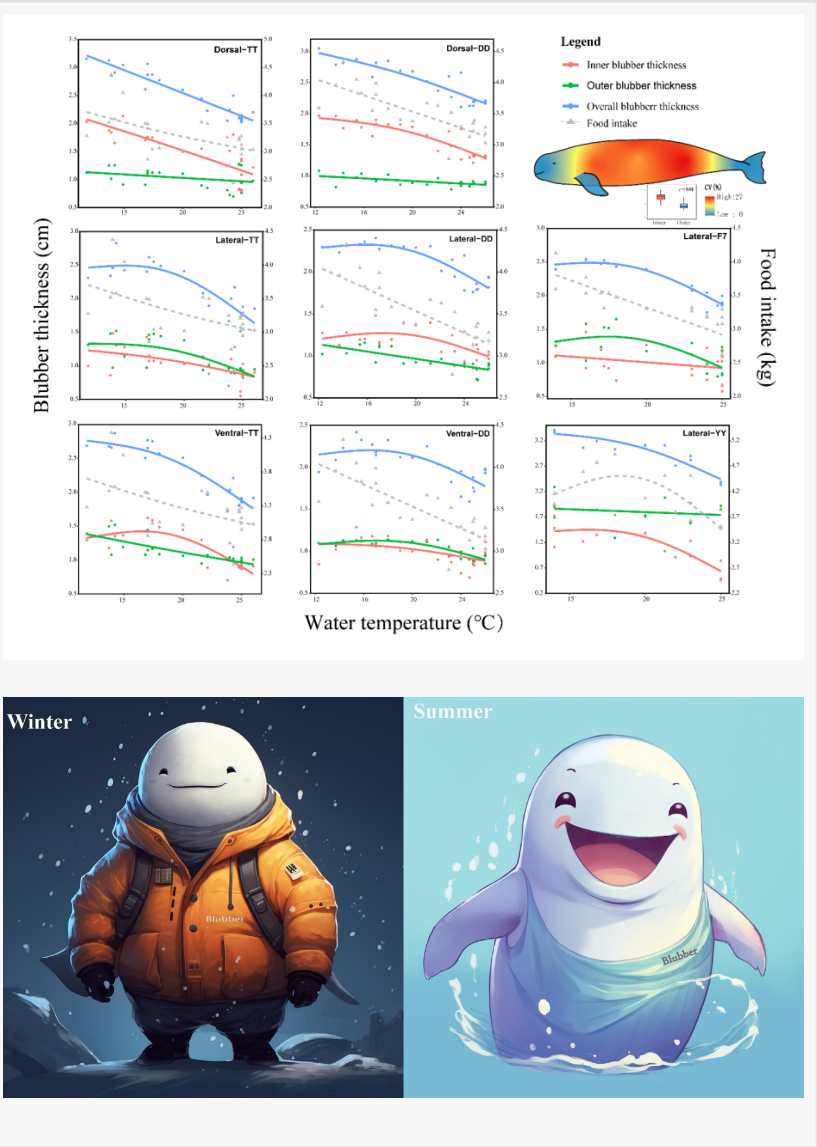
Adapting to Water Temperature Changes: The Smart "Coat" of Yangtze Finless Porpoise

FAYETTEVILLE, GA, USA, August 9, 2023 /EINPresswire.com/ -- There is a significant negative correlation between blubber thickness and water temperature in Yangtze finless porpoises. Different body regions show varying sensitivities to water temperature, indicating specific functions of blubber. Dorsal blubber exhibits the most pronounced response, with a linear increase with increasing water temperature, highlighting its importance in energy storage and mobilization. However, lateral and ventral blubber show a blunt response, which maintains a stable thermal environment for vital organs.



In a study using B-mode ultrasound imaging, a team of researchers in China monitored the blubber thickness in Yangtze finless porpoises (YFPs) over different seasons. They made a fascinating discovery - the thickness of the blubber changes with the water temperature.

“When the water gets colder, their blubber layer becomes thicker, acting like a warm, cozy down jacket,” shares Bin Tang, first author of the study. “And when the water warms up, their blubber gets thinner, helping them stay cool and comfortable.”

Interestingly, the blubber thickness of cetaceans exhibits varying patterns across different body regions in response to water temperature changes. Specifically, in the dorsal region, blubber

thickness decreases linearly as the water temperature increases. However, in the lateral and ventral regions, significant changes in blubber thickness occur only when the water temperature reaches approximately 18 oC.

The researchers, who published their findings in the KeAi journal Water Biology and Security, also investigated the interconnection between energy intake, blubber thickness, and water temperature.

“It appears that water temperature might influence changes in blubber thickness by affecting the appetite of these marine mammals,” adds Tang.
Nonetheless, the relationship between energy intake, blubber thickness, and how it is influenced by water temperature is a complex subject that merits deeper investigation to uncover the underlying mechanisms.

“By delving deeper into these aspects, we can gain valuable insights into the adaptive strategies of cetaceans and the mechanisms they employ to thrive in various aquatic environments, concludes corresponding author Yujiang Hao. “Such knowledge could have broader implications for understanding marine ecosystems and potentially even aid in conservation efforts for these remarkable marine mammals.”

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