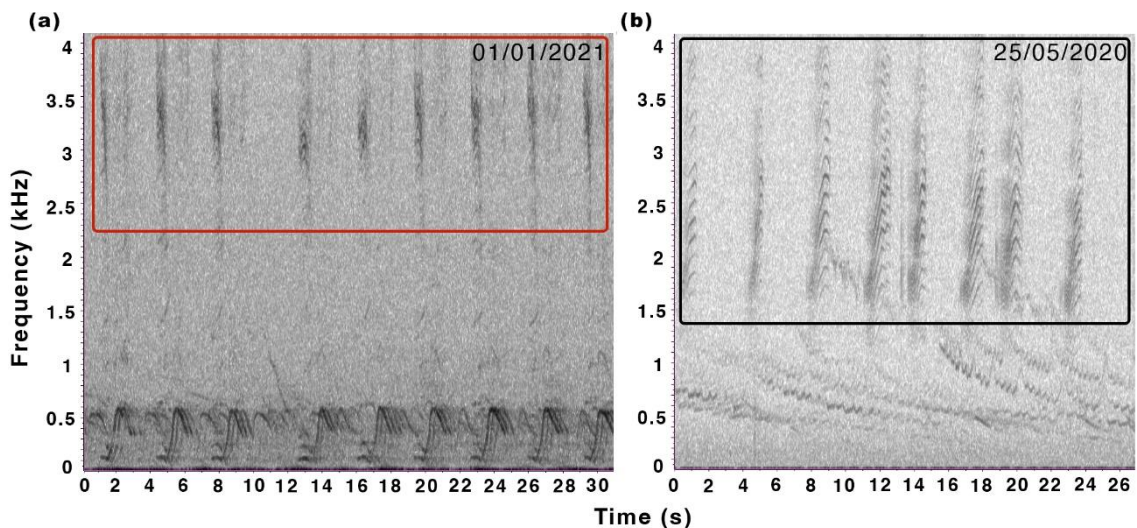


**Supplementary material for:** Llobet S.M., Ahonen H., Lydersen C. & Kovacs K.M. 2026. Bowhead whales (*Balaena mysticetus*) are copy-cats, imitating sounds heard in their environment. *Polar Research* 45. Correspondence: Heidi Ahonen, Research Department, Norwegian Polar Institute, Fram Centre, PO Box 6606 Stakkevollan, NO-9296 Tromsø, Norway. E-mail: heidi.ahonen@npolar.no.

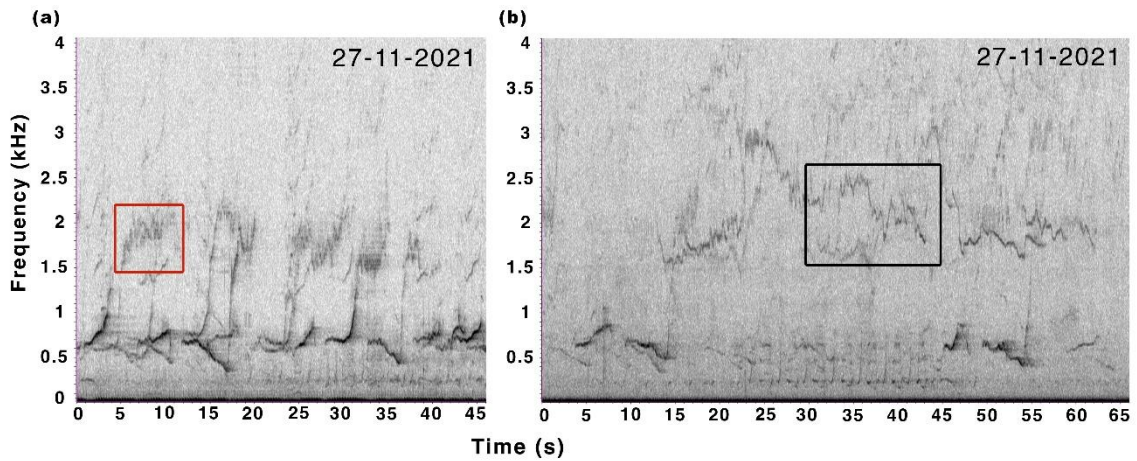
## Methodology

The acoustics records used in the study were obtained using two autonomous underwater recorders for acoustic listening (AURAL M2, Multi-Électronique Inc.). The HTI-96-MIN hydrophones had a receiving sensitivity of  $-164 \pm 1$  dB re1 V/mPa with a 16 dB system gain and frequency response from 5 Hz to 32.8 kHz. The devices were deployed on stationary oceanographic moorings in the north-east sector of Svalbard. The sampling rate for both recorders was 32768 Hz, providing an effective frequency range of 10–16384 Hz. The recorders' duty cycle was 12 minutes every hour for both locations.

Opportunistic observations of bowhead whales imitating other sounds from their environment were made during a systematic study of vocal presence of bowhead whales (see Llobet et al. 2023 for details). A spectrogram correlation analysis was carried out on sound pairs—bowhead whale imitation sound versus analogous bearded seal sound—using the tool “correlator” in Raven Pro 1.6 (<https://www.ravensoundsoftware.com>) to obtain a correlation index reflecting the degree of similarity.



**Supplementary Fig. S1.** (a) Bowhead whale vocalizations (red frame) recorded on 1 January 2021 that resemble narwhal pulsed tones and (b) example of a narwhal pulsed tone (black frame) recorded on 25 May 2020 in north-eastern Svalbard.



**Supplementary Fig. S2.** (a) Excerpt from a bowhead whale song with elements that resemble noise created by sea ice in motion (red rectangle). (b) Typical sea-ice noise with an element (black rectangle) similar to the sound imitated by the bowhead whale.

**Supplementary Table S1.** Raven Pro 1.6. spectral correlation analysis results for sound pairs comparing various sound types for bearded seals and the bowhead whale imitation of these sounds corresponding to the figures in the main article and the resulting correlation index (mU).

Bowhead whale imitation sound	Original source sound from bearded seals	Correlation index (mU)
Sound 1b	Sound 1c	449.02
Sound 2a	Sound 2e	475.19
Sound 2b	Sound 2f	515.93
Sound 2c	Sound 2g	420.28
Sound 2d	Sound 2h	693.95