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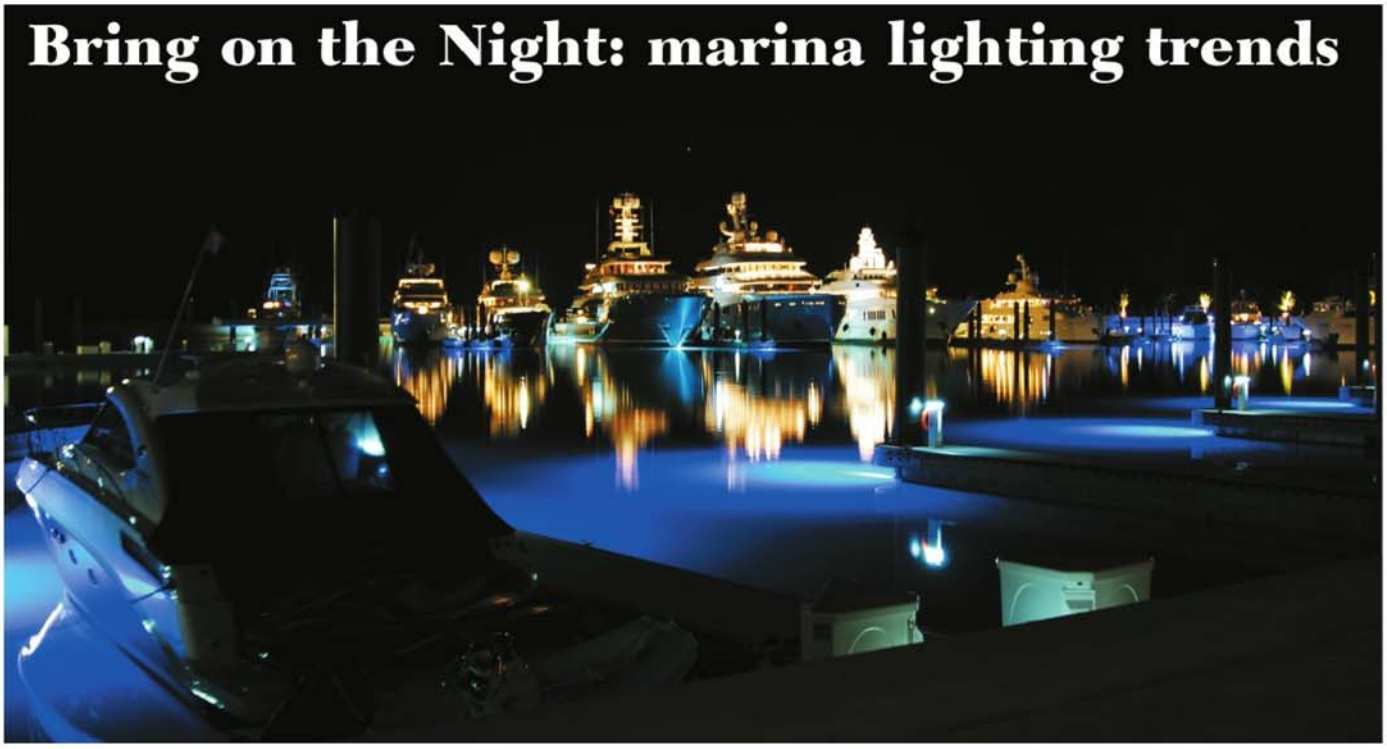
Bring on the Night: marina lighting trends



At Albany Marina in the Bahamas, submersible lighting gives nighttime new life.

by **Robert Wilkes**

Of all the latest product and design developments in the marina industry today, architectural lighting may be the most dramatic. With the advent of new technologies, marina lighting has been elevated from safety and security to art and architecture.

Landmark buildings in every city use architectural lighting for aesthetic accents and to showcase line and form. Every city with a bridge uses lighting to illuminate its soaring towers and rhythmic cadences. So why can't marinas, so beautiful in daylight, also be beautiful at night?

They can. Developments in deck and submersible lighting are adding stunning accents to marinas from California to Dubai. Underwater lighting can completely transform a marina at night. In most marinas, walking on the docks at night means carefully traversing a narrow path surrounded by ominous black water. With submersible lighting, the docks seem to float on a cloud of light above an "aquarium" of sea life.

Submersible lighting

The first deep-sea underwater lighting was developed for research submersibles and for submersible vehicles filming movies, such as "Titanic." Engineers needed a low voltage system with a very durable fixture that could stand up to saltwater. The first installations of underwater lighting on superyachts were made about 10 years ago, and with the advent of LED lighting five years later, the idea took off. (See the sidebar on page 33 for a brief look at the development of LED lighting.)

"Now submersible lighting accents are being considered by virtually every marina developer we're currently talking to in my region," said Steve Ryder, manager of project development for Bellingham Marine's Southeast Division. "Relative to the total cost of the marina, the cost of submersible lighting is minimal, and the low power consumption, low-voltage for safety, long service life and low maintenance requirements are very compelling."

In the Southeast U.S. and Caribbean, Ryder's region, boating areas have translucent water, so that underwater light travels far and creates spectacular effects.

Bellingham's first installation of submersible lighting was completed in 2010 at Albany Marina in the Bahamas. "We installed a light on every finger pier. They're extremely efficient, with high light output for just 20 watts of power," Ryder said. The Albany Marina lights were sourced from OceanLED, a UK-based company.

"The fixtures at Albany Marina are OceanLED D12 Underwater Dock Lights in Ocean Blue," said Bob Burke, architectural division manager for OceanLED, in its U.S. office. "Bellingham Marine fabricated special brackets to attach them to its piers. The lights have an anti-fouling lens treatment to make it super smooth so that sea life will be less likely to attach, although we still recommend that the light is cleaned with a boat brush periodically. The LEDs have a 14-year lifetime when used eight hours a day. Our fixtures have thermal

This pedestal lighting at Channel Island Harbor Marina in Oxnard, Calif., reduces the overall power consumption with a low energy LED.

protection that automatically shuts off the light if it's out of the water for any length of time. All of our boat and dock lights are manufactured with the highest grade LEDs available using a 3-star 'binning' system. That is, we test the LEDs from manufacturing for output level, efficiency and color, which ensures an exact match for all the fixtures in the marina."

In 2011, Bellingham Marine installed submersible lighting at Yacht Club Costa Smeralda (YCCS) in North Sound on Virgin Gorda, British Virgin Islands.

"We took the idea from the through-hull underwater lighting fixtures installed on the marina owner's Westport yacht," said Cliff Norton, general manager at Bellingham's Utilities Division, "and it was decided to install submersible lighting in the marina in a similar manner. We approached DeepSea Power & Light, the company that made the lights in the yacht, and they worked with us on the installation."

Norton's team adapted the DeepSea LED product, called the 12 LED On-Hull SeaLite, for use on the docks at YCCS. Each light fixture produces 1,300 lumens and is designed to operate in a saltwater environment. PVC conduits (schedule 80 ¾-inch), PVC junction boxes and transformers, which drop the voltage to 24V DC, were used in the installation. Norton's crew ran cable through the floating dock's hidden utility runs, then out to the fixtures, which were mounted to the pile guides with stainless steel straps.

"Most wiring in the utility runs is AC," said Norton, "so we thought it best to use a special wire color and labeling system to ensure future maintenance personnel will recognize the low-voltage wiring from the high-voltage AC."

The lights are mounted two feet below the surface of the water. "They can be taken up for maintenance, but all they will probably need to do is to wipe off lenses once a month with a brush," said Norton. The installation is clean and unobtrusive, but the effects are stunning in North Sound, which is isolated and generally dark at night.

Erik Goodin, sales manager for DeepSea Power & Light, said his company has been producing underwater lighting since 1983. "We began making through-hull fixtures for yachts in 2003 and LED lighting five years ago," Goodin said. "We can make them in blue, green and white, but blue tends to be preferred by yacht owners. Fishermen love them, they attract tarpon, squid, flying fish, you name it."

LED deck lighting

For lower power consumption, pedestal lighting is shifting to LEDs as well, Norton said. "We've installed LED pedestals in Channel Island Harbor Marina in Oxnard, Calif. Another common lighting fixture is 'bollard lighting' similar in size and shape to a mooring bollard. The main drawback with this type of lighting is that boaters can mistake them for a cleat, and they're not nearly strong enough to moor a boat," he said.

Deck lighting manufacturers are introducing beautifully styled low-profile lighting. The docks at Rybovich Superyacht Marina in West Palm Beach, Fla., use low-profile lighting two to four inches above the deck, which creates an attractive and imaginative "seashell" effect. Designers love the improved styling but are aware that lights should be placed so as to reduce potential trip hazards, especially when a bulb burns out.

At YCCS, deck lighting includes a series of near-flush mounted lights from InLite. "They are virtually flush mounted," said Norton, "with a flange only ¼ inch or less above the deck. They work well and when the sun goes down they look like runway lighting. These lights don't blind you when you walk down the dock. The beam is focused so you have to get your eye exactly over the light before it can bother your vision."

LED lighting development and design

The driving force behind lighting trends is the phenomenal advancement of LED technology, and especially the geometric increase in the amount of light emitted relative to the power consumed.

General Electric developed the first practical Light Emitting Diode (LED) in 1962. Affordable indicator lights at low light levels came on the market 10 years later. Since then, the illuminating power of LED lighting has risen exponentially. Today's LED lighting products can produce so much light that designers must take into account the effects of light pollution. Light that is too bright or misdirected can create a navigation hazard by degrading the night vision of boaters.

Present-day LED lighting uses low-voltage DC power, commonly 24V DC. The lights come in several colors and are incredibly long lasting. Service life is no longer given in hours, as with traditional lighting, but in years. Most amazingly, the light from an LED is emitted from a device less than one square millimeter in area, about the size of the head of a pin. Typically the fixtures have a number of LEDs in an array. The fixtures employ reflective housings to amplify and aim the beam, similar to that in a flashlight.

West Coast future trends

"Here on the West Coast, we are planning our first submersible dock lighting," said Eric Noegel, manager of project development for Bellingham Marine's Southwest Division. "We are installing them at a private dock in San Diego. The owner can control it with a photocell or from a timer. Even though our water is not as clear as in the Southeast, the submersible light is brilliant and beautiful. I think submersible lighting is coming to the West Coast, but for many it's harder to justify the expense in this economic climate. We will have it, but later than Florida and the Caribbean."⚓

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