

Mercury Concentrations in Northwest Greenland Seabird & Sea-duck Eggs

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INTRODUCTION

Mercury is a naturally occurring element that, in its organic form (methyl mercury (**MeHg**)), bioaccumulates.

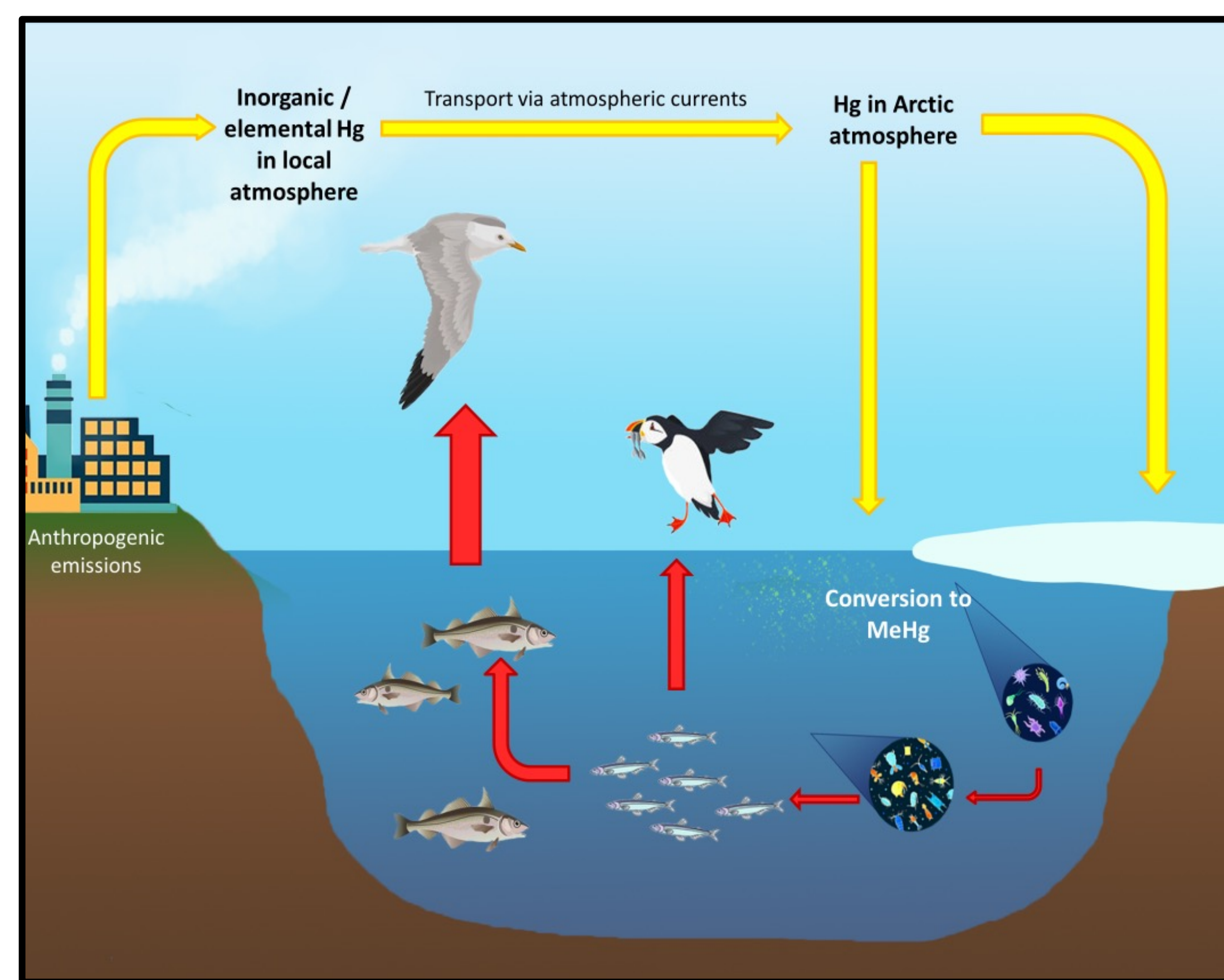


Figure 1. The mercury cycle

Arctic birds have historically been used to monitor MeHg levels. MeHg concentrations in their eggs represent those of the mother at the time of laying.

A previous study by Burnham et. al 2020, found **high concentrations** of Hg in Arctic seabird and sea-duck eggs collected in 2014 from Northwest Greenland.

OBJECTIVES

- 1) Analyze MeHg concentrations in 3 species of Northwestern Arctic seabird and sea-duck eggs
- 2) Compare the analysis results after 10 years

METHODS



Figure 2. Common Eider egg being collected in Northwestern Greenland



Figure 3. Eggs were washed with DI water, allowed to air dry, and contents were separated from shells

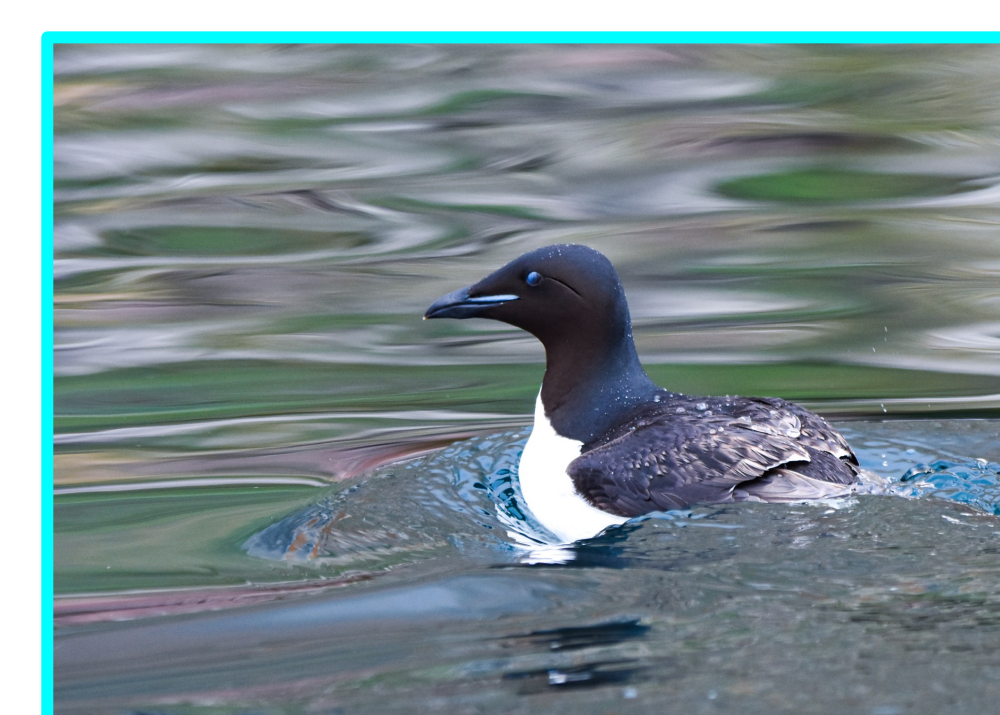


Figure 4. Egg contents were homogenized and tested for THg in the MA-3000

RESULTS



Black-legged kittiwake



Thick-billed murre



Common eider

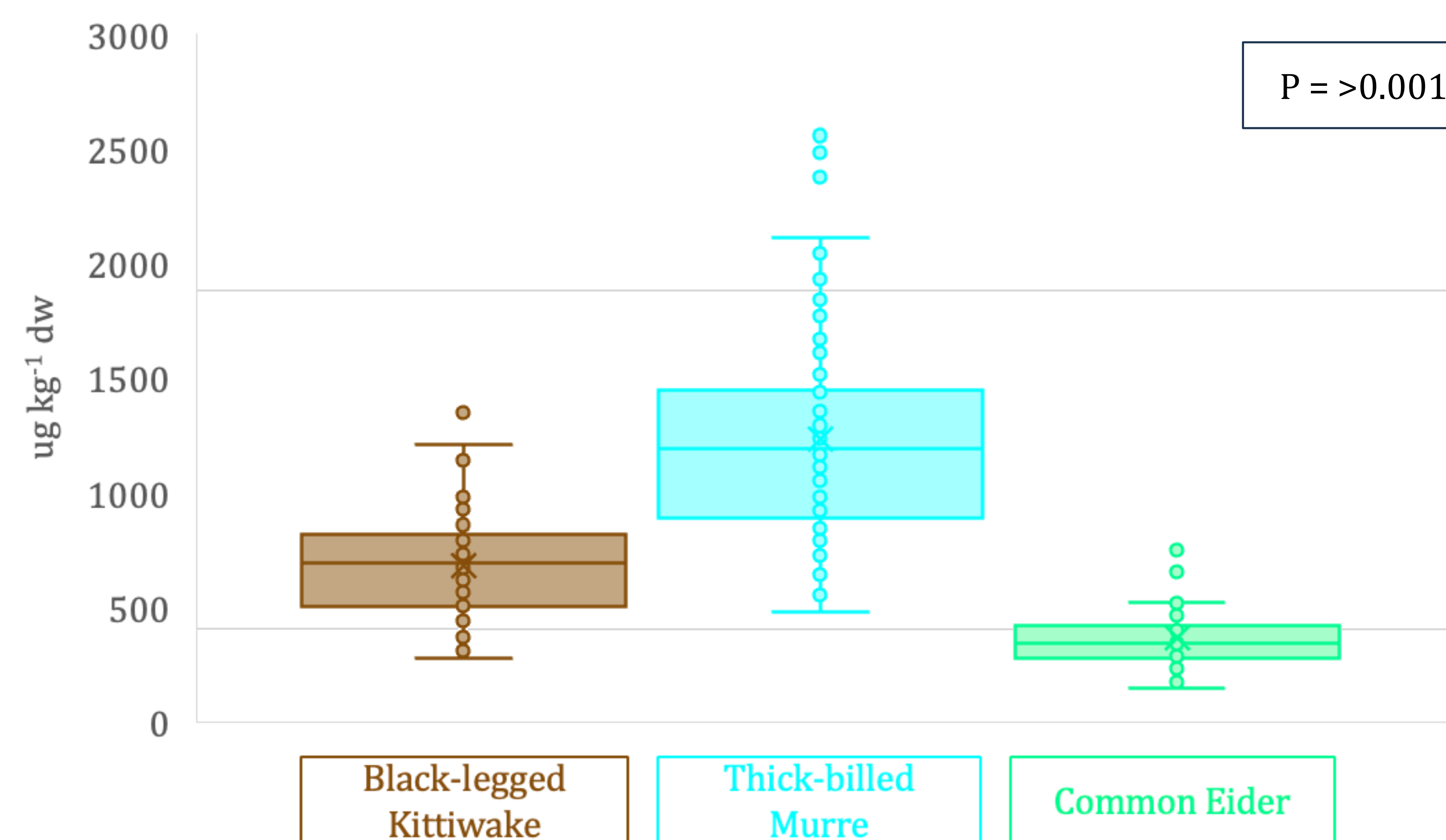


Figure 5. MeHg concentration (ug/kg⁻¹ dw) in Black-legged Kittiwakes *Rissa tridactyla*, Thick-billed Murres *Uria lomvia*, and Common Eider *Somateria mollissima* eggs from high Arctic Greenland collected in 2023

RESULTS (CONT.)

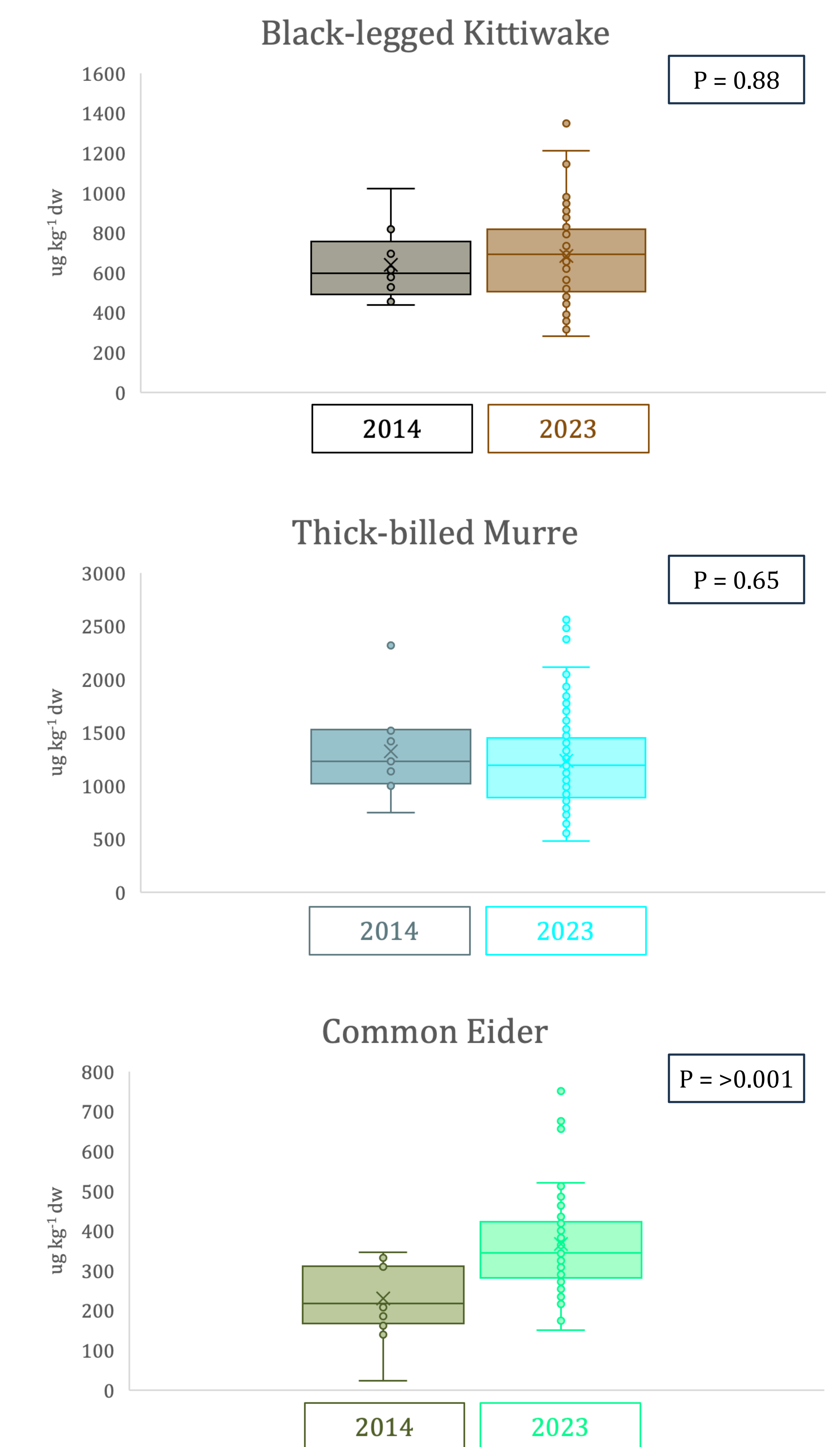


Figure 6. MeHg concentration (ug/kg⁻¹ dw) of Black-legged kittiwake, Thick-billed murre, and Common eider eggs from 2014 and 2023.

CONCLUSION

Common eider egg MeHg concentration increased significantly from 2014 and measured just below the low concern threshold. Black-legged kittiwakes and Thick-billed murre measured at low concern levels with some individual murre in the moderate risk category.

REFERENCES

Burnham, K. K., Meyer, F. K., Burnham, J. L., Chumchal, M., & Johnson, J. A. (2021). Mercury contamination of seabird and sea duck eggs from high Arctic Greenland. *Polar Biology*, 44(6), 1155-1202. <https://doi.org/10.1007/s00300-021-02864-x>

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