

# UNEP GLOBAL MERCURY PARTNERSHIP

## Mercury air transport and fate research Area\*



Yellowfin Tuna, Courtesy NOAA Fisheries. © Photo by Jeff Muir

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### ISSUE

A global understanding of major processes and mechanisms affecting the dynamics of mercury in the atmosphere and at the interfaces with other ecosystems is important for setting and implementing strategies on mercury both at global and local levels.

Integrated and updated global assessments, based on reliable information from regional and national levels, are essential for improving global understanding of mercury and for predicting trends.



### OBJECTIVE

The objective of the Partnership Area is to increase global understanding of international mercury emissions sources, fate and transport.



### STRATEGY

To meet its objective, the Partnership Area puts priority on the following actions:

- Accelerating the development of sound scientific information in global mercury cycling and its patterns;
- Enhancing compilation and sharing of such information among various stakeholders;
- Providing technical assistance and training;
- Enhancing the development of a globally-coordinated mercury observation system including air and water ecosystems; and
- Enhancing the exchange of information and cooperation with relevant international organizations, groups and programmes.

<sup>1</sup> [www.unenvironment.org/explore-topics/chemicals-waste/what-we-do/mercury/global-mercury-monitoring](http://www.unenvironment.org/explore-topics/chemicals-waste/what-we-do/mercury/global-mercury-monitoring).



### CONTRIBUTION TO THE IMPLEMENTATION OF THE MINAMATA CONVENTION

The Partnership Area provides comprehensive technical expertise on different articles of the Convention, and more specifically its Articles 19 (Research, development and monitoring) and 22 (Effectiveness evaluation).

In particular for 2019, members of the Partnership Area contributed research and information related to mercury monitoring under the ad-hoc technical expert group on effectiveness evaluation established by the Conference of the Parties to the Minamata Convention.

Members of the Partnership Area, in cooperation with the United Nations Environment Programme (UNEP), CNR-IIA, WHO, BRI and the Jožef Stefan Institute contributed to the pilot project funded by the GEF "Development of a plan for global monitoring of human exposure to and environmental concentration of mercury" to harmonize approaches and strengthen capacities for accurate monitoring and analyses of mercury concentration in human and the environment. Ad-hoc field campaigns with passive air samplers and active systems to monitor mercury levels in air and human biomonitoring have been carried out in different countries. Additionally, two new technical reports developed marine and terrestrial approaches for mercury monitoring in biota and provided technical information on mercury monitoring in soil (presented to the third meeting of the Conference of the Parties as part of document UNEP/MC/COP.3/INF/19)<sup>1</sup>.

### RELEVANT PROVISIONS OF THE MINAMATA CONVENTION ON MERCURY:

Provisions of relevance to Mercury Air Transport and Fate are included in **Article 8** (Emissions), **Article 9** (Releases), **Article 12** (Contaminated sites), **Article 14** (Capacity-building, technical assistance and technology transfer), **Article 17** (Information exchange), **Article 18** (Public information, awareness and education), **Article 19** (Research, development and monitoring), **Article 21** (Reporting) and **Article 22** (Effectiveness evaluation).



## FEATURED ACTIVITIES

The Partnership Area contributed to the UNEP 2013 and 2018 Global Mercury Assessments<sup>2</sup>. For the 2018 Assessment, CNR-IIA, in close cooperation with many international scientists, lead chapter 4 “Levels of mercury in air” of the Technical Background Report. The chapter provides an overview of atmospheric mercury measurements and regional/worldwide spatial and temporal trends with a focus on measurements currently collected in regional monitoring networks around the world. BRI generated a new chapter on “Mercury Concentrations in Biota”. The chapter was based on BRI’s Global Mercury Synthesis (GBMS) database and describes the spatial gradients and temporal trends of published mercury exposure and effects in fish and wildlife around the world.

Activities under the Partnership Area also included:

- Exchanging with monitoring programmes such as the Group on Earth Observation (GEO) Flagship on “Global Observation System for Mercury - GOS4M”<sup>3</sup>;
- Supporting countries and individuals to improve mercury monitoring capabilities for air and biota at the national level;
- Coordinating the gathering and collection of comparable mercury air monitoring data and information by providing scientific peer-review and guidance;
- Promoting continuous studies on mercury contamination in air and biota, with several ad-hoc field campaigns carried out in different parts of the world, with an emphasis in the Caribbean Region for biota;
- Fostering cooperation with other organizations involved in the Minamata Convention implementation; and
- Generating a report and associated communications that compiled and analyzed the mercury inventories of Minamata Initial Assessments for over 40 countries.

<sup>2</sup> [www.unenvironment.org/explore-topics/chemicals-waste/what-we-do/mercury/global-mercury-assessment](http://www.unenvironment.org/explore-topics/chemicals-waste/what-we-do/mercury/global-mercury-assessment).

<sup>3</sup> [www.gos4m.org](http://www.gos4m.org).



## FUTURE PLANNED ACTIVITIES

The Partnership Area intends to contribute to a global coordinated observing system for mercury to provide high-quality and comparable global data, in cooperation with countries and other stakeholders. The cooperation with on-going programmes such as the GEO GOS4M Flagship<sup>4</sup> will be a key milestone and is instrumental to the future activities and achievement of goals set by the Partnership Area. The aim is to monitor mercury levels in air at rural/background and contaminated sites and marine systems, including biota samples by means of harmonized methods and contribute to the Minamata Convention implementation.

The Partnership Area also aims to support the development of a biomonitoring toolkit that can quantitatively assist countries in how, when, where and what to bio-monitor within their countries, so capacity building and cost-effective approaches can be used in a standardized way around the world – facilitating an understanding of spatio-temporal patterns at regional and even global levels, once country results can be summarized.

Finally as executing partner with Antigua and Barbuda, BRI will initiate the Caribbean Region Mercury Monitoring Network in 2020.

<sup>4</sup> [www.gos4m.org](http://www.gos4m.org).



## COLLABORATION WITH OTHER PARTNERSHIP AREAS AND RELEVANT STAKEHOLDERS

The Mercury Air Transport and Fate Research Partnership Area collaborates with many research institutions, organizations, programmes and partnerships, including GEO at global level.

As Partnership Area co-lead, CNR-IIA is coordinating a large effort involving several research institutions within the GEO Flagship GOS4M to share monitoring data and modelling tools in support of policy implementation.

As Partnership Area co-lead, BRI is collaborating with members of the Artisanal and Small-Scale Gold Mining Partnership Area to develop a standardized approach for biomonitoring.



**Read more about the UNEP Global Mercury Partnership and how to become a Partner:**  
[web.unep.org/globalmercurypartnership](http://web.unep.org/globalmercurypartnership)  
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