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Ontogeny of vocalizations in Adélie penguin (*Pygoscelis adeliae*) chicks from West Antarctica FREE

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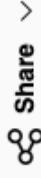


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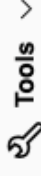
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Acoustic indices are an efficient method for monitoring dense aggregations of vocal animals but require understanding the acoustic ecology of the species under examination. The present understanding of avian behavior and vocal development is primarily derived from the research of songbirds (Passeriformes). However, given that behavior and environment can differ greatly among bird orders, passerine birdsong may be insufficient to define the vocal ontogeny of non-passerine birds. Like many colonial nesting seabirds, the Adélie penguin (*Pygoscelis adeliae*) is adapted to loud and congested environments with limited cues to identify kinship within aggregations of conspecifics. In addition to physical or geographical cues to identify offspring, adult *P. adeliae* rely on vocal modulation. Numerous studies have been conducted on mutual vocal modulations in mature *P. adeliae*, but limited research has explored the vocal repertoire of the chicks and how their vocalizations evolve over time. Using the deep learning-based system, DeepSqueak, this study characterized the vocal ontogeny of *P. adeliae* chicks in the West Antarctic Peninsula to aid in autonomously tracking their age. Understanding the phenological communication patterns of vocal-dependent seabirds can help measure the impact of climate change on this indicator species through non-invasive methods.