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History of IWC Pollution Initiatives

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INTERNATIONAL
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IWC Pollution initiatives – Summary of activities

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Abstract

This summary document lists the major activities and key stages that occurred during the three phases of the Subcommittee on Environmental Concerns Pollution Initiative (2000, 2000+ and 2020). The objective here is *not* to provide a complete list of all the outputs but to simply summarise the key stages in the initiative and document the main phases and developments in order to assist the next phase of the Pollution Initiative, Pollution 2025, in the advancement of this field within the activities and priorities of the Subcommittee.

Key dates and activities

1981 Commission passes a Resolution noting the potential threats to whales raised by heavy metals, Polychlorinated Biphenyls (PCBs) and other Organochlorines (OCs).

1984 Committee adopts a standard approach for the collection of samples and presentation of OC results

1985 Working group established to consider **chemical pollution** ensuring (a) **consistency of method and reporting** (b) **studies to example mechanisms and effects**.

Also considered that cetaceans although not suitable for monitoring global ocean pollution in a strict sense, may be possible to obtain some information on **trends in certain pollutants**.

In addition, they considered the **problem of using data from stranded animals**.

1993 Work on pollutants reconsidered by SC in broad context of overall environmental change.

1995 Workshop on chemical pollutants held in Bergen to (a) **review current knowledge** (b) **identify tools to investigate cause-effect relationships** (c) **develop initiatives aimed at determining the actual impact of pollutants on cetacean populations and facilitate the design of a monitoring scheme**. Establishment of Pollution 2000 initiative (Reijnders *et al.*, 1999).

The workshop recommendations were (a) sufficient data on effects to warrant concern for cetaceans (b) fundamental research needed to address effects of pollutants on cetaceans (c) a multidisciplinary, multinational programme of research was therefore needed.

1998 Proposal for future work submitted to IWC. Reviewed and accepted (Reijnders *et al* 1999). The rationale was to **study biomarkers in selected populations of the same species subject to a gradient of pollutant exposure**. Species selected were bottlenose dolphins, harbour porpoises and white whales.

1999 Workshop to develop Pollution 2000+ held in Barcelona.

Pollution 2000+ - Phase 1 – biomarker development (including effect of post-mortem time and live biopsy sample biases)

2000 Steering Group for Pollution 2000+ established, dealing with organisational issues and fund raising

2001 Progress on two subcomponents of project (biomarkers and studies on bottlenose dolphins and stranded harbour porpoise for post-mortem effects). Pared down study due to limited resources.

2004 Workshop on Habitat Degradation, University of Siena. Discussion and recommendations relating to the impact of multiple stressors on cetaceans; linking habitat quality with exposures, including effects of chemical pollutants (IWC, 2006).

2004-6 **Analysis and reporting of Phase 1 studies completed**, papers submitted to SC and published in peer reviewed literature (see Reijnders *et al.*, 2007 for list of publications relating to Phase 1).

2007 Publication of Report from the **Pollution 2000+ Phase I initiative** (Reijnders *et al.*, 2007) as part of the Report of the Standing Working Group on Environmental Concerns.

2007 Workshop to develop Phase 2 held in Barcelona to **develop a risk assessment model framework(s) and conceptual models to estimate effects of chemical pollutants on populations**.

2008-9 New Steering Committee formed, and Phase 2 planned

2010 Workshop on implementing Phase 2 held in Sausalito.

2010-2016 Phase 2 work undertaken, individual based model to assess risks to cetacean populations developed (SPoC) and refined over a number of years to include effects on reproduction and immunity. Steering committee meeting held in St Andrews in 2014. Paper published on final model in Environmental Pollution (Hall *et al.*, 2018). Open source model available through websites and user-friendly interface developed (accessible at <https://iwc.int/chemical-pollution>).

2017-2018 Review of **mercury in cetaceans** completed (following Commission Resolution) and published in Science of the Total Environment (Kershaw *et al.*, 2019).

2018-2019 Completion of outstanding tasks –

(a) **include effects of flame retardants into SPoC model** – further research and preliminary trials of the model concluded that there is currently insufficient dose-response data available, in any species, for this to produce a meaningful tool.

(b) **contaminant mapping tool to investigate trends** (see earliest objective of pollution initiative in 1985). Completed and available through the IWC website (April 2020, accessible at <https://iwc.int/chemical-pollution>).

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