



Celebrity Eclipse passed the DNV GL SILENT-E assessment with flying colours. She is the first cruise vessel to receive this class notation.

Yanran Wang, DNV GL, presents the SILENT-E certificate for *Celebrity Eclipse* to Captain Zissis Koskinas, *Celebrity Cruises*.

SILENCE IS GOLDEN

Marine mammals, such as whales and dolphins, are impacted by underwater noise. The Vancouver Fraser Port Authority is taking the lead in promoting quieter ships - with an innovative incentive programme.

Vancouver is a beautiful port city in a spectacular natural setting between majestic mountains and the Strait of Georgia. The Port of Vancouver is not only Canada's largest cargo gateway but it also serves as home port for cruise lines operating in the northern Pacific. What is more, British Columbia's coastal waters are inhabited by countless marine mammal species, such as orcas, fin, blue, grey and humpback whales, dolphins and seals. With its rich marine wildlife the region is a favourite among marine biologists, and every year thousands of nature enthusiasts flock the region during whale-watching season from May to October.

Protecting this precious natural habitat, and in particular those marine mammals designated as "at-risk" under Canada's Species at Risk Act, is a core objective of the Vancouver Fraser Port Authority, whose Enhancing Cetacean Habitat and Observation (ECHO) programme aims to strike a healthy balance between preserving wildlife and accounting for the needs of tourism and cargo shipping. Lowering underwater noise from ships is one of the measures that can be taken to reduce the impact of shipping on marine mammals in the area. Ship noise can interfere with the ability of marine mammals to navigate, communicate and identify prey.

An innovative incentive programme

Shipping-induced underwater noise has been given a lot of attention during the past decade. The International Maritime Organization adopted its MEPC.1/Circ.833 Guidelines for the Reduction of Underwater Noise from Commercial Shipping to Address Adverse Impacts on Marine Life. The U.S. National Oceanic and Atmospheric Administration presented an Ocean Noise Strategy Roadmap for addressing ocean noise. The European

Union has completed two large projects looking into the effects of underwater noise in European waters, called "Suppression of Underwater Noise Induced by Cavitation" and "Achieve Quieter Oceans by Shipping Noise Footprint Reduction", respectively.

The Vancouver Fraser Port Authority has been among the pioneers investigating the impact of shipping noise on at-risk marine mammals. Launched in 2014, the port authority-led ECHO programme is a collaborative research initiative involving marine transportation industries, conservation and environmental groups, First Nations individuals, government and scientists. In 2016, the port authority turned to DNV GL for advice on underwater noise criteria to support this programme. DNV GL recommended using its SILENT class notation developed by the DNV GL underwater noise expert group. Published in 2010, this notation defines various underwater noise limitation categories, including the SILENT-E class notation specifying "Environmental" criteria. "These limits include sound frequencies marine mammals are known to use for communication or are sensitive to," says Yanran Wang, Project Engineer - DNV GL Maritime Advisory, Miami. "The DNV GL rules provide a realistic framework for what is technically achievable and feasible." The DNV GL expert group was able to share key expertise which allowed the port authority's ECHO

The Vancouver skyline as it greets cruise ships approaching the Canada Place cruise ship terminal, located in the tent-like structures on the left.



programme to include “quiet vessel” notations in its underwater noise reduction incentive programme.

What makes the ECHO programme so innovative is the inclusion of some new underwater noise criteria to the port authority's existing EcoAction incentive programme. Since 2007, EcoAction has recognized a variety of fuel, technology and environmental management options that make ship operators eligible to receive discounted harbour due rates. On 1 January 2017, the port authority added new incentive criteria to the programme to include harbour due rate discounts for quieter ships. Depending on the environmental protection measures taken, ships may qualify for one of three EcoAction Award levels, rewarding vessels with up to a 47 per cent reduction in harbour dues. This makes Canada the first country in the world with a marine noise reduction incentive.

“Adding underwater noise reduction criteria to our EcoAction programme is an exciting next step towards our long-term goal of reducing the impacts of shipping activities on at-risk whales,” says Duncan Wilson, Vice President of Corporate Social Responsibility at the Vancouver Fraser Port Authority.

Rewards beyond discounted fees

Ships bearing the DNV GL SILENT-E class notation qualify for the highest EcoAction discount when calling at the Port of Vancouver. When Captain Zissis Koskinas, Associate Vice President in charge of Nautical Operations and Fleet Captain at Celebrity Cruises, learned about the soon-to-be-introduced incentive programme last October, he called DNV GL to inquire what needed to be done for a ship to qualify. DNV GL scheduled a measurement campaign within a few days to evaluate the underwater noise level of the cruise vessel *Celebrity Eclipse* against the DNV GL SILENT-E notation. The vessel calls at Vancouver on certain routes. Captain Koskinas says he expected having to make some modifications on board but DNV GL, after taking the measurements, found that the vessel was already fully compliant.

“*Celebrity Eclipse* was the first cruise vessel ever to receive the SILENT-E notation,” says project manager Yanran Wang. “Our experience with this vessel shows that it is not difficult for modern cruise ships to meet the low-noise criteria. In spite of their

huge power demand, they are quieter by design than many other commercial ship types, from the propeller to the machinery installation.”

For Celebrity Cruises, the port fee discount is not the only reason to welcome the EcoAction programme, says Captain Koskinas. “Passengers are often environmentally aware and ask us what we do to protect the environment. Being able to demonstrate that our cruise ship is kind to marine life makes our brand look good and is consistent with the concept of sustainable tourism. Celebrity Cruises has always had a culture of going beyond regulations in terms of safety and the environment. Signing up for EcoAction makes us a pioneer in whale-friendly cruise shipping.”

DNV GL has already received enquiries from other owners regarding the SILENT-E notation, and *Celebrity Eclipse* can serve as a reference ship for the Vancouver Fraser Port Authority's industry-leading EcoAction incentive programme. “When assessing a vessel, DNV GL can accommodate the ship itinerary for necessary measurements. The underwater noise measurements on *Eclipse* were carried out with passengers on board and without requiring any deviation from the cruise schedule. Drawing on extensive experience in noise and vibration evaluations from the past 60 years, the DNV GL noise experts are also able to give practical advice on underwater noise reduction measures,” explains Wang. Considering the increasing environmental awareness among ports worldwide, DNV GL is confident other ports will follow in Vancouver's footsteps. ■ AK/NIS



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