

Subject: Atmospheric monitoring of PFOS**Advice Summary**

ICES advises that it is premature to initiate routine monitoring on PFOS or other PFCs in the atmosphere to support assessments of inputs of PFOS to the marine environment.

More research is essential to get a better basic understanding of the different transport mechanisms, of atmospheric-marine interactions and the significance of these compounds in the marine environment. Analytical techniques also need to be further developed.

Request***Atmospheric monitoring of PFOS (OSPAR 2010/6)***

Provide advice on whether it is appropriate to include PFOS in atmospheric monitoring programmes and if other perfluorinated compounds should be included in such monitoring to support assessments of inputs of PFOS to the marine environment.

ICES Advice

The current level of knowledge on the role of different processes for the transport of PFOS and other PFCs in the atmosphere, and from the atmosphere to the sea, is not sufficient for ICES to recommend routine atmospheric monitoring to support assessments of inputs of PFOS to the marine environment. In addition, further analytical method development, including sampling and sample preparation, is necessary to improve detection limits of PFOS in air.

Basis of advice

Perfluorooctane sulfonate (PFOS) is ubiquitous in the marine environment, even in remote places such as the polar ecosystem. At present, there is no scientific consensus on whether the dominant transport pathway is atmospheric transport through volatile precursors, transport by oceanic currents or by means of sea-spray.

Direct atmospheric measurements of PFOS are very limited. Only a few studies could detect PFOS and other ionic perfluorinated compounds (PFCs) in the particulate phase. However, the concentration levels were close to the method detection limits and the analytical capabilities to analyse PFOS in air samples were insufficient.

The 8:2 fluorotelomer alcohol (FTOH), a potential perfluorooctanate (PFOA) precursor, is the dominating compound in the remote atmosphere and is considered to occur exclusively in the gaseous phase. Potential PFOS precursors, such as perfluorooctanesulfonamides (FASA) and perfluorooctanesulfonamidoethanols (FOSE) have been detected both in the gaseous and in the particulate phase at very low concentrations.

ICES considers that neither the information on transport mechanism nor the analytical techniques are at a level to recommend the inclusion of PFOS and other PFCs in routine atmospheric monitoring to support assessments of inputs of PFOS to the marine environment. More research on these aspects is needed.

Sources

ICES. 2010. Report of the Marine Chemistry Working Group (MCWG). ICES CM 2010/SSGHIE:03.