Supporting information. Competition for food reduces disease susceptibility in a marine invertebrate. Fabrice Pernet, Klervi Lugue and Bruno Petton. Ecosphere.

Appendix S1. Supplemental tables and figures cited in the manuscript.

Table S1. Number of specimens and biomass of competing filter-feeders. The volume of water cleared of phytoplankton particles (clearance rate) and the relative proportion of the incoming water filtered by the animals (% filtered seawater) were estimated once a day over the course of the experiment between 2 May and 31 May 2017 (data are means ± SD, n=30 measurements).

Competitor		Tank n°	Nb of individuals	Biomass (wet mass, g)	Clearance rate (L h^{-1})[†]	Filtered seawater (%)[‡]
Ascidians		5	20	125	14.6 ± 1.1	81.1 ± 6.4
Acidiella asperta, Cionna intestinalis		12	13	184	15.6 ± 0.5	86.6 ± 3.0
Pacific oyster	Adult	2	15	1300	15.6 ± 1.2	86.9 ± 6.5
Crassostrea gigas		8	17	1324	15.7 ± 0.9	87.2 ± 5.1
	Juvenile	1	199	135	14.1 ± 1.2	78.3 ± 6.7
		11	191	135	14.3 ± 1.3	79.4 ± 7.5
European oyster		3	27	1239	12.1 ± 1.9	67.2 ± 10.3
Ostrea edulis		10	28	1778	13.9 ± 2.4	77.4 ± 13.2
Mussel		6	26	722	15.6 ± 1.1	86.7 ± 5.9
Mytilus sp.		9	33	714	15.6 ± 0.9	86.9 ± 4.8

[†] Clearance rate = $f\,[(C_i\text{-}C_o)/C_i]$ where f = water flow (L h^{-1}), C_i = phytoplankton concentration at the tank inlet and C_o = phytoplankton concentration at the tank outlet (Riisgård, H. U. 1977. Ophelia 16, 167-173).

[‡] Filtered seawater (%) = $100\,[(C_i\text{-}C_o)/C_i]$

Table S2. Summary of general linear models used to determine the effect of competing filter-feeders on total body mass, ingestion and triglyceride to sterol ratio (TAG/ST) in recipient oysters exposed to competitors over the long-term (STE).

Dependent variable	Source	DF	Sum of square	Mean square	*F*	*P*
Total body mass	Model	5	0.09	0.02	17.0	0.002
	Error	6	0.01	0.00		
	Total	11	0.10			
Ingestion	Model	5	9.0E+13	1.8E+13	385.3	0.000
	Error	6	2.8E+11	4.7E+10		
	Total	11	9.0E+13			
TAG/ST	Model	5	9.08	1.82	20.8	0.001
	Error	6	0.52	0.09		
	Total	11	9.60			

Table S3. Summary of general linear mixed models (split-plot) used to determine the effect of competing filter-feeders (main plot) and duration of exposure to competitors (subplot) on virus prevalence (the number of OsHV-1 positive individual out of total) and concentration (OsHV-1 DNA copies mg^{-1}) in recipient oysters.

Dependent variable	Sources of variation	df	*F*	*P*
Virus prevalence	Competitor	5	0.29	0.904
	Error a: tank (competitor)	6	-	-
	Exposure duration	1	0.00	1.000
	Competitor × exposure duration	5	0.14	0.975
	Error b: exposure duration × tank (competitor)	6	-	-
Virus concentration*	Competitor	5	0.74	0.620
	Error a: tank (competitor)	6	-	-
	Exposure duration	1	0.04	0.842
	Competitor × Exposure duration	5	1.67	0.274
	Error b: exposure duration × tank (competitor)	6	-	-

*Data were $\log_{10}(x/10^4+1)$ transformed

Table S4. Summary of logistic and linear regression models used to determine the relationship between virus prevalence (the number of OsHV-1 positive oysters out of total) and concentration (OsHV-1 DNA copies mg^{-1}) with physiological parameters in oysters exposed to competitors over the long-term (LTE).

Virus prevalence

Variable	Parameter	DF	Estimate	SE	χ^2	P	Odds ratio	95% CL		c	r^2
Ingestion	Intercept	1	-2.126	0.497	18.3	<0.001					
	Slope	1	0.266	0.104	6.6	0.010	1.305	1.067	1.614	0.758	0.178
Body mass	Intercept	1	-7.647	2.890	7.0	0.008					
	Slope	1	7.092	3.157	5.0	0.025	2.032	1.097	3.862	0.709	0.137
TAG/ST	Intercept	1	-3.661	0.914	16.0	<0.001					
	Slope	1	1.034	0.348	8.8	0.003	2.813	1.464	5.878	0.758	0.256

Virus concentration*

Variable	Parameter	Df	Estimate	SE	t	P	r^2
Ingestion	Intercept	1	-0.099	0.179	-0.55	0.583	
	Slope	1	0.000	0.000	4.17	0.000	0.218
Body mass	Intercept	1	-4.372	1.270	-3.44	0.001	
	Slope	1	5.438	1.433	3.79	0.000	0.185
TAG/ST	Intercept	1	-0.979	0.316	-3.10	0.003	
	Slope	1	0.667	0.138	4.82	<0.001	0.274

*Data were $\log_{10}(x/10^4+1)$ transformed

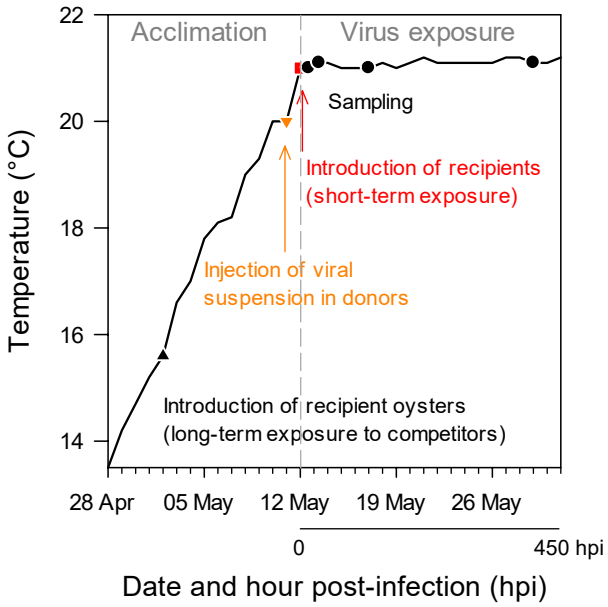
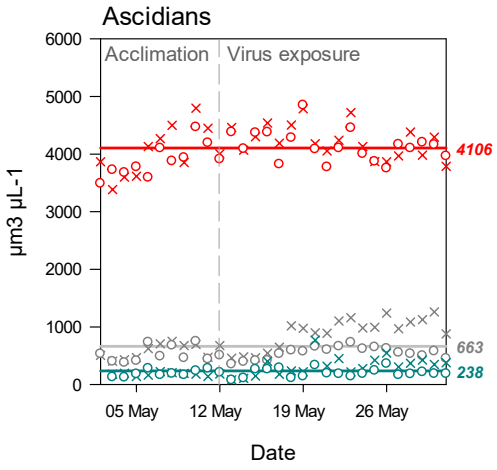
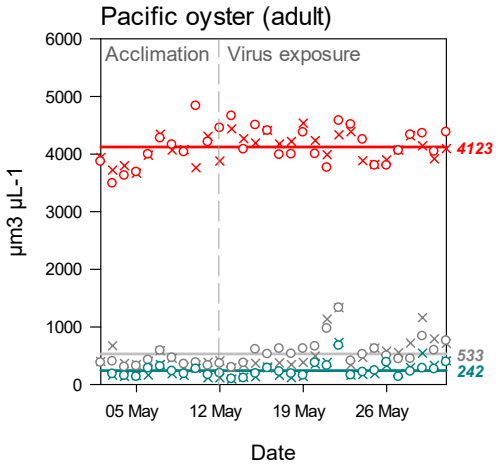
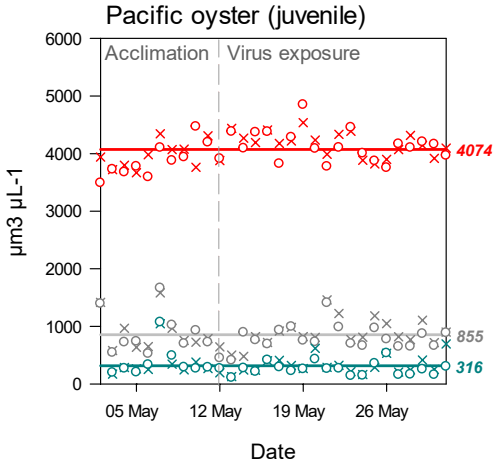
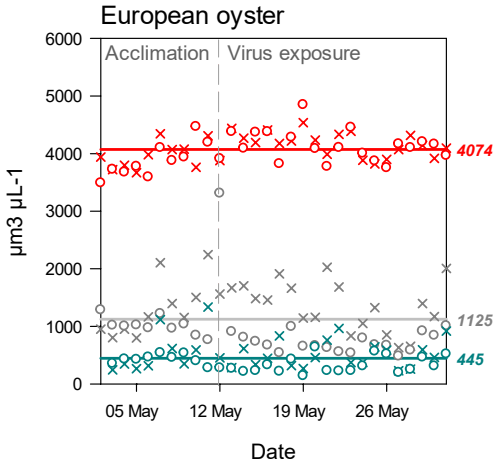


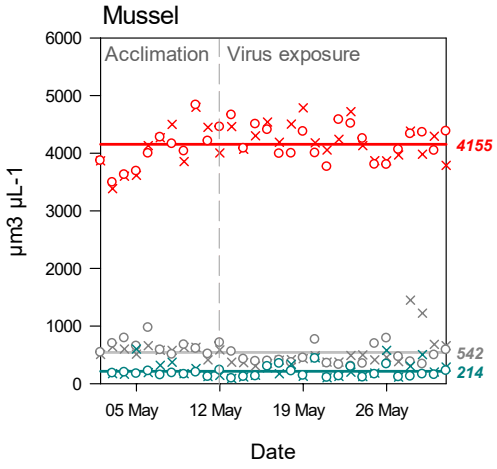
Figure S1. Seawater temperature during the acclimation and the virus exposure phases in relation with the timeline of the experiment.


Ascidians
Acclimation
Virus exposure
µm3 µL-1
6000
5000
4000
3000
2000
1000
0
4106
663
238
05 May
12 May
19 May
26 May
Date


Pacific oyster (adult)
Acclimation
Virus exposure
µm3 µL-1
6000
5000
4000
3000
2000
1000
0
4123
533
242
05 May
12 May
19 May
26 May
Date


Pacific oyster (juvenile)
Acclimation
Virus exposure
µm3 µL-1
6000
5000
4000
3000
2000
1000
0
4074
855
316
05 May
12 May
19 May
26 May
Date


European oyster
Acclimation
Virus exposure
µm3 µL-1
6000
5000
4000
3000
2000
1000
0
4074
1125
445
05 May
12 May
19 May
26 May
Date


Mussel
Acclimation
Virus exposure
µm3 µL-1
6000
5000
4000
3000
2000
1000
0
4155
542
214
05 May
12 May
19 May
26 May
Date

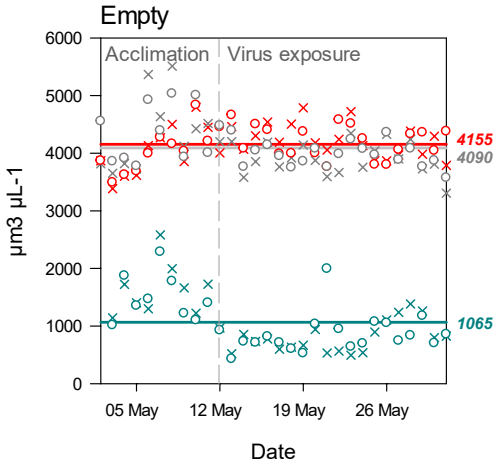

Empty
Acclimation
Virus exposure
µm3 µL-1
6000
5000
4000
3000
2000
1000
0
4155
4090
1065
05 May
12 May
19 May
26 May
Date

Figure S2. Phytoplankton concentration at the inlet (red) and at the outlet (grey) of the tanks containing the competing filter-feeders, and at the outlet of the recipient tanks (cyan). Different symbols represent experimental units (n=2). Reference lines and numbers on the right axis indicate mean values.