Total mercury and fractionation in benthic organisms from Isfjorden, Svalbard

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Mercury (Hg)

HIGHLY TOXIC

TRANSBOUNDARY POLLUTION

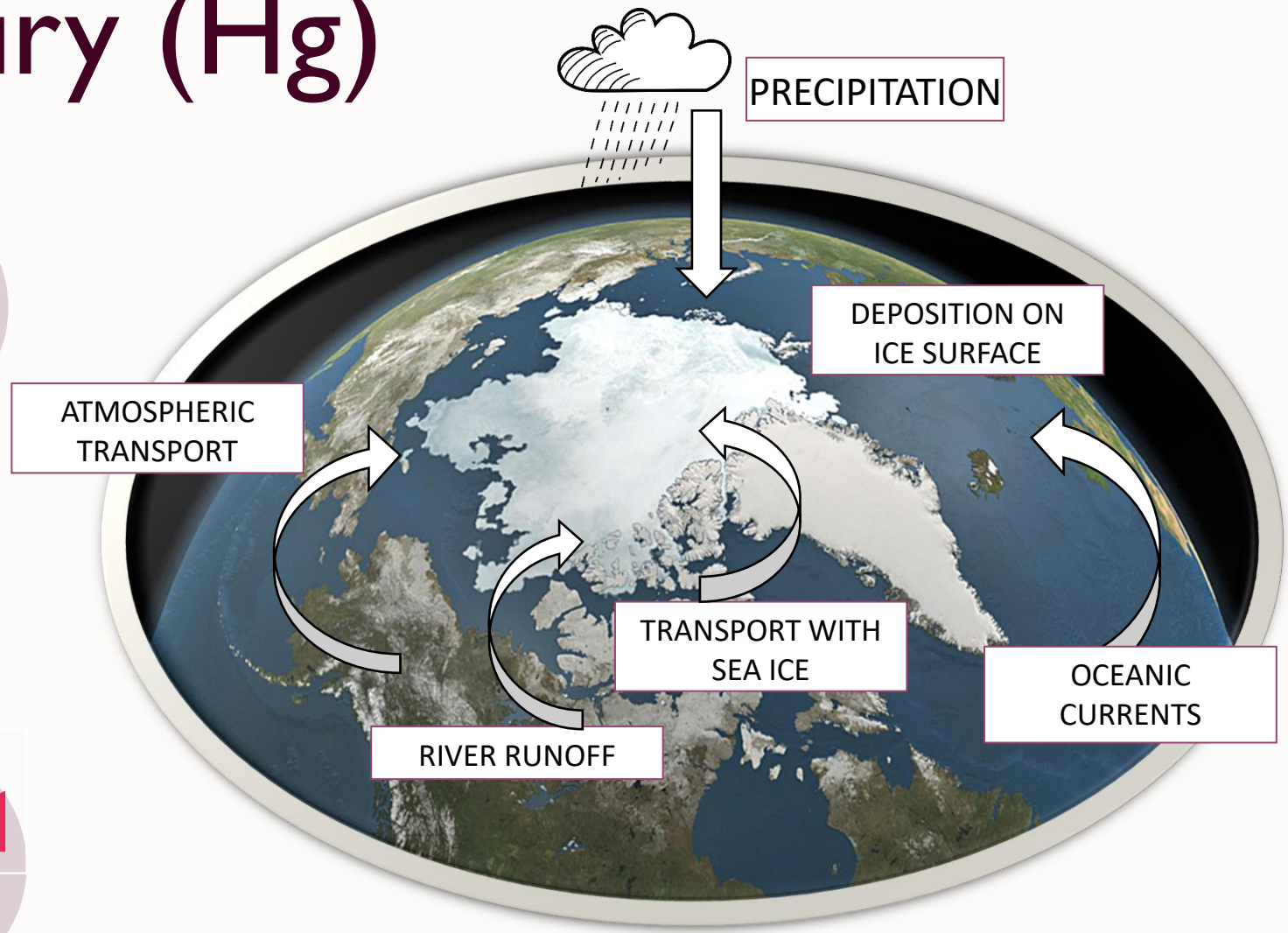


Fig. 1 The scheme of mercury sources in Arctic

CAN BE EMITTED BOTH FROM NATURAL AND ANTHROPOGENIC SOURCES

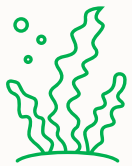
BIOMAGNIFIED IN FOOD CHAIN

Materials&Methods

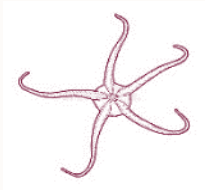
Study area:
Isfjorden, Svalbard

Period of samples collecting:
July 2018

All samples were taken by
the diver.



N=3



N=17

N=11

N=23

N=4

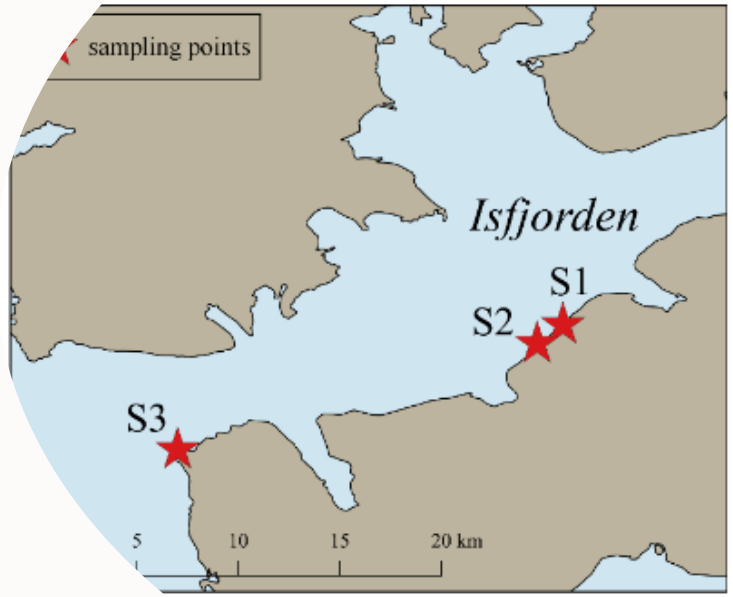


Fig. 2 Map of sampling stations

The analysis were carried out by using the Direct Mercury Analyzer (DMA-80).

Saniewska&Bełdowska, 2017

Results and discussion

MERCURY EFFICIENTLY ENTERS THE FOOD CHAIN VIA BENTHIC LINK AND UNDERGOES BIOMAGNIFICATION

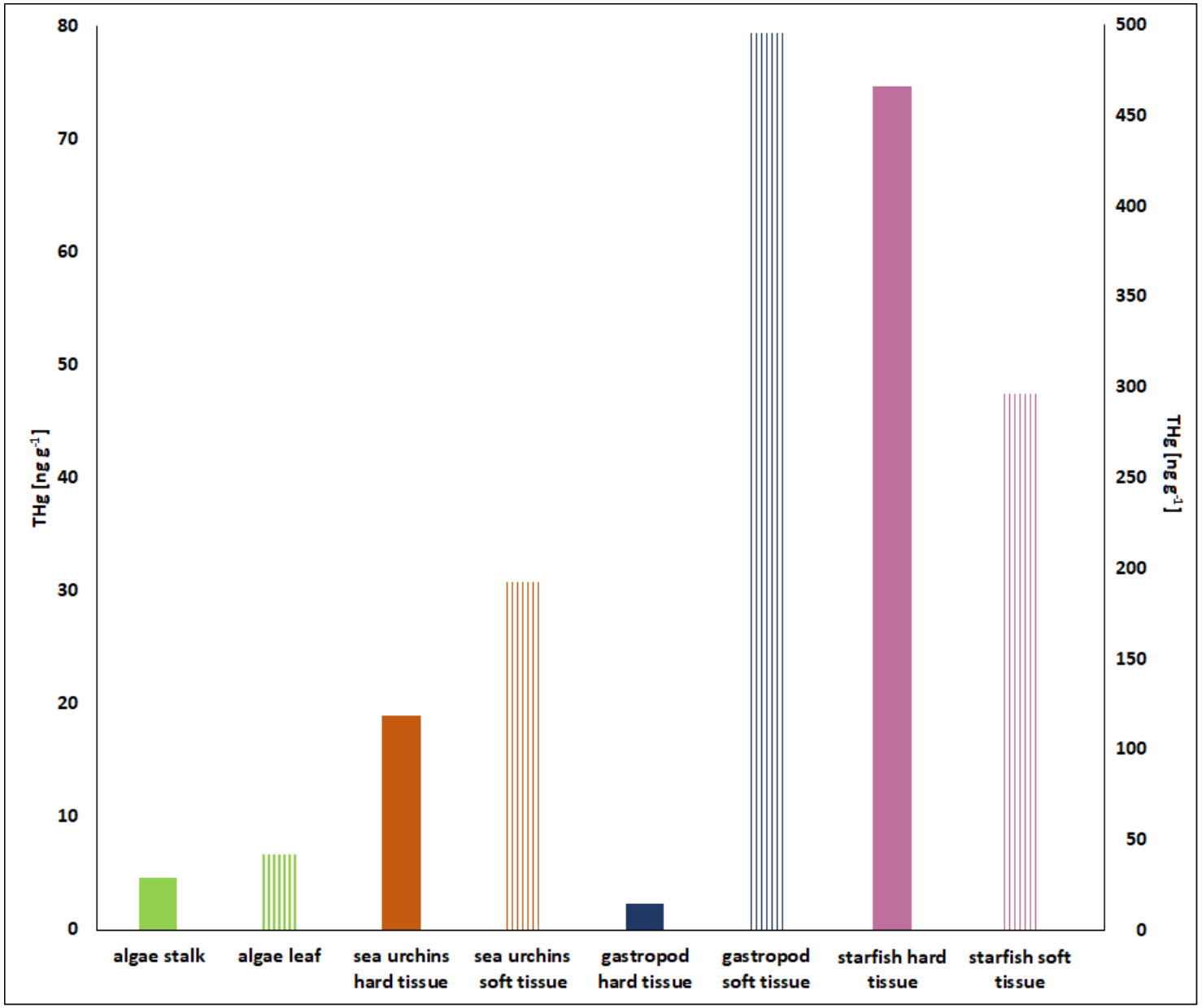
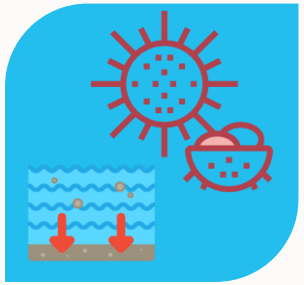


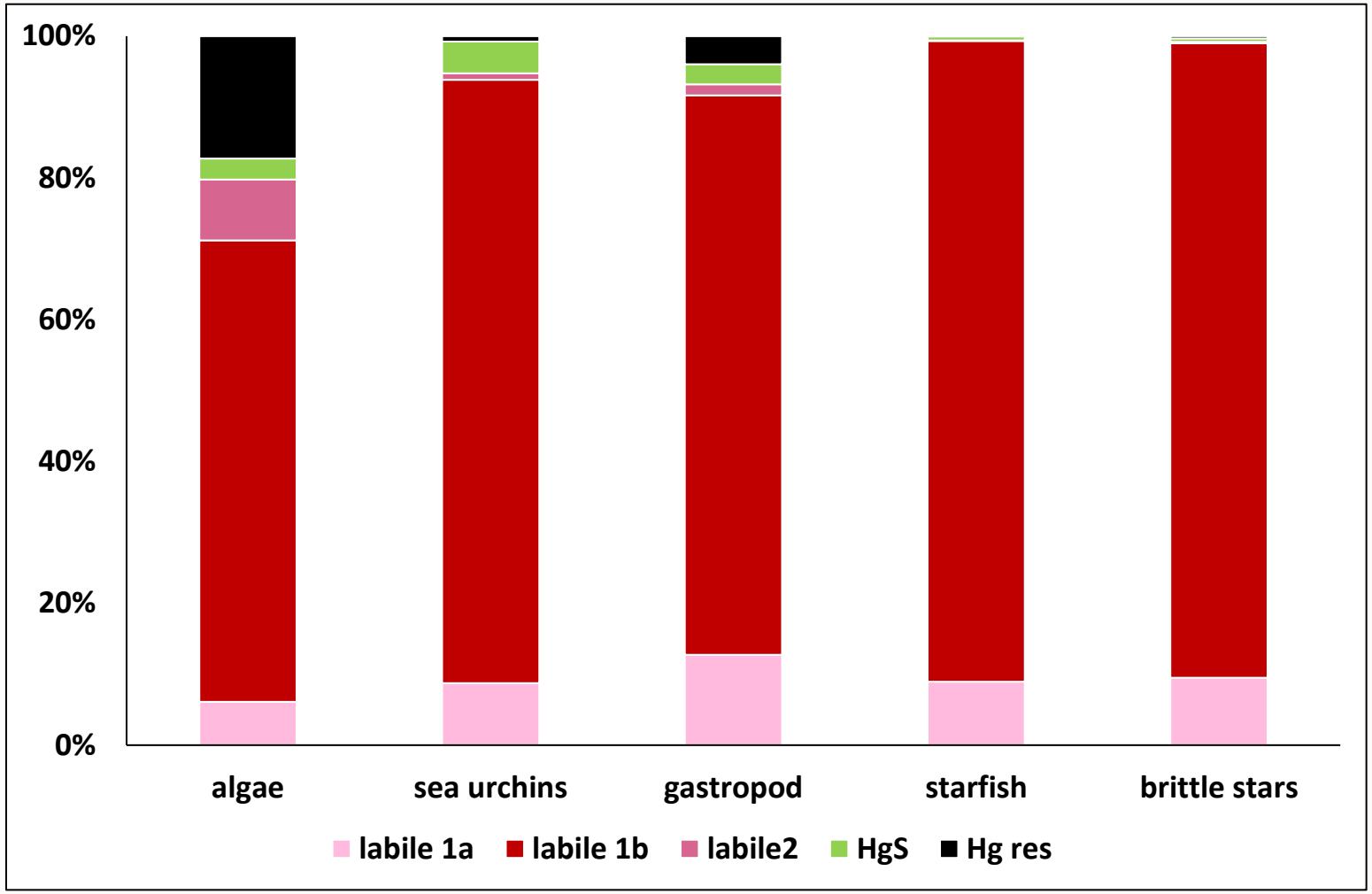
Fig. 3 The total mercury concentrations in collected organisms divided into soft and hard tissue

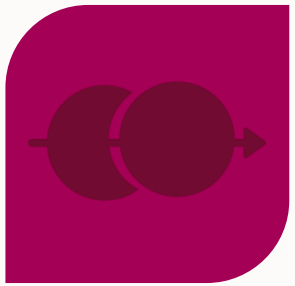
THE STARFISH WERE THE MOST EFFECTIVE AT GETTING RID OF TOTAL MERCURY FROM THEIR SOFT TISSUES (65%). IN CASE OF GASTROPODS ONLY 10% OF THE TOTAL MERCURY WAS DETERMINED IN THE SHELL

Results and discussion



THE PRESENCE OF ADDITIONAL FRACTIONS IN THREE FIRST ORGANISMS MAY BE RELATED TO DIFFERENT STRUCTURE OF THE HARD TISSUE AND IN CASE OF ALGAE, THE UPTAKE OF NUTRIENTS FROM SEDIMENT THROUGH THE ROOTS.





THE DOMINANT FRACTION OF MERCURY WAS THE FRACTION THAT CAN BE ACCUMULATED, AND ALSO CONTAINS THE FORMS OF HG THAT CAN BE INCORPORATED INTO TISSUES AND, CAN BE SUBSTRATES FOR CONVERSION TO METHYLMERCURY

Fig. 4 The share of mercury fractions in total mercury in collected organisms (whole organisms)

Thank you for your attention!

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