

Sea Sleds Glide Again

How Boatbuilder Magazine Brought The Amazing Hickman Sea Sled Back To Life

by Dave Gerr

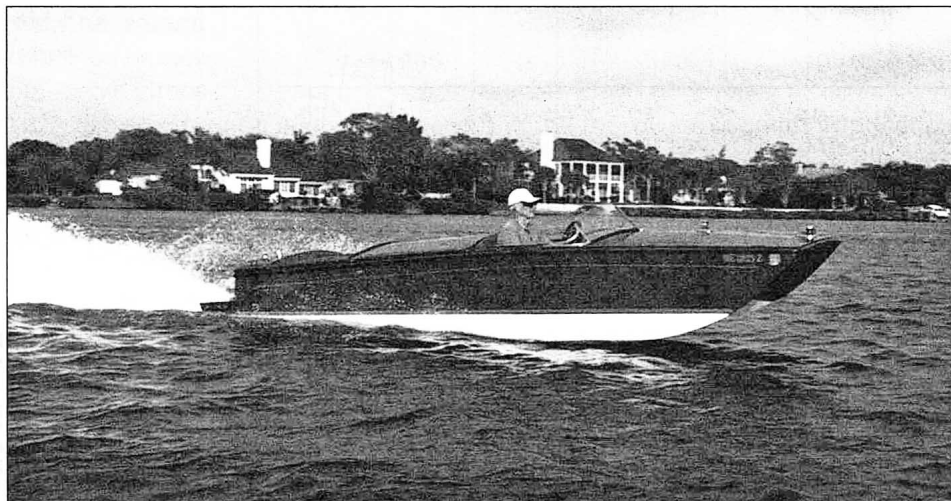
We've covered some unusual things in this column. Perhaps one of the oddest was Hickman Sea Sleds, in the September/October 1998 issue of *Boatbuilder*. Few boat types are more unusual, more successful, and were more forgotten than the Hickman Sea Sled.

The Makings Of A Sea Sled

Patented way, way back in 1914, Albert Hickman's Sea Sleds were peculiar, indeed, though the Sea-Sled hull form is remarkably simple in concept. You can see that the bow is an inverted vee. It looks almost like a catamaran from the front. The odd thing is that the peak of the inverted vee (which forms the center of the catamaran-like bow) grows lower and lower (or shallower and shallower) until, at the transom, the Sea Sled is dead flat across the bottom like a scow. In action, the air and water rushing under the hull is trapped and funneled between and under the hull, lifting the Sea Sled out of the water. Truly, the Sea Sled is the first surface-effect vehicle. Even better, the compressed air water mixture under the hull forms a cushion that damps out pounding and slamming.

Vanishing and Reappearing

For many reasons, Hickman Sea Sleds have been largely forgotten, that is at least partly until my article appeared. To say that this story generated a lot



of interest would be an understatement. Indeed, directly as a result of that article, several new working Sea Sleds have been built. In fact, Leecraft Boats (an aluminum boatbuilder in Sitka, Alaska, also called Leecraft Metal Fab) has gone into production, delivering five new Sea Sleds to date. Ranging from 20' LOA by 8' 6" beam up to 28' LOA by 11' 6" beam.

Leecraft's Alaskan Sea Sleds

The photos on pages 11 and 12 show two of Leecraft's Sleds, delivered in just the last couple of years. *Shuttle* is 26 feet by 8 foot 6 inches, and powered by twin 150-hp outboards. The larger boat is owned by Dr. Bill Mark, and she's 26 feet by 11 foot 6 inches. With twin 115-hp outboards, she does 30 knots max, and 25 knots cruise. These boats have proven really "good boats," and—based simply on word

Hal Parisen, of Connecticut, built this replica of a 1920 17' 6" Sea Sled.

of mouth and other boaters going for rides in them—Leecraft keeps selling more and more Sleds.

Outboard Power

All of Leecraft's Sea Sleds have been outboard-powered. Most with twins, one or two with a single on centerline. Marcus Lee, president of Leecraft, explains the drawback (well-known to Hickman) of a single outboard on a Sea Sled. The single outboard will get the boat moving well initially, but as the boat is beginning to come up on plane it starts to ventilate and can make noise and lose thrust. Then, finally, as you reach speed, things steady up again. The

reason for this is that the air/foam/water mixture captured under the hull is funneled right at the centerline propeller. Twins don't have this problem and are the better choice, except on the smallest of Sea Sleds where twins wouldn't fit.

Making Sleds Wider?

Marcus also decided to be daring. He'd consulted with me a bit before building his first Sea Sled, and I'd suggested that—at least for the first boat—he stick exactly with Hickman's lines and proportions. This posed a problem as Hickman's Sleds were almost all rather narrow, with a 4:1 length-to-beam ratio. Marcus was building a 25-footer, which would be only 6' 3" beam, at these proportions. Accordingly, he decided to go beamier regardless and see what happened.

In fact, even this first wide boat worked very well, but it showed a tendency to porpoise. This was corrected by trimming the outboard in as far as possible, but since then Marcus has discovered that you can build Sea Sleds quite wide without porpoising, as long as the deadrise angle on the inside of the hulls at the bow is kept steep enough. In other words, if the angle of the deadrise at the bow is made as sharp as on a standard 4:1 Hickman. This means that the top of the tunnel at the bow extends up higher into the boat at the centerline.

A New Sea Sled In Connecticut

Back in the Sea Sled's home waters—in Connecticut—Hal Parisen has also built a brand new Sea Sled. Hal also consulted with me about his sled before going off on the big experiment. He decided that he would build an exact replica of a Hickman, and got the lines of a 1920, 17' 6" Sled run about from Mystic Seaport. Though constructed of FRP rather than wood, this is really the same boat that Hickman built years ago. Hal even stuck with surface drive, which he fabricated himself, though he didn't use Hickman's peculiar side rudders.

Hal also faced the problem of a single engine on centerline. All of Hickman's surface-drive boats were twin screw or quadruple screw (in the very large sizes). This was to avoid the

problem of ventilating a centerline prop with the air/foam/water mixture. It was also to avoid the problem of fitting an engine in the tight space above the tunnel on the centerline. It took quite a bit of experimentation and tweaking to get the single centerline surface drive on Parisen's Sea Sled to work well, but work well it does.

Powered with a single 90-hp Subaru (which Parisen marinizes at his own factory, Kiwi Marine Engine Systems) his 17-footer does 31 knots.

Experiences With the Connecticut Sled

Hal describes his experimentation process and the results:

"Since we would be utilizing the real torque from a 4-cycle engine (with a total weight of about 300 lbs.), we opted to place the engine mid-ship (as the original boat was set up). The original cantankerous surface drive was replaced with a fixed drive designed by Evolution Drive Co. in Rockland, Maine. With the addition of a stainless steel surface propeller and a little tweaking by Randy Hale Jr., of Hale Propeller, the little boat was running at a true 31 knots on the Connecticut River. Not only was the speed what Randy had forecast but the boat no longer had any trouble

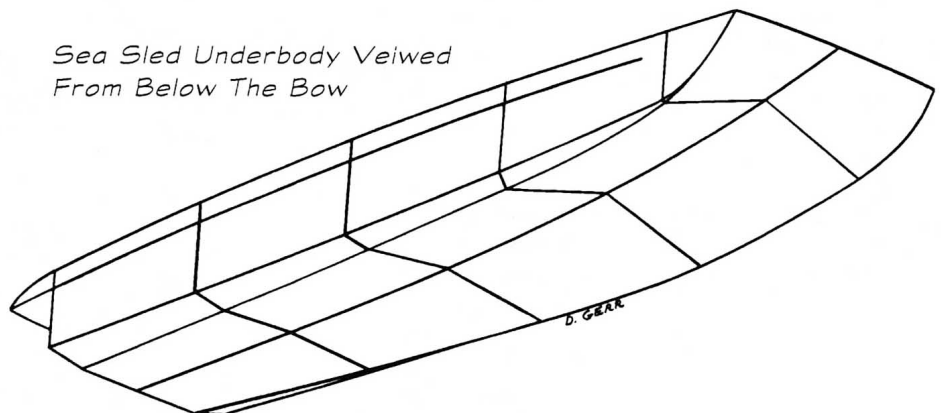


Dr. Bill Mark's 26-foot Sea Sled does 30 knots with twin 115-hp outboard motors.

getting out of the hole and up on step. We were finally able to achieve simplicity and reliability of design along with reduced noise levels that were, in fact, now pleasant and throaty. The handling of the boat was remarkable; we had a boat that could run fast, smoothly, economically and all in less than 12 inches of water.

"Some old-timers (who remembered the original Hickman) warned us in advance that the boat had a tendency to chine walk and trip at high speed, but we found none of those tendencies. At max speed the boat never exhibited any evil characteristics; for its size, it was very smooth. And the boat had one added advantage in that it threw very little wake (in fact probably less than boats its size running at slow speed). The prop walk problem was also eliminated by reducing the prop RPM with the new power plant and the installation of a two-rudder steering system.

Sea Sled Underbody Viewed From Below The Bow



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The beam of the 26-foot Shuttle is 2 feet narrower than that of Dr. Marks' boat of the same length.

"Number 1 hull (patched and cut up) was finally retired after the initial testing, and it was agreed that Concept Marine would build prototype/production #2 hull. Since the first hull ran so well at its top speed of 30 knots, Kiwi Marine would supply its new production K4 series (2.2 liter, 135 hp) fuel-injected Subaru engine for this boat. This production engine, with no weight penalty from the original 90 hp engine, gave us the reliability and simplicity we required for a boat that would now cruise at 30 knots with plenty of power and speed in reserve.

"Number 2 hull was readied in early summer of 2001 with a new drive system and surface-piercing prop set-up along with a newly designed stern rudder platform and rudder system that Roy Lupien of Concept Marine had designed to handle the increased power. Hull #2 now sports mahogany decks, two separate cockpits separated by the engine and hatch (ala Hickman), a windshield and fixed pleated seats. It looks like a boat from the 20s but outperforms what the original designer had in mind.

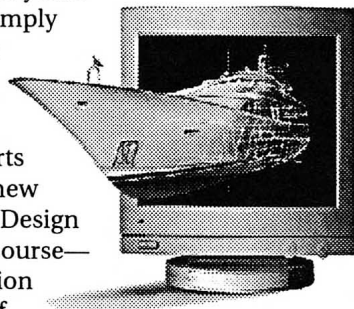
"With the new engine and rudder system, we started testing the boat in Vero Beach, Florida. The only real problem was with the newly designed rudder platform. While solving the problem of backing up by contouring the underside of the platform, there was prop vibration when accelerating (just below the point where the prop breaks free). The solution was to cut a 2-1/2" hole through the rudder platform and vent the propeller: the result . . . vibration gone.

"Well, that's about it with one additional caveat. The little Sea Sled does turn a lot of heads along the waterway."
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Designing both yachts and commercial vessels out of his New York City office, Dave Gerr is the author of Propeller Handbook, The Nature of Boats, and The Elements of Boat Strength, published by International Marine Publishing Co.

Marcus Lee's Comments On His Sea Sleds

"The first Sea Sled I built was 20' x 8', the second 25' x 11' 4", the third 24' x 8' 4", the fourth 26' x 11' 4", the fifth 26' x 8' 4" and the sixth is to be 36' x 13' 6".

"Note the difference in beam-to-length ratios. The wider ones tend to plane more weight and maintain their plane at slower speeds. They corner good, but the narrower ones corner better. You might suspect the narrower boats would have a better ride, but I'm not sure. The Sea Sled doesn't slice through the water, it rides over. The wider ones seem to have more cushion effect. Whether wide or narrow, the shape of the Sea Sled bow develops a cushion that takes the pounding out. All are good performing boats.

"More than one interested client I have taken out at 35 mph. has tensed and braced himself as we approached a 2' wake. It is always a delight to see their surprise. They may not want to be taking a drink of hot coffee, but they sure could have held onto it.

"The 25' x 11' 4" owned by Burgess Bauder of Sitka, Alaska has planed with 5,000 pounds of sea cucumbers loaded forward, powered by twin 115-hp outboards.

"Randy Gluth, the owner of the 24' x 8' 4", was loaded with 60 2" x 4"s and 2" x 8"s, 20 sheets of 5/8" plywood, four 8" x 10" x 16' treated beams, and a 300-pound plate glass window. He also had other miscellaneous supplies and passengers. Leaving the marina with a bit of a list, he said he was pleasantly surprised when the boat seemed to self-right at planing speed. At 3,000 rpm he said he didn't even notice he had a load.

"I can't really call the Sea Sled a dry boat. It usually is except that occasionally the tunnel fills up and blows forward like a whale blows. At 30 to 50 mph it isn't hard to imagine what happens next. Notice the boats all have cabins. I think this is a clue as to how the boat cushions pounding."

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