

## Annex 1

Table S1. List of observational data used to evaluate current levels. [to be completed]

Data Provider or Source	Brief Description of Dataset	Type of Data	Time Span	Geographic scope	Citation
HELCOM	Hg concentrations in zebra mussels ( <i>Dreissena polymorpha</i> ) and blue mussels ( <i>Mytilus edulis</i> ) from the HELCOM HOLAS III hazardous substances assessment.	Invertebrate (bivalve)	2014-2021	IPCC Regions: N. Europe and West & Central Europe; Countries: Lithuania, Germany, Denmark, Poland, Sweden	ICES (2023). Input data files for the HELCOM HOLAS III hazardous substances assessment 2016-2021. Data Outputs. Dataset. <a href="https://doi.org/10.17895/ices.data.24042021.v1">https://doi.org/10.17895/ices.data.24042021.v1</a>
A Agrawal and JE Brandt, University of Connecticut, USA	Hg concentrations in Eastern oysters ( <i>Crassostrea virginica</i> ) deployed at coastal sites along the northern boundary of Long Island Sound	Invertebrate (bivalve)	2022-2023	IPCC Regions: E. North America; Connecticut, USA	Agrawal, Anika, et al. "Macroparasite infection and mercury contamination as coupled stressors in Eastern oysters." <i>Ecotoxicology and Environmental Safety</i> 302 (2025): 118672.
USA NOAA Mussel Watch Program	Hg concentrations in blue mussels ( <i>Mytilus edulis</i> ), California mussels ( <i>Mytilus californianus</i> ), <i>Mytilus</i> sp., Eastern oysters ( <i>Crassostrea virginica</i> ), and Mangrove cupped oysters ( <i>Crassostrea rhizophorae</i> ) sampled at various coastal sites in the USA.	Invertebrate (bivalve)	2015-2021	IPCC Regions: E. North America, W. North America, C. North America, N. Central America, Caribbean	Data provided by NOAA Mussel Watch Program Personnel. <a href="https://coastalscience.noaa.gov/science-areas/pollution/mussel-watch/">https://coastalscience.noaa.gov/science-areas/pollution/mussel-watch/</a>

Nyrstar Hobart Derwent Estuary Program	Hg concentrations in blue mussels ( <i>Mytilus edulis</i> ) and Pacific oysters ( <i>Crassostrea gigas</i> ) from various sites in the Derwent Estuary monitoring network.	Invertebrate (bivalve)	2014-2023	IPCC Region: S. Australia	Derwent Estuary Program (DEP), 2021. Metal contamination in fish and shellfish of the Derwent estuary - A summary of results to December 2020. <a href="https://www.derwentestuary.org.au/assets/Metals_in_fish_FINAL_24Sept2021.pdf">https://www.derwentestuary.org.au/assets/Metals_in_fish_FINAL_24Sept2021.pdf</a>  Derwent Estuary Program (DEP), 2020. State of the Derwent Estuary 2020 - An update and review of environmental data and activities. <a href="https://www.derwentestuary.org.au/news/state-of-the-derwent-2020-update/">https://www.derwentestuary.org.au/news/state-of-the-derwent-2020-update/</a>
OSPAR Commission	Hg concentrations in blue mussels ( <i>Mytilus edulis</i> ), Mediterranean mussels ( <i>Mytilus galloprovincialis</i> ), <i>Mytilus</i> sp., Eastern oysters ( <i>Crassostrea virginica</i> ), and European flat oysters ( <i>Ostrea edulis</i> ) from various sites in the OSPAR	Invertebrate (bivalve)	2014-2022	IPCC Regions: N. Europe, West & Central Europe, N. Atlantic Ocean, Mediterranean, Greenland/Iceland; Countries: Belgium, Denmark, France, Germany, Iceland, Ireland, Netherlands, Norway, Portugal, Spain, Sweden, United Kingdom	
Japanese Survey of Ocean Environment	Hg concentrations in Mediterranean mussels ( <i>Mytilus galloprovincialis</i> ) from the Ariake Sea, Tokyo Bay, and Toyama Bay, Japan.	Invertebrate (bivalve)	2014, 2016, 2020-2022	IPCC Region: E. Asia, Country: Japan	<a href="https://tenbou.nies.go.jp/gisplus/download.html">https://tenbou.nies.go.jp/gisplus/download.html</a>

Table S2. List of observational data used to evaluate temporal levels. [to be completed]

Data Provider or Source	Brief Description of Dataset	Type of Data	Time Span	Geographic scope	Citation
HELCOM	Hg concentrations in zebra mussels ( <i>Dreissena polymorpha</i> ) and blue mussels ( <i>Mytilus edulis</i> ) from the HELCOM HOLAS III hazardous substances assessment.	Invertebrate (bivalve)	2000-2021	IPCC Regions: N. Europe and West & Central Europe; Countries: Lithuania, Germany, Denmark, Poland, Sweden	ICES (2023). Input data files for the HELCOM HOLAS III hazardous substances assessment, 2016-2021. Data Outputs. Dataset. <a href="https://doi.org/10.17895/ices.data.24042021.v1">https://doi.org/10.17895/ices.data.24042021.v1</a>
A Agrawal and JE Brandt, University of Connecticut, USA	Hg concentrations in Eastern oysters ( <i>Crassostrea virginica</i> ) deployed at coastal sites along the northern boundary of Long Island Sound	Invertebrate (bivalve)	2022-2023	IPCC Regions: E. North America; Connecticut, USA	Agrawal, Anika, et al. "Macroparasite infection and mercury contamination as coupled stressors in Eastern oysters." <i>Ecotoxicology and Environmental Safety</i> 302 (2025), 118672.
USA NOAA Mussel Watch Program	Hg concentrations in blue mussels ( <i>Mytilus edulis</i> ), California mussels ( <i>Mytilus californianus</i> ), Mediterranean mussels ( <i>Mytilus galloprovincialis</i> ), <i>Mytilus</i> sp., Eastern oysters ( <i>Crassostrea virginica</i> ), Pacific oysters ( <i>Crassostrea gigas</i> ), <i>Dreissena</i> sp., and Mangrove cupped oysters ( <i>Crassostrea rhizophorae</i> ) sampled at various coastal sites in the USA.	Invertebrate (bivalve)	2000-2012, 2015-2021	IPCC Regions: E. North America, W. North America, N.W. North America, C. North America, N. Central America, Caribbean	Data provided by NOAA Mussel Watch Program Personnel. <a href="https://coastalscience.noaa.gov/science-areas/pollution/mussel-watch/">https://coastalscience.noaa.gov/science-areas/pollution/mussel-watch/</a>

Nyrstar Hobart / Derwent Estuary Program	Hg concentrations in blue mussels ( <i>Mytilus edulis</i> ) and Pacific oyster ( <i>Crassostrea gigas</i> ) from various sites in the Derwent Estuary monitoring network.	Invertebrate (bivalve)	2002, 2004-2023	IPCC Region: S. Australia	Derwent Estuary Program (DEP) 2021. Metal contamination in fish and shellfish of the Derwent estuary - A summary of results to December 2020. <a href="https://www.derwentestuary.org.au/assets/Metals_in_fish_FINAL_24Sept2021.pdf">https://www.derwentestuary.org.au/assets/Metals_in_fish_FINAL_24Sept2021.pdf</a>  Derwent Estuary Program (DEP) 2020. State of the Derwent Estuary 2020 - An update and review of environmental data and activities. <a href="https://www.derwentestuary.org.au/news/state-of-the-derwent-2020-update/">https://www.derwentestuary.org.au/news/state-of-the-derwent-2020-update/</a>
OSPAR Commission	Hg concentrations in blue mussels ( <i>Mytilus edulis</i> ), Mediterranean mussels ( <i>Mytilus galloprovincialis</i> ) <i>Mytilus</i> sp., Eastern oysters ( <i>Crassostrea virginica</i> ), and European flat oysters ( <i>Ostrea edulis</i> ) from various sites in the OSPAR	Invertebrate (bivalve)	2000-2022	IPCC Regions: N. Europe, West & Central Europe, N. Atlantic Ocean, Mediterranean, Greenland/Iceland; Countries: Belgium, Denmark, France, Germany, Iceland, Ireland, Netherlands, Norway, Portugal, Spain, Sweden, United Kingdom	
Japanese Survey of Ocean Environment	Hg concentrations in Mediterranean mussels ( <i>Mytilus galloprovincialis</i> ) from the Ariake Sea, Sendai Bay, Tokyo Bay, and Toyama Bay, Japan.	Invertebrate (bivalve)	2000, 2002-2008, 2010, 2014, 2016, 2020-2022	IPCC Region: E. Asia, Country: Japan	<a href="https://tenbou.nies.go.jp/gisplus/download.html">https://tenbou.nies.go.jp/gisplus/download.html</a>
Global Biotic Mercury Synthesis (GBMS) database	Hg concentrations in Mytilidae spp. and Mangrove cupped oysters ( <i>Crassostrea rhizophorae</i> ) from area of oil	Invertebrate (bivalve)	2004	IPCC Region: N.E. South America, Country: Brazil	Lacerda, L. D., Campos, R. C., & Santelli, R. E. (2013). Metals in water, sediments, and biota of an offshore oil exploration area in the Potiguar Basin, Northeastern Brazil. Environmental monitoring and assessment, 185(5), 4427-4447.

	exploitation in Brazil				
Global Biotic Mercury Synthesis (GBMS) database	Hg concentrations in blue mussels from the Bay of Fundy, Gulf of Maine.	Invertebrate (bivalve)	2001, 2003	IPCC Region: E. North America, Country: Canada	Harding, G., Dalziel, J., & Vass, P. (2018). Bioaccumulation of methylmercury within the marine food web of the outer Bay of Fundy, Gulf of Maine. <i>PloS one</i> , 13(7), e0197220.
Global Biotic Mercury Synthesis (GBMS) database	Hg concentrations in blue mussels ( <i>Mytilus edulis</i> ) and Pacific oyster ( <i>Crassostrea gigas</i> ) from the Bohai Sea, China	Invertebrate (bivalve)	2013	IPCC Region: E. Asia, Country: China	Meng, M., Sun, R. Y., Liu, H. W., Yu, B., Yin, Y. G., Hu, L. G., ... & Jiang, G. B. (2020). Mercury isotope variations within the marine food web of Chinese Bohai Sea: Implications for mercury sources and biogeochemical cycling. <i>Journal of hazardous materials</i> , 384, 121379.

Table S3 . List of observational data submitted for the assessment, including regions and countries, species, tissues, years of collection, range of individual THg concentrations ( $\mu\text{g/g ww}$ ), sample size, and means submitted for **marine mammals**. [\(Excel file\)](#)