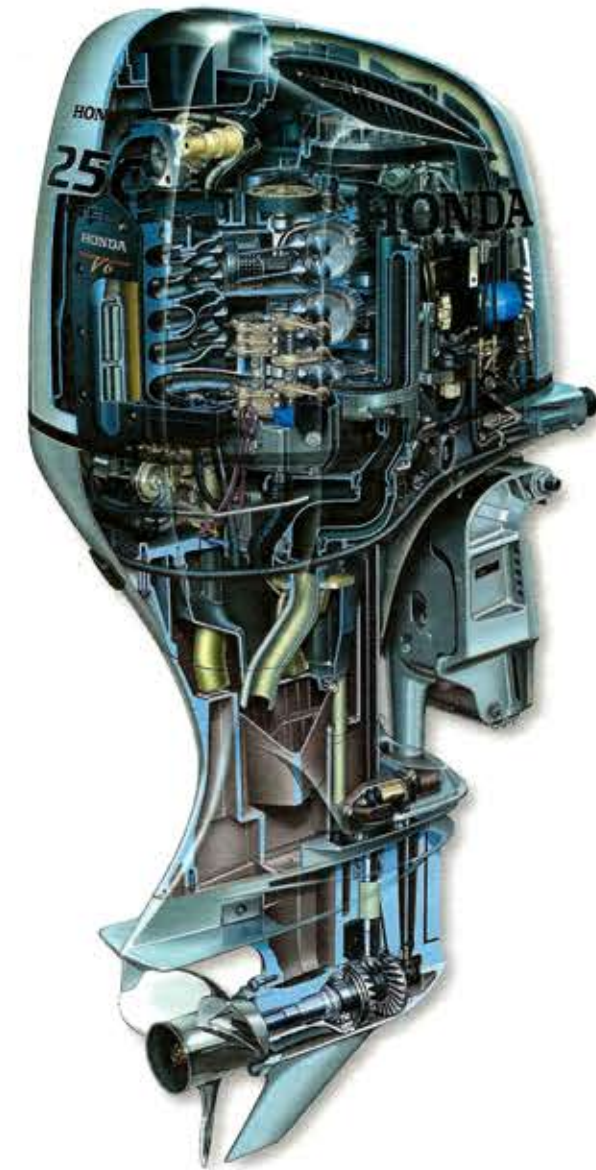


3-D computer-aided design of the MJM 50z and a 4-stroke outboard.

Boating's age of innovation



The top 10 advances

Here is our list of the top 10 innovations in recreational boating during the past two decades, compiled through our interviews with leading designers and engineers:

1. GPS and electronic charts
2. Computer-aided design
3. Pod drives and joystick helm control
4. CNC routing
5. Gyro stabilizers
6. 4-stroke outboards
7. Modern diesels
8. Vacuum bagging, resin infusion and all-composite construction
9. EPIRBs
10. LED lights

out new solutions and provide a customer with the confidence that they are getting exactly what they want."

For about 20 years French has designed powerboats from 19 to 100 feet in 3-D. "Our computer models are accurate, complex assemblies, including systems," he says. "The air conditioning, plumbing, the drive systems and every pump in the boat has been 3-D-modeled. The 3-D modeling environment allows everyone from the CEO to the marketing director to look at the boat before they spend the money for tooling and advertising."

French uses 3-D CAD with another technology — 3-D printing. "I have a 3-D print of a stateroom," French says. "A customer was curious whether the stateroom would look the way he wanted. He didn't see it in the computer environment very well, so we put a stateroom in the palm of his hands within a couple of days. ... You can see exactly how the room works. Stereolithography and 3-D and other 3-D printing technologies are here to stay — and in a really big

and cool way. We use them to show our customers what they're going to get way in advance."

'Joysticks for everything'

3-D printing serves as an example of how the industry can make boat buying more consumer-friendly, but making the operation of a boat easier has been a priority for the industry, as well, evidenced by the number of boats with joystick helm control. At today's boat shows you'll find joysticks married to a variety of power options, from outboards and stern-drives to pod drives and straight-shaft setups.

Hinckley was one of the first builders to develop and incorporate joystick control with its JetStick and waterjet drives. The company continues to improve the system and is now offering its third generation of the JetStick. The builder also now offers Volvo Penta IPS and joystick as an option, along with its own joy-

continued on Page 32

Led by GPS, joysticks and computer-aided design, the last 20 years have transformed the on-water experience

By Chris Landry / Executive Editor

When Michael Peters began designing boats in the 1970s, he thought he had missed boating's Golden Age. "If only I was old enough to be a designer in 1959 or 1960 when you had fiberglass replacing wood boats, the deep-vee coming on, the invention of the sterndrive," says Peters, president of Michael Peters Yacht Design in Sarasota, Fla. "I always thought that must have been an incredible time to be there developing boats."

Peters says he now realizes the most fruitful period of innovation has been from the mid-1980s until now. "I thought I had missed the show, but I didn't miss it at all," he says. "It's just different stuff. Just look at the America's Cup. The New Zealand team is running 50 mph."

Peters and a half-dozen other leading designers, builders and safety experts say GPS-generated electronic navigation, joystick helm control and computer-aided design stand out as the top innovations of the past 20 years. The innovations fall under four categories: electronics, boat design and construction, safety and propulsion. The innovations — the very latest of which will be on display at the International BoatBuilders' Exhibition & Conference Sept. 17-19 in Louisville, Ky. — have made boating easier for consumers and boatbuilding more efficient and less time-consuming for the industry.

The development of the 4-stroke outboard and cleaner, more efficient diesel engines, the increased use of resin-infused composite construction, the EPIRB and inflatable PFDs also rank high on the list.

Surprises? Gyroscope stabilization.

"With every boat we draw now we have to have a planned space for [a gyroscope]," Peters says. "Five years ago

we didn't even think about this. It's a huge development. It's becoming much more prevalent than we thought. We thought it was just for guys with larger boats and deep pockets, but with everything we design over 40 feet the builder wants to know where the gyro is going."

3-D modeling

Doug Zurn, president of Zurn Yachts, a design firm in Marblehead, Mass., has the gyro on his list, too. Without a doubt, however, computer-aided design ranks as his No. 1 innovation, with joystick helm control — and the engines and drives that utilize it — as a close second.

"From our standpoint, the most influential product development has come in the form of CAD products," Zurn says. "From the smallest widget to the fully assembled yacht, CAD products have enabled us as designers and engineers to develop far superior products with vastly improved features than our counterparts 20 years ago."

Steve French, owner of the industrial design firm Applied Concepts in Stuart, Fla., has been designing boats for more than 30 years and has watched computer use evolve. "Designing and building went from napkin sketches and paper drawings to 2-D CAD and then to 3-D CAD," he says. "We 3-D-model small parts like latches and hatches and consoles in sufficient detail to work

