DNV·GL

Underwater Noise from the Perspective of a Classification Society



Our purpose





Safeguarding life, property and the environment

Improve safety and quality



- As a class society, we assist in making shipping safer through active involvement in all phases of a ship's life
- We establish and apply technical requirements, known as DNV GL Class Rules, for the design, construction and operational maintenance of ships and marine structures
- We certify materials, components, mamnagement and systems relevant to safe operation and quality of ships
- We benchmark and support ship owners to improve safety culture and environmental performance

International Maritime Law – An overview



Noise & Vibration Activities at DNV GL

Noise & Vibration Consultancy and Research since 1950



DNV GL Silent – a World's first (2010)!

- Optional voluntary class notation
- Covers complete sets of criteria and rules for verification
- Ensuring Operational Capability for four different types of ships
- Environmental conscious owners may demonstrate environmental compliance through "Environment Notation"









OF THE SEAS

SILENCE

THE

SUPPORT

IMO activity on underwater noise

- The Marine Environmental Protection Committee (MEPC) of the International Maritime Organization (IMO) : "GUIDELINES FOR THE REDUCTION OF UNDERWATER NOISE FROM COMMERCIAL SHIPPING TO ADDRESS ADVERSE IMPACTS ON MARINE LIFE". Non mandatory.
- IFAW estimates that the noisiest 10% of vessels seem to contribute between 50% and 90% of the overall noise pollution"



Silent Sub-notation (E) – Environmental

- Voluntary class requirements ensuring a ship with verified "moderate" noise emission possible to achieve without increasing costs beyond that caused by seeking good engineering advice with regard to propeller design and propulsion machinery installation
 - Two levels: Transit and silent passage



Silent Sub-notation (E) – Environmental

- Port of Vancouver allows a reduction in harbour fees
- Developped from typical medium size cruise vessels
- Noise controlled propellers
- Resiliently mounted diesel generators (not too challenging in this respect)
- Simplified measuring methodology have been introduced to save cost for large vessels and make noise rating of vessels practically feasible



Noise and vibration sources



Usually most important noise and vibration source





Propeller noise development with power



Frequency Hz

Propeller/Wake optimization = reduced noise +/- efficiency





Antrophogenic underwater noise: Roles of a Classification society

- Realistic and practical requirements and measuring methodology ensuring that excessive noise radiation from ships is avoided
- Advice on noise control and quiet construction methods
- Verifying and influencing other organizations



Global impact for a safe and sustainable future

www.dnvgl.com

SAFER, SMARTER, GREENER