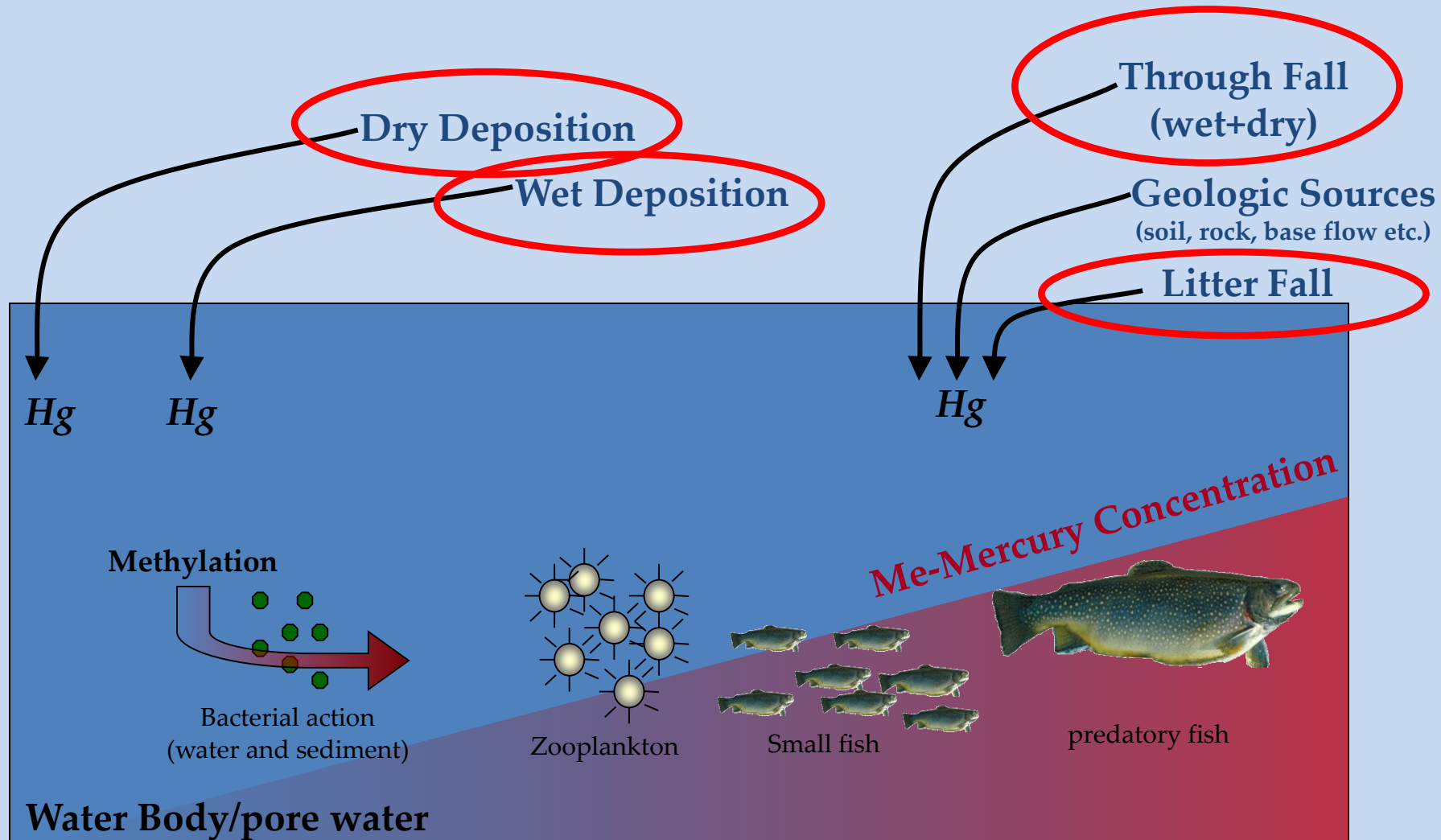


Why is it Important to Monitor for Mercury

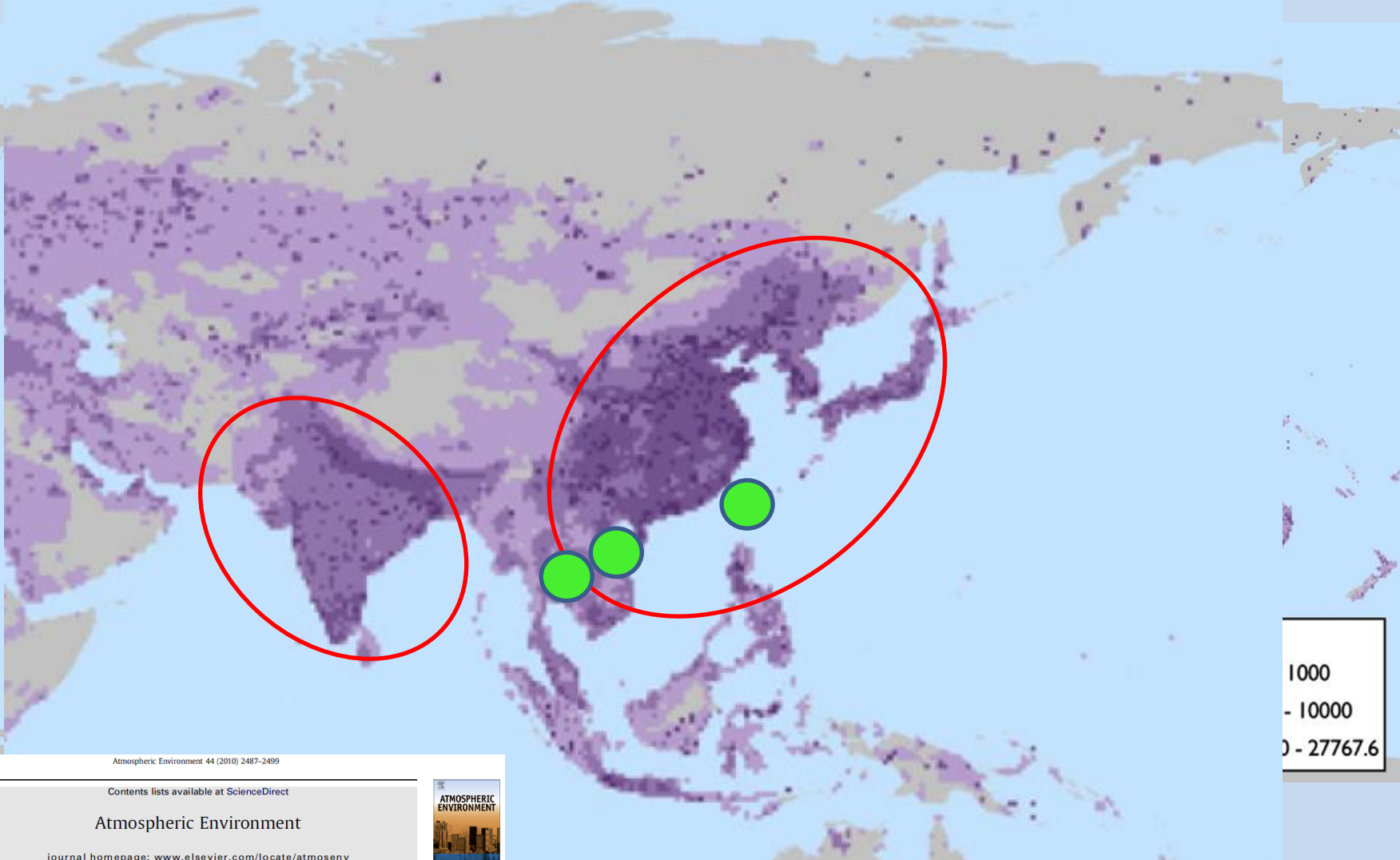
History over the Past Two Years

- Introduction to history
 - Workshop in Taiwan, 2012
 - Bilateral talks between countries
 - Japan, S. Korea, Hong Kong and Shanghai, China
 - Washington DC Proposal of APMMN
 - July, 2013
 - Indonesia, Vietnam, Thailand, Canada, S. Korea, Japan, Taiwan

Bioaccumulation of Methyl Mercury



Why This Network Is Important?

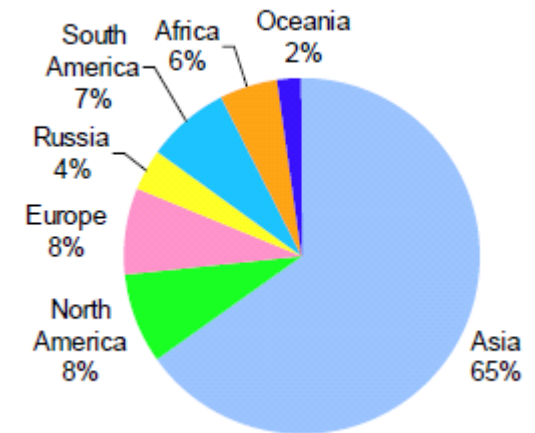
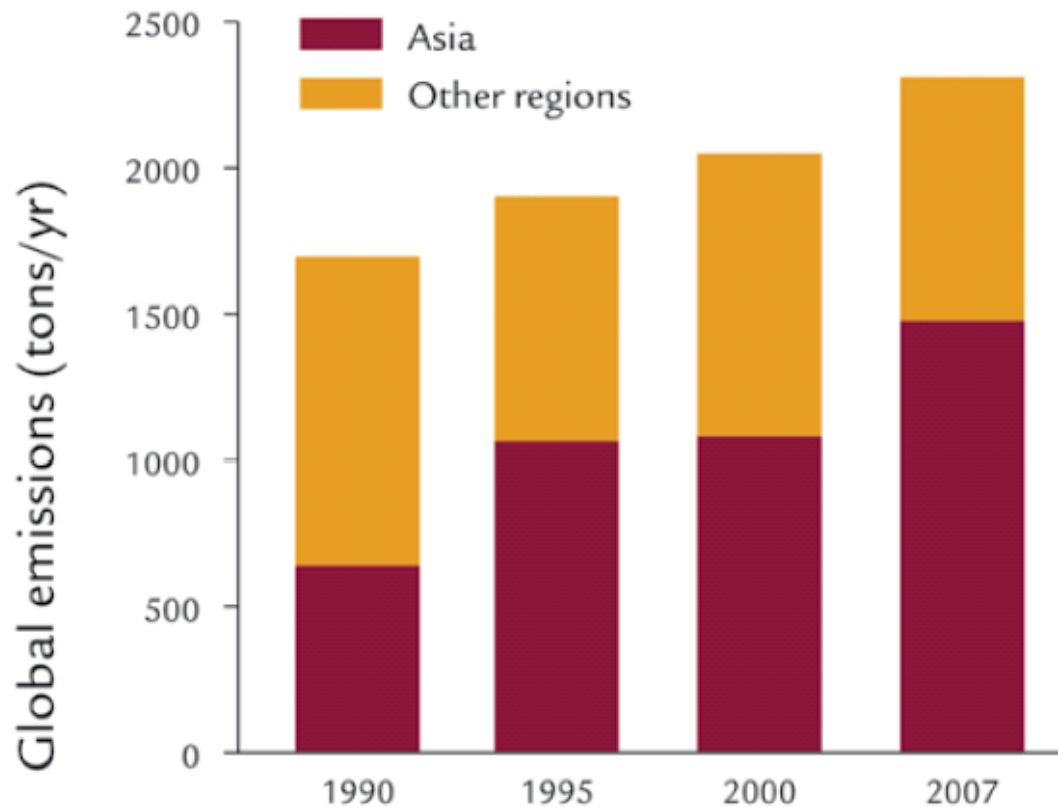


Global emission of mercury to the atmosphere from anthropogenic sources in 2005 and projections to 2020

E.G. Pacyna^a, J.M. Pacyna^{a,b,*}, K. Sundseth^a, J. Munthe^c, K. Kindbom^c, S. Wilson^d, F. Steenhuisen^e, P. Maxson^f

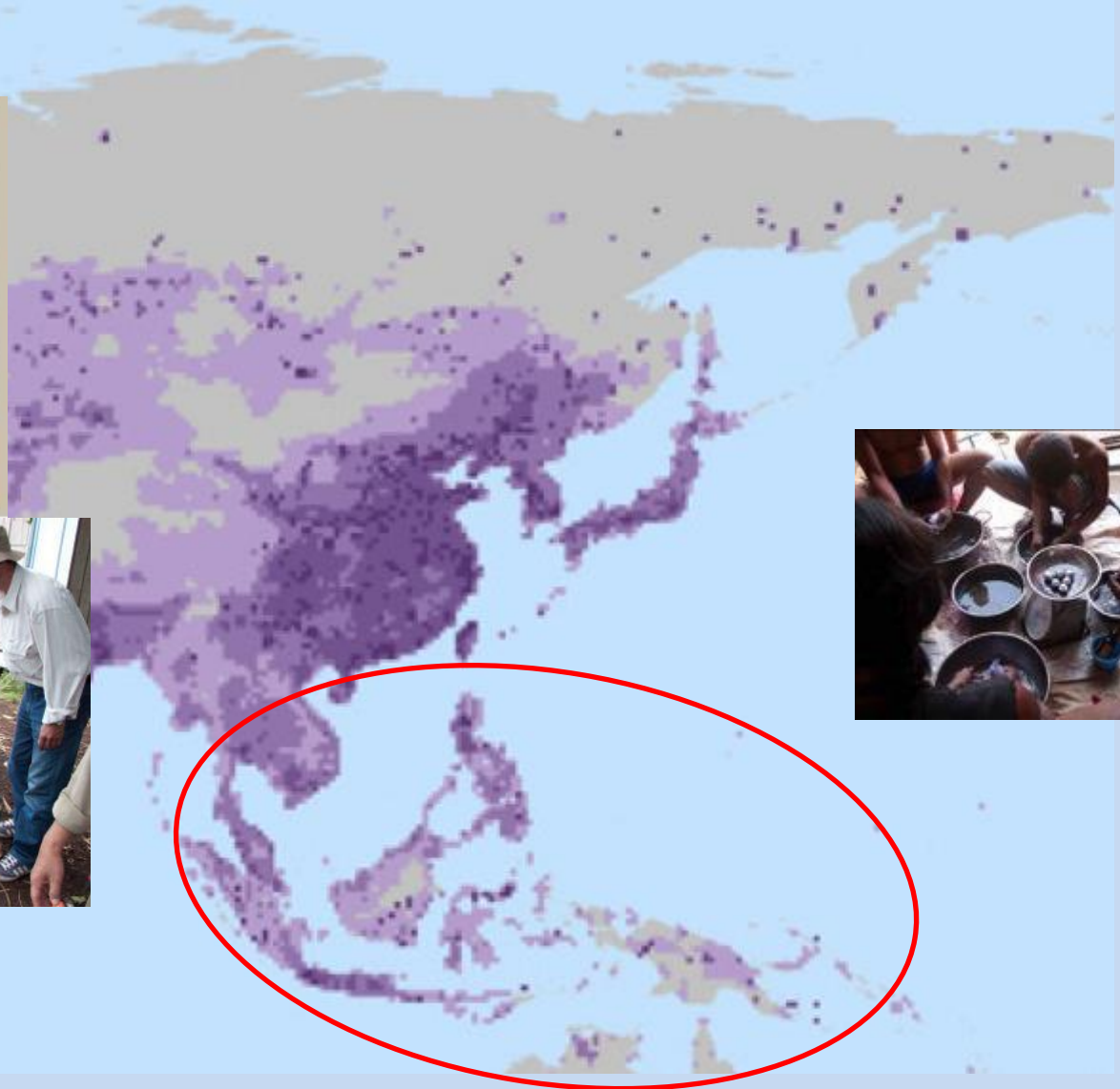
Emissions Are Increasing

Asian Growth



EMEP, 2012

Small Scale Artisanal Gold Mining?



Mercury is a global pollutant, so...

- Need global organization
- Harmonize methods and sampling times
- Global reporting of measurements

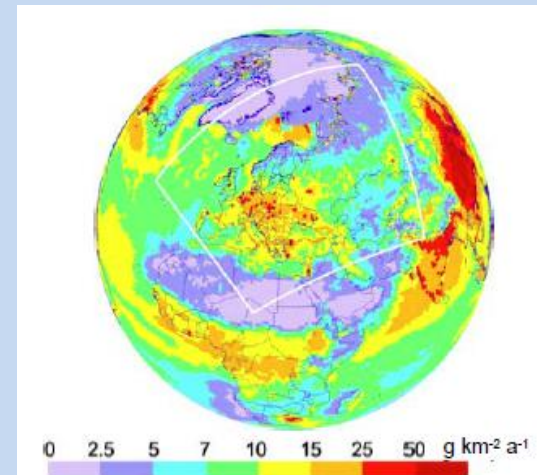


Fig. 3.13. Spatial distribution of mercury deposition flux on a global scale in 2010. White rectangle shows location of the EMEP domain.

Asian Fish Consumption is High and Growing

TABLE 15
Per capita fish consumption (kg/person/year) in Asia and Europe

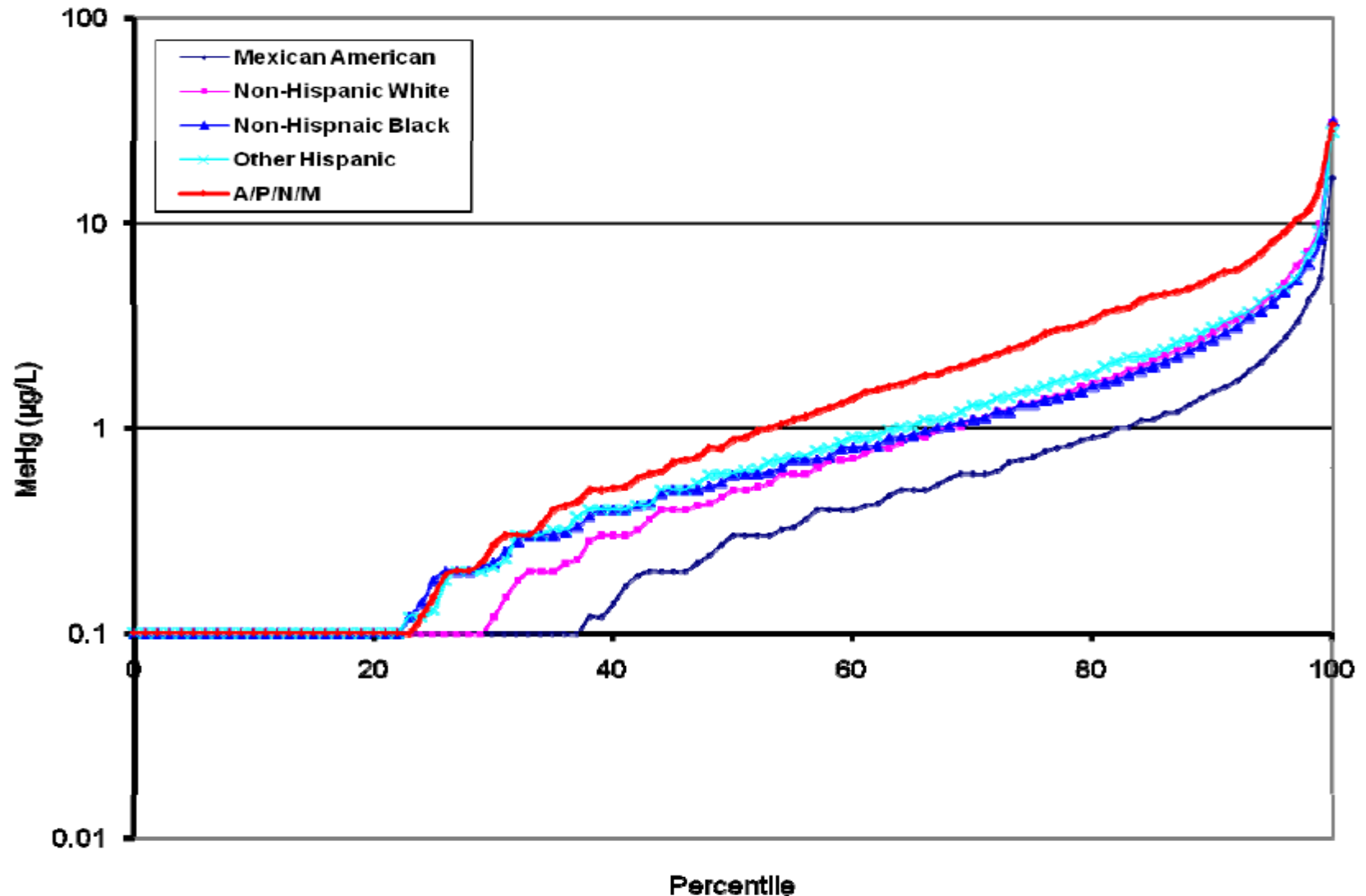
Country	1985	1990	1995	2000	2003	Average growth (%)
Bangladesh	7.0 (6.0)	7.0 (6.0)	8.0 (7.0)	11.0 (10.0)	11.0 (9.0)	57 (83)
China	7.0 (2.0)	11.0 (4.0)	20.0 (7.0)	25.0 (10.0)	25.0 (10.0)	257 (400)
India	3.0 (1.0)	3.0 (1.0)	4.0 (2.0)	4.0 (2.0)	4.0 (2.0)	33 (100)
Indonesia	13.0 (3.0)	14.0 (3.0)	17.0 (4.0)	20.0 (4.0)	20.0 (4.0)	54 (33)
Japan	69.0 (4.0)	71.0 (5.0)	71.0 (5.0)	67.0 (5.0)	66.0 (5.0)	-4 (25)
Myanmar	14.0 (1.0)	15.0 (1.0)	14.0 (2.0)	18.0 (2.0)	18.0 (3.0)	29 (200)
Philippines	33.0 (5.0)	36.0 (5.0)	32.0 (4.0)	29.0 (4.0)	28.0 (5.0)	-15 (0)
Thailand	20.0 (3.0)	20.0 (4.0)	33.0 (6.0)	30.0 (7.0)	30.0 (7.0)	50 (133)
Viet Nam	12.0 (3.0)	13.0 (3.0)	16.0 (5.0)	19.0 (7.0)	17.0 (6.0)	42 (100)
Asia	10.0 (2.0)	12.0 (3.0)	16.0 (4.0)	17.0 (6.0)	17.0 (6.0)	70 (200)
South Asia	3.0 (1.0)	4.0 (2.0)	4.0 (2.0)	5.0 (3.0)	5.0 (3.0)	67 (200)
East and Southeast Asia	21.0 (3.0)	22.0 (3.0)	24.0 (4.0)	25.0 (4.0)	25.0 (5.0)	19 (67)
Europe	18.0 (1.0)	20.0 (1.0)	19.0 (2.0)	19.0 (2.0)	20.0 (2.0)	11 (100)
Western Europe	21.0 (1.0)	24.0 (1.0)	25.0 (2.0)	25.0 (2.0)	26.0 (2.0)	24 (100)
Eastern Europe	8.0 (1.0)	6.0 (1.0)	6.0 (1.0)	7.0 (1.0)	8.0 (1.0)	0 (0)
World	12.0 (2.0)	13.0 (2.0)	15.0 (3.0)	16.0 (4.0)	16.0 (4.0)	33 (100)

The number in parenthesis within the table denote freshwater fish consumption.

Source: Adapted from Laurenti (2007).

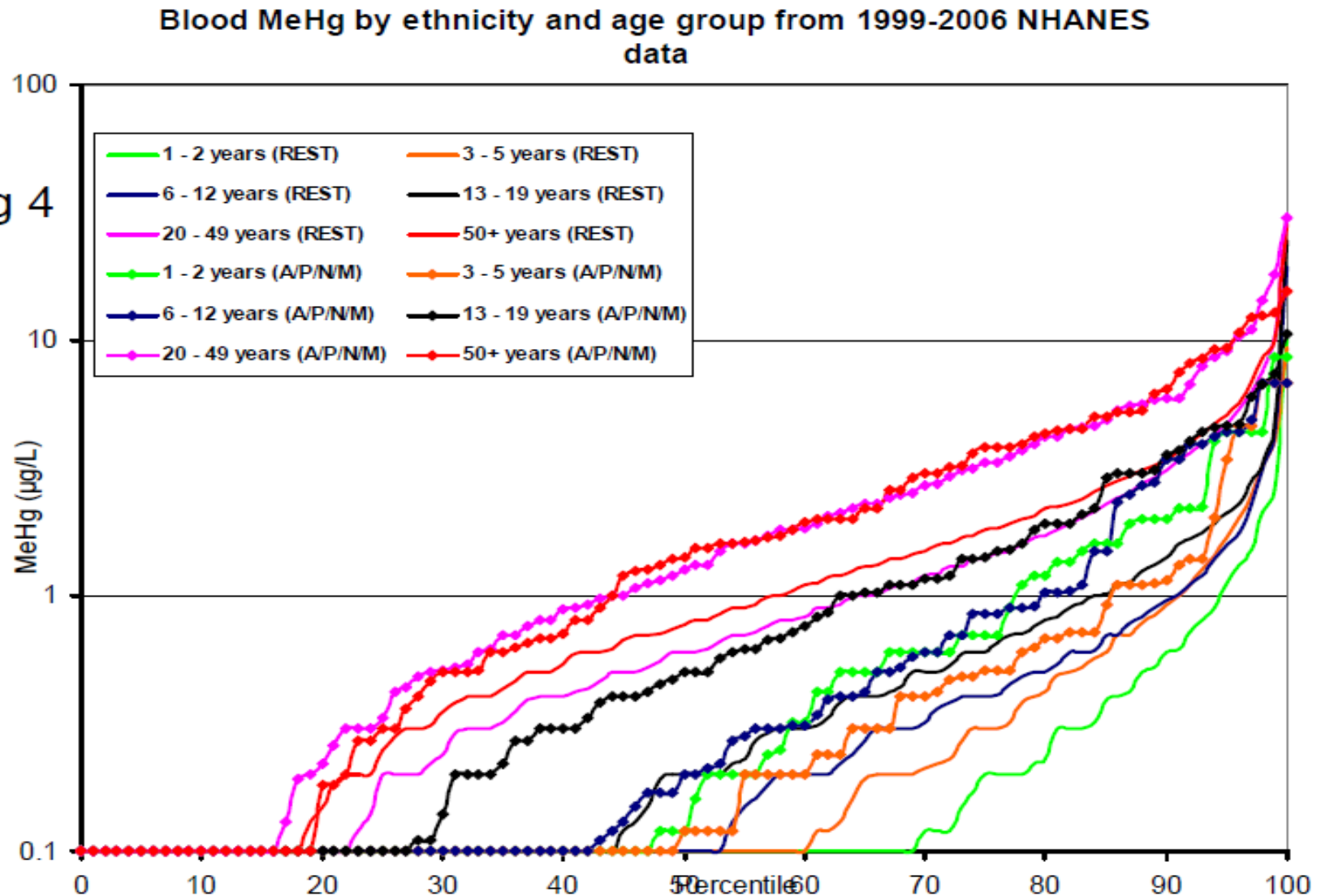
Differences in Ethnic Groups

Blood MeHg by ethnicity from 1999-2006 NHANES data



Differences in Ages

Fig 4



Mercury in Human Hair, By Region

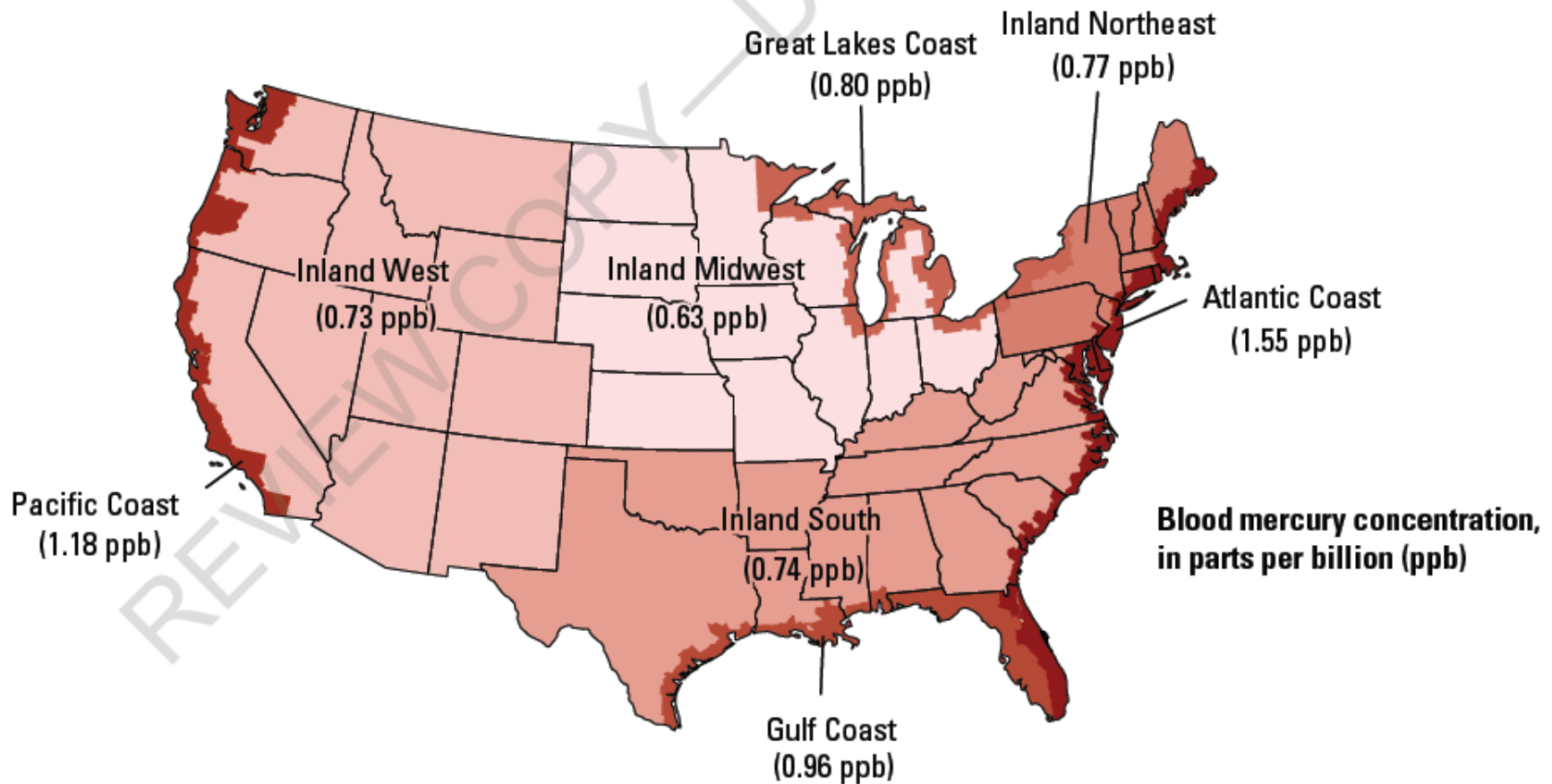
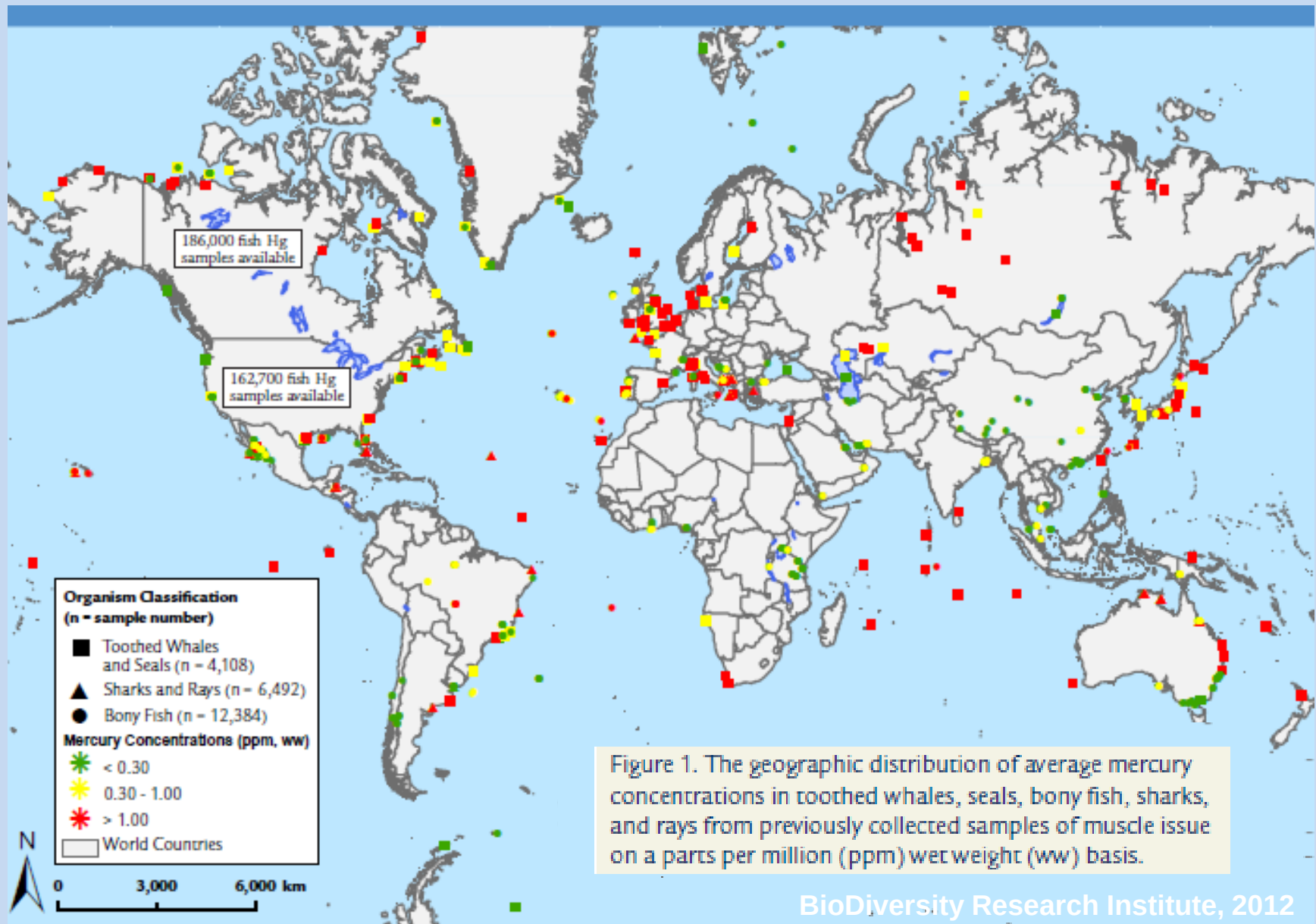


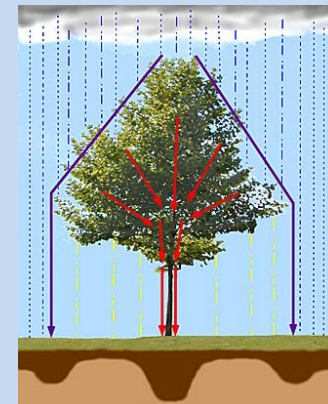
Figure 2-2. Average (geometric mean) blood mercury concentrations in humans are higher in coastal areas than in many inland areas, likely because fish consumption is expected to be higher in coastal areas. [Data from 2004 National Health and Nutrition Examination Survey; modified from Mahaffey et al. (2009)].

Mercury in fish and marine mammals



Processes Contributing to Total Atmospheric Hg Deposition...

- Wet Deposition
- Dry Deposition
- Litterfall
- Throughfall



Working together is the *best way forward!*

