IMO’s Work on Underwater Noise

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Underwater sound and Shipping

- Whales
- Fish
- Seals & Sea Lions
- Dolphins
- Porpoises

Frequency range:
- 1 Hz to 100 Hz
- 1 kHz to 100 kHz
- 200 kHz

Shipping area:
- Underwater sound and Shipping
Underwater Sound and Shipping

- Mainly chronic source of sound, not acute

- Factors: ship type; size; loading conditions; method of propulsion; speed; bottom topography

- Main source: ‘propeller cavitation; onboard machinery; turbulence around hulls
Underwater sound and Shipping

- Shipping forms a “..significant contribution to overall ambient noise at low frequencies…” (MEPC 58/19, 2008) – chronic source

- Industry forecasts doubling or tripling of amount of cargo shipped by 2025 (MEPC 57/INF.4, 2008), hence increased noise

- Some cetaceans use same low frequency bands – resulting in possible ‘auditory masking’
• Code of noise levels for personnel **on board** of ships, **1981 and 2001** (A.468(XII)) and MSC/Circ.1014)

• Recognizes: limited benefits to marine life and did not address the potential adverse impacts to marine life

• Code updated in **2012** as resolution MSC.337(91)
IMO Action

• **2007-2008**: United States led initiative to have IMO address underwater noise

• **2008-2011**: MEPC Correspondence Group

• **2012-2013**: DE Sub-Comm work drafts non-mandatory guidance

• **2014**: MEPC – approval of Guidelines and future work
IMO Guidelines for the Reduction of Underwater Noise from Commercial Shipping to Address Adverse Impacts on Marine Life — (MEPC.1/Circ.833)

- Application: any commercial ship
- Purpose/definitions, standards and references
- Design considerations: propellers, hull design and onboard machinery
- Advice on: technologies for existing ships
- Operational and maintenance considerations: propeller cleaning, underwater hull surface, selection of ship speed, re-routing to avoid sensitive areas
ISO standards

- ISO/PAS 17208-1:2012 - Acoustics – Quantities and procedures for description and measurement of underwater sound from ships – Part 1: General requirements for measurements in deep water

- ISO/DIS 16554 – Ship and marine technology – Marine environment protection - Measurement and reporting of underwater sound radiated from merchant ships
Possible Future Issues

1. possible noise reduction targets (by 3 dB and 10 dB over time);

2. evaluating the contributions of underwater noise from vessels and other sources;

3. setting operating guidelines for sensitive marine areas;

4. using standardized measurement protocols to develop noise profiles for each ship type under different operating conditions;
Possible Future Issues

.5 **identifying the noisiest ships** to understand factors that elevate the noise levels of these ships;

.6 **establishing baseline ambient noise levels** in ocean areas where shipping activities are forecasted to rapidly increase; and

.7 **collect information on sensitive areas**, including well-known habitats or migratory pathways, to shipmasters and owners for the purpose of voyage planning.
Point of Contact for Additional Information

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