

Self-propelled icebreaking bow Saimaa commissioned



Photo: Ilari Rainio / Finnish Transport Infrastructure Agency

The totally new concept of a detachable icebreaking bow which is self-propelled and connected to the tugboat *Calypso* (pusher) during the winter season has been taken into use on Lake Saimaa, Finland's largest freshwater lake, and the Saimaa Canal.

Lake Saimaa has a number of industries located on its wide shores and the Saimaa Canal connects the lake district with the Gulf of Finland. It is a vital transport channel for exports and imports of goods.

The detachable bow *Saimaa* brings more efficient ice-breaking and ice management operations to the area, as the bow can break a wider channel than existing tugboats. The concept was developed by ILS Ship Design & Engineering for the Finnish Transport Infrastructure Agency, and she was built at Turku Repair Yard as part of the EU-funded (CEF) WINMOS II project.

Ship operations monitored

Aker Arctic designed and delivered the two shaft lines and propellers for the *Saimaa*, two bronze propellers for the pusher *Calypso* and the Ice Load Monitoring System (ILMS) for the shafts which can be monitored remotely. Aker Arctic also performed the ice model tests to verify the combination's icebreaking performance before the final design and construction.

ILMS measures the propulsion loads and pin forces at the connection between the detachable bow and the pusher. The propulsion load monitoring system receives signals from both *Saimaa's* own two shaft lines as well as from *Calypso's* azimuthing propulsion units.

"The sensors installed on the hull and the shaft lines send information to a central computer for real-time processing," says Kari Laukia, Head of Equipment Business at Aker Arctic. "This data is available on the ship's control and monitoring system, in the bow's engine room, on *Calypso's* bridge, as well as online. It can be used to monitor various aspects related to the ship's operations, such as bow connection forces and propulsion load during operation, in addition to ensuring safe bow disconnection from *Calypso* and optimising power share between the bow and the tugboat."

Full-scale trials

The ship arrived in the Saimaa lake area in January 2021 and has now operated part of her first season. The ship's full-scale trials are planned to be performed during this spring, as soon as the ice cover on Lake Saimaa is thick enough. The pusher-bow combination should break up to 70 cm-thick ice.

Göran Wilkman in Memoriam

Our dear friend and colleague of many years, Göran Wilkman, passed away in December 2020, just before Christmas.

Göran worked as Senior Advisor in Research & Testing until he retired at the end of 2012. He began his career in the ice business in 1973 and worked mainly in R & D, testing and sales. He also participated in more than one hundred field trips and ice reconnaissance trips to many harsh Arctic and Antarctic areas during his forty-year-career. He was one of the most experienced ice expedition and full-scale trial leaders in the world.

In addition, he travelled the world giving presentations on countless projects and published two books after he retired

from daily work. Göran was always taking care of customers, telling stories of his experiences in shipbuilding and life in general. He was the heart and soul of Aker Arctic's rowing team and participated in the traditional Sulkava rowing race every summer.

Even after retiring, Göran was a regular visitor to Aker Arctic's office and you could always count on his advice when you needed it. He will be greatly missed.

Tom Mattsson

All colleagues from Aker Arctic

