

Once again, details to date are sparse but the company has confirmed that the 350 seat vessel is scheduled to be completed at its Gulfport, Mississippi, yard during the third quarter of 1998.

The other fast ferry being built in the United States to the builder's own account should now be in the water. Due to be launched towards the end of 1997 at the Harley Shipbuilding Corporation yard in Bartow, Florida, this is a surface effect ship design featuring a patented cushion system that does not use flexible seals.

Following initial trials, the 17m x 5m composite hull vessel is to be fitted out as a 100 seat ferry. Powered by a pair of Caterpillar 3208 425 hp diesels, with a single Yanmar 100 hp diesel supplying the cushion air, it is expected to have a maximum speed of over 50 knots.

Miss Barnegat Light

One catamaran operating in the United States has actually been in service for almost 25 years but its operational speed has only recently passed 25 knots as a result of the second of two modifications.

Built by Breaux's Bay, the 27m *Miss Barnegat Light* was first retrofitted with Servogear HD 250 controllable pitch propellers. Then, in the middle of 1996, the ferry was selected as a testcraft for a pair of the new Detroit Diesel MTU 16V 2000 diesels.

These have increased service speed, with a full load of over 100 passengers on board, by 4-5 knots to 26-27 knots. The catamaran makes one return journey a day off the west coast of Florida between Fort Myers and Key West. Scheduled trip time is 4 hours 45 minutes-5 hours with a 5 hour stopover in Key West.

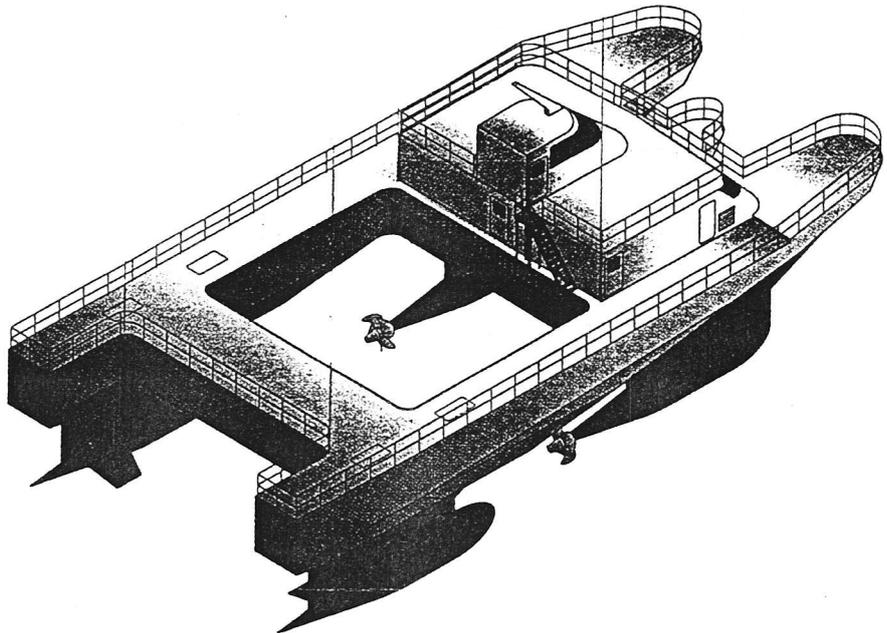
Slice testcraft

Another possible conversion that would result in a fast ferry entering service in the United States involves the Slice swath testcraft completed in Honolulu, Hawaii, last year by Pacific Marine. Trials to date were reviewed at the Ferries 97 conference, held in Florida in November, by Honolulu Shipyard program manager Slice ship construction Eric Schiff.

He reported, "The Slice vessel was conceived as an invention by Terry Schmidt of Lockheed Martin Corporation. Under a cooperative research and development agreement with Lockheed Martin, Pacific Marine & Supply Company, and the Office of Naval Research, the Slice program was initiated.

"Lockheed Marine bought the technology and its engineering. Pacific Marine brought its SWATH building experience, operating experience and access to the rough ocean waters of the Hawaiian islands. ONR brought its administration experience with government programs and access to the Carderock David Taylor model basin.

"The cooperative approach to bringing this technology to a full scale demon-



Current configuration of Slice testcraft

trator has allowed Pacific Marine and Lockheed Martin to realize this in less than four years from the time the concept was presented. Further, the program has not been burdened with excessive government oversight.

"As a result, the technology has come to this stage under limited fixed funding. The design, testing and construction of the vessel has proceeded as though it was completely a private commercial venture. The Slice was under construction at Honolulu Shipyard for two years.

"The vessel is currently completing sea trials in Honolulu. It has already proven one of the basic concepts around which it was developed, that the short hull body can be efficiently driven beyond the limiting Froude number wave resistance constraints that affect more conventional SWATH ships and other displacement hull forms. Further, observation data indicate that the Slice has the typical excellent ride quality expected of a SWATH and the wake wash is extremely low.

"The Slice configuration is designed to reduce wavemaking drag at high speeds. This is accomplished by reducing the length of the displacement portion of the hulls. The hull bodies are fairly simple in form, being bodies of revolution with spherical nose cones forward and simple conical tail cones aft. Main propulsion is located in the forward hulls.

"The upper sponsons and main deck area are also simply configured with straight sides and large flat rectangular deck. The current cabin house was designed to support initial testing missions and later mate with the passenger payload module designed for this vessel."

Maximum speed achieved during the initial trials programme was 31 knots, a speed that was reportedly depressed by a cavitation problem with the forward pods. The Slice testcraft has since been

drydocked for modifications to the main reduction gears and operated on US Navy missile tracking tests.

Planned developments include the fabrication and installation of a fifth pod later this year and the construction of a trailer during 1998-1999. Referring to these, Eric Schiff said, "A fifth pod also offers a great variety of arrangements. One of the industry challenges has been to have useful codag machinery arrangements that are not restricted by complex custom combining gears, long shafts and propellers optimized for one area of the power curve.

"With the multiple lower hulls, Slice allows tuning the propulsion arrangements to the operator's particular needs while reducing the complexity of the installation. A five pod Slice is easily configured for codag. A typical arrangement would include two 1,000 hp diesel engines forward and a single 6,000 hp gas turbine in the center pod aft.

"Access through the struts is good and would allow for full engine servicing. The hot section of gas turbines in the 4,000-7,000 hp power range can be loaded out through the struts. Internal volume of the lower pods is such that diesels in the 1,000 hp range can be fully overhauled in place.

"The fifth pod on the Slice provides the advantage of tuning for the payload. Most SWATH vessels have problems with providing adequate displacement in the right location to support the ship payloads at reasonable drafts and in level trim. Typically, the problems are in the aft of the boats as machinery, house services, tankage and other heavy systems accumulate during design or over time during operation.

"The pods as currently configured provide 45 tons of displacement each. With subtractions for the weight of the pod and

machinery, the fifth pod would contribute as much as 30 tons to the payload capability of Slice. Where Slice is now a 250 passenger vessel, the increase to 400 passengers is easily obtained.

"A high speed close-coupled trailer has been developed and model tested during original testing of the Slice. The trailer offers significant payload increases without proportional decreases in speed. It is being looked at by the military for a variety of missions and by Pacific Marine for high speed cargo.

"Scheduled ferry runs might include a few runs per week where the trailer is towed and cars are taken on the route. There is a huge gap between inter-island barge cargo rates and air freight rates.

"The Slice trailer could easily serve as an overnight cargo vessel with the main vessel accommodation spaces also being converted, similar to the airlines which take out seats and fly cargo at night."

Turning to more conventional ferry operation of the Slice testcraft, Eric Schiff revealed. "The technology readily lends itself to application as a ferry with focus on rough sea routes. Slice can operate in the 30-35 knot range. While this is not as fast as many of today's ferries, it is within 80% of those speeds.

"On a calm water route, the Slice gives way to other hull forms. But in an open seaway, the tables begin to turn. The Slice continues to operate at full speed up through high sea states while other vessel forms have reduced or curtailed operations. Hawaii serves as an excellent example of the market where Slice technology can open up the seas to marine transport.

"Over several decades several attempts have been made to operate a ferry in Hawaiian waters, from large monohulls to Boeing Jetfoils, all failed due to uncom-

fortable ride and/or inability to maintain operations in rough conditions. Slice should solve all those problems.

"Pacific Marine has had excellent results in both market penetration and route monopoly through operation of Swath ships *Navatek I* and *Navatek II*. Seven million tourists visit Hawaii annually. The market is maturing in that there are increasingly more return visitors. They need something new to do.

"With a Slice ferry the entire ocean environment of the state becomes a new frontier. A three hour ride from Honolulu to Maui up the majestic north coast of Molokai is a market begging for a vessel. There are other markets waiting."

One route being considered for the Slice testcraft by Pacific Marine is Honolulu, on the south coast of the island of Oahu, to both Kahului and Hana on the north coast of the island of Maui.

Based on journey times of 3 hours for Honolulu-Kahului and 1 hour for Kahului-Hana, with turnrounds of 1 hour (except for one of 3 hours at Kahului on the return trip), the vessel would leave Honolulu at 0700 and return at 2000.

According to Pacific Marine, "Slice will initially offer service between Honolulu and Kahului on three days per week. After two months, this route will be offered on six days per week and a second midday cruise between Kahului and Hana will be added. Every Monday, the vessel will be taken out of service for routine maintenance."

Safety in New York

With the introduction of fast ferries comes concerns about safety. Speaking at the Ferries 97 conference, Claude V. McKernan of the United States Coast Guard traced the background to the recently established High Speed Commercial Craft Safety Board in New York.

He explained, "With high speed craft proliferating at a rapid rate in the United States, both government and industry leaders felt it was high time that a systematic approach was taken toward identifying and reducing the risks associated with this business. The Board will research issues relevant to the operation of HSC and will provide recommendations and advice to regulatory entities and the industry.

"The USCG is responsible for the safety of our nation's waterways. In 1995, Coast Guard Headquarters in Washington DC directed all subordinate commands, as part of the Department of Transportation's Intermodal Transportation initiative, to conduct risk assessments of the various port and waterway activities under their jurisdiction.

"As part of this overall risk assessment, Coast Guard Captain of the Port, New York, determined that high speed ferry operations were an aspect of the port's activities that warranted a look. This project was taken up by the Waterways Management Division and was assigned to the Waterways Oversight Branch.

"As with most new endeavors, the first step is often to see what's been done in similar circumstances. Inquiries were made of Coast Guard VTS in Seattle, San Francisco, Los Angeles, Houston and New York. Coast Guard Headquarters (Marine Safety) and the Coast Guard Group Long Island Sound were also contacted.

"Headquarters is involved in an ongoing interpretation of the HSC Code and Group Long Island Sound is presently involved in the inspection and documentation of the first vessel built to the HSC Code in this country [FBM TriCat *Sassacus* at the Pequot River Shipworks].

"Industry representatives were also questioned to determine if there was any general industry guidelines for the operation of HSC. In carrying out these most

Express Navigation has been operating in New York Harbor for almost nine years

