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## Historical record of contaminants of emerging concern in a river sediment core: tracing the impact of regulatory changes?

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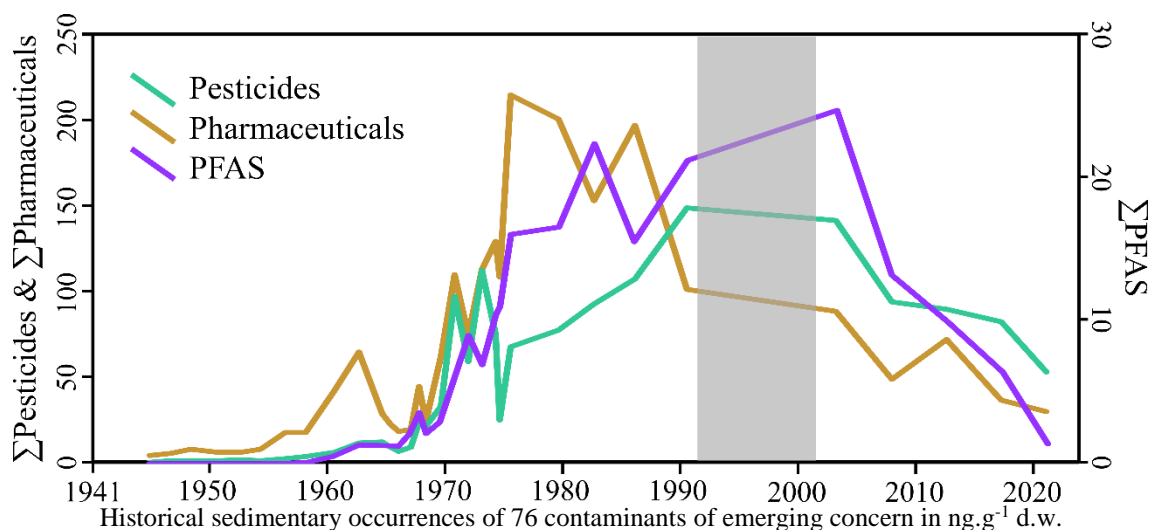
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The occurrence of 76 contaminants of emerging concern (CECs) belonging to different classes (pharmaceuticals, pesticides, and PFAS) was investigated in a river sediment core taken from the Seine River downstream of Paris, France. Given that CECs have been ubiquitous since the 1950s, although they have only been studied by river stakeholders since the 1990s, sediment archives provide a unique record of their spatial and temporal trends [1]. Radionuclide-dated core samples reveal contamination across all chemical classes, with an initial increase in contaminant concentration and diversity following their market authorization, followed by a gradual decrease in total contamination since the 2000s. The timing of this decrease varies depending on the chemical class and specific molecules, despite an overall increase in the number of detected compounds.



This overall decline may have been strongly influenced by regulatory changes that primarily targeted priority substances, i.e., the most problematic molecules. Another major factor is the overall improvement in wastewater collection and treatment since the 1980s, which has limited the impact of point-source contaminants. By reconstructing the initial contamination levels and their subsequent evolution in response to regulatory changes and wastewater management improvements, sediment archives serve as an essential tool for assessing the historical contamination of river systems and evaluating the real impact of environmental regulations and technological advancements.

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### References

[1] Thiebault, T. et al. (2021) Record of trace organic contaminants in a river sediment core: From historical wastewater management to historical use. *Sci Total Environ* 773:145694. <https://doi.org/10.1016/j.scitotenv.2021.145694>