Supplementary information

Long-term river trajectories to enhance restoration efficiency and sustainability on the Upper Rhine: an interdisciplinary study (Rohrschollen Island, France)

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Table S1. Physico-chemical characteristics of 38 legacy and modern organic chemical pollutants (including 30 pesticides, the hexachlorobenzene and 7 polychlorinated biphenyls)

Name	**Famille**	**Type**	**[a]Solubility ($mg.L^{-1}$)**	**[a]K_{OC}**	**[a]DT50**
			In water at 20°C ($mg.L^{-1}$)	**[$L.kg^{-1}$ of carbon]**	**[Days]**
(2-Hydroxy)-terbutilazine	Triazine	Herbicide, microbiocide, Algicide	6.6	230.7944162	75.1
(Beta-)endosulfan	organochlorine	Insecticide	0.32	11500	50
2, 4 DDT	Organochlorine	Insecticide	0.006	151000	6200
4, 4 DDT	Organochlorine	Insecticide	0.006	151000	6200
Atrazine	Triazine	Herbicide	35	100	75
Atrazine-Desethyl	Transformation product	Transformation product	-	24b	238b
Azinphos-ethyl	Organophosphate	Insecticide/acaricide	4.5	1500	50
Carbendazime	Benzimidazole	Fungicide	8	264	40
Carbofuran	Carbamate	Insecticide, Nematicide, Acaricide	322	276	29
Chloropyrifos-methyle	Organophosphate	Insecticide/acaricide	2.74	4645	3
Chlorothalonil	chloronitrile	fongicide	0.81	850	22
Chlorpyrifos-ethyl	Organophosphate	Insecticide	1.05	8151	50
Cyproconazole	Triazole	Fungicide	93	363	142
Deltamethrine	Pyrethroid	Insecticide	0.0002	10240000	13
Diazinon	organophosphate	Insecticide, Acaricide, Repellent	60	27.1	9.1
Diuron	Phenylurée	Herbicide	35.6	813	75.5
Endosulfan (alpha)	organochlorine	Insecticide	0.32	11500	50
Endosulfan (sulfate)	organochlorine	Insecticide	0.32	11500	50
Ethyl parathion	Organophosphate	Insecticide/acaricide	12.4	7660	49
Fenitrothion	Organophosphate	Insecticide	19	2000	2.7
HCH, Alpha	Organochlorine	Insecticide	8.52	1270	980
HCH, Béta	Organochlorine	Insecticide	8.52	1270	980
HCH, Delta	Organochlorine	Insecticide	8.52	1270	980
HCH, gamma	Organochlorine	Insecticide	8.52	1270	980

Name	**Famille**	**Type**	**[a]Solubility ($mg.L^{-1}$) In water at 20°C ($mg.L^{-1}$)**	**[a]K_{OC} [$L.kg^{-1}$ of carbon]**	**[a]DT50 [Days]**
Isoxaflutole	Oxyacetamide	Herbicide	6.2	145	2
Metazachlore	Chloroacetamide	Herbicide	450	54	8.6
Methyl Parathion	Organophosphate	Insecticide	55	240	12
Ofurace	Phenylamide	Fungicide	146	38	26
Simazine	Triazine	herbicide	5	130	60
Tetraconazole	Triazole	Fungicide	156.6	969	61
HCB	Hexachlorobenzene	Fungicide	0.004c	4168693[c]	985[c]
PCB 101	Polychlorinated biphenyls	Dielectric and coolant fluids	-	389045[d]	3650 [d]
PCB 118				288403[d]	2500 [d]
PCB 138				323593[d]	6875 [d]
PCB 153				354813[d]	6875 [d]
PCB 180				263026[d]	13750 [d]
PCB 28				177827[d]	1083 [d]
PCB 52				208929[d]	3650 [d]

aLEWIS et al., 2016.
bToxnet, https://www.nlm.nih.gov/pubs/factsheets/toxnetfs.html
cEU, http://ec.europa.eu/environment/archives/docum/pdf/bkh_annex_14.pdf
dSinkkonen and Paasivirta, 2000.

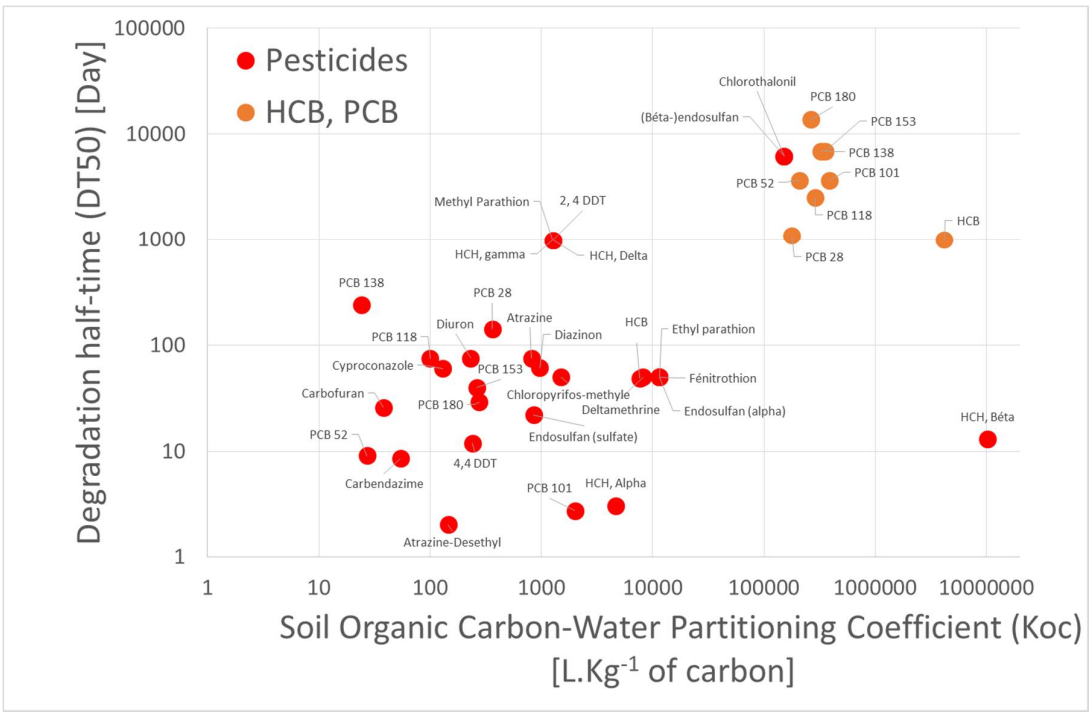

Figure S1: Half-life time (DT50) of 38 legacy and modern organic chemical pollutants (including 30 pesticides, the hexachlorobenzene and 7 polychlorinated biphenyls) as a function of soil organic carbon-water partitioning coefficient (Koc)

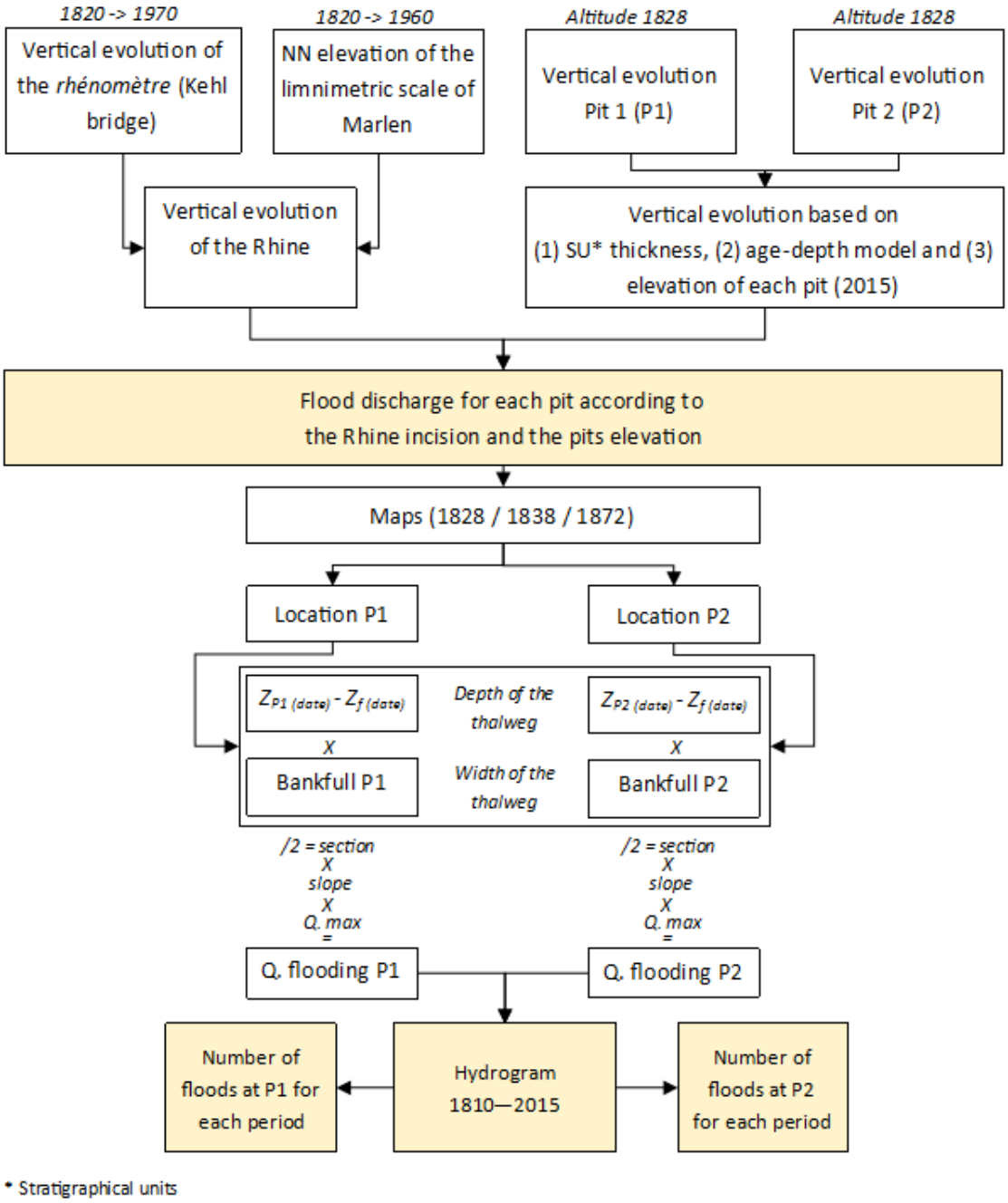

Figure S2: Treatment chain for the discharge estimation of the floods having affected the two pits.

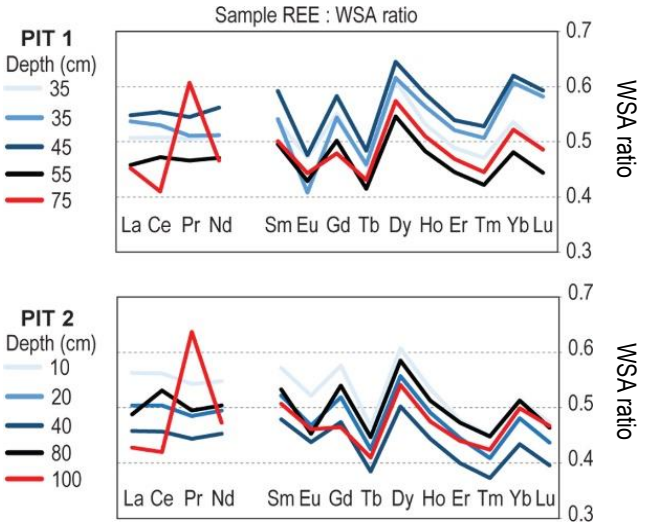

Figure S3: Change of rare-earth elemental composition with depth (based on the World Shale Average (WSA) standard) for pit 1 and pit 2.

Reference

Lewis, K.A., Tzilivakis, J., Warner, D. and Green, A. (2016). An international database for pesticide risk assessments and management. Human and Ecological Risk Assessment: An International Journal, 22(4): 1050-1064. DOI: 10.1080/10807039.2015.1133242

Sinkkonen S., Paasivirta J., 2000. Degradation half-life times of PCDDs, PCDFs and PCBs for environmental fate modeling. Chemosphere, 40(9ï 11), 943ï 949.