**INTRODUCTION:**

The Cook Inlet Beluga whale (CIB) is a genetically and geographically distinct sub-population group that is critically endangered. Today, their population continues to decline.

Current methods on studying beluga whales are insufficient or expensive and limited. However, vocalizations can be easily obtained with less constraints, and abundant information can be extracted from them.

Belugas have prolific vocals. Also known as the "canaries of the seas". Other cetacean vocalization research proved extremely informative on their social structure and geographic distribution.

**RESEARCH QUESTION**

1. Can we differentiate beluga calls through audio and spectrogram alone?

2. Do beluga individuals have a unique signature call to identify themselves among others?

**METHODS:**

Used audio data analysis software: Raven Pro to analyze all sound files of captive beluga recordings.

**FINDINGS:**

1. AUDIO ANALYSIS SUFFICIENT? YES!

Visual and audio combined is adequate to differentiate between different call types.

With the spectrogram, we could see different components of a call. Combined with audio, we can differentiate different calls by their shape, structure and sound.

A. Tonal component of a call
B. Pulse component of a call
C. Combined, possibly signature call

2. INDIVIDUAL SIGNATURE CALL? YES!

Support the hypothesis: Beluga whales each possess a unique signature call.

Every segment contains energy in different frequencies. Combined with pulse and tonal components makes calls unique!

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**IMPLICATIONS:**

SET THE FOUNDATION

It’s the first step! More research needed

FUTURE RESEARCH

Do different groups share similarities? Mother and calf share similarities?

FUTURE RESEARCH & OUTREACH

Vocalization database for future references Public Access Increase public awareness on beluga conservation

ANOTHER TOOL

Can reduce cost for field analysis Available for future beluga analysis

VS.

Aerial survey view from a plane. © NOAA Fisheries