What the Tusk Does

While the whales were captive, a tusk jacket half a meter in length and 10 cm wide with sealed foam ends, was attached to the base area of the tusk. Alternating solutions of fresh and high-salt (40 PPS) water were injected into the jacket for approximately two-minute intervals.

The photo below shows a plastic jacket attached to the tusk with high-salt, red-colored water injected.

Heart response was monitored using a heart monitor attached to the whale. A five-lead, three-channel subdermal electrode montage was connected to the Midmark Holter IQ in a protective clear bag.

Increased heart rate is associated with the application to the tusk of high-salt water, which replicates conditions of sudden ice formation, since proportionally high rates of frozen fresh water leave the remaining liquid ocean water with a higher concentration of salt. For the narwhal, this scenario indicates winter freezing into the inlets, causing panic, as this is an environmental cue for the whale to be leaving these areas for open ocean.

Photographs taken during field research near the Alpha River, Tremblay Sound, 2011.

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