



CASE STUDY

West African River Gets New Aids to Navigation to Help Rebuild Local Economy

Undisclosed Country in West Africa



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Project Overview



Application

West African River Gets New Aids to Navigation to Help Rebuild Local Economy



Product

SL-B1200 Fast Water Buoy
Synthetic Mooring Solutions
SL-70 2-3NM Solar LED Marine Lanterns with GPS Flash Sync and Custom Anti-Theft Hardware



Location

Unnamed Country in West Africa



Date

Late 2018/Early 2019



Background

The government of a West African nation recognized that one of its key economic and environmental resources was in decline. Its major, inland river had greatly reduced capacity to support marine traffic due to shallow water depths, fast water current, and missing, off-station or non-functioning aids to navigation (AtoNs). Tourism and trade activities were decreasing as was the local economy. The government needed to upgrade its marine infrastructure on and along the river to improve the quality of life for its citizens.

Challenge

Naturally occurring, seasonal weather conditions made navigation complex or impossible in some areas. Water evaporation during the dry season resulted in river depths too shallow to support vessel passage; silt, washed downriver during the wet season, contributed to the shallow water conditions.

Water currents of up to six knots dragged many Aids to Navigation (AtoNs) underwater. Heavy drag either pulled the AtoNs off station or broke mooring chains, setting the buoys adrift. Tree trunks and other unmarked hazards limited navigation to daylight hours when mariners could identify safer navigation routes.

Other environmental concerns that resulted in AtoN loss were floating islands of heavy vegetation; giant water hyacinths would wrap around the mooring chains or the submerged buoys and contributed to the underwater drag and mooring chain breakage.

The remaining AtoNs suffered from discoloration and fading from the strong, tropical sun. Daytime identification of the channel mark was difficult. Dry, dusty winds of the Harmattan season further limited visibility and navigation safety.

Marine lanterns on top of existing buoys suffered from vandalism or theft. The missing lanterns made channel identification at night virtually impossible. Local maritime authorities restricted vessel operations to daylight hours for the safety of crew and cargo.



Synthetic Mooring Solutions used with Sealite's SL-B1200 Fast Water Buoys helped eliminate the entanglement of floating islands of heavy vegetation including giant water hyacinths.

An innovative marking solution was needed to identify navigation channels, minimize risk to vessels, crews, cargos and the environment, expand and rejuvenate commerce along the river, stimulate tourism, and help improve the prosperity of people living in the area.

Solution

Following major dredging to develop new, and expand existing, navigation channels, more than 200 new Sealite AtoNs were installed to meet the many challenges faced by mariners on the river.

Two hundred SL-B1200 Fast Water Buoys were deployed by the local maritime authority to mark navigation channels. The unique, hull shaped design of the SL-B1200 keeps the buoy on a plane on top of the water, ensuring it is less likely to become submerged by the fast current and masses of vegetation. The buoys bow-positioned anchor points allow for multiple, customized, mooring hardware attachment locations; this allows the mooring strop location to be tailored to local conditions and helps keep the bow of the buoy submerged in the fast water current. UV inhibited polyethylene used in the rotational molding process helps the SL-B1200 resist color-fading for a long service life and minimal maintenance. A Factory Acceptance Test (FAT) organized at the Sealite USA factory enabled the West African government authorities to check all product specifications for suitability prior to delivery, receive installation training, and evaluate the site for its high-quality, ISO 2001:2015 compliant manufacturing standards.

Synthetic Mooring Solutions were used in lieu of traditional chain hardware to moor the buoys. Sealite's Synthetic Moorings deliver a constant tension between buoy and anchor, reducing stress at attachment points and decreasing the potential for breakage and drag. Buoy maintenance is reduced as vegetation is less likely to become entangled in the robust fibers which form the Synthetic Mooring.

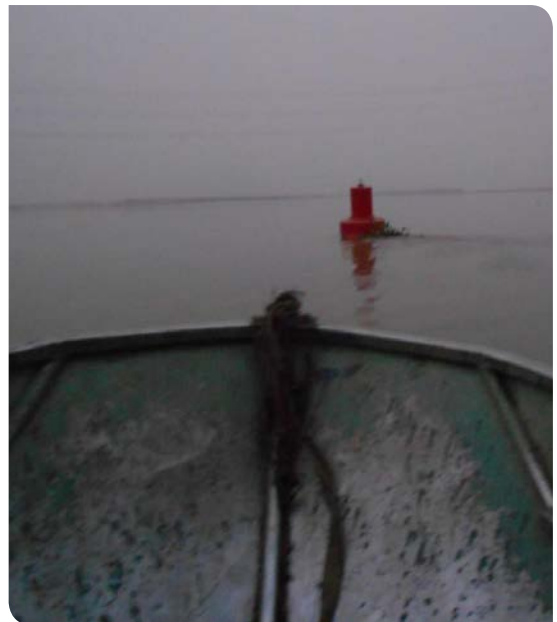
To illuminate the AtoNs from dusk to dawn, Sealite's compact SL-70 2-3NM Solar LED Marine Lanterns accompanied the SL-B1200 Buoys. The optional GPS Synchronization allows the lanterns to flash in unison, providing for better channel identification and conspicuity at night and in foul weather. The SL-70s Lanterns were fitted with customized, anti-theft hardware to help deter vandalism. Sealite will also deliver a customized, educational initiative as part of its total marking solution to help deter future threats of theft and vandalism.

Outcome

The new Aids to Navigation have helped increase vessel traffic and safety throughout the length of the 525km section of river, brought added commerce and tourism to the area, and enriched the economic lives of the local population.



Local boats shown deploying the SL-B1200 Fast Water Buoys. Simplified design requires few tools for an easy-to-install AtoN solution.



“You [Sealite] have changed the face of our river. Adding maritime traffic, expanding trade and tourism, and increasing jobs has helped to bring economic growth and prosperity to the people of the West African nation.”

– Maritime Supervisor of West African Government



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- ✓ Rapid Turnaround

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