Sugar Island. By aligning two lights together, vessels were able to safely enter the St. Marys River and navigate through the narrow navigation channel. The leading lights provided an adequate solution but the configuration was difficult for mariners to distinguish from other background lighting and required significant amounts of power for the inefficient incandescent bulbs.



Additionally, the existing installation required the lease or ownership of two separate property assets by the U.S. Coast Guard. The two properties required ongoing maintenance placing a strain on limited USCG resources.

These factors led the Waterways Management Division at the Coast Guard District 9 Headquarters to consider an alternative to the existing range lights.





The Solution

As the outdated leading lights were reaching the end of their service life, the U.S. Coast Guard sought out alternative lighting to provide a safer navigation solution. After careful consideration for service, performance and price, the U.S. Coast Guard chose Sealite's 10-degree Sector LED Port Entry Light (PEL) to assist mariners entering the challenging St. Marys River.

Sealite's 10-degree LED PEL provides a single, sectored lighting solution delivering unsurpassed navigation accuracy. Instead of aligning two separate white lights to lead ships into and through the navigation channel, the single Sealite PEL provides high precision red, green, and white LED sector lights and a 10-degree beam width for outstanding channel-approach accuracy.



The compact design of Sealite's PEL reduces the expense associated with the procurement and maintenance of two separate installation sites, reducing it to a single location.

With an intensity of 120,000 candelas (cd), Sealite's PEL features a maximum power draw of only 30 watts, making it extremely efficient at delivering up to 20 nautical miles of visible nighttime range. The PEL-10 provides accuracy greater than one minute of Arc, resulting in a color transition distance under 5' at 3 NM range.

Sealite's Port Entry Light is also available in a 5-degree model and comes with options for GSM Remote Monitoring and Control, GPS Flash Sync and AIS Monitoring. Other port entry lighting solutions from Sealite include a broad selection of Range Lights and Leading Lights.

" This is our second Sealite PEL installation on the Great Lakes. It gives mariners a more precise target to navigate towards, has eliminated the extra work and expense of maintaining two separate sites and was easier to install [than other systems used]. Because of its performance and efficiencies, we will be installing another PEL this spring. Sealite's Sector LED Port Entry Light has received nothing but praise from pilots and commercial operators on the Great Lakes."

William D. Sharp
United States Coast Guard
Ninth Coast Guard District
Aids to Navigation



"U.S. Coast Guard Official Emblem"

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