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Organophosphorous flame retardants in biota from Svalbard

Ingeborg G. Hallanger

With:

Anita Evenset, Kjetil Sagerup, Geir Wing Gabrielsen, Kit M. Kovacs, Pim Leonards, Eva Fuglei, Heli Routti, Jon Aars, Hallvard Strøm, Christian Lydersen, Mikael Remberger, Guttorm N Christensen.

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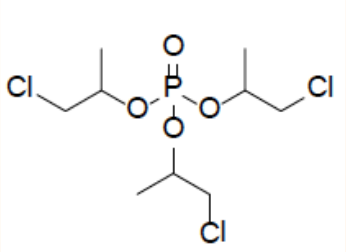
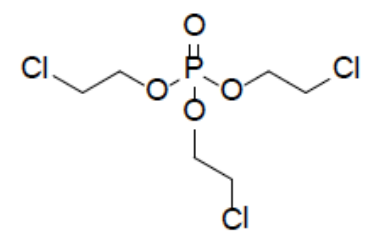
UNIVERSITY OF TROMSØ

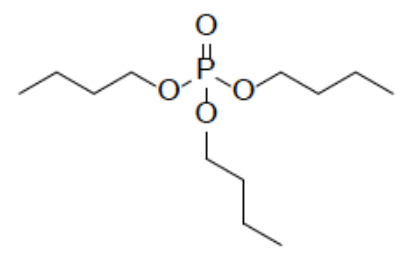
Organophosphorus flame retardants (OPFRs)



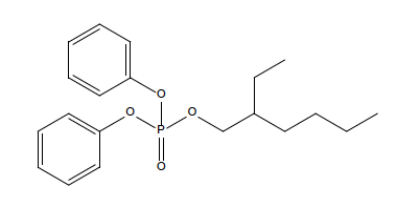
Tris (1-chloro-2-propyl) phosphate (TCIPP)



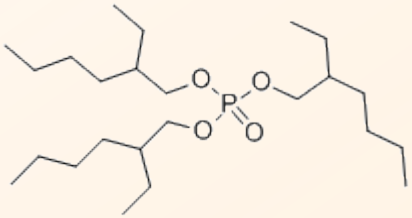
Tris (2-chloroethyl) phosphate (TCEP)



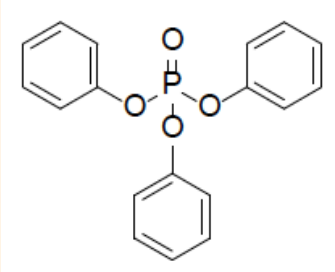
Tri n-butyl phosphate (TNBP)



2-ethylhexyl-di-phenylphosphate (EHDPP)

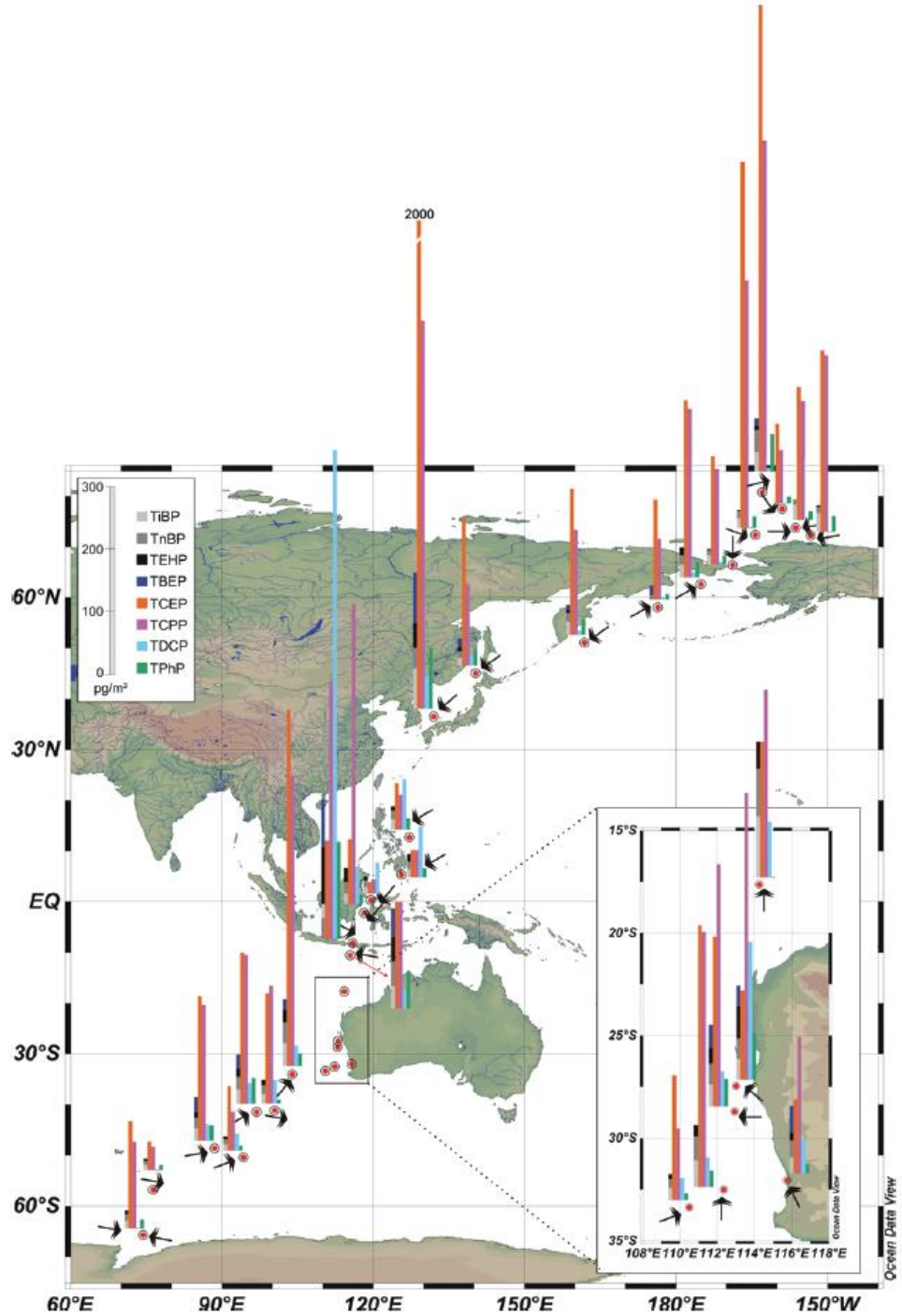


Tris(2-ethylhexyl) phosphate (TEHP)



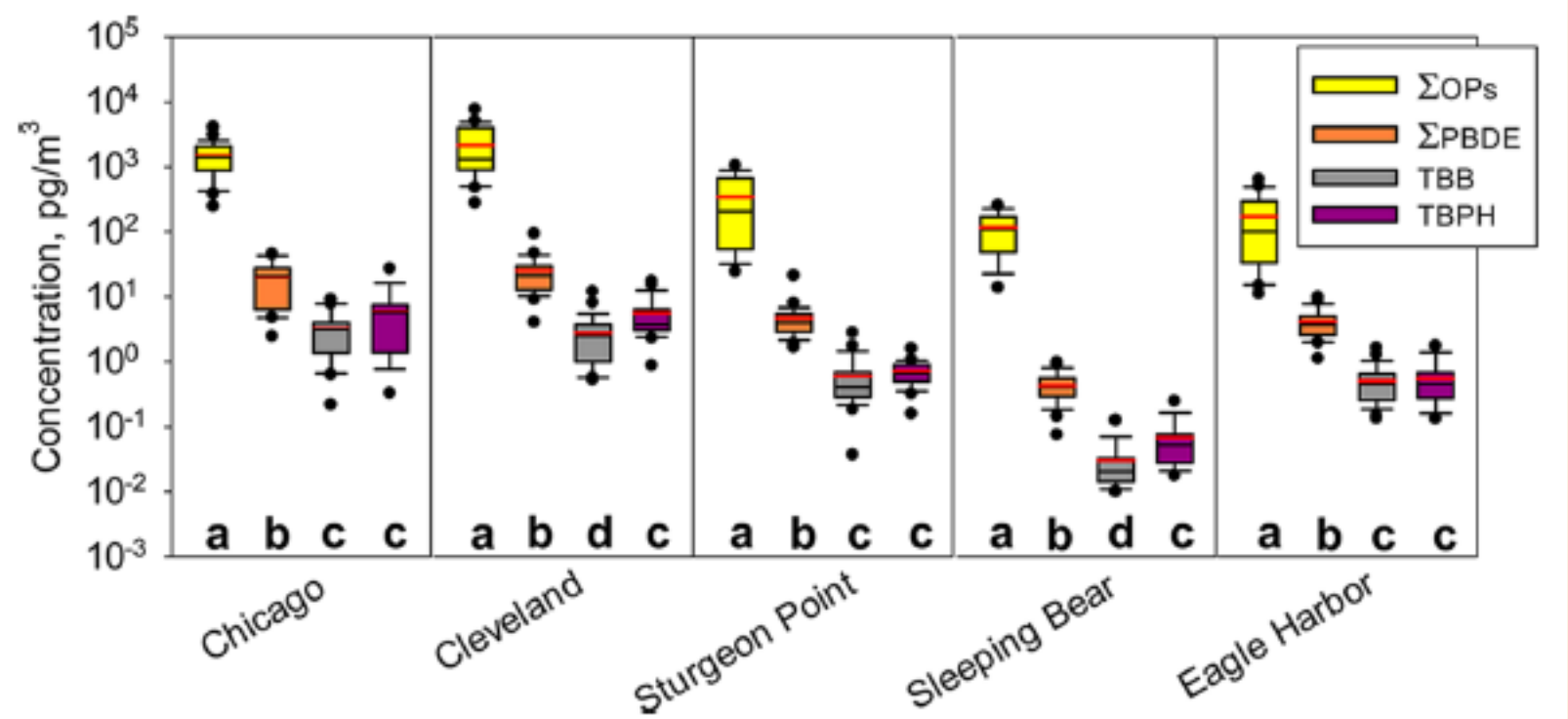
Triphenyl phosphate (TPHP)

From pole to pole in airborne particles



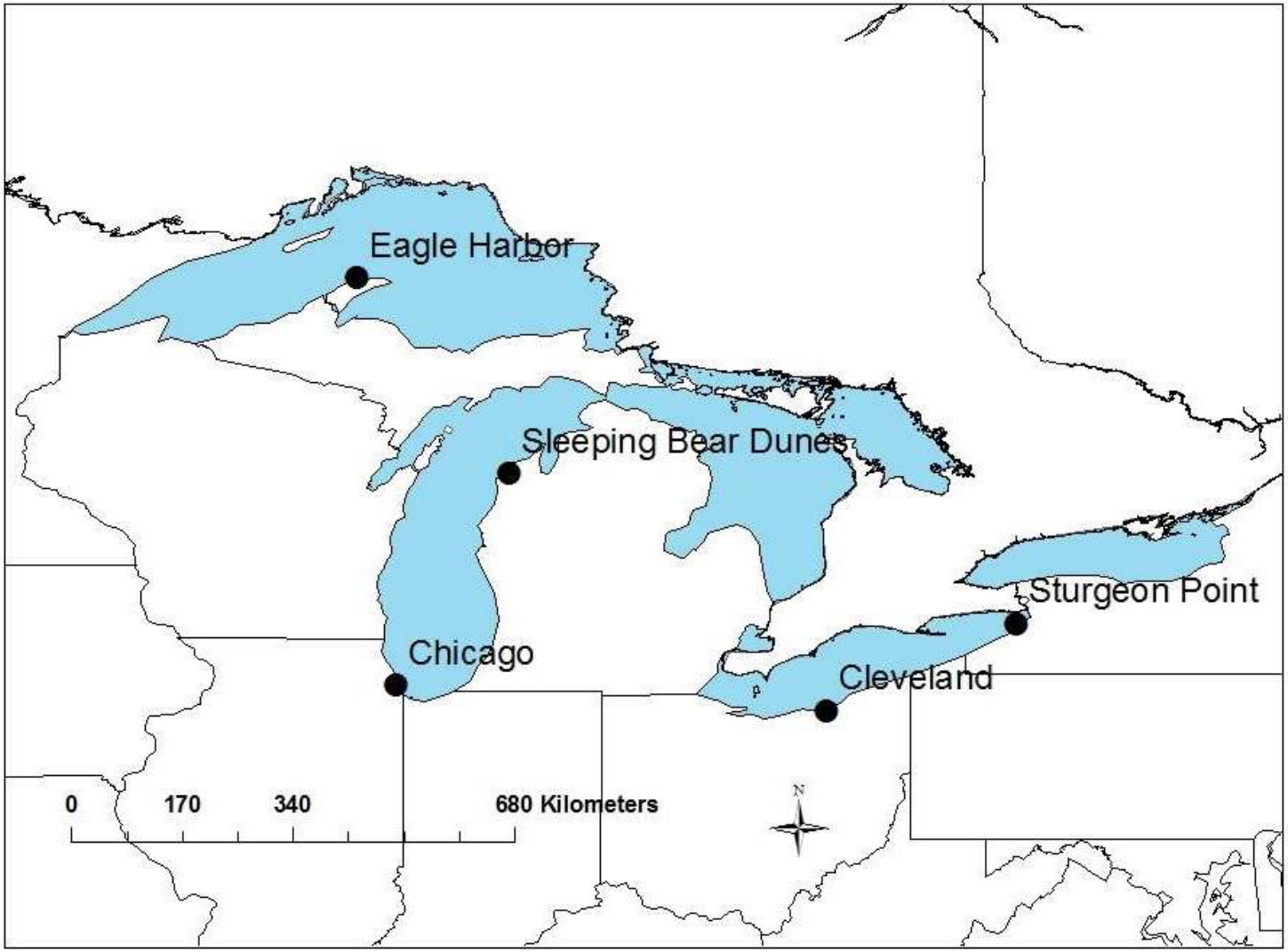
Möller et al 2012: Organophosphorus Flame Retardants and Plasticizers in Airborne Particles over the Northern Pacific and Indian Ocean toward the Polar Regions

Great lakes- airborne particles

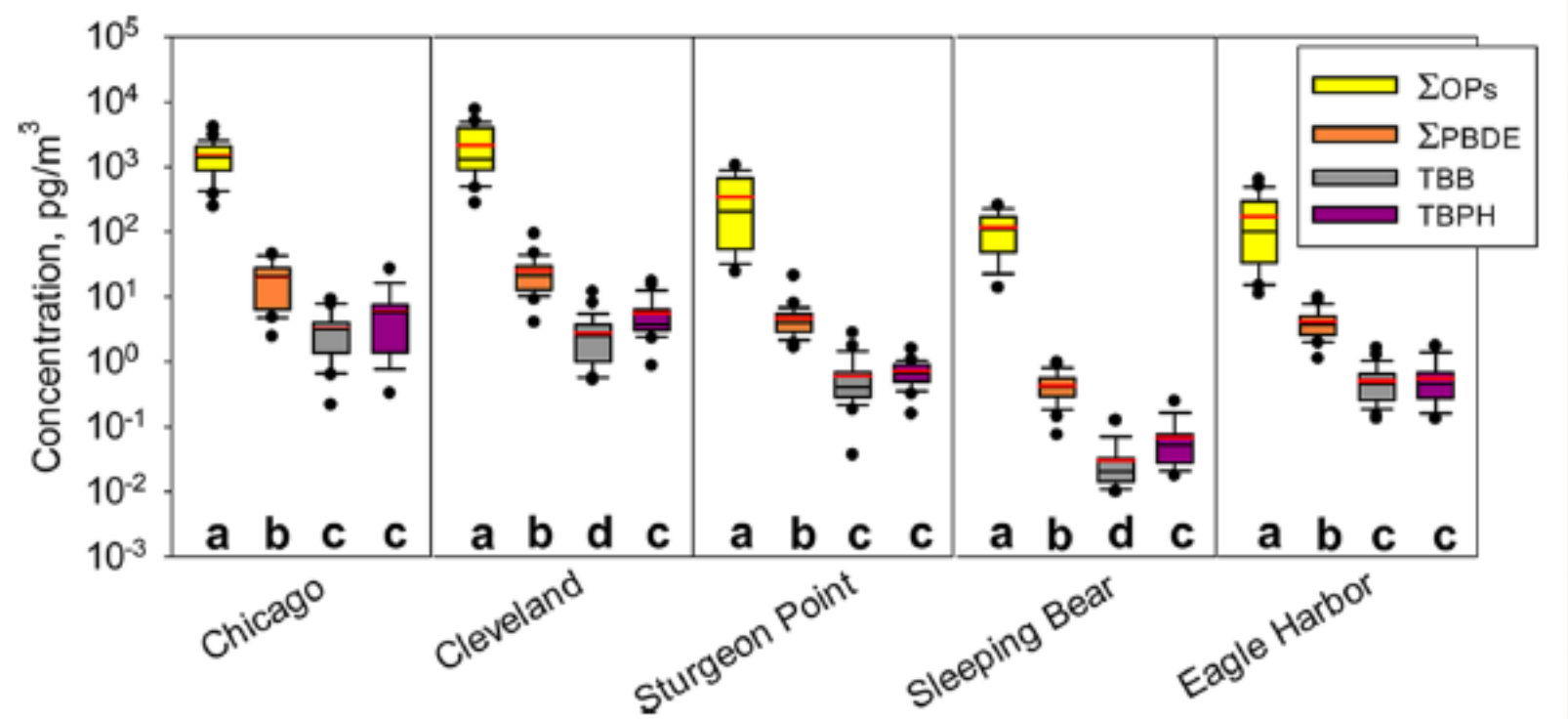


Salamova et al 2014: High Levels of Organophosphate Flame Retardants in the Great Lakes Atmosphere.

Great lakes- airborne particles



Great lakes- airborne particles

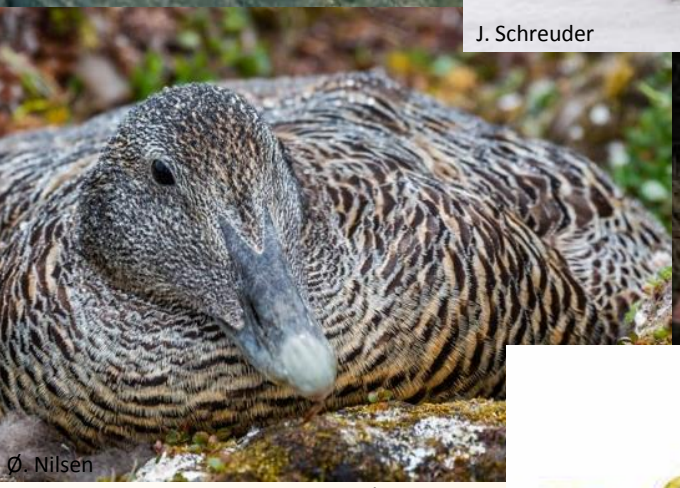


Salamova et al 2014: High Levels of Organophosphate Flame Retardants in the Great Lakes Atmosphere.

K. Kovacs

J. Schreuder

K. Kovacs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Peter Leopold

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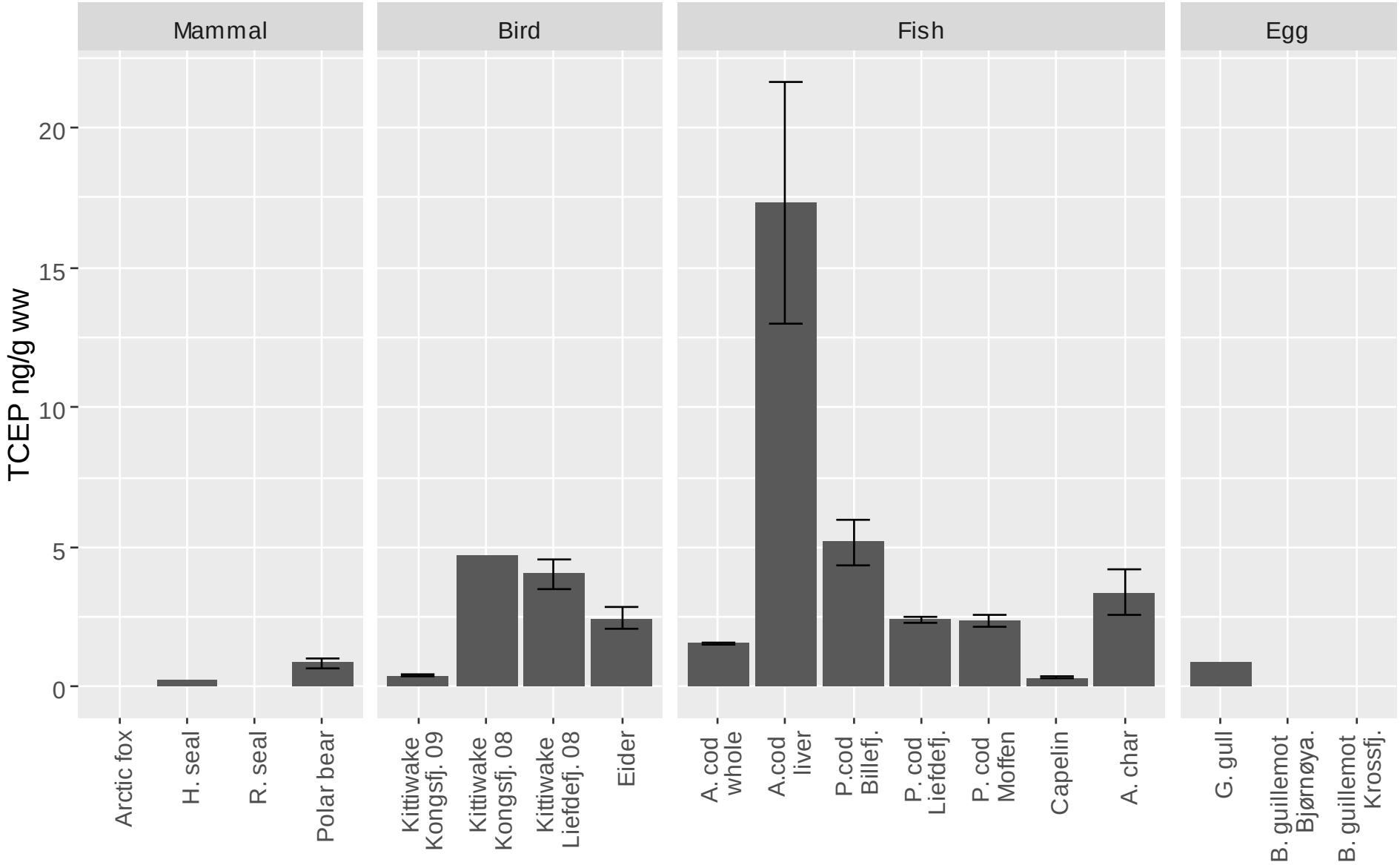
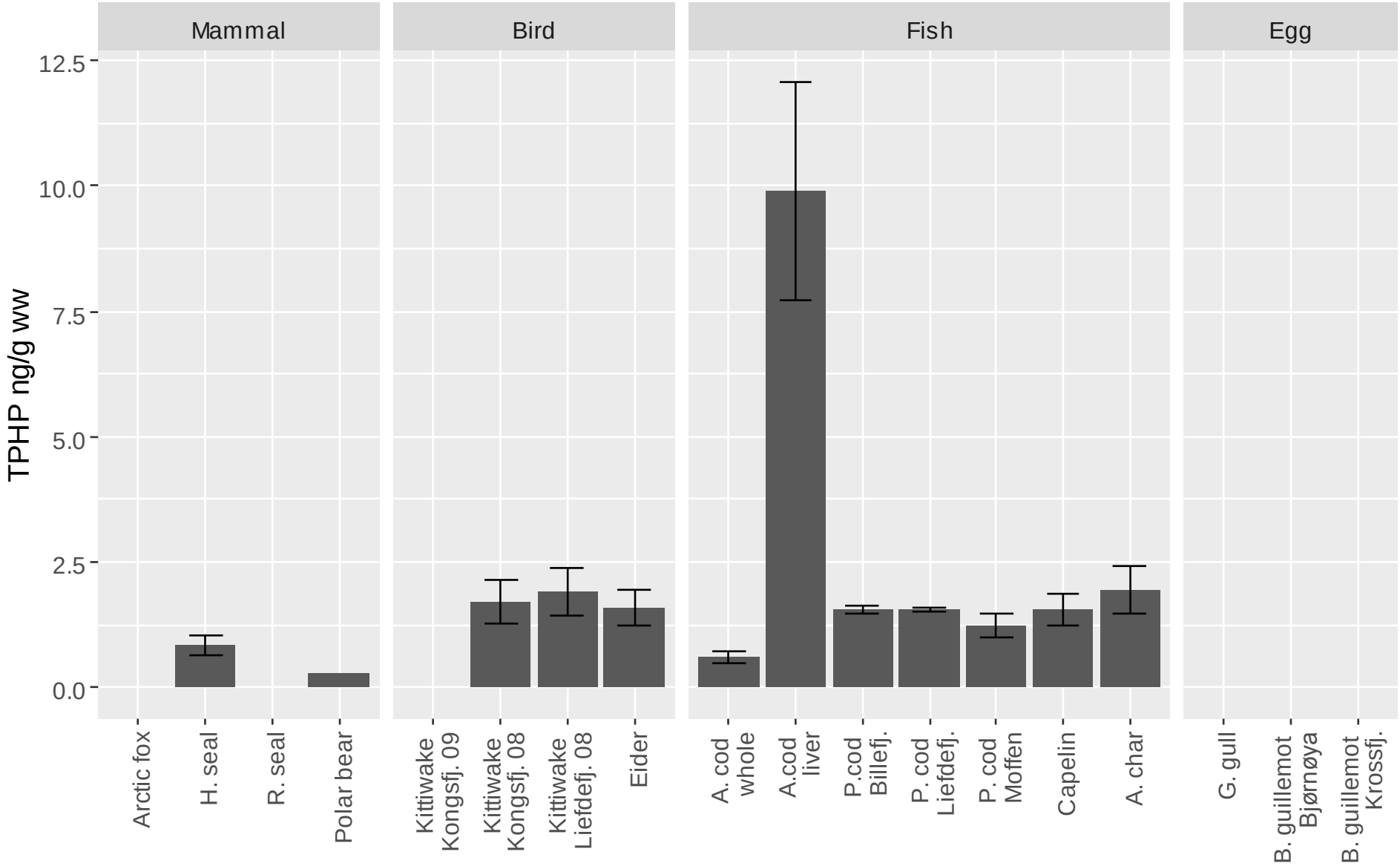
AK. Balto



Hallanger et al. 2015: Organophosphorous flame retardants in biota from Svalbard, Norway

Hallanger et al. 2016: in review



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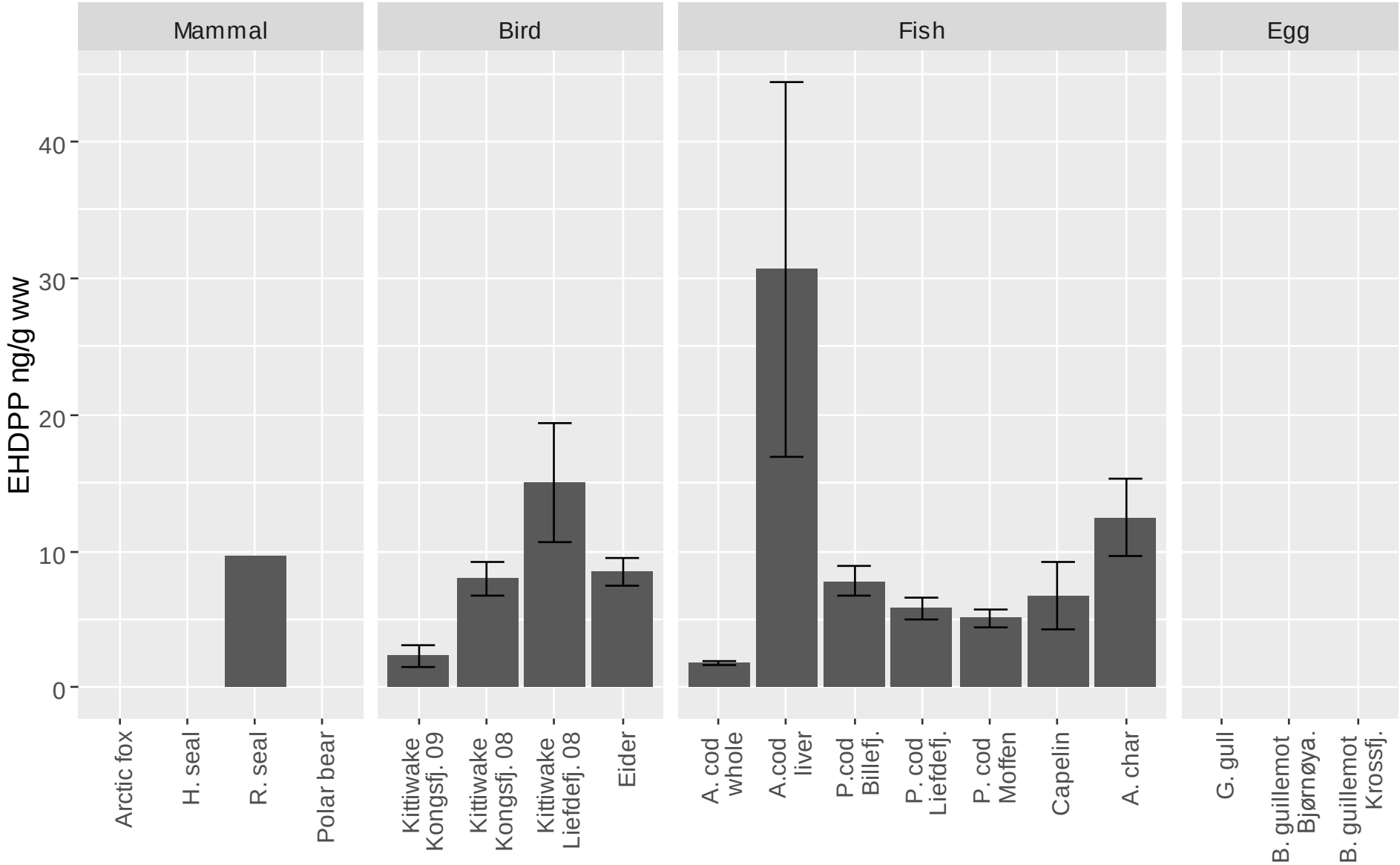

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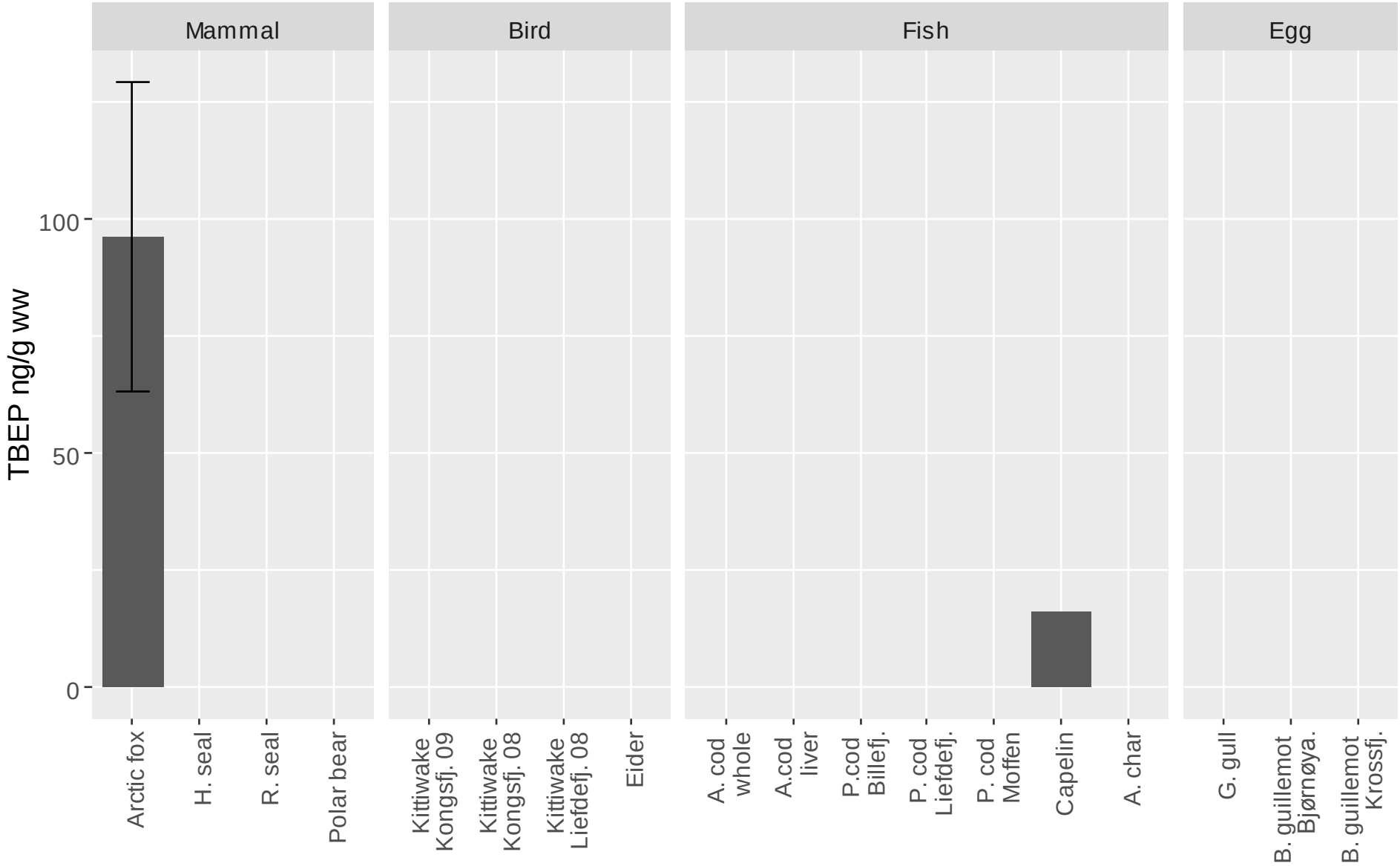

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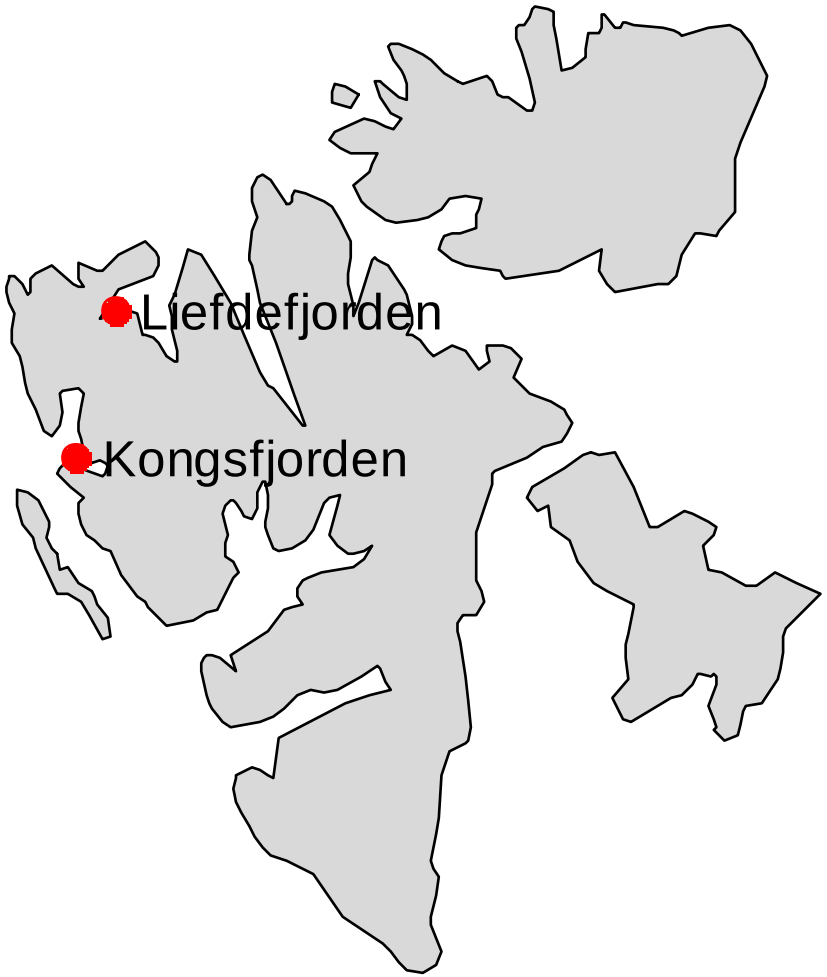
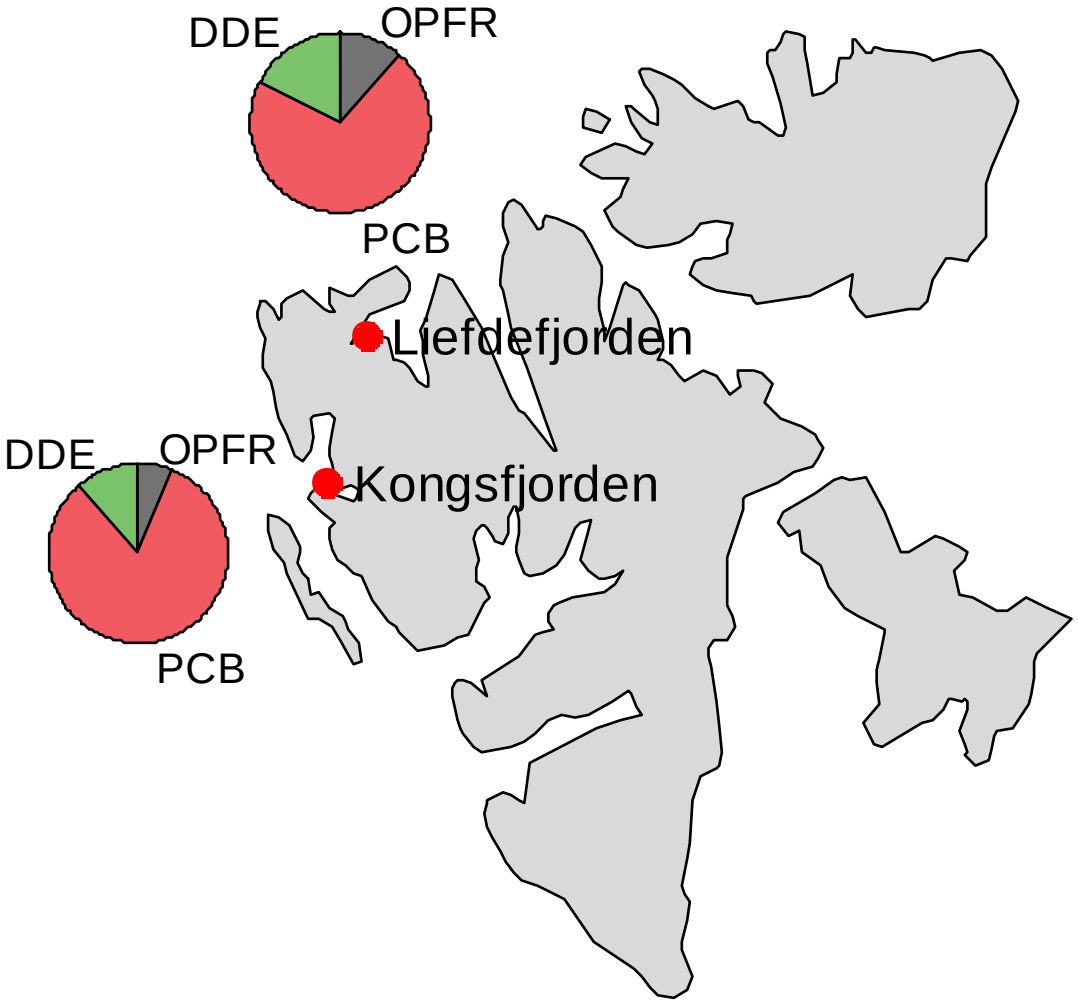


AK. Balto

Hallanger et al. 2016: in review



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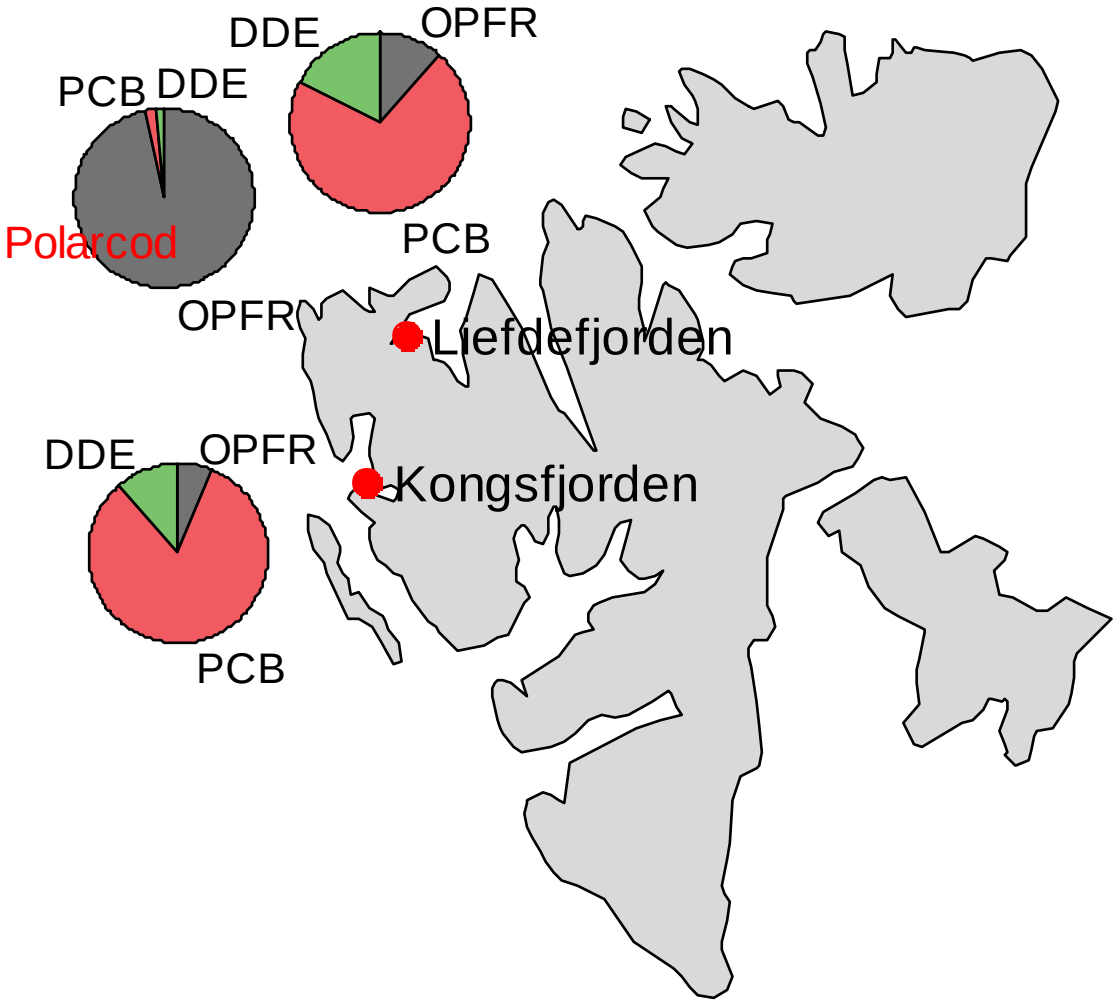
Hallanger et al. 2011: Seasonality in contaminant accumulation in Arctic marine pelagic food webs using trophic



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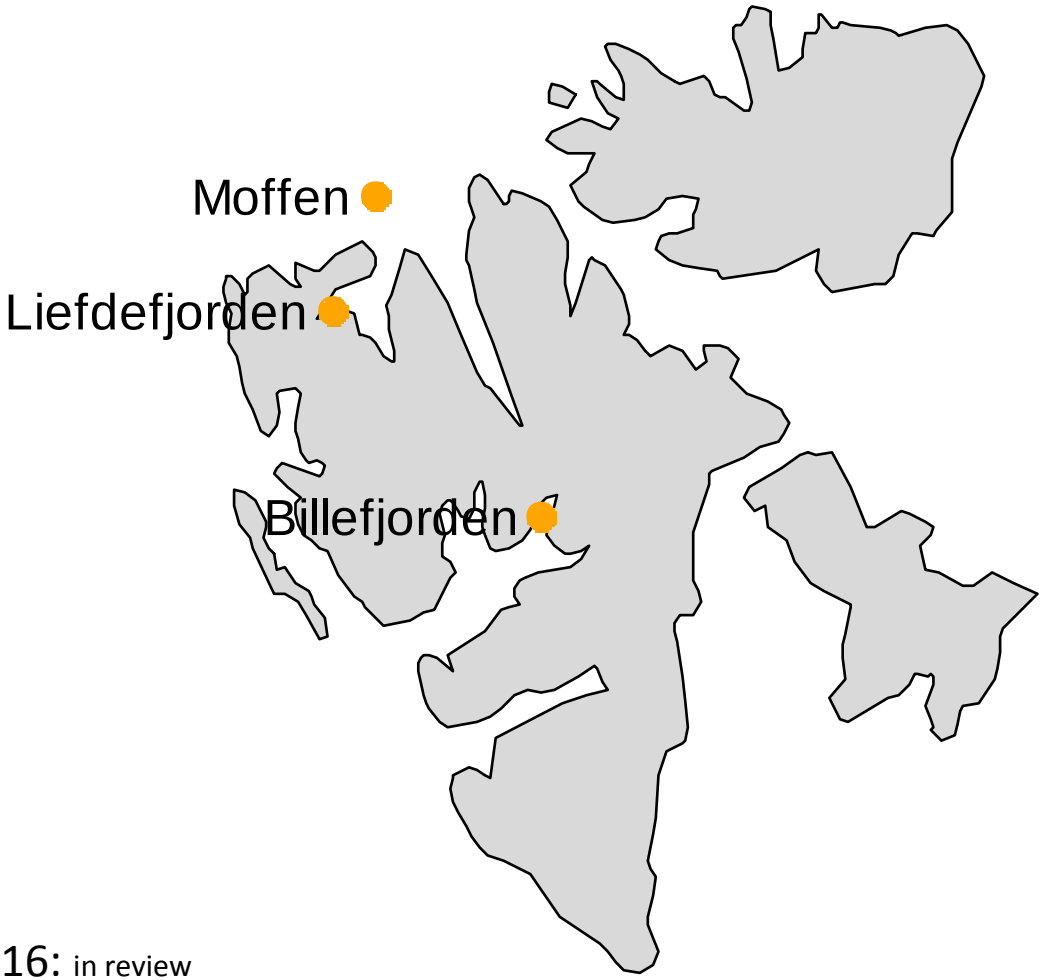
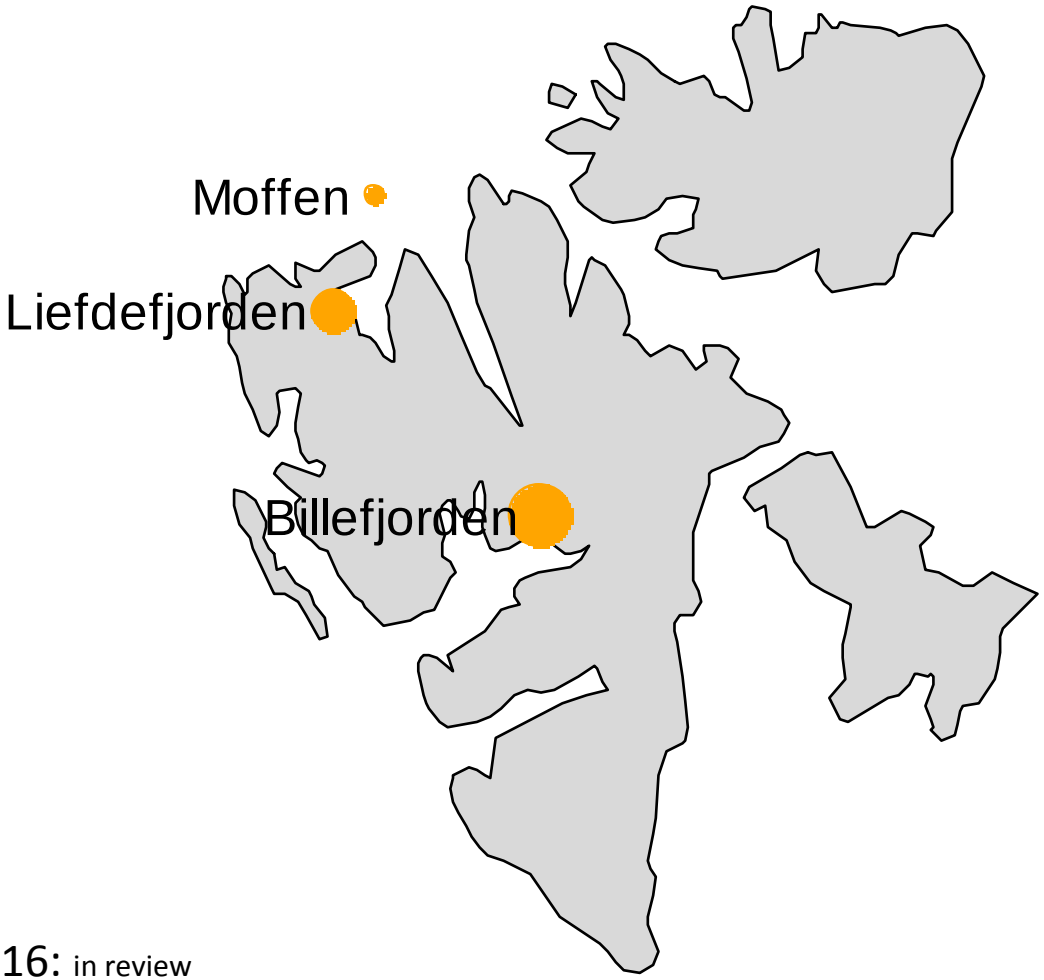


Hallanger et al. 2016: in review

Peter Leopold

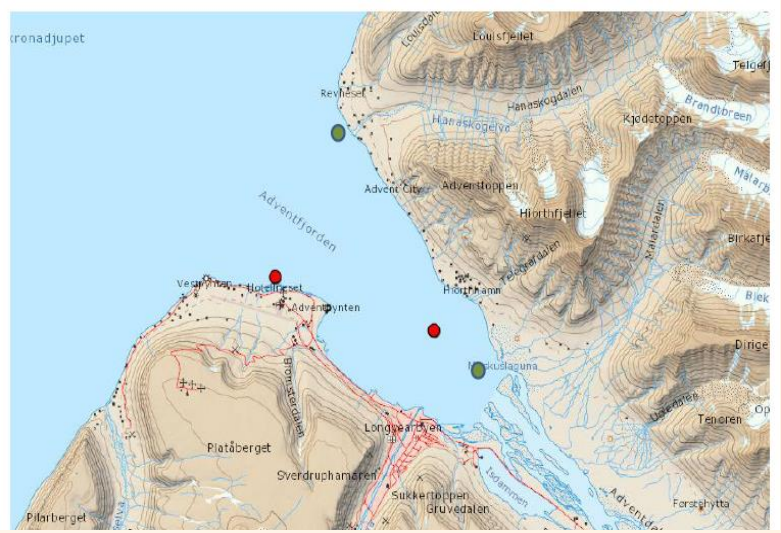


Hallanger et al. 2016: in review

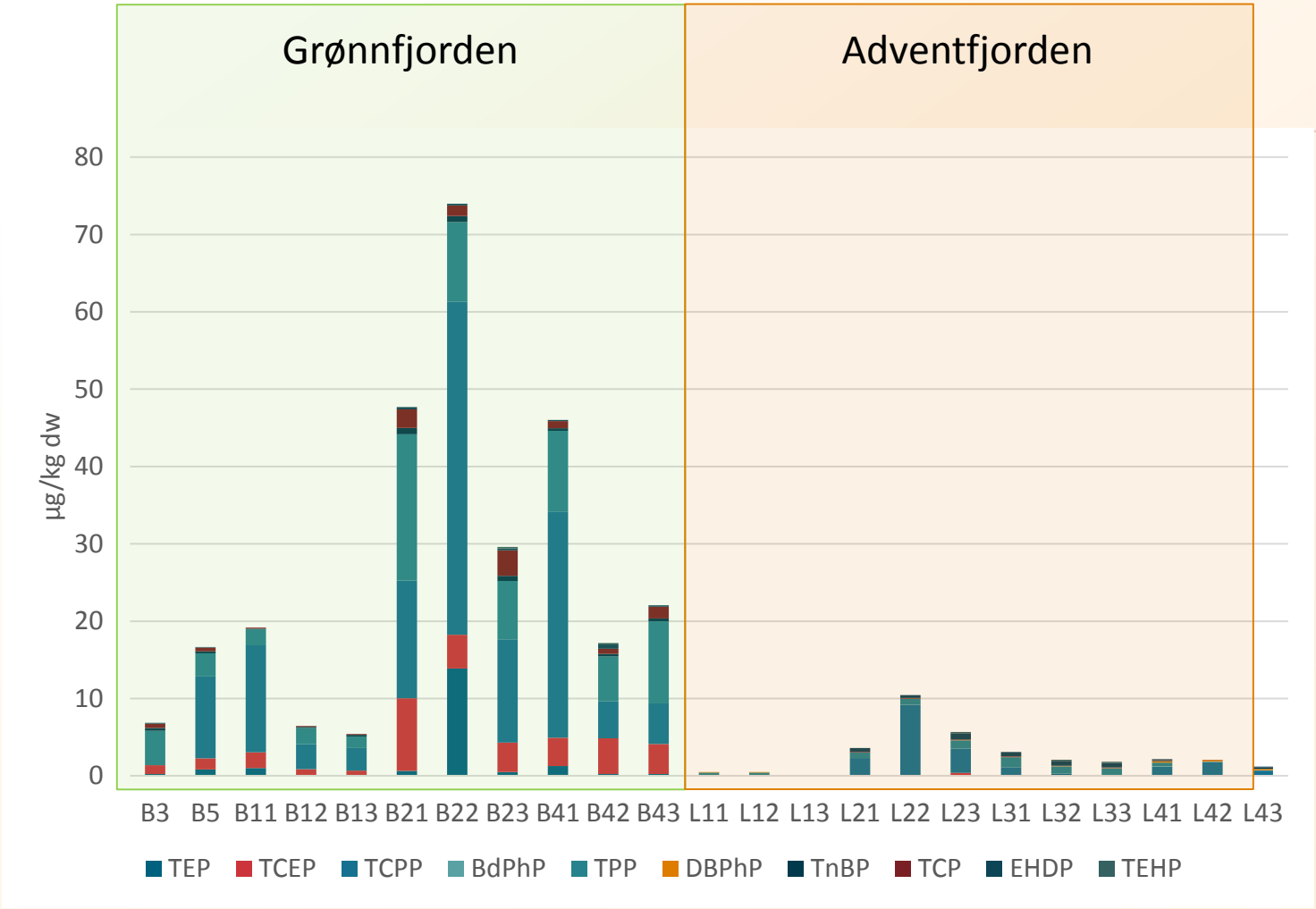
Local contamination in Svalbard

Grønfjorden

Adventfjorden



Anna Olsson 2016: Master thesis; Local pollution and the risks of OPFR, PBDE and PFAS to the marine ecosystem outside Longyearbyen and Barentsburg in Svalbard



Anna Olsson 2016: Master thesis; Local pollution and the risks of OPFR, PBDE and PFAS to the marine ecosystem outside Longyearbyen and Barentsburg in Svalbard

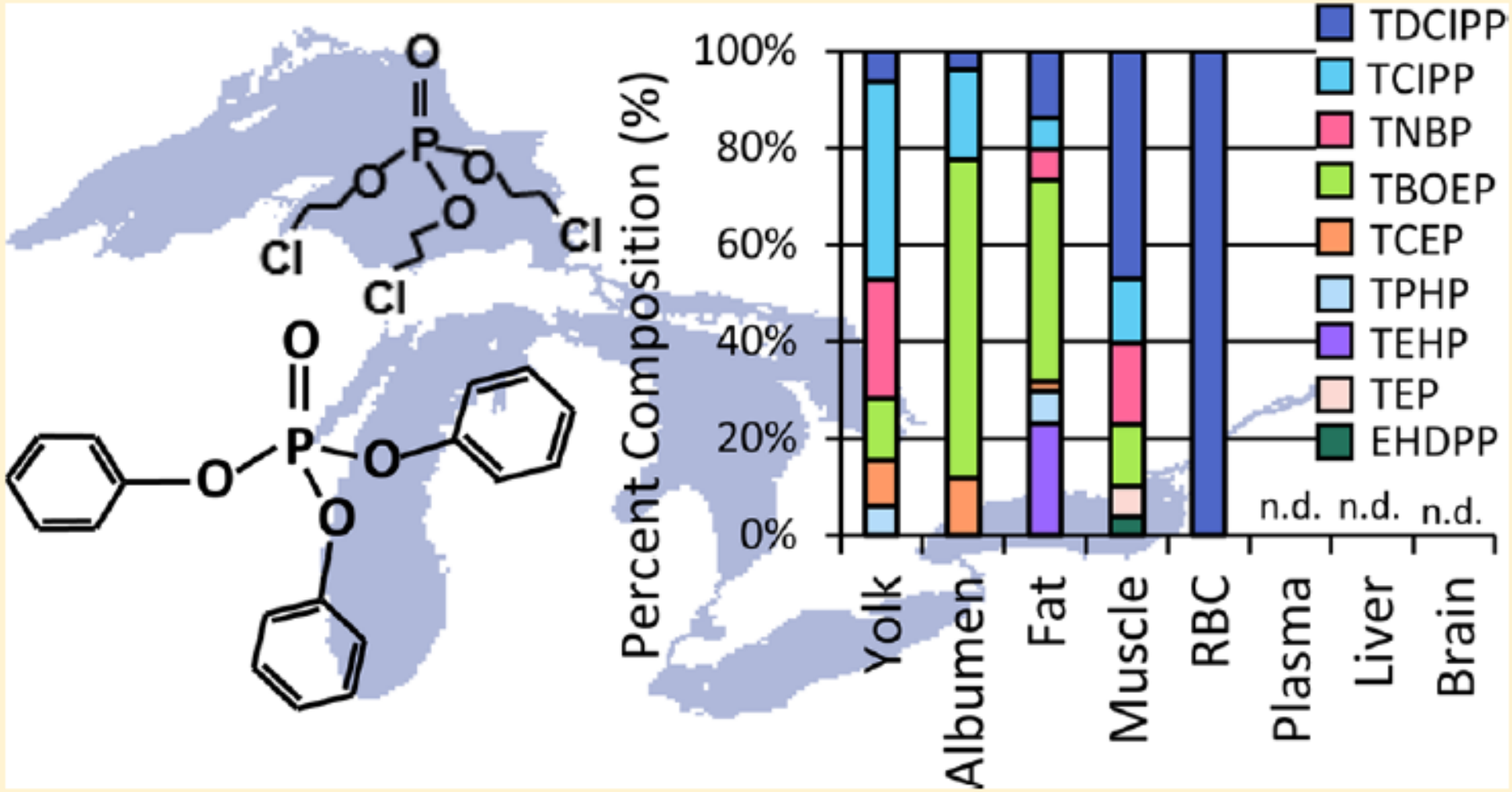
Map from:
toposvalbard.npolar.no

Do OPFR biomagnify?

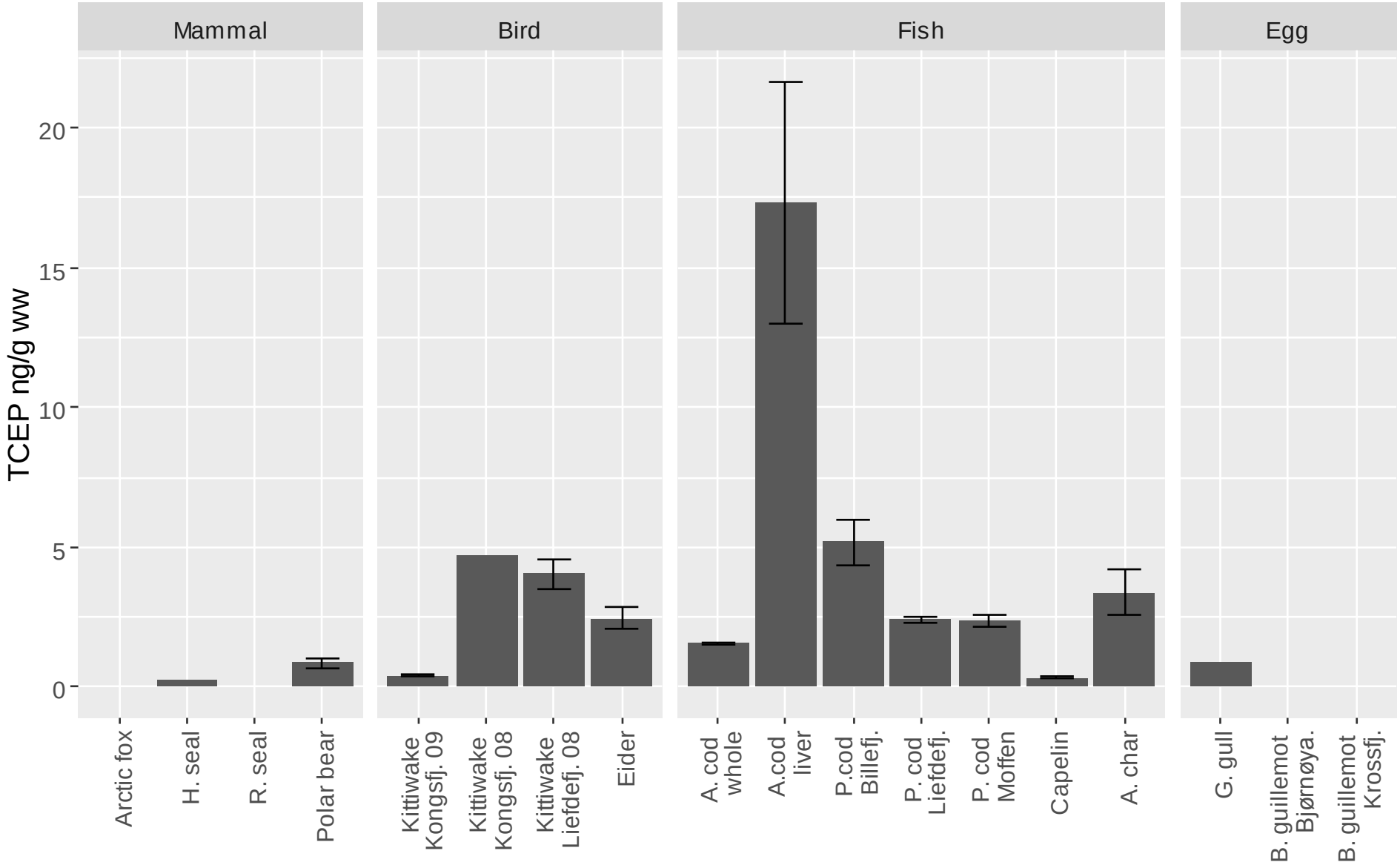
From fish to seabirds?	NO	Hallanger et al 2015 Brandsma et al 2015 Hallanger et al *in progress*
From fish to mammals?	NO	Hallanger et al 2015
In a benthic food web?	YES*	Brandsma et al 2015
In a pelagic food web?	NO	Brandsma et al 2015
From zooplankton to fish?	??	

* When significant

Tissue distribution – Herring gull



Greaves et al 2014: Comparative Body Compartment Composition and In Ovo Transfer of Organophosphate Flame Retardants in North American Great Lakes Herring Gulls



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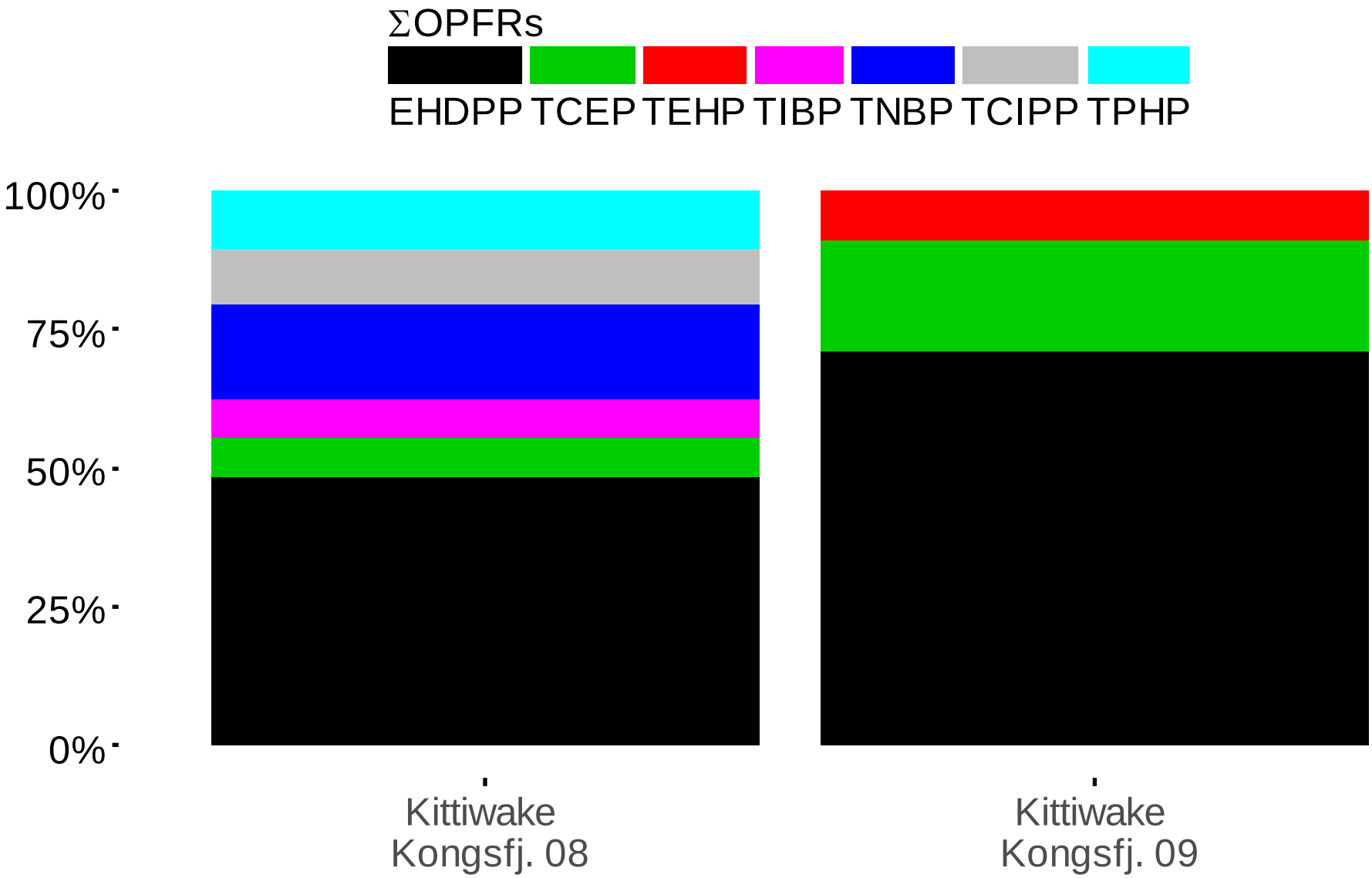

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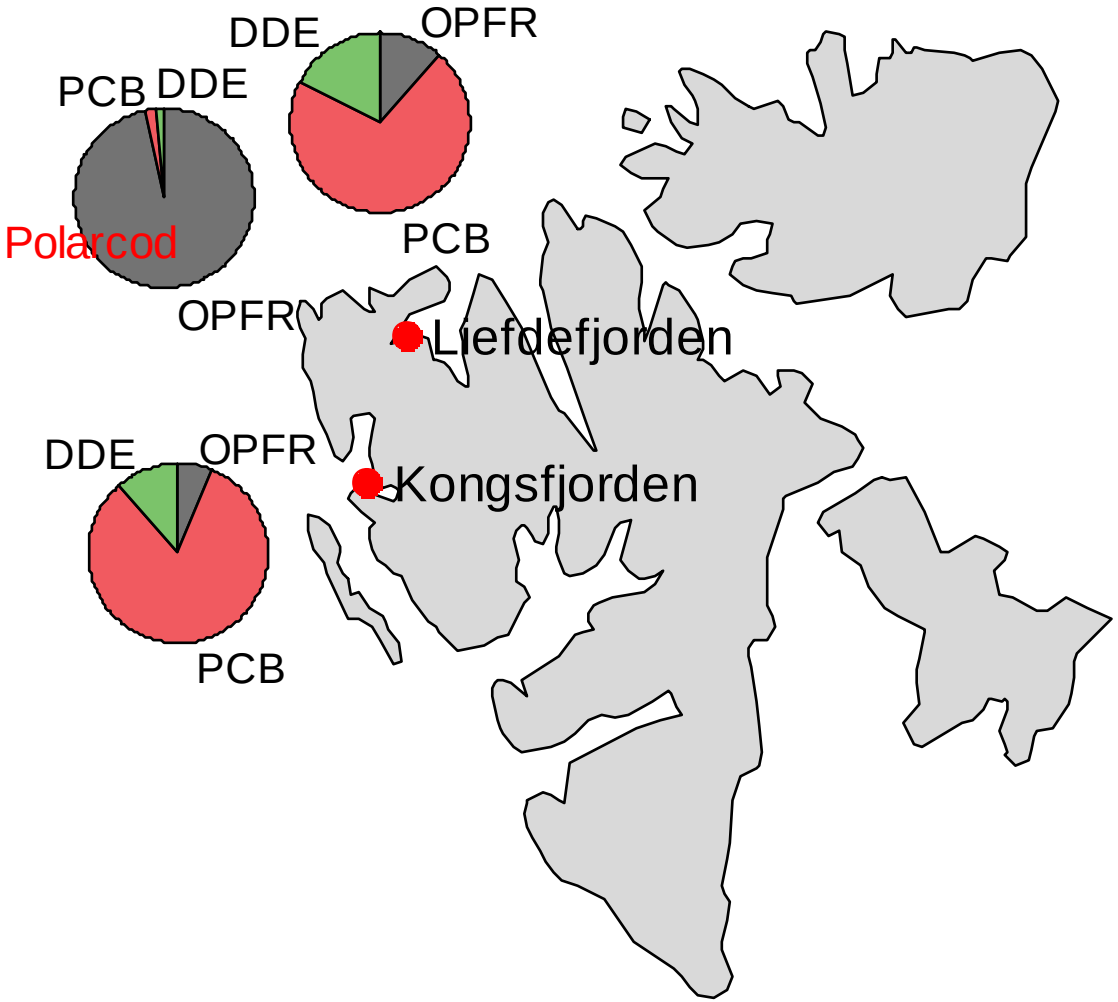
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PCB
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Polarcod
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OPFR
Liefdefjorden
DDE
OPFR
Kongsfjorden
PCB

Thank you