

# Marlin®

A large marlin is captured mid-leap from the ocean's surface. The fish is angled towards the viewer, with its long, pointed snout and open mouth clearly visible. Its body is a vibrant blue with a lighter, silvery underbelly. A massive splash of white water and foam erupts behind the fish, contrasting sharply with the deep blue of the surrounding water. The background shows the textured surface of the ocean with small ripples and waves.

GAME-  
CHANGING  
TECHNOLOGY

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# TOP TECH THE DECADE'S MOST IMPORTANT ADVANCES

Impressive across-the-board improvements touch  
nearly every aspect of offshore sport fishing

BY SAM WHITE

EXTERIOR  
Ceramic  
coatings

INTERIOR  
Gyrostabilization

HULL  
High-performance  
bottom paint



**HELM**  
Omnidirectional  
sonar

**ENGINE ROOM**  
High-horsepower  
diesel engines

**RUDDERS**  
Electric  
steering

COURTESY VIKING YACHT COMPANY



**T**he past 10 years have brought unprecedented growth in technology as it relates to sport fishing, from tackle and electronics to engines, systems and even the clothing we wear. And while many of these products have existed for much longer, only in the past decade have they really taken off and gained acceptance in the mainstream; others are brand-new and have resulted from some groundbreaking innovations and advances in technology. What will the next 10 years bring? Only time will tell.

**Magic in a box:** Although it took years for the technology to be widely accepted, gyro stabilization has definitely made things more comfortable at sea.

#### **HIGH-PERFORMANCE BOTTOM PAINT**

One way to improve a boat's performance is to decrease the friction induced by traditional bottom paints. Introduced in 2016, Pettit's Black Widow has offered boatbuilders an edge, and currently it's the only antifouling paint with four additional slickening agents

included: molybdenum disulfide, PTFE, graphite and silicon. "The combination of these slickening agents and an extremely durable paint film make burnishing this product very smooth at application, and it only becomes smoother with use, without just polishing away," says Pettit's director of marketing, Tom Maellero. "This formula

is tuned just right to allow the proper amount of biocide to leach without softening the paint film too much to lose any speed characteristics." It's undergone multiple speed and friction tests, which prove that Black Widow offers substantial gains in hull performance.

#### **GYROSTABILIZATION**

Although the concept of gyro stabilization has been around for quite a while, Shep McKenney and John Adams brought it to the forefront when they developed what later became known as Seakeeper. But it took a while for it to gain traction: They installed their first prototype in a 43-foot Viking in 2006, but it wasn't until 2013 that Seakeeper shipped its 1,000th unit. Today, nearly all brand-new sport-fishing vessels are at least designed with a gyro installation in mind, and several builders include them as standard equipment. On the troll, they help calm the boat's roll, especially in a beam sea, but gyros are also



COURTESY SEAKEEPER, COURTESY AFTCO (OPPOSITE, TOP), COURTESY GARMIN (OPPOSITE BOTTOM)



great for spending nights offshore adrift on a sea anchor, which is common in places such as the Gulf of Mexico or on Costa Rica's seamounts.

While not as well-known, Quick USA has introduced a gyrostabilizer—the MC2 Quick Gyro series—which is gaining popularity in the sport-fishing arena. These gyros are air-cooled, so they do not require raw-water access or additional pumps, and they are also not vacuum-sealed, so routine maintenance can be performed on board without removing the gyro. All Quick products are designed and manufactured at the international headquarters in Ravenna, Italy.

#### **PERFORMANCE CLOTHING**

Remember the days of sweating it out in a long-sleeved white cotton T-shirt during those long summer days offshore? Thankfully, the rise of moisture-wicking synthetic fabrics has led to a new generation of performance clothing, often including a hood and built-in SPF face guard.

Colin Sarfeh, Pelagic's director of marketing, says: "I started working at Pelagic

a little over nine years ago, and the performance category was just starting to gain a lot of popularity. Our original Aquatek UV fishing shirt paved the way for some of our more recent designs. Today, we have multiple styles of performance fishing tops, which all have their own unique proprietary features, fabrics and technologies, while providing great

protection from the sun."

"Performance sun-protection shirts have been around for some time now," says AFTCO's marketing director, Matt Florentino, "and we came out with our first design in 2009. The product was widely accepted in South Florida by guides and anglers who were in the sweltering Florida heat. In 2013, we added our Fish Ninja sun-protection hoodie, which was the first of its kind with a built-in mask and hood, and in 2017, we introduced a shirt with cooling properties that used a jade-infused fabric." The company won a New Product Showcase award at the 2019 ICAST show for its Yurei line, which is constructed using an ultra-breathable micromesh fabric that still provides UPF 40-plus sun protection. That's a long way from soggy cotton.

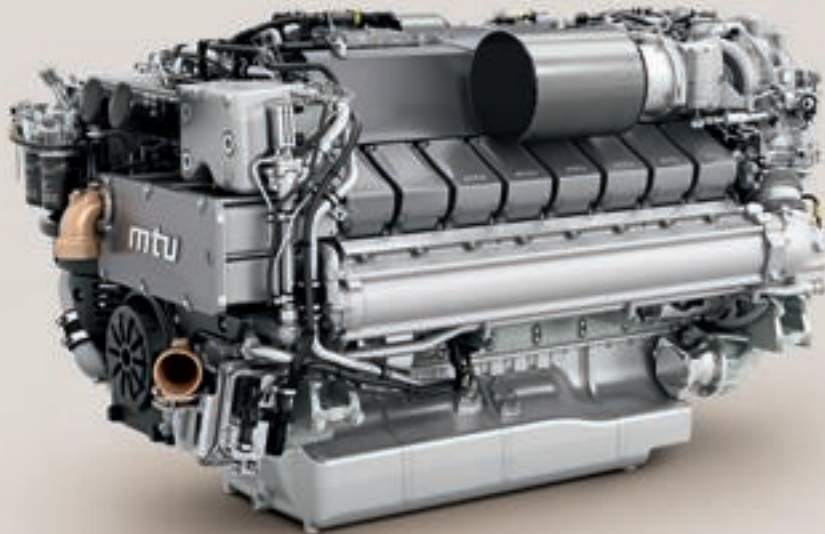
#### **CHIRP SONAR**

Think back to the first time you saw a high-definition television—it was hard to

**"THE RISE OF MOISTURE-WICKING SYNTHETIC FABRICS HAS LED TO A NEW GENERATION OF PERFORMANCE CLOTHING, OFTEN INCLUDING A HOOD AND BUILT-IN SPF FACE GUARD."**

By sweeping through frequency ranges from low to high, chirp technology produces much-sharper target resolution.





The MTU 16V2000 M96L is the powerplant of choice for many boatbuilders, thanks to its high horsepower and low maintenance requirements.

believe the greatly improved resolution, which was a vast improvement over a non-HD display. That's a good analogy for the introduction of chirp sonars. This technology transmits a longer pulse, putting more energy into the water column, and instead of pinging on only a single frequency, chirp sonars transmit a sweeping range of frequencies, ranging from low to high, for greatly improved target resolution. Garmin's first chirp sounder, the GSD 26, propelled the company squarely into the big-boat offshore market when it was introduced in 2011; today it remains among the company's most popular black-box units, according to marketing director Carly Hysell. Garmin's first unit with built-in chirp was the GPSMap 7600, which was introduced in 2014, and it too

quickly became a bestseller. Because after all, who doesn't want better resolution?

#### **HIGH-HORSEPOWER DIESEL PROPULSION**

Pushing a modern 70- to 90-foot sport-fisher to speeds approaching or exceeding 40 knots requires some serious horsepower. The introduction of the 2,600 hp diesel engine meant builders could now surpass even their own wildest expectations for performance. Currently MTU resides as the king of speed, having introduced the 16V2000 M94 series engines during the 2009 model year. However, a 2014 EPA emissions change required an upgrade, which led to the current M96L as well as the 1,920 hp 12V2000 and 1,600 hp 10V2000 series engines. "The M96 series was

specifically designed for the marine market," says MTU's senior marine sales manager, Andrew Boyer. "Other than standard fluid and filter changes and checking valve lash every 1,000 hours, there is no major component maintenance required until major overhaul at 6,000 hours. The impellers are bronze. There are no internal zincs in the engine. And there are significant performance benefits, like excellent acceleration, no smoke and relatively quiet operation, plus the option of up to nine years of extended warranty." Although there are rumblings of a 3,000 hp diesel engine on the horizon, emissions standards are changing as well. The future of high-performance marine diesel propulsion will undoubtedly be an interesting one, for boatbuilders and boat owners alike.

#### **VIPER STEERING**

VIPER stands for the Viking Independent Programmable Electrohydraulic Rudder steering system with electronic interface, and while it first made its introduction in 2007, the system was entirely redesigned in 2013, debuting in 2014 on Hull No. 1 of the new Viking 80. "We created VIPER because at the time, the market did not offer a steering system that could perform to the level we were seeking," says Lonni Rutt, vice president of design and engineering at Viking Yacht Company. "VIPER is a system that executes independent rudder operation for better boat control and maneuverability at low, midrange and high speeds in all sea conditions. It eliminates the need for a tie bar, improving response and reducing drag." Currently, VIPER is the standard steering system on the 80- and the 92-foot Vikings.

**"THE INTRODUCTION OF THE 2,600 HP DIESEL ENGINE MEANT BUILDERS COULD NOW SURPASS EVEN THEIR OWN WILDEST EXPECTATIONS FOR PERFORMANCE."**





### **MARINE-GROWTH PREVENTION**

It's an age-old problem: keeping those all-important raw-water lines clear of barnacles and marine growth. Rather than having to flush those lines with harsh chemicals, the Clearline system from ElectroSea takes a more proactive approach. Introduced in early 2019, Clearline generates a low level of chlorine—similar to what you'd find in tap water—and it's enough to prevent barnacle growth. A control unit dynamically adjusts the precise amount of chlorinated seawater, which flows through the raw-water lines for the boat's air conditioners and other systems, while a secondary flow runs back through the strainers to keep them cleaner longer. This means these systems operate at peak performance with optimal flow rates. Currently there are five Clearline models, including the latest—the CL-2000—for systems with flow rates up to 75 gallons per minute. They can be retrofitted to older vessels as well.

### **ELECTRIC STEERING**

An alternative to traditional mechanical and hydraulic systems, ZF SteerCommand is an electronic steering system that allows safer and more-precise steering, with tighter turns and easier maneuvering. This is due in large part to a patented reactive electronic-force feedback system specially designed by ZF. The product

was introduced in 2009 and initially adopted by the yacht market when several sport-fish builders took notice. The first builder to start equipping boats with SteerCommand was Michael Rybovich & Sons: In 2018, Hull No. 4, the 73-foot *No Agenda*, was the first North American sport-fisherman to use SteerCommand; it's also been installed on the builder's latest boat, the 78-foot *Persistence*. Another benefit of the control system is iDrift, which adds joystick maneuvering for precise control of the vessel's drift when kite-fishing for sails or bottomfishing over wrecks or other structure.

### **SHIMANO TALICA SERIES REELS**

Originally introduced at the ICAST industry trade show in 2012, the Talica series—and specifically the 20 Billfish Concept—soon became a favorite for light-tackle anglers. With a 6.7-to-1 gear ratio, the 20BFC can retrieve 60 inches of line per turn, which allows anglers to keep up with a marlin or sailfish while circling a hooked fish or backing down hard for a fast release. The high-efficiency gearing and durable cold-forged, one-piece aluminum frame and spool are not only light, but they're strong as well, an upgrade from the stamped graphite frames of the TLD series reels. An increased line capacity—640 yards of 20-pound-test or 440 yards of 30-pound, without backing—also meant that anglers had no problems handling double, triple and quadruple hookups, which is the real key to performing well in billfish tournaments.

**“ANOTHER BENEFIT OF THE CONTROL SYSTEM IS IDRIFT, WHICH ADDS JOYSTICK MANEUVERING FOR PRECISE CONTROL OF THE VESSEL'S DRIFT WHEN KITE-FISHING FOR SAILS OR BOTTOMFISHING OVER WRECKS OR OTHER STRUCTURE.”**

Speed, strength, light weight and line capacity made the Shimano Talica 20BFC series reel a favorite with offshore anglers when it was introduced in 2012.





#### **HIGH-HORSEPOWER OUTBOARD ENGINES**

The popularity of mega-center-console boats has exploded in recent years thanks to one critical advancement: the development of reliable, high-horsepower outboard engines. In less than a decade, outboards are now capable of producing 400 horsepower or more in a standard, nonracing engine, and it's all based on innovation.

Mercury Marine started the ball rolling in 2015 when it launched the 350 hp Verado, an extension of the 2.6 L supercharged, inline six-cylinder engines that were originally introduced in 2004. In 2018, Mercury debuted a V-8 300 hp Verado

that was an all-new platform: a naturally aspirated 4.6 L with a dual-overhead cam system for midrange punch, as well as a host of innovations, including adaptive speed control, range optimization, a single-point cowl-latch handle and more. The following year, Mercury introduced a 400 hp V-8 Verado to further satisfy those with a need for speed. And if that's not enough, there's the supercharged 450R, which is a supercharged 4.6 L V-8. "Innovation, beyond our customer's requests for more horsepower, is really what drives us," says David Maus-Berkley, communications manager at Mercury Marine. "We're consistently delivering industry firsts, from prop

to help, and we also learn from the development of each consecutive model as well."

At Yamaha, new product introduction manager David Meeler says its high-horsepower XTO Offshore series was a multiyear project, where the learning curve allowed the company to build a very specific product that was aimed squarely at the large-center-console market and not just a redesign of its F350 four-stroke, which remains popular. On display at the 2019 Miami International Boat Show, the 425 hp XTO is Yamaha's flagship engine, with a host of technical advancements on display. Sleeveless plasma fusion cylinders are slicker, stronger and lighter than conventional models, allowing for more volume and less weight. The built-in Digital Electric Steering allows the helmsman to steer the 952-pound engine with one finger, while thrust-enhancing reverse redirects the exhaust while operating in reverse for big-boat maneuverability, especially with the Helm Master system. "There's no one silver bullet that makes this a superb engine," Meeler says, "but rather it's a combination of things. We're bringing in existing technologies from industrial and aerospace applications to the marine environment, while also maintaining the highest [standards] in reliability and safety in these engines."

Seven Marine turned conventional outboard power on its collective ear when it introduced a 557 hp V-8 engine—which was originally based on an intercooled 6.2 L V-8 that General Motors developed for the Cadillac CTS-V—in the 2011 Miami International Boat Show. By March 2013, production had revved up and the first engines were delivered; by

The introduction of reliable, high-horsepower outboard engines was key to the development of larger center-consoles, which are common today.

COURTESY MERCURY MARINE (2), COURTESY FURUNO USA (2, OPPOSITE)



2015, Seven Marine was building a 627 hp outboard. In 2017, Volvo Penta signed an agreement to become the major owner of Seven Marine; in 2018, it added 527 hp and 577 hp models to replace the original, and enhanced its 627 hp flagship model. An important milestone occurred in 2019, when Volvo Penta integrated all Seven Marine outboards' electronic vessel control and associated technologies such as DuoProp and joystick operation.

#### **CERAMIC COATINGS**

A durable, long-lasting finish that is chemical- and stain-resistant and has hydrophobic properties—sounds like a dream, right? Welcome to the world of ceramic coatings. In the past five years, ceramics have become much more widespread, although they have been in the automotive industry for well over a decade, according to Michael Marino, director of sales and marketing for Starke Yacht Care. “Before ceramic coatings became popular, polymer sealants reigned supreme in the marine market,” he says. “Today, ceramic coatings are a relatively new addition to the yacht detailing world, but the science is far from new.”

Specifically, ceramic coatings are neatly ordered arrangements of silicon and oxygen atoms in a three-dimensional polymeric framework. This nano-ordering forms a highly durable glasslike coating that is responsible for those aforementioned properties: greatly increased durability, chemical and stain resistance, UV stability, and a water-repellent nature. Ceramic coatings offer a finish that lasts much longer than waxes, while also making after-fishing cleanup a breeze.

Although the jury is still

## **“ORIGINALLY DEVELOPED IN 1974—WITH A PAPER DISPLAY, NO LESS—FURUNO’S COMMERCIAL SONARS HAVE BEEN LEADING THE INDUSTRY FOR DECADES.”**

out on the longevity of ceramic coatings, Marino points to several important factors, namely the elements and maintenance, as critical keys to success. “The life expectancy is really a function of the itinerary for the vessel, factoring in where it lives, how much it’s fished and if the boat is on a scheduled maintenance plan,” he says. A basic generalization: Reevaluate and possibly reapply after 12 to 24 months.

#### **OMNIDIRECTIONAL SONAR**

Hit the docks during any high-stakes tournament from Ocean City, Maryland, to Costa Rica, and you’re sure to get an earful about the boats running sonar. Those who understand how this technology really works, and who invest the time to learn how to operate it, are those who are reaping the benefits. Originally developed in 1974—with a paper display, no less—Furuno’s commercial sonars have been leading the industry for decades. But it’s only in the past five or six years that they’ve started to leverage these products for the sport-fishing industry, says Eric Kunz, Furuno’s senior product manager.

For those unfamiliar with this technology, omnidirectional sonar sends out a signal 360 degrees around and beneath the vessel using a retractable transducer resembling an inverted periscope that is installed in the vessel’s engine room. The signals can be steered to specifically target returns such as baitballs and even individual fish on all three axes under the boat. The unit of choice: the CSH-8L

Mark-2. “Of all the different sizes, frequencies and power outputs, this was the one that we found really works well for sport-fishing applications,” Kunz says. “It’s pretty much like an underwater radar, and it’s a very powerful tool in the right hands.”

#### **LOOKING AHEAD**

Technological advances in the marine industry will continue unabated as we find ways to make our boats faster, more comfortable and more capable, not to mention easier to operate. The tackle we use continues to become faster, stronger and lighter, and even the clothing we wear offers more sun protection and functionality than ever before. The future is approaching at warp speed, and it’s going to be one heck of a ride. 🌊



By using a retractable transducer (above), Furuno’s CSH-8L Mark-2 omnidirectional sonar (below) can mark targets 360 degrees around and below the boat.

