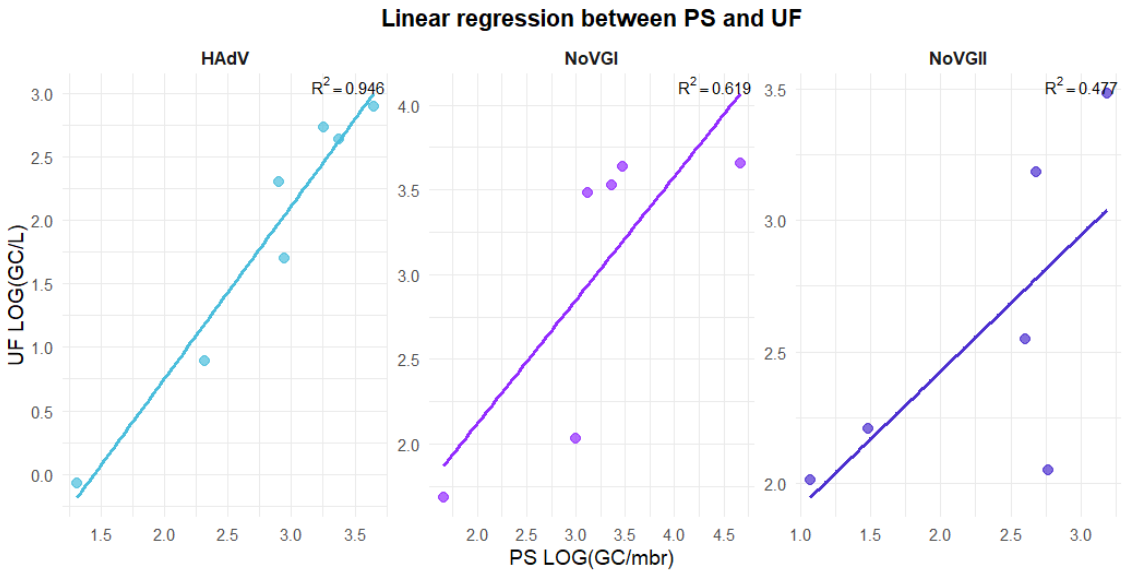
Supplementary information: Assessing viral pollution in coastal environments, using passive samplers, quantitative PCR and target enrichment sequencing.

Supplementary section 1 (S1): Linear regression between PS and UF



S1: The plots show the correlation between the concentrations of HAdV, NoVGI and NoVGII as determined by two distinct sampling methods. The Y-axis represents the concentration quantified by UF, expressed as log10 Genomic Copies per Liter (GC/L). The X-axis represents the concentration quantified by PS, expressed as log10 Genomic Copies per membrane (GC/mbr). Each data point represents a quantification where the grab sample (UF) and the passive sample (PS) both tested positive for the target virus within the same sampling event. The R^2 value displayed in each panel is the coefficient of determination (linear coefficient of regression), indicating the strength of the linear relationship between the two quantification methods for each viral target.

Supplementary section 2 (S2): Comparative logistics UF and PS

Grab sampling coupled with UF is logistically intensive, requiring the collection and transport of large water volumes (20L), making it physically demanding and costly. Fieldwork is demanding and laboratory processing is slow and requires specialized ultrafiltration equipment (Rexeed-25A).

PS, in contrast, is highly efficient in terms of field logistics. It involves simple deployment of compact, torpedo-shaped and lightweight devices, with two brief site visits required for placement and retrieval. Transport is simplified as only the small samplers are moved, not large water volumes. While analysis is delayed until after deployment (24h), laboratory processing is easier, avoiding the concentration by ultrafiltration.

Price/sample PS	
NY membrane	0.89€
PowerBead Tube	4.32€
QIAamp Viral RNA Mini Kit	5.70€
Total	**10.91€**

Price/sample UF	
Large-volume concentration (LVC) kit	98.25€
CP Select™ Concentrating Pipette	16.80€
QIAamp Viral RNA Mini Kit	5.70€
Total	**120.75€**

S2: Comparative cost analysis per sample for ultrafiltration (UF) versus passive sampling (PS). Costs are net costs of reagents and material purchased in Barcelona (Universitat de Barcelona) in 2024.

Supplementary section 3 (S3): Viral reads per-library

	CSO 4 - S2		CSO 5 - S1		CSO 5 - S2		CSO 6 - S1		CSO 6 - S2		Total	
Viral host	Nº reads	% reads	Nº reads	% reads	Nº reads	% reads	Nº reads	% reads	Nº reads	% reads	Nº reads	% reads
Bacteria	1858	96.12%	3055	59.96%	2703	97.37%	468	77.48%	1995	93.44%	10079	80.36%
Protist	53	2.74%	589	11.56%	35	1.26%	136	22.52%	101	4.73%	914	7.29%
Plant and fungi	12	0.62%	24	0.47%	20	0.72%	0	0.00%	29	1.36%	85	0.68%
Invertebrate	0	0.00%	10	0.20%	4	0.14%	0	0.00%	4	0.19%	18	0.14%
Vertebrate	10	0.52%	1417	27.81%	14	0.50%	0	0.00%	6	0.28%	1447	11.54%
Total	1933	100.00%	5095	100.00%	2776	100.00%	604	100.00%	2135	100.00%	12543	100.00%

Family	Specie	Nº of reads				
		CSO 4 - S2	CSO 5 - S1	CSO 5 - S2	CSO 6 - S1	CSO 6 - S2
Circoviridae	*Porcine circovirus 2*	0	1385	14	0	0
Parvoviridae	*Bocaparvovirus spp.*	0	0	0	0	4
	Chaphamaparvovirus ungulate1	0	26	0	0	0
	Fish-associated parvo-like hybrid virus	0	2	0	0	0
	Fish-associated parvo-like virus	2	0	0	0	0
	Protoparvovirus ungulate2	0	2	0	0	0
	Rodent bocavirus	0	0	0	0	2
Picornaviridae	*Picornaviridae spp.*	8	0	0	0	0
	Aichivirus C	0	2	0	0	0