

# PROFESSIONAL MARINER

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CIRCLE LINE MANHATTAN: Low bridges? No problem  
[Peter Meredith](#)

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*The vessel's look matches the company's existing boats, a collection of World War II-era landing craft.*

For one million passengers a year, Circle Line Sightseeing offers the spectacle of the New York City skyline as seen from the water. Its best-known cruise goes all the way round Manhattan from Pier 42 on the Hudson via the Battery and the northern tip of the island. For decades, the line has been using converted World War II-era landing craft that are now coming to the end of their working lives. As director of marine operations for parent company New York Cruise Lines, Gus Markou was looking for new boats.



*Large windows and canted beams over the sightseeing deck allow views of the towering Manhattan skyline.*

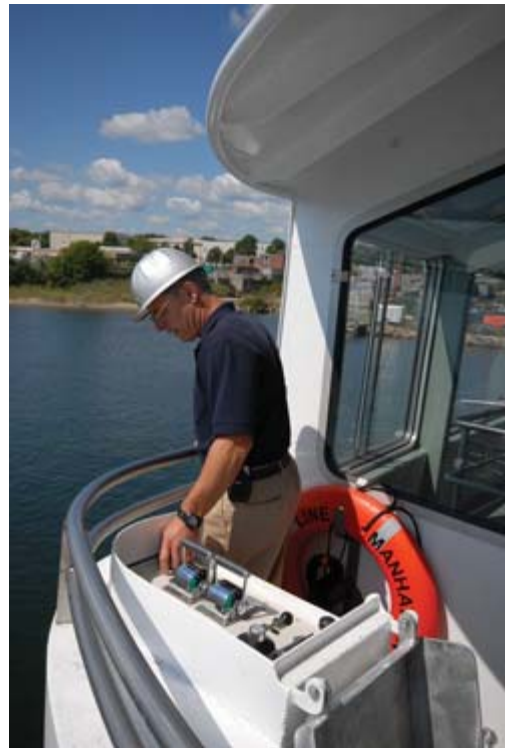
In theory, this should have been easy. The replacement vessels could be Sub-chapter K, simpler all round than the older boats, which are Subchapter H. And as long as excursion boats are reasonably comfortable, passengers are happy — they're there for the view, not the vessel.

But the complexities of Manhattan's geography pose an engineering challenge: Fixed bridges on the Harlem River restrict air draft to 22.5 feet; even the current boats

can't clear them at extreme high tide. And Markou had a couple of other requirements as well. He wanted the new vessels to match the distinctive lines of the old ones, and he needed exactly the same freeboard so he could use the same docking facilities.

Markou took these thoughts to Andy Lebet, president of DeJong and Lebet, the naval architects based in Jacksonville, Fla. Lebet got an early look at the issues. On a trip to New York, he remembers Markou talking about the docking requirements at Pier 42 and saying, "We're going out to measure this. This is where it needs to be!"

Lebet faced three engineering challenges. One was staying under 100 gross tons to qualify for Subchapter K, which he described as "complicated, but it's something we've done routinely." The real issues were clearing the bridges and matching up to the dock. "You've got a freeboard restriction on one end squishing you up and you've got the air draft squishing you down," says Lebet. "In a sense what we did was design the boat around those points." The solution was so fine that the design depended on a U.S. Coast Guard exemption for the spacing of the masthead light.



*John Duclos, co-president/director of operations of Gladding-Hearn, on the port bridge wing in Somerset, Mass.*

To build the boats, New York Cruise Lines turned to Peter Duclos, co-president and director of business development of Gladding-Hearn Shipbuilding, in Somerset, Mass. Since 2001, Gladding-Hearn had built four fast ferries for SeaStreak, the New Jersey-based commuter service, and a New York Cruise Lines subsidiary was operating them (the relationship ended March 31 when SeaStreak was acquired by New England Fast Ferry). At 165 feet, the new boats would be Gladding-Hearn's biggest vessels ever — the yard would have to build them in sections and assemble them outside — but Duclos was up for it. "It's a fairly straightforward vessel," he says. "It had its challenges, don't get me wrong, but in terms of outfit it's pretty much just an open space."



*Two Circle Line executives with the Cummins KTA38M1 diesels: Robert Maher, CEO, (left) and Gus Markou, the company's director of marine operations.*

The Circle Line ordered three boats; *Circle Line Manhattan* was delivered in September. About one third of the upper deck is enclosed; a big, open atrium gives it a dinner-boat feel, and there are no pillars on either passenger deck. "It took some pretty serious beams in the overhead," says Lebet. The beams above the second deck are canted to permit sloping, greenhouse-like windows for an upper view of the skyline.

Power comes from a pair of Cummins KTA38M1 diesels rated at 1,100 hp, at 1,800 rpm. The engines are linked to ZF W3350 gears with 4.497:1 ratios. A pair of Cummins 6CTA-powered generators provide electric power for the vessel, including a 140 hp electric Wesmar bow thruster.

The propellers are modern five-bladed Bird-Johnson New Generation Workwheels from Rolls-Royce. Fully loaded, the vessels will draw 8 feet of water on their 12-foot molded depth. Passenger capacity is 599, to stay within the Subchapter K limit.

Both the yard and the operator hope to save fuel with the new vessels, but the extent of this won't be clear until they go into service. In fact, the older boats are unusually narrow — 25 feet as opposed to 36 feet for their replacements — and draw just 5 to 6 feet, making their slow-speed diesels relatively efficient. But with diesel prices at record highs — "Last year I was paying close to \$1.90; now we're paying \$4.30," Markou said in New York in July — anything helps.

In terms of passenger amenities, *Circle Line Manhattan* will be far more advanced than the vessel

it replaces, *Circle Line VII*, which was retired in 2007. “On the main deck we put more concessions, gift shops, something the other boats didn’t have,” says Markou. The boat will also be friendlier to people with disabilities, with ample door widths and access to toilets on the main deck. Perhaps the biggest innovation will be air conditioning, which uses a 60-ton chiller (in the colder months, the vessel has a 160,000-btu diesel-fired boiler for heat). “That’s probably the biggest system on the boat,” says Duclos. The windows are dual-glazed.

## **No room at the yard**

Gladding-Hearn has had a busy year. In June it delivered its first tugboat in more than 15 years, a z-drive called *Madeline* for Wilmington Tug. On a gray day earlier this spring, its yard was crammed with newbuilds, including a ferry for New York Water Taxi and a series of 65-foot submarine escorts for the U.S. Navy. Construction crews were working on a new 12,000-square-foot fabrication facility — wet and windy weather had put them behind schedule — and the floor had just been poured for a new 7,000-square-foot storage facility. The company is anxious to upgrade its marine railway and lengthen its dock; in April, the U.S. Maritime Administration awarded it \$628,300 in the first round of a series of grants to small shipyards.

Duclos, whose love of engineering is evident — the yard makes many of its moves on a 100-ton trailer that was his senior design project at the University of Massachusetts — says Gladding-Hearn stops every few years to assess its future needs. “About every 10 years we put it on the line,” he says. “The last major expansion was in 1998 when the fast-ferry market just exploded.”

*Circle Line Manhattan* was delivered in September. *Circle Line Brooklyn* is due in February and a third vessel by the end of April. At some point, Circle Line Sightseeing will run out of boroughs after which to name its vessels, but that doesn’t worry Duclos, who’s looking at the entire eight-boat fleet. “We’d like to replace them all some day,” he says.

One thing is certain: these boats will be much less work than the ones left over from World War II. The older vessels’ engine rooms require two people to operate, and they’re viable only because the old owners of the Circle Line stockpiled spare parts. Markou says one difference will be apparent the first time the new boat undergoes a routine inspection. “The old ships have 14 sea valves,” he says. “This one has one.”